

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

17 September 2014, 0900 Hours

Mr. Mark Smith, of the Air Force Civil Engineer Center (AFCEC) Restoration Support Team, conducted the Restoration Program Manager's (RPM) teleconference meeting, on 17 September 2014 at 0900 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 AFCEC/CZRW
- Dezso Linbrunner USACE-Omaha
- Adriana Constantinescu California Regional Water Quality Control Board
(via telephone) (RWQCB)

- Ben Fries California Department of Toxic Substances Control
(via telephone) (DTSC)
- Nadia Hollan Burke United States Environmental Protection Agency
(via telephone) (USEPA)

- Indira Balkissoon Techlaw, Inc
(via telephone)
- Mike Wray CH2M HILL
- Loren Krook CH2M HILL
(via telephone)

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 (August 2014)
- Attachment 4 CGWTP Monthly Data Sheet (August 2014)
- Attachment 5 NGWTP Monthly Data Sheet (August 2014)
- Attachment 6 ST018 Monthly Data Sheet (August 2014)
- Attachment 7 Presentation: Program Update: Activities Completed, In Progress and Upcoming

1. ADMINISTRATIVE

A. Previous Meeting Minutes

The 20 August 2014 RPM meeting minutes were approved and finalized as written.

B. Action Item Review.

Action items from August 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. Update: 20 September 2014, Mr. Smith contacted the Base Civil Engineer (BCE) as a reminder that the treated water is still available for beneficial reuse. The BCE later confirmed with Mr. Duke that the treated water is suitable for irrigation use.

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, Thursday, 23 October 2014 at 14:00, with the Restoration Advisory Board (RAB) meeting to follow, 23 October 2014 at 19:00 hours.

Travis AFB Master Document Schedule

- Travis Air Force Base Uniform Federal Policy-Quality Assurance Project Plan (UFP-QAPP): The response to comments meeting was updated to 17 September 2014, the rest of the dates were changed accordingly. Travis AFB was not ready to include this document in the afternoon discussions. Response to comments meeting will be rescheduled.
- Site SD037 GW Remedial Design/Remedial Action Work Plan: No changes to the schedule. Travis AFB was not ready to discuss this document in the afternoon discussion. Response to comments meeting will be rescheduled.
- Site SD036 Remedial Design/Remedial Action Work Plan: No changes to the schedule.

- Site SS016 GW Remedial Design/Remedial Action Work Plan: No changes to the schedule.
- Site SS015 GW Remedial Design/Remedial Action Work Plan: No changes to the schedule.
- Community Involvement Plan: New document. Populated with all new dates. This document will be an update to the previous version of the Community Involvement Plan. Mr. Smith mentioned some ideas: attend Chamber of Commerce meetings in the cities of Fairfield and Vacaville to discuss Travis AFB remediation activities, email recipients who are on The Guardian Newsletter distribution list. Ms. Burke suggested contacting local schools and Universities as well.
- Proposed Plan for the Record of Decision Amendment to the NEWIOU Soil, Sediment, and Surface Water Record of Decision: New document, populated with all new dates. These four new documents; the Proposed Plans (PPs) and the Record of Decisions (RODs) have replaced the Explanation of Significant Differences (ESD) documents. After careful consideration it was determined this was the correct procedure to follow. Note: the dates for the NEWIOU and WABOU Proposed Plans correlate in order to target the April 2015 RAB meeting for the required public meeting. The dates will have some flexibility due to the draft Proposed Plans going out just before the holidays. Mr. Smith added Travis AFB has two final soil RODs, signed in 2002 and 2006, and the remedies selected were soil excavation and LUCs. Travis AFB has been tasked to determine whether it is feasible and practical to achieve cleanup at some of the LUCs soil sites which frees up land for the Travis AFB development.
- Record of Decision Amendment to the NEWIOU Soil, Sediment, and Surface Water Record of Decision: New document, populated with all new dates.
- Proposed Plan for the Record of Decision Amendment to the Soil Record of Decision for the WABOU: New document, populated with all new dates.
- Record of Decision Amendment to the Soil Record of Decision for the WABOU: New document, populated with all new dates.
- Potrero Hills Annex (FS, PP, and ROD): No change to the schedule. Mr. Anderson said that RWQCB received a work plan (WP) for conducting off-site sampling and analysis. The samples listed in the WP include soil, groundwater, and vegetation, and samples from the marsh. Ms. Constantinescu announced that Mr. Kent Aui has retired and that she will be taking his place as the project manager for this site.
- Site FT004 Technology Demonstration Work Plan: The response to comments (RTC) meeting was updated to 17 September 2014. This document is scheduled to be discussed this afternoon.
- Site DP039 Lead Excavation Technical Memorandum: The RTC meeting was updated to 17 September 2014. Mr. Anderson advised postponement of the RTC meeting to allow Travis AFB more time for preparation of responses.
- Site TA500 Investigation Work Plan: No change was made to the schedule. Travis AFB received EPA's comments and is working on responses.

- Site SD031 Technology Demonstration Work Plan: Draft to agencies date was changed to 2 September 2014 to reflect the actual date the document was submitted to the agencies.
- Site ST018 POCO Work Plan Addendum – Predraft to AF/Service Center was changed to 9 September 2014 to reflect the actual date submitted. This work plan addresses the installation of an additional extraction well at Site ST018. It will be an addendum to the previous ST018 work plan, because the new extraction well will follow the same design plan of the existing three wells, which were previously installed at the site. Ms. Constantinescu requested a copy of the original WP to accompany the WP addendum for referencing.
- Site SD034 Data Gap Investigation: No changes to the schedule. This work identifies the plan for delineating the extent of Stoddard Solvent that remains in the soil at Site SD034. The Stoddard Solvent will also be characterized during the data gap investigation to determine its constituents and whether or not there is a potential ongoing source.
- Site SS014 Technology Demonstration Work Plan: No changes to the schedule.
- Quarterly Newsletter (October 2014): The dates for the October 2014 quarterly newsletter have been updated.
- Kinder Morgan LF044 Land Use Control Report: Final Due date was changed to 30 October 2014. All the responses to comments have been completed and accepted.

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 3.2 million gallons of groundwater were extracted and treated during the month of August 2014. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 71.2 gallons per minute (gpm). Electrical power usage was 15,600 kWh, and approximately 21,372 pounds of CO₂ were created (based on DOE calculation). Approximately 1.14 pounds of volatile organic compounds (VOCs) were removed in August. The total mass of VOCs removed since startup of the system is 451 pounds.

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

Note: the electrical meter is still suspect, and we are working with the Base to troubleshoot the electric meter at the plant.

Central Groundwater Treatment Plant (see Attachment 4)

The Central Groundwater Treatment Plant (CGWTP) performed at 100% uptime with approximately 1.45 million gallons of groundwater extracted and treated during the month of August 2014. All treated water was discharged to the storm drain. The average flow rate for the CGWTP was 31.5 gpm. Electrical power usage was 2,626 kWh for all equipment connected to the Central Plant, and approximately 3,598 pounds of CO₂ were generated. Approximately 3.22 pounds of VOCs were removed from groundwater by the treatment plant in August. The total mass of VOCs removed since the startup of the system is 11,378 pounds.

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

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

North Groundwater Treatment Plant (see Attachment 5)

The North Groundwater Treatment Plant (NGWTP) performed at 98% uptime with approximately 182,920 gallons of groundwater extracted and treated during the month of August 2014. The average flow rate at the NGWTP was 4.4 gpm, and electrical power use was 0 kWh for all the equipment connected to the North plant; and 0 pounds of CO₂ was generated; this system is 100 percent off of the power grid. Approximately 6.71×10^{-3} pounds of VOCs were removed from the groundwater in August. The total mass of VOCs removed since the startup of the system is 174.3 pounds.

Optimization Activities for NGWTP: No optimization activities to report for the month of August.

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

The Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 97% uptime with approximately 150,000 gallons of groundwater extracted and treated during the month of August 2014. All treated water was diverted to the storm drain. The average flow rate for the ST018 GWTP was 3.53 gpm. Electrical power usage for the month was 90 kWh for all equipment connected to the ST018 GWTP plant, which equates to the creation of approximately 123 pounds of CO₂. Approximately 0.18 pounds of BTEX, MTBE and TPH were removed from groundwater in August from the treatment plant. Approximately 0.10 pounds of MTBE were removed from groundwater. The total BTEX, MTBE and TPH mass removed since the startup of the

system is 30.6 pounds. And the total MTBE mass removed since startup of the system is 6.5 pounds.

Note: Electrical power use at the ST018 GWTP is only for the alarm system and a pump that pushes water through the GAC vessels for treatment. The extraction pumps in the system are solar powered.

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

Presentations:

Program Update: Activities Completed, In Progress and Upcoming (see Attachment 7)

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: 1) CG508 Site Investigation, and 2) Old Skeet Range Characterization Sampling. Mr. Linbrunner indicated that the Old Skeet Range sampling is an MMRP project and not part of the Travis AFB PBC FY13 contract.

In-Progress Documents: SD031 Technology Demonstration Work Plan, TA500 Investigation Work Plan, SD037 RD/RA Work Plan, Travis AFB UFP-QAPP, DP039 Lead Excavation Technical Memorandum, FT004 Technology Demonstration Work Plan, and Kinder Morgan LF044 Land Use Control Report.

In-Progress Field Work: None.

Upcoming Documents: SD036 RD/RA Work Plan, SD034 Data Gap Investigation Work Plan, Proposed Plan for the ROD Amendment to WABOU Soil ROD, Proposed Plan for the ROD Amendment to NEWIOU Soil, Sediment, & Surface Water ROD, SS016 GW RD/RA Work Plan, Community Involvement Plan, SS015 GW RD/RA Work Plan, ROD Amendment to WABOU Soil ROD, ROD Amendment to NEWIOU Soil, Sediment, and Surface Water ROD, ST018 POCO Work Plan Addendum, S014 POCO Technology Demonstration Work Plan.

Upcoming Field Work: 4Q Semiannual GRIP Sampling Event, SD031 Technology Demonstration, SD037 EVO Injection, ST018 Extraction Well Installation.

4. New Action Item Review

Travis AFB and CH2M HILL will provide Ms. Constantinescu/RWQCB with an electronic copy of the original 2010 Site ST018 Work Plan with the submittal of the draft Site ST018 POCO Work Plan Addendum.

5. PROGRAM/ISSUES/UPDATE

Upcoming leave scheduled: Mr. Smith will be on leave: 25/26/29 September 2014 and 4 - 14 October 2014. Mr. Linbrunner will be on leave 4 - 14 October 2014.

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.	TBD	Open
2.	Travis AFB and CH2M HILL	Provide Ms. Constantinescu/RWQCB with an electronic copy of the original 2010 Site ST018 Work Plan with the submittal of the draft Site ST018 POCO Work Plan Addendum.	16 Oct. 2014	Open.

TRAVIS AFB RPM TELECONFERENCE AGENDA
17 September 2014, 09:00 A.M.

To: EPA	Nadia Burke
DTSC	Ben Fries
RWQCB	Adriana Constantinescu
CH2M Hill	Mike Wray
AFCEC	William Hall
USACE	Deszo Linbrunner

The RPM teleconference is scheduled for 09:00 am on 17 Sep 2014. **The call-in number is 1-866-203-7023 and the Participation code is 5978-75-9736 then enter #.**

Topics for the teleconference include:

- ❖ Previous Meeting Minutes (All)
- ❖ Action Item Review (All)
- ❖ Master Meeting and Document Schedule Review (Mark, Glenn, Lonnie)
- ❖ Treatment Plant Operation and Maintenance Update (Lonnie)
- ❖ Program Update (Mike)
- ❖ New Action Item Review (All)

Participants:

TRAVIS	ERP Staff	(707) 424-3062
DTSC	Ben Fries	(916) 255-3667
RWQCB	Adriana Constantinescu	(510) 622-2352
EPA	Nadia Burke	(415) 972-3187
USACE	Deszo Linbrunner	(402) 238-8846
CH2M HILL	Mike Wray	(916) 715-0949
AFCEC	William Hall	(210) 395-8557

NOTES: AFTER THE RPM TELECONFERENCE, WE WILL HOLD A SEPARATE TELECONFERENCE TO DISCUSS THE RESPONSES TO AGENCY COMMENTS ON THE DRAFT FT004 TECHNOLOGY DEMONSTRATION WORK PLAN, THE TRAVIS AFB UFP-QAPP, AND THE DP039 LEAD EXCAVATION TECHNICAL MEMORANDUM. ALL PARTICIPANTS ARE WELCOME TO PARTICIPATE.

(2014)
Annual Meeting and Teleconference Schedule

Monthly RPM Meeting ¹ (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	—	—
04-16-14	—	04-17-14 ²
05-14-14	—	—
06-18-14	—	—
07-23-14	—	—
08-20-14	—	—
—	09-17-14 (9:00 AM)	—
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.

² Note: Replaced with post-ROD base visit on 25 July 2014

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS			
Life Cycle	Travis Air Force Base Uniform Federal Policy-Quality Assurance Project Plan Travis, Glenn Anderson CH2M HILL, Bernice Kidd	Site SD037 GW Remedial Design/Remedial Action Work Plan Travis AFB, Glenn Anderson CH2M HILL, Leslie Royer	Site SD036 Remedial Design/Remedial Action Work Plan Travis AFB, Glenn Anderson CH2M HILL, Leslie Royer
Scoping Meeting	NA	NA	NA
Predraft to AF/Service Center	05-30-14	04-25-14	08-23-14
AF/Service Center Comments Due	06-13-14	05-08-14	09-05-14
Draft to Agencies	07-22-14	08-13-14	10-04-14
Draft to RAB	07-22-14	08-13-14	10-04-14
Agency Comments Due	08-20-14	09-12-14	11-02-14
Response to Comments Meeting	09-17-14	09-17-14	11-19-14
Agency Concurrence with Remedy	NA	NA	NA
Public Comment Period	NA	NA	NA
Public Meeting	NA	NA	NA
Response to Comments Due	09-29-14	10-13-14	12-01-14
Draft Final Due	09-29-14	10-13-14	12-01-14
Final Due	10-29-14	11-12-14	01-20-15

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS			
Life Cycle	Site SS016 GW Remedial Design/Remedial Action Work Plan Travis AFB, Glenn Anderson CH2M HILL, Leslie Royer	Site SS015 GW Remedial Design/Remedial Action Work Plan Travis AFB, Glenn Anderson CH2M HILL, Leslie Royer	Community Involvement Plan Travis AFB, Mark Smith CH2M HILL, Tricia Carter
Scoping Meeting	NA	NA	NA
Predraft to AF/Service Center	10-24-14	02-18-15	12-01-14
AF/Service Center Comments Due	11-06-14	03-03-15	12-15-14
Draft to Agencies	12-05-14	04-01-15	01-05-15
Draft to RAB	12-05-14	04-01-15	01-05-15
Agency Comments Due	01-03-15	05-01-15	02-04-15
Response to Comments Meeting	01-21-15	05-20-15	02-18-15
Agency Concurrence with Remedy	NA	NA	NA
Public Comment Period	NA	NA	NA
Public Meeting	NA	NA	NA
Response to Comments Due	02-02-15	06-01-15	02-27-15
Draft Final Due	02-02-15	06-01-15	02-27-15
Final Due	03-04-15	07-01-15	03-31-15

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS				
Life Cycle	Proposed Plan for the Record of Decision Amendment to the NEWIOU Soil, Sediment, and Surface Water Record of Decision Travis AFB, Glenn Anderson CH2M HILL, Tricia Carter	Record of Decision Amendment to the NEWIOU Soil, Sediment, and Surface Water Record of Decision Travis AFB, Glenn Anderson CH2M HILL, Loren Krook	Proposed Plan for the Record of Decision Amendment to the Soil Record of Decision for the WABOU Travis AFB, Glenn Anderson CH2M HILL, Tricia Carter	Record of Decision Amendment to the Soil Record of Decision for the WABOU Travis AFB, Glenn Anderson CH2M HILL, Loren Krook
Scoping Meeting	NA	TBD	NA	TBD
Predraft to AF/Service Center	11-05-14	05-25-15	11-05-14	05-25-15
AF/Service Center Comments Due	11-26-14	06-24-15	11-26-14	06-24-15
Draft to Agencies	12-19-14	07-08-15	12-19-14	07-08-15
Draft to RAB	12-19-14	07-08-15	12-19-14	07-08-15
Agency Comments Due	01-19-15	08-07-15	01-19-15	08-07-15
Response to Comments Meeting	01-21-15	08-19-15	01-21-15	08-19-15
Agency Concurrence with Remedy	NA	10-02-15	NA	10-02-15
Public Comment Period	4-15-15 to 5-15-15	NA	4-15-15 to 5-15-15	NA
Public Meeting	4-23-15	NA	4-23-15	NA
Response to Comments Due	02-17-15	09-02-15	02-17-15	09-02-15
Draft Final Due	02-28-15	09-02-15	02-28-15	09-02-15
Final Due	03-30-15	10-02-15	03-30-15	10-02-15

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 FT004 Technology Demonstration Work Plan Travis AFB, Glenn Anderson CH2M HILL, Tony Chakurian	Site DP039 Lead Excavation Technical Memorandum Travis AFB, Glenn Anderson CH2M HILL, Loren Krook	Site TA500 Data Gap Investigation Work Plan Travis AFB, Glenn Anderson CH2M HILL, Leslie Royer	Site SD031 Technology Demonstration Work Plan Travis AFB, Glenn Anderson CH2M HILL, Leslie Royer
Scoping Meeting	NA	NA	NA	NA
Predraft to AF/Service Center	04-21-14	06-02-14	07-23-14	07-11-14
AF/Service Center Comments Due	05-21-14	06-16-14	08-05-14	07-25-14
Draft to Agencies	06-28-14	07-01-14	08-20-14	09-02-14
Draft to RAB	06-28-14	07-01-14	08-20-14	09-02-14
Agency Comments Due	07-28-14	07-31-14	09-19-14	10-02-14
Response to Comments Meeting	09-17-14	09-17-14	10-02-14	10-08-14
Response to Comments Due	10-01-14	10-03-14	10-20-14	10-24-14
Draft Final Due	NA	NA	NA	NA
Final Due	10-01-14	10-03-14	10-20-14	10-24-14
Public Comment Period	NA	NA	NA	NA
Public Meeting	NA	NA	NA	NA

Travis AFB Master Meeting and Document Schedule

SECONDARY DOCUMENTS			
Life Cycle	Site ST018 POCO Work Plan Addendum Travis AFB, Lonnie Duke CH2M HILL, Leslie Royer	Site SD034 Data Gap Investigation Work Plan Travis AFB, Lonnie Duke CH2M HILL, Leslie Royer	Site SS014 POCO Technology Demonstration Work Plan Travis AFB, Lonnie Duke CH2M HILL, Leslie Royer
Scoping Meeting	NA	NA	NA
Predraft to AF/Service Center	09-09-14	09-25-14	11-06-14
AF/Service Center Comments Due	09-23-14	10-08-14	11-19-14
Draft to Agencies	10-16-14	11-06-14	12-18-14
Draft to RAB	10-16-14	11-06-14	12-18-14
Agency Comments Due	11-14-14	12-05-14	01-23-15
Response to Comments Meeting	10-23-14	12-19-14	01-30-15
Response to Comments Due	12-15-14	01-05-15	02-23-15
Draft Final Due	NA	NA	NA
Final Due	12-15-14	01-05-15	02-23-15
Public Comment Period	NA	NA	NA
Public Meeting	NA	NA	NA

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS		
Life Cycle	Quarterly Newsletters (October 2014) Travis, Glenn Anderson	Kinder Morgan Site LF044 Land Use Control Report Travis AFB, Glenn Anderson AMEC, Nick Ricono
Scoping Meeting	NA	NA
Predraft to AF/Service Center	NA	NA
AF/Service Center Comments Due	NA	NA
Draft to Agencies	09-23-14	09-18-13
Draft to RAB	NA	09-18-13
Agency Comments Due	10-07-14	10-18-13
Response to Comments Meeting	TBD	06-18-14
Response to Comments Due	10-14-14	06-25-14
Draft Final Due	NA	NA
Final Due	10-14-14	10-30-14
Public Comment Period	NA	NA
Public Meeting	NA	NA

South Base Boundary Groundwater Treatment Plant Monthly Data Sheet

Report Number: 168

Reporting Period: 31 July 2014 – 29 August 2014

Date Submitted: 12 September 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 August 2014 reporting period.

Table 1 – Operations Summary – August 2014			
Initial Data Collection:	7/31/2014 17:15	Final Data Collection:	8/29/2014 17:30
Operating Time:	Percent Uptime:	Electrical Power Usage:	
SBBGWTP: 696 hours	SBBGWTP: 100%	SBBGWTP: 15,600 kWh (21,372 lbs CO ₂ generated ^a)	
Gallons Treated: 3.2 million gallons		Gallons Treated Since July 1998: 868 million gallons	
Volume Discharged to Union Creek: 3.2 million gallons			
VOC Mass Removed: 1.14 lbs^b		VOC Mass Removed Since July 1998: 451 lbs	
Rolling 12-Month Cost per Pound of Mass Removed: \$7,744 ^c			
Monthly Cost per Pound of Mass Removed: \$2,593			
lbs = pounds			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.			
^b Calculated using August 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	1.3	EW736x05	Offline	EW01x29	1.0	EW01x30	0.1 ^d
EW02x05	1.2	EW737x05	Offline	EW02x29	2.5	EW02x30	4.1
EW03x05	Offline	EW742x05	Offline	EW03x29	1.6	EW03x30	4.8
EW731x05	Offline	EW743x05	Offline	EW04x29	8.5	EW04x30	35.7
EW732x05	Offline	EW744x05	Offline	EW05x29	11.9	EW05x30	1.0
EW733x05	Offline	EW745x05	Offline	EW06x29	4.2	EW06x30	Dry
EW734x05	1.6	EW746x05	Offline	EW07x29	5.9	EW711x30	1.2
EW735x05	1.3 ^d						
FT005 Total: 5.9				SS029 Total: 35.7		SS030 Total: 49.5	
SBBGWTP Average Monthly Flow^c: 71.2 gpm							
^a Extraction well flow rates are based on instantaneous weekly readings collected at the end of the month. ^b 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> ^c 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. ^d Most recent prior weekly reading reported, well offline due to drawdown during end of month reading collection. gpm – gallons per minute SBBGWTP – South Base Boundary Groundwater Treatment Plant							

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

Table 3 – Summary of System Shutdowns					
Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
SBBGWTP	None	NA			
SBBGWTP = South Base Boundary Groundwater Treatment Plant					

Summary of O&M Activities

Monthly groundwater samples were collected at the SBBGWTP on 4 August 2014. Sample results are presented in Table 4. The total VOC concentration (42.7 µg/L) in the influent sample remained consistent with the July sample results (43.2 µg /L). Cis-1,2-DCE (2.8 µg/L) and TCE (39.9 µg/L) were detected at the influent sampling location. 1,2-DCA (0.43 J µg/L) was detected at the midpoint sampling location. Neither were detected at the effluent sample location.

During annual sampling for metals, several metals were detected at the effluent sample location. Of the metals detected at the effluent sample location, arsenic (0.0099 J µg/L), chromium (0.00326 J µg/L), copper (0.00332 J µg/L), and zinc (0.00791 J µg/L), only arsenic exceeded its respective inorganics effluent limitation and will require 3 additional samples to be collected during the following quarter.

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 August 2014 to 76.4 gpm from 71.2 gpm in July.

On 8 August 2014, a fuse for the 24 volt power supply failed resulting in the shutdown of all of the Site SS030 extraction wells except for EW711x30. The system and extraction wells at Sites FT005 and SS029 remained online and the Site SS030 wells were brought back online on 15 August 2014.

On 21 August 2014, troubleshooting activities were performed at extraction well EW711x30 to determine why water level and flow data were not being sent to the SCADA system. Badly corroded splice connections were discovered within a pullbox upon further inspection and were replaced with waterproof butt splices. The EW711x30 pump now has readings for both level and flow at the SBBGWTP.

Optimization Activities

No optimization activities were performed in August 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 taking extraction pumps off line that are no longer necessary for contaminant plume capture.

Figure 2 presents the historical GHG production from the SBBGWTP. The SBBGWTP produced approximately 21,372 pounds of GHG during August 2014. This is an increase from usage during July 2014. GHG production at the SBBGWTP during August 2014 is consistent with expected monthly usage based on historical variability at the SBBGWTP.

TABLE 4
Summary of Groundwater Analytical Data for August 2014 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	4 August 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	0.43 J	ND
1,1-Dichloroethene	5.0	0.19	0	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.19	0	2.8	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	0.20	0	ND	ND	ND
Trichloroethene	5.0	0.19	0	39.9	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	26.9	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

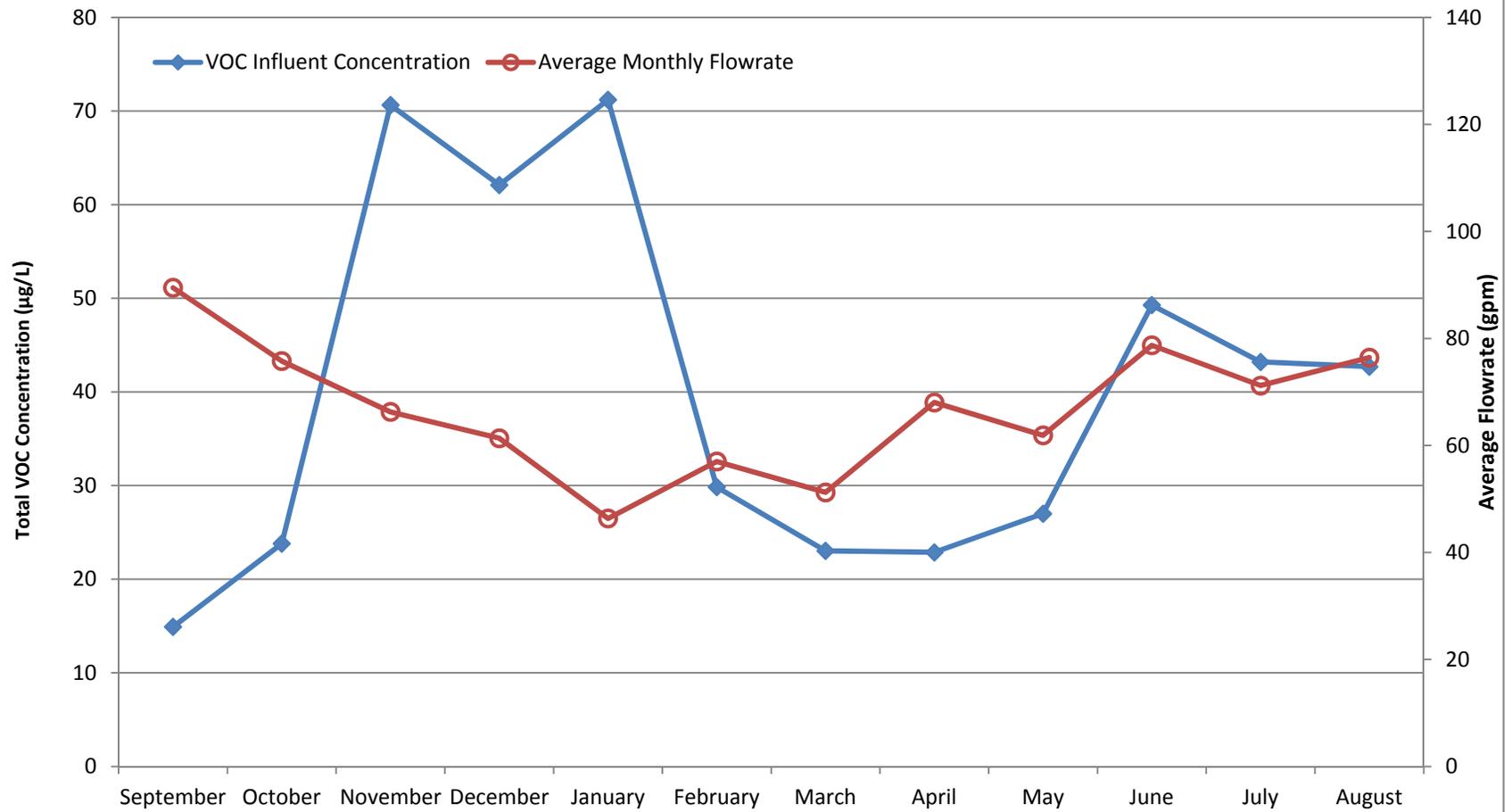
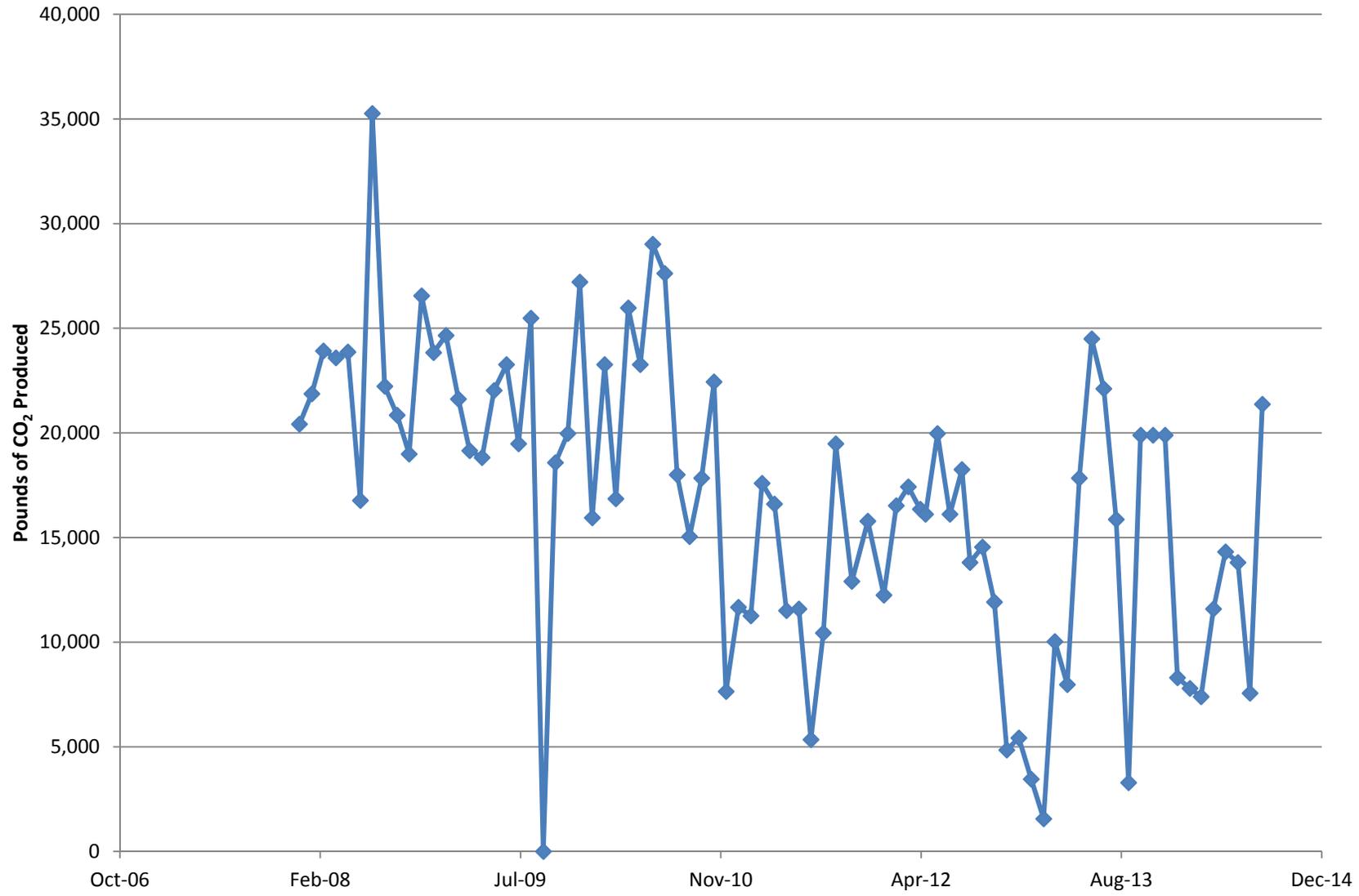


Figure 2

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



Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 181

Reporting Period: 28 July 2014 – 29 August 2014

Date Submitted: 12 September 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 August 2014 reporting period.

Table 1 – Operations Summary – August 2014			
Initial Data Collection:	7/28/2014 16:45	Final Data Collection:	8/29/2014 17:00
Operating Time:		Percent Uptime:	Electrical Power Usage:
CGWTP:	768 hours	CGWTP:	100%
WTTP:	Water: 0 hours Vapor: 0 hours	WTTP:	Water: 0% Vapor: 0%
		CGWTP:	2,626 kWh (3,598 lbs CO ₂ generated ^a)
		WTTP:	0 kWh
Gallons Treated:	1.45 million gallons	Gallons Treated Since January 1996:	500 million gallons
VOC Mass Removed:		VOC Mass Removed Since January 1996:	
	3.22 lbs^b (groundwater only)		2,692 lbs from groundwater
	0 lbs (vapor only)		8,686 lbs from vapor
Rolling 12-Month Cost per Pound of Mass Removed:	\$2,144 ^c		
Monthly Cost per Pound of Mass Removed:	\$510		
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.			
^b Calculated using August 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	19.1 ^c	Offline
EW02x16	7.1 ^c	Offline
EW03x16	0.1	Offline
EW605x16	7.0	Offline
EW610x16	0.1 ^d	Offline
CGWTP	31.5	--
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 August 2014.
^c Flow rate based on instantaneous, end of the month reading for August 2014.
^d Flow meter clogged and has now been cleaned.
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)					
CGWTP	None	NA			
WTTP					
	None	NA			

^a Shutdown times estimated based on the notes of the SCADA technician who worked on the system via the remote interface.
CGWTP = Central Groundwater Treatment Plant
WTTP = West Transfer Treatment Plant

Summary of O&M Activities

Monthly groundwater samples were collected at the CGWTP on 4 August 2014. Sample results are presented in Table 4. The total VOC concentration (265.8 µg/L) in the August 2014 influent sample has decreased since the July 2014 sample (302.7 µg/L) was collected. Concentrations of 1,1-DCE (0.71 µg/L), cis-1,2-DCE (64 µg/L), trans-1,2-Dichloroethene (3.2 µg/L), PCE (0.68 µg/L), and TCE (197 µg/L) were detected at the influent sampling location. Vinyl chloride was detected at the influent sampling location (0.24 J µg/L), after the Carbon 1 vessel (0.44 J µg/L), and after the Carbon 2 vessel (0.25 J µg/L). 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.

Annual sampling for metals was conducted in August. Arsenic (0.0099 J µg/L), chromium (0.00326 J µg/L), lead (0.00332 J µg/L), and zinc (0.00791 J µg/L) were detected after the Carbon 2 vessel, the only location at which they were analyzed for. None of these concentrations exceeded the respective inorganic limits.

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 decreased in August 2014 from the flow rate measured in July 2014.

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 August 2014.

Optimization Activities

No optimization activities occurred at the CGWTP in August 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 3,598 pounds of GHG during August 2014. This is an increase from the amount produced in July 2014 (approximately 2,647 pounds) and is the result of greater uptime and gallons treated in August.

TABLE 4

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

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	4 August 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	64	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	0.71	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	0.68	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	3.2	ND	ND	ND
Vinyl Chloride	0.5	0.18	0	0.24 J	0.44 J	0.25 J	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	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
	14 March 2014	28 March 2014
	22 April 2014	28 April 2014
	12 May 2014	12 May 2014
	6 June 2014	20 June 2014
	3 July 2014	24 July 2014
1 August 2014	15 August 2014	

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

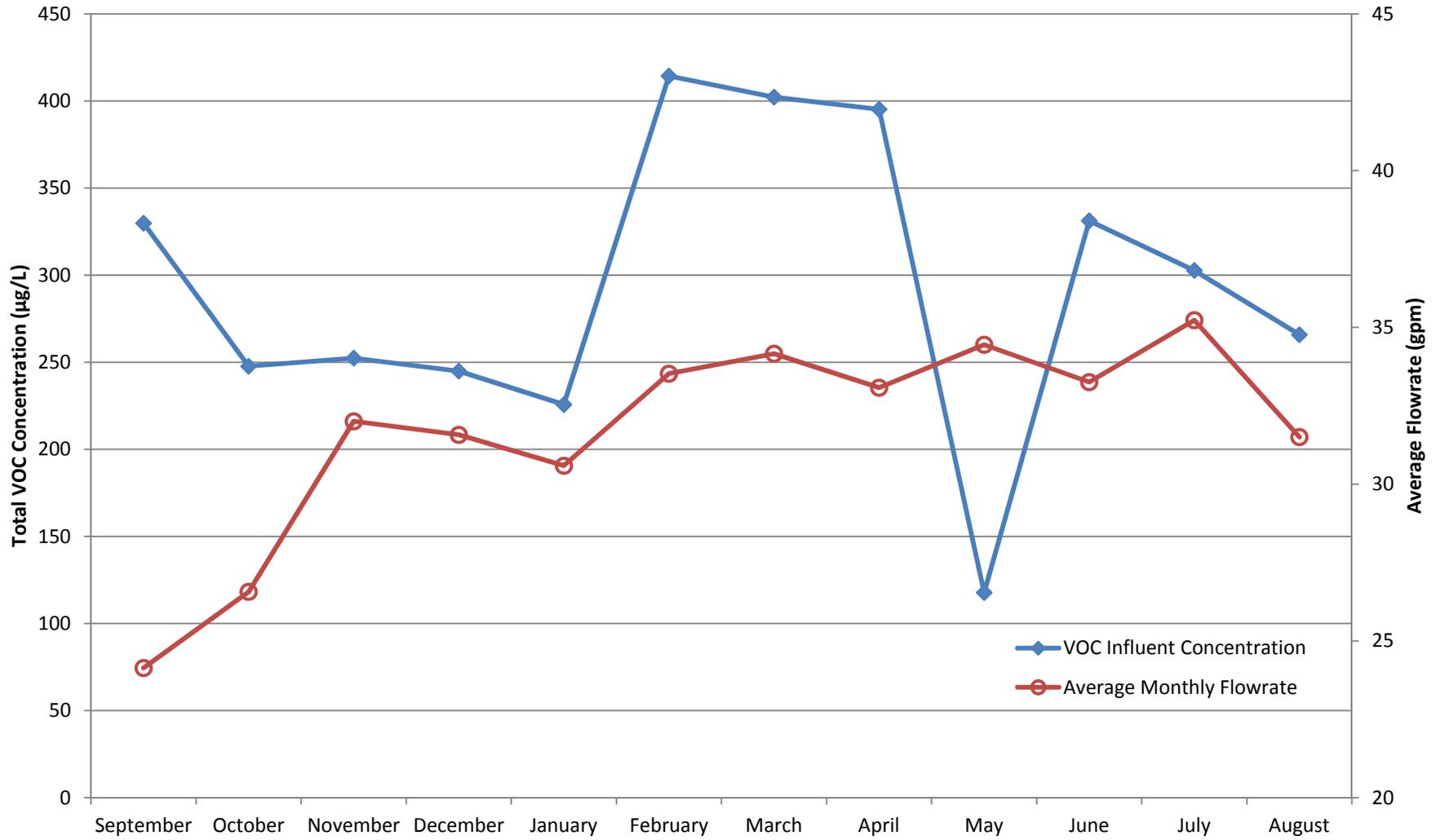
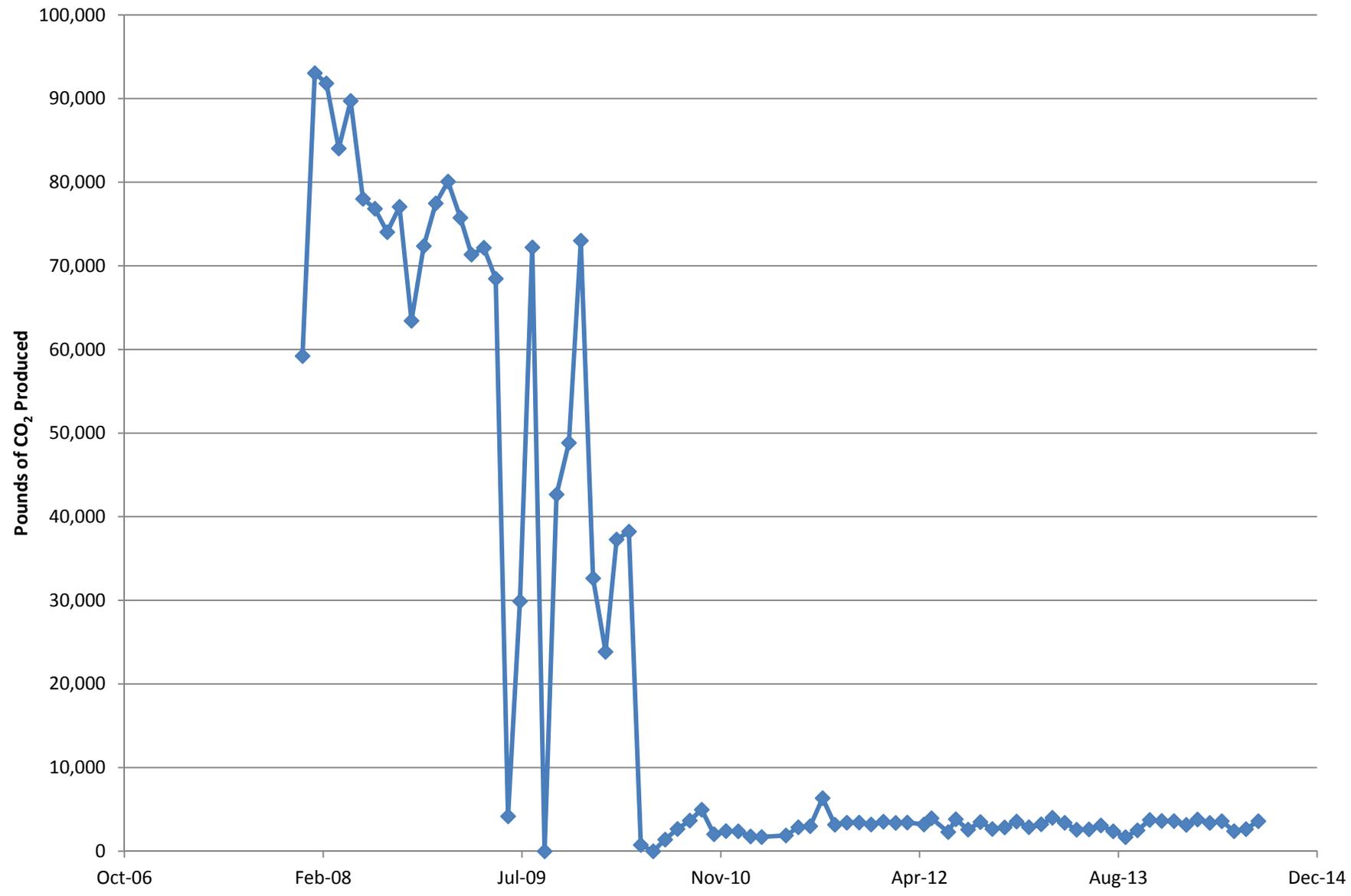


Figure 2
Equivalent Pounds of CO₂ Produced by the Central Groundwater Treatment Plant



North Groundwater Treatment Plant Monthly Data Sheet

Report Number: 141

Reporting Period: 31 July 2014 – 29 August 2014

Date Submitted: 12 September 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 August 2014 reporting period:

Table 1 – Operations Summary – August 2014			
Initial Data Collection:	7/31/2014 08:45	Final Data Collection:	8/29/2014 17:15
Operating Time:	Percent Uptime:	Electrical Power Usage ^a :	
NGWTP: 692 hours	NGWTP: 98%	NGWTP: 0 kWh	
Gallons Treated: 182,920 gallons		Gallons Treated Since March 2000: 83.7 million gallons	
Volume Discharged to Duck Pond: 182,920 gallons		Volume Discharge to Storm Drain: 0 gallons	
VOC Mass Removed: 6.71 x 10⁻³ 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 operates on solar power only. ^b VOCs from August 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 – August 2014		
Location	Average Flow Rate (gpm)^a	Total Gallons Processed (gallons)^b
EW614x07	4.1	169,940
EW615x07 ^c	0	0
NGWTP	4.4	182,920

^a Average flow rate calculated by dividing the total gallons processed collected from wellhead totalizers by the hours recorded by the system hour meter.
^b A discrepancy in totalizer values was recorded in June and troubleshooting of the meters continued in August.
^c Extraction well inoperable due to bad batteries.
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	14 August 2014	09:00 ^a	14 August 2014	15:00 ^a	System offline for ball valve and check valve installation.
NGWTP	18 August 2014	07:00 ^a	18 August 2014	11:00 ^a	System offline after circuit breaker tripped.
NGWTP	21 August 2014	09:05	21 August 2014	10:15	System offline for troubleshooting totalizers.

^a Shutdown and restart times estimated based on field notes.
NGWTP = North Groundwater Treatment Plant

Summary of O&M Activities

Analytical data from the 4 August 2014 sampling event are presented in Table 4. Cis-1,2-DCE (0.3 J µg/L) and TCE (4.1 µg/L) were detected at the influent sample location. Cis-1,2-DCE (0.25 J µg/L) and TCE (4.7 µg/L) were also detected at the midpoint sample location. Neither contaminant was detected at the effluent sample location. Carbon changeout was performed in July, so it is unlikely that breakthrough is already occurring. Concentrations will continue to be monitored for breakthrough conditions.

Figure 1 presents a chart of influent concentrations (total VOCs) at the NGWTP versus time for the past twelve (12) months. Analytical data (Table 4) continue to indicate effective treatment of the influent process stream with only two (2) operating GAC drums online.

Arsenic (0.0129 J µg/L), cadmium (0.0013 J µg/L), chromium (0.0026 J µg/L), copper (0.0214 µg/L), and zinc (0.00763 J µg/L) were detected during annual metals sampling at the effluent location in August. None of the measured concentrations exceeded their respective inorganic effluent limitations.

On 14 August 2014, repairs were made to a weld joint in the piping at extraction well EW615x07. Extraction well EW615x07 is currently off line until work can be completed to bypass the existing batteries, which are no

longer functional. During the piping repairs, a check valve and a ball valve were also installed at extraction well EW614x07 to prevent back flow to EW615x07 when it is not online.

The average flow rate through the NGWTP in August 2014 (4.40 gpm) decreased from the average flow rate in July 2014 (4.95 gpm). Beginning on 21 August 2014, troubleshooting was performed to try and identify the source of the discrepancy between the totalizer readings at the extraction wells and the effluent. The NGWTP effluent totalizer has routinely measured greater flow and gallons than the combined extraction well totalizers. A series of totalizer readings were collected over a period of two (2) days and revealed an approximately 0.2 gpm difference in flow rates collected from the totalizers. Increased pressure due to the presence of air in the bag filter at the NGWTP was also observed, which may be affecting the totalizer readings at the plant. An air release valve has been ordered for installation on the bag filter at the NGWTP to be installed in September and totalizer readings will continue to be monitored for discrepancies.

Optimization Activities

No optimization activities were performed during August 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 the vernal pools at Site LF007C contain standing water. The NGWTP is now a solar-only operated treatment system.

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

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	4 August 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	0.3 J	0.25 J	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	4.1	4.7	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

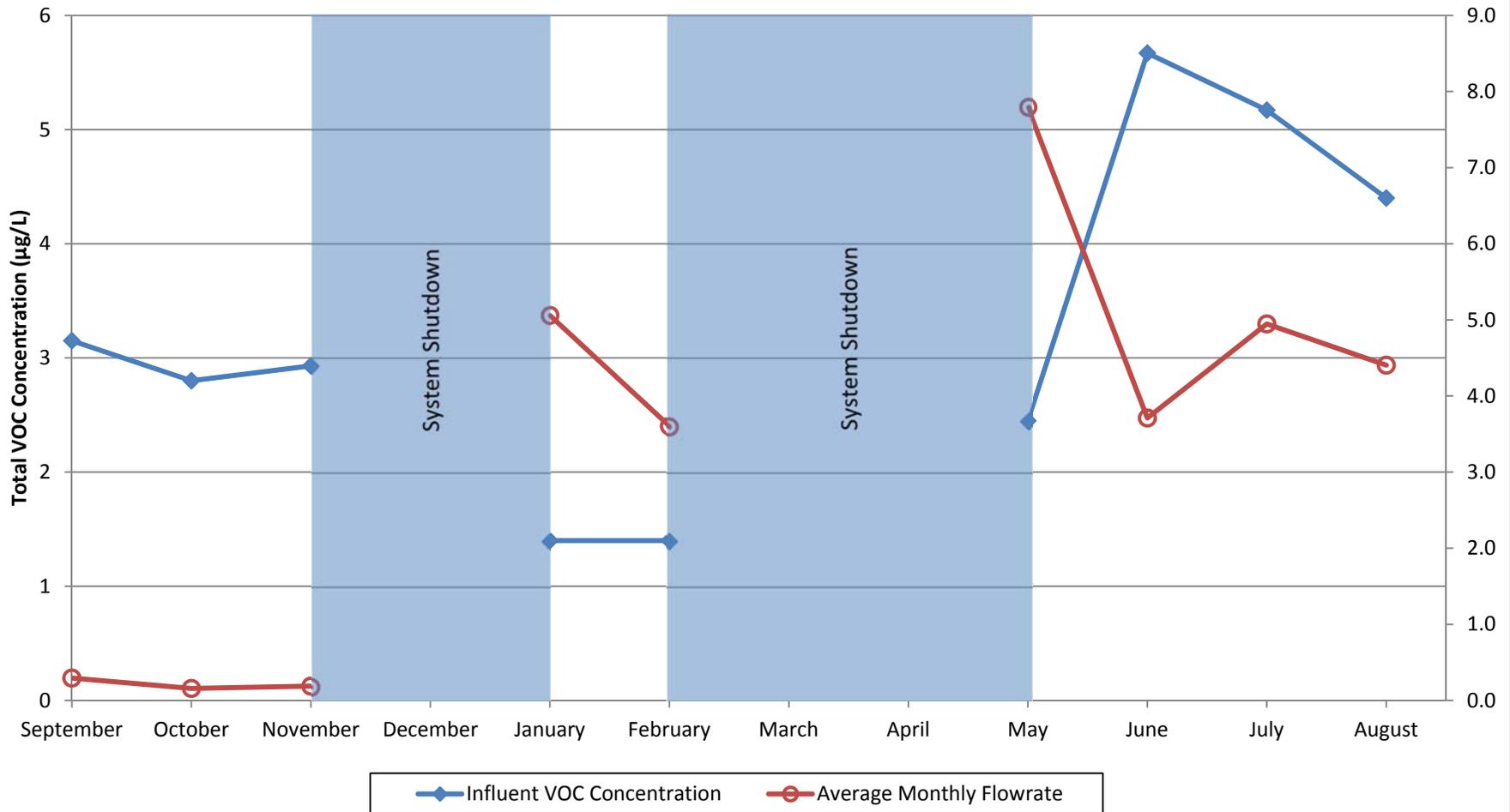
ND = not detected

NM = not measured

µg/L = micrograms per liter

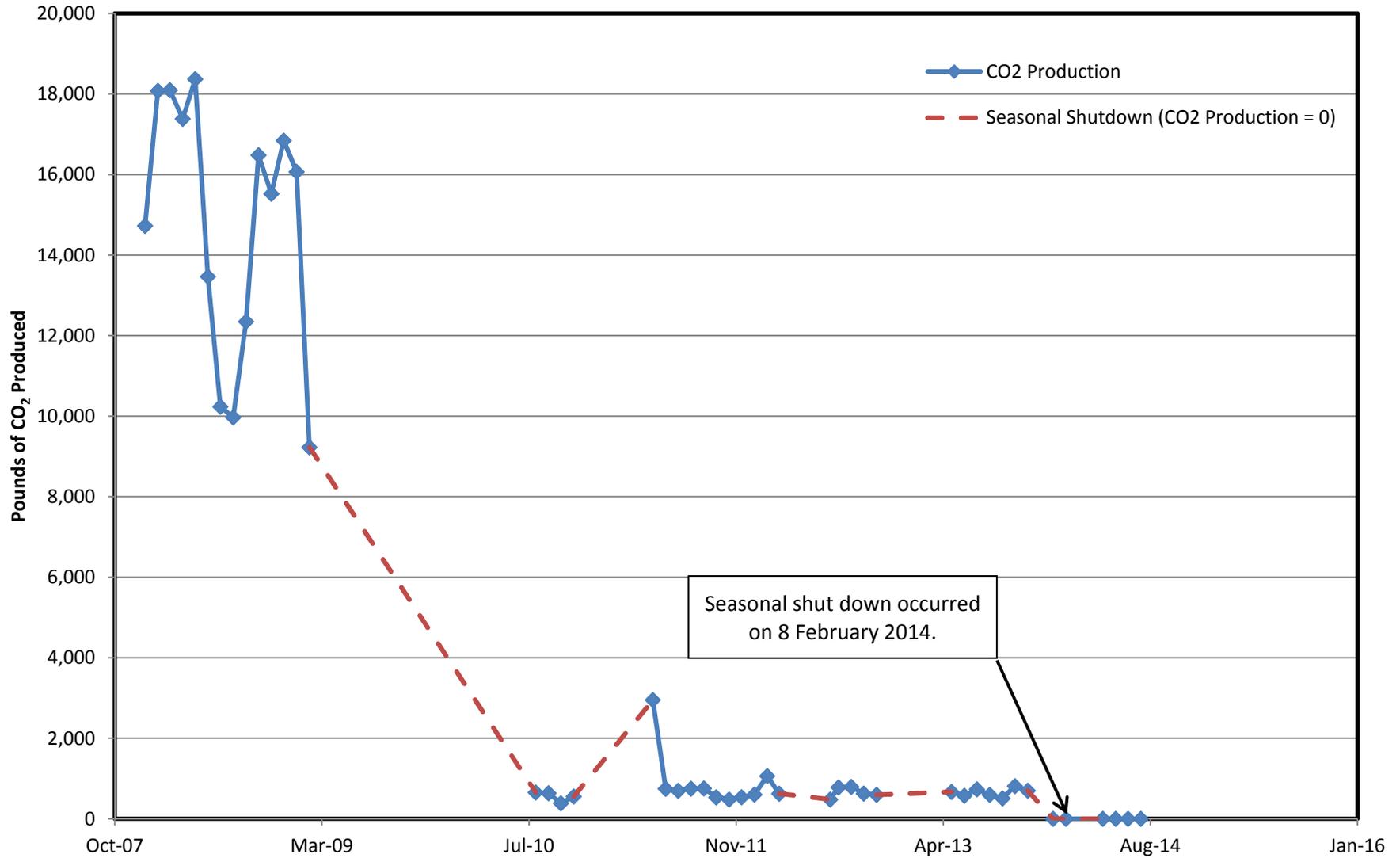
mg/L = milligrams per liter

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: 042

Reporting Period: 30 July 2014 – 29 August 2014

Date Submitted: 12 September 2014

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

System Metrics

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

Table 1 – Operations Summary – August 2014			
Initial Data Collection:	7/30/2014 11:00	Final Data Collection:	8/29/2014 16:45
Operating Time:	Percent Uptime:	Electrical Power Usage:	
ST018GWTP: 706 hours	ST018GWTP: 97%	ST018GWTP: 90 kWh (123 lbs CO₂ generated^a)	
Gallons Treated: 150 thousand gallons		Gallons Treated Since March 2011: 6.24 million gallons	
Volume Discharged to Union Creek: 150 thousand gallons			
BTEX, MTBE, TPH Mass Removed: 0.18 lbs^b		BTEX, MTBE, TPH Mass Removed Since March 2011: 30.6 lbs	
MTBE (Only) Removed: 0.10 lbs^b		MTBE (Only) Mass Removed Since March 2011: 6.5 lbs	
Rolling 12-Month Cost per Total Pounds of Mass Removed: \$13,482 ^c			
Monthly Cost per Pound of Mass Removed: \$10,257 ^d			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.			
^b Calculated using August 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.			
^d Monthly cost per pound elevated for July due to decreased influent concentrations.			
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	2.13	655
EW2016x18	1.28	661
EW2019x18	1.35	661
Site ST018 GWTP	3.53	706

^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	26 August 2014	15:00	27 August 2014	11:00	System offline to prepare for EW2014x18 redevelopment.

^aTime estimated based on notes and activities of field technician.
ST018GWTP = Site ST018 Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater samples were collected at the ST018GWTP on 5 August 2014. Influent sample results from the July, quarterly, sampling event are presented in Table 4 along with the monthly sample results. Quarterly sampling of influent VOCs resumed in July 2014 after 6 months of monthly influent sampling was completed to more closely observe the results of optimization of the battery configurations at each extraction well.

The total influent concentration (benzene, toluene, ethylbenzene, total xylenes, MTBE, TPH-gas, TPH-diesel, and TPH-motor oil) in the July 2014 (3Q14) influent sample was 145.5 µg/L, which is a decrease from the previous (June 2014) influent concentration of 1,012 µg/L. The influent concentration for MTBE during July 2014 was 78 µg/L. This is an increase from the June 2014 influent concentration for MTBE of 50 µg/L. TPH was also detected in the influent sample during the quarterly (8 July 2014) sampling event and is reflected in the July influent concentration. Influent samples are collected on a quarterly basis in accordance with the National Pollutant Discharge Elimination System (NPDES) permit.

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 or effluent sampling locations in August 2014.

As shown on Figure 1, the average flow rate through the ST018GWTP has continued to decrease since the average flow rate peaked at 4.97 gallons per minute in April 2014.

On 27 August 2014, extraction well EW2014x18 was redeveloped in order to reduce sedimentation of the carbon vessels at the ST018GWTP and increased the operational time of the system. Approximately 133 gallons of water and 20 gallons of sediments were pumped from the well. The well was developed until the hard bottom of the well was tagged with the sounder and pumped water was free from silt and sediment.

Optimization Activities

No optimization activities were performed in August 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 ST018GWTP system.

The ST018GWTP produced approximately 123 pounds of GHG during August 2014. This is an increase from July 2014 (105 pounds) and is the result of greater hours of operation and gallons having been treated from 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 August 2014 – Site ST018 Groundwater Treatment Plant

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	5 August 2014 (µg/L)			
				Influent ^b	After Carbon 1	After Carbon 2	System Effluent
Fuel Related Constituents							
MTBE	5	0.5	0	78	NM	ND	ND
Benzene	5	0.17	0	0.51	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	67	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

^b Influent samples are collected on a quarterly basis. Results presented from 8 July 2014.

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
Twelve Month History
Travis Air Force Base, California

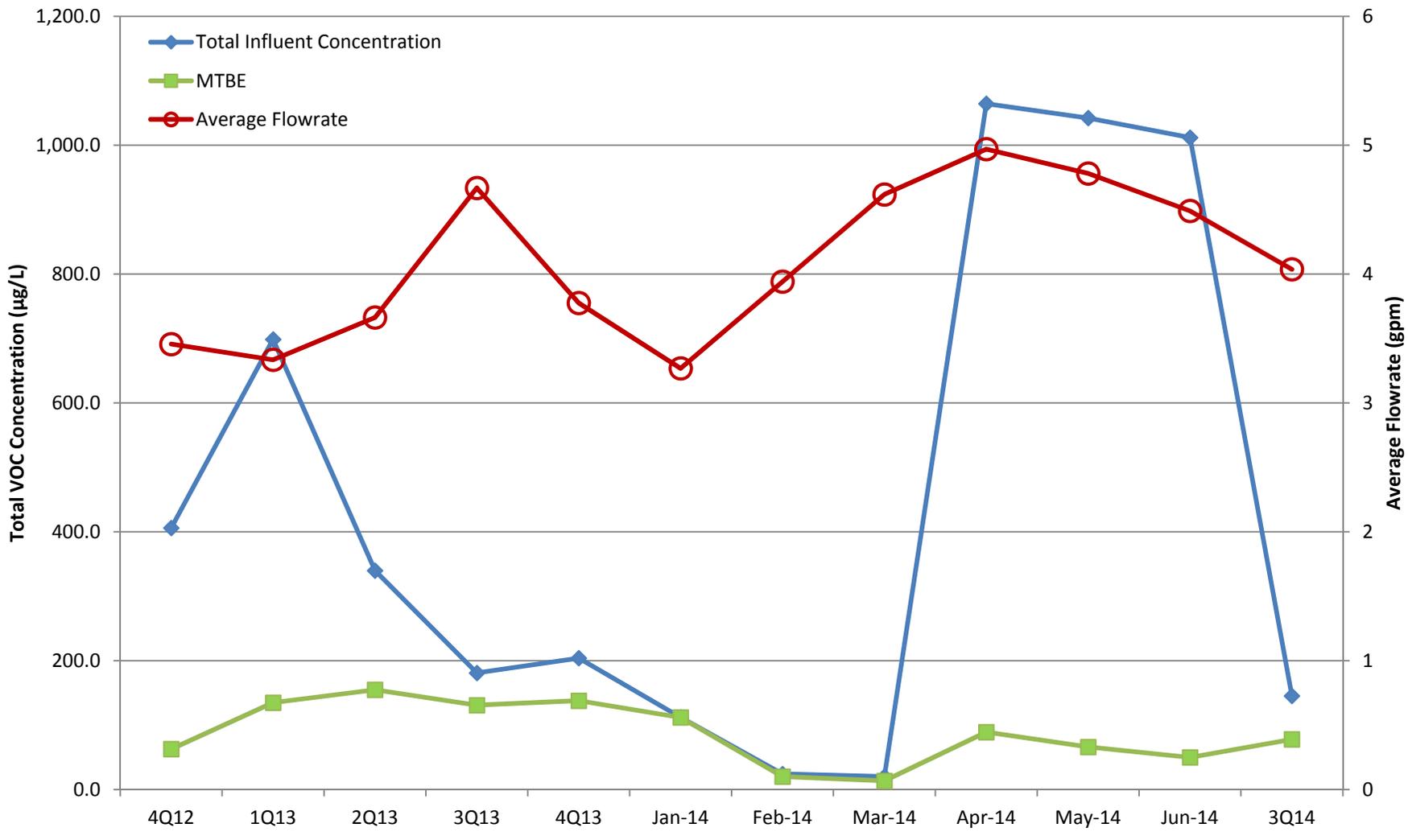
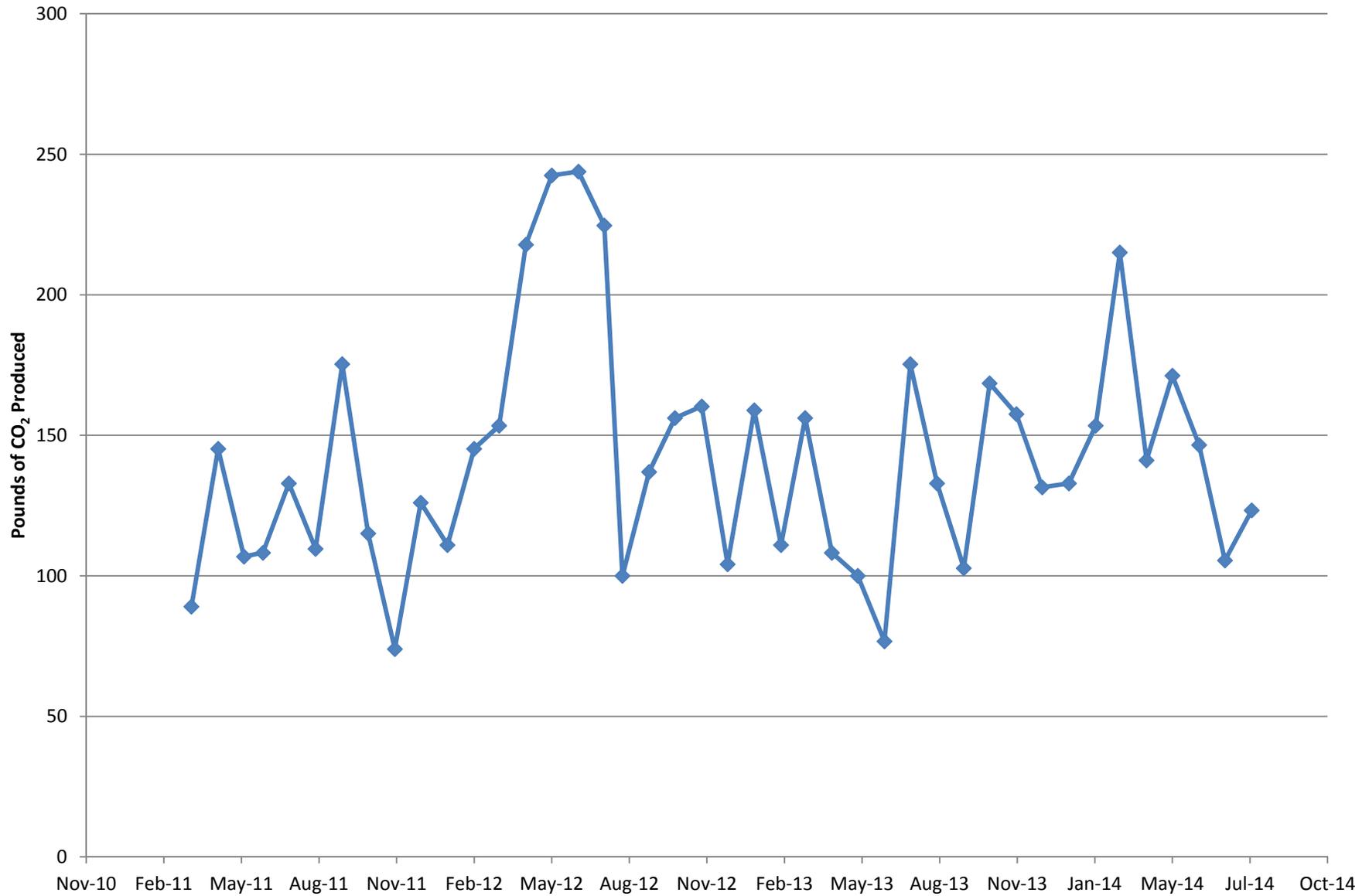


Figure 2
Equivalent Pounds of CO₂ Produced by the Site ST018 Groundwater Treatment Plant



Travis AFB Restoration Program

Program Overview

RPM Meeting

September 17, 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
- 2013 CAMU Inspection Annual Report
- Groundwater Record of Decision (ROD)
- CG508 POCO Work Plan
- 2013 Annual GRISR

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
- 2014 Annual GRIP Sampling Event
- Biological Resource Assessment
- **Site CG508 Site Investigation**
- **Old Skeet Range Characterization Sampling**

Documents & Field Work In-Progress

Documents

- ***SD031 Technology Demonstration Work Plan***
- TA500 Investigation Work Plan
- SD037 GW RD/RA Work Plan
- Travis AFB UFP-QAPP
- DP039 Lead Excavation Technical Memo
- FT004 Technology Demonstration Work Plan
- Kinder Morgan LF044 Land Use Control Report

Field Work

Documents Planned (CERCLA)

- SD036 RD/RA Work Plan Oct
- SD034 Data Gap Investigation Work Plan Nov
- ***Proposed Plan for the ROD Amendment to WABOU
Soil ROD*** Dec
- ***Proposed Plan for the ROD Amendment to NEWIOU
Soil, Sediment, & Surface Water ROD*** Dec
- SS016 GW RD/RA Work Plan Dec
- Community Involvement Plan Jan
- SS015 GW RD/RA Work Plan Apr
- ***ROD Amendment to WABOU Soil ROD*** Jul
- ***ROD Amendment to NEWIOU Soil, Sediment, & Surface
Water ROD*** Jul

Documents Planned (POCO)

- ST018 POCO Work Plan Addendum Oct
- SS014 POCO Technology Demonstration Work Plan Dec

Field Work Planned

- 4Q Semiannual GRIP Sampling Event Oct
- SD031 Technology Demonstration Nov
- SD037 EVO Injection Jan
- ST018 Extraction Well Installation Jan

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

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

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 9

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