

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

19 March 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 March 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
- Dezso Linbrunner USACE-Omaha
- Jose Salcedo California Department of Toxic Substances Control (DTSC)
- Ben Fries California Department of Toxic Substances Control (DTSC)
- John Hart California Department of Toxic Substances Control (DTSC)
- Nadia Hollan Burke United States Environmental Protection Agency (USEPA)
- Mike Wray CH2M HILL
- Tony Chakurian CH2M HILL

Note: A California RWQCB representative was not present during this meeting.

Mr. Sigmund Csicsery AFCEC/CZOW lead for Travis AFB and Nellis AFB IST attended the beginning of the meeting to briefly introduce himself as the Installation Support Team (IST) Lead for Travis AFB and Nellis AFB. Mr. Smith welcomed Mr. Ben Fries (who is replacing Mr. Jose Salcedo for DTSC) and Mr. John Hart Supervisory Engineer with DTSC.

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 (February 2014)
- Attachment 4 CGWTP Monthly Data Sheet (February 2014)
- Attachment 5 NGWTP Monthly Data Sheet (February 2014)

- Attachment 6 ST018 Monthly Data Sheet (February 2014)
- Attachment 7 Presentation: Uniform Federal Policy – Quality Assurance Project Plans
- Attachment 8 Presentation: Program Update: Activities Completed, In Progress and Upcoming

1. ADMINISTRATIVE

A. Previous Meeting Minutes

The 19 February 2014 RPM meeting minutes were approved and finalized as written, with the following exceptions. Ms. Constantinescu requested to add a comment to page five, last paragraph, after sentence four: “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 5/1/2013.” Mr. Fries requested a spelling correction to his name on page nine, first paragraph, second sentence change “Mr. Freis” to “Mr. Fries”.

B. Action Item Review.

Action items from February 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 March 2014: No update.

Action item 2 is closed. Investigate basewide biological opinion of T&E habitat.

Action item 3 is closed. Renew base pass for Ms. Burke. Request a new base pass for Ben Fries/DTSC and John Hart/DTSC.

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 either 17 April 2014 or 16 April 2014 at 0930 hours, depending on availability of the Regulatory agencies. The start time

for the April meeting may be changed to 9:30 due to the cancellation of the April RAB meeting. The May RPM meeting might be moved up one week to 14 May 2014 due to a Battelle Conference.

Travis AFB Master Document Schedule

- Groundwater Record of Decision (ROD): The Final Due date has been extended to 21 April 2014. The EPA submitted a letter requesting a thirty-day extension to allow further review of the land-use control (LUC) language. Mr. Anderson said that the Air Force has signed the ROD and the next in-line to review and sign is EPA. Mr. Salcedo/DTSC said that Charlie Ridenour/DTSC has been discussing the ROD with Loren Henning/EPA, and that DTSC is ready to sign once EPA signs.
- Travis Air Force Base Uniform Federal Policy-Quality Assurance Project Plan (UFP-QAPP): New document. New dates populated. Mr. Anderson gave a brief introduction on the history why Travis AFB established two different QAPPs in the past. The Model QAPP used more stringent language; the purpose was to define laboratory quality assurance specifically intended for remedial investigation work and/or site closeout. The Remedial Design/Remedial Action (RD/RA) QAPP is not as stringent as the Model QAPP and was designed for remedial actions, annual groundwater sampling, and demonstration projects. Both were written to control laboratory costs. The UFP-QAPP is a combination of the two QAPPs and will be used for all subsequent projects. The laboratory technology/equipment has improved considerably and they are now producing more accurate reliable data. Mr. Linbrunner added that one of the requirements that AFCEC has written in the statement of objectives (SOO) for the FY13 PBC contract is to streamline where possible, and the UFP-QAPP is a contractual obligation.
- Potrero Hills Annex: (FS, PP, and ROD): No change to the schedule. Mr. Anderson gave Mr. Fries a brief history on Potrero Hills Annex and the chemicals of concern (COCs). Travis AFB owns a 25-acre annex south of Travis AFB, and the annex is adjacent to a 500 acre parcel that is owned by a private firm. The private 'manufacturing' firm that leased the 25 acre annex was the responsible party for the contamination. The perchlorate contaminant was a by-product from their manufacturing process. The property is currently under regulatory oversight by the California Regional Water Quality Control Board (RWQCB), and will stay under their oversight until the entire site has been cleaned up. Kent Aui with the RWQCB expects the responsible parties to investigate the extent of the contamination. A field investigation was conducted that shows perchlorate has migrated and has a concentration that is many times higher than originally thought. More characterization needs to be conducted to isolate the extent of the perchlorate contamination.
- Site CG508 POCO Work Plan: No change to the schedule. This is a petroleum-only site that receives RWQCB oversight.
- Quarterly Newsletter (April 2014): No change to the schedule.

- 2013 Annual Groundwater Remediation Implementation Status Report (GRISR): All new dates have been entered into the MMDS.
- Kinder Morgan LF044 Land Use Control Report: No change to the schedule.
- CAMU Inspection Annual Report: No change to the schedule.

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 83% uptime, and 1.8 million gallons of groundwater were extracted and treated during the month of February 2014. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 57.0 gallons per minute (gpm). Electrical power usage was 5,689 kWh (*electrical power usage is incorrect, readings inconsistent, suspect faulty meter, in process of procuring a new one*) and approximately 7,794 pounds of CO₂ were created (based on DOE calculation). Approximately 0.45 pounds of volatile organic compounds (VOCs) were removed in February. The total mass of VOCs removed since startup of the system is 446 pounds.

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

Mr. Fries asked if there was concern with the water getting extracted from the plumes and possibility lowering the water table, giving the drought, and the surrounding areas needing the groundwater for irrigation. Mr. Smith said the pumping does not affect the surrounding areas as the groundwater is not used for irrigation.

Central Groundwater Treatment Plant (see Attachment 4)

The Central Groundwater Treatment Plant (CGWTP) performed at 100% uptime with approximately 1.3 million gallons of groundwater extracted and treated during the month of February 2014. All treated water was discharged to the storm drain. The average flow rate for the CGWTP was 33.5 gpm. Electrical power usage was 2,305 kWh for all equipment connected to the Central plant, and approximately 3,158 pounds of CO₂ were generated. Approximately 4.49 pounds of VOCs were removed from groundwater by the treatment plant in February. The total mass of VOCs removed since the startup of the system is 11,358 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 February.

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

North Groundwater Treatment Plant (see Attachment 5)

The North Groundwater Treatment Plant (NGWTP) performed at 33% uptime with approximately 37,140 gallons of groundwater extracted and treated during the month of February 2014. The average flow rate at the NGWTP was 4.6 gpm and electrical power use was 0 kWh for all the equipment connected to the North plant. Approximately 4.3×10^{-4} pounds of VOCs were removed from the groundwater in February. The total mass of VOCs removed since the startup of the system is 174.3 pounds.

Per US Fish and Wildlife Service (USFWS) requirements, the NGWTP was shut down on 8 February 2014 when ponded water was observed in seasonal vernal pools at Subarea LF007C.

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

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

The Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 100% uptime with approximately 154,200 gallons of groundwater extracted and treated during the month of February 2014. All treated water was diverted to the storm drain. The average flow rate for the ST018 GWTP was 3.9 gpm. Electrical power usage for the month was 112 kWh for all equipment connected to the ST018 GWTP plant, which equates to the creation of approximately 153 pounds of CO₂. Approximately 0.14 pounds of BTEX, MTBE and TPH were removed from groundwater in February 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 26.1 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 February.

Mr. Duke said that a teleconference was recently held involving Travis AFB, RWQCB and UC Davis. UC Davis said they are interested in conducting a study on microbial breakdown of MTBE using a new tool they have designed.

Presentations:

Uniform Federal Policy – Quality Assurance Project Plan: (see attachment 7)

Mr. Chakurian reported on the Uniform Federal Policy – Quality Assurance Project Plan (UFP-QAPP). Key points made in this presentation are presented below. (see attachment 7 for details)

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

- The UFP-QAPP was created by the Intergovernmental Data Quality Task Force (IDQTF), in 2005. The purpose was to produce standardized QAPPs for the collection, analysis, and validation of environmental data. The UFP-QAPP consists of thirty-seven different worksheets to provide information about the project, which include:
 - Details about the project organization.
 - Conceptual site model.
 - Project/data quality objectives.
 - Project tasks and schedule.
 - Sample design and rationale.
 - Quality control of sampling, analytical, and data validation protocols.
- There are two types of UFP-QAPPs – Basewide and Site-Specific:
 - A basewide UFP-QAPP is similar to the traditional QAPP, and is referred to in site-specific UFP-QAPPs. It provides detailed information about the collection of samples, analytical methods and data validation protocols
 - A Site-Specific UFP-QAPP takes the place of a traditional work plan. They provide detailed information and background about the site-specific project including: conceptual site model, field activities and individual laboratory analysis.
- Travis AFB UFP-QAPP:
 - Travis AFB is currently preparing a basewide UFP-QAPP (called the Travis AFB UFP-QAPP). Until the Travis AFB UFP-QAPP is completed, the two existing UFP-compliant QAPPs will be referred to in the Site-Specific UFP-QAPPs.

Mr. Wray added that CH2M HILL currently has work plans (WP) in progress and, in order to keep the WPs on schedule, we are using the existing QAPPs with a crosswalk table. Mr. Anderson said with the new UFP-QAPP, the naming convention for the WPs will remain the same (i.e., they will be called work plans; not site-specific QAPPs). However the format for the site-specific work plans will follow the UFP-QAPP format.

- Review of the Site-Specific UFP-QAPPs. The site-specific UFP-QAPPs have information about the project on each of the thirty-seven worksheets. The most important information in the site specific UFP-QAPPs are in the executive summary and on worksheets 10, 14, 17, 18 and 20:
 - Executive summary purpose: conceptual site model and the project related activities.
 - Worksheet #10 – conceptual site model: background, nature and extent of contamination and data quality objectives.
 - Worksheet #14 – project tasks and the schedule: description of project related activities and the schedule.
 - Worksheets #17 – sampling design and rationale: description of what will be sampled, how it will be sampled and the rationale.
 - Worksheets #18 – sampling locations and methods: description of what the different samples will be analyzed for.
 - Worksheets #20 – field QC summary: description of the field quality control sampling.

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: None.

Newly Completed Field Work: None.

In-Progress Documents: Groundwater Record of Decision (ROD), Kinder Morgan LF044 Land Use Control Report, CAMU Inspection Annual Report.

In-Progress Field Work: Biological Resource Assessment.

Upcoming Documents: CG508 POCO Work Plan, 2013 Annual GRISR, Travis AFB UFP-QAPP.

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

Mr. Smith asked Mr. Wray to expound on the GRIP sampling event, specifically the groundwater level collection that is conducted concurrently with the sample collection. Mr. Wray said that he has approximately 8 to 10 people that collect ‘depth-to-water’ measurements all at approximately the same time to get a snapshot of the groundwater gradient and flow direction. The depth-to-water measurements are collected annually in the same time frame each year.

Ms. Burke requested a schedule of documents coming up for review (i.e., work plans, tech memos, ESDs, etc.) She is interested in how many documents to expect for review, and the topics. Mr. Smith mentioned that Explanation of Significant Differences for soil sites as well as work plans for the 2016 characterization of oil/water separators will be added to the Master Meeting and Document Schedule (MMDS) in the near future. Mr. Duke added that we have already started to look at soil sites with land use controls to see if future cleanups can remove the environmental restrictions. Mr. Anderson said that we will try to schedule the issuing of the draft documents so as to not overload the regulator's time and resources, and the next MMDS will reflect this.

4. New Action Item Review

Travis AFB recommended changing the RPM date from 21 May 2014 to 14 May 2014 pending availability of DTSC, RWQCB and EPA. This potential change in meeting date is prompted by the Battelle Conference.

5. PROGRAM/ISSUES/UPDATE

RAB meeting postponement (17 April 2014). Mr. Smith previously discussed the RAB meeting agenda with Mr. Duke and Mr. Anderson and, with the ROD not being signed, there is not much to discuss at the April RAB meeting. Travis AFB asked the opinions of the Regulatory Agencies, and the RAB members, the feedback received was it was okay to postpone and/or they weren't able to attend the April 2014 RAB meeting anyway. Lt Colonel Dan Guinan (RAB Military co-Chair) was okay with postponing the RAB meeting but wanted to make sure that Travis AFB is not violating any legal requirements. He asked that the Travis AFB legal office be consulted. Mr. Smith added that Lt Col Guinan also suggested changing the months the RAB meetings from April and October to January and July. Mr. Smith asked Ms. Hernandez if she knew of any problem with postponing the RAB meeting again, reminding everyone that the October 2013 RAB was cancelled due to the government shutdown. Ms. Hernandez said she didn't know of any but suggested not to push it too far down the road.

Mr. Smith said he will query the other RAB members regarding postponing the April 2014 meeting. Mr. Smith will follow-up via email with the status of the April RAB.

Mr. Salcedo said Dawn Wright/Public Participation Specialist is no longer with DTSC, and that Marcus Simpson will assign Dawn Wright's replacement.

Mr. Smith acknowledged Mr. Salcedo, on behalf of the ERP staff, thanking him for all his efforts and support to the program, and that it was a pleasure working with him. Mr. Salcedo said he will miss working with this team, and that Travis AFB has gotten a lot accomplished.

6. Action Items

Item #	Responsible	Action Item Description	Due Date	Status
1.	Travis AFB	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 March 2014: No update.	TBD	Open
2.	Travis AFB	Travis AFB recommended changing the RPM date from 21 May 2014 to 14 May 2014 pending availability of DTSC, RWQCB and EPA.	17 April 2014	Open

TRAVIS AIR FORCE BASE
ENVIRONMENTAL RESTORATION PROGRAM
RESTORATION PROGRAM MANAGER'S MEETING
BLDG 248 Conference Room
19 March 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. UNIFORM FEDERAL POLICY – QUALITY ASSURANCE PROJECT PLANS
 - 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	—	—
—	—	—

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	Travis Air Force Base Uniform Federal Policy-Quality Assurance Project Plan Travis, Glenn Anderson CH2M HILL, Bernice Kidd
Scoping Meeting	01-24-07 (11-30-11)	NA
Predraft to AF/Service Center	11-28-12	04-07-14
AF/Service Center Comments Due	12-12-12	04-21-14
Draft to Agencies	01-02-13 ¹	05-05-14
Draft to RAB	01-02-13 ¹	05-05-14
Agency Comments Due	03-03-13 (04-05-13)	06-04-14
Response to Comments Meeting	11-20-13	06-18-14
Public Comment Period	NA	NA
Public Meeting	NA	NA
Response to Comments Due	02-19-14	07-02-14
Draft Final Due	02-19-14	07-02-14
Final Due	04-21-14	08-04-14

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	03-24-14	NA	01-31-14
AF/Service Center Comments Due	NA	04-10-14	NA	02-10-14
Draft to Agencies	03-25-14	04-24-14	09-18-13	02-19-14
Draft to RAB	NA	04-24-14	09-18-13	02-19-14
Agency Comments Due	04-08-14	05-26-14	10-18-13	03-19-14
Response to Comments Meeting	TBD	TBD	TBD	03-19-14
Response to Comments Due	04-09-14	06-11-14	TBD	03-25-14
Draft Final Due	NA	NA	NA	NA
Final Due	04-09-14	06-11-14	TBD	04-07-14
Public Comment Period	NA	NA	NA	NA
Public Meeting	NA	NA	NA	NA

South Base Boundary Groundwater Treatment Plant Monthly Data Sheet

Report Number: 162

Reporting Period: 31 January 2014 – 27 February 2014

Date Submitted: 13 March 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 February 2014 reporting period.

Table 1 – Operations Summary – February 2014			
Initial Data Collection:	1/31/2014 16:30	Final Data Collection:	2/27/2014 14:00
Operating Time:	Percent Uptime:	Electrical Power Usage:	
SBBGWTP: 535 hours	SBBGWTP: 83%	SBBGWTP: 5,689 kWh (7,794 lbs CO ₂ generated ^a)	
Gallons Treated: 1.8 million gallons		Gallons Treated Since July 1998: 850 million gallons	
Volume Discharged to Union Creek: 1.8 million gallons			
VOC Mass Removed: 0.45 lbs^b		VOC Mass Removed Since July 1998: 446 lbs	
Rolling 12-Month Cost per Pound of Mass Removed: \$11,240 ^c			
Monthly Cost per Pound of Mass Removed: \$13,203			
lbs = pounds			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.			
^b Calculated using February 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	3.4	EW736x05	Offline	EW01x29	1.1	EW01x30	5.0
EW02x05	2.1	EW737x05	Offline	EW02x29	-- ^d	EW02x30	3.3
EW03x05	Offline	EW742x05	Offline	EW03x29	4.3	EW03x30	5.3
EW731x05	Offline	EW743x05	Offline	EW04x29	8.5	EW04x30	24.1
EW732x05	Offline	EW744x05	Offline	EW05x29	-- ^d	EW05x30	-- ^d
EW733x05	Offline	EW745x05	Offline	EW06x29	5.7	EW06x30	-- ^d
EW734x05	-- ^d	EW746x05	Offline	EW07x29	3.4	EW711x30	16.1
EW735x05	-- ^d						
FT005 Total: 5.5				SS029 Total: 23.0		SS030 Total: 53.8	
SBBGWTP Average Monthly Flow^c: 57.0 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 <i>2008 Annual Remedial Process Optimization Report for the Central Groundwater Treatment Plant, North Groundwater Treatment Plant, and South Base Boundary Groundwater Treatment Plant</i> . ^d Troubleshooting continued in February 2014 for wells that experienced downtime. 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	8 February 2014	18:15	10 February 2014	10:00	System shut down due to sump clogging that triggered a high level alarm.
SBBGWTP	18 February 2014	15:00	21 February 2014	14:00	System shut down to prepare for carbon changeout. Changeout postponed to March 2014.

SBBGWTP = South Base Boundary Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater samples were collected at the SBBGWTP on 24 February 2014. Sample results are presented in Table 4. The total VOC concentration (29.8 µg/L) in the influent sample has decreased since the January 2014 sample (71.2 µg /L) was collected. Chloroform (0.34 J µg/L), cis-1,2-DCE (1.7 µg/L), and TCE (27.8 µg/L) were detected at the influent sampling location in February 2014. Chloroform (0.29 J µg/L), cis-1,2-DCE (2.2 µg/L), and TCE (1.9 µg/L) were also detected at the midpoint sampling location. No contaminants were detected at the effluent sampling location. Carbon changeout is scheduled for 20 March 2014.

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 increased in February 2014 to 57.0 gpm from an average of 46.4 gpm in January 2014. Extraction wells EW02x29, EW05x29, EW05x30, EW06x30, EW734x05, and EW735x05 registered some down time in February 2014 due to widespread freeze damage and troubleshooting remains ongoing.

Optimization Activities

No optimization activities were performed in February 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 7,794 pounds of GHG during February 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 February 2014 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	24 February 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	0.34 J	0.29 J	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	1.7	2.2	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	27.8	1.9	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	53	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

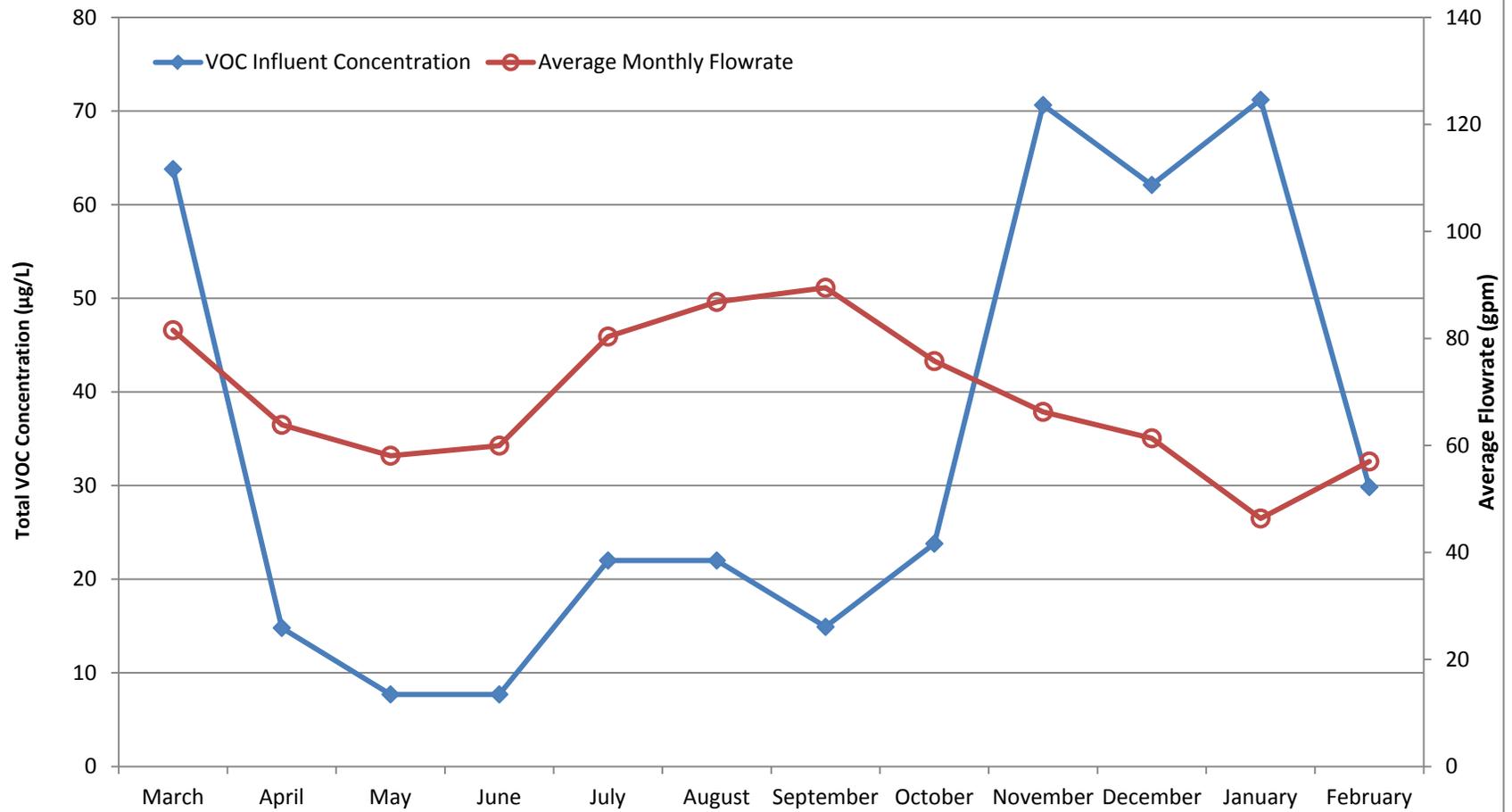
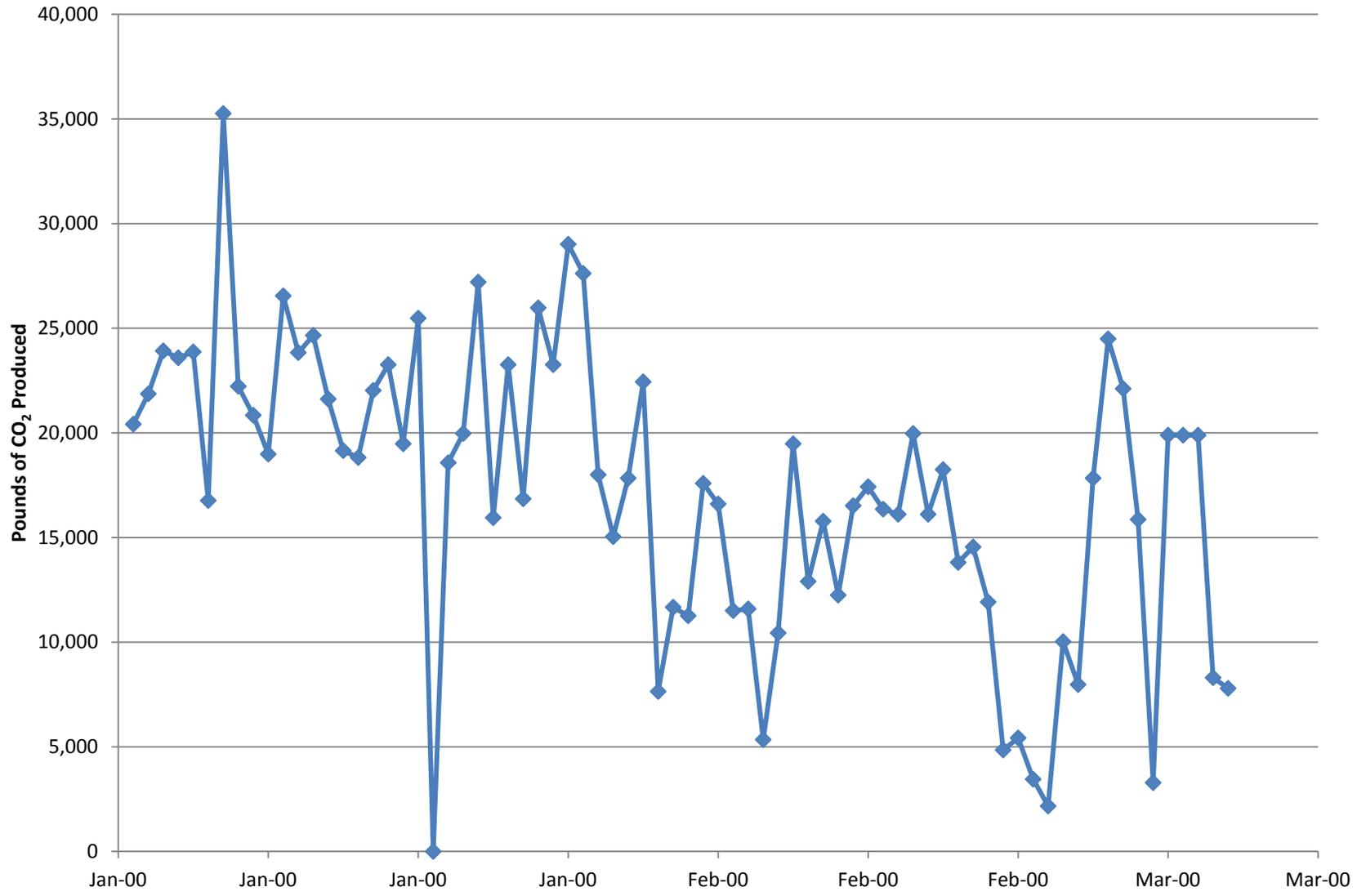


Figure 2

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



Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 175

Reporting Period: 31 January 2014 – 27 February 2014

Date Submitted: 13 March 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 February 2014 reporting period.

Table 1 – Operations Summary – February 2014			
Initial Data Collection:	1/31/14 14:00	Final Data Collection:	2/27/2014 12:00
Operating Time:		Percent Uptime:	Electrical Power Usage:
CGWTP:	646 hours	CGWTP:	100%
WTTP:	Water: 0 hours Vapor: 0 hours	WTTP:	Water: 0% Vapor: 0%
CGWTP:		CGWTP:	2,305 kWh (3,158 lbs CO ₂ generated ^a)
WTTP:		WTTP:	0 kWh
Gallons Treated: 1.30 million gallons		Gallons Treated Since January 1996: 492 million gallons	
VOC Mass Removed:		VOC Mass Removed Since January 1996:	
4.49 lbs^b (groundwater only)		2,672 lbs from groundwater	
0 lbs (vapor only)		8,686 lbs from vapor	
Rolling 12-Month Cost per Pound of Mass Removed: \$2,476 ^c			
Monthly Cost per Pound of Mass Removed: \$1,285			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG. ^b Calculated using February 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	19.2	Offline
EW02x16	7.0	Offline
EW03x16	0.2 ^c	Offline
EW605x16	7.0	Offline
EW610x16	3.9	Offline
CGWTP	33.5	--
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 February 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 11 February 2014. Sample results are presented in Table 4. The total VOC concentration (414.40 µg/L) in the influent sample has increased since the January 2014 sample (225.71 µg/L) was collected. This spike in VOC concentrations may be attributable to the recent startup of extraction wells EW605x16 and EW610x16 following a period of downtime experienced at the end of 2013. The wells were down for completion of wiring repairs. These extraction wells are located in the highest concentration portion of the Site SS016 TCE groundwater plume and the influent concentration dropped by approximately 100 µg/L when they were taken offline (see Figure 1). Concentrations of 1,1-DCE (0.83 µg/L), cis-1,2-DCE (82.4 µg/L), tetrachloroethene (0.66 µg/L), trans-1,2-Dichloroethene (4.1 µg/L), TCE (326 µg/L), and vinyl chloride (0.41 µg/L) were detected at the influent sampling location. Vinyl chloride (0.78 µg/L) was also detected at the midpoint sampling location.

No contaminants were detected at the effluent sampling location. 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 February 2014

increased from the flow rate measured in January 2014. 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 February 2014.

Optimization Activities

No optimization activities occurred at CGWTP in February 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 3,158 pounds of GHG during February 2014. This is a decrease from the amount produced in January 2014 (approximately 3,609 pounds) and is the result of a shorter reporting period and fewer gallons treated in February than in the previous month.

TABLE 4

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

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	11 February 2014 (µg/L)			
				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	82.4	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	0.83	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	0.66	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	326	ND	ND	ND
trans-1,2-Dichloroethene	5.0	0.33	0	4.1	ND	ND	ND
Vinyl Chloride	0.5	0.18	0	0.41 J	0.78	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	NM	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	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
	18 February 2014	28 February 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

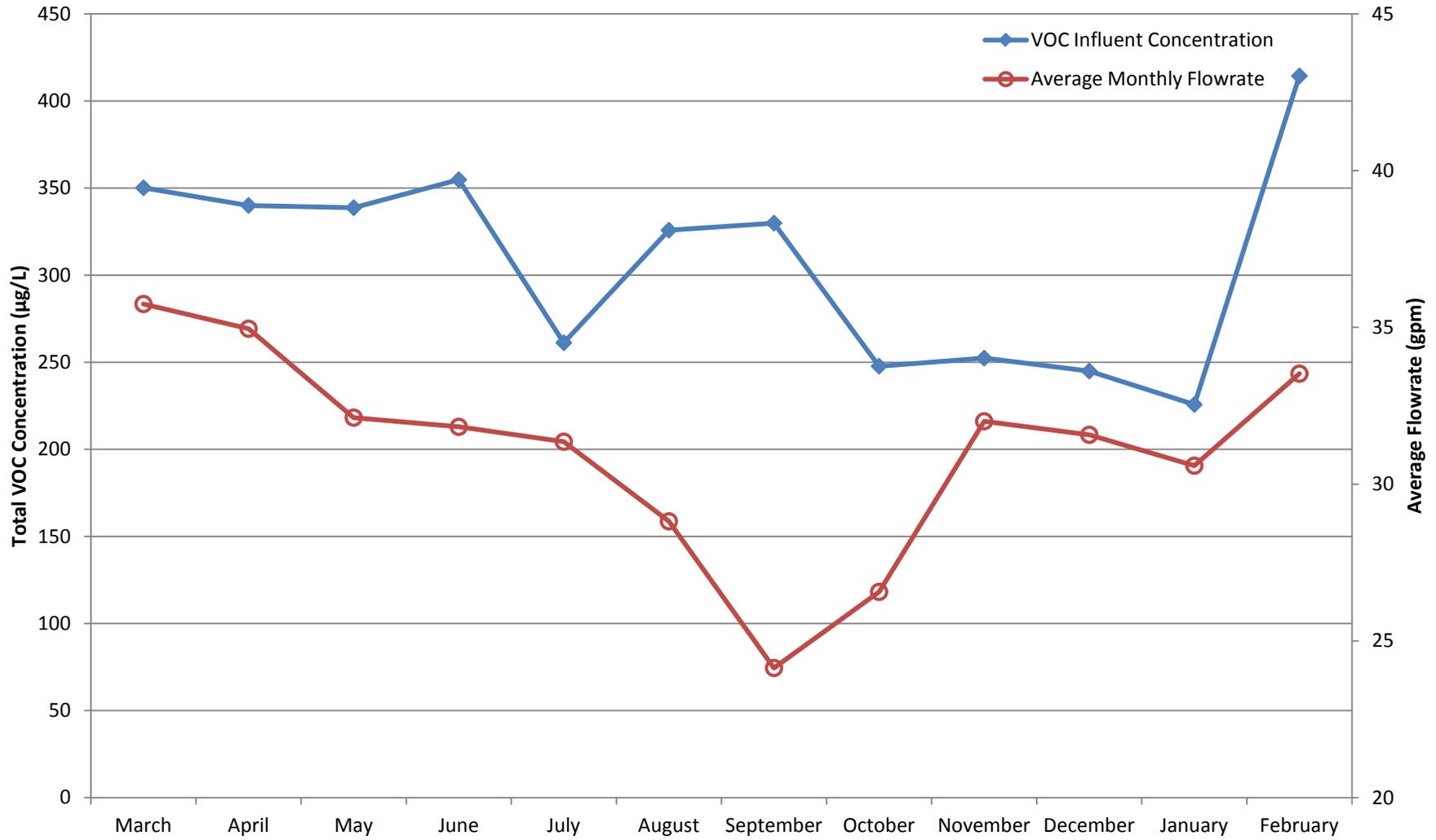
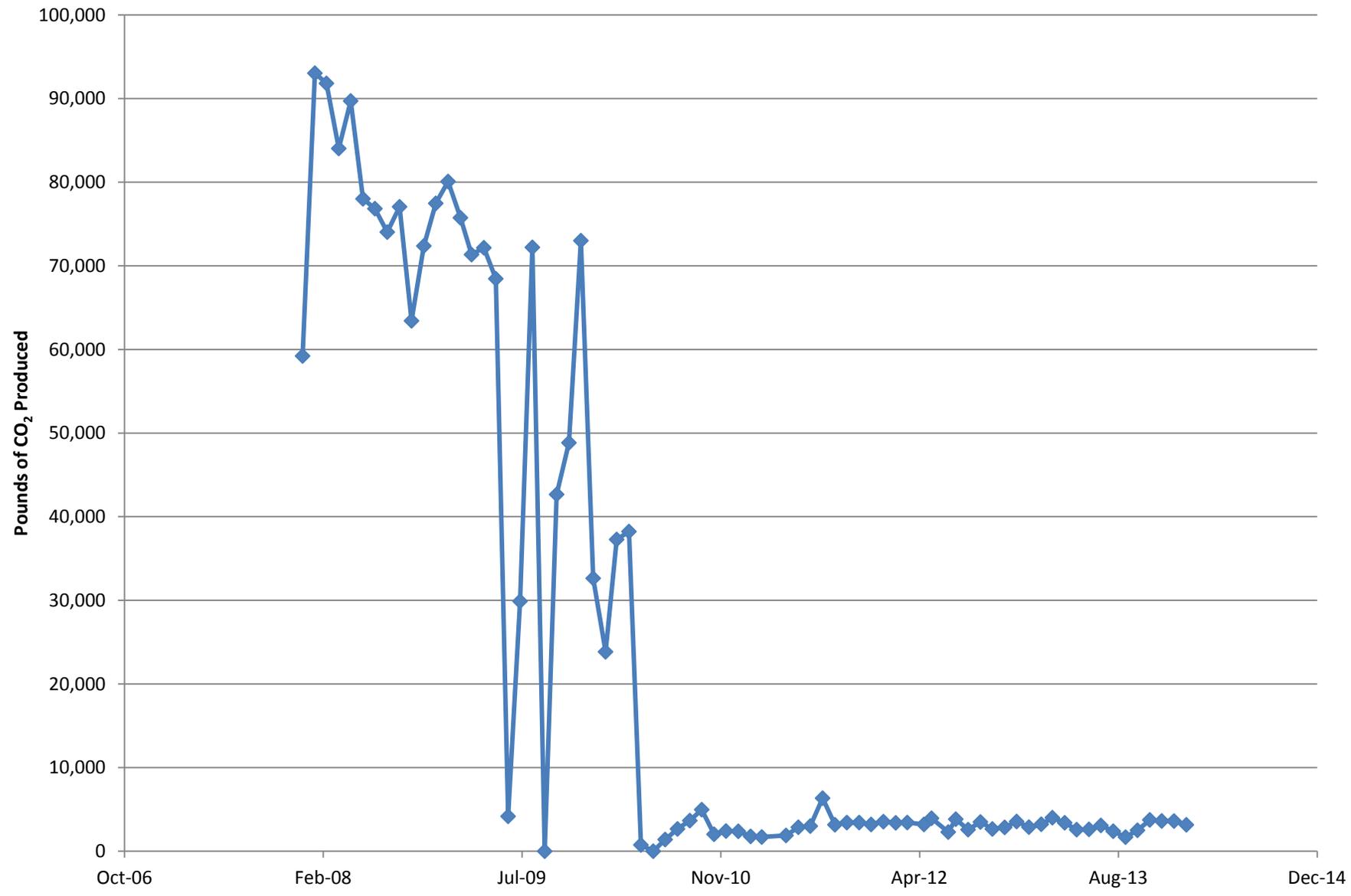


Figure 2
Equivalent Pounds of CO2 Produced by the Central Groundwater Treatment Plant



North Groundwater Treatment Plant Monthly Data Sheet

Report Number: 139

Reporting Period: 31 January 2014 – 8 February 2014

Date Submitted: 13 March 2014

This monthly data sheet presents information regarding the North Groundwater Treatment Plant (NGWTP) and associated remedial process optimization (RPO) activities. The NGWTP was shut down on 8 February 2014 when ponded water was observed in seasonal vernal pools at Subarea LF007C. As required by US Fish and Wildlife Service (USFWS), extraction wells EW614x07 and EW615x07 will remain off line until the seasonal vernal pools are dry.

System Metrics

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

Table 1 – Operations Summary – February 2014			
Initial Data Collection:	1/31/2014 17:15	Final Data Collection:	2/8/2014 22:00
Operating Time:	Percent Uptime:	Electrical Power Usage:	
NGWTP: 171 hours	NGWTP: 87% ^a	NGWTP: 0 kWh ^b	
Gallons Treated: 37,010 gallons		Gallons Treated Since March 2000: 82.9 million gallons	
Volume Discharged to Duck Pond: 37,010 gallons		Volume Discharge to Storm Drain: 0 gallons	
VOC Mass Removed: 4.3 x 10⁻⁴ pounds^c		VOC Mass Removed Since March 2000: 174.3 pounds (Groundwater)	
Rolling 12-Month Cost per Pound of Mass Removed: Not Measured^d			
Monthly Cost per Pound of Mass Removed: Not Measured^d			
^a Down time experienced during the reporting period occurred due to rainy/overcast weather. ^b The NGWTP was converted to operate on solar energy alone as part of optimization activities completed in January 2014. ^c VOCs from January 2014 influent sample detected by EPA Method SW8260B. ^d 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 – February 2014		
Location	Average Flow Rate (gpm)^a	Total Gallons Processed (gallons)
EW614x07	4.3	34,680
EW615x07	0.1	370
NGWTP	4.6	37,010

^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 a summary of shutdowns during the monthly reporting period.

Table 3 – Summary of System Shutdowns					
Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
NGWTP	8 February 2014	22:00	None	NA	The optimized NGWTP was taken offline after standing water was observed in the vernal pools. System will resume operation when the vernal pools are dry.

NGWTP = North Groundwater Treatment Plant

Summary of O&M Activities

Analytical data from the 20 January 2014 sampling event are presented in Table 4. The seasonal shutdown of the NGWTP due to the presence of ponded water in the vernal pools at Subarea LF007C occurred prior to the scheduled February 2014 monthly sampling event. During the January 2014 sampling event, 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 with data from the 20 January 2014 sampling event used to estimate concentrations present in February. As required by US Fish and Wildlife Service (USFWS), the NGWTP was taken off line (“System Shutdown”) on 8 February 2014 when vernal pools had formed at Subarea LF007C. The NGWTP will resume operation when the vernal pools no longer contain standing water.

Due to periods of rain and overcast weather, the extraction wells at Subarea LF007C experienced some down time during the reporting period as a result of battery discharge. This is to be expected due to the fact that the treatment system is now solely run on solar-power from solar panels and batteries that are charged by the panels.

Optimization Activities

No optimization activities were performed during February 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.

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. Optimization of the NGWTP was completed in January 2014 and the system is now operated entirely by solar arrays. It is no longer generating GHG.

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

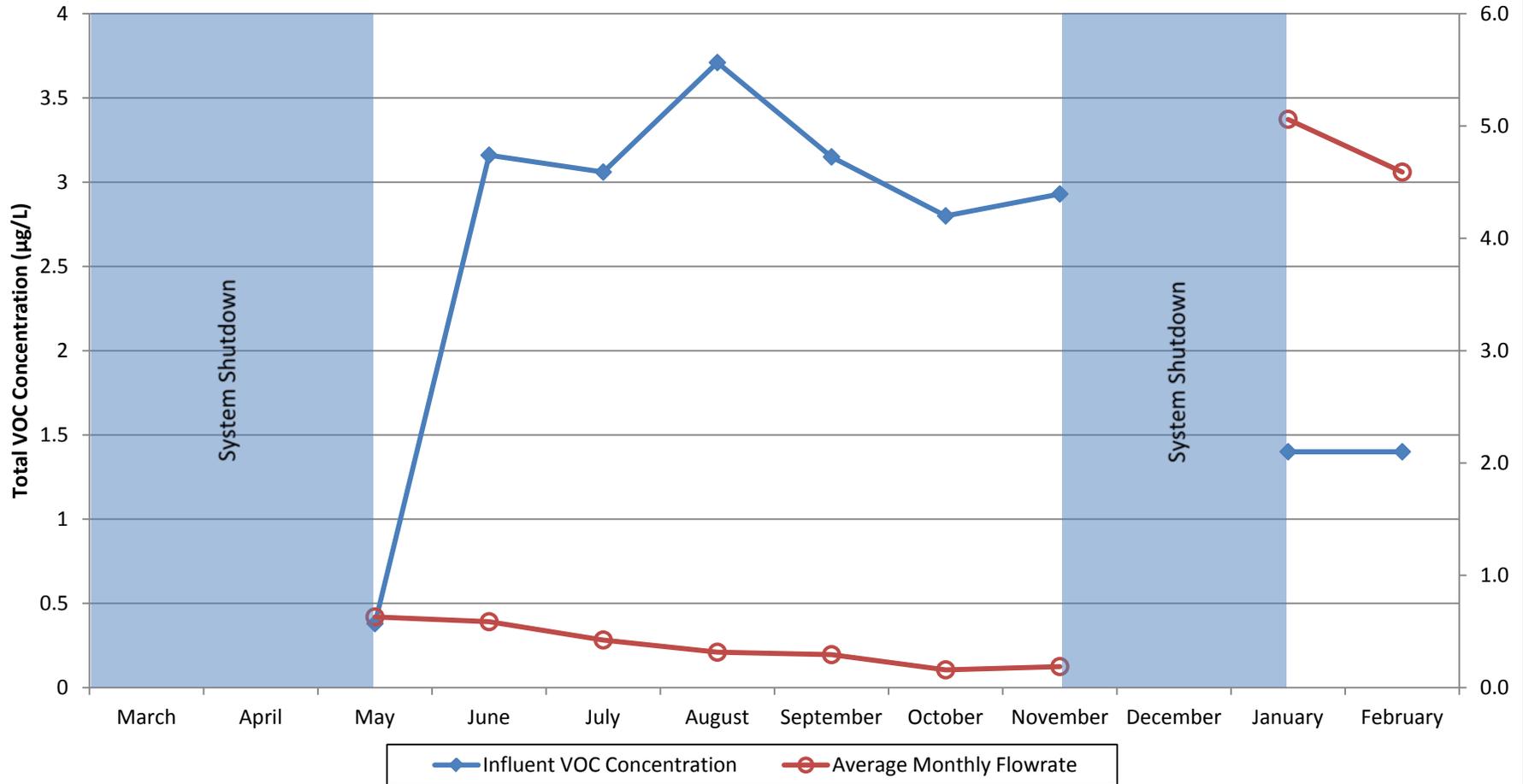
ND = not detected

NM = not measured

µg/L = micrograms per liter

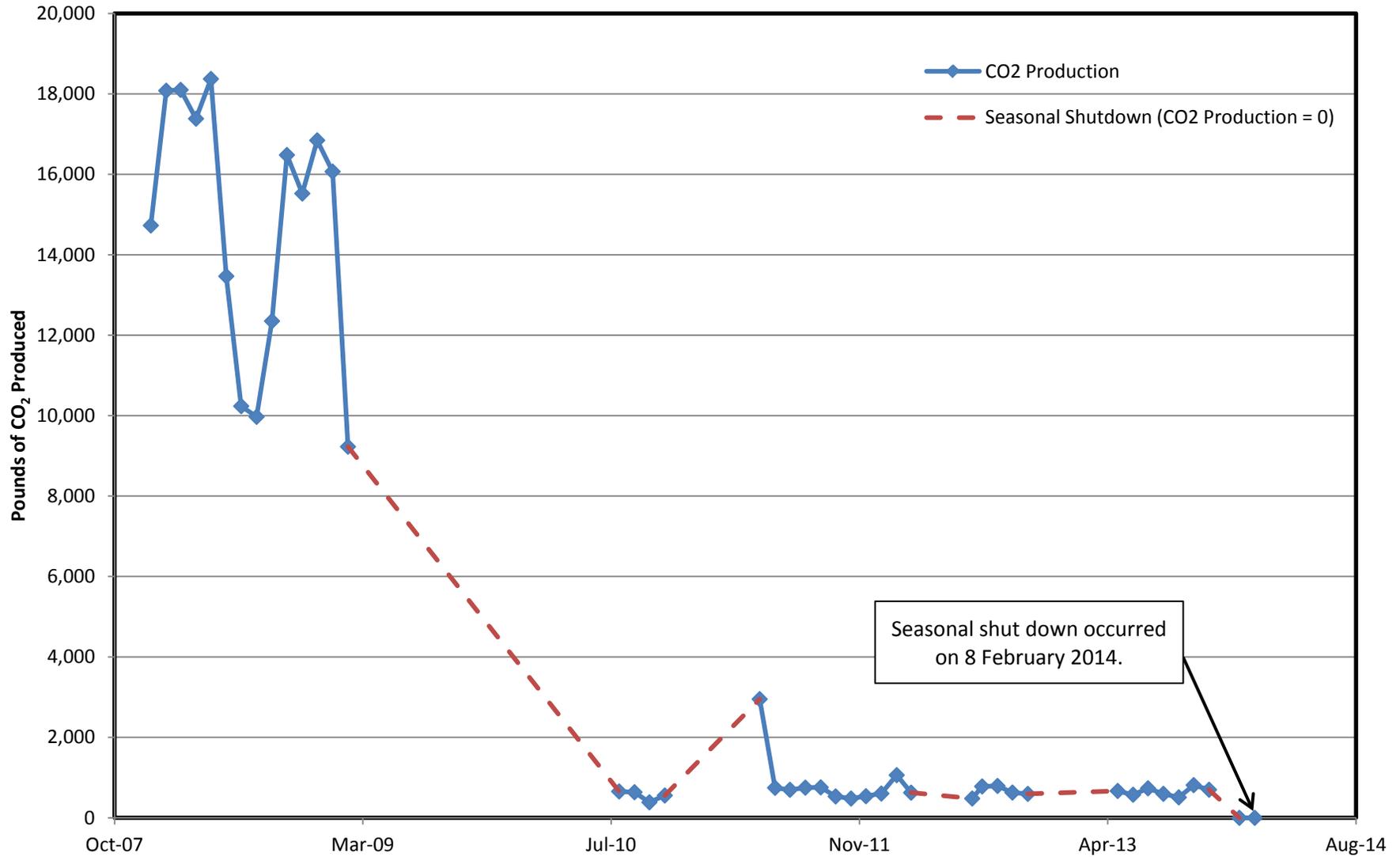
mg/L = milligrams per liter

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



*20 January 2014 sample results are shown as an estimation of February influent concentrations due to seasonal shutdown prior to the February monthly sampling event.

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 Site LF007C during which no CO₂ production occurred.

Site ST018 Groundwater Treatment Plant Monthly Data Sheet

Report Number: 036

Reporting Period: 31 January 2014 – 27 February 2014

Date Submitted: 13 March 2014

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

System Metrics

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

Table 1 – Operations Summary – February 2014			
Initial Data Collection:	1/31/2014 11:30	Final Data Collection:	2/27/2014 15:45
Operating Time:	Percent Uptime:	Electrical Power Usage:	
ST018GWTP: 652 hours	ST018GWTP: 100%	ST018GWTP: 112 kWh (153 lbs CO₂ generated^a)	
Gallons Treated: 154.2 thousand gallons		Gallons Treated Since March 2011: 5.29 million gallons	
Volume Discharged to Union Creek: 154.2 thousand gallons			
BTEX, MTBE, TPH Mass Removed: 0.14 lbs^b		BTEX, MTBE, TPH Mass Removed Since March 2011: 26.1 lbs	
MTBE (Only) Removed: 0.14 lbs^b		MTBE (Only) Mass Removed Since March 2011: 6.1 lbs	
Rolling 12-Month Cost per Total Pounds of Mass Removed: \$29,722 ^c			
Monthly Cost per Pound of Mass Removed: \$38,927			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG. ^b Calculated using February 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. 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	1.48	623
EW2016x18	1.35	652
EW2019x18	1.35	651
Site ST018 GWTP	3.94	652

^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 11 February 2014. Sample results from the February sampling event are presented in Table 4. February 2014 was the first month where influent samples were collected to better estimate mass removal on a month-by-month versus quarterly basis, as has been done in the past.

The total influent concentration (benzene, toluene, ethylbenzene, total xylenes, MTBE, TPH-gas, TPH-diesel, and TPH-motor oil) in the February 2014 influent sample was 24.2 µg/L, which is a decrease from the previous (January 2014) influent concentration of 112 µg/L. The influent concentration for MTBE during February 2014 was 20.2 µg/L. This is a decrease from the January 2014 influent concentration for MTBE of 112 µg/L. Figure 1 presents plots of flow rate and influent total VOC (TPHg, TPHd, MTBE, and BTEX) and MTBE concentrations at the ST018GWTP versus time. No contaminants were detected at the midpoint and effluent sampling locations in February 2014.

As shown on Figure 1, the average flow rate through the ST018GWTP has increased slightly from the January 2014 and the 4Q13 average flow rates. Extraction well EW2014x18 experienced approximately 30 hours of downtime in February 2014. This downtime is likely the result of battery discharge during several consecutive overcast days. 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 February 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 153 pounds of GHG during February 2014. This is an increase from January 2014 (133 pounds) and is likely due to a greater volume of groundwater having been treated in February 2014 than in the previous month. 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 February 2014 – Site ST018 Groundwater Treatment Plant

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	11 February 2014 (µg/L)			
				Influent	After Carbon 1	After Carbon 2	System Effluent
Fuel Related Constituents							
MTBE	5	0.5	0	20.2	NM	ND	ND
Benzene	5	0.17	0	1.3	NM	ND	ND
Ethylbenzene	5	0.22	0	0.55	NM	ND	ND
Toluene	5	0.14	0	ND	NM	ND	ND
Total Xylenes	5	0.23 – 0.5	0	2.19	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

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

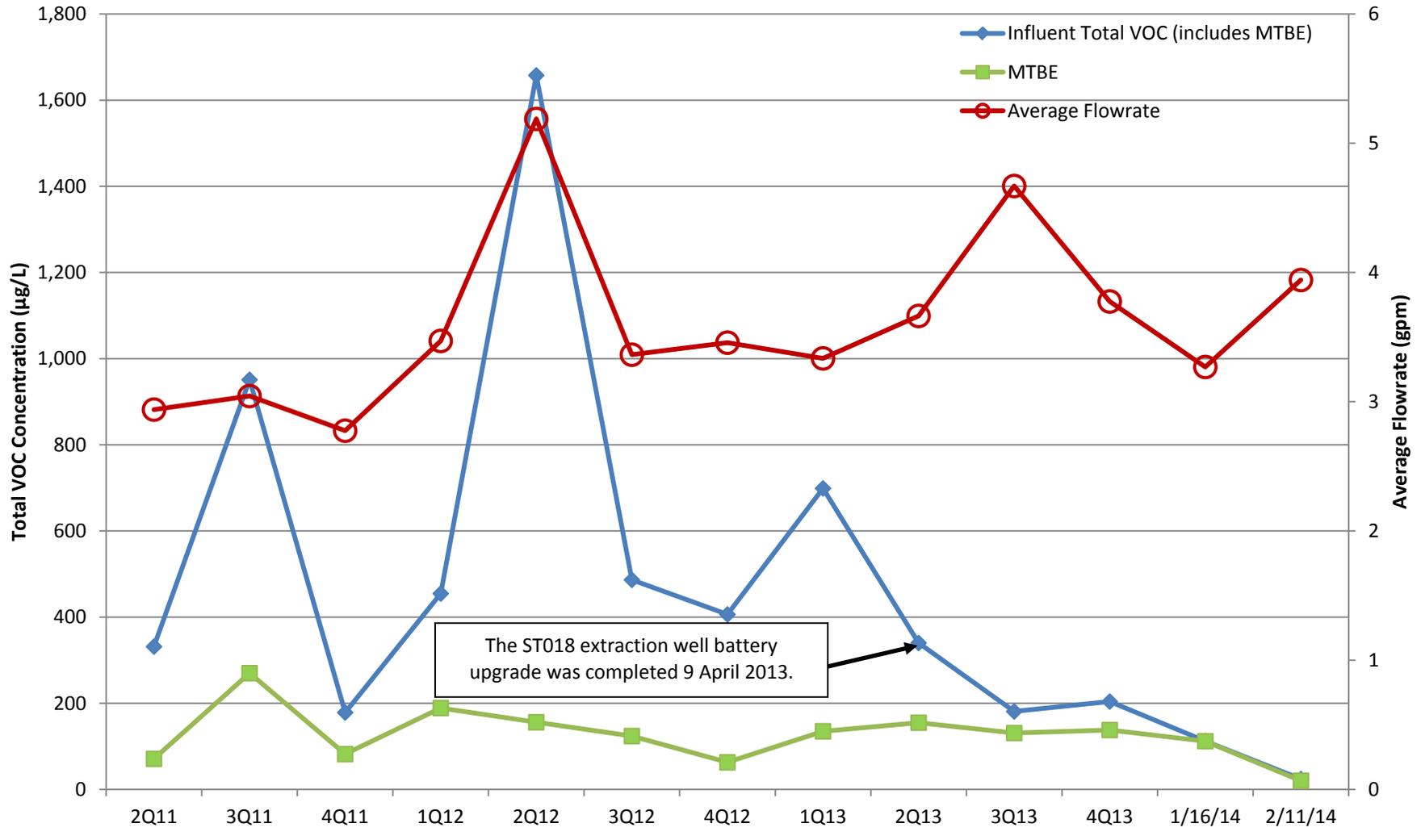
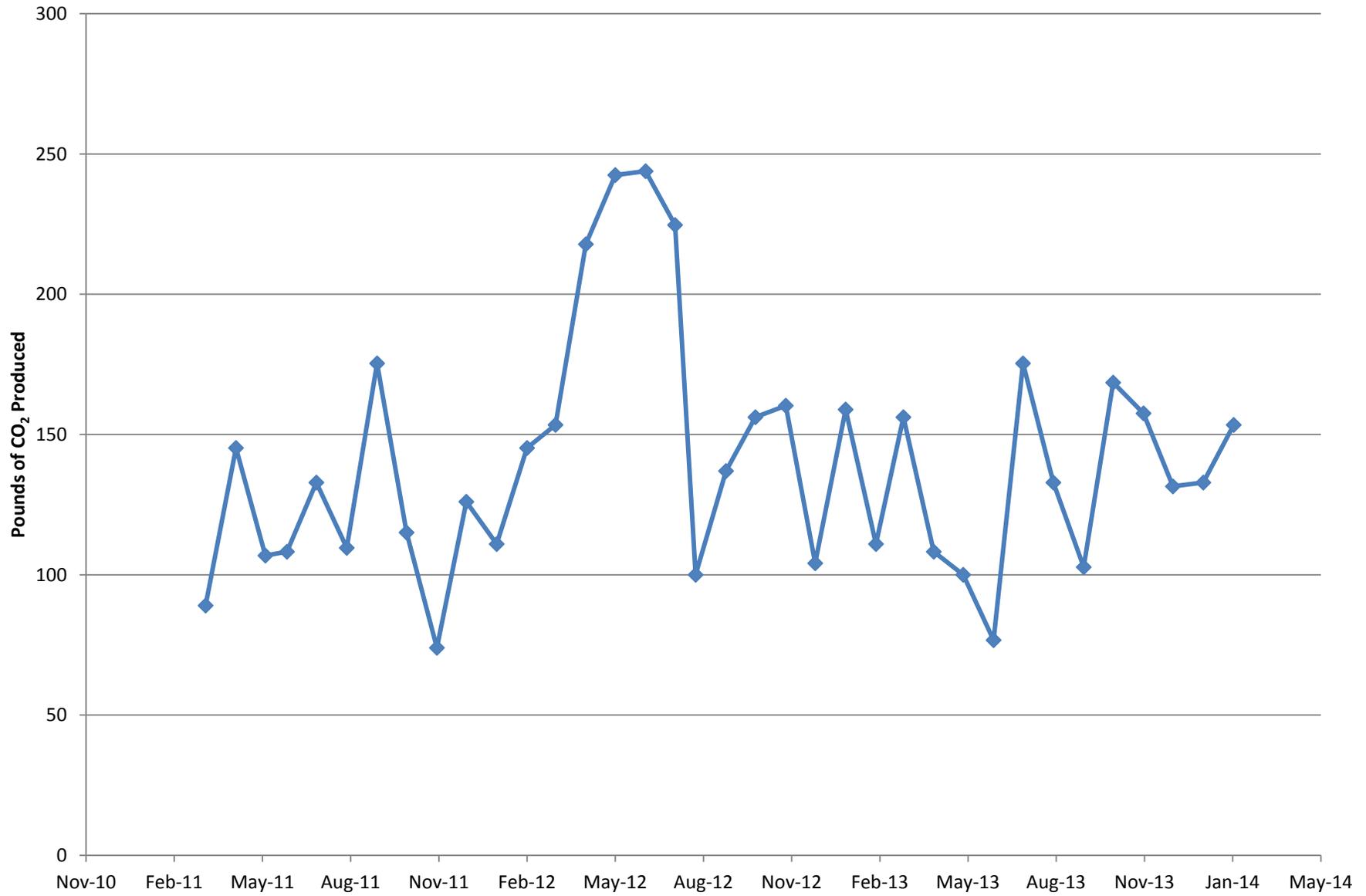


Figure 2
Equivalent Pounds of CO₂ Produced by the Site ST018 Groundwater Treatment Plant



Uniform Federal Policy
Quality Assurance Project Plan
(UFP-QAPP)

RPM Meeting
March 19, 2014

UFP-QAPP

- The UFP-QAPP was created by the Intergovernmental Data Quality Task Force (IDQTF), in 2005
- The purpose was to produce standardized QAPPs for the collection, analysis, and validation of environmental data
- The UFP-QAPP consists of thirty-seven different worksheets to provide information about the project, which include:
 - details about the project organization
 - conceptual site model
 - project/data quality objectives
 - project tasks and schedule
 - sample design and rationale
 - quality control of sampling, analytical, and data validation protocols.
- There are two types of UFP-QAPPs:
 - Basewide
 - Site Specific

Basewide versus Site-Specific

- Basewide UFP-QAPP is similar to traditional QAPP, and is referred to in site-specific UFP-QAPPs. It provides detailed information about:
 - Samples
 - Analytical methods
 - Data validation protocols
- Site-Specific UFP-QAPP takes the place of a traditional work plan. It provides detailed information and background about the site-specific project including:
 - conceptual site model
 - field activities
 - individual laboratory analyses

Travis AFB UFP-QAPP

- Travis AFB is currently preparing a Basewide UFP-QAPP
- In lieu of having a Basewide UFP-QAPP at this time, two UFP-compliant reports are being referred to in the Site-Specific UFP-QAPPs:
 - Analytical Quality Assurance Project Plan (QAPP) for Remedial Design/Remedial Action, Long-term Monitoring, and Long-term Operation Programs, Revision 2.0 (CH2M HILL , 2009) – for field, laboratory, and data validation methods
 - Field Sampling Plan (CH2M HILL, 2009) – for field methods and field standard operating procedures (SOPs)

Most Important Information for Review of Site-Specific UFP-QAPPs

- The Site-Specific UFP-QAPPs have information about the project on each of the worksheets
- However, the most important information in the Site-Specific UFP-QAPPs are on the Executive Summary and on Worksheets # 10, 14, 17, 18, 20
 - Executive Summary is a summary of the purpose, the conceptual site model, and the project-related activities
 - Worksheet #10 – Conceptual Site Model (background, nature and extent of contamination, and data quality objectives)
 - Worksheet #14 – Project Tasks and Schedule (description of project-related activities and the schedule)
 - Worksheet #17 – Sampling Design and Rationale (description of what will be sampled, how it will be sampled, and the rationale)
 - Worksheet #18 – Sampling Locations and Methods (description of what the different samples will be analyzed for)
 - Worksheet #20 – Field QC Summary (description of the field quality control sampling)

Questions

Travis AFB Restoration Program

Program Overview

*RPM Meeting
March 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
- ***CAMU Inspection Annual Report***

Field Work

- ***Biological Resource Assessment***

4

Documents & Field Work Planned

Documents

- CG508 POCO Work Plan Apr
- 2013 Annual GRISR Apr
- **Travis AFB UFP-QAPP** **May**

Field Work

- 2014 Annual GRIP Sampling Event Apr
- 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)

- 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

6

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