Final

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

Mr. Lonnie Duke of the Air Force Civil Engineer Center (AFCEC) Restoration Installation Support Section (ISS) conducted the Restoration Program Manager's (RPM) teleconference on 19 May at 0930 hours.

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

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

Lonnie Duke	AFCEC/CZOW
Chet Storrs	AFCEC/CZOW
Mobashir Ahmad	AFCEC/CZOW
Dave Leeson	AFCEC/CZRW
Kurt Grunawalt	Travis AFB 60 AMW/JA
Louis Briscese	Travis AFB 60 AMW/PA
Brian Boccellato	USACE-Omaha
Paul Gedbaw	USACE-Omaha
Alan Soicher	USACE-SPA
Nadia Hollan Burke	EPA
Adriana Constantinescu	RWQCB
Kimiye Touchi	DTSC
Jesse Negherbon	DTSC
Eric Sciullo	DTSC
Li Wang	DTSC
David Kremer	DTSC
James Griffin	SRS
Diane Escobedo	SRS
Michael Fedorenko	SRS
David Parse	AECOM
Dan Schultz	AECOM
Leslie Royer	CH2M/Jacobs
Jill Dunphy	CH2M/Jacobs

Handouts distributed prior to the meeting included:

Attachment 1	Meeting Agenda
Attachment 2	Master Meeting and Document Schedule
Attachment 3	SBBGWTP Monthly Data Sheet (April 2021)
Attachment 4	CGWTP Monthly Data Sheet (April 2021)
Attachment 5	LF007C GWTP Monthly Data Sheet (April 2021)
Attachment 6	ST018 GWTP Monthly Data Sheet (April 2021)
Attachment 7	Presentation: August 2020 and January/February 2021 Vapor Intrusion Sampling Data
Attachment 8	Presentation: Program Update (May 2021)
Attachment 9	Travis AFB LUC Sites Update (May 2021)
Attachment 10	Travis AFB PFOS/PFOA Update (May 2021)
Attachment 11	Presentation: SRS Phase 1 RI of AFFF Sites

I. JACOBS PBR CONTRACT UPDATES

A. ADMINISTRATIVE

1. Agenda and Introductions

Mr. Duke reviewed the agenda for the meeting.

2. Previous Meeting Minutes

There were no Regional Water Quality Control Board (RWQCB) or Department of Toxic Substances Control (DTSC) comments on the content of the April 2021 RPM Meeting Minutes. Ms. Burke of the Environmental Protection Agency requested that the second paragraph in Section 111.B.1. be revised to say “Ms. Burke noted that she may submit some preliminary comments.

3. Action Item Review

Action items from April 2021 were reviewed.

Action Item 1: Mr. Duke will change the schedule for the Site SD031B POCO Additional Site Investigation Report to include a 60-day Agency

review period. May 2021 update: The update has been made on the Master Meeting and Document Schedule. This action item is now closed.

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

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

Travis AFB Annual Meeting and Teleconference Schedule

NOTE: 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 next RPM meeting is scheduled for 0930 on 16 June 2021, via MS Teams. Mr. Duke is hoping this meeting can be held in person since the base is allowing masks to be optional for fully vaccinated people; additionally, the state of California is expected to lift mask requirements and other COVID precautions around gathering in groups and gathering indoors, effective 15 June 2021. If an in-person meeting occurs, there will still be a Teams invitation for anyone not comfortable or unable to join in person.

Travis AFB Master Document Schedule

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

— Travis AFB AFFF Remedial Investigation Work Plan: The name was changed from PFOS Remedial Investigation to AFFF Remedial Investigation. The team agreed to hold a Response to Comments meeting on 16 June after the RPM meeting.

— Travis AFB AFFF Remedial Investigation Quality Assurance Program Plan (QAPP): The name was changed from PFOS Remedial Investigation to AFFF Remedial Investigation. The team agreed to hold a Response to Comments meeting on 16 June after the RPM meeting.

— Quarterly Newsletter (October 2021): The version has been changed to October, and all dates were assigned as TBD. This will be the newsletter that announces the October RAB meeting. The ORC

contractor will be responsible for this newsletter; however, if there are delays associated with awarding the ORC, this may change.

- 2020 Annual Groundwater Remedy Implementation Status Report (GRISR): There were no changes to the schedule.
- Technology Demonstration Technical Memorandum: The Response to Comments meeting date was changed to 28 May 2021. The rest of the dates were changed accordingly.
- Site SD031 and FT004 Groundwater Sampling Results Technical Memorandum: There was no change to the schedule.
- Vapor Intrusion Assessment Report: There was no change to the schedule.
- 2020 Annual Site LF007 CAMU Monitoring Report: The Predraft to AF/Service Center was assigned a due date of 28 May 2021. The rest of the dates were assigned accordingly.
- Site SD031B POCO Additional Site Investigation Report: The Agency Comments due date has been changed to 21 June 2021 to accommodate the RWQCB's request for a 60-day comment period; the remainder of the dates were updated accordingly.
- Potrero Hills Annex (FS, PP, and ROD): There were no updates to the schedule.
- Community Relations Plan (CRP) Update: There was no change to the schedule. This document will be updated as a priority in the upcoming Optimized Remediation Contract.

- MOVED TO HISTORY:
  - Site FT004 POCO Soil Corrective Action Completion Report (CACR)

B. CURRENT PROJECTS

1. Treatment Plant Operation and Maintenance Update

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

The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 98.7% uptime, and 5.318 million gallons of groundwater were extracted and treated in April 2021. All treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 125.4 gallons per minute (gpm). Electrical power usage was 15,802 kilowatt hours (kWh), and approximately 13,294 pounds of CO2 were created

(based on DOE calculation). Approximately 0.90 of a pound of volatile organic compounds (VOCs) were removed in April. The total mass of VOCs removed since startup of the system is 536.0 pounds.

Troubleshooting was performed on five extraction wells in April 2021; details can be found in Attachment 3. On 12 April, extraction wells EW731x05 and EW2291x05 were taken offline following completion of the Site FT005 technology demonstration and achievement of COC cleanup goals in the area of extraction. There are no current plans to bring those wells back online, but groundwater plume conditions will be monitored, and these wells can be reinstated if necessary.

It was also noted that well MW269x30, which had temporarily been converted from a monitoring well to an extraction well to address a small area of groundwater contamination, had been taken offline because it achieved its purpose. MW269x30 will revert to a monitoring well, now that TCE concentrations have declined below the cleanup level in the vicinity of the well. Monitoring well MW269x30 will be removed from Table 2 in the June 2021 Monthly Data Sheet.

No optimization activities were conducted in April 2021.

Central Groundwater Treatment Plant, April 2021 (Attachment 4)

The Central Groundwater Treatment Plant (CGWTP) performed at 100% uptime with approximately 970,905 gallons of groundwater extracted and treated in April 2021. All treated water was discharged to the storm sewer system which discharges to Union Creek. The average flow rate for the CGWTP was 23.3 gpm. Electrical power usage was 1,150 kWh for all equipment connected to the Central Plant, and approximately 1,739 pounds of CO2 were generated. Approximately 1.94 pounds of VOCs were removed from groundwater by the treatment plant in April. The total mass of VOCs removed since the startup of the system is 11,568 pounds.

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

No optimization activities were conducted in April 2021.

LF007C Groundwater Treatment Plant, April 2021 (Attachment 5)

The Subarea LF007C Groundwater Treatment Plant (LF007C GWTP) performed at 100% uptime with approximately 118,578 gallons of groundwater extracted and treated in April 2021. All treated water was discharged to Northgate Pond for beneficial reuse. The average flow rate was 2.8 gpm. Approximately 1.19×10^{-3} of a pound of VOCs was removed from groundwater by the treatment plant in April. 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 April 2021.

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

Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 100% uptime with approximately 88,835 gallons of groundwater extracted in April 2021. All groundwater was discharged to the Fairfield – Suisun Sewer District. The average flow rate for the ST018 GWTP was 2.1 gpm. Electrical power usage for the month was 56 kWh for all equipment connected to the ST018 GWTP. The total CO2 discharge equivalent equates to approximately 41 pounds. Approximately 0.06 of a pound of MTBE, BTEX, VOCs, and TPH was removed in April by the treatment plant, and 0.01 of a pound of MTBE-only was removed from groundwater. The total BTEX, MTBE and TPH mass removed since the startup of the system is 50.0 pounds, and the total MTBE mass removed since startup of the system is 12.2 pounds.

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

No optimization activities were conducted in April 2021.

C. PRESENTATIONS

1. Presentation: August 2020 and January/February 2021 Vapor Intrusion Sampling Data (see Attachment 7)

Ms. Royer presented an overview of vapor intrusion (VI) sampling data from August 2020 and January and February 2021. Please refer to Attachment 7 for the full briefing; highlights are presented below:

Ms. Burke mentioned that EPA didn't agree with the Air Force subslab screening levels and asked what was used for the presentation. Ms. Royer

acknowledged there was a disagreement on the attenuation factors and confirmed that they were using EPA's attenuation factors for the screening levels in the presentation.

Ms. Royer noted that 1,1-DCA was detected in outdoor air near Building 554, which is in an industrial area. She noted that there was no specific source, but added that the screening level for this is very low and tobacco smoke is a common source of 1,1-DCA. Since people need to go outdoors to smoke, this is a likely culprit.

Soil gas samples were collected at just below 5 feet below ground surface (bgs) due to the very shallow groundwater table.

Building 38 is a firehouse where people live; as a result, additional cleaning measures have been taken as a precaution for preventing the spread of COVID. Byproducts of the cleaning products likely led to the observed exceedances of and chloroform in indoor air. The exceedances of benzene were likely due to the fire engines stored in vehicle bays.

Passive vent system samples were collected as a means of obtaining subslab data prior to the contract modification that allowed for the install subslab vapor probes. When the contract for the work was modified, subslab sampling probes were installed. These can be used to evaluate whether subslab data collected from the passive vents are similar to the data collected from the probes and so far the results are similar. The subslab vapor probes will be decommissioned at the conclusion of the project.

Most of the indoor air samples collected at Building 837 were collected in office spaces; therefore, whether or not the rollup doors were opened or closed during sampling probably won't have a large effect on sampling results. However, the status of the doors were recorded in the field notes.

2. Program Update – May 2021 (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.

D. NEW ACTION ITEM REVIEW

None.

E. PROGRAM ISSUES/UPDATE

Mr. Duke addressed the topic of returning to an office environment and in person meetings. Masks are now optional on-base for fully vaccinated personnel and visitors, and the State of California will drop the mask mandate as well as other restrictions on in-person and indoor gatherings on 15 June 2021. He is hopeful that we can resume in-person RPM meetings according to the MMDS starting in June.

F. ACTION ITEMS

There are no open action items at this time.

II. TRAVIS AFB UPDATES

A. Land Use Control Sites, April 2021 (Attachment 9)

Mr. Duke reported on the status of the LUC sites at Travis AFB. Please refer to Attachment 9 for the full briefing. Mr. Duke noted that projects on sites with LUCs will be included in the Annual Report going forward. He added that there is a lot of construction coming up at Travis AFB, most related to the arrival of the KC-46, but also replacing infrastructure that is near the end of its serviceable life.

B. PFOS/PFOA PROGRAM STATUS, April 2021 (Attachment 10)

Mr. Storrs reported on the status of the PFOS/PFOA Program at Travis AFB. Please see Attachment 10 for the full briefing.

III. SRS PFOS/PFOA CONTRACT

A. ADMINISTRATIVE

All administrative topics were discussed earlier in the RPM meeting.

Response to Comments Meeting:

Mr. Storrs asked the team if they could participate in a RTC meeting in order to coordinate the comment resolutions and to clarify any outstanding comments.

Mr. Duke noted that typically an RTC meeting is held in conjunction with the RPM meetings, which would be 16 June 2021. If the team wishes to begin fieldwork as originally scheduled, this meeting would have to occur relatively soon.

Ms. Burke stated that she would have to coordinate with her team to confirm the proposed date for the RTC meeting.

After further discussion, the team agreed on having an RTC meeting on 16 June 2021 at 12:30pm – 2:00pm (PDT).

B. PRESENTATIONS

1. Travis AFB Phase I RI of AFFF Sites (Attachment 11)

Mr. Griffin presented slides providing an update on the Phase I RI of AFFF sites. Please refer to Attachment 11 for the full briefing. The Draft WP and UFP-QAPP were submitted on 26 March 2021 and are currently under regulatory review. Per the FFA schedule, comments are due on 26 May 2021.

Ms. Burke provided combined (WP/UFP-QAPP) comments on behalf of USEPA on 17 May 2021. Ms. Burke will resend as separate comments for each document.

The recent USEPA update to the PFBS RSLs will be implemented in the upcoming revisions as part of the Draft-Final WP and UFP-QAPP

C. NEW ACTION ITEM REVIEW

No new action items identified.

D. PROGRAM ISSUES/UPDATE

None

E. ACTION ITEMS

Item #	Responsible	Action Item Description	Due Date	Status
1	Megan Duley/Diane Escobedo	Send meeting minutes to Travis AFB	26 May 2021	Completed 25 May 2021

2.	Megan Duley/Diane Escobedo	Send invitation for the RTC resolution meeting	26 May 2021	Completed 24 May 2021

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

The RPM Teleconference is scheduled for 9:30 AM PST on 19 May 2021. **The call-in number will be provided in the MS Teams meeting invite and also in the same email that the meeting materials are provided in. If you are able to participate via MS Teams meeting, you will see the shared documents that will be viewable by all participants.**

AGENDA

A. JACOBS PBR CONTRACT

1. ADMINISTRATIVE

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

2. CURRENT PROJECTS

   TREATMENT PLANT OPERATION AND MAINTENANCE UPDATE

3. PRESENTATIONS

   a. VI SAMPLING SUMMARY

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

4. NEW ACTION ITEM REVIEW

5. PROGRAM/ISSUES/UPDATE

B. TRAVIS UPDATES

1. CURRENT PROJECTS

   a. LUC SITES
   b. PFOS / PFOA

C. SRS AFFF RI CONTRACT

1. ADMINISTRATIVE

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

2. CURRENT PROJECTS

    PHASE 1 REMEDIAL INVESTIGATION OF AFFF AREAS

3. PRESENTATIONS

    PROGRAM UPDATE

4. NEW ACTION ITEM REVIEW

5. PROGRAM/ISSUES/UPDATE

NOTES: AFTER THE RPM TELECONFERENCE, BASED ON THE DISCUSSION DURING THE REVIEW OF THE MASTER MEETING AND DOCUMENT SCHEDULE, WE WILL ALLOW TIME TO HOLD A SEPARATE SPLINTER MEETING TO DISCUSS RESPONSES TO AGENCY COMMENTS ON THOSE DOCUMENTS THAT ARE IN PROGRESS, OR OTHER ISSUES IF NEEDED. ALL PARTICIPANTS ARE WELCOME TO PARTICIPATE.

2021
Annual Meeting and Teleconference Schedule

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

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

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS		
Life Cycle	**Travis AFB AFFF RI Work Plan[2] Travis AFB, Chet Storrs SRS, Megan Duley**	**Travis AFB AFFF RI QAPP[2] Travis AFB, Chet Storrs SRS, Megan Duley**
Scoping Meeting	**NA**	**NA**
Predraft to AF/Service Center	10-27-20	10-27-20
AF/Service Center Comments Due	12-08-20	12-08-20
Draft to Agencies / RAB	03-26-21	03-26-21
Agency Comments Due	**05-26-21**	**05-26-21**
Response to Comments Meeting	Let's Discuss a date	Let's Discuss a date
Agency Concurrence with Remedy	NA	NA
Public Comment Period	NA	NA
Public Meeting	**NA**	**NA**
Response to Comments Due	06-15-21	06-15-21
Draft Final Due	06-30-21	06-30-21
Final Due	07-30-21	07-30-21

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

Travis AFB Master Meeting and Document Schedule

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

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS			
Life Cycle	Site SD031 and FT004 Groundwater Sampling Results Technical Memorandum Travis AFB, Chet Storrs CH2M, Tony Chakurian	Vapor Intrusion Assessment Report Travis AFB, Chet Storrs CH2M, Stephanie Curtis	2020 Annual Site LF007 CAMU, Monitoring Report Travis AFB, Mobashir Ahmad CH2M HILL, Levi Pratt
Scoping Meeting	**NA**	**NA**	**NA**
Predraft to AF/Service Center	01-22-21	07-14-21	05-28-21
AF/Service Center Comments Due	03-10-21	07-28-21	06-28-21
Draft to Agencies / RAB	04-14-21	08-11-21	07-12-21
Agency Comments Due	05-14-21	08-25-21	08-11-21
Response to Comments Meeting	**05-19-21**	**09-08-21**	**08-18-21**
Response to Comments Due	06-16-21	09-22-21	09-01-21
Draft Final Due	NA	NA	NA
Final Due	06-16-21	09-22-21	09-01-21
Public Comment Period	NA	NA	NA
Public Meeting	**NA**	**NA**	**NA**

Travis AFB Master Meeting and Document Schedule

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

Travis AFB Master Meeting and Document Schedule

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

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

Travis AFB Master Meeting and Document Schedule

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

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

Travis AFB Master Meeting and Document Schedule

HISTORY - PRIMARY DOCUMENTS	
Life Cycle	Site FT004 POCO Soil Corrective Action Completion Report Travis AFB, Gene Clare 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	01-07-21
Agency Comments Due	03-08-21
Response to Comments Meeting	03-17-21
Agency Concurrence with Remedy	NA
Public Comment Period	NA
Public Meeting	**NA**
Response to Comments Due	03-19-21
Draft Final Due	03-19-21
Final Due	04-30-21(04-09-21)

South Base Boundary Groundwater Treatment Plant Monthly Data Sheet

Report Number: 246 **Reporting Period: 31 March 2021 – 30 April 2021** **Date Submitted: 13 May 2021**

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

System Metrics

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

Table 1 – Operations Summary – April 2021

Initial Data Collection:	3/31/2021 13:15	**Final Data Collection:**	4/30/2021 9:30
Operating Time:	Percent Uptime:	Electrical Power Usage:	
SBBGWTP: 707 hours	**SBBGWTP:** 98.7%	**SBBGWTP:**	15,802 kWh (13,294 lbs CO_2 generated[a])
Gallons Treated: **5.318 million gallons**		Gallons Treated Since July 1998: **1.256 billion gallons**	
Volume Discharged to Union Creek: **5.318 million gallons**		Gallons Treated from Other Sources: **0 gallons**	
VOC Mass Removed: **0.90 lbs**[b]		VOC Mass Removed Since July 1998: **536.0 lbs**	
Rolling 12-Month Cost per Pound of Mass Removed: **$25,144**[c]			
Monthly Cost per Pound of Mass Removed: **$23,159**[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 April 2021 EPA Method SW8260C analytical results.

[c] Costs include operations and maintenance, carbon change out, reporting, analytical laboratory, project management, and utility costs related to operation of the system.

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

Table 2 – SBBGWTP Average Flow Rate (gpm) – April 2021

FT005[a]				SS029		SS030	
EW01x05	Offline	EW743x05	Offline	EW01x29	Offline[b]	EW01x30	Offline[c]
EW02x05	Offline	EW744x05	Offline[c]	EW02x29	5.9	EW02x30	Offline[c]
EW03x05	Offline	EW745x05	11.1	EW03x29	18.5	EW03x30	15.5
EW731x05	Offline[e]	EW746x05	Offline	EW04x29	6.6	EW04x30	9.9
EW732x05	Offline	EW2291x05	Offline[e]	EW05x29	5.0	EW05x30	6.6
EW733x05	Offline	EW2782x05	6.9	EW06x29	Offline[c]	EW2174x30	4.7
EW734x05	6.0	EW2783x05	Offline[c]	EW07x29	10.5	EW711x30	3.4
EW735x05	7.0	EW2784x05	11.3			MW269x30	Offline
EW736x05	Offline	EW2785x05	Offline[c]				
EW737x05	Offline	EW2786x05	11.9				
EW742x05	Offline						
FT005 Total: 54.2				**SS029 Total: 46.5**		**SS030 Total: 40.1**	

SBBGWTP Average Monthly Flow[d]: 125.4 gpm

[a] Most extraction wells at FT005 were taken offline in accordance with the *2008 Annual Remedial Process Optimization Report for the Central Groundwater Treatment Plant, North Groundwater Treatment Plant, and South Base Boundary Groundwater Treatment Plant.*
[b] Extraction well taken off line because of persistent fouling of the well pump and associated discharge piping.
[c] Extraction wells were operational; however, well was recharging.
[d] The average SBBGWTP groundwater flow rate was calculated using the Union Creek Discharge Totalizer and dividing it by the total time the system was operational.
[e] Extraction well was taken offline because the Site FT005 TD has concluded and COCs no longer exceed cleanup goals in this extraction area.

gpm – gallons per minute
SBBGWTP – South Base Boundary Groundwater Treatment Plant

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

Table 3 – Summary of System Shutdowns

Location	Shutdown[a]		Restart[a]		Cause
	Date	Time	Date	Time	
SBBGWTP	9 April 2021	9:30	9 April 2021	14:00	Start replacing EW2785x05 piping
SBBGWTP	14 April 2021	9:00	14 April 2021	13:00	Finish replacing EW2785x05 piping
SBBGWTP	26 April 2021	9:15	26 April 2021	10:15	Backwash both carbon vessels and repair wellhead piping at EW02x29.

[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 6 April 2021. Sample results are presented in Table 4. The total VOC concentration (20.4 µg/L) in the influent sample, which remained the same from March 2021. TCE was the primary VOC detected in the influent sample at a concentration of 19 µg/L. Cis-1,2-DCE was detected in the midpoint sampling location. No VOCs were detected in the effluent sampling location.

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

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

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

- EW2785x05 – The wellhead piping and valves were replaced, along with the pressure transducer and flow meter. Well is currently online.
- EW734x05 – The pressure transducer and its associated fuse were replaced. Well is currently online.
- EW02x29 – The flow meter, pressure transducer, and wellhead piping were replaced. Well is currently online.
- EW04x29 – The flow meter was replaced. Well is currently online.
- EW05x29 – The pump motor was replaced. Well is currently online.

On 12 April, extraction wells EW731x05 and EW2291x05 were taken offline following completion of the Site FT005 technology demonstration and achievement of COC cleanup goals in the area of extraction. There are no current plans to bring these wells back online, but Travis AFB will continue to monitor groundwater plume conditions and reinstate these wells as necessary.

Optimization Activities

No optimization activities occurred at the SBBGWTP in April 2021.

Sustainability

Travis AFB is committed to decreasing the amount of GHG produced directly (waste streams discharging GHG) or indirectly (GHG produced as related to electrical energy consumption) from all systems across Travis AFB. Travis AFB continues to optimize each treatment plant to reduce the amount of electrical energy consumed, and to implement sustainable treatment plant optimization programs, such as taking extraction pumps off line that are no longer necessary for contaminant plume capture.

Figure 2 presents the historical GHG production from the SBBGWTP. In April 2021, the SBBGWTP produced approximately 13,294 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 April 2021 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	6 April 2021 (µg/L)		
				Influent	Midpoint	Effluent[b]
Halogenated Volatile Organics						
Acetone	NA	1.9	0	ND	ND	ND
Bromodichloromethane	NA	0.17	0	ND	ND	ND
Chloroform	1.9	0.16	0	ND	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	1.4	0.5 J	ND
trans-1,2-Dichloroethene	0.50	0.11	0	ND	ND	ND
Dichlorodifluoromethane	NA	0.31	0	ND	ND	ND
Tetrachloroethene	0.50	0.20	0	ND	ND	ND
1,1,1-Trichloroethane	0.50	0.16	0	ND	ND	ND
1,1,2-Trichloroethane	0.50	0.27	0	ND	ND	ND
Trichloroethene	0.65	0.16	0	19	ND	ND
Vinyl Chloride	0.90	0.10	0	ND	ND	ND
Non-Halogenated Volatile Organics						
Benzene	0.50	0.13	0	ND	ND	ND
Ethylbenzene	0.50	0.15	0	ND	ND	ND
Toluene	0.50	0.25	0	ND	ND	ND
Xylenes	0.50	0.10 – 0.18	0	ND	ND	ND
Other						
Total Petroleum Hydrocarbons – Gasoline	50	10	0	NM	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	25	0	NM	NM	ND
Total Petroleum Hydrocarbons – Motor Oil	100	32	0	NM	NM	ND

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

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

Notes:

J = analyte concentration is considered an estimated value due to a detected concentration value between the reporting limit and method detection limit for the contaminant.
NA = not applicable

N/C = number of samples out of compliance with discharge limits.
ND = not detected
NM = not measured
µg/L = micrograms per liter

Figure 1

SBBGWTP Total VOC Influent Concentrations and Average Flowrate Twelve Month History

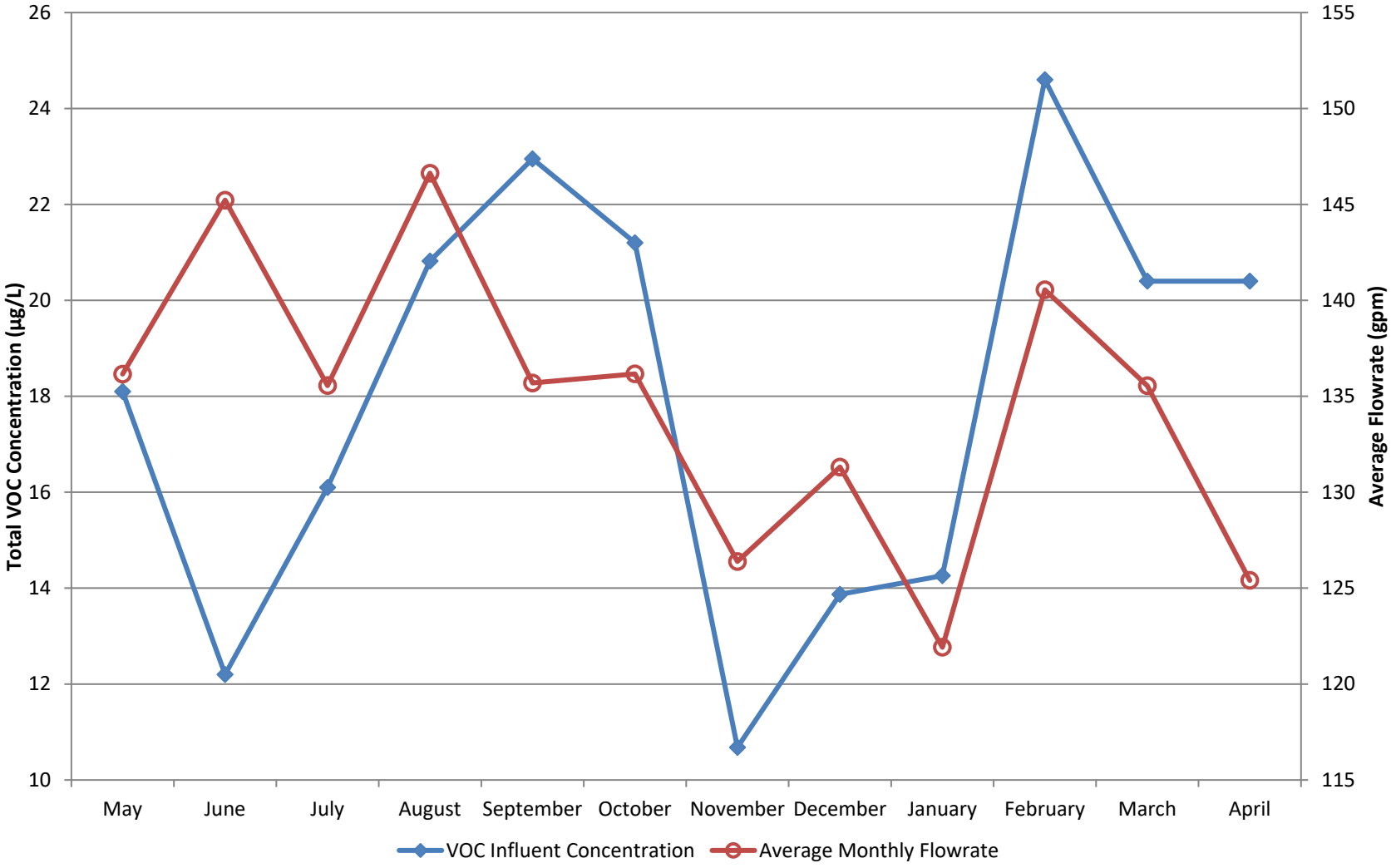
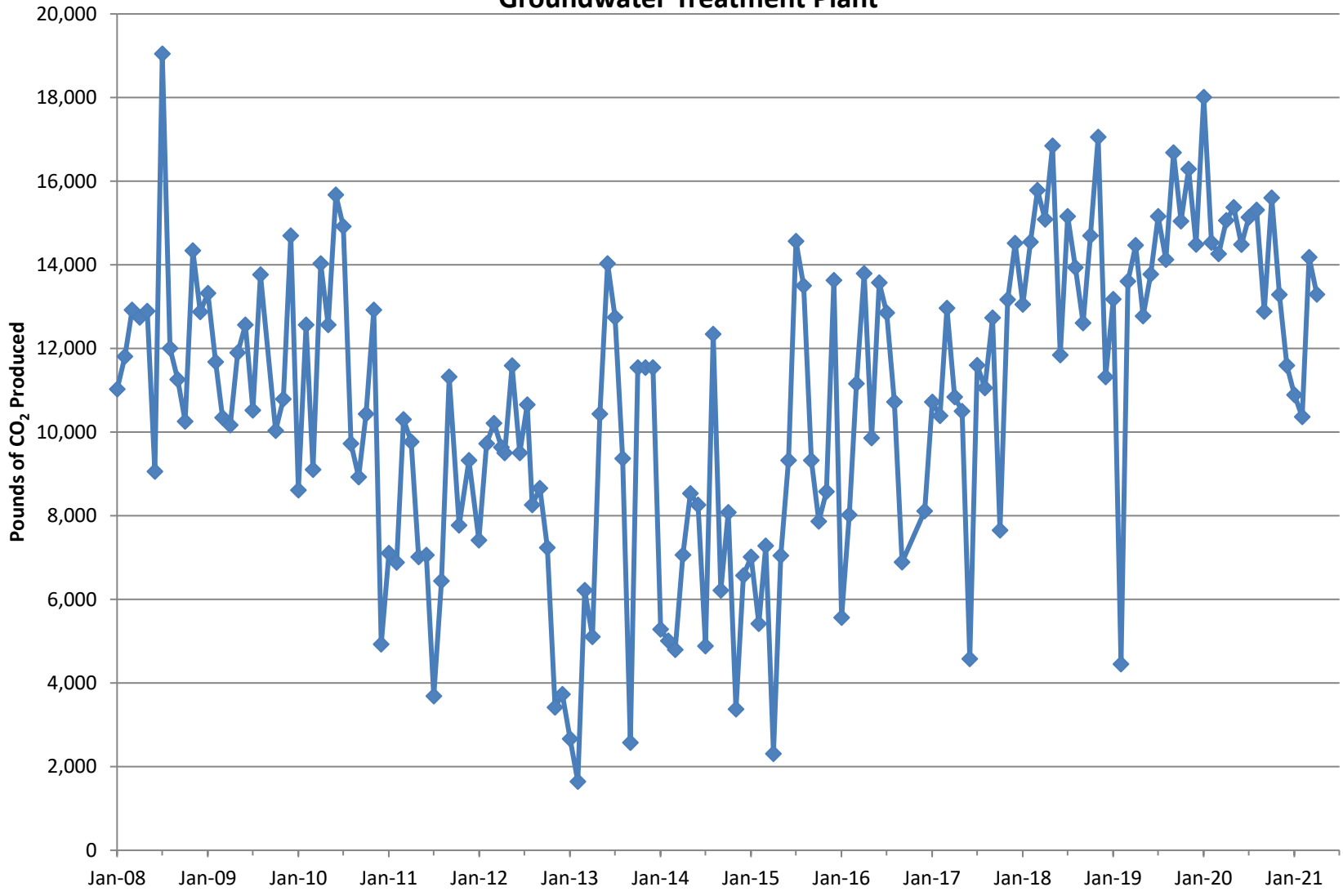


Figure 2

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



Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 261 **Reporting Period: 1 April 2021 – 30 April 2021** **Date Submitted: 13 May 2021**

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

System Metrics

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

Table 1 – Operations Summary – April 2021

Initial Data Collection: 4/1/2021 9:00 **Final Data Collection:** 4/30/2021 8:30

Operating Time:
CGWTP: 695.5 hours

Percent Uptime:
CGWTP: 100%

Electrical Power Usage:
CGWTP: 1,150 kWh (1,739 lbs CO_2 generated[a])

Gallons Treated (discharge to storm sewer): **970,905 gallons**

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

VOC Mass Removed from groundwater:
1.94 lbs[b]

VOC Mass Removed Since January 1996:
2,882 lbs from groundwater
8,686 lbs from vapor

Rolling 12-Month Cost per Pound of Mass Removed: $3,072[c]

Monthly Cost per Pound of Mass Removed: $3,108[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 April 2021 EPA Method SW8260C analytical results.
[c] Costs include operations and maintenance, carbon change out, reporting, analytical laboratory, project management, and utility costs related to operation of the system.

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

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

Location	Average Flow Rate Groundwater (gpm)
EW001x16	10.4
EW002x16	5.8
EW003x16[b]	0.0
EW605x16	NM[c]
EW610x16	NM[c]
CGWTP	23.3

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

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

Table 3 – Summary of System Shutdowns

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

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

Summary of O&M Activities

Monthly groundwater treatment samples were collected at the CGWTP on 6 April 2021. Sample results are presented in Table 4. The total VOC concentration (239.70 µg/L) in the April 2021 influent sample has increased from the March 2021 sample (226.78 µg/L). TCE was the primary VOC detected in the influent sample at a concentration of 190 µg/L. No VOCs were detected in the samples collected after the first and second carbon vessels nor in the effluent sample. The effluent sample was also analyzed for TPH-g, TPH-d, and TPH-mo, and no TPH was detected. Travis AFB will continue to monitor influent, midpoint, and effluent concentrations at the CGWTP for carbon breakthrough.

Figure 1 presents a plot of influent concentrations (total VOCs) and the influent flow rate at the CGWTP versus time for the past twelve (12) months. The influent concentrations have been seasonally variable; however, over the last 12 months the trend has increased. An overall increasing flow rate trend was also observed in the past 12 months.

The Site DP039 subgrade biogeochemical reactor (SBGR, also referred to as "bioreactor"), continued operating in April 2021. The Site SS016 bioreactor has been off line since approximately November 2020. Since that time, no groundwater has been fed into the Site SS016 bioreactor. In an effort to maintain successful operation of the Site SS016 bioreactor, a new, smaller solar-powered pump was installed on 20 April in monitoring well MW2022x16 located near the northwest corner of the bioreactor. The pump is set to run for approximately two hours per day, but will also shut itself off if the well runs dry during operation. The amount of water pumped into the Site SS016 bioreactor each day is approximately 20 gallons, though this can change based on observations during weekly monitoring activities.

A 3-bay aircraft hangar is being constructed over much of the Oil Spill Area (OSA) source area (former Buildings 16 and 18 area). This project is scheduled to be constructed over at least the next year or so. Every attempt will be made to keep all extraction wells and the Site SS016 bioreactor in operation. However, there may be times when extraction needs to be shutdown to avoid spills of extracted groundwater or to change out electrical equipment. In addition, the horizontal well (EW003x16) has been replaced, but this new well, as well as EW003x16, remain off line.

Optimization Activities

No optimization activities occurred at the CGWTP in April 2021.

Sustainability

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

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

Figure 2 presents the historical GHG production from the systems associated with the CGWTP. The CGWTP produced approximately 1,724 pounds of GHG during April 2021.

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

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	6 April 2021 (µg/L)			
				Influent	After Carbon 1 Effluent	After Carbon 2 Effluent	System Effluent[b]
Halogenated Volatile Organics							
Acetone	NA	1.9 – 3.8	0	ND	ND	ND	ND
Bromomethane	5.0	0.21 – 0.42	0	ND	ND	ND	ND
Carbon disulfide	5.0	0.17	0	ND	ND	ND	ND
Chloroform	1.9	0.16 – 0.32	0	ND	ND	ND	ND
Chloromethane	NA	0.30 – 0.60	0	ND	ND	ND	ND
1,2-Dichlorobenzene	5.0	0.15 – 0.30	0	ND	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	ND	ND	ND	ND
cis-1,2-Dichloroethene	0.50	0.15 – 0.30	0	47	ND	ND	ND
trans-1,2-Dichloroethene	0.50	0.15 – 0.30	0	2.7	ND	ND	ND
Tetrachloroethene	0.50	0.20 – 0.40	0	ND	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	190	ND	ND	ND
Vinyl Chloride	0.90	0.10 – 0.20	0	ND	ND	ND	ND
Non-Halogenated Volatile Organics							
Benzene	0.50	0.16 – 0.32	0	ND	ND	ND	ND
Ethylbenzene	0.50	0.16 – 0.32	0	ND	ND	ND	ND
Toluene	0.50	0.17 – 0.34	0	ND	ND	ND	ND
Total Xylenes	0.50	0.15 – 0.38	0	ND	ND	ND	ND
Other							
Total Petroleum Hydrocarbons – Gasoline (C6 – C10)	50	10	0	NM	NM	NM	ND
Total Petroleum Hydrocarbons – Diesel (C10 – C28)	50	24 – 27	0	NM	NM	NM	ND
Total Petroleum Hydrocarbons – Motor Oil (C28 – C40)	100	24 – 27	0	NM	NM	NM	ND

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

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

Notes:

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

NA = not applicable

NM = not measured

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

µg/L = micrograms per liter

ND = not detected

Figure 1

CGWTP Total VOC Influent Concentrations and Average Flowrate Twelve Month History

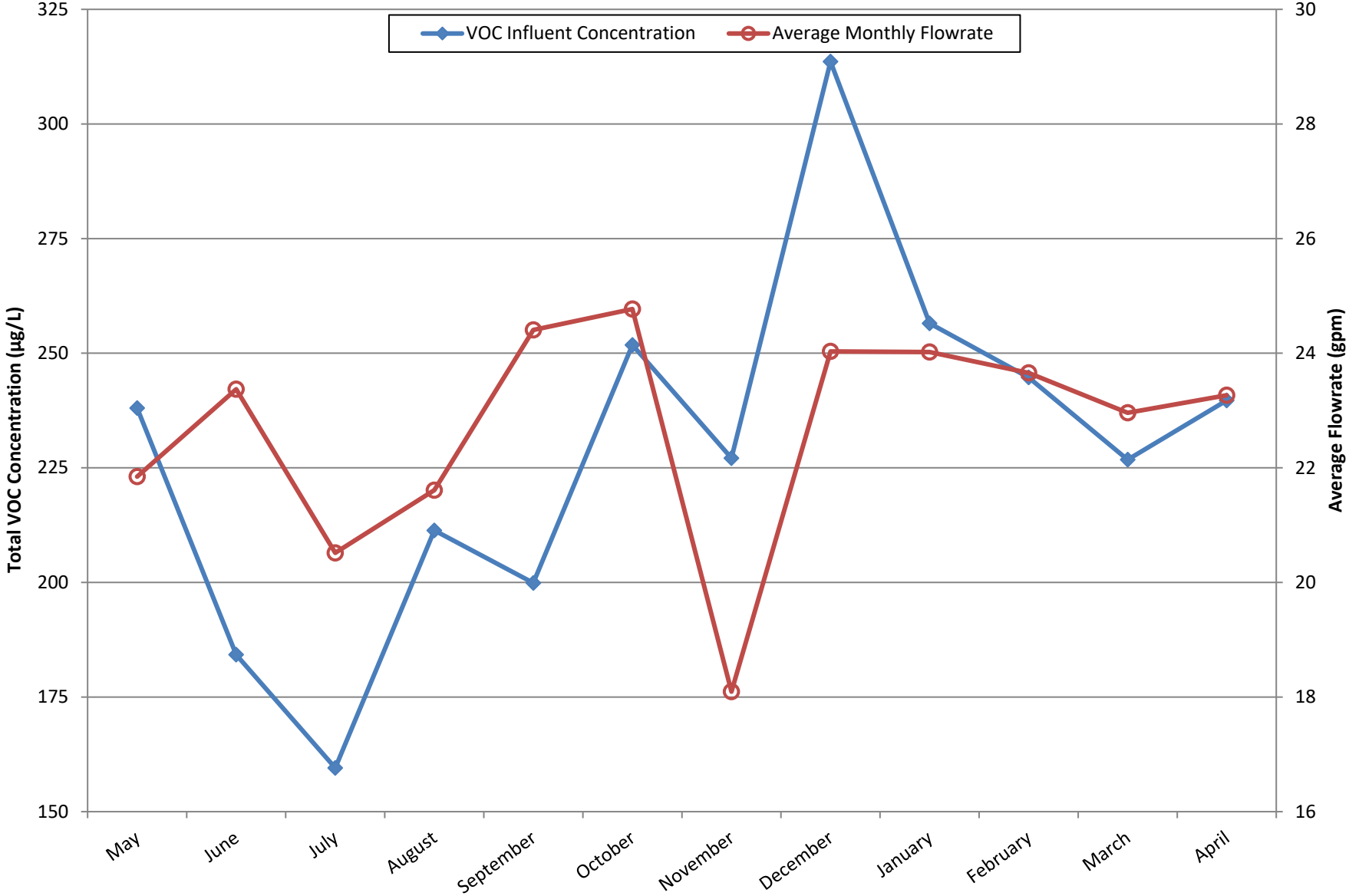
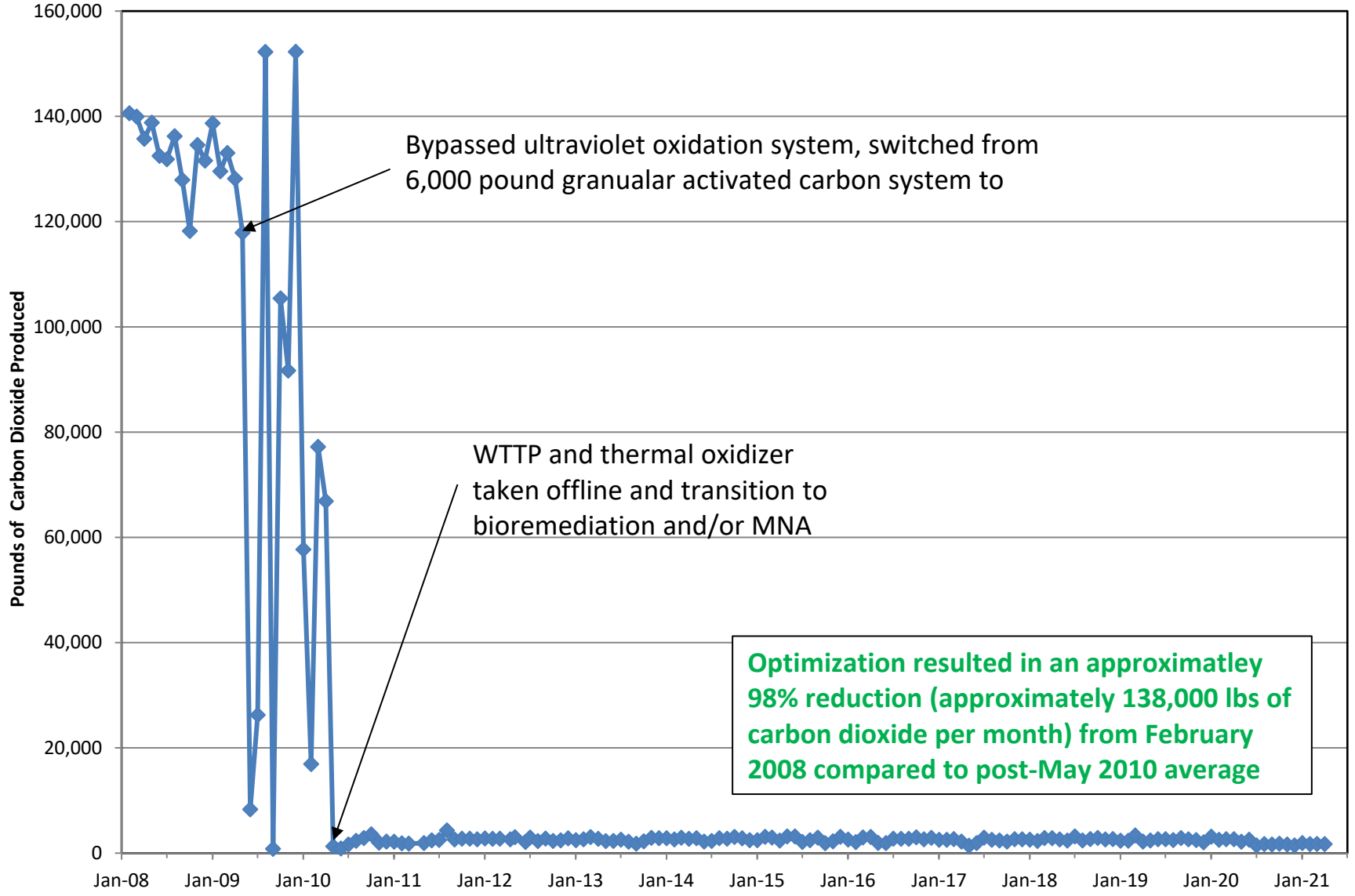


Figure 2

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



Subarea LF007C Groundwater Treatment Plant Monthly Data Sheet

Report Number: 200 **Reporting Period: 31 March 2021 – 30 April 2021** **Date Submitted: 13 May 2021**

This monthly data sheet presents information regarding the Subarea LF007C Groundwater Treatment Plant (LF007C GWTP) and associated remedial process optimization (RPO) activities.

System Metrics

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

Table 1 – Operations Summary – April 2021

Initial Data Collection:	3/31/2021 13:00		**Final Data Collection:**	4/30/2021 7:00	
Operating Time:		Percent Uptime:	Electrical Power Usage[a]:		
LF007C GWTP:	714 hours	**LF007C GWTP**	100%	**LF007C GWTP:**	0 kWh
Gallons Treated: **118,578 gallons**			Gallons Treated Since March 2000: **91.6 million gallons**		
Volume Discharged to Northgate Pond: **118,578 gallons**					
VOC Mass Removed: **1.19×10^{-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 April 2021 influent sample detected by EPA Method SW8260C.
[c] Value not calculated since measurement does not accurately represent the cost effectiveness of the system.

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

Table 2 – LF007C GWTP Average and Total Flow Rates – April 2020

Location	Average Flow Rate (gpm)[a]	Total Gallons Processed (gallons)
EW614x07	2.3	99,800
EW615x07	0.6	24,815
LF007C GWTP	**2.8**	**118,578**

[a] Flow rates calculated by dividing total gallons processed by system operating time for the month or the average of the instantaneous readings.
gpm = gallons per minute

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

Table 3 – Summary of System Shutdowns

Location	Shutdown[a]		Restart[a]		Cause
	Date	Time	Date	Time	
LF007C GWTP	None	--	--	--	

-- = Time not recorded
[a] Shutdown and restart times estimated based on field notes
LF007C GWTP = Subarea LF007C Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater samples were collected at the LF007C GWTP on 6 April 2021. Sample results are presented in Table 4. The total VOC concentration in the April 2021 influent sample was 1.2 µg/L. TCE was the only VOC detected at the influent sample location. No VOCs were detected in the midpoint or effluent sample locations.

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.

On 23 April, a new charge controller was installed on the sump pump battery.

Optimization Activities

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

Sustainability

Travis AFB is committed to decreasing the amount of GHG produced directly (waste streams discharging GHG) or indirectly (GHG produced as related to electrical energy consumption) from all systems across Travis AFB. Travis AFB continues to optimize each treatment plant to reduce the amount of electrical energy consumed, and to implement sustainable treatment plant optimization programs, such as the solar arrays employed to power the system.

Figure 2 presents the historical GHG production from the systems associated with the NGWTP and LF007C GWTP. The LF007C GWTP is a solar-only operated treatment system and does not generate GHG, with exception of a small amount of GHG generated from changing out the GAC averaged to a per month basis.

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

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	6 April 2021 (µg/L)		
				Influent	After Carbon 1	Effluent[b]
Halogenated Volatile Organics						
Acetone	NA	1.9	0	ND	ND	ND
Bromodichloromethane	5.0	0.17	0	ND	ND	ND
Bromoform	5.0	0.46	0	ND	ND	ND
2-Butanone	5.0	2.0	0	ND	ND	ND
Carbon Tetrachloride	0.5	0.19	0	ND	ND	ND
Chloroform	1.9	0.16	0	ND	ND	ND
Chloromethane	NA	0.30	0	ND	ND	ND
Dibromochloromethane	5.0	0.17	0	ND	ND	ND
1,3-Dichlorobenzene	5.0	0.13	0	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.16	0	ND	ND	ND
1,1-Dichloroethane	0.50	0.22	0	ND	ND	ND
1,2-Dichloroethane	0.50	0.13	0	ND	ND	ND
1,1-Dichloroethene	0.50	0.23	0	ND	ND	ND
cis-1,2-Dichloroethene	0.50	0.15	0	ND	ND	ND
trans-1,2-Dichloroethene	0.50	0.15	0	ND	ND	ND
Methylene Chloride	5.0	0.94	0	ND	ND	ND
Tetrachloroethene	0.50	0.20	0	ND	ND	ND
1,1,1-Trichloroethane	0.50	0.16	0	ND	ND	ND
1,1,2-Trichloroethane	0.50	0.27	0	ND	ND	ND
Trichloroethene	0.65	0.16	0	1.2	ND	ND
Vinyl Chloride	0.90	0.10	0	ND	ND	ND
Non-Halogenated Volatile Organics						
Benzene	0.50	0.16	0	ND	ND	ND
Ethylbenzene	0.50	0.16	0	ND	ND	ND
Toluene	0.50	0.17	0	ND	ND	ND
Xylenes	0.50	0.15 – 0.19	0	ND	ND	ND

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

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

Figure 1

LF007CGWTP Total VOC Influent Concentrations and Average Flowrate Twelve Month History

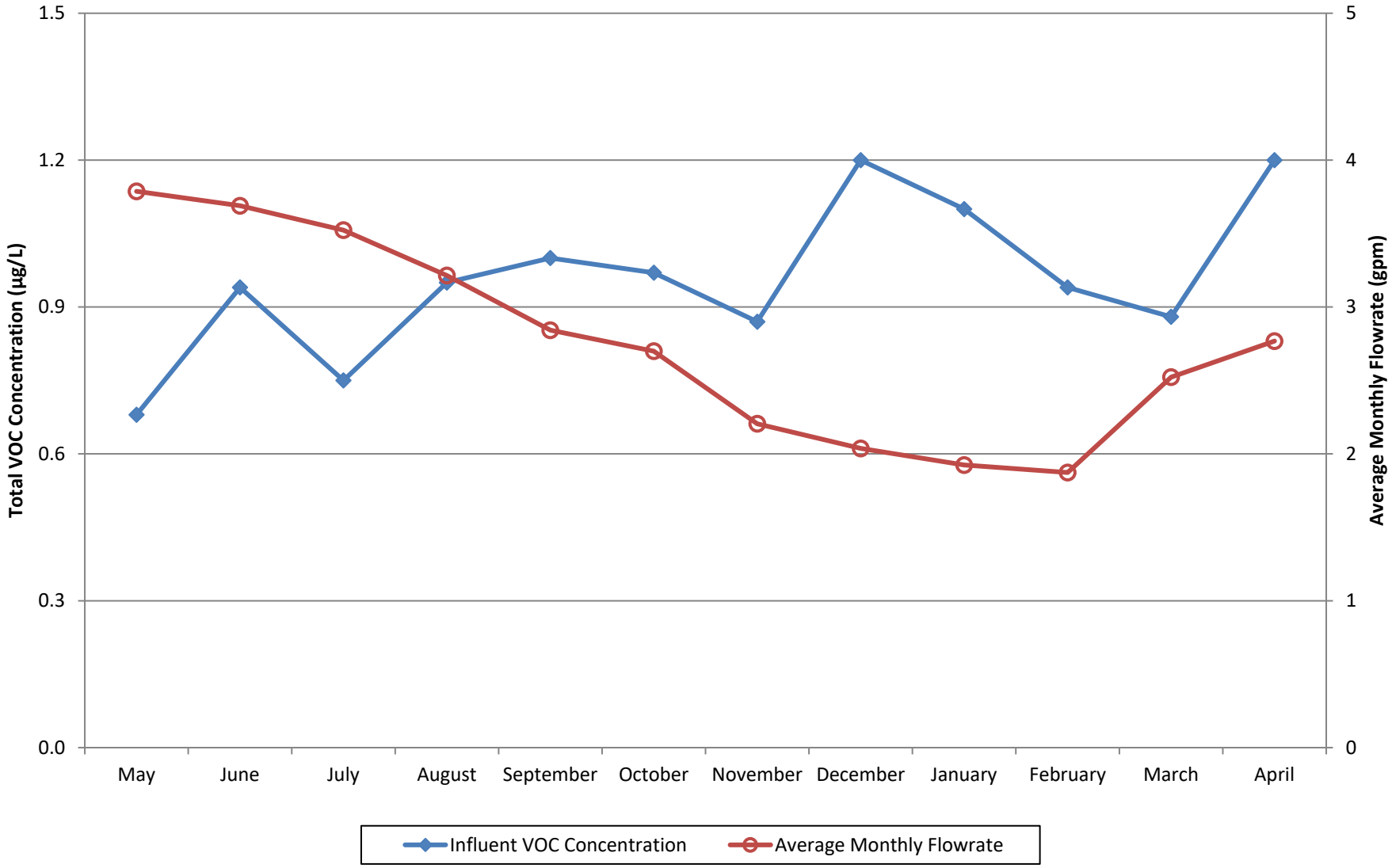
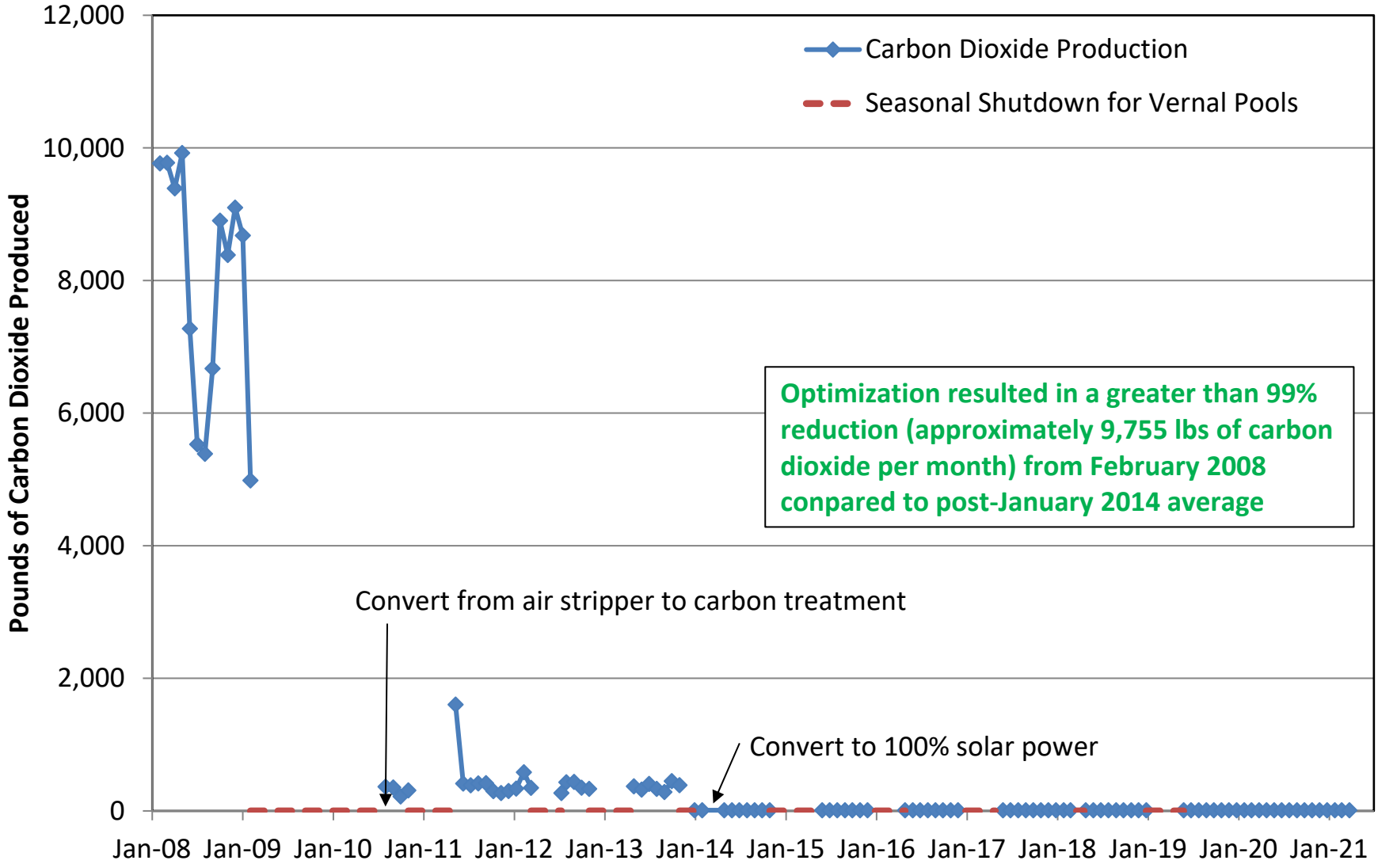


Figure 2

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



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

Site ST018 Groundwater Treatment Plant Monthly Data Sheet

Report Number: 122 **Reporting Period: 1 April 2021 – 30 April 2021** **Date Submitted: 13 May 2021**

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

System Metrics

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

Table 1 – Operations Summary – April 2021

Initial Data Collection: 4/1/2021 8:00		**Final Data Collection:**	4/30/2021 7:30
Operating Time:		Percent Uptime:	Electrical Power Usage:
ST018GWTP: 695.5 hours		**ST018GWTP: 100**%	**ST018GWTP:** 56 kWh (41 lbs CO_2 generated[a])
Gallons Extracted: **88,835 gallons**		Gallons Extracted Since March 2011: **20.1 million gallons**	
Volume Discharged to Sanitary Sewer: **88,835 gallons**		Final Totalizer Reading: **20,133,649 gallons**	
Cumulative Volume Discharged to Sanitary Sewer since 1 November 2014: **13.6 million gallons**			
MTBE, BTEX, VOC, TPH Mass Removed: **0.06 lbs**[b]		MTBE, BTEX, VOC, TPH Mass Removed Since March 2011: **50.0 lbs**	
MTBE (Only) Removed: **0.01 lbs**[b]		MTBE (Only) Mass Removed Since March 2011: **12.2 lbs**	
Rolling 12-Month Cost per Total Pounds of Mass Removed: $78,088[bc]			
Monthly Cost per Pound of Mass Removed: $92,287[bc]			

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

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

Table 2 – ST018GWTP Average Flow Rates – April 2021

Location	Average Flow Rate Groundwater (gpm)[a]	Hours of Operation
EW2014x18	1.2	695.5
EW2016x18	1.2	695.5
EW2019x18	0.0	Offline[b]
EW2333x18	1.8	695.5
ST018GWTP	2.1	695.5

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

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

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

Table 3 – Summary of System Shutdowns

Location	Shutdown[a]		Restart[a]		Cause
	Date	Time	Date	Time	
ST018GWTP	None	--	--	--	

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

Summary of O&M Activities

Monthly groundwater discharge samples were collected at the ST018GWTP on 6 April 2021. Because the extracted groundwater is no longer treated with carbon prior to discharge to the sanitary sewer, only discharge samples are now collected, rather than influent and effluent samples. Results are presented in Table 4. The complete April 2021 laboratory data report is available upon request. The MTBE discharge concentration during the April 2021 sampling event was 16 µg/L, which is a decrease from the March 2021 sample result of 18 J µg/L. TPH-g, TPH-d, and benzene were also detected in the system discharge sample and are listed in Table 4.

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

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

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

Optimization Activities

No optimization activities occurred at the ST018GWTP in April 2021.

Sustainability

Travis AFB is committed to decreasing the amount of GHG produced directly (waste streams discharging GHG) or indirectly (GHG produced as related to electrical energy consumption) from all systems across Travis AFB. Travis AFB continues to optimize each treatment plant to reduce the amount of electrical energy consumed, and to implement sustainable treatment plant optimization programs, such as the solar arrays employed to power a majority of the ST018GWTP system.

Figure 2 presents the historical GHG production from the ST018GWTP. The ST018GWTP produced 41 pounds of GHG during April 2021 and removed 88,835 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 April 2021 – Site ST018 Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	6 April 2021 (µg/L)
				System Discharge[b]
Fuel Related Constituents				
Methyl tert-Butyl Ether	6,400	0.25	0	16
Benzene	25,000[c]	0.16	0	0.20 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	22 J
Total Petroleum Hydrocarbons – Diesel	50,000[d]	15	0	48 J
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.
J+ = analyte concentration is considered an estimated value due to a detected concentration value between the reporting limit and method detection limit for the contaminant, biased high.
NA = not applicable
N/C = number of samples out of compliance with discharge limits.
ND = not detected above method detection limit.

Figure 1

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

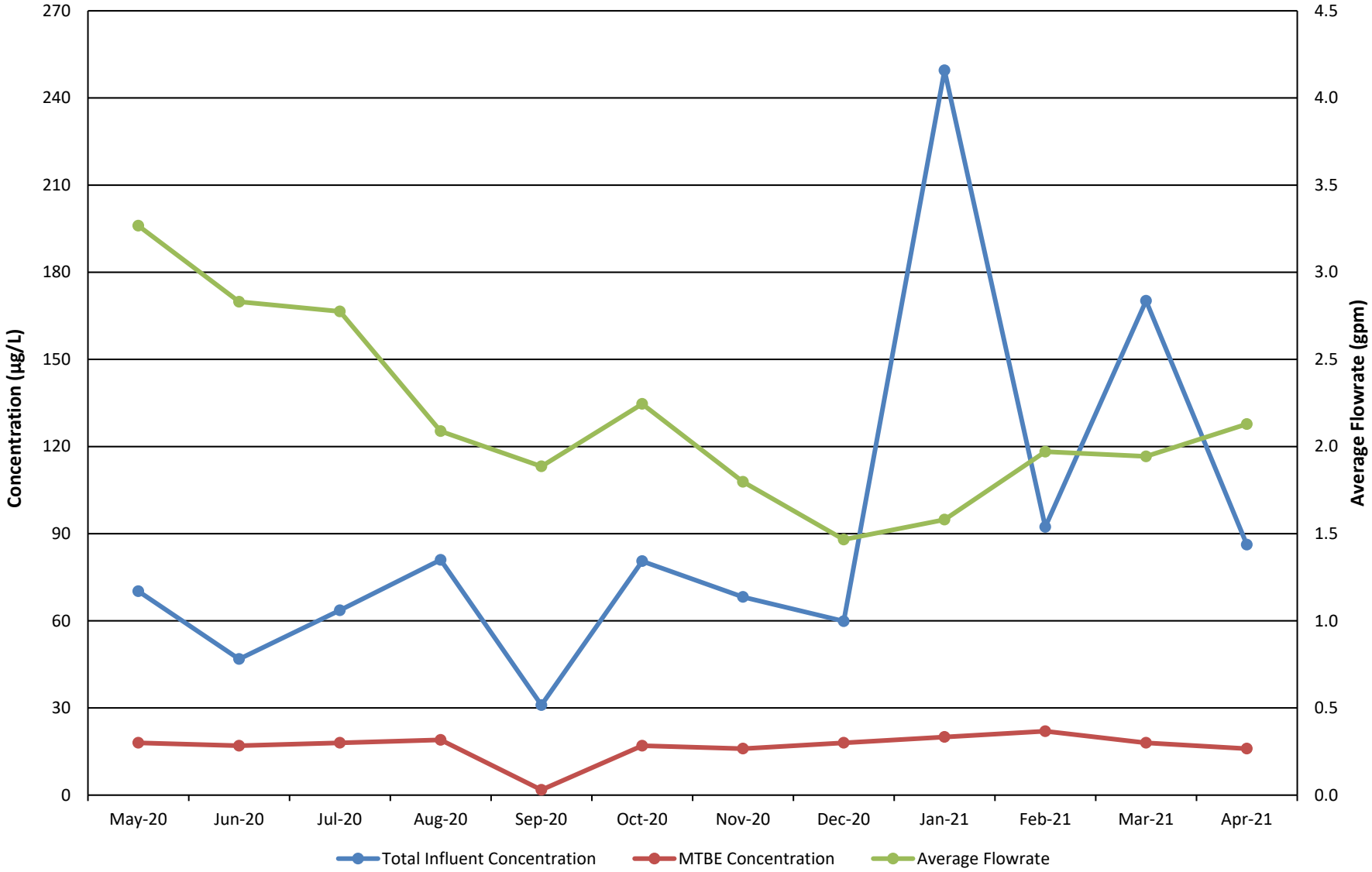
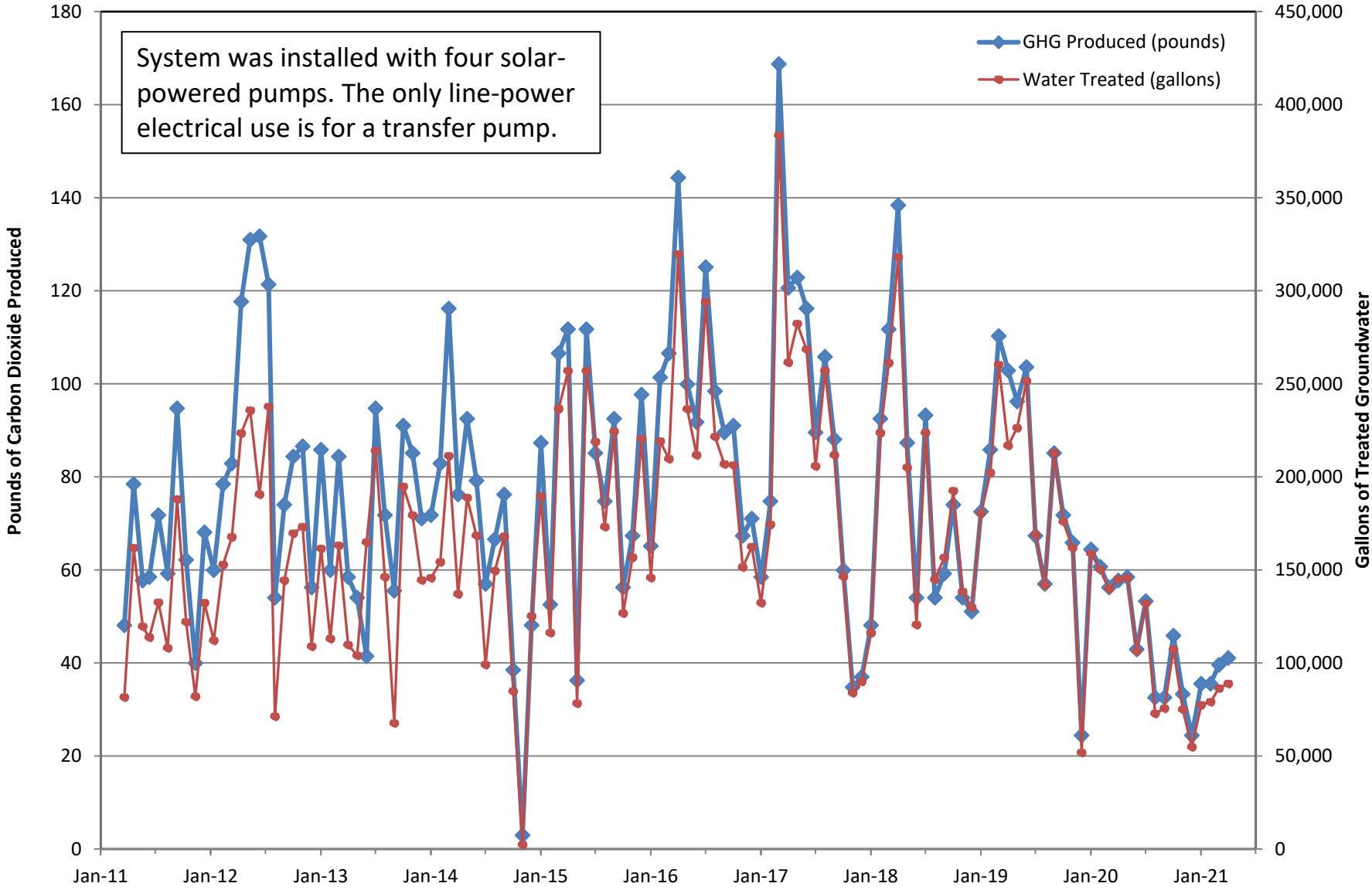


Figure 2

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



August 2020 and January/February 2021 Vapor Intrusion Sampling Data

RPM Meeting – Travis AFB

May 19, 2021

Overview

- Purpose is to present overview of vapor intrusion (VI) sampling data from August 2020 and January/February 2021 sampling events
- Sampling was performed under the
  - Initial Passive Vent Systems Sampling Work Plan (WP)
    - August 2020 Event
    - Bldgs 38, 554, and 837 sampled
    - Indoor, outdoor, passive vent system samples collected
  - Addendum to the WP
    - January/February 2021 Event
    - Bldgs 38, 549, 554, and 837 sampled
    - Indoor, outdoor, passive vent, and soil gas samples collected
    - Radon tracer test performed

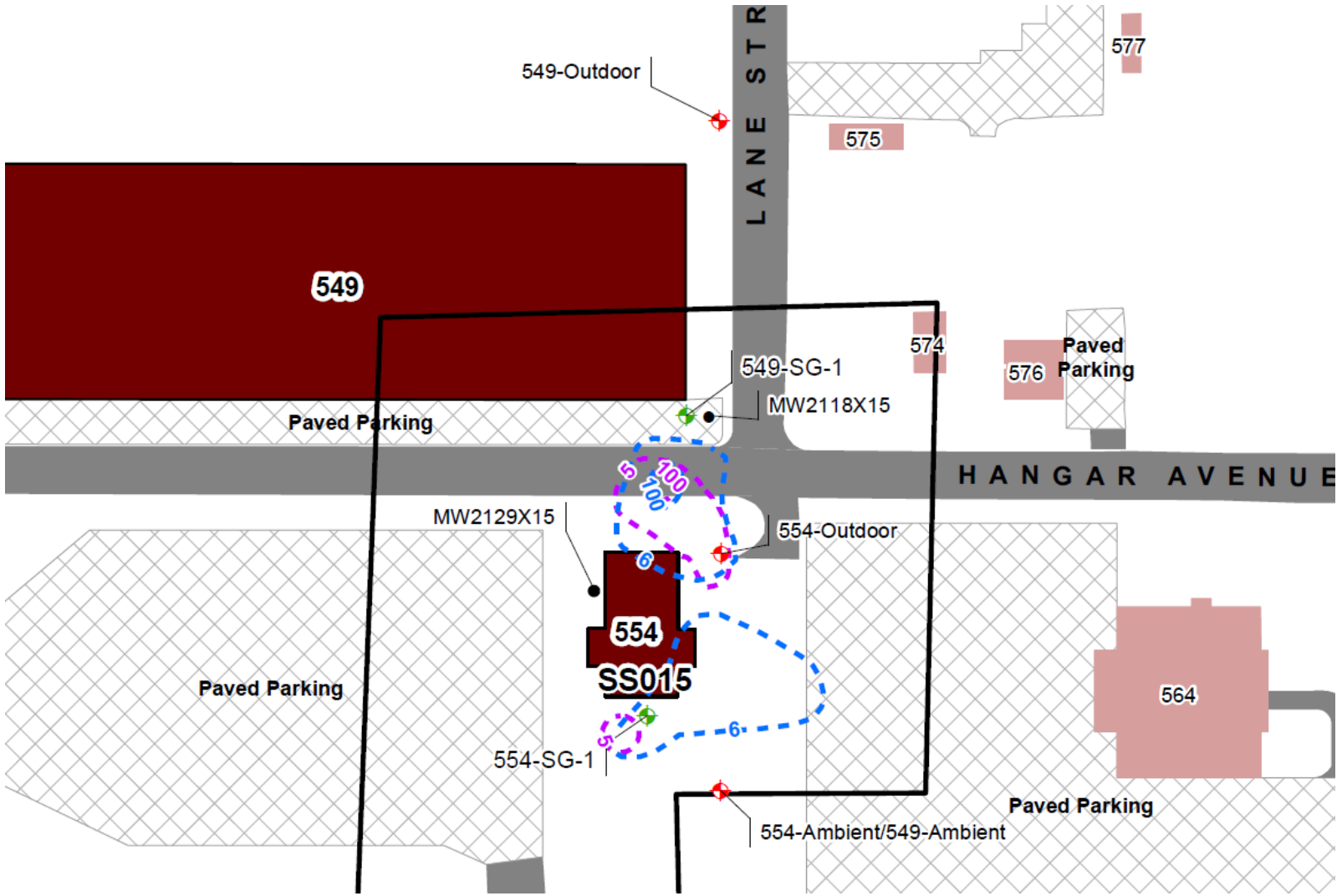
Overview, Cont.

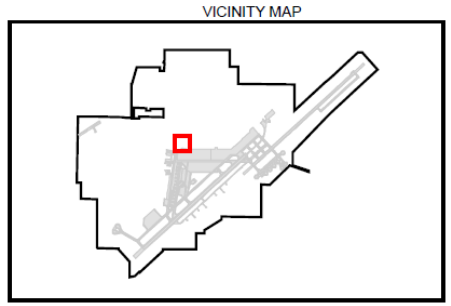
- One more sampling event, May 2021, is planned under the Addendum to the WP
- Once the May event has been completed, a Vapor Intrusion Assessment Report, incorporating the data collected during all 3 sampling events will be prepared
- This report is scheduled for regulatory review in August 2021
- This presentation provides a summary of the analytical results from the first two sampling events

VI Sampling Purpose

- 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)
- Provide additional data to evaluate VOC source strength beneath Bldgs 38, 554, and 837

Bldgs 549 and 554- Site SS015





LEGEND

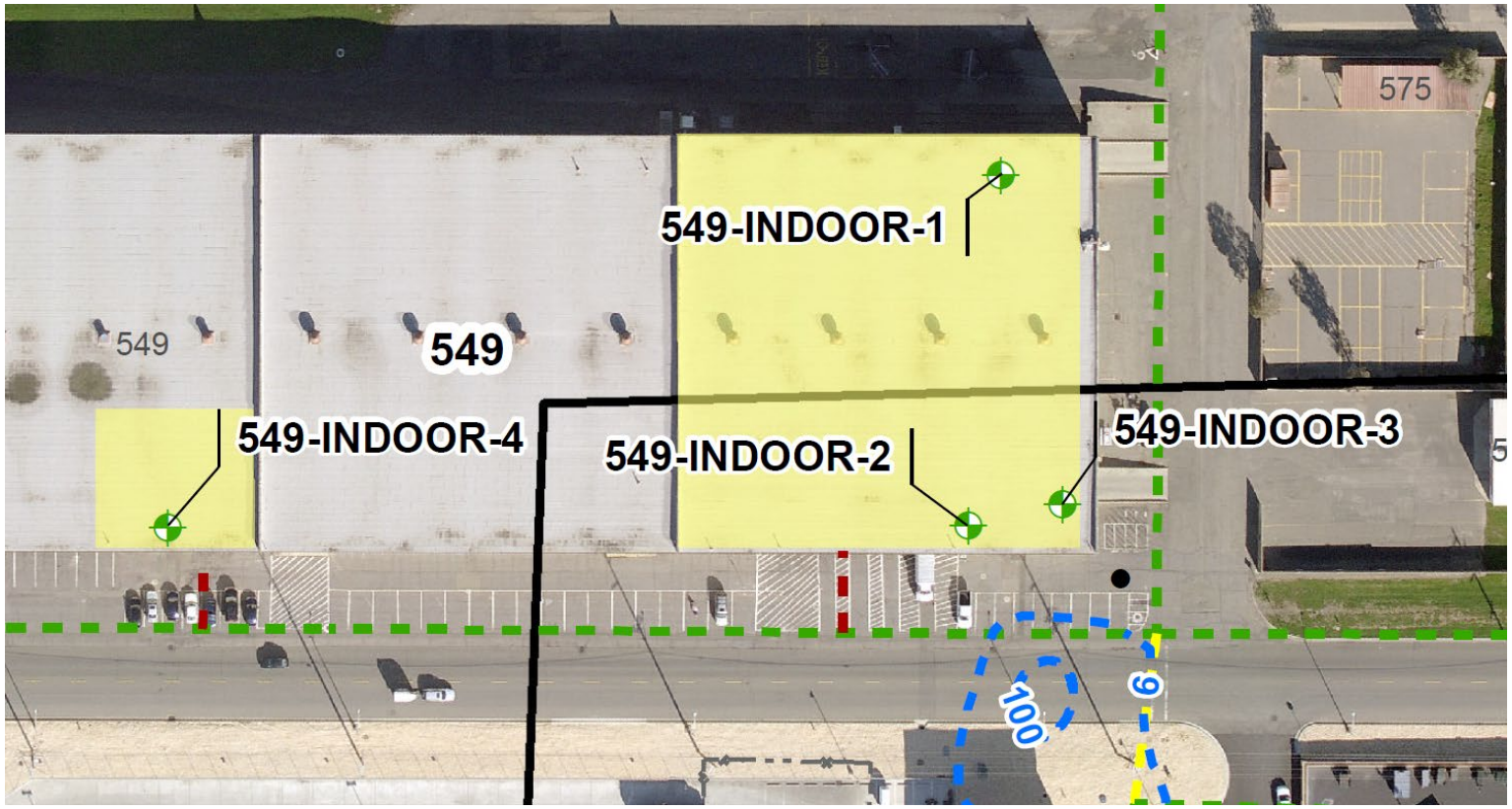
- GROUNDWATER MONITORING WELL
- OUTDOOR AIR SAMPLING LOCATION
- SOIL GAS SAMPLING LOCATION
- APPROXIMATE 2020 CIS-1,2-DCE ISOCONCENTRATION CONTOURS (µg/L)
- APPROXIMATE 2020 TCE ISOCONCENTRATION CONTOURS (µg/L)
- ERP SITE BOUNDARY
- BUILDING 549 AND 554
- EXISTING STRUCTURE
- ROAD
- PARKING
- AIRFIELD SURFACE AREA

N

0 70 140

FEET

Bldg 549 Indoor Sample Locations



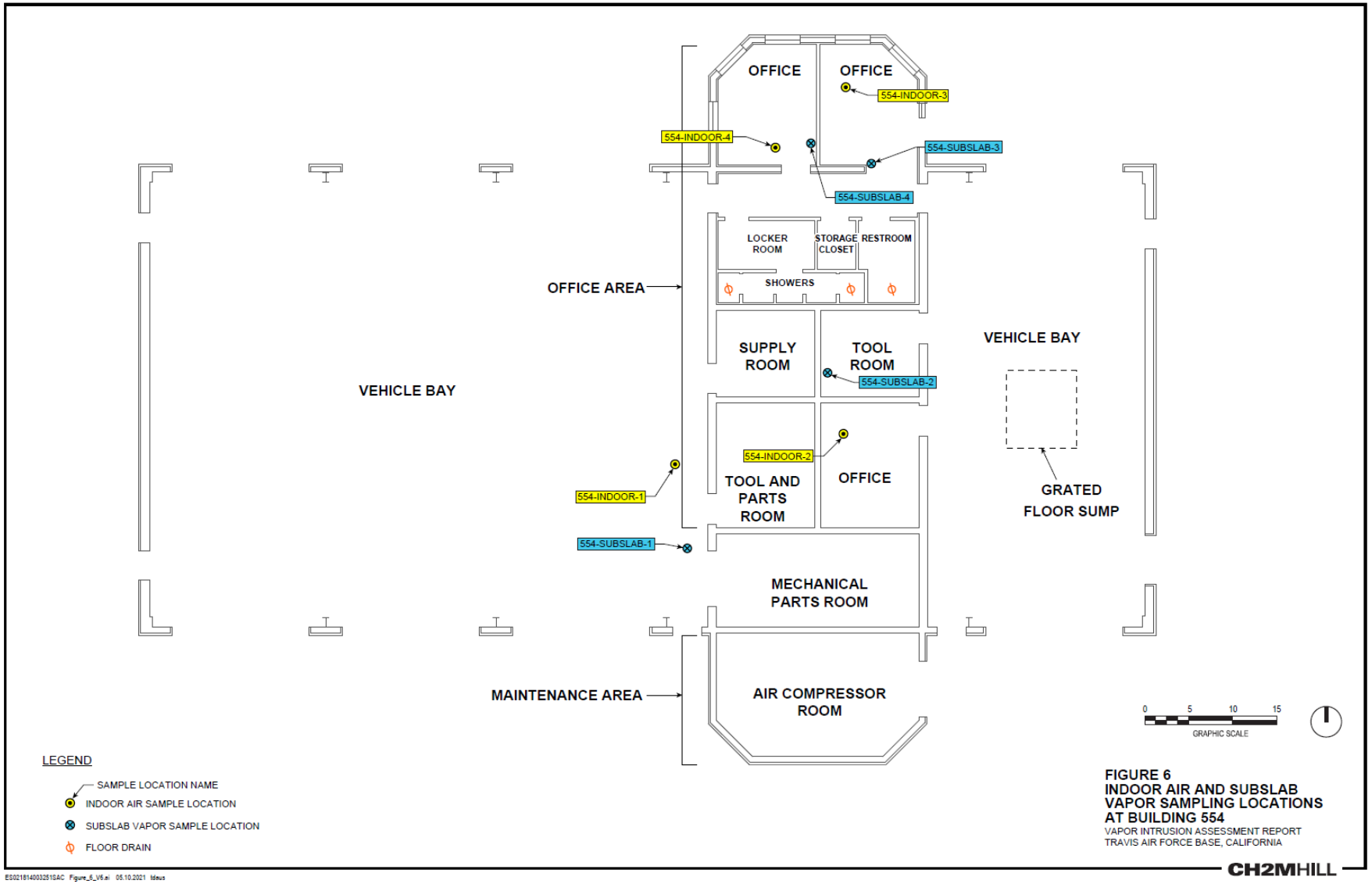
LEGEND

- GROUNDWATER MONITORING WELL
- INDOOR AIR SAMPLING LOCATION
- APPROXIMATE 2020 cis-1,2-DCE ISOCONCENTRATION CONTOURS (µg/L)
- ERP SITE BOUNDARY
- AREA TO BE INCLUDED IN BUILDING SURVEY

Sanitary Serwe Line Condition

- Good
- Moderate Defects Present
- Significant Defects Present

Bldg 554 Indoor & Subslab Sample Locations



Bldgs 549 and 554 Samples Collected

Building	Indoor Air Sampling Locations	Outdoor Air Sampling Locations	Exterior Soil Gas Sampling locations	Subslab Vapor Probe Sampling Locations	Passive Vent Layer Sampling Locations
549: August 2020	0	0	0	0	NA
549: Jan/Feb 2021	4	2	1	0	NA
554: August 2020	3	1	0	0	4
554: Jan/Feb 2021	5	2	1	4	4

Bldg 549 Indoor Air Sample Results

- All detections were below indoor air screening levels

Chemical Detected	Maximum Indoor Air Detection Jan/Feb 2021 ($\mu g/m^3$)	Indoor Air Screening Level ($\mu g/m^3$)
1,2-DCA	0.073	0.47
TCE	0.016 J	3
PCE	0.18	2

Bldg 549 Ambient/Outdoor Sample Results

- Ambient air (upwind) concentrations were higher than indoor air
- 1,2-DCA ambient air concentration exceeded indoor air screening level

Chemical Detected	Ambient Air Detection Jan/Feb 2021 (Upwind) ($\mu g/m^3$)	Outdoor Air Detection Jan/Feb 2021 (Downwind) ($\mu g/m^3$)	Indoor Air Screening Level ($\mu g/m^3$)
1,2-DCA	**0.57**	0.061	0.47
TCE	0.16	ND	3
PCE	1.2	0.077	2
VC	0.016 J	ND	0.16

Bldg 549 Soil Gas sample Results

- All detections below subslab screening levels

Chemical Detected	Soil Gas Detection Jan/Feb 2021 ($\mu g/m^3$)	Subslab Screening Level (generic attenuation factor of 0.03) ($\mu g/m^3$)
1,2-DCA	0.061 J	16
Cis-1,2-DCE	0.91	2667
TCE	0.32	100
PCE	3.6	67
VC	1.1	5

Bldg 554 Indoor Air Sample Results

- All detections were below indoor air screening levels
- Results of both events were similar

Chemical Detected	Maximum Indoor Air Detection August 2020 (µg/m³)	Maximum Indoor Air Detection Jan/Feb 2021 (µg/m³)	Indoor Air Screening Level (µg/m³)
1,2-DCA	0.076	0.076	0.47
Cis-1,2-DCE	0.018 J	ND	80
TCE	0.26 J	0.017 J	3
PCE	0.86	0.041	2

Bldg 554 Outdoor/Ambient Air Sample Results

- 1,2-DCA exceeded indoor air concentrations in the 2021 ambient and 2020 outdoor air samples

Chemical Detected	Ambient Air Detection Jan/Feb 2021 (Upwind) (µg/m³)	Outdoor Air Detection August 2020 (Downwind) (µg/m³)	Outdoor Air Detection Jan/Feb 2021 (Downwind) (µg/m³)	Indoor Air Screening Level (µg/m³)
1,2-DCA	0.57	0.52	0.19 J	0.47
TCE	0.16	0.086	0.081 J	3
PCE	1.2	0.18	0.15 J	2
VC	0.016 J	ND	ND	0.16

Bldg 554 Subslab and Passive Vent Sample Results

- Jan/Feb subslab and passive vent system results similar
- All detections below subslab soil gas screening levels

Chemical Detected	Maximum Subslab Detection Jan/Feb 2021 ((µg/m³)	Maximum Passive Vent Detection August 2020 (µg/m³)	Maximum Passive Vent Detection Jan/Feb 2021 (µg/m³)	Subslab Screening Level (generic attenuation factor of 0.03) (µg/m³)
1,2-DCA	0.15	0.16 J	0.085	16
Cis-1,2-DCE	0.029 J	0.26 J	0.038	2667
TCE	0.53	3	0.1	100
PCE	0.95	2.1	0.35	67
VC	ND	1.1	0.25	5

Bldg 554 Soil Gas sample Results

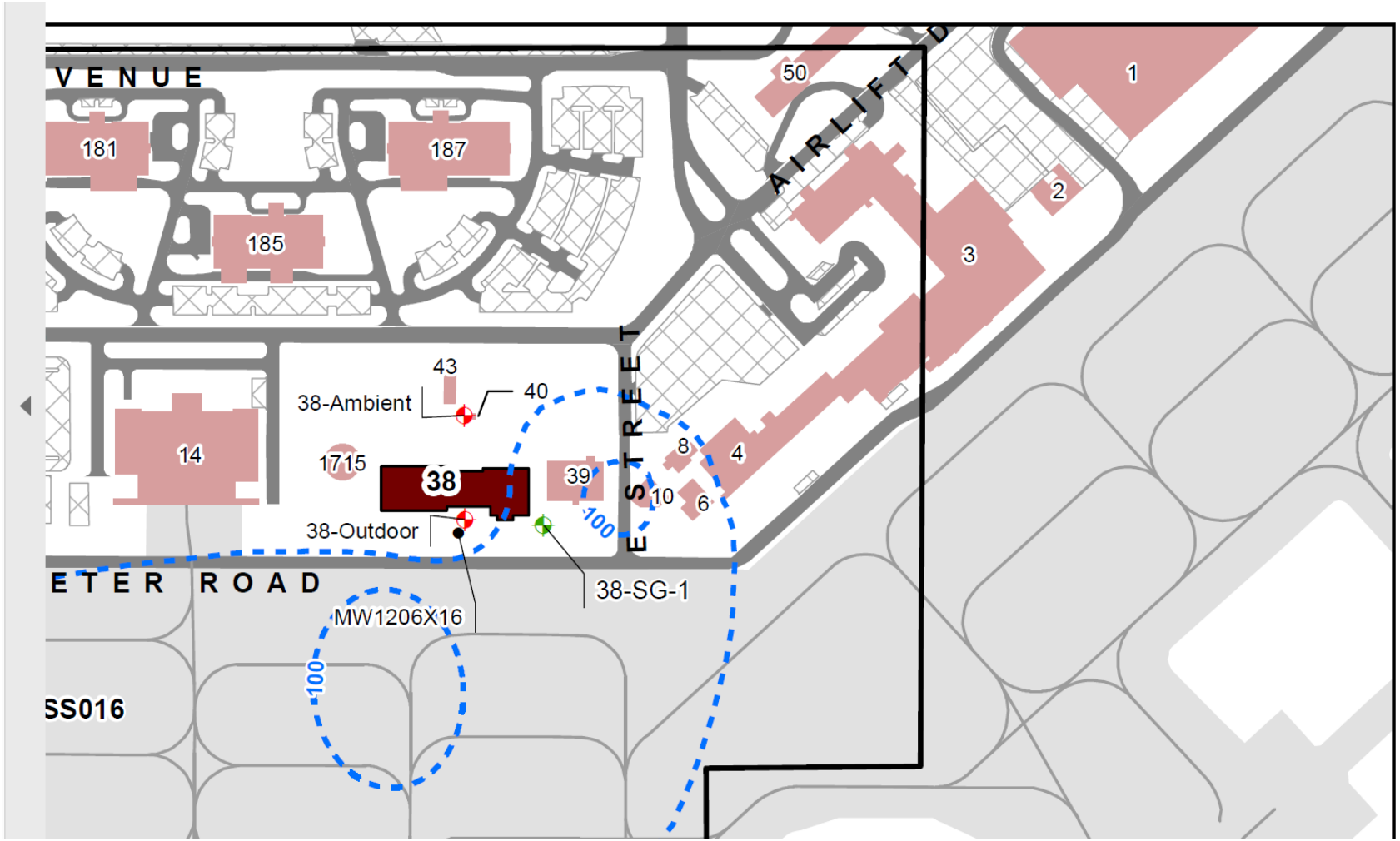
- Concentrations were well below subslab screening levels

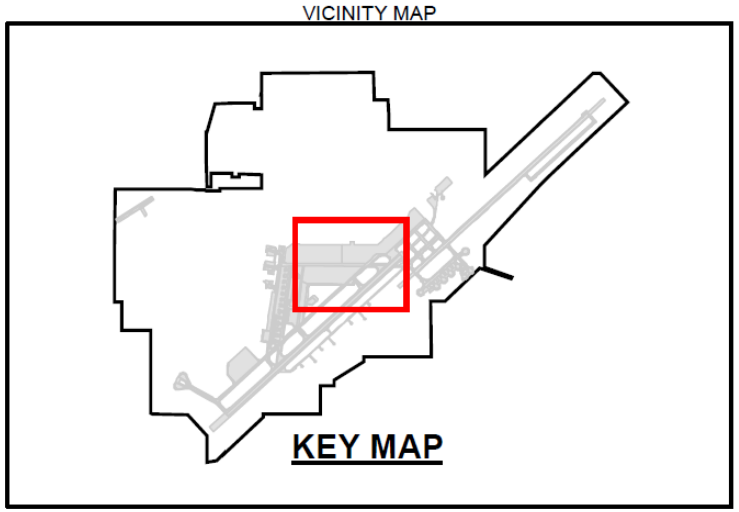
Chemical Detected	Soil Gas Detection Jan/Feb 2021 (µg/m^3)	Subslab Screening Level (generic attenuation factor of 0.03) (µg/m^3)
1,2-DCA	0.023 J	16
PCE	0.61	67

Bldg 549 & 554 Summary

- All indoor air concentrations below indoor air screening levels
- Ambient air concentrations higher than indoor air concentrations
- Soil gas and subslab concentrations below subslab screening levels
- Soil gas/subslab data not indicative of high VOC source strength
- August 2020 and Jan/Feb 2021 indoor air data similar (bldg. 554)
- Jan/Feb 2021 subslab and passive vent data similar (bldg. 554)
- Data do not indicate indoor air quality negatively impacted by VI

Bldg 38-Site SS016

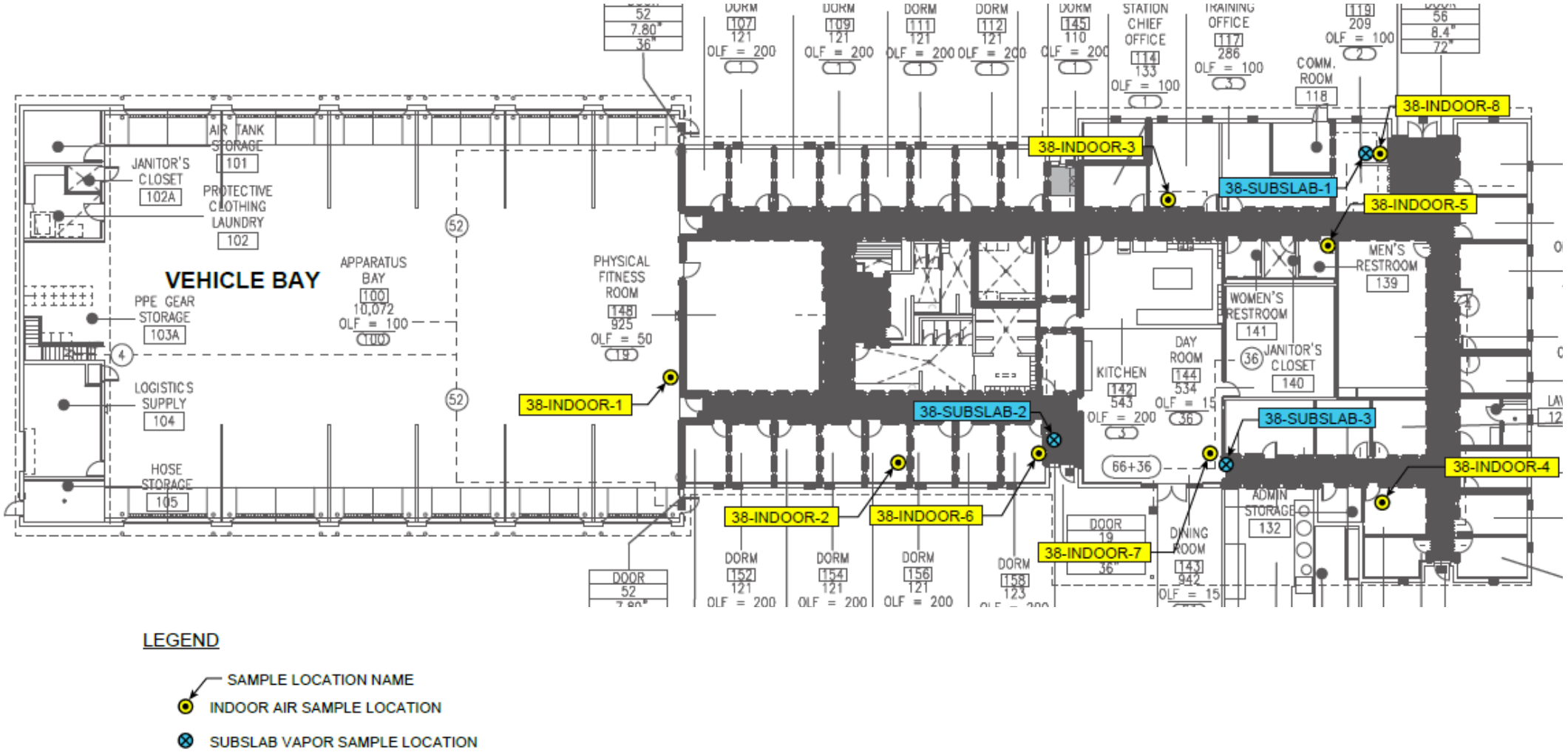




Legend

- GROUNDWATER MONITORING WELL
- OUTDOOR AIR SAMPLING LOCATION
- SOIL GAS SAMPLING LOCATION
- APPROXIMATE 2020 TCE ISOCONCENTRATION CONTOURS (µg/L)
- ERP SITE BOUNDARY
- BUILDING 38
- ROAD
- PARKING
- AIRFIELD SURFACE AREA

Bldg 38 Indoor & Subslab Sample Locations



Bldg 38 Samples Collected

- Planned SG sample could not be collected due to water present; planned for collection in May 2021
- One planned subslab probe could not be installed due to utilities

Building	Indoor Air Sampling Locations	Outdoor Air Sampling Locations	Subslab Vapor Probe Sampling Locations	Passive Vent Layer Sampling Locations
38: August 2020	4	1	0	2
38: Jan/Feb 2021	8	2	3	2

Bldg 38 Indoor Air Sample Results

Chemical Detected	Maximum Indoor Air Detection August 2020 ($\mu g/m^3$)	Maximum Indoor Air Detection Jan/Feb 2021 ($\mu g/m^3$)	Indoor Air Screening Level ($\mu g/m^3$)
1,2-DCA	**1.2**	0.14	0.47
1,4-DCB	0.045	0.021 J	1.1
Benzene	**1.3**	**3.6**	0.42
Bromodichloromethane	0.14	0.15 J	0.33
Chloroform	**0.75**	**1.1**	0.53
PCE	0.22 J	0.17	2
TCE	0.045	0.026 J	3

Bldg 38 Indoor Air Sample Results, Cont.

- 1,2-DCA, benzene, chloroform exceeded indoor air screening levels at one or more locations
- Benzene and chloroform exceedances most prevalent
  - Concentrations detected indoors higher than passive vent/subslab samples, indicating indoor source
  - highest benzene concentrations detected in vehicle bay; likely source
  - Low level chloroform exceedances common throughout facility; likely associated with use of cleaning supplies containing chlorine
- 1,2-DCA exceeded in August 2020 only, at one location
  - Concentrations detected indoors higher than passive vent/subslab samples, indicating indoor source
  - Tobacco smoke (clothes) potential indoor source

Bldg 38 Outdoor/Ambient Air Sample Results

Chemical Detected	Ambient Air Detection Jan/Feb 2021 (Upwind) ($\mu g/m^3$)	Outdoor Air Detection August 2020 (Downwind) ($\mu g/m^3$)	Outdoor Air Detection Jan/Feb 2021 (Downwind) ($\mu g/m^3$)	Indoor Air Screening Level ($\mu g/m^3$)
1,2-DCA	0.061	0.037 J	0.07	0.47
1,4-DCB	ND	ND	0.028 J	1.1
Benzene	0.41	0.075 J	0.36	0.42
Chloroform	0.074 J	0.053 J	0.076 J	0.53
Cis-1,2-DCE	ND	ND	0.021 J	80
PCE	0.02 J	0.015 J	0.019 J	2
TCE	ND	ND	0.022 J	3

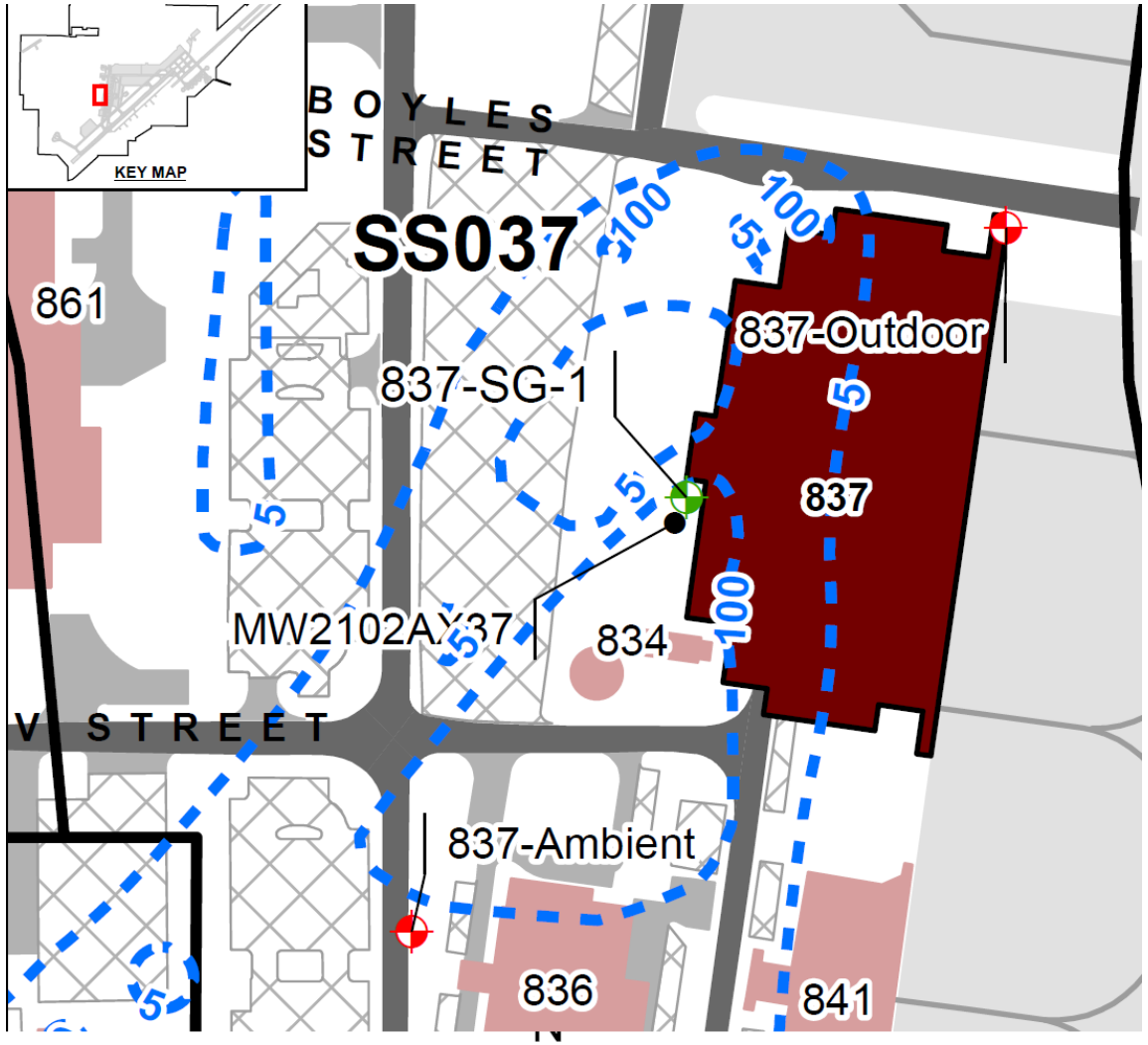
Bldg 38 Subslab & Passive Vent Sample Results

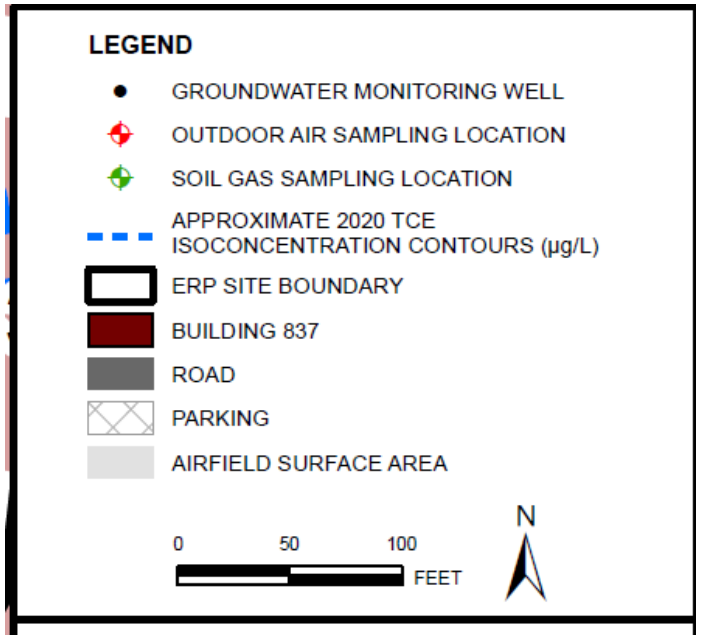
Chemical Detected	Maximum Subslab Detection Jan/Feb 2021 ((µg/m^3)	Maximum Passive Vent Detection August 2020 (µg/m^3)	Maximum Passive Vent Detection Jan/Feb 2021 (µg/m^3)	Subslab Screening Level (generic attenuation factor of 0.03) (µg/m^3)
1,2-DCA	0.053	0.14	0.051	16
1,4-DCB	0.46	0.12	0.017 J	37
Bromodichloromethane	ND	0.016	0.061	14
Benzene	0.37	0.47	1.3	11
Chloroform	0.19	0.85	0.33	18
Cis-1,2-DCE	ND	0.015 J	ND	2667
PCE	0.25	0.18	0.15	67
TCE	0.022 J	0.13	0.051	100
VC	0.012 J	0.085	0.02 J	5

Bldg 38 Summary

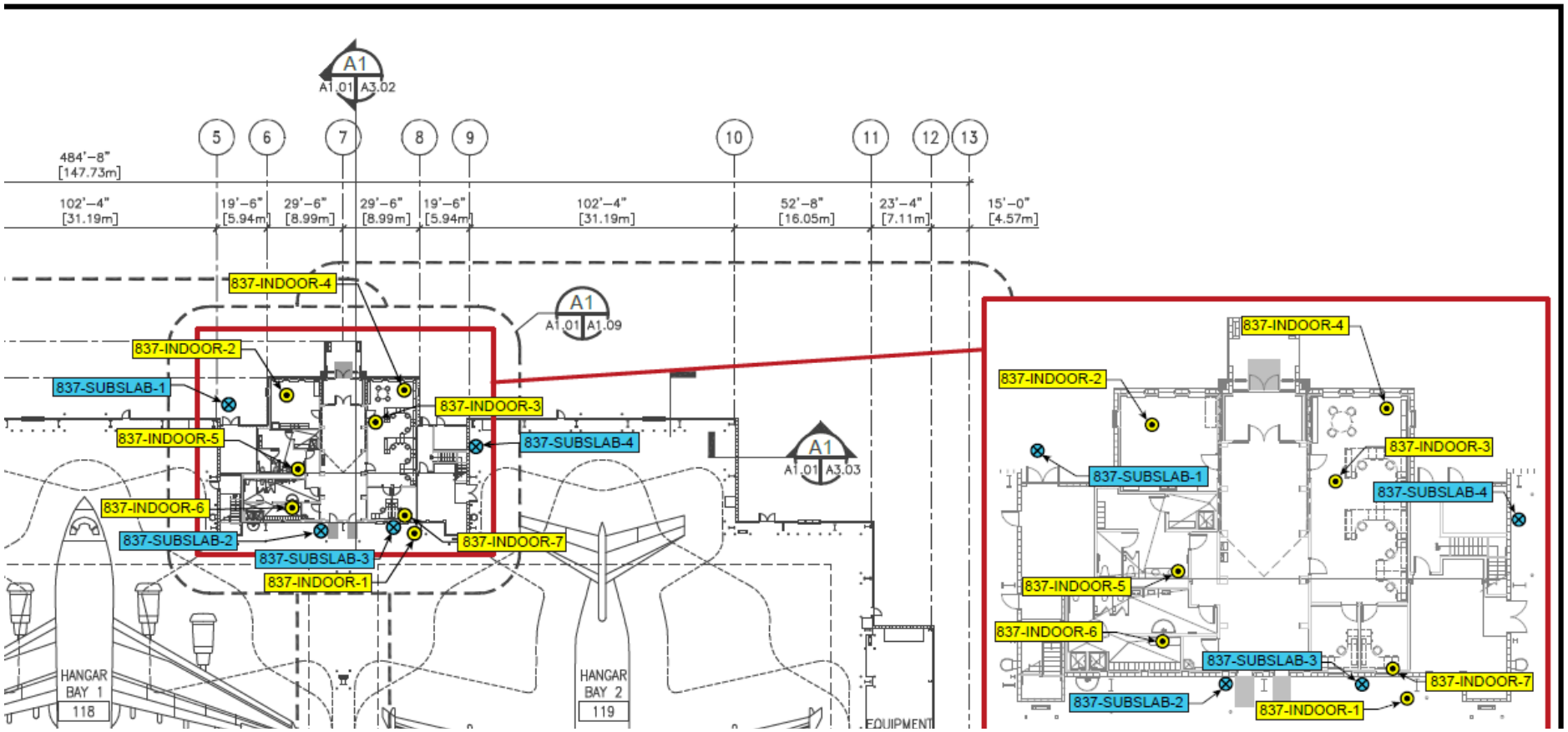
- 1,2-DCA, benzene, chloroform exceeded indoor air screening levels
- The indoor air exceedances appear to be due to indoor sources rather than VI
- Subslab and passive vent concentrations well below subslab screening levels
- Subslab data not indicative of high VOC source strength
- August 2020 and Jan/Feb 2021 indoor air data similar
- Jan/Feb 2021 subslab and passive vent data similar
- Data do not indicate indoor air quality negatively impacted by VI

Bldg 837- Site SD037





Bldg 837 Indoor & Subslab Sample Locations



A1.01 A1.03

LEGEND

SAMPLE LOCATION NAME

INDOOR AIR SAMPLE LOCATION

SUBSLAB VAPOR SAMPLE LOCATION
(LOCATED IN HANGAR, OUTSIDE OF VAPOR BARRIER FOOTPRINT EXCEPT FOR 837-SUBSLAB-1 WHICH IS IS LOCATED OUTSIDE OF THE HANGAR)

Bldg 837 Samples Collected

Building	Indoor Air Sampling Locations	Outdoor Air Sampling Locations	Exterior Soil Gas Sampling locations	Subslab Vapor Probe Sampling Locations	Passive Vent Layer Sampling Locations
837: August 2020	3	1	0	0	5
837: Jan/Feb 2021	7	2	1	4	5

Bldg 837 Indoor Air Sample Results

Chemical Detected	Maximum Indoor Air Detection August 2020 ($\mu g/m^3$)	Maximum Indoor Air Detection Jan/Feb 2021 ($\mu g/m^3$)	Indoor Air Screening Level ($\mu g/m^3$)
1,2-DCA	0.33	0.18	0.47
Benzene	0.14	0.38	0.42
Bromodichloromethane	0.023 J	ND	0.33
Carbon tetrachloride	0.34	0.33	2
Chloromethane	0.35	0.22	0.53
Naphthalene	ND	**0.48**	0.21
PCE	0.25	0.096	2
TCE	ND	0.032 J	3
VC	0.012 J	ND	0.16

Bldg 837 Indoor Air Sample Results, Cont.

- Naphthalene was the only indoor air exceedance
  - It exceeded screening levels at one indoor air location
  - It was detected in the ambient (upgradient) air sample at the same concentration as the indoor air sample
  - Indoor air sample concentration higher than subslab/passive vent/soil gas concentrations
  - Naphthalene detection does not appear to be VI related

Bldg 837 Outdoor/Ambient Air Sample Results

- Benzene and naphthalene both exceeded indoor air screening levels

Chemical Detected	Ambient Air Detection Jan/Feb 2021 (Upwind) ($\mu g/m^3$)	Outdoor Air Detection August 2020 (Downwind) ($\mu g/m^3$)	Outdoor Air Detection Jan/Feb 2021 (Downwind) ($\mu g/m^3$)	Indoor Air Screening Level ($\mu g/m^3$)
1,2-DCA	0.055	0.1 J	0.056	0.47
Benzene	**0.52**	**1.6 J**	0.35	0.42
Carbon Tetrachloride	0.33	0.34	0.33	2
Chloromethane	0.18	0.37	0.19	0.53
Naphthalene	**0.48**	ND	0.024 J	0.36
PCE	0.022 J	1.3 J	0.023 J	2
TCE	ND	ND	0.017 J	3

Bldg 837 Subslab and Passive Vent Sample Results

Chemical Detected	Maximum Subslab Detection Jan/Feb 2021 ((µg/m^3)	Maximum Passive Vent Detection August 2020 (µg/m^3)	Maximum Passive Vent Detection Jan/Feb 2021 (µg/m^3)	Subslab Screening Level (generic attenuation factor of 0.03) (µg/m^3)
1,2-DCA	0.059	0.061	0.055	16
Benzene	0.85	0.29	0.09 J	14
Bromodichloromethane	0.027 J	0.016 J	ND	11
Carbon tetrachloride	0.34	0.33	0.31	67
Chloromethane	0.82	1.1	0.14	130000
Naphthalene	0.21	0.8	0.15 J	12
PCE	0.9	0.9 J	0.067	67
TCE	0.03 J+	0.02 J	0.044	100
VC	0.022 J	0.054	0.021 J	5

Bldg 837 Soil Gas Sample Results

Chemical Detected	Soil Gas Detection Jan/Feb 2021 ($\mu g/m^3$)	Subslab Screening Level (generic attenuation factor of 0.03) ($\mu g/m^3$)
1,2-DCE	0.32 J	16
Benzene	0.35	14
Bromodichloromethane	0.67	11
Carbon tetrachloride	0.035 J	67
Naphthalene	0.099 J	12
PCE	0.69	67
TCE	29	100

Bldg 837 Summary

- Napthalene was the only chemical to exceed indoor air screening levels; and exceeded at only one location
- Napthalene also exceeded the indoor air screening levels in the upwind, ambient sample
- The indoor air exceedance appears to be due to an outdoor source rather than VI
- Subslab, passive vent, and soil gas concentrations well below subslab screening levels
- Subslab/soil gas data not indicative of high VOC source strength
- August 2020 and Jan/Feb 2021 indoor air data similar
- Jan/Feb 2021 subslab and passive vent data similar
- Data do not indicate indoor air quality negatively impacted by VI

Schedule Summary

- May 2021 Sampling Event

Building	Indoor Air Sampling Locations	Outdoor Air Sampling Locations	Subslab Vapor Probe Sampling Locations	Soil Gas Sampling Locations
38	4	2	3	1
549	4	2	0	0
554	4	2	4	0
837	4	2	4	0

- Vapor Intrusion Assessment Report (includes data from all 3 events): draft August 2021

Questions?

Travis AFB
Restoration Program

Program Update

RPM Meeting May 19, 2021

Completed Documents (1)

- Vapor Intrusion Assessment Update Technical Memorandum
- 2012 CAMU Annual Report
- Old Skeet Range Action Memorandum
- 3rd Five-Year Review
- 2012 Annual Groundwater Remediation Implementation Status Report (GRISR)
- Subarea LF007C and Site SS030 Remedial Process Optimization Work Plan
- Pre-Design Site Characterization of SS029 Report
- Old Skeet Range Removal Action Work Plan
- 2013 CAMU Inspection Annual Report
- Groundwater Record of Decision (ROD)
- CG508 POCO Work Plan
- 2013 Annual GRISR
- FT004 Technology Demonstration Work Plan
- Kinder Morgan LF044 Land Use Control Report
- SD031 Technology Demonstration Work Plan
- TA500 Data Gap Investigation Work Plan
- ST018 POCO Work Plan Addendum
- SD037 GW RD/RA Work Plan
- Travis AFB UFP-QAPP
- DP039 Lead Excavation Technical Memo

Completed Documents (2)

- Proposed Plan for ROD Amendment to WABOU Soil ROD
- Proposed Plan for ROD Amendment to NEWIOU Soil, Sediment, & Surface Water ROD
- SD034 Data Gap Investigation Work Plan
- POCO Investigation Work Plan for Oil-Water Separators
- ST032 POCO Soil Excavation Work Plan
- SD036 GW RD/RA Work Plan
- SS016 GW RD/RA Work Plan
- SS015 GW RD/RA Work Plan
- FT005 Technology Demonstration Work Plan
- 2014 Annual CAMU Monitoring Report
- Old Skeet Range PAH Delineation Report
- ST028 POCO Work Plan
- SS014 POCO TD Work Plan
- CG508 Site Investigation/Site Closure Request Report
- 2014 Annual CAMU Monitoring Report
- DP039 GW RD/RA Work Plan
- SD031 TDCCR
- ST018 POCO CCR
- Site SS030 Groundwater RA CCR
- Sites SD036 and SD037 Groundwater RACCR
- Site SS016 Groundwater RACCR
- Site SS015 Groundwater RACCR
- 2014 Annual GRISR
- Site CG508 Well Decommissioning Work Plan

Completed Documents (3)

- Data Gap Investigation TM for Soil Sites SD033, SD043, & SS046
- Site FT004 Technology Demonstration Construction Completion Report
- Site SD031 Soil Remedial Investigation Work Plan
- Corrective Action Plan for DERA-Funded Oil Water Separators
- Site ST032 POCO Completion Report
- Site ST028 POCO Completion Report
- 2015 Annual CAMU Monitoring Report
- Site SD031 Remedial Investigation Work Plan
- Site SD034 Technology Demonstration Work Plan
- Site SS016 Soil Data Gaps Investigation Work Plan
- Multi-Site Bioaugmentation Technology Demonstration Work Plan
- Sites ST028 and ST032 POCO Well Decommissioning Work Plan
- Site TS060 Action Memorandum
- 2015 Annual GRISR
- FT005 Technology Demonstration Construction Completion Report
- Site CG508 POCO Well Decommissioning and Site Closeout Technical Memorandum
- Site DP039 Remedial Action Construction Completion Report
- ST028 POCO Well Decommissioning/Site Closeout Technical Memorandum
- Site TS060 Removal Action Work Plan

Completed Documents (4)

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

Completed Documents (5)

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

Completed Documents (6)

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

Completed Documents (7)

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

Completed Field Work (1)

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

Completed Field Work (2)

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

Completed Field Work (3)

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

Completed Field Work (4)

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

Completed Field Work (5)

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

Completed Field Work (6)

- 4Q20 GRIP
- CAMU Topographic Survey
- SBBGWTP SCADA Upgrade
- Winter 2021 Vapor Intrusion Sampling Event

Documents In-Progress

CERCLA

- Technology Demonstration TM
- Site SD031 and FT004 Groundwater Sampling Results TM

POCO

- ***Site SD031B POCO Additional Site Investigation Report***

Field Work In-Progress

CERCLA

- ***2Q GRIP Event***
- ***Summer 2021 VI Sampling Event***

POCO

None

Documents Planned

CERCLA

- 2020 GRISR — June
- Vapor Intrusion Assessment Report — August
- CAMU Report — July

POCO

None

Field Work Planned

CERCLA

None

POCO

None

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

Completed Documents (Historical 1)

- Basewide Health & Safety Plan (HSP)
- Action Plan
- 2007/2008 GSAP Annual Report
- LF007C RPO Work Plan
- LF008 Rebound Study Work Plan
- SS014 Tier 1 POCO Evaluation Work Plan
- ST027B Site Characterization Work Plan
- SS030 RPO Work Plan
- ST032 POCO Technical Memo
- DP039 Bioreactor Work Plan
- 2008 Annual GWTP RPO Report
- Passive Diffusion Bag (PDB) Technical Memo
- RD/RA QAPP Update
- ST032 Tier 1 POCO Evaluation Work Plan
- Phytostabilization Demonstration Technical Memo
- Model QAPP
- LF008 Rebound Test Technical Memo
- Comprehensive Site Evaluation Phase II Work Plan
- Field Sampling Plan (FSP)
- SS016 RPO Work Plan
- ST018 POCO RA Work Plan
- Vapor Intrusion Assessment Report
- GSAP 2008/2009 Annual Report
- FT005 Data Gap Work Plan
- First, Second, & Third Site DP039 Sustainable Bioreactor Demonstration Progress Reports
- DP039 RPO Work Plan
- SD036/SD037 RPO Work Plan
- ST027B Site Characterization Report
- 2009 GWTP RPO Annual Report Natural Attenuation Assessment Report (NAAR)
- Union Creek Sites SD001 & SD033 Remedial Action Report
- CAMU 2008-2009 Monitoring Annual Report

Completed Documents (Historical 2)

- Phytostabilization Study Report
- 2009/2010 Annual GSAP Report
- SS015 Remedy Optimization Field Implementation Plan
- Sites SS014 and ST032 Tier 1 POCO Evaluation Report
- SD036 Remedy Optimization Field Implementation Plan
- 2010 Annual CAMU Inspection Report
- Site ST018 POCO Baseline Implementation Report
- FT005 Data Gaps Investigation Report
- Comprehensive Site Evaluation Phase II Report
- 2010 Groundwater RPO Annual Report
- Focused Feasibility Study (FFS)
- Site ST027-Area B Human Health Risk Assessment
- Site ST027-Area B Ecological Risk Assessment
- Work Plan for Assessment of Aerobic Chlorinated Cometabolism Enzymes
- 2010/2011 Annual GSAP Report
- Baseline Implementation Report (Sites SS015, SS016, SD036, SD037, and DP039)
- 2011 CAMU Annual Report
- Technical and Economic Feasibility Analysis (TEFA)
- Work Plan for RPO of Sites SS016 and SS029
- Site LF007C Data Gaps Investigation Technical Memorandum
- Technical Memorandum for Assessment of Aerobic Chlorinated Cometabolism Enzymes
- Old Skeet Range Engineering Evaluation/Cost Analysis
- 2011 Groundwater Treatment RPO Annual Report
- Groundwater Proposed Plan (PP)
- FT005 Remedial Action Completion Report
- 2012 GSAP Technical Memorandum

Completed Field Work (Historical 1)

- ST027B Gore Sorber Survey–Phase 1
- ST027B Field Sampling – Phase 2
- GSAP 2008 Semi-annual Event
- ST027B Installation of Wells – Phase 3
- SS014 Site Characterization
- LF008 Rebound Study
- GSAP Annual Sampling Event - 2009
- SS030 Site Characterization–Phase 1
- ST027 Site Characterization -Phase 3
- ST014 Monitor Well Install - Subsite 3
- SD001/SD033 Sediment RA
- SS016 Site Characterization (OSA source area)
- ST018 Site Characterization
- SS030 Site Characterization (Off-base VOC Plume)
- DP039 Site Characterization (for Biobarrier Placement)
- SS014 & ST032 Q1 2010 MNA Sampling (2nd of 4 quarterly events)
- SD036 Additional Site Characterization (north & east)
- Therm/Ox System Removal
- SS016 Monitoring Well Installation
- SD037 EVO Injection Well Installation
- DP039 Monitoring Well & Injection Well Installation
- DP039 EVO Injection
- SD037 Monitoring Well Installation
- GSAP 2010 Annual Sampling Event
- SD037 EVO Injection
- SS015 Site Characterization
- South Plant GAC Change-out
- FT005 Data Gap Investigation
- SS016 Position Survey of EW03
- SS016 Bioreactor Installation
- SS016 Bioreactor Baseline Sampling
- DP039 Biobarrier Quarterly Performance Sampling

Completed Field Work (Historical 2)

- DP039 Bioreactor Quarterly Performance Sampling
- SD037 EVO Quarterly Performance Sampling
- SS015 EVO Baseline Sampling
- SD036 EVO Baseline Sampling
- SS016 Bioreactor Startup
- SD036 Injection Wells Installation
- SS015 Injection Wells Installation
- ST018 GETS Installation
- SD036 EVO Injection
- 2010 Semiannual GSAP
- SS015 EVO Injection
- Quarterly RPO Performance Monitoring (Feb 2011)
- ST018 GETS Startup
- Quarterly RPO Performance Monitoring (May 2011)
- 2011 Annual GSAP Sampling
- SS029 GET Shutdown Test (System Optimization analysis)
- Quarterly RPO Performance Monitoring (Aug 2011)
- Quarterly RPO Performance Monitoring (Nov 2011)
- 2011 Semiannual GSAP Sampling
- LF007C Site Characterization (Wetlands)
- FT005 Soil Remedial Action
- Performance Monitoring SS015 (4th Quarterly event)
- Sampling for Assessment of Aerobic Chlorinated Cometabolism Enzymes (Feb 21-22)
- 2012 Annual GSAP Sampling
- CAMU Lysimeter Removal
- LF007C GET System Optimization
- SS029/SS016 System Optimization Analysis
- GSAP Semiannual Sampling Event
- Replace electrical wiring for well field at Site SS030

Travis AFB
RPM Meeting
19 May 2021

Land Use Control Sites
Status/Update

Projects on Sites with LUCs Will Start Documenting in Annual Report

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

Concrete Batch Plant at LF044
2018 EA FONSI

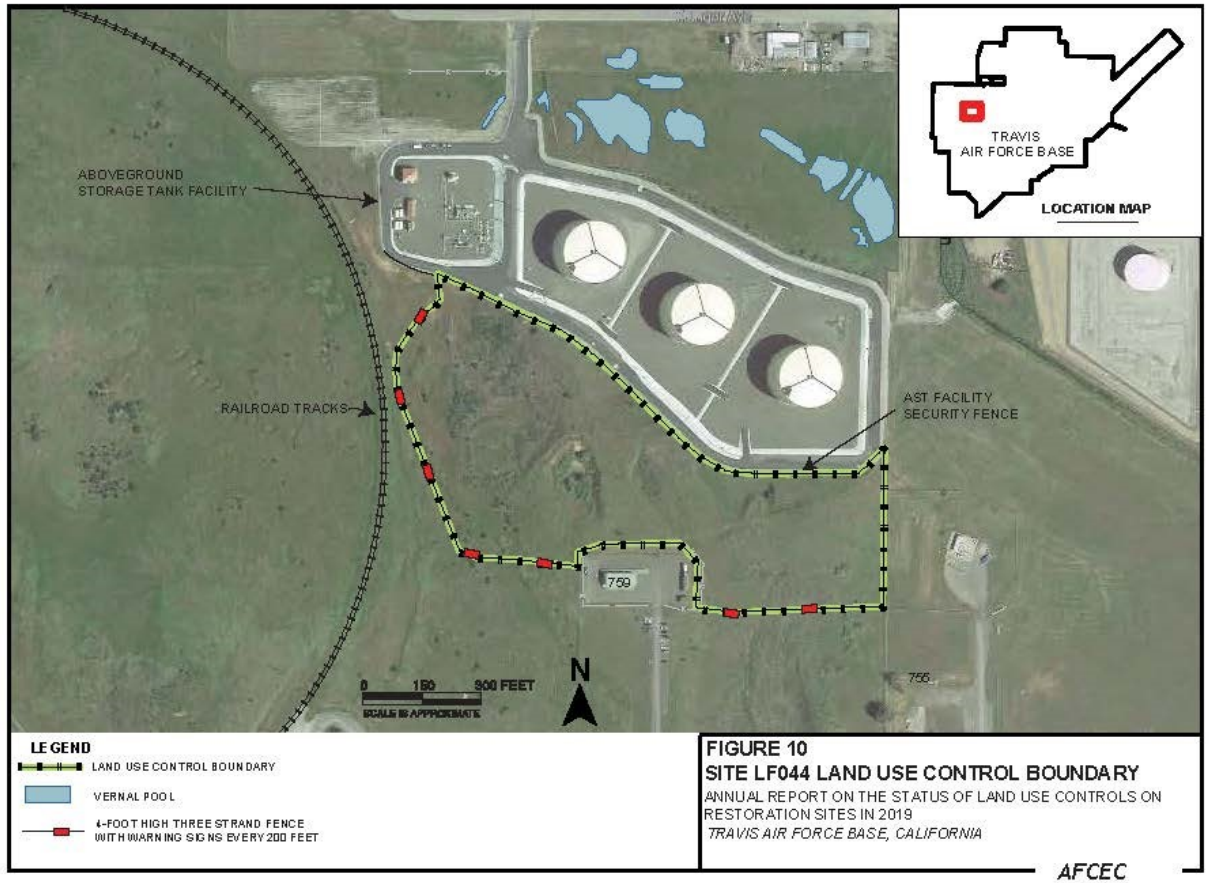
- The Proposed Action is to construct a batch plant location that would be used to accommodate batch plant equipment for the manufacture and supply concrete and base course material for construction projects at Travis AFB. Expected to be used for the next 15 years.

- Construction would include grading and leveling of the site and construction of crusher plant and concrete batch plant cement pads (for foundations), raw and finished material storage areas, equipment parking areas, and lay down and office trailer areas.

- Gravel for storage, parking, and laydown areas would be placed and compacted. Prior to construction of the Proposed Action, an existing stockpile left from a former surface disposal waste site would be sampled, characterized, and disposed of in accordance with applicable regulations.

Concrete Batch Plant at LF044

Concrete Batch Plant at LF044

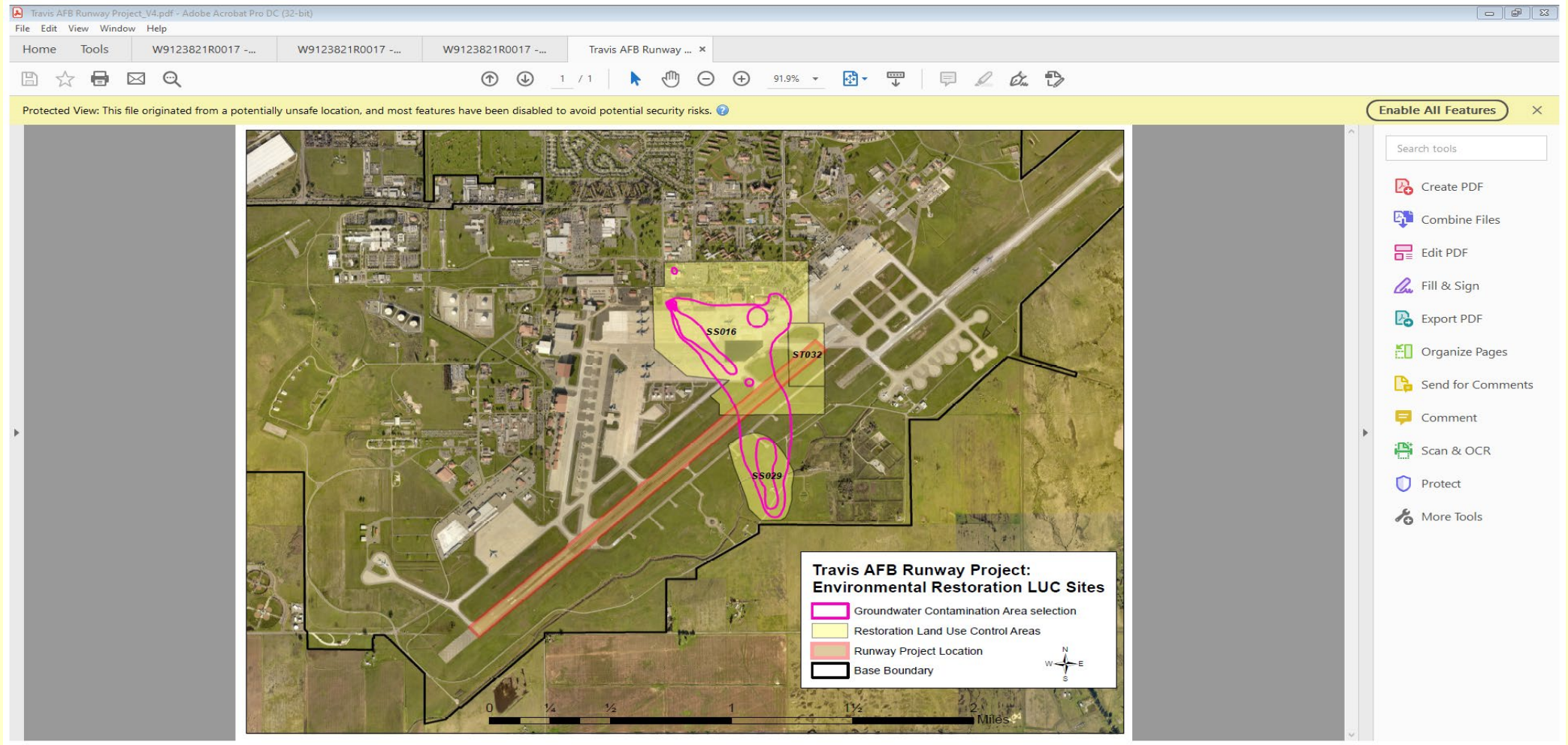


Concrete Batch Plant at LF044

Runway 03L/21R Replacement

- An EA for this project is ready to go out for public/regulatory review
- Results are FONSI/FONPA
- The EA states that the project overlays or is near SS016, SS029 & ST032
- The appropriate citations for the Administrative Controls (LUCs) and CFRs that the contractor has to comply with are included (29 & 40 CFR)
- EA will be sent out for public and regulatory review

Runway 03L/21R Replacement



Land Use Control Sites
SS016: KC-46 Hangar

- New Well & Valve Vaults will be Installed May 24
- Underground utility work going slowly; several unidentified utilities discovered, most had been abandoned in place
- EW conveyance piping through job site will be reinstalled straighter; original installation was very “wavy”
- MW226X16 will be decommissioned and a replacement will be installed

PFOS/PFOA Updates

*AFFF RI updates will be provided by SRS in the following section.

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

- 10 May, POETS, gauges and media received by local-area plumber preparing for installation.
- 11 May, site visit with electrician to verify electrical requirements.
- 14 May, county permits submitted. County estimates 1-2 week review period. A separate permit package was submitted for each property, so if permitting is delayed on any property, install can commence with the other two.
- 20 May, POETS delivered to properties, awaiting permits to commence with installation.

Property 1

New shed with existing shed to the right. Plans are to remove the existing shed and associated infrastructure and relocate every thing sans the well head into the new shed.

Property 2

New shed which houses the well head and pressure tank. The POETS will be installed within.

Property 3

New shed which will house the POETS and pressure tank. The wellhead will remain at its current location with below grade plumbing to the POETS.

FY21 NDAA Section 335 Notification

- **NO UPDATES;** no additional calls were received.

- 30 Mar; notification letters were mailed to 17 property owners within one mile of the base who are registered for agricultural use with the USDA; mailing addresses were provided by the USDA.

- 5 Apr TISS received as inquiry from a property manager representing a company that owns multiple properties near the base:
  - The property manager asked for the address and the Assessor's Parcel Number (APN) for the property that was identified using tract and farm numbers.
  - After confirming the APN, the property manager asked for an explanation of the contents of the letter which was provided.

Travis Air Force Base
Phase I Remedial Investigation of AFFF Areas

Presented by
James Griffin, PG
ONEIDA Sustainment and Restoration Services

19 May 2021

Project WP and UFP-QAPP

- Phase I RI WP and UFP-QAPP Introduction Meeting held 25 March 2021
- Oneida Team updated figures per DTSC request 25-26 March 2021
- Draft documents submitted electronically 26 March 2021
- Hard copy documents sent as requested
- Regulatory comments due **26 May 2021**
- Draft Final documents targeted 30 June 2021
- Initial field activities targeted Aug/Sept 2021

Revision to PFBS Screening Level

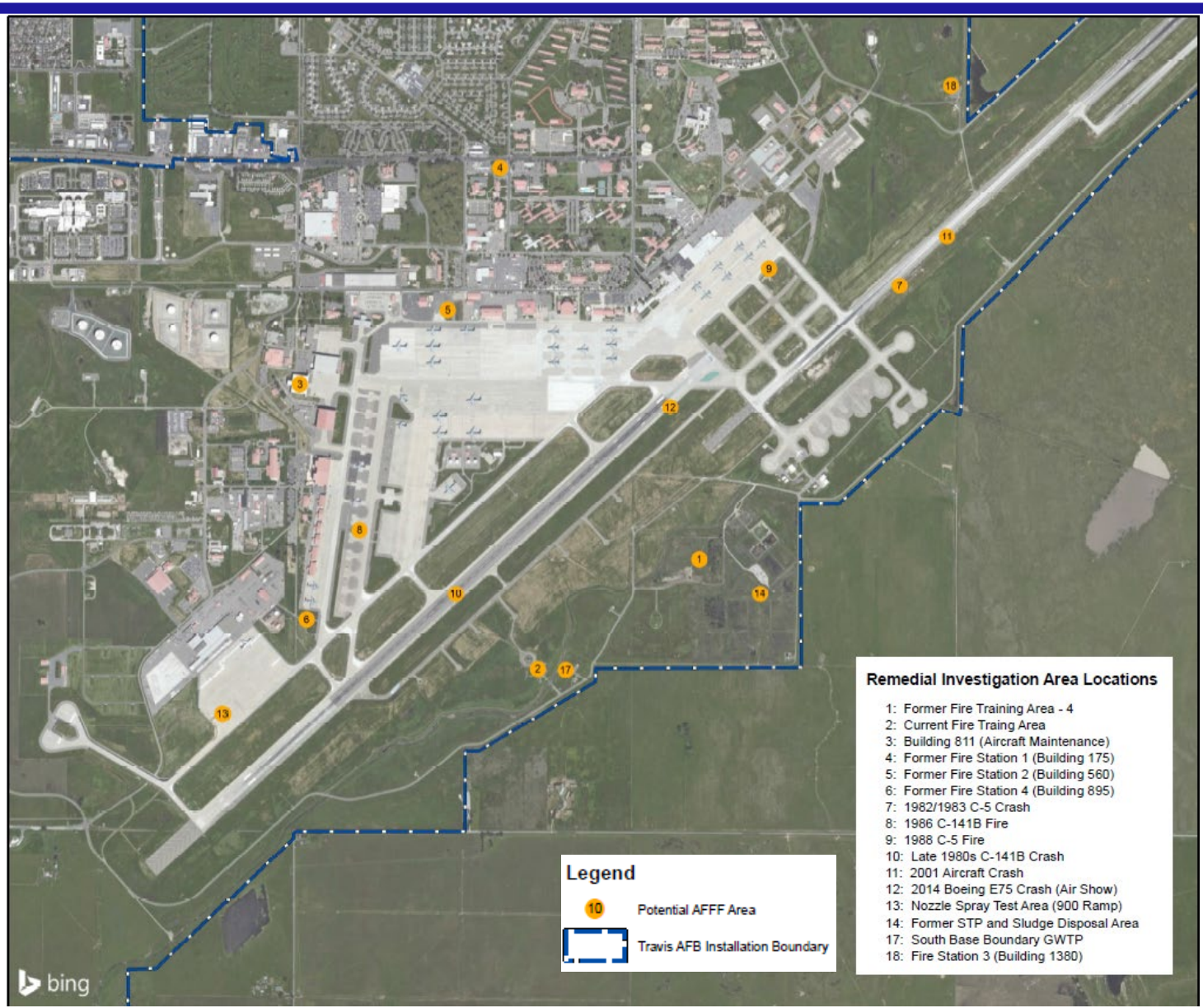
USEPA updated the toxicity assessment for PFBS in April 2021. Per direction received from the Office of the Deputy Assistance Secretary of Defense (ODASD) on 3 May 2021, the Phase I RI will utilize the updated PFBS RSL (HQ = 0.1) of:

- *PFBS in SOIL – 1.9 mg/kg (previous RSL – 130 mg/kg)*
- *PFBS in GW – 0.602 µg/L (previous RSL – 40 µg/L)*

Chemical	Carcinogenic Slope Factor - Oral (SF) (mg/kg-day)$^{-1}$	Non- Carcinogenic Reference Dose (RFD) (mg/kg-day)	Residential Screening Levels					
			Tap Water (µg/L)			Residential Soil (mg/kg)		
			HQ=0.1	ILCR= lE-06	ILCR= lE-04	HQ=0.1	ILCR= lE-06	ILCR= IE-04
PFOS	NA	2.00E-05	0.04	NA	NA	0.13	NA	NA
PFOA	7.00E-02	2.00E-05	0.04	1.1	111	0.13	7.8	775
PFBS	NA	3.00E-04	0.602	NA	NA	1.9	NA	NA
Note: The tap water RSL (HQ=0.1) shall be used for delineation in groundwater and surface water. The residential soil RSL (HQ=0.1) shall be used for delineation in soil and sediment.								

Note: Laboratory limits of quantitation [LOQ] for the Phase I RI are below the CA notification levels for PFOS, PFOA, and PFBS.

AFFF and Remedial Investigation Areas




AIR FORCE CIVIL ENGINEER CENTER