

**Travis Air Force Base
Environmental Restoration Program
Restoration Program Manager's
Meeting Minutes**

19 February 2014, 0930 Hours

Mr. Mark Smith, of the Air Force Civil Engineering Center (AFCEC) Restoration Support Team, conducted the Restoration Program Manager's (RPM) meeting in Building 248, on 19 February 2014 at 0930 hours, at Travis AFB, California. Attendees included:

- Mark Smith AFCEC/CZOW
- Glenn Anderson AFCEC/CZOW
- Lonnie Duke AFCEC/CZOW
- Erin Hernandez Travis AFB 60 AMW/JA
- William Hall (via phone) AFCEC/CZRW
- Dave Leeson (via phone) AFCEC/CZRW
- Dezso Linbrunner USACE-Omaha
- Adriana Constantinescu California Regional Water Quality Control Board (RWQCB)
- Jose Salcedo California Department of Toxic Substances Control (DTSC)
- Nadia Hollan Burke United States Environmental Protection Agency (USEPA)
- Mike Wray CH2M HILL

Handouts distributed at the meeting, and presentations included:

- Attachment 1 Meeting Agenda
- Attachment 2 Master Meeting and Document Schedule
- Attachment 3 SBBGWTP Monthly Data Sheet (January 2014)
- Attachment 4 CGWTP Monthly Data Sheet (January 2014)
- Attachment 5 NGWTP Monthly Data Sheet (January 2014)
- Attachment 6 ST018 Monthly Data Sheet (January 2014)
- Attachment 7 Presentation: Remedial Actions at Soil LUC Sites
- Attachment 8 Presentation: Program Update: Activities Completed, In Progress and Upcoming

1. ADMINISTRATIVE

A. Previous Meeting Minutes

The 22 January 2014 RPM meeting minutes were approved and finalized as written.

B. Action Item Review.

Action items from January were reviewed.

Action item 1 will remain open: AFCEC's Travis Restoration Team and Travis AFB will continue to pursue opportunities for the beneficial reuse of treated water. AFCEC is in agreement with using Defense Environmental Restoration Account (DERA) funds under the authority of a "net-zero energy policy" for the Air Force for the beneficial reuse of treated groundwater. Current possibilities include: Rerouting treated water from the central plant to the duck pond or as irrigation as an energy reduction project with the intent of reducing on-base water usage. Due date will remain TBD to ensure this action item remains visible. 22 January 2014: No update.

Action item 2 is closed.

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 will be held on 19 March 2014 at 0930 hours.

Ms. Constantinescu said she will need to call in or have her section leader call in.

Travis AFB Master Document Schedule

— Groundwater Record of Decision (ROD): The response to comments (RTC) meeting date was changed from TBD to reflect the actual date. The Draft Final ROD was delivered to the agencies on 19 February 2014. Mr. Anderson said there is a thirty-day period for the Draft Final ROD to be signed by the designated signing authorities which is typical for this type of decision document and encouraged the agencies to adhere to the schedule. It was agreed by the agencies that all signatures need to be on one signature sheet. The agencies requested to be informed on the rotation of the signature page, to allow time to schedule a meeting with their respective signers. EPA has two issues that to date have not been resolved so there is a possibility of the ROD

going into dispute. The signature order will be: Travis AFB Wing Commander, EPA, DTSC and RWQCB. Mr. Smith asked Ms. Hernandez how long it typically takes to route a document to the Wing Commander for signature. Ms. Hernandez said typically two weeks.

- Potrero Hills Annex: (FS, PP, and ROD): No change to the schedule.
- Site CG508 POCO Work Plan: New document. New dates populated. This is a petroleum-only site that receives RWQCB oversight. This Work Plan (WP) will be in a Uniform Federal Policy - Quality Assurance Project Plan (UFP-QAPP) format. This format will be used to develop the WP and field sampling plan. AFCEC has directed the use of this format for all future WPs. Travis AFB is requesting the agencies to comment on the structure/format of the document. Mr. Hall said that EPA and the Air Force looked at the 37 tables in the QAPP and are aware there are duplications, so there is movement to eliminate redundancies and decrease the size of the WPs. Mr. Wray said that this WP is using the existing Travis QAPPs through a UFP-QAPP crosswalk table. CH2M HILL is currently working on combining the two existing Travis AFB QAPPs into one, using the UFP-QAPP format.
- Quarterly Newsletter (April 2014): All new dates have been entered to reflect the 2nd quarter of 2014. The Newsletter is going out a little early to support the RAB. The newsletter will focus on the ROD; the content will be based on the ROD going final or entering into dispute.
- 2013 Annual Groundwater Remediation Implementation Status Report: All new dates have been entered into the MMDS.
- Kinder Morgan LF044 Land Use Control Report: No change to the schedule. Mr. Smith said Travis AFB will follow up with AMEC to check on status.
- CAMU Inspection Annual Report: New report. New dates populated. Mr. Duke handed out a CD during this meeting. Mr. Linbrunner said that this will complete ITSI FY08 small business PBC contract.
- Old Skeet Range Removal Action Work Plan: Moved to history. Mr. Anderson said that this site will be off the table for a while. Contractually Travis AFB needs to figure out the next steps. He added that further delineation of the PAH-contaminated soil cannot be conducted while the ground is wet.

2. CURRENT PROJECTS

Treatment Plant Operation and Maintenance Update

South Base Boundary Groundwater Treatment Plant (see Attachment 3)

The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 100% uptime, and 2.1 million gallons of groundwater were extracted and treated during the month of January 2014. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 46.4 gallons per minute (gpm). Electrical power usage was 6,060 kWh (*electrical power usage is incorrect, readings inconsistent, suspect faulty meter, in process of procuring a new one*) and approximately 8,302 pounds of CO₂ were created (based on DOE calculation). Approximately 1.24 pounds of volatile organic compounds (VOCs) were removed in January. The total mass of VOCs removed since startup of the system is 445 pounds.

Optimization Activities: No optimization activities are reported for the month of January.

Central Groundwater Treatment Plant (see Attachment 4)

The Central Groundwater Treatment Plant (CGWTP) performed at 100% uptime with approximately 1.37 million gallons of groundwater extracted and treated during the month of January 2014. All treated water was discharged to the storm drain. The average flow rate for the CGWTP was 30.6 gpm. Electrical power usage was 2,634 kWh for all equipment connected to the Central plant, and approximately 3,609 pounds of CO₂ were generated. Approximately 2.57 pounds of VOCs were removed from groundwater by the treatment plant in January. The total mass of VOCs removed since the startup of the system is 11,354 pounds.

Optimization Activities for WTTP: The WTTP remains off line since it was shut down in April 2010 for the ongoing rebound study. No additional optimization activities to report for the month of January.

Optimization Activities for CGWTP: No optimization activities are reported for the month of January.

North Groundwater Treatment Plant (see Attachment 5)

The North Groundwater Treatment Plant (NGWTP) performed at 33% uptime with approximately 27,140 gallons of groundwater extracted and treated during the month of January 2014. The average flow rate at the NGWTP was 5.1 gpm and electrical power use was 0 kWh for all the equipment connected to the North plant. Approximately 3.2×10^{-4} pounds of VOCs were removed from the groundwater in January. The total mass of VOCs removed since the startup of the system is 174.3 pounds.

Optimization Activities for NGWTP: Optimization of the groundwater extraction and treatment system (GETS) at Site LF007C that started on 18 November 2013 was completed on 16 January 2014. Approximately 1,400 feet of new discharge piping was installed during November to reroute the effluent from extraction wells EW614x07 and EW615x07 through a newly installed treatment system located

adjacent to Collins Drive, between Site LF007C and the discharge point at the Duck Pond. A new containment pad houses the same treatment equipment that has been in use since 2010 at the NGWTP. The upgraded solar system at extraction well EW614x07 was completed in January 2014 and will help to increase capture of the plume and increase the volume of water the system is able to treat during operation from approximately May through December. Future monthly reports will document increased flow rates and influent concentration captured by the optimized GETS. The NGWTP optimization has been completed and is now operated entirely by solar power.

Site ST018 Groundwater (MTBE) Treatment Plant (see Attachment 6)

The Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 100% uptime with approximately 145,600 gallons of groundwater extracted and treated during the month of January 2014. All treated water was diverted to the storm drain. The average flow rate for the ST018 GWTP was 3.27 gpm. Electrical power usage for the month was 97 kWh for all equipment connected to the ST018 GWTP plant, which equates to the creation of approximately 133 pounds of CO₂. Approximately 0.14 pounds of BTEX, MTBE and TPH were removed from groundwater in January from the treatment plant, all of which is attributed to MTBE removal. The total BTEX, MTBE and TPH mass removed since the startup of the system is 26 pounds.

Note: Electrical power use is only for the alarm system and a pump that pushes water through the GAC vessels. The other pumps in the system are all solar powered.

Optimization Activities for ST018: No optimization activities to report for the month of January.

Mr. Duke said the payment for the NPDES permit was submitted late and that prompted a notice of violation (NOV) from the RWQCB. Subsequently the payment had been received and Travis AFB received an email from RWQCB stating the payment was received and that the NOV was considered a late payment but was on the Notice of Violation letterhead. Travis AFB has been working with local Fairfield/Suisun Sewer District to change the discharge point from storm water to sanitary which would eliminate needing a NPDES permit. Ms. Constantinescu commented that she has discussed site ST018 with management regarding the large monthly costs per pound for the low quantity of MTBE removed. The RWQCB is ready to evaluate a “low threat closure request” from Travis AFB. It is the RWQCB policy in California to evaluate petroleum groundwater plumes based on effort and cost. Ms. Constantinescu made reference to the general criteria presented in the “Low-Threat Underground Storage Tank Case Closure Policy” adopted by the State Water Board on 5/1/2012. In this case, enough effort has been made, the plume has been very well characterized and a large mass has already been removed from the groundwater. Further, residual concentrations are low and the plume is stable. ST018 is not an environmental or human health threat. The RWQCB takes everything into consideration and is ready to entertain a low threat closure. Mr. Smith said if it continues to migrate it would merge with the plume at Site SS016 and be treated as

part of Site SS016. Ms. Constantinescu said the site ST018 would still need to be monitored.

Presentations:

Remedial Actions at Soil LUC Sites:

Mr. Wray reported on Remedial Actions at Soil LUC Sites. The Soil LUCs do not apply to POCO sites. Key points made in this presentation are presented below. Mr. Smith pointed out that these soil sites are under the new PBC contract. (see attachment 7 for details and site map)

Soil Land Use Control (LUC) Sites, Remedial Actions:

- **WABOU SOIL ROD:**
 - DP039 - Document removal of Pb and request site closure. The soil containing lead was removed when the bioreactor was installed. A tech memo will document the remedial actions of the soil removal.
 - SD043 - Delineate PCBs, excavate contaminated soil, and request site closure. The contaminated soil is beneath a huge generator. Mr. Smith said that this location may have a historical building that could impact the investigation.
 - LF044 - aka landfill X, near Kinder Morgan's new above ground fuel tank facility. Site has construction debris.
 - SS046 – Old railhead munitions site near LF008. Delineate PAHs and metals, excavate contaminated soil and request site closure.
- **NEWIOU Soil, Sediment and Surface Water ROD:**
 - SS015 - Soil is separate from the groundwater VOC plume.
 - SS016 - Delineate PAHs and PCBs, excavate contaminated soil and request site closure. This site is a small unpaved area that is located approximately 200 feet west of the SS016 bioreactor.
 - SD033 - Delineate PAHs and metals, excavate contaminated soil and request site closure. The site is near some hangers and associated with oil/water separators (OWS). The soil removal will be in conjunction with the OWS remediation. The OWS part of the contract has not been funded; it is scheduled to be funded in a couple of years. Mr. Smith said that it is "5-year money", meaning that each incremental funding is good for 5 years. This is an 8-year contract and that the funds are issued in specific years over the 5 year period. Mr. Linbrunner mentioned that AFCEC and Travis AFB have been very proactive in trying to get additional funds this fiscal year to start some of the work earlier. Performing work earlier that had been planned for later years, will expedite remediation.
 - SD037 - Small area of soil contaminated with motor oil.
- **Process for proceeding to remove LUCs:**

- A biological resource assessment/consultation needs to be completed before any work plans or work can begin. The biological recon was conducted last week for all sites. Mr. Wray said that this is a priority due to the time it could potentially take to get the biological opinion from the US Fish and Wildlife Service (USFWS). Mr. Salcedo mentioned that the California Department of Fish and Wildlife has already stated they are not interested in Travis AFB because it is a National Priorities List (NPL) site. Mr. Wray said he would confirm if California Fish and Wildlife needs to provide a biological opinion. Note: Travis AFB has already received a biological opinion from the USFWS for LF007C.
- Prepare an explanation of significant differences (ESD) or ROD amendment. All these sites already have a final selected remedy with soil RODs using land use controls (LUCs). Travis AFB will need to either do an ESD or ROD Amendment. Mr. Anderson said LUCs were considered a contingency remedy; meaning Travis AFB would either excavate the contaminated soil and dispose of it off-base, or place the contaminated soil into the CAMU. Travis AFB at the time when the soil RODs were developed was considered an industrial facility, and the original goal was to clean up the soil to below industrial levels and apply LUCs. The mindset of the Air Force has changed to focus on reduced life cycle costs, reduced risks, cleanup to residential levels, and the removal of LUCs so the land can be used without restrictions.

Mr. Salcedo indicated that Travis AFB would have to do one ESD for each soil ROD.

- Prepare remedial action work plan (RAWP).
- Conduct site work (i.e., excavation).
- RA Completion report.

- Estimated Schedule:

- DP039 - Removal of soil LUC (2014).
- SD043 - ESD/ROD amendment and RA work plan (2014), excavation and RA completion report (2015).
- SS046 - ESD/ROD amendment (2016), RA work plan (2017), excavation and RA completion report (2018). Mr. Wray said the work at this site is schedule in 2016 due to funding. However, given the discussion on the ESD/ROD amendment it would make sense to try and expedite funding. The regulatory agencies said it would make it much easier for the ESD/ROD amendment to be completed for all sites at the same time.
- SS016 - ESD/ROD amendment and RA work plan (2014) excavation (2015), RA completion report (2016).

- SD033 - ESD/ROD amendment and RA work plan (2014), excavation and RA completion report (2016).

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

Mr. Wray reported on the status of field work and documents which are completed, in progress, and upcoming. Updates from the briefing this month included:

Newly Completed Documents: Old Skeet Range Removal Action Work Plan.

Newly Completed Field Work: Subsite LF007C optimization upgrades.

In-Progress Documents: Groundwater Record of Decision, Kinder Morgan LF044 Land Use Control Report.

In-Progress Field Work: None.

Upcoming Documents: CG508 POCO Work Plan, 2013 Annual GRISR, CAMU Inspection Annual Report.

Upcoming Field Work: 2014 Annual GRIP Sampling Event, Biological Resource Assessment, Old Skeet Range Characterization Sampling.

4. New Action Item Review

Travis AFB: Renew base pass for Ms. Burke. New base pass for Ben Fries/DTSC and temporary pass for John Hart/DTSC.

5. PROGRAM/ISSUES/UPDATE

Mr. Smith provided an AFCEC Installation Support Team (IST) Organization chart (see attachment 9 for details).

The ISTs are divided up by region, and are part of the Environmental Center of Excellence (ECoC) located at Joint Base San Antonio (JBSA). The Travis IST is the lead in the west region for Nellis, Travis, Vandenberg, and Edwards Air Force Bases. There is an Environmental Quality (EQ) component and an Environmental Restoration (ER) component to the IST.

Each IST is centrally managed by JBSA and functions as a standardized resource for the installations they support. The IST is managed by, and reports to AFCEC. The Travis IST acts in an advisory and backup role to the 60 Civil Engineering Squadron (CES).

Mr. Salcedo announced that he has accepted a new position as Branch Chief of Northern California Schools Evaluation with DTSC starting next week. Mr. Ben Fries, who will be replacing Mr. Salcedo and Mr. John Hart Supervisory Engineer, will be attending next month's RPM meeting with Mr. Jose Salcedo.

6. Action Items

Item #	Responsible	Action Item Description	Due Date	Status
1.	Travis AFB	Research beneficial reuse of treated water and give update. Update (13 June 2012): AFCEE is in agreement with treated water reuse using Defense Environmental Restoration Account (DERA) funds under the authority of a "net-zero policy" for the Air Force. Update (15 August 2012): Mr. Duke reported that irrigation lines were destroyed by a communications contractor and not repaired because the system was inactive. Travis AFB will get the system design information to determine if the trunk line is still intact and repairs can be made to get the system running. Update, 16 January 2013: Mr. Duke said that an Air Force energy reduction contractor will look into the cost of installing a pipe to convey treated water from the central plant to the duck pond. Update, 20 March 2013: Mr. Duke said Travis AFB is looking into energy management projects with respect to ways of reducing water usage. Due date changed to TBD.	TBD	Open
2.	Travis AFB	Investigate basewide biological opinion of T&E habitat.	19 March 2014	Open
3.	Travis AFB	Renew base pass for Ms. Burke. Request new base pass for Ben Fries/DTSC, and temporary pass for	19 March 2014	Open

		John Hart/DTSC.		
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TRAVIS AIR FORCE BASE
ENVIRONMENTAL RESTORATION PROGRAM
RESTORATION PROGRAM MANAGER'S MEETING
BLDG 248 Conference Room
19 February 2014, 9:30 A.M.
AGENDA

1. ADMINISTRATIVE

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

2. CURRENT PROJECTS

- A. TREATMENT PLANT OPERATION AND MAINTENANCE UPDATE

3. PRESENTATION

- A. REMEDIAL ACTIONS AT SOIL LUC SITES
- B. PROGRAM UPDATE: ACTIVITIES COMPLETED, IN PROGRESS AND UPCOMING

4. NEW ACTION ITEM REVIEW

5. PROGRAM/ISSUES/UPDATE

(2014)
Annual Meeting and Teleconference Schedule

Monthly RPM Meeting¹ (Begins at 9:30 a.m.)	RPM Teleconference (Begins at 10:00 a.m.)	Restoration Advisory Board Meeting (Begins at 7:00 p.m.) (Poster Session at 6:30 p.m.)
01-22-14	—	—
02-19-14	—	—
03-19-14	—	—
04-17-14 (Thur 2:00 PM)	—	04-17-14
05-21-14	—	—
06-18-14	—	—
07-23-14	—	—
08-20-14	—	—
09-17-14	—	—
10-23-14 (Thur 2:00 PM)	—	10-23-14
11-19-14	—	—
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¹ Note: Meetings will be held the third Wednesday of each month unless otherwise noted.

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS	
Life Cycle	Groundwater Record of Decision Travis, Glenn Anderson CH2M HILL, Leah Waller
Scoping Meeting	01-24-07 (11-30-11)
Predraft to AF/Service Center	11-28-12
AF/Service Center Comments Due	12-12-12
Draft to Agencies	01-02-13 ¹
Draft to RAB	01-02-13 ¹
Agency Comments Due	03-03-13 (04-05-13)
Response to Comments Meeting	11-20-13
Public Comment Period	NA
Public Meeting	NA
Response to Comments Due	02-19-14
Draft Final Due	02-19-14
Final Due	03-21-14

¹Sent Appendix A to agencies for review on 07-31-13

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS			
Life Cycle	Potrero Hills Annex Travis, Glenn Anderson		
	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

Travis AFB Master Meeting and Document Schedule

SECONDARY DOCUMENTS	
Life Cycle	Site CG508 POCO Work Plan Travis AFB, Glenn Anderson CH2M HILL, Tony Chakurian
Scoping Meeting	NA
Predraft to AF/Service Center	02-25-14
AF/Service Center Comments Due	03-11-14
Draft to Agencies	04-01-14
Draft to RAB	04-01-14
Agency Comments Due	05-01-14
Response to Comments Meeting	05-21-14
Response to Comments Due	06-04-14
Draft Final Due	NA
Final Due	06-04-14
Public Comment Period	NA
Public Meeting	NA

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS				
Life Cycle	Quarterly Newsletters (April 2014) Travis, Glenn Anderson	2013 Annual Groundwater Remediation Implementation Status Report Travis AFB, Lonnie Duke CH2M HILL, Royer/Berwick	Kinder Morgan Site LF044 Land Use Control Report Travis AFB, Glenn Anderson AMEC, Nick Ricono	CAMU Inspection Annual Report Travis AFB, Lonnie Duke Gilbane, Rachel Hess
Scoping Meeting	NA	NA	NA	NA
Predraft to AF/Service Center	NA	03-20-14	NA	01-31-14
AF/Service Center Comments Due	NA	04-03-14	NA	02-10-14
Draft to Agencies	03-25-14	04-17-14	09-18-13	02-19-14
Draft to RAB	NA	04-17-14	09-18-13	02-19-14
Agency Comments Due	04-08-14	05-19-14	10-18-13	03-19-14
Response to Comments Meeting	TBD	05-21-14	TBD	03-19-14
Response to Comments Due	04-09-14	06-04-14	TBD	03-25-14
Draft Final Due	NA	NA	NA	NA
Final Due	04-09-14	06-04-14	TBD	04-07-14
Public Comment Period	NA	NA	NA	NA
Public Meeting	NA	NA	NA	NA

Travis AFB Master Meeting and Document Schedule

HISTORICAL	
Life Cycle	Old Skeet Range Removal Action Work Plan Travis AFB, Glenn Anderson Baywest, Steve Thornton
Scoping Meeting	NA
Predraft to AF/Service Center	05-21-13
AF/Service Center Comments Due	06-05-13
Draft to Agencies	08-30-13
Draft to RAB	08-30-13
Agency Comments Due	09-30-13
Response to Comments Meeting	11-20-13
Response to Comments Due	12-06-13
Draft Final Due	NA
Final Due	12-06-13
Public Comment Period	NA
Public Meeting	NA

South Base Boundary Groundwater Treatment Plant Monthly Data Sheet

Report Number: 161

Reporting Period: 31 December 2013 – 31 January 2014

Date Submitted: 13 February 2014

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

System Metrics

Table 1 presents operational data from the January 2014 reporting period.

Table 1 – Operations Summary – January 2014			
Initial Data Collection:		12/31/2013 13:00	Final Data Collection: 1/31/2014 16:30
Operating Time:		Percent Uptime:	Electrical Power Usage:
SBBGWTP:	749 hours	SBBGWTP:	100 %
		SBBGWTP:	6,060 kWh (8,302 lbs CO ₂ generated ^a)
Gallons Treated: 2.1 million gallons		Gallons Treated Since July 1998: 848 million gallons	
Volume Discharged to Union Creek: 2.1 million gallons			
VOC Mass Removed: 1.24 lbs ^b		VOC Mass Removed Since July 1998: 445 lbs	
Rolling 12-Month Cost per Pound of Mass Removed: \$11,538 ^c			
Monthly Cost per Pound of Mass Removed: \$7,760			
lbs = pounds			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.			
^b Calculated using January 2014 EPA Method SW8260B analytical results.			
^c Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the system.			

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

Table 2 – SBBGWTP Average Flow Rate (gpm) ^{a,b}							
FT005 ^c				SS029		SS030	
EW01x05	1.0	EW736x05	Offline	EW01x29	2.1	EW01x30	1.6
EW02x05	1.7	EW737x05	Offline	EW02x29	6.5	EW02x30	1.1
EW03x05	Offline	EW742x05	Offline	EW03x29	2.8	EW03x30	3.2
EW731x05	Offline	EW743x05	Offline	EW04x29	6.3	EW04x30	23.3
EW732x05	Offline	EW744x05	Offline	EW05x29	7.9	EW05x30	-- ^d
EW733x05	Offline	EW745x05	Offline	EW06x29	4.8	EW06x30	Dry
EW734x05	-- ^d	EW746x05	Offline	EW07x29	3.4	EW711x30	16.1
EW735x05	-- ^d						
FT005 Total: 2.7				SS029 Total: 33.8		SS030 Total: 45.3	
SBBGWTP Average Monthly Flow ^c : 46.4 gpm							
^a Extraction well flow rates are based on instantaneous weekly readings collected at the end of the month.							
^b The average SBBGWTP groundwater flow rate was calculated using the Union Creek Discharge Totalizer and dividing it by the total time in the reporting period.							
^c Most extraction wells at FT005 were taken offline in accordance with the 2008 Annual Remedial Process Optimization Report for the Central Groundwater Treatment Plant, North Groundwater Treatment Plant, and South Base Boundary Groundwater Treatment Plant.							
^d Extraction wells are online, but communications with the SCADA system is faulty. SCADA upgrade is in progress.							
gpm – gallons per minute							
Recharge –not pumping while the well recharges.							
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		Restart		Cause
	Date	Time	Date	Time	
SBBGWTP	None				
SBBGWTP = South Base Boundary Groundwater Treatment Plant					

Summary of O&M Activities

Monthly groundwater samples were collected at the SBBGWTP on 15 January 2014. Sample results are presented in Table 4. The total VOC concentration (71.2 µg/L) in the influent sample has increased since the December 2013 sample (62.1 µg /L) was collected. Cis-1,2-DCE (3.9 µg/L) and TCE (67.3 µg/L) were detected at the influent sampling location in January 2014. Cis-1,2-DCE (1.4 µg/L) was also detected at the midpoint sampling location. No contaminants were detected at the effluent sampling location.

Figure 1 presents a plot of influent concentrations and average flow at the SBBGWTP over the past twelve (12) months. The average flow rate at the SBBGWTP continued to decrease in January 2014. Extraction wells EW01x29, EW04x29, EW01x05, EW734x05, EW735x05, and EW05x30 registered some down time in January 2014 due to widespread freeze damage.

Extraction wells EW734x05 and EW735x05 continue to extract groundwater, but signal wiring faults do not indicate flow. Troubleshooting to determine the source of the signal wire fault will begin in February 2014, but these wells do continue to extract. Extraction wells EW01x29, EW04x29, and EW01x05 all experienced freeze damage to wellhead piping as discovered on 3 January 2014. The flow meter for EW01x05 was replaced and the pump was returned to service on 3 January 2014, while the flow meter for EW04x29 was replaced and the well returned to service on 9 January 2014. The pump at extraction well EW05x30 may be faulty, and troubleshooting activities have continued through January. These wiring issues will continue to be investigated and a new pump may be installed at EW05x30 in February 2014 if troubleshooting activities determine that the motor has shorted out.

On 3 January 2014 at 15:00, a leak was observed at Site SS029 originating from a cracked valve on the aboveground piping at extraction well EW01x29 and the extraction well was immediately taken offline. No leaks were observed by the field technician on 2 January 2014, so it is suspected that the piping was broken on the morning of 3 January. The estimated volume of untreated groundwater released as a result of the leak at EW01x29 is 1,270 gallons. Extraction well EW01x29 is located north of Union Creek and the resulting overland flow did not reach the creek.

Due to the highly volatile nature of the contaminants present, agitation due to overland flow across a grassed surface likely caused the loss of contaminant mass through volatilization prior to the water infiltrating the soil. It is highly unlikely that, given the volume of groundwater released, the concentrations of contaminants present, and the surface area of the spill, any impact to vadose zone soil at this location above the EPA RSLs could have resulted from this release. Repairs at the well head, including new flow meter, were completed on January 15th. Extraction well EW01x29 was brought back online on January 31st.

Optimization Activities

No optimization activities were performed in January 2014.

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 SBBGWTP. The SBBGWTP produced approximately 8,302 pounds of GHG during January 2014. This is consistent with expected monthly usage at the SBBGWTP. Travis AFB is continuing to investigate the inconsistent nature of the electricity usage measured by the meter since October 2013 to determine the source of error. Travis AFB has requested assistance from the CE department to investigate the electrical meter issues and troubleshooting efforts are currently in progress.

TABLE 4

Summary of Groundwater Analytical Data for January 2014 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	15 January 2014 (µg/L)		
				Influent	Midpoint	Effluent
Halogenated Volatile Organics						
Carbon Tetrachloride	0.5	0.14	0	ND	ND	ND
Chloroform	5.0	0.16	0	ND	ND	ND
1,1-Dichloroethane	5.0	0.50	0	ND	ND	ND
1,2-Dichloroethane	0.5	0.15	0	ND	ND	ND
1,1-Dichloroethene	5.0	0.19	0	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.19	0	3.9	1.4	ND
trans-1,2-Dichloroethene	5.0	0.33	0	ND	ND	ND
Methylene Chloride	5.0	0.66	0	ND	ND	ND
Tetrachloroethene	5.0	0.21	0	ND	ND	ND
1,1,1-Trichloroethane	5.0	0.14	0	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.20	0	ND	ND	ND
Trichloroethene	5.0	0.19	0	67.3	ND	ND
Vinyl Chloride	0.5	0.18	0	ND	ND	ND
Non-Halogenated Volatile Organics						
Benzene	1.0	0.17	0	ND	ND	ND
Ethylbenzene	5.0	0.22	0	ND	ND	ND
Toluene	5.0	0.14	0	ND	ND	ND
Xylenes	5.0	0.23 – 0.5	0	ND	ND	ND
Other						
Total Petroleum Hydrocarbons – Gasoline	50	8.5	0	NM	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	50	0	NM	NM	ND
Total Suspended Solids (mg/L)	NE	1.0	0	94	NM	NM

^a In accordance with Appendix B of the Travis AFB South Base Boundary Groundwater Treatment Plant Operations and Maintenance Manual (CH2M HILL, 2004).

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

mg/L = milligrams per liter

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

ND = not detected

NE = not established

NM = not measured

µg/L = micrograms per liter

Figure 1
SBBGWTP Total VOC Influent Concentrations and Average Flowrate
Twelve Month History
Travis Air Force Base, California

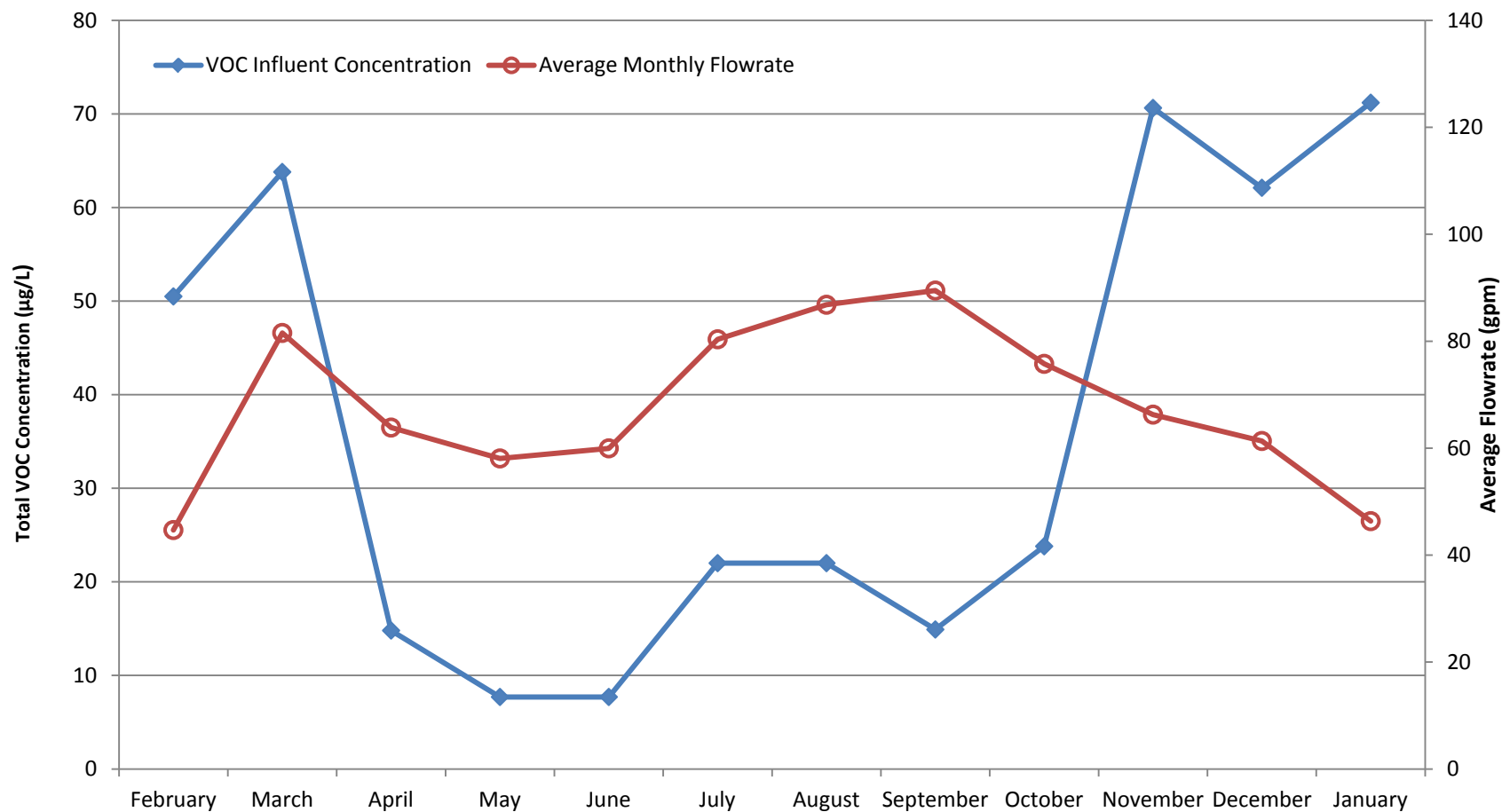
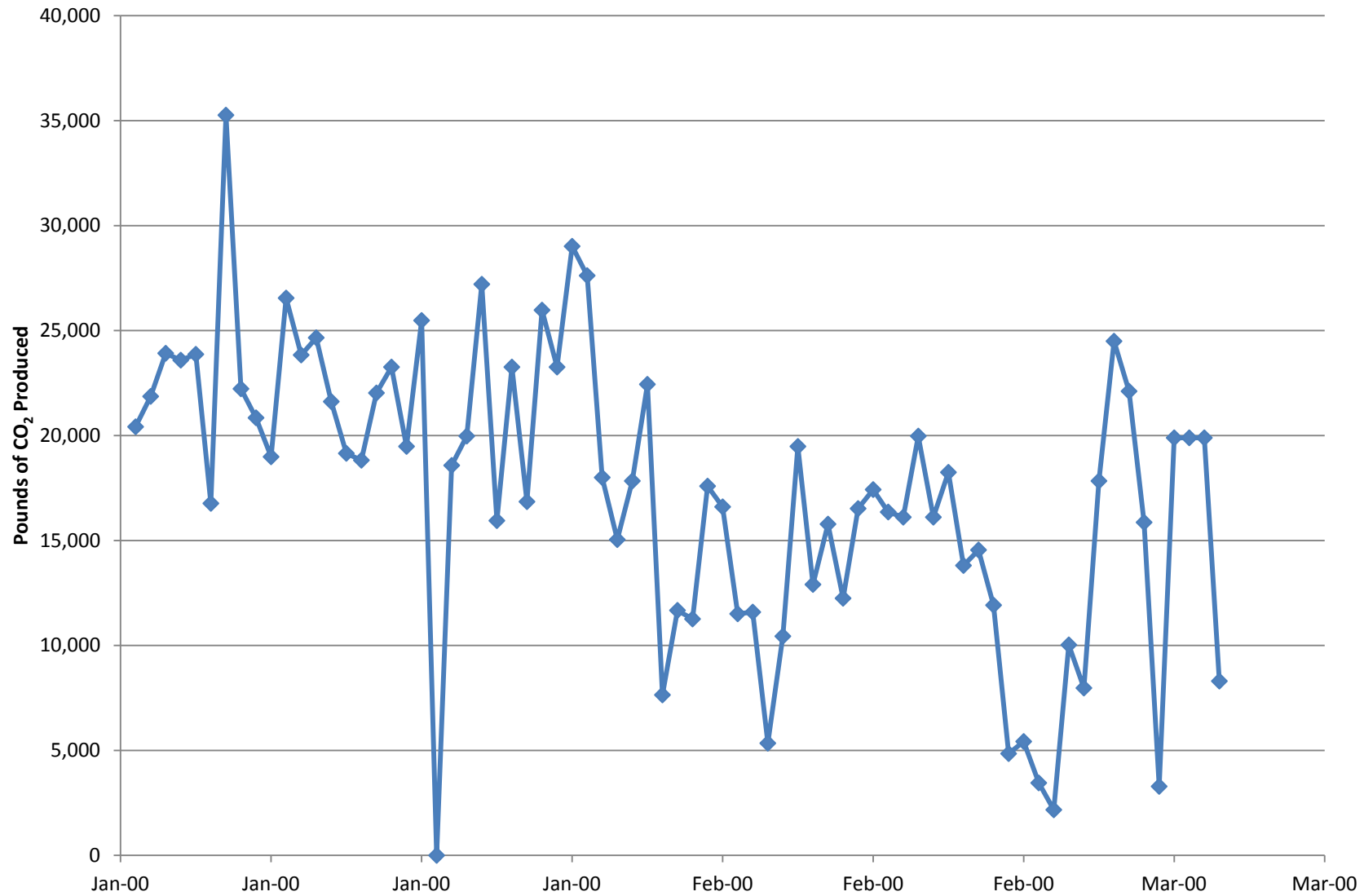


Figure 2

Equivalent Pounds of CO₂ Produced by the South Base Boundary Groundwater Treatment Plant



Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 174

Reporting Period: 31 December 2013 – 31 January 2014

Date Submitted: 13 February 2014

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

System Metrics

Table 1 presents operational data from the January 2014 reporting period.

Table 1 – Operations Summary – January 2014			
Initial Data Collection:	12/31/2013 13:00	Final Data Collection:	1/31/14 14:00
Operating Time:		Percent Uptime:	Electrical Power Usage:
CGWTP: 745 hours		CGWTP: 100%	CGWTP: 2,634 kWh (3,609 lbs CO ₂ generated ^a)
WTTP: Water: 0 hours Vapor: 0 hours		WTTP: Water: 0% Vapor: 0%	WTTP: 0 kWh
Gallons Treated: 1.37 million gallons		Gallons Treated Since January 1996: 490 million gallons	
VOC Mass Removed:		VOC Mass Removed Since January 1996:	
2.57 lbs ^b (groundwater only)		2,668 lbs from groundwater	
0 lbs (vapor only)		8,686 lbs from vapor	
Rolling 12-Month Cost per Pound of Mass Removed: \$2,549 ^c			
Monthly Cost per Pound of Mass Removed: \$3,635			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG. ^b Calculated using January 2014 EPA Method SW8260B analytical results. ^c Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the CGWTP and are reported based on the calendar month.			

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

Table 2 – CGWTP Average Flow Rates ^a		
Location	Average Flow Rate	
	Groundwater (gpm)	Soil Vapor (scfm) ^b
EW01x16	15.9	Offline
EW02x16	7.0	Offline
EW03x16	0.1 ^c	Offline
EW605x16	7.0	Offline
EW610x16	3.9	Offline
CGWTP	30.6	--
WTTP	-- ^b	Offline

^a Flow rates calculated by dividing total gallons processed by system operating time for the month.
^b No soil vapor was treated in January 2014.
^c Water discharged to Site SS016 bioreactor – flow rate taken from wellhead Flow Totalizer divided by operating time during the month.
gpm = gallons per minute
-- = not applicable/not available
scfm = standard cubic feet per minute

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

Table 3 – Summary of System Shutdowns					
Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
CGWTP (Groundwater)					
	None	NA			
WTTP					
	None	NA			
CGWTP = Central Groundwater Treatment Plant WTTP = West Transfer Treatment Plant					

Summary of O&M Activities

Monthly groundwater samples were collected at the CGWTP on 15 January 2014. Sample results are presented in Table 4. The total VOC concentration (225.71 µg/L) in the influent sample has decreased since the December 2013 sample (244.92 µg/L) was collected. Concentrations of cis-1,2-DCE (26 µg/L), tetrachloroethene (0.71 µg/L), trans-1,2-Dichloroethene (2 µg/L), and TCE (197 µg/L) were detected at the influent sampling location.

No contaminants were detected at the midpoint or effluent sampling locations. Travis Air Force Base will continue to monitor contaminant concentrations at the CGWTP for breakthrough in the primary vessel.

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 average flow rate through the treatment plant in January 2014 decreased slightly from the flow rate measured in December 2013. The flow rate has returned to expected rates consistent to what was measured at the CGWTP prior to extraction wells EW605x16 and EW610x16 being taken offline for wiring repairs in October 2013.

The Site DP039 bioreactor continues to operate in a “pulsed mode” in order to improve the rate of remediation and to preserve the amount of total organic carbon being produced within the bioreactor. The “pulsed mode” operation continued on a two (2) week transition schedule in January 2014.

Optimization Activities

No optimization activities occurred at CGWTP in January 2014.

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 3,609 pounds of GHG during January 2014. This is a slight decrease from the amount produced in December 2013 (approximately 3,620 pounds).

TABLE 4

Summary of Groundwater Analytical Data for January 2014 – Central Groundwater Treatment Plant

				15 January 2014 (µg/L)			
Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	Influent	After Carbon 1 Effluent	After Carbon 2 Effluent	System Effluent
Halogenated Volatile Organics							
Carbon Tetrachloride	0.5	0.14	0	ND	ND	ND	ND
Chloroform	5.0	0.16	0	ND	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.19	0	26	ND	ND	ND
1,1-Dichloroethane	5.0	0.5	0	ND	ND	ND	ND
1,2-Dichloroethane	0.5	0.15	0	ND	ND	ND	ND
1,1-Dichloroethene	5.0	0.19	0	ND	ND	ND	ND
Methylene Chloride	5.0	0.66	0	ND	ND	ND	ND
MTBE	1.0	0.5	0	ND	ND	ND	ND
Tetrachloroethene	5.0	0.21	0	0.71	ND	ND	ND
1,1,1-Trichloroethane	5.0	0.14	0	ND	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.2	0	ND	ND	ND	ND
Trichloroethene	5.0	0.19	0	197	ND	ND	ND
trans-1,2-Dichloroethene	5.0	0.33	0	2	ND	ND	ND
Vinyl Chloride	0.5	0.18	0	ND	ND	ND	ND
Non-Halogenated Volatile Organics							
Benzene	1.0	0.17	0	ND	ND	ND	ND
Ethylbenzene	5.0	0.22	0	ND	ND	ND	ND
Toluene	5.0	0.14	0	ND	ND	ND	ND
Total Xylenes	5.0	0.23 – 0.5	0	ND	ND	ND	ND
Other							
Total Dissolved Solids (mg/L)	NA	10	0	NM	NM	758	NM

* In accordance with Appendix G of the *Travis AFB Central Groundwater Treatment Plant Operations and Maintenance Manual* (URS Group, Inc., 2002).

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

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

ND = not detected

µg/L = micrograms per liter

mg/L = milligrams per liter

Table 5 presents a twelve month summary of the Site DP039 bioreactor recirculation well pulsing dates.

Table 5 – Summary of DP039 Bioreactor “Pulsed Mode” Operations		
Location	Pulse On Start Date	Pulse Off Start Date
MW750x39	18 January 2013	4 February 2013
	15 February 2013	1 March 2013
	15 March 2013	29 March 2013
	12 April 2013	26 April 2013*
	10 May 2013	24 May 2013
	7 June 2013	21 June 2013
	15 July 2013	26 July 2013
	8 August 2013	16 August 2013
	30 August 2013	13 September 2013
	27 September 2013	11 October 2013
	25 October 2013	8 November 2013
	22 November 2013	5 December 2013
	20 December 2013	3 January 2014
	17 January 2014	31 January 2014
* Damage to the above ground discharge pipe feeding the bioreactor was observed at shutdown. The piping was repaired prior to the 10 May 2013 restart. CGWTP = Central Groundwater Treatment Plant EW = Extraction Well		

Figure 1
CGWTP Total VOC Influent Concentrations and Average Flowrate
Twelve Month History
Travis Air Force Base, California

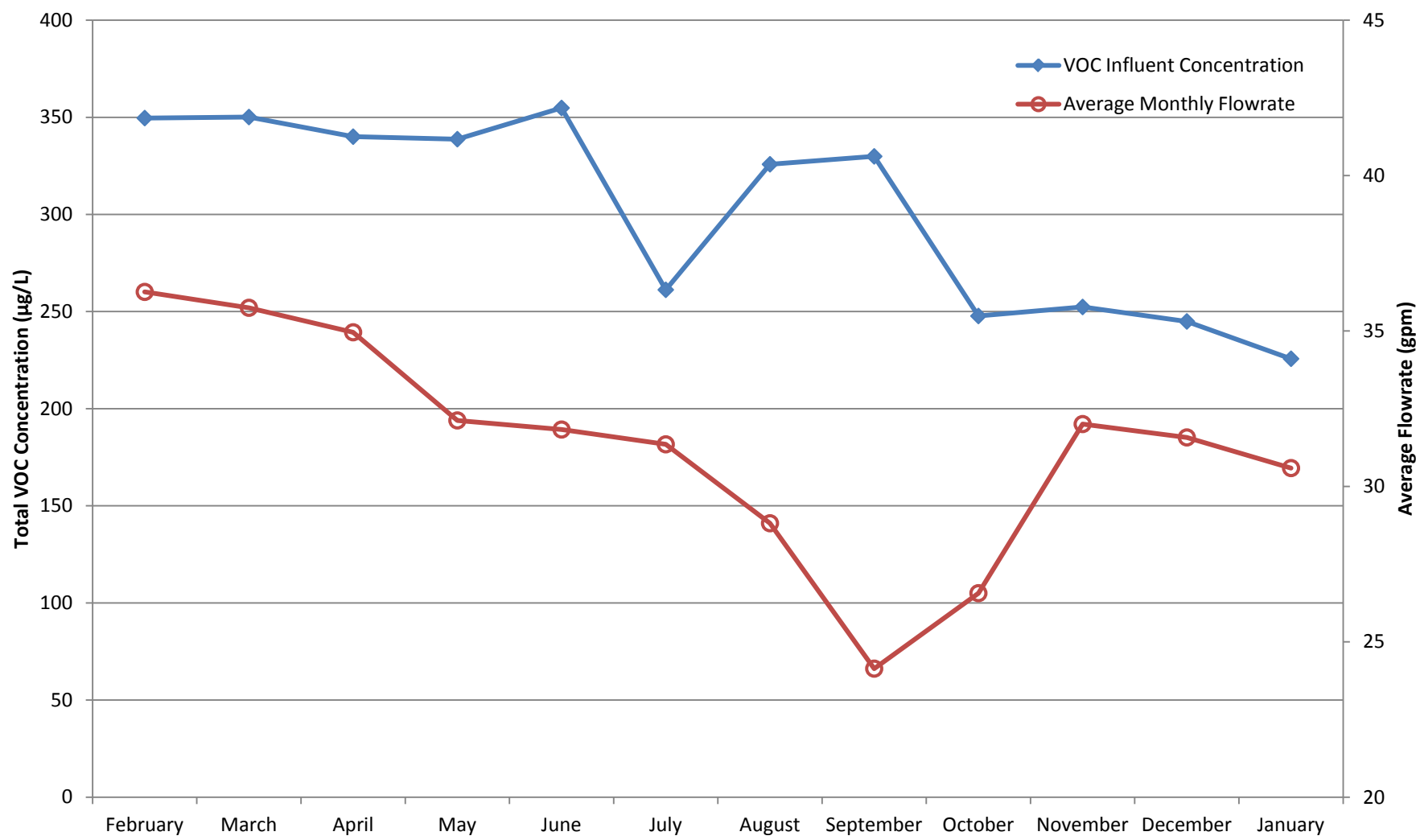
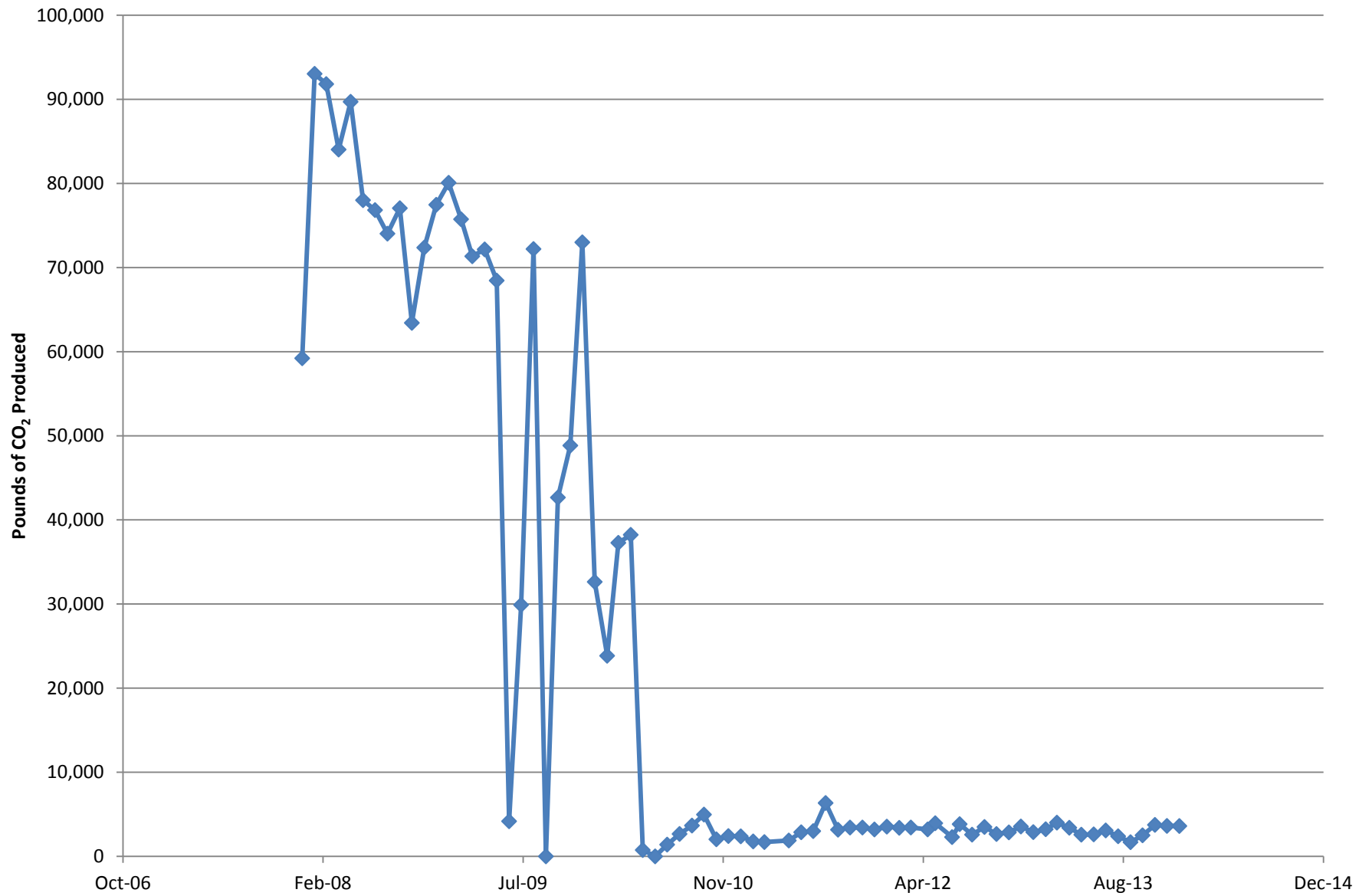


Figure 2

Equivalent Pounds of CO₂ Produced by the Central Groundwater Treatment Plant



North Groundwater Treatment Plant Monthly Data Sheet

Report Number: 138

Reporting Period: 20 January 2014 – 31 January 2014

Date Submitted: 13 February 2014

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

System Metrics

Table 1 presents operational data from the January 2014 reporting period:

Table 1 – Operations Summary – January 2014				
Initial Data Collection:		1/20/2013 09:30	Final Data Collection:	1/31/2014 17:15
Operating Time:		Percent Uptime:		Electrical Power Usage:
NGWTP:	89 hours	NGWTP:	33%	NGWTP: 0 kWh ^a
Gallons Treated: 27,140 gallons			Gallons Treated Since March 2000: 82.9 million gallons	
Volume Discharged to Duck Pond: 27,140 gallons			Volume Discharge to Storm Drain: 0 gallons	
VOC Mass Removed: 3.2 x 10⁻⁴ pounds^b			VOC Mass Removed Since March 2000: 174.3 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 NGWTP was converted to operate on solar energy alone as part of optimization activities completed in January 2014.				
^b VOCs from January 2014 influent sample detected by EPA Method SW8260B.				
^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 – NGWTP Average and Total Flow Rates – January 2014		
Location	Average Flow Rate (gpm) ^a	Total Gallons Processed (gallons)
EW614x07	5.6	29,900
EW615x07	0.6	3,240
NGWTP	5.1	27,140
^a Average flow rate calculated by dividing the total gallons processed from wellhead totalizers by the operating time measured by hour meters at each wellhead. The total gallons processed are determined by readings collected at wellhead and system totalizers. The discrepancy between the sum of both wells and the NGWTP influent can be attributed to the piping between the wells and the NGWTP, which has to be filled before flow registers at the NGWTP. gpm = gallons per minute		

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

Table 3 – Summary of System Shutdowns					
Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
NGWTP	18 November 2013	10:00	20 January 2014	09:30	The NGWTP was shut down to facilitate construction activities at LF007C and operated briefly to perform startup sampling.
NGWTP	20 January 2014	13:00	24 January 2014	15:00	The optimized NGWTP was brought online after startup sample results were received.
NGWTP = North Groundwater Treatment Plant					

Summary of O&M Activities

Analytical data from the 20 January 2014 sampling event are presented in Table 4. TCE (1.4 µg/L) was detected at the influent sample location. No other contaminant concentrations were measured at the influent, midpoint, or effluent sample locations.

Figure 1 presents a chart of influent concentrations (total VOCs) at the NGWTP versus time for the past twelve (12) months. Optimization activities were completed at the NGWTP from November 2013 through January 2014. On 22 January 2014, the lid on one (1) of the two (2) serviceable GAC drums was damaged due to sediment fouling and ice formation within the drum while the system was offline. Analytical data (Table 4) from startup sampling detected an influent concentration of TCE (1.4 µg/L), which is well below the discharge limitation (5 µg/L). The damaged carbon drum was removed from the system and the treatment plant was brought back on line with one (1) carbon drum instead of two. The system continues to be monitored closely and new GAC drums (including a spare) have been ordered for installation in February 2014.

On 24 January 2014, the optimized NGWTP was brought online. Construction activities were completed to increase the sustainable pumping rate from extraction well EW614x07 to provide capture of the off base portion of the Site LF007 groundwater plume. The NGWTP was relocated to Collins Drive between Subarea LF007C and the Duck Pond during construction and now is fully operated with solar power. The optimized system will be monitored closely over the coming months for indications that capture has been achieved including: increased sustained flow rates at EW614x07 and EW615x07 and elevated influent concentrations.

Optimization Activities

Optimization of the groundwater extraction and treatment system (GETS) at Subarea LF007C was completed on 16 January 2014. Approximately 1,400 feet of new discharge piping was installed during November to reroute the effluent from extraction wells EW614x07 and EW615x07 through a newly installed treatment system located on Collins Drive, between Subarea LF007C and the discharge point at the Duck Pond. A new containment pad houses the same treatment equipment that has been in use since 2010 at the NGWTP, but in a smaller enclosure. The upgraded solar system at extraction well EW614x07 was completed in January 2014 and will help to increase capture of the off base portion of the plume and increase the volume of water the system is able to treat during operation from approximately May through December. Future monthly reports will document increased flow rates and influent concentrations captured by the optimized GETS.

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. The NGWTP is taken off line when vernal pools are present at Subarea LF007C. The NGWTP used 510 kWh, which calculates to approximately 699 pounds of GHG generation, in November 2013. On 16 January 2014, the optimized NGWTP was completed and is now operated entirely by solar power. This system is no longer generating GHG because it is entirely operated by solar arrays.

TABLE 4
Summary of Groundwater Analytical Data for January 2014 – North Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	20 January 2014 (µg/L)		
				Influent	After Carbon 1	Effluent
Halogenated Volatile Organics						
Bromodichloromethane	5.0	0.15	0	ND	ND	ND
Bromoform	5.0	0.19	0	ND	ND	ND
Carbon Tetrachloride	0.5	0.14	0	ND	ND	ND
Chloroform	5.0	0.16	0	ND	ND	ND
Dibromochloromethane	5.0	0.13	0	ND	ND	ND
1,3-Dichlorobenzene	5.0	0.15	0	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.15	0	ND	ND	ND
1,1-Dichloroethane	5.0	0.15	0	ND	ND	ND
1,2-Dichloroethane	0.5	0.15	0	ND	ND	ND
1,1-Dichloroethene	5.0	0.19	0	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.19	0	ND	ND	ND
trans-1,2-Dichloroethene	5.0	0.33	0	ND	ND	ND
Methylene Chloride	5.0	0.66	0	ND	ND	ND
Tetrachloroethene	5.0	0.21	0	ND	ND	ND
1,1,1-Trichloroethane	5.0	0.14	0	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.2	0	ND	ND	ND
Trichloroethene	5.0	0.19	0	1.4	ND	ND
Vinyl Chloride	0.5	0.18	0	ND	ND	ND
Non-Halogenated Volatile Organics						
Benzene	1.0	0.17	0	ND	ND	ND
Ethylbenzene	5.0	0.22	0	ND	ND	ND
Toluene	5.0	0.14	0	ND	ND	ND
Xylenes	5.0	0.23 – 0.5	0	ND	ND	ND
Other						
Total Petroleum Hydrocarbons – Gasoline	50	8.5	0	NM	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	50	0	NM	NM	ND
Total Dissolved Solids (mg/L)	NA	10	0	NM	NM	NM

* In accordance with Appendix G of the *Travis AFB North Groundwater Treatment Plant Operations and Maintenance Manual*, Sites FT004, SD031, and LF007 Area C (URS Group, Inc., 2005).

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

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

ND = not detected

NM = not measured

µg/L = micrograms per liter

mg/L = milligrams per liter

Figure 1
NGWTP Total VOC Influent Concentrations and Average Flowrate
Twelve Month History
Travis Air Force Base, California

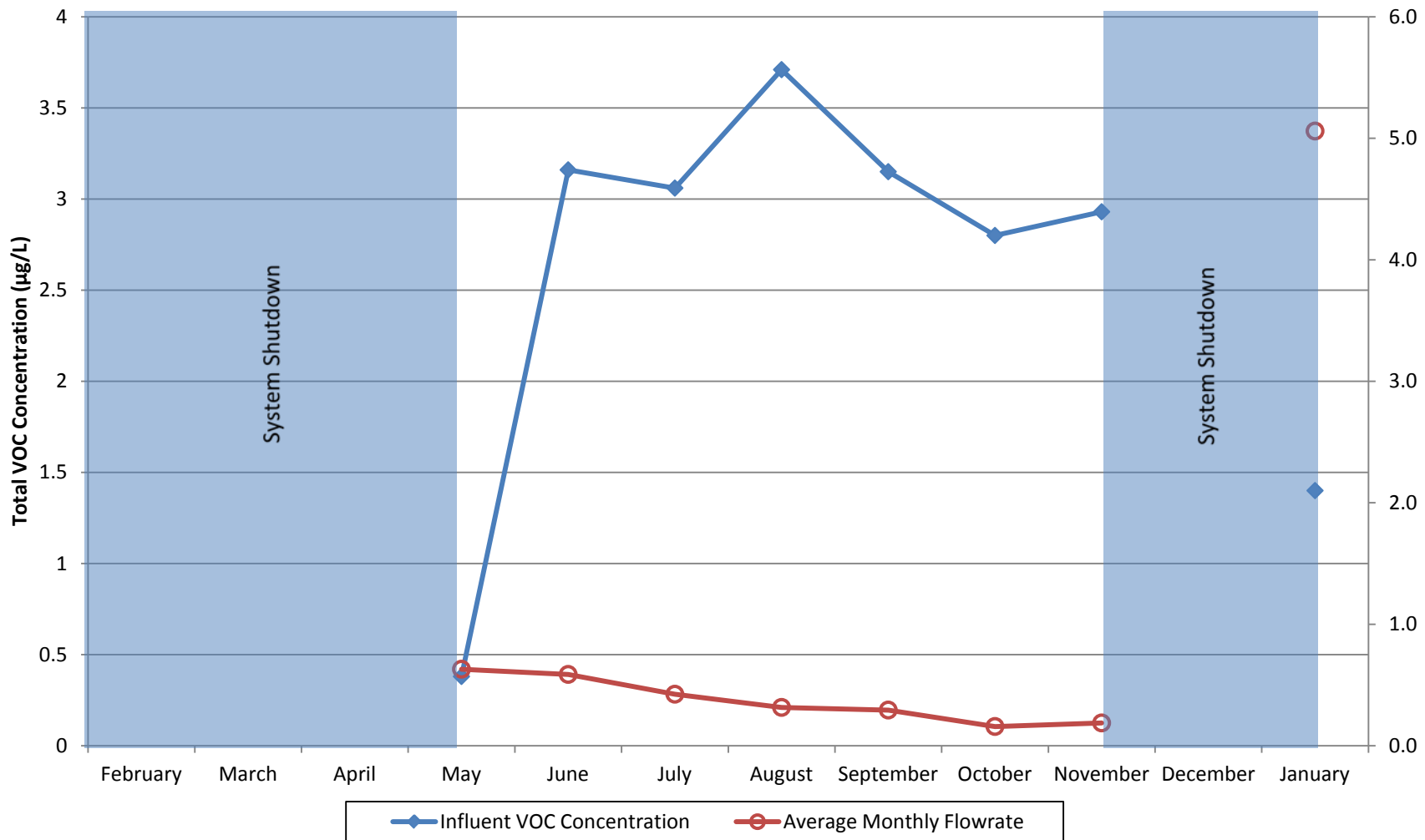
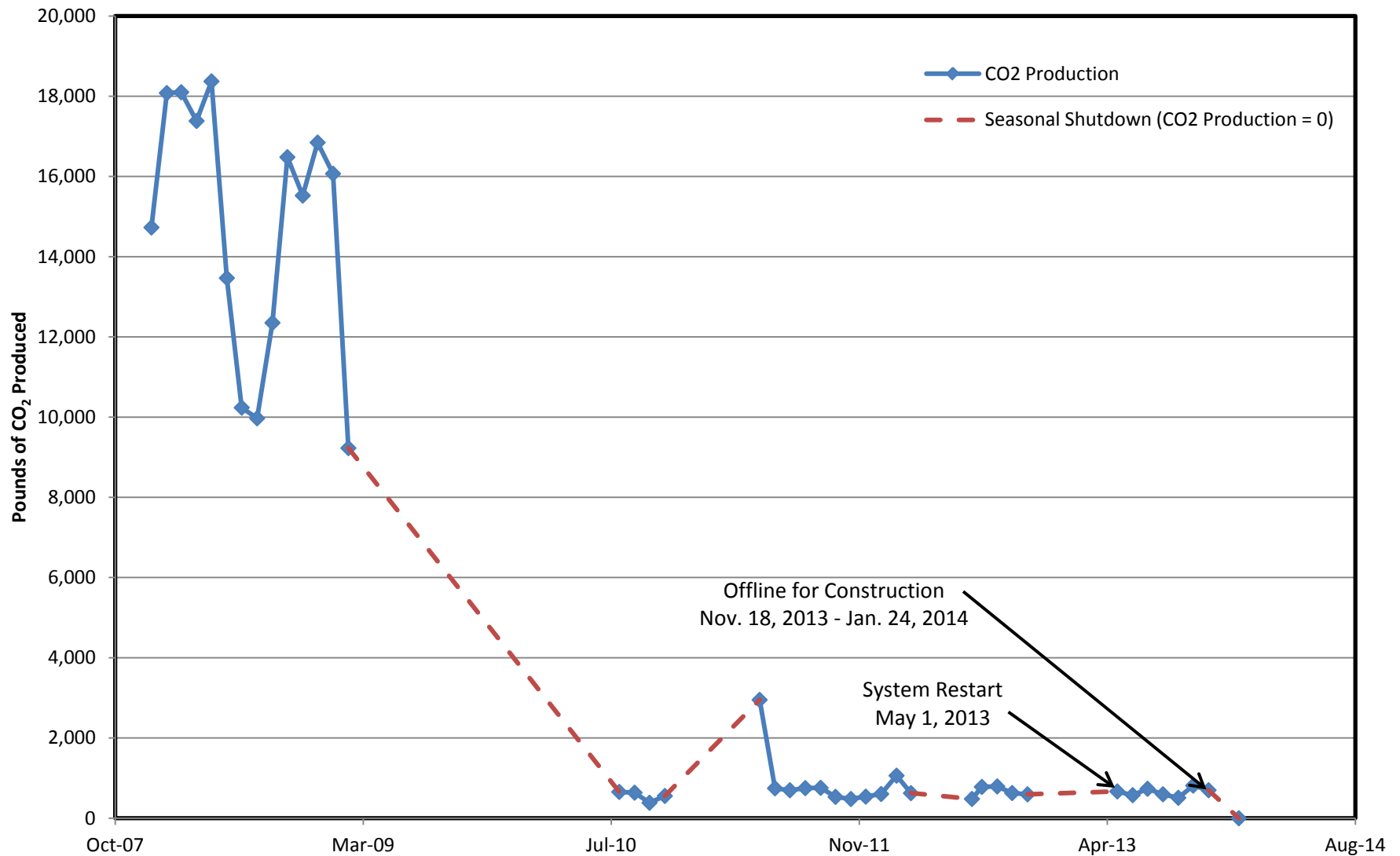


Figure 2
Equivalent Pounds of CO₂ Produced by the North Groundwater Treatment Plant



Note: Dashed line represents seasonal shutdowns due to the presence of vernal pools at Subarea LF007C during which no CO₂ production occurred.

Site ST018 Groundwater Treatment Plant Monthly Data Sheet

Report Number: 035

Reporting Period: 31 December 2013 – 31 January 2014

Date Submitted: 13 February 2014

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

System Metrics

Table 1 presents operation data from the January 2014 reporting period.

Table 1 – Operations Summary – January 2014			
Initial Data Collection:		Final Data Collection:	
12/31/2013 13:30		1/31/2014 11:30	
Operating Time:		Electrical Power Usage:	
Percent Uptime:			
ST018GWTP: 742 hours		ST018GWTP: 100%	
		ST018GWTP: 97 kWh (133 lbs CO ₂ generated ^a)	
Gallons Treated: 145.6 thousand gallons		Gallons Treated Since March 2011: 5.14 million gallons	
Volume Discharged to Union Creek: 145.6 thousand gallons			
BTEX, MTBE, TPH Mass Removed: 0.14 lbs ^b		BTEX, MTBE, TPH Mass Removed Since March 2011: 26.0 lbs	
MTBE (Only) Removed: 0.14 lbs ^b		MTBE (Only) Mass Removed Since March 2011: 6.0 lbs	
Rolling 12-Month Cost per Total Pounds of Mass Removed: \$26,527 ^c			
Monthly Cost per Pound of Mass Removed: \$139,398 ^d			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.			
^b Calculated using January 2014 EPA Method SW8260B analytical results. Influent samples are collected on a quarterly basis.			
^c Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the system.			
^d Costs per pound of mass removed are high this month due to the inclusion of the annual NPDES permit cost and reduced mass removal due to non-detect concentrations of TPH in the1Q14 influent sample.			
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		
Location	Average Flow Rate Groundwater (gpm) ^a	Hours of Operation
EW2014x18	2.15	650
EW2016x18	1.11	742
EW2019x18	1.11	742
Site ST018 GWTP	3.27	742
^a Flow rates calculated by dividing total gallons processed by the hours of operation, from the totalizer and hour meter at each location. 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		Restart		Cause
	Date	Time	Date	Time	
ST018GWTP	None				
ST018GWTP = Site ST018 Groundwater Treatment Plant					

Summary of O&M Activities

Groundwater samples were collected at the ST018GWTP on 16 January 2014. Sample results from the January sampling event are presented in Table 4. No contaminants were detected at the midpoint and effluent sampling locations in January 2014.

The total influent concentration (benzene, toluene, ethylbenzene, total xylenes, MTBE, TPH-gas, TPH-diesel, and TPH-motor oil) in the quarterly (1Q14) influent sample was 112 µg/L, which is a decrease from the previous (4Q13) influent concentration of 204 µg/L. The influent concentration for MTBE during 1Q13 was 112 µg/L. This is a decrease from the 4Q13 influent concentration for MTBE of 138 µg/L. Figure 1 presents plots of flow rate and influent quarterly total VOC (TPH_g, TPH_d, MTBE, and BTEX) and MTBE concentrations at the ST018GWTP versus time.

As shown on Figure 1, the average quarterly flow rate through the ST018GWTP decreased for the month of January 2014, which is consistent with typical flow rates through the treatment system during this time of year when reduced sunlight is available to operate the solar extraction wells. Extraction well EW2014x18 experienced approximately 90 hours of downtime in January 2014, which is the same as the downtime registered by the hour meter at this location in December. This decrease is likely the result of battery discharge during several consecutive overcast days. Furthermore, the lack of rainfall may also be contributing to a lack of groundwater available for extraction at each extraction well. It is expected that the flow rate through the ST018GWTP will remain below the annual average until the spring.

Optimization Activities

No optimization activities were performed in January 2014.

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.

The ST018GWTP produced approximately 133 pounds of GHG during January 2014. This is consistent with December 2013 (132 pounds). Figure 2 presents the historical GHG production from the ST018GWTP. The overall GHG generation remains considerably lower than traditional GWTPs since the system is predominantly powered by solar arrays.

TABLE 4

Summary of Groundwater Analytical Data for January 2014 – Site ST018 Groundwater Treatment Plant

Summary of Groundwater Analytical Data for January 2014 - Site 01616 Groundwater Treatment Plant							
Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	16 January 2014 (µg/L)			
				Influent ^b	After Carbon 1	After Carbon 2	System Effluent
Fuel Related Constituents							
MTBE	5	0.5	0	112	NM	ND	ND
Benzene	5	0.17	0	0.24 J	NM	ND	ND
Ethylbenzene	5	0.22	0	ND	NM	ND	ND
Toluene	5	0.14	0	ND	NM	ND	ND
Total Xylenes	5	0.23 – 0.5	0	ND	NM	ND	ND
Total Petroleum Hydrocarbons – Gasoline	50	8.5	0	ND	ND	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	50	0	ND	ND	NM	ND
Total Petroleum Hydrocarbons – Motor Oil	--	160	--	ND	ND	NM	ND

^a In accordance with the National Pollutant Discharge Elimination System (NPDES) Effluent Limitations^b Values taken from January 2014 (1Q14) influent sample data. Influent sampling is conducted on a quarterly basis.

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

ND = not detected above method detection limit

NM = not measured this month

Figure 1
S18GWTP Total VOC and MTBE Influent Concentrations
(Benzene, Toluene, Ethylbenzene, Xylenes, MTBE, TPH)
Travis Air Force Base, California

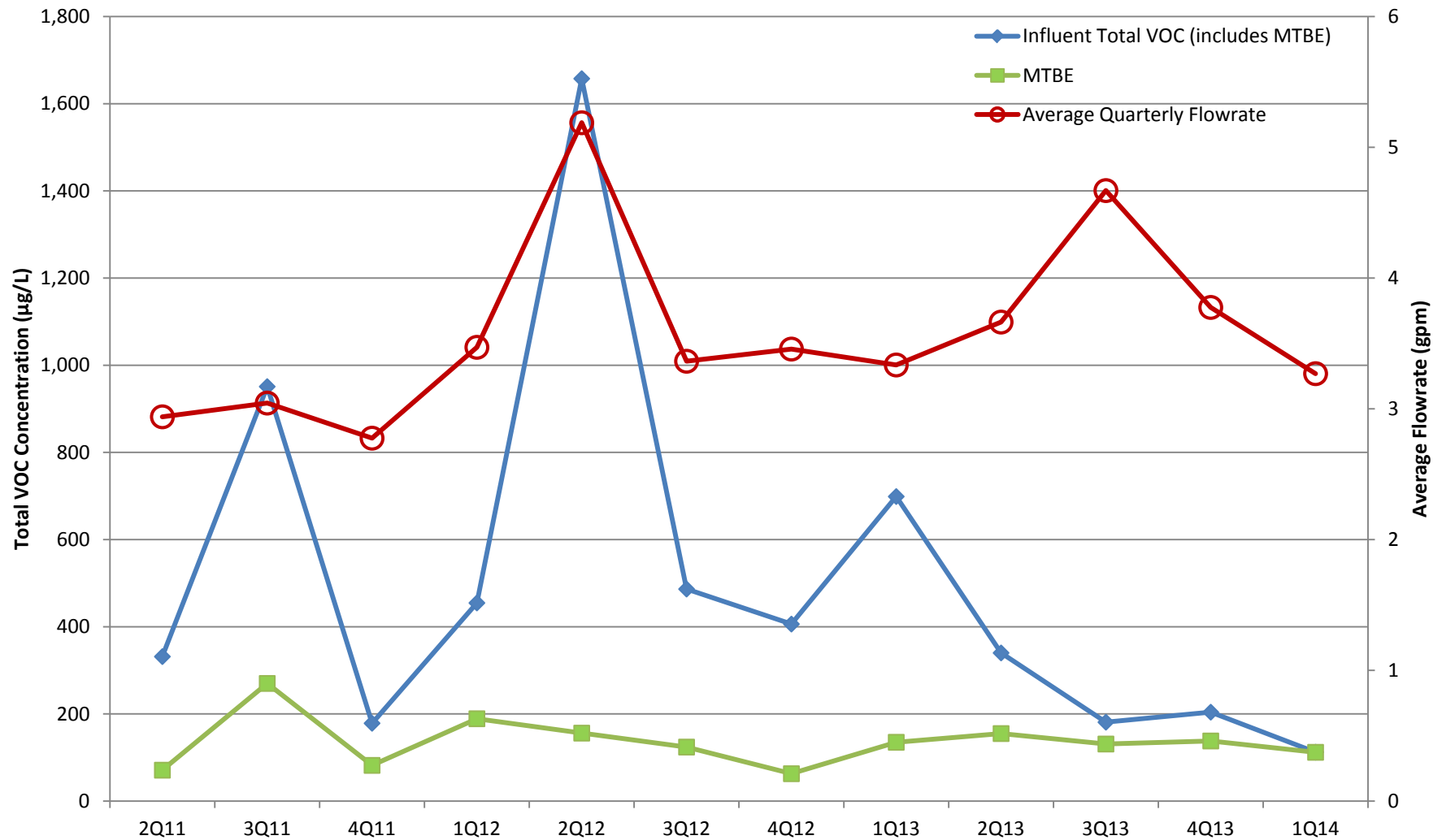
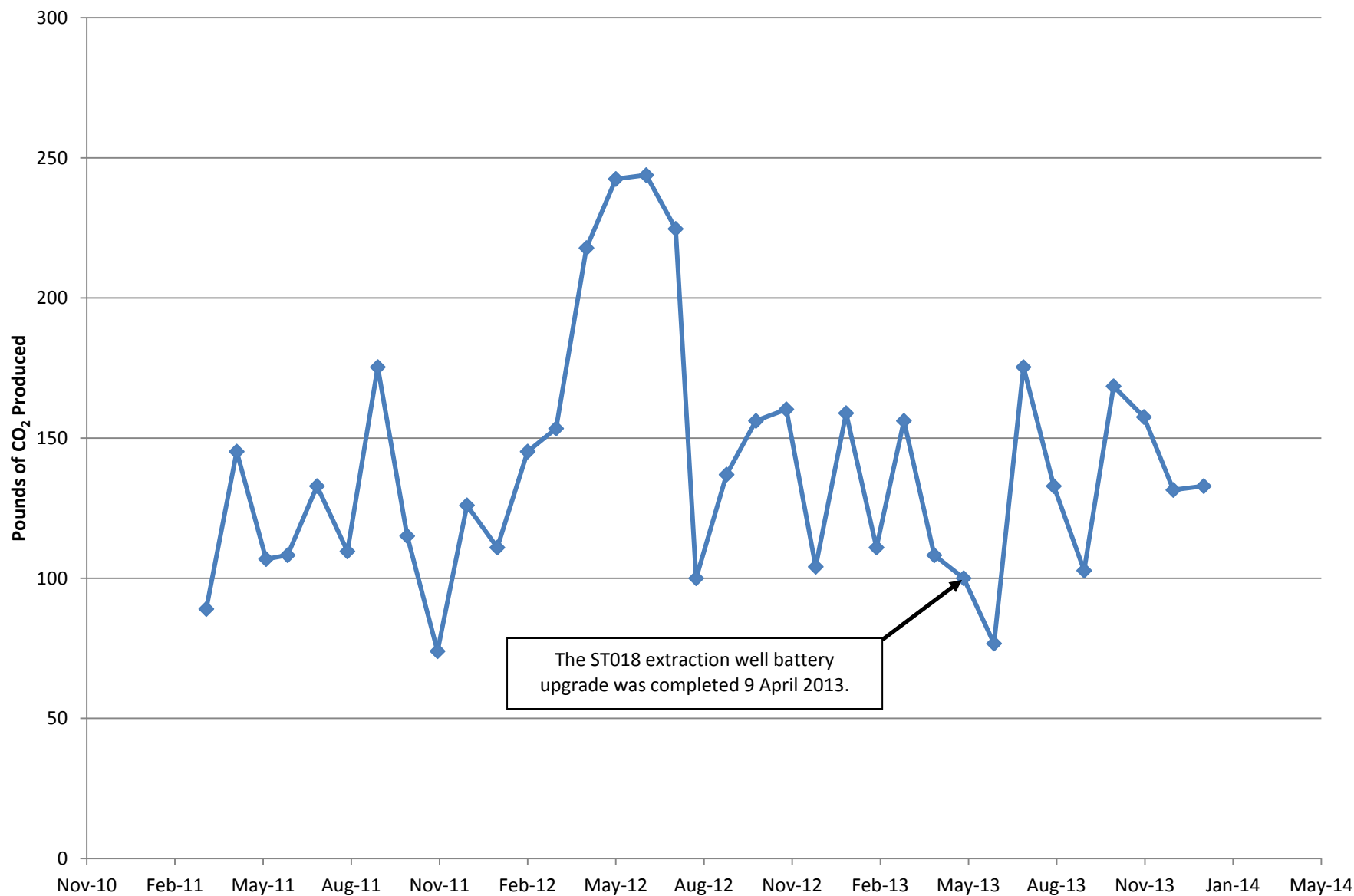


Figure 2
Equivalent Pounds of CO₂ Produced by the Site ST018 Groundwater Treatment Plant



Remedial Actions at Soil LUC Sites

RPM Meeting
February 19, 2014

Soil Land Use Control (LUC) Sites

WABOU Soil ROD

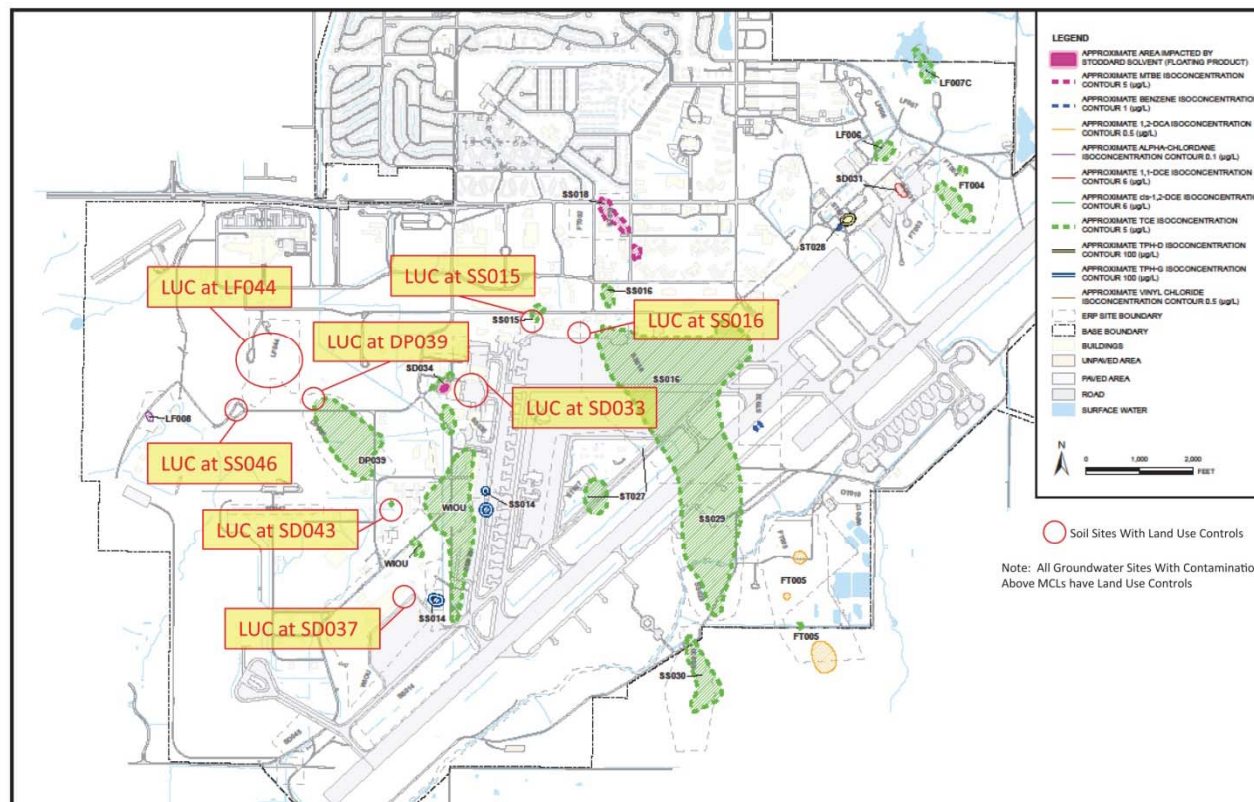
- DP039
- SD043
- LF044
- SS046

NEWIOU Soil, Sediment, & Surface Water ROD

- SS015
- SS016
- SD033
- SD037

Map of Soil LUC Sites

Travis Soil Sites Currently Above Cleanup Levels



Remedial Actions

WABOU Soil ROD

- DP039 – Document removal of Pb and request site closure
- SD043 – Delineate PCBs, excavate contaminated soil, and request site closure
- SS046 - Excavate PAH & metals contaminated soil and request site closure

NEWIOU Soil, Sediment, & Surface Water ROD

- SS016 - Delineate PAHs and PCBs, excavate contaminated soil, and request site closure
- SD033 - Delineate PAHs and metals, excavate contaminated soil, and request site closure

Process

- Biological Resource Assessment/Consultation
- Prepare Explanation of Significant Differences (ESD) or ROD Amendment – either a single
- Prepare Remedial Action Work Plan (RAWP)
- Conduct site work (i.e., excavation)
- RA Completion Report

Schedule

- DP039: Removal of soil LUC (2014)
- SD043: ESD/ROD Amendment & RA Workplan (2014), Excavation & RA Completion Report (2015)
- SS046: ESD/ROD Amendment (2016), RA Workplan (2017), Excavation & RA Completion Report (2018)
- SS016: ESD/ROD Amendment & RA Workplan (2014), Excavation (2015), RA Completion Report (2016)
- SD033: ESD/ROD Amendment & RA Workplan (2014), Excavation & RA Completion Report (2016)

Travis AFB Restoration Program

Program Overview

*RPM Meeting
February 19, 2014*

Completed Documents

- 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***

Completed Field Work

- 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***

3

Documents & Field Work In-Progress

Documents

- Groundwater Record of Decision (ROD)
- Kinder Morgan LF044 Land Use Control Report

Field Work

- None at this time

4

Documents & Field Work Planned

Documents

- | | |
|---|---|
| • CG508 POCO Work Plan | Apr |
| • 2013 Annual GRISR | Apr |
| • <i>CAMU Inspection Annual Report</i> | Feb m7 |

Field Work

- | | |
|---|-----|
| • 2014 Annual GRIP Sampling Event | Apr |
| • Biological Resource Assessment | Feb |
| • Old Skeet Range Characterization Sampling | TBD |

Note: Travis will try to notify regulatory agencies via email approximately one week in advance of planned field work

5

Completed Documents (Historical1)

- | | |
|--|--|
| <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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 |
|--|--|

6

Slide 5

m7 Lonnie, do we have a "draft date" for this one?
mwrap, 2/18/2014

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 7

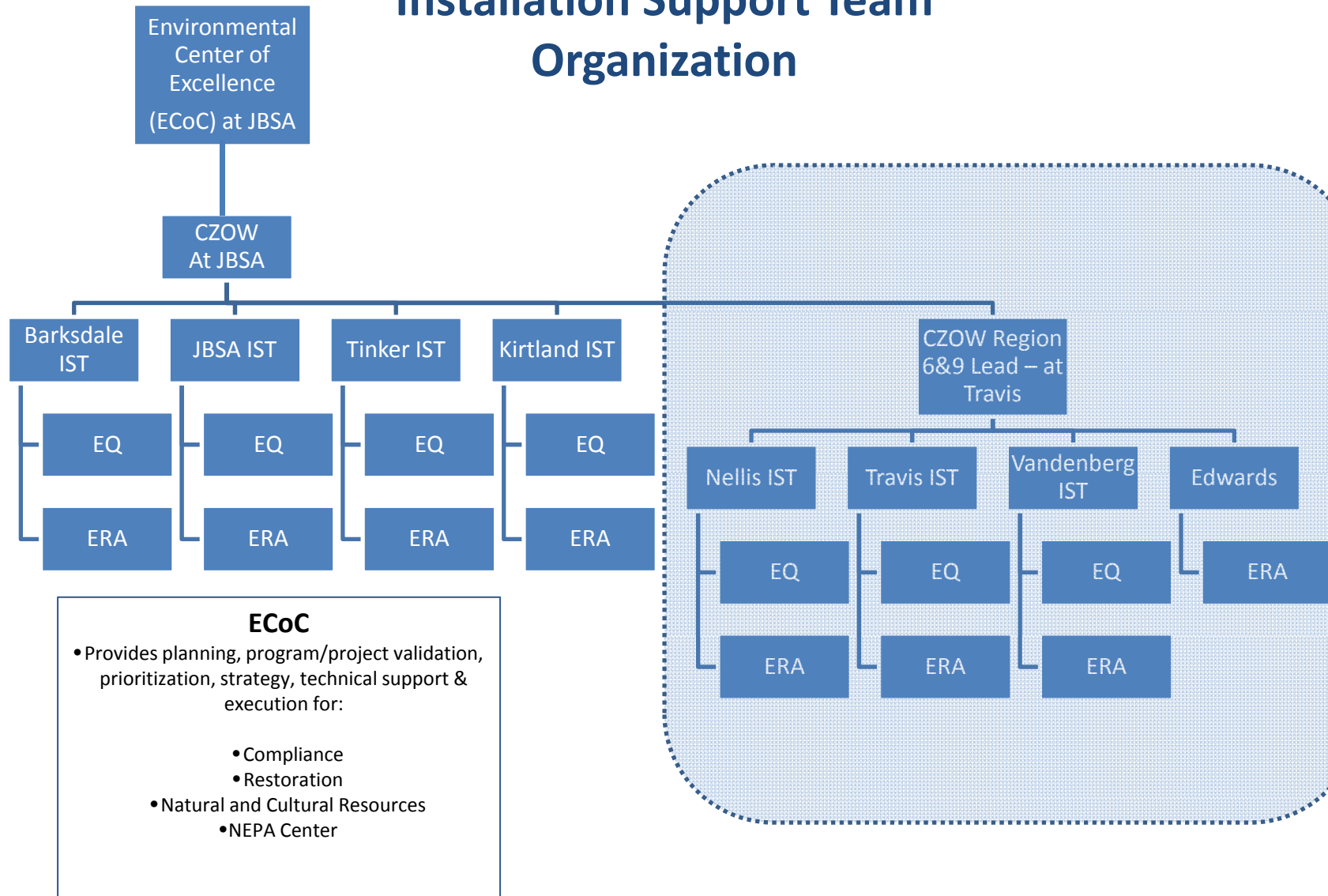
Completed Field Work (Historical1)

- 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

AFCEC Installation Support Team Organization



Travis IST Support Structure to Travis AFB

