Final

Travis Air Force Base
Environmental Restoration Program
Restoration Program Manager's
Meeting Minutes
21 September, 0930 Hours

Mr. Lonnie Duke of the Air Force Civil Engineer Center (AFCEC) Restoration Installation Support Team (IST) conducted the Restoration Program Manager's (RPM) teleconference meeting on 21 September 2016 at 0930 hours in Building 248 at Travis AFB, California. Attendees included:

Lonnie Duke	AFCEC/CZOW
Glenn Anderson	AFCEC/CZOW
Angel Santiago Jr.	AFCEC/CZOW
William Hall (via telephone)	AFCEC/CZR
Merrie Schilter-Lowe	Travis AFB 60 AMW/PA
Monika O'Sullivan	AFCEC/CZOW
Michelle Lordemann	USACE-Omaha
Michael Riggle	USACE-Omaha
Adriana Constantinescu (via telephone)	California Regional Water Quality Control Board (RWQCB)
Ben Fries (via telephone)	DTSC
Nadia Hollan Burke (via telephone)	USEPA
Indira Balkissoon (via telephone)	Techlaw, Inc
Jeff Gamlin	CH2M
Mike Wray	CH2M

Handouts distributed at the meeting, discussions and presentations included:

Attachment 1	Meeting Agenda
Attachment 2	Master Meeting and Document Schedule
Attachment 3	SBBGWTP Monthly Data Sheet (August 2016)
Attachment 4	CGWTP Monthly Data Sheet (August 2016)
Attachment 5	LF007C Monthly Data Sheet (August 2016)
Attachment 6	ST018 Monthly Data Sheet (August 2016)

Attachment 7 Presentation: Program Update

1. ADMINISTRATIVE

A. Previous Meeting Minutes

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

B. Action Item Review.

Action items from August 2016 were reviewed.

Action item 1 is ongoing: Ms. O'Sullivan to provide updates on perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) as she becomes aware of them. 21 September 2016 update: No updates.

Action item 2 is ongoing: Mr. Duke to provide a copy of the Biological Assessment/Biological Opinion (BA/BO) to the regulators by 20 October 2016.

Action item 3 is ongoing: Mr. Duke to look into the possibility of adding a table in future Groundwater Remediation Implementation Status Reports (GRISRs) of agreed upon comments that Travis AFB said will be addressed in the GRISR. Mr. Duke agreed to add this table to future GRISRs.

C. 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 a face-to-face meeting, which will be held on Thursday, 20 October 2016, at 1400 hours; following the RAB tour. The RAB tour will be held from 10:00 to 12:00 noon.

Travis AFB Master Document Schedule

— Community Involvement Plan (CIP): Predraft to AF/Service Center date was changed to 23 August 2016, the rest of the dates were changed accordingly.

— Action Memorandum Non-Time Critical Removal Action at Site TS060 (Old Skeet Range): The Response to Comments Due date was changed to 12 October 2016, the rest of the dates were changed accordingly. Ms. Burke said that EPA approves the draft final. Mr. Fries said DTSC has no comments. Ms. Constantinescu said that she would like to

review the document one more time, and will let Travis AFB tomorrow, 22 September 2016, if she has any comments. Mr. Anderson said if there are no more comments on the draft final, the draft final will be back-dated to 8 September and will add 30 days for the final due.

— Potrero Hills Annex (FS, PP, and ROD): No change to the schedule. Mr. Anderson said that Yemia Hashimoto/RWQCB is still working on issuing a draft order and will issue a revised site cleanup order based on the findings from the 2015 investigation report.

— Site SD034 Technology Demonstration Work Plan: The Response to Comments Meeting and Final Due dates were changed to7 September 2016. Document went final and will be moved to history.

— Site TS060 Removal Action Work Plan: Response to Comments and Final Due dates were changed to 28 October 2016. The fieldwork has been delayed due to the Biological Opinion. Travis AFB is working on RTCs. Ms. Burke thought that maybe this should be a primary document. Mr. Anderson said this is a work plan which basically states how we are going to conduct the field work that was agreed upon in the action memorandum, the Site TS060 Action Memorandum is the primary document.

— Multi-Site Bioaugmentation Technology Demonstration Work Plan: Response to Comments and Final Due dates were changed to 22 September 2016.

— Site SS016 Soil Data Gap Investigation Work Plan: Response to Comments Due and Final Due date was changed to 23 September 2016, when the document is scheduled to go final.

— Site LF044 Investigation Work Plan: Response to Comments Due and Final Due was changed to 31 October 2016. Travis AFB is working on EPAs RTCs.

— Site FT004 POCO Soil Data Gap Investigation Work Plan: No change to the schedule. Ms. Constantinescu said she will provide comments at the end of this week. Mr. Anderson said that Mr. Elias/RWQCB sent an email to Travis AFB regarding revised ecological screening levels (ESL). Ms. Constantinescu said yes they will provide the revised comments at the end of this week. Adding that Mr. Elias wanted to make sure that Travis AFB has the corrected data for the vernal pools and suggested collecting a surface water sample; acknowledging that US Fish and Wildlife has restrictions, however, this surface water sample can be non-invasive. Mr. Wray said that it is considered “a take” when collecting a sample because there is potential of an endangered species scooped up within that surface water grab. Mr. Duke said that Travis AFB biologists would need to be involved as well.

— Sites POCO ST028 and ST032 Well Decommissioning Work Plan: Predraft to AF/Service Center date of 1 September 2016 was added, and the rest of the dates were added accordingly. The overall schedule was changed due to the required 60 day comment period for the water conveyers. Mr. Duke expressed the urgency to get in the field while the taxiways are closed for other work being conducted. Ms. Constantinescu said it is okay to conduct the fieldwork before the document goes final.

— Quarterly Newsletter (October 2016): No change was made to the schedule.

— 2015 Annual GRISR: No change was made to the schedule. Travis AFB is working on EPA RTCs.

— Site FT005 Technology Demonstration Construction Completion Report: No change was made to the schedule. Ms. Burke provided comments on 16 September 2016. Mr. Fries will send an email if DTSC has any comments. Ms. Constantinescu said that Water Board did not have any comments.

— Site DP039 Remedial Action Construction Completion Report: Draft to Agencies date was changed to 3 October 2016, the rest of the dates were changed accordingly.

— Site CG508 POCO Well Decommissioning and Site Closeout Technical Memorandum: New document with all new dates. Mr. Wray said this project was delayed because of the Biological Assessment and Biological Opinion (BA/BO) issues. The wells have been decommissioned.

— Sites OW051, OW053, and OW054 POCO Evaluation/Closeout Report: New document, and dates are to be determined (TBD). The Oil Water Separators (OWS) listed in this document have been cleaned and closed.

— Site SD031 Remedial Investigation Work Plan: Moved to history.

— 2015 Annual CAMU Monitoring Report: Moved to history.

— Site ST028 POCO Completion Report: Moved to history.

2. CURRENT PROJECTS

Treatment Plant Operation and Maintenance Update

South Base Boundary Groundwater Treatment Plant, August 2016 (see Attachment 3)

The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 100% uptime, and 3.9 million gallons of groundwater were extracted and treated during the month of August 2016. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 92.6 gallons per minute (gpm). Electrical power usage was 13,406 kWh, and approximately 9,920 pounds of CO_2 were created (based on DOE calculation). Approximately 0.6 pounds of volatile organic compounds (VOCs) were removed in August. The total mass of VOCs removed since startup of the system is 481.3 pounds.

Optimization Activities for SBBGWTP: No optimization activities are reported for the month of August 2016.

Mr. Santiago Jr. said that the treatment plant was shut down on 15 September 2016 at 1515 hours awaiting a carbon change out to be scheduled. Ms. Burke requested that Travis AFB send an email to the agencies with the date and time when the treatment plants are shut down in the future.

Central Groundwater Treatment Plant, August 2016 (see Attachment 4)

The Central Groundwater Treatment Plant (CGWTP) performed at 100% uptime with approximately 1,367,568 gallons of groundwater extracted and treated during the month of August 2016. All treated water was discharged to the storm drain. The average flow rate for the CGWTP was 32.4 gpm. Electrical power usage was 2,466 kWh for all equipment connected to the Central Plant, and approximately 2,713 pounds of CO_2 were generated. Approximately 3.15 pounds of VOCs were removed from groundwater by the treatment plant in August. The total mass of VOCs removed since the startup of the system is 11,440 pounds.

Optimization Activities for CGWTP: No optimization activities are reported for the month of August 2016.

Ms. Burke noticed that the treated groundwater discharge location is missing from the report. Mr. Wray said that information was inadvertently deleted, and will be added to the next monthly report.

LF007C Groundwater Treatment Plant, August 2016 (see Attachment 5)

Subarea LF007C Treatment Plant (LF007CGWTP) performed at 99.7% uptime with approximately 165,100 gallons of groundwater extracted and treated during the month of August 2016. The average flow rate at the NGWTP was 3.98 gpm, and electrical power use was 0 kWh for all the equipment connected to the LF007C plant; and 0 pounds of CO_2 was generated; this system is 100 percent off the power grid. Approximately 4.11×10^{-3} pounds of VOCs were removed from the groundwater in August. The total mass of VOCs removed since the startup of the system is 174.36 pounds.

Optimization Activities for LF007CGWTP: No optimization activities are reported for the month of August 2016.

ST018 Groundwater (MTBE) Treatment Plant, July 2016 (see Attachment 6)

Site ST018 (MTBE) Treatment Plant (ST018 GWTP) performed at 99.9% uptime with approximately 221,500 gallons of groundwater extracted and treated during the month of August 2016. All treated water was discharged to the sanitary sewer. The average flow rate for the ST018 GWTP was 5.3 gpm. Electrical power usage for the month was 133 kWh for all equipment connected to the ST018 GWTP. The total CO_2 equivalent, including an estimate for the carbon change out, equates to approximately 498 pounds. Approximately 0.26 pound of BTEX, MTBE and TPH was removed in August by the treatment plant and approximately 0.12 pound of MTBE was removed from groundwater. The total BTEX, MTBE and TPH mass removed since the startup of the system is 39.0 pounds, and the total MTBE mass removed since startup of the system is 9.5 pounds.

Note: Electrical power use at the ST018 GWTP is only for the alarm system and a pump that pushes water through the GAC vessels for treatment. The extraction pumps in the system are all solar powered.

Optimization Activities for ST018GWTP: No optimization activities to report for the month of August 2016.

Presentations:

Program Update: Activities Completed, In Progress, and Upcoming (see Attachment 7)

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

Newly Completed Documents: Site SD034 Technology Demonstration Work Plan.

Newly Completed Field Work: CG508 Well Decommissioning; SD033 Soil Sampling; Multi-site Bioaugmentation Well Installation; SD034 Technology Demonstration Well Installation.

In-Progress Documents (CERCLA): Site FT005 Technology Demonstration Construction Completion Report; Site TS060 Action Memorandum; Site SS016 Soil Data Gaps Investigation Work Plan; Site TS060 Removal Action Work Plan; Site LF044 Investigation Work Plan; Multi-Site Bioaugmentation Technology Demonstration Work Plan; 2015 Annual GRISR.

In-Progress Documents (POCO): Site FT004 POCO Soil Data Gap Investigation Work Plan.

In-Progress Field Work: SD031 Remedial Investigation Soil Sampling (3rd round); Oil Water Separators Step-out Drilling; Oil Water Separators Removal.

Planned Documents (CERCLA): Community Involvement Plan (September); Site DP039 RD/RA Construction Completion Report (September).

Planned Documents (POCO): Sites ST032 and ST028 Well Decommissioning Work Plan (September); Site CG508 POCO Well Decommissioning and Site Closeout Technical Memorandum (TBD); Sites OW051, OW053, and OW054 POCO Evaluation/Closeout Report (TBD).

Field Work Planned (CERCLA): SD034 Technology Demonstration Bioreactor Installation (September); Multi-site Bioaugmentation EVO Injection (September); SS016 Soil Data Gaps Investigation (September); LF044 Berm Sampling (September); TS060 Removal Action (TBD).

Field Work Planned (POCO): SS014 Bioreactor Installation (September); FT004 POCO Soil Data Gaps Investigation (September); ST032 & ST028 Well Decommissioning (September).

4. New Action Item Review

None.

5. PROGRAM/ISSUES/UPDATE

None.

6. Action Items

Item #	Responsible	Action Item Description	Due Date	Status
1.	Monika O'Sullivan	Ms. O'Sullivan to provide updates on PFOS and PFOA as she becomes aware of them.	Ongoing	Open
2.	Lonnie Duke	Mr. Duke to provide a copy of the BA/BO to the regulators.	20 October 2016	Open
3.	Lonnie Duke	Mr. Duke to look into the possibility of adding a table in future GRISR reports of agreed upon comments that Travis AFB said will be addressed in the GRISR. Mr. Duke agreed to provide this table in future GRISRs.	Ongoing	Closed

TRAVIS AIR FORCE BASE
ENVIRONMENTAL RESTORATION PROGRAM
RESTORATION PROGRAM MANAGER'S MEETING

The RPM Teleconference is scheduled for 9:30 AM PST on 21 September 2016. **The call-in number is 1-866-203-7023. Enter the Participation code 5978-75-9736 then enter #.**

AGENDA

1. ADMINISTRATIVE

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

2. CURRENT PROJECTS

   A. TREATMENT PLANT OPERATION AND MAINTENANCE UPDATE

3. PRESENTATIONS

   A. PROGRAM UPDATE:
      DOCUMENTS & ACTIVITIES COMPLETED, IN PROGRESS AND PLANNED

4. NEW ACTION ITEM REVIEW

5. PROGRAM/ISSUES/UPDATE

   A. MEETING SCHEDULE

NOTES: AFTER THE RPM TELECONFERENCE, BASED ON THE DISCUSSION DURING THE REVIEW OF THE MASTER MEETING AND DOCUMENT SCHEDULE, WE ALLOW TIME TO HOLD A SEPARATE SPLINTER MEETING TO DISCUSS RESPONSES TO AGENCY COMMENTS ON THOSE DOCUMENTS THAT ARE IN PROGRESS, OR OTHER ISSUES IF NEEDED. ALL PARTICIPANTS ARE WELCOME TO PARTICIPATE.

(2016)
Annual Meeting and Teleconference Schedule

Monthly RPM Meeting[1] (Begins at time noted)	RPM Teleconference (Begins at time noted)	Restoration Advisory Board Meeting (Begins at 7:00 p.m.) (Poster Session at 6:30 p.m.)
—	01-20-16	—
02-17-16	—	—
—	03-16-16	—
04-21-16 (Thursday 2:00 PM)	—	04-21-16
—	05-18-16	—
06-15-16	—	—
—	07-20-16	—
08-17-16	—	—
—	09-21-16	—
10-20-16 (Thursday 2:00 PM)	—	10-20-16[2]
—	11-16-16	—
—	—	—

[1] Note: Meetings and teleconferences will be held at 09:30 AM on the third Wednesday of each month unless otherwise noted.

[2] Note: Tentative RAB tour date in lieu of RAB meeting.

(2017)
Annual Meeting and Teleconference Schedule

Monthly RPM Meeting[1] (Begins at time noted)	RPM Teleconference (Begins at time noted)	Restoration Advisory Board Meeting (Begins at 7:00 p.m.) (Poster Session at 6:30 p.m.)
—	01-18-17	—
02-15-17	—	—
—	03-15-17	—
04-20-17 (Thursday 2:00 PM)	—	04-20-17
—	05-17-17	—
06-21-17	—	—
—	07-19-17	—
08-16-17	—	—
—	09-20-17	—
10-19-17 (Thursday 2:00 PM)	—	10-19-17[2]
—	11-15-17	—
—	—	—

[1] Note: Meetings and teleconferences will be held at 09:30 AM on the third Wednesday of each month unless otherwise noted.

[2] Note: Tentative RAB tour date in lieu of RAB meeting.

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS		
Life Cycle	**Community Involvement Plan Travis AFB, Glenn Anderson CH2M HILL, Jill Dunphy**	**Action Memorandum for Non-Time Critical Removal Action at Site TS060 (Old Skeet Range) Travis AFB, Glenn Anderson CH2M HILL, Doug Berwick CAPE, Meg Greenwald**
Scoping Meeting	**NA**	**NA**
Predraft to AF/Service Center	08-23-16	03-30-16
AF/Service Center Comments Due	09-07-16	04-13-16
Draft to Agencies	09-28-16	05-16-16
Draft to RAB	09-28-16	05-16-16
Agency Comments Due	10-28-16	06-27-16
Response to Comments Meeting	**11-16-16**	**07-20-16**
Agency Concurrence with Remedy	NA	NA
Public Comment Period	NA	7-7-16 to 8-7-16
Public Meeting	**NA**	**NA**
Response to Comments Due	12-02-16	09-01-16 (10-12-16)
Draft Final Due	12-02-16	09-01-16 (10-12-16)
Final Due	01-04-17	10-03-16 (11-11-16)

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS			
	Potrero Hills Annex Travis, Glenn Anderson		
Life Cycle	**FS**	**Proposed Plan**	**ROD**
Scoping Meeting	**180 days after Water Board Order Rescinded**	**+470 days**	**+735 days**
Predraft to AF/Service Center	+ 270 days	+530 days	+ 915 days
AF/Service Center Comments Due	+ 300 days	+560 days	+ 975 days
Draft to Agencies	+330 days	+590 days	+ 1035 days
Draft to RAB	+ 330 days	+590 days	+ 1035 days
Agency Comments Due	+390 days	+650 days	+ 1095 days
Response to Comments Meeting	**+ 405 days**	**+665 days**	**+ 1110 days**
Agency Concurrence with Remedy	NA	NA	+ 1130 days
Public Comment Period	NA	+735 to 765 days	NA
Public Meeting	**NA**	**+745 days**	**NA**
Response to Comments Due	+430 days	+695days	+ 1190 days
Draft Final Due	+430 days	+695 days	+ 1190 days
Final Due	+460 days	+725 days	+ 1250 days

Travis AFB Master Meeting and Document Schedule

SECONDARY DOCUMENTS			
Life Cycle	**Site SD034 Technology Demonstration Work Plan** **Travis AFB, Glenn Anderson** **CH2M HILL, Levi Pratt**	**Site TS060 Removal Action Work Plan** **Travis AFB, Glenn Anderson** **CH2M HILL, Doug Berwick** **CAPE, Meg Greenwald**	**Multi-Site Bioaugmentation Technology Demonstration Work Plan** **Travis AFB, Glenn Anderson** **CH2M HILL, Levi Pratt**
Scoping Meeting	**NA**	**NA**	**NA**
Predraft to AF/Service Center	03-22-16	04-14-16	05-06-16
AF/Service Center Comments Due	04-05-16	04-28-16	05-20-16
Draft to Agencies	05-19-16	06-20-16	06-23-16
Draft to RAB	05-19-16	06-20-16	06-23-16
Agency Comments Due	06-20-16	07-27-16	07-25-16
Response to Comments Meeting	**08-17-16**	**08-17-16**	**08-17-16**
Response to Comments Due	08-30-16 (09-07-16)	08-31-16 (10-28-16)	09-09-16 (09-22-16)
Draft Final Due	NA	NA	NA
Final Due	08-30-16 (09-07-16)	08-31-16 (10-28-16)	09-09-16 (09-22-16)
Public Comment Period	NA	NA	NA
Public Meeting	**NA**	**NA**	**NA**

Travis AFB Master Meeting and Document Schedule

SECONDARY DOCUMENTS		
Life Cycle	**Site SS016 Soil Data Gap Investigation Work Plan Travis AFB, Glenn Anderson CH2M HILL, Doug Berwick CAPE, Meg Greenwald**	**Site LF044 Investigation Work Plan Travis AFB, Glenn Anderson CH2M HILL, Doug Berwick CAPE, Meg Greenwald**
Scoping Meeting	**NA**	**NA**
Predraft to AF/Service Center	03-24-16	04-26-16
AF/Service Center Comments Due	04-07-16	05-10-16
Draft to Agencies	05-11-16	06-27-16
Draft to RAB	05-11-16	06-27-16
Agency Comments Due	06-13-16	07-28-16
Response to Comments Meeting	**06-15-16**	**08-17-16**
Response to Comments Due	07-01-16 (09-23-16)	08-31-16 (10-31-16)
Draft Final Due	NA	NA
Final Due	07-01-16 (09-23-16)	08-31-16 (10-31-16)
Public Comment Period	NA	NA
Public Meeting	**NA**	**NA**

Travis AFB Master Meeting and Document Schedule

SECONDARY POCO DOCUMENTS		
Life Cycle	**Site FT004 POCO Soil Data Gap Investigation Work Plan** **Travis AFB, Glenn Anderson** **CH2M HILL, Doug Berwick** **CAPE, Meg Greenwald**	**Sites ST028 and ST032 POCO Well Decommissioning Work Plan** **Travis AFB, Glenn Anderson** **CH2M HILL, Doug Berwick** **CAPE, Meg Greenwald**
Scoping Meeting	**NA**	**NA**
Predraft to AF/Service Center	06-03-16	09-01-16
AF/Service Center Comments Due	06-17-16	09-15-16
Draft to Agencies	07-19-16	09-29-16
Draft to RAB	07-19-16	09-29-16
Agency Comments Due	08-19-16	10-31-16
Response to Comments Meeting	**09-21-16**	**11-16-16**
Response to Comments Due	10-06-16	11-30-16
Draft Final Due	NA	NA
Final Due	10-06-16	11-30-16
Public Comment Period	NA	NA
Public Meeting	**NA**	**NA**

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS		
Life Cycle	**Quarterly Newsletters (October 2016) Travis, Glenn Anderson**	**2015 Annual GRISR Travis AFB, Glenn Anderson CH2M HILL, Leslie Royer**
Scoping Meeting	**NA**	**NA**
Predraft to AF/Service Center	NA	05-03-16
AF/Service Center Comments Due	NA	06-03-16
Draft to Agencies	09-22-16	07-07-16
Draft to RAB	NA	07-07-16
Agency Comments Due	10-06-16	08-29-16
Response to Comments Meeting	**TBD**	**09-21-16**
Response to Comments Due	10-10-16	10-05-16
Draft Final Due	NA	NA
Final Due	10-10-16	10-05-16
Public Comment Period	NA	NA
Public Meeting	**NA**	**NA**

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS		
Life Cycle	**Site FT005 Technology Demonstration Construction Completion Report** **Travis AFB, Glenn Anderson** **CH2M HILL, Levi Pratt**	**Site DP039 Remedial Action Construction Completion Report** **Travis AFB, Glenn Anderson** **CH2M HILL, Levi Pratt**
Scoping Meeting	**NA**	**NA**
Predraft to AF/Service Center	06-30-16	08-05-16
AF/Service Center Comments Due	07-15-16	08-19-16
Draft to Agencies	08-19-16	10-03-16
Draft to RAB	08-19-16	10-03-16
Agency Comments Due	09-19-16	11-02-16
Response to Comments Meeting	**09-21-16**	**11-16-16**
Response to Comments Due	10-07-16	12-01-16
Draft Final Due	NA	NA
Final Due	10-07-16	12-01-16
Public Comment Period	NA	NA
Public Meeting	**NA**	**NA**

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL POCO DOCUMENTS		
Life Cycle	**Site CG508 POCO Well Decommissioning and Site Closeout Technical Memorandum** **Travis AFB, Glenn Anderson** **CH2M HILL, Tony Chakurian**	**Sites OW051, OW053, and OW054 POCO Evaluation/Closeout Report** **Travis AFB, Glenn Anderson** **CH2M HILL, Tony Chakurian**
Scoping Meeting	**NA**	**NA**
Predraft to AF/Service Center	09-20-16	TBD
AF/Service Center Comments Due	10-04-16	TBD
Draft to Agencies	10-18-16	TBD
Draft to RAB	10-18-16	TBD
Agency Comments Due	11-17-16	TBD
Response to Comments Meeting	**01-18-17**	**TBD**
Response to Comments Due	02-01-17	TBD
Draft Final Due	NA	NA
Final Due	02-01-17	TBD
Public Comment Period	NA	NA
Public Meeting	**NA**	**NA**

Travis AFB Master Meeting and Document Schedule

HISTORY PRIMARY DOCUMENTS	
Life Cycle	**Site SD031 Remedial Investigation Work Plan** **Travis AFB, Glenn Anderson** **CH2M HILL, Tony Chakurian**
Scoping Meeting	**NA**
Predraft to AF/Service Center	01-13-16
AF/Service Center Comments Due	01-28-16
Draft to Agencies	02-10-16
Draft to RAB	02-10-16
Agency Comments Due	03-14-16
Response to Comments Meeting	**05-18-16**
Agency Concurrence with Remedy	NA
Public Comment Period	NA
Public Meeting	**NA**
Response to Comments Due	06-15-16
Draft Final Due	06-15-16
Final Due	07-15-16 (07-21-16)

Travis AFB Master Meeting and Document Schedule

HISTORY INFORMATIONAL DOCUMENTS		
Life Cycle	**2015 Annual CAMU Monitoring Report** **Travis AFB, Lonnie Duke** **CH2M HILL, Levi Pratt**	**Site ST028 POCO Completion Report** **Travis AFB, Lonnie Duke** **CH2M HILL, Doug Berwick** **CAPE, Meg Greenwald**
Scoping Meeting	**NA**	**NA**
Predraft to AF/Service Center	02-26-16	02-24-16
AF/Service Center Comments Due	03-11-16	03-09-16
Draft to Agencies	04-01-16	04-13-16
Draft to RAB	04-01-16	04-13-16
Agency Comments Due	05-02-16	05-13-16
Response to Comments Meeting	**05-18-16**	**05-18-16**
Response to Comments Due	07-08-16 (07-22-16)	06-07-16 (07-26-16)
Draft Final Due	NA	NA
Final Due	07-08-16 (07-22-16)	06-07-16 (07-26-16)
Public Comment Period	NA	NA
Public Meeting	**NA**	**NA**

South Base Boundary Groundwater Treatment Plant Monthly Data Sheet

Report Number: 192 **Reporting Period: 02 August 2016 – 31 August 2016** **Date Submitted: 16 September 2016**

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 August 2016 reporting period.

Table 1 – Operations Summary – August 2016

Initial Data Collection:	8/2/2016 13:10	**Final Data Collection:**	8/31/2016 11:25
Operating Time:	Percent Uptime:	Electrical Power Usage:	
SBBGWTP: 694 hours	**SBBGWTP:** 100%	**SBBGWTP:**	13,406 kWh (9,920 lbs CO_2 generated[a])
Gallons Treated: **3.9 million gallons**		Gallons Treated Since July 1998: **950 million gallons**	
Volume Discharged to Union Creek: **3.9 million gallons**		Gallons Treat From Other Sources: **0 gallons**	
VOC Mass Removed: **0.6 lbs**[b]		VOC Mass Removed Since July 1998: **481.3 lbs**	
Rolling 12-Month Cost per Pound of Mass Removed: $4,789[c]			
Monthly Cost per Pound of Mass Removed: $9,213[c]			

lbs = pounds

[a] SiteWise™ estimate that 1 kilowatt hour generated produces 0.74 pounds of GHG.

[b] Calculated using August 2016 EPA Method SW8260C analytical results.

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

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

Table 2 – SBBGWTP Average Flow Rate (gpm)[a] – August 2016

FT005[b]				SS029		SS030	
EW01x05	Offline	EW736x05	Offline	EW01x29	1.1	EW01x30	8.2
EW02x05	Offline	EW737x05	Offline	EW02x29	0.1	EW02x30	0.2
EW03x05	Offline	EW742x05	Offline	EW03x29	0.1	EW03x30	4.6
EW731x05	Offline	EW743x05	Offline	EW04x29	7.8	EW04x30	29.7
EW732x05	Offline	EW744x05	Offline	EW05x29	6.2	EW05x30	0.8
EW733x05	Offline	EW745x05	Offline	EW06x29	4.3	EW2174x30	10.0
EW734x05	0.5	EW746x05	Offline	EW07x29	13.5	EW711x30	1.9
EW735x05	1.1	EW2291x05	8.1				
FT005 Total: 9.7				**SS029 Total: 33.1**		**SS030 Total: 55.4**	
SBBGWTP Average Monthly Flow[c]: 92.6 gpm							

[a] Flow rates presented are instantaneous measurements taken at the end of the reporting period.
[b] Most extraction wells at FT005 were taken offline in accordance with the *2008 Annual Remedial Process Optimization Report for the Central Groundwater Treatment Plant, North Groundwater Treatment Plant, and South Base Boundary Groundwater Treatment Plant.*
[c] The average SBBGWTP groundwater flow rate was calculated using the Union Creek Discharge Totalizer and dividing it by the total time in the reporting period.

gpm – gallons per minute
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[a]		Restart[a]		Cause
	Date	Time	Date	Time	
SBBGWTP	None.	--		--	None.

-- = Time not recorded
[a] Shutdown and restart times estimated based on field notes
SBBGWTP = South Base Boundary Groundwater Treatment Plant

Summary of O&M Activities

Analytical data from the 2 August 2016 sampling event are presented in Table 4. The total VOC concentration (19.26 µg/L) in the influent sample has decreased from the July 2016 sample results (28.01 µg/L). TCE (18.0 µg/L), cis-1,2-DCE (1.11 µg/L), and chloroform (0.15 J µg/L) were detected at the influent sampling location. Cis-1,2-DCE, 1,2-DCA, and chloroform were detected at the midpoint sampling location. TCE (0.15 J µg/L) and cis-1,2-DCE (0.19 J µg/L) were detected at the effluent sampling location. The contaminants detected in the effluent sample were less than their respective effluent limitations of 5 µg/L. A carbon change out for the primary carbon vessel is currently being coordinated.

On 3 August, EW2291x05 was shut down while troubleshooting electrical wiring for EW731x05. EW2291x05 was restarted on 4 August without issue.

On 30 August, new pumps and pressure transducers were installed in EW743x05, EW744x05, and EW745x05. These wells, along with EW731x05, will be brought on line as part of the Site FT005 technology demonstration. Wells EW744x05 and EW745x05 are expected to be brought on line in early September 2016, while EW731x05 requires additional electrical wiring and access to the explosive ordinance disposal (EOD) range, and EW743x05 requires additional power wiring. Those two (2) wells are expected to be brought on line by mid-September 2016.

Figure 1 presents a plot of influent concentrations and average flow at the SBBGWTP over the past twelve (12) months. An overall decrease in the VOC influent concentration has been observed in the past twelve months; however, an overall increase in the flow rate has also been observed.

Optimization Activities

No optimization activities occurred at the SBBGWTP in August 2016.

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 taking extraction pumps off line that are no longer necessary for contaminant plume capture.

Figure 2 presents the historical GHG production from the SBBGWTP. The SBBGWTP produced approximately 9,920 pounds of GHG during August 2016.

TABLE 4
Summary of Groundwater Analytical Data For August 2016 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	2 August 2016 (µg/L)		
				Influent	Midpoint	Effluent
Halogenated Volatile Organics						
Carbon Tetrachloride	0.5	0.15	0	ND	ND	ND
Chloroform	5.0	0.15	0	0.15 J	0.30 J	ND
Chloromethane	NA	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	0.62	ND
1,1-Dichloroethene	5.0	0.15	0	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.15	0	1.11	2.35	0.19 J
trans-1,2-Dichloroethene	5.0	0.15	0	ND	ND	ND
Methylene Chloride	5.0	0.15	0	ND	ND	ND
Tetrachloroethene	5.0	0.15	0	ND	ND	ND
1,1,1-Trichloroethane	5.0	0.15	0	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.15	0	ND	ND	ND
Trichloroethene	5.0	0.15	0	18.0	ND	0.15 J
Vinyl Chloride	0.5	0.15	0	ND	ND	ND
Non-Halogenated Volatile Organics						
Benzene	1.0	0.15	0	ND	ND	ND
Ethylbenzene	5.0	0.15	0	ND	ND	ND
Toluene	5.0	0.15	0	ND	ND	ND
Xylenes	5.0	0.15 – 0.30	0	ND	ND	ND
Other						
Total Suspended Solids (mg/L)	NA	0.6	0	0.60 J	NM	NM
Total Petroleum Hydrocarbons – Gasoline	50	30	0	ND	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	24	0	ND	NM	ND

* 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
NA = not applicable
N/C = number of samples out of compliance with discharge limits
ND = not detected
NM = not measured
µg/L = micrograms per liter

Figure 1

SBBGWTP Total VOC Influent Concentrations and Average Flowrate Twelve Month History

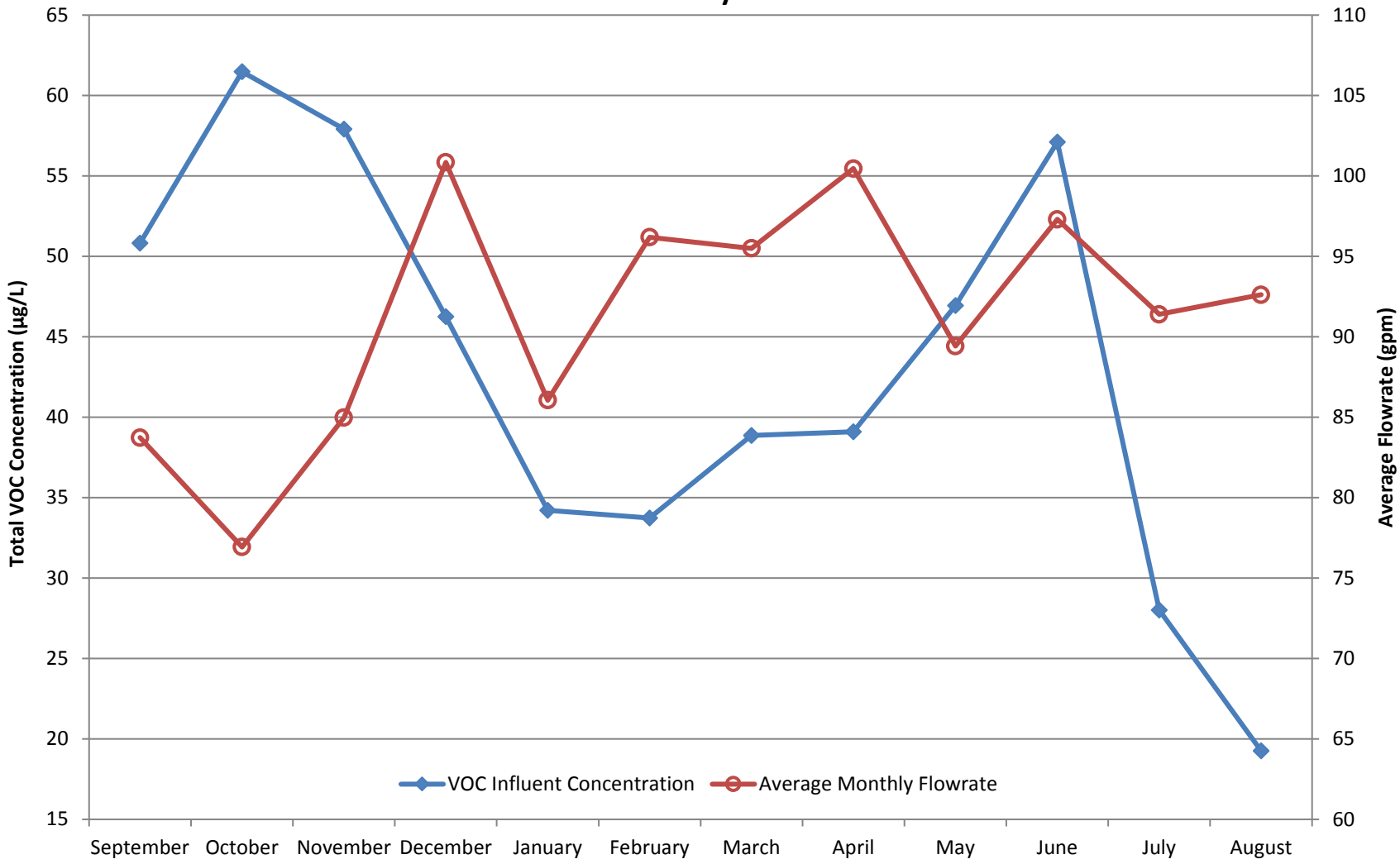
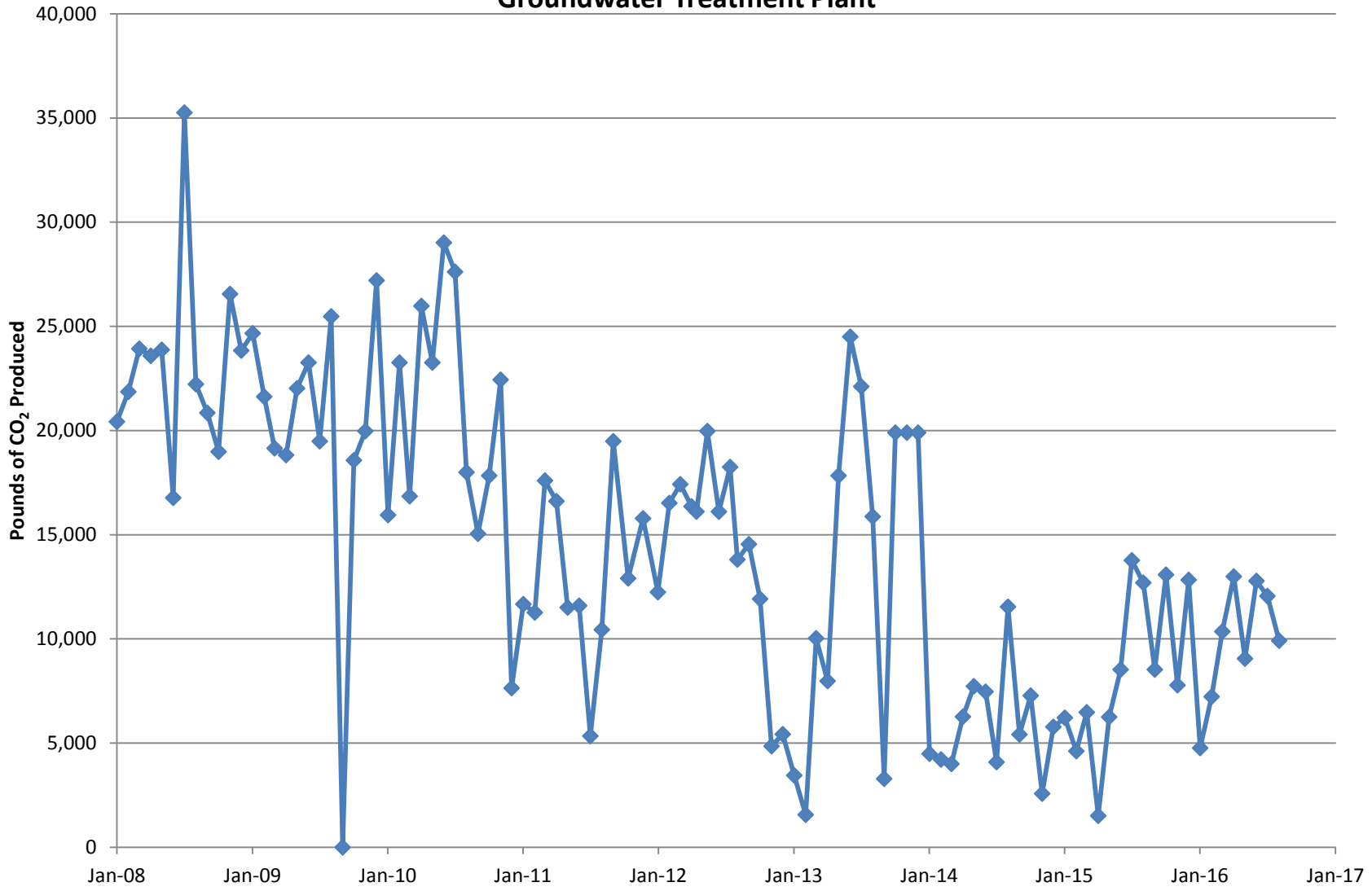


Figure 2

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



Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 205 **Reporting Period: 02 August 2016 – 31 August 2016** **Date Submitted: 16 September 2016**

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 and two (2) bioreactor treatability studies.

System Metrics

Table 1 presents operational data from the August 2016 reporting period.

Table 1 – Operations Summary – August 2016

Initial Data Collection:	8/2/2016 10:00		**Final Data Collection:**	8/31/2016 12:30	
Operating Time:		Percent Uptime:		Electrical Power Usage:	
CGWTP:	699 hours	**CGWTP:**	100%	**CGWTP:**	2,466 kWh (2,713 lbs CO_2 generated[a])

Gallons Treated: **1,367,658 gallons**[b]

Gallons Treated Since January 1996: **528.7 million gallons**

VOC Mass Removed from groundwater:

3.15 lbs[c]

VOC Mass Removed Since January 1996:

2,754 lbs from groundwater

8,686 lbs from vapor

Rolling 12-Month Cost per Pound of Mass Removed: $2,519[d]

Monthly Cost per Pound of Mass Removed: $1,570[d]

[a] SiteWise™ estimate that 1 kilowatt hour generated produces 0.74 pounds of GHG. Value also includes approximately 888 pounds of GHG from GAC change out.
[b] Volume includes 8,758 gallons of groundwater collected during removal of oil/water separator OW055.
[c] Calculated using August 2016 EPA Method SW8260C 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 during the monthly reporting period.

Table 2 – CGWTP Average Flow Rates[a] – August 2016

Location	Average Flow Rate Groundwater (gpm)
EW001x16	15.4
EW002x16	11.2
EW003x16	0.1
EW605x16	6.8
EW610x16	3.2
CGWTP	32.4

[a] Flow rates calculated by dividing total gallons processed by system operating time for the month or the average of the instantaneous readings.
gpm = gallons per minute

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

Table 3 – Summary of System Shutdowns

Location	Shutdown[a]		Restart		Cause
	Date	Time	Date	Time	
CGWTP	None.	--		--	None.

-- = Time not recorded
[a] Shutdown and restart times estimated based on field notes
CGWTP = Central Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater samples were collected at the CGWTP on 2 August 2016. Sample results are presented in Table 4. The total VOC concentration (277.99 µg/L) in the August 2016 influent sample has slightly increased from the July 2016 sample (275.82 µg/L). TCE was the primary VOC detected in the influent sample at a concentration of 228 µg/L. Cis-1,2-DCE and vinyl chloride were detected at low concentrations in the sample collected between the carbon vessels, and vinyl chloride was detected in the sample collected after second carbon vessel. No VOC constituents were detected in the system effluent sample. Travis AFB will continue to monitor influent, midpoint, and effluent concentrations at the CGWTP for carbon breakthrough, though the carbon treatment remained effective in August 2016.

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 influent concentration has been gradually increasing over the past year. The overall flow rate through the treatment plant has increased slightly over the past 12 months.

On 11 August, the pump and level sensor assembly within EW002x16 were replaced. The new pump was started without any issues.

The Site DP039 bioreactor continued 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 bioreactor was taken off line on August 12 and brought back on line on 26 August. Beginning on 26 August, the bioreactor will remain offline for four weeks, then operational for various times in an effort to optimize distribution of total organic carbon (TOC) through the subgrade biogeochemical reactor (SBGR). After four (4) weeks of being off line, baseline samples will be collected from monitoring wells surrounding the bioreactor. Once these baseline samples have been collected, the bioreactor will operate in a one-week cycle for three (3) weeks (one week on, one week off, one week on) before additional samples are collected. After this first round of samples, the bioreactor will be taken off line again for four (4) weeks before starting a two (2) week cycle. In total, the pulsed mode operation will consist of three (3) different time scales: one week, two week, and three week pulsed modes. Samples will be collected after each round of sampling. This will help to optimize the duration of each pulsed mode cycle of the Site DP039 bioreactor.

Optimization Activities

No optimization activities occurred at the CGWTP in August 2016. As discussed above, the Site DP039 bioreactor is currently undergoing an optimization effort to determine the most effective pulse mode duration.

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 2,713 pounds of GHG during August 2016. This is a slight decrease from the July 2016 amount of 2,730 pounds.

TABLE 4
Summary of Groundwater Analytical Data for August 2016 – Central Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	2 August 2016 (µg/L)			
				Influent	After Carbon 1 Effluent	After Carbon 2 Effluent	System Effluent
Halogenated Volatile Organics							
Carbon Tetrachloride	0.5	0.15	0	ND	ND	ND	ND
Chloroform	5.0	0.15	0	ND	ND	ND	ND
Chloromethane	NA	0.15	0	ND	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.15	0	46.5	0.76	ND	ND
1,2-Dichlorobenzene	5.0	0.15	0	0.20 J	ND	ND	ND
1,3-Dichlorobenzene	5.0	0.15	0	ND	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.15	0	ND	ND	ND	ND
1,1-Dichloroethane	5.0	0.15	0	ND	ND	ND	ND
1,2-Dichloroethane	0.5	0.15	0	ND	ND	ND	ND
1,1-Dichloroethene	5.0	0.15	0	0.51	ND	ND	ND
Methylene Chloride	5.0	0.15	0	ND	ND	ND	ND
Methyl tert-Butyl Ether	1.0	0.15	0	ND	ND	ND	ND
Tetrachloroethene	5.0	0.15	0	0.49 J	ND	ND	ND
1,1,1-Trichloroethane	5.0	0.15	0	ND	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.15	0	ND	ND	ND	ND
Trichloroethene	5.0	0.15 – 1.5	0	228	ND	ND	ND
trans-1,2-Dichloroethene	5.0	0.15	0	2.09	ND	ND	ND
Vinyl Chloride	0.5	0.15	0	0.20 J	0.20 J	0.27 J	ND
Non-Halogenated Volatile Organics							
Benzene	1.0	0.15	0	ND	ND	ND	ND
Ethylbenzene	5.0	0.15	0	ND	ND	ND	ND
Toluene	5.0	0.15	0	ND	ND	ND	ND
Total Xylenes	5.0	0.15 – 0.30	0	ND	ND	ND	ND
Other							
Total Suspended Solids (mg/L)	NA	0.6	0	0.8	NM	NM	NM
Total Petroleum Hydrocarbons – Gasoline	50	30	0	NM	NM	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	29	0	NM	NM	NM	ND
Total Petroleum Hydrocarbons – Motor Oil	50 (trigger)	25	0	NM	NM	NM	ND

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

Notes:

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

NA = not applicable

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

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 Date	Pulse-off Date
MW750x39	28 August 2015	11 September 2015
	1 October 2015	9 October 2015
	23 October 2015	6 November 2015
	20 November 2015	8 December 2015
	21 December 2015	31 December 2015
	15 January 2016	1 February 2016
	12 February 2016	26 February 2016
	11 March 2016	28 March 2016
	8 April 2016	22 April 2016
	4 May 2016	13 May 2016
	27 May 2016	17 June 2016
	1 July 2016	19 July 2016
	2 August 2016	12 August 2016
	26 August 2016	

MW = Monitoring Well

Figure 1

CGWTP Total VOC Influent Concentrations and Average Flowrate Twelve Month History

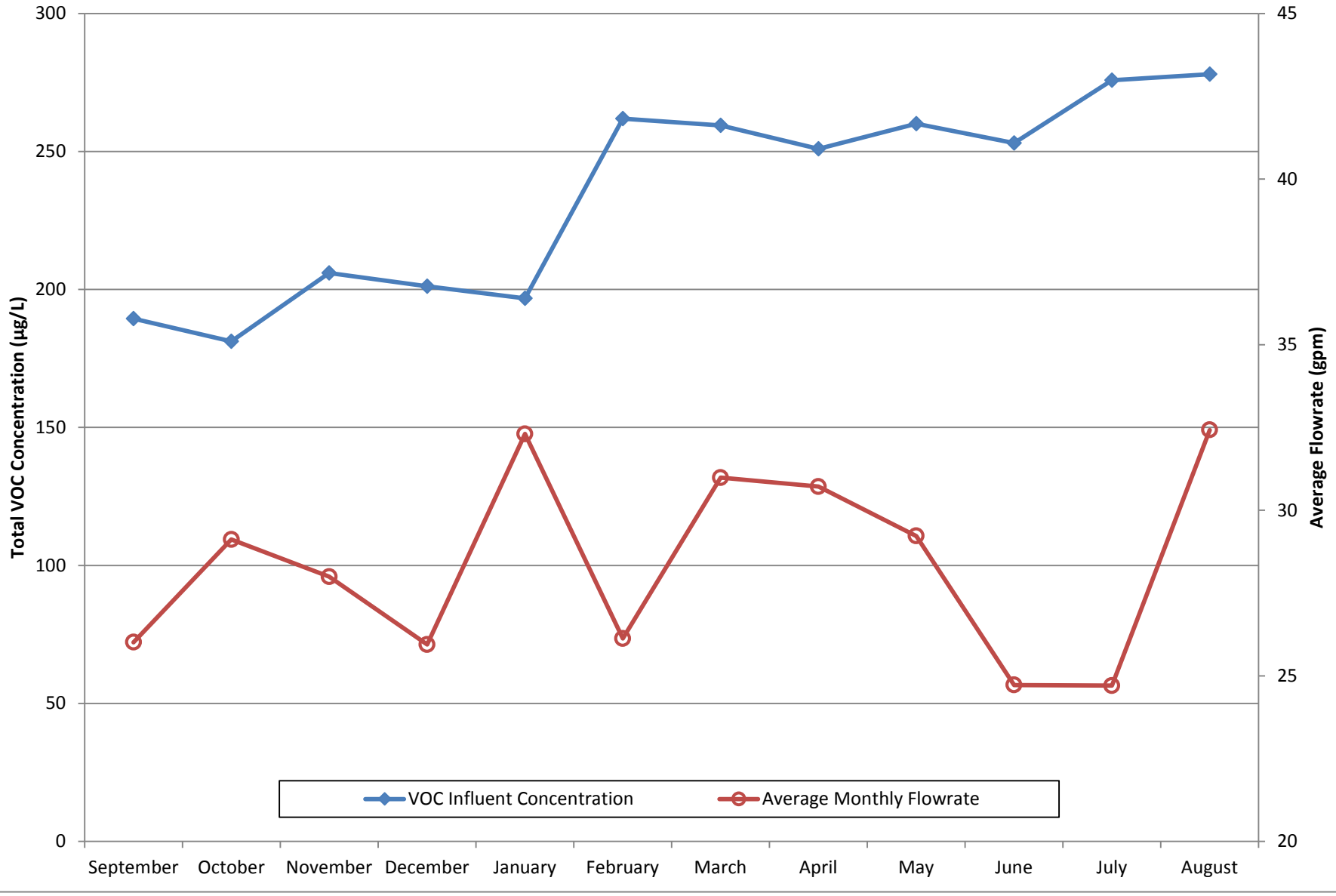
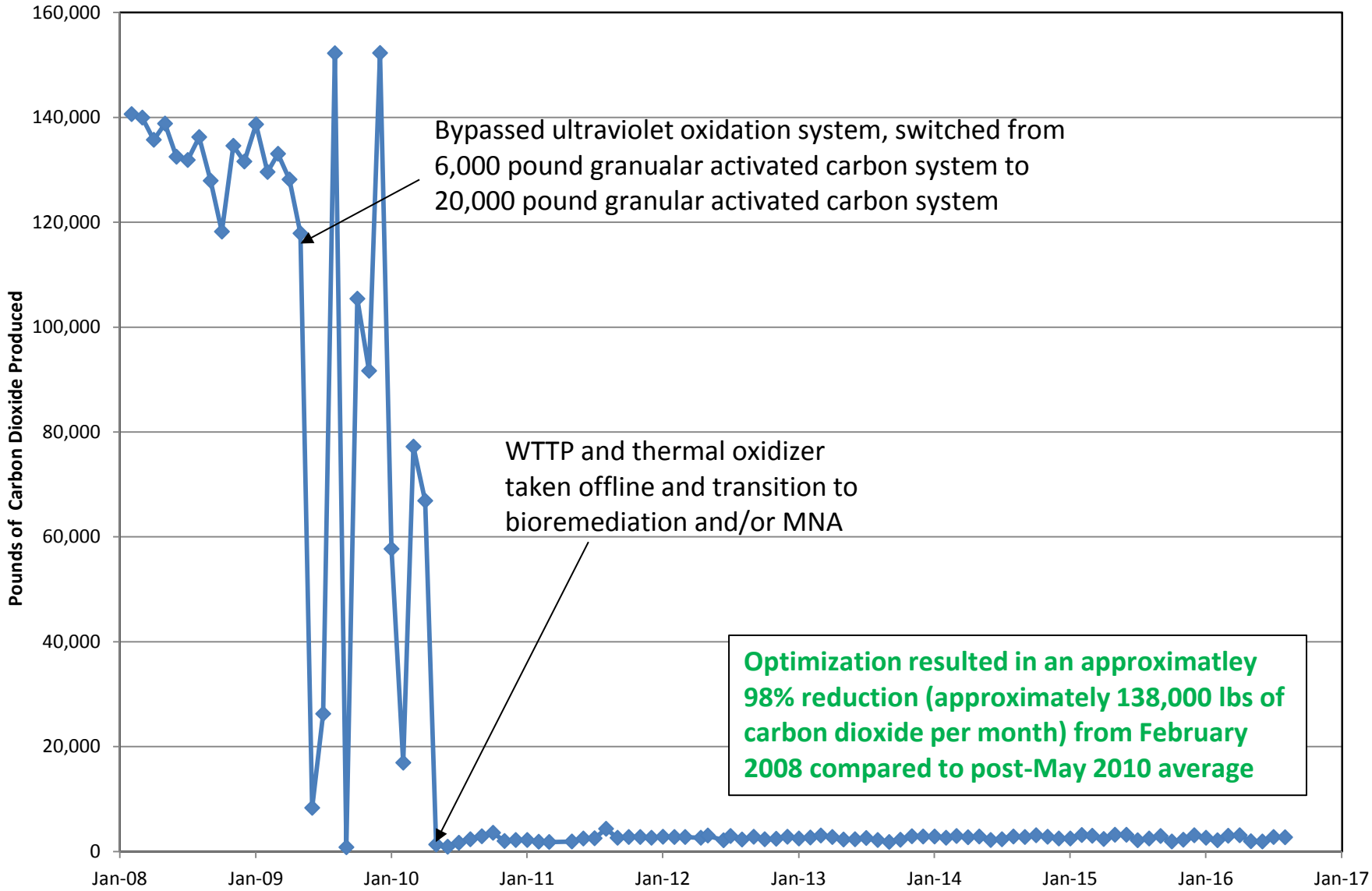


Figure 2

Equivalent Pounds of Carbon Dioxide Produced by the Central Groundwater Treatment Plant



Subarea LF007C Groundwater Treatment Plant Monthly Data Sheet

Report Number: 154 **Reporting Period: 02 August 2016 – 31 August 2016** **Date Submitted: 16 September 2016**

This monthly data sheet presents information regarding the Subarea LF007C Groundwater Treatment Plant (LF007C GWTP) and associated remedial process optimization (RPO) activities.

System Metrics

Table 1 presents operational data from the August 2016 reporting period:

Table 1 – Operations Summary – August 2016

Initial Data Collection:	8/2/2016 12:30		**Final Data Collection:**	8/31/2016 10:10	
Operating Time:		Percent Uptime:	Electrical Power Usage[a]:		
LF007C GWTP:	691 hours	**LF007C GWTP**	99.7%	**LF007C GWTP:**	0 kWh
Gallons Treated: **165,100 gallons**			Gallons Treated Since March 2000: **85.5 million gallons**		
Volume Discharged to Duck Pond: **165,100 gallons**					
VOC Mass Removed: **4.11×10^{-3} pounds[b]**			VOC Mass Removed Since March 2000: **174.36 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] The LF007C GWTP operates on solar power only.
[b] VOCs from August 2016 influent sample detected by EPA Method SW8260C.
[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 – LF007C GWTP Average and Total Flow Rates – August 2016

Location	Average Flow Rate (gpm)[a]	Total Gallons Processed (gallons)
EW614x07	3.2	132,940
EW615x07	0.7	30,840
LF007C GWTP	**3.98**	**165,100**

[a] Flow rates calculated by dividing total gallons processed by system operating time for the month or the average of the instantaneous readings.
gpm = gallons per minute

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

Table 3 – Summary of System Shutdowns

Location	Shutdown[a]		Restart[a]		Cause
	Date	Time	Date	Time	
LF007C GWTP	3 August 2016	10:16	3 August 2016	11:35	System high pressure.
LF007C GWTP	17 August 2016	13:30	17 August 2016	14:30	Change bag filter.

[a] Shutdown and restart times estimated based on field notes
LF007C GWTP = Subarea LF007C Groundwater Treatment Plant

Summary of O&M Activities

Analytical data from the 2 August 2016 sampling event are presented in Table 4. TCE (1.78 µg/L) and 2-hexanone (1.21 J µg/L) were detected at the influent sample location. No contaminants were detected at the midpoint or effluent sampling locations. Analytical data continue to indicate effective treatment of the influent process stream.

On 3 August, the LF007C GWTP was temporarily shut down because of high pressures in the system. On 17 August, the LF007C GWTP was shut down for approximately one hour to change the bag filter.

Figure 1 presents a chart of influent concentrations (total VOCs) at the LF007C GWTP versus time for the past twelve months. The average flow rate through the LF007C GWTP in August 2016 (3.98 gpm) decreased slightly from the flow rate measured in July 2016 (4.09 gpm). The decrease in flow from EW614x07 may be a result of continued pumping from EW615x07, and also the prolonged period of dry weather.

Optimization Activities

No optimization activities occurred at the LF007C GWTP in August 2016.

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 and LF007C GWTP. The LF007C GWTP is now a solar-only operated treatment system and no longer generates GHG, with exception of a small amount of GHG generated from changing out the GAC.

TABLE 4
Summary of Groundwater Analytical Data For August 2016 – Subarea LF007C Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (μg/L)	Detection Limit (μg/L)	N/C	2 August 2016 (μg/L)		
				Influent	After Carbon 1	Effluent
Halogenated Volatile Organics						
Bromodichloromethane	5.0	0.15	0	ND	ND	ND
Bromoform	5.0	0.15	0	ND	ND	ND
Carbon Tetrachloride	0.5	0.15	0	ND	ND	ND
Chloroform	5.0	0.15	0	ND	ND	ND
Dibromochloromethane	5.0	0.15	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	0.15	0	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.15	0	ND	ND	ND
trans-1,2-Dichloroethene	5.0	0.15	0	ND	ND	ND
2-Hexanone	NA	0.50	0	1.21 J	ND	ND
Methylene Chloride	5.0	0.15	0	ND	ND	ND
Tetrachloroethene	5.0	0.15	0	ND	ND	ND
1,1,1-Trichloroethane	5.0	0.15	0	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.15	0	ND	ND	ND
Trichloroethene	5.0	0.15	0	1.78	ND	ND
Vinyl Chloride	0.5	0.15	0	ND	ND	ND
Non-Halogenated Volatile Organics						
Benzene	1.0	0.15	0	ND	ND	ND
Ethylbenzene	5.0	0.15	0	ND	ND	ND
Toluene	5.0	0.15	0	ND	ND	ND
Xylenes	5.0	0.15 – 0.30	0	ND	ND	ND
Other						
Total Suspended Solids (mg/L)	NA	0.6	0	24.2	NM	NM
Total Petroleum Hydrocarbons – Gasoline	50	30	0	NM	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	24	0	NM	NM	ND
Total Petroleum Hydrocarbons – Motor Oil	100	24	0	NM	NM	ND

* 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
NA = not applicable
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

LF007CGWTP Total VOC Influent Concentrations and Average Flowrate Twelve Month History

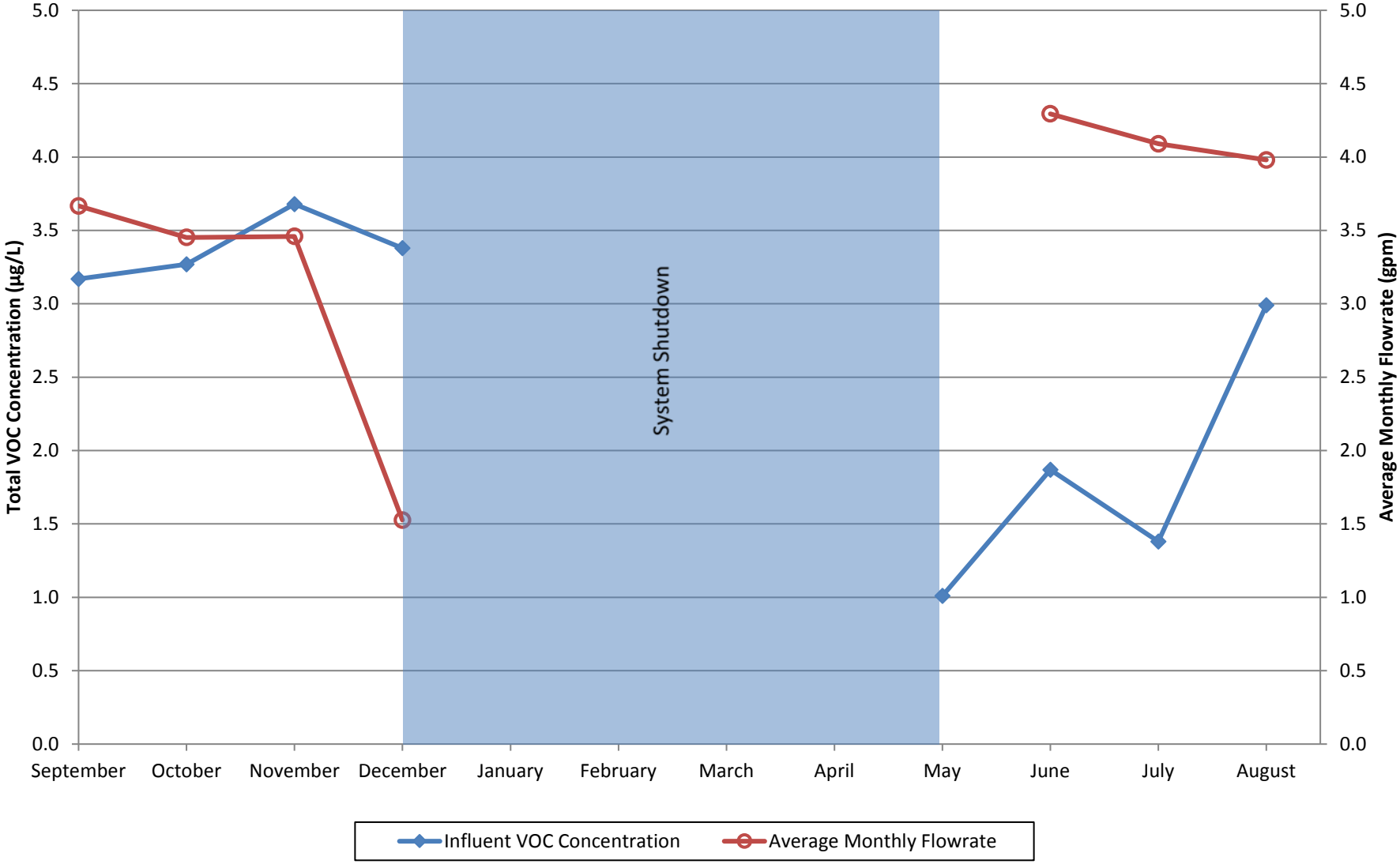
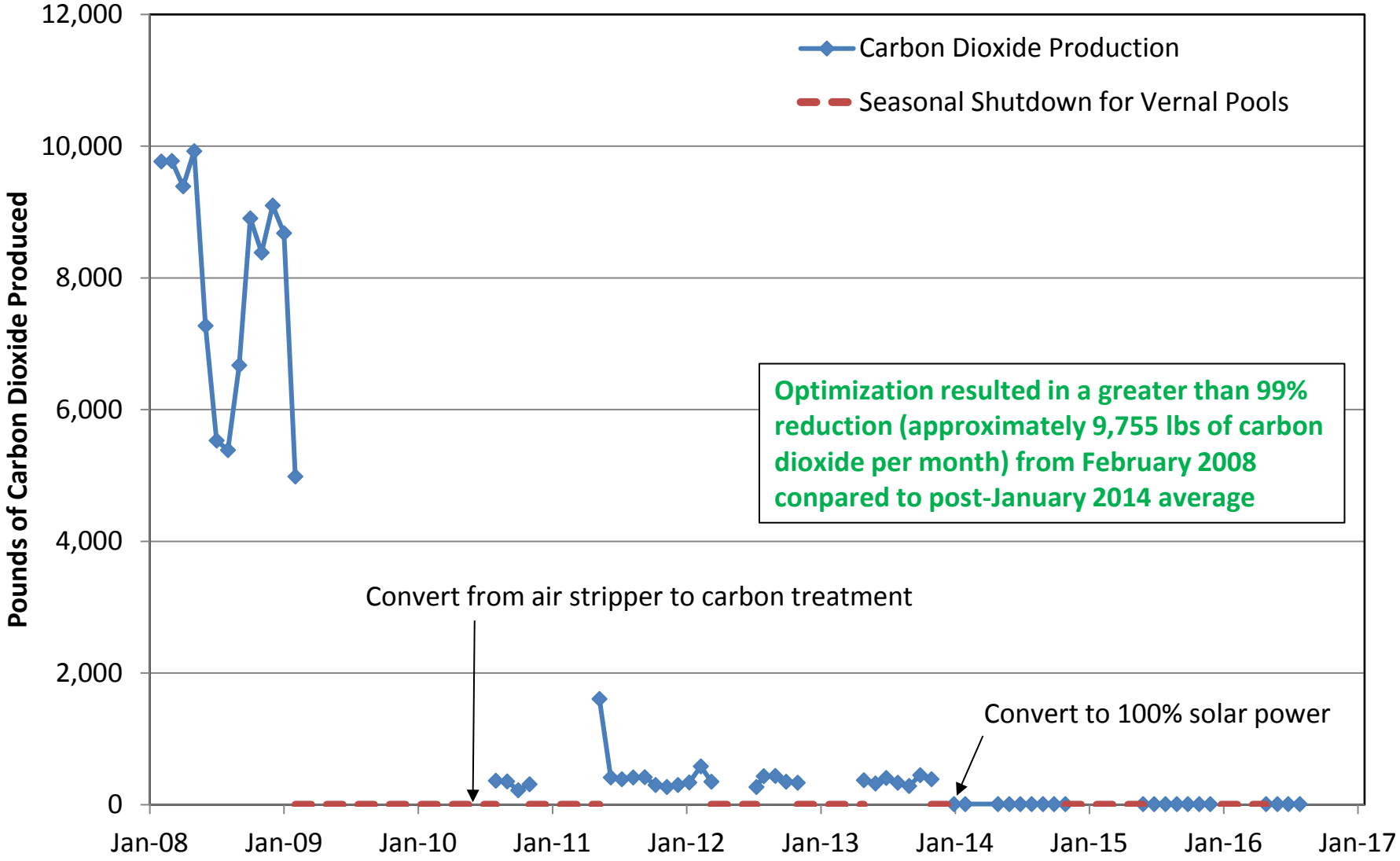


Figure 2

Equivalent Pounds of Carbon Dioxide Produced by the NGWTP/LF007C Groundwater Treatment Plant



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

Site ST018 Groundwater Treatment Plant Monthly Data Sheet

Report Number: 066 **Reporting Period: 02 August 2016 – 31 August 2016** **Date Submitted: 16 September 2016**

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

System Metrics

Table 1 presents operation data from the August 2016 reporting period.

Table 1 – Operations Summary – August 2016

Initial Data Collection:	8/2/2016 11:00	**Final Data Collection:**	8/31/2016 13:30
Operating Time:		Percent Uptime:	Electrical Power Usage:
ST018GWTP: 698 hours		**ST018GWTP:** 99.9%	**ST018GWTP:** 133 kWh (498 lbs CO_2 generated[a])
Gallons Treated: **221,500 gallons**		Gallons Treated Since March 2011: **10.74 million gallons**	
Volume Discharged to Sanitary Sewer: **221,500 gallons**		Final Totalizer Reading: **10,735,189 gallons**	
Cumulative Volume Discharged to Sanitary Sewer since 1 November 2014: **4,239,015 gallons**			
MTBE, BTEX, VOC, TPH Mass Removed: **0.26 lbs**[b]		MTBE, BTEX, VOC, TPH Mass Removed Since March 2011: **39.0 lbs**	
MTBE (Only) Removed: **0.12 lbs**[b]		MTBE (Only) Mass Removed Since March 2011: **9.5 lbs**	
Rolling 12-Month Cost per Total Pounds of Mass Removed: $10,463[bc]			
Monthly Cost per Pound of Mass Removed: $18,382[bc]			

[a] SiteWise™ estimate that 1 kilowatt hour generated produces 0.74 pounds of GHG. Value also includes approximately 400 pounds of GHG from GAC change out.
[b] Calculated using August 2016 EPA Method SW8260C and SW8015B analytical results.
[c] Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the system.
kWh = kilowatt hour
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 – August 2016

Location	Average Flow Rate Groundwater (gpm)[a]	Hours of Operation
EW2014x18	1.2	698
EW2016x18	1.0	698
EW2019x18	1.0	698
EW2333x18	1.5	698
Site ST018 GWTP	5.3	698

[a] Flow rates calculated by dividing total gallons processed by amount of operating time of the pump/system.

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[a]		Restart[a]		Cause
	Date	Time	Date	Time	
ST018GWTP	17 August 2016	09:52	17 August 2016	10:30	Cleaned water level probes in influent tank and calibrated effluent totalizer.

[a] Shutdown and restart times estimated based on field notes
ST018GWTP = Site ST018 Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater treatment samples were collected at the ST018GWTP on 2 August 2016. Results are presented in Table 4. The complete August 2016 laboratory data report is available upon request. The influent concentration for MTBE during the August 2016 sampling event was 68.0 µg/L, which is a decrease from the July 2016 sample result of 91.5 µg/L. TPH-g (54.7 J µg/L), TPH-d (45.2 J µg/L), and 1,2-DCA (1.20 µg/L) were also detected in the influent sample. TPH-d (41.0 J µg/L) was detected after the first carbon vessel sampling location. No contaminant concentrations were detected after the second carbon vessel sampling location. MTBE and TPH-mo were detected in the system effluent sampling location at concentrations of 3.05 µg/L and 25.3 J µg/L, respectively. All detected concentrations of TPH are well below the Fairfield-Suisun Sewer District effluent limitation of 50,000 µg/L, or 100,000 µg/L for TPH-mo. Additionally, the Fairfield-Suisun Sewer District does not currently have a local limit for MTBE, but a limit of 6,400 µg/L is advised based on worker health and safety. Travis AFB will continue to monitor effluent contaminant concentrations and evaluate the condition of the carbon filter beds.

Figure 1 presents plots of the average flow rate and influent total contaminant (TPH-g, TPH-d, MTBE, BTEX, and VOCs) and MTBE concentrations at the ST018GWTP over the past twelve (12) months. The average flow rate through the ST018GWTP has been seasonally variable with an overall increasing trend. The total influent concentrations have varied considerably throughout the past twelve months, which is due primarily to the TPH-g concentration; however, overall concentrations have decreased slightly. The MTBE concentration in the system influent has generally been holding steady.

Optimization Activities

No optimization activities occurred at the ST018GWTP in August 2016.

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 ST018GWTP system.

Figure 2 presents the historical GHG production from the ST018GWTP. The ST018GWTP produced 498 pounds of GHG during August 2016 and treated 221,500 gallons of water, which was a decrease from July 2016 (525 pounds, treating 293,961 gallons). The GHG levels have been increasing over the past approximately 1 ½ years, which is due to the addition of a new extraction well into the groundwater extraction and treatment system.

TABLE 4
Summary Of Groundwater Analytical Data for August 2016 – Site ST018 Groundwater Treatment Plant

Constituent	Instantaneous Maximum* (µg/L)	Detection Limit (µg/L)	N/C	2 August 2016 (µg/L)			
				Influent	After Carbon 1	After Carbon 2	System Effluent
Fuel Related Constituents							
Methyl tert-Butyl Ether	6,400	0.15	0	68.0	NM	ND	3.05
Benzene	25,000[a]	0.15	0	ND	NM	ND	ND
Ethylbenzene	25,000[a]	0.15	0	ND	NM	ND	ND
Toluene	25,000[a]	0.15	0	ND	NM	ND	ND
Total Xylenes	25,000[a]	0.15 – 0.30	0	ND	NM	ND	ND
Total Petroleum Hydrocarbons – Gasoline	50,000[b]	30	0	54.7 J	ND	NM	ND
Total Petroleum Hydrocarbons – Diesel	50,000[b]	24 – 25	0	45.2 J	41.0 J	NM	ND
Total Petroleum Hydrocarbons – Motor Oil	100,000	24 – 25	0	ND	ND	NM	25.3 J
Other							
1,2-Dichloroethane	0.5	0.15	0	1.20	NM	ND	ND

* In accordance with the Fairfield-Suisun Sewer District Effluent Limitations

Laboratory data available on request.

a – The limit of 25,000 µg/L is a combined limit for BTEX.

b – The limit of 50,000 µg/L is a combined limit for TPH-g and TPH-d

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
N/C = number of samples out of compliance with discharge limits
ND = not detected above method detection limit
NM = not measured this month

Figure 1

ST018GWTP Total VOC and MTBE Influent Concentrations and Average Flowrate Twelve Month History

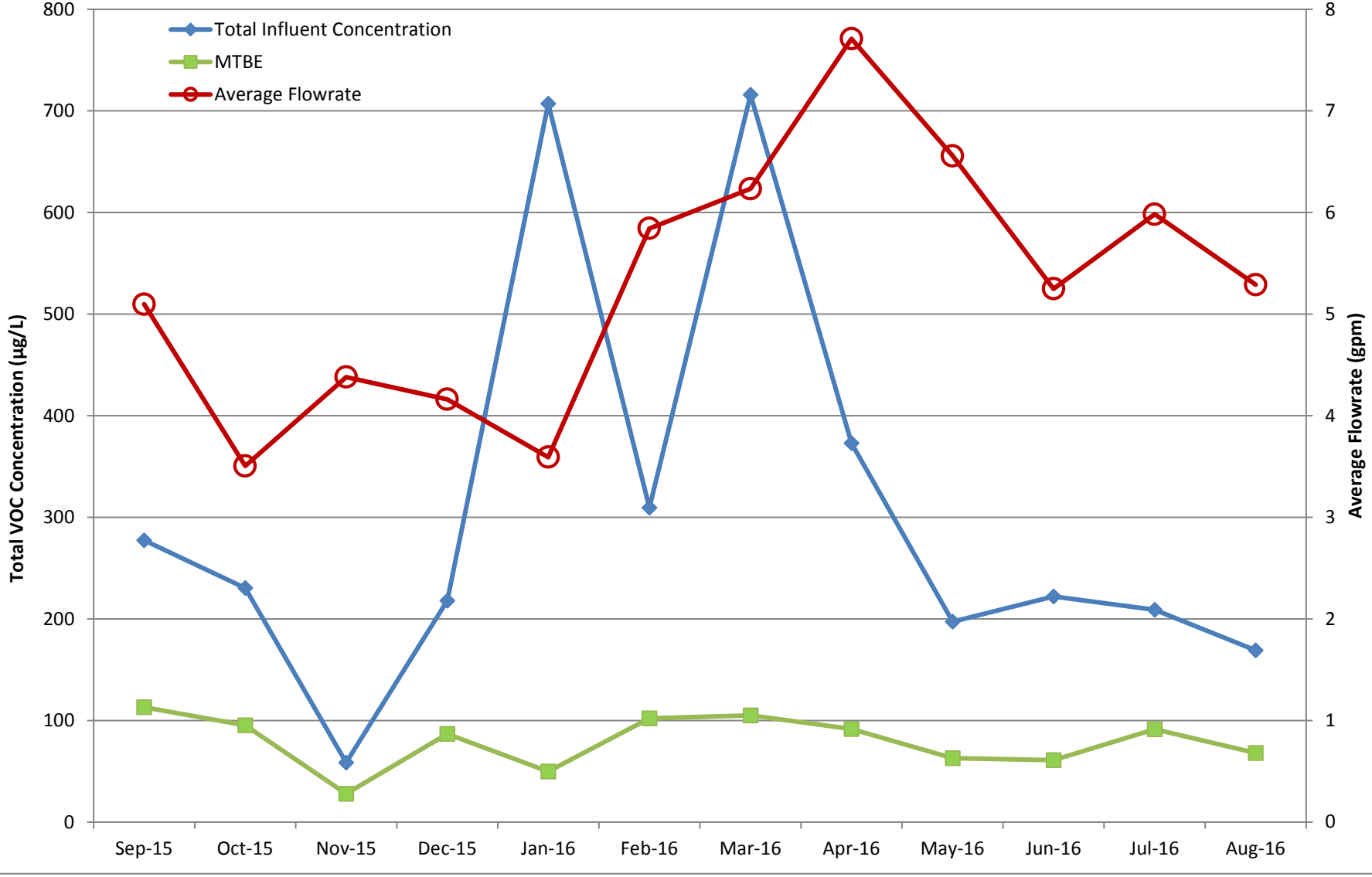
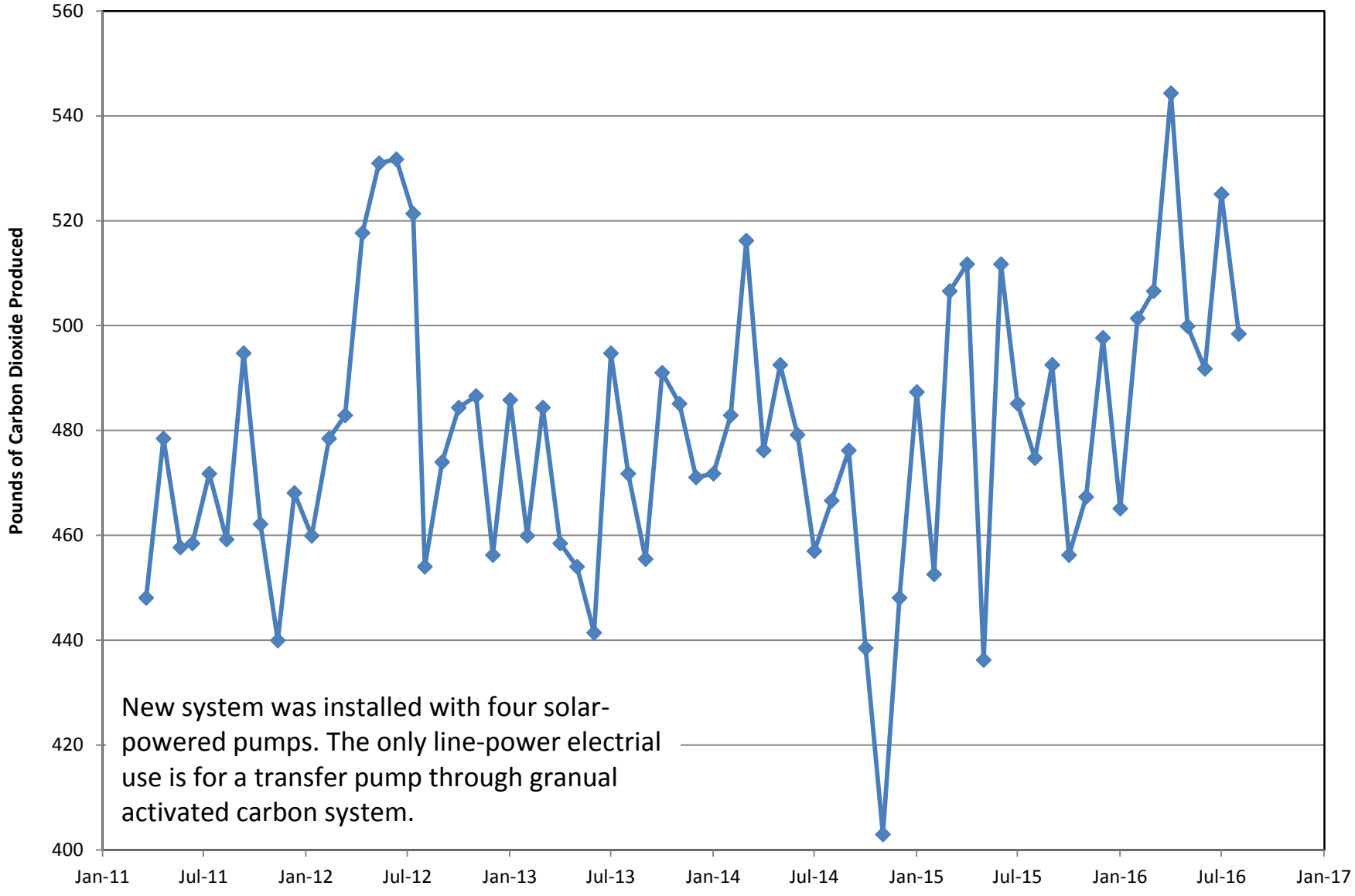


Figure 2

Equivalent Pounds of Carbon Dioxide Produced by the Site ST018 Groundwater Treatment Plant



Travis AFB
Restoration Program

Program Update

RPM Meeting

September 21, 2016

Completed Documents

- 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
- Old Skeet Range Removal Action Work Plan
- 2013 CAMU Inspection Annual Report
- Groundwater Record of Decision (ROD)
- CG508 POCO Work Plan
- 2013 Annual GRISR
- FT004 Technology Demonstration Work Plan
- Kinder Morgan LF044 Land Use Control Report
- SD031 Technology Demonstration Work Plan
- TA500 Data Gap Investigation Work Plan
- ST018 POCO Work Plan Addendum
- SD037 GW RD/RA Work Plan
- Travis AFB UFP-QAPP
- DP039 Lead Excavation Technical Memo

Completed Documents (cont'd)

- Proposed Plan for ROD Amendment to WABOU Soil ROD
- Proposed Plan for ROD Amendment to NEWIOU Soil, Sediment, & Surface Water ROD
- SD034 Data Gap Investigation Work Plan
- POCO Investigation Work Plan for Oil-Water Separators
- ST032 POCO Soil Excavation Work Plan
- SD036 GW RD/RA Work Plan
- SS016 GW RD/RA Work Plan
- SS015 GW RD/RA Work Plan
- FT005 Technology Demonstration Work Plan
- 2014 Annual CAMU Monitoring Report
- Old Skeet Range PAH Delineation Report
- ST028 POCO Work Plan
- SS014 POCO TD Work Plan
- CG508 Site Investigation/Site Closure Request Report
- 2014 Annual CAMU Monitoring Report
- DP039 GW RD/RA Work Plan
- SD031 TDCCR
- ST018 POCO CCR
- Site SS030 Groundwater RA CCR
- Sites SD036 and SD037 Groundwater RACCR
- Site SS016 Groundwater RACCR
- Site SS015 Groundwater RACCR
- 2014 Annual GRISR
- Site CG508 Well Decommissioning Work Plan

Completed Documents (cont'd)

- Data Gap Investigation TM for Soil Sites SD033, SD043, & SS046
- Site FT004 Technology Demonstration Construction Completion Report
- Site SD031 Soil Remedial Investigation Work Plan
- Corrective Action Plan for DERA-Funded Oil Water Separators
- Site ST032 POCO Completion Report
- Site ST028 POCO Completion Report
- 2015 Annual CAMU Monitoring Report
- Site SD031 Remedial Investigation Work Plan
- ***Site SD034 Technology Demonstration Work Plan***

Completed Field Work

- 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)
- Subsite LF007C optimization upgrades
- 2014 Annual GRIP Sampling Event
- Biological Resource Assessment
- Site CG508 Site Investigation
- Old Skeet Range Characterization Sampling
- 4Q Semiannual GRIP Sampling Event
- SD031 Technology Demonstration Well Installation
- SD037 Well Installation
- SD031 Trench/Conveyance/Power Installation
- SD031 EVO Injection
- ST018 Well Installation
- SS015 Well Installation
- SS016 Well Installation
- Well Development (SD036, SD037)
- ST018 Trench/Conveyance/Power Installation
- SD036 EVO Injection
- Well Development (SS015, SS016)
- Baseline Sampling (SS015, SS016)
- SS014 Data Gap Investigation
- SS016 EVO Injection
- TA500 Data Gaps Investigation

Completed Field Work

- 2015 Annual GRIP Sampling
- SD037 EVO Injection
- SD034 Data Gaps Investigation
- SS015 EVO Injection
- FT005 Injection Well Installation
- OWS 47, 48, 49 Site Investigations
- SS030 Trench/Conveyance/Power Installation
- FT005 Trench Installation
- FT005 Well Development
- FT004 Well Installation, Well Development, Baseline Sampling
- FT005 Baseline Sampling
- DP039 Well Installation, Well Development, Baseline Sampling
- FT004 EVO Injection
- FT004 Trench/Conveyance/Power Installation
- DP039 Infiltration Trench Installation
- TA500 Groundwater Sampling
- FT005 EVO Injection
- 2016 Q2 GRIP Sampling
- Data Gap Inv. for Soil Sites (SD043, SS046)
- SD031 Remedial Investigation Step-out Sampling (2nd round)
- DP039 EVO Injection
- ***CG508 Well Decommissioning***
- ***SD033 Soil Sampling***
- ***Multi-site Bioaugmentation Well Installation***
- ***SD034 Technology Demonstration Well Installation***

Documents In-Progress

CERCLA

- ***Site FT005 Technology Demonstration Construction Completion Report***
- Site TS060 Action Memorandum
- Site SS016 Soil Data Gaps Investigation Work Plan
- Site TS060 Removal Action Work Plan
- Site LF044 Investigation Work Plan
- Multi-Site Bioaugmentation Technology Demonstration Work Plan
- 2015 Annual GRISR

Documents In-Progress

POCO

- Site FT004 POCO Soil Data Gap Investigation Work Plan

Field Work In-Progress

- ***SD031 Remedial Investigation Soil Sampling (3rd round)***
- Oil Water Separators Step-out Drilling
- Oil Water Separators Removal

Documents Planned

CERCLA

- Community Involvement Plan — Sep
- Site DP039 RD/RA Construction Completion Report — Sep

Documents Planned

POCO

- Sites ST028 and ST032 POCO Well Decommissioning Work Plan — Sep
- ***Site CG508 POCO Well Decommissioning and Site Closeout Technical Memorandum*** — ***TBD***
- ***Sites OW051, OW053, and OW054 POCO Evaluation/Closeout Report*** — ***TBD***

Field Work Planned

CERCLA

- SD034 Technology Demonstration Bioreactor Installation — Sep
- Multi-site Bioaugmentation & EVO Injection — Sep
- SS016 Soil Data Gaps Investigation — Sep
- LF044 Berm Sampling — Sep
- TS060 Removal Action — TBD

Note: Contact Lonnie Duke if you would like to observe planned field work events

Field Work Planned

POCO

- SS014 Bioreactor Installation Sep
- FT004 POCO Soil Data Gaps Investigation Sep
- ST028 & ST032 Well Decommissioning Sep

Note: Contact Lonnie Duke if you would like to observe planned field work events

Completed Documents (Historical1)

- 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 (Historical 2)

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

Completed Field Work (Historical1)

- ST027B Gore Sorber Survey–Phase 1
- ST027B Field Sampling – Phase 2
- GSAP 2008 Semi-annual Event
- ST027B Installation of Wells – Phase 3
- SS014 Site Characterization
- LF008 Rebound Study
- GSAP Annual Sampling Event - 2009
- SS030 Site Characterization–Phase 1
- ST027 Site Characterization -Phase 3
- ST014 Monitor Well Install - Subsite 3
- SD001/SD033 Sediment RA
- SS016 Site Characterization (OSA source area)
- ST018 Site Characterization
- SS030 Site Characterization (Off-base VOC Plume)
- DP039 Site Characterization (for Biobarrier Placement)
- SS014 & ST032 Q1 2010 MNA Sampling (2nd of 4 quarterly events)
- SD036 Additional Site Characterization (north & east)
- Therm/Ox System Removal
- SS016 Monitoring Well Installation
- SD037 EVO Injection Well Installation
- DP039 Monitoring Well & Injection Well Installation
- DP039 EVO Injection
- SD037 Monitoring Well Installation
- GSAP 2010 Annual Sampling Event
- SD037 EVO Injection
- SS015 Site Characterization
- South Plant GAC Change-out
- FT005 Data Gap Investigation
- SS016 Position Survey of EW03
- SS016 Bioreactor Installation
- SS016 Bioreactor Baseline Sampling
- DP039 Biobarrier Quarterly Performance Sampling

Completed Field Work (Historical 2)

- 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