

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

17 July 2013, 0930 Hours

Mr. Mark Smith, Travis Air Force Base (AFB), conducted the Restoration Program Manager's (RPM) meeting on 17 July 2013 at 0930 hours, at Travis AFB, California. Attendees included:

- Mark Smith Travis AFB
- Glenn Anderson Travis AFB
- Lonnie Duke Travis AFB
- Gregory Parrott Travis AFB
- Merrie Schilter-Lowe Travis AFB
- William Hall (via phone) AFCEC/CZRW
- Dezso Linbrunner USACE-Omaha
- 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)
- Indira Balkissoon (via phone) Techlaw, Inc.
- Mehrdad Javaherian End Point Consulting
- Chris Bason J.C. Palomar
- Mike Wray 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 (May and June 2013)
- Attachment 4 CGWTP Monthly Data Sheet (May and June 2013)
- Attachment 5 NGWTP Monthly Data Sheet (May and June 2013)
- Attachment 6 ST018 Monthly Data Sheet (May and June 2013)
- Attachment 7 Presentation: Third Five Year Review
- Attachment 8 Presentation: Program Update: Activities Completed, In Progress and Upcoming

1. ADMINISTRATIVE

A. Previous Meeting Minutes

The 22 May 2013 RPM meeting minutes were approved and finalized as written.

Mr. Smith made introductions to welcome Ms. Balkissoon from Techlaw, Mr. Javaherian from Endpoint, and Mr. Bason from J.C. Palomar. Due to time restrictions in Mr. Javaherian's schedule, the meeting began with the Five Year Review presentation.

B. Action Item Review.

Action items from May were reviewed.

Action item 1 still open: Travis AFB to research beneficial reuse of treated water. AFCEE is in agreement with treated water reuse using Defense Environmental Restoration Account (DERA) funds under the authority of a "net-zero policy" for the Air Force. Update, 16 January 2013: Mr. Duke said that an Air Force energy reduction contractor is looking into the cost of installing a pipe to convey treated water from the central plant to the duck pond. Update, 20 March 2013: Mr. Duke said Travis AFB is looking into energy management projects with respect to ways of reducing water usage. Due date changed to TBD. Update, 18 April 2013: Mr. Smith said that they have the attention of Civil Engineering Operations Flight regarding beneficial reuse.

No updates to this action item were discussed in the July 2013 RPM meeting.

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 21 August 2013. Ms. Burke will look into her schedule to see if she will be able to attend the August RPM meeting due to possible conflicting commitments.

Ms. Constantinescu indicated that she cannot attend the 18 September RPM meeting. However, Mr. David Elias will sit in for her.

Travis AFB Master Document Schedule

— Groundwater Record of Decision (ROD): The Response to Comments (RTCs) meeting date was changed to TBD and the subsequent dates were changed to TBD. The TBD dates are pending Air Force legal review of Travis AFB responses to the agencies comments. Travis AFB is finishing up responses to "non-legal" comments that will go through Air Force legal review before

submitting to the regulators. A “tiger team” has been formed with Air Force legal and EPA legal representatives to streamline guidance for all Air Force RODs. Mr. Anderson said Travis AFB is working on an appendix to the ROD that will have conceptual site models that includes all sites (Appendix A). Travis AFB will submit appendix A directly to the regulators for review. Ms. Constantinescu/RWQCB has no further comments on the draft ROD. Mr. Wray asked Ms. Burke that if the non-legal RTCs come back from Air Force legal while she is on leave, can Ms. Balkissoon start the review process. Ms. Burke said that all documents need to be directed to her with a cc to Techlaw, and Ms. Sara Goldsmith. Ms. Burke said if the document is received before she goes on leave, she will provide directions to Techlaw for their technical review. However, legal issues must go through EPA review.

- 3rd Five-Year Review: The Agency Comments Due date was changed to 23 July 2013, and the subsequent dates were changed accordingly. Ms. Burke requested to move up the RTCs meeting as she will be on leave from 2 August through 13 August, adding EPA has about seven pages of comments. Mr. Duke indicated Travis AFB would not have time to review comments if the RTCs date was moved up, suggesting instead to push the date back. Ms. Burke said the Five-Year Review must go final in September and pushing that date back might not allow enough review time. Mr. Smith suggested perhaps going straight to final instead of waiting the thirty days from draft final to final. Ms. Burke suggested a teleconference when Travis AFB receives the comments from EPA next week. A teleconference is tentatively scheduled for 24 July 2013.
- Potrero Hills Annex: (FS, PP, and ROD): No change to the schedule. Mr. Anderson said the Potrero Hills responsible parties have issued two reports: The Vegetation Investigation Report and The Oxidation Pond Report. The Vegetation Investigation Report is undergoing internal review. Travis AFB received the report yesterday and has not had enough time to thoroughly review and report their findings. What is known is that the vegetation and soil samples collected (soil samples were collected about an inch below the vegetation) tested positive for perchlorate. The samples collected were along the hillside. This investigation is significant because it is on private property and the property is used to graze cattle. What we can conclude is more investigation is needed to define the perchlorate contaminant migration. Mr. Anderson said he would be able to report more next month when he has more time to review the report. The Oxidation Pond Report has been forwarded to RWQCB for review. The oxidation pond is separate from the annex it is also referred to as a “passive sewage lagoon”; the pond has received waste water/gray water from the Annex. The pond was investigated because there is a water production well that tested positive for perchlorate which is located downhill from the pond. All samples collected from the oxidation pond tested non-detect for perchlorate.
- Old Skeet Range Action Memorandum: The Response to Comments Meeting was changed to TBD, the subsequent dates were also changed to TBD. A teleconference is schedule this afternoon to discuss with the regulators.

- Subarea LF007C and Site SS030 Remedial Process Optimization Work Plan: New document with all new dates. The work plan describes the work to be conducted, which includes a new extraction well at Site SS030, and larger solar panels, installation of one new pump, and relocation of the carbon vessels closer at Subsite LF007C.
- Quarterly Newsletter (July 2013): Draft to Agencies date was changed to 10 July 2013 to reflect the actual date the Newsletter went to the agencies, the subsequent dates were changed accordingly.
- Groundwater Remediation Implementation Status Report: Response to Comments Meeting was changed to 21 August 2013 the subsequent dates were changed accordingly. Travis AFB is working on responses to EPA comments. RWQCB and DTSC indicated they had no comments on the document, and will provide concurrence in writing to Travis AFB.
- Kinder Morgan LF044 Land Use Control Report: Dates are still TBD. Travis AFB is waiting for a draft report from Kinder Morgan. Mr. Smith said the purpose of this report is to record the reduction of the contaminated area at this particular Land Use Control (LUC) site, due to the installation of the above-ground fuel storage tanks. The report will include a map of the original LUC site (before construction) with an overlay of the contaminated soil that was removed and outline where the remaining contaminated soil is still located (after construction).
- 2012 CAMU Annual Report: The Response to Comments Due date was changed to 12 July 2013 and the Final Due date was changed to 15 July 2013 to reflect the actual date the document went final.

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)

May: The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 100% uptime, and 2.6 million gallons of groundwater were extracted and treated during the month of May 2013. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 59.3 gallons per minute (gpm). Electrical power usage was 13,020 kWh and approximately 17,837 pounds of CO₂ were created (based on DOE calculation). Approximately 0.16 pounds of volatile organic compounds (VOCs) were removed in May. The total mass of VOCs removed since startup of the system is 438 pounds.

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

Mr. Smith pointed out that a new line that was added to Table 1 for each of the Monthly Data Sheets: the initial date of data collection and the final date of data collection were added to help clarify the percent uptime, and to assist in tracking the number of operational hours.

June: The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 100% uptime, and 2.4 million gallons of groundwater were extracted and treated during the month of June 2013. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 60.0 gallons per minute (gpm). Electrical power usage was 17,880 kWh and approximately 24,496 pounds of CO₂ were created (based on DOE calculation). Approximately 0.16 pounds of volatile organic compounds (VOCs) were removed in June. The total mass of VOCs removed since startup of the system is 438 pounds.

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

Central Groundwater Treatment Plant (see Attachment 4)

May: The Central Groundwater Treatment Plant (CGWTP) performed at 90.5% uptime with approximately 1.3 million gallons of groundwater extracted and treated during the month of May 2013. All treated water was discharged to the storm drain. The average flow rate for the CGWTP was 32.1gpm. Electrical power usage was 1,883 kWh for all equipment connected to the Central plant, and approximately 2,580 pounds of CO₂ were generated. Approximately 3.56 pounds of VOCs were removed from groundwater by the treatment plant in May. The total mass of VOCs removed since the startup of the system is 11,330 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 May.

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

June: The Central Groundwater Treatment Plant (CGWTP) performed at 100% uptime with approximately 1.3 million gallons of groundwater extracted and treated during the month of June 2013. All treated water was discharged to the storm drain. The average flow rate for the CGWTP was 31.8gpm. Electrical power usage was 1,908 kWh for all equipment connected to the Central plant, and approximately 2,614 pounds of CO₂ were generated. Approximately 3.77 pounds of VOCs were removed from groundwater by the treatment plant in June. The total mass of VOCs removed since the startup of the system is 11,334 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 June.

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

Mr. Salcedo asked if EW610x16 was back online. Mr. Duke said not yet. The well is in the middle of the flight line and difficult to access (it is in a restricted badge area). Mr. Salcedo questioned the Vinyl Chloride (VC) concentration level with a J flag collected at the influent sample port, as compared to the VC collected at carbon vessel 1. The VC concentration at the latter sample port is a higher concentration. Mr. Duke said we are monitoring those vessels carefully, and when needed, we will change out the carbon.

North Groundwater Treatment Plant (see Attachment 5)

The treatment plant was brought back online on 1 May 2013 when the seasonal vernal pools at Site LF007C were observed to be dry.

May: The North Groundwater Treatment Plant (NGWTP) performed at 100% uptime with approximately 27,840 gallons of groundwater extracted and treated during the month of May 2013. The average flow rate at the NGWTP was 0.64 gpm and electrical power use was 488 kWh for all the equipment connected to the North plant; approximately 669 pounds of CO₂ was generated. Approximately 3.9×10^{-5} pounds of VOCs were removed from the groundwater in May. 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 May.

June: The North Groundwater Treatment Plant (NGWTP) performed at 100% uptime with approximately 23,580 gallons of groundwater extracted and treated during the month of June 2013. The average flow rate at the NGWTP was 0.61 gpm and electrical power use was 420 kWh for all the equipment connected to the North plant; approximately 575 pounds of CO₂ was generated. Approximately 6.2×10^{-4} pounds of VOCs were removed from the groundwater in June. 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 June.

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

May: The Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 74.4% uptime with approximately 104 thousand gallons of groundwater extracted and treated during the month of May 2013. All treated water was diverted to the storm drain. The average flow rate for the ST018 GWTP was 3.44 gpm. Electrical power usage for the month was 73 kWh for all equipment connected to the ST018 GWTP plant, which equates to the creation of approximately 100 pounds of CO₂. Approximately 0.29 pounds of BTEX, MTBE and TPH were removed from groundwater in May from the treatment plant. The total BTEX, MTBE and TPH mass removed since the startup of the system is 23.8 pounds.

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

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

June: The Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 90.8% uptime with approximately 62.5 thousand gallons of groundwater extracted and treated during the month of June 2013. All treated water was diverted to the storm drain. The average flow rate for the ST018 GWTP was 4.24 gpm. Electrical power usage for the month was 56 kWh for all equipment connected to the ST018 GWTP plant, which equates to the creation of approximately 77 pounds of CO₂. Approximately 0.18 pounds of BTEX, MTBE and TPH were removed from groundwater in June from the treatment plant. The total BTEX, MTBE and TPH mass removed since the startup of the system is 24.0 pounds.

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

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

Presentations:

Third Five-Year Review Report (see Attachment 7)

Mr. Javaherian reported on the Third Five Year Review. See Attachment 7 for details. Highlights included:

Guidance Utilized: Preparing the Third Five Year Review report relied on a series of guidance documents, one being the US Environmental Protection Agency (USEPA) Comprehensive Five-Year Review Guidance. Also incorporated were components from the associated supplements, which are more recent (USEPA, 2001 and 2012).

Scope of Work: Covered remedial action activities included in the two interim decision documents for the base; the North, East and West Industrial Operable unit (NEWIOU) groundwater Interim Record of Decision (IROD), and the West Annexes, and Basewide Operable Unit (WABOU) groundwater IROD. In addition, the NEWIOU Soil, Sediment, and Surface Water ROD and the WABOU Soil ROD were reviewed.

Site Inclusion Matrix: The sites reviewed included twenty-two groundwater interim remedial action sites in the NEWIOU and the WABOU, ten soil and sediment remediation sites in the NEWIOU, and nine soil remediation sites in the WABOU.

Technical Assessment: A technical assessment was conducted to verify that remedial actions (RAs) are protective of human health and the environment, and are functioning as designed. The period covered in the Five-Year Review includes August 2008 through September 2013. The data used was reported through February 2013.

Protectiveness Statements: Overall, the groundwater, soil, and sediment interim remedies are protective of human health and the environment. Exposure pathways that could result in unacceptable risks are being controlled. However, the long-term remedies require development of final remedial action objectives and selection of final remedies. This is currently in progress in the Groundwater ROD (draft).

One follow-up action is at Site LF007C. Optimization of that groundwater extraction system is being conducted currently.

Outstanding Issue from Second Five-Year Review: The Travis AFB Vapor Intrusion (VI) Study (2009-2010) concluded VI is not taking place in existing buildings. VI may be a concern with construction of new buildings above the groundwater VOC plumes. Administrative controls have been identified and will be implemented to protect receptors in future office buildings above VOC plumes. Three new buildings already have these administration controls implemented by installing a passive ventilation system.

Next Five-Year Review Report: The next Five-Year Review will be prepared by September 2018. LUCs will continue to be implemented at nine soil sites per the NEWIOU Soil, Sediment, and Surface Water ROD, and the WABOU Soil ROD. The Travis AFB Groundwater ROD will be in effect (expected to be a final document in 2013). LUCs for final groundwater remedies will be implemented per Final Travis AFB Groundwater ROD.

Please see attachment 7 for the Five-Year Review report schedule.

Program Update: Activities Completed, In Progress and Upcoming (see Attachment 8)

Mr. Wray reported on the status of field work and documents which are completed, in progress, and upcoming. Updates from the briefing this month included:

Newly Completed Documents: 2012 CAMU Annual report.

Newly Completed Field Work: Electrical repairs to FT005 extraction system (well EW01x05).

In-Progress Documents: Groundwater Record of Decision, Old Skeet Range Action Memorandum. 2012 CAMU Annual Report, 3rd Five-Year Review, 2012 Annual Groundwater Remediation Implementation Status Report (GRISR)

In-Progress Field Work: Electrical repairs to Site SS029 extraction system. Pump repairs to Site SS016 (well EW610x16).

Upcoming Documents: Kinder Morgan LF044 Land Use Control Report. LF007C Extraction System Optimization Work plan.

Upcoming Field Work: Subsite LF007C optimization upgrades, Site SS030 optimization upgrades, Site ST018 carbon vessel upgrades.

4. New Action Item Review

There were no new action items.

5. PROGRAM/ISSUES/UPDATE

Mr. Smith wanted to remind everyone that for ten more Fridays the Travis Restoration staff will be on furlough. Each member of the program is going to document the impact of this sequestering. Mr. Smith requested that the regulators also track how the furloughs are impacting their ability to conduct their workload.

Mr. Linbrunner gave an update on the new Travis AFB Performance Based Contract. The Source Selection Evaluation Board was conducted on 10 to 20 of June 2013. The technical write-up was provided to the Contract Specialists on 26 June 2013. The Contract Specialists provided additional write-ups for the Source Selection Authority (SSA) and on 10 July 2013 the contract was sent to the Business Operation Branch (BOB) which evaluates the contract contents for accuracy, legalities, etc. The SSA decision document goes to legal counsel as well as peer review concurrently. The contract should be awarded by end of July or the middle of August.

Mr. Hall said he will look into procuring an 800 call in number for contractor support for the RPM teleconference meetings.

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	TBD	Open

		<p>the system running. Update, 16 January 2013: Mr. Duke said that an Air Force energy reduction contractor will look into the cost of installing a pipe to convey treated water from the central plant to the duck pond. Update, 20 March 2013: Mr. Duke said Travis AFB is looking into energy management projects with respect to ways of reducing water usage. Due date changed to TBD.</p>		
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TRAVIS AIR FORCE BASE
ENVIRONMENTAL RESTORATION PROGRAM
RESTORATION PROGRAM MANAGER'S MEETING
BLDG 570, Main Conference Room
17 July 2013, 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. PRESENTATION
 - A. THIRD FIVE YEAR REVIEW (MR. JAVAHER)
 - B. PROGRAM UPDATE: ACTIVITIES COMPLETED, IN PROGRESS AND UPCOMING

4. NEW ACTION ITEM REVIEW

5. PROGRAM/ISSUES/UPDATE

NOTES: AFTER THE RPM MEETING WE WILL HOLD A SEPARATE MEETING TO DISCUSS REGULATORY COMMENTS ON THE DRAFT OLD SKEET RANGE ACTION MEMORANDUM. ALL PARTICIPANTS ARE WELCOME TO ATTEND.

(2013)
Annual Meeting and Teleconference Schedule

Monthly RPM Meeting¹ (Begins at 9:30 a.m.)	RPM Teleconference (Begins at 10:00 a.m.)	Restoration Advisory Board Meeting (Begins at 7:00 p.m.) (Poster Session at 6:30 p.m.)
01-16-13	—	—
02-20-13	—	—
03-20-13	—	—
04-18-13 (Thur 2:00 PM)	—	04-18-13
05-22-13	—	—
Cancelled	—	—
07-17-13	—	—
08-21-13	—	—
09-18-13 ²	—	—
10-17-13 (Thur 2:00 PM)	—	10-17-13
11-20-13	—	—
—	—	—

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

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

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS		
Life Cycle	Groundwater Record of Decision Travis, Glenn Anderson CH2M HILL, Leah Waller	3rd Five-Year Review Travis AFB, Glenn Anderson J.C. Palomar, Chris Bason
Scoping Meeting	01-24-07 (11-30-11)	10-31-12
Predraft to AF/Service Center	11-28-12	03-08-13
AF/Service Center Comments Due	12-12-12	03-27-13
Draft to Agencies	01-02-13	05-21-13
Draft to RAB	01-02-13	05-21-13
Agency Comments Due	03-03-13 (04-05-13)	07-23-13
Response to Comments Meeting	TBD¹	08-06-13
Public Comment Period	NA	NA
Public Meeting	NA	NA
Response to Comments Due	TBD	08-20-13
Draft Final Due	TBD	08-26-13
Final Due	TBD	09-25-13

¹ Pending Air Force legal review of responses to agency comments

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	Subarea LF007C and Site SS030 Remedial Process Optimization Work Plan Travis AFB, Lonnie Duke CH2M HILL, Tony Chakurian
Scoping Meeting	NA	NA
Predraft to AF/Service Center	01-10-13	07-19-13
AF/Service Center Comments Due	01-28-13	08-02-13
Draft to Agencies	02-20-13	08-09-13
Draft to RAB	02-20-13	08-09-13
Agency Comments Due	03-22-13 (04-08-13)	09-09-13
Response to Comments Meeting	TBD	09-18-09
Response to Comments Due	TBD	09-25-13
Draft Final Due	NA	NA
Final Due	TBD	09-25-13
Public Comment Period	NA	NA
Public Meeting	NA	NA

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS				
Life Cycle	Quarterly Newsletters (July 2013) Travis, Glenn Anderson	Groundwater Remediation Implementation Status Report Travis AFB, Lonnie Duke CH2M HILL, Royer/Berwick	Kinder Morgan LF044 Land Use Control Report Travis AFB, Glenn Anderson Kinder Morgan, Nick Ricono	2012 CAMU Annual Report Travis AFB, Lonnie Duke ITSI, Rachel Hess
Scoping Meeting	NA	NA	NA	NA
Predraft to AF/Service Center	NA	03-28-13	TBD	03-25-13
AF/Service Center Comments Due	NA	04-11-13 (04-18-13)	TBD	04-01-13
Draft to Agencies	07-10-13	05-14-13	TBD	04-15-13
Draft to RAB	NA	05-14-13	TBD	04-15-13
Agency Comments Due	07-24-13	06-13-13	TBD	05-15-13
Response to Comments Meeting	TBD	08-21-13	TBD	05-22-13
Response to Comments Due	07-31-13	09-04-13	TBD	05-31-13 (07-12-13)
Draft Final Due	NA	NA	NA	NA
Final Due	07-31-13	09-04-13	TBD	05-31-13 (07-15-13)
Public Comment Period	NA	NA	NA	NA
Public Meeting	NA	NA	NA	NA

South Base Boundary Groundwater Treatment Plant Monthly Data Sheet

Report Number: 153

Reporting Period: 1 May 2013 – 31 May 2013

Date Submitted: 26 June 2013

This monthly data sheet presents information regarding the South Base Boundary Groundwater Treatment Plant (SBBGWTP) and associated remedial process optimization (RPO) activities.

System Metrics

Table 1 presents operation data from the May 2013 reporting period.

Table 1 – Operations Summary – May 2013			
Initial Data Collection:	05/01/2013 14:30	Final Data Collection:	05/31/2013 14:30
Operating Time:	Percent Uptime:	Electrical Power Usage:	
SBBGWTP: 720 hours	SBBGWTP: 100 %	SBBGWTP: 13,020 kWh (17,837 lbs CO ₂ generated ^a)	
Gallons Treated: 2.6 million gallons	Gallons Treated Since July 1998: 823 million gallons		
Volume Discharged to Union Creek: 2.6 million gallons			
VOC Mass Removed: 0.16 lbs^b		VOC Mass Removed Since July 1998: 438 lbs	
Rolling 12-Month Cost per Pound of Mass Removed: \$7,101 ^c			
Monthly Cost per Pound of Mass Removed: \$32,584			
lbs = pounds			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.			
^b Calculated using May 2013 EPA Method SW8260B analytical results.			
^c Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the system.			

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

Table 2 – SBBGWTP Average Flow Rate (gpm)^{a,b}							
FT005^c				SS029		SS030	
EW01x05	Offline	EW736x05	Offline	EW01x29	Offline	EW01x30	2.4
EW02x05	2.0	EW737x05	Offline	EW02x29	Offline	EW02x30	4.3
EW03x05	Offline	EW742x05	Offline	EW03x29	Offline	EW03x30	6.1
EW731x05	Offline	EW743x05	Offline	EW04x29	Offline	EW04x30	24.1
EW732x05	Offline	EW744x05	Offline	EW05x29	Offline	EW05x30	17.7
EW733x05	Offline	EW745x05	Offline	EW06x29	Offline	EW06x30	Dry
EW734x05	Offline	EW746x05	Offline	EW07x29	Offline	EW711x30	16.2
EW735x05	Offline						
FT005 Total:		2.0		SS029 Total:		Offline	
				SS030 Total:		70.8	
SBBGWTP Average Monthly Flow^c: 59.3 gpm							
^a Extraction well flow rates are based on instantaneous weekly readings collected at the end of the month. ^b The average groundwater flow rate was calculated using the Union Creek Discharge Totalizer and dividing it by the total time in the reporting period. ^c Most extraction wells at FT005 were taken offline in accordance with the <i>2008 Annual Remedial Process Optimization Report for the Central Groundwater Treatment Plant, North Groundwater Treatment Plant, and South Base Boundary Groundwater Treatment Plant.</i> gpm – gallons per minute Recharge –not pumping while the well recharges. SBBGWTP – South Base Boundary Groundwater Treatment Plant							

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

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

Summary of O&M Activities

Monthly groundwater samples at the SBBGWTP were collected on 8 May 2013. Sample results are presented in Table 4. The total VOC concentration (7.7 µg/L) in the influent sample has decreased since the April 2013 sample (14.8 µg /L) was collected. TCE (7.5 µg/L) and 1,2-DCA (0.2 J µg/L) were the only contaminants detected at the influent sample location in May 2013. No contaminants were detected at the midpoint or effluent sampling locations.

Figure 1 presents a plot of influent concentrations and average flow at the SBBGWTP over the past twelve (12) months. The decrease in influent concentration this month is likely the result of the Site SS029 extraction wells being offline for wire replacement activities. Extraction wells at Site SS029 typically produce groundwater with very high TCE concentrations relative to others that contribute to the SBBGWTP.

Three (3) of the Site SS029 extraction wells, EW02x29, EW04x29, and EW07x29, began experiencing malfunctions in February 2013 and remained offline during April 2013. Troubleshooting activities at Site SS029 indentified similar wiring issues to those that previously occurred at Site SS030. Work to replace the power wiring to the Site SS029 extraction wells began on 28 May 2013 and will be completed in June 2013.

Optimization Activities

No optimization activities were performed in May 2013.

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 17,837 pounds of GHG during May 2013. GHG production has increased significantly (from 7,973 pounds) since April 2013, however, it remained consistent with historical usage. Although extraction wells EW02x29, EW04x29, and EW07x29 remained offline in May, the remaining Site SS029 extraction wells were not shutdown for wiring repair work until 28 May 2013. This, along with continuous operation of the extraction wells at Site SS030, which had wiring repair work completed in February 2013 (when electrical use was at a historical low), resulted in increased energy consumption. 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 May 2013 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	8 May 2013 (µg/L)		
				Influent	Midpoint	Effluent
Halogenated Volatile Organics						
Carbon Tetrachloride	0.5	0.14	0	ND	ND	ND
Chloroform	5.0	0.16	0	ND	ND	ND
1,1-Dichloroethane	5.0	0.50	0	ND	ND	ND
1,2-Dichloroethane	0.5	0.15	0	0.2 J	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	0.20	0	ND	ND	ND
Trichloroethene	5.0	0.19	0	7.5	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	ND
Total Petroleum Hydrocarbons – Diesel	50	50	0	NM	NM	ND
Total Suspended Solids (mg/L)	NE	1.0	0	24	NM	NM

* In accordance with Appendix B of the Travis AFB South Base Boundary Groundwater Treatment Plant Operations and Maintenance Manual (CH2M HILL, 2004).

Notes:

J = analyte concentration is considered an estimated value

mg/L = milligrams per liter

N/C = number of samples out of compliance with discharge limits

ND = not detected

NE = not established

NM = not measured

µg/L = micrograms per liter

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

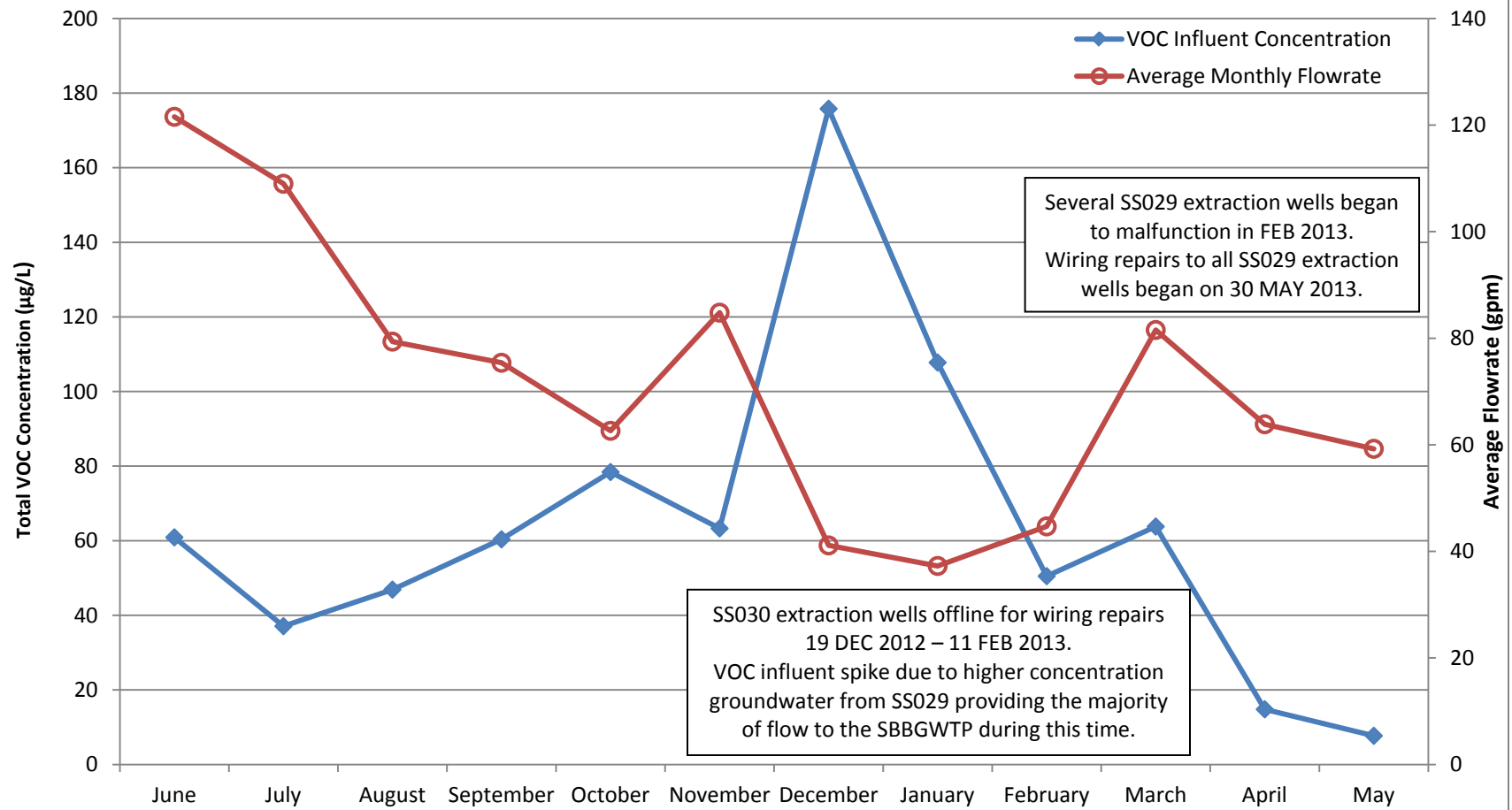
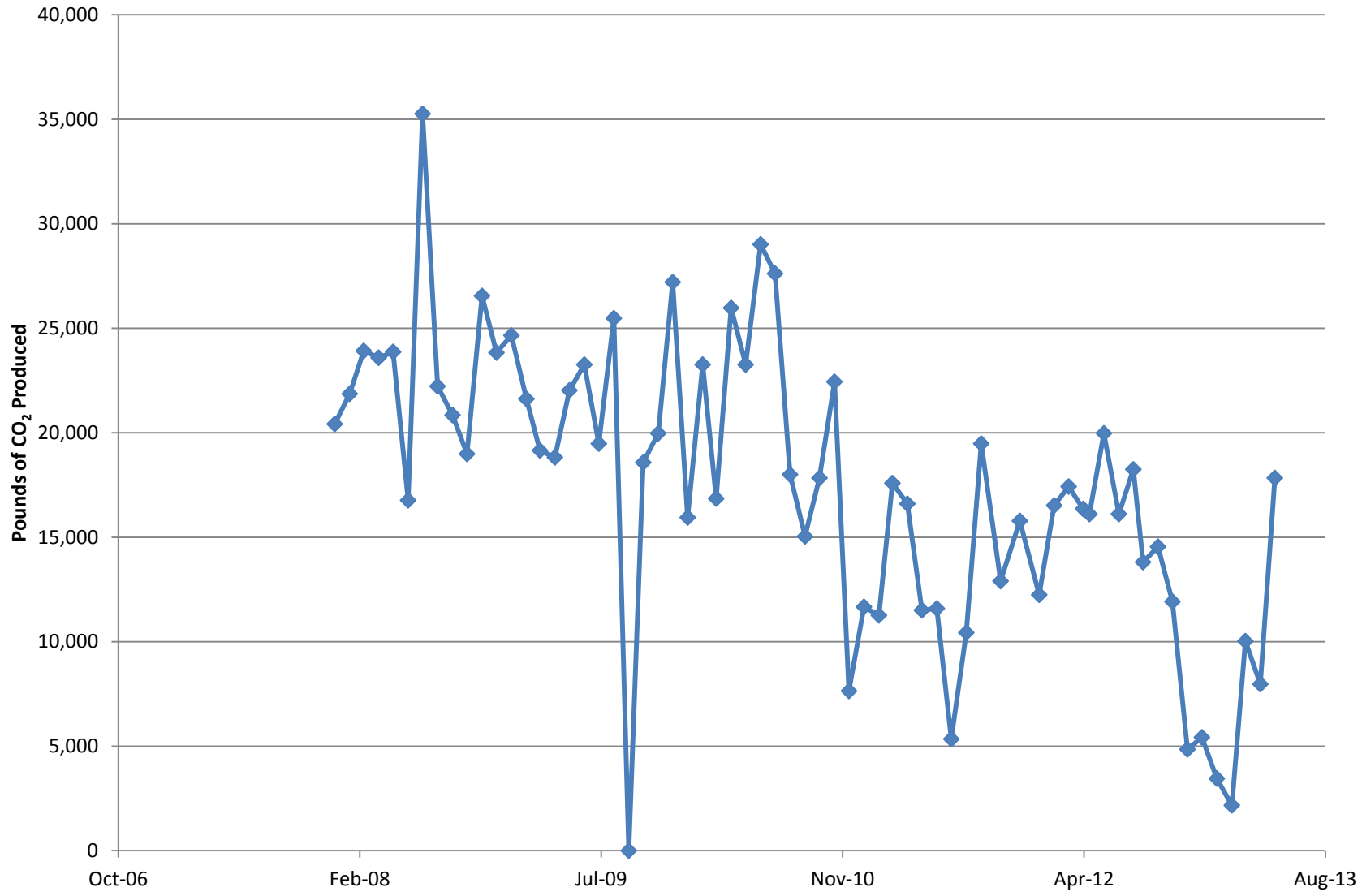


Figure 2

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



South Base Boundary Groundwater Treatment Plant Monthly Data Sheet

Report Number: 154

Reporting Period: 31 May 2013 – 28 June 2013

Date Submitted: 11 July 2013

This monthly data sheet presents information regarding the South Base Boundary Groundwater Treatment Plant (SBBGWTP) and associated remedial process optimization (RPO) activities.

System Metrics

Table 1 presents operation data from the June 2013 reporting period.

Table 1 – Operations Summary – June 2013			
Initial Data Collection:	05/31/2013 14:30	Final Data Collection:	06/28/2013 16:30
Operating Time:	Percent Uptime:	Electrical Power Usage:	
SBBGWTP: 674 hours	SBBGWTP: 100 %	SBBGWTP: 17,880 kWh (24,496 lbs CO ₂ generated ^a)	
Gallons Treated: 2.4 million gallons		Gallons Treated Since July 1998: 825 million gallons	
Volume Discharged to Union Creek: 2.4 million gallons			
VOC Mass Removed: 0.16 lbs^b		VOC Mass Removed Since July 1998: 438 lbs	
Rolling 12-Month Cost per Pound of Mass Removed: \$9,081 ^c			
Monthly Cost per Pound of Mass Removed: \$117,132 ^d			
lbs = pounds			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.			
^b Calculated using June 2013 EPA Method SW8260B analytical results.			
^c Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the system.			
^d Costs higher than typical for June 2013 due to costs associated with the 2Q13 GRIP sampling event.			

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

Table 2 – SBBGWTP Average Flow Rate (gpm)^{a,b}							
FT005^c				SS029		SS030	
EW01x05	Offline	EW736x05	Offline	EW01x29	2.2	EW01x30	3.0
EW02x05	2.1	EW737x05	Offline	EW02x29	5.1	EW02x30	2.1
EW03x05	Offline	EW742x05	Offline	EW03x29	3.5	EW03x30	3.4
EW731x05	Offline	EW743x05	Offline	EW04x29	5.0	EW04x30	23.0
EW732x05	Offline	EW744x05	Offline	EW05x29	12.0	EW05x30	19.5
EW733x05	Offline	EW745x05	Offline	EW06x29	0.5	EW06x30	Dry
EW734x05	Online ^d	EW746x05	Offline	EW07x29	Offline	EW711x30	16.1
EW735x05	Online ^d						
FT005 Total: 2.1				SS029 Total: 28.3		SS030 Total: 67.1	
SBBGWTP Average Monthly Flow^c: 60.0 gpm							
^a Extraction well flow rates are based on instantaneous weekly readings collected at the end of the month. ^b The average groundwater flow rate was calculated using the Union Creek Discharge Totalizer and dividing it by the total time in the reporting period. ^c Most extraction wells at FT005 were taken offline in accordance with the <i>2008 Annual Remedial Process Optimization Report for the Central Groundwater Treatment Plant, North Groundwater Treatment Plant, and South Base Boundary Groundwater Treatment Plant</i> . ^d Extraction wells EW734x05 and EW735x05 were restarted on 24 June 2013. No flow measurements were collected for these wells during the reporting period. 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 18 June 2013. Sample results are presented in Table 4. The total VOC concentration (7.7 µg/L) in the influent sample has remained the same as the May 2013 sample (7.7 µg /L) was collected. TCE (7.7 µg/L) was the only contaminant detected at the influent sample location in June 2013. No contaminants were detected at the midpoint or effluent sampling locations.

Figure 1 presents a plot of influent concentrations and average flow at the SBBGWTP over the past twelve (12) months. The influent concentration has begun to stabilize and is expected to increase with the Site SS029 extraction wells back online. Extraction wells at Site SS029 typically produce groundwater with very high TCE concentrations relative to others that contribute to the SBBGWTP.

Three (3) of the Site SS029 extraction wells, EW02x29, EW04x29, and EW07x29, began experiencing malfunctions in February 2013. Troubleshooting activities at Site SS029 indentified similar wiring issues to those that previously occurred at Site SS030. Work to replace the power wiring to the Site SS029 extraction wells began on 28 May 2013 and was completed on 27 June 2013.

Additional equipment failures were identified in July at extraction wells EW02x29 (step-down transformer) and EW07x29 (variable frequency drive). The functional step-down transformer from extraction well EW07x29 was relocated to extraction well EW02x29 and EW02x29 is now online. A new variable frequency drive and a step-down transformer are on order for installation at extraction well EW07x29 in July 2013. All of the Site SS029 extraction wells are now online with the exception of EW07x29.

Extraction wells EW734x05 and EW735x05 were restarted on 24 June 2013. Preliminary results from the 2Q13 GRIP sampling event detected increased contaminant concentrations in the southernmost portion of the Site FT005 plume area. These extraction wells will continue to operate until contaminant concentrations are reduced below detectable levels or cleanup has been achieved at the site.

Optimization Activities

No optimization activities were performed in June 2013.

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 24,496 pounds of GHG during June 2013. GHG production has increased (from 17,837 pounds) since May 2013. This increase in energy consumption is a result of the Site SS029 extraction wells being brought back online. 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 June 2013 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	18 June 2013 (µg/L)		
				Influent	Midpoint	Effluent
Halogenated Volatile Organics						
Carbon Tetrachloride	0.5	0.14	0	ND	ND	ND
Chloroform	5.0	0.16	0	ND	ND	ND
1,1-Dichloroethane	5.0	0.50	0	ND	ND	ND
1,2-Dichloroethane	0.5	0.15	0	ND	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	0.20	0	ND	ND	ND
Trichloroethene	5.0	0.19	0	7.7	ND	ND
Vinyl Chloride	0.5	0.18	0	ND	ND	ND
Non-Halogenated Volatile Organics						
Benzene	1.0	0.17	0	ND	ND	ND
Ethylbenzene	5.0	0.22	0	ND	ND	ND
Toluene	5.0	0.14	0	ND	ND	ND
Xylenes	5.0	0.23 – 0.5	0	ND	ND	ND
Other						
Total Petroleum Hydrocarbons – Gasoline	50	8.5	0	NM	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	50	0	NM	NM	ND
Total Suspended Solids (mg/L)	NE	1.0	0	13 J	NM	NM

* In accordance with Appendix B of the Travis AFB South Base Boundary Groundwater Treatment Plant Operations and Maintenance Manual (CH2M HILL, 2004).

Notes:

J = analyte concentration is considered an estimated value

mg/L = milligrams per liter

N/C = number of samples out of compliance with discharge limits

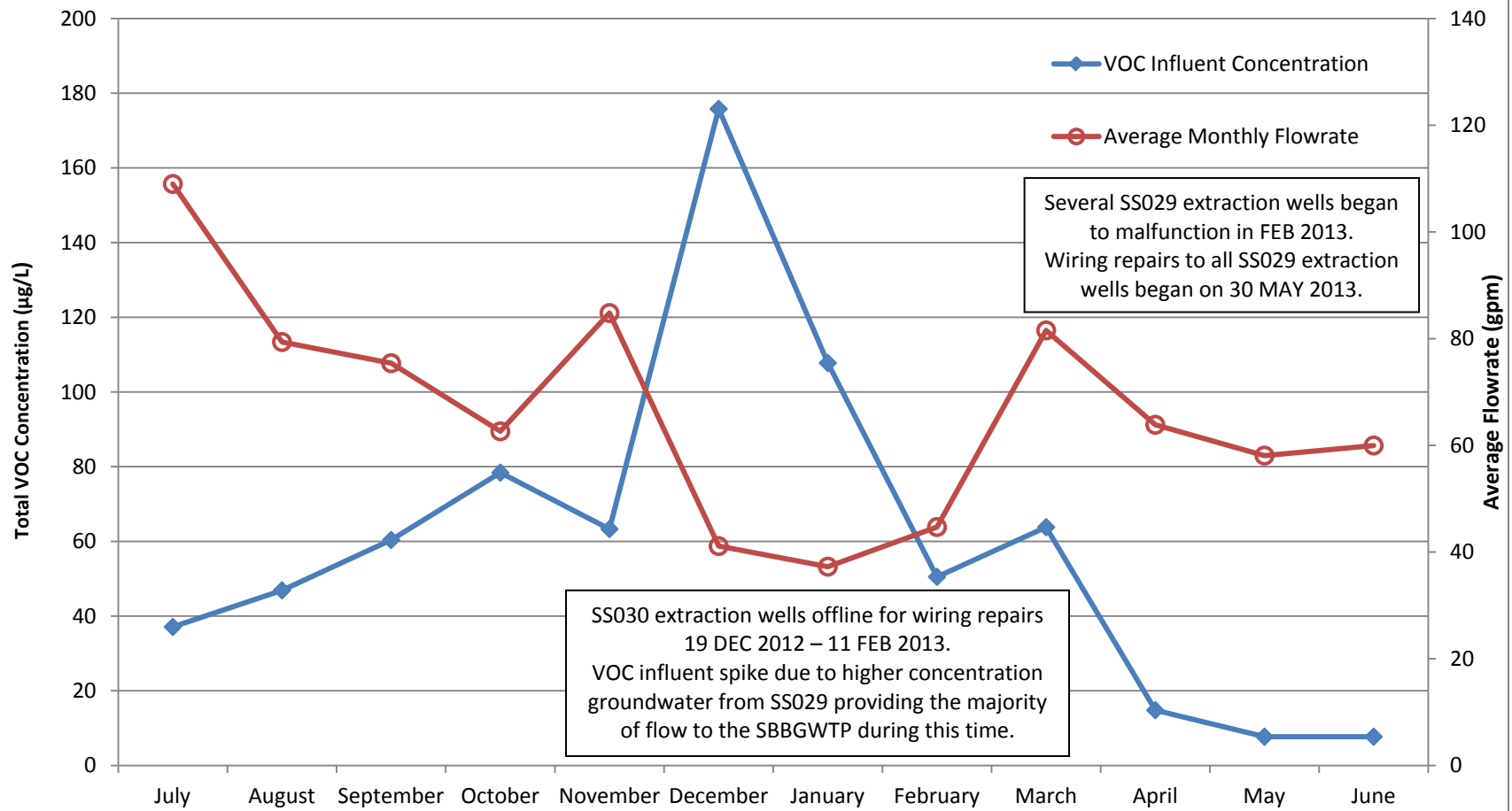
ND = not detected

NE = not established

NM = not measured

µg/L = micrograms per liter

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

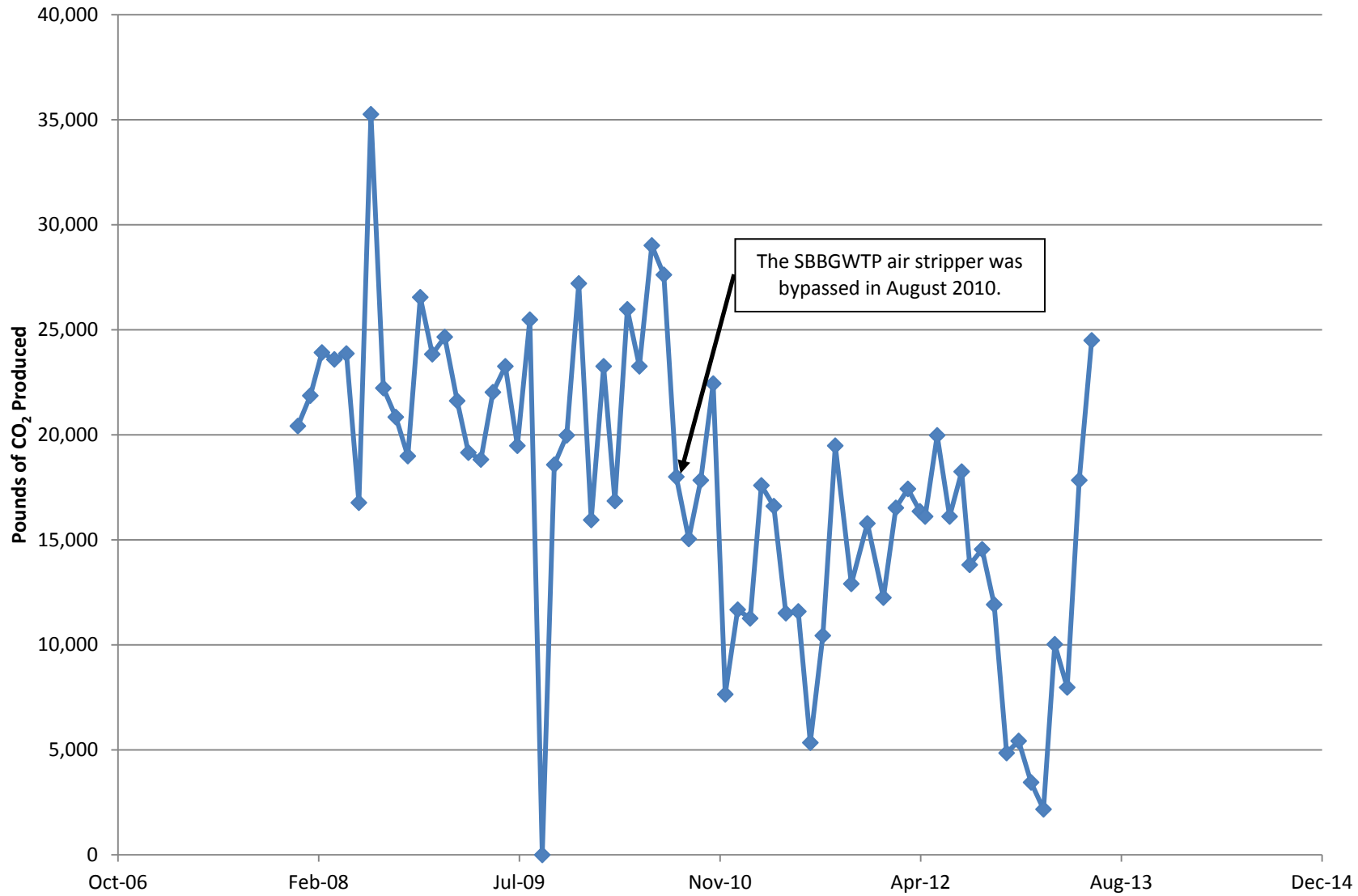


Several SS029 extraction wells began to malfunction in FEB 2013. Wiring repairs to all SS029 extraction wells began on 30 MAY 2013.

SS030 extraction wells offline for wiring repairs 19 DEC 2012 – 11 FEB 2013. VOC influent spike due to higher concentration groundwater from SS029 providing the majority of flow to the SBBGWTP during this time.

Figure 2

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



Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 166

Reporting Period: 1 May 2013 – 31 May 2013

Date Submitted: 26 June 2013

This monthly data sheet presents information regarding the Central Groundwater Treatment Plant (CGWTP) and its associated technology demonstrations. The ongoing technology demonstrations related to the CGWTP include various emulsified vegetable oil (EVO) injections, two (2) bioreactor treatability studies, and various rebound studies.

System Metrics

Table 1 presents operational data from the May 2013 reporting period.

Table 1 – Operations Summary – May 2013			
Initial Data Collection:	05/01/2013 13:45	Final Data Collection:	05/31/2013 16:30
Operating Time:		Percent Uptime:	Electrical Power Usage:
CGWTP: 654 hours		CGWTP: 90.5%	CGWTP: 1,883 kWh (2,580 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: 480 million gallons	
VOC Mass Removed:		VOC Mass Removed Since January 1996:	
3.56 lbs^b (groundwater only)		2,644 lbs from groundwater	
0 lbs (vapor only)		8,686 lbs from vapor	
Rolling 12-Month Cost per Pound of Mass Removed: \$2,872 ^c			
Monthly Cost per Pound of Mass Removed: \$1,076			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG. ^b Calculated using May 2013 EPA Method SW8260B analytical results. ^c Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the CGWTP and are reported based on the calendar month.			

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

Table 2 – CGWTP Average Flow Rates ^a		
Location	Average Flow Rate	
	Groundwater (gpm)	Soil Vapor (scfm) ^b
EW01x16	18.9	Offline
EW02x16	6.6	Offline
EW03x16	0.2 ^c	Offline
EW605x16	5.2	Offline
EW610x16	0.0	Offline
CGWTP	32.1	--
WTPP	-- ^b	Offline

^a Flow rates calculated by dividing total gallons processed by system operating time for the month.
^b No soil vapor was treated in May 2013.
^c Water discharged to Site SS016 bioreactor – flow rate taken from wellhead Flow Totalizer divided by operating time during the month.
gpm = gallons per minute
-- = not applicable/not available
scfm = standard cubic feet per minute

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

Table 3 – Summary of System Shutdowns					
Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
CGWTP (Groundwater)					
	25 May 2013	14:00	28 May 2013	08:00	Shutdown for base scheduled power outage.
WTPP					
	None	NA			

CGWTP = Central Groundwater Treatment Plant
WTPP = West Transfer Treatment Plant

Summary of O&M Activities

Monthly groundwater samples were collected at the CGWTP on 8 May 2013. Sample results are presented in Table 4. The total VOC concentration (338.75 µg/L) in the influent sample has decreased slightly since the April 2013 sample (340.03 µg/L) was collected. Concentrations of 1,1-Dichloroethene (0.87 µg/L), cis-1,2-DCE (73.3 µg/L), MTBE (0.65 µg/L), tetrachloroethene (0.58 µg/L), trans-1,2-Dichloroethene (3.8 µg/L), TCE (259 µg/L), vinyl chloride (0.18 µg/L), and 1,2-DCB (0.37 µg/L) were detected at the influent sampling location.

No contaminants were detected at the effluent sampling location. Travis Air Force Base will continue to monitor contaminant concentrations at the CGWTP for breakthrough in the primary vessel.

Figure 1 presents a plot of influent concentrations (total VOCs) and the influent flow rate at the CGWTP versus time for the past twelve (12) months. The average flow rate through the treatment plant continued to decrease in May 2013. Extraction well EW610x16 began to malfunction and a pump failure alarm was triggered during its restart on 17 May 2013. It remained offline through the end of the month. Troubleshooting efforts are currently underway, and the pump is expected to be brought back on line in June 2013. A decrease in the flow rate at the CGWTP can be observed in Figure 1. This decrease can be attributed to EW610x16, which has a typical flow rate of 3 gallons per minute (gpm), being offline throughout the month.

The Site DP039 bioreactor has transitioned to a “pulsed mode” operation in order to improve the rate of remediation and to preserve the amount of total organic carbon being produced within the bioreactor. The “pulsed mode” operation continued on a two (2) week transition schedule in May 2013.

Optimization Activities

No optimization activities occurred at CGWTP in May 2013.

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 2,580 pounds of GHG during May 2013. This is a decrease from the amount produced in April 2013 (approximately 3,402 pounds) and can be attributed to a decrease in the number of gallons treated.

TABLE 4
Summary of Groundwater Analytical Data for May 2013 – Central Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	8 May 2013 (µg/L)			
				Influent	After Carbon 1 Effluent	After Carbon 2 Effluent	System Effluent
Halogenated Volatile Organics							
Carbon Tetrachloride	0.5	0.14	0	ND	ND	ND	ND
Chloroform	5.0	0.16	0	ND	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.19	0	73.3	ND	ND	ND
1,1-Dichloroethane	5.0	0.5	0	ND	ND	ND	ND
1,2-Dichloroethane	0.5	0.15	0	ND	ND	ND	ND
1,1-Dichloroethene	5.0	0.19	0	0.87	ND	ND	ND
Methylene Chloride	5.0	0.66	0	ND	ND	ND	ND
MTBE	1.0	0.5	0	0.65 J	ND	ND	ND
Tetrachloroethene	5.0	0.21	0	0.58	ND	ND	ND
1,1,1-Trichloroethane	5.0	0.14	0	ND	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.2	0	ND	ND	ND	ND
Trichloroethene	5.0	0.19	0	259	ND	ND	ND
trans-1,2-Dichloroethene	5.0	0.33	0	3.8	ND	ND	ND
Vinyl Chloride	0.5	0.18	0	0.18 J	0.4 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 Travis AFB Central Groundwater Treatment Plant Operations and Maintenance Manual (URS Group, Inc., 2002).

Notes:

J = analyte concentration is considered an estimated value

N/C = number of samples out of compliance with discharge limits

ND = not detected

µg/L = micrograms per liter

mg/L = milligrams per liter

Table 5 presents a twelve month summary of the Site DP039 bioreactor recirculation well pulsing dates.

Table 5 – Summary of DP039 Bioreactor “Pulsed Mode” Operations		
Location	Pulse On Start Date	Pulse Off Start Date
EW782x39	27 April 2012	11 May 2012
	11 June 2012	25 June 2012
	20 July 2012	3 August 2012
MW750x39	5 September 2012	16 September 2012
	28 September 2012	13 October 2012
	29 October 2012	9 November 2012
	21 November 2012	7 December 2012
	21 December 2012	4 January 2013
	18 January 2013	4 February 2013
	15 February 2013	1 March 2013
	15 March 2013	29 March 2013
	12 April 2013	26 April 2013*
	10 May 2013	24 May 2013
<p>* Damage to the above ground discharge pipe feeding the bioreactor was observed at shutdown. The piping was repaired prior to the 10 May 2013 restart. CGWTP = Central Groundwater Treatment Plant EW = Extraction Well</p>		

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

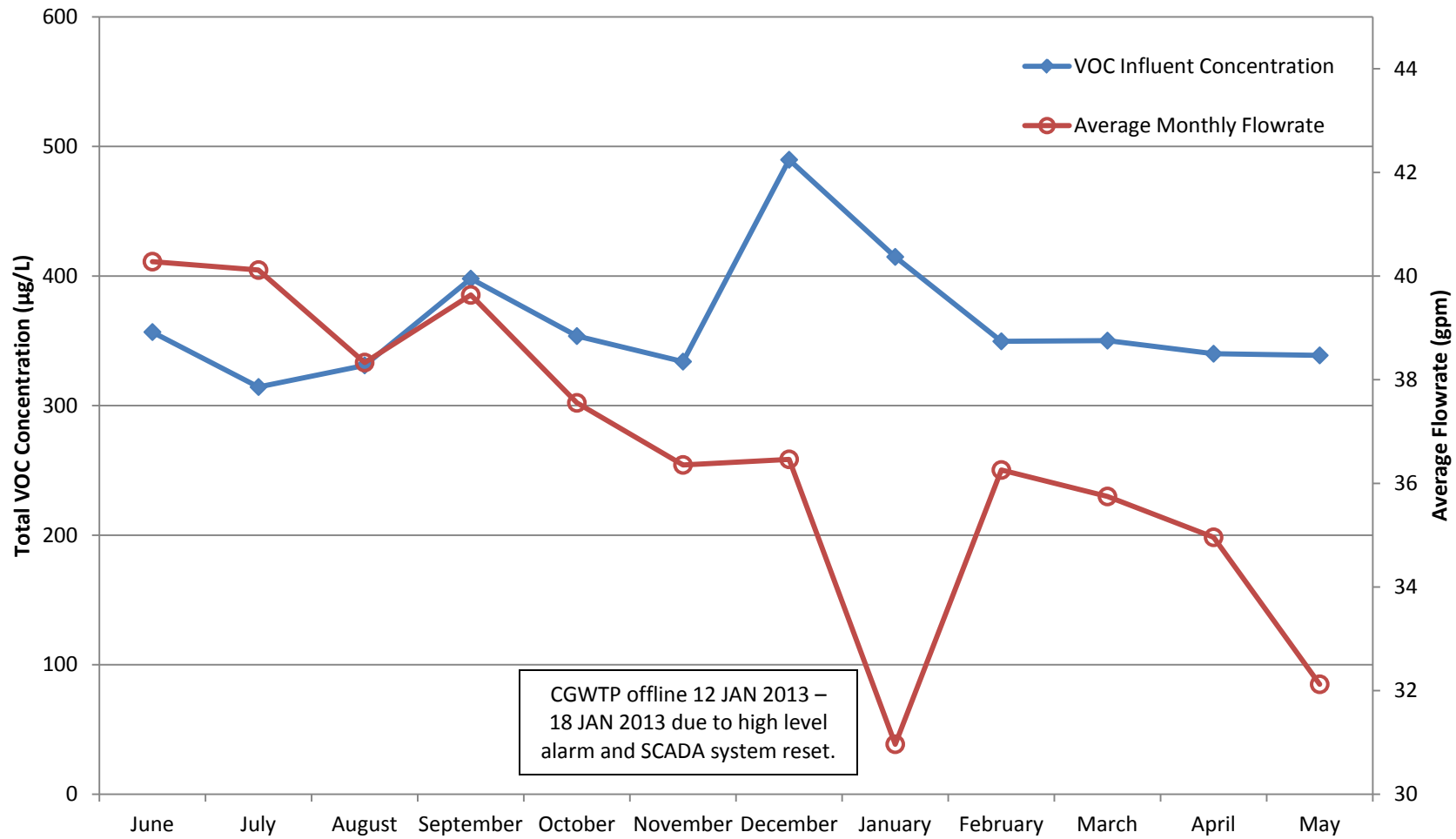
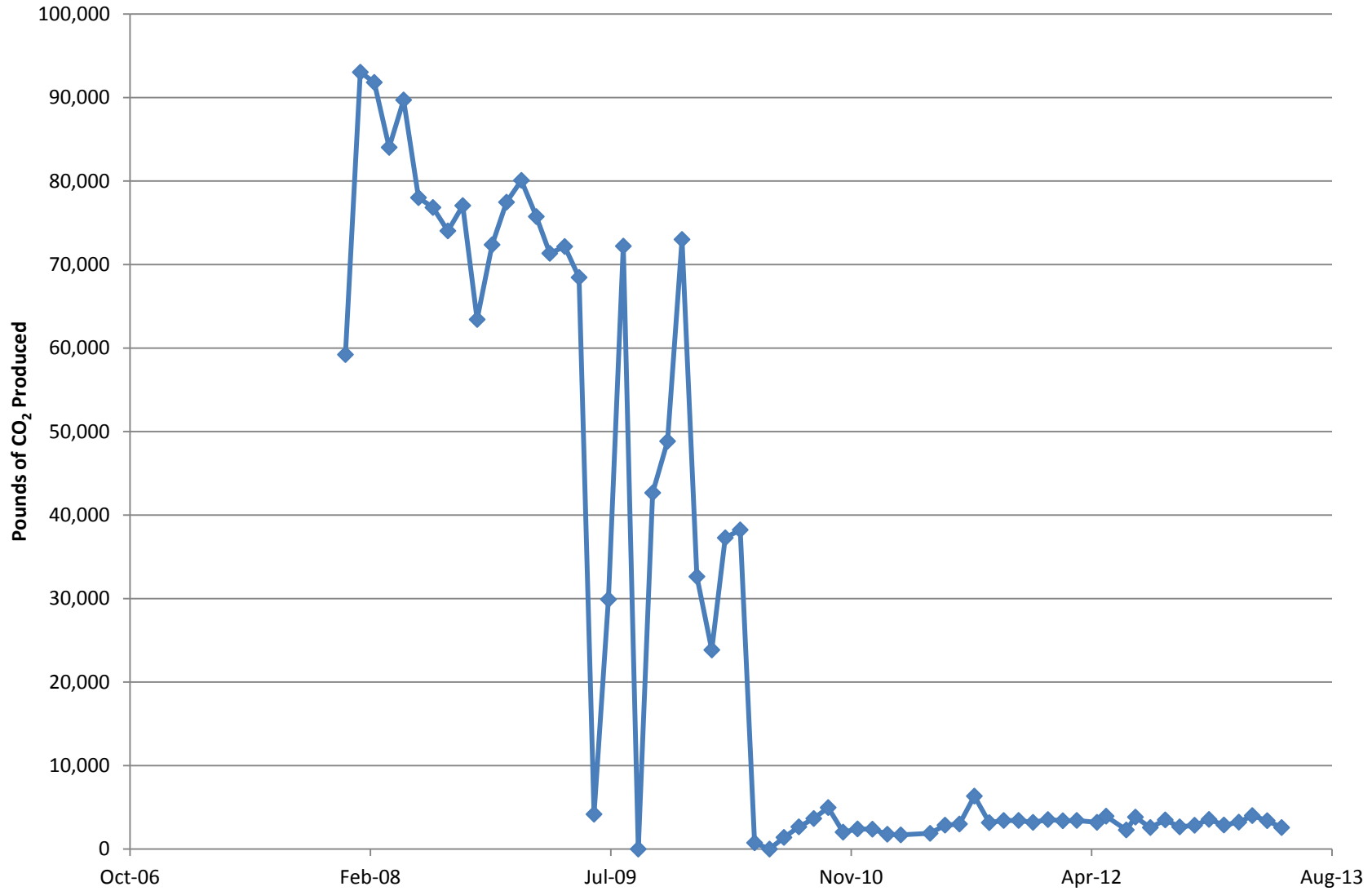


Figure 2
Equivalent Pounds of CO₂ Produced by the Central Groundwater Treatment Plant



Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 167

Reporting Period: 31 May 2013 – 28 June 2013

Date Submitted: 11 July 2013

This monthly data sheet presents information regarding the Central Groundwater Treatment Plant (CGWTP) and its associated technology demonstrations. The ongoing technology demonstrations related to the CGWTP include various emulsified vegetable oil (EVO) injections, two (2) bioreactor treatability studies, and various rebound studies.

System Metrics

Table 1 presents operational data from the June 2013 reporting period.

Table 1 – Operations Summary – June 2013			
Initial Data Collection:	05/31/2013 16:30	Final Data Collection:	06/28/2013 12:15
Operating Time:		Percent Uptime:	Electrical Power Usage:
CGWTP: 668 hours		CGWTP: 100%	CGWTP: 1,908 kWh (2,614 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: 481 million gallons	
VOC Mass Removed:		VOC Mass Removed Since January 1996:	
3.77 lbs^b (groundwater only)		2,648 lbs from groundwater	
0 lbs (vapor only)		8,686 lbs from vapor	
Rolling 12-Month Cost per Pound of Mass Removed: \$2,947 ^c			
Monthly Cost per Pound of Mass Removed: \$3,789 ^d			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG. ^b Calculated using June 2013 EPA Method SW8260B analytical results. ^c Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the CGWTP and are reported based on the calendar month. ^d Includes costs associated with the 2Q13 GRIP sampling event.			

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

Table 2 – CGWTP Average Flow Rates ^a		
Location	Average Flow Rate	
	Groundwater (gpm)	Soil Vapor (scfm) ^b
EW01x16	20.6	Offline
EW02x16	7.2	Offline
EW03x16	0.2 ^c	Offline
EW605x16	7.3	Offline
EW610x16	0.0	Offline
CGWTP	31.8	--
WTTP	-- ^b	Offline

^a Flow rates calculated by dividing total gallons processed by system operating time for the month.
^b No soil vapor was treated in June 2013.
^c Water discharged to Site SS016 bioreactor – flow rate taken from wellhead Flow Totalizer divided by operating time during the month.
gpm = gallons per minute
-- = not applicable/not available
scfm = standard cubic feet per minute

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

Table 3 – Summary of System Shutdowns					
Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
CGWTP (Groundwater)					
	None	NA			
WTTP					
	None	NA			

CGWTP = Central Groundwater Treatment Plant
WTTP = West Transfer Treatment Plant

Summary of O&M Activities

Monthly groundwater samples were collected at the CGWTP on 18 June 2013. Sample results are presented in Table 4. The total VOC concentration (354.81 µg/L) in the influent sample has increased since the May 2013 sample (338.75 µg/L) was collected. Concentrations of 1,1-Dichloroethene (0.78 µg/L), cis-1,2-DCE (77.8 µg/L), tetrachloroethene (0.66 µg/L), trans-1,2-Dichloroethene (2.2 µg/L), TCE (273 µg/L), and vinyl chloride (0.37 J µg/L) were detected at the influent sampling location. Vinyl chloride was also detected at the sample location after the Carbon 1 vessel.

No contaminants were detected after the Carbon 2 vessel or in the effluent sampling locations. Travis Air Force Base will continue to monitor contaminant concentrations at the CGWTP for breakthrough in the primary vessel.

Figure 1 presents a plot of influent concentrations (total VOCs) and the influent flow rate at the CGWTP versus time for the past twelve (12) months. The average flow rate through the treatment plant continued to decrease in June 2013. Extraction well EW610x16 continued to malfunction during June 2013 and remained offline through most of the month with a pump failure alarm occurring during attempts to restart it. Troubleshooting efforts will continue during July 2013.

The Site DP039 bioreactor has transitioned to a “pulsed mode” operation in order to improve the rate of remediation and to preserve the amount of total organic carbon being produced within the bioreactor. The “pulsed mode” operation continued on a two (2) week transition schedule in June 2013.

Optimization Activities

No optimization activities occurred at CGWTP in June 2013.

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 2,614 pounds of GHG during June 2013. This is an increase from the amount produced in May 2013 (approximately 2,580 pounds) and can be attributed to an increase in the number of gallons treated.

TABLE 4
Summary of Groundwater Analytical Data for June 2013 – Central Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	18 June 2013 (µg/L)			
				Influent	After Carbon 1 Effluent	After Carbon 2 Effluent	System Effluent
Halogenated Volatile Organics							
Carbon Tetrachloride	0.5	0.14	0	ND	ND	ND	ND
Chloroform	5.0	0.16	0	ND	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.19	0	77.8	ND	ND	ND
1,1-Dichloroethane	5.0	0.5	0	ND	ND	ND	ND
1,2-Dichloroethane	0.5	0.15	0	ND	ND	ND	ND
1,1-Dichloroethene	5.0	0.19	0	0.78	ND	ND	ND
Methylene Chloride	5.0	0.66	0	ND	ND	ND	ND
MTBE	1.0	0.5	0	ND	ND	ND	ND
Tetrachloroethene	5.0	0.21	0	0.66	ND	ND	ND
1,1,1-Trichloroethane	5.0	0.14	0	ND	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.2	0	ND	ND	ND	ND
Trichloroethene	5.0	0.19	0	273	ND	ND	ND
trans-1,2-Dichloroethene	5.0	0.33	0	2.2	ND	ND	ND
Vinyl Chloride	0.5	0.18	0	0.37 J	0.59	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	2300	NM

* In accordance with Appendix G of the Travis AFB Central Groundwater Treatment Plant Operations and Maintenance Manual (URS Group, Inc., 2002).

Notes:

J = analyte concentration is considered an estimated value

N/C = number of samples out of compliance with discharge limits

ND = not detected

µg/L = micrograms per liter

mg/L = milligrams per liter

Table 5 presents a twelve month summary of the Site DP039 bioreactor recirculation well pulsing dates.

Table 5 – Summary of DP039 Bioreactor “Pulsed Mode” Operations

Location	Pulse On Start Date	Pulse Off Start Date
EW782x39	20 July 2012	3 August 2012
MW750x39	5 September 2012	16 September 2012
	28 September 2012	13 October 2012
	29 October 2012	9 November 2012
	21 November 2012	7 December 2012
	21 December 2012	4 January 2013
	18 January 2013	4 February 2013
	15 February 2013	1 March 2013
	15 March 2013	29 March 2013
	12 April 2013	26 April 2013*
	10 May 2013	24 May 2013
	7 June 2013	21 June 2013

* Damage to the above ground discharge pipe feeding the bioreactor was observed at shutdown. The piping was repaired prior to the 10 May 2013 restart.

CGWTP = Central Groundwater Treatment Plant

EW = Extraction Well

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

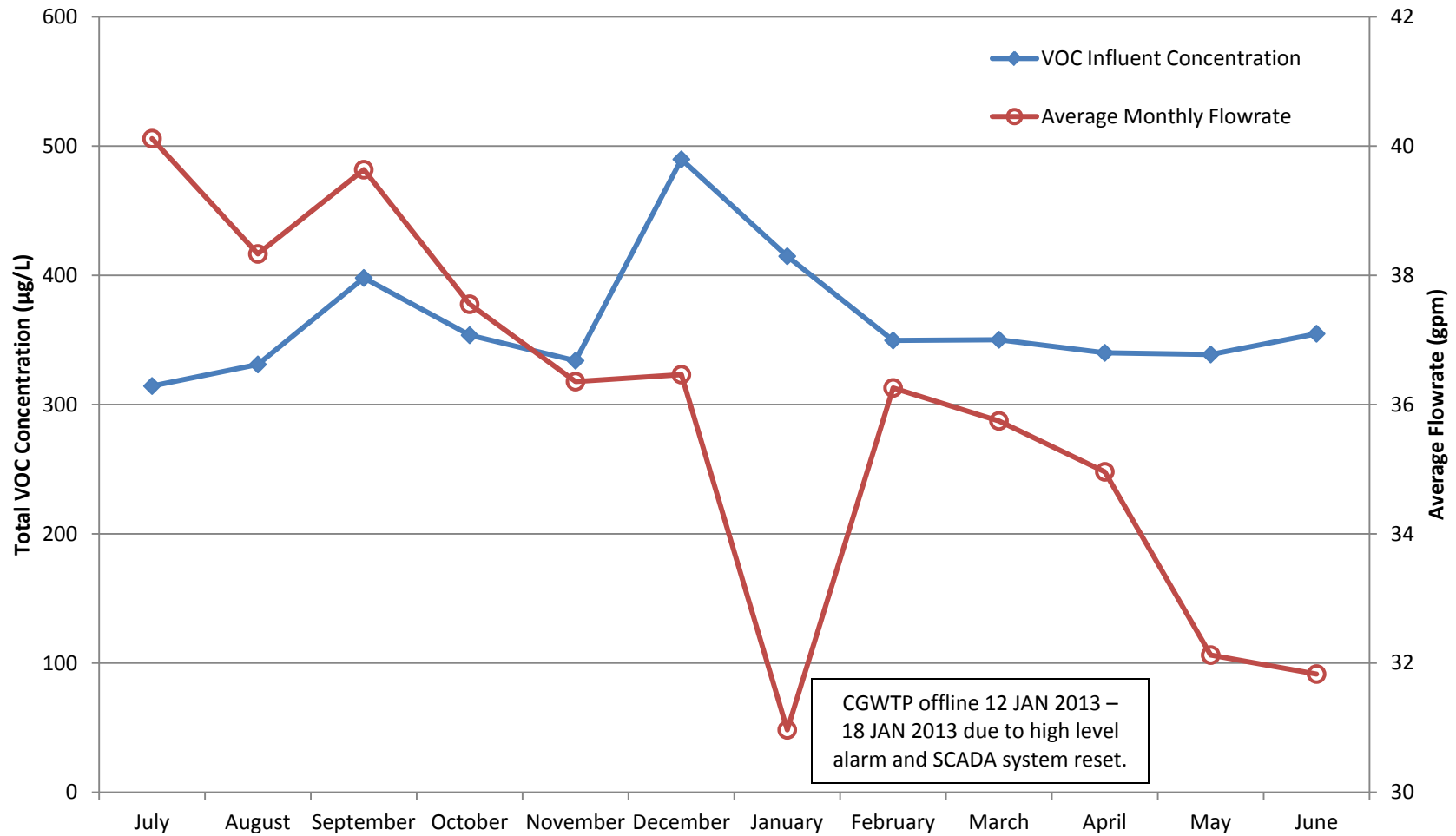
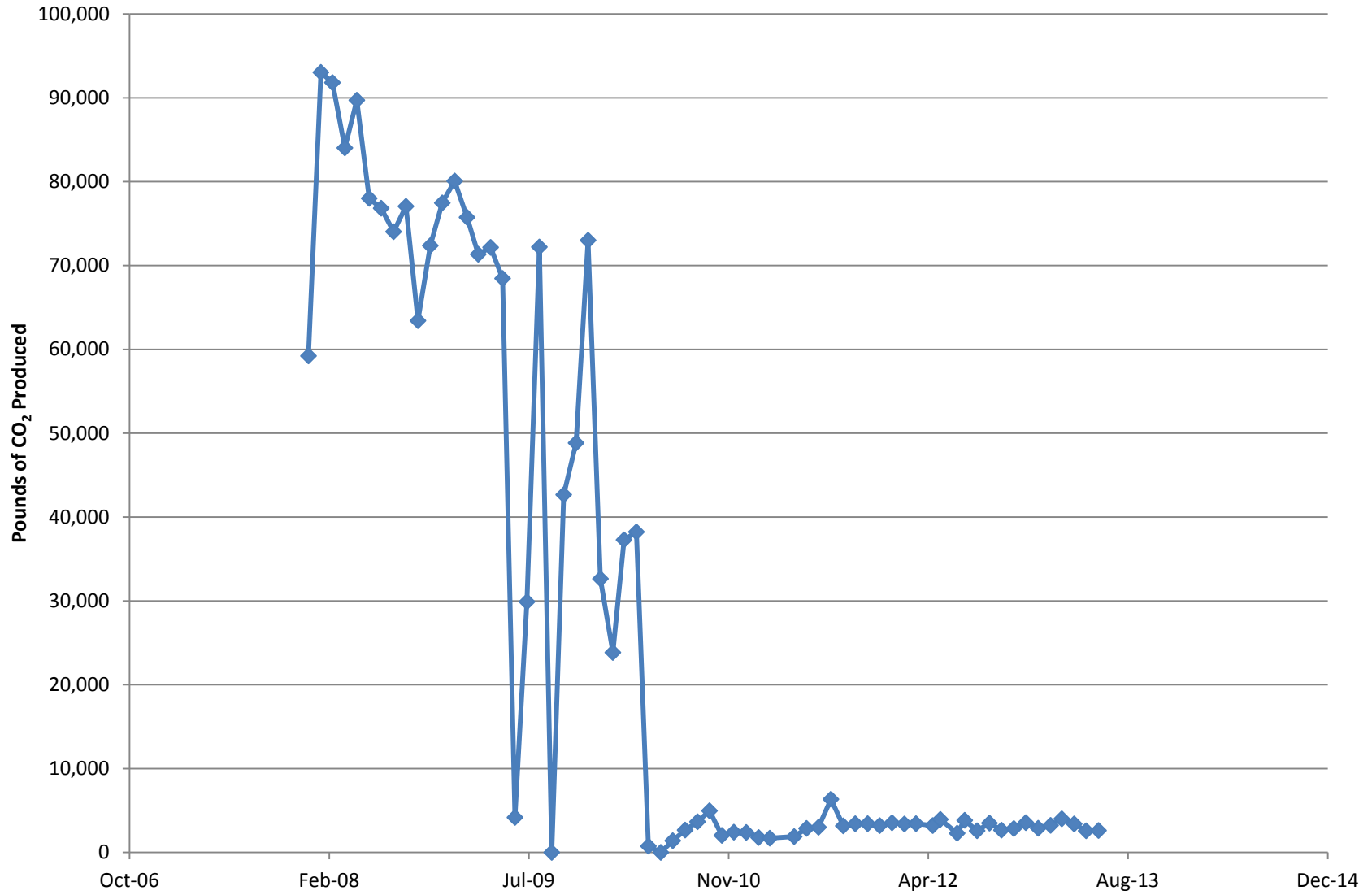


Figure 2

Equivalent Pounds of CO₂ Produced by the Central Groundwater Treatment Plant



North Groundwater Treatment Plant Monthly Data Sheet

Report Number: 131

Reporting Period: 1 May 2013 – 31 May 2013

Date Submitted: 26 June 2012

This monthly data sheet presents information regarding the North Groundwater Treatment Plant (NGWTP) and associated remedial process optimization (RPO) activities. The NGWTP was brought online on 1 May 2013 when the seasonal vernal pools at Site LF007C were observed to be dry. As required by US Fish and Wildlife Service (USFWS), extraction wells EW614x07 and EW615x07 had been previously taken offline on 30 November 2012 when water began to accumulate in the vernal pools.

System Metrics

Table 1 presents operational data from the May 2013 reporting period:

Table 1 – Operations Summary – May 2013			
Initial Data Collection:	05/01/2013 11:00	Final Data Collection:	05/31/2013 16:15
Operating Time:	Percent Uptime:	Electrical Power Usage:	
NGWTP: 725 hours	NGWTP: 100%	NGWTP: 488 kWh (669 lbs CO ₂ generated ^a)	
Gallons Treated: 27,840 gallons		Gallons Treated Since March 2000: 82.8 million gallons	
Volume Discharged to Duck Pond: 27,840 gallons^b		Volume Discharge to Storm Drain: 0 gallons	
VOC Mass Removed: 3.9 x 10⁻⁵ pounds^c		VOC Mass Removed Since March 2000: 174.3 pounds (Groundwater)	
Rolling 12-Month Cost per Pound of Mass Removed: Not Measured^d			
Monthly Cost per Pound of Mass Removed: Not Measured^e			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.			
^b Treated water was held at the NGWTP until sample results were available to confirm that no contaminants were detected at the midpoint and effluent sampling locations. The water began discharging on 29 May 2013.			
^c VOCs from May 2013 influent sample detected by EPA Method SW8260B.			
^d Value not calculated since measurement does not accurately represent the cost effectiveness of the system.			
^e 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 – May 2013		
Location	Average Flow Rate (gpm) ^a	Total Gallons Processed (gallons)
EW614x07	0.36	15,840
EW615x07	0.30	13,060
NGWTP	0.64	27,840

^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.

gpm = gallons per minute

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

Table 3 – Summary of System Shutdowns					
Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
NGWTP	11/30/2012	16:00	5/1/2013	NA	Seasonal vernal pools at Site LF007C contained ponded water during the winter months. Resumed operation when the vernal pools had dried.

NGWTP = North Groundwater Treatment Plant

Summary of O&M Activities

Analytical data from the 1 May 2013 sampling event are presented in Table 4. TCE (0.38 J µg/L) was detected at the influent sample location. No contaminant concentrations were measured at the midpoint or effluent sampling locations. While waiting for analytical results from the 1 May 2013 sampling event, all treated water was stored in the effluent holding tank and not discharged to the Duck Pond. Once the startup sampling results confirmed effective treatment of the extracted groundwater, all treated groundwater being stored in the effluent holding tank was discharged to the Duck Pond as is done under normal operating conditions.

Figure 1 presents a chart of influent concentrations (total VOCs) at the NGWTP versus time for the past twelve (12) months. Analytical data (Table 4) continue to indicate effective treatment of the influent process stream with only two (2) operating GAC drums online. As required by US Fish and Wildlife Service (USFWS), the NGWTP was taken off line (“System Shutdown”) on 30 November 2012 when vernal pools had formed at Site LF007C. The NGWTP resumed operation on 1 May 2013 when the vernal pools no longer contained standing water.

Optimization Activities

No optimization activities were performed during May 2013.

Sustainability

Travis AFB is committed to decreasing the amount of GHG produced directly (waste streams discharging GHG) or indirectly (GHG produced as related to electrical energy consumption) from all systems across Travis AFB. Travis AFB continues to optimize each treatment plant to reduce the amount of electrical energy consumed, and to implement sustainable treatment plant optimization programs, such as the solar arrays employed to power the system.

Figure 2 presents the historical GHG production from the systems associated with the NGWTP. The NGWTP is taken off line when vernal pools are present at Site LF007C. The NGWTP used 488 kWh, which calculates to approximately 669 pounds of GHG generation, in May 2013. This is more than November 2012 when the NGWTP produced approximately 596 pounds of GHG. This increase can be attributed to a longer operating period in and increased number of gallons treated in May 2013. 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 May 2013 – North Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	8 May 2013 (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	0.38 J	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:

N/C = number of samples out of compliance with discharge limits

ND = not detected

NM = not measured

µg/L = micrograms per liter

mg/L = milligrams per liter

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

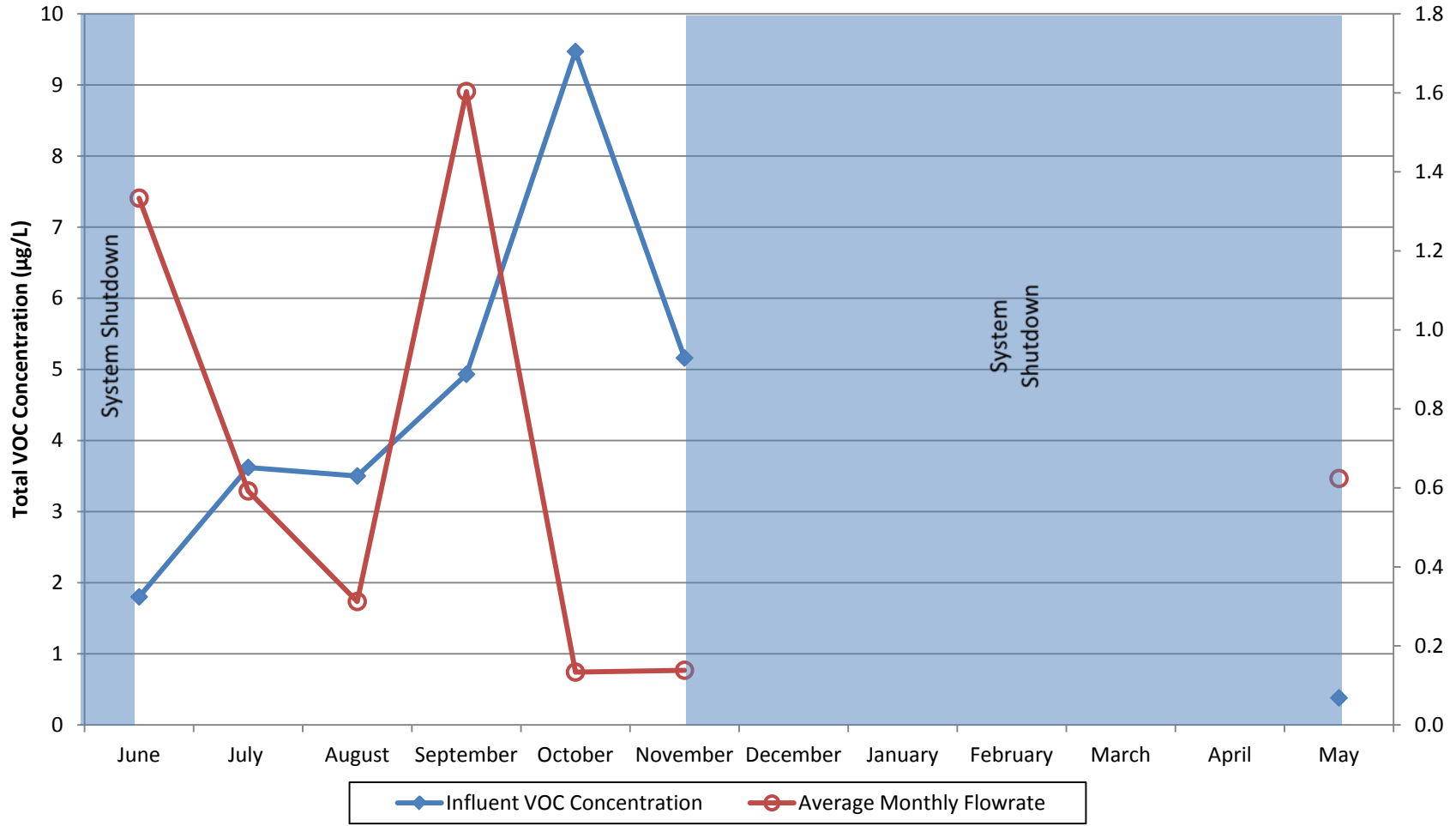
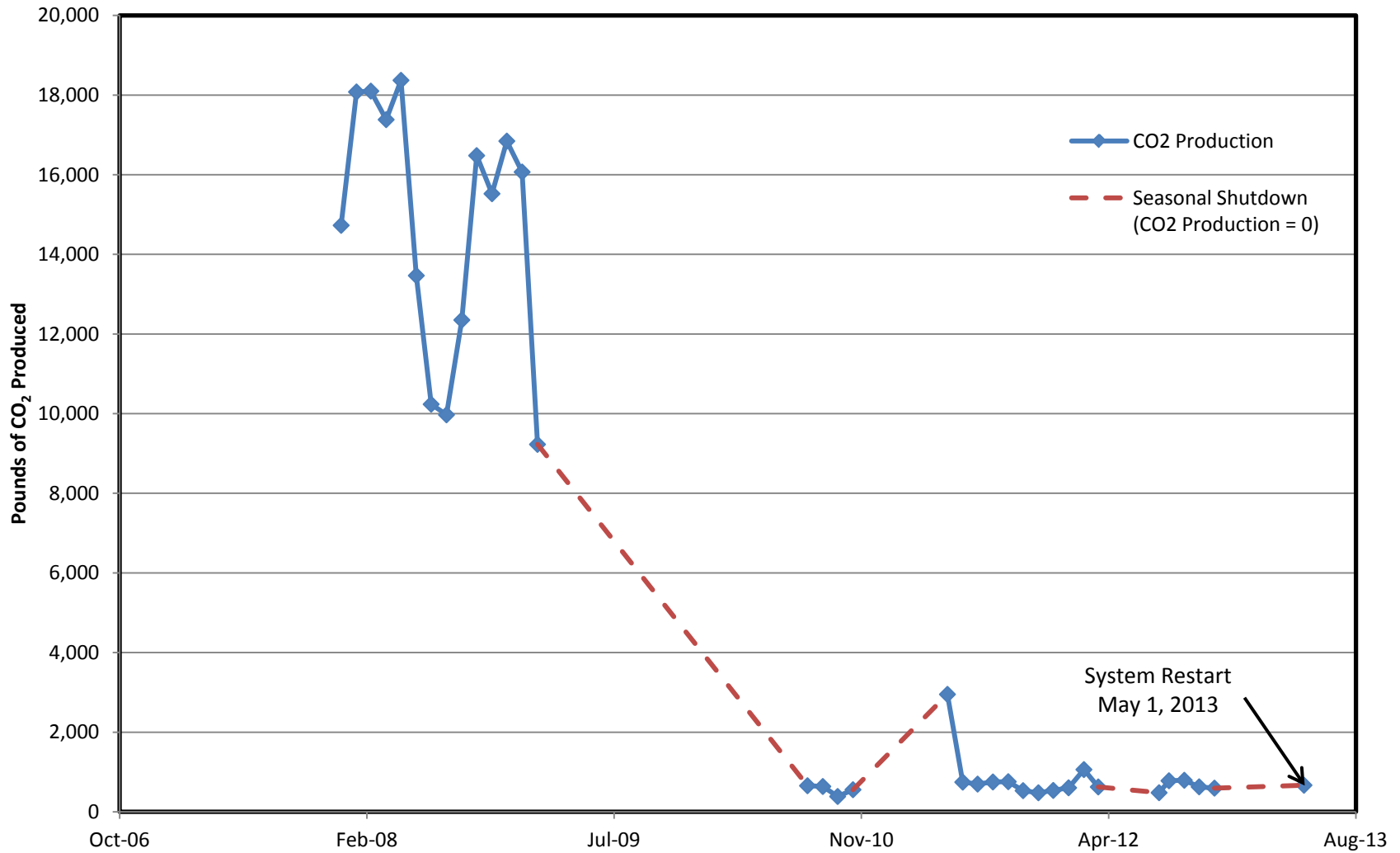


Figure 2
Equivalent Pounds of CO₂ Produced by the North Groundwater Treatment Plant



Note: Dashed line represents seasonal shutdowns due to the presence of vernal pools at Site LF007C during which no CO₂ production occurred.

North Groundwater Treatment Plant Monthly Data Sheet

Report Number: 132

Reporting Period: 31 May 2013 – 28 June 2013

Date Submitted: 11 July 2013

This monthly data sheet presents information regarding the North Groundwater Treatment Plant (NGWTP) and associated remedial process optimization (RPO) activities. The NGWTP was brought online on 1 May 2013 when the seasonal vernal pools at Site LF007C were observed to be dry. As required by US Fish and Wildlife Service (USFWS), extraction wells EW614x07 and EW615x07 had been previously taken offline on 30 November 2012 when water began to accumulate in the vernal pools.

System Metrics

Table 1 presents operational data from the June 2013 reporting period:

Table 1 – Operations Summary – June 2013			
Initial Data Collection:	05/31/2013 16:15	Final Data Collection:	06/28/2013 14:00
Operating Time:	Percent Uptime:	Electrical Power Usage:	
NGWTP: 686 hours	NGWTP: 100%	NGWTP: 420 kWh (575 lbs CO ₂ generated ^a)	
Gallons Treated: 23,580 gallons		Gallons Treated Since March 2000: 82.8 million gallons	
Volume Discharged to Duck Pond: 23,580 gallons		Volume Discharge to Storm Drain: 0 gallons	
VOC Mass Removed: 6.2 x 10⁻⁴ pounds^b		VOC Mass Removed Since March 2000: 174.3 pounds (Groundwater)	
Rolling 12-Month Cost per Pound of Mass Removed: Not Measured^c			
Monthly Cost per Pound of Mass Removed: Not Measured^d			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG. ^b VOCs from June 2013 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 – June 2013		
Location	Average Flow Rate (gpm)^a	Total Gallons Processed (gallons)
EW614x07	0.38	15,100
EW615x07	0.23	9,250
NGWTP	0.61	23,580

^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.

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	
	None	NA			

NGWTP = North Groundwater Treatment Plant

Summary of O&M Activities

Analytical data from the 18 June 2013 sampling event are presented in Table 4. Cis-1,2-DCE (0.36 J µg/L) and TCE (2.8 µg/L) were detected at the influent sample location. No contaminant concentrations were measured at the midpoint or effluent sampling locations.

Figure 1 presents a chart of influent concentrations (total VOCs) at the NGWTP versus time for the past twelve (12) months. Analytical data (Table 4) continue to indicate effective treatment of the influent process stream with only two (2) operating GAC drums online. As required by US Fish and Wildlife Service (USFWS), the NGWTP was taken off line (“System Shutdown”) on 30 November 2012 when vernal pools had formed at Site LF007C. The NGWTP resumed operation on 1 May 2013 when the vernal pools no longer contained standing water.

Optimization Activities

No optimization activities were performed during June 2013.

Sustainability

Travis AFB is committed to decreasing the amount of GHG produced directly (waste streams discharging GHG) or indirectly (GHG produced as related to electrical energy consumption) from all systems across Travis AFB. Travis AFB continues to optimize each treatment plant to reduce the amount of electrical energy consumed, and to implement sustainable treatment plant optimization programs, such as the solar arrays employed to power the system.

Figure 2 presents the historical GHG production from the systems associated with the NGWTP. The NGWTP is taken off line when vernal pools are present at Site LF007C. The NGWTP used 420 kWh, which calculates to approximately 575 pounds of GHG generation, in June 2013. This is less than May 2013 when the NGWTP produced approximately 669 pounds of GHG. This decrease can be attributed to a shorter operating period in and decreased number of gallons treated in June 2013. 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 June 2013 – North Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	18 June 2013 (µg/L)		
				Influent	After Carbon 1	Effluent
Halogenated Volatile Organics						
Bromodichloromethane	5.0	0.15	0	ND	ND	ND
Bromoform	5.0	0.19	0	ND	ND	ND
Carbon Tetrachloride	0.5	0.14	0	ND	ND	ND
Chloroform	5.0	0.16	0	ND	ND	ND
Dibromochloromethane	5.0	0.13	0	ND	ND	ND
1,3-Dichlorobenzene	5.0	0.15	0	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.15	0	ND	ND	ND
1,1-Dichloroethane	5.0	0.15	0	ND	ND	ND
1,2-Dichloroethane	0.5	0.15	0	ND	ND	ND
1,1-Dichloroethene	5.0	0.19	0	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.19	0	0.36 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	2.8	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	788

* 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 and Average Flowrate
Twelve Month History
Travis Air Force Base, California

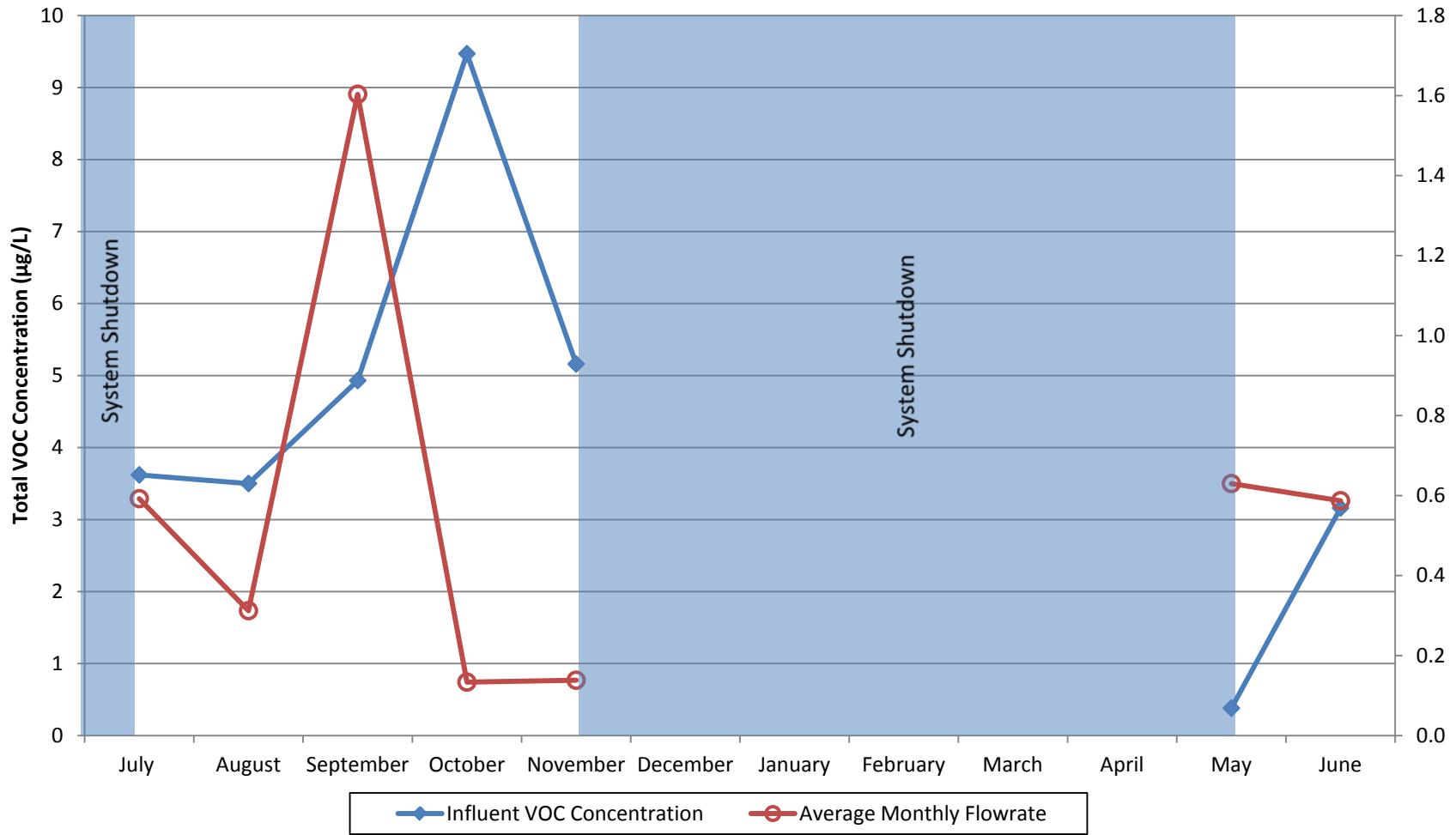
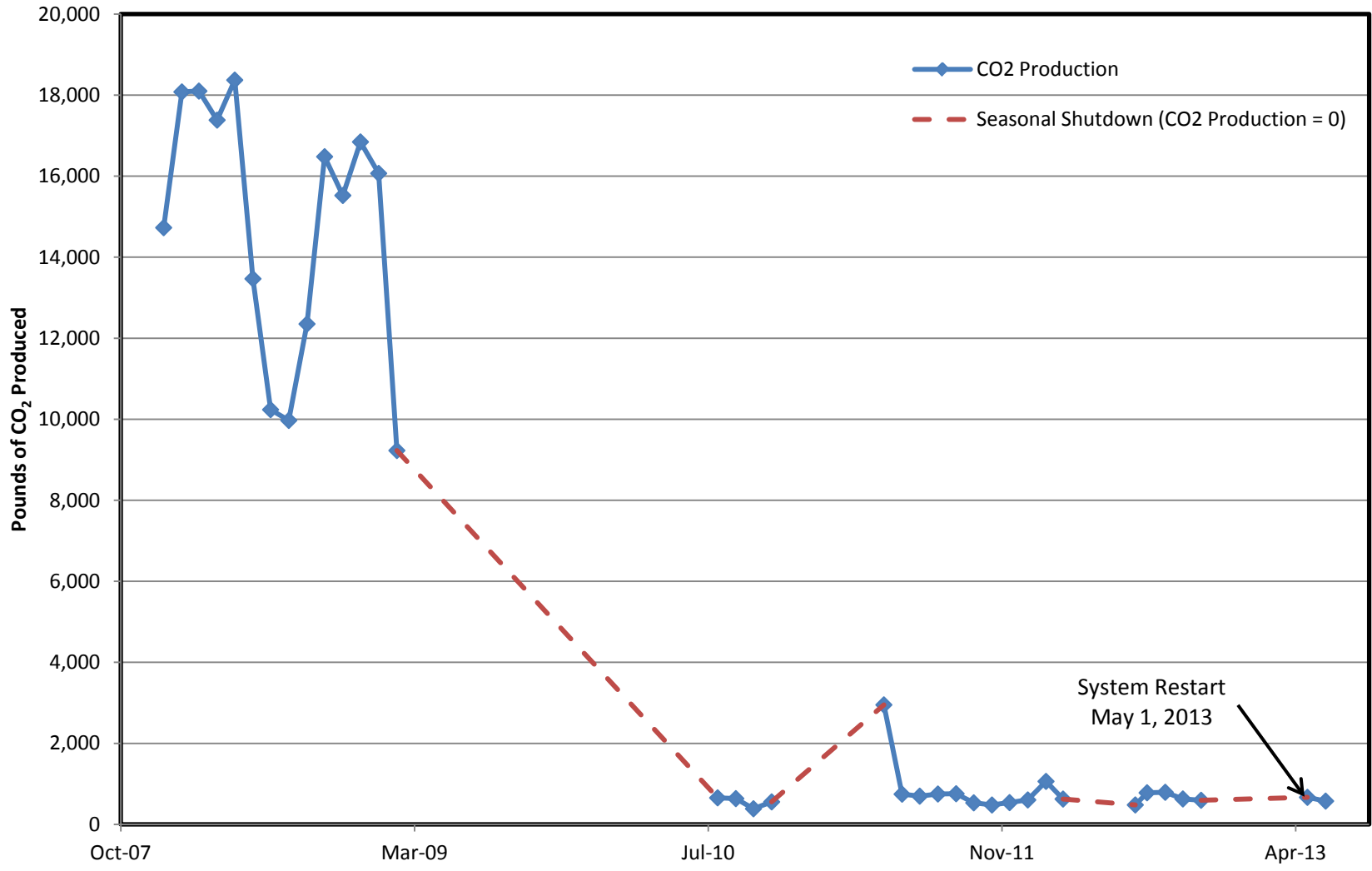


Figure 2
Equivalent Pounds of CO₂ Produced by the North Groundwater Treatment Plant



Note: Dashed line represents seasonal shutdowns due to the presence of vernal pools at Site LF007C during which no CO₂ production occurred.

Site ST018 Groundwater Treatment Plant Monthly Data Sheet

Report Number: 027

Reporting Period: 1 May 2013 – 29 May 2013

Date Submitted: 26 June 2013

This monthly data sheet presents information regarding the Site ST018 Groundwater Treatment Plant (ST18GWTP).

System Metrics

Table 1 presents operation data from the May 2013 reporting period.

Table 1 – Operations Summary – May 2013			
Initial Data Collection:	05/01/2013 10:00	Final Data Collection:	05/29/2013 16:15
Operating Time:	Percent Uptime:	Electrical Power Usage:	
ST018GWTP: 504 hours	ST018GWTP: 74.4%	ST018GWTP: 73 kWh (100 lbs CO₂ generated^a)	
Gallons Treated: 104 thousand gallons		Gallons Treated Since March 2011: 3.88 million gallons	
Volume Discharged to Union Creek: 104 thousand gallons			
BTEX, MTBE, TPH Mass Removed: 0.29 lbs^b		BTEX, MTBE, TPH Mass Removed Since March 2011: 23.8 lbs	
Rolling 12-Month Cost per Total Pounds of Mass Removed: \$13,367 ^c			
Monthly Cost per Pound of Mass Removed: \$12,575			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG. ^b Calculated using April 2013 (influent) and May 2013 (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		
Location	Average Flow Rate Groundwater (gpm) ^{a,b}	Hours of Operation
EW2014x18	2.64	288
EW2016x18	1.57	314
EW2019x18	1.77	338
Site ST018 GWTP	3.44	504

^a Extraction well flow rates calculated by dividing total gallons processed by the hours of operation, from the totalizer and hour meter at each location.
^b The treatment plant flow rate is calculated by dividing the total gallons processed, from the plant effluent totalizer, by the system operating time for the month, which is the period of data collection minus any downtimes noted by field personnel.
gpm = gallons per minute
S18GWTP = Site ST018 Groundwater Treatment Plant

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

Table 3 – Summary of System Shutdowns					
Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
S18GWTP	19 April 2013	17:15	8 May 2013	16:00	Shut down for TPH-G confirmation sampling.

S18GWTP = Site ST018 Groundwater Treatment Plant

Summary of O&M Activities

Groundwater samples were collected at the S18GWTP on 22 May 2013. Influent sample results from the April sampling event and midpoint and effluent sample results from the May sampling event are presented in Table 4. No contaminant concentrations were detected at the midpoint and effluent sampling locations in May 2013.

The total influent concentration (benzene, toluene, ethylbenzene, total xylenes, MTBE, TPH-gas, TPH-diesel, and TPH-motor oil) in the quarterly (2Q13) influent sample was 340 µg/L, which is a decrease from the previous (1Q13) influent concentration of 699 µg/L. Figure 1 presents a plot of influent quarterly total VOC (TPHg, TPHd, MTBE, and BTEX) and MTBE concentrations at the S18GWTP versus time. The concentration of MTBE increased since January 2013 to 155 µg/L, up from 135 µg/L.

Laboratory data from the April 2013 sample event initially indicated a concentration of TPH-G (120 µg/L) in the effluent sample in excess of the effluent limitation. Confirmation samples were collected and the treatment plant was shut down on 19 April 2013. On 23 April 2013, analytical data from the monthly sampling event was validated and it was determined that the concentration of TPH-G (120 U µg/L) in the system effluent should be qualified as a non-detect. TPH-G concentrations in the confirmation samples were also non-detects. The treatment plant was brought back on line on 8 May 2013.

During the reporting period reduced operating times were measured by the hour meters at each ST018 extraction well. These reductions in runtime can result from either a shutdown at the treatment plant or from flooding of the individual extraction well vault where an hour meter is placed. At this time, we do not know

why the extraction wells did not operate to the full capability of the treatment plant during May, but this will be investigated and remedied to optimize run-time.

The treatment plant itself does not have an hour meter to record its operating time and instead weekly monitoring is relied upon to make sure the plant is operational. An hour meter will be installed at the treatment plant to more accurately monitor periods of downtime as well as to identify the source of downtime so that actions can be taken to maximize the operating time of each extraction well.

Optimization Activities

No optimization activities were performed in May 2013.

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 73 pounds of GHG during May 2013. This is a decrease from April 2013 (78 pounds) resulting from the battery upgrade at EW2014x19 and EW2016x19 in April 2013 as well as fewer gallons treated during the reporting period. 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 May 2013 – Site ST018 Groundwater Treatment Plant

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	22 May 2013 (µg/L)			System Effluent
				Influent ^b	After Carbon 1	After Carbon 2	
Fuel Related Constituents							
MTBE	5	0.5	0	155	NM	ND	ND
Benzene	5	0.17	0	3.4	NM	ND	ND
Ethylbenzene	5	0.22	0	0.8	NM	ND	ND
Toluene	5	0.14	0	0.18 J	NM	ND	ND
Total Xylenes	5	0.23 – 0.5	0	0.62	NM	ND	ND
Total Petroleum Hydrocarbons – Gasoline	50	8.5	0	ND	ND	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	50	0	ND	54 J	NM	ND
Total Petroleum Hydrocarbons – Motor Oil	--	160	--	180 J	ND	NM	ND

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

^b Values taken from April 2013 (2Q13) sample data. Influent sampling is conducted on a quarterly basis.

µg/L = micrograms per liter

J = analyte concentration is considered an estimated value

ND = not detected above method detection limit

NM = not measured this month

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

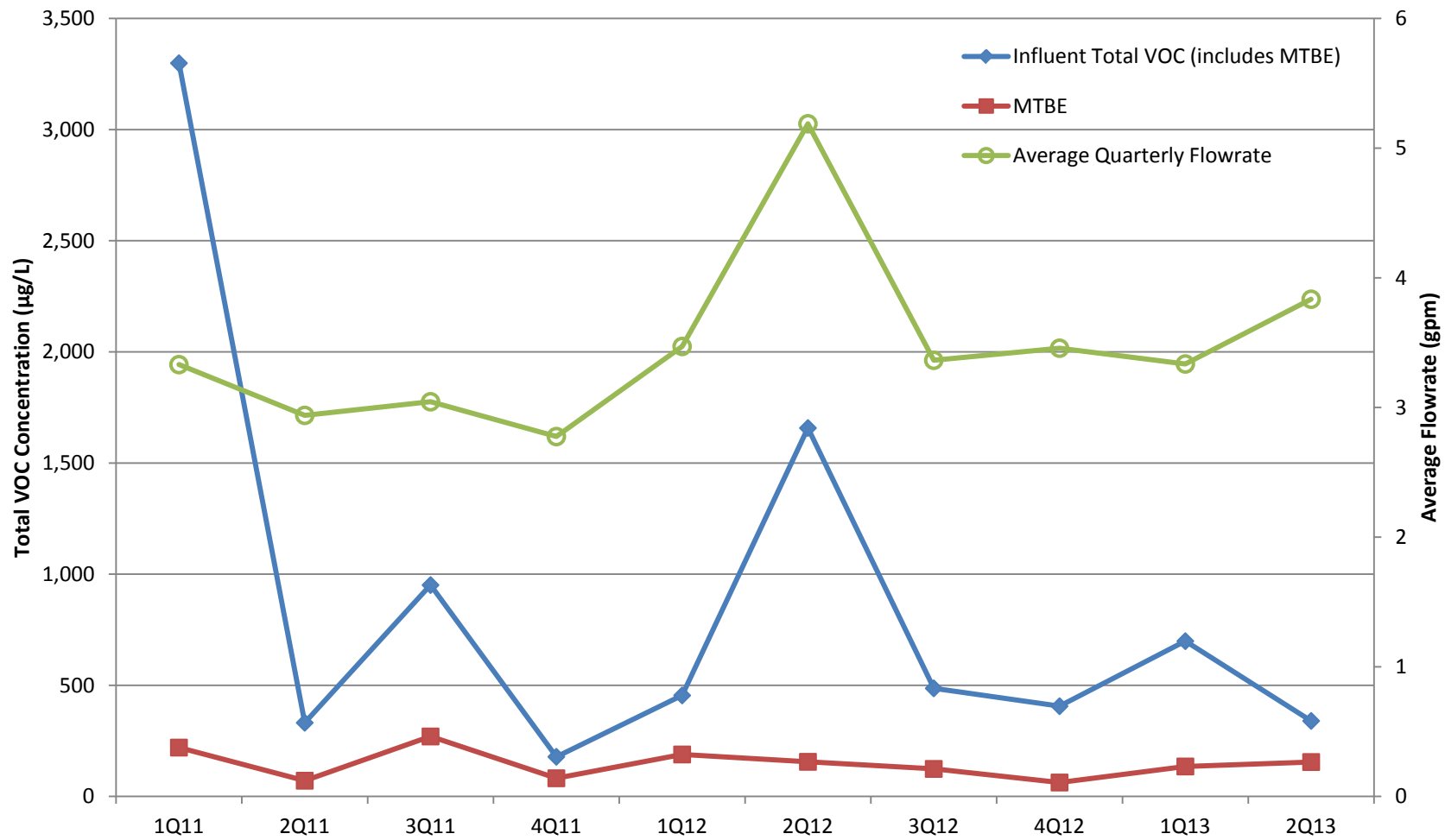
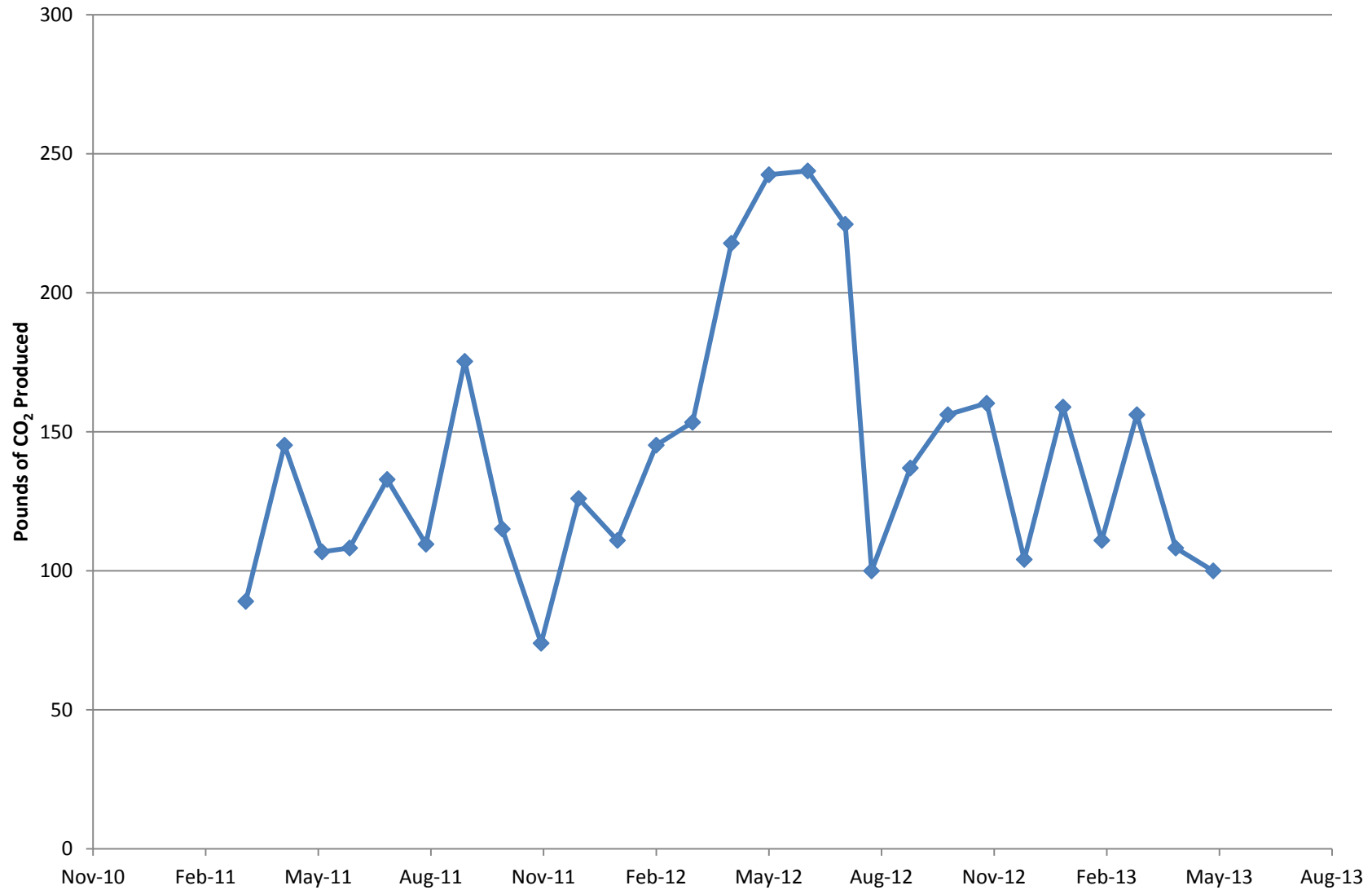


Figure 2
Equivalent Pounds of CO₂ Produced by the Site ST018 Groundwater Treatment Plant



Site ST018 Groundwater Treatment Plant Monthly Data Sheet

Report Number: 028

Reporting Period: 29 May 2013 – 28 June 2013

Date Submitted: 11 July 2013

This monthly data sheet presents information regarding the Site ST018 Groundwater Treatment Plant (ST18GWTP).

System Metrics

Table 1 presents operation data from the June 2013 reporting period.

Table 1 – Operations Summary – June 2013			
Initial Data Collection:	05/29/2013 16:15	Final Data Collection:	06/28/2013 09:15
Operating Time:	Percent Uptime:	Electrical Power Usage:	
ST018GWTP: 648 hours	ST018GWTP: 90.8%	ST018GWTP: 56 kWh (77 lbs CO₂ generated^a)	
Gallons Treated: 62.5 thousand gallons		Gallons Treated Since March 2011: 3.94 million gallons	
Volume Discharged to Union Creek: 62.5 thousand gallons			
BTEX, MTBE, TPH Mass Removed: 0.18 lbs^b		BTEX, MTBE, TPH Mass Removed Since March 2011: 24.0 lbs	
Rolling 12-Month Cost per Total Pounds of Mass Removed: \$18,732 ^c			
Monthly Cost per Pound of Mass Removed: \$30,306			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG. ^b Calculated using April 2013 (influent) and June 2013 (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		
Location	Average Flow Rate Groundwater (gpm)^{a,b}	Hours of Operation
EW2014x18	1.42	648
EW2016x18	1.33	648
EW2019x18	1.50	648
Site ST018 GWTP	4.24	648

^a Extraction well flow rates calculated by dividing total gallons processed by the hours of operation, from the totalizer and hour meter at each location.
^b The treatment plant flow rate is calculated by dividing the total gallons processed, from the plant effluent totalizer, by the system operating time for the month, which is estimated based on the maximum operating time of the individual extraction wells.
gpm = gallons per minute
S18GWTP = Site ST018 Groundwater Treatment Plant

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

Table 3 – Summary of System Shutdowns					
Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
S18GWTP	NA*		7 June 2013	09:00	Restarted after shut down due to high pressure.
S18GWTP	NA*		14 June 2013	16:00	Restarted after shut down due to high pressure.

* No hour meter records operating time at the treatment plant. An hour meter has been ordered for installation in July.
S18GWTP = Site ST018 Groundwater Treatment Plant

Summary of O&M Activities

Groundwater samples were collected at the S18GWTP on 18 June 2013. Influent sample results from the April sampling event and midpoint and effluent sample results from the June sampling event are presented in Table 4. TPH-diesel (55 J µg/L) and MTBE (0.61 µg/L) were detected at the midpoint sampling locations (Carbon 1 and Carbon 2, respectively) in June 2013. No contaminant concentrations were detected at the effluent sampling location.

The total influent concentration (benzene, toluene, ethylbenzene, total xylenes, MTBE, TPH-gas, TPH-diesel, and TPH-motor oil) in the quarterly (2Q13) influent sample was 340 µg/L, which is a decrease from the previous (1Q13) influent concentration of 699 µg/L. Figure 1 presents a plot of influent quarterly total VOC (TPHg, TPHd, MTBE, and BTEX) and MTBE concentrations at the S18GWTP versus time. The concentration of MTBE increased since January 2013 to 155 µg/L, up from 135 µg/L.

During the reporting period reduced operating times were measured by the hour meters at each ST018 extraction well. These reductions in runtime can result from either a shutdown at the treatment plant or from flooding of the individual extraction well vault where an hour meter is placed. At this time, we do not know why the extraction wells did not operate to the full capability of the treatment plant during May, but this will be investigated and remedied to optimize run-time.

The treatment plant itself does not have an hour meter to record its operating time and instead weekly monitoring is relied upon to make sure the plant is operational. An hour meter will be installed at the treatment plant in July to more accurately monitor periods of downtime as well as to identify the source of downtime so that actions can be taken to maximize the operating time of each extraction well.

Optimization Activities

No optimization activities were performed in June 2013.

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 77 pounds of GHG during June 2013. This is a decrease from May 2013 (100 pounds) resulting from reduced operating time and fewer gallons treated during the reporting period. 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 June 2013 – Site ST018 Groundwater Treatment Plant

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	18 June 2013 (µg/L)			System Effluent
				Influent ^b	After Carbon 1	After Carbon 2	
Fuel Related Constituents							
MTBE	5	0.5	0	155	NM	0.61 J	ND
Benzene	5	0.17	0	3.4	NM	ND	ND
Ethylbenzene	5	0.22	0	0.8	NM	ND	ND
Toluene	5	0.14	0	0.18 J	NM	ND	ND
Total Xylenes	5	0.23 – 0.5	0	0.62	NM	ND	ND
Total Petroleum Hydrocarbons – Gasoline	50	8.5	0	ND	ND	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	50	0	ND	55 J	NM	ND
Total Petroleum Hydrocarbons – Motor Oil	--	160	--	180 J	ND	NM	ND

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

^b Values taken from April 2013 (2Q13) sample data. Influent sampling is conducted on a quarterly basis.

µg/L = micrograms per liter

J = analyte concentration is considered an estimated value

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

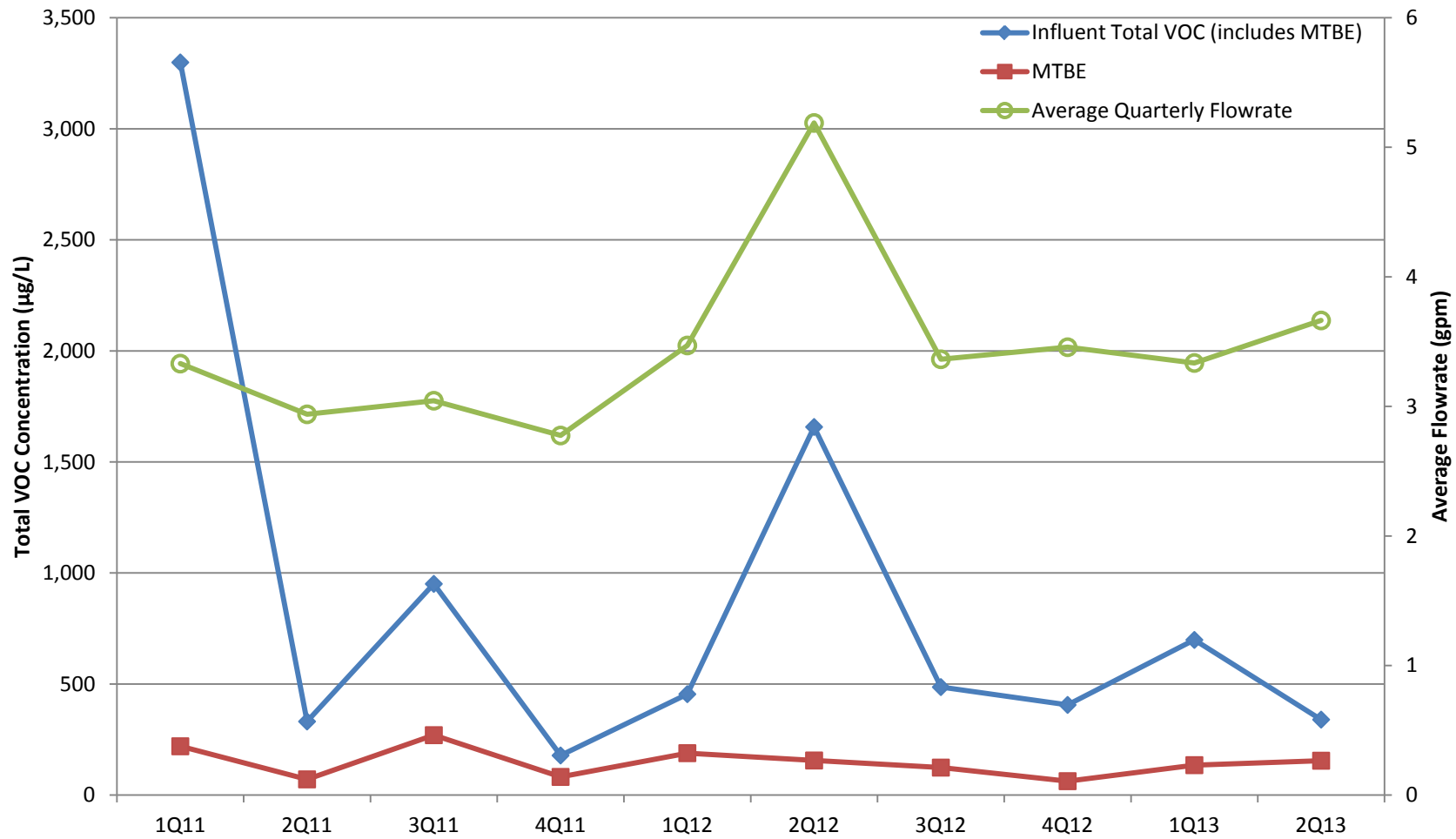
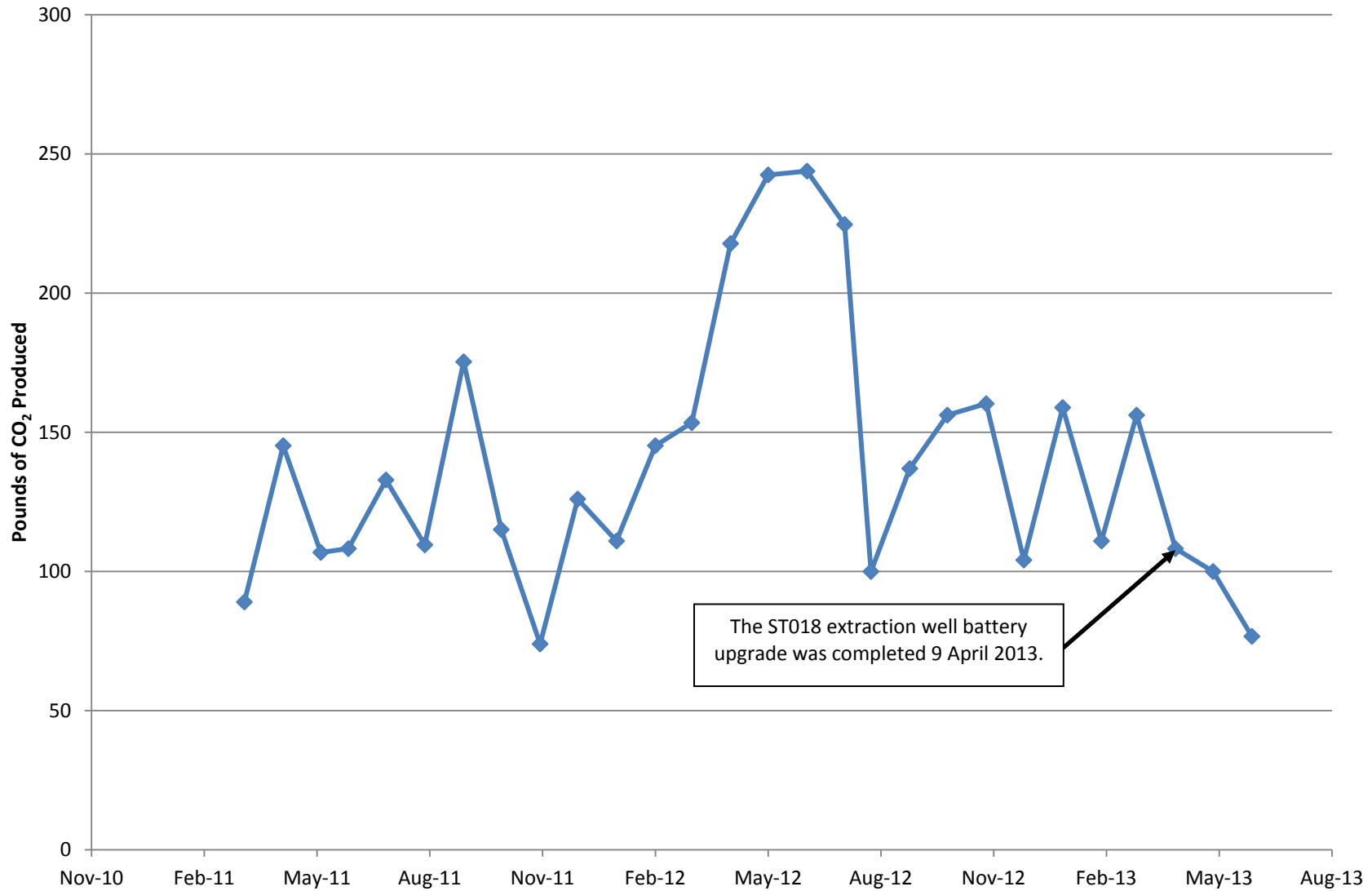


Figure 2
Equivalent Pounds of CO₂ Produced by the Site ST018 Groundwater Treatment Plant



Draft Third Five-Year Review Report Overview

Travis AFB
RPM Meeting
July 17, 2013

1

Draft Five-Year Review Report Information

- **Guidance Utilized**
 - US Environmental Protection Agency (USEPA) *Comprehensive Five-Year Review Guidance* and associated supplements (USEPA, 2001 & 2012)
- **Scope of Work**
 - North/East/West Industrial Operable Unit (NEWIOU) and West/Annexes/Basewide Operable Unit (WABOU) Groundwater IRODs
 - NEWIOU Soil, Sediment, and Surface Water ROD
 - WABOU Soil ROD

2

Draft Five-Year Review
Report Information

- Site Inclusion Matrix
 - 22 Groundwater Interim Remedial Action Sites-
NEWIOU, WABOU
 - 10 Soil and Sediment Remediation Sites- NEWIOU
 - 9 Soil Remediation Sites- WABOU

3

Draft Five-Year Review
Report Information

- Technical Assessment
 - Purpose: Verify remedial actions (RAs) are
protective of human health and the environment,
and functioning as designed
- Period Covered
 - August 2008 through September 2013
 - Data reported by February 2013.

4

Draft Five-Year Review
Report Findings

- **Protectiveness Statements**

- Groundwater IRAs

- NEWIOU IRAs – Groundwater interim remedies currently protect human health and the environment.
 - Exposure pathways that could result in unacceptable risks are being controlled.
 - Long-term remedy requires development of final remedial action objectives and final remedy (i.e, Travis AFB Groundwater ROD).
 - Follow up actions at Site LF007C required to meet IRAOs and to be protective in the long-term.
 - » Optimization of groundwater extraction & treatment system (2013)

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Draft Five-Year Review
Report Findings

- **Protectiveness Statements (Cont'd)**

- Groundwater IRAs

- WABOU IRAs – Groundwater interim remedies currently protect human health and the environment.
 - Exposure pathways that could result in unacceptable risks are being controlled.
 - Long-term remedy requires development of final remedial action objectives and final remedy (i.e, Travis AFB Groundwater ROD).

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Draft Five-Year Review
Report Findings

- **Protectiveness Statements (Cont'd)**
 - Soil/Sediment RAs
 - NEWIOU Soil/ Sediment RAs – Remedies protective of human health and environment.
 - RAs achieved residential cleanup levels.
 - WABOU Soil RAs – Remedies protective of human health and environment.
 - RAs achieved residential cleanup levels.

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Draft Five-Year Review
Report Findings

- **Outstanding Issue from Second Five-Year Review**
 - Vapor Intrusion (VI)
 - Travis AFB VI Study (2009-2010).
 - VI not taking place in existing buildings.
 - VI may be a concern with construction of new buildings above groundwater VOC plumes.
 - Administrative controls identified to protect future office buildings above VOC plumes.
 - » Passive ventilation systems to be implemented as part of future building construction above VOC plumes.
 - » Already implemented at three new buildings.

8

Draft Five-Year Review Report Findings

- **Next Five-Year Review Report**
 - To be prepared by September 2018
 - LUCs will continue to be implemented at 9 soil sites per NEWIOU Soil, Sediment, and Surface Water ROD, and WABOU Soil ROD
 - Travis AFB Groundwater ROD will be in effect
 - LUCs for final groundwater remedies will be implemented per Final Travis AFB Groundwater ROD

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DJL11

Five-Year Review Report Schedule

Life Cycle	Third Five-Year Review Report
Draft to Agencies	05-21-13
Draft to RAB	05-21-13
Agency Comments Due	7-23-13
Response to Comments Meeting (Teleconference)	08-06-13
Response to Comments Due	08-20-13
Draft Final Due	08-26-13
Final Due	09-25-13
Public Comment Period	NA
Public Meeting	NA

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Slide 10

DJL11 Same as DJL2 and DJL7
G6PMXDJL, 7/1/2013

Travis AFB Restoration Program

Program Overview

RPM Meeting

July 17, 2013

Completed Documents

- Basewide Health & Safety Plan (HSP)
- Action Plan
- 2007/2008 GSAP Annual Report
- LF007C RPO Work Plan
- LF008 Rebound Study Work Plan
- SS014 Tier 1 POCO Evaluation Work Plan
- ST027B Site Characterization Work Plan
- SS030 RPO Work Plan
- ST032 POCO Technical Memo
- DP039 Bioreactor Work Plan
- 2008 Annual GWTP RPO Report
- Passive Diffusion Bag (PDB) Technical Memo
- RD/RA QAPP Update
- ST032 Tier 1 POCO Evaluation Work Plan
- Phytostabilization Demonstration Technical Memo
- Model QAPP
- LF008 Rebound Test Technical Memo
- Comprehensive Site Evaluation Phase II Work Plan
- Field Sampling Plan (FSP)
- SS016 RPO Work Plan
- ST018 POCO RA Work Plan
- Vapor Intrusion Assessment Report
- GSAP 2008/2009 Annual Report
- FT005 Data Gap Work Plan
- First, Second, & Third Site DP039 Sustainable Bioreactor Demonstration Progress Reports
- DP039 RPO Work Plan
- SD036/SD037 RPO Work Plan
- ST027B Site Characterization Report
- 2009 GWTP RPO Annual Report
- Natural Attenuation Assessment Report (NAAR)
- Union Creek Sites SD001 & SD033 Remedial Action Report
- CAMU 2008-2009 Monitoring Annual Report

Completed Documents (cont'd)

- Phytostabilization Study Report
- 2009/2010 Annual GSAP Report
- SS015 Remedy Optimization Field Implementation Plan
- Sites SS014 and ST032 Tier 1 POCO Evaluation Report
- SD036 Remedy Optimization Field Implementation Plan
- 2010 Annual CAMU Inspection Report
- Site ST018 POCO Baseline Implementation Report
- FT005 Data Gaps Investigation Report
- Comprehensive Site Evaluation Phase II Report
- 2010 Groundwater RPO Annual Report
- Focused Feasibility Study (FFS)
- Site ST027-Area B Human Health Risk Assessment
- Site ST027-Area B Ecological Risk Assessment
- Work Plan for Assessment of Aerobic Chlorinated Cometabolism Enzymes
- 2010/2011 Annual GSAP Report
- Baseline Implementation Report (Sites SS015, SS016, SD036, SD037, and DP039)
- 2011 CAMU Annual Report
- Technical and Economic Feasibility Analysis (TEFA)
- Work Plan for RPO of Sites SS016 and SS029
- Site LF007C Data Gaps Investigation Technical Memorandum
- Technical Memorandum for Assessment of Aerobic Chlorinated Cometabolism Enzymes
- Old Skeet Range Engineering Evaluation/Cost Analysis
- 2011 Groundwater Treatment RPO Annual Report
- Groundwater Proposed Plan (PP)
- FT005 Remedial Action Completion Report
- 2012 GSAP Technical Memorandum

Completed Documents (cont'd)

- Vapor Intrusion Assessment Update
Technical Memorandum
- ***2012 CAMU Annual 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 (4th Quarterly event)
- Sampling for Assessment of Aerobic Chlorinated Cometabolism Enzymes (Feb 21-22)
- 2012 Annual GSAP Sampling
- CAMU Lysimeter Removal
- LF007C GET System Optimization
- SS029/SS016 System Optimization Analysis
- GSAP Semiannual Sampling Event
- Replace electrical wiring for well field at Site SS030

Completed Field Work (cont'd)

- Replace battery banks at ST018 Groundwater Treatment Plant
- Annual Groundwater Remediation Implementation Program (GRIP) Sampling event
- Well Decommissioning (9 Wells)
- ***Electrical repairs to FT005 extraction system (well EW01x05)***

In-Progress Documents & Field Work

Documents

- Groundwater Record of Decision (ROD)
- Old Skeet Range Action Memorandum
- 3rd Five-Year Review
- 2012 Annual Groundwater Remediation Implementation Status Report (GRISR)

Field Work

- Electrical repairs to Site SS029 extraction system
- ***Pump repairs to Site SS016 well (EW610x16)***

Upcoming Documents & Field Work

Documents

- Kinder Morgan LF044 Land Use Control Report TBD
- Subarea LF007C and Site SS030 Remedial Process Optimization Work Plan TBD

Field Work

- ***Subsite LF007C optimization upgrades***
- ***Site SS030 optimization upgrades***
- ***Site ST018 carbon vessels upgrades***

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