

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

16 March 2011, 0930 Hours

Mr. Mark Smith, Travis Air Force Base (AFB), conducted the Remedial Program Manager's (RPM) meeting on 16 March 2011 at 0930 in the Main Conference Room, Building 570, Travis AFB, California. Attendees included:

- Mark Smith Travis AFB
- Glenn Anderson Travis AFB
- Lonnie Duke Travis AFB
- Brian Sassaman Travis AFB (partial)
- Merrie Schilter-Lowe Travis AFB
- Gregory Parrott Travis AFB
- Dr. David Bell AFCEE/REO
- Dezso Linbrunner United States Army Corp of Engineers (USACE),
Omaha District
- Alan Friedman California Regional Water Quality Control Board
(RWQCB)
- Jose Salcedo California Department of Toxic Substances Control
(DTSC)
- Nadia Hollan Burke United States Environmental Protection Agency
(USEPA)
- Mary Snow Techlaw, Inc
- Rachel Hess ITSI
- Mike Wray CH2M HILL
- Loren Krook CH2M HILL

Handouts distributed at the meeting and presentations included:

- Attachment 1 Meeting Agenda
- Attachment 2 Master Meeting and Document Schedule
- Attachment 3 SBBGWTP Monthly Data Sheet (February 2011)
- Attachment 4 CGWTP Monthly Data Sheet (February 2011)
- Attachment 5 NGWTP Monthly Data Sheet February 2011)
- Attachment 6 Presentation: Management Overview Briefing: Activities
Completed, In Progress and Upcoming
- Attachment 7 Presentation: Field Schedule Update

- Attachment 8 Presentation: Technical And Economic Feasibility Analysis (TEFA)

1. ADMINISTRATIVE

A. Previous Meeting Minutes

The 16 February 2011 RPM meeting minutes were approved and finalized as written.

B. Action Item Review.

Action items from February were reviewed.

Action item one still open. No change.

Action item two still open. No change.

Action item three still open. No change.

Action item four still open. No change.

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

— Mr. Salcedo reminded the group that the June RPM meeting schedule was to be changed from 23 June 2011 to 15 June 2011 as discussed and agreed upon in the 16 February 2011 meeting.

Travis AFB Master Document Schedule

- Focused Feasibility Study (FFS): The response to comments (RTC) meeting time was changed to 10:00 A.M. on 21 April 2011, since the RPM meeting will be held at 1:00 P.M., and the RAB meeting will take place at 7:00 P.M. on that same day.
- Proposed Plan (PP): The predraft submittal date was moved up to 01 April 2011 to allow for Air Force legal review.
- Groundwater Record of Decision (ROD): No change.
- Comprehensive Site Evaluation Phase II: No change. Techlaw has provided EPA with comments on the response to EPA comments on the draft Phase II report for review.
- Potrero Hills Annex: (FFS, PP, and ROD): No change.

- ISCO/ERD Technical Memorandum: Delayed the RTC meeting and subsequent document due dates due to the high volume of documents.
- Site SS015 Field Implementation Plan: To be finalized today. The document will be provided to the agencies on CD-ROM disk.
- Sites SS014 and ST032 Tier 1 POCO Evaluation Report: No change. The Water Board review is in progress.
- Site FT005 Data Gaps Investigation Report: This is a new report, so all due dates were added to the schedule. ITSI will be giving a presentation on this document at the 21 April 2011 RPM meeting.
- Site ST018 POCO Baseline Implementation Report: This is a new report, so all due dates were added to the schedule. The report will document the installation of the groundwater treatment plant.
- Site SD036 RPO Field Implementation Plan: No change.
- 2010 GWTP RPO Annual Report: This is a new report, so all due dates were added to the schedule. This document will incorporate discussion of the treatment plants, optimization measures, and performance monitoring in one document.
- Baseline Implementation Report: This is a new report, so all due dates were added to the schedule. This report will document the site investigations, remedy optimization actions, and baseline sampling results for the emulsified vegetable oil (EVO) injection sites (including the SS016 bioreactor optimization).
- Technical and Economic Feasibility Analysis (TEFA): This is a new report, so all due dates were added to the schedule.
- Quarterly Newsletter (January 2011): No change.
- 2009/2010 GSAP: The RTC meeting and final due dates have been revised.
- 2010 CAMU Annual Report: The draft to agencies date has been changed. The remainder of the document due dates have been changed accordingly.

Mr. Smith introduced Dr. David Bell from the Regional Environmental Office now called the “Regional Office” in San Francisco. Mr. Smith added it is important for Travis to keep the Regional Office informed of what is going on in the Travis AFB Environmental Restoration Program so that the Regional Office can support Travis when required.

2. CURRENT PROJECTS

Treatment Plant Operation and Maintenance Update

Mr. Duke reported on the treatment plant status.

South Base Boundary Groundwater Treatment Plant (see Attachment 3)

The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 84% uptime, and 3.0 million gallons of groundwater were extracted and treated during the month of February 2011. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 89.2 gallons per minute (gpm), and electrical power usage was 8,220 kWh. Approximately 11,261 pounds of CO₂ were created (based on DOE calculation); approximately 1.28 pounds of volatile organic compounds (VOCs) were removed in February. The total mass of VOCs removed since the startup of the system is 395 pounds.

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

Central Groundwater Treatment Plant (see Attachment 4)

The Central Groundwater Treatment Plant (CGWTP) performed at 100% uptime with approximately 1.1 million gallons of groundwater extracted and treated during the month of February 2011. All treated water was diverted to the storm drain. The average flow rate for the CGWTP was 27.5 gpm, and electrical power usage was 157 kWh for all equipment connected to the Central plant; approximately 215 pounds of CO₂ were created. Approximately 3.64 pounds of VOCs were removed from groundwater in February. The total mass of VOCs removed since the startup of the system is 11,215 pounds.

Optimization Activities: 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 February.

Additional information that is included in this report: SS016 Bioreactor (baseline) analytical results. The Emulsified Vegetable Oil (EVO) injections, analytical results (baseline and performance).

The next performance sampling for the DP039 Bioreactor is scheduled for May 2011.

Mr. Duke talked about site SS016 monitoring well MW2020Ax16 (located in the footprint of the Bioreactor), noting the TCE concentration reduction in the performance sample results, compared to the baseline sample results. The Vinyl Chloride (VC) increased in the performance sample results; however, it does not appear to be traveling beyond the footprint of the bioreactor. Mr. Salcedo asked why the detection limit is so high for VC. Mr. Duke said it was due to the dilution factor, which is generally based on the historical data from a particular well. Mr. Salcedo said there is no history of VC data for that well. Mr. Wray said the dilution for this

particular well would have been calculated using the TCE history. Mr. Salcedo asked why the detection limit for TCE increased in the February 2011 performance sample results on well TPE-Wx16 from the October 2010 baseline results. Mr. Duke said he would need to investigate, and would contact the lab to inquire about the increase.

See table 7 of attachment #4 for the analytical details on the SS016 bioreactor and Emulsified Vegetable Oil Injection data.

North Groundwater Treatment Plant (see Attachment 5)

The North Groundwater Treatment Plant (NGWTP) remains shut down for the wet season. Operation of the North Plant was suspended due to the presence of vernal pools in the area of Site LF007C.

The New ST018 MTBE Treatment Plant: Startup was Wednesday, 2 March 2011. Samples were collected on 2 March 2011. Treated water was collected and contained in a portable 20,000-gallon storage tank and stored there until the analytical results were received, and verified to be in compliance with the NPDES permit. The plant was shut off while waiting on the analytical results. The results received were below the detection limit for all parameters, except for an elevated pH level. The plant was restarted and flushed with groundwater, which was routed to a second storage tank. Once the pH was below the NPDES permit limit of 8.5 (a pH of 8.3 was reached), the treated water was routed to the storm drain. A monthly treatment plant data sheet for the ST018 system will be provided to the RPMs starting next month.

3. Presentations

Program Update: Activities Completed, In Progress and Upcoming (see Attachment 6)

Mr. Wray reported on the status of field work and documents which are completed, in progress, and upcoming. See Attachment 6 for details.

Field Schedule (see Attachment 7)

Mr. Wray reported on the 2011 field schedule. See Attachment 7 for details.

Technical and Economic Feasibility Analysis (TEFA) (see Attachment 8)

Mr. Krook gave the presentation on the TEFA.

Mr. Krook started by briefly explaining what a TEFA is and what it means for the Travis Restoration Program. The Air Force, in concert with the State agencies, determined that a TEFA should be developed for submittal before the groundwater ROD. The intention of the Air Force is, as stated in the Focus Feasibility Study (FFS)

and will be stated in the Record of Decision (ROD), to clean up the groundwater down to California or Federal Maximum Contaminant Levels (MCLs), whichever is less. The TEFA will address the technical and economic feasibility of cleaning up to more stringent levels.

This document will be a stand-alone document and will be modeled after the Edwards AFB Operable Unit 6 TEFA, which was incorporated into the Edwards AFB ROD.

The Scope:

- A stand-alone document.
- Finalized prior to submittal of the draft Basewide Groundwater ROD.
- Analysis of Technical Feasibility.
- Analysis of Economic Feasibility.
- Physical and chemical characteristics of the waste in the waste management unit.
- Hydrogeological characteristics of the facility and the surrounding land.
- Quantity of the groundwater and the direction of the groundwater flow.
- Proximity and the withdrawal rates of the groundwater users.
- Current and potential future users of the groundwater in the area.
- Existing quality of groundwater.
- Potential health risks caused by the exposure to waste constituents.
- Potential damage to wildlife, crops, vegetation, and the physical structures caused by exposure to waste constituents.
- Persistence and permanence of the potential adverse effects.

Mr. Parrott said “the scope” is the same list that is listed in the California Code of Regulations (CCRs).

Mr. Krook provided a broad schedule of the TEFA document (see Attachment 8).

Mr. Smith said that it will be critical to not let any of the dates slip, if at all possible. Mr. Friedman commented that we are looking at response to comments (RTC) on the FFS, which is due on 31 March 2011, the PP due on 09 August 2011, TEFA due on 06 September 2011, and the ROD submittal early next year. That is a tight schedule. Mr. Friedman added that he thought Travis was already working on a TEFA rather than just starting. Mr. Smith agreed that it is a tight schedule and said that Travis is trying to get the TEFA document into the system as soon as possible. Mr. Smith added that it was his understanding that the TEFA was not necessarily required to precede the ROD.

Mr. Anderson said we are bringing this up now because it was discussed at the Air

Force Technology Transfer Workshop last week. Locally we didn't realize how important the TEFA document was until last week. This information came from the Air Force legal staff. The TEFA presentation was pulled together on very short notice; Travis contacted CH2M HILL on Monday to get the document started. Mr. Friedman asked what Travis was going to do to show the technical and economic feasibility aspects. Mr. Wray provided a copy of the Edwards AFB TEFA for Mr. Friedman to reference. Mr. Salcedo said that Edwards OU6 was one of his sites. He was the project manager when the ROD was approved. Their attorney was heavily involved and also indicated that there was no way the State Board would approve a ROD without a TEFA. Edwards AFB had to scramble to get the TEFA language written to include it into the ROD. The TEFA document is supposed to feed into the FFS. Mr. Friedman said the draft FFS indicates that the Air Force is waiting to see if the TEFA is applicable. Mr. Parrott said that in the ARARs, which the agencies agreed on, there is recognition that a TEFA can be completed after the FFS. The original FS studies were conducted about 10 years ago. Travis can write a TEFA document, and it can be incorporated into the ROD. Mr. Friedman suggested that if Travis took the time to include the TEFA in the ARARs, then Travis was certainly aware of it.

Ms. Burke asked if this could be discussed in the FFS meeting that is scheduled to follow the RPM meeting. It was agreed by all it could be discussed in the FFS meeting.

4. New Action Item Review

There are no new action items.

5. PROGRAM/ISSUES/UPDATE

A. AF Restoration/Tech Transfer Workshop

Mr. Smith said that he, Mr. Duke, and Mr. Anderson attended the AF Restoration and Technology Transfer workshop. There were representatives from all over the country in attendance at the workshop, and the purpose of the workshop was to exchange information and provide the latest policy updates, challenges, issues, lessons learned, and an opportunity to attend classes on restoration related issues. Mr. Smith said they made good use of their time by reviewing the curriculum ahead of time and splitting up the classes among the three Travis reps so they could attend as many classes as possible and take advantage of the opportunity. Some important points learned at the workshop include:

- Renewed emphasis on the importance of the 5 year review from a Public Affairs perspective.
- The Secretary of the Air Force office memo on a refocusing of the ERP program to accelerate site closure. That caught everyone off guard as the key objective up to

this point was to achieve Remedy in Place (RIP). The question came up as to how to proceed: do we stop what we are doing and work on accelerating site closure? Travis will continue on as the same path as defined contractually within the Performance-Based Contract for groundwater, with no immediate major changes planned. Mr. Smith wants everyone to continue focusing on Travis' goal to develop the basewide groundwater ROD.

Ms. Burke said the message she got was that each base was to evaluate the cost effort, and look at the long term budget. Ms. Burke said she is glad that Travis is going to move forward as planned. She does have a list of issues she needs to ask EPA headquarters with regard to the FFS that can be discussed in the meeting to follow.

General Discussion

None.

7. Action Items

Item #	Responsible	Action Item Description	Due Date	Status
1.	Travis AFB	Petition to have the Lysimeter removed.	TBD	Open
2.	Travis AFB	Research beneficial reuse of treated water and give update.	TBD	Open
3.	Travis AFB and EPA	Review past site closure completion reports to determine if future site closure reports are necessary.	TBD	Open
4.	Travis AFB	Schedule site visit for Ms. Burke to observe PDB sampling procedure.	TBD/two week notice	Open

TRAVIS AIR FORCE BASE
ENVIRONMENTAL RESTORATION PROGRAM
REMEDIAL PROGRAM MANAGER'S MEETING
BLDG 570, Main Conference Room
16 March 2011, 9:30 A.M.
AGENDA

1. ADMINISTRATIVE

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

2. CURRENT PROJECTS

- A. TREATMENT PLANT OPERATION AND MAINTENANCE UPDATE (LONNIE)

3. PRESENTATIONS

- A. PROGRAM UPDATE: ACTIVITIES COMPLETED, IN PROGRESS AND UPCOMING
- B. 2011 FIELD SCHEDULE
- C. TECHNICAL AND ECONOMIC FEASIBILITY ANALYSIS (TEFA)

4. NEW ACTION ITEM REVIEW

5. PROGRAM/ISSUES/UPDATE

- A. AF RESTORATION/TECH TRANSFER WORKSHOP

NOTE: A DISCUSSION ON THE FOCUSED FEASIBILITY STUDY REPORT WILL FOLLOW THE RPM MEETING, AT 1300.

Travis AFB Master Meeting and Document Schedule

Annual Meeting and Teleconference Schedule

Monthly RPM Meeting (Begins at 9:30 a.m.)	RPM Teleconference (Begins at 9:30 a.m.)	Restoration Advisory Board Meeting (Begins at 7:00 p.m.) (Poster Session at 6:30 p.m.)
01-26-11	—	—
02-16-11	—	—
03-16-11	—	—
04-21-11 (1:00 PM)	—	04-21-11
05-26-11	—	—
06-23-11	—	—
07-20-11	—	—
08-17-11	—	—
09-21-11	—	—
10-20-11 (1:00 PM)	—	10-20-11
11-30-11	—	—
—	—	—

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS			
Life Cycle	Basewide Groundwater		
	Focused Feasibility Study Travis, Glenn Anderson CH2M Hill, Loren Krook	Proposed Plan Travis, Glenn Anderson CH2M HILL, Loren Krook	Record of Decision Travis, Glenn Anderson CH2M HILL, Tony Jaegel
Scoping Meeting	03-30-10	NA	01-24-07
Predraft to AF/Service Center	12-30-10	04-01-11	12-08-11
AF/Service Center Comments Due	01-13-11	05-27-11	01-11-12
Draft to Agencies	01-27-11	06-10-11	01-25-12
Draft to RAB	01-27-11	06-10-11	01-25-12
Agency Comments Due	03-31-11	08-09-11	03-28-12
Response to Comments Meeting	04-21-11 (10:00 AM)	08-17-11	04-18-12
Agency Concurrence with Remedy	NA	NA	05-09-12
Public Comment Period	NA	10-13-11 to 11-14-11	NA
Public Meeting	NA	*10-20-11	NA
Response to Comments Due	06-01-11	09-01-11	05-29-12
Draft Final Due	06-01-11	09-13-11	05-29-12
Final Due	07-01-11	10-13-11	06-27-12

*Public meeting to coincide with RAB meeting.

Travis AFB Master Meeting and Document Schedule

PRIMARY DOCUMENTS	
	Comprehensive Site Evaluation Phase II Travis AFB, Glenn Anderson Sky Research, Ian Roberts
Life Cycle	Report
Scoping Meeting	NA
Predraft to AF/Service Center	04-23-10
AF/Service Center Comments Due	05-04-10
Draft to Agencies	10-14-10
Draft to RAB	10-14-10
Agency Comments Due	11-24-10
Response to Comments Meeting	TBD (teleconference)
Agency Concurrence with Remedy	NA
Public Comment Period	NA
Public Meeting	NA
Response to Comments Due	03-09-11
Draft Final Due	03-09-11
Final Due	04-06-11

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	ISCO/ERD Technical Memorandum Travis AFB, Glenn Anderson CH2M HILL, Loren Krook	Site SS015 Field Implementation Plan Travis AFB, Lonnie Duke CH2M HILL, Loren Krook	Sites SS014 and ST032 Tier 1 POCO Evaluation Report Travis AFB, Lonnie Duke CH2M HILL, Gavan Heinrich	Site FT005 Data Gaps Investigation Report Travis AFB, Lonnie Duke ITSI, Rachel Hess
Scoping Meeting	NA	NA	NA	NA
Predraft to AF/Service Center	08-25-10	10-13-10	01-14-11	04-15-11
AF/Service Center Comments Due	09-08-10 (09-10-10)	10-27-10	01-24-11	04-29-11
Draft to Agencies	10-06-10	11-15-10	02-14-11	05-13-11
Draft to RAB	10-06-10	11-15-10	02-14-11	05-13-11
Agency Comments Due	11-05-10	12-15-10	03-16-11	06-13-11
Response to Comments Meeting	04-21-11	03-16-11	04-21-11	06-23-11
Response to Comments Due	05-10-11	03-16-11	04-29-11	07-07-11
Draft Final Due	NA	NA	NA	NA
Final Due	05-10-11	03-16-11	04-29-11	07-07-11
Public Comment Period	NA	NA	NA	NA
Public Meeting	NA	NA	NA	NA

Travis AFB Master Meeting and Document Schedule

SECONDARY DOCUMENTS					
Life Cycle	Baseline Implementation Report POCO Site ST018 Travis AFB, Lonnie Duke CH2M HILL, Gavan Heinrich	Site SD036 RPO Field Implementation Plan Travis AFB, Lonnie Duke CH2M HILL, Doug Berwick	2010 Groundwater RPO Annual Report Travis AFB, Lonnie Duke CH2M HILL, Doug Berwick	Baseline Implementation Report Travis AFB, Lonnie Duke CH2M HILL, Loren Krook	Technical and Economic Feasibility Analysis Travis AFB, Glenn Anderson CH2M HILL, Loren Krook
Scoping Meeting	NA	NA	NA	NA	NA
Predraft to AF/Service Center	04-18-18	11-30-10	03-25-11	04-07-11	06-15-11
AF/Service Center Comments Due	05-02-11	12-10-10	04-04-11	04-21-11	06-25-11
Draft to Agencies	05-16-11	02-03-11	05-02-11	05-05-11	07-08-11
Draft to RAB	05-16-11	02-03-11	05-02-11	05-05-11	07-08-11
Agency Comments Due	06-15-11	03-05-11	06-01-11	06-04-11	09-06-11
Response to Comments Meeting	06-23-11	03-16-11	06-23-11	06-23-11	09-21-11
Response to Comments Due	07-06-11	04-04-11	07-20-11	07-27-11	10-11-11
Draft Final Due	NA	NA	NA	NA	10-11-11
Final Due	07-06-11	04-04-11	07-20-11	07-27-11	11-22-11
Public Comment Period	NA	NA	NA	NA	NA
Public Meeting	NA	NA	NA	NA	NA

Travis AFB Master Meeting and Document Schedule

INFORMATIONAL DOCUMENTS			
Life Cycle	Quarterly Newsletters (April 2011) Travis, Glenn Anderson	2009/2010 Annual GSAP Travis AFB, Lonnie Duke CH2M HILL, Leslie Royer	2010 CAMU Annual Report Travis AFB, Lonnie Duke ITSI, Rachel Hess
Scoping Meeting	NA	NA	NA
Predraft to AF/Service Center	NA	10-29-10	01-18-11
AF/Service Center Comments Due	NA	11-12-10	01-31-11
Draft to Agencies	03-29-11	12-07-10	03-01-11
Draft to RAB	NA	12-07-10	03-01-11
Agency Comments Due	04-07-11	02-01-11	04-01-11
Response to Comments Meeting	TBD	03-16-11	04-21-11
Response to Comments Due	04-12-11	03-22-11	05-04-11
Draft Final Due	NA	NA	
Final Due	04-12-11	03-22-11	05-04-11
Public Comment Period	NA	NA	NA
Public Meeting	NA	NA	NA

South Base Boundary Groundwater Treatment Plant Monthly Data Sheet

Report Number: 126

Reporting Period: 31 Jan – 28 Feb 2011

Date Submitted: 15 March 2011

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

System Metrics

Table 1 – Operations Summary – February 2011

Operating Time: SBBGWTP: 565 hours	Percent Uptime: SBBGWTP: 84%	Electrical Power Usage: SBBGWTP: 8,220 kWh (11,261 lbs CO₂ generated^a)
Gallons Treated: 3.0 million gallons	Gallons Treated Since July 1998: 726 million gallons	
Volume Discharged to Union Creek: 3.0 million gallons		
VOC Mass Removed: 1.28 lbs	VOC Mass Removed Since July 1998: 395 lbs	
Rolling 12-Month Cost per Pound of Mass Removed: \$4,142 ^b		
Monthly Cost per Pound of Mass Removed: \$6,208 ^b		
Lbs = pounds		
^a Calculated using February 2011 EPA Method SW8260B analytical results.		
^b Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the system.		

Table 2 – SBBGWTP Average Flow Rate (gpm)^a

FT005 ^b				SS029		SS030	
EW01x05	Off line	EW736x05	Off line	EW01x29	0.60	EW01x30	10.1
EW02x05	1.2	EW737x05	Off line	EW02x29	5.1	EW02x30	2.7
EW03x05	Off line	EW742x05	Off line	EW03x29	Off line ^c	EW03x30	3.5
EW731x05	Off line	EW743x05	Off line	EW04x29	5.7	EW04x30	22.9
EW732x05	Off line	EW744x05	Off line	EW05x29	13.0	EW05x30	7.7
EW733x05	Off line	EW745x05	Off line	EW06x29	8.4	EW06x30	Dry
EW734x05	8.60	EW746x05	Off line	EW07x29	20.8	EW711x30	10.0 ^d
EW735x05	3.2						
FT005 Total:		13.0		SS029 Total:		53.6	
				SS030 Total:		56.9	

SBBGWTP Average Monthly Flow^e: 89.2 gpm

^a Extraction well flow rates are based on the average of the weekly readings.
^b Extraction wells at FT005 were taken off line 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 Extraction well is off line due to low VOC concentrations.
^d Extraction well online, but has a faulty flow meter. Flow rate is measured at the well head.
^e The average groundwater flow rate was calculated using the Union Creek Discharge Totalizer and dividing it by the operating time of the plant
 gpm—gallons per minute
 SBBGWTP – South Base Boundary Groundwater Treatment Plant

Table 3 – Summary of System Shutdowns

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
SBBGWTP	2/16/11	20:30	2/21/11	08:30	PLC fault from high winds/rain, power surge.

SBBGWTP = South Base Boundary Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater samples at the SBBGWTP were collected on 14 February 2011. Sample results are presented in Table 4. The total VOC concentration (50.6 µg/L) in the influent sample has decreased since the January 2011 sample (68.1 µg/L) was collected.

Optimization Activities

No optimization activities occurred at the SBBGWTP in February 2011.

Table 4

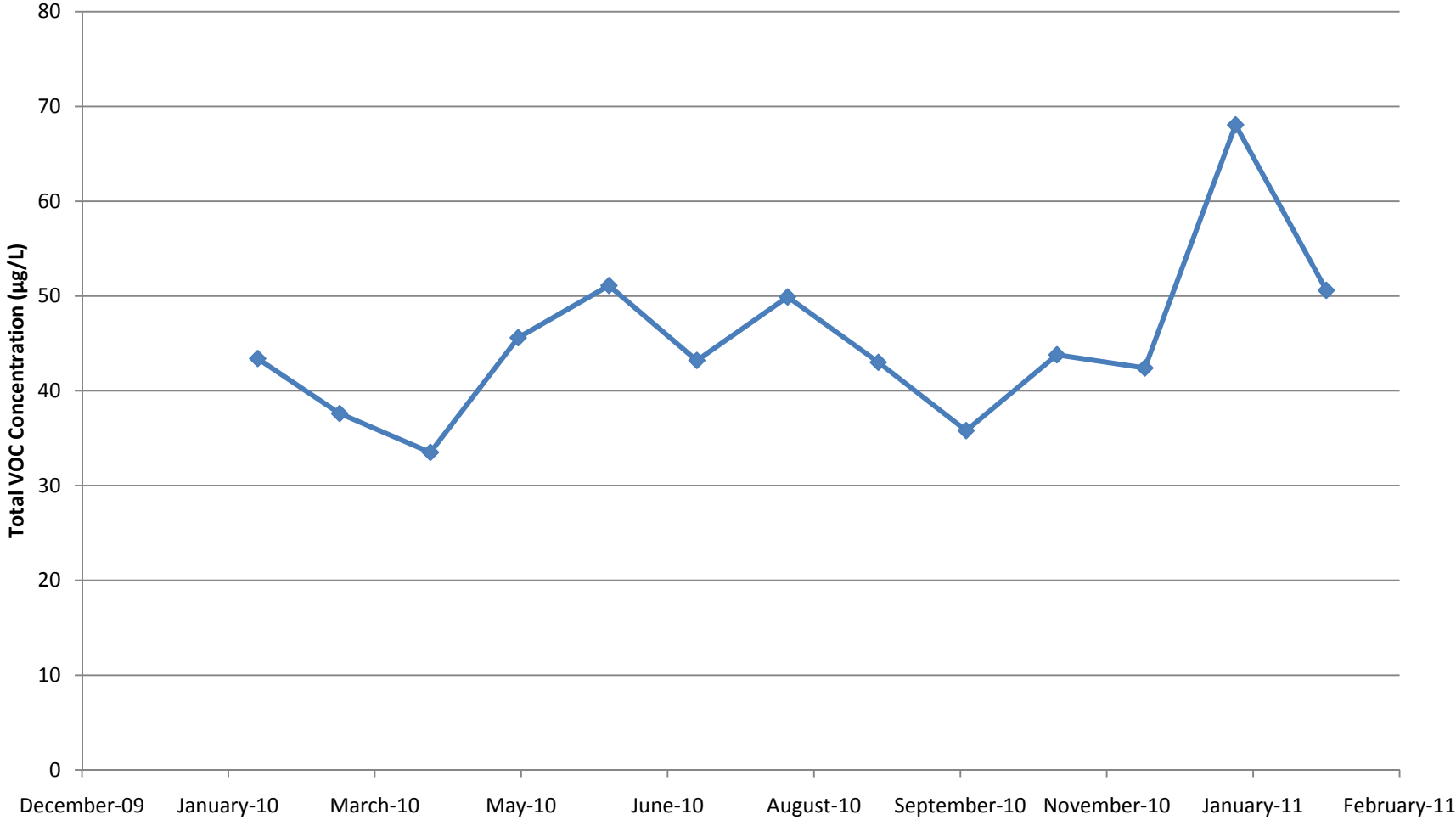
Summary of Groundwater Analytical Data for February 2011 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	14 February 2011 (µg/L)		
				Influent	Midpoint	Effluent
Halogenated Volatile Organics						
Bromodichloromethane	5.0	0.15	0	ND	ND	ND
Carbon Tetrachloride	0.5	0.14	0	ND	ND	ND
Chloroform	5.0	0.16	0	ND	ND	ND
Dibromochloromethane	5.0	0.13	0	ND	ND	ND
1,1-Dichloroethane	5.0	0.19	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	2.8	ND	ND
trans-1,2-Dichloroethene	5.0	0.33	0	ND	ND	ND
Methylene Chloride	5.0	0.66	0	ND	ND	ND
Tetrachloroethene	5.0	0.21	0	ND	ND	ND
1,1,1-Trichloroethane	5.0	0.14	0	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.20	0	ND	ND	ND
Trichloroethene	5.0	0.19	0	47.8	ND	ND
Vinyl Chloride	0.5	0.18	0	ND	ND	ND
Non-Halogenated Volatile Organics						
Benzene	1.0	0.17	0	ND	ND	ND
Ethylbenzene	5.0	0.22	0	ND	ND	ND
Toluene	5.0	0.14	0	ND	ND	ND
Xylenes	5.0	0.23 – 0.5	0	ND	ND	ND
Other						
Total Petroleum Hydrocarbons – Gasoline	50	8.5	0	NM	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	50	0	NM	NM	ND
Total Suspended Solids (mg/L)	NE	1.0	0	10 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).

J = analyte concentration is considered an estimated value
 mg/L = milligrams per liter
 N/C = number of samples out of compliance with discharge limits
 ND = not detected
 NE = not established
 NM = not measured
 µg/L = micrograms per liter

Figure 1
SBBGWTP Total VOC Influent Concentrations
Travis Air Force Base, California

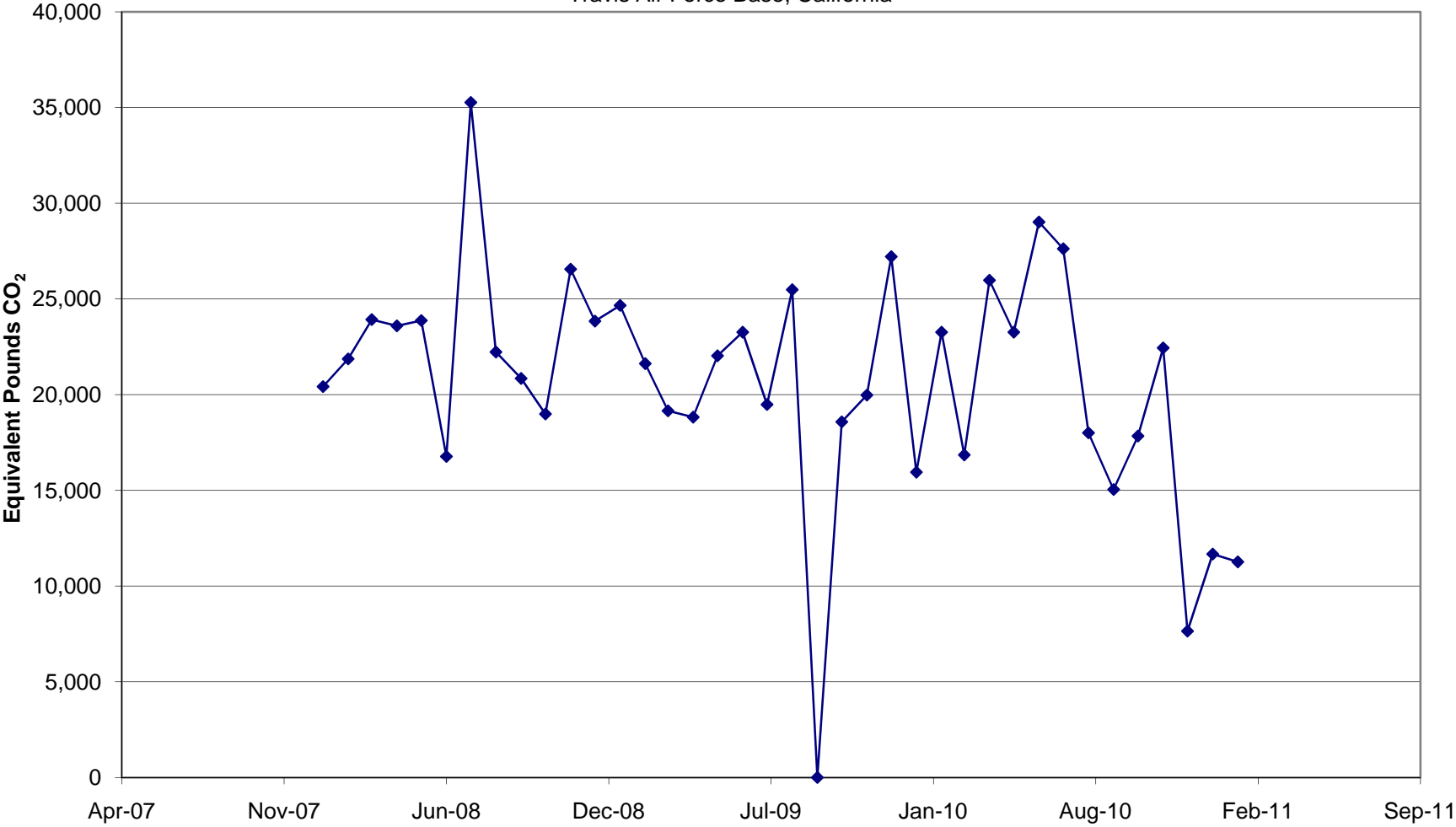


Sustainability

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

Figure 2 presents the historical GHG production from the SBBGWTP. The SBBGWTP produced approximately 11,261 pounds of GHG during February 2011. This is a decrease from January 2011, and consistent with the overall decrease since the air stripper was bypassed, and the granular activated carbon (GAC) system was brought on line.

Figure 2
 Equivalent CO₂ Emissions Produced by the South Base Boundary Groundwater Treatment Plant through February
 2011
 Travis Air Force Base, California



Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 139

Reporting Period: 31 Jan – 28 Feb 2011

Date Submitted: 15 March 2011

This monthly data sheet presents information regarding all systems and associated remedial process optimizations (RPOs) to the Central Groundwater Treatment Plant (CGWTP). The systems associated with the CGWTP include the CGWTP itself, the Thermal Oxidation System (ThOx), and the West Treatment and Transfer Plant (WTP). The RPOs related to the CGWTP network of treatment systems include various emulsified vegetable oil (EVO) injection sites, two (2) bioreactors, and various rebound studies.

System Metrics

Table 1 presents operational data from the February 2011 reporting period:

Table 1 – Operations Summary – February 2011		
Operating Time:	Percent Uptime:	Electrical Power Usage:
CGWTP: 674 hours	CGWTP: 100%	CGWTP: 157 kWh (215 lbs CO ₂ generated ^a)
WTP: Water: 0 hours Vapor: 0 hours	WTP: Water: 0% Vapor: 0%	WTP: 0 kWh
Gallons Treated: 1.1 million gallons	Gallons Treated Since January 1996: 440 million gallons	
VOC Mass Removed:	VOC Mass Removed Since January 1996:	
3.64 lbs^b (groundwater only) 0 lbs (vapor only)	2,529 lbs from groundwater 8,686 lbs from vapor	
Rolling 12-Month Cost per Pound of Mass Removed: \$1,585 ^c		
Monthly Cost per Pound of Mass Removed: \$2,100		
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG.		
^b Calculated using February 2010 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 WTP.		

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

Table 2 – CGWTP Average Flow Rates		
Location	Average Flow Rate	
	Groundwater (gpm)	Soil Vapor (scfm)^b
EW01x16	20.4	Off line
EW02x16	7.1	Off line
EW03x16	4.2 ^c	Off line
EW605x16	Off line ^d	Off line
EW610x16	Off line ^d	Off line
CGWTP	27.5 ^a	--
WTTP	Off line	Off line

^a Measured by the effluent discharge to the storm drain divided by the operating time during the month
^b No vapor was treated in February 2011
^c Water discharged to Site SS016 bioreactor – flow rate taken when pump is operating (is not an average).
^d Off line due to motor fault.

gpm = gallons per minute
 -- = not applicable/not available
 scfm = standard cubic feet per minute

Table 3 presents average flow rate values from the West Industrial Operable Unit (WIOU) extraction wells.

Table 3 – Average Flow Rate from the WIOU Extraction Wells^a (gpm)							
SD037/ SD043		SD033/SD034		SD036			
EW599x37	Off line	EW705x37	Off line	EW501x33	Off line	EW593x36	Off line
EW700x37	Off line	EW706x37	Off line	EW503x33	Off line	EW594x36	Off line
EW701x37	Off line	EW707x37	Off line	EW01x34	Off line	EW595x36	Off line
EW702x37	Off line	EW510x37	Off line	EW03x34	Off line		
EW703x37	Off line	EW511x37	Off line				
EW704x37	Off line	EW555x43	Off line				

^a Extraction wells are offline due to the ongoing rebound study in the WIOU.
 gpm—gallons per minute
 NA – not available / not recorded

Table 4 presents average a summary of shutdowns during the monthly reporting period.

Table 4 – Summary of System Shutdowns					
Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
CGWTP (Groundwater)					
CGWTP	No shutdowns				
WTTP					
WTTP (Vapor)	24 August 2009				System shutdown for rebound study
WTTP (Water)	27 April 2010				System shutdown for rebound study
CGWTP =	Central Groundwater Treatment Plant				
WTTP =	West Transfer Treatment Plant				

Summary of O&M Activities

Monthly groundwater samples at the CGWTP were collected on 14 February 2011. Sample results are presented in Table 5. The total VOC concentration (392 µg/L) in the influent sample has decreased since the January 2011 sample (459 µg/L) was collected.

A duplicate sample was collected from the system effluent sample location in February 2011. Analytical results from this sample identified TCE at a concentration of 0.21 J µg/L, an estimated value, which is 0.02 µg/L above the minimum detection limit of TCE. The non-duplicate sample collected from the same location at the same time as the duplicate did not contain any detectable amount of TCE. In the following months, Travis AFB will continue to monitor the carbon midpoint and effluent samples to ensure treated water remains in compliance with discharge requirements.

Extraction wells EW605x16 and EW610x16 remained off line during February 2011. Replacement pumps are available, and both will be replaced in March 2011.

Optimization Activities

The WTTP remained off line since being shut down in April 2010 for the ongoing rebound study.

No additional optimization activities occurred at the CGWTP in February 2011.

Table 5

Summary of Groundwater Analytical Data for February 2011 – Central Groundwater Treatment Plant

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	14 February 2011 (µg/L)				
			N/C	Influent	After Carbon 1 Effluent	After Carbon 2 Effluent	System Effluent
Halogenated Volatile Organics							
Bromodichloromethane	5.0	0.15	0	ND	ND	ND	ND
Carbon Disulfide	1.0	0.19	0	ND	ND	ND	ND
Carbon Tetrachloride	0.5	0.14	0	ND	ND	ND	ND
Chloroform	5.0	0.16	0	ND	ND	ND	ND
MTBE	1.0	0.5	0	2.4	ND	ND	ND
1,2-Dichlorobenzene	5.0	0.08	0	0.48 J	ND	ND	ND
1,3-Dichlorobenzene	5.0	0.15	0	0.5	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.15	0	0.28 J	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	0.19	0	0.74	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.19	0	102	ND	ND	ND
trans-1,2-Dichloroethene	5.0	0.33	0	4.1	ND	ND	ND
Methylene Chloride	5.0	0.66	0	ND	ND	ND	ND
Tetrachloroethene	5.0	0.21	0	0.76	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	280	ND	ND	ND ^b
Vinyl Chloride	0.5	0.18	0	0.62	ND	ND	ND
Non-Halogenated Volatile Organics							
Benzene	1.0	0.17	0	ND	ND	ND	ND
Ethylbenzene	5.0	0.22	0	ND	ND	ND	ND
Toluene	5.0	0.14	0	ND	ND	ND	ND
Total Xylenes	5.0	0.5 – 0.23	0	ND	ND	ND	ND

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

^b Duplicate sample detected trichloroethene at a concentration of 0.21 J µg/L.

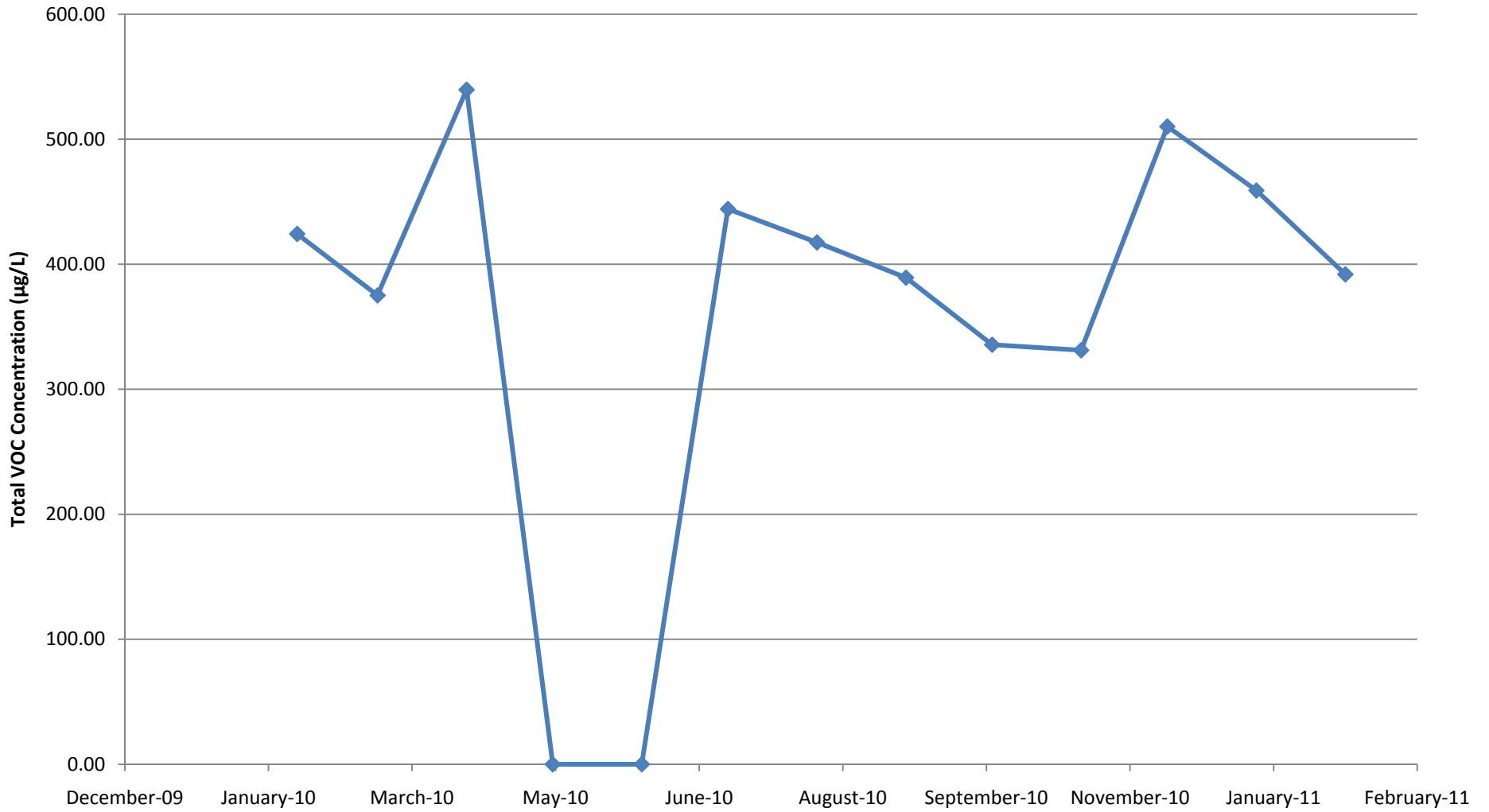
J = analyte concentration is considered an estimated value

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

ND = not detected

µg/L = micrograms per liter

Figure 1
CGWTP Total VOC Influent Concentrations
Travis Air Force Base, California



Bioreactors

Travis AFB has two bioreactors installed on base: one (1) at Site DP039, and the other at Site SS016. The following sections provide analytical data obtained during the monthly reporting period.

Site DP039 Bioreactor

The Site DP039 bioreactor is located near former building 755 in the WIOU, and was installed in October 2008. The bioreactor is approximately 25 feet square, and approximately 20 feet deep.

No data were collected or received as part of performance monitoring activities during February 2011. The next scheduled performance sampling event is scheduled for May 2011.

Site SS016 Bioreactor

The Site SS016 bioreactor is located directly south of Building 18 in the OSA, and was installed in September 2010. The bioreactor is approximately 25 feet square, and approximately 25 feet deep.

Performance data were collected in February 2011 as part of the Site SS016 bioreactor performance monitoring schedule. These data represent the first performance monitoring sampling event following the baseline event in October 2010. The performance monitoring data collected in February 2011 is presented in Table 6.

With only two (2) sets of data, it is not yet possible to identify significant trends in bioreactor performance. It is important to note that while vinyl chloride concentrations are high within the bioreactor, concentrations of vinyl chloride are minimal outside of the bioreactor. Within the bioreactor (MW2020Ax16), vinyl chloride was detected at a concentration of 43,200 µg/L. The highest amount of vinyl chloride outside of the bioreactor was found in TPE-W at a concentration of 101 µg/L, two (2) orders of magnitude less than inside the bioreactor.

The next scheduled performance monitoring sampling event for the Site SS016 bioreactor is in May 2011.

Table 6 – Site SS016 Bioreactor Performance Monitoring Analytical Results

Well ID	Date	TCE (ug/L)	cis-1,2- DCE (ug/L)	Vinyl Chloride (ug/L)	Ethene (ug/L)	Ethane (ug/L)	Methane (ug/L)	TOC (mg/L)	Sulfate (mg/L)	Dissolved Iron (mg/L)	Dissolved Manganese (mg/L)
EW003x16	5/3/2010	224	69.7	0.22	NA	NA	NA	NA	NA	NA	NA
	10/21/2010	NA	NA	NA	2.2	<1.2	9.5 B	5.21	455	0.426	4.28
	2/4/2011	12,200	3,770	20.8 J	<1.0	<1.2	<1.5	3.98	532	0.289	0.508
MW103x16	4/23/2010	2,970	873	19.5	NA	NA	NA	NA	NA	NA	NA
MW213x16	5/28/2010	75.4	13.5	<0.5	NA	NA	NA	NA	NA	NA	NA
MW214x16	5/18/2010	20.1	1.2	<0.5	NA	NA	NA	NA	NA	NA	NA
MW305x16	5/18/2010	<0.5	<1.0	<0.5	NA	NA	NA	NA	NA	NA	NA
MW327x16	5/18/2010	36.4	3.3	<0.5	NA	NA	NA	NA	NA	NA	NA
MW2020x16	4/23/2010	151,000	16,000	<500	NA	NA	NA	NA	NA	NA	NA
MW2020Ax16	10/19/2010	182,000	1,670	<500	2.3	<1.2	640 B	41.3	654	0.199	1.05
	2/4/2011	46.2	141	43,200	330	<1.2	680 B	866	<25	28.3	10.6
MW2022x16	4/19/2010	591	25	<0.5	NA	NA	NA	NA	NA	NA	NA
	10/20/2010	NA	NA	NA	NA	NA	NA	3.42	NA	<0.05	0.132
	2/4/2011	2,600	20.3	1.9 J	NA	NA	NA	2.33	NA	0.0333 J	0.177
MW2023x16	5/28/2010	5.5	7.9 J	0.67	NA	NA	NA	NA	NA	NA	NA
MW2026x16	5/18/2010	36,700	1,280	<25	NA	NA	NA	NA	NA	NA	NA
	10/22/2010	NA	NA	NA	<1.0	<1.2	<0.72	5.45	951	NA	NA
	2/4/2011	34,800	993	<100	<1.0	<1.2	<1.3	5.29	980	NA	NA
MW2028x16	5/28/2010	1,240	185	<2.5	NA	NA	NA	NA	NA	NA	NA
MW2030x16	4/23/2010	22.5	4.1	<0.5	NA	NA	NA	NA	NA	NA	NA
MW2109x16	4/15/2010	54,700	604	<100	NA	NA	NA	NA	NA	NA	NA
	10/21/2010	NA	NA	NA	2.9	1.8	13 B	5.01	579	0.0208 J	0.0672
	2/4/2011	33,600	724	22.4 J	2.3	2	6.5 B	6	616	<0.05	0.0755
MW2110x16	4/15/2010	5,770	1,200	14.3	NA	NA	NA	NA	NA	NA	NA
	10/22/2010	NA	NA	NA	2.4	<1.2	<0.72	1.52	1,480	NA	NA
	2/4/2011	830	123	2 J	2.3	<1.2	<1.9	1.57	1,410	NA	NA
MW2111Ax16	4/15/2010	16.5	16.6	0.2	NA	NA	NA	NA	NA	NA	NA

Table 6 – Site SS016 Bioreactor Performance Monitoring Analytical Results

Well ID	Date	TCE (ug/L)	cis-1,2- DCE (ug/L)	Vinyl Chloride (ug/L)	Ethene (ug/L)	Ethane (ug/L)	Methane (ug/L)	TOC (mg/L)	Sulfate (mg/L)	Dissolved Iron (mg/L)	Dissolved Manganese (mg/L)
MW2111Bx16	4/15/2010	254	75.7	3.1	NA	NA	NA	NA	NA	NA	NA
MW2112Ax16	6/9/2010	39,600	1,650	9.1	NA	NA	NA	NA	NA	NA	NA
	10/20/2010	NA	NA	NA	2.6	2.2	130 B	4.26	557	0.0339 J	0.349
	2/4/2011	48,900	3,830	65.3 J	2.8	3.4	120 B	11.5	573	0.033 J	0.093
	2/4/2011 (Dup)	47,400	3,820	82 J	NA	NA	NA	11.2	NA	NA	NA
MW2112Bx16	6/9/2010	21	22.9	<0.5	NA	NA	NA	NA	NA	NA	NA
	10/20/2010	NA	NA	NA	5.9	<1.2	<0.62	2.87	1,180	0.293	0.276
	2/4/2011	3.5	56.8	<0.5	5	<1.2	<2.7	3.12	1,230	0.31	0.35
PZ-Ax16	10/22/2010	5,590	1,600	20.9	<1.0	<1.2	<0.72	4.82	573	NA	NA
	2/10/2011	5,750	1,460	28.9	<1.0	<1.2	9.1 B	4.48	475	NA	NA
PZ-Cx16	4/23/2010	2,010	790	5.4	NA	NA	NA	NA	NA	NA	NA
TPE-Wx16	4/26/2010	82,500	2,230	<250	NA	NA	NA	NA	NA	NA	NA
	10/20/2010	28,000	38,500	51.1	<1.0	2.5	15 B	6.83	606	0.937	4.33
	10/20/2010 (Dup)	26,000	37,800	46.6	NA	NA	NA	6.99	NA	NA	NA
	2/4/2011	80,700	20,200	101	<1.0	4.2	50 B	9.46	628	.0142 J	1.6

Emulsified Vegetable Oil Injections

Four Sites at Travis AFB (Sites DP039, SD036, SD037, and SS015) underwent various implementations of an EVO injection program during 2010. The following sections provide analytical data pertaining to performance monitoring at these Sites obtained during the monthly reporting period.

Site DP039

The EVO injection program at Site DP039 consists of thirteen (13) injection wells arranged in a linear or wall-like fashion perpendicular to the groundwater gradient. The purpose of this arrangement is to form a biobarrier that treats contaminated groundwater as it flows downgradient through the injection well network.

Performance monitoring data were collected in February 2011 as part of the performance monitoring sampling event. Data collected from this sampling event are provided in Table 7.

The data presented in Table 7 represent baseline, first quarter, and second quarter sampling events. With only three (3) sets of data, trend analysis is not yet possible. There are, however, indications of reductive dechlorination in the injection wells. The next scheduled performance monitoring event is scheduled for May 2011.

Site SD036

The EVO injection program at Site SD036 consists of eight (8) injection wells arranged throughout the Site SD036 "hot spot." This configuration is known as an area approach, since the EVO is injected over a broad area instead of in a wall-like barrier as was done at Site DP039.

Performance monitoring data were collected in February 2011 as part of the performance monitoring sampling event. Data collected from this sampling event are provided in Table 7.

The data presented in Table 7 represent baseline and first quarter sampling events. With only two (2) sets of data, trend analysis is not yet possible. There are, however, indications of reductive dechlorination in the injection wells. The next scheduled performance monitoring event is scheduled for May 2011.

Site SD037

The EVO injection program at Site SD037 consists of seven (7) injection wells arranged throughout the Site SD037 "hot spot." This configuration is known as an area approach, since the EVO is injected over a broad area instead of in a wall-like barrier as was done at Site DP039.

Performance monitoring data were collected in February 2011 as part of the performance monitoring sampling event. Data collected from this sampling event are provided in Table 7.

The data presented in Table 7 represent baseline, first quarter, and second quarter sampling events. With only three (3) sets of data, trend analysis is not yet possible. There are, however, indications of reductive dechlorination in the injection wells, and in wells immediately adjacent to injection wells. The next scheduled performance monitoring event is scheduled for May 2011.

Site SS015

The EVO injection program at Site SS015 consists of three (3) injection and three (3) monitoring wells arranged throughout the Site SS015 source area. This configuration is known as an area approach, since the EVO is injected over a broad area instead of in a wall-like barrier as was done at Site DP039.

No data were collected or received as part of performance monitoring activities during February 2011. The next scheduled performance sampling event is scheduled for May 2011.

Table 7 – Sites DP039, SD036, and SD037 Performance Monitoring Analytical Results

Well ID	Sample Event	Date	TCE (ug/L)	cis-1,2- DCE (ug/L)	Vinyl Chloride (ug/L)	Ethene (ug/L)	Ethane (ug/L)	Methane (ug/L)	TOC (mg/L)	Sulfate (mg/L)	Dissolved Iron (mg/L)	Dissolved Manganese (mg/L)
Site SD036												
PZ03x36	Baseline	6/16/2010	<0.5	<1.0	<0.5	NA	NA	NA	NA	NA	NA	NA
PZ12Dx36	Baseline	6/15/2010	<0.5	<1.0	<0.5	NA	NA	NA	NA	NA	NA	NA
PZ12Sx36	Baseline	6/16/2010	138	189	2.1	NA	NA	NA	NA	NA	NA	NA
PZ550Cx36	Baseline	6/16/2010	3,760	29.1	<10	NA	NA	NA	NA	NA	NA	NA
	Baseline	11/15/2010	NA	NA	NA	<1.0	<1.2	<0.86	0.544	NA	<0.05	<0.01
	1st Quarter	2/7/2011	141	2.2	0.84	2.3	3.2	<0.9	1,160	11	22.1	0.149
EW593x36	Baseline	6/3/2010	0.91 J	0.23 J	<0.5	NA	NA	NA	NA	NA	NA	NA
EW594x36	Baseline	6/3/2010	174	61.6	<0.5	NA	NA	NA	NA	NA	NA	NA
EW595x36	Baseline	5/27/2010	754	2.4	<0.5	NA	NA	NA	NA	NA	NA	NA
	1st Quarter	2/9/2011	672	2.6 J	<2.5	NA	NA	NA	NA	NA	NA	NA
MW873M2x36	Baseline	5/11/2010	129	25.2	0.27 J	NA	NA	NA	NA	NA	NA	NA
MW2031Ax36	Baseline	5/11/2010	178	4.0	<0.5	NA	NA	NA	NA	NA	NA	NA
	Baseline	11/15/2010	NA	NA	NA	<1.0	<1.2	<0.86	1.78	90.1	<0.05	<0.01
	1st Quarter	2/7/2011	104	4.1	<0.5	<1.0	<1.2	<2.8	38.3	73.3	0.809	3.19
MW2031Bx36	Baseline	5/11/2010	14,000 J	30	<10	NA	NA	NA	NA	NA	NA	NA
	Baseline	11/10/2010	NA	NA	NA	<1.0	1.9	<0.74	0.397 J	30.9	<0.05	0.036
	1st Quarter	2/11/2011	530	365	6.6	2.9	2.5	32 B	2,510	12.2	64.1	21.2
MW2032x36	Baseline	5/11/2010	160	160	2.1	NA	NA	NA	NA	NA	NA	NA
MW2033Ax36	Baseline	5/11/2010	2,850	22.2	<5.0	NA	NA	NA	NA	NA	NA	NA
	Baseline	11/15/2010	NA	NA	NA	<1.0	<1.2	<0.86	0.874 J	47.6	<0.05	0.00247 J
	1st Quarter	2/7/2011	4,150	599	<10	<1.0	1.9	<1.2	5.61	48.9	0.29	2.82
MW2033Bx36	Baseline	5/11/2010	5.2	<1.0	<0.5	NA	NA	NA	NA	NA	NA	NA
	Baseline	11/15/2010	NA	NA	NA	2.4	2.7	<0.86	0.631	105	0.222	0.527
	1st Quarter	2/7/2011	16	<1.0	<0.5	2.7	2.1	<2.1	43.6	47.2	<0.05	0.0323
MW2034Ax36	Baseline	5/11/2010	1	<1.0	<0.5	NA	NA	NA	NA	NA	NA	NA

Table 7 – Sites DP039, SD036, and SD037 Performance Monitoring Analytical Results

Well ID	Sample Event	Date	TCE (ug/L)	cis-1,2- DCE (ug/L)	Vinyl Chloride (ug/L)	Ethene (ug/L)	Ethane (ug/L)	Methane (ug/L)	TOC (mg/L)	Sulfate (mg/L)	Dissolved Iron (mg/L)	Dissolved Manganese (mg/L)
	Baseline	11/2/2010	NA	NA	NA	<1.0	<1.2	<0.57	2.78	NA	0.00801 J	0.0058 J
	1st Quarter	2/9/2011	7.6	412	<2.5	2.2	<1.2	<1.8	95.2	NA	1.84	1.78
MW2034Bx36	Baseline	5/11/2010	123	55.4	0.36	NA	NA	NA	NA	NA	NA	NA
	Baseline	11/2/2010	NA	NA	NA	5.9	2.3	3.4 JB	0.848 J	NA	0.185	0.216
	1st Quarter	2/9/2011	2.4	<1.0	<0.5	<1.0	<1.2	<1.2	<1.0	NA	0.0291 J	0.215
MW2061Ax36	Baseline	5/11/2010	334	52.5	4	NA	NA	NA	NA	NA	NA	NA
	Baseline	11/9/2010	NA	NA	NA	<1.0	<1.2	<0.74	1.32	72.7	<0.05	0.00401 J
	1st Quarter	2/7/2011	442	71	6.3	<1.0	<1.2	<0.82	1.32	66.3	0.00773 J	0.0696
MW2061Bx36	Baseline	5/11/2010	18,500	13.6	<25	NA	NA	NA	NA	NA	NA	NA
	Baseline	11/9/2010	NA	NA	NA	<1.0	1.9	<0.74	0.353 J	38.2	<0.05	0.0254
	1st Quarter	2/7/2011	11,400	<50	<25	4.1	2.3	220 B	25.7	<5.0	4.52	4.75
MW2063x36	Baseline	5/11/2010	2,360	23.1	<5.0	NA	NA	NA	NA	NA	NA	NA
MW2064Ax36	Baseline	5/10/2010	1,600	6	<2.5	NA	NA	NA	NA	NA	NA	NA
	Baseline	11/2/2010	NA	NA	NA	<1.0	<1.2	<0.57	1.58	NA	<0.05	0.004 J
	1st Quarter	2/9/2011	5,220	17.8 J	<10	<1.0	<1.2	<1.0	1.04	NA	0.0202 J	0.627
MW2064Bx36	Baseline	5/10/2010	0.29 J	<1.0	<0.5	NA	NA	NA	NA	NA	NA	NA
	Baseline	11/2/2010	NA	NA	NA	<1.0	<1.2	<0.57	<1.0	NA	<0.05	0.00276 J
	1st Quarter	2/9/2011	0.32 J	<1.0	<0.5	<1.0	<1.2	<0.66	<1.0	NA	<0.05	0.00194 J
MW2065x36	Baseline	5/11/2010	215	1.3	<0.5	NA	NA	NA	NA	NA	NA	NA
	Baseline	11/15/2010	NA	NA	NA	4.9	<1.2	<0.86	7.88	27.6	<0.05	<0.01
	1st Quarter	2/9/2011	397	4.2 J	<2.5	3.1	<1.2	<1.1	12.5	19.6	<0.05	<0.01
MW2075Ax36	Baseline	5/5/2010	304	13.3	0.3 J	NA	NA	NA	NA	NA	NA	NA
MW2075Bx36	Baseline	5/5/2010	16.2	6.1	<0.5	NA	NA	NA	NA	NA	NA	NA
MW2076Ax36	Baseline	4/3/2010	39.8	1.1	<0.5	NA	NA	NA	NA	NA	NA	NA
MW2076Bx36	Baseline	4/3/2010	386	<5.0	<2.5	NA	NA	NA	NA	NA	NA	NA
MW2076Cx36	Baseline	4/14/2010	0.8	<1.0	<0.5	NA	NA	NA	NA	NA	NA	NA
MW2077Ax36	Baseline	5/6/2010	18.3	1.1	<0.5	NA	NA	NA	NA	NA	NA	NA
MW2077Bx36	Baseline	5/6/2010	0.88	<1.0	<0.5	NA	NA	NA	NA	NA	NA	NA

Table 7 – Sites DP039, SD036, and SD037 Performance Monitoring Analytical Results

Well ID	Sample Event	Date	TCE (ug/L)	cis-1,2- DCE (ug/L)	Vinyl Chloride (ug/L)	Ethene (ug/L)	Ethane (ug/L)	Methane (ug/L)	TOC (mg/L)	Sulfate (mg/L)	Dissolved Iron (mg/L)	Dissolved Manganese (mg/L)
MW2077Cx36	Baseline	5/5/2010	0.2 J	<1.0	<0.5	NA	NA	NA	NA	NA	NA	NA
MW2107Ax36	Baseline	4/14/2010	31.8	52.2	1.5	NA	NA	NA	NA	NA	NA	NA
	1st Quarter	2/10/2011	31.1	60.4	0.82	NA	NA	NA	NA	NA	NA	NA
MW2107Bx36	Baseline	4/14/2010	52.3	9.9	<0.5	NA	NA	NA	NA	NA	NA	NA
	1st Quarter	2/10/2011	24.6	4.1	<0.5	NA	NA	NA	NA	NA	NA	NA
MW2107Cx36	Baseline	4/14/2010	0.22 J	<1.0	<0.5	NA	NA	NA	NA	NA	NA	NA
MW2108Ax36	Baseline	4/2/2010	573	3.8 J	<2.5	NA	NA	NA	NA	NA	NA	NA
MW2108Bx36	Baseline	4/2/2010	101	0.21 J	<0.5	NA	NA	NA	NA	NA	NA	NA
MW2108Cx36	Baseline	4/3/2010	4.2	<1.0	<0.5	NA	NA	NA	NA	NA	NA	NA
IW2133x36	Baseline	11/10/2010	14,400	<10	<20.0	<1.0	<1.2	<0.74	<1.0	41	0.028 J	0.00526 J
	1st Quarter	2/10/2011	198	576	11.3	3.0	3.0	1,200 B	1,630	0.34 J	39.6	39.7
IW2134x36	Baseline	11/9/2010	3,150	19.1	2.7 J	<1.0	<1.2	<0.74	0.884 J	43.8	0.0239 J	0.0164
IW2135x36	Baseline	11/9/2010	8,090	73.1	<25.0	<1.0	1.9	<0.74	1.16	45	<0.05	0.0049 J
IW2136x36	Baseline	11/10/2010	5,290	59.9	4.0	<1.0	<1.2	<0.74	0.96 J	46.6	<0.05	0.0147
IW2136x36A	1st Quarter	2/10/2011	261	113	3.4	4.5	5.3	<4.6	1,240	<5.0	20.9	15
IW2137x36	Baseline	11/15/2010	12,000	17.9 J	<10	<1.0	<1.2	<0.86	0.607 J	35.4	<0.05	0.014
	1st Quarter	2/10/2011	79.4	2.4	0.5	2.6	5.8	150 B	1,380	4.2 J	38.8	20.4
IW2138x36	Baseline	11/10/2010	1,680	39.9	<2.5	<1.0	<1.2	<0.74	1.08	85.1	0.00828 J	0.0062 J
IW2139x36	Baseline	11/15/2010	5,100	7 J	<10	<1.0	1.8	<0.86	0.839 J	60	<0.05	0.0105
IW2140x36	Baseline	11/15/2010	5,470	33.5	<10	<1.0	<1.2	<0.86	0.776 J	47.8	0.019 J	0.00558 J
	Baseline	11/15/2010 (Dup)	6,080	26.1	<10	NA	NA	NA	0.834 J	NA	NA	NA
	1st Quarter	2/10/2011	78.8	47	2.0	3.0	6.7	1,600 B	1,560	0.73 J	37.2	53.4
	1st Quarter	2/10/2011 (Dup)	78.4	42.2	1.9	NA	NA	NA	1,540	NA	NA	NA

Site SD037

MW524x37	Baseline	5/12/2010	1,190	59.5	<2.5	<1.0	<1.2	<5	1.16	213	0.0936	0.00707 J
	Baseline	5/12/2010 (Dup)	1,320	59.7	<2.5	<1.0	<1.2	0.56 J	1.21	213	0.0723	0.00573 J
	1st Quarter	11/1/2010	52.2	4.1	<0.5	2.3	3.6	98 B	2,040	2.2 J	84.2	35.6

Table 7 – Sites DP039, SD036, and SD037 Performance Monitoring Analytical Results

Well ID	Sample Event	Date	TCE (ug/L)	cis-1,2- DCE (ug/L)	Vinyl Chloride (ug/L)	Ethene (ug/L)	Ethane (ug/L)	Methane (ug/L)	TOC (mg/L)	Sulfate (mg/L)	Dissolved Iron (mg/L)	Dissolved Manganese (mg/L)
	1st Quarter	11/1/2010 (Dup)	53.2	4.1	<0.5	NA	NA	NA	2270	NA	NA	NA
	2nd Quarter	2/1/2011	47.4	11.8	0.75	<1.0	2.5	1,000	1,490	<5.0	66.7	32.9
	2nd Quarter	2/1/2011 (Dup)	43.1	10.6	0.62	NA	NA	NA	1,480	NA	NA	NA
MW528x37	Baseline	4/28/2010	57.3	18.5	0.36 J	NA	NA	NA	NA	NA	NA	NA
MW531x37	Baseline	4/28/2010	443	28.2	0.94	NA	NA	NA	NA	NA	NA	NA
MW532x37	Baseline	5/12/2010	1,090	42.3	<2.5	NA	NA	NA	1.06	249	0.00932 J	<0.01
	1st Quarter	11/1/2010	1,270	81.3	<2.5	NA	NA	NA	0.944 J	199	0.103	0.00717 J
	2nd Quarter	2/1/2011	1,090	81.9	<2.5	NA	NA	NA	1.03	220	0.0388 J	0.00886 J
EW599x37	Baseline	5/12/2010	164	10	<0.5	NA	NA	NA	0.93 J	159	0.344	0.0198
	1st Quarter	11/2/2010	936	39.2	<2.5	NA	NA	NA	0.744 J	210	0.346	0.142
	2nd Quarter	2/1/2011	368	18.8	<0.5	NA	NA	NA	0.682 J	229	0.00968 J	0.0105
EW701x37	Baseline	5/12/2010	107	5.3	<0.5	NA	NA	NA	1.34	NA	NA	0.00755 J
	1st Quarter	11/2/2010	60.5	2.1	<0.5	NA	NA	NA	1.57	NA	0.291	0.0208
	2nd Quarter	2/1/2011	270	8.9	<0.5	NA	NA	NA	1.82	NA	0.0359 J	0.00688 J
MW2039Ax37	Baseline	5/12/2010	1,550	63.4	<2.5	<1.0	<1.2	0.42 J	0.926 J	216	<0.05	0.00609 J
	1st Quarter	11/1/2010	21.8	293	0.82	<1.0	2.3	29 B	2.02	121	0.302	1.71
	2nd Quarter	2/1/2011	4.3	749	8.2	<1.0	2.2	2,500 B	1.44	132	0.396	2.11
MW2039Bx37	Baseline	5/12/2010	4.1	0.24 J	<0.5	<1.0	<1.2	1.7 J	0.411	59.5	0.376	0.109
	1st Quarter	11/1/2010	3.6	<1.0	<0.5	<1.0	<1.2	<0.57	0.316 J	59.8	<0.05	0.152
	2nd Quarter	2/1/2011	2.4	<1.0	<0.5	<1.0	<1.2	<0.96	0.424 J	59	0.442	0.159
MW2078Ax37	Baseline	1/14/2010	796	25	0.31 J	NA	NA	NA	NA	NA	NA	NA
MW2078Bx37	Baseline	1/14/2010	387	2.2	<0.5	NA	NA	NA	NA	NA	NA	NA
IW2094x37	Baseline	5/12/2010	1,140	56.4	<2.5	<1.0	<1.2	1 J	1.04	196	<0.05	0.00926 J
	1st Quarter	11/2/2010	8.9	9.8	<0.5	2.1	<1.2	500	2340	3.1 J	112	37.8
	2nd Quarter	2/1/2011	7.3	20.3	0.28 J	<1.0	<1.2	700 B	2,970	2.4 J	188	60.8
IW2095x37	Baseline	5/13/2010	1,450	61.6	<2.5	NA	NA	NA	NA	NA	NA	NA
IW2096x37	Baseline	5/13/2010	1,480	63.8	<2.5	NA	NA	NA	NA	NA	NA	NA
	1st Quarter	11/2/2010	11	3.2	<0.5	<1.0	<1.2	320	1980	1.4 J	107	29

Table 7 – Sites DP039, SD036, and SD037 Performance Monitoring Analytical Results

Well ID	Sample Event	Date	TCE (ug/L)	cis-1,2- DCE (ug/L)	Vinyl Chloride (ug/L)	Ethene (ug/L)	Ethane (ug/L)	Methane (ug/L)	TOC (mg/L)	Sulfate (mg/L)	Dissolved Iron (mg/L)	Dissolved Manganese (mg/L)
	2nd Quarter	2/2/2011	7.6	5.4	<0.5	<1.0	<1.2	550 B	2,600	<5.0	161	43.5
IW2097x37	Baseline	5/13/2010	1,120	43.3	<2.5	NA	NA	NA	NA	NA	NA	NA
IW2098x37	Baseline	5/12/2010	782	25.5	<2.5	<1.0	<1.2	5	1.46	226	0.126	0.333
	1st Quarter	11/2/2010	10.2	0.76 J	<0.5	2	2.6	430	2690	7	103	105
	2nd Quarter	2/1/2011	7.8	0.69 J	<0.5	<1.0	1.9	720 B	3,510	8.3	124	160
IW2099x37	Baseline	5/13/2010	504	14.4	<2.5	NA	NA	NA	NA	NA	NA	NA
IW2100x37	Baseline	5/13/2010	1,410	25.5	<2.5	NA	NA	NA	NA	NA	NA	NA
MW2101Ax37	Baseline	5/12/2010	544	5	<0.5	NA	NA	NA	0.89 J	NA	NA	0.00145 J
	1st Quarter	11/1/2010	495	4.1	<0.5	NA	NA	NA	0.803 J	130	0.194	0.0124
	2nd Quarter	1/31/2011	574	5	<0.5	NA	NA	NA	0.87 J	155	0.0095 J	<0.01
MW2101Bx37	Baseline	5/12/2010	1,800	8.2	<2.5	NA	NA	NA	27.7	NA	NA	1.02
	1st Quarter	11/1/2010	1380	13.7	<2.5	NA	NA	NA	31.3	243	0.746	1.61
	2nd Quarter	1/31/2011	1,720	10.2	<2.5	NA	NA	NA	26.1	189	0.503	1.25
MW2101Cx37	Baseline	5/12/2010	5.7	<1.0	<0.5	NA	NA	NA	0.771 J	NA	NA	0.0091 J
	1st Quarter	11/1/2010	4.7	<1.0	<0.5	NA	NA	NA	0.597 J	136	<0.05	0.0215
	2nd Quarter	1/31/2011	4.8	<1.0	<0.5	NA	NA	NA	0.625 J	140	<0.05	0.072
MW2102Ax37	Baseline	5/12/2010	50	0.35 J	<0.5	NA	NA	NA	1.04	NA	NA	0.0117
	1st Quarter	11/1/2010	47.6	0.36 J	<0.5	NA	NA	NA	1.07	NA	0.03 J	0.0589
	2nd Quarter	1/31/2011	69.1	0.39 J	<0.5	NA	NA	NA	1.23	NA	<0.5	0.00287 J
MW2102Bx37	Baseline	5/12/2010	208	1.4	<0.5	NA	NA	NA	1.10	NA	NA	0.0133
	1st Quarter	11/1/2010	108	0.9 J	<0.5	NA	NA	NA	1.8	NA	<0.05	0.0179
	2nd Quarter	1/31/2011	92.8	0.74 J	<0.5	NA	NA	NA	2.03	NA	<0.05	0.007 J
MW2102Cx37	Baseline	5/12/2010	6.1	<1.0	<0.5	NA	NA	NA	0.476 J	NA	NA	0.448
	1st Quarter	11/1/2010	9.2	<1.0	<0.5	NA	NA	NA	0.668 J	NA	0.0835	0.558
	2nd Quarter	1/31/2011	7.6	<1.0	<0.5	NA	NA	NA	0.634 J	NA	0.0302 J	0.473
MW2121x37	Baseline	7/1/2010	921	7	<2.5	NA	NA	NA	NA	NA	NA	NA
	Baseline	7/1/2010 (Dup)	1,050	7.9	<2.5	NA	NA	NA	NA	NA	NA	NA
MW2122x37	Baseline	7/1/2010	0.79	0.33 J	<0.5	NA	NA	NA	NA	NA	NA	NA

Table 7 – Sites DP039, SD036, and SD037 Performance Monitoring Analytical Results

Well ID	Sample Event	Date	TCE (ug/L)	cis-1,2- DCE (ug/L)	Vinyl Chloride (ug/L)	Ethene (ug/L)	Ethane (ug/L)	Methane (ug/L)	TOC (mg/L)	Sulfate (mg/L)	Dissolved Iron (mg/L)	Dissolved Manganese (mg/L)
MW2123x37	Baseline	7/1/2010	44.4	22.9	<0.5	NA	NA	NA	NA	NA	NA	NA
Site DP039												
MW02x39	Baseline	5/19/2010	47.5	<1.0	<0.5	<1.0	<1.2	5	1.42	21.7	0.0207 J	<0.01
	1st Quarter	11/8/2010	45	0.23 J	<0.18	<0.5	<0.48	<0.74	1.43	22.0	0.0061 J	0.002 J
	1st Quarter	11/8/2010 (Dup)	46	0.22 J	<0.18	NA	NA	NA	1.54	NA	NA	NA
	2nd Quarter	2/2/2011	64.1	0.28 J	<0.5	<1.0	<1.2	<0.63	1.65	25.7	0.0285 J	0.00159 J
	2nd Quarter	2/2/2011 (Dup)	62.9	0.28 J	<0.5	NA	NA	NA	1.73	NA	NA	NA
MW2041Ax39	Baseline	5/13/2010	71.5	0.98 J	<0.5	NA	NA	NA	NA	NA	NA	NA
MW2041Bx39	Baseline	5/13/2010	701	6.8	<2.5	NA	NA	NA	NA	NA	NA	NA
MW2042Ax39	Baseline	5/13/2010	670	7.7	<2.5	NA	NA	NA	NA	NA	NA	NA
MW2042Bx39	Baseline	5/13/2010	1,260	13.8	<2.5	NA	NA	NA	NA	NA	NA	NA
MW2043Ax39	Baseline	5/20/2010	151	0.95 J	<0.5	NA	NA	NA	1.05	23.3	<0.05	<0.01
	Baseline	5/20/2010 (Dup)	150	0.92 J	<0.5	NA	NA	NA	1.06	23.2	<0.05	<0.01
	1st Quarter	11/8/2010	59	0.43 J	<0.18	NA	NA	NA	1.66	16	<0.0055	<0.00035
	2nd Quarter	2/9/2011	151	1.1	<0.5	NA	NA	NA	1.23	17.7	0.219	<0.01
MW2043Bx39	Baseline	5/20/2010	1,150	7.7	<2.5	NA	NA	NA	0.704 J	18.4	<0.05	<0.01
	1st Quarter	11/8/2010	1,000	8.5	<0.18	NA	NA	NA	0.561 J	17	0.0069 J	<0.00035
	2nd Quarter	2/9/2011	1,160	9.7	<2.5	NA	NA	NA	0.439 J	17.8	0.00682 J	<0.01
MW2056Ax39	Baseline	5/19/2010	664	4.3	<0.5	NA	NA	NA	0.563 J	11.1	0.0209 J	0.00272 J
	1st Quarter	11/11/2010	510	4.2	<0.5	NA	NA	NA	0.513 J	9.6	<0.05	<0.01
	2nd Quarter	2/4/2011	595	5.3	<2.5	NA	NA	NA	0.728 J	10.8	0.0317 J	0.00103 J
MW2056Bx39	Baseline	5/19/2010	442	4.1	<0.5	NA	NA	NA	0.361 J	15.3	<0.05	<0.01
	1st Quarter	11/11/2010	326	4	<0.5	NA	NA	NA	<1.0	27.6	0.0107 J	<0.01
	2nd Quarter	2/4/2011	575	7.6	<2.5	NA	NA	NA	0.349 J	15.6	<0.5	<0.01
MW2057Ax39	Baseline	5/20/2010	5.6	<1.0	<0.5	NA	NA	NA	0.591 J	20.1	0.0192 J	<0.01
	1st Quarter	11/9/2010	4.6	<1.0	<0.5	NA	NA	NA	0.388 J	15.5	0.00687 J	0.00695 J
	2nd Quarter	2/9/2011	5.0	<1.0	<0.5	NA	NA	NA	31.6	34.2	0.192	0.0471

Table 7 – Sites DP039, SD036, and SD037 Performance Monitoring Analytical Results

Well ID	Sample Event	Date	TCE (ug/L)	cis-1,2- DCE (ug/L)	Vinyl Chloride (ug/L)	Ethene (ug/L)	Ethane (ug/L)	Methane (ug/L)	TOC (mg/L)	Sulfate (mg/L)	Dissolved Iron (mg/L)	Dissolved Manganese (mg/L)
MW2057Bx39	Baseline	5/20/2010	965	15.3	<2.5	NA	NA	NA	0.492 J	18.5	0.116	0.028
	1st Quarter	11/9/2010	902	11.3	<2.5	NA	NA	NA	0.488 J	15.6	0.0385 J	0.00684 J
	2nd Quarter	2/9/2011	790	5.3	<2.5	NA	NA	NA	8.04	17.2	0.0576	0.0041 J
MW2060Ax39	Baseline	5/19/2010	52.6	0.37 J	<0.5	<1.0	<1.2	6.9	<1.0	22.8	<0.05	<0.01
	1st Quarter	11/8/2010	160	2.6	<0.18	<0.5	<0.48	<0.74	0.326 J	25	<0.0055	<0.00035
	2nd Quarter	2/2/2011	127	1.3	<0.5	<1.0	<1.2	<0.66	0.785 J	26.9	0.0375 J	0.000868 J
MW2060Bx39	Baseline	5/19/2010	268	2.5	<0.5	<1.0	<1.2	7.4	<1.0	24.2	0.0067 J	0.000521 J
	1st Quarter	11/8/2010	170	1.9	<0.18	<0.5	<0.48	<0.74	0.316 J	24	<0.0055	<0.00035
	2nd Quarter	2/2/2011	208	2.1	<0.5	<1.0	<1.2	<0.66	0.345 J	26.2	0.0254 J	<0.01
IW2079x39	Baseline	6/24/2010	667	8.5	<2.5	NA	NA	NA	NA	NA	NA	
IW2080x39	Baseline	6/24/2010	601	7.9	<2.5	NA	NA	NA	NA	NA	NA	
IW2081x39	Baseline	6/24/2010	1,100	11.3	<2.5	<1.0	<1.2	<5.0	0.569 J	11.6	0.408	0.00845 J
	1st Quarter	11/9/2010	5.1	0.77 J	<0.5	2.6	4.4	240 B	2920	5.5	37.2	71.5
	2nd Quarter	2/3/2011	7.6	1	<0.5	2.8	3.5	2,500 B	2,340	3 J	34.4	66.3
IW2082x39	Baseline	6/24/2010	496	5.2	<0.5	NA	NA	NA	NA	NA	NA	
IW2083x39	Baseline	5/20/2010	341	2.6	<0.5	NA	NA	NA	NA	NA	NA	
IW2084x39	Baseline	5/24/2010	351	2.8	<0.5	NA	NA	NA	NA	NA	NA	
IW2085x39	Baseline	5/24/2010	445	3.5	<0.5	<1.0	<1.2	5	<1.0	20.8	0.0168 J	0.00102 J
	Baseline	5/24/2010 (Dup)	429	3.4	<0.5	<1.0	<1.2	4.6 J	0.342 J	20.9	0.0153 J	0.000899 J
	1st Quarter	11/8/2010	15	2.3	<0.18	2.3	2.8	3,400 B	1,810	1.5 J	50	58
	2nd Quarter	2/3/2011	6	7.7	<0.5	<1.0	<1.2	3,200 B	761	<5.0	57.5	45
IW2086x39	Baseline	5/24/2010	277	1.7	<0.5	NA	NA	NA	NA	NA	NA	
IW2087x39	Baseline	5/24/2010	284	3.8	<0.5	NA	NA	NA	NA	NA	NA	
IW2088x39	Baseline	5/20/2010	498	3.2	<0.5	NA	NA	NA	NA	NA	NA	
IW2089x39	Baseline	5/24/2010	325	2.4	<0.5	NA	NA	NA	NA	NA	NA	
IW2090x39	Baseline	5/24/2010	220	1.2	<0.5	<1.0	<1.2	5.5	0.456 J	33.9	<0.05	0.00188 J
	1st Quarter	11/8/2010	1	3.7	<0.18	<0.5	<0.48	2,900 B	592	1 J	20	16
	2nd Quarter	2/10/2011	0.88	6.1	<0.5	<1.0	<1.2	4,100 B	254	<5.0	41.1	18.4

Table 7 – Sites DP039, SD036, and SD037 Performance Monitoring Analytical Results

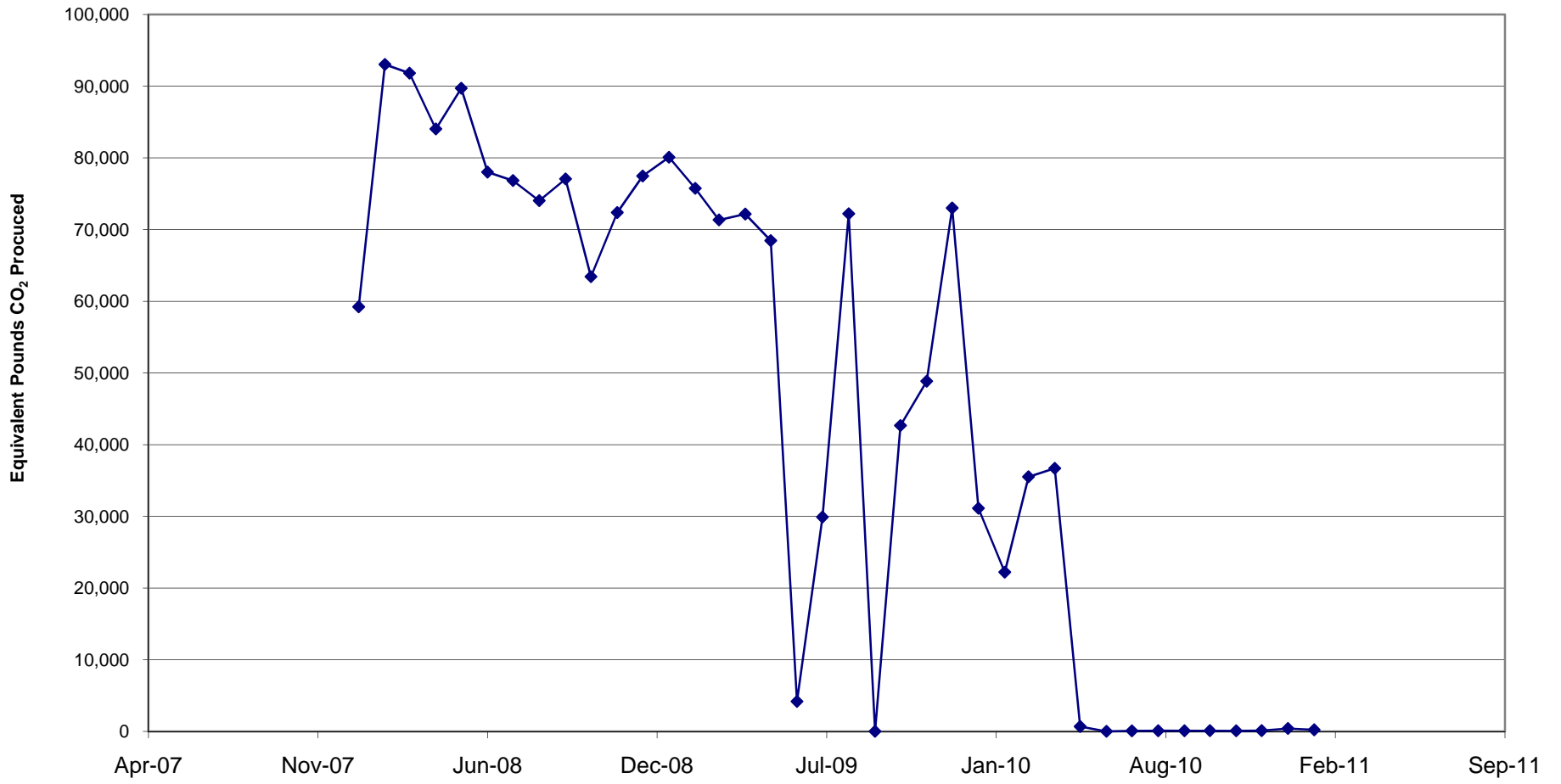
Well ID	Sample Event	Date	TCE (ug/L)	cis-1,2- DCE (ug/L)	Vinyl Chloride (ug/L)	Ethene (ug/L)	Ethane (ug/L)	Methane (ug/L)	TOC (mg/L)	Sulfate (mg/L)	Dissolved Iron (mg/L)	Dissolved Manganese (mg/L)
IW2091x39	Baseline	5/20/2010	13.9	<1.0	<0.5	NA	NA	NA	NA	NA	NA	NA
MW2092Ax39	Baseline	6/24/2010	367	2.8	<0.5	<1.0	<1.2	<5.0	0.505 J	13.7	0.00688 J	0.0197
	1st Quarter	11/9/2010	458	3.4	<0.5	<1.0	<1.2	200 B	0.686 J	10.5	0.385	0.263
	2nd Quarter	2/2/2011	514	4.1	<0.5	<1.0	<1.2	78 B	0.57 J	12.1	0.025 J	0.0872
MW2092Bx39	Baseline	6/24/2010	468	4.3 J	<2.5	<1.0	<1.2	<5	1.02	30.4	0.808	0.466
	1st Quarter	11/9/2010	461	4	<0.18	<1.0	<1.2	<0.74	0.588 J	15.2	0.00909 J	0.000618 J
	2nd Quarter	2/2/2011	396	3.2	<0.5	<1.0	<1.2	<0.71	0.557 J	16.5	0.0448 J	0.00331 J
MW2093x39	Baseline	5/19/2010	<0.5	<1.0	<0.5	<1.0	<1.2	8.3	0.521 J	43.6	<0.05	0.0471
	1st Quarter	11/8/2010	<0.19	<0.19	<0.18	<0.5	<0.48	<0.74	0.312 J	34	<0.0055	<0.00035
	2nd Quarter	2/10/2011	<0.5	0.36 J	<0.5	<1.0	<1.2	2,000 B	429	<5.0	88	23.4

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. These include the WTTP and ThOx systems. The CGWTP produced approximately 215 pounds of GHG during February 2011. This is a decrease from January 2010, and consistent with the overall decrease since the UV/Ox, ThOx, and WTTP were all taken off line.

Figure 2
 Equivalent CO₂ Emissions Produced by the Central Groundwater Treatment Plant through February 2011
 Travis Air Force Base, California



North Groundwater Treatment Plant Monthly Data Sheet

Report Number: 113

Reporting Period: 1 Feb – 28 Feb 2011

Date Submitted: 15 March 2011

This monthly data sheet presents information regarding all systems and associated remedial process optimizations (RPOs) to the North Groundwater Treatment Plant (NGWTP). The RPO related to the NGWTP treatment system includes treatment system modifications and ongoing rebound studies.

System Metrics

Table 1 presents operational data from the February 2011 reporting period:

Table 1 – Operations Summary – February 2011		
Operating Time: NGWTP: 0 hours	Percent Uptime: NGWTP: 0%	Electrical Power Usage: NGWTP: 0 kWh (0 lbs CO ₂ generated ^a)
Gallons Treated: 1.3 million gallons	Gallons Treated Since March 2000: 82.5 million gallons	
Volume Discharged to Duck Pond: 0 gallons	Volume Discharge to Storm Drain: 0 gallons	
VOC Mass Removed: 0 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		
^a Based on Department of Energy estimate that 1 kilowatt hour generated produces 1.37 pounds of GHG. ^b NGWTP off line during February 2011. ^c Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs. Not measured in February 2011 since zero (0) pounds were removed.		

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

Table 2 – NGWTP Average Flow Rates	
Location	Average Flow Rate (gpm)
EW614x07	0
EW615x07	0
NGWTP	0
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	10 December 2010				Taken off line for the wet season. Site LF007C extraction wells to be restarted in 2011 once vernal pools have dissipated.

NGWTP = North Groundwater Treatment Plant

Summary of O&M Activities

The NGWTP was taken off line on 10 December 2010 due to the formation of vernal pools.

Optimization Activities

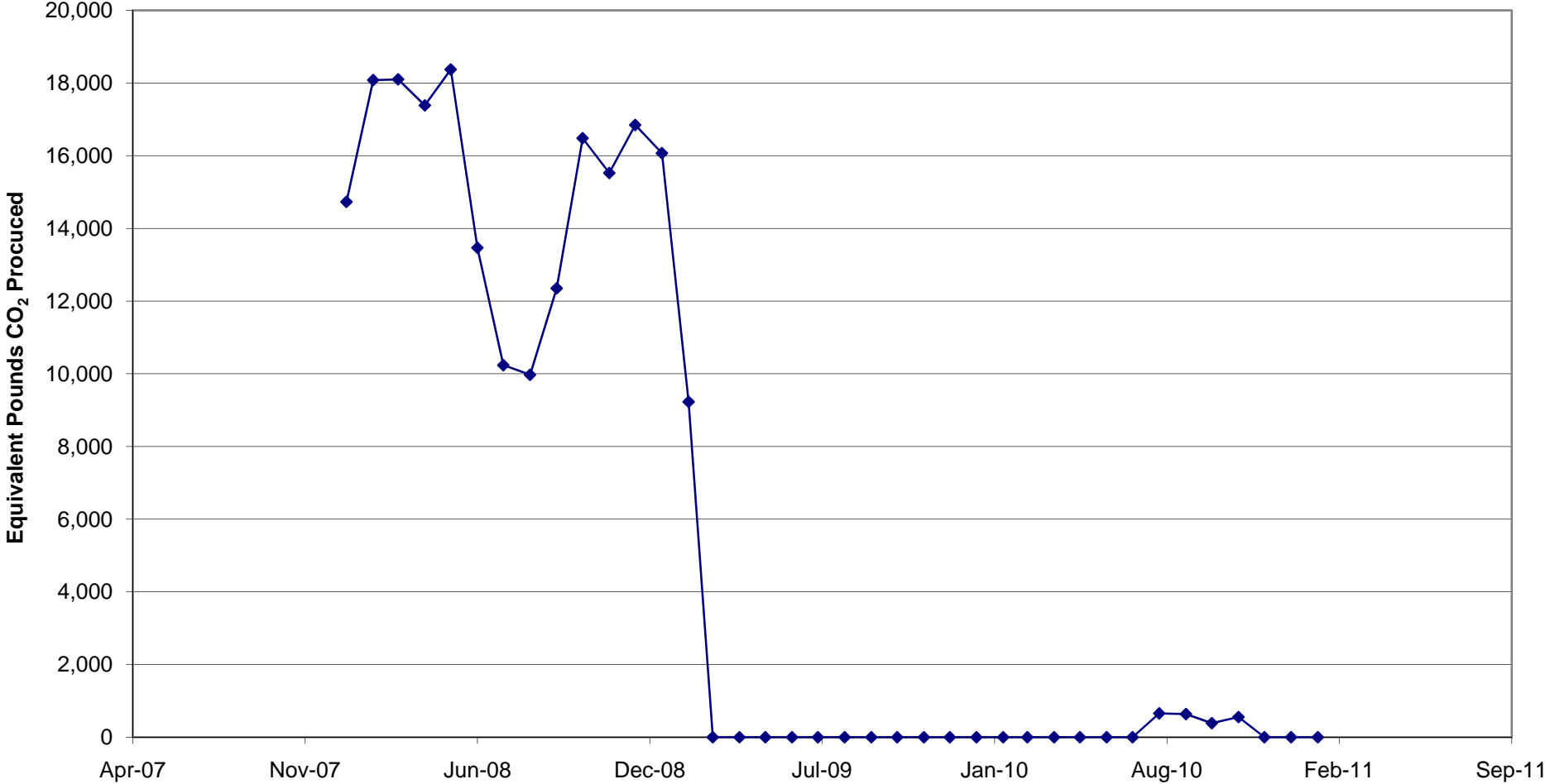
No optimization activities occurred at the NGWTP in February 2011.

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 1 presents the historical GHG production from the systems associated with the NGWTP. The NGWTP did not produce GHG during February 2011 since the system was offline for the duration of the month.

Figure 1
Equivalent CO₂ Emissions Produced by the North Groundwater Treatment Plant through February 2011
Travis Air Force Base, California



Travis AFB Restoration Program

Management Overview Briefing

RPM Meeting
March 16, 2011

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 WP
- ST027B Site Characterization WP
- 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 WP
- Phytostabilization Demonstration Tech Memo
- Model QAPP
- LF008 Rebound Test Tech 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
- Phytostabilization Study Report

Completed Field Work

- ST027B Gore Sorber Survey – Ph 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 – Ph 1
- ST027 Site Characterization -Ph 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
- DP039 Bioreactor Quarterly Performance Sampling
- SD037 EVO Quarterly Performance Sampling
- SS015 EVO Baseline Sampling
- SD036 EVO Baseline Sampling
- SS016 Bioreactor Startup
- SD036 Injection Well Installation (8)
- SS015 Injection Well Installation (5)
- ST018 GETS Installation
- SD036 EVO Injection
- Semiannual GSAP
- SS015 EVO Injection
- Quarterly RPO Performance Monitoring (Feb 2011)

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In-Progress Documents & Field Work

Documents

- Comprehensive Site Evaluation Phase II Report
- ISCO/ERD Tech Memo
- 2009/2010 Annual GSAP Report
- SS015 Remedy Optimization Field Implementation Plan
- Focused Feasibility Study (FFS)
- SD036 Remedy Optimization Field Implementation Plan
- 2010 Annual CAMU Inspection Report
- Sites SS014 and ST032 Tier 1 POCO Evaluation Report

Field Work

- ST018 GETS Startup

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Upcoming Documents

- | | |
|--|-----|
| • Site ST018 POCO Baseline Implementation Report | May |
| • 2010 Groundwater RPO Annual Report | May |
| • Baseline Implementation Report (Sites SS015, SS016, SD036, SD037, and DP039) | May |
| • FT005 Data Gaps Investigation Report | May |
| • Proposed Plan | Jun |
| • Technical and Economic Feasibility Analysis (TEFA) | Jul |

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Upcoming Field Work

- | | |
|--|------|
| • 2011 Annual GSAP Sampling | Apr |
| • Quarterly RPO Performance Monitoring | May |
| – SS016 Bioreactor Initial Quarterly Performance Sampling | |
| – SD036 EVO Second Quarterly Performance Sampling | |
| – SD037 EVO Third Quarterly Performance Sampling | |
| – DP039 Biobarrier Third Quarterly Performance Sampling | |
| – DP039 Bioreactor Ongoing Semiannual Performance Sampling | |
| • LF007C Site Characterization (Wetlands) | Jun* |

* Estimated schedule – dependent on USFWS approval to sample in the vernal pool footprint

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Travis AFB Field Schedule - 2011

RPM Meeting
March 16, 2011

2011 Field Schedule

- ST018 GETS Startup Mar
- 2011 Annual GSAP Sampling Apr - Jun
- Quarterly RPO Performance Monitoring May
(sites SS015 EVO injection, SS016 bioreactor, SD036 EVO injection, SD037 EVO injection, DP039 bioreactor, & DP039 EVO biobarrier)
- LF007C Remedy Optimization Investigation Jun
- Quarterly RPO Performance Monitoring Aug
(sites SS016 bioreactor, SD036 EVO injection, SD037 EVO injection, & DP039 EVO biobarrier)
- FT005 Soil Remedial Action Jul
- Quarterly RPO Performance Monitoring Nov
(sites SS015 EVO injection, SS016 bioreactor, SD036 EVO injection, SD037 EVO injection, DP039 bioreactor, & DP039 EVO biobarrier)
- 2011 Semiannual GSAP Sampling Nov - Dec

Basewide Groundwater Technical and Economic Feasibility Analysis (TEFA)

Travis AFB, California
March 16, 2011

Purpose

Evaluate remediating Travis AFB groundwater contaminants to “background” levels to satisfy the requirements under SWRCB Resolution 92-49

Approach

- Detection limits are considered equivalent to “background” (e.g., the detection limit for TCE is 0.5 µg/L.
- Reference the Final Edwards AFB NASA Dryden Flight Research Center – Operable Unit 6 ROD (includes a TEFA)
- Reference the Final Edwards AFB South Base – Operable Unit 2 ROD
- Reference 23 CCR 2550.4 Concentration Limits
- Reference 23 CCR 2550.9 Evaluation Monitoring Program

3/16/2011

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Scope

- A standalone document
- Finalized prior to submittal of the draft Basewide Groundwater ROD
- Content
 - Environmental Factors (per 23 CCR 2550.4)(next 2 slides)
 - Analysis of Technical Feasibility
 - Analysis of Economic Feasibility

3/16/2011

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Environmental Factors

- A. Physical and chemical characteristics of the waste in the waste management unit
- B. Hydrogeological characteristics of the facility and surrounding land
- C. Quantity of groundwater and direction of groundwater flow
- D. Proximity and withdrawal rates of groundwater users

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Environmental Factors (cont.)

- E. Current and potential future users of groundwater in the area
- F. Existing quality of groundwater
- G. Potential health risks caused by exposure to waste constituents
- H. Potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents
- I. Persistence and permanence of the potential adverse effects

3/16/2011

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Schedule

- Draft to Agencies: 7-8-11
- Draft to RAB: 7-8-11
- Agency Comments Due: 9-6-11
- Response to Comments Meeting: 9-21-11
- Responses to Comments Due: 10-11-11
- Draft Final Due: 10-11-11
- Final Due: 11-22-11