Final

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

19 September 2012, 0930 Hours

Mr. Mark Smith, Travis Air Force Base (AFB), conducted the Remedial Program Manager's (RPM) meeting on 19 September 2012 at 0930 hours, at Travis AFB, California. Attendees included:

• Mark Smith	Travis AFB
• Glenn Anderson	Travis AFB
• Lonnie Duke	Travis AFB
• Dezso Linbrunner	USACE-Omaha
• Alan Friedman	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)
• Mary Snow	Techlaw, Inc
• Rachel Hess	ITSI Gilbane
• Mike Wray	CH2M HILL
• Loren Krook	CH2M HILL
• Tricia Carter	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 (August 2012)
• Attachment 4	CGWTP Monthly Data Sheet (August 2012)
• Attachment 5	NGWTP Monthly Data Sheet (August 2012)
• Attachment 6	ST018GWTP Monthly Data Sheet (August 2012)
• Attachment 7	Presentation: Program Update: Activities Completed, In Progress and Upcoming

1. ADMINISTRATIVE

A. Previous Meeting Minutes

The 15 August 2012 RPM meeting minutes were approved and finalized as written.

B. Action Item Review.

Action items from August were reviewed.

Action item one still open: Travis AFB to research beneficial reuse of treated water. Mr. Smith will contact the Project Manager at AFCEE to discuss, and give an update at the next RPM meeting. Mr. Smith has talked with AFCEE regarding beneficial reuse, AFCEE is looking into it. 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. No update (19 September 2012).

Action item two closed: EPA and DTSC to email Travis AFB the person's name and title who will be signing the ROD. Update (15 August 2012): Ms. Hollan Burke has this information from the EPA and will email it to Travis AFB and copy Mr. Wray. Update (19 September 2012): Mr. Wray has received signee information from EPA and DTSC.

Action item three still open: Give a Groundwater ROD presentation to EPA. Date was changed to TBD. No update (19 September 2012).

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 18 October 2012 at 1300 hours.

Travis AFB Master Document Schedule

— Proposed Plan (PP): The Public Comment Period dates changed to 10 October 2012 through 9 November 2012. Response to Comments Due and Draft Final Due dates changed to 10 September 2012 and the Final Due date changed to 10 October 2012. The rest of the dates were unchanged.

— Groundwater Record of Decision (ROD): Predraft to AF/Service Center was changed to 23 August 2012. The rest of the dates remain unchanged.

— Potrero Hills Annex: (FS, PP, and ROD): No change to schedule.

— Technical Memorandum for Assessment of Aerobic Chlorinated Cometabolism Enzymes: The Response to Comments Due and Final Due dates changed to 5 September 2012. The rest of the dates were unchanged.

— FT005 Remedial Action Completion Report: No change to the schedule.

— Vapor Intrusion Update Technical Memorandum: No change to the schedule.

— Quarterly Newsletter (August 2012): No change to schedule.

— 2011 Groundwater Treatment RPO Annual Report: No change to the schedule.

— Old Skeet Range Engineering Evaluation/Cost Analysis: No change to the schedule. Mr. Anderson mentioned that all of the comments on this document have been addressed. However, this document will not be finalized until a response is received from the Army Corps with regards to whether a draft-Final version is required because it serves as a primary document.

— 3rd Five-Year Review: This document has been added to the schedule with the Response to Comments Meeting scheduled for 29 April 2013. The other associated dates are summarized in the Master Meeting and Document Schedule (Attachment 2).

— 2012 Groundwater Sampling and Analysis Program Technical Memorandum: This document has been added to the schedule with the Response to Comments Meeting scheduled for 14 November 2012. The other associated dates are summarized in the Master Meeting and Document Schedule (Attachment 2).

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 3.5 million gallons of groundwater were extracted and treated during the month of August 2012. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 79 gallons per minute (gpm). Electrical power usage was 10,080 kWh and approximately 13,810 pounds of CO_2 were created (based on DOE calculation). Approximately 1.4 pounds of volatile organic compounds (VOCs) were removed in August. The total mass of VOCs removed since startup of the system is 427 pounds.

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

Central Groundwater Treatment Plant (see Attachment 4)

The Central Groundwater Treatment Plant (CGWTP) performed at 74% uptime with approximately 1.3 million gallons of groundwater extracted and treated during the month of August 2012. All treated water was diverted to the storm drain. The average flow rate for the CGWTP was 38.3 gpm. Electrical power usage was 1,885 kWh for all equipment connected to the Central plant, and approximately 2,582 pounds of CO_2 were generated. Approximately 3.5 pounds of VOCs were removed from groundwater in August. The total mass of VOCs removed since the startup of the system is 11,290 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 August.

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

North Groundwater Treatment Plant (see Attachment 5)

The North Groundwater Treatment Plant (NGWTP) performed at 100% uptime with approximately 13,950 gallons of groundwater extracted and treated during the month of August 2012. The average flow rate at the NGWTP, while operating, was 1.2 gpm and electrical power use was 570 kWh for all the equipment connected to the North plant; approximately 781 pounds of CO_2 was generated. Approximately $3.8x10^{-4}$ pounds of VOCs were removed from the groundwater in August. The total mass of VOCs removed since the startup of the system is 174.3.

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

The Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 93% uptime with approximately 71 thousand gallons of groundwater extracted and treated during the month of August 2012. All treated water was diverted to the storm drain. The average flow rate for the ST018 GWTP was 1.6 gpm. Electrical power usage for the month was 52 kWh for all equipment connected to the ST018 GWTP plant, which equates to the creation of approximately 71 pounds of CO_2. Approximately 0.29 pounds of BTEX, MTBE and TPH were removed from groundwater in August. The total BTEX, MTBE and TPH mass removed since the startup of the system is 18.6 pounds.

Note: electrical power use is 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 August.

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: Technical Memorandum for Assessment of Aerobic Chlorinated Cometabolism Enzymes.

In-Progress Documents: Vapor Intrusion Update Technical Memorandum, FT005 Remedial Action Report.

In-Progress Field Work: LF007C GET System Optimization.

Upcoming Documents: 2012 GSAP Technical Memorandum.

Upcoming Fieldwork: GSAP Semiannual Sampling Event.

4. New Action Item Review

EPA and DTSC will provide feedback on the 5-Year Review presentation site list presented on 18 July 2012 for completeness. Feedback will be provided by the next RPM meeting on 18 October 2012 to ensure that all locations to be covered by the 3rd Five-Year Review are included.

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.	TBD	Open

		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.		
2.	EPA & DTSC	Email Travis AFB the person's name and title who will be signing the ROD. Update (19 September 2012): Mr. Wray has received this information via e-mail from the EPA and DTSC.	TBD	Closed
3.	Travis AFB	Give a Groundwater ROD presentation to EPA.	TBD	Open
4.	EPA & DTSC	Provide feedback on the completeness of the 5-Year Review site list.	10-18-12	Open

TRAVIS AIR FORCE BASE
ENVIRONMENTAL RESTORATION PROGRAM
REMEDIAL PROGRAM MANAGER'S MEETING
BLDG 570, Main Conference Room
19 September 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)

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 PREPARATIONS FOR THE GROUNDWATER PROPOSED PLAN PUBLIC MEETING AND THE FT005 REMEDIAL ACTION COMPLETION REPORT.

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 9:30 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	—	—
10-18-12 (1:00 PM)	—	10-18-12
11-14-12	—	—
—	—	—

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS				
	Basewide Groundwater		MMRP	
Life Cycle	Proposed Plan Travis, Glenn Anderson CH2M HILL, Tricia Carter	Record of Decision Travis, Glenn Anderson CH2M HILL, Leah Waller	Old Skeet Range Engineering Evaluation/Cost Analysis Travis AFB, Glenn Anderson Baywest, Steve Thornton	3rd Five-Year Review Travis AFB, Glenn Anderson J.C. Palomar, Chris Bason
Scoping Meeting	**NA**	**01-24-07 (11-30-11)**	**NA**	**NA**
Predraft to AF/Service Center	10-06-11	08-23-12	07-18-11	02-18-13
AF/Service Center Comments Due	11-05-11	10-04-12	08-03-11	03-04-13
Draft to Agencies	05-09-12	10-12-12	09-29-11	03-18-13
Draft to RAB	05-09-12	10-12-12	09-29-11	03-18-13
Agency Comments Due	06-15-12	12-12-12	10-31-11	04-15-13
Response to Comments Meeting	**08-15-12**	**01-09-13**	**TBD (Teleconference)**	**04-29-13**
Public Comment Period	10-10-12 to 11-09-12	NA	NA	NA
Public Meeting	**10-18-12**	**NA**	**NA**	**NA**
Response to Comments Due	09-10-12	01-16-13	TBD	05-13-13
Draft Final Due	09-10-12	01-16-13	TBD	06-03-13
Final Due	10-10-12	02-18-13	TBD	07-03-13

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS			
	Potrero Hills Annex Travis, Glenn Anderson		
Life Cycle	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	**Technical Memorandum for Assessment of Aerobic Chlorinated Cometabolism Enzymes at Travis AFB** **Travis AFB, Glenn Anderson** **CH2M HILL, Leslie Royer**	**FT005 Remedial Action Completion Report** **Travis AFB, Lonnie Duke** **ITSI, Rachel Hess**	**Vapor Intrusion Update Technical Memorandum** **Travis AFB, Glenn Anderson** **CH2M HILL, Leslie Royer**
Scoping Meeting	**NA**	**NA**	**NA**
Predraft to AF/Service Center	05-18-12	06-04-12	08-14-12
AF/Service Center Comments Due	06-01-12	06-22-12	08-28-12
Draft to Agencies	06-15-12	07-20-12	09-11-12
Draft to RAB	06-15-12	07-20-12	09-11-12
Agency Comments Due	07-16-12	08-24-12	10-11-12
Response to Comments Meeting	**08-15-12**	**09-19-12**	**10-18-12**
Response to Comments Due	09-05-12	09-28-12	11-01-12
Draft Final Due	NA	NA	NA
Final Due	09-05-12	09-28-12	11-01-12
Public Comment Period	NA	NA	NA
Public Meeting	**NA**	**NA**	**NA**

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS			
Life Cycle	**Quarterly Newsletters (September 2012; Proposed Plan Edition)** **Travis, Glenn Anderson**	**2011 Groundwater Treatment RPO Annual Report** **Travis AFB, Lonnie Duke** **CH2M HILL, Doug Berwick**	**2012 Groundwater Sampling and Analysis Program Technical Memorandum** **Travis AFB, Lonnie Duke** **CH2M HILL, Leslie Royer**
Scoping Meeting	**NA**	**NA**	**NA**
Predraft to AF/Service Center	NA	02-22-12	09-24-12
AF/Service Center Comments Due	NA	03-05-12	10-01-12
Draft to Agencies	07-03-12	04-19-12	10-15-12
Draft to RAB	NA	04-19-12	10-15-12
Agency Comments Due	07-17-12	05-21-12	11-14-12
Response to Comments Meeting	**TBD**	**06-13-12**	11-14-12
Response to Comments Due	07-24-12	06-27-12	11-28-12
Draft Final Due	NA	NA	NA
Final Due	TBD	TBD	11-28-12
Public Comment Period	NA	NA	NA
Public Meeting	**NA**	**NA**	**NA**

Travis AFB Master Meeting and Document Schedule

HISTORICAL		
Life Cycle	**Work Plan for Remedial Process Optimization of Sites SS016 and SS029 at Travis AFB** **Travis AFB, Lonnie Duke** **Tri-Hydro, Glenn Leong**	**Site LF007C Data Gaps Investigation Technical Memorandum** **Travis AFB, Lonnie Duke** **CH2M HILL, Tony Chakurian**
Scoping Meeting	**NA**	**NA**
Predraft to AF/Service Center	01-06-12	05-03-12
AF/Service Center Comments Due	01-20-12	05-17-12
Draft to Agencies	02-22-12	05-31-12
Draft to RAB	02-22-12	05-31-12
Agency Comments Due	04-02-12	07-02-12
Response to Comments Meeting	**07-18-12**	**07-18-12**
Response to Comments Due	07-20-12	08-01-12 (07-26-12)
Draft Final Due	NA	NA
Final Due	07-20-12	08-01-12 (07-26-12)
Public Comment Period	NA	NA
Public Meeting	**NA**	**NA**

South Base Boundary Groundwater Treatment Plant Monthly Data Sheet

Report Number: 144 **Reporting Period: 31 July 2012 – 31 August 2012** **Date Submitted: 12 September 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 August 2012 reporting period.

Table 1 – Operations Summary – August 2012

Operating Time:	Percent Uptime:	Electrical Power Usage:
SBBGWTP: 745 hours	**SBBGWTP:** 100 %	**SBBGWTP:** 10,080 kWh (13,810 lbs CO_2 generated[a])

Gallons Treated: **3.5 million gallons**

Gallons Treated Since July 1998: **802 million gallons**

Volume Discharged to Union Creek: **3.5 million gallons**

VOC Mass Removed: **1.4 lbs**[b]

VOC Mass Removed Since July 1998: **427 lbs**

Rolling 12-Month Cost per Pound of Mass Removed: $5,924[c]

Monthly Cost per Pound of Mass Removed: $6,531

lbs = pounds

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

[b] Calculated using August 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	5.9	EW736x05	Offline	EW01x29	4.2	EW01x30	12.2
EW02x05	2.0	EW737x05	Offline	EW02x29	5.9	EW02x30	3.0
EW03x05	Offline	EW742x05	Offline	EW03x29	3.2	EW03x30	Offline
EW731x05	Offline	EW743x05	Offline	EW04x29	7.9	EW04x30	Offline
EW732x05	Offline	EW744x05	Offline	EW05x29	8.8	EW05x30	12.2
EW733x05	Offline	EW745x05	Offline	EW06x29	9.8	EW06x30	Dry
EW734x05	5.5	EW746x05	Offline	EW07x29	3.8	EW711x30	15.7
EW735x05	12.4						
FT005 Total:	**25.8**			**SS029 Total:**	**43.6**	**SS030 Total:**	**43.1**
SBBGWTP Average Monthly Flow[c]: 79.4 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] 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	None	NA	

SBBGWTP = South Base Boundary Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater samples at the SBBGWTP were collected on 1 August 2012. Sample results are presented in Table 4. The total VOC concentration (46.9 µg/L) in the influent sample has increased since the July 2012 sample (37.1 µg /L) was collected. Figure 1 presents a plot of influent concentrations at the SBBGWTP over the past twelve (12) months.

Concentrations of TCE and cis-1,2-DCE were detected at the influent and midpoint sample locations in August 2012. At the influent sample location, TCE and cis-1,2-DCE were measured at concentrations of 43.8 and 3.1 µg/L. At the GAC midpoint sample location, TCE and cis-1,2-DCE were both measured at concentrations of 3.8 µg/L. These contaminants were not detected at the effluent sample location.

The remote PLC for site FT005 failed on 9 August 2012. Power was cycled to the unit and the system was running normally on 10 August 2012. On 24 August 2012 troubleshooting began at extraction wells EW03x30 and EW04x30. Troubleshooting efforts identified ground shorts in both extraction well pumps, and both will need to be replaced. New pumps are currently being ordered and will be replaced in September 2012.

Optimization Activities

No optimization activities were performed in August 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 13,810 pounds of GHG during August 2012. GHG production has decreased (from 18,248 pounds) since August 2012 as a result of decreased SBBGWTP 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 August 2012 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	1 August 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	3.1	3.8	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	43.8	3.8	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	50	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

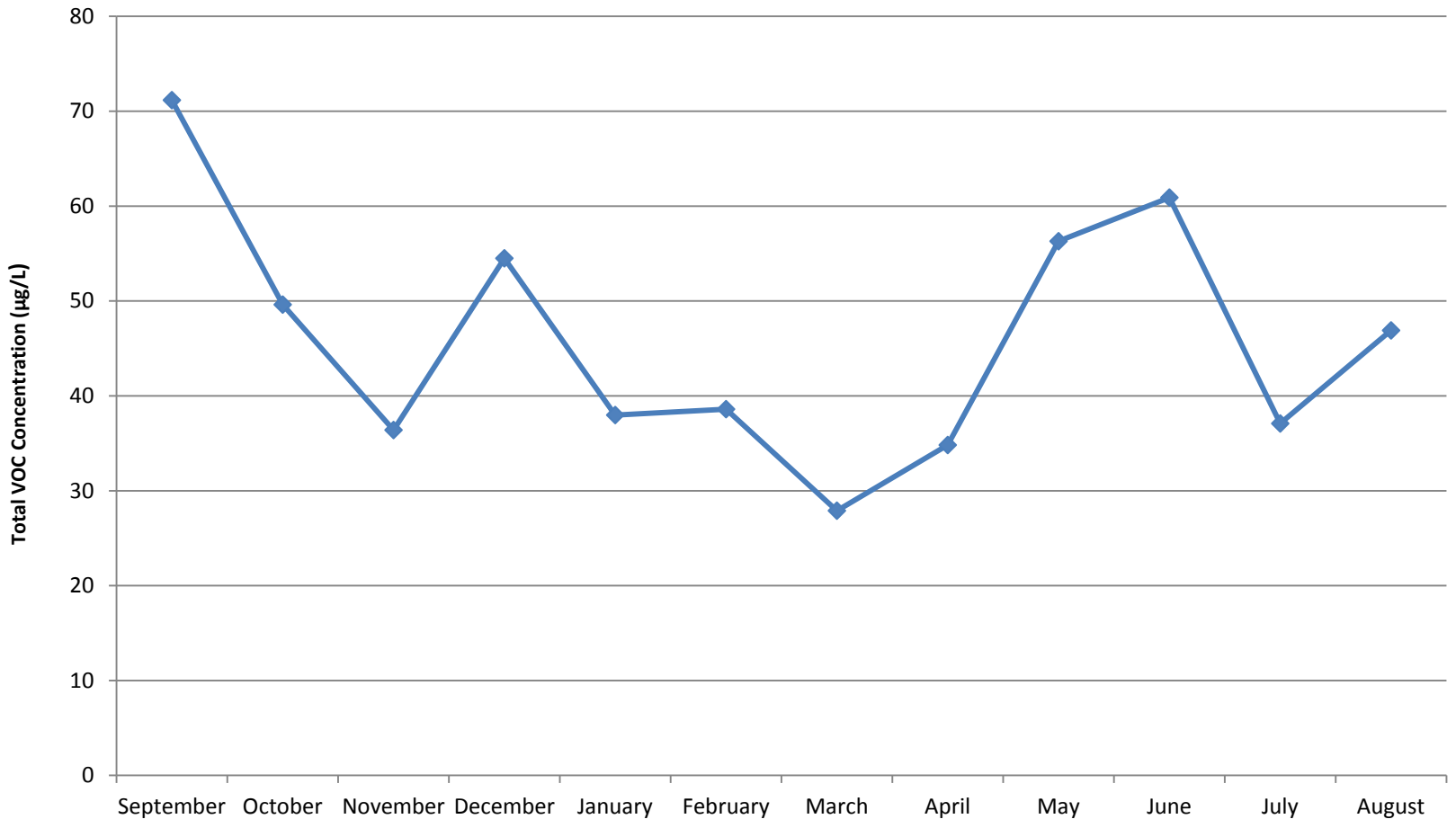
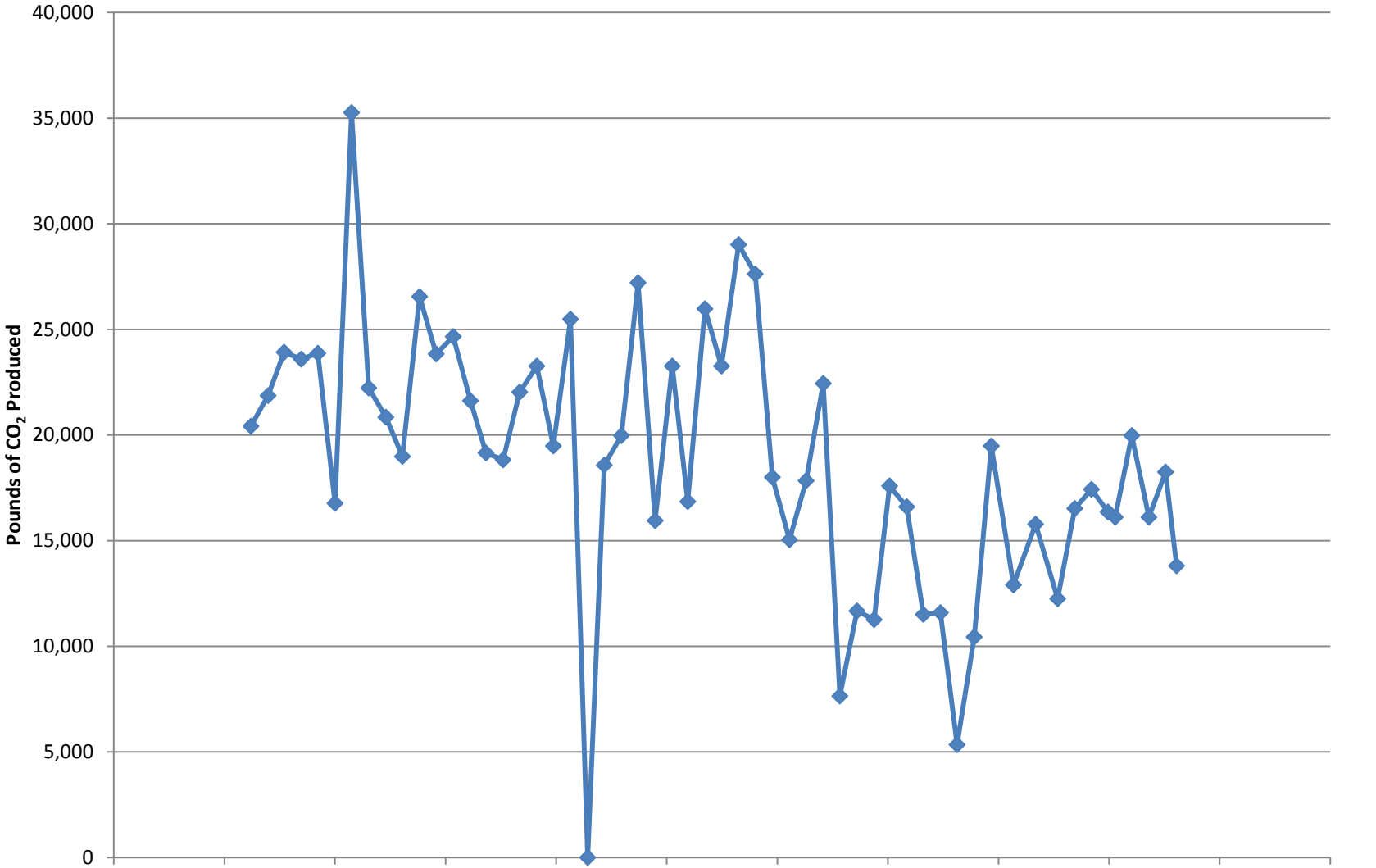


Figure 2

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



Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 157 **Reporting Period: 31 July 2012 – 31 August 2012** **Date Submitted: 12 August 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 August 2012 reporting period.

Table 1 – Operations Summary – August 2012

Operating Time:		Percent Uptime:		Electrical Power Usage:	
CGWTP:	559 hours	**CGWTP:**	74.4%	**CGWTP:**	1,885 kWh (2,582 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: **467 million gallons**

VOC Mass Removed:

3.54 lbs[b] (groundwater only)

0 lbs (vapor only)

VOC Mass Removed Since January 1996:

2,603 lbs from groundwater

8,686 lbs from vapor

Rolling 12-Month Cost per Pound of Mass Removed: $1,296[c]

Monthly Cost per Pound of Mass Removed: $1,921

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

[b] Calculated using August 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	21.4	Offline
EW02x16	7.2	Offline
EW03x16	0.3[c]	Offline
EW605x16	6.3	Offline
EW610x16	3.2	Offline
CGWTP	38.3	--
WTTP	--[b]	Offline

[a] Flow rates calculated by dividing total gallons processed by system operating time for the month.
[b] No significant volume of vapor or groundwater was treated in August 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)					
	8/14/2012	15:30	8/22/2012	15:00	Battery failure in UPS caused system shutdown. System was restarted after the battery was replaced.
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 1 August 2012. Sample results are presented in Table 4. The total VOC concentration (331 µg/L) in the influent sample has increased slightly since the July 2012 sample (314 µg/L) was collected. Concentrations of 1,3-Dichlorobenzene (0.41 J µg/L), cis-1,2-DCE (76.5 µg/L), trans-1,2-Dichloroethene (3.2 µg/L), Tetrachloroethene (0.64 µg/L), and TCE (208 µg/L) were detected at the influent sampling location. None of these contaminants were detected in the system effluent.

Vinyl chloride was not detected at the influent or effluent sampling locations this month. Travis Air Force Base will continue to monitor vinyl chloride and other contaminant concentrations at CGWTP for breakthrough in the primary vessel, as this is the first in seven consecutive months that vinyl chloride has not been 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 Site DP039 bioreactor was taken off line on 3 August 2012 to facilitate a modification to the existing bioreactor configuration. The system modification involved moving the extraction well pump from EW782x39 to MW750x39. In making this modification, the recirculation loop between the bioreactor and its feeder well was increased by approximately 100 feet along the axis of groundwater flow. The intent of increasing the recirculation loop is to extend the effective treatment area associated with the Site DP039 bioreactor. Since system startup in January 2009, the original "feeder well" EW782x39 has shown a decrease in TCE concentration from 350 µg/L in May 2009 to 0.23 J µg/L in November 2011. The bioreactor will be brought back online on 5 September 2012, once the conveyance piping and electrical wiring installation has been completed.

Optimization Activities

No optimization activities occurred at CGWTP in August 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 2,582 pounds of GHG during August 2012. This is a decrease from the amount produced in July 2012 (approximately 3,831 pounds) and can be attributed to decreased operation time.

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

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	1 August 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	0.41 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	ND	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.19	0	76.5	5	ND	ND
trans-1,2-Dichloroethene	5.0	0.33	0	3.2	ND	ND	ND
Bromomethane	5.0	0.43	0	ND	ND	ND	ND
Tetrachloroethene	5.0	0.21	0	0.64	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	208	ND	ND	ND
Vinyl Chloride	0.5	0.18	0	ND	ND	ND	ND
Non-Halogenated Volatile Organics							
Benzene	1.0	0.17	0	ND	ND	ND	ND
Ethylbenzene	5.0	0.22	0	ND	ND	ND	ND
Toluene	5.0	0.14	0	ND	ND	ND	ND
Total Xylenes	5.0	0.23 – 0.5	0	ND	ND	ND	ND
Other							
Total Dissolved Solids (mg/L)	NA	10	0	NM	NM	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

CGWTP = Central Groundwater Treatment Plant
EW = Extraction Well

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

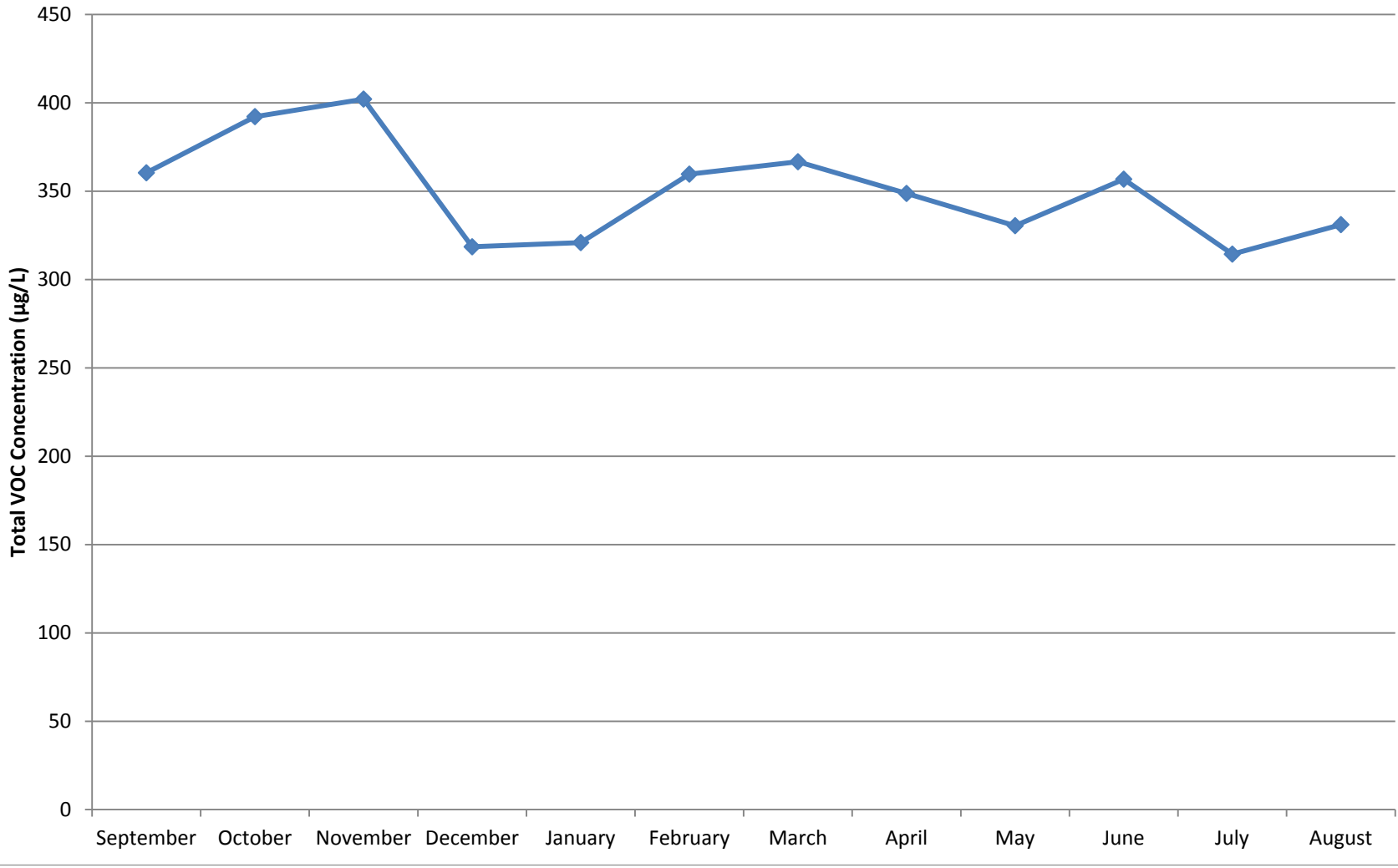
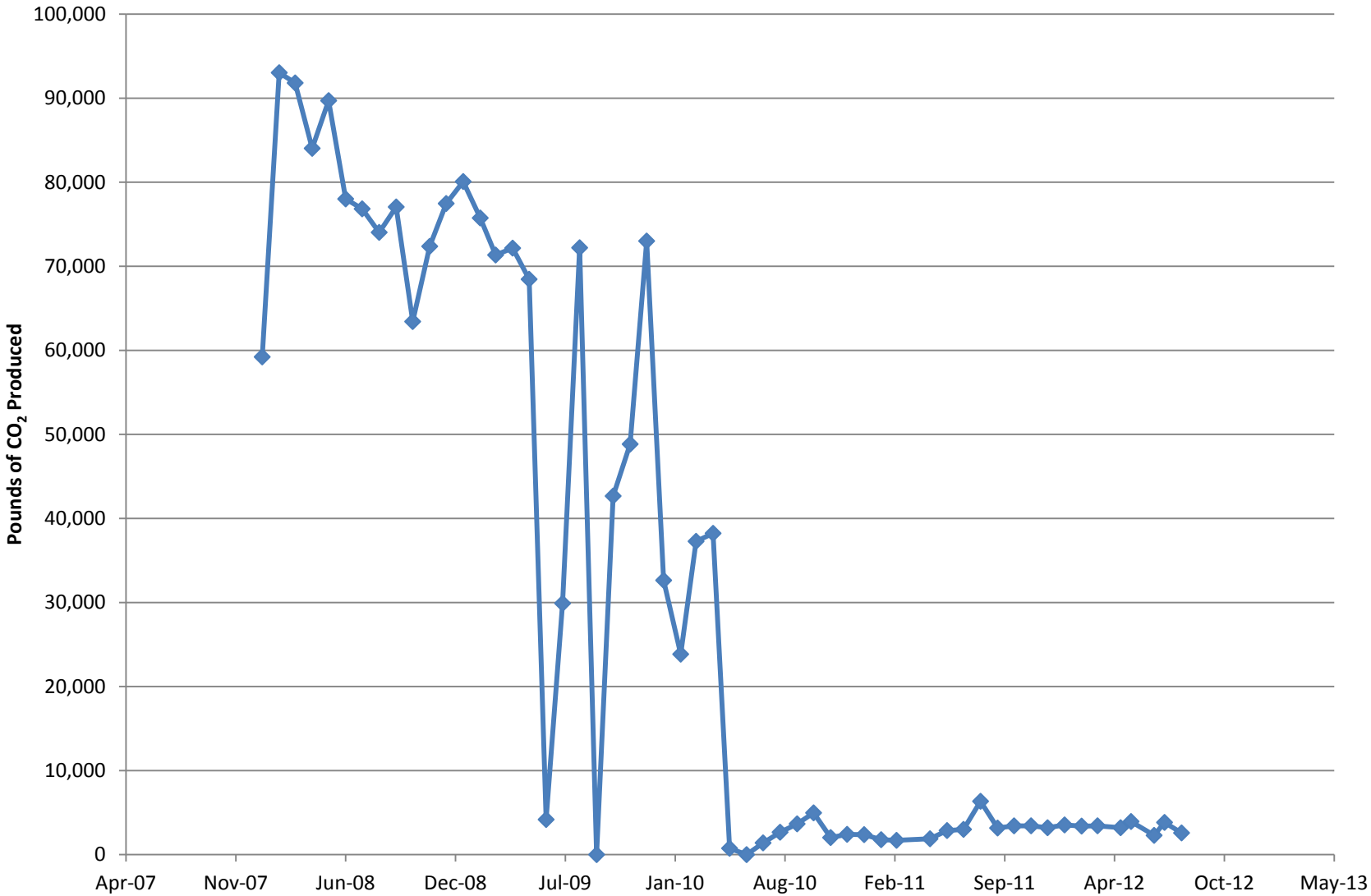


Figure 2

Equivalent Pounds of CO2 Produced by the Central Groundwater Treatment Plant



North Groundwater Treatment Plant Monthly Data Sheet

Report Number: 127 **Reporting Period: 31 July 2012 – 31 August 2012** **Date Submitted: 12 August 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 August 2012 reporting period:

Table 1 – Operations Summary – August 2012

Operating Time:	Percent Uptime:	Electrical Power Usage:
NGWTP: 745 hours	**NGWTP:** 100%	**NGWTP:** 570 kWh (781 lbs CO_2 generated[a])

Gallons Treated: **13,950 gallons**

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

Volume Discharged to Duck Pond: **13,950 gallons**

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

VOC Mass Removed: **3.8×10^{-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 August 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 – August 2012

Location	Average Flow Rate (gpm)[a]	Total Gallons Processed (gallons)[b]
EW614x07	0.7	8,220
EW615x07	1.1	0[c]
NGWTP	1.2	13,950

[a] Flow rates provided based on the average of the monthly readings for August 2012.
[b] Initial monthly readings for August 2012 at EW614x07 and EW615x07 were not recorded due to inaccessibility resulting from a wasp swarm. Total gallons provided for the extraction wells are based on monthly readings taken on 14 August 2012 and 31 August 2012. The total gallons processed by the NGWTP is provided for the entire month of operation.
[c] EW615x07 was turned off this month due to pump failure and no gallons were measured after the 14 August 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	None	NA	None	NA	

NGWTP = North Groundwater Treatment Plant

Summary of O&M Activities

Analytical data from the 1 August 2012 sampling event are presented in Table 4. A concentration of TCE (3.5 µg/L) was detected in the influent sample. This contaminant concentration detected in the influent process stream is less than the respective effluent limit (5.0 µg/L).

A concentration of TPH-gasoline (16 J µg/L) was detected at the effluent sampling location. This contaminant was not detected at the influent or midpoint sampling locations and is well below the effluent limit (50 µg/L). No other contaminant concentrations were detected between the primary and secondary vessels or at the effluent sampling location. Travis AFB will continue to monitor samples collected from 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. A spare GAC drum is available if analytical data indicate a third GAC drum should be brought back on line.

Optimization Activities

No optimization activities occurred in August 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 off line ("System Shutdown") when vernal pools are present at Site LF007C. The NGWTP used 570 kWh, which calculates to approximately 781 pounds of GHG generation, in August 2012. This is more than March 2012, the last month of operation for the purpose of treatment, when the NGWTP used 457 kWh of electricity. The increase of electricity usage can be attributed to a longer period of operation. The overall GHG generation remains considerably lower than traditional GWTPs since the system is predominantly powered by solar arrays.

TABLE 4
Summary of Groundwater Analytical Data for August 2012 – North Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	1 August 2012 (µg/L)		
				Influent	After Carbon 1	Effluent
Halogenated Volatile Organics						
Bromodichloromethane	5.0	0.15	0	ND	ND	ND
Bromoform	5.0	0.19	0	ND	ND	ND
Carbon Tetrachloride	0.5	0.14	0	ND	ND	ND
Chloroform	5.0	0.16	0	ND	ND	ND
Dibromochloromethane	5.0	0.13	0	ND	ND	ND
1,3-Dichlorobenzene	5.0	0.15	0	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.15	0	ND	ND	ND
1,1-Dichloroethane	5.0	0.15	0	ND	ND	ND
1,2-Dichloroethane	0.5	0.15	0	ND	ND	ND
1,1-Dichloroethene	5.0	0.19	0	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.19	0	ND	ND	ND
trans-1,2-Dichloroethene	5.0	0.33	0	ND	ND	ND
Methylene Chloride	5.0	0.66	0	ND	ND	ND
Tetrachloroethene	5.0	0.21	0	ND	ND	ND
1,1,1-Trichloroethane	5.0	0.14	0	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.2	0	ND	ND	ND
Trichloroethene	5.0	0.19	0	3.5	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	16 J
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:

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

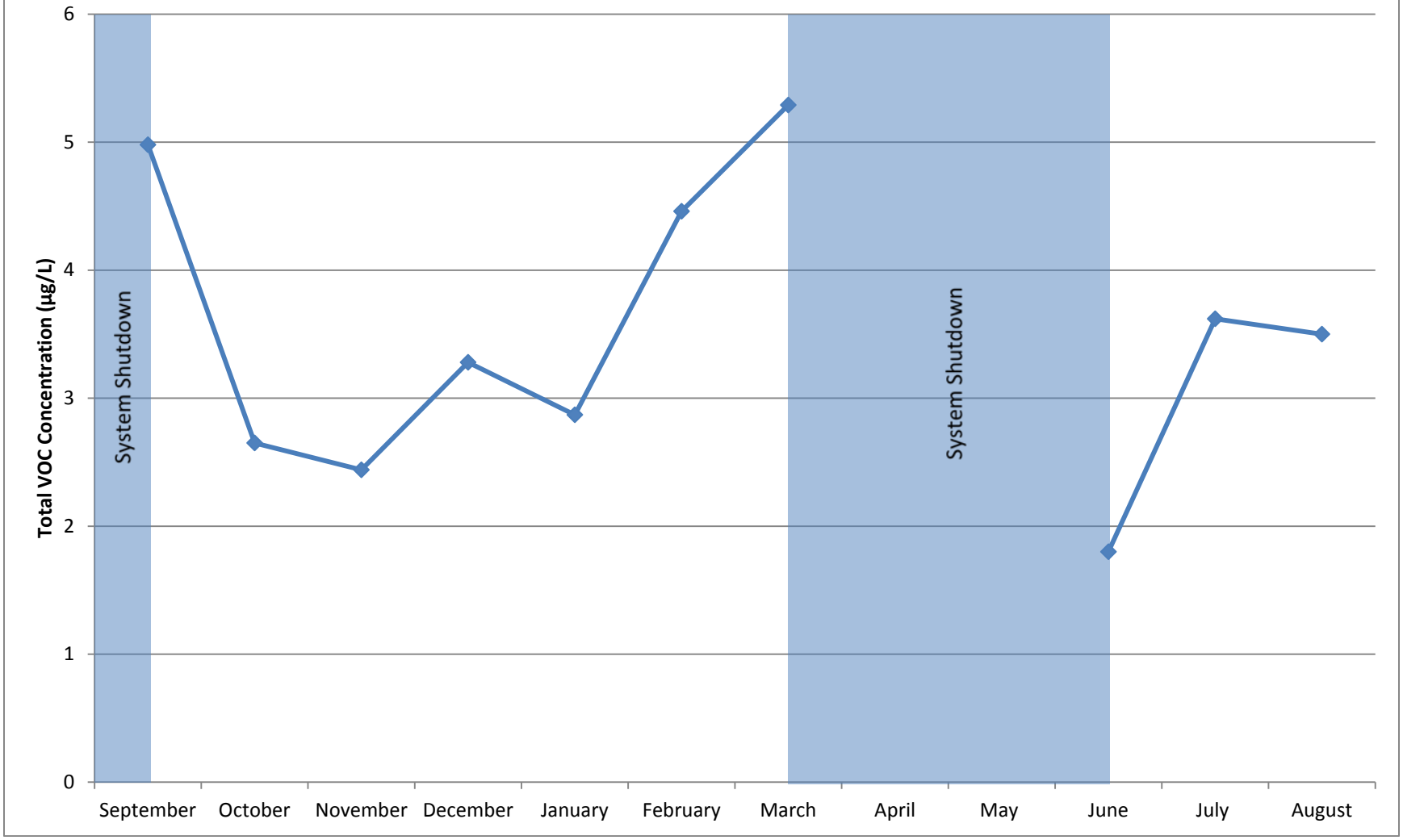
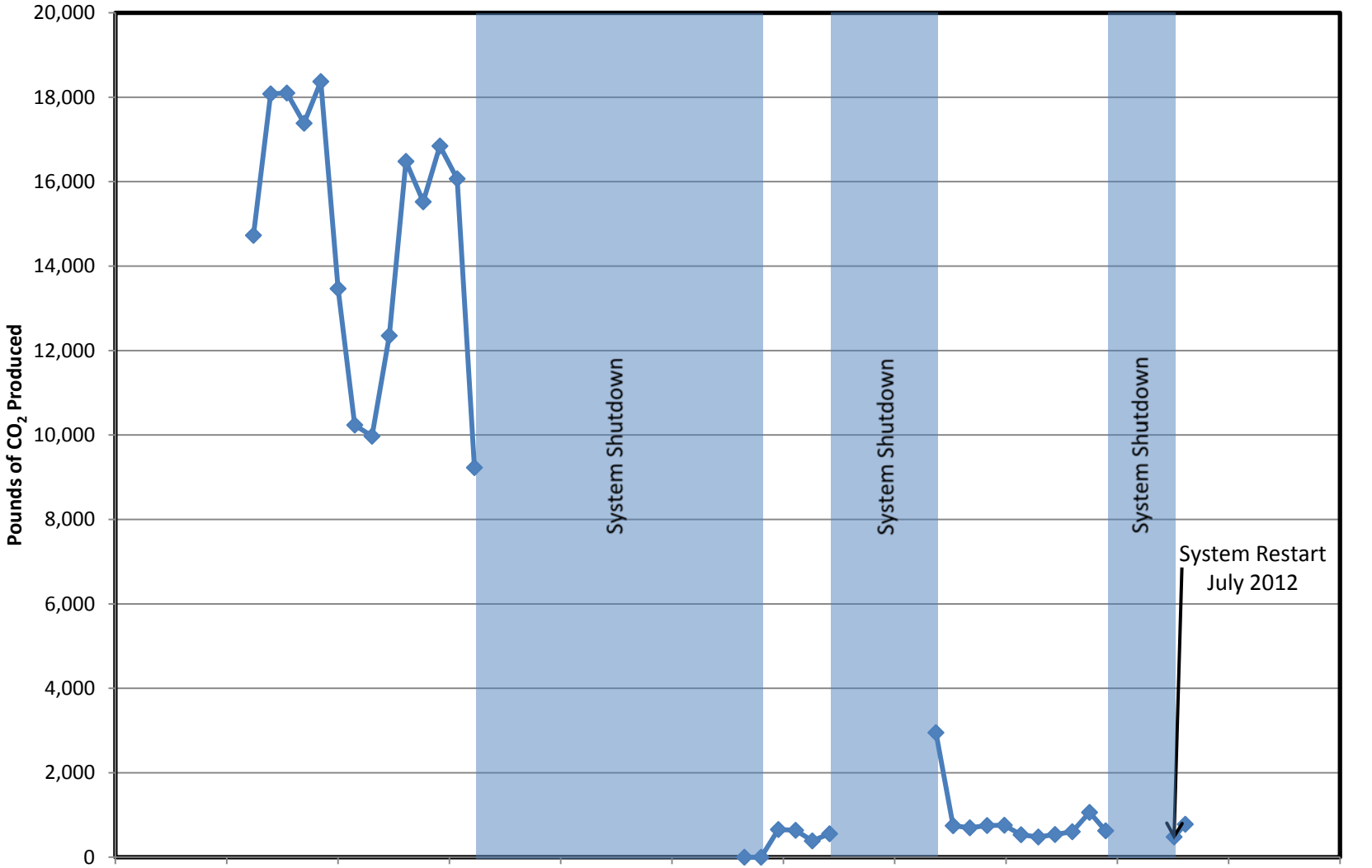


Figure 2

Equivalent Pounds of CO2 Produced by the North Groundwater Treatment Plant



Site ST018 Groundwater Treatment Plant Monthly Data Sheet

Report Number: 018 **Reporting Period: 31 July 2012 – 31 August 2012** **Date Submitted: 12 August 2012**

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

System Metrics

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

Table 1 – Operations Summary – August 2012

Operating Time:		Percent Uptime:		Electrical Power Usage:	
S18GWTP:	695 hours	**S18GWTP:**	93.4%	**S18GWTP:**	52 kWh (71 lbs CO_2 generated[a])

Gallons Treated: **71 thousand gallons**

Gallons Treated Since March 2011: **2.63 million gallons**

Volume Discharged to Union Creek: **71 thousand gallons**

BTEX, MTBE, TPH Mass Removed: **0.29 lbs**[b]

BTEX, MTBE, TPH Mass Removed Since March 2011: **18.6 lbs**

Rolling 12-Month Cost per Total Pounds of Mass Removed: $7,557 [c]

Monthly Cost per Pound of Mass Removed: $40,440

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

[b] Calculated using July 2012 (influent) and August 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	1.55
EW2016x18	2.5[b]
EW2019x18	1.0[b]
Site ST018 GWTP	1.59

[a] Flow rates calculated by dividing total gallons processed, from the totalizer at each location, by system operating time for the month.
[b] Flow rates reported based on 31 July 2012 readings due to irregular operations in August 2012 resulting from battery failure and extraction well pump malfunctions.
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	
	8/10/12	00:00[a]	8/10/12	12:00	System shut down due to influent high pressure alarm.
	8/30/2012	00:00[a]	None	NA	System shut down due to influent high pressure alarm. Troubleshooting was performed, but pressure is still observed to rise while the system is operating. Plant remains offline.

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

The total influent concentration (benzene, toluene, ethylbenzene, total xylenes, MTBE, TPH-gas, TPH-diesel, and TPH-motor oil) in the quarterly (3Q12) influent sample was 487 µg/L, which is a significant decrease from the previous (2Q12) influent concentration of 1,658 µg/L. This concentration more closely reflects the first quarter (1Q12) influent concentration of 455 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.

A trigger study began in June 2012 in response to the trigger exceedance of TPH-mo in the system effluent during the May 2012 sampling event. The results are presented in Table 5. The final results from the trigger study sampling event in August 2012 showed no detections of TPH-mo in the samples collected from the system influent or effluent locations. Concentrations of TPH-mo were not detected at the influent or effluent sampling locations during the trigger study sampling events. Monthly sampling will resume according to the standard sampling schedule as outlined in the Site ST018 NPDES permit.

Battery failures were discovered in the control panels of EW2014x18 and EW2016x18 on 8 August 2012. The failed battery in the EW2014x18 control panel was swapped with a battery in the EW2016x18 control panel so that EW2014x18 could be brought back on line. Replacement batteries are currently being ordered and will be installed in the EW2016x18 control panel in September 2012.

No flow was measured at EW2019x18 on 13 August 2012 even though the control panel was indicating that the pump was operational. Further inspection of the pump revealed that the hose barb fitting on the pump effluent had corroded. This resulted in the pump not being able to discharge groundwater from the well. A replacement hose barb fitting has been ordered and will be installed in September 2012. EW2019x18 will be brought back on line once the repair has been made.

The ST018 treatment plant shutdown twice this month as a result of high pressure. On 30 August 2012, each carbon vessel was isolated and back flushed by reversing flow. After the carbon vessels were back flushed, pressure was still observed building in carbon vessels 2 and 3. Troubleshooting is currently underway to determine the nature of the problem with the 2nd carbon vessel. The system will be brought back on line once the issue has been resolved in September 2012.

Optimization Activities

No optimization activities were performed in August 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.

As a result of the solar arrays at S18GWTP, the system produced approximately 71 pounds of GHG during August 2012. This is a decrease from July 2012 (225 pounds). This is significantly less due to the variable operating times of each extraction well and a decreased number of gallons treated in August 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 August 2012 – Site ST018 Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	7 August 2012 (µg/L)		
				Influent[b]	After Carbon 2	System Effluent
Fuel Related Constituents						
MTBE	5	0.5	0	124	ND	ND
Benzene	5	0.17	0	5.3	ND	ND
Ethylbenzene	5	0.22	0	2.4	ND	ND
Toluene	5	0.14	0	0.44 J	ND	ND
Total Xylenes	5	0.23 – 0.5	0	4.38	ND	ND
Total Petroleum Hydrocarbons – Gasoline	50	8.5	0	230	ND	ND
Total Petroleum Hydrocarbons – Diesel	50	50	0	120	ND	ND
Total Petroleum Hydrocarbons – Motor Oil	--	160	--	ND	ND	ND

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

[b] Values taken from July 2012 (3Q12) 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

Table 5
Summary of Quarterly Trigger Study Analytical Data – Site ST018 Groundwater Treatment Plant

Constituent	Trigger Limit[a] (µg/L)	7 June 2012 (µg/L)		10 July 2012 (µg/L)		7 August 2012 (µg/L)	
		Influent	Effluent	Influent	Effluent	Influent	Effluent
Total Petroleum Hydrocarbons – Motor Oil	50	ND	ND	ND	ND	ND	ND

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

Notes:

µg/L = micrograms per liter
ND = not detected above method detection limit

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

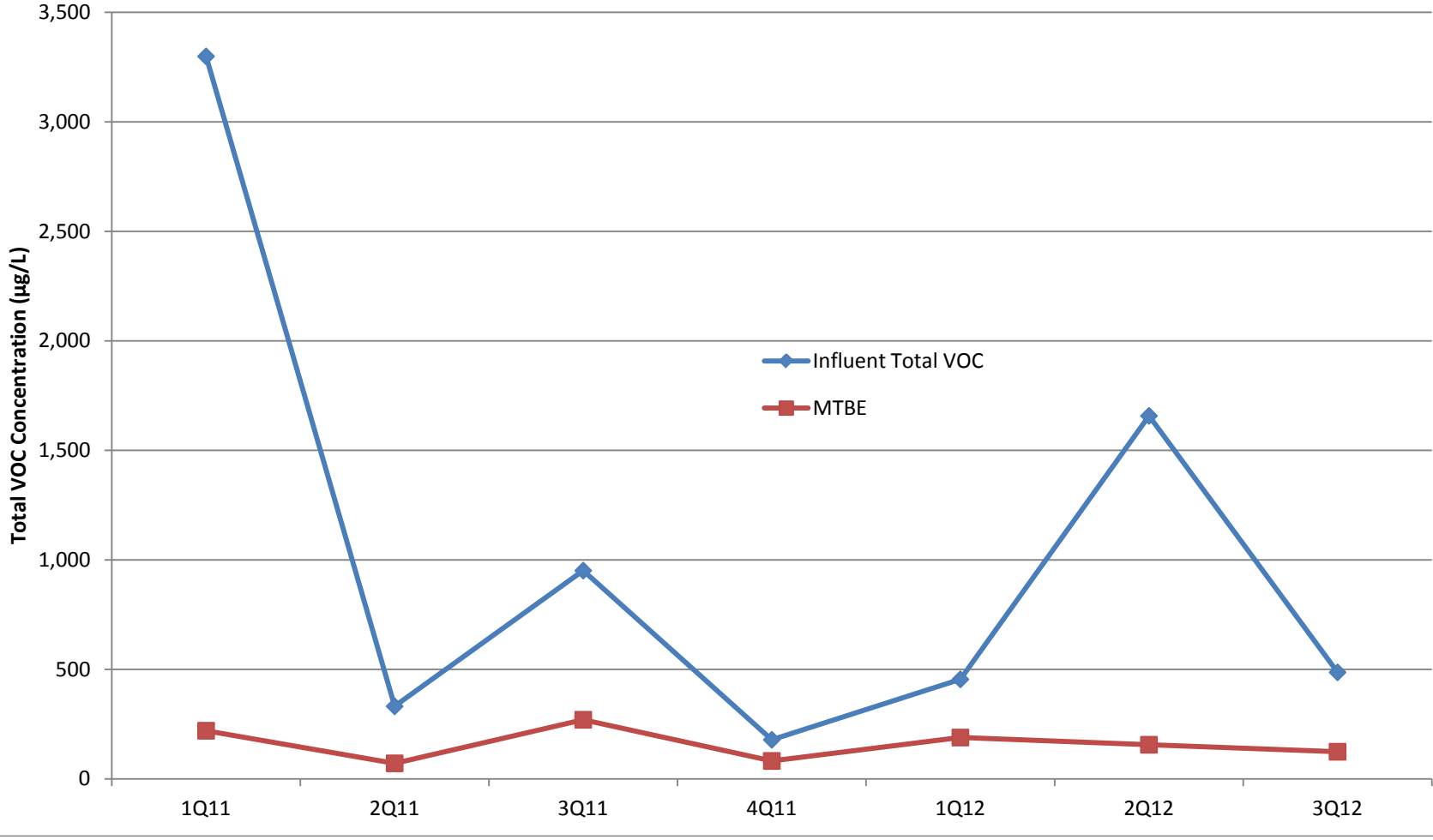
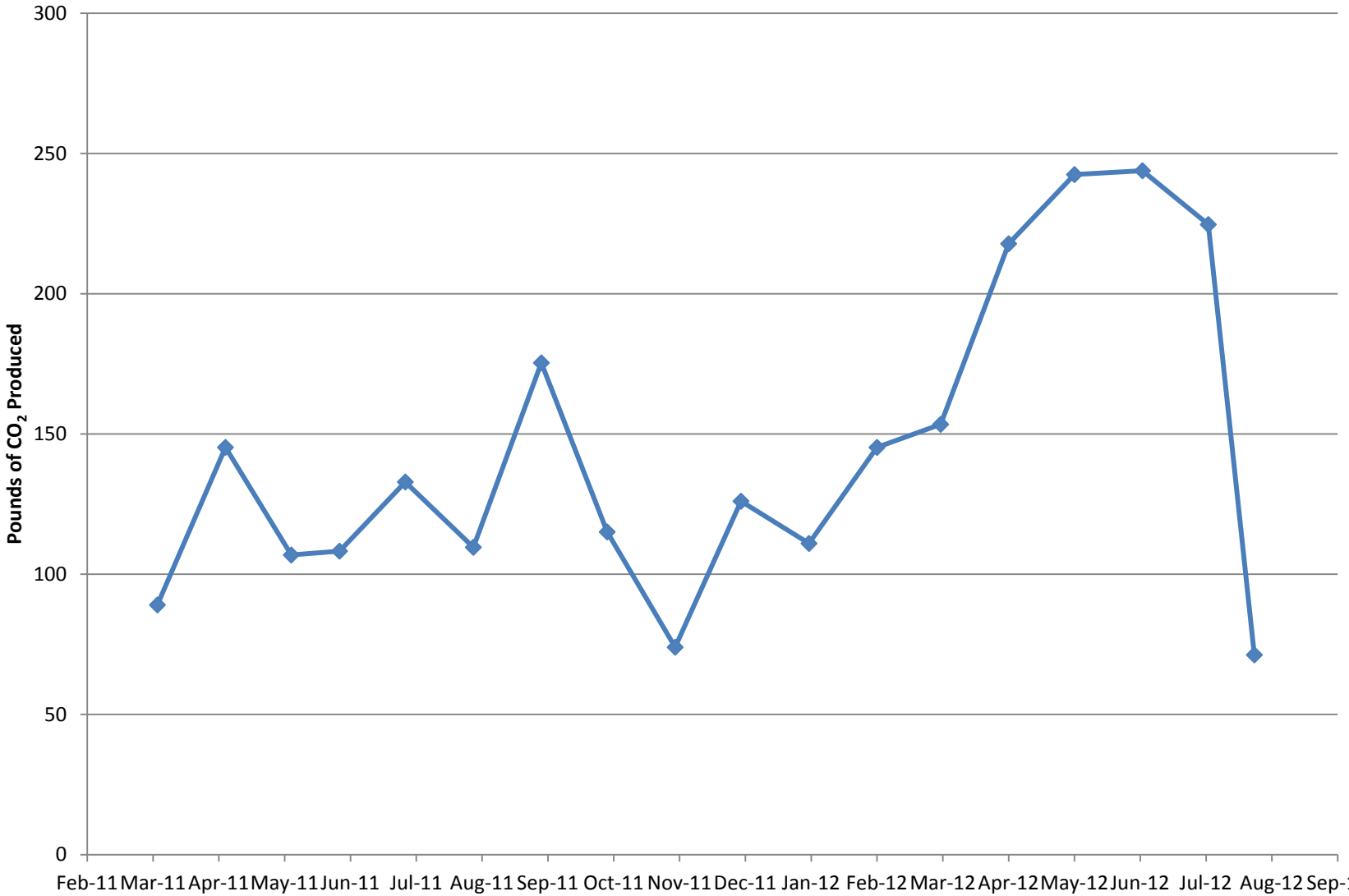


Figure 2

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



Travis AFB
Restoration Program

Program Overview

RPM Meeting

September 19, 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

2

Completed Documents (cont'd)

- CAMU 2008-2009 Monitoring Annual Report
- 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***

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

4

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

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In-Progress Documents & Field Work

Documents

- Old Skeet Range Engineering Evaluation/Cost Analysis
- 2011 Groundwater Treatment RPO Annual Report
- Proposed Plan (PP)
- FT005 Remedial Action Completion Report
- ***Vapor Intrusion Update Tech Memo***

Field Work

- SS029/SS016 System Optimization Analysis
- LF007C GET System Optimization

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Upcoming Documents

- Basewide Groundwater Record of Decision (ROD) Oct
- 2012 GSAP Technical Memorandum Oct

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Upcoming Field Work

- GSAP Semiannual Sampling Event Nov 2012

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

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