Final

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

28 November 2012, 0930 Hours

Mr. Mark Smith, Travis Air Force Base (AFB), conducted the Remedial Program Manager's (RPM) meeting on 28 November 2012 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
• Adriana Constantinescu	California Regional Water Quality Control Board (RWQCB)
• Jose Salcedo	California Department of Toxic Substances Control (DTSC)
• Nadia Hollan Burke (via phone)	United States Environmental Protection Agency (USEPA)
• Mary Snow (via phone)	Techlaw, Inc
• Rachel Hess	ITSI Gilbane
• Mike Wray	CH2M HILL
• Loren Krook	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 (October 2012)
• Attachment 4	CGWTP Monthly Data Sheet (October 2012)
• Attachment 5	NGWTP Monthly Data Sheet (October 2012)
• Attachment 6	ST018GWTP Monthly Data Sheet (October 2012)
• Attachment 7	Presentation: Program Update: Activities Completed, In Progress and Upcoming

1. ADMINISTRATIVE

A. Previous Meeting Minutes

The 17 October 2012 RPM meeting minutes were approved and finalized as written.

B. Action Item Review.

Action items from October 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.

Action item 2 closed: EPA management not available for a presentation of the ROD.

Action item 3 closed: EPA provided feedback on the completeness of the 5-Year Review site list.

New action item: EPA and DTSC to email Travis AFB with the number of hard copies and CDs of the draft ROD are needed for the distribution. Also EPA and DTSC to provide names and addresses for the distribution.

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 16 January 2013 at 0930 hours.

Travis AFB Master Document Schedule

— Proposed Plan (PP): No change to the schedule. Will be moved to history.

— Groundwater Record of Decision (ROD): AF/Service Center will be receiving a revised predraft today, 28 November 2012. The remaining dates have been updated accordingly. Mr. Anderson asked how many copies each agency will need for their reviewers, and to provide their names and addresses. Ms. Constantinescu requested two copies for RWQCB sent to the main address in Oakland. Mr. Salcedo and Ms. Burke will send an email to confirm how many copies are needed and to whom.

— 3rd Five-Year Review: No change to the schedule.

— Potrero Hills Annex: (FS, PP, and ROD): No change to schedule. The responsible parties are planning to start the next phase of investigation fieldwork this Thursday, 29 November 2012. The field investigation objective is to determine the extent of the perchlorate contamination. Mr. Anderson and Mr. Duke will be on site tomorrow to maintain involvement with the field investigation.

— Old Skeet Range Action Memorandum: New document, dates are TBD.

— Vapor Intrusion Update Technical Memorandum: Travis AFB received comments from Ms. Burke/EPA. Travis AFB responded to EPA's comments yesterday. Travis AFB gave an extension to EPA to respond to comments (RTC). Ms. Burke said it may take a week or two to review.

— Quarterly Newsletter (January 2013): New dates were added to reflect the newsletter for the first quarter of 2013. Mr. Anderson said the theme for the newsletter will likely focus on the 30 year anniversary of environmental restoration at Travis AFB.

— 2012 Groundwater Sampling and Analysis Program Technical Memorandum: Response to Comments Meeting date was changed to 28 November 2012. Travis AFB will discuss EPAs comments after the RPM meeting. DTSC and RWQCB had no comments.

— 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)

The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 100% uptime, and 2.7 million gallons of groundwater were extracted and treated during the month of October 2012. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 62.6 gallons per minute (gpm). Electrical power usage was 8,700 kWh and approximately 11,919 pounds of CO_2 were created (based on DOE calculation). Approximately 1.8 pounds of volatile organic compounds (VOCs) were removed in October. The total mass of VOCs removed since startup of the system is 430 pounds.

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

Mr. Salcedo noted that the concentrations are spiking, and asked if this is a seasonal trend. Also, the 1,2-DCA was non-detect in the influent, but detected at the midpoint

of the carbon system. Mr. Duke said Travis AFB would research to see if there are any seasonal trends in the treatment plant influent. Mr. Duke also said that the carbon was recently changed out. Mr. Wray indicated that carbon does not adsorb 1,2-DCA very efficiently.

Central Groundwater Treatment Plant (see Attachment 4)

The Central Groundwater Treatment Plant (CGWTP) performed at 76.7% uptime with approximately 1.3 million gallons of groundwater extracted and treated during the month of October 2012. All treated water was diverted to the storm drain. The average flow rate for the CGWTP was 37.6 gpm. Electrical power usage was 1,940 kWh for all equipment connected to the Central plant, and approximately 2,658 pounds of CO_2 were generated. Approximately 3.7 pounds of VOCs were removed from groundwater by the treatment plant in October. The total mass of VOCs removed since the startup of the system is 11,299 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 October.

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

North Groundwater Treatment Plant (see Attachment 5)

The North Groundwater Treatment Plant (NGWTP) performed at 100% uptime with approximately 5,830 gallons of groundwater extracted and treated during the month of October 2012. The average flow rate at the NGWTP, while operating, was 0.1 gpm and electrical power use was 459 kWh for all the equipment connected to the North plant; approximately 629 pounds of CO_2 was generated. Approximately $4.5x10^{-4}$ pounds of VOCs were removed from the groundwater in October. 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 October.

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

The Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 100% uptime with approximately 170 thousand gallons of groundwater extracted and treated during the month of October 2012. All treated water was diverted to the storm drain. The average flow rate for the ST018 GWTP was 3.9 gpm. Electrical power usage for the month was 114 kWh for all equipment connected to the ST018 GWTP plant, which equates to the creation of approximately 156 pounds of CO_2. Approximately 0.57 pounds of BTEX, MTBE and TPH were removed from groundwater in October from

the treatment plant. The total BTEX, MTBE and TPH mass removed since the startup of the system is 19.7 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 October.

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: None.

Completed Field Work: SS029/SS016 System Optimization Analysis.

In-Progress Documents: Vapor Intrusion Update Technical Memorandum, 2012 GSAP Technical Memorandum.

In-Progress Field Work: GSAP Semiannual Sampling Event.

Upcoming Documents: Travis Air Force Base Groundwater Record of Decision, 3rd Five-Year Review.

Upcoming Fieldwork: None Planned.

4. New Action Item Review

EPA and DTSC to send email to Travis AFB with how many hard copies and CDs of the draft ROD are needed, and to provide names and addresses for the distribution.

5. PROGRAM/ISSUES/UPDATE

No new issues/updates.

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.	February 2013	Open
2.	Travis AFB	Give a Groundwater ROD presentation to EPA.	TBD	Closed
3.	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	New/open

TRAVIS AIR FORCE BASE
ENVIRONMENTAL RESTORATION PROGRAM
REMEDIAL PROGRAM MANAGER'S MEETING
BLDG 570, Main Conference Room
28 November 2012, 9:30 A.M.
AGENDA

1. ADMINISTRATIVE

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

2. CURRENT PROJECTS

   A. TREATMENT PLANT OPERATION AND MAINTENANCE UPDATE (LONNIE)
   B. THIRD FIVE YEAR REVIEW SITE DISCUSSION

3. PRESENTATIONS

   A. PROGRAM UPDATE: ACTIVITIES COMPLETED, IN PROGRESS AND UPCOMING

4. NEW ACTION ITEM REVIEW

5. PROGRAM/ISSUES/UPDATE

NOTE: AFTER THE RPM MEETING WE WILL DISCUSS THE AGENDA AND EXPECTATIONS FOR THE PLANNED GROUNDWATER RECORD OF DECISION PRESENTATION TO EPA MANAGEMENT.

Travis AFB Master Meeting and Document Schedule

(2012)
Annual Meeting and Teleconference Schedule

Monthly RPM Meeting (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.)
01-18-12	—	—
02-22-12	—	—
03-21-12	—	—
04-19-12 (2:00 PM)	—	04-19-12
05-16-12	—	—
06-13-12	—	—
07-18-12	—	—
08-15-12	—	—
09-19-12	—	—
—	10-17-12	10-18-12
11-28-2012	—	—
—	—	—

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[2]	—	—
02-20-13	—	—
03-20-13[3]	—	—
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: This meeting will include a GW ROD presentation.

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

As of: 11-28-2012

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS			
	Basewide Groundwater		
Life Cycle	Proposed Plan Travis, Glenn Anderson CH2M HILL, Tricia Carter	Record of Decision Travis, Glenn Anderson CH2M HILL, Leah Waller	3rd Five-Year Review Travis AFB, Glenn Anderson J.C. Palomar, Chris Bason
Scoping Meeting	**NA**	**01-24-07 (11-30-11)**	**NA**
Predraft to AF/Service Center	10-06-11	~~08-23-12~~ (11-28-12)	02-18-13
AF/Service Center Comments Due	11-05-11	12-12-12	03-04-13
Draft to Agencies	05-09-12	01-02-13	03-18-13
Draft to RAB	05-09-12	01-02-13	03-18-13
Agency Comments Due	06-15-12	03-03-13	04-15-13
Response to Comments Meeting	**08-15-12**	**03-20-13**	**04-29-13**
Public Comment Period	10-10-12 to 11-09-12	NA	NA
Public Meeting	**10-18-12**	**NA**	**NA**
Response to Comments Due	09-10-12	04-01-13	05-13-13
Draft Final Due	09-10-12	04-01-13	06-03-13
Final Due	10-10-12	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	TBD	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 (10-23-12)
Response to Comments Meeting	**TBD**	**11-28-12**
Response to Comments Due	NA	12-20-12
Draft Final Due	**NA**	NA
Final Due	TBD	12-20-12
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**
Scoping Meeting	**NA**	**NA**
Predraft to AF/Service Center	NA	09-20-2012
AF/Service Center Comments Due	NA	09-25-2012
Draft to Agencies	01-09-13	09-26-2012
Draft to RAB	NA	09-26-2012
Agency Comments Due	01-23-13	11-14-12
Response to Comments Meeting	**TBD**	11-28-2012
Response to Comments Due	01-30-13	12-18-12
Draft Final Due	NA	NA
Final Due	01-30-13	12-18-12
Public Comment Period	NA	NA
Public Meeting	**NA**	**NA**

Travis AFB Master Meeting and Document Schedule

HISTORICAL		
Life Cycle	**MMRP** **Old Skeet Range Engineering Evaluation/Cost Analysis [1]** **Travis AFB, Glenn Anderson** **Baywest, Steve Thornton**	**2011 Groundwater Treatment RPO Annual Report** **Travis AFB, Lonnie Duke** **CH2M HILL, Doug Berwick**
Scoping Meeting	**NA**	**NA**
Predraft to AF/Service Center	07-18-11	02-22-12
AF/Service Center Comments Due	08-03-11	03-05-12
Draft to Agencies	09-29-11	04-19-12
Draft to RAB	09-29-11	04-19-12
Agency Comments Due	10-31-11	05-21-12
Response to Comments Meeting	**TBD (Teleconference)**	**06-13-12**
Response to Comments Due	NA	06-27-12
Draft Final Due	**NA**	NA
Final Due	10-12-12	10-16-12
Public Comment Period	NA	NA
Public Meeting	NA	**NA**

South Base Boundary Groundwater Treatment Plant Monthly Data Sheet

Report Number: 146 **Reporting Period: 30 September 2012 – 31 October 2012** **Date Submitted: 14 November 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 October 2012 reporting period.

Table 1 – Operations Summary – October 2012

Operating Time:	Percent Uptime:	Electrical Power Usage:
SBBGWTP: 726 hours	**SBBGWTP:** 100 %	**SBBGWTP:** 8,700 kWh (11,919 lbs CO_2 generated[a])

Gallons Treated: **2.7 million gallons**

Gallons Treated Since July 1998: **808 million gallons**

Volume Discharged to Union Creek: **2.7 million gallons**

VOC Mass Removed: **1.8 lbs**[b]

VOC Mass Removed Since July 1998: **430 lbs**

Rolling 12-Month Cost per Pound of Mass Removed: $5,053[c]

Monthly Cost per Pound of Mass Removed: $4,198

lbs = pounds

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

[b] Calculated using October 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	1.3	EW736x05	Offline	EW01x29	4.2	EW01x30	10.1
EW02x05	1.7	EW737x05	Offline	EW02x29	6.0	EW02x30	3.0
EW03x05	Offline	EW742x05	Offline	EW03x29	3.0	EW03x30	Offline
EW731x05	Offline	EW743x05	Offline	EW04x29	8.1	EW04x30	Offline
EW732x05	Offline	EW744x05	Offline	EW05x29	Offline[c]	EW05x30	12.3
EW733x05	Offline	EW745x05	Offline	EW06x29	18.9	EW06x30	Dry
EW734x05	5.3	EW746x05	Offline	EW07x29	4.2	EW711x30	15.3
EW735x05	12.1						
FT005 Total:	**20.4**			**SS029 Total:**	**44.4**	**SS030 Total:**	**40.7**
SBBGWTP Average Monthly Flow[d]: 62.6 gpm							

[a] Extraction well flow rates are based on end-of-month readings.
[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] EW05x29 is off line due to a blown fuse, which will be replaced in November 2012.
[d] 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	
	None	NA			

SBBGWTP = South Base Boundary Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater samples at the SBBGWTP were collected on 25 October 2012. Sample results are presented in Table 4. The total VOC concentration (78.4 µg/L) in the influent sample has increased since the September 2012 sample (60.4 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 were detected at the influent and midpoint sample locations in October 2012. 1,2-dichloroethane was detected at the midpoint sample location, but not at the influent or effluent locations. Cis-1,2-DCE was detected at the sample collected from the effluent sampling location, but at a concentration (0.35 J µg/L) below the effluent limitation (5.0 µg/L).

At the influent sample location, cis-1,2-DCE and TCE were measured at concentrations of 4.8 and 73.6 µg/L. At the GAC midpoint sample location, 1,2-Dichloroethane, cis-1,2-DCE, and TCE were measured at concentrations of 0.55, 3.3, and 6.2 µg/L. At the effluent sample location, cis-1,2-DCE was measured at a concentration of 0.35 J. No concentrations of 1,2-Dichloroethane or TCE were detected at the effluent sample location. A carbon change out for the SBBGWTP scheduled for 9 November 2012.

An aquifer test was performed at Site SS029 in October 2012. This test occurred over five (5) days from 15 October 2012 through 19 October 2012 and required that all Site SS029 extraction wells be shut down. This resulted in a lower than typical volume of water being treated by the SBBGWTP during October 2012.

Extraction wells EW03x30 and EW04x30 remained off line in October 2012, with both wells requiring new pumps before being brought back on line. The extraction pump in well EW03x30 was replaced on 26 October 2012, but one leg of the electrical wiring leading to the pump was identified as having a short to ground. As a result, EW03x30 was not restarted, and will remain off line until the electrical problems can be fixed. A similar investigation at EW04x30 is planned for November 2012, and both wells are expected to be brought back on line after the issues have been resolved in November 2012.

Optimization Activities

No optimization activities were performed in October 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 11,919 pounds of GHG during October 2012. GHG production has decreased (from 14,459 pounds) since September 2012. 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 October 2012 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	25 October 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	0.55	ND
1,1-Dichloroethene	5.0	0.19	0	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.19	0	4.8	3.3	0.35 J
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	73.6	6.2	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	11 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

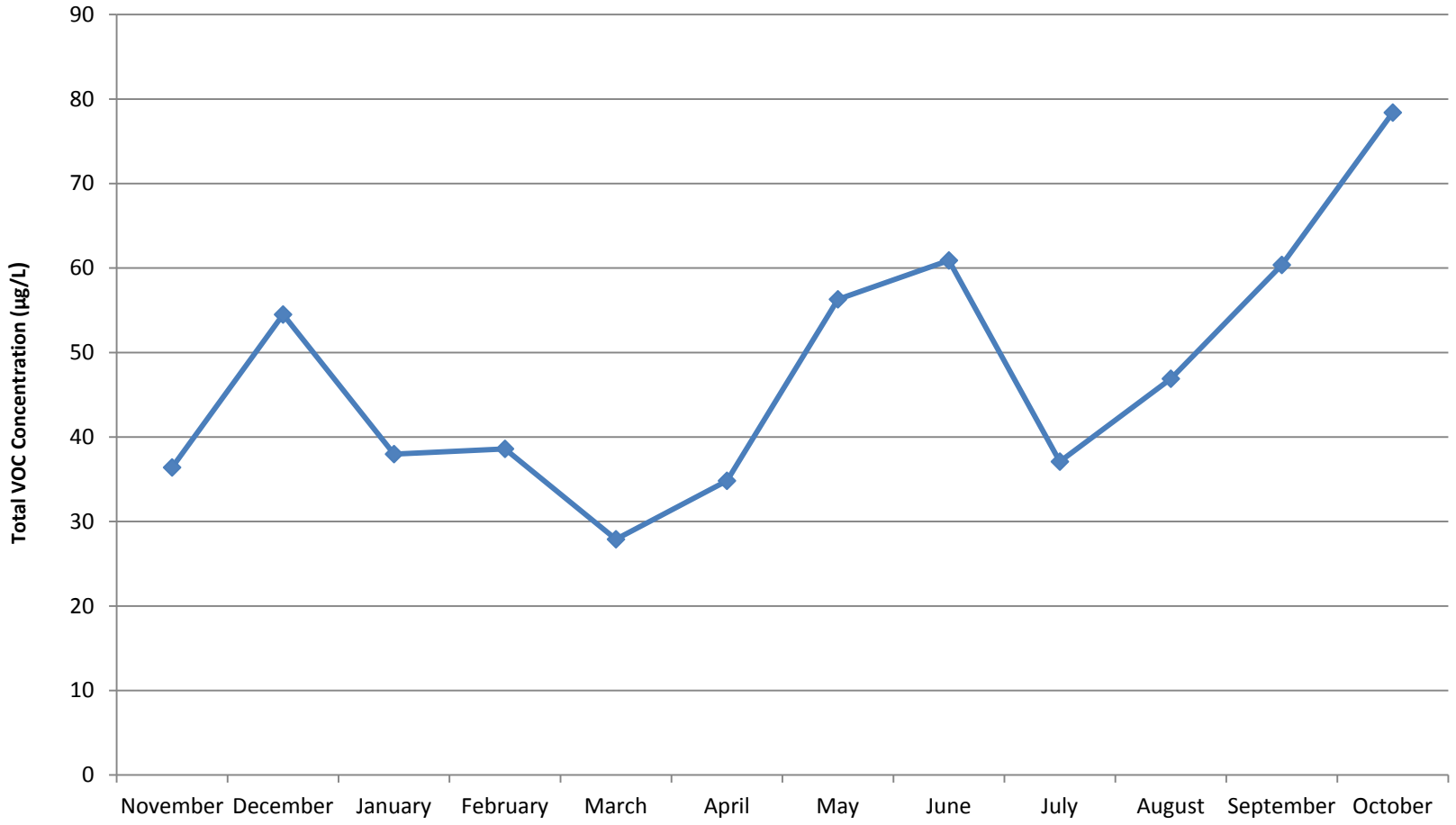
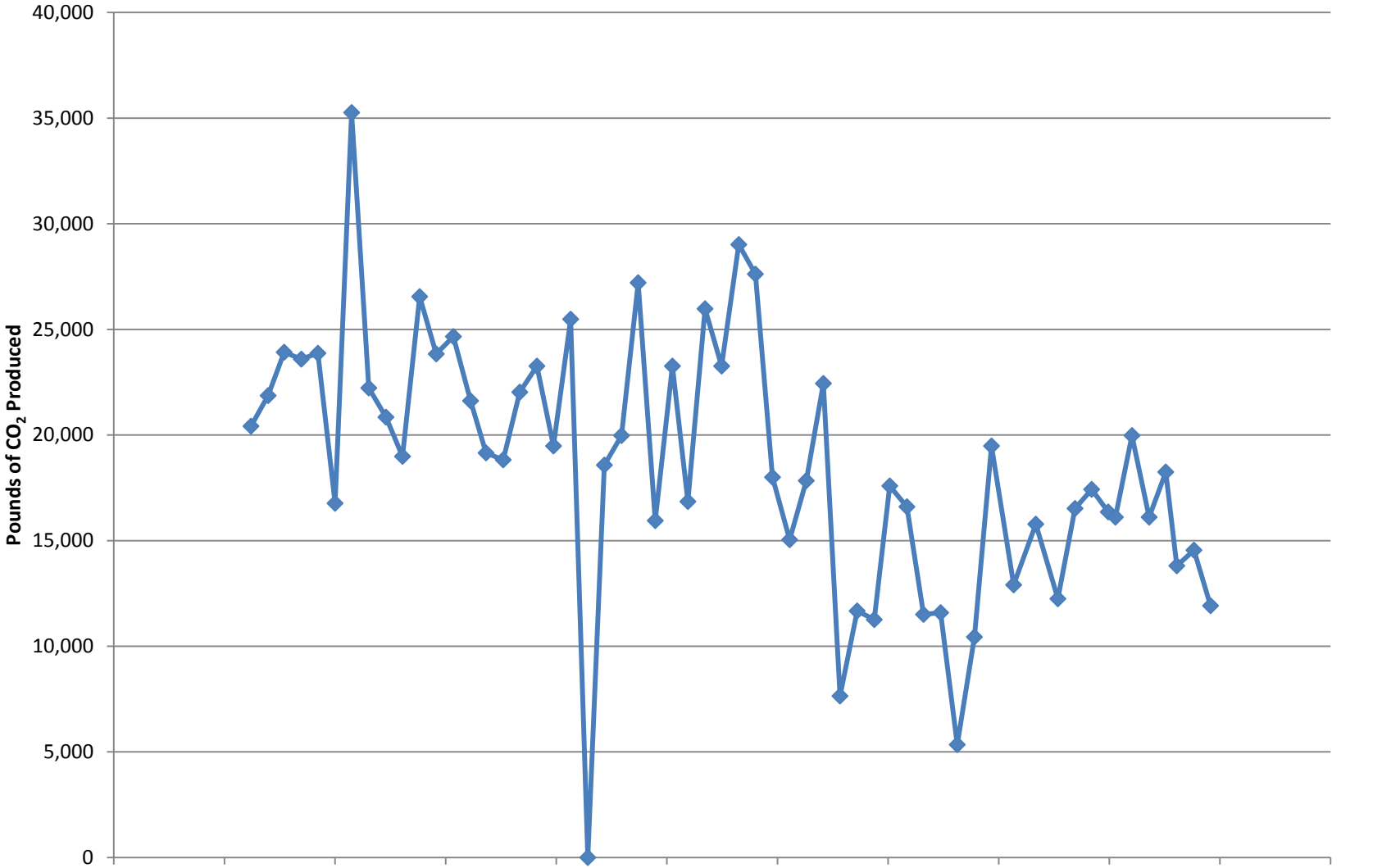


Figure 2

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



Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 159 **Reporting Period: 30 September 2012 – 31 October 2012** **Date Submitted: 14 November 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 October 2012 reporting period.

Table 1 – Operations Summary – October 2012

Operating Time:		Percent Uptime:		Electrical Power Usage:	
CGWTP:	557 hours	**CGWTP:**	76.7%	**CGWTP:**	1,940 kWh (2,658 lbs CO_2 generated[a])
WTTP:	Water: 0 hours Vapor: 0 hours	**WTTP:**	Water: 0% Vapor: 0%	**WTTP:**	0 kWh

Gallons Treated: **1.3 million gallons**

Gallons Treated Since January 1996: **470 million gallons**

VOC Mass Removed:

3.70 lbs[b] (groundwater only)

0 lbs (vapor only)

VOC Mass Removed Since January 1996:

2,613 lbs from groundwater

8,686 lbs from vapor

Rolling 12-Month Cost per Pound of Mass Removed: $1,217[c]

Monthly Cost per Pound of Mass Removed: $1,895

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

[b] Calculated using October 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	20.7	Offline
EW02x16	7.2	Offline
EW03x16	0.2[c]	Offline
EW605x16	4.1	Offline
EW610x16	3.2	Offline
CGWTP	37.6	--
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 October 2012.
[c] Water discharged to Site SS016 bioreactor – flow rate taken from wellhead Flow Totalizer divided by operating time during the month. The lower than usual flow rate at EW03x16 can be attributed to biological growth on the in-line filter. This filter was replaced during October 2012.
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)					
	10/24/2012	08:00	10/20/2012	10:30	The treatment plant was shut down at the end of this month to permit carbon replacement.
	10/30/2012	15:00	None	NA	The plant was operated briefly to allow for monthly sampling. It remains offline pending sample results.
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 30 October 2012. Sample results are presented in Table 4. The total VOC concentration (354 µg/L) in the influent sample has decreased slightly since the September 2012 sample (398 µg/L) was collected. Concentrations of 1,3-Dichlorobenzene (0.46 J µg/L), 1,4-Dichlorobenzene (0.23 J µg/L), 1,1-Dichloroethene (0.75 µg/L), cis-1,2-DCE (58 µg/L), trans-1,2-Dichloroethene (3 µg/L), Tetrachloroethene (0.58 µg/L), and TCE (290 µg/L) were detected at the influent sampling location. None of these contaminants were detected in the system effluent.

Vinyl chloride was detected at the influent sampling location again this month (0.34 J 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 offline for two (2) weeks from 13 October 2012 through the 29 October 2012. MW750x39 (the new Site DP039 bioreactor recirculation well) is currently online. The next scheduled shutdown is 12 November 2012.

The carbon in the primary vessel (tank T-502) was changed out on 24 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 taken off line after the sampling event to wait for analytical results. Once these sample results confirm efficient operation of the new carbon, the CGWTP will be brought back on line. Since the samples were sent for analysis on an expedited turnaround time, the CGWTP is expected to be brought back on line during the week of 5 November 2012.

Optimization Activities

No optimization activities occurred at CGWTP in October 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 2,658 pounds of GHG during October 2012. This is an increase from the amount produced in September 2012 (approximately 3,495 pounds) and can be attributed to increased operation time.

TABLE 4
Summary of Groundwater Analytical Data for October 2012 – Central Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	30 October 2012 (µg/L)			
				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	0.46 J	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.15	0	0.23 J	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	0.75	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.19	0	58	ND	ND	ND
trans-1,2-Dichloroethene	5.0	0.33	0	3	ND	ND	ND
Bromomethane	5.0	0.43	0	ND	ND	ND	ND
Tetrachloroethene	5.0	0.21	0	0.58	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	290	ND	ND	ND
Vinyl Chloride	0.5	0.18	0	0.34 J	0.38 J	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 T*ravis 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	

CGWTP = Central Groundwater Treatment Plant
EW = Extraction Well

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

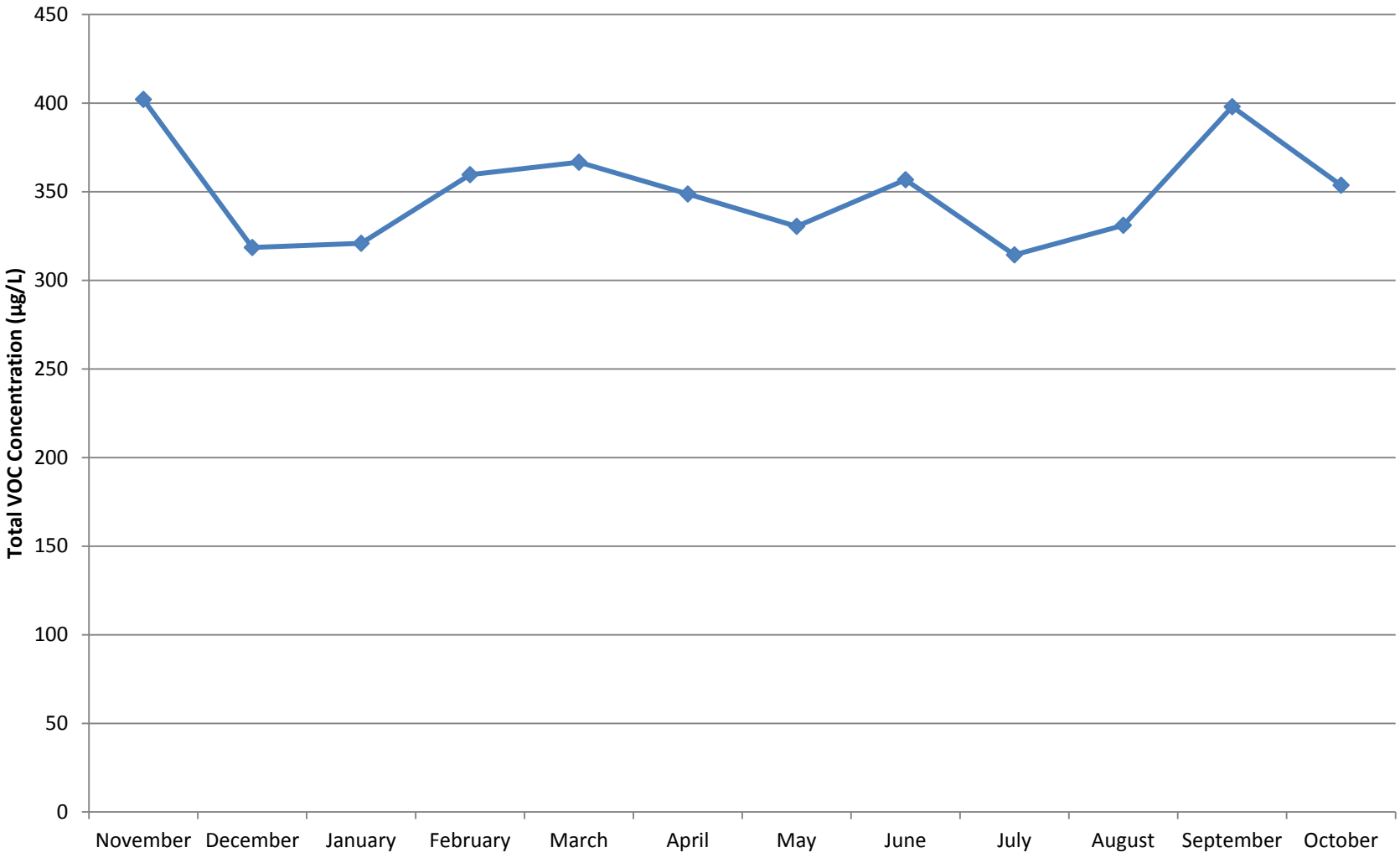
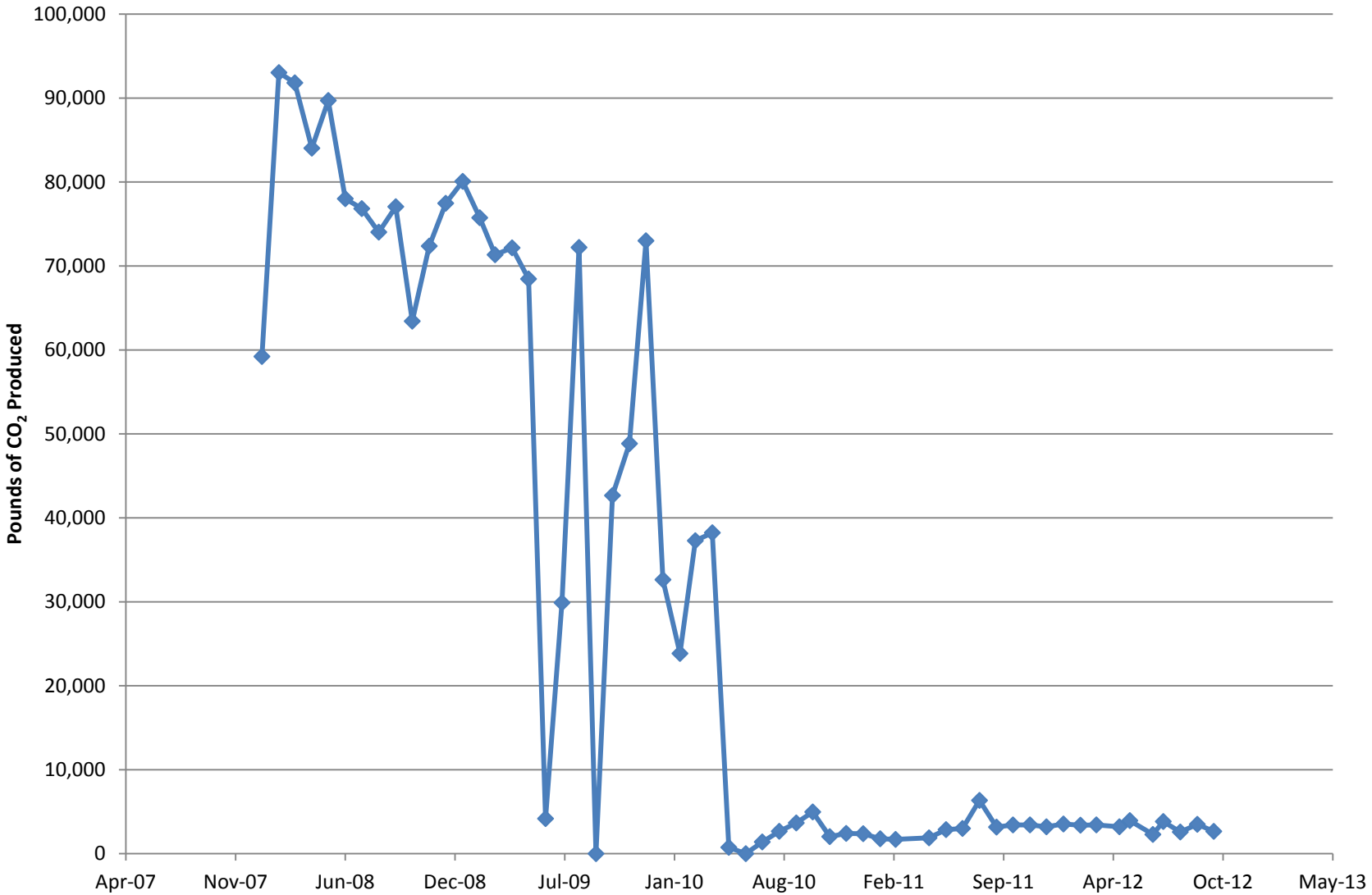


Figure 2

Equivalent Pounds of CO2 Produced by the Central Groundwater Treatment Plant



North Groundwater Treatment Plant Monthly Data Sheet

Report Number: 129 **Reporting Period: 30 September 2012 – 31 October 2012** **Date Submitted: 14 November 2012**

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 October 2012 reporting period:

Table 1 – Operations Summary – October 2012

Operating Time:	Percent Uptime:	Electrical Power Usage:
NGWTP: 727 hours	**NGWTP:** 100%	**NGWTP:** 459 kWh (629 lbs CO_2 generated[a])

Gallons Treated: **5,830 gallons**

Gallons Treated Since March 2000: **82.7 million gallons**

Volume Discharged to Duck Pond: **5,830 gallons**

Volume Discharge to Storm Drain: **0 gallons**

VOC Mass Removed: **4.5×10^{-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 October 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 – October 2012

Location	Average Flow Rate (gpm)[a]	Total Gallons Processed (gallons)
EW614x07	0.1	4,750
EW615x07	0.0	0[b]
NGWTP	0.1	5,830

[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.

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	9/20/12	11:10	10/1/2012	11:00	The NGWTP was shutdown at the end of the September 2012 aquifer test. EW614x07 was brought back online at the beginning of the month, while EW615x07 remains offline.

NGWTP = North Groundwater Treatment Plant

Summary of O&M Activities

Analytical data from the 25 October 2012 sampling event are presented in Table 4. Concentrations of 2-Butanone, cis-1,2-Dichloroethene, and TCE (4.7 J, 0.47 J, and 4.3 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).

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. On 24 October 2012 one of the two (2) operating GAC drums was replaced by the spare drum after it was observed to be leaking. It will be repaired and maintained as a backup.

The results of the aquifer test performed for the NGWTP in September 2012 will be presented in an upcoming technical memorandum specific to the event.

Optimization Activities

No optimization activities were performed during October 2012.

No optimization activities occurred in October 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 used 459 kWh, which calculates to approximately 629 pounds of GHG generation, in October 2012. This is less than September 2012 when the NGWTP produced approximately 793 pounds of GHG. This decrease can be attributed to reduced operations while EW615x07 is offline awaiting pump replacement. 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 October 2012 – North Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (μg/L)	Detection Limit (μg/L)	N/C	25 October 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	0.47 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	4.3	ND	ND
Vinyl Chloride	0.5	0.18	0	ND	ND	ND
Non-Halogenated Volatile Organics						
Benzene	1.0	0.17	0	ND	ND	ND
Ethylbenzene	5.0	0.22	0	ND	ND	ND
Toluene	5.0	0.14	0	ND	ND	ND
Xylenes	5.0	0.23 – 0.5	0	ND	ND	ND
Other						
Total Petroleum Hydrocarbons – Gasoline	50	8.5	0	NM	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	50	0	NM	NM	ND
Total 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

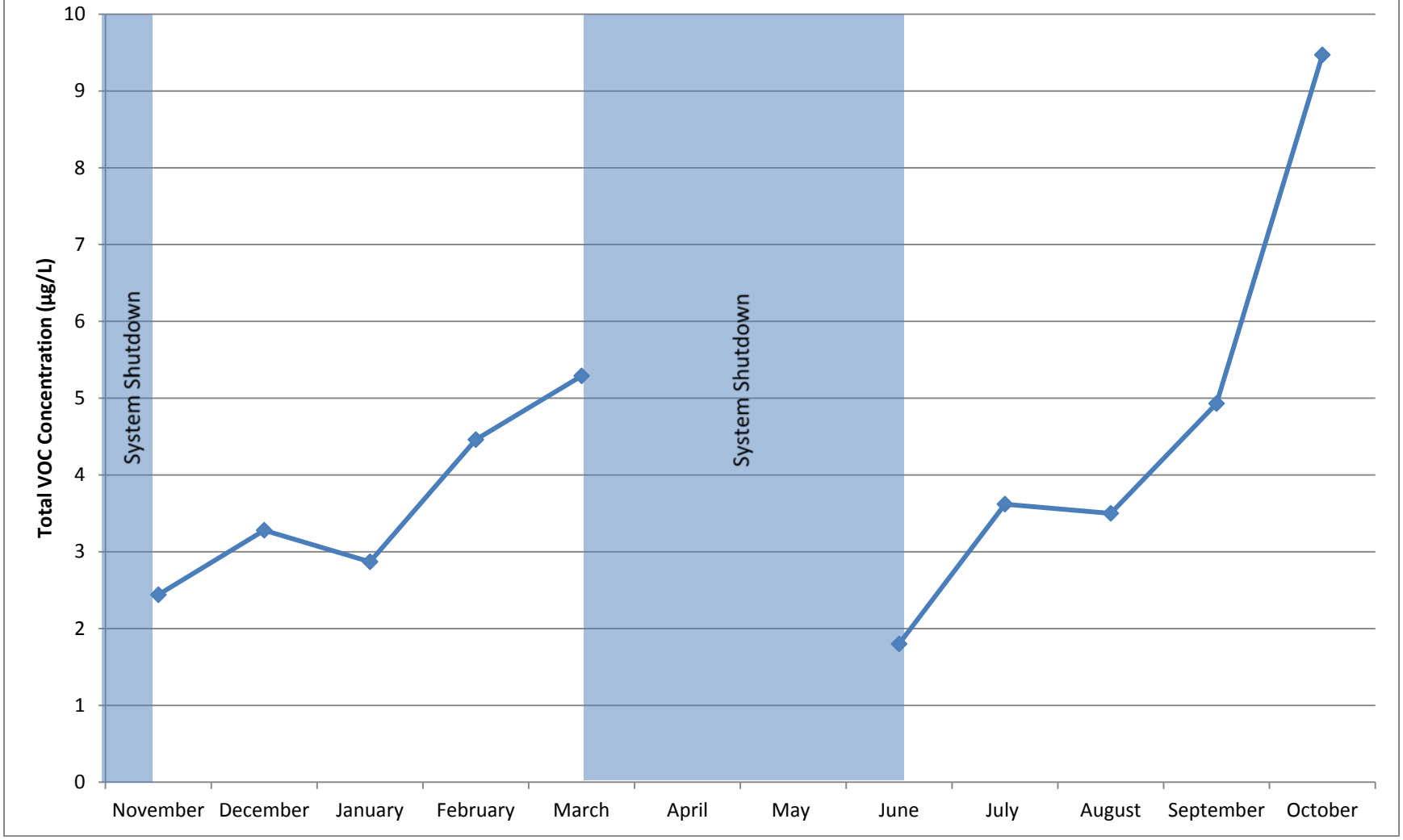
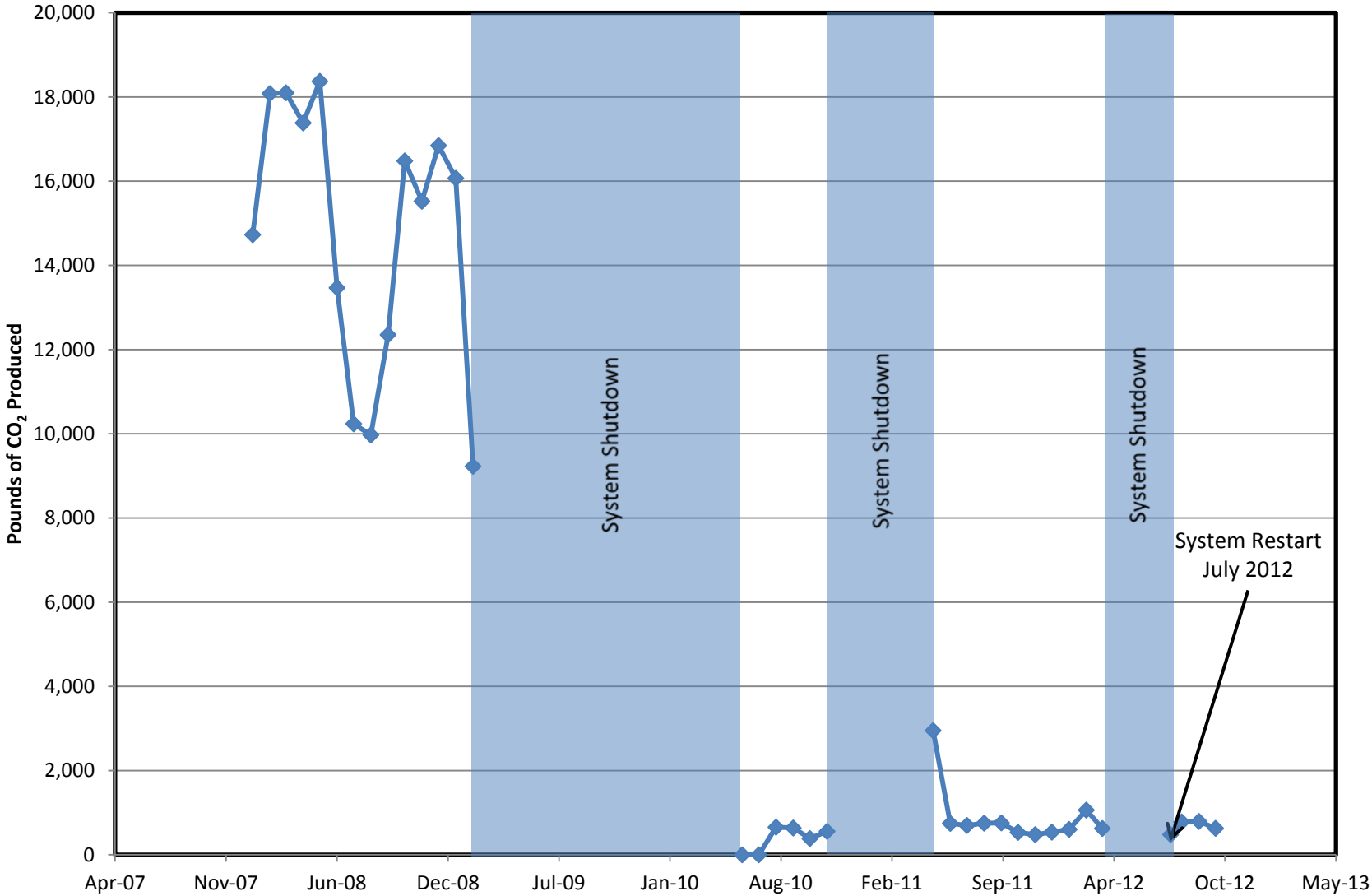


Figure 2

Equivalent Pounds of CO2 Produced by the North Groundwater Treatment Plant



Site ST018 Groundwater Treatment Plant Monthly Data Sheet

Report Number: 020 **Reporting Period: 30 September 2012 – 31 October 2012** **Date Submitted: 14 November 2012**

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

System Metrics

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

Table 1 – Operations Summary – October 2012

Operating Time:	Percent Uptime:	Electrical Power Usage:
S18GWTP: 720 hours	**S18GWTP:** 100%	**S18GWTP:** 114 kWh (156 lbs CO_2 generated[a])

Gallons Treated: **170 thousand gallons** Gallons Treated Since March 2011: **2.95 million gallons**

Volume Discharged to Union Creek: **170 thousand gallons**

BTEX, MTBE, TPH Mass Removed: **0.57 lbs**[b] BTEX, MTBE, TPH Mass Removed Since March 2011: **19.7 lbs**

Rolling 12-Month Cost per Total Pounds of Mass Removed: $7,555 [c]

Monthly Cost per Pound of Mass Removed: $7,988

[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 October 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	1.9
EW2016x18	0.5
EW2019x18	2.0
Site ST018 GWTP	3.9

[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 25 October 2012. Sample results from the October sampling event are presented in Table 4. No contaminant concentrations were measured at the midpoint and effluent sampling locations in October 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.

Extraction well EW2016x18 had been off line since approximately 7 August 2012 while replacement batteries were ordered. These batteries were delivered and replaced on 4 October 2012 and the well restarted. During the week of 22 October 2012, EW2016x18 was found to be off line due to a tripped vault float or pressure switch alarm. Both well control switches were tested on 26 October 2012, and continued troubleshooting on 27 October 2012 identified a faulty float switch in the EW2016x18 well vault. A new float switch is currently being ordered, and it is expected to be replaced in November 2012. The faulty float switch was taken off line to allow the extraction well to operate while the replacement is being procured. The pressure switch remains on line.

Optimization Activities

No optimization activities were performed in October 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 156 pounds of GHG during October 2012. This is an increase from September 2012 (100 pounds). This is due to increased operating time and an increased number of gallons treated in October 2012 compared to September 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 October 2012 – Site ST018 Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	25 October 2012 (µg/L)		
				Influent[b]	After Carbon 2	System Effluent
Fuel Related Constituents						
MTBE	5	0.5	0	62.9	ND	ND
Benzene	5	0.17	0	2.1	ND	ND
Ethylbenzene	5	0.22	0	1.0	ND	ND
Toluene	5	0.14	0	ND	ND	ND
Total Xylenes	5	0.23 – 0.5	0	1.2	ND	ND
Total Petroleum Hydrocarbons – Gasoline	50	8.5	0	88 J	ND	ND
Total Petroleum Hydrocarbons – Diesel	50	50	0	71 J	ND	ND
Total Petroleum Hydrocarbons – Motor Oil	--	160	--	180 J	ND	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

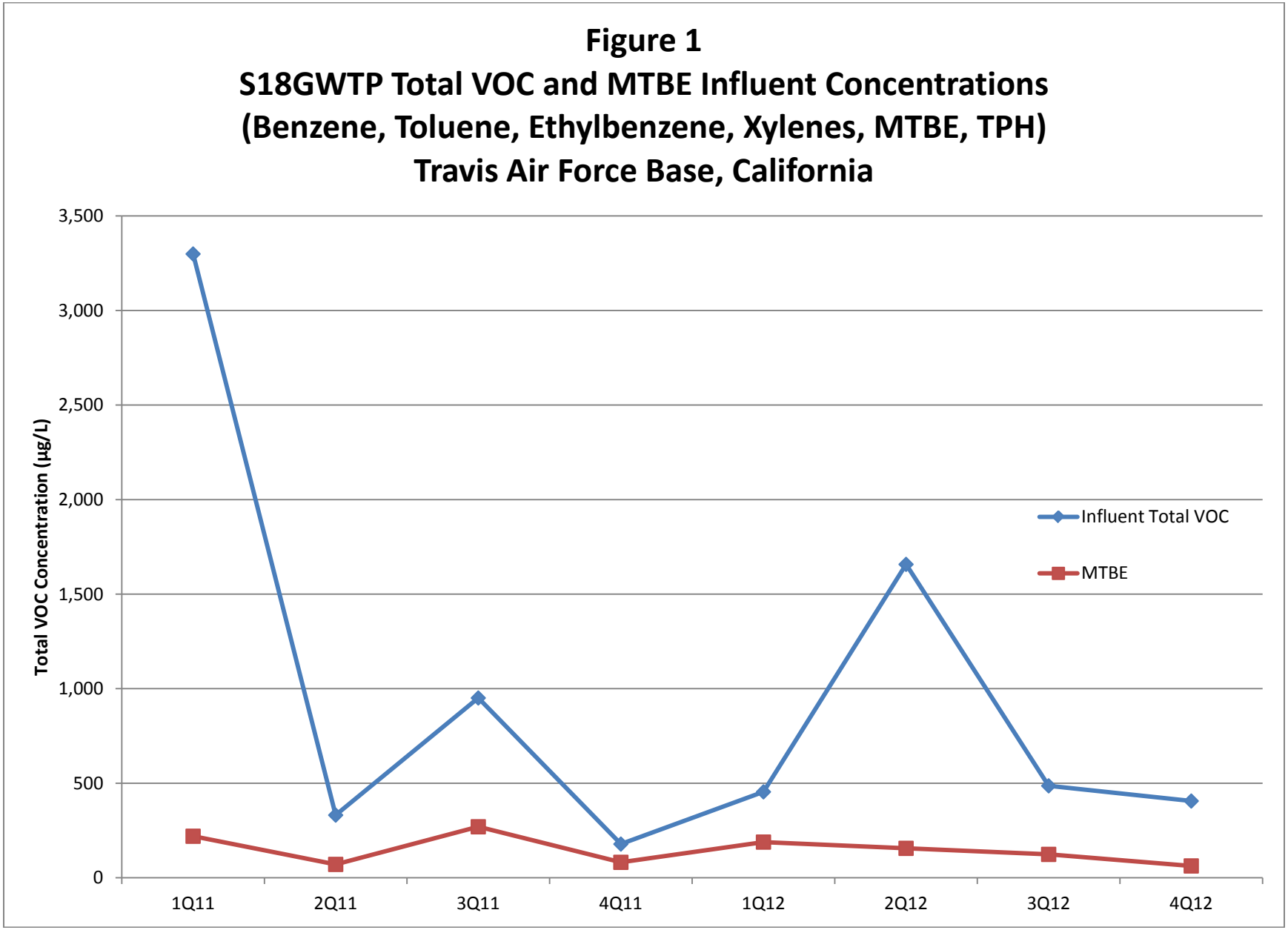
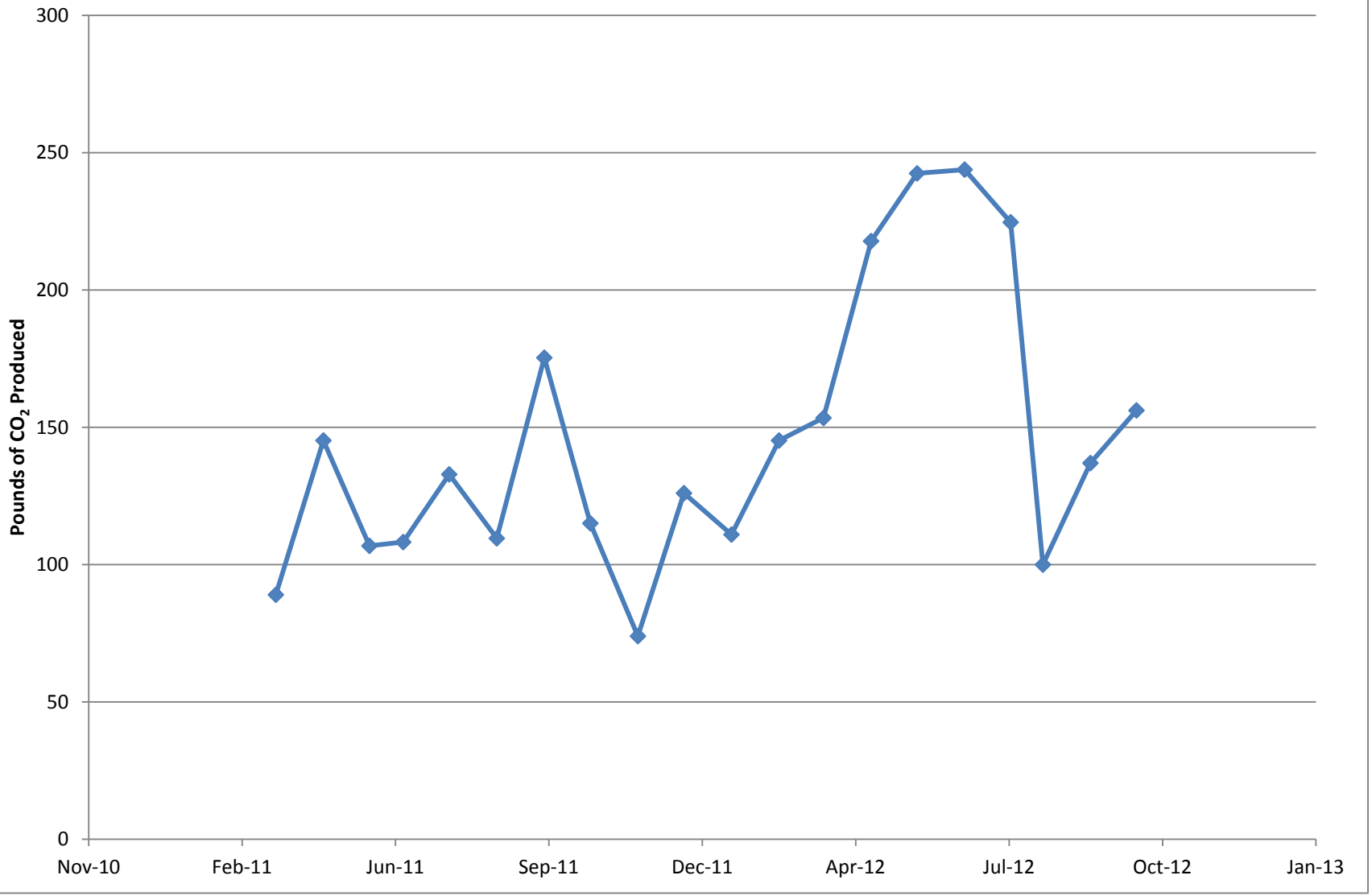


Figure 2

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



Travis AFB
Restoration Program

Program Overview

RPM Meeting

November 28, 2012

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
- Proposed Plan (PP)
- FT005 Remedial Action Completion Report

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 (4^{th} 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***

In-Progress Documents & Field Work

Documents

- Vapor Intrusion Assessment Update Technical Memorandum
- 2012 GSAP Technical Memorandum

Field Work

- GSAP Semiannual Sampling Event

Upcoming Documents & Field Work

Documents

- Travis Air Force Base Groundwater Record of Decision — Jan 2013
- 3rd Five-Year Review — Mar 2013

Field Work

- None Planned

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