

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

16 January 2013, 0930 Hours

Mr. Mark Smith, Travis Air Force Base (AFB), conducted the Remedial Program Manager's (RPM) meeting on 16 January 2013 at 0930 hours, at Travis AFB, California. Attendees included:

- | | |
|--------------------------|--|
| • Mark Smith | Travis AFB |
| • Glenn Anderson | Travis AFB |
| • Lonnie Duke | Travis AFB |
| • Gregory Parrott | Travis AFB |
| • Merrie Schilter-Lowe | Travis AFB |
| • Dezso Linbrunner | United States Army Corp of Engineers (USACE)
Omaha District |
| • Adriana Constantinescu | California Regional Water Quality Control Board
(RWQCB) |
| • Jose Salcedo | California Department of Toxic Substances Control
(DTSC) |
| • Nadia Hollan Burke | United States Environmental Protection Agency
(USEPA) |
| • Daniel Stralka | United States Environmental Protection Agency
(USEPA) |
| • Rich Freitas | United States Environmental Protection Agency
(USEPA) |
| • Mary Snow | Techlaw, Inc |
| • Mike Wray | CH2M HILL |
| • Loren Krook | CH2M HILL |
| • Leslie Royer | CH2M HILL |

Handouts distributed at the meeting and presentations included:

- | | |
|----------------|---|
| • Attachment 1 | Meeting Agenda |
| • Attachment 2 | Master Meeting and Document Schedule |
| • Attachment 3 | SBBGWTP Monthly Data Sheet (November and December 2012) |
| • Attachment 4 | CGWTP Monthly Data Sheet (November and December 2012) |
| • Attachment 5 | NGWTP Monthly Data Sheet (November 2012) |

- Attachment 6 ST018GWTP Monthly Data Sheet (November and December 2012)
- Attachment 7 Presentation: Program Update: Activities Completed, In Progress and Upcoming

1. ADMINISTRATIVE

A. Previous Meeting Minutes

The 28 November 2012 RPM meeting minutes were approved and finalized as written.

B. Action Item Review.

Action items from November were reviewed.

Action item 1 still open: Travis AFB to research beneficial reuse of treated water. AFCEE is in agreement with treated water reuse using Defense Environmental Restoration Account (DERA) funds under the authority of a “net-zero policy” for the Air Force. Update, 16 January 2013: Mr. Duke said that an Air Force energy reduction contractor is looking into the cost of installing a pipe to convey treated water from the central plant to the duck pond.

Action item 2: (give a ROD presentation to agencies) completed at January 2013 RPM meeting, and closed.

Action item 3: (EPA and DTSC to email distribution list for the ROD) completed and closed.

Master Meeting and Document Schedule Review (see Attachment 2)

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

Travis AFB Annual Meeting and Teleconference Schedule

— The next RPM meeting will be held on 20 February 2013 at 0930 hours.

Travis AFB Master Document Schedule

— Groundwater Record of Decision (ROD): No change to the schedule.

— 3rd Five-Year Review: Scoping meeting date changed to reflect actual date. No date changes to rest of the schedule.

— Potrero Hills Annex: (FS, PP, and ROD): No change to schedule. The responsible parties started the investigation fieldwork on 29 November 2012. Mr. Anderson and Mr. Duke made a visit in December 2012 and learned that the adjacent business had tapped into the aquifer which had tested positive for perchlorate, and was using it for drinking water. The responsible parties

acknowledged and agreed to provide clean drinking water. One of the options considered was to run a hose from the clean drinking water source upgradient from the perchlorate contamination. Ms Burke asked if the concern with the drinking water off site is the plume at the well or is it an exposure issue. According to Mr. Anderson the issue is exposure. The adjacent business was using a cistern that taps into surface water that had confirmed test results for perchlorate. Mr. Anderson said the key point is that the responsible parties need to provide clean drinking water to the adjacent business.

- Old Skeet Range Action Memorandum: Predraft to AF/Service Center date has been updated 10 January 2013 to reflect the actual date. The rest of the dates remain TBD. The full document schedule will be updated for the February RPM meeting.
- Vapor Intrusion Update Technical Memorandum: Response to comments due date has been changed to TBD. The draft final and final due has been revised to 31 January 2013.
- Quarterly Newsletter (January 2013): No change to the schedule.
- 2012 Groundwater Sampling and Analysis Program Technical Memorandum: Document went final. Will be moved to history.
- Groundwater Remediation Implementation Status Report: New document. This is a transitional report that combines the Groundwater Sampling Analysis Program (GSAP) Annual Report, Remedial Process Optimization (RPO) sampling, and treatment plant operation and maintenance report.
- Kinder Morgan LF044 Land Use Control Report: New Document. Dates are TBD. Mr. Anderson provided a brief history. Travis AFB wanted to build a second fuel tank farm. A couple of locations were being considered: two on pristine property and another at Site LF044, a Land Use Control site (LUC) that is contaminated with asphalt and concrete. Because this is an industrial project, it made sense to build the tank farm on the LUC site. The purpose of the report is to document the soil contamination removal and transportation to a landfill. The tank farm occupies most of the LUC site's footprint, leaving a smaller percentage of land that still needs contaminant removal. The report will also record what contamination is left and document it. Because the LUC site contamination has been significantly reduced, it may be possible to clean up the residual soil contamination to residential standards. Mr. Smith said that would be evaluated with the next performance-based contract in accordance with the Air Force's policy of reducing its environmental liabilities and of accelerated site closeout.
- FT005 Remedial Action Completion Report: Moved to history.
- 2011 Groundwater Treatment RPO Annual Report: Moved to history.

2. CURRENT PROJECTS

Treatment Plant Operation and Maintenance Update

Mr. Duke reported on the treatment plant status.

South Base Boundary Groundwater Treatment Plant (see Attachment 3)

November: The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 29.7% uptime, and 1.1 million gallons of groundwater were extracted and treated during the month of November 2012. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 84.8 gallons per minute (gpm). Electrical power usage was 3,540 kWh and approximately 4,850 pounds of CO₂ were created (based on DOE calculation). Approximately 0.57 pounds of volatile organic compounds (VOCs) were removed in November. The total mass of VOCs removed since startup of the system is 431 pounds.

Optimization Activities: On 15 November 2012, EW734x05 and EW735x05 were taken offline after samples collected from these wells during the GSAP event did not identify (ND) any contaminant concentrations. It is expected that these extraction wells will remain off line permanently unless contaminant concentrations are measured at these locations during future sampling events.

December: The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 86.9% uptime, and 1.6 million gallons of groundwater were extracted and treated during the month of December 2012. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 41.1 gallons per minute (gpm). Electrical power usage was 3,960 kWh and approximately 5,425 pounds of CO₂ were created (based on DOE calculation). Approximately 2.34 pounds of volatile organic compounds (VOCs) were removed in December. The total mass of VOCs removed since startup of the system is 433 pounds.

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

Central Groundwater Treatment Plant (see Attachment 4)

November: The Central Groundwater Treatment Plant (CGWTP) performed at 80.2% uptime with approximately 1.2 million gallons of groundwater extracted and treated during the month of November 2012. All treated water was diverted to the storm drain. The average flow rate for the CGWTP was 36.4 gpm. Electrical power usage was 2,081 kWh for all equipment connected to the Central plant, and approximately 2,851 pounds of CO₂ were generated. Approximately 3.47 pounds of VOCs were removed from groundwater by the treatment plant in November. The total mass of VOCs removed since the startup of the system is 11,302 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 November.

Optimization Activities for CGWTP: No optimization activities to report for the month of November.

December: The Central Groundwater Treatment Plant (CGWTP) performed at 96.1% uptime with approximately 1.6 million gallons of groundwater extracted and treated during the month of December 2012. All treated water was diverted to the storm drain. The average flow rate for the CGWTP was 36.5 gpm. Electrical power usage was 2,592 kWh for all equipment connected to the Central plant, and approximately 3,551 pounds of CO₂ were generated. Approximately 6.38 pounds of VOCs were removed from groundwater by the treatment plant in December. The total mass of VOCs removed since the startup of the system is 11,309 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 December.

Optimization Activities for CGWTP: No optimization activities to report for the month of December.

North Groundwater Treatment Plant (see Attachment 5)

November: The North Groundwater Treatment Plant (NGWTP) performed at 100% uptime with approximately 5,970 gallons of groundwater extracted and treated during the month of November 2012. The average flow rate at the NGWTP, while operating, was 0.1 gpm and electrical power use was 435 kWh for all the equipment connected to the North plant; approximately 596 pounds of CO₂ was generated. Approximately 2.5×10^{-4} pounds of VOCs were removed from the groundwater in November. 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 November.

The NGWTP was shutdown on 30 November 2012 when ponded water was observed in seasonal vernal pools at Site 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.

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

November: The Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 100% uptime with approximately 173 thousand gallons of groundwater extracted and treated during the month of November 2012. All treated water was diverted to the storm drain. The average flow rate for the ST018 GWTP was 4.0 gpm. Electrical power usage for the month was 117 kWh for all equipment connected to the ST018 GWTP plant, which equates to the creation of approximately 160 pounds of CO₂. Approximately 0.59 pounds of BTEX, MTBE and TPH were removed from

groundwater in November from the treatment plant. The total BTEX, MTBE and TPH mass removed since the startup of the system is 20.3 pounds.

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

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

December: The Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 100% uptime with approximately 109 thousand gallons of groundwater extracted and treated during the month of December 2012. All treated water was diverted to the storm drain. The average flow rate for the ST018 GWTP was 2.5 gpm. Electrical power usage for the month was 76 kWh for all equipment connected to the ST018 GWTP plant, which equates to the creation of approximately 104 pounds of CO₂. Approximately 0.37 pounds of BTEX, MTBE and TPH were removed from groundwater in December from the treatment plant. The total BTEX, MTBE and TPH mass removed since the startup of the system is 20.7 pounds.

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

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

3. 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:

Completed Documents: 2012 GSAP Technical Memorandum.

Completed Field Work: GSAP Semiannual Sampling Event.

In-Progress Documents: Vapor Intrusion Update Technical Memorandum, Groundwater Record of Decision.

In-Progress Field Work: Replace electrical wiring for well field at Site SS030.

Upcoming Documents: 3rd Five-Year Review, 2012 Annual Groundwater Remediation Implementation Status Report, Old Skeet Range Action Memorandum, Kinder Morgan LF044 Land Use Control Report.

Upcoming Fieldwork: Annual GSAP Sampling Event (April).

4. New Action Item Review

None.

5. PROGRAM/ISSUES/UPDATE

Mr. Linbrunner announced that USACE will be managing the new Performance-Based Contract (PBC). Mr. Smith followed up by saying that Travis AFB is glad to have USACE overseeing the PBC and has appreciated all the support provided for the current PBC. Ms. Burke said that she was contacted by a contractor regarding the new PBC and asked how Travis AFB would like for EPA to handle these inquiries, and asked if all contractors should be allowed access to the same information. Mr. Smith said yes, we had a site visit available to all interested contractors and anyone contacting EPA may be soliciting additional information. Mr. Linbrunner requested Ms. Burke to direct any contractors asking questions regarding the new PBC to contact the Army Corps Contracting Officer Representative (COR)/USACE or refer them to the Public Record.

Ms. Burke announced that David Cooper with EPA is retiring, and his position will not be reassigned and to direct any of his correspondence to her.

6. Action Items

Item #	Responsible	Action Item Description	Due Date	Status
1.	Travis AFB	Research beneficial reuse of treated water and give update. Update (13 June 2012): AFCEE is in agreement with treated water reuse using Defense Environmental Restoration Account (DERA) funds under the authority of a "net-zero policy" for the Air Force. Update (15 August 2012): Mr. Duke reported that irrigation lines were destroyed by a communications contractor and not repaired because the system was inactive. Travis AFB will get the system design information to determine if the trunk line is still intact and repairs can be made to get the system running. Update, 16 January 2013: Mr. Duke said that an Air Force energy reduction contractor	February 2013	Open

		will look into the cost of installing a pipe to convey treated water from the central plant to the duck pond.		
2.	Travis AFB	Give a ROD presentation to agencies.	January 2013 RPM meeting	Closed
2.	EPA and DTSC	EPA and DTSC to email Travis AFB how many copies of the draft ROD are needed, and to provide names and addresses.	Mid-December	Closed

TRAVIS AIR FORCE BASE
ENVIRONMENTAL RESTORATION PROGRAM
REMEDIAL PROGRAM MANAGER'S MEETING
BLDG 570, Main Conference Room
16 January 2013, 9:30 A.M.
AGENDA

1. PRESENTATION
 - A. Groundwater Record of Decision
2. TOUR
 - A. Tour of Groundwater Sites
3. ADMINISTRATIVE
 - A. PREVIOUS MEETING MINUTES
 - B. ACTION ITEM REVIEW
 - C. MASTER MEETING AND DOCUMENT SCHEDULE REVIEW
4. CURRENT PROJECTS
 - A. TREATMENT PLANT OPERATION AND MAINTENANCE UPDATE (LONNIE)
5. PRESENTATION
 - A. PROGRAM UPDATE: ACTIVITIES COMPLETED, IN PROGRESS AND UPCOMING
6. NEW ACTION ITEM REVIEW
7. PROGRAM/ISSUES/UPDATE

NOTES: TO FACILITATE THE REVIEW OF THE DRAFT TRAVIS AFB GROUNDWATER ROD, WE WILL BE MAKING A ROD PRESENTATION TO THE LOCAL EPA REVIEWERS, FOLLOWED BY A TOUR OF GROUNDWATER SITES. AFTER THE TOUR IS COMPLETE, WE WILL BEGIN THE ADMINISTRATIVE PORTION OF THE RPM MEETING WHICH WE ANTICIPATE WILL START AT 12:00 NOON. ALL MEETING ATTENDEES ARE WELCOME TO ATTEND THE ROD PRESENTATION AND TOUR.

Travis AFB Master Meeting and Document Schedule

(2013)

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.)
01-16-13	—	—
02-20-13	—	—
03-20-13 ²	—	—
04-18-13 (Thur 2:00 PM)	—	04-18-13
05-22-13	—	—
06-19-13	—	—
07-17-13	—	—
08-21-13	—	—
09-18-13	—	—
10-17-13 (Thur 2:00 PM)	—	10-17-13
11-20-13	—	—
—	—	—

¹ Note: Meetings will be held the third Wednesday of each month unless otherwise noted.

² Note: Meetings will alternate between face to face and teleconferences after the GW ROD is final.

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS		
Life Cycle	Groundwater Record of Decision Travis, Glenn Anderson CH2M HILL, Leah Waller	3 rd Five-Year Review Travis AFB, Glenn Anderson J.C. Palomar, Chris Bason
Scoping Meeting	01-24-07 (11-30-11)	10-31-12
Predraft to AF/Service Center	11-28-12	02-18-13
AF/Service Center Comments Due	12-12-12	03-04-13
Draft to Agencies	01-02-13	03-18-13
Draft to RAB	01-02-13	03-18-13
Agency Comments Due	03-03-13	04-15-13
Response to Comments Meeting	03-20-13	04-29-13
Public Comment Period	NA	NA
Public Meeting	NA	NA
Response to Comments Due	04-01-13	05-13-13
Draft Final Due	04-01-13	06-03-13
Final Due	05-01-13	07-03-13

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	MMRP Old Skeet Range Action Memorandum Travis AFB, Glenn Anderson Baywest, Steve Thornton	Vapor Intrusion Update Technical Memorandum Travis AFB, Glenn Anderson CH2M HILL, Leslie Royer
Scoping Meeting	NA	NA
Predraft to AF/Service Center	01-10-13	08-14-12
AF/Service Center Comments Due	TBD	08-28-12
Draft to Agencies	TBD	9-20-12
Draft to RAB	TBD	9-20-12
Agency Comments Due	TBD	10-20-12 (12-14-12)
Response to Comments Meeting	TBD	TBD
Response to Comments Due	NA	01-31-13
Draft Final Due	NA	NA
Final Due	TBD	01-31-13
Public Comment Period	TBD	NA
Public Meeting	TBD	NA

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS				
Life Cycle	Quarterly Newsletters (January 2013) Travis, Glenn Anderson	2012 Groundwater Sampling and Analysis Program Technical Memorandum Travis AFB, Lonnie Duke CH2M HILL, Leslie Royer	Groundwater Remediation Implementation Status Report Travis AFB, Lonnie Duke CH2M HILL, Royer/Berwick	Kinder Morgan LF044 Land Use Control Report Travis AFB, Glenn Anderson Kinder Morgan, Heidi Sickler
Scoping Meeting	NA	NA	NA	NA
Predraft to AF/Service Center	NA	09-20-2012	03-28-13	TBD
AF/Service Center Comments Due	NA	09-25-2012	04-11-13	TBD
Draft to Agencies	01-09-13	09-26-2012	04-27-13	TBD
Draft to RAB	NA	09-26-2012	04-27-13	TBD
Agency Comments Due	01-23-13	11-14-12	05-27-13	TBD
Response to Comments Meeting	TBD	11-28-2012	06-19-13	TBD
Response to Comments Due	01-30-13	12-18-12	06-27-13	TBD
Draft Final Due	NA	NA	NA	NA
Final Due	01-30-13	12-18-12	06-27-13	TBD
Public Comment Period	NA	NA	NA	NA
Public Meeting	NA	NA	NA	NA

Travis AFB Master Meeting and Document Schedule

HISTORICAL	
Life Cycle	Proposed Plan Travis, Glenn Anderson CH2M HILL, Tricia Carter
Scoping Meeting	NA
Predraft to AF/Service Center	10-06-11
AF/Service Center Comments Due	11-05-11
Draft to Agencies	05-09-12
Draft to RAB	05-09-12
Agency Comments Due	06-15-12
Response to Comments Meeting	08-15-12
Public Comment Period	10-10-12 to 11-09-12
Public Meeting	10-18-12
Response to Comments Due	09-10-12
Draft Final Due	09-10-12
Final Due	10-10-12

South Base Boundary Groundwater Treatment Plant

Monthly Data Sheet

Report Number: 147

Reporting Period: 31 October 2012 – 30 November 2012

Date Submitted: 17 December 2012

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 operation data from the November 2012 reporting period.

Table 1 – Operations Summary – November 2012

Operating Time:	Percent Uptime:	Electrical Power Usage:
SBBGWTP: 213 hours	SBBGWTP: 29.7 %	SBBGWTP: 3,540 kWh (4,850 lbs CO ₂ generated ^a)
Gallons Treated: 1.1 million gallons	Gallons Treated Since July 1998: 809 million gallons	
Volume Discharged to Union Creek: 1.1 million gallons		
VOC Mass Removed: 0.57 lbs^b	VOC Mass Removed Since July 1998: 431 lbs	
Rolling 12-Month Cost per Pound of Mass Removed: \$5,404 ^c		
Monthly Cost per Pound of Mass Removed: \$9,442		

lbs = pounds

^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.

^b Calculated using November 2012 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							
FT005 ^b				SS029		SS030	
EW01x05	1.6	EW736x05	Offline	EW01x29	4.2	EW01x30	5.6
EW02x05	1.6	EW737x05	Offline	EW02x29	5.7	EW02x30	0.1
EW03x05	Offline	EW742x05	Offline	EW03x29	2.5	EW03x30	Offline
EW731x05	Offline	EW743x05	Offline	EW04x29	8.8	EW04x30	Offline
EW732x05	Offline	EW744x05	Offline	EW05x29	Offline	EW05x30	21.2
EW733x05	Offline	EW745x05	Offline	EW06x29	17.5	EW06x30	Offline
EW734x05	1.0	EW746x05	Offline	EW07x29	3.1	EW711x30	17.0
EW735x05	12.1						
FT005 Total: 16.3				SS029 Total: 41.8		SS030 Total: 43.9	
SBBGWTP Average Monthly Flow ^c : 84.8 gpm							
^a Extraction well flow rates are based on 8 November 2012 readings prior to shut down for carbon replacement.							
^b Most extraction wells at FT005 were taken offline in accordance with the 2008 Annual Remedial Process Optimization Report for the Central Groundwater Treatment Plant, North Groundwater Treatment Plant, and South Base Boundary Groundwater Treatment Plant.							
^c The average groundwater flow rate was calculated using the Union Creek Discharge Totalizer and dividing it by the operating time of the plant. Flow rates listed for each well are instantaneous flow rates and may differ from the average monthly flow due to well recharge.							
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	11/9/2012	8:15	11/13/2012	9:45	Treatment plant shutdown to facilitate carbon change out.
SBBGWTP	11/13/2012	14:15	None	NA	Treatment plant operated briefly to collect samples and remains off line pending sample results confirming the new carbon is effectively removing contaminants.
SBBGWTP = South Base Boundary Groundwater Treatment Plant					

Summary of O&M Activities

Monthly groundwater samples at the SBBGWTP were collected on 13 November 2012. Sample results are presented in Table 4. The total VOC concentration (63.3 µg/L) in the influent sample has decreased since the October 2012 sample (78.4 µg /L) was collected. Figure 1 presents a plot of influent concentrations at the SBBGWTP over the past twelve (12) months.

Concentrations of cis-1,2-DCE and TCE (3.6 and 59.7 µg/L) were detected at the influent sample location in November 2012. TCE was also detected at the midpoint and effluent sampling locations at concentrations (0.57 and 0.36 J µg/L) below the effluent limitation (5.0 µg/L).

On 9 November 2012 the SBBGWTP was shut down to facilitate carbon change out for both of the granular activated carbon (GAC) vessels. The carbon was saturated and, on 13 November 2012, the SBBGWTP was briefly brought back on line for the November 2012 monthly sample collection event. Analytical results received on 4 December 2012 showed trace concentrations of TCE at the midpoint and effluent sampling locations, though this is likely a result of residual concentrations within each vessel since both were changed out on 9 November 2012. Based on these analytical results, the SBBGWTP was brought back on line on 4 December 2012.

Extraction wells EW03x30 and EW04x30 remained off line in November 2012. On 15 November 2012, the wiring at both well locations was inspected to try and identify the source of existing electrical problems. A megger test was performed on the wiring from each of these wells to the nearest junction box and was eliminated as the likely source of failure. Additional inspection and testing of the wiring was performed at the junction box on 21 November 2012. Several wires were found to be shorted between the junction box and the SBBGWTP during this inspection and the insulation on these wires appeared damaged by rodents. This wiring will likely need to be replaced before EW03x30 and EW04x30 can be brought back on line in January 2013. Troubleshooting activities will continue through December 2012 until both wells can be brought back on line.

Optimization Activities

On 15 November 2012, EW734x05 and 735x05 were taken offline after samples collected from these wells during the GSAP event did not identify (ND) any contaminant concentrations. It is expected that these extraction wells will remain off line permanently unless contaminant concentrations are measured at these locations during future sampling events.

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 4,850 pounds of GHG during November 2012. GHG production has decreased (from 11,919 pounds) since October 2012 due to decreased operating time. The overall energy consumption levels remain consistent with the general decrease in energy demand since the air stripper was bypassed, and the GAC system was brought online.

TABLE 4

Summary of Groundwater Analytical Data for November 2012 – South Base Boundary Groundwater Treatment Plant

				13 November 2012 (µg/L)		
Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	Influent	Midpoint	Effluent
Halogenated Volatile Organics						
Bromodichloromethane	5.0	0.15	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
1,1-Dichloroethane	5.0	0.50	0	ND	ND	ND
1,2-Dichloroethane	0.5	0.15	0	ND	ND	ND
1,1-Dichloroethene	5.0	0.19	0	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.19	0	3.6	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	59.7	0.57	0.36 J
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	9 J	NM	NM

* 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

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 - Twelve Month History
Travis Air Force Base, California

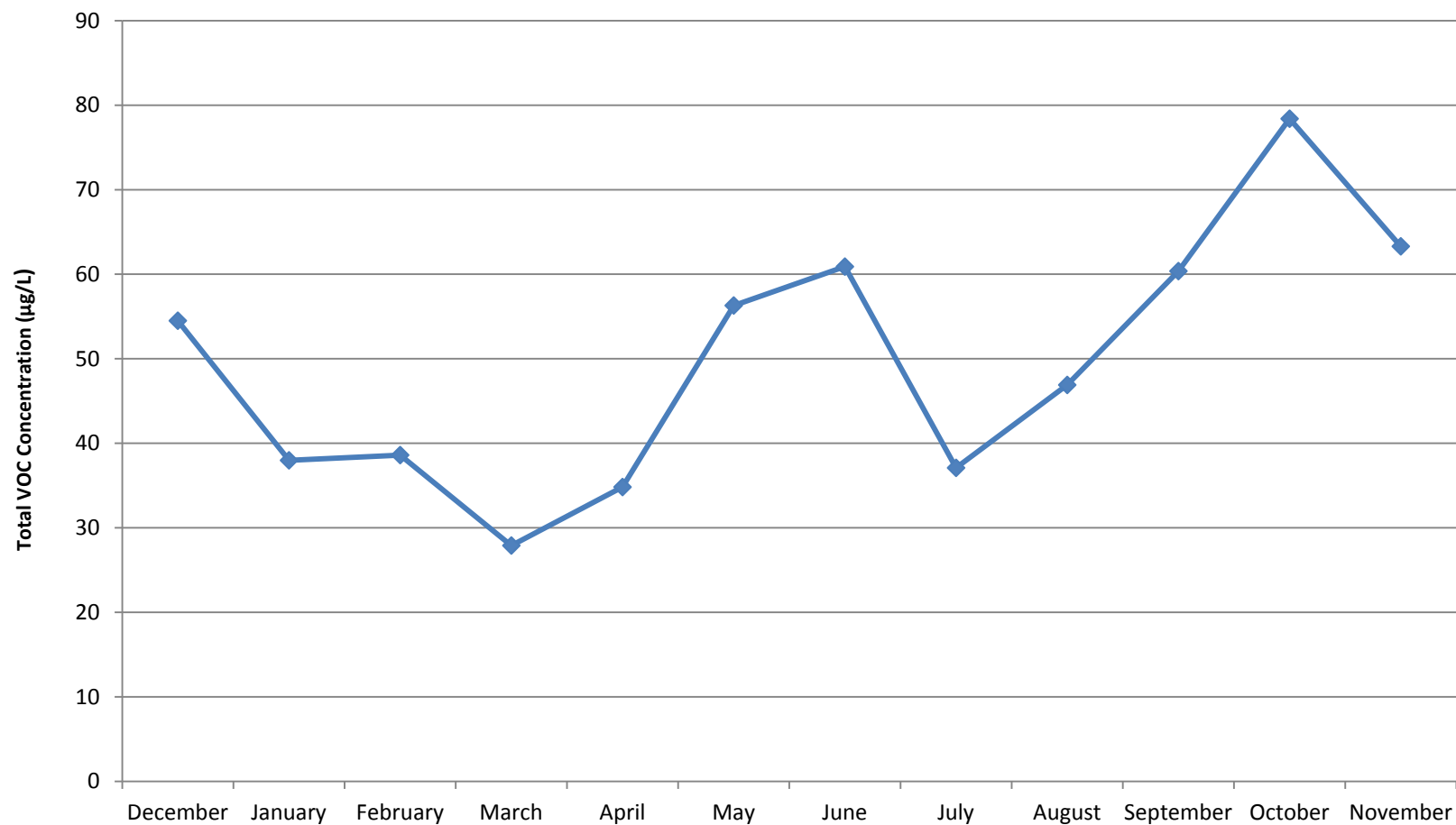
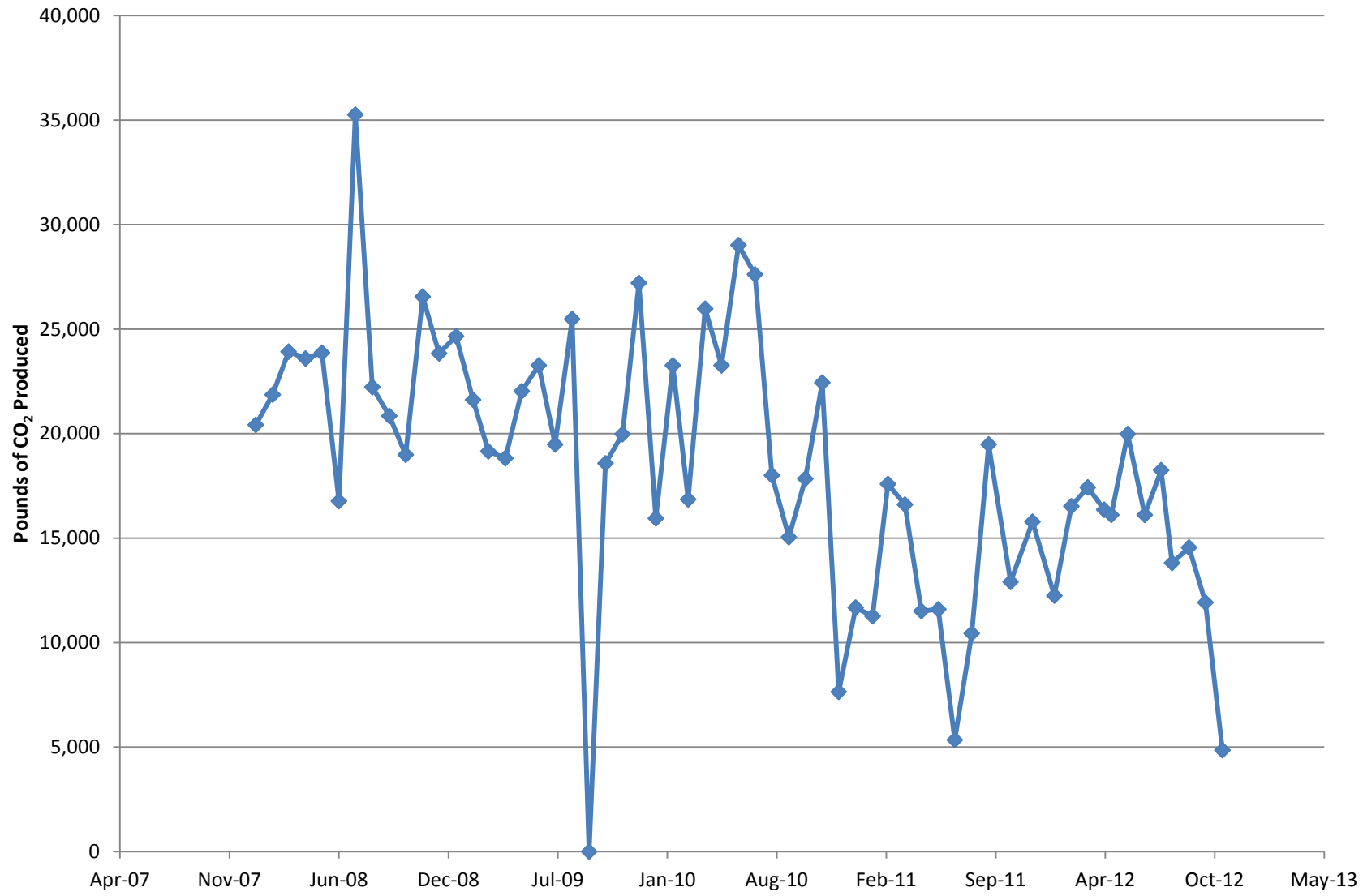


Figure 2

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



South Base Boundary Groundwater Treatment Plant

Monthly Data Sheet

Report Number: 148

Reporting Period: 30 November 2012 – 31 December 2012

Date Submitted: 11 January 2013

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 operation data from the December 2012 reporting period.

Table 1 – Operations Summary – December 2012

Operating Time:	Percent Uptime:	Electrical Power Usage:
SBBGWTP: 647 hours	SBBGWTP: 86.9 %	SBBGWTP: 3,960 kWh (5,425 lbs CO ₂ generated ^a)
Gallons Treated: 1.6 million gallons	Gallons Treated Since July 1998: 810 million gallons	
Volume Discharged to Union Creek: 1.6 million gallons		
VOC Mass Removed: 2.34 lbs^b	VOC Mass Removed Since July 1998: 433 lbs	
Rolling 12-Month Cost per Pound of Mass Removed: \$4,233 ^{c,d}		
Monthly Cost per Pound of Mass Removed: \$2,623 ^d		

lbs = pounds

^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.

^b Calculated using December 2012 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 Values are estimated based on the November 2012 costs.

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							
FT005 ^b				SS029		SS030	
EW01x05	Offline	EW736x05	Offline	EW01x29	4.1	EW01x30	Offline
EW02x05	2.1	EW737x05	Offline	EW02x29	Offline	EW02x30	Offline
EW03x05	Offline	EW742x05	Offline	EW03x29	3.4	EW03x30	Offline
EW731x05	Offline	EW743x05	Offline	EW04x29	Offline	EW04x30	Offline
EW732x05	Offline	EW744x05	Offline	EW05x29	8.0	EW05x30	Offline
EW733x05	Offline	EW745x05	Offline	EW06x29	18.1	EW06x30	Offline
EW734x05	Offline	EW746x05	Offline	EW07x29	Offline	EW711x30	Offline
EW735x05	Offline						
FT005 Total: 2.1				SS029 Total: 33.6		SS030 Total: Offline	
SBBGWTP Average Monthly Flow ^c : 41.1 gpm							
^a Extraction well flow rates are based on 31 December 2012 readings prior to shut down for carbon replacement.							
^b Most extraction wells at FT005 were taken offline in accordance with the 2008 Annual Remedial Process Optimization Report for the Central Groundwater Treatment Plant, North Groundwater Treatment Plant, and South Base Boundary Groundwater Treatment Plant.							
^c The average groundwater flow rate was calculated using the Union Creek Discharge Totalizer and dividing it by the operating time of the plant. Flow rates listed for each well are instantaneous flow rates and may differ from the average monthly flow due to well recharge.							
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	11/13/2012	14:15	12/4/2012	15:30	Treatment plant brought back online after carbon replacement completed.
SBBGWTP = South Base Boundary Groundwater Treatment Plant					

Summary of O&M Activities

Monthly groundwater samples at the SBBGWTP were collected on 12 December 2012. Sample results are presented in Table 4. The total VOC concentration (176 µg/L) in the influent sample has increased since the November 2012 sample (63.3 µg /L) was collected. Figure 1 presents a plot of influent concentrations at the SBBGWTP over the past twelve (12) months.

Concentrations of cis-1,2-DCE and TCE (9.8 µg/L and 166 µg/L) were detected at the influent sample location in December 2012. No contaminants were detected at the midpoint and effluent sampling locations.

Carbon changeout activities took place on 9 November 2012, and monthly O&M samples were collected on 13 November 2012. The SBBGWTP was taken off line following this sample collection event pending analytical results that could confirm effective operation of the SBBGWTP with new carbon. The SBBGWTP was brought back on line on 4 December after the November 2012 O&M data showed effective treatment plant operation. The monthly O&M sampling event in December took place on 12 December 2012.

On 19 December 2012 troubleshooting activities were performed at Site SS030 to identify the source of electrical issues affecting the extraction wells. All of the Site SS030 extraction wells were shutdown to determine which sections of power wiring require replacement. Replacing the faulty sections of wire is expected to begin in January and February 2013 once materials can be procured.

Optimization Activities

No optimization activities were performed in December 2012.

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 5,425 pounds of GHG during December 2012. GHG production has increased (from 4,850 pounds) since November 2012 due to decreased operating time. The overall energy consumption levels remain consistent with the general decrease in energy demand since the air stripper was bypassed, and the GAC system was brought online.

TABLE 4

Summary of Groundwater Analytical Data for December 2012 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	12 December 2012 (µg/L)		
				Influent	Midpoint	Effluent
Halogenated Volatile Organics						
Bromodichloromethane	5.0	0.15	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
1,1-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	9.8	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	166	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	15 J	NM	NM

* 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

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

TABLE 5

Summary of Carbon Changeout December 2012 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	12 December 2012 (µg/L)		
				Influent	Midpoint	Effluent
Halogenated Volatile Organics						
Bromodichloromethane	5.0	0.15	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
1,1-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	9.8	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	166	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	15 J	NM	NM

* 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

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

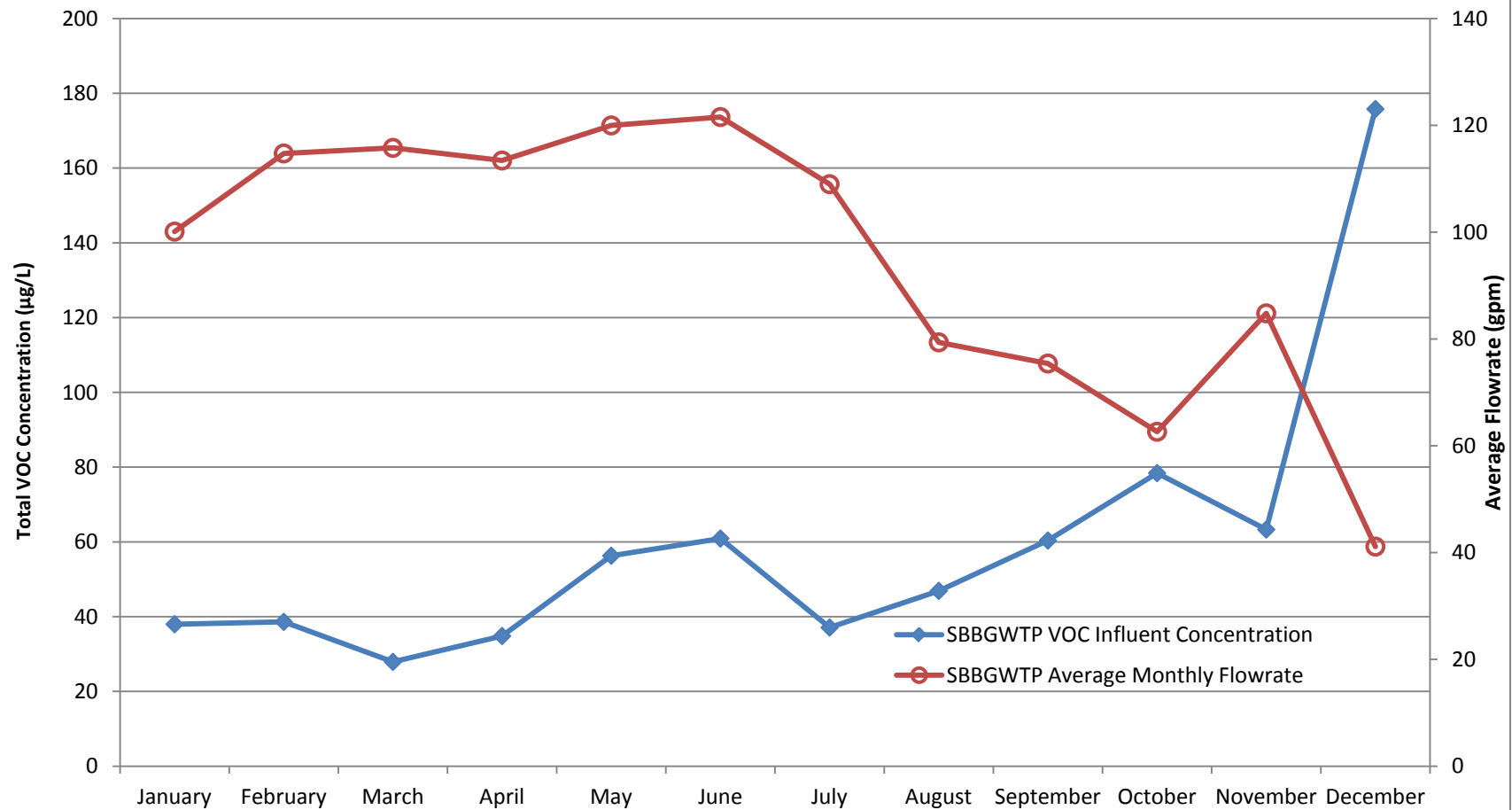
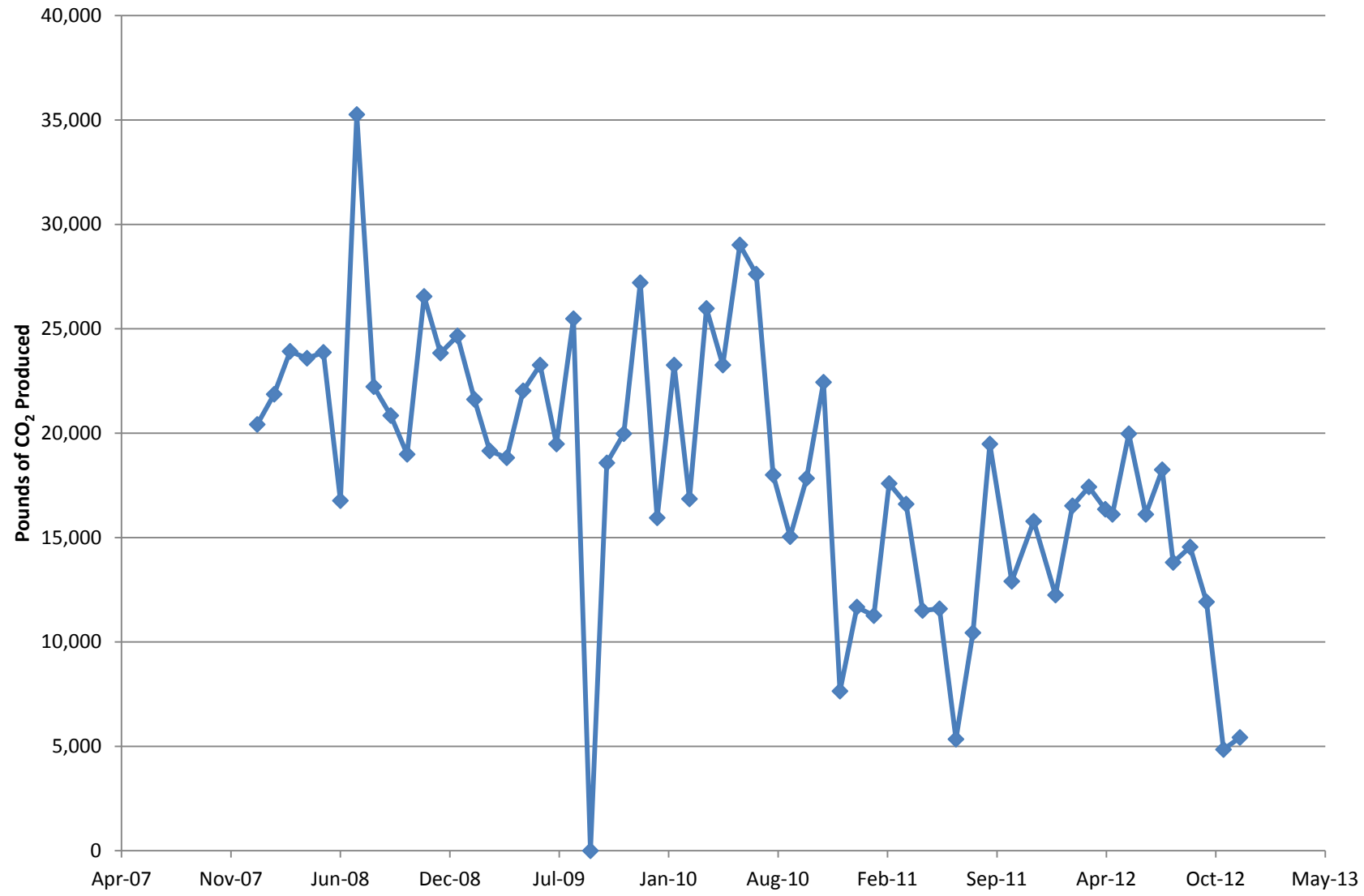


Figure 2

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



Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 160

Reporting Period: 31 October 2012 – 30 November 2012

Date Submitted: 17 December 2012

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 November 2012 reporting period.

Table 1 – Operations Summary – November 2012					
Operating Time:		Percent Uptime:		Electrical Power Usage:	
CGWTP:	573 hours	CGWTP:	80.2%	CGWTP:	2,081 kWh (2,851 lbs CO ₂ generated ^a)
WTTP:	Water: 0 hours Vapor: 0 hours	WTTP:	Water: 0% Vapor: 0%	WTTP:	0 kWh
Gallons Treated: 1.2 million gallons		Gallons Treated Since January 1996: 471 million gallons			
VOC Mass Removed:		VOC Mass Removed Since January 1996:			
3.47 lbs^b (groundwater only)		2,616 lbs from groundwater			
0 lbs (vapor only)		8,686 lbs from vapor			
Rolling 12-Month Cost per Pound of Mass Removed: \$1,483 ^c					
Monthly Cost per Pound of Mass Removed: \$4,387					
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.					
^b Calculated using November 2012 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.					

Table 2 presents individual extraction well flow rates during the monthly reporting period. All WIOU extraction wells continue to remain off line for the WIOU rebound study.

Table 2 – CGWTP Average Flow Rates ^a		
Location	Average Flow Rate	
	Groundwater (gpm)	Soil Vapor (scfm) ^b
EW01x16	22.1	Offline
EW02x16	7.3	Offline
EW03x16	0.2 ^c	Offline
EW605x16	39.3	Offline
EW610x16	3.2	Offline
CGWTP	36.4	--
WTTP	-- ^b	Offline

^a Flow rates calculated by dividing total gallons processed by system operating time for the month.
^b No vapor or groundwater was treated in November 2012.
^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 average 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)					
	10/30/2012	15:00	11/6/12	16:15	The treatment plant was shut down at the end of October 2012 to permit carbon replacement.
WTTP					
	None	NA	None	NA	
CGWTP = Central Groundwater Treatment Plant WTTP = West Transfer Treatment Plant					

Summary of O&M Activities

Monthly groundwater samples at the CGWTP were collected on 13 November 2012. Sample results are presented in Table 4. The total VOC concentration (334 µg/L) in the influent sample has decreased slightly since the October 2012 sample (354 µg/L) was collected. Concentrations of 1,3-Dichlorobenzene (0.43 µg/L), 1,2-Dichlorobenzene (0.4 µg/L), 1,1-Dichloroethene (0.61 µg/L), cis-1,2-DCE (69.7 µg/L), trans-1,2-Dichloroethene (2.8 µg/L), Tetrachloroethene (0.76 µg/L), and TCE (259 µg/L) were detected at the influent sampling location. TCE was detected at the effluent sampling location at a concentration of 0.34 µg/L, which is well below the discharge limitation of 5 µg/L. TCE was not detected between the second carbon vessel and the holding tank.

Vinyl chloride was detected at the influent sampling location again this month (0.25 µg/L). It was not detected at the effluent sampling location. Travis Air Force Base will continue to monitor vinyl chloride and other contaminant concentrations at CGWTP for breakthrough in the primary vessel, as vinyl chloride is frequently detected in the influent sample.

Figure 1 presents a plot of influent concentrations (total VOCs) at the CGWTP versus time for the past twelve (12) months.

The Site DP039 bioreactor has transitioned to a “pulsed mode” operation in order to improve the rate of remediation and to preserve the small amounts of total organic carbon being produced within the bioreactor. The “pulsed mode” operation was transitioned to two (2) weeks on and two (2) weeks off beginning in September 2012. The bioreactor was online from 29 October 2012 through 9 November 2012 and then shutdown on 21 November 2012. It is scheduled to be brought back online on 7 December 2012.

The carbon in the primary vessel (tank T-502) was changed out in October 2012. 20,000 pounds of new carbon was installed and the system was operated briefly on 30 October 2012 for system sampling. The CGWTP was brought back online on 6 November 2012.

Optimization Activities

No optimization activities occurred at CGWTP in November 2012.

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 2,851 pounds of GHG during November 2012. This is an increase from the amount produced in October 2012 (approximately 2,658 pounds) and can be attributed to increased operation time.

TABLE 4

Summary of Groundwater Analytical Data for November 2012 – Central Groundwater Treatment Plant

					13 November 2012 (µg/L)		
Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	Influent	After Carbon 1 Effluent	After Carbon 2 Effluent	System Effluent
Halogenated Volatile Organics							
1,2-Dibromoethane	5.0	0.11	0	ND	ND	ND	ND
2-Hexanone	5.0	0.48	0	ND	ND	ND	ND
4-Methyl-2-Pentanone	5.0	1.0	0	ND	ND	ND	ND
Bromoform	5.0	0.19	0	ND	0.88 J	ND	ND
MTBE	1.0	0.5	0	ND	ND	ND	ND
Bromobenzene	5.0	0.21	0	ND	ND	ND	ND
1,3-Dichlorobenzene	5.0	0.15	0	0.43 J	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.15	0	ND	ND	ND	ND
Chloroethane	5.0	0.72	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	0.61	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.19	0	69.7	ND	ND	ND
trans-1,2-Dichloroethene	5.0	0.33	0	2.8	ND	ND	ND
Bromomethane	5.0	0.43	0	ND	ND	ND	ND
Tetrachloroethene	5.0	0.21	0	0.76	ND	ND	ND
trans-1,3-Dichloropropene	5.0	0.3	0	ND	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.2	0	ND	ND	ND	ND
Trichloroethene	5.0	0.19	0	259	ND	ND	0.34 J
Vinyl Chloride	0.5	0.18	0	0.25 J	0.51	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

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 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
EW782x39	20 December 2011	30 December 2011
	30 January 2012	20 February 2012
	20 March 2012	13 April 2012
	27 April 2012	11 May 2012
	11 June 2012	25 June 2012
	20 July 2012	3 August 2012
MW750x39	5 September 2012	16 September 2012
	28 September 2012	13 October 2012
	29 October 2012	9 November 2012
	21 November 2012	
CGWTP = Central Groundwater Treatment Plant EW = Extraction Well		

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

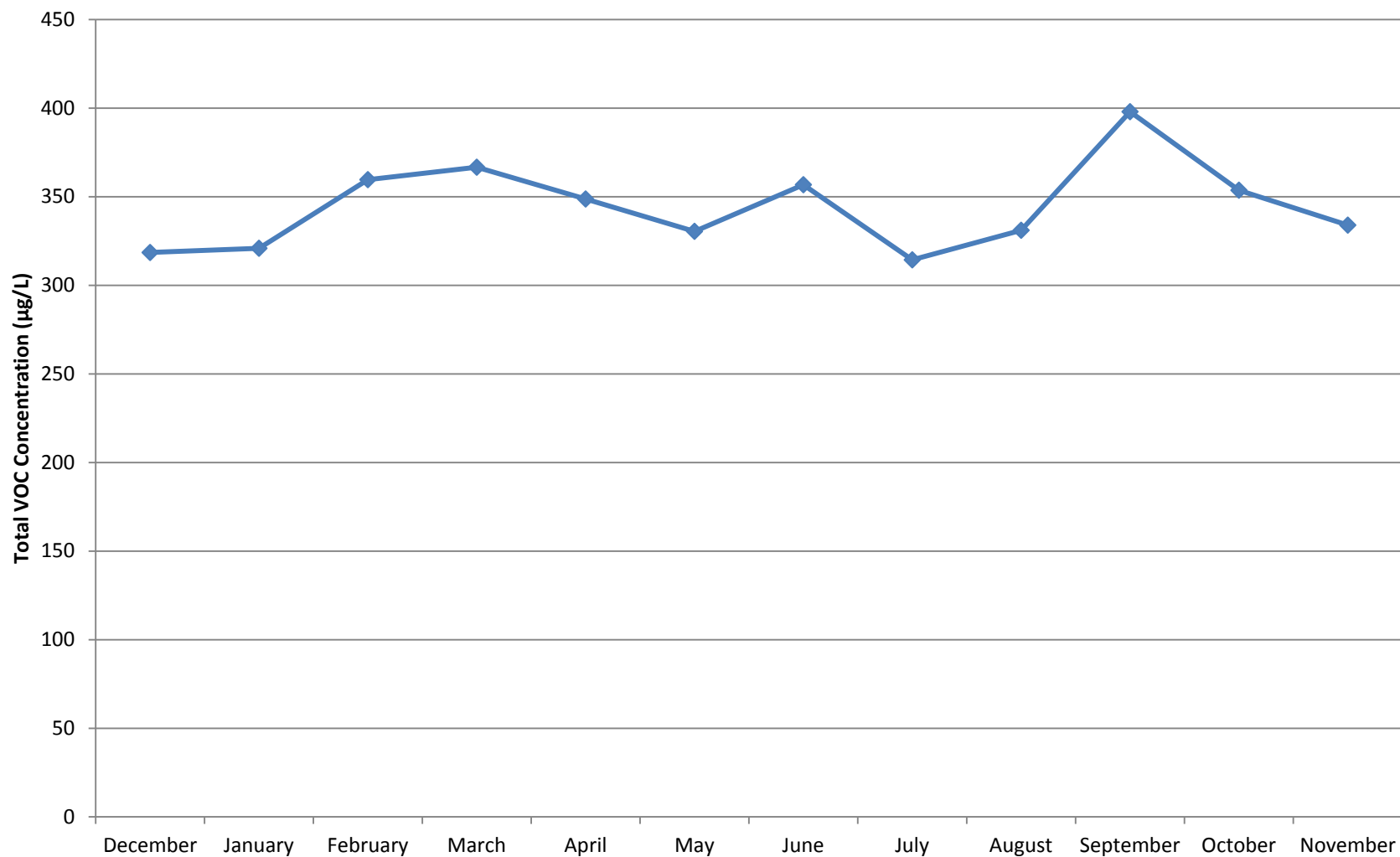
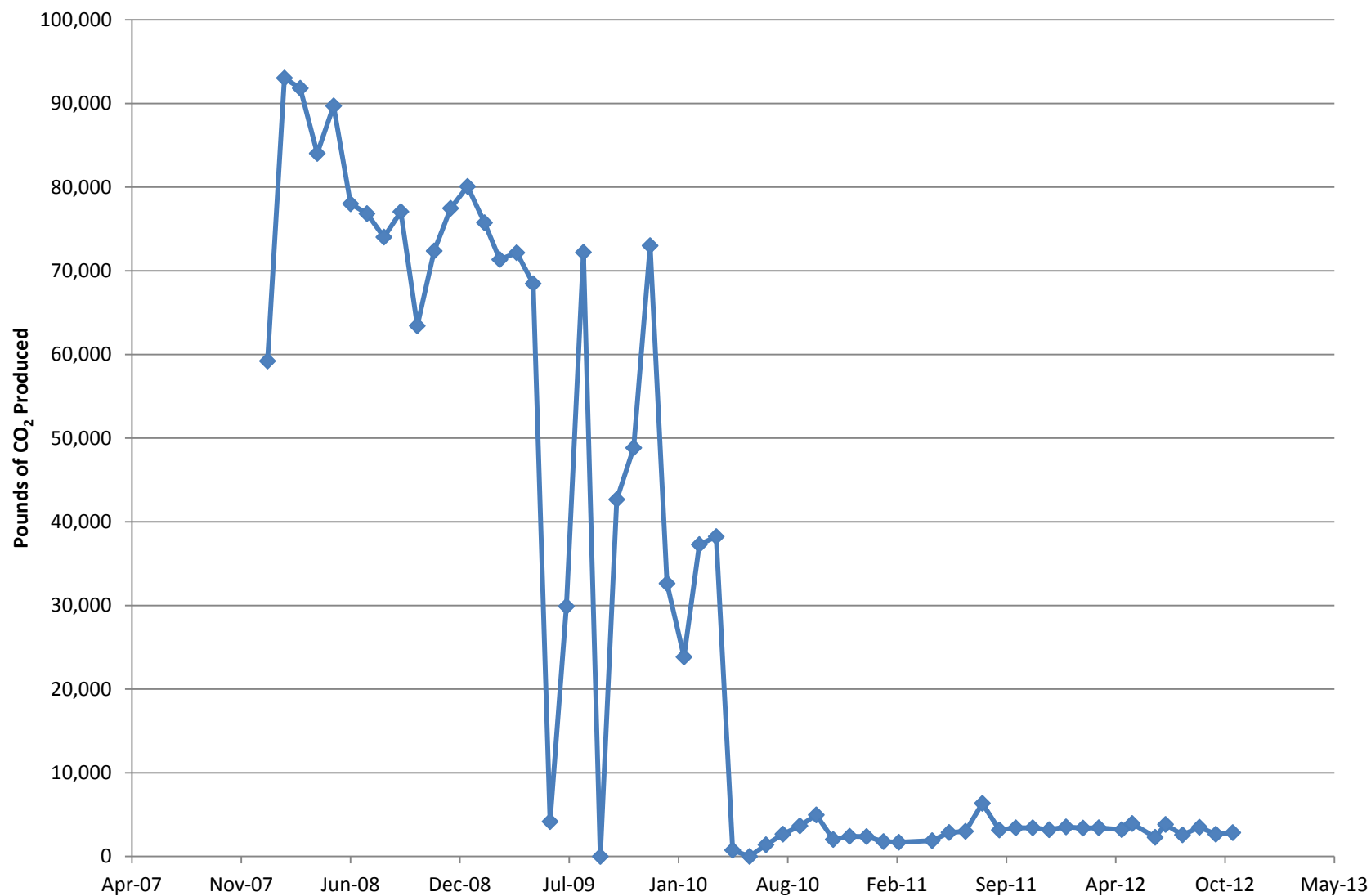


Figure 2
Equivalent Pounds of CO₂ Produced by the Central Groundwater Treatment Plant



Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 161

Reporting Period: 30 November 2012 – 31 December 2012

Date Submitted: 11 January 2013

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 December 2012 reporting period.

Table 1 – Operations Summary – December 2012					
Operating Time:		Percent Uptime:		Electrical Power Usage:	
CGWTP:	715 hours	CGWTP:	96.1%	CGWTP:	2,592 kWh (3,551 lbs CO ₂ generated ^a)
WTTP:	Water: 0 hours Vapor: 0 hours	WTTP:	Water: 0% Vapor: 0%	WTTP:	0 kWh
Gallons Treated: 1.6 million gallons		Gallons Treated Since January 1996: 473 million gallons			
VOC Mass Removed:		VOC Mass Removed Since January 1996:			
6.38 lbs^b (groundwater only)		2,623 lbs from groundwater			
0 lbs (vapor only)		8,686 lbs from vapor			
Rolling 12-Month Cost per Pound of Mass Removed: \$1,428 ^{c,d}					
Monthly Cost per Pound of Mass Removed: \$717 ^d					
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.					
^b Calculated using December 2012 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.					
^d Values are estimated based on the November 2012 costs.					

Table 2 presents individual extraction well flow rates during the monthly reporting period. All WIOU extraction wells continue to remain off line for the WIOU rebound study.

Table 2 – CGWTP Average Flow Rates ^a		
Location	Average Flow Rate	
	Groundwater (gpm)	Soil Vapor (scfm) ^b
EW01x16	22.3	Offline
EW02x16	7.4	Offline
EW03x16	0.2 ^c	Offline
EW605x16	7.2	Offline
EW610x16	3.2	Offline
CGWTP	36.5	--
WTPP	-- ^b	Offline

^a Flow rates calculated by dividing total gallons processed by system operating time for the month.
^b No vapor or groundwater was treated in December 2012.
^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 average 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)					
	12/2/2012	17:30	12/3/2012	10:15	The treatment plant shut down as a result of heavy rainfall causing the sump pump to overload. System restarted after the secondary containment was pumped out.
WTPP					
	None	NA			
CGWTP = Central Groundwater Treatment Plant WTPP = West Transfer Treatment Plant					

Summary of O&M Activities

Monthly groundwater samples at the CGWTP were collected on 12 December 2012. Sample results are presented in Table 4. The total VOC concentration (490 µg/L) in the influent sample has increased since the November 2012 sample (334 µg/L) was collected. Concentrations of 1,1-Dichloroethene (0.77 µg/L), cis-1,2-DCE (79.9 µg/L), trans-1,2-Dichloroethene (3.4 µg/L), Tetrachloroethene (0.67 µg/L), and TCE (405 µg/L) were detected at the influent sampling location.

Vinyl chloride was not detected at the influent sampling location this month, but was detected after the first carbon vessel (0.54 µg/L). No contaminants were detected at the effluent sampling location. Travis Air Force Base will continue to monitor vinyl chloride and other contaminant concentrations at CGWTP for breakthrough in the primary vessel, as vinyl chloride is frequently detected in the influent sample.

Figure 1 presents a plot of influent concentrations (total VOCs) at the CGWTP versus time for the past twelve (12) months.

The Site DP039 bioreactor has transitioned to a “pulsed mode” operation 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 December 2012.

Optimization Activities

No optimization activities occurred at CGWTP in December 2012.

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 3,551 pounds of GHG during December 2012. This is an increase from the amount produced in November 2012 (approximately 2,851 pounds) and can be attributed to increased operation time.

TABLE 4

Summary of Groundwater Analytical Data for December 2012 – Central Groundwater Treatment Plant

				12 December 2012 (µg/L)			
Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	Influent	After Carbon 1 Effluent	After Carbon 2 Effluent	System Effluent
Halogenated Volatile Organics							
1,2-Dibromoethane	5.0	0.11	0	ND	ND	ND	ND
2-Hexanone	5.0	0.48	0	ND	ND	ND	ND
4-Methyl-2-Pentanone	5.0	1.0	0	ND	ND	ND	ND
Bromoform	5.0	0.19	0	ND	ND	ND	ND
MTBE	1.0	0.5	0	ND	ND	ND	ND
Bromobenzene	5.0	0.21	0	ND	ND	ND	ND
1,3-Dichlorobenzene	5.0	0.15	0	ND	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.16	0	ND	ND	ND	ND
Chloroethane	5.0	0.72	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	0.77	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.19	0	79.9	ND	ND	ND
trans-1,2-Dichloroethene	5.0	0.33	0	3.4	ND	ND	ND
Bromomethane	5.0	0.43	0	ND	ND	ND	ND
Tetrachloroethene	5.0	0.21	0	0.67	ND	ND	ND
trans-1,3-Dichloropropene	5.0	0.3	0	ND	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.2	0	ND	ND	ND	ND
Trichloroethene	5.0	0.19	0	405	ND	ND	ND
Vinyl Chloride	0.5	0.18	0	ND	0.54	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	792	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

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 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
EW782x39	20 December 2011	30 December 2011
	30 January 2012	20 February 2012
	20 March 2012	13 April 2012
	27 April 2012	11 May 2012
	11 June 2012	25 June 2012
	20 July 2012	3 August 2012
MW750x39	5 September 2012	16 September 2012
	28 September 2012	13 October 2012
	29 October 2012	9 November 2012
	21 November 2012	7 December 2012
	21 December 2012	
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

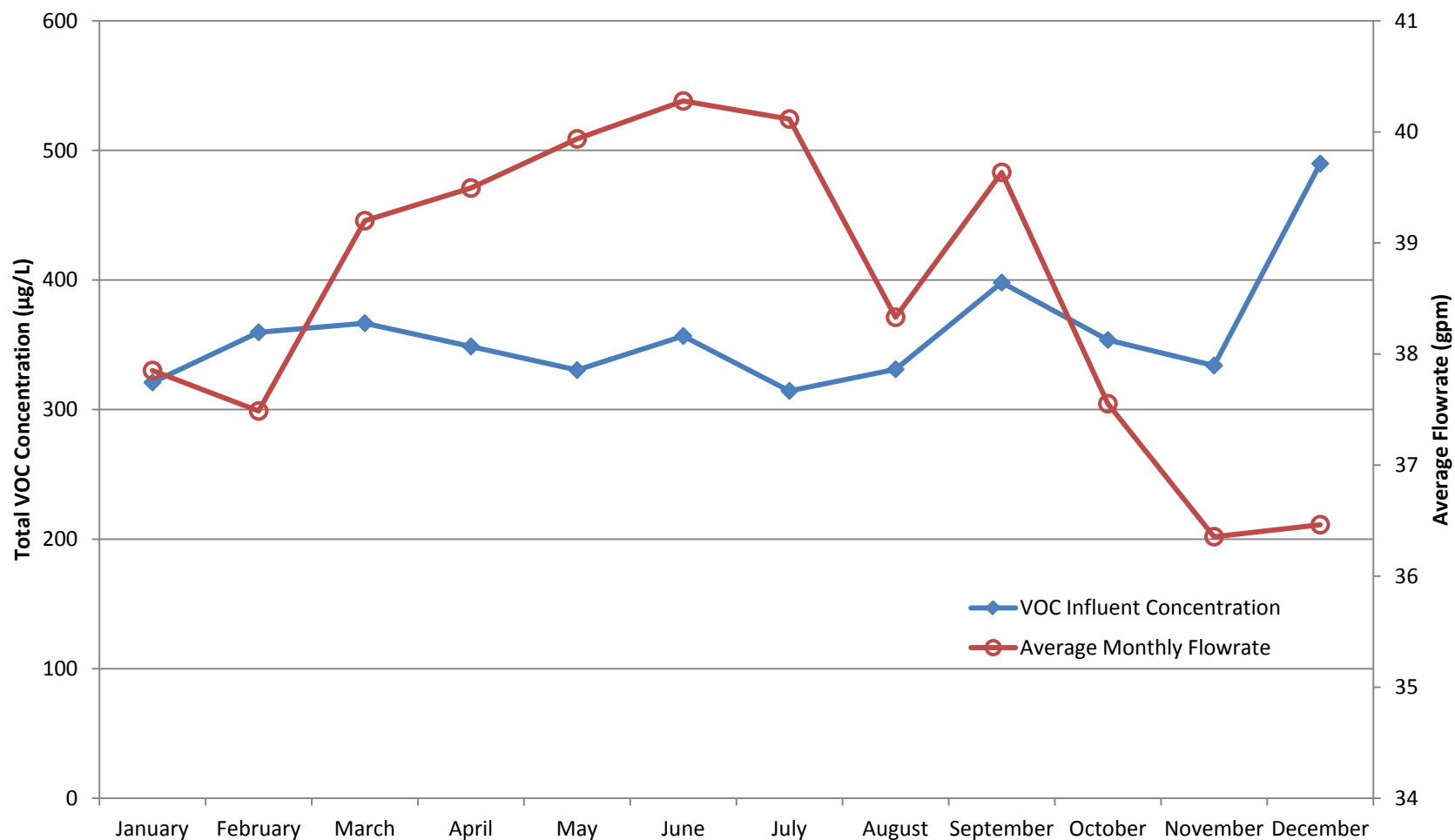
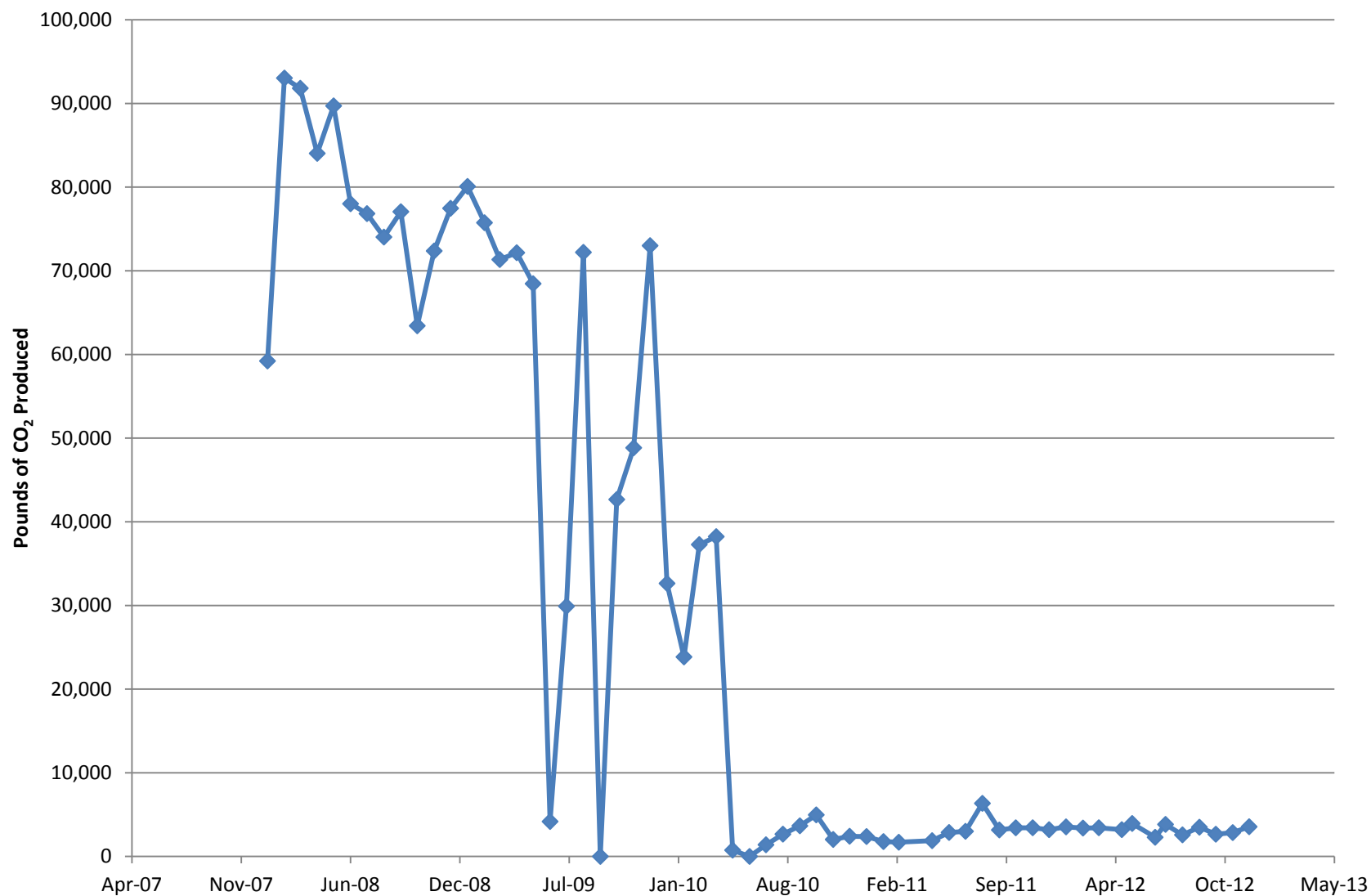


Figure 2
Equivalent Pounds of CO₂ Produced by the Central Groundwater Treatment Plant



North Groundwater Treatment Plant Monthly Data Sheet

Report Number: 130

Reporting Period: 31 October 2012 – 30 November 2012

Date Submitted: 17 December 2012

This monthly data sheet presents information regarding the North Groundwater Treatment Plant (NGWTP) and associated remedial process optimization (RPO) activities. The NGWTP was shutdown on 30 November 2012 when ponded water was observed in seasonal vernal pools at Site 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 November 2012 reporting period:

Table 1 – Operations Summary – November 2012		
Operating Time:	Percent Uptime:	Electrical Power Usage:
NGWTP: 720 hours	NGWTP: 100%	NGWTP: 435 kWh (596 lbs CO ₂ generated ^a)
Gallons Treated: 5,970 gallons	Gallons Treated Since March 2000: 82.7 million gallons	
Volume Discharged to Duck Pond: 5,970 gallons	Volume Discharge to Storm Drain: 0 gallons	
VOC Mass Removed: 2.5 x 10 ⁻⁴ pounds ^b	VOC Mass Removed Since March 2000: 174.3 pounds (Groundwater)	
Rolling 12-Month Cost per Pound of Mass Removed: Not Measured ^c		
Monthly Cost per Pound of Mass Removed: Not Measured ^d		
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.		
^b VOCs from November 2012 influent sample detected by EPA Method SW8260B.		
^c Value not calculated since measurement does not accurately represent the cost effectiveness of the system.		
^d Value not calculated since measurement does not accurately represent the potential effectiveness of the system. O&M costs are low, but very little contaminant mass is being treated.		

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

Table 2 – NGWTP Average and Total Flow Rates – November 2012		
Location	Average Flow Rate (gpm) ^a	Total Gallons Processed (gallons)
EW614x07	7.0	5,010
EW615x07	0.0	0 ^b
NGWTP	0.1	5,970
^a Average flow rate calculated by dividing the total gallons processed collected from wellhead totalizers by the reporting period operating time. The total gallons processed are determined by readings collected at wellhead and system influent 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. ^b EW615x07 remains offline after being taken off line during a pumping test in September 2012. gpm = gallons per minute		

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

Table 3 – Summary of System Shutdowns					
Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
NGWTP	11/30/2012	16:00	None	NA	Seasonal vernal pools at Site LF007C contain ponded water. System will resume operation when the vernal pools are dry.
NGWTP = North Groundwater Treatment Plant					

Summary of O&M Activities

Analytical data from the 13 November 2012 sampling event are presented in Table 4. Concentrations of cis-1,2-Dichloroethene and TCE (0.46 J and 4.7 µg/L) were detected in the influent sample. The contaminant concentrations detected in the influent process stream are less than the respective effluent limits (5.0 µg/L). No contaminant concentrations were measured at the effluent sampling location.

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. As required by US Fish and Wildlife Service (USFWS), the NGWTP was taken off line (“System Shutdown”) on 30 November 2012 when vernal pools had formed at Site LF007C. The NGWTP will resume operation when the vernal pools no longer contain standing water.

Optimization Activities

No optimization activities were performed during November 2012.

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 Site LF007C. The NGWTP used 435 kWh, which calculates to approximately 596 pounds of GHG generation, in November 2012. This is less than October 2012 when the NGWTP produced approximately 629 pounds of GHG. This decrease can be attributed to shorter operating period in November 2012. 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 November 2012 – North Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	13 November 2012 (µg/L)		
				Influent ^a	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	0.46 J	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	4.7	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:

^a 2-Butanone was also detected at the influent sampling location this month at a concentration of 4.7 J µg/L.

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 - Twelve Month History
Travis Air Force Base, California

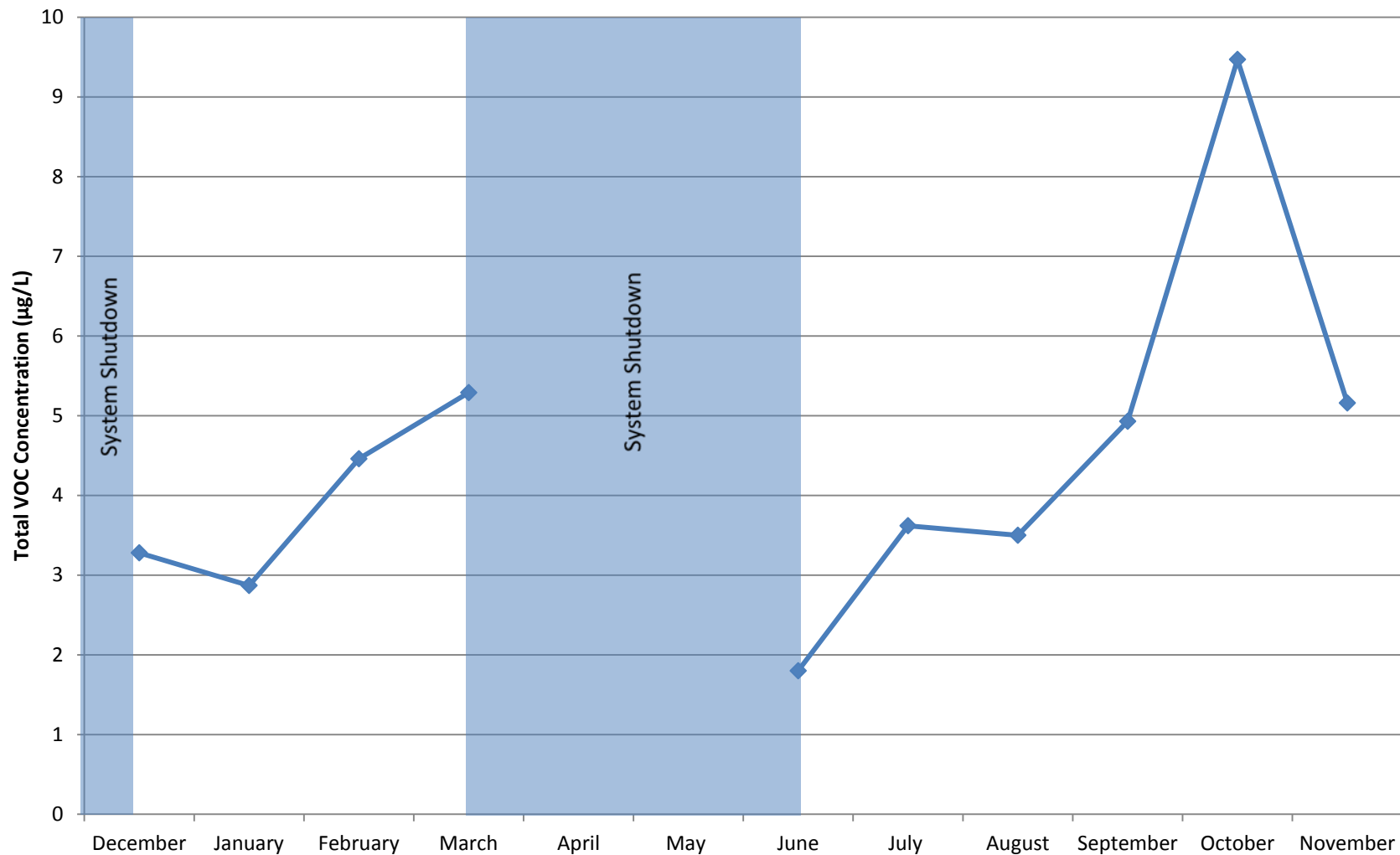
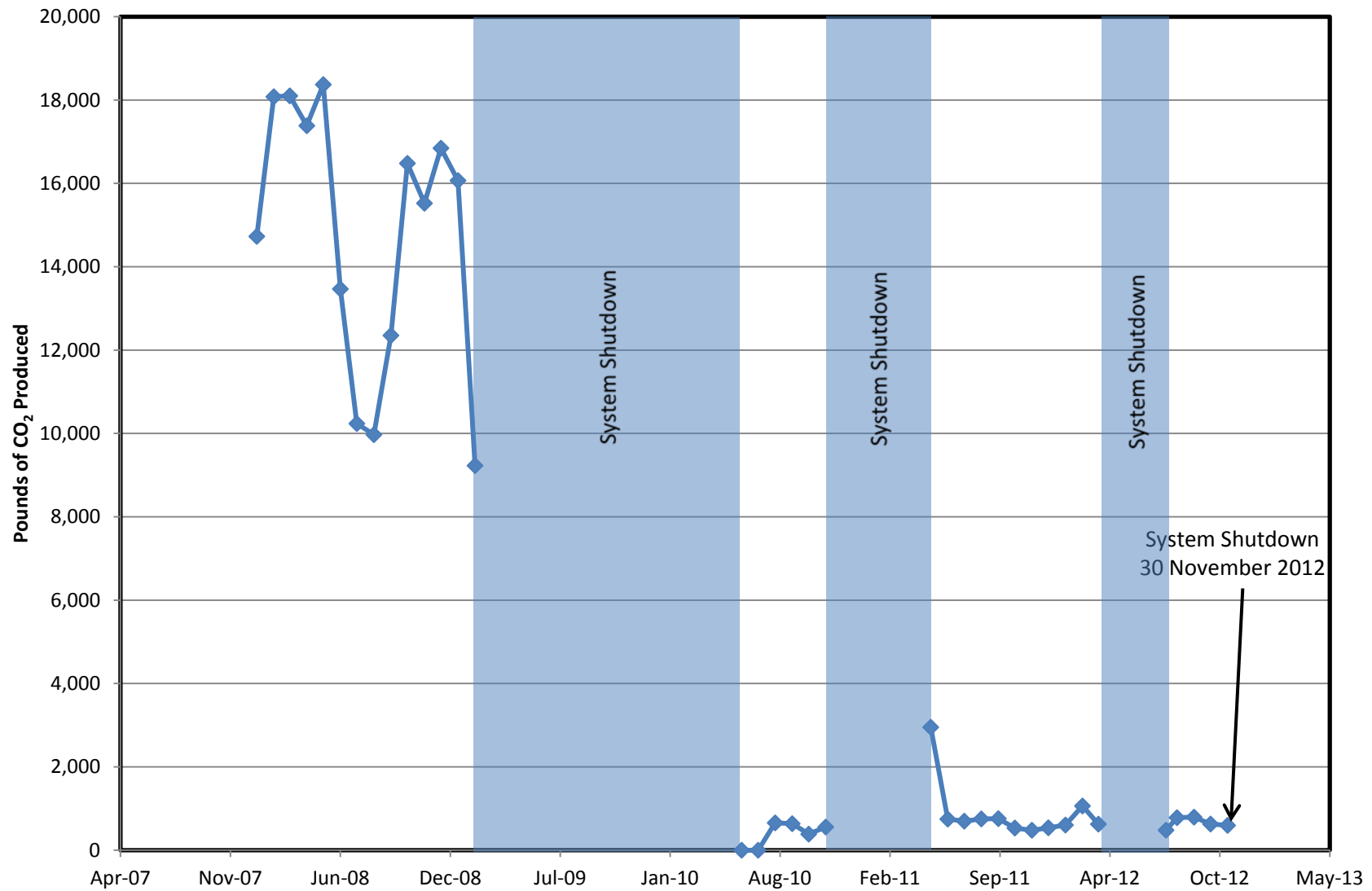


Figure 2
Equivalent Pounds of CO₂ Produced by the North Groundwater Treatment Plant



Site ST018 Groundwater Treatment Plant Monthly Data Sheet

Report Number: 021

Reporting Period: 31 October 2012 – 30 November 2012

Date Submitted: 17 December 2012

This monthly data sheet presents information regarding the Site ST018 Groundwater Treatment Plant (S18GWTP).

System Metrics

Table 1 presents operation data from the November 2012 reporting period.

Table 1 – Operations Summary – November 2012

Operating Time:		Percent Uptime:		Electrical Power Usage:	
S18GWTP:	722 hours	S18GWTP:	100%	S18GWTP:	117 kWh (160 lbs CO ₂ generated ^a)
Gallons Treated: 173 thousand gallons		Gallons Treated Since March 2011: 3.12 million gallons			
Volume Discharged to Union Creek: 173 thousand gallons					
BTEX, MTBE, TPH Mass Removed: 0.59 lbs^b		BTEX, MTBE, TPH Mass Removed Since March 2011: 20.3 lbs			
Rolling 12-Month Cost per Total Pounds of Mass Removed: \$7,037 ^c					
Monthly Cost per Pound of Mass Removed: \$3,348					

^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.

^b Calculated using October 2012 (influent) and November 2012 (effluent) EPA Method SW8260B analytical results. Influent samples are collected on a quarterly basis.

^c Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the system.

lbs = pounds

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

Table 2 – S18GWTP Average Flow Rates^a	
Location	Average Flow Rate Groundwater (gpm)
EW2014x18	1.4
EW2016x18	1.2
EW2019x18	1.8
Site ST018 GWTP	4.0
^a Flow rates calculated by dividing total gallons processed, from the totalizer at each location, by system operating time for the month. gpm = gallons per minute S18GWTP = Site ST018 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	
	None	NA			
^a Shutdown times are estimated based on the start of the day. S18GWTP = Site ST018 Groundwater Treatment Plant					

Summary of O&M Activities

Groundwater samples were collected at the S18GWTP on 14 November 2012. Sample results from the November sampling event are presented in Table 4. No contaminant concentrations were measured at the midpoint and effluent sampling locations in November 2012.

The total influent concentration (benzene, toluene, ethylbenzene, total xylenes, MTBE, TPH-gas, TPH-diesel, and TPH-motor oil) in the quarterly (4Q12) influent sample was 406 µg/L, which is a decrease from the previous (3Q12) influent concentration of 487 µg/L. Figure 1 presents a plot of influent quarterly total VOC (TPHg, TPHd, MTBE, and BTEX) and MTBE concentrations at the S18GWTP versus time.

The faulty float switch identified in the EW2016x18 well vault in October 2012 remained off line in November 2012 to allow the extraction well to operate. A replacement float switch has been procured and will be replaced in early December 2012.

Optimization Activities

No optimization activities were performed in November 2012.

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 S18GWTP produced approximately 160 pounds of GHG during November 2012. This is an increase from October 2012 (156 pounds). This is due to increased operating time and an increased number of gallons treated in November 2012 compared to October 2012. Figure 2 presents the historical GHG production from the S18GWTP. 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 November 2012 – Site ST018 Groundwater Treatment Plant

Summary of Groundwater Analytical Data for November 2012 - Oroville Groundwater Treatment Plant							
Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	14 November 2012 (µg/L)			
				Influent ^b	After Carbon 1	After Carbon 2	System Effluent
Fuel Related Constituents							
MTBE	5	0.5	0	62.9	NM	ND	ND
Benzene	5	0.17	0	2.1	NM	ND	ND
Ethylbenzene	5	0.22	0	1.0	NM	ND	ND
Toluene	5	0.14	0	ND	NM	ND	ND
Total Xylenes	5	0.23 – 0.5	0	1.2	NM	ND	ND
Total Petroleum Hydrocarbons – Gasoline	50	8.5	0	88 J	ND	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	50	0	71 J	ND	NM	ND
Total Petroleum Hydrocarbons – Motor Oil	--	160	--	180 J	ND	NM	ND

^a In accordance with the National Pollutant Discharge Elimination System (NPDES) Effluent Limitations

^b Values taken from October 2012 (4Q12) sample data. Influent sampling is conducted on a quarterly basis.

Notes:

µg/L = micrograms per liter

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

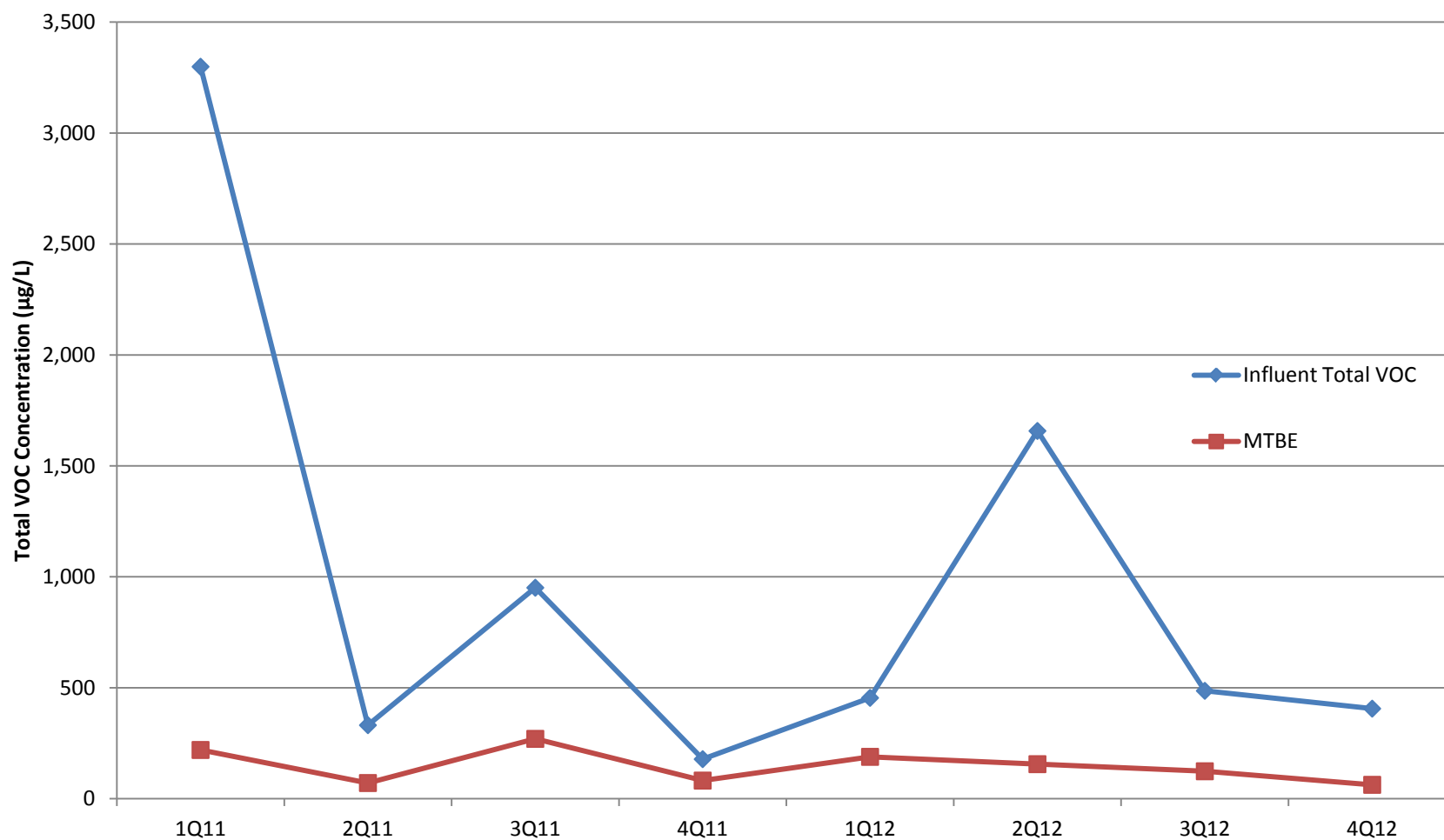
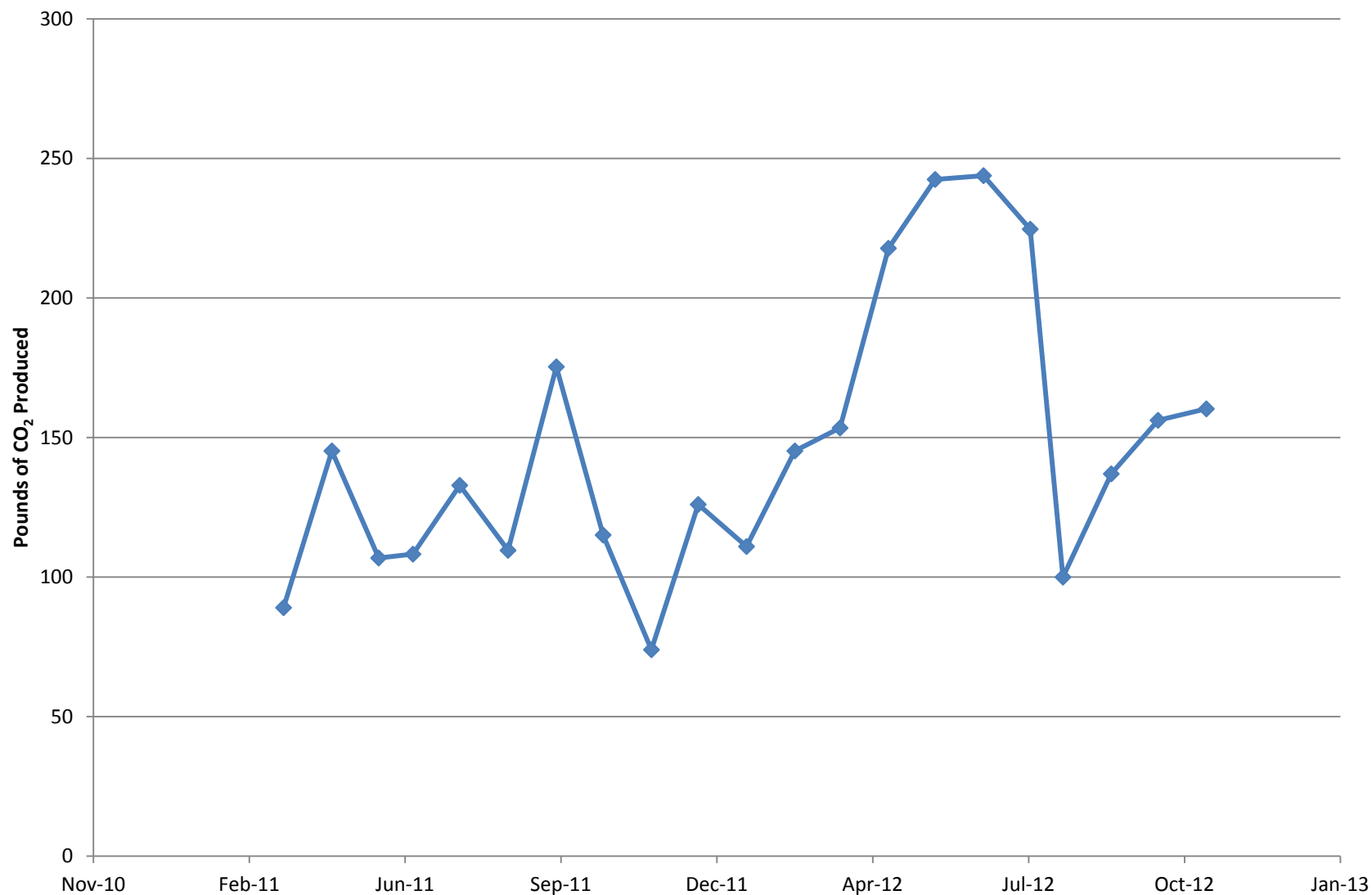


Figure 2
Equivalent Pounds of CO₂ Produced by the Site ST018 Groundwater Treatment Plant



Site ST018 Groundwater Treatment Plant Monthly Data Sheet

Report Number: 022

Reporting Period: 30 November 2012 – 31 December 2012

Date Submitted: 11 January 2013

This monthly data sheet presents information regarding the Site ST018 Groundwater Treatment Plant (S18GWTP).

System Metrics

Table 1 presents operation data from the December 2012 reporting period.

Table 1 – Operations Summary – December 2012

Operating Time:		Percent Uptime:		Electrical Power Usage:	
S18GWTP:	741 hours	S18GWTP:	100%	S18GWTP:	76 kWh (104 lbs CO ₂ generated ^a)
Gallons Treated: 109 thousand gallons		Gallons Treated Since March 2011: 3.23 million gallons			
Volume Discharged to Union Creek: 109 thousand gallons					
BTEX, MTBE, TPH Mass Removed: 0.37 lbs^b		BTEX, MTBE, TPH Mass Removed Since March 2011: 20.7 lbs			
Rolling 12-Month Cost per Total Pounds of Mass Removed: \$6,439 ^{c,d}					
Monthly Cost per Pound of Mass Removed: \$7,971 ^d					

^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.

^b Calculated using October 2012 (influent) and December 2012 (effluent) EPA Method SW8260B analytical results. Influent samples are collected on a quarterly basis.

^c Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the system.

^d Values are estimated based on the November 2012 costs.

lbs = pounds

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

Table 2 – S18GWTP Average Flow Rates^a	
Location	Average Flow Rate Groundwater (gpm)
EW2014x18	0.9
EW2016x18	0.8
EW2019x18	0.7
Site ST018 GWTP	2.5
^a Flow rates calculated by dividing total gallons processed, from the totalizer at each location, by system operating time for the month. gpm = gallons per minute S18GWTP = Site ST018 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	
	None	NA			
^a Shutdown times are estimated based on the start of the day. S18GWTP = Site ST018 Groundwater Treatment Plant					

Summary of O&M Activities

Groundwater samples were collected at the S18GWTP on 12 December 2012. Sample results from the December sampling event are presented in Table 4. No contaminant concentrations were measured at the midpoint or effluent sampling locations in December 2012.

The total influent concentration (benzene, toluene, ethylbenzene, total xylenes, MTBE, TPH-gas, TPH-diesel, and TPH-motor oil) in the quarterly (4Q12) influent sample was 406 µg/L, which is a decrease from the previous (3Q12) influent concentration of 487 µg/L. Figure 1 presents a plot of influent quarterly total VOC (TPHg, TPHd, MTBE, and BTEX) and MTBE concentrations at the S18GWTP versus time.

Analytical data from the November 2012 Site ST018 sampling event identified trigger exceedances for benzo(a)pyrene (0.0331 µg/L) and ideno(1,2,3-cd)pyrene (0.0317 µg/L).

In December 2012, sample data did not show any trigger exceedances for these contaminants, though these data had not been validated as of 9 January 2013 due to laboratory error. Validated data will be reviewed once it becomes available, and any changes to these preliminary results will be identified in the February 2013 Monthly Data Sheet. Because confirmation of the trigger exceedances was received after the December 2012 sampling event had already occurred, the resulting trigger study will begin in January 2012 and include both benzo(a)pyrene and ideno(1,2,3-cd)pyrene.

The faulty float identified in the EW2016x18 well vault in October 2012 was replaced on 7 December 2012. Standard operation of EW2016x18 has resumed.

Optimization Activities

No optimization activities were performed in December 2012.

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 S18GWTP produced approximately 104 pounds of GHG during December 2012. This is a decrease from November 2012 (160 pounds). This is due to decreased operating time and a decreased number of gallons treated in December 2012 compared to November 2012. Figure 2 presents the historical GHG production from the S18GWTP. 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 December 2012 – Site ST018 Groundwater Treatment Plant

Summary of Groundwater Analytical Data for December 2012 - Oroville Groundwater Treatment Plant							
Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	12 December 2012 (µg/L)			
				Influent ^b	After Carbon 1	After Carbon 2	System Effluent
Fuel Related Constituents							
MTBE	5	0.5	0	62.9	NM	ND	ND
Benzene	5	0.17	0	2.1	NM	ND	ND
Ethylbenzene	5	0.22	0	1.0	NM	ND	ND
Toluene	5	0.14	0	ND	NM	ND	ND
Total Xylenes	5	0.23 – 0.5	0	1.2	NM	ND	ND
Total Petroleum Hydrocarbons – Gasoline	50	8.5	0	88 J	ND	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	50	0	71 J	ND	NM	ND
Total Petroleum Hydrocarbons – Motor Oil	--	160	--	180 J	ND	NM	ND

^a In accordance with the National Pollutant Discharge Elimination System (NPDES) Effluent Limitations

^b Values taken from October 2012 (4Q12) sample data. Influent sampling is conducted on a quarterly basis.

Notes:

µg/L = micrograms per liter

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

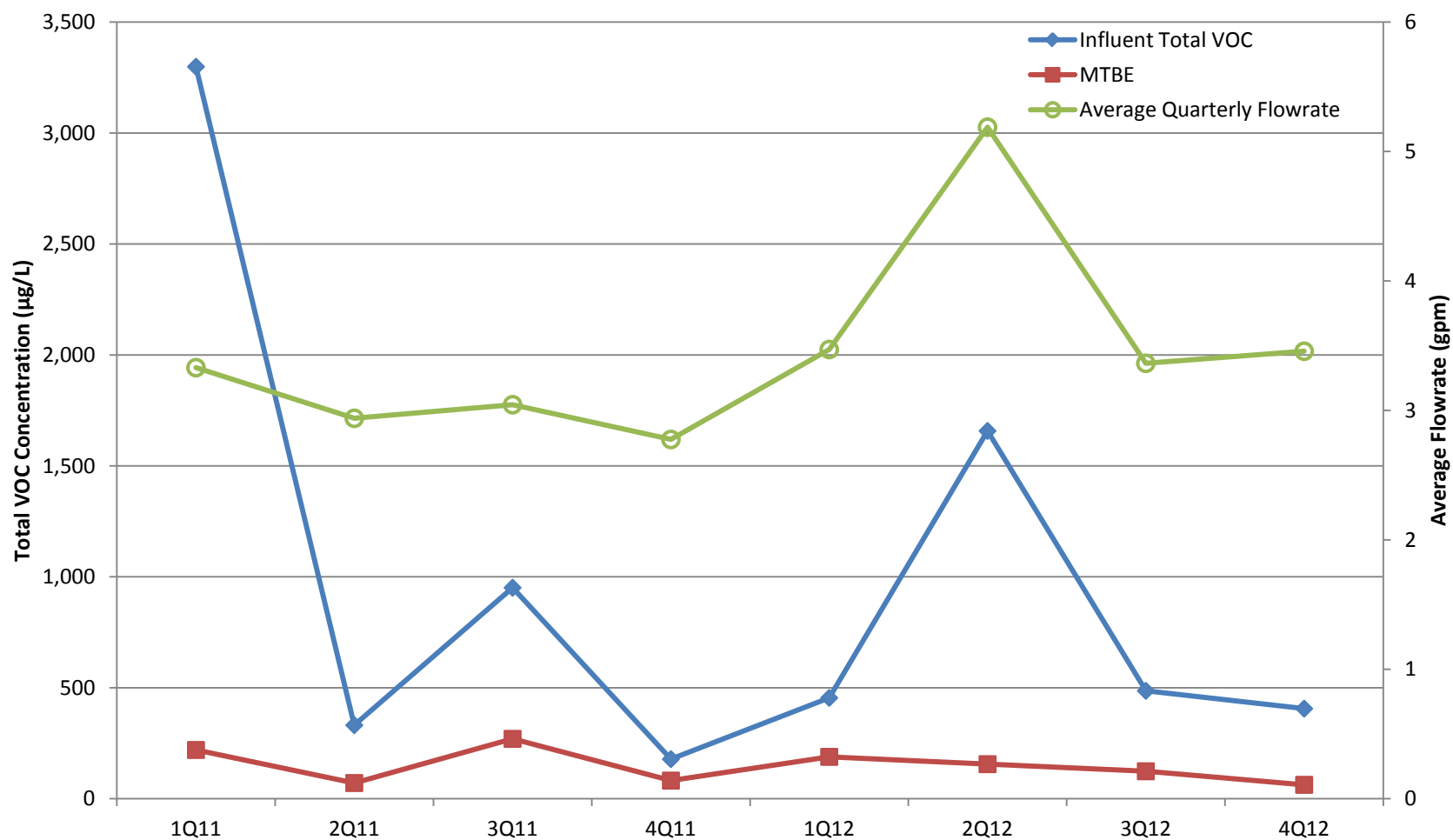
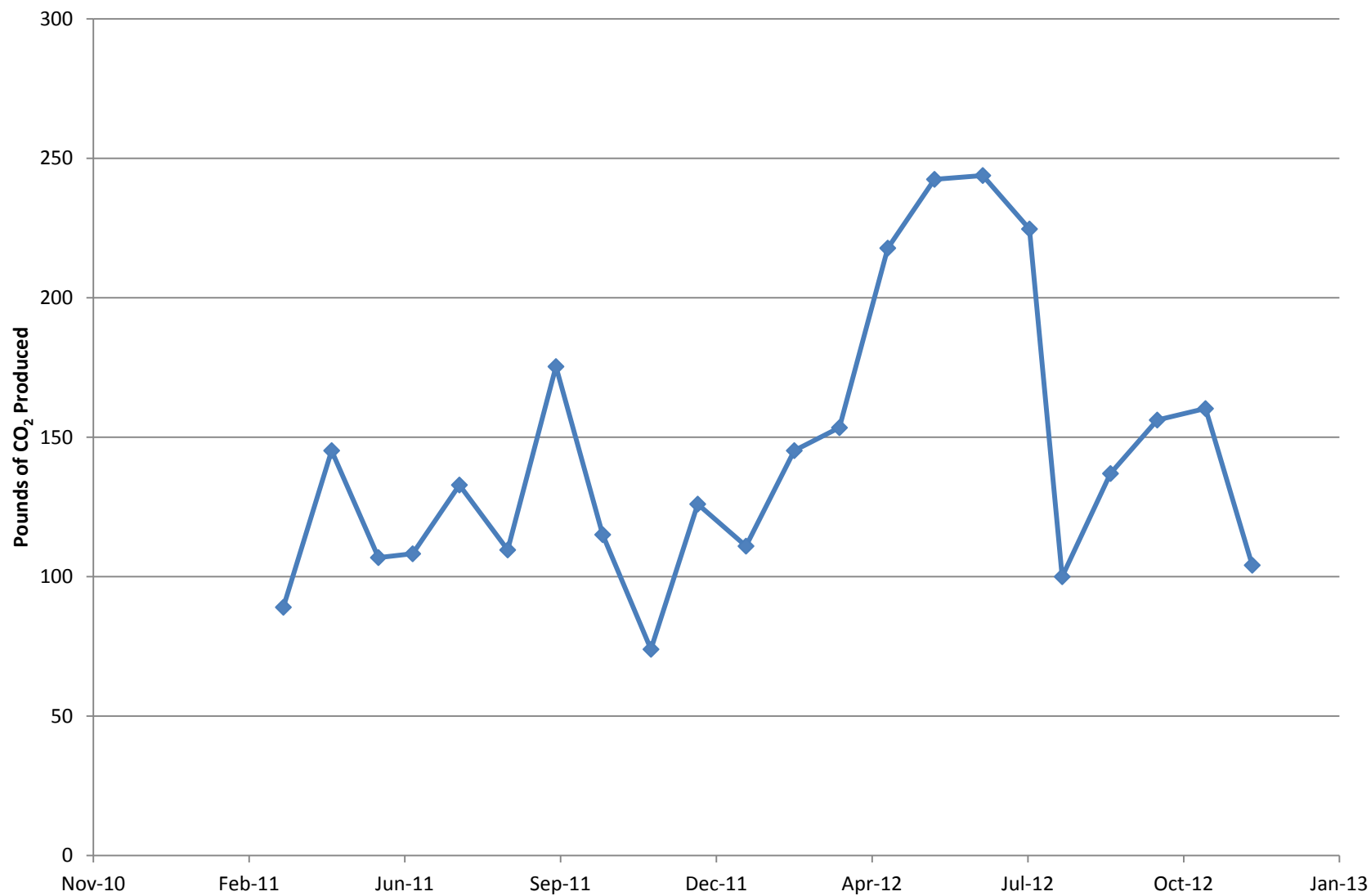


Figure 2
Equivalent Pounds of CO₂ Produced by the Site ST018 Groundwater Treatment Plant



Travis AFB Restoration Program

Program Overview

*RPM Meeting
January 16, 2013*

Completed Documents

- 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 (cont'd)

- 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**₃

Completed Field Work

- 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 (cont'd)

- 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**

5

In-Progress Documents & Field Work

Documents

- Vapor Intrusion Assessment Update Technical Memorandum
- Groundwater Record of Decision

Field Work

- Replace electrical wiring for well field at Site SS030

6

Upcoming Documents & Field Work

Documents

- | | |
|--|-----|
| • 3 rd Five-Year Review | Mar |
| • 2012 Annual Groundwater Remediation Implementation Status Report | Apr |
| • Old Skeet Range Action Memorandum | TBD |
| • Kinder Morgan LF044 Land Use Control Report | TBD |

Field Work

- | | |
|------------------------------|-----|
| • Annual GSAP Sampling event | Apr |
|------------------------------|-----|

7

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