

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

22 January 2014, 0930 Hours

Mr. Mark Smith, Travis Air Force Base (AFB), conducted the Restoration Program Manager's (RPM) meeting in Building 248, on 22 January 2014 at 0930 hours, at Travis AFB, California. Attendees included:

- Mark Smith Travis AFB
- Glenn Anderson Travis AFB
- Lonnie Duke Travis AFB
- Erin Hernandez Travis AFB
- Dezso Linbrunner USACE-Omaha
- David Elias (via phone) California Regional Water Quality Control Board (RWQCB)
- Jose Salcedo California Department of Toxic Substances Control (DTSC)
- Nadia Hollan Burke United States Environmental Protection Agency (USEPA)
- Mike Wray CH2M HILL
- Ashley Shaddy CH2M HILL

Handouts distributed at the meeting, and presentations included:

- Attachment 1 Meeting Agenda
- Attachment 2 Master Meeting and Document Schedule
- Attachment 3 SBBGWTP Monthly Data Sheet (November/December 2013)
- Attachment 4 CGWTP Monthly Data Sheet (November/December 2013)
- Attachment 5 NGWTP Monthly Data Sheet (November/December 2013)
- Attachment 6 ST018 Monthly Data Sheet (November/December 2013)
- Attachment 7 Site LF007C Field Activities
- Attachment 8 Presentation: Program Update: Activities Completed, In Progress and Upcoming

1. ADMINISTRATIVE

A. Previous Meeting Minutes

The 20 November 2013 RPM meeting minutes were approved and finalized as written.

B. Action Item Review.

Action items from November were reviewed.

Action item 1 still open: Travis AFB to research beneficial reuse of treated water. AFCEE is in agreement with treated water reuse using Defense Environmental Restoration Account (DERA) funds under the authority of a “net-zero policy” for the Air Force. Update, 16 January 2013: Mr. Duke said that an Air Force energy reduction contractor is looking into the cost of installing a pipe to convey treated water from the central plant to the duck pond. 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. 22 January 2014: No update.

Action item 2 still open: Mr. Smith is working on providing an organizational chart.

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 19 February 2014 at 0930 hours. Ms. Burke mentioned that the Battelle Conference is scheduled the same week as the May 2014 RPM meeting, and EPA’s Annual Teleconference is scheduled the same week as the June 2014 RPM. Ms. Burke will confirm at a later date if she will be attending one or both of those meetings. Mr. Smith said that Travis AFB might adjust the schedule around the Battelle Conference as Mr. Duke and Mr. Anderson are also planning to attend.

Travis AFB Master Document Schedule

— Groundwater Record of Decision (ROD): No change to the schedule. Mr. Anderson said that Travis AFB has received permission to proceed with issuing the Draft Final ROD. It will include all technical changes and most of

the legal ones that resulted from regulatory review of the draft version. The debate is ongoing regarding Land Use Controls (LUCs) checklist issues. Mr. Anderson said he is still working on finalizing the Response to Comments (RTC) tables and hopes to get them completed tomorrow. CH2M HILL has been notified and is working on getting the document published; the RTC tables will be added to the draft final when completed. Mr. Anderson asked the agencies how many copies they will need, adding the preference for additional copies would be to issue CDs (EPA; 2 hard copies & 10 CDs, Water Board; 1 hard copy & 2 CDs; DTSC: 1 hard copy & 2 CDs).

Mr. Elias asked if there are any concerns regarding RWQCB comments that he needs to be aware of. Mr. Anderson said most of the RWQCB comments were of a legal nature and the Applicable or Relevant and Appropriate Requirements (ARARs) table in the ROD contains a section with joint comments (Air Force, EPA, DTSC, RWQCB). There are some differences of opinion as to whether citations are ARARs or not, and it lists those differences of opinion. However, it does not affect the remedy selection in the ROD. Mr. Elias asked if the agreed upon path forward recommended by the RWQCB was included in the ROD. Mr. Anderson said that was placed in the ARARs table.

Ms. Burke announced EPA's signature authority has changed and it is now Ms. Angeles Herrera. Mr. Salcedo asked if the funding is limited to the FY08 contract. Mr. Anderson said yes and that a presentation regarding the funding will be presented later during this meeting.

- Potrero Hills Annex: (FS, PP, and ROD): No change to the schedule.
- Site CG508 POCO Work Plan: New document. New dates populated. This is a petroleum site that receives RWQCB oversight.
- Quarterly Newsletter (January 2014): No change to the schedule. The Newsletter is scheduled to go out on Friday, 24 January 2014. Mr. Anderson thanked Ms. Burke for EPA comments.
- 2013 Annual Groundwater Remediation Implementation Status Report: All new dates have been entered into the MMDS.
- Kinder Morgan LF044 Land Use Control Report: RTC meeting, draft final due and final due dates have been changed to TBD. Travis AFB received notification that the company involved is helping to provide RTCs. This report is to document that the LUC soil was handled properly during the construction and placement of three above ground fuel tanks.
- Old Skeet Range Removal Action Work Plan: No change to schedule. This document will be discussed later this afternoon. Document will be moved to history.
- 2012 Annual Groundwater Remediation Implementation Status Report: Moved to history.

- Subarea LF007C and Site SS030 Remedial Process Optimization Work Plan: Moved to history.
- Pre-Design Site Characterization of Site SS029: Moved to history.
- 3rd Five-Year Review: Moved to history.

2. CURRENT PROJECTS

Treatment Plant Operation and Maintenance Update

South Base Boundary Groundwater Treatment Plant (see Attachment 3)

November: The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 97% uptime, and 3.0 million gallons of groundwater were extracted and treated during the month of November 2013. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 64.3 gallons per minute (gpm). Electrical power usage was 14,520 kWh (*electrical power usage is incorrect, readings inconsistent, suspect faulty meter, in process of procuring a new one*) and approximately 19,892 pounds of CO₂ were created (based on DOE calculation). Approximately 1.79 pounds of volatile organic compounds (VOCs) were removed in November. The total mass of VOCs removed since startup of the system is 443 pounds.

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

December: 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 December 2013. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 61.3 gallons per minute (gpm). Electrical power usage was 14,520 kWh and approximately 19,892 pounds of CO₂ were created (based on DOE calculation). Approximately 1.33 pounds of volatile organic compounds (VOCs) were removed in October. The total mass of VOCs removed since startup of the system is 444 pounds.

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

Central Groundwater Treatment Plant (see Attachment 4)

November: The Central Groundwater Treatment Plant (CGWTP) performed at 100% uptime with approximately 1.5 million gallons of groundwater extracted and treated during the month of November 2013. All treated water was discharged to the storm drain. The average flow rate for the CGWTP was 32.0 gpm. Electrical power usage

was 1,733 kWh for all equipment connected to the Central plant, and approximately 2,374 pounds of CO₂ were generated. Approximately 3.18 pounds of VOCs were removed from groundwater by the treatment plant in November. The total mass of VOCs removed since the startup of the system is 11,349 pounds.

Mr. Smith pointed out the small amount of electrical power used at that Central plant to treat 1.5 million gallons that removed a little over 3 lbs of VOCs compared to the electrical power used when the ThermOx/UvOX system was treating the groundwater. This demonstrates the optimization progress Travis AFB has been striving for.

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

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

December: The Central Groundwater Treatment Plant (CGWTP) performed at 100% uptime with approximately 1.32 million gallons of groundwater extracted and treated during the month of December 2013. All treated water was discharged to the storm drain. The average flow rate for the CGWTP was 31.6 gpm. Electrical power usage was 2,642 kWh for all equipment connected to the Central plant, and approximately 3,620 pounds of CO₂ were generated. Approximately 2.70 pounds of VOCs were removed from groundwater by the treatment plant in December. The total mass of VOCs removed since the startup of the system is 11,351 pounds.

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

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

North Groundwater Treatment Plant (see Attachment 5)

November: The North Groundwater Treatment Plant (NGWTP) performed at 61% uptime with approximately 5,516 gallons of groundwater extracted and treated during the month of November 2013. The average flow rate at the NGWTP was 0.3 gpm and electrical power use was 510 kWh for all the equipment connected to the North plant; approximately 699 pounds of CO₂ was generated. Approximately 1.4×10^{-4} pounds of VOCs were removed from the groundwater in November. The total mass of VOCs removed since the startup of the system is 174.3 pounds.

Optimization Activities for NGWTP: Optimization of the groundwater extraction and treatment system (GETS) at Site LF007C started on 18 November 2013. Approximately 1,400 feet of new discharge piping was installed during November to reroute the effluent from extraction wells EW614x07 and EW615x07 through a newly installed treatment system located on Collins Drive, between Site LF007C and

the discharge point at the Duck Pond. A new containment pad houses the same treatment equipment that has been in use since 2010 at the NGWTP. Extraction well EW614x07 is in the process of being upgraded to extract groundwater at an average rate of 4 gpm; an increase of approximately thirteen times its recorded flow rate in November 2013. The upgraded solar powered system at extraction well EW614x07 will help to increase capture of the off-base portion of the plume and increase the volume of groundwater the system is able to treat during operation from approximately May through December. Optimization construction is scheduled to be completed in January 2014. A presentation of the optimization construction will be shown later during this meeting.

Mr. Elias said the influent is so low and asked if Travis AFB was protecting a drinking water well? Mr. Duke said that contamination (a little above MCL) is beneath a vernal pool and that the extraction rate will increase with the recent optimization, adding a presentation will be shown later in this meeting to talk about the optimization. Mr. Elias said, even though under CERCLA it might be difficult to do “a low risk closure”, it might be worth looking into and perhaps shutting off the North plant and just monitor. Mr. Duke said the recent 5-year review study stated Travis AFB wasn’t doing enough to protect human health and the environment at Site LF007C and that is the reason for the recent optimization.

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

November: The Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 100% uptime with approximately 179,300 gallons of groundwater extracted and treated during the month of November 2013. All treated water was diverted to the storm drain. The average flow rate for the ST018 GWTP was 3.67 gpm. Electrical power usage for the month was 115 kWh for all equipment connected to the ST018 GWTP plant, which equates to the creation of approximately 158 pounds of CO₂. Approximately 0.30 pounds of BTEX, MTBE and TPH were removed from groundwater in November from the treatment plant, 0.21 pounds of which was MTBE. The total BTEX, MTBE and TPH mass removed since the startup of the system is 25.6 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 November.

December: The Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 100% uptime with approximately 144,400 gallons of groundwater extracted and treated during the month of December 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 96 kWh for all equipment connected to the ST018 GWTP plant, which equates to the creation of approximately 132 pounds of CO₂. Approximately 0.25 pounds of BTEX, MTBE and TPH were removed from groundwater in December from the treatment plant, 0.17 pounds of which was

MTBE. The total BTEX, MTBE and TPH mass removed since the startup of the system is 25.8 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 December.

Mr. Elias said the contaminant concentration in the influent is pretty low at this site as well. Mr. Wray said it is the MTBE that Travis AFB is trying to capture. The MTBE travels at approximately the same velocity as the groundwater flow and that the MTBE has completely out paced the other petroleum components southward towards Site SS016. Ms. Burke asked if there is a corrective action plan in place for the RWQCB. Mr. Wray said in 2008 a report was completed and is called the Final POCO Evaluation Report and Corrective Action Plan.

Presentations:

Site LF007C Field Activities:

Ms. Shaddy gave an update of the field activities at Site LF007C. Key points made in this presentation are presented below. (see attachment 7 for photos)

The optimization work began approximately two month ago and was completed last week. The series of slides presented shows the construction process from beginning to end.

- A map was presented to show where the NGWTP was originally located and the extractions wells. The yellow line that dips south is the original piping that was tied into the original NGWTP. The location of the new treatment plant lessens the pumping distance considerably, making it more efficient. The red line that parallels Collins Road is the newly installed piping that ties into the existing Duck Pond conveyance piping.
- Before construction could begin a CH2M HILL biologist was called in to survey the area because of two species potentially on site, the California Tiger Salamander (CTS) and Fairy Shrimp. CTS lives where the Fairy Shrimp do not. The orange flags in the photos mark the potential habitats (existing burrows) that may be occupied by CTS. The cones (delineators in the photo) indicate the entry and exit of vehicles. Note: a biologist was present whenever there was ground disturbance during construction.
- The new piping has been attached to the perimeter fence, where it crosses the vernal pool. The conduit pipe (white) is on top and the conveyance pipe (black) is on the bottom.
- EW615x07 was mostly unaffected during construction. The slide shows what EW614x07 looked like before the upgrade.

- The trenching for the conveyance and conduit lines was conducted in the existing tire ruts of the dirt road that parallel the Base perimeter fence. The excavated soil was placed alongside the trench to use as backfill after the placement of the piping. The trench contains both the conduit and conveyance piping.
- The construction of the 12'x12' containment pad for the treatment plant area was installed on compacted gravel. Then the rebar and containment pad forms were installed before the concrete was poured. A trench had been dug under the containment pad to facilitate installation of the conduit and conveyance piping. Utility locating tape was placed above the piping along the entire length of the trench.
- A bobcat with auger was used to excavate the footings for the new solar panels. Plywood was first placed on the ground before drilling to lessen the disturbance in the area of the vernal pools. Three steel, 2 feet in diameter, post holes about 5 ½ feet deep were needed for the support posts for the new solar panels. Underneath the solar panels is a weather proof box that houses the batteries.
- Some investigative work was needed to locate the existing Duck Pond conveyance line to tie into, located northeast of Collins Drive. The initial trench attempt was 5 feet deep and 8 feet long and about 30 inches underneath the asphalt. Mr. Duke did some research and found out that the road had been widened. The Duck Pond line is about 6 feet into Collins Drive. Due to the location of the Duck Pond line, a diversion for the new treatment system discharge location was installed to allow the former North Groundwater Treatment Plant to be brought back on line if necessary. The piping on the right ties into the old treatment plant system, and the piping on the left ties into the new treatment system. Shut-off valves are located off to the side. The asphalt in the roadway was patched.
- Bollards were installed to protect the solar panels from traffic. The new solar panel array has 3.6 kW potential.
- The granular activated carbon (GAC) drums were relocated to the new treatment plant from the old NGWTP. A cyclone fence with privacy slats was installed around the remediation equipment.

Mr. Linbrunner asked what the distance is between the bollards. Ms. Shaddy said approximately 8 feet. Mr. Smith added that Travis AFB will keep unused treatment plants in place until it is certain that they are no longer needed. Mr. Elias said he is impressed with the quality of work, neatness, tidiness as well as the presentation. Ms. Burke asked who the subcontractors were. Mr. Anderson said JC Palomar was the construction subcontractor, whom everyone thought did a great job.

Old Skeet Range Field Sampling: (no attachments)

Mr. Anderson gave an update on the Old Skeet Range Field Sampling.

Recap: The Old Skeet Range is managed under the Military Munitions Response Program (MMRP). The chemicals of concern (COC) are PAHs and lead. Currently a small business contractor has a 'firm fixed price contract' with the USACE-Omaha district. The contract somewhat follows the CERCLA process, but is designed specifically for munitions type cleanup.

The documentation required for Travis AFB to get into the field to start soil remediation for PAHs has been completed. The contractor has determined that the PAH contamination is about four times the amount than originally projected before the site characterization. The extent of the soil contamination has still not been identified, this includes laterally and in a few places vertically. Excavation cannot begin until the scope of the contamination cleanup has been identified. Travis AFB is confident that the contractor will not be able to accomplish the soil remediation cleanup under the current 'firm fixed price contract'; the contract was based on an estimated soil volume. Typically the volume of soil from a cleanup action can be up to five times what is originally projected. The current contract should provide the contractor enough time to complete the soil investigation and confirm the magnitude of the PAH soil contamination. Discussions are in place with Travis AFB, USACE and AFCEC on what the next steps should be.

Mr. Linbrunner asked if the work plan was to excavate and move the contaminated soil off-site. He asked if there is potentially a soil remediation procedure that can accomplish soil clean up in place, even though the work plan has been approved for soil excavation. Mr. Anderson said both scenarios were written in the work plan, and excavation was chosen because the greater extent of the contamination had not been realized. Mr. Anderson said they would have to look at the Engineering Evaluation/Cost Analysis (EECA) and action memo. Mr. Smith suggested having a discussion later and then to give a presentation on the alternatives.

FY13 Performance Based Contract Overview (see Attachment 8)

Mr. Wray reported on the FY13 Performance Based Contract Overview:

PBC-13 Highlights:

- The contract was awarded to CH2M HILL on 30 September 2013. The Period of Performance (POP) is eight years. 40 sites are included in this contract; PBC-08 had 23 sites included. This contract is weighted towards optimization and sustainability.
- USACE: holds the contract and manages the project. The Travis AFB Restoration Program is managed by the West Region Installation Support Team (IST), which oversees all work at Travis AFB. San Antonio AFCEC funds the program and works closely with USACE and the IST at Travis AFB.
- The PBC-13 is incrementally funded; funds to be awarded each fiscal year. In FY18 the rest of the project will be funded. The POP runs through September 2021.

- PBC-08 will end in June 2014, and the remaining scope includes: ROD completion, 2013 Annual GRISR, 2014 Annual GRIP (2nd qtr sampling event), LTO and LTM through 30 June 2014. The PBC-13 will cover all other work.
- The PBC-13 has 40 sites, including 22 carryover sites. Additional sites include 12 Oil Water Separators, LF044 Construction Debris Land Fill, TU504 (UST801), CG508 (POL AOC), SS046 (Rail Offload), TA500 (Reservoir Facility), and TS060A (MMRP Old Skeet Range, lead portion). A map of the sites is included in the attachment.
- The main objective of PBC-13 is to optimize the groundwater systems and achieve cleanup levels faster, and to conduct cleanup of soils and remove land use controls (LUCs). Innovation and new ideas are strongly encouraged by USACE and AFCEC. The new contract will seek to optimize site cleanup by utilizing proven technologies that were demonstrated during the PBC-08.
- Sustainability approaches will include use of solar powered equipment, EVO for injections and biobarriers, in situ bioreactors, and monitored natural attenuation (MNA). Optimization and/or shutdown of extraction systems and treatment plants will be evaluated as restoration progresses.
- CH2M HILL's project team and organizational chart is attached.
- This new contract will work best, and accomplish the most cleanup if we keep regulatory reviews to the scheduled review times. Minimize iterative responses to review comments. Travis AFB will continue to present work plans at the RPM meetings. We will work with the "Triad like" process. Electronic deliverables will be used as much as possible to minimize hard copy reports. We will get a biological opinion for T&E habitat sites, as it was recently determined that most of Travis AFB is protected by the T&E habitats. CH2M HILL is working to obtain a biological assessment of all the applicable 40 sites in the FY13 that are not paved.

Mr. Salcedo asked what happens if the ROD is not finalized under the FY08. Mr. Wray said that is up to AFCEC and USACE to determine what to do. Ms. Burke asked if the signing of the ROD was written in the FY08 contract. Mr. Linbrunner said that the FY08 is a cost reimbursable contract. The FY13 contract is a milestone payment contract. The contractor has to finish the objectives in order to receive payment.

Program Update: Activities Completed, In Progress and Upcoming (see Attachment 9)

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

Newly Completed Documents: None.

Newly Completed Field Work: 2014 GRIP Semiannual Sampling Event, Pump repairs to Site SS016 (well EW610x16).

In-Progress Documents: Groundwater Record of Decision, Old Skeet Range Removal Action Work Plan, Kinder Morgan LF044 Land Use Control Report.

In-Progress Field Work: LF007C optimization upgrades.

Upcoming Documents: CG508 POCO Work Plan, 2013 Annual GRISR

Upcoming Field Work: 2014 Annual GRIP Sampling Event, Old Skeet Range Characterization Sampling.

4. New Action Item Review

Travis AFB: Investigate basewide biological opinion of T&E habitat.

5. PROGRAM/ISSUES/UPDATE

None.

6. Action Items

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

		management projects with respect to ways of reducing water usage. Due date changed to TBD.		
2.	Air Force	Provide organizational structure and signature authority to the regulatory agencies.	19 February 2014	Open
3.	Travis AFB	Investigate basewide biological opinion of T&E habitat.	19 February 2014	Open

TRAVIS AIR FORCE BASE
ENVIRONMENTAL RESTORATION PROGRAM
RESTORATION PROGRAM MANAGER'S MEETING
BLDG 248 Conference Room
22 January 2014, 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
- B. SITE LF007C FIELD ACTIVITIES
- C. OLD SKEET RANGE FIELD SAMPLING

3. PRESENTATION

- A. FY13 PERFORMANCE BASED CONTRACT OVERVIEW
- 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 WORK ON THE TRAVIS AFB PORTION OF THE EPA WEBSITE. ALL PARTICIPANTS ARE WELCOME TO ATTEND.

(2014)
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.)
01-22-14	—	—
02-19-14	—	—
03-19-14	—	—
04-17-14 (Thur 2:00 PM)	—	04-17-14
05-21-14	—	—
06-18-14	—	—
07-23-14	—	—
08-20-14	—	—
09-17-14	—	—
10-23-14 (Thur 2:00 PM)	—	10-23-14
11-19-14	—	—
—	—	—

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

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS	
Life Cycle	Groundwater Record of Decision Travis, Glenn Anderson CH2M HILL, Leah Waller
Scoping Meeting	01-24-07 (11-30-11)
Predraft to AF/Service Center	11-28-12
AF/Service Center Comments Due	12-12-12
Draft to Agencies	01-02-13 ¹
Draft to RAB	01-02-13 ¹
Agency Comments Due	03-03-13 (04-05-13)
Response to Comments Meeting	TBD²
Public Comment Period	NA
Public Meeting	NA
Response to Comments Due	TBD
Draft Final Due	TBD
Final Due	TBD

¹Sent Appendix A to agencies for review on 07-31-13

² 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	Site CG508 POCO Work Plan Travis AFB, Glenn Anderson CH2M HILL, Tony Chakurian
Scoping Meeting	NA
Predraft to AF/Service Center	01-15-14
AF/Service Center Comments Due	01-29-14
Draft to Agencies	02-12-14
Draft to RAB	02-12-14
Agency Comments Due	03-14-14
Response to Comments Meeting	03-19-14
Response to Comments Due	04-02-14
Draft Final Due	NA
Final Due	04-02-14
Public Comment Period	NA
Public Meeting	NA

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS				
Life Cycle	Quarterly Newsletters (January 2014) Travis, Glenn Anderson	2013 Annual Groundwater Remediation Implementation Status Report Travis AFB, Lonnie Duke CH2M HILL, Royer/Berwick	Kinder Morgan Site LF044 Land Use Control Report Travis AFB, Glenn Anderson AMEC, Nick Ricono	Old Skeet Range Removal Action Work Plan Travis AFB, Glenn Anderson Baywest, Steve Thornton
Scoping Meeting	NA	NA	NA	NA
Predraft to AF/Service Center	NA	04-03-14	NA	05-21-13
AF/Service Center Comments Due	NA	04-17-14	NA	06-05-13
Draft to Agencies	01-07-14	05-01-14	09-18-13	08-30-13
Draft to RAB	NA	05-01-14	09-18-13	08-30-13
Agency Comments Due	01-21-14	06-02-14	10-18-13	09-30-13
Response to Comments Meeting	TBD	06-18-14	TBD	11-20-13
Response to Comments Due	01-22-14	06-30-14	TBD	12-06-13
Draft Final Due	NA	NA	NA	NA
Final Due	01-22-14	06-30-14	TBD	12-06-13
Public Comment Period	NA	NA	NA	NA
Public Meeting	NA	NA	NA	NA

Travis AFB Master Meeting and Document Schedule

HISTORICAL			
Life Cycle	2012 Annual Groundwater Remediation Implementation Status Report Travis AFB, Lonnie Duke CH2M HILL, Royer/Berwick	Subarea LF007C and Site SS030 Remedial Process Optimization Work Plan Travis AFB, Lonnie Duke CH2M HILL, Tony Chakurian	Pre-Design Site Characterization of Site SS029 Travis AFB, Lonnie Duke Tri-Hydro, Glenn Leong
Scoping Meeting	NA	NA	NA
Predraft to AF/Service Center	03-28-13	07-19-13	06-27-13
AF/Service Center Comments Due	04-11-13 (04-18-13)	08-02-13	07-29-13
Draft to Agencies	05-14-13	08-09-13 (08-07-13)	08-21-13
Draft to RAB	05-14-13	08-09-13 (08-07-13)	08-21-13
Agency Comments Due	06-13-13 (07-03-13 & 09-06-13)	09-09-13	09-20-13
Response to Comments Meeting	09-18-13	09-18-09	09-25-13
Response to Comments Due	10-14-13	11-20-13	10-16-13
Draft Final Due	NA	NA	NA
Final Due	10-14-13	11-20-13	10-16-13
Public Comment Period	NA	NA	NA
Public Meeting	NA	NA	NA

Travis AFB Master Meeting and Document Schedule

HISTORICAL	
Life Cycle	3rd Five-Year Review Travis AFB, Glenn Anderson J.C. Palomar, Chris Bason
Scoping Meeting	10-31-12
Predraft to AF/Service Center	03-08-13
AF/Service Center Comments Due	03-27-13
Draft to Agencies	05-21-13
Draft to RAB	05-21-13
Agency Comments Due	07-23-13
Response to Comments Meeting	08-06-13
Public Comment Period	NA
Public Meeting	NA
Response to Comments Due	08-20-13
Draft Final Due	08-26-13
Final Due	09-25-13

South Base Boundary Groundwater Treatment Plant

Monthly Data Sheet

Report Number: 159

Reporting Period: 30 October 2013 – 2 December 2013

Date Submitted: 7 January 2014

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

System Metrics

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

Table 1 – Operations Summary – November 2013				
Initial Data Collection:		10/30/2013 14:00	Final Data Collection:	12/2/2013 09:45
Operating Time:		Percent Uptime:	Electrical Power Usage:	
SBBGWTP:	764 hours	SBBGWTP:	97 %	SBBGWTP: 14,520 kWh (19,892 lbs CO ₂ generated ^{a)} ^{b)}
Gallons Treated: 3.0 million gallons			Gallons Treated Since July 1998: 843 million gallons	
Volume Discharged to Union Creek: 3.0 million gallons				
VOC Mass Removed: 1.79 lbs^{c)}			VOC Mass Removed Since July 1998: 443 lbs	
Rolling 12-Month Cost per Pound of Mass Removed: \$12,360 ^{d)}				
Monthly Cost per Pound of Mass Removed: \$12,927				
lbs = pounds				
^{a)} Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.				
^{b)} Not Available – no reliable readings recorded from the electric meter at the SBBGWTP in November. October 2013 electrical usage reported.				
^{c)} Calculated using November 2013 EPA Method SW8260B analytical results.				
^{d)} 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	3.9	EW736x05	Offline	EW01x29	-- ^d	EW01x30	1.7
EW02x05	1.8	EW737x05	Offline	EW02x29	7.3	EW02x30	1.2
EW03x05	Offline	EW742x05	Offline	EW03x29	3.4	EW03x30	5.5
EW731x05	Offline	EW743x05	Offline	EW04x29	0.5	EW04x30	24.0
EW732x05	Offline	EW744x05	Offline	EW05x29	5.9	EW05x30	-- ^d
EW733x05	Offline	EW745x05	Offline	EW06x29	-- ^d	EW06x30	Dry
EW734x05	-- ^d	EW746x05	Offline	EW07x29	4.2	EW711x30	17.3
EW735x05	-- ^d						
FT005 Total: 21.8				SS029 Total: 30.1		SS030 Total: 69.2	
SBBGWTP Average Monthly Flow ^c : 64.3 gpm							
^a Extraction well flow rates are based on instantaneous weekly readings collected at the end of the month.							
^b The average SBBGWTP groundwater flow rate was calculated using the Union Creek Discharge Totalizer and dividing it by the total time in the reporting period.							
^c Most extraction wells at FT005 were taken offline in accordance with the 2008 Annual Remedial Process Optimization Report for the Central Groundwater Treatment Plant, North Groundwater Treatment Plant, and South Base Boundary Groundwater Treatment Plant.							
^d Extraction wells are online, but communications with the SCADA system is faulty. SCADA upgrade is in progress.							
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	25 November 2013	10:50	26 November 2013	11:00	Shut down to inspect for leaks. None were identified.
SBBGWTP = South Base Boundary Groundwater Treatment Plant					

Summary of O&M Activities

Monthly groundwater samples were collected at the SBBGWTP on 12 November 2013. Sample results are presented in Table 4. The total VOC concentration (70.6 µg/L) in the influent sample has increased since the October 2013 sample (23.8 µg /L) was collected. Cis-1,2-DCE (4 µg/L) and TCE (66.4 µg/L) were detected at the influent sampling location in November 2013. 1,2-dichloroethane (0.3 J µg/L), cis-1,2-DCE (0.83 J µg/L), and TCE (0.45 J µg/L) were detected at the midpoint sampling location. TCE (0.21 J µg/L) was also detected at the effluent sampling location, which is below the 5 µg/L instantaneous maximum concentration limitation for TCE at the SBBGWTP.

Figure 1 presents a plot of influent concentrations and average flow at the SBBGWTP over the past twelve (12) months. The average flow rate at the SBBGWTP continued to decrease in November 2013. Extraction wells EW01x29, EW06x29, EW734x05, EW735x05, and EW05x30 registered some down time in November 2013 due to faulty signal wiring. These wiring issues will continue to be investigated in December 2013 and the SCADA upgrade will proceed as planned to help resolve them.

Optimization Activities

No optimization activities were performed in November 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 electric meter at the SBBGWTP recorded electrical usage equivalent to approximately 19,892 pounds of GHG during October 2013. The electric meter at the SBBGWTP provided further erratic data in November 2013 and the variability in the rate of usage has continued to increase. During November 2013, readings of the electric meter at the SBBGWTP indicated electricity usage of approximately 60,000 kWh. This is in excess of historical usage both prior to and after the air stripper at the SBBGWTP was bypassed in August 2010. Travis AFB is currently investigating the inconsistent nature of the electricity usage measured by the meter to determine the source of error. Travis AFB has requested assistance from the CE department to investigate the electrical meter issues in early December 2013.

TABLE 4

Summary of Groundwater Analytical Data for November 2013 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	12 November 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	0.24 J	ND	ND
1,1-Dichloroethane	5.0	0.50	0	ND	ND	ND
1,2-Dichloroethane	0.5	0.15	0	ND	0.3 J	ND
1,1-Dichloroethene	5.0	0.19	0	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.19	0	4	0.83 J	ND
trans-1,2-Dichloroethene	5.0	0.33	0	ND	ND	ND
Methylene Chloride	5.0	0.66	0	ND	ND	ND
Tetrachloroethene	5.0	0.21	0	ND	ND	ND
1,1,1-Trichloroethane	5.0	0.14	0	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.20	0	ND	ND	ND
Trichloroethene	5.0	0.19	0	66.4	0.45 J	0.21 J
Vinyl Chloride	0.5	0.18	0	ND	ND	ND
Non-Halogenated Volatile Organics						
Benzene	1.0	0.17	0	ND	ND	ND
Ethylbenzene	5.0	0.22	0	ND	ND	ND
Toluene	5.0	0.14	0	ND	ND	ND
Xylenes	5.0	0.23 – 0.5	0	ND	ND	ND
Other						
Total Petroleum Hydrocarbons – Gasoline	50	8.5	0	NM	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	50	0	NM	NM	ND
Total Suspended Solids (mg/L)	NE	1.0	0	9 J	NM	NM

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

Notes:

J = analyte concentration is considered an estimated value due to a detected concentration value between the reporting limit and method detection limit for the contaminant

mg/L = milligrams per liter

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

ND = not detected

NE = not established

NM = not measured

µg/L = micrograms per liter

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

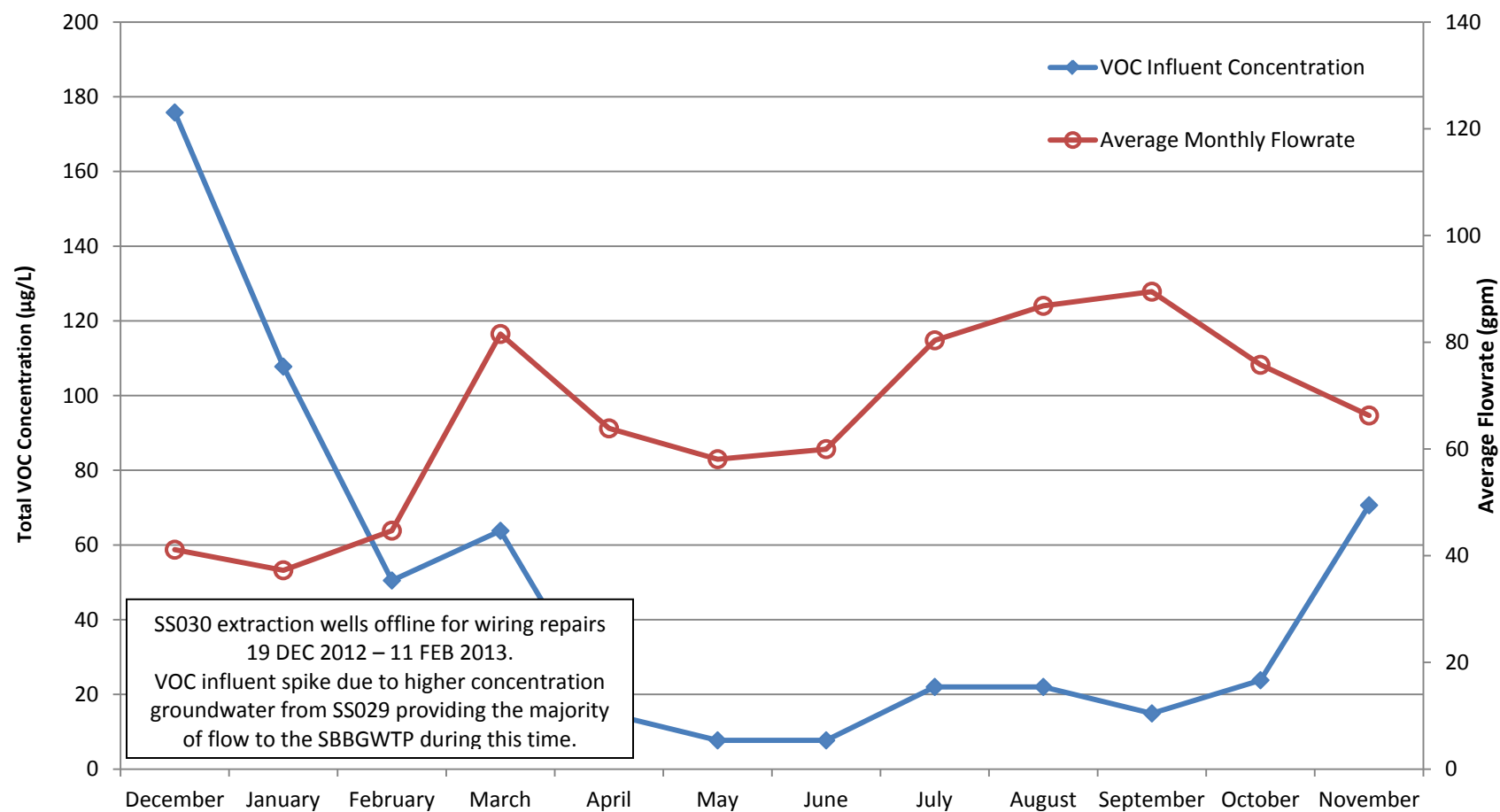
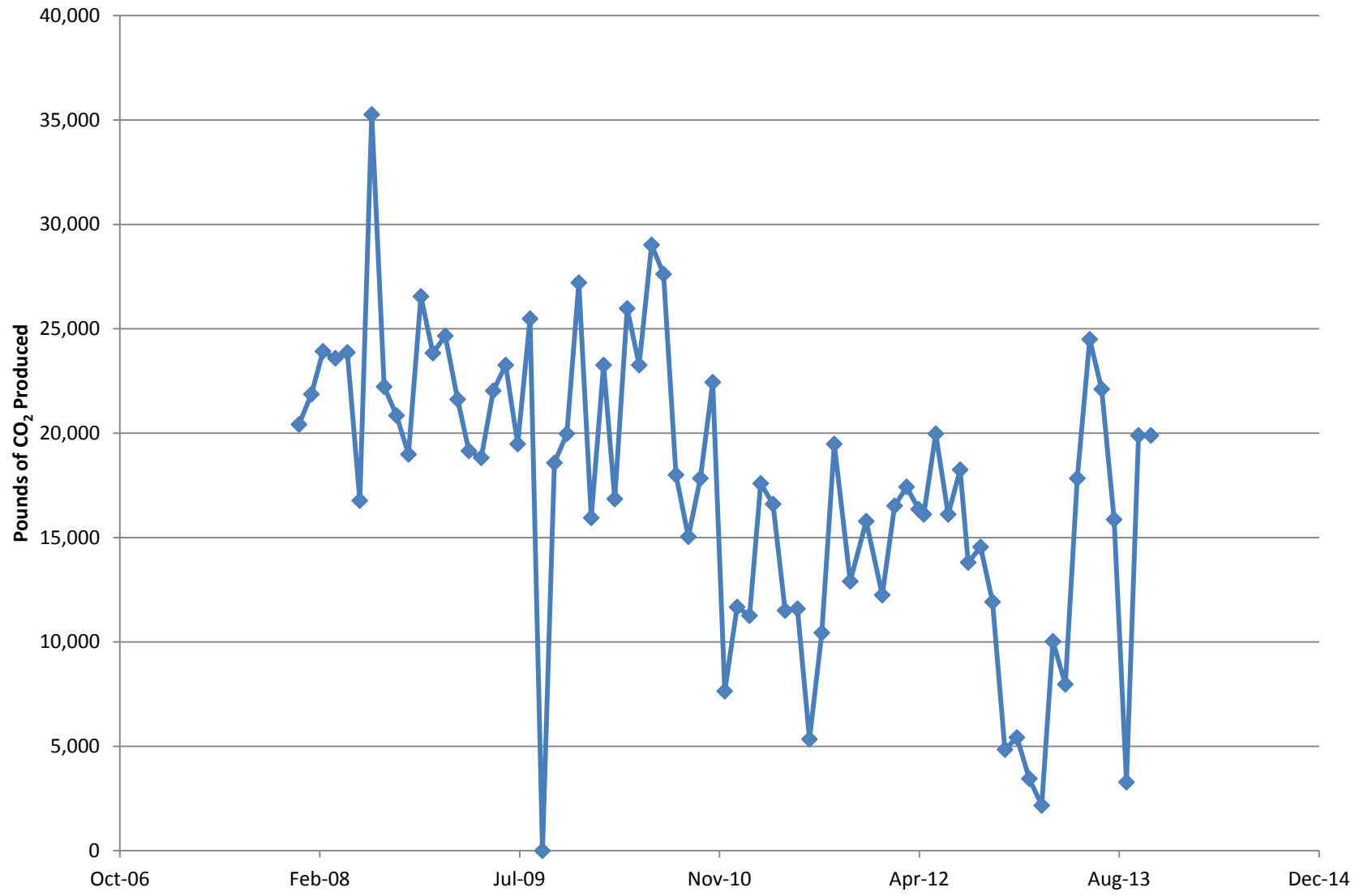


Figure 2

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



South Base Boundary Groundwater Treatment Plant

Monthly Data Sheet

Report Number: 60

Reporting Period: 2 December 2013 – 31 December 2013

Date Submitted: 16 January 2014

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

System Metrics

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

Table 1 – Operations Summary – December 2013

Initial Data Collection:		12/2/2013 09:45		Final Data Collection:		12/31/2013 13:00	
Operating Time:		Percent Uptime:		Electrical Power Usage:			
SBBGWTP: 698 hours		SBBGWTP: 100 %		SBBGWTP: 14,520 kWh (19,892 lbs CO ₂ generated ^{a)} ^{b)}			
Gallons Treated: 2.6 million gallons				Gallons Treated Since July 1998: 846 million gallons			
Volume Discharged to Union Creek: 2.6 million gallons							
VOC Mass Removed: 1.33 lbs ^{c)}				VOC Mass Removed Since July 1998: 444 lbs			
Rolling 12-Month Cost per Pound of Mass Removed: \$12,491 ^{d)}							
Monthly Cost per Pound of Mass Removed: \$5,265							

lbs = pounds

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

^b Not Available – no reliable readings recorded from the electric meter at the SBBGWTP in November or December. October 2013 electrical usage reported.

^c Calculated using December 2013 EPA Method SW8260B analytical results.

^d 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	2.7	EW736x05	Offline	EW01x29	-- ^d	EW01x30	5.9
EW02x05	1.7	EW737x05	Offline	EW02x29	7.1	EW02x30	1.2
EW03x05	Offline	EW742x05	Offline	EW03x29	2.9	EW03x30	5.1
EW731x05	Offline	EW743x05	Offline	EW04x29	0.5	EW04x30	23.8
EW732x05	Offline	EW744x05	Offline	EW05x29	7.6	EW05x30	-- ^d
EW733x05	Offline	EW745x05	Offline	EW06x29	5.0	EW06x30	Dry
EW734x05	-- ^d	EW746x05	Offline	EW07x29	3.8	EW711x30	18.7
EW735x05	-- ^d						
FT005 Total: 4.4				SS029 Total: 26.9		SS030 Total: 54.7	
SBBGWTP Average Monthly Flow ^c : 61.3 gpm							
^a Extraction well flow rates are based on instantaneous weekly readings collected at the end of the month.							
^b The average SBBGWTP groundwater flow rate was calculated using the Union Creek Discharge Totalizer and dividing it by the total time in the reporting period.							
^c Most extraction wells at FT005 were taken offline in accordance with the 2008 Annual Remedial Process Optimization Report for the Central Groundwater Treatment Plant, North Groundwater Treatment Plant, and South Base Boundary Groundwater Treatment Plant.							
^d Extraction wells are online, but communications with the SCADA system is faulty. SCADA upgrade is in progress.							
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				
SBBGWTP = South Base Boundary Groundwater Treatment Plant					

Summary of O&M Activities

Monthly groundwater samples were collected at the SBBGWTP on 4 December 2013. Sample results are presented in Table 4. The total VOC concentration (62.1 µg/L) in the influent sample has decreased since the November 2013 sample (70.6 µg/L) was collected. Chloroform (0.31 J µg/L), cis-1,2-DCE (3.9 µg/L), and TCE (57.9 µg/L) were detected at the influent sampling location in December 2013. 1,2-dichloroethane (0.3 J µg/L), chloroform (0.18 J µg/L), cis-1,2-DCE (1 µg/L), and TCE (0.39 J µg/L) were detected at the midpoint sampling location. No contaminants were detected at the effluent sampling location.

Figure 1 presents a plot of influent concentrations and average flow at the SBBGWTP over the past twelve (12) months. The average flow rate at the SBBGWTP continued to decrease in December 2013. Extraction wells EW01x29, EW734x05, EW735x05, and EW05x30 registered some down time in December 2013 due to faulty signal wiring. The pump at extraction well EW06x29 was replaced on 13 December 2013 and is now running. These wiring issues will continue to be investigated in January 2014 and the SCADA upgrade will proceed as planned to help resolve them.

Optimization Activities

No optimization activities were performed in December 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 electric meter at the SBBGWTP recorded electrical usage equivalent to approximately 19,892 pounds of GHG during October 2013. The electric meter at the SBBGWTP continued to provide erratic data in December 2013 as was seen during November. During December 2013, readings of the electric meter at the SBBGWTP indicated electricity usage of approximately 50,000 kWh. This is in excess of historical usage both prior to and after the air stripper at the SBBGWTP was bypassed in August 2010 with the exception of November 2013 when the meter indicated usage of approximately 60,000 kWh. Travis AFB is currently investigating the inconsistent nature of the electricity usage measured by the meter to determine the source of error. Travis AFB has requested assistance from the CE department to investigate the electrical meter issues and troubleshooting efforts are currently in progress.

TABLE 4

Summary of Groundwater Analytical Data for December 2013 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	4 December 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	0.31 J	0.18 J	ND
1,1-Dichloroethane	5.0	0.50	0	ND	ND	ND
1,2-Dichloroethane	0.5	0.15	0	ND	0.3 J	ND
1,1-Dichloroethene	5.0	0.19	0	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.19	0	3.9	1	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	57.9	0.39 J	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	4 J	NM	NM

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

Notes:

J = analyte concentration is considered an estimated value due to a detected concentration value between the reporting limit and method detection limit for the contaminant

mg/L = milligrams per liter

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

ND = not detected

NE = not established

NM = not measured

µg/L = micrograms per liter

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

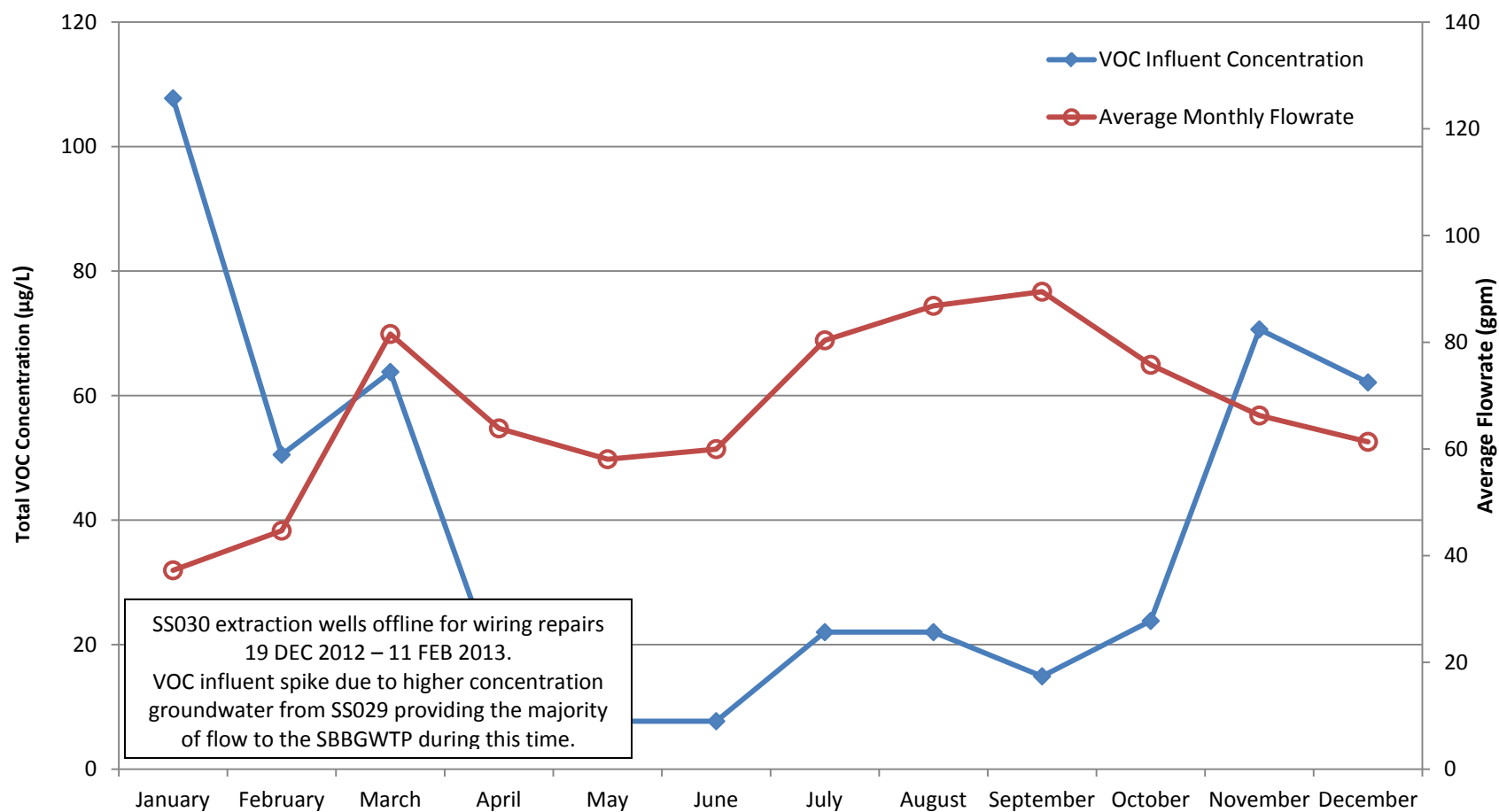
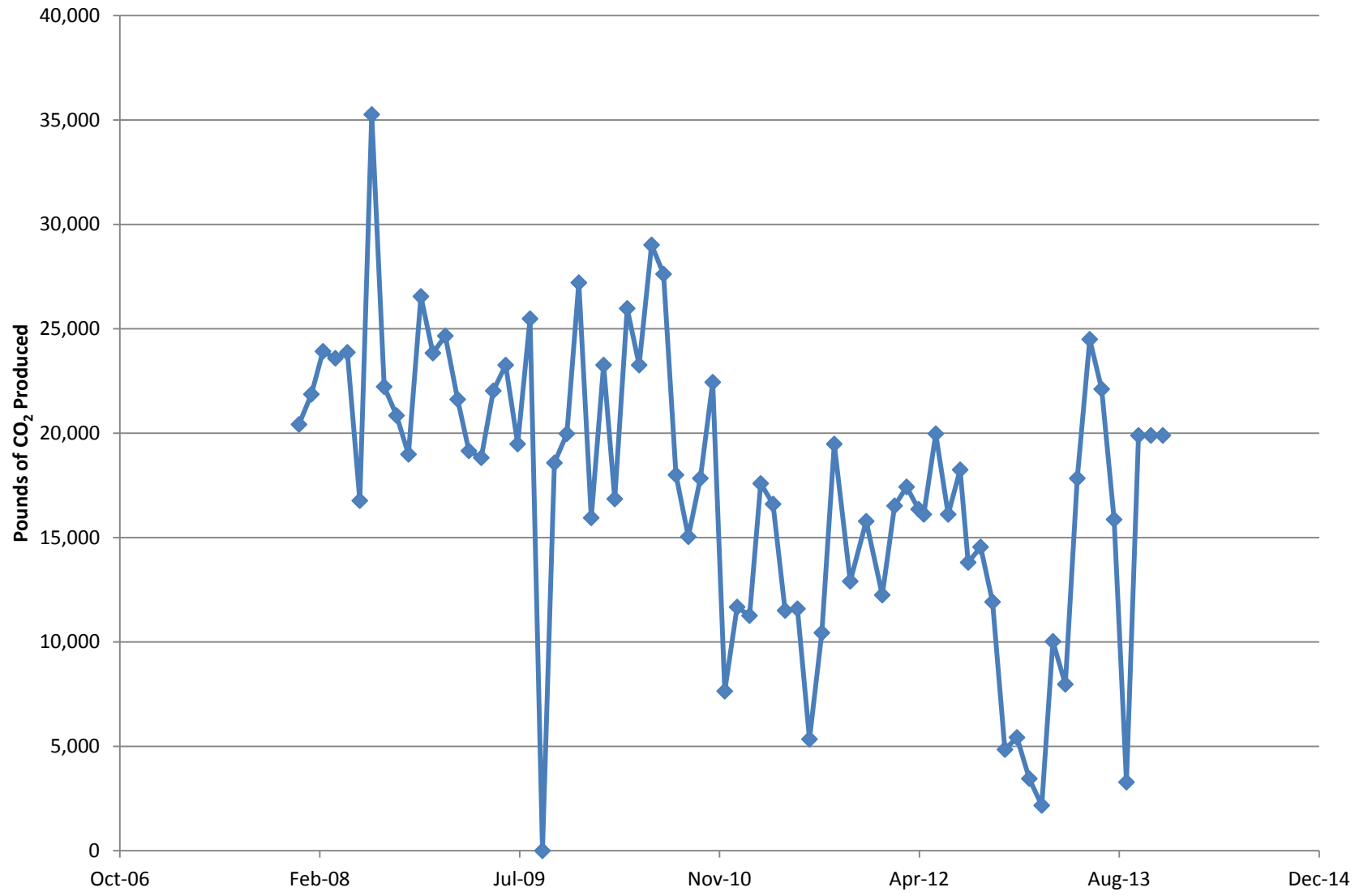


Figure 2

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



Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 172

Reporting Period: 30 October 2013 – 2 December 2013

Date Submitted: 7 January 2014

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

System Metrics

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

Table 1 – Operations Summary – November 2013			
Initial Data Collection:		Final Data Collection:	
10/30/2013 15:00		12/2/2013 10:00	
Operating Time:		Percent Uptime:	
CGWTP: 787 hours		CGWTP: 100%	
WTTP: Water: 0 hours Vapor: 0 hours		WTTP: Water: 0% Vapor: 0%	
Gallons Treated: 1.51 million gallons		Electrical Power Usage:	
		CGWTP: 1,733 kWh (2,374 lbs CO ₂ generated ^a)	
		WTTP: 0 kWh	
Gallons Treated Since January 1996: 488 million gallons			
VOC Mass Removed:		VOC Mass Removed Since January 1996:	
3.18 lbs ^b (groundwater only)		2,663 lbs from groundwater	
0 lbs (vapor only)		8,686 lbs from vapor	
Rolling 12-Month Cost per Pound of Mass Removed: \$2,633 ^c			
Monthly Cost per Pound of Mass Removed: \$6,549			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.			
^b Calculated using November 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	17.5	Offline
EW02x16	7.0	Offline
EW03x16	0.1 ^c	Offline
EW605x16	7.0	Offline
EW610x16	3.9	Offline
CGWTP	32.0	--
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 November 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 12 November 2013. Sample results are presented in Table 4. The total VOC concentration (252.37 µg/L) in the influent sample has increased since the October 2013 sample (247.73 µg/L) was collected. Concentrations of 1,2-Dichlorobenzene (DCB) (0.41 µg/L), 1,3-DCB (0.54 µg/L), 1,4-DCB (0.25 µg/L), cis-1,2-DCE (55.4 µg/L), tetrachloroethene (0.51 µg/L), trans-1,2-Dichloroethene (2.7 µg/L), and TCE (192 µg/L) were detected at the influent sampling location.

Vinyl chloride (0.58 µg/L) was detected at the midpoint sampling location. No other contaminants were detected at the midpoint or 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 increase in November 2013. This increase is likely the result of extraction wells EW605x16 and EW610x16 being brought back on line on 25 October 2013 after wiring replacement activities were completed.

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

Optimization Activities

No optimization activities occurred at CGWTP in November 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 2,374 pounds of GHG during November 2013. This is a decrease from the amount produced in October 2013 (approximately 2,503 pounds) and can be attributed to a shorter reporting period.

TABLE 4

Summary of Groundwater Analytical Data for November 2013 – Central Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	12 November 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	55.4	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	0.56	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	0.51	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	192	ND	ND	ND
trans-1,2-Dichloroethene	5.0	0.33	0	2.7	ND	ND	ND
Vinyl Chloride	0.5	0.18	0	ND	0.58	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 due to a detected concentration value between the reporting limit and method detection limit for the contaminant

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

ND = not detected

µg/L = micrograms per liter

mg/L = milligrams per liter

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

Table 5 – Summary of DP039 Bioreactor “Pulsed Mode” Operations		
Location	Pulse On Start Date	Pulse Off Start Date
MW750x39	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
	15 July 2013	26 July 2013
	8 August 2013	16 August 2013
	30 August 2013	13 September 2013
	27 September 2013	11 October 2013
	25 October 2013	8 November 2013
	22 November 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

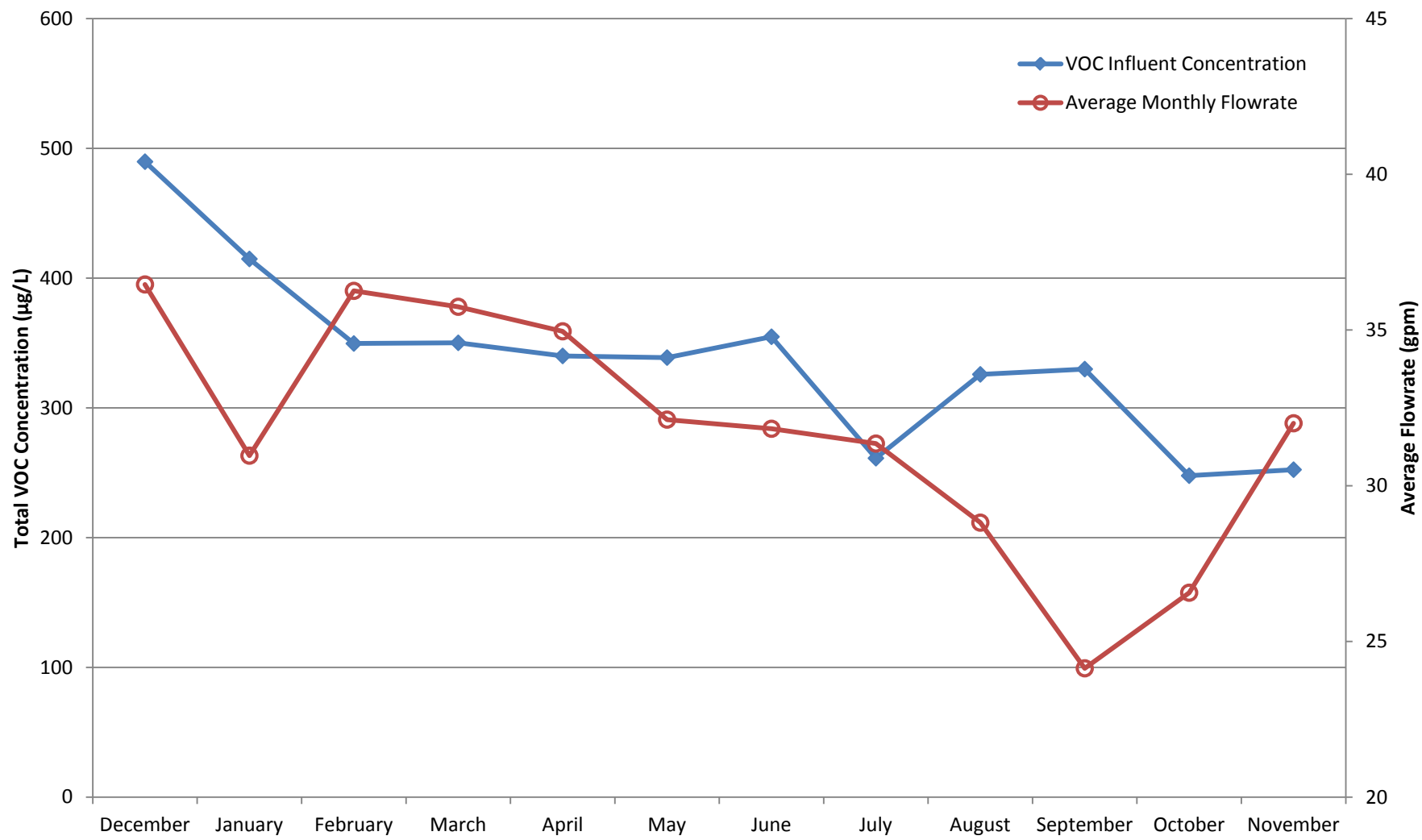
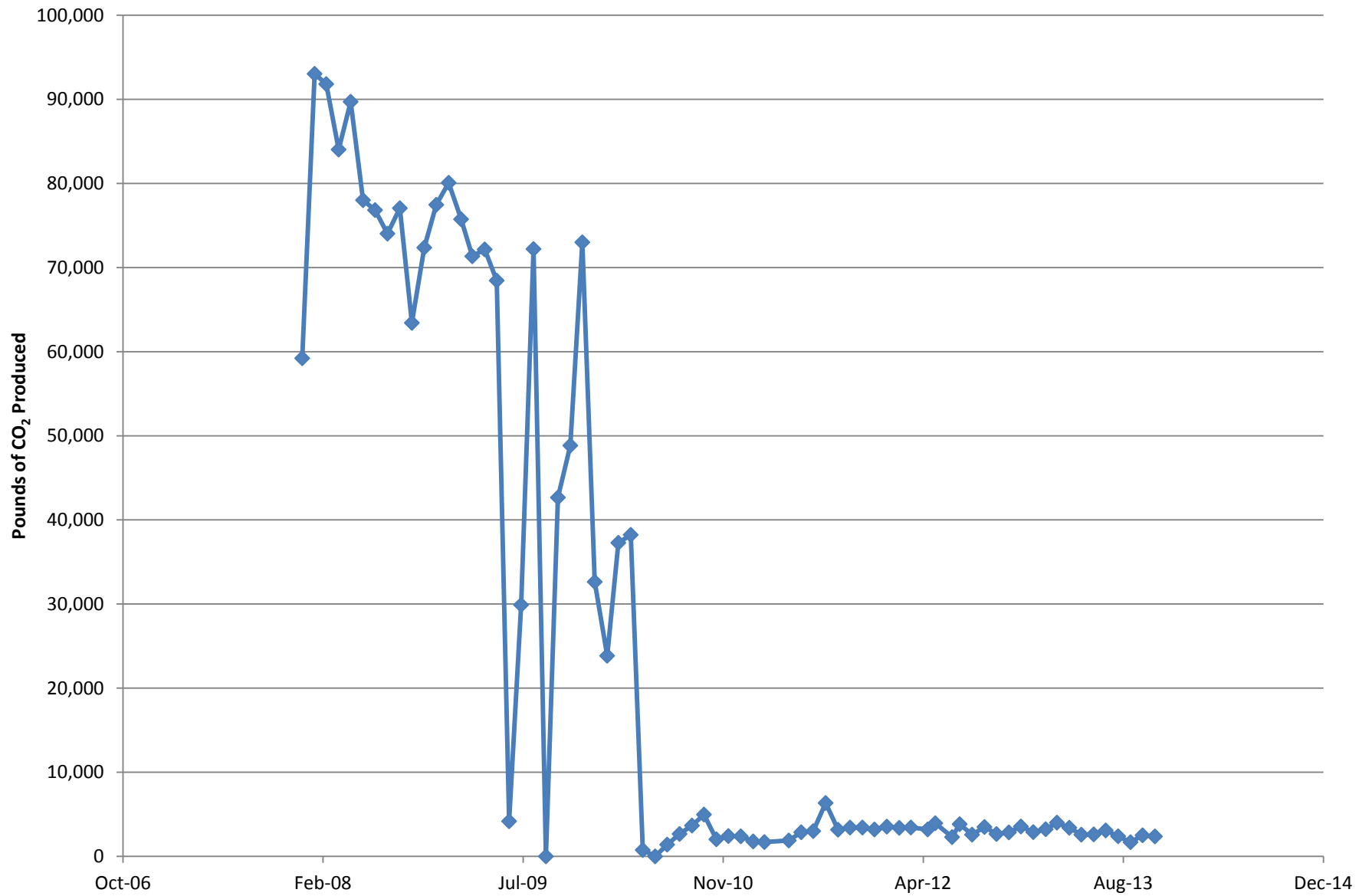


Figure 2

Equivalent Pounds of CO₂ Produced by the Central Groundwater Treatment Plant



Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 173

Reporting Period: 2 December 2013 – 31 December 2013

Date Submitted: 16 January 2014

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

System Metrics

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

Table 1 – Operations Summary – December 2013			
Initial Data Collection:	12/2/2013 10:00	Final Data Collection:	12/31/2013 13:00
Operating Time:		Percent Uptime:	Electrical Power Usage:
CGWTP:	699 hours	CGWTP:	100%
WTTP:	Water: 0 hours Vapor: 0 hours	WTTP:	Water: 0% Vapor: 0%
Gallons Treated:	1.32 million gallons	Gallons Treated Since January 1996:	489 million gallons
VOC Mass Removed:		VOC Mass Removed Since January 1996:	
2.70 lbs ^b (groundwater only)		2,665 lbs from groundwater	
0 lbs (vapor only)		8,686 lbs from vapor	
Rolling 12-Month Cost per Pound of Mass Removed:	\$2,544 ^c		
Monthly Cost per Pound of Mass Removed:	\$2,284		
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG. ^b Calculated using December 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	16.9	Offline
EW02x16	7.0	Offline
EW03x16	0.1 ^c	Offline
EW605x16	7.0	Offline
EW610x16	3.9	Offline
CGWTP	31.6	--
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 December 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 4 December 2013. Sample results are presented in Table 4. The total VOC concentration (244.92 µg/L) in the influent sample has decreased since the November 2013 sample (252.37 µg/L) was collected. Concentrations of 1,1-DCE (0.68 µg/L), 1,2-Dichlorobenzene (DCB) (0.41 J µg/L), 1,3-DCB (0.58 µg/L), 1,4-DCB (0.26 J µg/L), cis-1,2-DCE (59.2 µg/L), tetrachloroethene (0.58 µg/L), trans-1,2-Dichloroethene (3 µg/L), TCE (180 µg/L), and vinyl chloride (0.21 J µg/L) were detected at the influent sampling location.

Vinyl chloride (0.57 µg/L) was detected at the midpoint sampling location. No other contaminants were detected at the midpoint or 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 in December 2013 remained consistent with the flow rate measured in November 2013, which had increased from previous months. The flow rate is expected to stabilize as a result of wiring replacement activities completed at extraction wells EW605x16 and EW610x16 in October 2013.

On 5 December 2013, a soil vapor sample was collected at extraction well EW510x37. EW510x37 was resampled to compare with sample results from this same well when it was sampled in August 2013. The WTPP was operated for four (4) hours prior to collecting the soil vapor sample.

Of the four (4) DPE well samples collected in August 2013, only extraction well EW510x37 contained total VOC concentrations in excess of 1,000 parts per billion by volume (ppbv). The total VOC concentration measured at extraction well EW510x37 during the August 2013 sampling event was 7,219 ppbv, which included TCE with a concentration of 5,330 J+ ppbv. The results of resampling at this location on 5 December 2013 measured a total VOC concentration of 1,208.6 ppbv, with TCE present at a concentration of 802 ppbv.

The results of resampling at EW510x37 are consistent with historical sample results at this location with the concentration of TCE at EW510x37 having increased from 569 ppbv since the July 2012 vapor sampling event took place. At the other three (3) sample locations, higher total VOC concentrations were also measured during the August 2013 sampling event than from samples collected from the same locations in August 2012. However, concentrations remain well below the historical maximums for each extraction well.

The Site DP039 bioreactor continues to operate in a “pulsed mode” in order to improve the rate of remediation and to preserve the amount of total organic carbon being produced within the bioreactor. The “pulsed mode” operation continued on a two (2) week transition schedule in November 2013. On 5 December 2013, the extraction well piping at EW750x39 was observed to have cracked due to freezing temperatures. No water leaked as a result of this crack because the water remained frozen within the piping. The extraction well was shut down immediately upon observation and the fitting was repaired prior to restarting the extraction well. In addition, a 1/8-inch weep hole was drilled in the drop pipe to prevent reoccurrence. The weep hole will allow the pipeline to drain back into the extraction well in the event that the pump goes off line (night time), thus reducing the risk of pipe damage in freezing conditions.

Optimization Activities

No optimization activities occurred at CGWTP in December 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 3,620 pounds of GHG during December 2013. This is a decrease from the amount produced in November 2013 (approximately 3,744 pounds) and can be attributed to a shorter reporting period and fewer gallons treated during December.

TABLE 4

Summary of Groundwater Analytical Data for December 2013 – Central Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	4 December 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	59.2	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	0.68	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	0.58	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	180	ND	ND	ND
trans-1,2-Dichloroethene	5.0	0.33	0	3	ND	ND	ND
Vinyl Chloride	0.5	0.18	0	0.21 J	0.57	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	758	NM

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

Notes:

J = analyte concentration is considered an estimated value due to a detected concentration value between the reporting limit and method detection limit for the contaminant

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

ND = not detected

µg/L = micrograms per liter

mg/L = milligrams per liter

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

Table 5 – Summary of DP039 Bioreactor “Pulsed Mode” Operations		
Location	Pulse On Start Date	Pulse Off Start Date
MW750x39	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
	15 July 2013	26 July 2013
	8 August 2013	16 August 2013
	30 August 2013	13 September 2013
	27 September 2013	11 October 2013
	25 October 2013	8 November 2013
	22 November 2013	5 December 2013
	20 December 2013	--
* 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

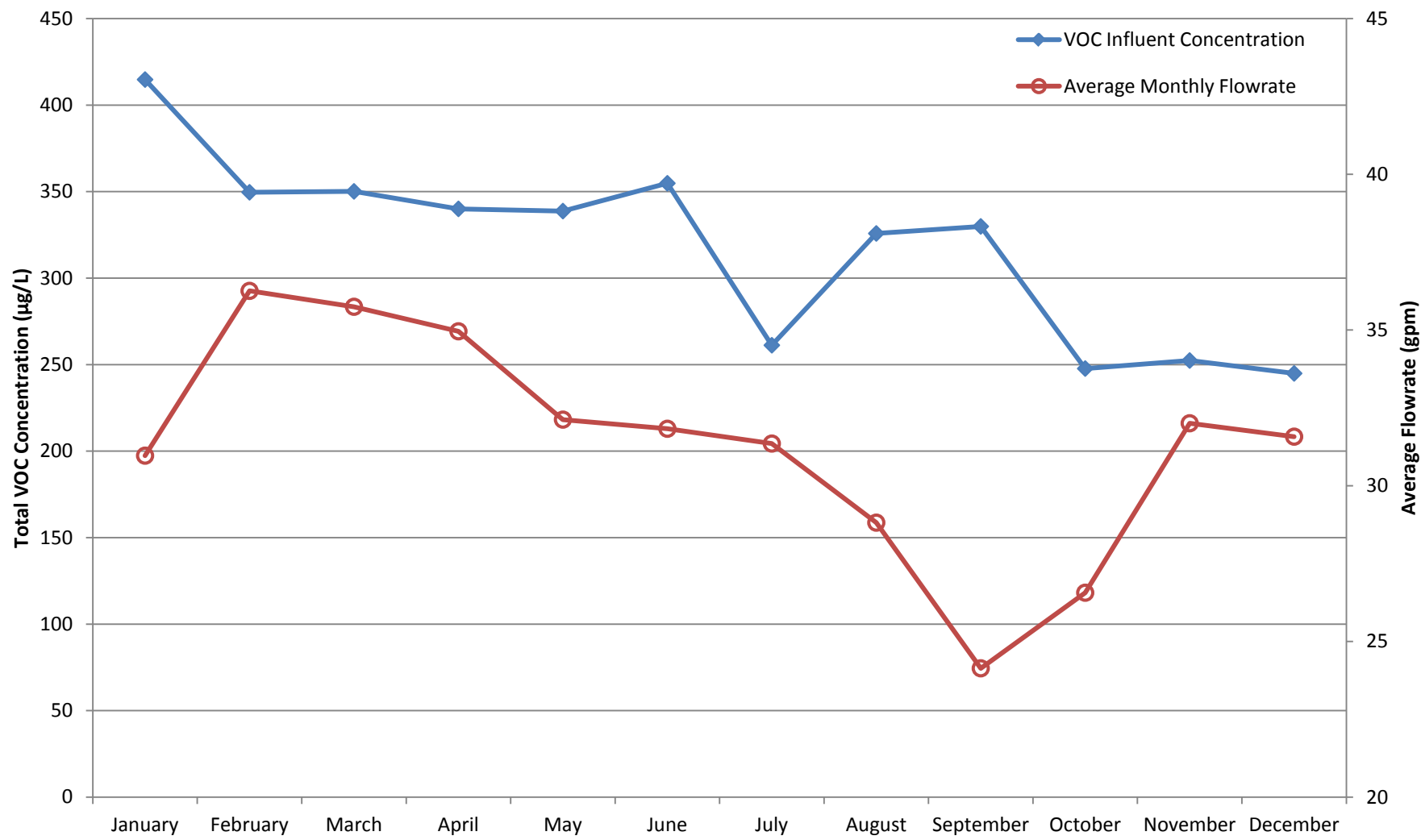
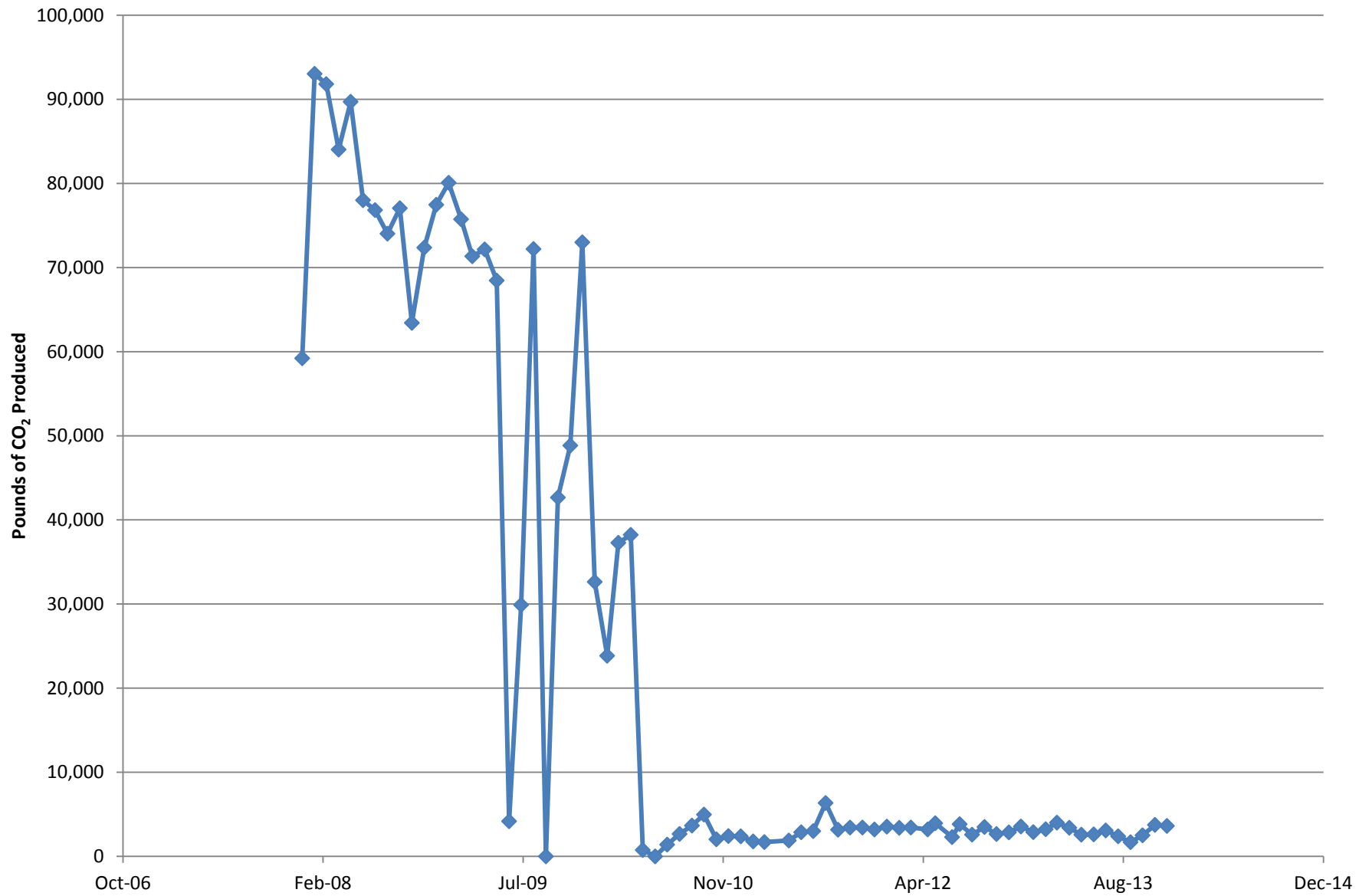


Figure 2

Equivalent Pounds of CO₂ Produced by the Central Groundwater Treatment Plant



North Groundwater Treatment Plant Monthly Data Sheet

Report Number: 137

Reporting Period: 30 October 2013 – 2 December 2013

Date Submitted: 7 January 2014

This monthly data sheet presents information regarding the North Groundwater Treatment Plant (NGWTP) and associated remedial process optimization (RPO) activities.

System Metrics

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

Table 1 – Operations Summary – November 2013			
Initial Data Collection:		10/30/2013 15:45	Final Data Collection: 12/2/2013 12:00
Operating Time:		Percent Uptime:	Electrical Power Usage:
NGWTP:	490 hours	NGWTP: 61%	NGWTP: 510 kWh (699 lbs CO ₂ generated ^a)
Gallons Treated: 5,516 gallons		Gallons Treated Since March 2000: 82.8 million gallons	
Volume Discharged to Duck Pond: 5,516 gallons		Volume Discharge to Storm Drain: 0 gallons	
VOC Mass Removed: 1.4 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^c			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.			
^b VOCs from November 2013 influent sample detected by EPA Method SW8260B.			
^c Value not calculated since measurement does not accurately represent the cost effectiveness of the system.			

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

Table 2 – NGWTP Average and Total Flow Rates – October 2013		
Location	Average Flow Rate (gpm) ^a	Total Gallons Processed (gallons)
EW614x07	0.3	5,516
EW615x07	0.0	0
NGWTP	0.3	5,516
^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	18 November 2013	10:00	None		The NGWTP was shut down to facilitate construction activities at LF007C and remains offline.
NGWTP = North Groundwater Treatment Plant					

Summary of O&M Activities

Analytical data from the 12 November 2013 sampling event are presented in Table 4. Cis-1,2-dichloroethene (0.33 J µg/L) and TCE (2.6 µg/L) were detected at the influent sample location. No contaminant concentrations were measured at the midpoint or effluent sample 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. The NGWTP was shut down on 18 November 2013 to facilitate construction activities at Site LF007C. Operation of the NGWTP will resume upon completion in January 2014.

The flow rate produced by extraction well EW615x07 has declined each month since the system was brought on line on 1 May 2013. In order to increase production from this well, the existing pump will be replaced with the pump currently installed in extraction well EW614x07 upon the completion of optimization activities at Site LF007C. The existing pump in extraction well EW615x07 is the older of the two and the flow rate is expected to increase as a result of this swap.

Optimization Activities

Optimization of the groundwater extraction and treatment system (GETS) at Site LF007C commenced on 18 November 2013. Approximately 1,400 feet of new discharge piping was installed during November to reroute the effluent from extraction wells EW614x07 and EW615x07 through a newly installed treatment system located on Collins Drive, between Site LF007C and the discharge point at the Duck Pond. A new containment pad houses the same treatment equipment that has been in use since 2010 at the NGWTP, but in a smaller enclosure. Extraction well EW614x07 is in the process of being upgraded to extract groundwater at an average rate of 4 gpm; an increase of approximately thirteen (13) times its recorded flow rate in November 2013. The upgraded solar system at extraction well EW614x07 will help to increase capture of the off base portion of the plume and increase the volume of water the system is able to treat during operation from approximately May through December. Optimization construction is scheduled to be completed in January 2014.

Sustainability

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

Figure 2 presents the historical GHG production from the systems associated with the NGWTP. The NGWTP is taken off line when vernal pools are present at Site LF007C. The NGWTP used 510 kWh, which calculates to approximately 699 pounds of GHG generation, in November 2013. This is less than October 2013 when the NGWTP produced approximately 814 pounds of GHG. This decrease can be attributed to fewer gallons treated due to the system being shut down to facilitate construction at Site LF007C in November. The overall GHG generation remains considerably lower than traditional GWTPs since the system is predominantly powered by solar arrays.

TABLE 4

Summary of Groundwater Analytical Data for November 2013 – North Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	12 November 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	0.33 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	2.6	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:

J = analyte concentration is considered an estimated value due to a detected concentration value between the reporting limit and method detection limit for the contaminant

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

ND = not detected

NM = not measured

µg/L = micrograms per liter

mg/L = milligrams per liter

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

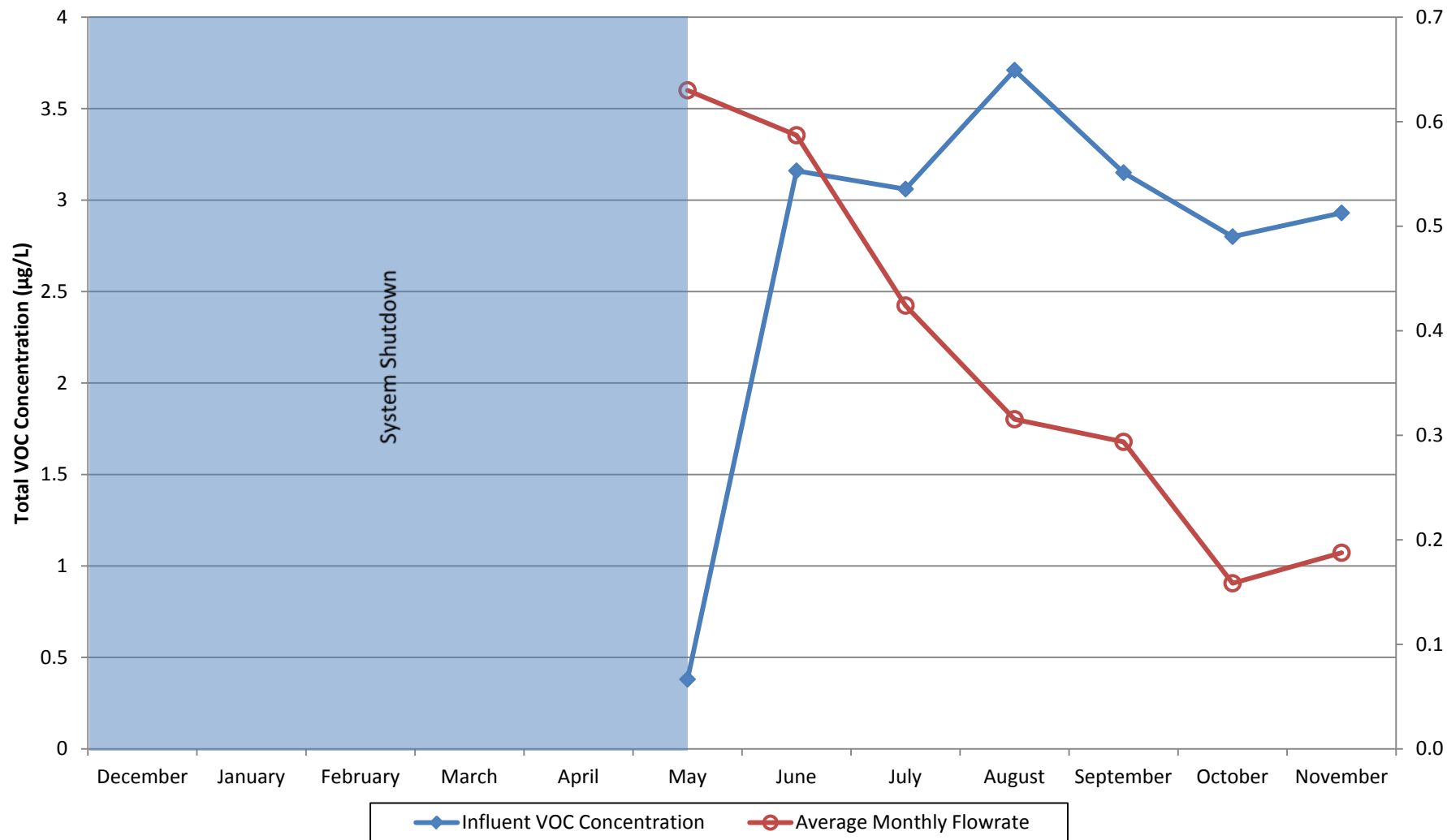
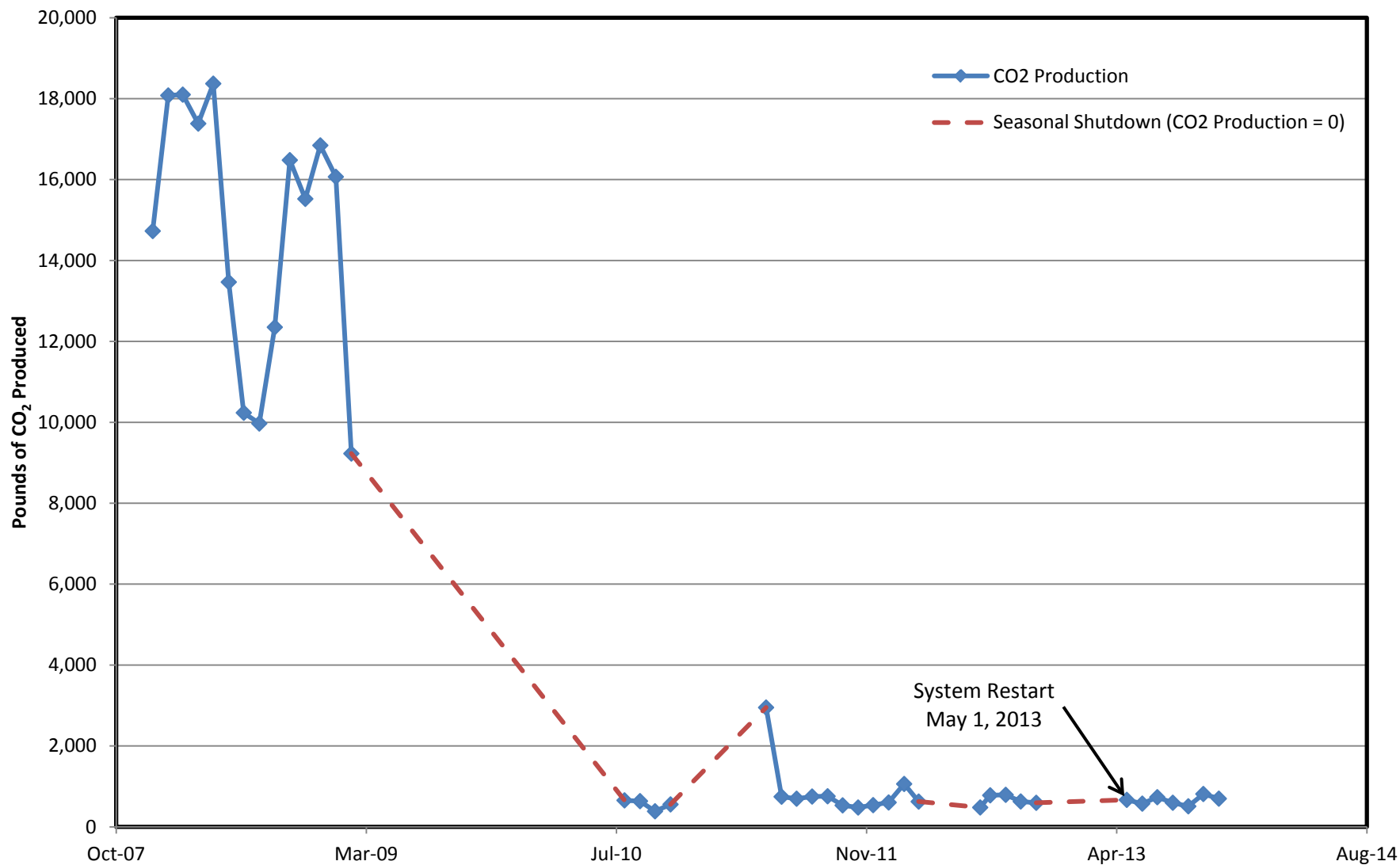


Figure 2
Equivalent Pounds of CO₂ Produced by the North Groundwater Treatment Plant



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: 033

Reporting Period: 29 October 2013 – 2 December 2013

Date Submitted: 7 January 2014

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

System Metrics

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

Table 1 – Operations Summary – November 2013			
Initial Data Collection:		10/29/2013 12:45	
Final Data Collection:		12/2/2013 10:30	
Operating Time:		Percent Uptime:	
ST018GWTP: 814 hours		ST018GWTP: 100%	
		Electrical Power Usage:	
		ST018GWTP: 115 kWh (158 lbs CO ₂ generated ^a)	
Gallons Treated: 179.3 thousand gallons		Gallons Treated Since March 2011: 4.85 million gallons	
Volume Discharged to Union Creek: 179.3 thousand gallons			
BTEX, MTBE, TPH Mass Removed: 0.30 lbs ^b		BTEX, MTBE, TPH Mass Removed Since March 2011: 25.6 lbs	
MTBE (Only) Removed: 0.21 lbs ^b		MTBE (Only) Mass Removed Since March 2011: 5.7 lbs	
Rolling 12-Month Cost per Total Pounds of BTEX, MTBE, TPH Mass Removed: \$23,710 ^c			
Monthly Cost per Pound of BTEX, MTBE, TPH Mass Removed: \$29,201			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.			
^b Calculated using October 2013 influent and November 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 – ST018GWTP Average Flow Rates		
Location	Average Flow Rate Groundwater (gpm) ^a	Hours of Operation
EW2014x18	2.09	778
EW2016x18	1.27	814
EW2019x18	1.26	814
Site ST018 GWTP	3.67	814
^a Flow rates calculated by dividing total gallons processed by the hours of operation, from the totalizer and hour meter at each location. gpm = gallons per minute ST018GWTP = Site ST018 Groundwater Treatment Plant		

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

Table 3 – Summary of System Shutdowns					
Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
	None				
ST018GWTP = Site ST018 Groundwater Treatment Plant					

Summary of O&M Activities

Groundwater samples were collected at the ST018GWTP on 12 November 2013. Sample results from the November sampling event are presented in Table 4. No contaminants were detected at the midpoint and effluent sampling locations in November 2013.

The total influent concentration (benzene, toluene, ethylbenzene, total xylenes, MTBE, TPH-gas, TPH-diesel, and TPH-motor oil) in the quarterly (4Q13) influent sample was 204 µg/L, which is an increase from the previous (3Q13) influent concentration of 181 µg/L. The influent concentration for MTBE during 4Q13 was 138 µg/L. This is a slight increase from the 3Q13 influent concentration for MTBE of 131 µg/L. Figure 1 presents plots of flow rate and influent quarterly total VOC (TPH_g, TPH_d, MTBE, and BTEX) and MTBE concentrations at the ST018GWTP versus time.

As shown on Figure 1, the average quarterly flow rate through the ST018GWTP has been maintained in excess of historical flow rates since optimization activities, which included battery upgrades at each of the three ST018 extraction wells, were completed in April 2013. The 4Q13 average flow rate remained below the 3Q13 average with the addition of November 2013 data. Extraction well EW2014x18 experienced some downtime in November 2013 as a result of drawdown which contributed to the decrease in flow through the treatment system.

Optimization Activities

No optimization activities were performed in November 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 ST018GWTP produced approximately 158 pounds of GHG during November 2013. This is a decrease from October 2013 (169 pounds) resulting from decreased gallons treated during the reporting period. Figure 2 presents the historical GHG production from the ST018GWTP. The overall GHG generation remains considerably lower than traditional GWTPs since the system is predominantly powered by solar arrays.

TABLE 4

Summary of Groundwater Analytical Data for November 2013 – Site ST018 Groundwater Treatment Plant

Summary of Groundwater Analytical Data for November 2013 - Site ST-10 Groundwater Treatment Plant							
Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	12 November 2013 (µg/L)			
				Influent ^b	After Carbon 1	After Carbon 2	System Effluent
Fuel Related Constituents							
MTBE	5	0.5	0	138	NM	ND	ND
Benzene	5	0.17	0	0.72	NM	ND	ND
Ethylbenzene	5	0.22	0	0.36 J	NM	ND	ND
Toluene	5	0.14	0	ND	NM	ND	ND
Total Xylenes	5	0.23 – 0.5	0	ND	NM	ND	ND
Total Petroleum Hydrocarbons – Gasoline	50	8.5	0	11 J	ND	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	50	0	54 J	ND	NM	ND
Total Petroleum Hydrocarbons – Motor Oil	--	160	--	ND	ND	NM	ND

^a In accordance with the National Pollutant Discharge Elimination System (NPDES) Effluent Limitations^b Values taken from October 2013 (4Q13) influent and November 2013 effluent sample data. Influent sampling is conducted on a quarterly basis.

µg/L = micrograms per liter

J = analyte concentration is considered an estimated value due to a detected concentration value between the reporting limit and method detection limit for the contaminant

ND = not detected above method detection limit

NM = not measured this month

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

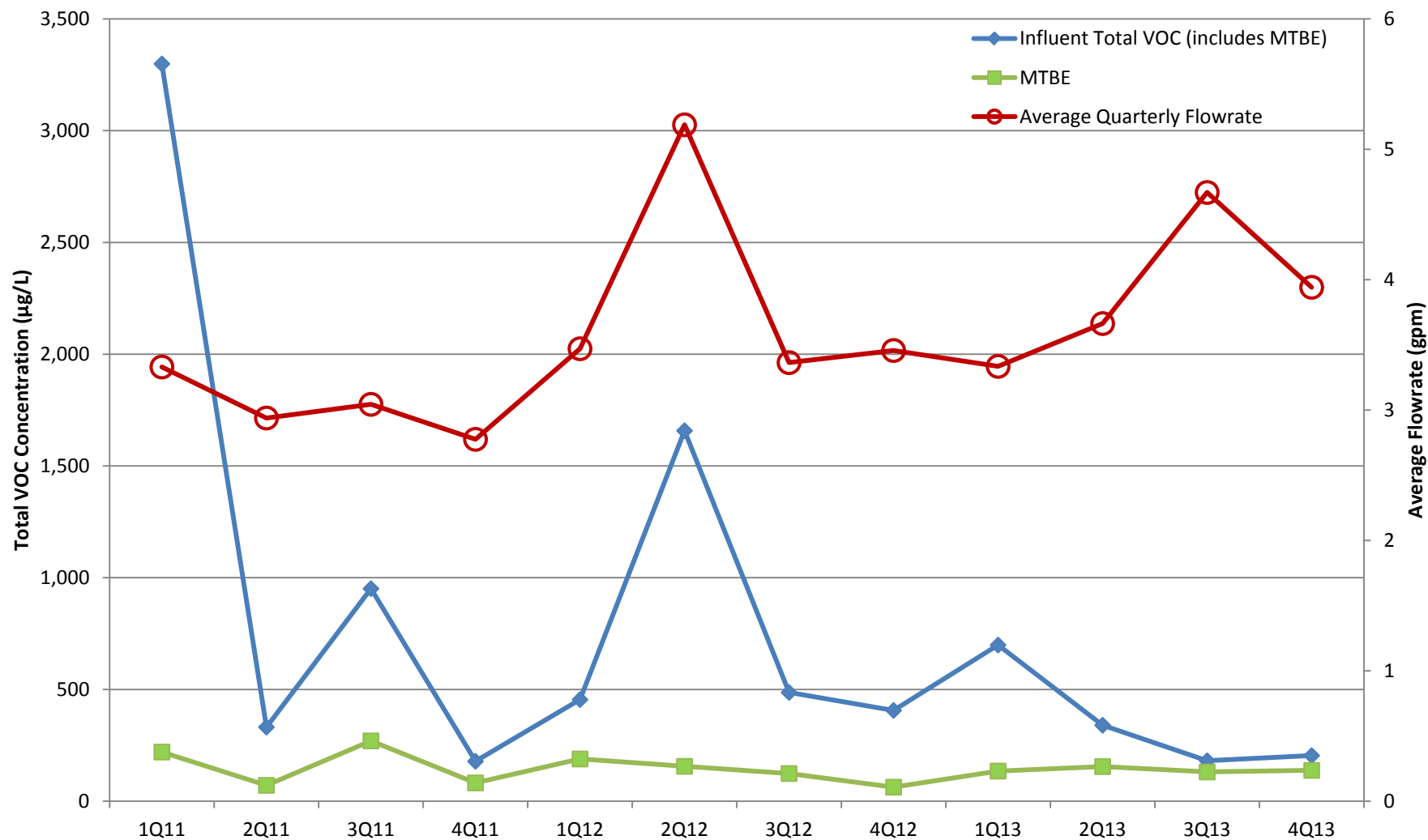
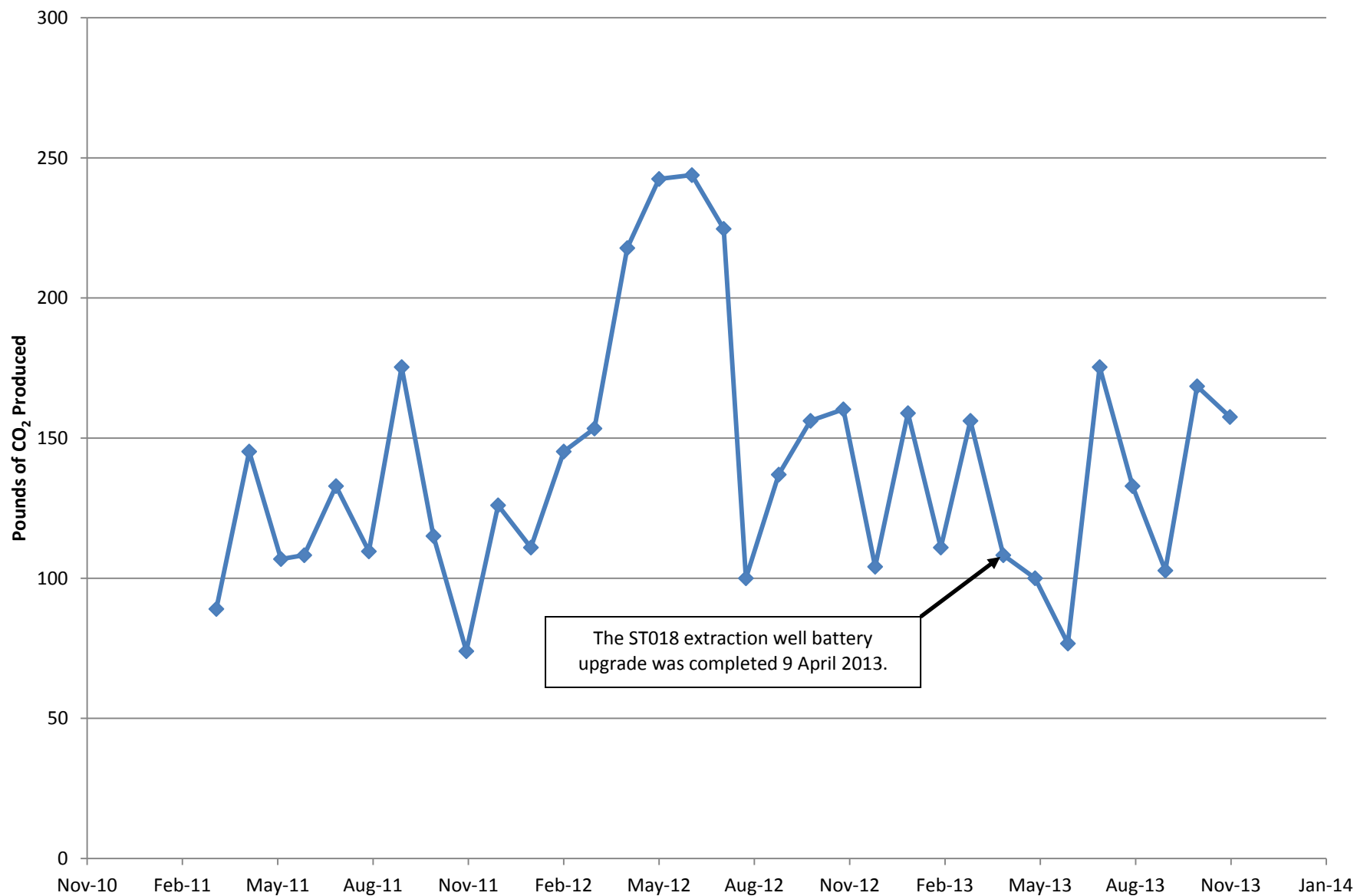


Figure 2
Equivalent Pounds of CO₂ Produced by the Site ST018 Groundwater Treatment Plant



Site ST018 Groundwater Treatment Plant Monthly Data Sheet

Report Number: 034

Reporting Period: 2 December 2013 – 31 December 2013

Date Submitted: 16 January 2014

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

System Metrics

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

Table 1 – Operations Summary – December 2013			
Initial Data Collection:		Final Data Collection:	
12/2/2013 10:30		12/31/2013 13:30	
Operating Time:		Electrical Power Usage:	
Percent Uptime:			
ST018GWTP: 699 hours		ST018GWTP: 100%	
		ST018GWTP: 96 kWh (132 lbs CO ₂ generated ^a)	
Gallons Treated: 144.4 thousand gallons		Gallons Treated Since March 2011: 4.99 million gallons	
Volume Discharged to Union Creek: 144.4 thousand gallons			
BTEX, MTBE, TPH Mass Removed: 0.25 lbs ^b		BTEX, MTBE, TPH Mass Removed Since March 2011: 25.8 lbs	
MTBE (Only) Removed: 0.17 lbs ^b		MTBE (Only) Mass Removed Since March 2011: 5.9 lbs	
Rolling 12-Month Cost per Total Pounds of Mass Removed: \$22,593 ^c			
Monthly Cost per Pound of Mass Removed: \$24,417			
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.			
^b Calculated using October 2013 influent and December 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 – ST018GWTP Average Flow Rates		
Location	Average Flow Rate Groundwater (gpm) ^a	Hours of Operation
EW2014x18	1.40	609
EW2016x18	1.16	699
EW2019x18	1.18	699
Site ST018 GWTP	3.44	699
^a Flow rates calculated by dividing total gallons processed by the hours of operation, from the totalizer and hour meter at each location. gpm = gallons per minute ST018GWTP = Site ST018 Groundwater Treatment Plant		

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

Table 3 – Summary of System Shutdowns					
Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
ST018GWTP	None				
ST018GWTP = Site ST018 Groundwater Treatment Plant					

Summary of O&M Activities

Groundwater samples were collected at the ST018GWTP on 12 December 2013. Sample results from the December sampling event are presented in Table 4. No contaminants were detected at the midpoint and effluent sampling locations in December 2013.

The total influent concentration (benzene, toluene, ethylbenzene, total xylenes, MTBE, TPH-gas, TPH-diesel, and TPH-motor oil) in the quarterly (4Q13) influent sample was 204 µg/L, which is an increase from the previous (3Q13) influent concentration of 181 µg/L. The influent concentration for MTBE during 4Q13 was 138 µg/L. This is a slight increase from the 3Q13 influent concentration for MTBE of 131 µg/L. Figure 1 presents plots of flow rate and influent quarterly total VOC (TPH_g, TPH_d, MTBE, and BTEX) and MTBE concentrations at the ST018GWTP versus time.

Due to sedimentation, the flow meter at extraction well EW2014x18 clogged and stopped measuring flow on 13 December 2013. On 20 December 2013, the flow meter was replaced. This extraction well also experienced approximately 90 hours of downtime in December 2013, which is greater than the 36 hours of downtime registered by the hour meter at this location in November. This downtime resulted from restricted flow and increased pressure in the conveyance piping, which led to high pressure shutdowns. Runtime will be monitored closely in January 2014 to see if replacement of the flow meter resolves this issue.

As shown on Figure 1, the average quarterly flow rate through the ST018GWTP has been maintained in excess of historical flow rates since optimization activities, which included battery upgrades at each of the three ST018 extraction wells, were completed in April 2013. The 4Q13 average flow rate remained below the 3Q13

average with the addition of December 2013 data. Downtime at extraction well EW2014x18 December 2013 contributed to the decrease in flow through the treatment system.

Optimization Activities

No optimization activities were performed in December 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 ST018GWTP produced approximately 132 pounds of GHG during December 2013. This is a decrease from November 2013 (158 pounds) resulting from a shorter reporting period and decreased gallons treated in December. Figure 2 presents the historical GHG production from the ST018GWTP. The overall GHG generation remains considerably lower than traditional GWTPs since the system is predominantly powered by solar arrays.

TABLE 4

Summary of Groundwater Analytical Data for December 2013 – Site ST018 Groundwater Treatment Plant

Summary of Groundwater Analytical Data for December 2013 - Site ST-10 Groundwater Treatment Plant							
Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	12 December 2013 (µg/L)			
				Influent ^b	After Carbon 1	After Carbon 2	System Effluent
Fuel Related Constituents							
MTBE	5	0.5	0	138	NM	ND	ND
Benzene	5	0.17	0	0.72	NM	ND	ND
Ethylbenzene	5	0.22	0	0.36 J	NM	ND	ND
Toluene	5	0.14	0	ND	NM	ND	ND
Total Xylenes	5	0.23 – 0.5	0	ND	NM	ND	ND
Total Petroleum Hydrocarbons – Gasoline	50	8.5	0	11 J	ND	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	50	0	54 J	ND	NM	ND
Total Petroleum Hydrocarbons – Motor Oil	--	160	--	ND	ND	NM	ND

^a In accordance with the National Pollutant Discharge Elimination System (NPDES) Effluent Limitations^b Values taken from October 2013 (4Q13) influent and December 2013 effluent sample data. Influent sampling is conducted on a quarterly basis.

µg/L = micrograms per liter

J = analyte concentration is considered an estimated value due to a detected concentration value between the reporting limit and method detection limit for the contaminant

ND = not detected above method detection limit

NM = not measured this month

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

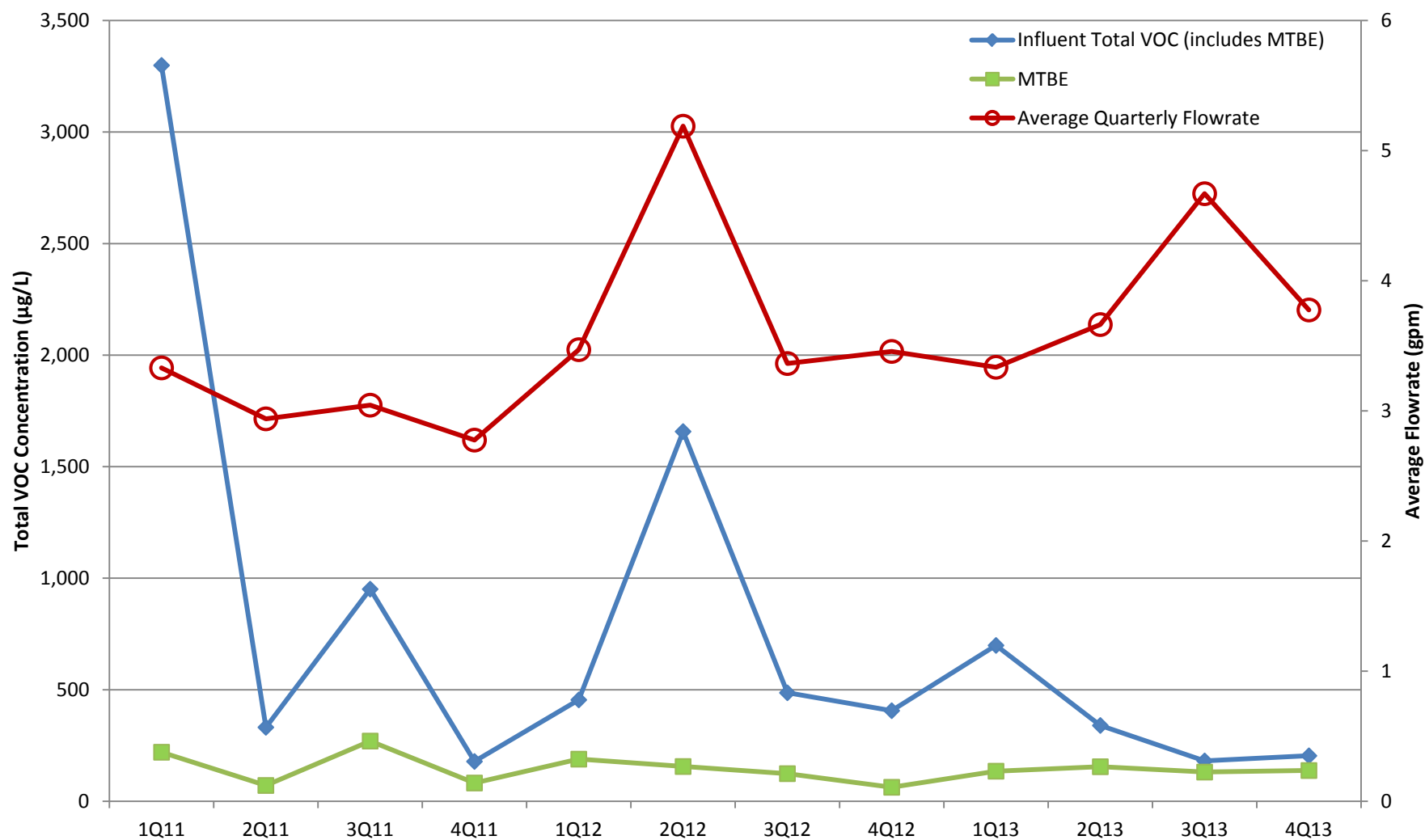
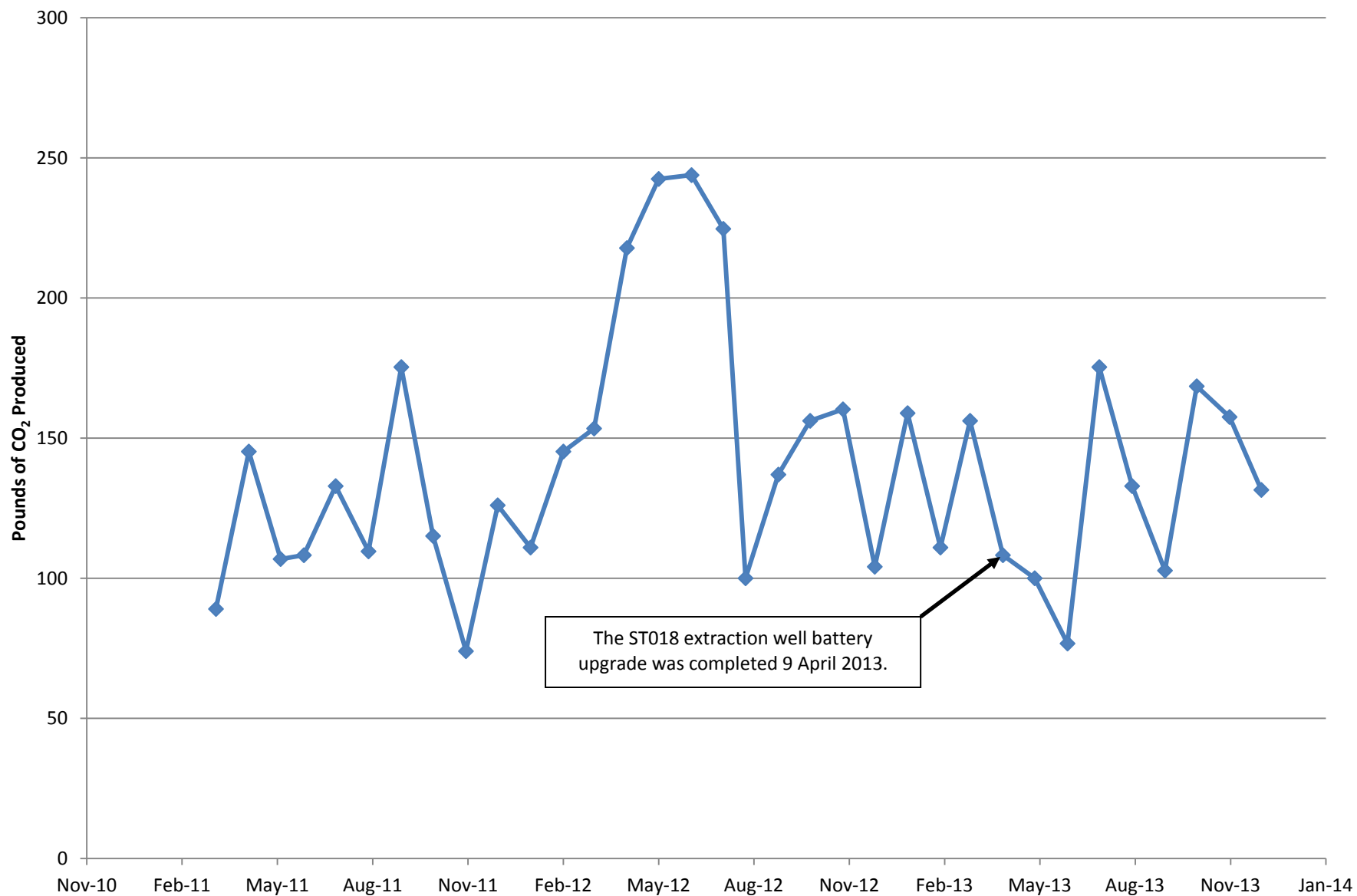
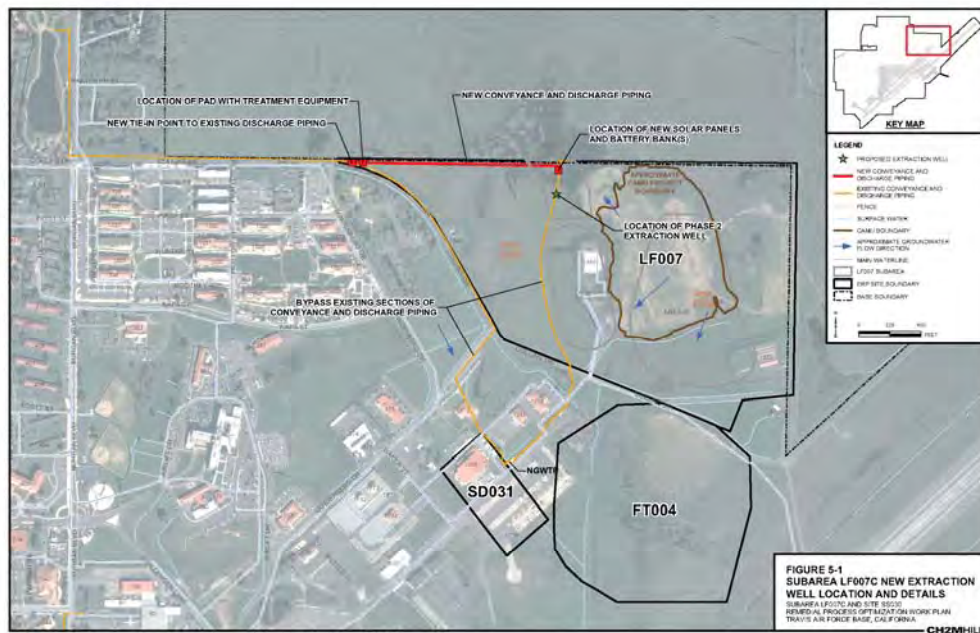


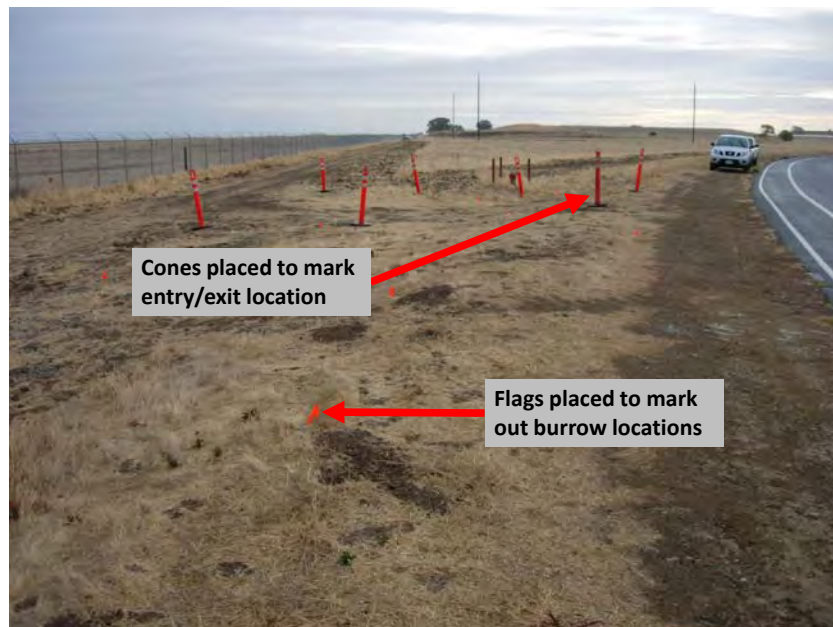
Figure 2
Equivalent Pounds of CO₂ Produced by the Site ST018 Groundwater Treatment Plant



Site LF007C Treatment System Construction Travis Air Force Base

RPM Meeting
January 22, 2014





Prior to initiating construction



Along the base fence facing north



A view of EW615x07 with the base fence



Facing back toward the treatment plant, base fence to the north.



Trenching along the base fence line



Preparing the treatment system containment pad



Almost completed the treatment system containment pad form

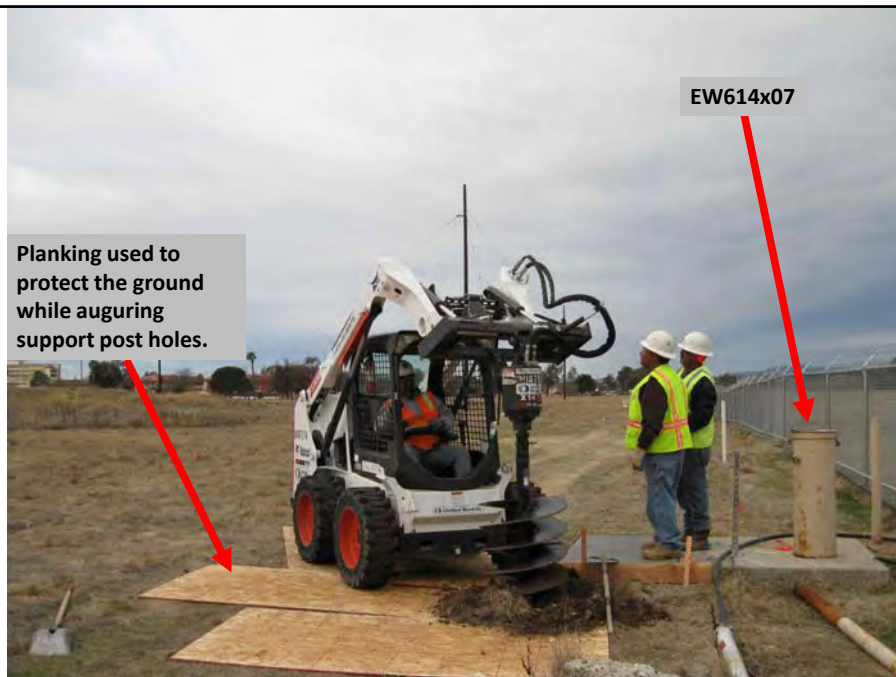


Utility locating tape
was placed along the
entire length of the
trench.

Trenching nearly complete



Completed treatment system containment pad



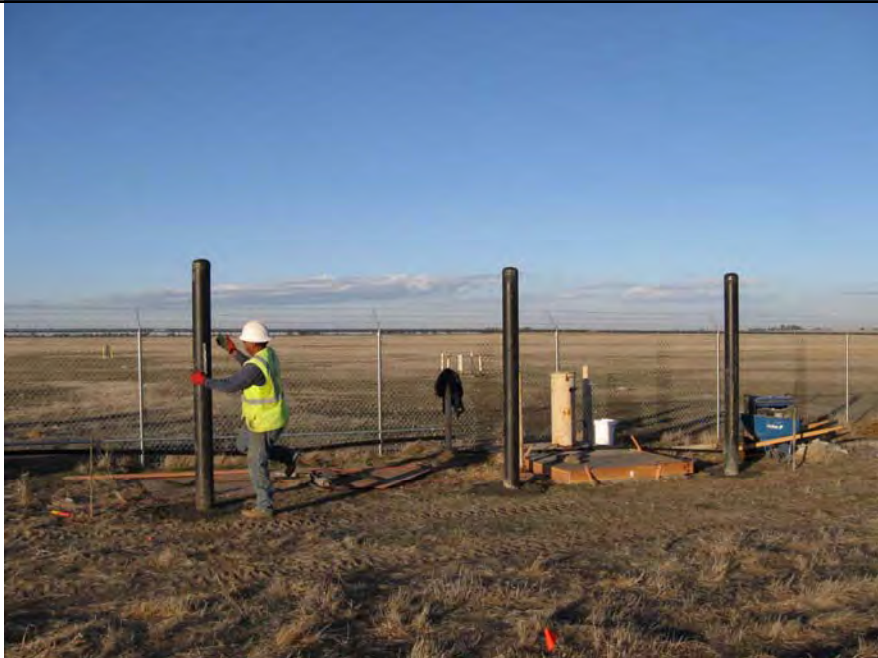
Preparing to install the solar panel array



Installing the solar array support posts



Post hole for solar array support post – three in total



Support posts installed



Solar panel array installed



Treatment system fencing installed



Initial attempt to find the Duck Pond line



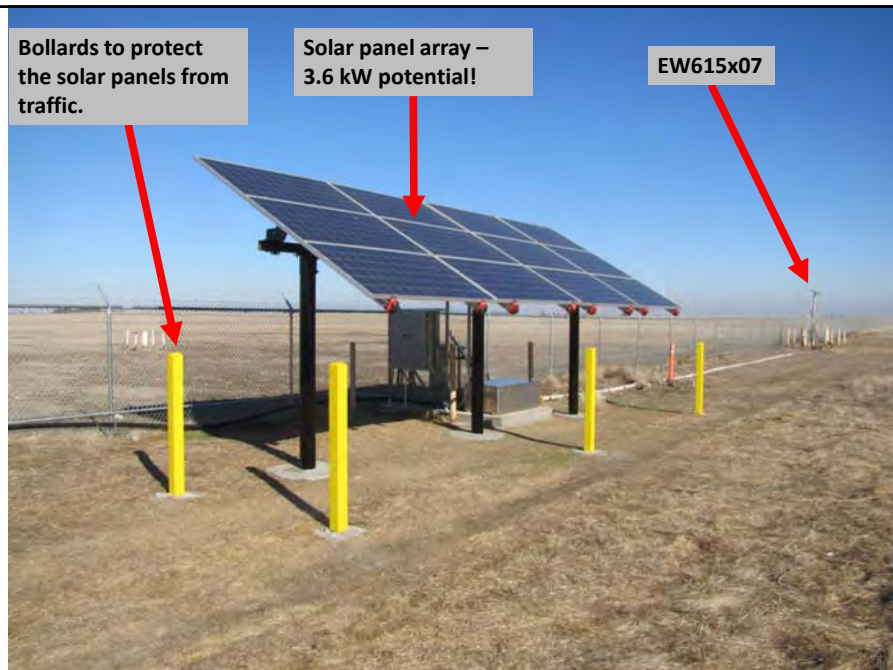
We found the Duck Pond line... about 6 feet into Collins Drive



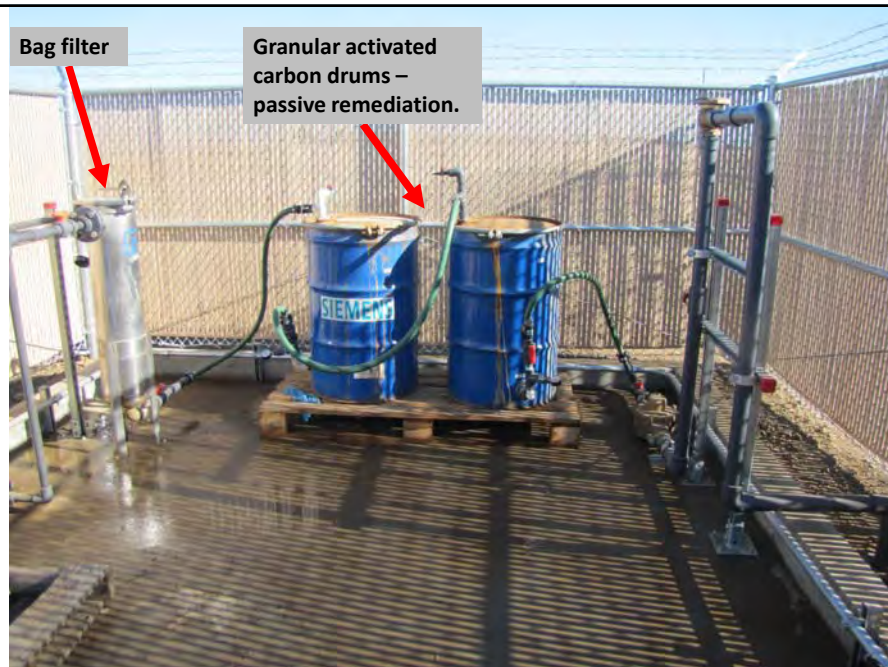
Small diversion for the new treatment system discharge location



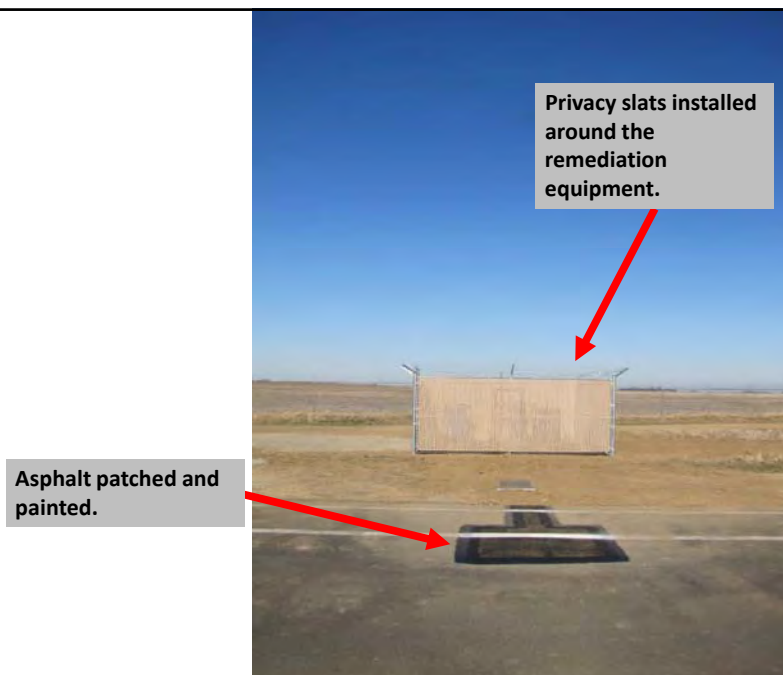
Asphalt patched and good as new



Completed wellhead and control panel installed



A look inside the new treatment compound



A look from Collins Drive at the new system

New Travis Performance Based Contract (PBC-13)

RPM Meeting
January 22, 2014

PBC-13 Highlights

- Awarded to CH2M HILL 30 September 2013
- Period of Performance (POP) is 8 years
- Prescribed transition from PBC-08
- 40 Sites included in the contract
- Weighted towards optimization
- Sustainability is the common thread throughout the project
- Project Team: Same great staff... with enhancements

USACE & AFCEC

- USACE holds the contract, and manages the project
- IST AFCEC: Travis Restoration Program is the West Region Installation Support Team (IST), and oversees all work at Travis
- San Antonio AFCEC: Funds the project and works closely with USACE and IST at Travis

Period of Performance (POP)

- PBC-13 awarded as FY13 project, on 30 September 2013
- Incrementally funded: The FY13 award included about 6% of total funding
- Will be additional funding each year until 2018
- POP runs through September 2021

Transition: PBC-08 to PBC-13

- PBC-08 will end June 2014
- Remaining PBC-08 scope includes:
 - ROD Completion
 - 2013 Annual GRISR
 - 2014 Annual GRIP
 - LTO and LTM through 30 June 2014
- PBC-13 covers all other work

40 Sites

Carryover Sites

- | | |
|---------|-------|
| • LF007 | SD036 |
| • LF008 | SD037 |
| • SS014 | DP039 |
| • SS016 | FT005 |
| • ST018 | SS015 |
| • ST027 | FT004 |
| • ST028 | LF006 |
| • SS029 | SD031 |
| • SS030 | SS035 |
| • ST032 | SD043 |
| • SD033 | |
| • SD034 | |

Additional Sites

- Oil Water Separators (12)
- LF044 (Constr Debris LF)
- TU504 (UST 801)
- CG508 (POL AOC)
- SS046 (Rail Offload)
- TA500 (Reservoir Facility)
- TS060A (MMRP Old Skeet Range)

- Main objective of PBC-13 is to optimize groundwater systems and achieve cleanup levels faster
- Conduct cleanup of soils, and remove land-use controls (LUCs)
- Innovation and new ideas are strongly encouraged by USACE and AFCEC
- Optimize by utilizing proven technologies that were demonstrated during PBC-08
- Increase breadth of EVO and bioreactor technologies
- Optimize LTM and LTO

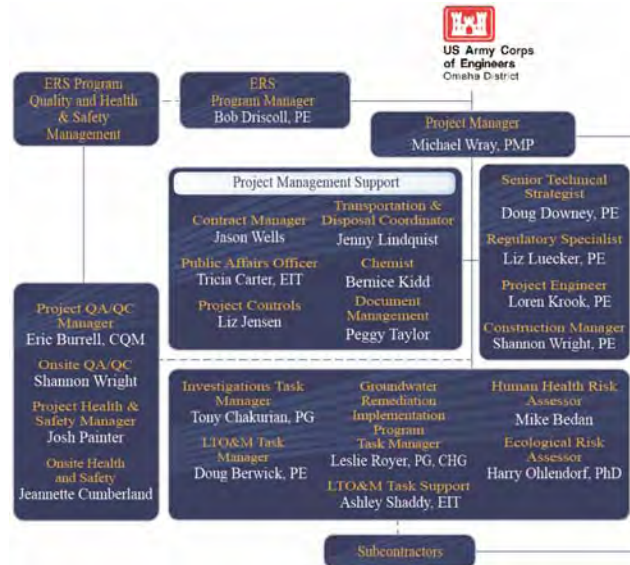
Sustainability

- Sustainability approaches will be “designed” in to the greatest extent possible, and will include:
 - Use of solar powered equipment
 - Use of EVO for injections and biobarriers
 - Use of in situ bioreactors
 - Use of MNA
 - Optimization and/or shutdown of extraction systems and treatment plants as restoration progresses

CH2M HILL Project Team

- The “A” team is returning
- New staff:
 - Jeff Gamlin; Senior Technical Consultant
 - Liz Luecker; CERCLA Regulatory Specialist
 - Shannon Wright; Construction Manager
 - Josh Painter; Health & Safety Manager

Organization Chart



Regulatory Team

- Keep to scheduled review times
- Minimize back & forth with review comments
- We will present work plans at RPM meetings
- Work with “Triad-like” process
- Electronic deliverables to greatest extent possible (minimize hard copy reports).
- Biological Opinion for T&E and habitat sites

Travis AFB Restoration Program

Program Overview

*RPM Meeting
January 22, 2014*

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

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Completed Documents (cont'd)

- Vapor Intrusion Assessment Update Technical Memorandum
- 2012 CAMU Annual Report
- Old Skeet Range Action Memorandum
- 3rd Five-Year Review
- 2012 Annual Groundwater Remediation Implementation Status Report (GRISR)
- Subarea LF007C and Site SS030 Remedial Process Optimization Work Plan
- Pre-Design Site Characterization of SS029 Report

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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

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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

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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)
- Electrical repairs to Site SS029 extraction system
- Site ST018 carbon vessels upgrade
- **2014 GRIP Semiannual Sampling Event**
- **Pump repairs to Site SS016 well (EW610x16)**

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In-Progress Documents & Field Work

Documents

- Groundwater Record of Decision (ROD)
- Old Skeet Range Removal Action Work Plan
- Kinder Morgan LF044 Land Use Control Report

Field Work

- Subsite LF007C optimization upgrades

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Upcoming Documents & Field Work

Documents

- **CG508 POCO Work Plan** **Feb**
- **2013 Annual GRISR** **May**

Field Work

- 2014 Annual GRIP Sampling Event **April**
- **Old Skeet Range Characterization Sampling** **TBD**

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