Final

Travis Air Force Base
Environmental Restoration Program
Restoration Program Manager's
Meeting Minutes
21 July 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 21 July 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
Angel Santiago	AFCEC/CZOW
Dave Leeson	AFCEC/CZRW
Kurt Grunawalt	Travis AFB 60 AMW/JA
Louis Briscese	Travis AFB 60 AMW/PA
Sarah Miller	USACE-Omaha
Rich Anderson	USACE-Omaha
Brian Boccellato	USACE-Omaha
Paul Gedbaw	USACE-Omaha
Alan Soicher	USACE-Omaha
Nadia Hollan Burke	EPA
Dan Stralka	EPA
Adriana Constantinescu	RWQCB
Kimiye Touchi	DTSC
Li Wang	DTSC
David Kremer	DTSC
Jesse Negherbon	DTSC
James Griffin	SRS
Diane Escobedo	SRS
Matt Mayry	SRS

Leslie Royer	CH2M/Jacobs
Mike Bedan	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 (June 2021)
Attachment 4	CGWTP Monthly Data Sheet (June 2021)
Attachment 5	LF007C GWTP Monthly Data Sheet (June 2021)
Attachment 6	ST018 GWTP Monthly Data Sheet (June 2021)
Attachment 7	Presentation: Vapor Intrusion Assessment Report (July 2021)
Attachment 8	Presentation: Program Update (July 2021)
Attachment 9	Travis AFB LUC Sites Update (July 2021)
Attachment 10	Travis AFB PFOS/PFOA Update (July 2021)
Attachment 11	Presentation: Phase 1 Remedial Investigation of AFFF Areas (July 2021)

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 June 2021 RPM Meeting Minutes. Ms. Burke of the Environmental Protection Agency (EPA) had minor editorial comments regarding missing punctuation in sections C and D which have been

corrected in the Final version. Additionally, the Program Issues/Update section was moved before the New Action Item Review section, and the Action Item Tracking Table was added, based on additional input from Ms. Burke.

3. Action Item Review

Action Item 1: Ms. Royer will provide the most recent treatment plant O&M manuals to the EPA for their document repository by the end of the PBC POP. July 2021 update: All were agreeable. This action item is ongoing.

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

The next RPM meeting is scheduled for 0930 on 18 August 2021. The team agreed that an in-person meeting is appropriate at this time, and the usual schedule (alternating between in-person and teleconferences) will resume. Mr. Storrs will meet participants at the main gate to escort them on-base in order to expedite admittance. Mr. Duke will have base pass paperwork ready for anyone who wishes to remain on base after the meeting to acquire their annual base pass. A virtual attendance option will remain available for those who are not able or do not wish to attend in person. MSTeams will likely be the platform of choice, but a trial will be conducted to ensure the technology works correctly.

If the team needs to switch back to monthly teleconferences in the future due to increased COVID precautions, the team will be notified, and the schedule will be updated accordingly.

The October RPM meeting will be held at 1400 on the same day as the October RAB meeting, which is also currently planned as an in-person meeting.

Travis AFB Master Document Schedule

There is limited capability for producing document hard copies and CDs due to ongoing COVID-19 restrictions. For now, electronic versions of small documents will be emailed, and larger versions will be distributed

via DOD SAFE. Hard copies and CDs cannot be made at the present time due to the CH2M/Jacobs offices being closed for COVID-19, with no access to reproduction equipment.

— Travis AFB AFFF Remedial Investigation Work Plan: There was no change to the schedule. Ms. Burke noted that the EPA team has constructed comments for the red line strike out of the Draft Final planning document. Mr. Duke explained that minor comments can be addressed; however, more difficult comments may result in a dispute that can delay the approval of the Final Draft Work Plan. Mr. Duke also noted that the finalization of this document is critical for beginning field work as originally scheduled to commence in late August.

— Travis AFB AFFF Remedial Investigation Quality Assurance Program Plan (QAPP): There was no change to the schedule. Ms. Burke noted that the EPA team has constructed comments for the red line strike out of the Draft Final planning document. Mr. Duke explained that minor comments can be addressed; however, more difficult comments may result in a dispute that can delay the approval of the Final Draft QAPP. Mr. Duke also noted that the finalization of this document is critical for beginning field work as originally scheduled to commence in late August.

— Quarterly Newsletter (October 2021): There was no change to the schedule. 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 was no change to the schedule. Mr. Duke thanked the regulators for providing their comments so quickly and indicated how helpful this is as the end of the PBC approaches.

— Technology Demonstration Technical Memorandum: The Response to Comments and Final due dates were changed to 23 July 2021.

— Site SD031 and FT004 Groundwater Sampling Results Technical Memorandum: The Response to Comments and Final due dates were changed to 21 July 2021.

— Vapor Intrusion Assessment Report: There was no change to the schedule.

— 2020 Annual Site LF007 CAMU Monitoring Report: The Draft to Agencies/RAB due date was changed to 19 July 2021, the Agency Comments due date was changed to 18 August 2021. The rest of the schedule remained unchanged. Ms. Burke commented that the regulatory document review status tracker says this document was submitted on 19 July, but she did not receive it. Ms. Royer replied that it is only reviewed by DTSC. Ms. Burke noted that she has deferred

EPA review to DTSC in the past, but still requires a copy of the Draft and Final and may review the document this time. Ms. Constantinescu noted the same for the RWQCB. Mr. Duke said that he will add Ms. Burke and Ms. Constantinescu to the distribution list for future versions of this document and will send the current version out to them with a new cover letter via DODSAFE. They will receive an email when the upload is ready for them.

— Site SD031B POCO Additional Site Investigation Report: There was no change to the schedule.

— Potrero Hills Annex (FS, PP, and ROD): There were no updates to the schedule. A well closure document was recently approved by the RWQCB. There are no significant activities ongoing at this time.

— 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:

— None

B. CURRENT PROJECTS

1. Treatment Plant Operation and Maintenance Update

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

The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 95.9% uptime, and 5.091 million gallons of groundwater were extracted and treated in June 2021. All treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 126.1 gallons per minute (gpm). Electrical power usage was 15,700 kilowatt hours (kWh), and approximately 13,218 pounds of CO2 were created (based on DOE calculation). Approximately 1.28 pounds of volatile organic compounds (VOCs) were removed in June. The total mass of VOCs removed since startup of the system is 538.5 pounds.

Chromium, lead, mercury, selenium, and zinc were detected in the influent sample, and chromium, lead, selenium, and zinc were detected in the effluent sample. Only lead and zinc exceeded their respective daily effluent limitations, and all metal concentrations are within background concentrations. Ms. Burke inquired if this is a new issue. Ms. Royer replied that the metals are naturally occurring and occasionally exceed the daily effluent limitations. Ms. Royer took the action to look for the established background concentrations in the Remedial Investigation, and

Ms. Constantinescu took the action to follow up with the NPDES specialists at the RWQCB.

Extraction well EW2785x05 was offline in June 2021 due to a faulty circuit breaker. The breaker was repaired but the well remains offline due to either a bad motor or wiring. Troubleshooting will continue in July 2021.

The SBBGWTP was shut down due to a power outage on 3 June 2021 for approximately a half hour. It was restarted without issue. It was also shut down on 22 June 2021 to conduct a carbon changeout on the lead carbon vessel. The system was restarted 24 hours after the changeout was conducted with no issue.

No optimization activities were conducted in June 2021.

Central Groundwater Treatment Plant, June 2021 (Attachment 4)

The Central Groundwater Treatment Plant (CGWTP) performed at 100% uptime with approximately 818,327 gallons of groundwater extracted and treated in June 2021. All treated water was discharged to the storm sewer system which discharges to Union Creek. The average flow rate for the CGWTP was 19.6 gpm. Electrical power usage was 1,140 kWh for all equipment connected to the Central Plant, and approximately 1,732 pounds of CO2 were generated. Approximately 1.51 pounds of VOCs were removed from groundwater by the treatment plant in June. The total mass of VOCs removed since the startup of the system is 11,571 pounds.

TCE and cis-1,2-DCE concentrations in the effluent sample collected on 3 June 2021 exceeded their respective instantaneous maximums. Confirmation samples were collected, and no VOCs were detected in the samples collected after the first and second carbon vessels nor the effluent sample, confirming that breakthrough has not occurred and the June results were likely a result of cross-contamination. The Travis team will continue to monitor influent, midpoint, and effluent concentrations.

No optimization activities were conducted in June 2021.

LF007C Groundwater Treatment Plant, June 2021 (Attachment 5)

The Subarea LF007C Groundwater Treatment Plant (LF007C GWTP) performed at 99.4% uptime with approximately 123,793 gallons of groundwater extracted and treated in June 2021. All treated water was discharged to Northgate Pond (formerly known as the Duck Pond) for beneficial reuse. The average flow rate was 3.0 gpm. Approximately 9.80 x 10^{-4} of a pound of VOCs was removed from groundwater by the treatment plant in June. 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.

On 22 June 2021, two low pressure 55-gallon steel drums were delivered to LF007 GWTP for use as additional carbon vessels. Because steel drums are not pressure vessels, bulging can happen at very low pressures. One of the drums began to bulge due to increased pressure, at the same time the pressure in the original fiberglass GAC also increased. The plant was shut down to clean the scale off the screen in the fiberglass vessel, and only one of the carbon drums was installed. The system was restarted on 30 June 2021 without issue. The other carbon drum will be available as a backup.

No optimization activities were conducted in June 2021.

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

Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 100% uptime with approximately 89,340 gallons of groundwater extracted in June 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 55 kWh for all equipment connected to the ST018 GWTP. The total CO2 discharge equivalent equates to approximately 41 pounds. Approximately 0.04 of a pound of MTBE, BTEX, VOCs, and TPH was removed in June 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 50.1 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 June 2021.

C. PRESENTATIONS

1. Presentation: Vapor Intrusion Assessment Report (see Attachment 7)

Ms. Royer gave an overview of the results of the Vapor Intrusion (VI) Assessment as documented in the VI Assessment Report. Please refer to Attachment 7 for the full briefing.

Highlights of the discussion include:

- A few chemicals (benzene, chloroform, 1,2-DCA, and naphthalene) exceeded indoor air RBCs at Buildings 38 (fire station located on flightline) and 837 (hangar located on flightline). However; these detections are not due to VI, but to indoor or outdoor sources. Due to the nature of activities performed at the buildings (vehicle storage/maintenance, aircraft storage/maintenance) and proximity to aircraft idling on the flightline; concentrations of these chemicals were somewhat elevated in indoor and outdoor air. However, there is not enough of a risk posed by chemicals detected indoors to warrant a scrubber to clean outdoor air to use as makeup indoor air; particularly as the hangar doors/vehicle bay doors are frequently open and therefore a scrubber would not significantly reduce impacts from outdoor air.
- While he agreed with the conclusions that contaminant concentrations in indoor air aren't high enough to be a concern, Mr. Stralka cautioned against putting too much weight on the radon data as a line of evidence in supporting the conclusion.
- Ms. Constantinescu asked if Henry's Law Constant had been considered in the comparison of the behavior of radon and the contaminants of concern to see if this can strengthen the use of the radon data as a line of evidence supporting the conclusion.
- Ms. Royer will talk with the team who did the radon and COC data comparison to see if the use of the radon data as a line of evidence can be strengthened for the draft version of the report.

2. Presentation: Program Update (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. PROGRAM ISSUES/UPDATE

Ms. Burke noted that the EPA needs to "close the loop" on the original Five-Year Review. Mr. Duke replied that the Air Force will be waiting until the ORC contract is awarded and loose ends will be wrapped up during the next Five-Year Review. The next Five-Year Review contract will be out for bid in Fiscal Year 2022.

Mr. Stralka announced that he will be retiring at the end of July, so there will only be 2 risk assessors working for EPA Region 9. They are currently determining how to divide the existing and future workload.

Ms. Miller announced that she will be going on maternity leave starting at the end of the week and that Mr. Rich Anderson, who was present on the call, will be acting as the USACE RPM for the remainder of the PBR contract.

E. NEW ACTION ITEM REVIEW

1. Mr. Storrs will add Ms. Burke and Ms. Constantinescu to the distribution list for the 2020 Annual Site LF007 CAMU Monitoring Report, and will send the draft to them via DoDSAFE with an updated cover letter.

2. The Air Force will indicate that Northgate Pond is formerly known as the Duck Pond in the next several Site LF007C Monthly Data Sheets.

3. Ms. Royer will look at established background concentration values for metals at the South Base Boundary GWTP in the Remedial Investigation Report for comparison to occasional exceedances in the effluent samples.

4. Ms. Constantinescu will follow up with the RWQCB NPDES staff regarding metals exceedances in the effluent samples from the SBBGWTP.

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F. ACTION ITEMS

Item #	Responsible	Action Item Description	Due Date	Status
1.	Ms. Royer	. Royer will provide the most recent treatment plant O&M manuals to the EPA for their document repository by the end of the PBC POP.	30 September 2021	Open
2.	Mr. Storrs	Mr. Storrs will add Ms. Burke and Ms. Constantinescu to the distribution list for the 2020 Annual Site LF007 CAMU Monitoring Report, and will send the draft to them via DoDSAFE with an updated cover letter.	23 July 2021	Open
3.	Mr. Santiago	The Air Force will indicate that Northgate Pond is formerly known as the Duck Pond in the next several Site LF007C Monthly Data Sheets.	Ongoing	Open
4.	Ms. Royer	Ms. Royer will look at established background concentration values for metals at the South Base Boundary GWTP in the Remedial Investigation Report for comparison to occasional exceedances in the effluent samples.	18 August 2021	Open
5.	Ms. Constantinescu	Ms. Constantinescu will follow up with the RWQCB NPDES staff regarding metals exceedances in the effluent samples from the SBBGWTP.	18 August 2021	Open

II. TRAVIS AFB UPDATES

A. Land Use Control Sites, July 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.

B. PFOS/PFOA PROGRAM STATUS, July 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.

B. PRESENTATIONS

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

Mr. Mayry presented slides providing an update on the Phase I RI of AFFF sites. Please refer to Attachment 11 for the full briefing. The Draft Final RLSO WP and UFP-QAPP were submitted on 30 June 2021 and are currently under Regulatory review. Per the FFA schedule, comments are due by 30 July 2021. If there are no comments to dispute within 30 calendar days after the submittal of the Draft Final then the planning documents will progress to Final.

If the planning documents require a dispute, the document process will be paused and not transition into a Final version until concurrence.

Mr. Mayry noted the team's current progress on the presented diagram of the Phase I RI Data Driven Process.

C. PROGRAM ISSUES/UPDATE

None

D. NEW ACTION ITEM REVIEW

No new action items identified.

E. ACTION ITEMS

Item #	Responsible	Action Item Description	Due Date	Status
1	Megan Duley/Diane Escobedo	Send meeting minutes to Travis AFB.	28 July 2021	Attached

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

The RPM Teleconference is scheduled for 9:30 AM PST on 21 July 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. VAPOR INTRUSION ASSESSMENT REPORT
   b. PROGRAM UPDATE:
      DOCUMENTS & ACTIVITIES COMPLETED, IN PROGRESS & PLANNED

4. NEW ACTION ITEM REVIEW

5. PROGRAM/ISSUES/UPDATE

B. TRAVIS UPDATES

1. CURRENT PROJECTS

   c. LUC SITES
   d. PFOS / PFOA

C. SRS PFAS RI CONTRACT

1. ADMINISTRATIVE

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

2. CURRENT PROJECTS

    PHASE 1 REMEDIAL INVESTIGATION OF AFFF AREAS

3. PRESENTATIONS

    PROGRAM UPDATE

4. NEW ACTION ITEM REVIEW

5. PROGRAM/ISSUES/UPDATE

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

2021
Annual Meeting and Teleconference Schedule

Monthly RPM Meeting[1] (Begins at time noted)	RPM Teleconference (Begins at time noted)	Restoration Advisory Board Meeting (Begins at 7:00 p.m.) (Poster Session at 6:30 p.m.)
—	01-20-21	—
—	02-17-21	—
—	03-17-21	—
—	04-15-21 (Thursday 2:00 PM)	—
—	05-19-21	—
—	06-16-21	—
—	07-21-21	—
08-18-21 (Start time?)	—	—
—	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	06-16-21	06-16-21
Agency Concurrence with Remedy	NA	NA
Public Comment Period	NA	NA
Public Meeting	**NA**	**NA**
Response to Comments Due	06-30-21	06-30-21
Draft Final Due	06-30-21	06-30-21
Final Due	07-30-21	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, Mobashir Ahmad CH2M, Levi Pratt**	**Technology Demonstration Technical Memorandum Travis AFB, Lonnie Duke CH2M, Tony Chakurian**
Scoping Meeting	**NA**	**NA**	**NA**
Predraft to AF/Service Center	08-31-21	04-27-21	01-13-21
AF/Service Center Comments Due	09-03-21	05-27-21	03-02-21
Draft to Agencies / RAB	09-07-21	06-11-21	03-16-21
Agency Comments Due	09-21-21	07-12-21	04-15-21
Response to Comments Meeting	**09-28-21**	07-21-21	**05-28-21**
Response to Comments Due	09-28-21	08-06-21	06-14-21 (07-23-21)
Draft Final Due	NA	NA	NA
Final Due	10-07-21	08-06-21	06-14-21 (07-23-21)
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, and Maintenance 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	06-03-21
AF/Service Center Comments Due	03-10-21	07-28-21	07-06-21
Draft to Agencies / RAB	04-14-21	08-11-21	07-19-21
Agency Comments Due	05-14-21	08-25-21	08-18-21
Response to Comments Meeting	**05-19-21**	**09-08-21**	**09-02-21**
Response to Comments Due	06-16-21 (07-21-21)	09-22-21	09-16-21
Draft Final Due	NA	NA	NA
Final Due	06-16-21 (07-21-21)	09-22-21	09-16-21
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.

South Base Boundary Groundwater Treatment Plant Monthly Data Sheet

Report Number: 248 **Reporting Period: 1 June 2021 – 30 June 2021** **Date Submitted: 13 July 2021**

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

System Metrics

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

Table 1 – Operations Summary – June 2021

Initial Data Collection:	6/1/2021 9:00	**Final Data Collection:**	6/30/2021 14:30
Operating Time:	Percent Uptime:	Electrical Power Usage:	
SBBGWTP: 673 hours	**SBBGWTP:** 95.9%	**SBBGWTP:**	15,700 kWh (13,218 lbs CO_2 generated[a])
Gallons Treated: **5.091 million gallons**		Gallons Treated Since July 1998: **1.266 billion gallons**	
Volume Discharged to Union Creek: **5.091 million gallons**		Gallons Treated from Other Sources: **0 gallons**	
VOC Mass Removed: **1.28 lbs**[b]		VOC Mass Removed Since July 1998: **538.5 lbs**	
Rolling 12-Month Cost per Pound of Mass Removed: **$21,743**[c]			
Monthly Cost per Pound of Mass Removed: **$16,126**[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 June 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) – June 2021

FT005				SS029		SS030	
EW01x05	Offline[a]	EW743x05	Offline[a]	EW01x29	Offline[c]	EW01x30	7.1
EW02x05	Offline[a]	EW744x05	4.7	EW02x29	2.2	EW02x30	2.2
EW03x05	Offline[a]	EW745x05	8.6	EW03x29	2.0	EW03x30	15.4
EW731x05	Offline[b]	EW746x05	Offline[a]	EW04x29	6.5	EW04x30	9.8
EW732x05	Offline[a]	EW2291x05	Offline[b]	EW05x29	4.3	EW05x30	7.2
EW733x05	Offline[a]	EW2782x05	6.9	EW06x29	13.3	EW2174x30	4.1
EW734x05	5.3	EW2783x05	1.9	EW07x29	10.1	EW711x30	4.8
EW735x05	7.3	EW2784x05	10.9				
EW736x05	Offline[a]	EW2785x05	Offline				
EW737x05	Offline[a]	EW2786x05	11.0				
EW742x05	Offline[a]						
FT005 Total: 56.6				**SS029 Total: 38.4**		**SS030 Total: 50.6**	

SBBGWTP Average Monthly Flow[d]: 126.1 gpm

[a] Extraction wells at FT005 were taken offline in accordance with the *2008 Annual Remedial Process Optimization Report for the Central Groundwater Treatment Plant, North Groundwater Treatment Plant, and South Base Boundary Groundwater Treatment Plant.*
[b] Extraction well was taken offline because the Site FT005 TD has concluded and COCs no longer exceed cleanup goals in this extraction area.
[c] Extraction well taken off line because of persistent fouling of the well pump and associated discharge piping.
[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.

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	3 June 2021	13:50	3 June 2021	14:15	Power outage
SBBGWTP	22 June 2021	08:00	23 June 2021	12:00	Carbon change out

[a] Shutdown and restart times estimated based on field notes
SBBGWTP = South Base Boundary Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater treatment samples were collected at the SBBGWTP on 3 June 2021. Sample results are presented in Table 4. The total VOC concentration (30.1 µg/L) in the influent sample increased from the May 2021 sample results (27.9 µg/L). TCE was the primary VOC detected in the influent sample at a concentration of 28 µg/L. TCE, cis-1,2-DCE, and 1,2-DCA was detected in the midpoint sampling location. Cis-1,2-DCE and 1,2-DCA were detected in the effluent sampling location at trace concentration less than the effluent discharge limit. The influent and effluent samples were analyzed for TPH-g, TPH-d, and TPH-mo, and no TPH was detected.

In June, the influent and effluent samples were also analyzed for metals. Sample results are presented in Table 5. Chromium, lead, mercury, selenium, and zinc were detected in the influent sample, and chromium, lead, selenium, and zinc were detected in the system effluent sample. All reported concentrations in the effluent were less than the daily maximum effluent limitations, with the exception of lead (7.0 J µg/L) and zinc (180 µg/L), which both exceeded their respective effluent limitations (5.2 µg/L and 95 µg/L). However, these metal concentrations are within background concentrations.

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 June 2021, EW2785x05 was offline because of a faulty circuit breaker. The breaker was repaired; however, the well remains offline because of a bad motor and/or power wiring. Trouble shooting will continue at EW2785x05 in July.

On 3 June 2021, the SBBGWTP was shut down for approximately half an hour because of a power outage. The treatment system was restarted without issue.

On 22 June 2021, the SBBGWTP was shut down to conduct a carbon change out on the lead carbon vessel. The vessel was re-bedded with regenerated coconut carbon. Following the change out, the carbon was allowed to soak for 24 hours, and on 23 June 2021, the system was restarted without issue.

Optimization Activities

No optimization activities occurred at the SBBGWTP in June 2021.

Sustainability

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

Figure 2 presents the historical GHG production from the SBBGWTP. In June 2021, the SBBGWTP produced approximately 13,218 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 June 2021 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	3 June 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	0.33 J	0.26 J
1,1-Dichloroethene	0.50	0.23	0	ND	ND	ND
cis-1,2-Dichloroethene	0.50	0.15	0	2.1	1.9	0.28 J
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	28	1.1	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	ND	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	25	0	ND	NM	ND
Total Petroleum Hydrocarbons – Motor Oil	100	32	0	ND	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

TABLE 5
Summary of Groundwater Metal Analytical Data for June 2021 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	Historical Background Concentrations (µg/L)	3 June 2021 (µg/L)	
					Influent	Effluent[b]
Metals						
Antimony	8,600	5.2	0	76	ND	ND
Arsenic	59	4.4	0	92.4	ND	ND
Beryllium	NA	0.17	0	3.18	ND	ND
Cadmium	1.8	0.45	0	5.42	ND	ND
Chromium	340	0.66	0	2,820	4.0 J	3.1 J
Copper	5.8	4.2	0	148	ND	ND
Lead	5.2	2.7	1	59.5	3.5 J	**7.0 J**
Nickel	14	2.6	0	734	ND	ND
Selenium	8.2	6.3	0	100	7.9 J	7.3 J
Silver	2.2	2	0	10.8	ND	ND
Thallium	13	4.9	0	1.85	ND	ND
Zinc	95	4.5	1	323	57 J	**180**
Mercury	0.10	0.03	0	0.96	0.19 J	ND
Cyanide, Total	NA	5.2	0	N/A	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:

Historical background concentrations as reported in the East Industrial Operable Unit (EIOU) Remedial Investigation Report (Roy F. Weston, 1995).

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

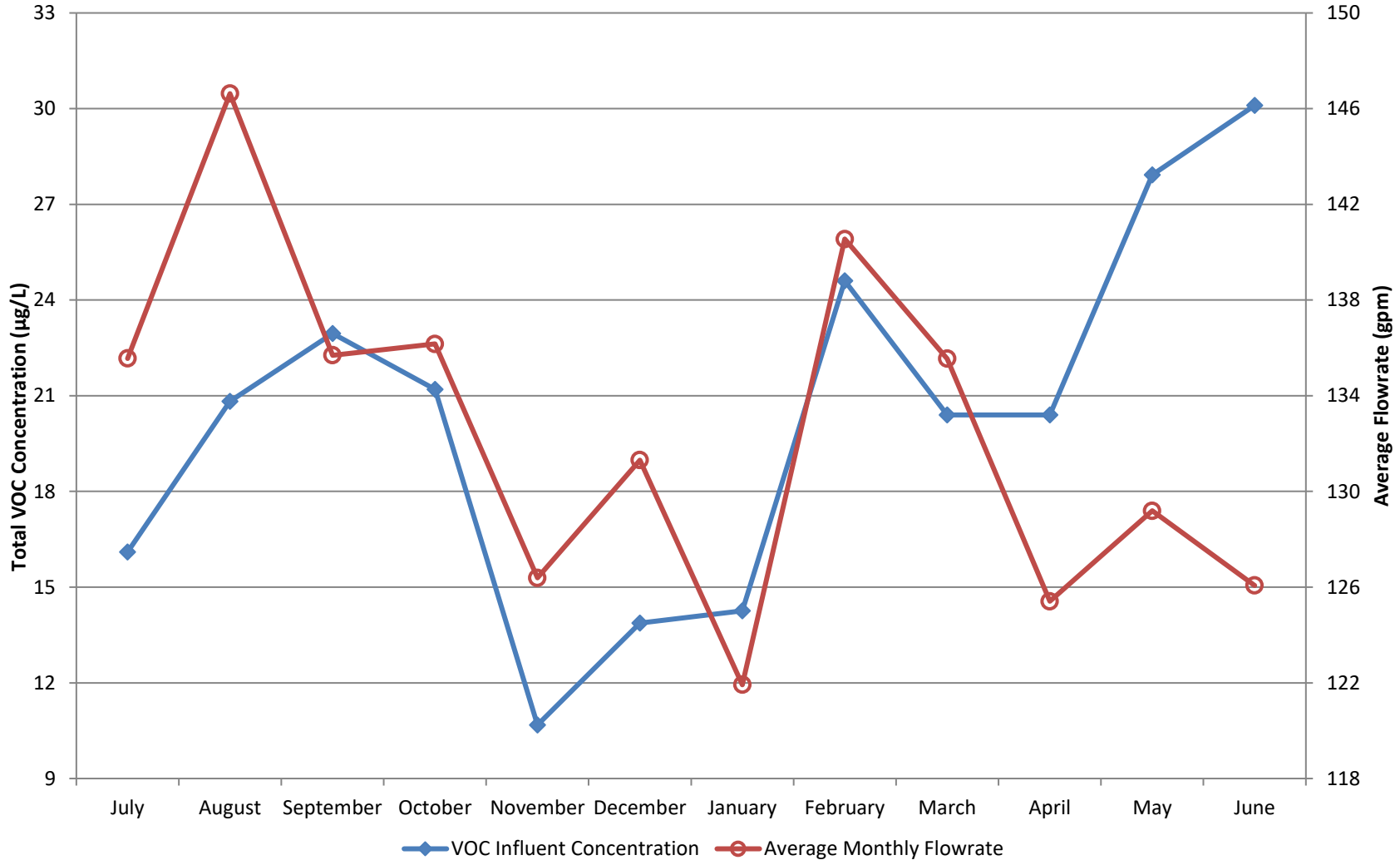
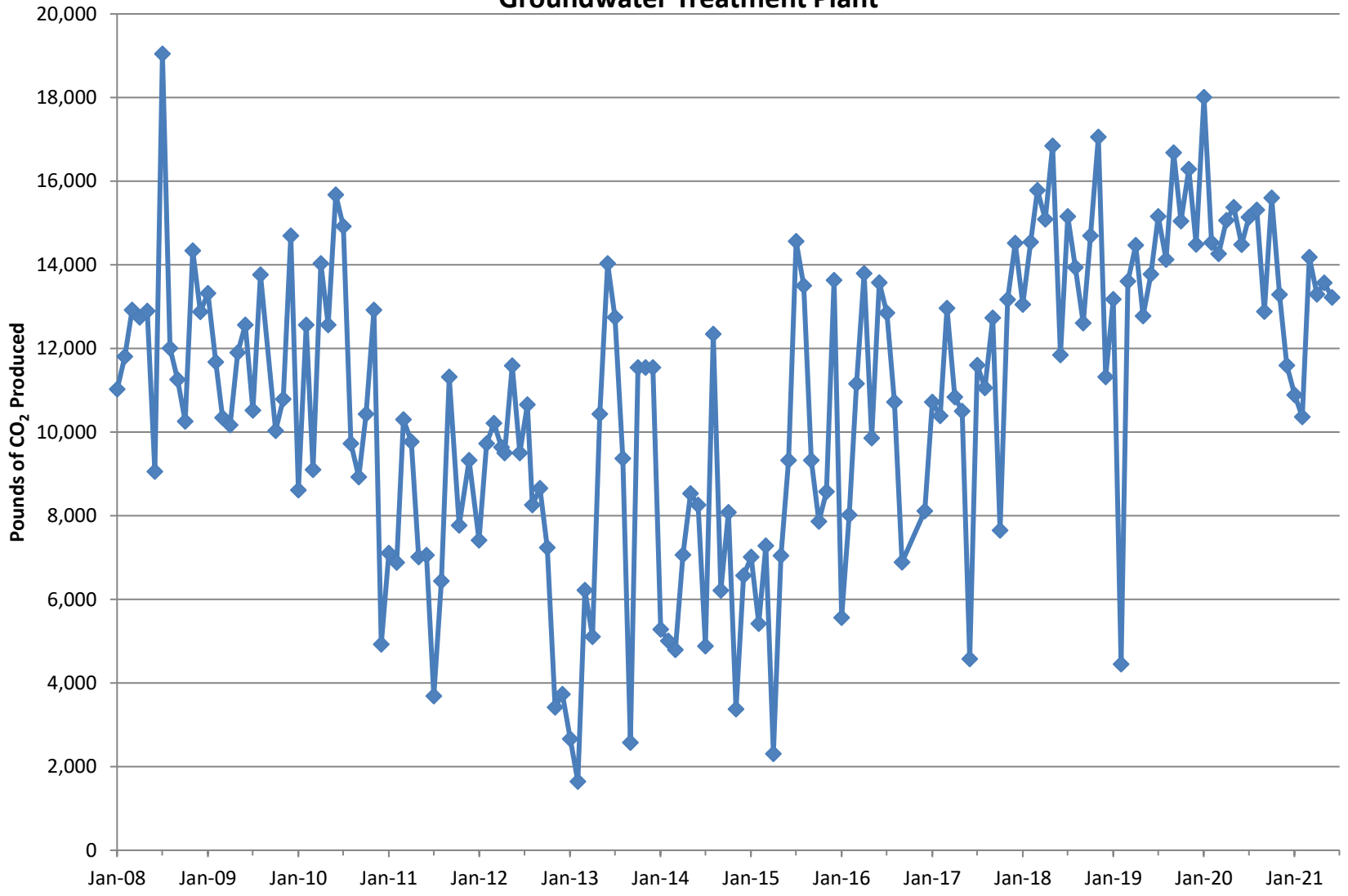


Figure 2

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



Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 263 **Reporting Period: 1 June 2021 – 30 June 2021** **Date Submitted: 13 July 2021**

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

System Metrics

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

Table 1 – Operations Summary – June 2021

Initial Data Collection:	6/1/2021 12:30	**Final Data Collection:**	6/30/2021 14:00		
Operating Time:		Percent Uptime:		Electrical Power Usage:	
CGWTP:	697.5 hours	**CGWTP:**	100%	**CGWTP:**	1,140 kWh (1,732 lbs CO_2 generated[a])
Gallons Treated (discharge to storm sewer): **818,327 gallons**		Gallons Treated Since January 1996: **593.0 million gallons**			
VOC Mass Removed from groundwater:		VOC Mass Removed Since January 1996:			
1.51 lbs[b]		**2,885 lbs from groundwater**			
		8,686 lbs from vapor			
Rolling 12-Month Cost per Pound of Mass Removed: $2,971[c]					
Monthly Cost per Pound of Mass Removed: $3,937[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 June 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] – June 2021

Location	Average Flow Rate Groundwater (gpm)
EW001x16	10.4
EW002x16	5.8
EW003x16[b]	0.0
EW605x16	NM[c]
EW610x16	NM[c]
CGWTP	19.6

[a] Flow rates calculated by dividing total gallons processed by system operating time for the month or the average of the instantaneous readings.
[b] Extracted groundwater from EW003x16 is treated in Site SS016 bioreactor. 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] No current access available to the wellhead totalizers because of construction activities
gpm = gallons per minute
NM = not measured

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

Table 3 – Summary of System Shutdowns					
	Shutdown[a]		Restart		
Location	Date	Time	Date	Time	Cause
CGWTP	None	--	--	--	

-- = Date/Time not recorded

[a] Shutdown and restart times estimated based on field notes

CGWTP = Central Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater treatment samples were collected at the CGWTP on 3 June 2021. Sample results are presented in Table 4. The total VOC concentration (220.8 µg/L) in the June 2021 influent sample has decreased from the May 2021 sample (224.98 µg/L). TCE was the primary VOC detected in the influent sample at a concentration of 170 µg/L. TCE and cis-1,2-DCE were detected in the samples collected after the first and second carbon vessels and in the effluent sample at trace concentrations. The TCE (0.89 J µg/L) and cis-1,2-DCE (0.69 J µg/L) concentrations in the effluent sample exceeded their respective instantaneous maximums.

Confirmation samples were collected on 1 July. Sample results are presented in Table 5. The total VOC concentration in the influent sample was 168.5 µg/L. No VOCs were detected in the samples collected after the first and second carbon vessels nor in the effluent sample. These results confirm that breakthrough has not occurred within the CGWTP carbon vessels, and the June results were likely a result of cross-contamination. Travis AFB will continue to monitor influent, midpoint, and effluent concentrations at the CGWTP for carbon breakthrough.

The June influent and effluent samples were analyzed for TPH-g, TPH-d, and TPH-mo, and no TPH was detected. In addition, the influent and effluent samples were analyzed for metals. Sample results are presented in Table 6. Chromium was detected in the influent sample, and lead was detected in the system effluent sample. All reported concentrations in the effluent were less than the daily maximum effluent limitations.

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

The Site SS016 subgrade biogeochemical reactor (SBGR), also known as the bioreactor and the Site DP039 bioreactor, continued operating in June 2021. The Site SS016 bioreactor was offline between November 2020 and March 2021 because EW003x16, which fed the bioreactor, was offline. EW003x16 has since been decommissioned, and a replacement horizontal extraction well (EW003Ax16) has been installed but has not yet been brought online. On 20 April 2021, the Site SS016 bioreactor began receiving groundwater from a pump installed in a nearby monitoring well, MW2022x16, located near the northwest corner of the bioreactor. In June 2021, the Site SS016 bioreactor continued receiving approximately 6-10 gallons of groundwater from MW2022x16 per day.

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. EW605x16 and EW610x16 were shut down beginning in mid-June because of hangar construction and remained offline for the remainder of June.

Optimization Activities

No optimization activities occurred at the CGWTP in June 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 1,732 pounds of GHG during June 2021.

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

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	3 June 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	1	48	0.37 J	0.21 J	**0.69 J**
trans-1,2-Dichloroethene	0.50	0.15 – 0.30	0	2.8 J	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	1	170	0.44 J	0.26 J	**0.89 J**
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	ND	NM	NM	ND
Total Petroleum Hydrocarbons – Diesel (C10 – C28)	50	24 – 27	0	ND	NM	NM	ND
Total Petroleum Hydrocarbons – Motor Oil (C28 – C40)	100	24 – 27	0	ND	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

TABLE 5
Summary of Groundwater Analytical Data for Confirmation June 2021 – Central Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	1 July 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	0.40 J	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	55	ND	ND	ND
trans-1,2-Dichloroethene	0.50	0.15 – 0.30	0	3.1	ND	ND	ND
Tetrachloroethene	0.50	0.20 – 0.40	0	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	110	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

[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

TABLE 6
Summary of Groundwater Metal Analytical Data for June 2021 – Central Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	3 June 2021 (µg/L)	
				Influent	Effluent[b]
Metals					
Antimony	8,600	5.2	0	ND	ND
Arsenic	59	4.4	0	ND	ND
Beryllium	NA	0.17	0	ND	ND
Cadmium	1.8	0.45	0	ND	ND
Chromium	340	0.66	0	0.88 J	ND
Copper	5.8	4.2	0	ND	ND
Lead	5.2	2.7	0	ND	3.7 J
Nickel	14	2.6	0	ND	ND
Selenium	8.2	6.3	0	ND	ND
Silver	2.2	2	0	ND	ND
Thallium	13	4.9	0	ND	ND
Zinc	95	4.5	0	ND	ND
Mercury	0.10	0.03	0	ND	ND
Cyanide, Total	NA	5.2	0	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

CGWTP Total VOC Influent Concentrations and Average Flowrate Twelve Month History

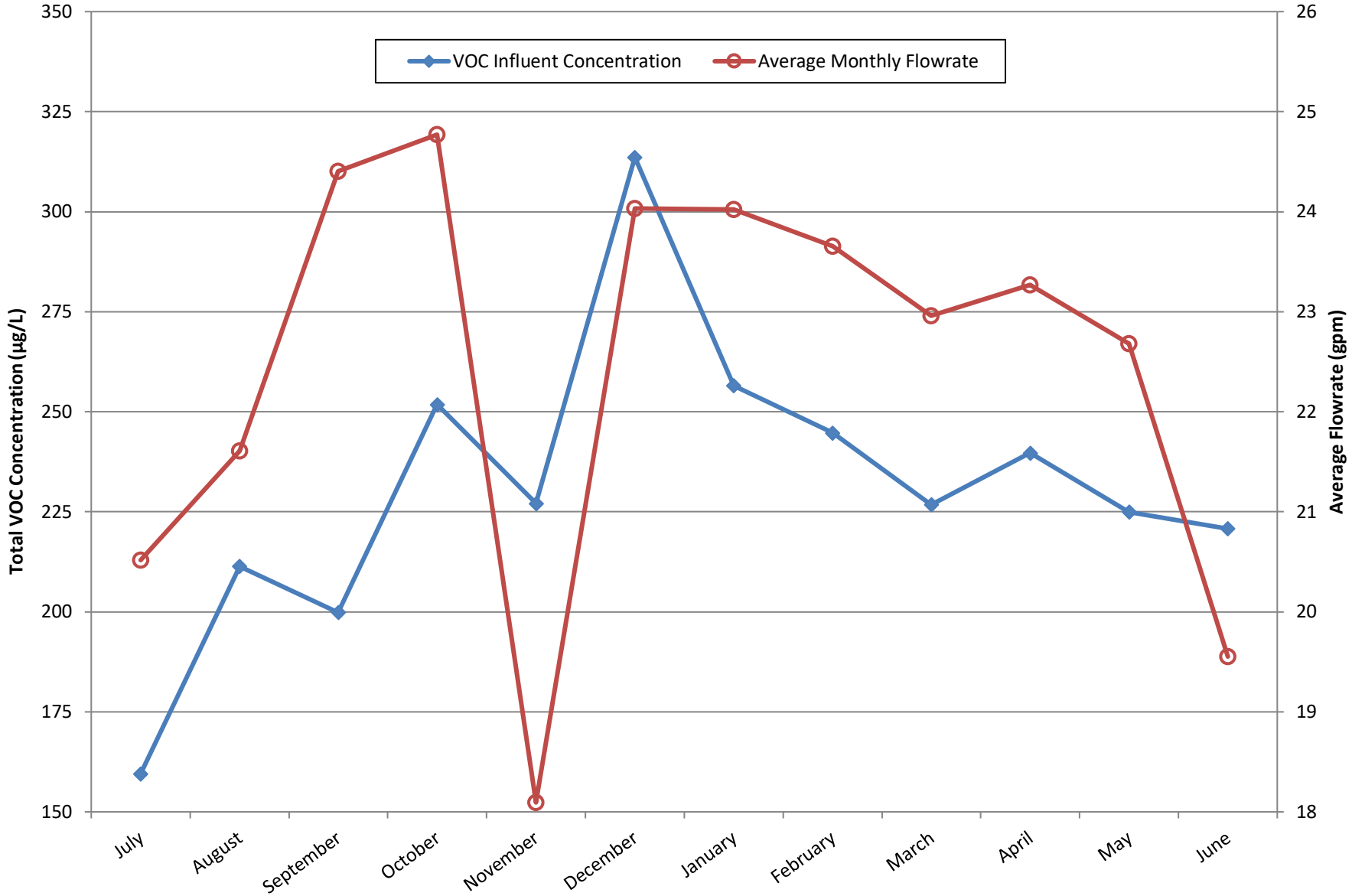
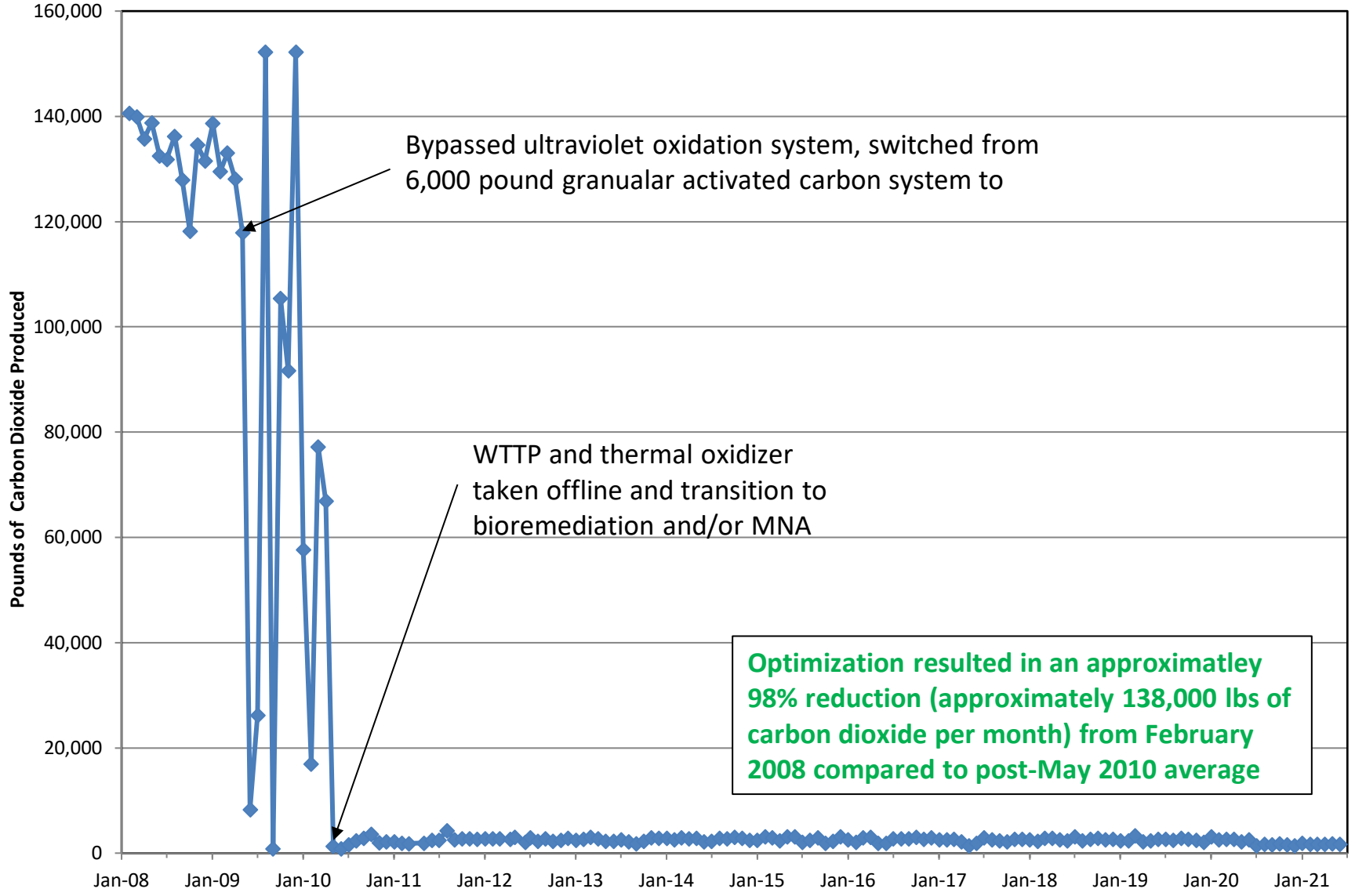


Figure 2

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



Subarea LF007C Groundwater Treatment Plant Monthly Data Sheet

Report Number: 202 **Reporting Period: 1 June 2021 – 30 June 2021** **Date Submitted: 13 July 2021**

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

System Metrics

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

Table 1 – Operations Summary – June 2021

Initial Data Collection:	6/1/2021 12:00		**Final Data Collection:**	6/30/2021 13:30	
Operating Time:		Percent Uptime:		Electrical Power Usage[a]:	
LF007C GWTP:	693 hours	**LF007C GWTP**	99.4%	**LF007C GWTP:**	0 kWh
Gallons Treated: **123,793 gallons**				Gallons Treated Since March 2000: **91.9 million gallons**	
Volume Discharged to Northgate Pond: **123,793 gallons**					
VOC Mass Removed: **9.80×10^{-4} 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 June 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 – June 2020

Location	Average Flow Rate (gpm)[a]	Total Gallons Processed (gallons)
EW614x07	2.6	106,998
EW615x07	0.6	25,571
LF007C GWTP	**3.0**	**123,793**

[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	24 June 2021	12:00	24 June 2021	13:45	Connect new carbon drums to end of treatment train.
LF007C GWTP	28 June 2021	14:00	28 June 2021	16:00	Attempt to clean screen in fiberglass vessel.
LF007C GWTP	30 June 2021	11:00	30 June 2021	12:30	Re-connect with just one carbon drum.

-- = Time not recorded

[a] Shutdown and restart times estimated based on field notes

LF007C GWTP = Subarea LF007C Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater samples were collected at the LF007C GWTP on 3 June 2021. Sample results are presented in Table 4. The total VOC concentration in the June 2021 influent sample was 0.95 J µg/L. TCE was the only VOC detected at the influent sample location. TCE (0.56 J µg/L) was detected in the midpoint sampling location. No VOCs were detected in the effluent sample location.

In June, the influent and effluent samples were also analyzed for metals. Sample results are presented in Table 5. Chromium, lead, mercury, nickel, and zinc were detected in the influent sample, and chromium, lead, and zinc were detected in the system effluent sample. All reported concentrations in the effluent were less than the daily maximum effluent limitations.

On 22 June 2021, two low-pressure 55-gallon carbon drums were delivered to LF007C GWTP. The drums were soaked for over 24 hours, and then added to the end of the treatment train. When the drums were brought online, the pressure inside the first drum increased to 11 psi and the lid began to bulge. The pressure in the original fiberglass GAC vessels also increased. The treatment plant was shut to down to clean the scale off the screen in the fiberglass vessel, and only one (1) carbon drum was installed instead of two (with the other available as a backup). The system was restarted on 30 June without issue.

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

Optimization Activities

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

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	3 June 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	0.95 J	0.56 J	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

TABLE 5
Summary of Groundwater Metal Analytical Data for June 2021 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	3 June 2021 (µg/L)	
				Influent	Effluent[b]
Metals					
Antimony	8,600	5.2	0	ND	ND
Arsenic	59	4.4	0	ND	ND
Beryllium	NA	0.17	0	ND	ND
Cadmium	1.8	0.45	0	ND	ND
Chromium	340	0.66	0	1.5 J	1.3 J
Copper	5.8	4.2	0	ND	ND
Lead	5.2	2.7	0	6.6 J	3.7 J
Nickel	14	2.6	0	4.9 J	ND
Selenium	8.2	6.3	0	ND	ND
Silver	2.2	2	0	ND	ND
Thallium	13	4.9	0	ND	ND
Zinc	95	4.5	0	100 J	22 J
Mercury	0.10	0.03	0	0.84	ND
Cyanide, Total	NA	5.2	0	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

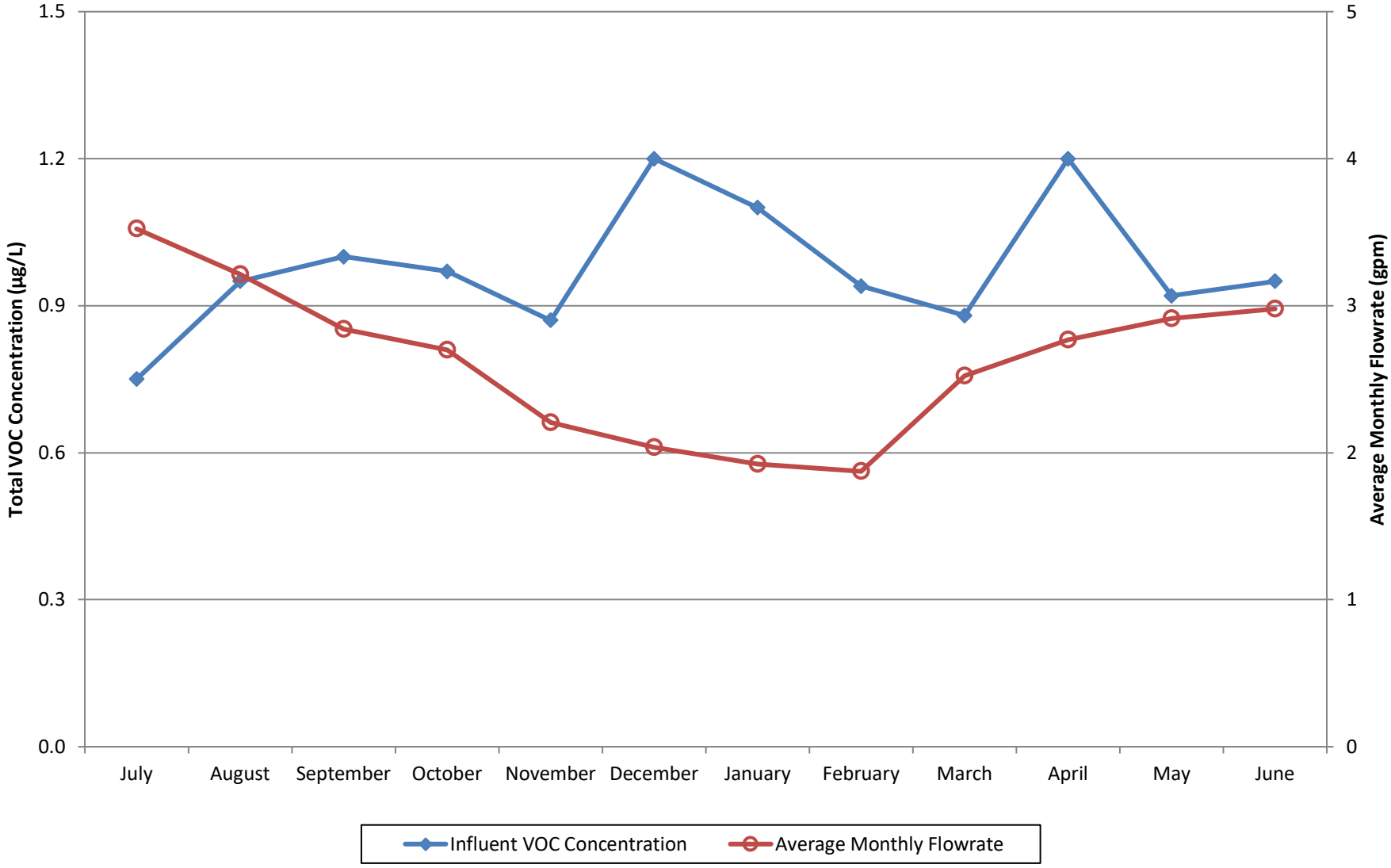
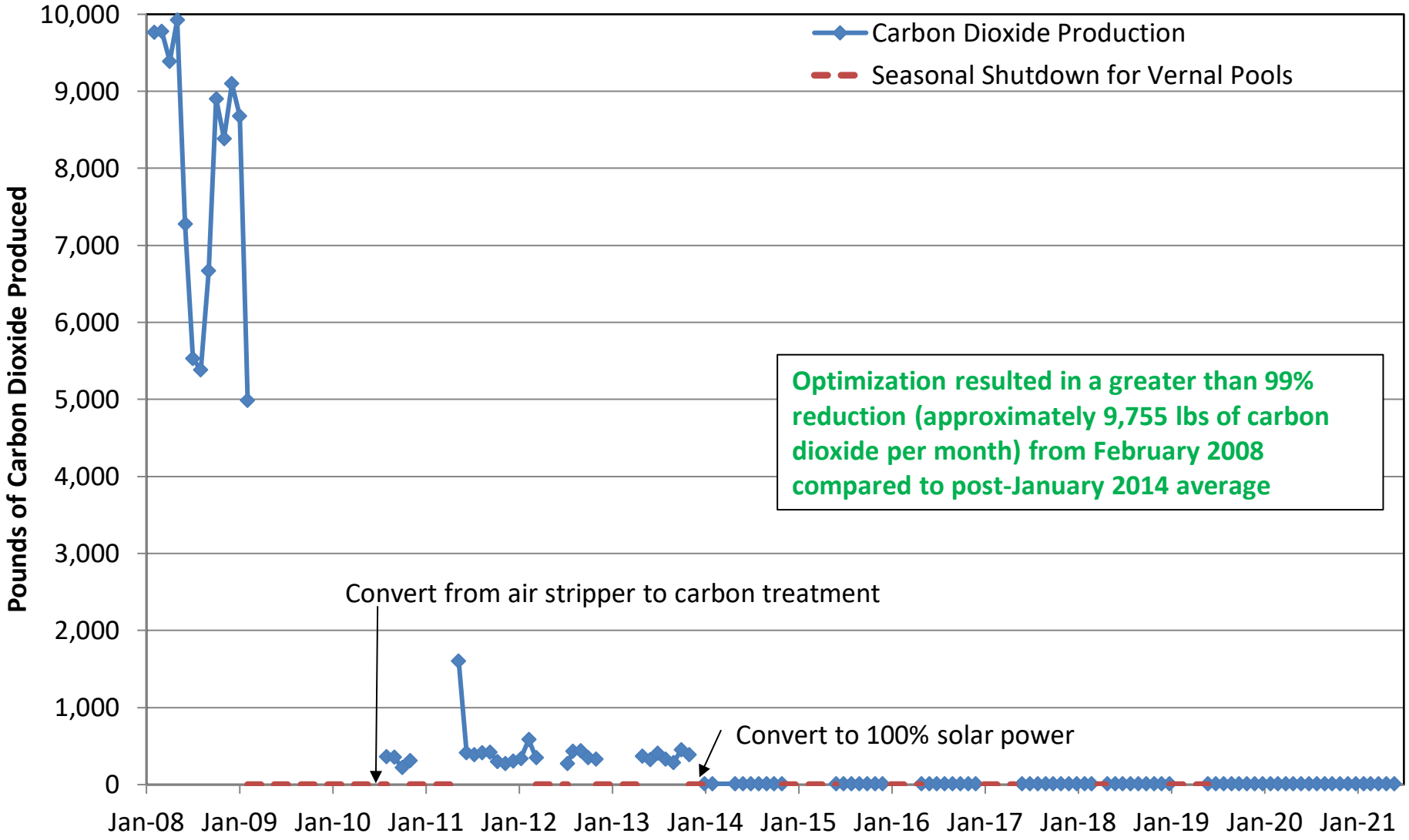


Figure 2

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: 124 **Reporting Period: 1 June 2021 – 1 July 2021** **Date Submitted: 13 July 2021**

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

System Metrics

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

Table 1 – Operations Summary – June 2021

Initial Data Collection: 6/1/2021 11:00		**Final Data Collection:**	7/1/2021 12:30
Operating Time:		Percent Uptime:	Electrical Power Usage:
ST018GWTP: 721.5 hours		**ST018GWTP: 100**%	**ST018GWTP:** 55 kWh (41 lbs CO_2 generated[a])
Gallons Extracted: **89,340 gallons**		Gallons Extracted Since March 2011: **20.3 million gallons**	
Volume Discharged to Sanitary Sewer: **89,340 gallons**		Final Totalizer Reading: **20,320,549 gallons**	
Cumulative Volume Discharged to Sanitary Sewer since 1 November 2014: **13.8 million gallons**			
MTBE, BTEX, VOC, TPH Mass Removed: **0.04 lbs**[b]		MTBE, BTEX, VOC, TPH Mass Removed Since March 2011: **50.1 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: $80,148[bc]			
Monthly Cost per Pound of Mass Removed: $132,970[bc]			

[a] SiteWise™ estimate that 1 kilowatt hour generated produces 0.74 pounds of GHG.
[b] Calculated using June 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 – June 2021

Location	Average Flow Rate Groundwater (gpm)[a]	Hours of Operation
EW2014x18	1.2	721.5
EW2016x18	1.0	721.5
EW2019x18	0.0	Offline[b]
EW2333x18	1.8	721.5
ST018GWTP	2.1	721.5

[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 3 June 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 June 2021 laboratory data report is available upon request. The MTBE discharge concentration during the June 2021 sampling event was 16 µg/L, which is an increase from the May 2021 sample result of 14 µg/L. TPH-g, benzene, and 1,2-DCA were also detected in the system discharge sample and are listed in Table 4.

The Fairfield-Suisun Sewer District does not currently have a discharge limit for MTBE, but a limit of 6,400 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 June 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 June 2021 and removed 89,340 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 June 2021 – Site ST018 Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	3 June 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	0.59 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	42
Total Petroleum Hydrocarbons – Diesel	50,000[d]	15	0	ND
Total Petroleum Hydrocarbons – Motor Oil	100,000	160	0	ND
Other				
Acetone	NA	1.9	0	ND
Bromomethane	NA	0.21	0	ND
2-Butanone (MEK)	NA	2.0	0	ND
1,2-Dichloroethane	20	0.13	0	0.52 J
Isopropylbenzene	NA	0.19	0	ND
Naphthalene	NA	0.22	0	ND
N-Propylbenzene	NA	0.16	0	ND

[a] In accordance with the Fairfield-Suisun Sewer District Discharge Limitations

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

[c] The limit of 25,000 µg/L is a combined limit for BTEX.

[d] The limit of 50,000 µg/L is a combined limit for TPH-g and TPH-d.

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

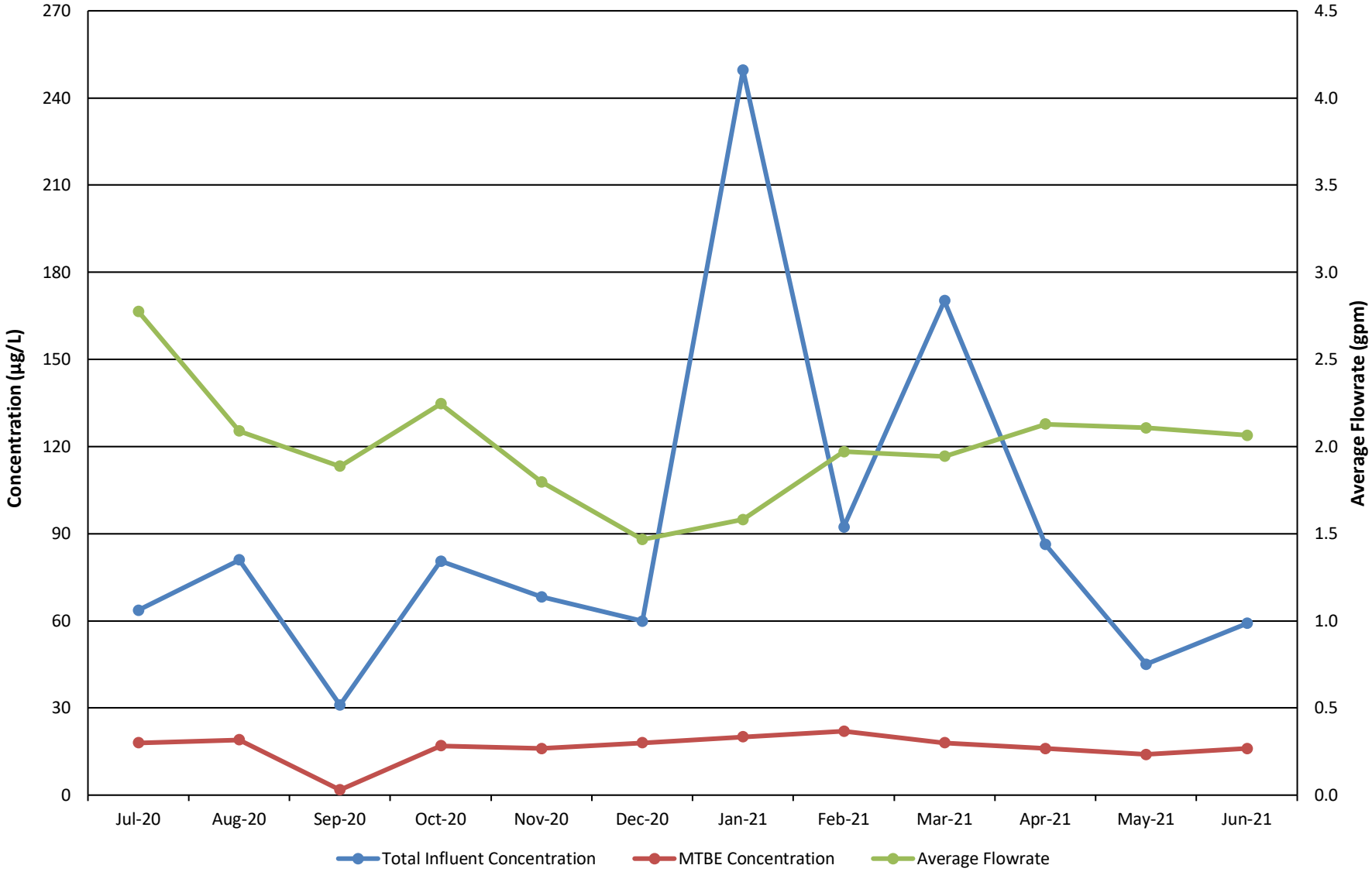
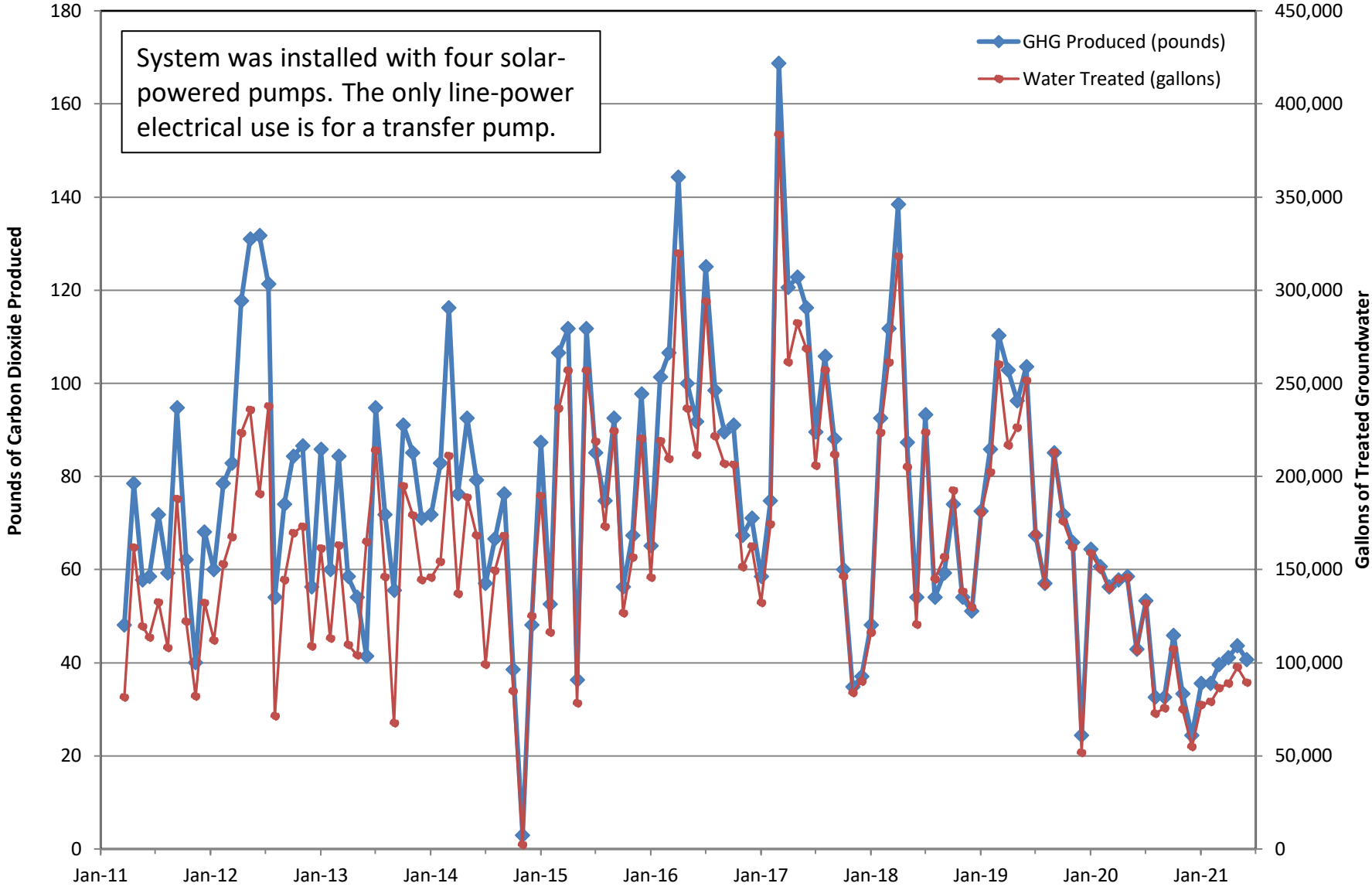


Figure 2

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



Vapor Intrusion Assessment Report

RPM Meeting – Travis AFB

July 21, 2021

Overview

- Purpose is to summarize the results of the Vapor Intrusion (VI) Assessment (documented in the VI Assessment Report)
- 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 and May 2021 Events
    - Bldgs. 38, 549, 554, and 837 sampled
    - Indoor, outdoor, passive vent, and soil gas samples collected
    - Radon tracer test performed

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) (DTSC, 2020; EPA 2021) because of Vapor Intrusion (VI)
- Provide additional data to evaluate VOC source strength beneath Bldgs. 38, 554, and 837

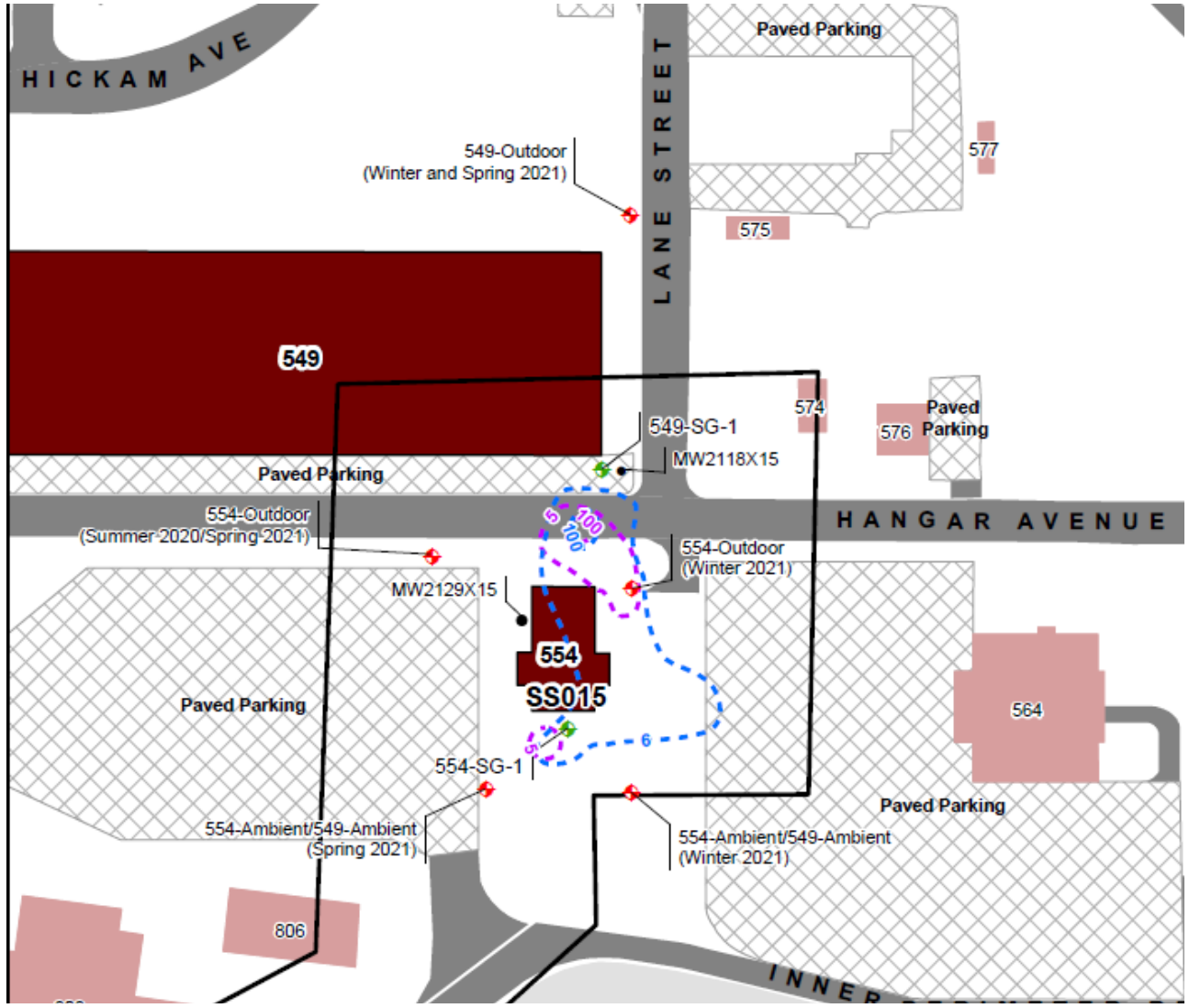
VI Assessment Approach

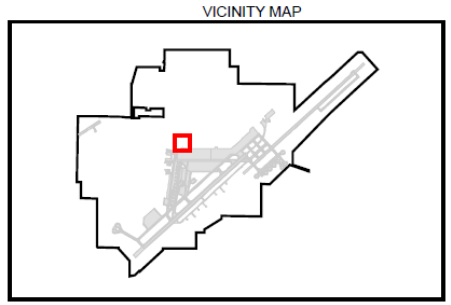
- Data collected supported a multiple line-of evidence assessment of VI risk at these four buildings
  - Comparison of indoor air and subslab vapor VOC concentrations to RBCs
    - Indoor air samples were screened against industrial indoor air RBCs (DTSC, 2020; EPA 2021)
    - Subslab, passive vent, and shallow soil gas samples were screened against subslab vapor RBCs [based on applying the EPA (2015) 0.03 attenuation factor to the industrial indoor air RBCs]
  - Comparison of indoor air, outdoor air, ambient air, passive vent layer vapor, subslab vapor, and soil gas data
  - Radon tracer test
  - Assessing spatial extent and magnitude of soil vapor concentrations
  - Reviewing building characteristics
  - Considering the potential for preferential pathways

VI Assessment Approach, Cont.

- Human Health Risk Assessment (HHRA)

Bldgs. 549 (Warehouse) and 554 (Maintenance & Refueling Facility)- Site SS015





LEGEND

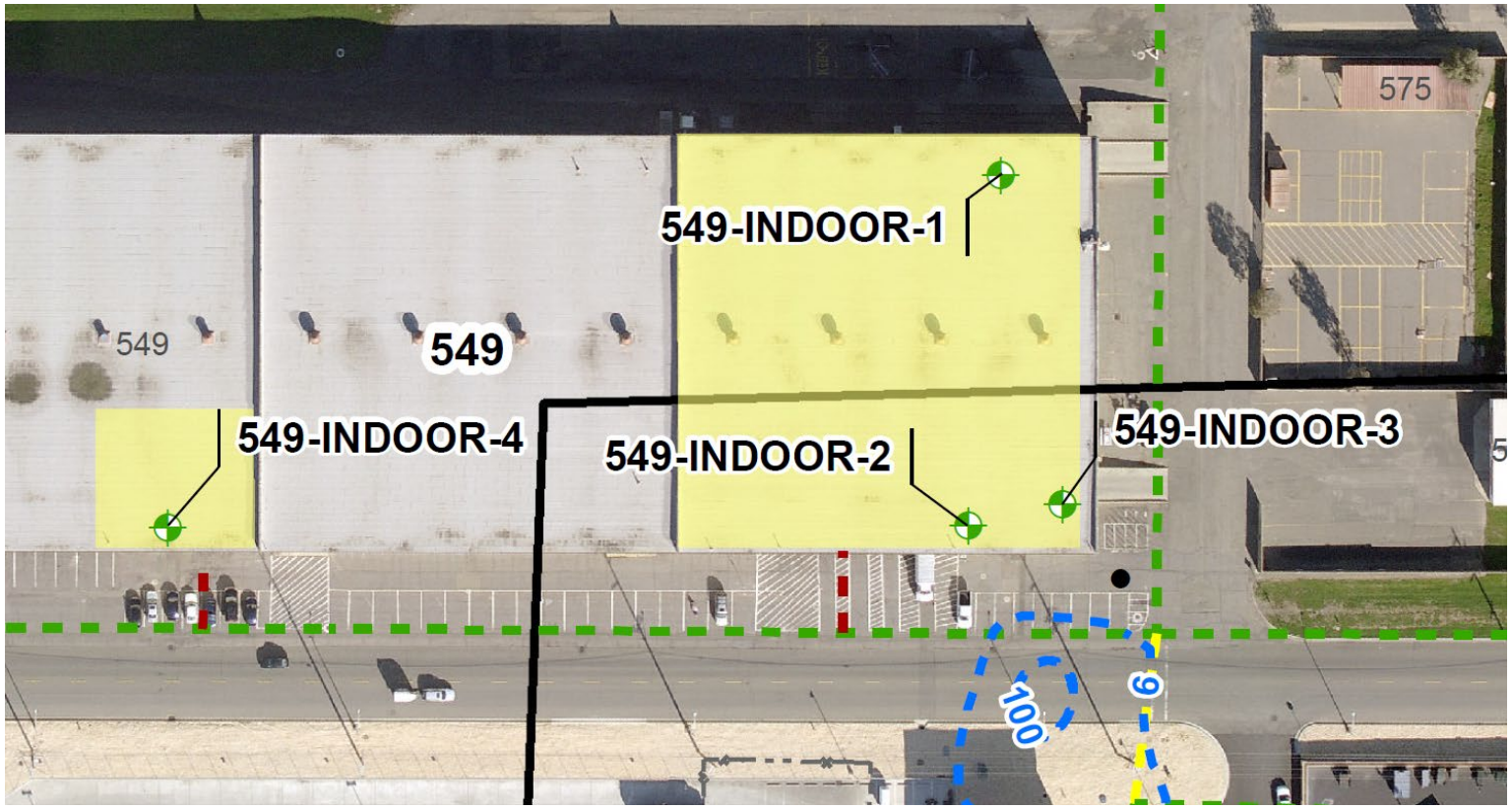
- GROUNDWATER MONITORING WELL
- OUTDOOR AIR SAMPLING LOCATION
- SOIL GAS SAMPLING LOCATION
- APPROXIMATE 2020 CIS-1,2-DCE ISOCONCENTRATION CONTOURS (µg/L)
- APPROXIMATE 2020 TCE ISOCONCENTRATION CONTOURS (µg/L)
- ERP SITE BOUNDARY
- BUILDING 549 AND 554
- EXISTING STRUCTURE
- ROAD
- PARKING
- AIRFIELD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

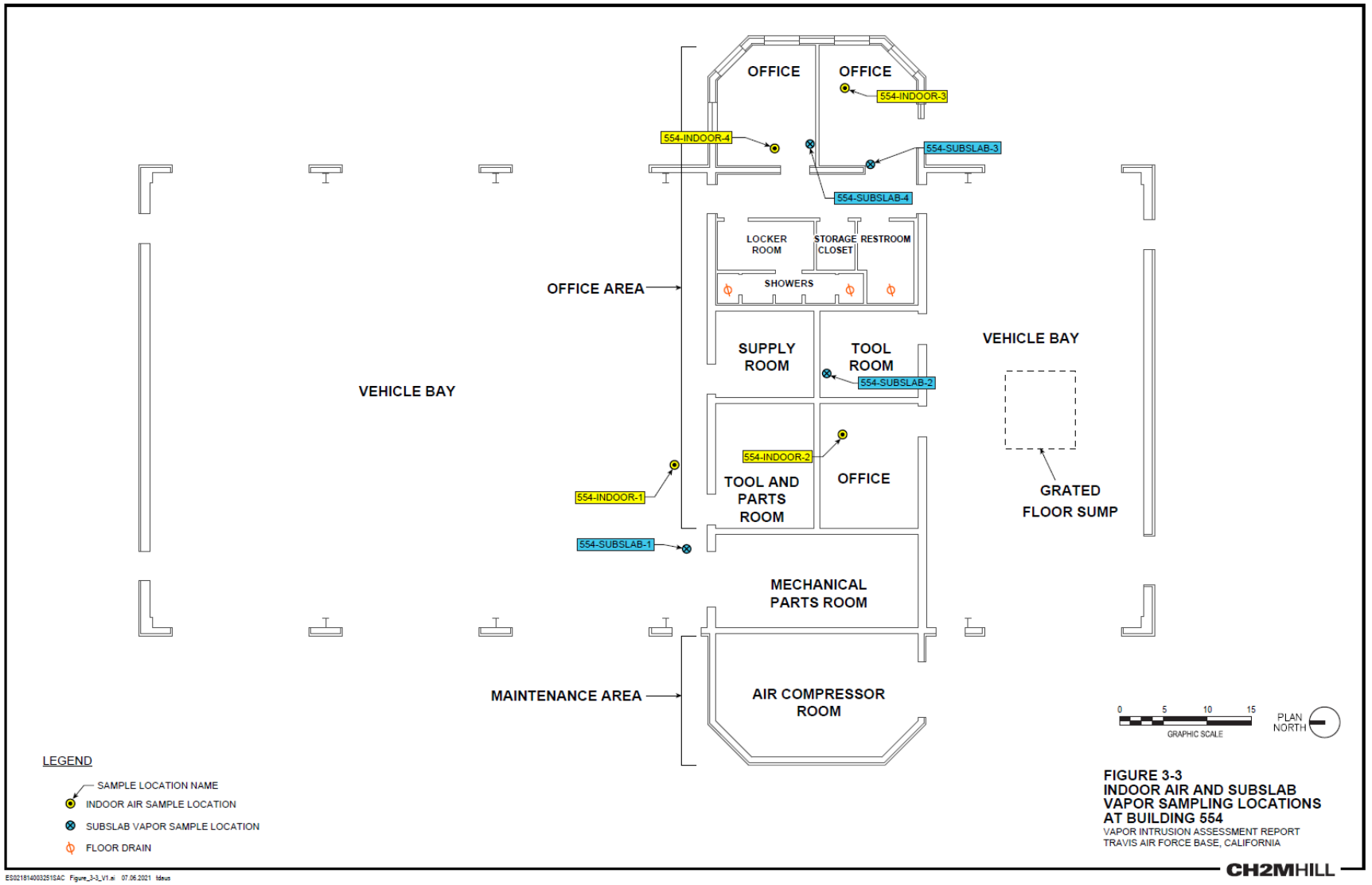
- Good
- Moderate Defects Present
- Significant Defects Present

N

0 70 140

FEET

Bldg. 554 Indoor & Subslab Sample Locations



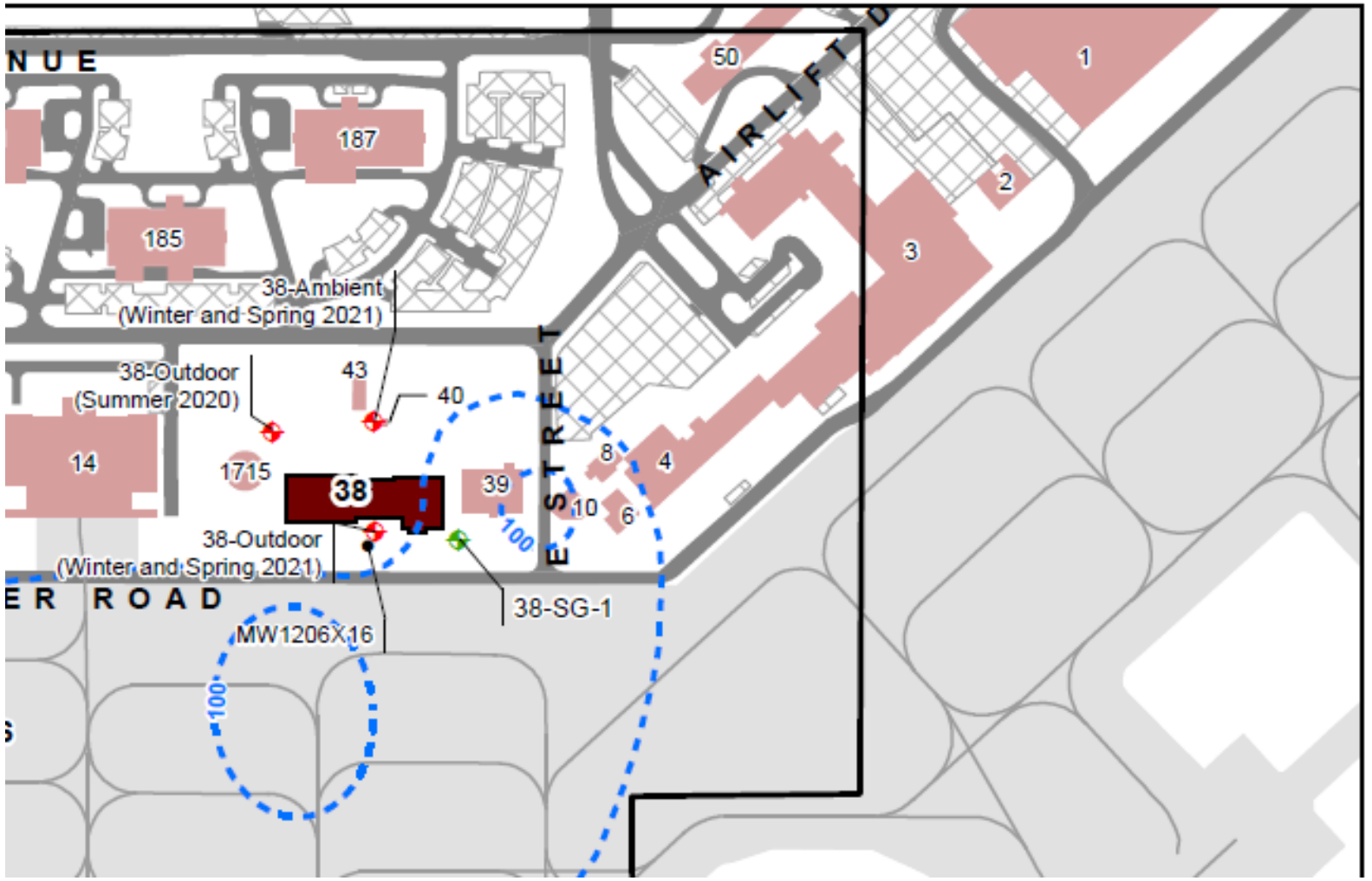
Bldgs. 549 and 554 Samples Collected

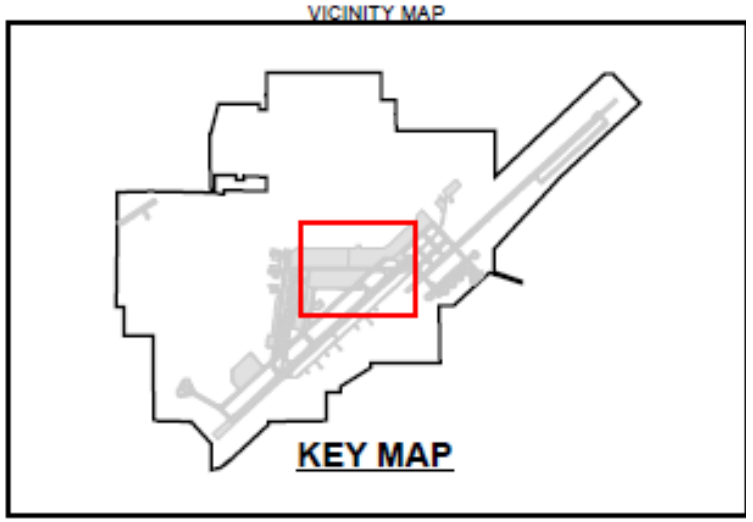
Building	Indoor Air Sampling Locations	Outdoor Air Sampling Locations	Exterior Soil Gas Sampling Locations	Subslab Soil Vapor Probe Sampling Locations	Passive Vent Layer Sampling Locations
549: August 2020	0	0	0	0	NA
549: Jan/Feb 2021	4	2	1	0	NA
549: May 2021	4	2	0	0	NA
554: August 2020	3	1	0	0	4
554: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

Bldgs. 549 and 554 Sample Result Summary

- No chemicals exceeded RBCs in indoor air, subslab vapor, or shallow soil gas
- 1,2-DCA concentrations detected in outdoor air samples exceeded the industrial indoor air RBC

Bldg. 38 (Fire Station)-Site SS016

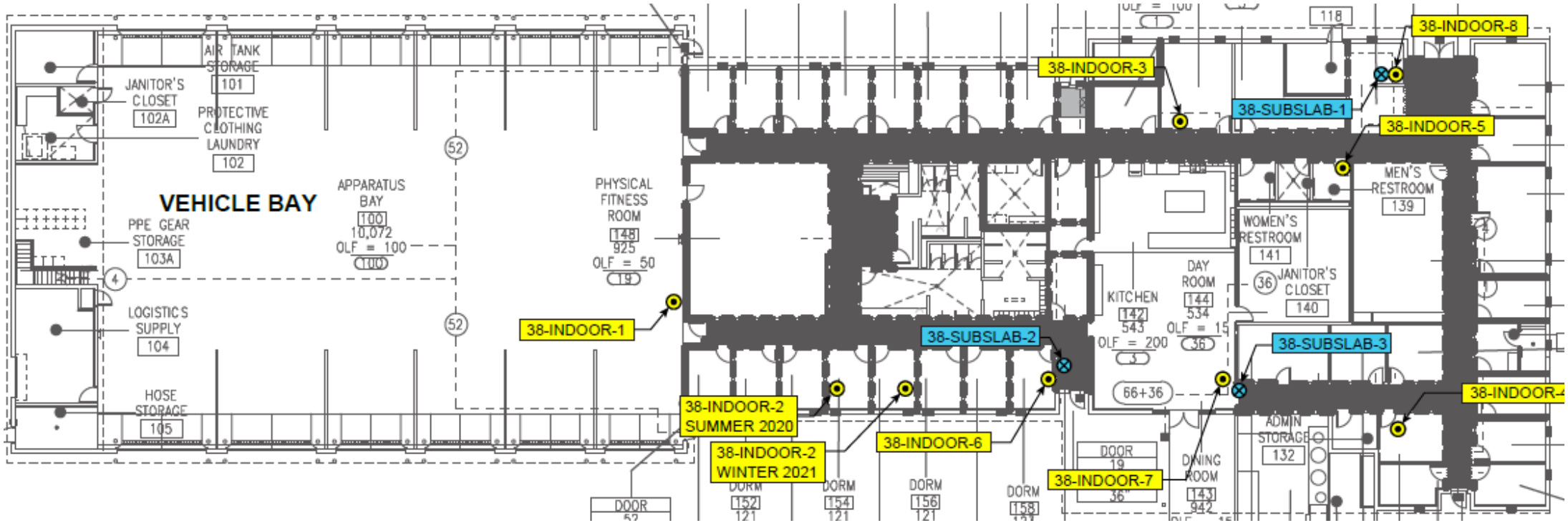




Legend

- 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



LEGEND

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

Bldg. 38 Samples Collected

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
38: May 2021	4	2	3	0

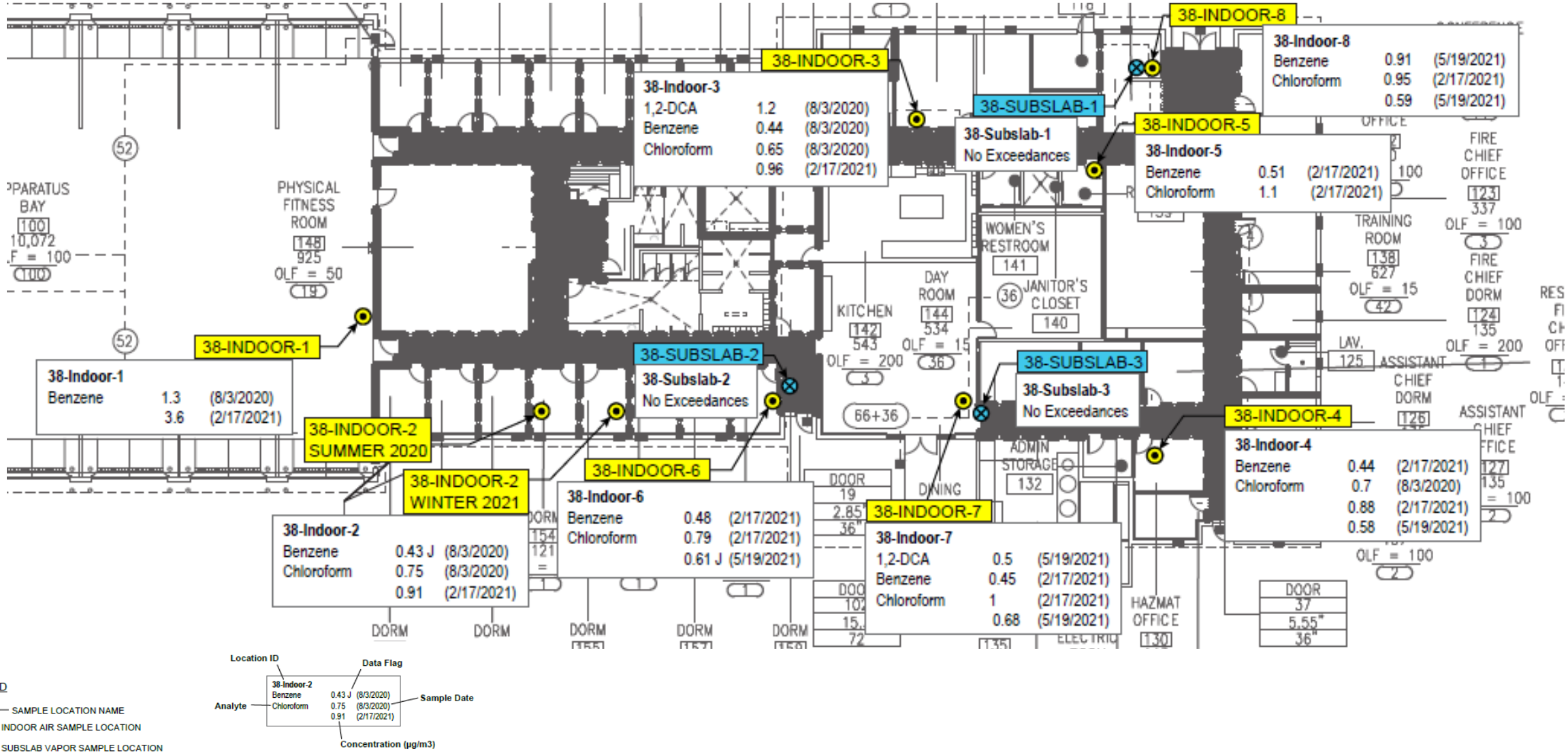
Bldg. 38 Sample Results Summary

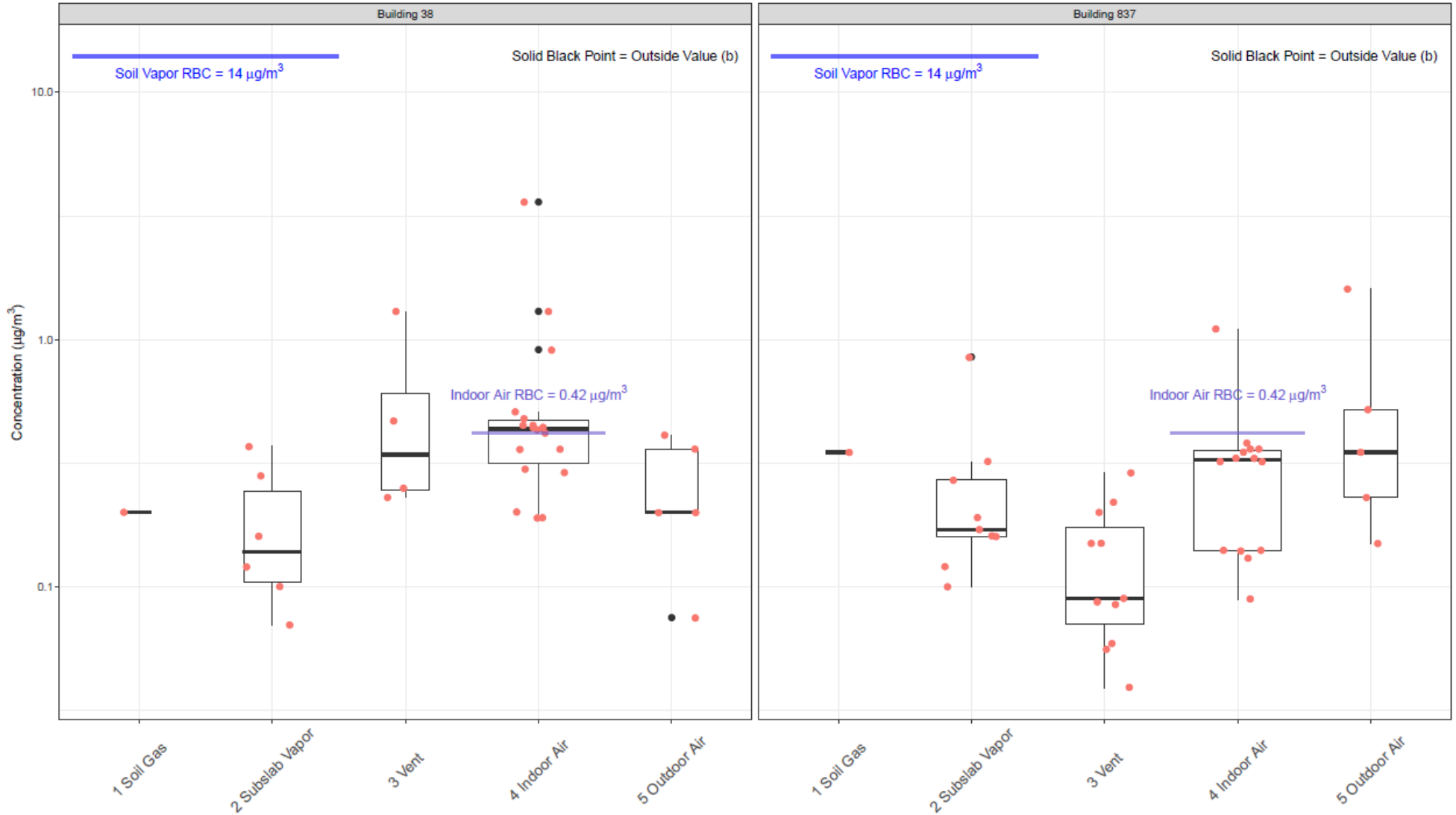
- 1,2-DCA, benzene, chloroform exceeded indoor air RBCs at one or more locations
- Benzene and chloroform indoor air exceedances most prevalent
  - Maximum benzene detection: 3.6 µg/m^3 (RBC: 0.42 µg/m^3)
  - Maximum chloroform detection: 1.1 µg/m^3 (RBC: 0.53 µg/m^3)
  - Concentrations detected indoors higher than passive vent/subslab samples, indicating indoor source
    - Highest benzene concentrations detected in vehicle bay; likely indoor source
    - Low level chloroform exceedances common throughout facility; likely associated with use of cleaning supplies containing chlorine and use of chlorinated tap water (CA Air Resources Board, 1990; Odabasi, 2008)

Bldg. 38 Sample Results Summary, Cont.

- 1,2-DCA exceeded twice; maximum concentration 1.2 µg/m^3 (RBC: 0.47 µg/m^3)
  - Concentrations detected indoors higher than passive vent/subslab samples, indicating indoor source
    - Potential indoor sources include vinyl chloride products (furniture, wall coverings, upholstery) as well as cleaning solvents, pesticides, glues, varnishes, and cigarette smoke (Agency for Toxic Substances and Disease Registry, 2001)

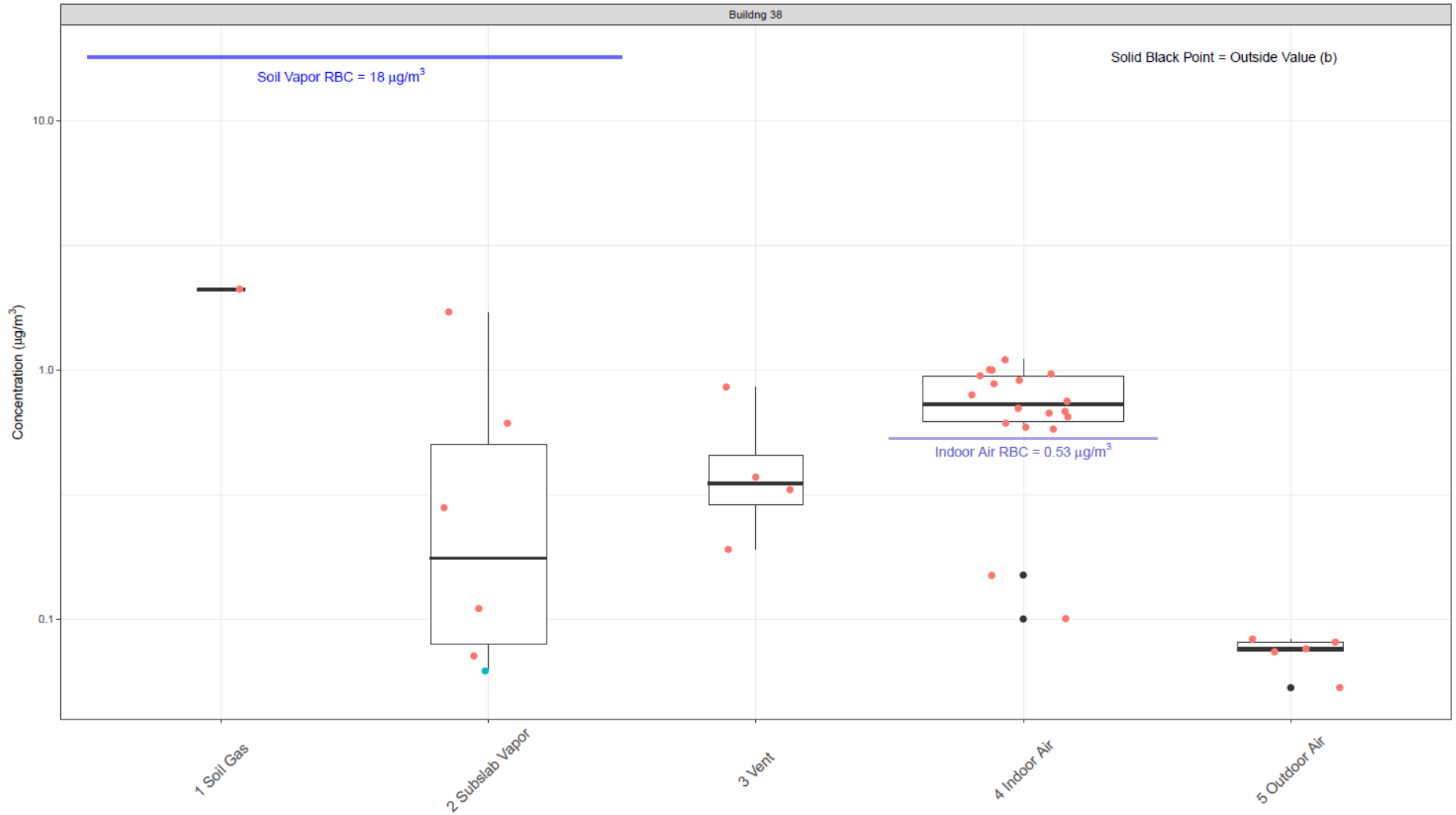
Bldg. 38 Indoor Air RBC Exceedances





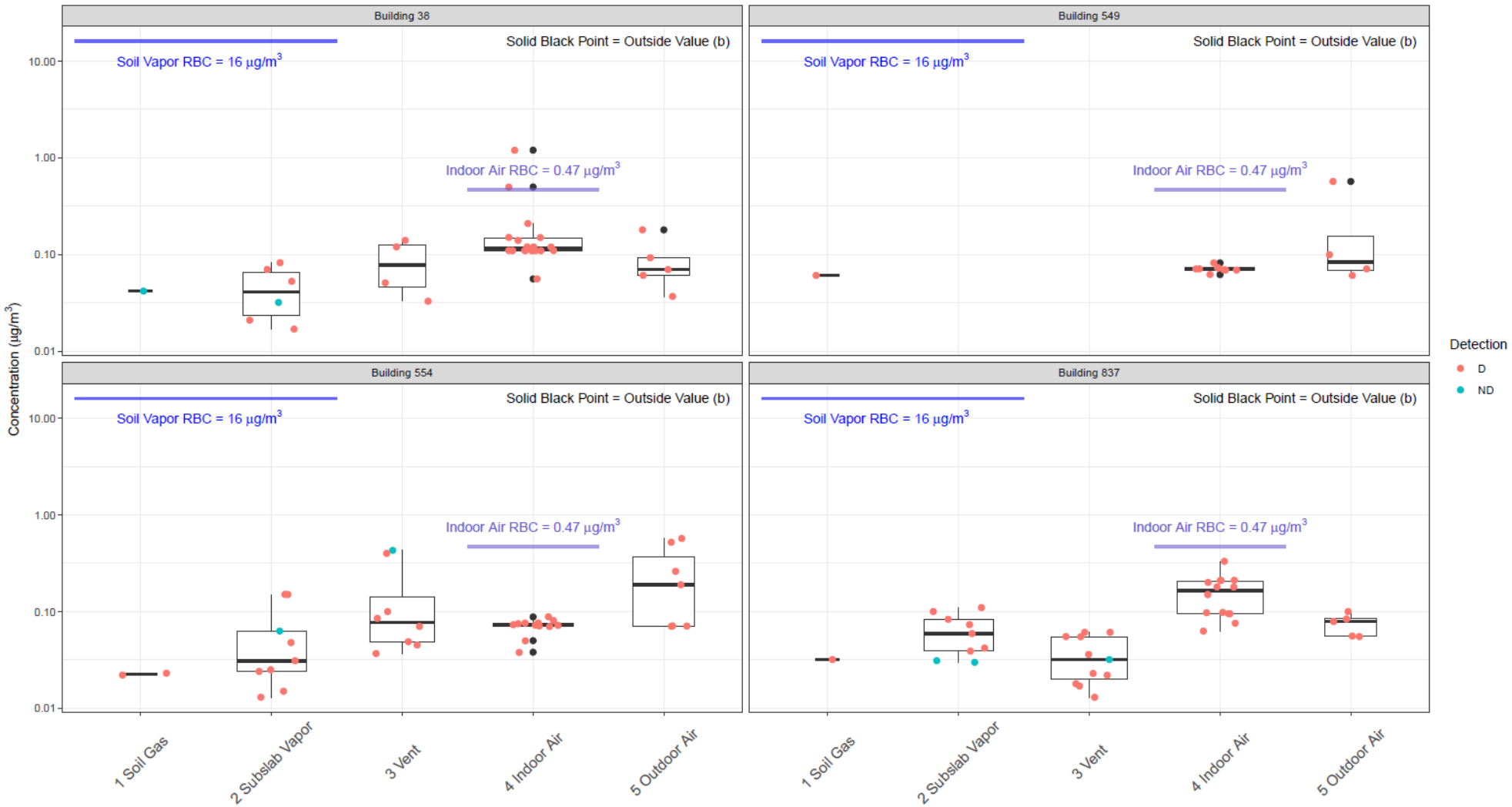
a: Box Plots are generated using the ggplot2 R package (v3.3.5). The lower and upper hinges of the "box" (interquartile range [IQR]) correspond to the the 25th and 75th percentiles.The line bisecting the IQR is the median.
b: Suspected outside values are > 1.5 times and < 3 times the IQR beyond either hinge.
Notes:
RBC = risk-based concentration
Soil Vapor RBC = soil-gas- and subslab-vapor-to-indoor-air RBC (Indoor air RBC / Attenuation factor [AF] = 0.03 [EPA (2015)])
D = Detect
ND= Non-Detect

FIGURE 4-3
VAPOR INTRUSION INVESTIGATION SAMPLE CONCENTRATIONS – BENZENE
VAPOR INTRUSION ASSESSMENT REPORT
TRAVIS AIR FORCE BASE, CALIFORNIA



a: Box Plots are generated using the ggplot2 R package (v3.3.5). The lower and upper hinges of the "box" (interquartile range [IQR]) correspond to the the 25th and 75th percentiles.The line bisecting the IQR is the median.
b: Suspected outside values are > 1.5 times and < 3 times the IQR beyond either hinge.
Notes:
RBC = risk-based concentration
Soil Vapor RBC = soil-gas- and subslab-vapor-to-indoor-air RBC (Indoor air RBC / Attenuation factor [AF] = 0.03 [EPA (2015)])
D = Detect
ND= Non-Detect

FIGURE 4-4
VAPOR INTRUSION INVESTIGATION SAMPLE CONCENTRATIONS – CHLOROFORM
VAPOR INTRUSION ASSESSMENT REPORT
TRAVIS AIR FORCE BASE, CALIFORNIA

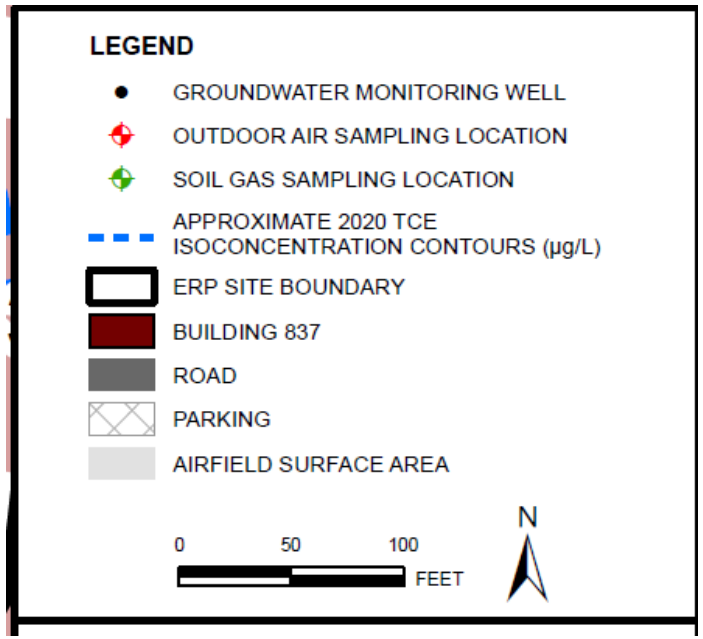


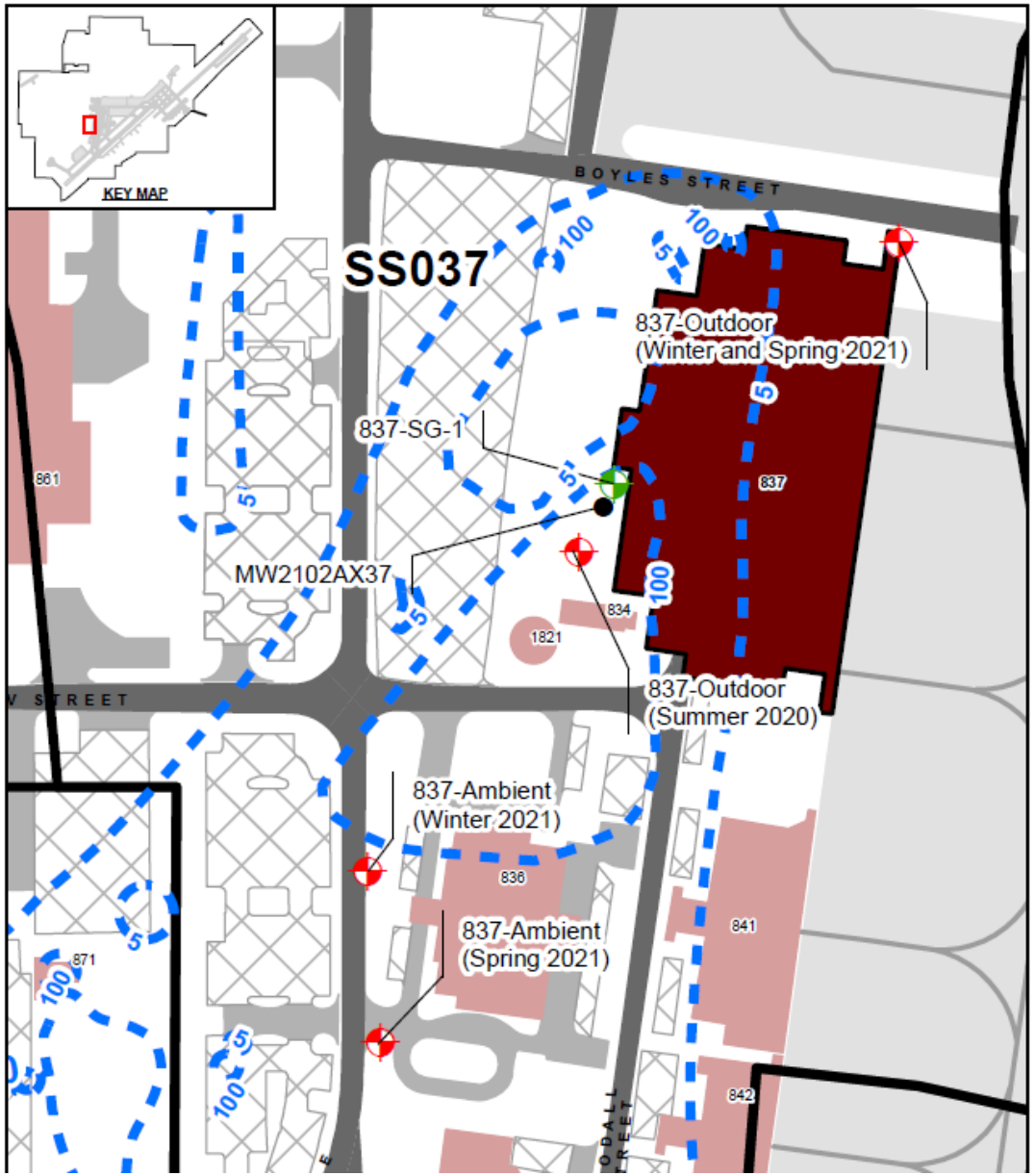
a: Box Plots are generated using the ggplot2 R package (v3.3.5). The lower and upper hinges of the "box" (interquartile range [IQR]) correspond to the the 25th and 75th percentiles.The line bisecting the IQR is the median.
b: Suspected outside values are > 1.5 times and < 3 times the IQR beyond either hinge.
Notes:
RBC = risk-based concentration
Soil Vapor RBC = soil-gas- and subslab-vapor-to-indoor-air RBC (Indoor air RBC / Attenuation factor [AF] = 0.03 [EPA (2015)])
D = Detect
ND= Non-Detect

FIGURE 4-5
VAPOR INTRUSION INVESTIGATION SAMPLE CONCENTRATIONS - 1,2-DICHLOROETHANE
VAPOR INTRUSION ASSESSMENT REPORT
TRAVIS AIR FORCE BASE, CALIFORNIA

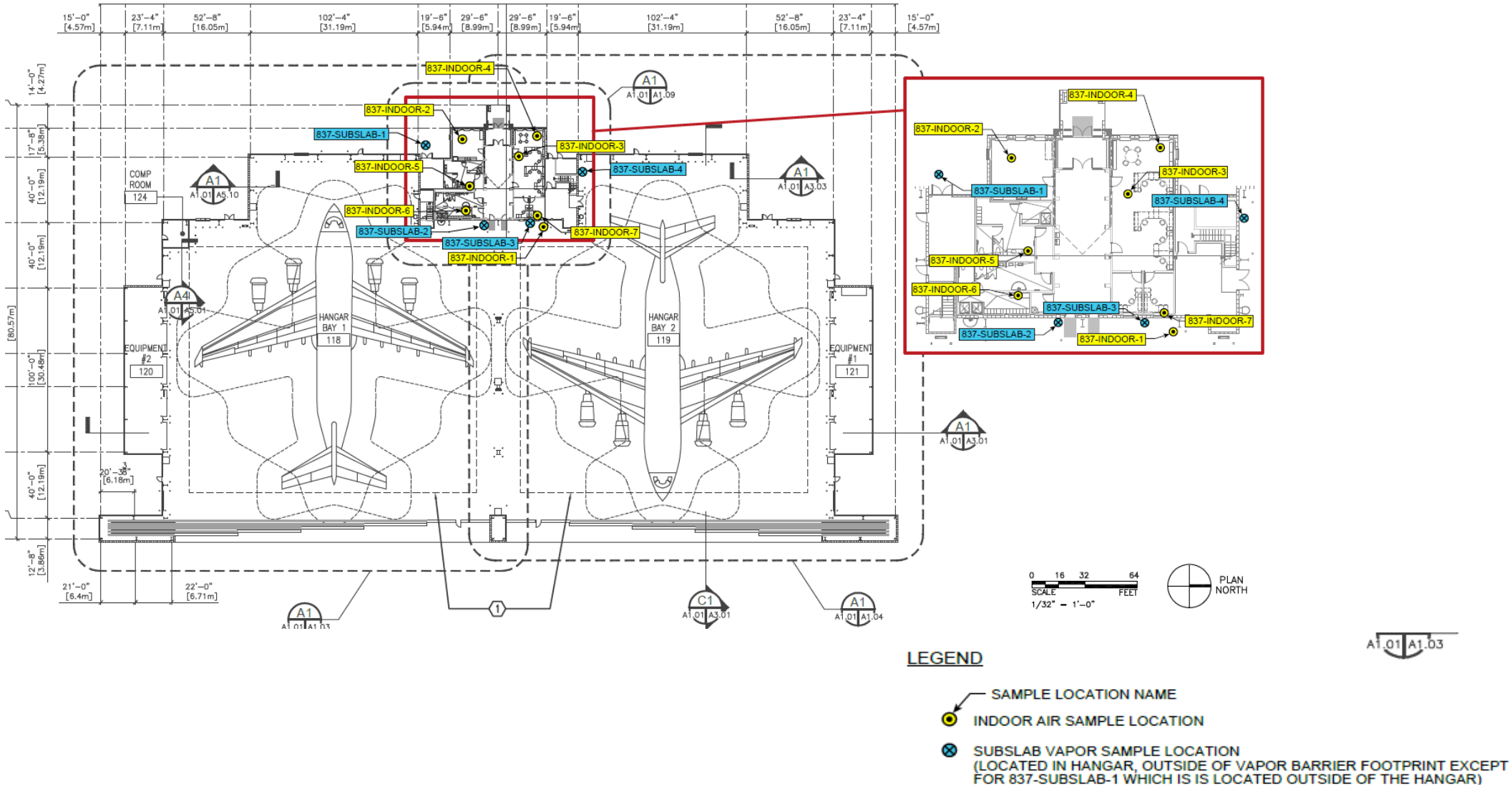
CH2MHILL

Bldg. 837 (Hangar) - Site SD037





Bldg. 837 Indoor & Subslab Sample Locations



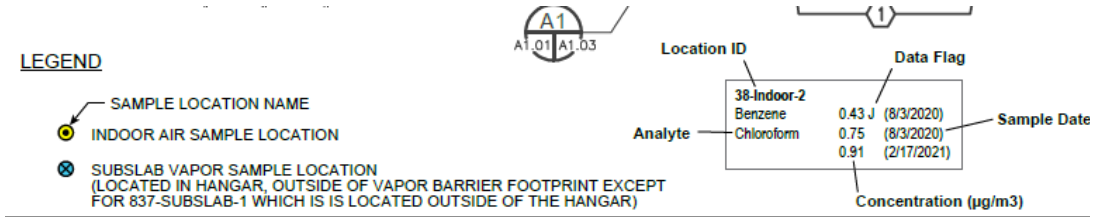
Bldg. 837 Samples Collected

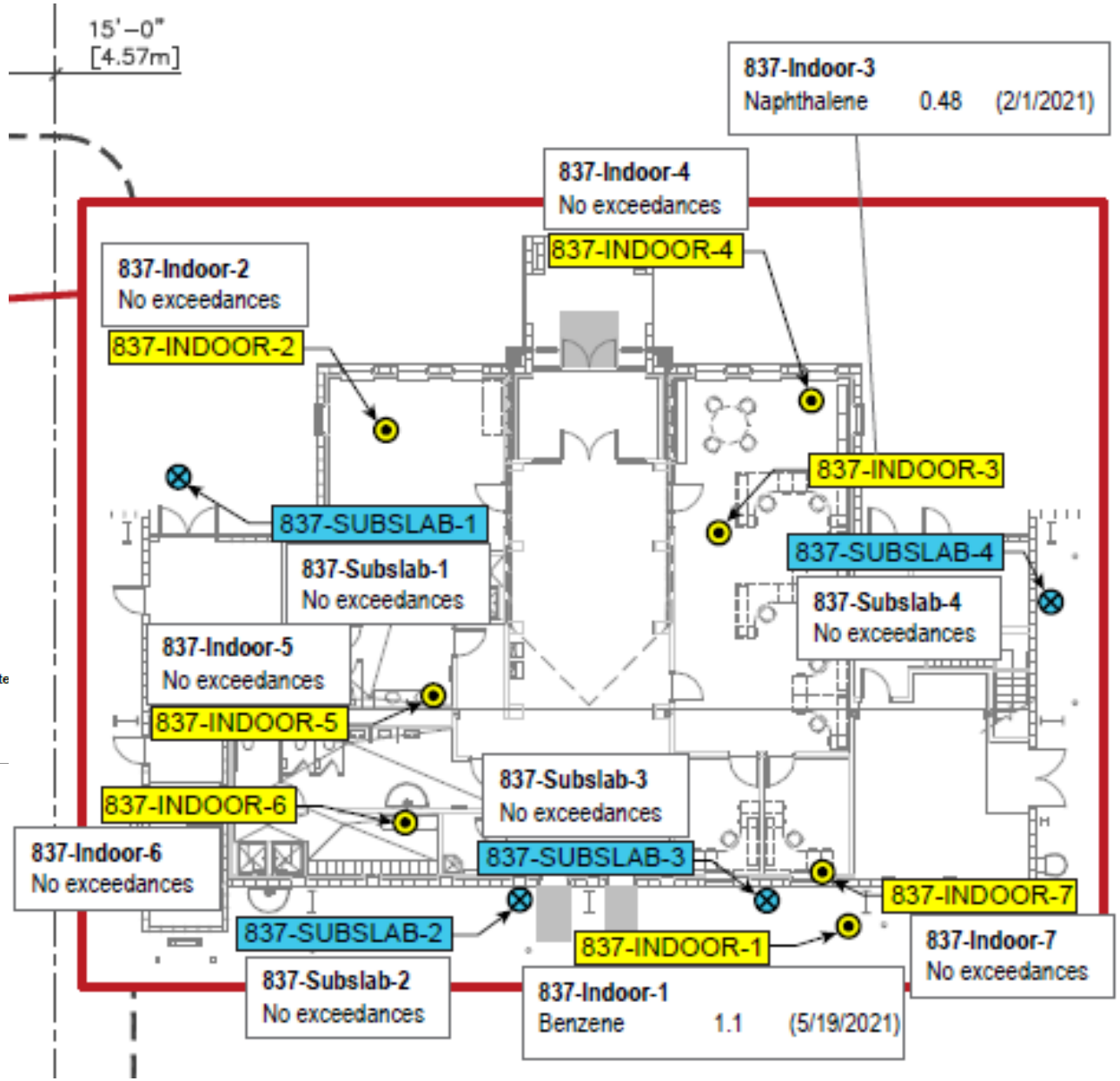
Building	Indoor Air Sampling Locations	Outdoor Air Sampling Locations	Exterior Soil Gas Sampling locations	Subslab Vapor Probe Sampling Locations	Passive Vent Layer Sampling Locations
837: August 2020	3	1	0	0	5
837: Jan/Feb 2021	7	2	1	4	5
837: May 2021	4	2	0	4	0

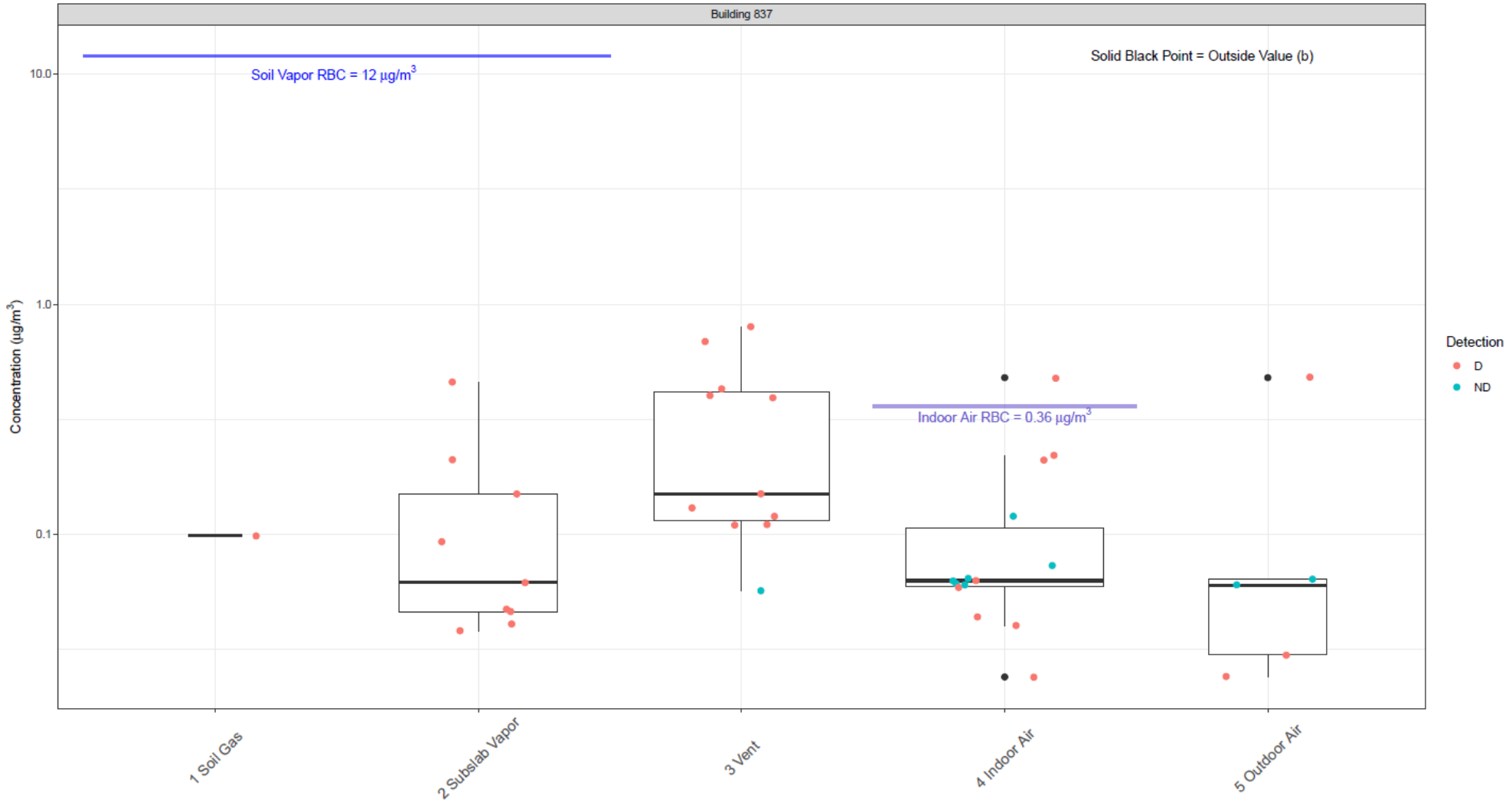
Bldg. 837 Sample Results Summary

- Naphthalene and benzene were the only indoor air exceedances
- Both chemicals exceeded RBCs at only one location during one event
- Naphthalene was detected in indoor air at a concentration of 0.48 µg/m^3 (RBC: 0.36 µg/m^3); it was detected in the upwind outdoor air sample at the same concentration (likely outdoor source)
- Benzene was detected in indoor air at a concentration of 1.1 µg/m^3 (RBC: 0.42 µg/m^3). The sample location was inside the hangar bay and likely a result of an indoor air source (petroleum distillates, gasoline engine exhaust). Benzene was also elevated in outdoor samples.
- Neither naphthalene or benzene exceedance appears to be VI related

Bldg. 837 Indoor Air RBC Exceedances







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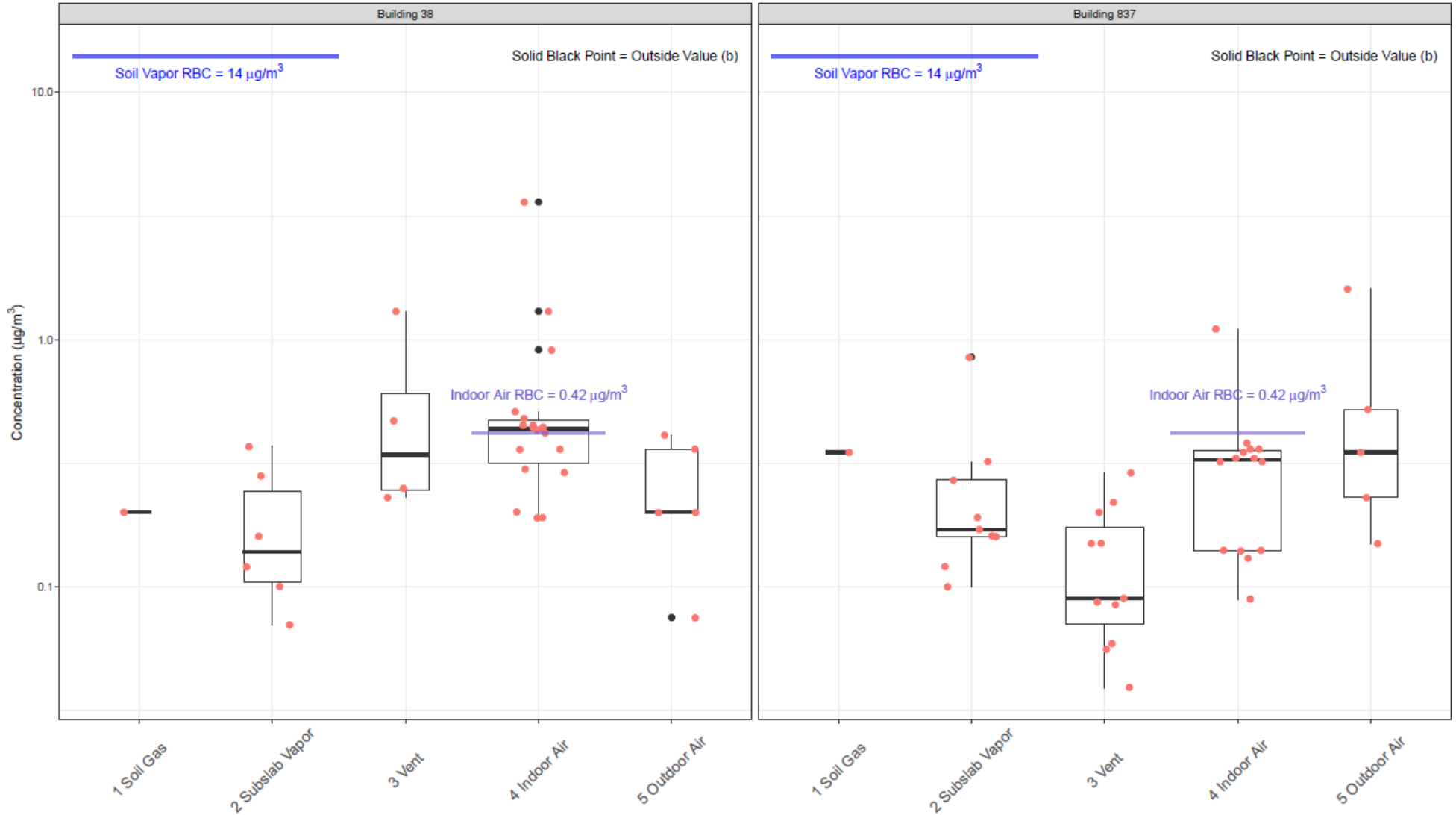
b: Suspected outside values are > 1.5 times and < 3 times the IQR beyond either hinge.
Notes:
RBC = risk–based concentration
Soil Vapor RBC = soil–gas– and subslab–vapor–to–indoor–air RBC (Indoor air RBC / Attenuation factor [AF] = 0.03 [EPA (2015)])
D = Detect
ND= Non–Detect

FIGURE 4-8
VAPOR INTRUSION INVESTIGATION SAMPLE CONCENTRATIONS – NAPHTHALENE
VAPOR INTRUSION ASSESSMENT REPORT
TRAVIS AIR FORCE BASE, CALIFORNIA



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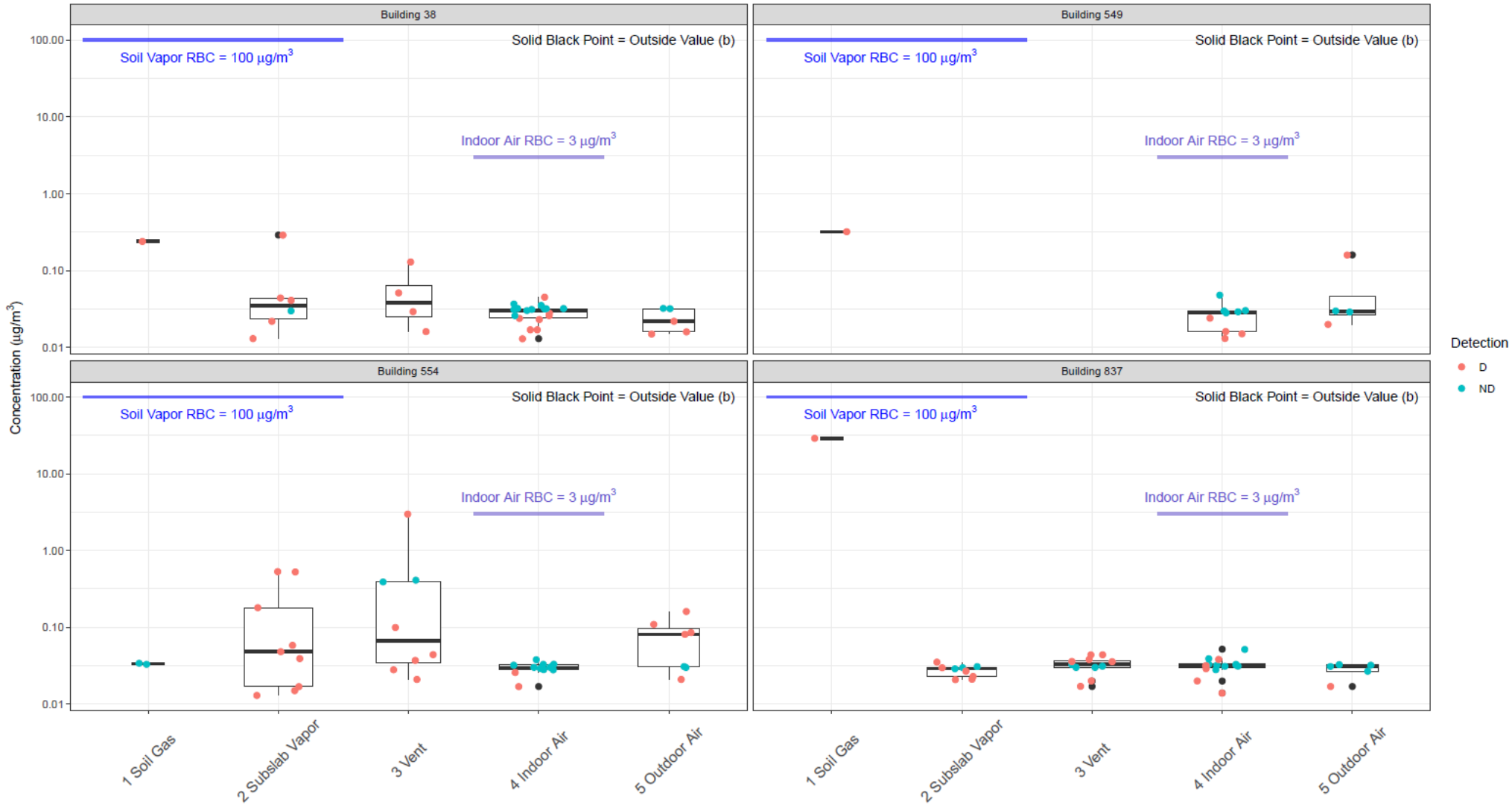
b: Suspected outside values are > 1.5 times and < 3 times the IQR beyond either hinge.
Notes:
RBC = risk-based concentration
Soil Vapor RBC = soil-gas- and subslab-vapor-to-indoor-air RBC (Indoor air RBC / Attenuation factor [AF] = 0.03 [EPA (2015)])
D = Detect
ND= Non-Detect

FIGURE 4-3
VAPOR INTRUSION INVESTIGATION SAMPLE CONCENTRATIONS – BENZENE
VAPOR INTRUSION ASSESSMENT REPORT
TRAVIS AIR FORCE BASE, CALIFORNIA

Sampling Results for Primary GW COCs

- Primary groundwater COCs (such as TCE) did not exceed RBCs and were detected at low levels in indoor air and subslab vapor.
- Sampling results indicate the groundwater plumes are not contributing to significant VI at these buildings (low source strength)
- If VI from groundwater plumes were occurring; higher concentrations of the primary groundwater COCs would be expected in soil gas, subslab vapor, and indoor air



a: Box Plots are generated using the ggplot2 R package (v3.3.5). The lower and upper hinges of the "box" (interquartile range [IQR]) correspond to the the 25th and 75th percentiles.The line bisecting the IQR is the median.
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Soil Vapor RBC = soil-gas- and subslab-vapor-to-indoor-air RBC (Indoor air RBC / Attenuation factor [AF] = 0.03 [EPA (2015)])
D = Detect
ND= Non-Detect

FIGURE 4-7
VAPOR INTRUSION INVESTIGATION SAMPLE CONCENTRATIONS – TCE
VAPOR INTRUSION ASSESSMENT REPORT
TRAVIS AIR FORCE BASE, CALIFORNIA

Radon Tracer Test Results

- Radon data were collected at Bldgs. 38, 554, and 837 to assess the building specific susceptibility to soil vapor entry.
- Radon levels in indoor air, outdoor air, and subslab were compared to evaluate attenuation across the bldg. slabs
- Travis AFB is located in Radon Zone 3 (EPA); where the expected average **indoor air** radon concentration is less than 2 picocuries (pCi)/L. **All indoor air radon concentrations at these 3 bldgs. were well below 2pCi/L**
- Comparable indoor and outdoor radon levels (within 2 to 3 times) indicate significant radon intrusion was not occurring; providing a 2nd line of evidence for that significant VOC VI is not occurring

Radon Tracer Test Results, Cont.

- The average **subslab radon** concentrations were higher at Bldg. 837 (where the subslab locations were outside of the vapor barrier) than the average subslab concentrations measured at Bldgs. 38 and 554; indicating the passive venting systems at 38 and 554 may be providing dilution of radon in the venting layer
  - 1.46 – 11.4 pCi/L at Bldg. 38
  - 9.41 – 13.61 pCi/L at Bldg. 554
  - 6.84 – 160 pCi/L at Bldg. 837

Radon Tracer Test Results, Cont.

- Two **exterior soil gas** radon readings were collected:
  - Bldg. 554: 1,750 pCi/L
  - Bldg. 837: 958 pCi/L
- The soil gas concentrations were much higher than subslab or indoor air concentrations; providing evidence that the soils at Travis AFB produce an adequate amount of radon to be used as a tracer and that the passive vent systems are effective
- Because indoor and outdoor radon concentrations were so similar (indoor air concentrations could not be attributed to a subslab source); site specific attenuation factors (AFs) could not be calculated. However, a comparison of radon indoor air concentrations to exterior soil gas concentrations suggests an AF of < 0.0004 between shallow soil gas and indoor air.

HHRA Results

- Cumulative cancer risk and noncancer hazard estimates were calculated for Bldgs. 38, 549, 554, and 837 using the most recent RBCs; and soil-vapor-to-indoor air AFs (EPA, 2015). Because the EPA 2015 attenuation factor of 0.03 is based primarily on attenuation at residential buildings, the Department of the Navy attenuation factor for industrial buildings (0.001) (Venable et al, 2015) was also considered in data evaluation.
- The HHRA results summarized in this presentation are based on the EPA 2015 AF (0.03)

HHRA Results, Cont.

- Bldg. 38:
  - The indoor air cancer risk estimates ranged from $5x10^{-7}$ to $9x10^{-6}$
  - Indoor air risk drivers were benzene, 1,2-DCA, and chloroform
  - Indoor air noncancer hazard estimates were less than 1
  - Based on subslab vapor cancer risk and noncancer hazards, a VI source of sufficient strength of benzene, 1,2-DCA, and chloroform was not observed in any event
  - The levels of benzene, 1,2-DCA, and chloroform detected in indoor air appear to be related to background (indoor or outdoor) sources
- Bldgs. 549 and 554:
  - In indoor air and subslab vapor, the cancer risk estimates were below $1x10^{-6}$ and the noncancer hazard were less than 1

HHRA Results, Cont.

- Bldg. 837:
  - Indoor air cancer risk estimates were below $1x10^{-6}$ in summer 2020 and at $3x10^{-6}$ in winter 2021 and spring 2021
  - Benzene was the primary contributor to indoor air risk
  - Subslab and exterior soil gas cancer risk estimates were below $1x10^{-6}$
  - The noncancer hazard was less than 1 in indoor air, subslab vapor, and soil gas
  - Based on subslab vapor cancer risk and noncancer hazards, a VI source of sufficient strength of benzene was not observed.
  - The levels of benzene detected in indoor air appear to be related to background (indoor or outdoor) sources

Conclusions

- Based on the current building conditions and toxicological values, there is no unacceptable VI risk at Bldgs. 38, 549, 554, and 837
- Concentrations of primary GW COCs did not exceed indoor air RBCs and subslab vapor and exterior soil gas samples did not indicate significant VOC source strength
- Chemicals that exceeded indoor air RBCs (benzene, 1,2-DCA, chloroform, and naphthalene) do not appear to be the result of VI
  - Indoor air concentrations were similar to subslab and/or outdoor air concentrations
  - Based on subslab vapor cancer risk and noncancer hazards, a VI source of sufficient strength of these chemicals was not observed
  - These chemicals are present in products commonly used in these buildings

Conclusions, Cont.

- Radon concentrations in outdoor air and indoor air were similar, indicating significant radon intrusion was not occurring (supporting no significant VOC VI)
- Radon data suggests a soil gas to indoor air AF of <0.0004
- The sampling results are consistent with previous VI investigations conducted at Travis AFB that indicate the low permeability soils provides significant attenuation of VOCs in soil vapor

Conclusions, Cont.

- Concentrations in indoor air are spatially consistent, and not indicative of preferential pathways
- Concentrations in subslab samples were similar to the vent layer samples; not a strong spatial variability in subslab vapor
- No significant seasonal variation in concentrations detected

Questions?

Travis AFB
Restoration Program

Program Update

RPM Meeting July 21, 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
- ***Technology Demonstration TM***
- ***Site SD031 and FT004 Groundwater Sampling Results TM***

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
- 2Q GRIP Event
- Summer 2021 VI Sampling Event

Documents In-Progress

CERCLA Draft Docs

- 2020 GRISR
- ***2020 CAMU Report***

POCO Draft Docs

- Site SD031B POCO Additional Site Investigation Report

Field Work In-Progress

CERCLA

None

POCO

None

Documents Planned

CERCLA

- Vapor Intrusion Assessment Report — August

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
21 July 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 submitted to regulators on June 8

Concrete Batch Plant at LF044
2018 EA FONSI

- Project is currently using much smaller area than projected
- Appears the LF044 area is not currently being used/impacted

Runway 03L/21R Replacement

- EA provided for regulatory review on June 8
  - Received comments from EPA & DTSC
- EA was provided via routine State Clearinghouse process
- 30 day public review/comment period 07 July – 05 August

Land Use Control Sites
SS016: KC-46 Hangar

- New vaults are installed
- Plumbing and Electrical is complete
- EW605x16 and EW610x16 are back on line
- Step-rate pump test and baseline sampling to be accomplished soon

PFOS/PFOA Updates

FY21 NDAA Section 335

Notification to Agricultural Operations Located in Areas Exposed to Department of Defense PFAS Use…

…detected in groundwater
…hydrologically linked to a local agricultural or drinking water source
…suspected to be, or known to be, the result of PFAS use at installation

One civilian inquiry received in Apr; no additional calls/emails received.

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

- 18 Jun installation of the three POETS completed to include system and household water pressure testing. Initial influent and effluent water samples were taken.
- 30 Jun initial sample date received. All results were non-detect for PFOS/PFOA/PFBS; data pending full validation.
- 19 Jul 30-day post system monitoring sample taken. Initial results expected 2 Aug.
- Ongoing system monitoring.
- ~20 Sep 90-day sample; quarterly sampling thereafter.

Property 1

Before

Exterior

Interior

After

Exterior

Interior

Property 2

Before

Exterior

Interior

After

Exterior

Interior

Property 3

Before

Exterior/Interior

After

Exterior

Interior

AFFF RI Updates

Travis Air Force Base
Phase I Remedial Investigation of AFFF Areas

Presented by
Matthew Mayry, PG, CHg

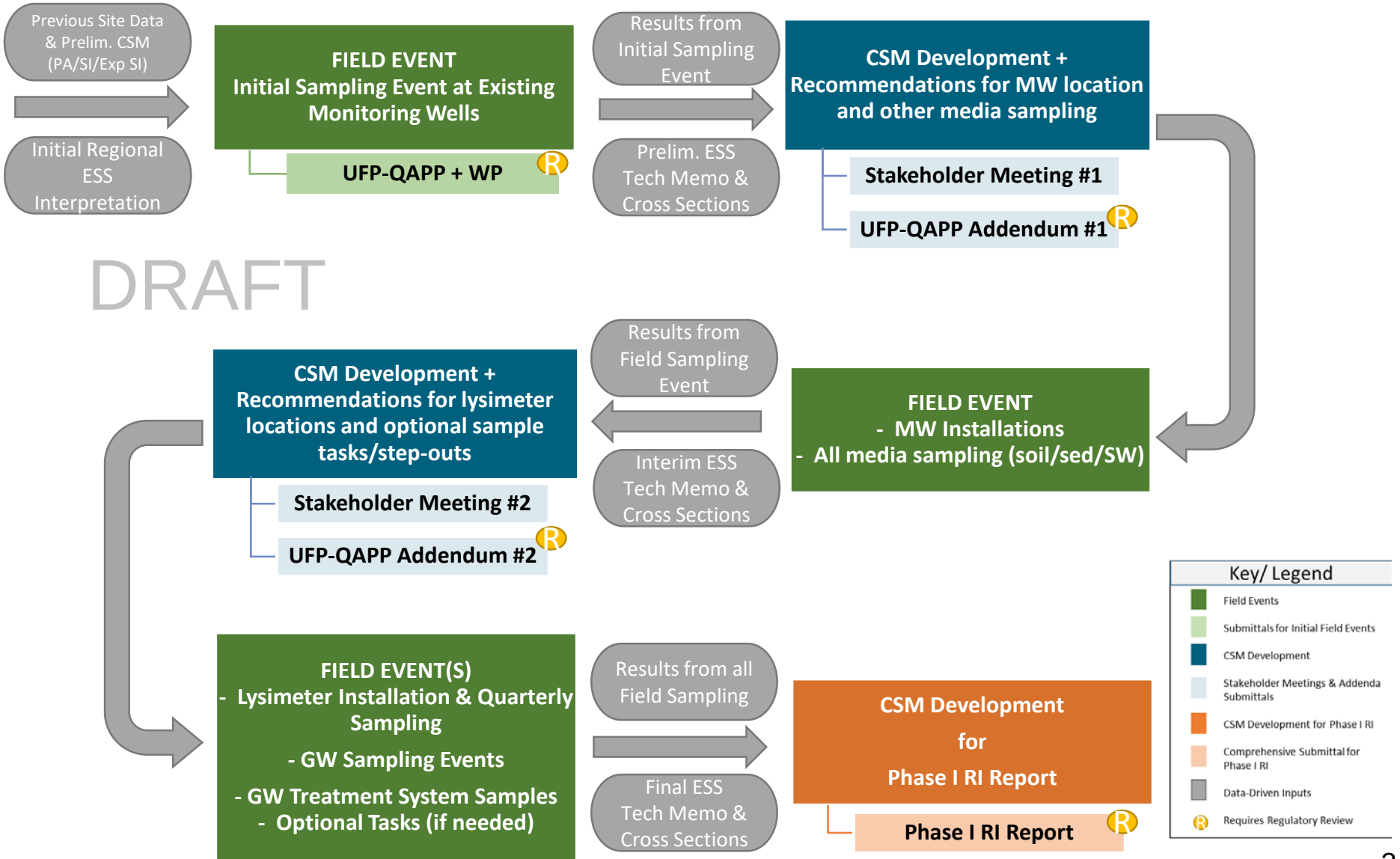
ONEIDA Sustainment and Restoration Services

21 July 2021

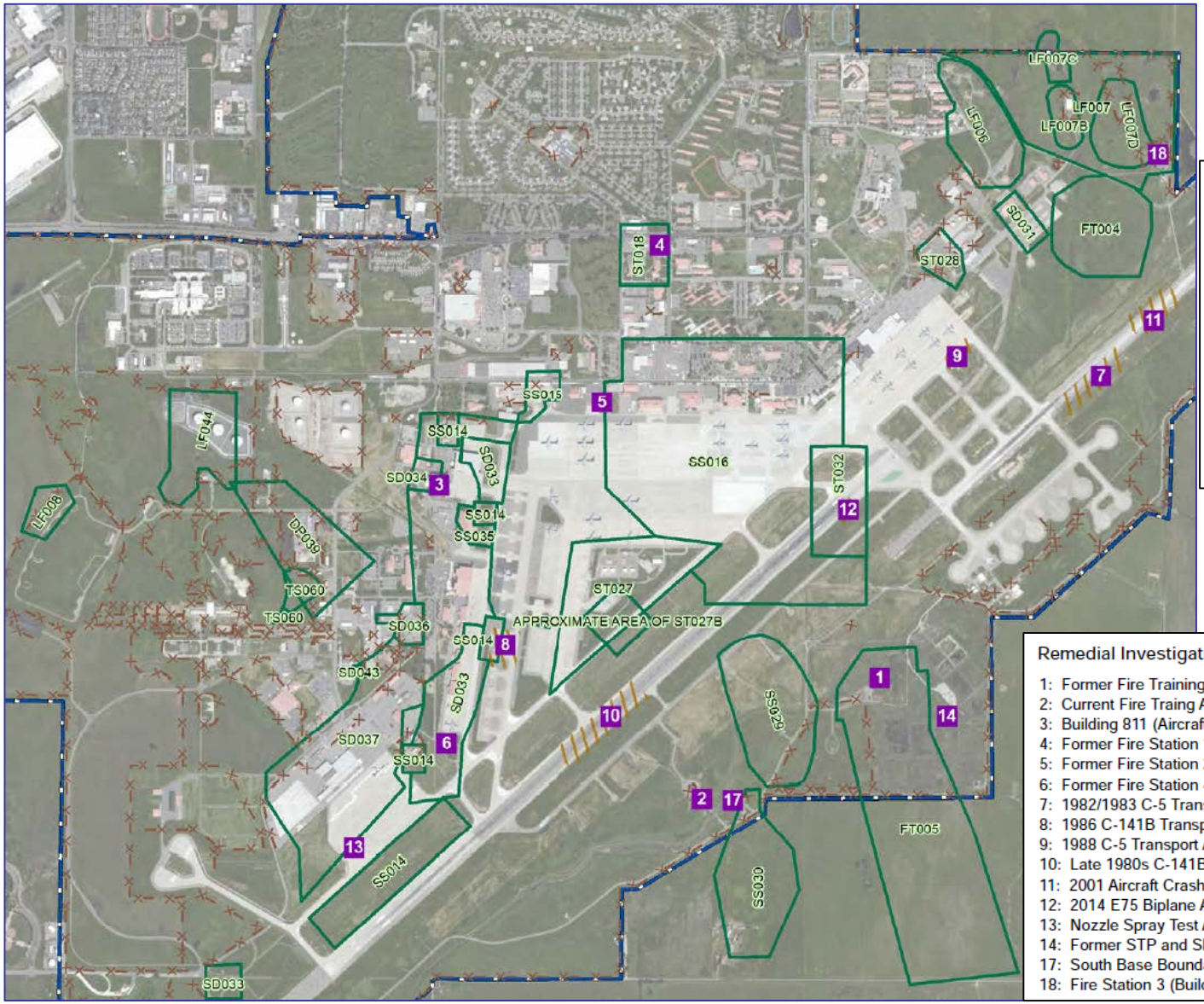
Recent Project Schedule

- Phase I RI WP and UFP-QAPP Introduction Meeting held 25 March 2021
- Draft documents submitted electronically 26 March 2021
- Regulatory comments received by 26 May 2021
- Comment discussion/resolution meeting held 16 June 2021
- Draft Final documents submitted 30 June 2021
- Regulatory concurrence to the Draft-Final documents by **30 July 2021**
- Initial field activities targeted August/September 2021

Phase I Remedial Investigation Data-Driven Process



AFFF and Remedial Investigation Areas



Legend

- 10 — Remedial Investigation Area
- Fence
- General Locations of Aircraft Crash/Fire Sites (CH2M HILL, 2016)
- ERP Sites
- Travis AFB Installation Boundary

Remedial Investigation Area Locations

1: Former Fire Training Area - 4
2: Current Fire Traing Area
3: Building 811 (Aircraft Maintenance)
4: Former Fire Station 1 (Building 175)
5: Former Fire Station 2 (Building 560)
6: Former Fire Station 4 (Building 895)
7: 1982/1983 C-5 Transport Aircraft Crash
8: 1986 C-141B Transport Aircraft Crash
9: 1988 C-5 Transport Aircraft Fire
10: Late 1980s C-141B Transport Aircraft Crash
11: 2001 Aircraft Crash
12: 2014 E75 Biplane Air Show Crash
13: Nozzle Spray Test Area 900 Ramp
14: Former STP and Sludge Disposal Area
17: South Base Boundary GWTP
18: Fire Station 3 (Building 1380)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