

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

25 August 2010, 0930 Hours

Mr. Mark Smith, Travis Air Force Base (AFB), conducted the Remedial Program Manager's (RPM) meeting on 25 August 2010 at 0930 in the Main Conference Room, Building 570, Travis AFB, California. Attendees included:

- Glenn Anderson Travis AFB
- Lonnie Duke Travis AFB
- Mark Smith Travis AFB
- Gregory Parrott Travis AFB
- Merrie Schilter-Lowe Travis AFB
- 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)
- Rachel Hess ITSI
- Mike Wray CH2M HILL
- Casey Holland CH2M HILL

Note: An EPA representative was not present during this meeting.

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 (July 2010)
- Attachment 4 CGWTP Monthly Data Sheet (July 2010)
- Attachment 5 NGWTP Monthly Data Sheet (July 2010)
- Attachment 6 Presentation: 2010 Field Installations Update
- Attachment 7 Presentation: Program Update: Activities Completed, In Progress and Upcoming, Pre Focused Feasibility Study (FFS)
- Attachment 8 Presentation: 2010 Field Schedule

1. ADMINISTRATIVE

A. Previous Meeting Minutes

The 21 July 2010 RPM meeting minutes were approved and finalized as written.

B. Action Item Review.

Action items from July were reviewed.

Action item one still open. No change.

Action item two - Closed, notice will be sent today for the 13/14 September excavation.

Action item three - Closed.

Action item four - Closed. Document to include chemical oxidant demand will be added to MMDS.

Master Meeting and Document Schedule Review (attachment 2)

The Travis AFB Master Meeting and Document Schedule (MMDS) was discussed during this meeting (see Attachment 2).

Travis AFB Annual Meeting and Teleconference Schedule

— The next RPM meeting will be held on 22 September 2010.

Travis AFB Master Document Schedule

— Focused Feasibility Study (FFS): No change.

— Proposed Plan (PP): No change.

— Groundwater Record of Decision (ROD): No change.

— Comprehensive Site Evaluation Phase II: Changed date of draft report submittal to 22 October. Travis has been working with the Military Munitions Response Program (MMRP) to get the draft report completed. Mr. Salcedo asked if MMRP is located in Huntsville. Mr. Linbrunner said the MMRP used to be located in Huntsville, but now is managed through the Omaha District, and the Program Manager is Mr. Jerry Hodgson. The Project Manager at the Omaha District for Travis AFB is Mr. Adam Little. The regulatory agencies can contact Mr. Linbrunner if there are any questions or concerns regarding MMRP.

— Potrero Hills Annex: (FFS, PP, and ROD): No change.

— Union Creek Sites SD001 and SD033 Remedial Action Report: Move to historical.

— Natural Attenuation Assessment Report (NAAR): Move to historical.

— ISCO/ERD Technical Memorandum: New document added to detail process as it applies to Travis. Mr. Wray said Soil Oxygen Demand (SOD) lab results will also be included in memorandum.

— Site SS015 Work Plan: New document added for the Emulsified Vegetable Oil (EVO) injection planned for Site SS015. Mr. Duke said this site is

important to document because it was the first site to have oil injections. It is important to note that the original injection did not use emulsified oil, and a considerably smaller amount of oil was used than is currently planned for the site.

- Phytostabilization Study Report: Dates changed to reflect recent receipt of agency comments from the EPA and DTSC.
- Quarterly Newsletter (October 2010): Dates changed to reflect the Newsletter schedule for October.
- 2009/2010 GSAP: New dates were added for the next annual GSAP report (2009/2010).
- 2008-2009 CAMU Monitoring Annual Report: Dates were changed to reflect the actual dates the report went final.

Mr. Salcedo asked about a completion letter for Union Creek Site SD001, as Travis has provided in the past. Mr. Anderson agreed that Travis does need to do a completion letter for this site. The completion letter is generated when all media of concern have been cleaned up. Mr. Anderson said Travis has prepared completion reports in the past, when there was only one medium of concern. The completion document contains the history of the site, results of its remedial investigation, selected remedies, confirmation that no more contamination is present at the site, and confirmation that all parties agree that no further remedies are needed and the site is available for unrestricted use.

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 95.4% uptime, and 4.6 million gallons of groundwater were extracted and treated during the month of July 2010. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 108 gallons per minute (gpm) and electrical power usage was 20,160 kWh; 27,619 pounds of CO₂ was created (based on DOE calculation). Approximately 1.68 pounds of volatile organic compounds (VOCs) were removed in July. The total mass of VOCs removed since the startup of the system is 384 pounds.

Central Groundwater Treatment Plant (see Attachment 4)

The Central Groundwater Treatment Plant (CGWTP) performed at 65.79% uptime with approximately 1.16 million gallons of groundwater extracted and treated during the month of July 2010. All treated water was diverted to the storm drain. The average flow rate for the CGWTP, while operating, was 39.5 gpm and electrical power usage was 137 kWh for all equipment connected to the Central plant;

approximately 188 pounds of CO₂ being created. Approximately 4.3 pounds of VOCs were removed from groundwater, and 0 pounds from vapor, in July. The total mass of VOCs removed since the startup of the system is 11,182 pounds.

The West Treatment and Transfer Plant (WTTP) was turned on for 4 hours on 13 July 2010 to collect rebound vapor samples. After the samples were collected it was turned off again. The results of the rebound testing showed that four wells had an increase in VOC concentrations and four wells had a decrease in VOC concentrations. Mr. Wray added that the sampling was conducted as part of the annual rebound study.

North Groundwater Treatment Plant (see attachment 5)

On 23 July 2010 the NGWTP was turned back on. It is operating exclusively on solar power. The NGWTP performed at 4% uptime, since startup, with approximately 9,320 gallons of groundwater extracted and treated. All treated water stored at the NGWTP from when the new GAC vessels were installed and tested was then run through the air stripper in July to ensure proper treatment prior to discharge. A third carbon vessel was added to the system to serve as a polishing step. The total mass of VOCs removed since the startup of the system is 174.3 pounds (see Attachment 5).

Mr. Salcedo asked if Travis has reconsidered recycling the treated water for irrigation. Mr. Smith said he hasn't. Mr. Smith added the only beneficial reuse of the treated water at this time is for the Duck Pond. Mr. Smith said that Mr. Duke has asked about using Defense Environmental Restoration Account (DERA) funds for irrigation on several occasions beyond the cleanup point. DERA will only pay for treatment of groundwater and nothing beyond that. Mr. Smith said he will continue to look at ways to reuse the treated water.

Land Use Control Site Update

Mr. Duke reported on the Land Use Control Site Update. Mr. Duke said Travis is looking at doing more maintenance since the sites have been there for awhile and are maturing. The CAMU construction is finished, and Travis is not adding anything new to the CAMU. A new cyclone fence with barbed wire around the entire CAMU site has been constructed. Signs will be placed on the fence that read, "Soil controlled area; do not enter", with a contact phone number" The vegetation is 6 to 7 feet tall which is good for the CAMU cap. Mr. Smith added the base will mow or use Roundup for weeds around the fence as a fire protection measure as well for aesthetics.

However, tall grass is not good for the phytostabilization area. The tall vegetation between the trees within the phytostabilization area has been mowed down. Travis

will mow this area annually to maintain the phytostabilization area. Site LF044, also known as Landfill X, is the location of the Kinder Morgan aboveground storage tank construction project. The construction contractors are well on their way towards cleaning up a significant portion of this site. They have removed all the grass, by clearing and grubbing, and it is now ready to be moved off base. The surface piles of asphalt concrete, vegetation and soil are currently being removed from the site and taken to a local landfill. These items will be documented in the annual Land Use Control (LUC) report. Mr. Smith added that Travis reviewed the contractor's site characterization and disposal plan to make sure they were handling grubbing, sampling and disposal in accordance with the law.

Mr. Linbrunner commented on the CAMU signs saying that they were not properly designed. Mr. Linbrunner showed a sign that was not acceptable and needed to be replaced. The sign did not meet Air Force specifications. The sign was too small, and information as to what is inside the fence and the contact phone number was missing.

Mr. Duke concluded by saying that photographs of LUC activities will be added to the annual report. Mr. Chang, recently retired EPA representative, requested that the fence around the CAMU be documented in the Land Use Control report.

3. Presentations

2010 Field Installations Update (see Attachment 6)

Mr. Wray reported on the 2010 Field Installations Update.

The key points made in the presentation include:

Site DP039 EVO Biobarrier

- Pre-injection baseline sampling was conducted on 19-21 May and 24 June 2010.
- The staggered baseline sampling was due to the late installation of the four injection wells and two monitoring wells in the wet portion of the construction area.
- Completed injection of the EVO in July.
- The first quarterly sampling is scheduled for mid October 2010.
- The performance monitoring network consists of six up-gradient monitoring wells, six down-gradient monitoring wells, and three EVO injection wells.

Site SD037 EVO Injection

- Pre-injection baseline sampling was conducted in May, and on the first of July.
- The staggered baseline sampling was due to the subsequent installation of three additional monitoring wells, due to initial baseline sampling results.

- Completed injection of EVO into seven injection wells in August 2010.
- The first quarterly sampling is scheduled for mid November 2010.
- Performance monitoring network consists of two up-gradient monitoring wells, seven down-gradient monitoring wells, and three in-plume monitoring wells.

Site SD036 EVO Injection

- The design for the EVO injection is in progress. Estimated completion for the design is in early September 2010.
- The installation of the injection wells is scheduled for early October 2010.
- Baseline sampling is scheduled for mid-October 2010.
- EVO injection is scheduled for late October 2010.

Site SS015 Investigation

- Drilled and sampled two new monitoring wells in July. One mid-plume and one east of the plume. Sample results are in the attachment.
- Groundwater plume trends to the northeast.
- EVO injection and monitoring well network design is scheduled for completion in early September.

Site SS016 OSA Source Area Bioreactor

- Construction kickoff meeting held on 23 August 2010.
- Fence removal scheduled for 01 September 2010.
- Dismantling of the wash rack scheduled for 07 to 10 September 2010.
- Bioreactor excavation and installation is scheduled for 13 to 17 September 2010.
- Installation of protective bollards and solar-powered extraction pump scheduled for 20 to 23 September 2010.

Mr. Wray added that a utility locator is on site today to try and precisely locate the horizontal extraction well. We want to make sure the excavation does not compromise the structure of the horizontal extraction well that is located approximately 30 feet directly below the surface of the bioreactor footprint. The bioreactor excavation will reach 25 feet below ground surface.

Mr. Salcedo asked where the soil is going to be stored after the excavation and is it going to be covered. Mr. Wray said the soil will be stored in a fenced area at site DP039, and it will be covered. Mr. Linbrunner asked if this site is going to be treated as a HAZWOPER site: PPE at level A or B. Mr. Wray said it will start at level D, but could quickly upgrade to level B or C, and a decontamination station will be set up. Mr. Linbrunner added that there will be Corp of Engineers personnel on site at the time of the excavation.

Site SS030 Investigation

- Maximize groundwater extraction.
- Monitor groundwater levels and TCE concentrations across the site during annual GSAP event in June 2010.
- Determine if additional monitoring and/or extraction wells are needed to capture TCE plume.
- The groundwater levels from the 2010 GSAP shows improving capture of the TCE plume.

Site FT005 Sampling

- Conducted rebound sampling during the GSAP event.
- Results indicate some minor rebound has occurred in a few wells.
- Turned on selected extraction wells to capture areas where rebound has occurred. See attached map for location on extraction wells.

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

Mr. Wray reported on the Program Update. See attachment for details.

2010 Field Schedule (see attachment 8)

Mr. Holland reported on the 2010 Field Schedule. See attached calendar for details.

4. New Action Item Review

- 1) Travis will research beneficial reuse for treated water and provided an update.
- 2) Travis will report on the status of an EPA representative at next RPM meeting.

5. PROGRAM/ISSUES/UPDATE

A. EPA Representative Update

Mr. Smith said he talked with Mary Snow from Tech Law, contracting support to EPA, regarding an EPA representative replacement. At this point there still isn't any indication of who the EPA representative replacement will be.

B. Regulator Site Visits

Mr. Anderson reported that Mr. Chang sent an email requesting a site visit be set up for Mr. Henning, EPA's new attorney and EPA's representative replacement to visit the Bioreactor and the Potrero Hills annex.

C. DSMOA and State Regulatory Issues

Mr. Smith asked Mr. Salcedo if he had any DSMOA and State Regulatory Issues. Mr. Salcedo said he didn't have any issues. Mr. Friedman stated he didn't have any issues either.

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	Report status of new EPA representative at next RPM meeting.	TBD	22 September 2010

TRAVIS AIR FORCE BASE
ENVIRONMENTAL RESTORATION PROGRAM
REMEDIAL PROGRAM MANAGER'S MEETING
BLDG 570, Main Conference Room
25 August 2010, 9:30 P.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)
- B. LAND USE CONTROL SITE UPDATE (LONNIE)

3. PRESENTATIONS

- A. 2010 FIELD WORK UPDATE
- B. PROGRAM UPDATE: ACTIVITIES COMPLETED, IN PROGRESS AND UPCOMING
- C. 2010 FIELD SCHEDULE

4. NEW ACTION ITEM REVIEW

5. PROGRAM/ISSUES/UPDATE

- A. EPA REPRESENTATION UPDATE
- B. REGULATOR SITE VISITS
 - (1). BIOREACTOR
 - (2). POTRERO HILLS
- C. DSMOA AND STATE REGULATORY ISSUES

Travis AFB Master 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.)
01-27-10	—	—
—	—	—
03-30-10	—	—
04-22-10 *(1:00 PM)	—	04-22-10
05-19-10	—	—
06-23-10	—	—
07-21-10	—	—
08-25-10	—	—
09-22-10	—	—
10-21-10 *(1:00 PM)	—	10-21-10
—	11-17-10	—
12-08-10	—	—

* RPM meeting moved to coincide with the RAB meeting.

Travis AFB Master 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	06-08-11	12-08-11
AF/Service Center Comments Due	01-13-11	06-22-11	01-11-12
Draft to Agencies	01-27-11	07-06-11	01-25-12
Draft to RAB	01-27-11	07-06-11	01-25-12
Agency Comments Due	02-28-11	08-31-11	03-28-12
Response to Comments Meeting	03-23-11	09-22-11	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	04-12-11	12-14-11	05-29-12
Draft Final Due	04-12-11	12-14-11	05-29-12
Final Due	05-12-11	01-13-12	06-27-12

*Public meeting to coincide with RAB meeting.

PRIMARY DOCUMENTS	
Life Cycle	Comprehensive Site Evaluation Phase II Travis AFB, Glenn Anderson Sky Research, Ian Roberts
	Report
Scoping Meeting	NA
Predraft to AF/Service Center	04-23-10
AF/Service Center Comments Due	05-04-10
Draft to Agencies	10-22-10
Draft to RAB	10-22-10
Agency Comments Due	11-24-10
Response to Comments Meeting	12-08-10
Agency Concurrence with Remedy	NA
Public Comment Period	NA
Public Meeting	NA
Response to Comments Due	12-21-10
Draft Final Due	12-21-10
Final Due	01-23-11

PRIMARY DOCUMENTS			
Life Cycle	Potrero Hills Annex Travis, Glenn Anderson		
	FFS	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

SECONDARY DOCUMENTS		
Life Cycle	ISCO/ERD Technical Memorandum Travis AFB, Glenn Anderson CH2M HILL, Loren Krook	Site SS015 Work Plan Travis AFB, Lonnie Duke CH2M HILL, Loren Krook
Scoping Meeting	NA	NA
Predraft to AF/Service Center	08-25-10	09-15-10
AF/Service Center Comments Due	09-08-10	09-29-10
Draft to Agencies	10-04-10	10-13-10
Draft to RAB	10-04-10	10-13-10
Agency Comments Due	11-03-10	11-12-10
Response to Comments Meeting	11-10-10	11-17-10
Response to Comments Due	12-21-10	12-14-10
Draft Final Due	NA	NA
Final Due	12-21-10	12-14-10
Public Comment Period	NA	NA
Public Meeting	NA	NA

SECONDARY DOCUMENTS	
Life Cycle	Phytostabilization Study Report Travis AFB, Glenn Anderson Parsons, Bill Plaehn
Scoping Meeting	10-09-08
Predraft to AF/Service Center	04-12-10
AF/Service Center Comments Due	06-07-10
Draft to Agencies	06-16-10
Draft to RAB	06-16-10
Agency Comments Due	07-19-10 (7-30-10)
Response to Comments Meeting	08-25-10
Response to Comments Due	08-30-10
Draft Final Due	NA
Final Due	09-13-10
Public Comment Period	NA
Public Meeting	NA

INFORMATIONAL DOCUMENTS

Life Cycle	Quarterly Newsletters (October 2010) Travis, Glenn Anderson	2009/2010 GSAP Travis AFB, Lonnie Duke CH2M HILL, Leslie Royer	2008-2009 CAMU Monitoring Annual Report Travis AFB, Lonnie Duke ITSI Rachel Hess
Scoping Meeting	NA	NA	NA
Predraft to AF/Service Center	NA	10-15-10	11-24-09
AF/Service Center Comments Due	NA	10-29-10	12-24-09
Draft to Agencies	09-23-10	11-19-10	01-27-10
Draft to RAB	NA	11-19-10	03-08-10
Agency Comments Due	10-6-10	12-19-10	03-08-10
Response to Comments Meeting	TBD	01-26-11	TBD
Response to Comments Due	10-8-10	02-08-11	05-19-10 (08-02-10)
Draft Final Due	NA	NA	NA
Final Due	10-13-10	02-08-11	05-19-10 (08-02-10)
Public Comment Period	NA	NA	NA
Public Meeting	NA	NA	NA

HISTORICAL		
Life Cycle	Union Creek Sites SD001 &SD033 Remedial Action Completion Report Travis, Lonnie Duke ITSI, Rachel Hess	Natural Attenuation Assessment Report Travis AFB, Glenn Anderson CH2M HILL, Leslie Royer
Scoping Meeting	NA	NA
Predraft to AF/Service Center	01/06/10	07-07-09
AF/Service Center Comments Due	02/05/10	07-21-09
Draft to Agencies	03/30/10	08-26-09
Draft to RAB	03/30/10	08-26-09
Agency Comments Due	06/01/10	10-15-09
Response to Comments Meeting	06/23/10	05-13-10 (Teleconference w/EPA)
Response to Comments Due	07/02/10	02-02-10 (06-23-10)
Draft Final Due	07/02/10	07-06-10
Final Due	07/12/10	07-28-10
Public Comment Period	NA	NA
Public Meeting	NA	NA

HISTORICAL			
Life Cycle	SD036/SD037 RPO Work Plan Travis AFB, Lonnie Duke CH2M HILL, Loren Krook	ST027B Site Characterization Report Travis AFB, Lonnie Duke CH2M HILL, Gavan Heinrich	2009 GWTP RPO Annual Report Travis AFB, Lonnie Duke CH2M HILL, Doug Berwick
Scoping Meeting	NA	NA	NA
Predraft to AF/Service Center	08-13-09	02-23-10	03-09-10
AF/Service Center Comments Due	08-27-09	03-08-10	03-30-10
Draft to Agencies	10-01-09	03-29-10	04-28-10
Draft to RAB	10-01-09	03-29-10	04-28-10
Agency Comments Due	11-02-09 (01-27-10)	(04-28-10) 06-08-10	05-28-10
Response to Comments Meeting	06-23-10	06-23-10	06-23-10
Response to Comments Due	07-16-10	07-13-10	07-14-10
Draft Final Due	NA	NA	NA
Final Due	07-16-10	07-13-10	07-14-10
Public Comment Period	NA	NA	NA
Public Meeting	NA	NA	NA

South Base Boundary Groundwater Treatment Plant

Monthly Data Sheet

Report Number: 120

Reporting Period: 30 June 2010-31 July 2010

Date Submitted: 20 August 2010

This data sheet includes the following: results for the operation of the South Base Boundary Groundwater Treatment Plant (SBBGWTP), a summary of flow rates for the individual extraction wells, a brief description of any shutdowns or significant events related to the system, and a summary of analytical results for selected samples collected.

Operations Summary – July 2010

Operating Time: **710 hours**

Percent Uptime: **95.4%**

Electrical Power Usage: **20,160 kWh**

Gallons Treated: **4.6 million gallons**

Gallons Treated Since July 1998: **699 million gallons**

Volume Discharged to Union Creek: **4.6 million gallons**

VOC Mass Removed: **1.68 pounds^a**

VOC Mass Removed Since July 1998: **384 pounds**

Rolling 12-Month Cost per Pound of Mass Removed : \$4,264.84^b

Monthly Cost per Pound of Mass Removed : \$3,153.63^b

^a Calculated using July 2010 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.

Flow Rates

Average Groundwater Total Flow Rate: 108 gpm^a

Average Flow Rate (gpm) ^b							
FT005 ^c				SS029		SS030	
EW01x05	Off line	EW736x05	Off line	EW01x29	0.65	EW01x30	10.1
EW02x05	2.5 ^d	EW737x05	Off line	EW02x29	5.3	EW02x30	3.7
EW03x05	Off line	EW742x05	Off line	EW03x29	Off line ^e	EW03x30	10.7
EW731x05	Off line	EW743x05	Off line	EW04x29	5.6	EW04x30	21.8
EW732x05	Off line	EW744x05	Off line	EW05x29	14.6	EW05x30	12.7
EW733x05	Off line	EW745x05	Off line	EW06x29	17.9	EW06x30	Dry
EW734x05	Off line	EW746x05	Off line	EW07x29	14.7	EW711x30	10.0 ^f
EW735x05	Off line						
FT005 Total:		Off line		SS029 Total: 58.6		SS030 Total: 68.9	

^a The average groundwater flow rate was calculated using the Union Creek Discharge Totalizer and dividing it by the operating time of the plant.

^b Extraction well flow rates are based on the average of the weekly readings.

^c 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.

^d Extraction well EW02x05 restarted on 27 July 2010

^e Extraction well is off line due to low VOC concentrations.

^f Extraction well online, but has a faulty flow meter. Flow rate is measured at the well head.

gpm—gallons per minute

Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
SBBGWTP	23 July 2010	07:00	23 July 2010	15:00	High sump level inside the air stripper. Cleaned algae and restarted the system.
SBBGWTP = South Base Boundary Groundwater Treatment Plant					

Summary of O&M Activities

Monthly groundwater samples at the SBBGWTP were collected on 7 July 2010. Sample results are presented in Table 1. The total VOC concentration (43.2µg/L) in the influent sample has decreased since the June 2010 sample (51.1 µg/L) was collected. VOCs were not detected in the effluent sample indicating good treatment efficiency.

In addition to the analytical methods shown in Table 1, the July 2010 effluent samples were analyzed for semi-volatile organic compounds (SVOCs) and levels of acute toxicity (96-hour bioassay) as part of the annual sampling requirements. Two SVOCs came back with J-flags: bis(2-ethylhexyl)phthalate at 4.8J and Di-n-octylphthalate at 4.4J as shown in Table 2. Both of these detections are below the instantaneous maximums outlined in Appendix B of the *Travis AFB South Base Boundary Groundwater Treatment Plant Operations and Maintenance Manual* (CH2M HILL, 2004). The level of acute toxicity is measured by placing live fathead minnows into a one (1) gallon container containing (treated) water from the SBBGWTP. Toxicity levels are determined based on how many of the fathead minnows die over the course of a 96-hour period. The survival rate of the fathead minnows was 100%. The results of the acute toxicity analysis are presented in Table 3. Full analytical results, including SVOCs, are available upon request.

In June 2010, three Site FT005 extraction wells (EW02x05, EW734x05, EW735x05) were identified as wells to be brought back online for the purpose of addressing 1,2-DCA found in rebound groundwater samples collected during the 2010 groundwater sampling and analysis program (GSAP). Well EW02x05 was brought back on line in July 2010, but wells EW734x05 and EW735x05 required additional maintenance to the programmable logic controller (PLC) in order to return to service. The PLC is expected to be repaired the first week of August, 2010, at which time wells EW734x05 and EW735x05 will be brought back on line.

Optimization Activities

No optimization activities were performed in July 2010, but both 6,000 pound liquid-phase carbon vessels are scheduled to be changed out in August 2010. Following this change out event, the SBBGWTP will be converted to run with carbon filtration as the only form of process treatment. The air stripping unit will be bypassed in this configuration.

Table 1

Summary of Groundwater Analytical Data for July 2010 – South Base Boundary Groundwater Treatment Plant

Summary of Groundwater Analytical Data for July 2010 - South Base Boundary Groundwater Treatment Plant					
Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	7 July 2010 (µg/L)	
				Influent	Effluent
Halogenated Volatile Organics					
Bromodichloromethane	5.0	0.15	0	ND	ND
Carbon Tetrachloride	0.5	0.14	0	ND	ND
Chloroform	5.0	0.16	0	ND	ND
Dibromochloromethane	5.0	0.13	0	ND	ND
1,1-Dichloroethane	5.0	0.19	0	ND	ND
1,2-Dichloroethane	0.5	0.15	0	ND	ND
1,1-Dichloroethene	5.0	0.19	0	ND	ND
cis-1,2-Dichloroethene	5.0	0.19	0	2.3	ND
trans-1,2-Dichloroethene	5.0	0.33	0	ND	ND
Methylene Chloride	5.0	0.66	0	ND	ND
Tetrachloroethene	5.0	0.21	0	ND	ND
1,1,1-Trichloroethane	5.0	0.14	0	ND	ND
1,1,2-Trichloroethane	5.0	0.20	0	ND	ND
Trichloroethene	5.0	0.19	0	40.9	ND
Vinyl Chloride	0.5	0.18	0	ND	ND
Non-Halogenated Volatile Organics					
Benzene	1.0	0.17	0	ND	ND
Ethylbenzene	5.0	0.22	0	ND	ND
Toluene	5.0	0.14	0	ND	ND
Xylenes	5.0	0.23 – 0.5	0	ND	ND
Other					
Total Petroleum Hydrocarbons – Gasoline	50	8.5	0	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	50	0	NM	ND
Total Suspended Solids (mg/L)	NE	1.0	0	6 J	NM
^a In accordance with Appendix B of the <i>Travis AFB South Base Boundary Groundwater Treatment Plant Operations and Maintenance Manual</i> (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			

Table 2

Summary of Groundwater Analytical Data for July 2010 – South Base Boundary Groundwater Treatment Plant

Summary of Groundwater Analytical Data for July 2010 - South Base Boundary Groundwater Treatment Plant					
Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	7 July 2010 (µg/L)	
				Influent	Effluent
Halogenated Semi-Volatile Organics					
Bis(2-ethylhexyl)phthalate	5.0	0.15	0	NM	4.8J
Di-n-octylphthalate	5.0	0.14	0	NM	4.4J

^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

Table 3

Summary of Bioassay Analytical Data for July 2010 – South Base Boundary Groundwater Treatment Plant

Analysis	7 July 2010 (Survival %)	
	Lab Control	EFFT-004
96 Hour Static Renewal – Rainbow Trout	100	100

Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 132

Reporting Period: 30 June 2010- 31 July 2010

Date Submitted: 20 August 2010

This data sheet includes the following: results for the operation of the Central Groundwater Treatment Plant (CGWTP) and West Treatment and Transfer Plant (WTTP). A summary of flow rates for the CGWTP, WTTP, and extraction wells EW01x16, EW02x16, EW03x16, EW605x16, and EW610x16; a brief description of any shutdowns or significant events related to the systems, and a summary of analytical results for selected samples collected are also included on this data sheet.

Operations Summary – July 2010

Operating Time:

CGWTP: 494 hours

WTTP^a: Water: 0 hours

Vapor: 0 hours

Percent Uptime:

CGWTP: 65.79%

WTTP: Water: 0%

Vapor: 0%

Electrical Power Usage:

CGWTP: 51 kWh

WTTP: 86 kWh

Gallons Treated: **1.16 million gallons**

Gallons Treated Since January 1996: **429.9 million gallons**

VOC Mass Removed:

4.3 lbs (groundwater only)

0 lbs (vapor only)

VOC Mass Removed Since January 1996:

2,496 lbs from groundwater

8,686 lbs from vapor

Rolling 12-Month Cost per Pound of Mass Removed: \$1,152^b

Monthly Cost per Pound of Mass Removed: \$2,102^b

^a The WTTP was on for approximately 4 hours during sample collection activities in July 2010

^b Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the CGWTP and WTTP.

Flow Rates

Average Groundwater Flow Rate: **39.5 gpm^a**

Location	Average Flow Rate	
	Groundwater (gpm)	Soil Vapor (scfm) ^b
EW01x16	23.5	Off line
EW02x16	7.25	Off line
EW03x16	Off line ^c	Off line
EW605x16	12.2	Off line
EW610x16	2.9	Off line
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 July 2010

^c EW03x16 off line in June 2010 due to seized motor.

gpm = gallons per minute

NA = not applicable/not available

scfm = standard cubic feet per minute

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							

Shutdown/Restart Summary

Location	Shutdown/Restart		Cause
	Date	Time	
CGWTP (Groundwater):			
CGWTP	8 July 2010	09:00	Resume system after the completion of Fire Station construction activities
CGWTP	20 July 2010	12:30	System shutdown to repair leaking valve (see text below)
CGWTP	20 July 2010	16:00	Resume system after leaking valve was repaired
CGWTP	24 July 2010	15:30	System shutdown due to Travis AFB power outage
CGWTP	26 July 2010	08:45	System restarted
WTTP (Vapor):			
WTTP	24 August 2009		SVE system shut down for rebound study
WTTP	13 July 2010	08:00	System turned on for SVE rebound sample
WTTP	13 July 2010	12:00	System turned off after SVE rebound samples were taken
CGWTP = Central Groundwater Treatment Plant WTTP = West Treatment and Transfer Plant			

Summary of O&M Activities

The CGWTP was restarted after the completion of Fire Station construction activities on 8 July 2010 at 09:00. Monthly groundwater samples at the CGWTP were collected on 11 July 2010. Sample results are presented in Table 1. The total VOC concentration (444.2 µg/L) in the influent sample has decreased since the April 2010 sample (536.46 µg/L) was collected. No VOCs were detected in the effluent sample.

A leak was identified at the inlet valve of one of the 2,000 pound GAC vessels and it was repaired on 20 July 2010. The CGWTP was also shut off from 24-26 July 2010 due to a base wide power outage. Details of the repair and power outage are presented in the Shutdown/Restart Summary.

The WTPP was turned on for 4 hours on 13 July 2010 to collect vapor samples as part of the ongoing rebound study in the WIOU. Following sample collection, the WTPP was turned off to continue the rebound study. Sample results are presented in Table 2.

Of the samples collected from the individual SVE wells, four (4) exhibited significant rebound (from when the wells were first taken off line in July 2009. Of those four (4), well EW704x37 experienced the highest increase in vapor VOC concentrations, going from 189 ppbv in July 2009 to 4,302 ppbv in July 2010. The smallest increase in concentration was seen in the sample collected from well EW707x37 which went from 736 ppbv to 992 ppbv.

The other four (4) SVE wells sampled during July 2010 as part of the rebound study exhibited decreases in concentration when compared to samples collected in July 2009.

Optimization actions for the WIOU vapor extraction system will be presented in the August 2010 Monthly Data Sheet.

Optimization Activities

No optimization activities occurred in July 2010. The WTPP continues to remain off line since being shut down in April 2010 to accommodate construction of the new fire station near the CGWTP.

Table 1
Summary of Groundwater Analytical Data for July 2010 – Central Groundwater Treatment Plant

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	11 July 2010 (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 Tetrachloride	0.5	0.14	0	ND	ND	ND	ND
Chloroform	5.0	0.16	0	ND	ND	ND	ND
1,2-Dichlorobenzene	5.0	0.08	0	0.24 J	ND	ND	ND
1,3-Dichlorobenzene	5.0	0.15	0	0.25 J	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.15	0	ND	ND	ND	ND
1,1-Dichloroethane	5.0	0.15	0	0.93	ND	ND	ND
1,2-Dichloroethane	0.5	0.15	0	ND	ND	ND	ND
1,1-Dichloroethene	5.0	0.19	0	ND	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.19	0	76.8	ND	ND	ND
trans-1,2-Dichloroethene	5.0	0.33	0	3.3	ND	ND	ND
Methylene Chloride	5.0	0.66	0	ND	ND	ND	ND
Tetrachloroethene	5.0	0.21	0	0.71	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	1.9	0	361	ND	ND	ND
Vinyl Chloride	0.5	0.18	0	0.94 J	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).

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

Table 2

Soil Vapor Analytical Data for July 2010

Constituent	13 and 14 July 2010 (ppbv)					
	EW593x36	EW594x36	EW595x36	EW510x37	EW599x37	EW700x37
Volatile Organics						
Acetone	7.63	ND (5.98)	5.38	245	5.92	4.61
Chloroform	ND (0.151)	ND (3.02)	ND (0.302)	ND (11.8)	ND (0.302)	ND (0.151)
Chloromethane	0.67	ND (5.73)	ND (0.573)	ND (22.3)	ND (0.573)	0.54
cis-1,2-Dichloroethene	1.72	723	0.92 J	85	11.3	5.4
1,1-Dichloroethene	ND (0.198)	ND (3.96)	ND (0.396)	ND (15.4)	ND (0.396)	ND (0.198)
Ethylbenzene	ND (0.191)	ND (3.82)	ND (0.382)	ND (14.9)	ND (0.382)	ND (0.191)
Hexane	0.44 J	ND (2.63)	1.44	20.3 J	1.8	2.86
Methyl Ethyl Ketone (2-Butanone)	ND (0.406)	ND (8.11)	ND (0.811)	ND (31.6)	ND (0.811)	0.6
Tetrachloroethene	ND (0.191)	ND (3.82)	0.76 J	35.9 J	0.52 J	ND (0.191)
trans-1,2-Dichloroethene	ND (0.191)	ND (3.82)	ND (0.382)	ND (14.9)	3.42	0.5
Trichloroethene	8.15	1240	137	4000	131	11.3
Toluene	0.26 J	ND (3.11)	1.82	ND (12.1)	ND (0.311)	0.27 J
Xylenes, m,p-	ND (0.489)	ND (9.78)	ND (0.978)	ND (2.44)	ND (0.970)	ND (0.266)
Vinyl Chloride	ND (0.233)	ND (4.65)	ND (0.465)	ND (18.2)	ND (0.465)	ND (0.233)
Total VOCs	19	1963	147	4386	154	26

J = analyte concentration is considered an estimated value
 ND = not detected
 ppbv = parts per billion by volume
 () = detection limit

Table 2 (continued)

Soil Vapor Analytical Data for July 2010

Constituent	13 and 14 July 2010 (ppbv)	
	EW704x37	EW707x37
Volatile Organics		
Acetone	ND (0.59)	4
Chloroform	9.6 J	27.4
Chloromethane	ND (5.73)	ND (2.86)
cis-1,2-Dichloroethene	1020	41.8
1,1-Dichloroethene	ND (3.96)	ND (1.98)
Ethylbenzene	ND (3.82)	ND (1.91)
Hexane	ND (2.63)	ND (1.31)
Methyl Ethyl Ketone (2-Butanone)	ND (8.11)	ND (4.06)
Tetrachloroethene	22.4	2.6 J
trans-1,2-Dichloroethene	10	ND (1.91)
Trichloroethene	3240	916
Toluene	ND (3.11)	ND (1.56)
Xylenes, m,p-	ND (9.78)	ND (4.89)
Vinyl Chloride	ND (10)	ND (2.33)
Total VOCs	4302	991.8

J = analyte concentration is considered an estimated value
 ND = not detected
 ppbv = parts per billion by volume
 () = detection limit

North Groundwater Treatment Plant Monthly Data Sheet

Report Number: 107

Reporting Period: 1 June - 31 July 2010

Date Submitted: 20 August 2010

This data sheet includes the following: data collected during operation of the groundwater extraction system, a summary of flow rates for the individual extraction wells, a brief description of any shutdowns or significant events related to the systems, and a summary of analytical results for samples collected during the reporting period.

Operations Summary – June/July 2010^a

Operating Time: **Water:** 58 hours

Percent Uptime: **Water:** 4%

Electrical Power Usage: **NM^b**

Gallons Treated: **9,320**

Gallons Treated Since March 2000: **82.5 million gallons**

Volume Discharged to Duck Pond: **NM^b**

Volume Discharged to Storm Drain: **NM^b**

Percentage of Treated Water to Beneficial Use: **100%**

VOC Mass Removed:

VOC Mass Removed Since March 2000:

NM^b

174.3 lbs from groundwater

Rolling 12-Month Cost per Pound of Mass Removed: **NM^b**

Monthly Cost per Pound of Mass Removed: **NM^b**

^a The NGWTP was restarted and shut down for sampling events in January, June, and July 2010.

^b Calculations and readings were not measured because system was only running to collect samples.

Flow Rates

Average Groundwater Total Flow Rate: **NM**

Location	Average Flow Rate (gpm)
EW614x07	NM
EW615x07	NM
NGWTP briefly brought online for brief periods in January, June, and July 2010 for sampling. No flow rates were measured. gpm = gallons per minute	

Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
NGWTP (water)	15 January 2010	16:00	10 June 2010	15:15	NGWTP shutdown to review sample results of groundwater treated by new configuration. Turned system on for re-sampling
NGWTP (water)	16 June 2010	14:00	12 July 2010	10:10	System samples taken and shutdown to await results. Turned system on for re-sampling
NGWTP (water)	12 July 2010	13:00	23 July 2010	12:00	System samples taken and shutdown to await results. 3 rd GAC vessels added to system and turned back online
NGWTP = North Groundwater Treatment Plant					

Summary of O&M Activities

Groundwater sampling at the NGWTP was performed on 15 January 2010, 16 June 2010, and 11 July 2010 to analyze the effectiveness of groundwater treatment by the new carbon vessels as described in the January 2010 North Groundwater Treatment Plant Monthly Data Sheet. Sample results are presented in Table 1, Table 2, and Table 3. The total VOC concentration (5.57 µg/L) in the January 2010 influent sample dropped since the last sampling event in February 2009 (28.6 µg/L). Trichloroethene (5.2 µg/L) and cis-1,2-dichloroethene (0.37 J) were the only VOCs detected in the influent sample. The total VOC concentration (6.8 µg/L) in the June 2010 influent sample was a slight increase from January 2010. Trichloroethene (6.3 µg/L) and cis-1,2-dichloroethene (0.3 J) were the only VOCs detected in the influent sample. Trichloroethene, was also detected (0.2 J) in the effluent sample from June 2010, but was below the instantaneous maximum limit of 5.0 µg/L as defined in 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).

In the samples collected in January 2010, TPH-G was detected in the system effluent sample at a concentration of 170 µg/L. TPH-D was detected at a concentration of 160 µg/L, also in the effluent sample. Both of these results exceed the instantaneous maximum discharge limits. These concentrations dropped in June 2010 when TPH-D was detected at 57 J µg/L and TPH-G was not detected in the effluent sample. In addition, influent samples collected in June 2010 were analyzed for TPH in an effort to see the concentration of petroleum hydrocarbons entering the treatment stream. TPH-D was detected in the influent sample collected in June 2010 at 92 J µg/L, but TPH-G was not detected in the influent sample.

A third sample was collected from the NGWTP in July to further screen the groundwater from any organic material that might interfere with the analytical methods used to detect TPH-D. The samples collected on 11 July 2010 were laboratory-filtered with silica gel. TPH-D was still detected in the influent sample at a concentration of 110 µg/L. However, TPH-D was not detected in the effluent sample.

All groundwater being treated at the NGWTP that was sampled in January, June, and July 2010 was captured in the irrigation effluent tank and held pending sample analytical results. Samples collected in January and June 2010 indicated effective remediation of VOC contamination through the carbon vessels. Following the ND results from the July 2010 confirmation samples (for TPH-G and TPH-D), the system was restarted. All groundwater being stored in the effluent tank was rerouted through the air stripping unit before ultimately being discharged to the duck pond.

Optimization Activities

A third 200-pound carbon vessel was installed in line with the existing two vessels in order to more effectively capture incoming groundwater contamination. While two vessels were able to remove all VOC and TPH contamination, a third vessel was added to serve as a "polish" vessel to catch trace contamination that may still be present in the process stream following filtration through two carbon vessels .

Air release valves were installed on the inlet side of each GAC vessel to remove any air from inside the vessels. The system was restarted following these activities on 23 July 2010.

Table 1

Summary of Groundwater Analytical Data for January 2010 – North Groundwater Treatment Plant

				15 January 2010 (µg/L)	
Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	Influent	Effluent
Halogenated Volatile Organics					
Bromodichloromethane	5.0	0.18	0	ND	ND
Bromoform	5.0	0.10	0	ND	ND
Carbon Tetrachloride	0.5	0.22	0	ND	ND
Chloroform	5.0	0.17	0	ND	ND
Dibromochloromethane	5.0	0.10	0	ND	ND
1,3-Dichlorobenzene	5.0	0.13	0	ND	ND
1,4-Dichlorobenzene	5.0	0.10	0	ND	ND
1,1-Dichloroethane	5.0	0.19	0	ND	ND
1,2-Dichloroethane	0.5	0.22	0	ND	ND
1,1-Dichloroethene	5.0	0.24	0	ND	ND
cis-1,2-Dichloroethene	5.0	0.16	0	.37 J	ND
trans-1,2-Dichloroethene	5.0	0.21	0	ND	ND
Methylene Chloride	5.0	0.27	0	ND	ND
Tetrachloroethene	5.0	0.16	0	ND	ND
1,1,1-Trichloroethane	5.0	0.20	0	ND	ND
1,1,2-Trichloroethane	5.0	0.14	0	ND	ND
Trichloroethene	5.0	0.50	0	5.2	ND
Vinyl Chloride	0.5	0.19	0	ND	ND
Non-Halogenated Volatile Organics					
Benzene	1.0	0.12	0	ND	ND
Ethylbenzene	5.0	0.10	0	ND	ND
Toluene	5.0	0.14	0	ND	ND
Xylenes	5.0	0.10 – 0.21	0	ND	ND
Other					
Total Petroleum Hydrocarbons – Gasoline	50	50	0	NM	170
Total Petroleum Hydrocarbons – Diesel	50	100	0	NM	160

^a 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).

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

Table 2

Summary of Groundwater Analytical Data for June 2010 – North Groundwater Treatment Plant

Summary of Groundwater Analytical Data for June 2010 - North Groundwater Treatment Plant					
Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	16 June 2010 (µg/L)	
				Influent	Effluent
Halogenated Volatile Organics					
Bromodichloromethane	5.0	0.18	0	ND	ND
Bromoform	5.0	0.10	0	ND	ND
Carbon Tetrachloride	0.5	0.22	0	ND	ND
Chloroform	5.0	0.17	0	ND	ND
Dibromochloromethane	5.0	0.10	0	ND	ND
1,3-Dichlorobenzene	5.0	0.13	0	ND	ND
1,4-Dichlorobenzene	5.0	0.10	0	ND	ND
1,1-Dichloroethane	5.0	0.19	0	ND	ND
1,2-Dichloroethane	0.5	0.22	0	ND	ND
1,1-Dichloroethene	5.0	0.24	0	ND	ND
cis-1,2-Dichloroethene	5.0	0.16	0	0.5 J	ND
trans-1,2-Dichloroethene	5.0	0.21	0	ND	ND
Methylene Chloride	5.0	0.27	0	ND	ND
Tetrachloroethene	5.0	0.16	0	ND	ND
1,1,1-Trichloroethane	5.0	0.20	0	ND	ND
1,1,2-Trichloroethane	5.0	0.14	0	ND	ND
Trichloroethene	5.0	0.50	0	6.3	0.2 J
Vinyl Chloride	0.5	0.19	0	ND	ND
Non-Halogenated Volatile Organics					
Benzene	1.0	0.12	0	ND	ND
Ethylbenzene	5.0	0.10	0	ND	ND
Toluene	5.0	0.14	0	ND	ND
Xylenes	5.0	0.10 – 0.21	0	ND	ND
Other					
Total Petroleum Hydrocarbons – Gasoline	50	50	0	ND	ND
Total Petroleum Hydrocarbons – Diesel	50	100	0	92 J	57 J

^a 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).

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

Table 3

Summary of Groundwater Analytical Data for July 2010 – North Groundwater Treatment Plant

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	11 July 2010 (µg/L)	
				Influent	Effluent
Halogenated Volatile Organics					
Bromodichloromethane	5.0	0.18	0	NM	NM
Bromoform	5.0	0.10	0	NM	NM
Carbon Tetrachloride	0.5	0.22	0	NM	NM
Chloroform	5.0	0.17	0	NM	NM
Dibromochloromethane	5.0	0.10	0	NM	NM
1,3-Dichlorobenzene	5.0	0.13	0	NM	NM
1,4-Dichlorobenzene	5.0	0.10	0	NM	NM
1,1-Dichloroethane	5.0	0.19	0	NM	NM
1,2-Dichloroethane	0.5	0.22	0	NM	NM
1,1-Dichloroethene	5.0	0.24	0	NM	NM
cis-1,2-Dichloroethene	5.0	0.16	0	NM	NM
trans-1,2-Dichloroethene	5.0	0.21	0	NM	NM
Methylene Chloride	5.0	0.27	0	NM	NM
Tetrachloroethene	5.0	0.16	0	NM	NM
1,1,1-Trichloroethane	5.0	0.20	0	NM	NM
1,1,2-Trichloroethane	5.0	0.14	0	NM	NM
Trichloroethene	5.0	0.50	0	NM	NM
Vinyl Chloride	0.5	0.19	0	NM	NM
Non-Halogenated Volatile Organics					
Benzene	1.0	0.12	0	NM	NM
Ethylbenzene	5.0	0.10	0	NM	NM
Toluene	5.0	0.14	0	NM	NM
Xylenes	5.0	0.10 – 0.21	0	NM	NM
Other					
Total Petroleum Hydrocarbons – Gasoline	50	50	0	ND	ND
Total Petroleum Hydrocarbons – Diesel	50	100	0	110	ND

^a 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).

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

2010 Field Work Update

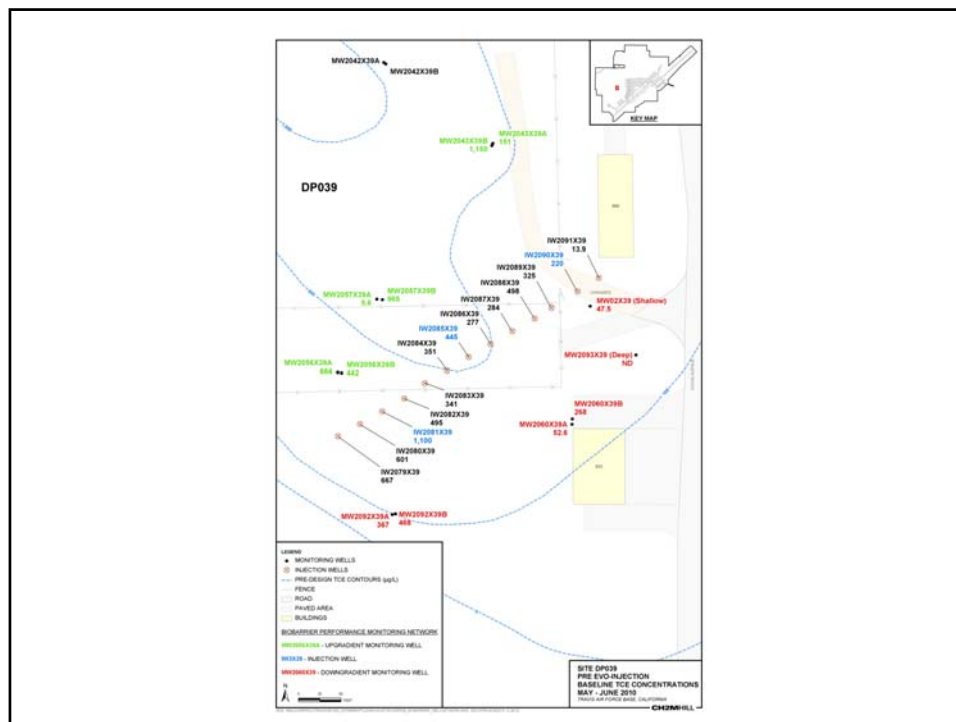
Travis Air Force Base, California
August 25, 2010

Installations in Progress

- Site DP039 EVO Biobarrier
- Site SD037 EVO Injection
- Site SD036 EVO Injection
- Site SS015 Investigation
- Site SS016 OSA Source Area Bioreactor
- Site SS030 Investigation
- Site FT005 Rebound Sampling

Site DP039 EVO Biobarrier

- Pre-injection baseline sampling conducted on 19-21 May & 24 June 2010
- The staggered baseline sampling was due to the later installation of the four southernmost injection wells and two monitoring wells due to wet ground
- Completed injection of 25,000 lbs of EVO on 10 July 2010
- Initiated quarterly performance monitoring of the biobarrier system (first quarterly sampling scheduled for mid-October 2010)
- Performance monitoring network consists of 6 up-gradient monitoring wells, 6 down-gradient monitoring wells, and 3 EVO injection wells (see following map)

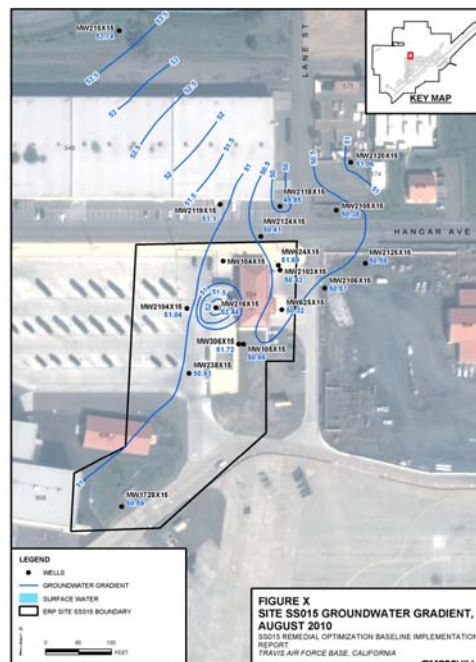


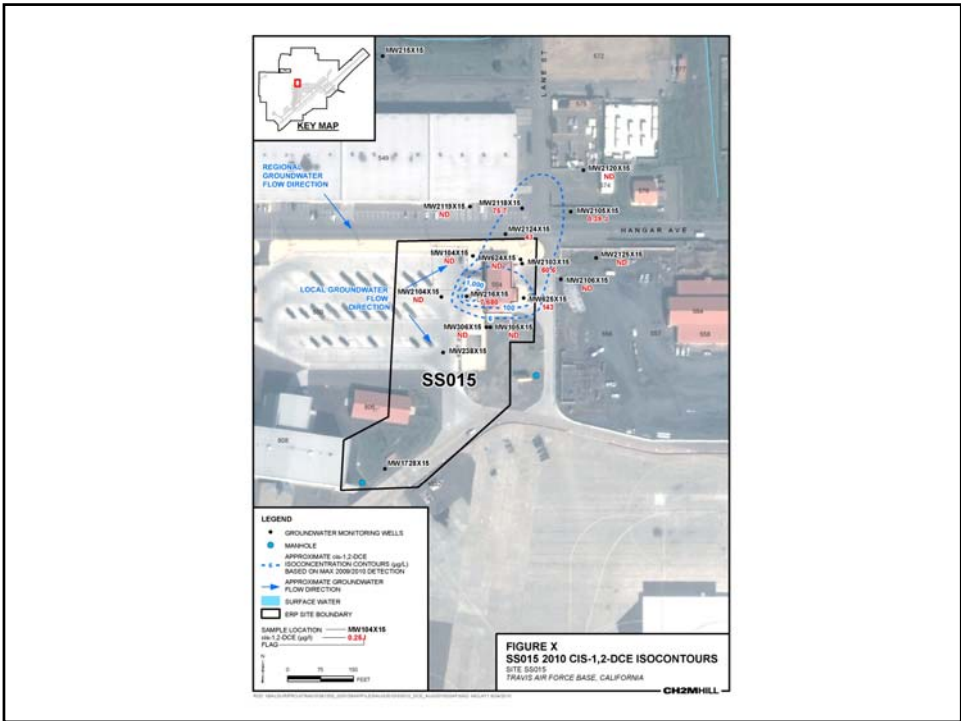
- Pre-injection baseline sampling conducted on 12 & 13 May, and on 01 July 2010
- The staggered baseline sampling was due to the subsequent installation of three additional monitoring wells (MW2121x37, MW2122x37, and MW2123x37) due to initial baseline sampling results
- Completed injection of 36,000 lbs of EVO into 7 injection wells on 04 August 2010
- Initiated performance monitoring of the remedy optimization (first event is scheduled for mid-November 2010)
- Performance monitoring network consists of 2 up-gradient monitoring wells, 7 down-gradient monitoring wells, and 3 in-plume monitoring wells (see following map)

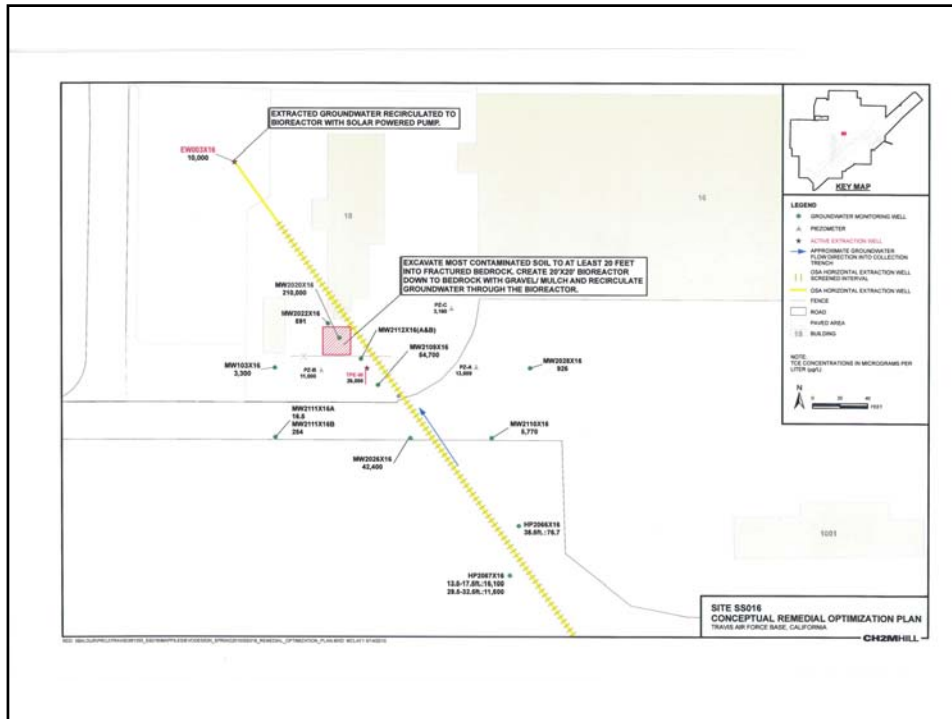
- Design for EVO injection is in progress (estimated completion is early September)
- Injection wells scheduled for installation in early October 2010
- Baseline sampling scheduled for mid-October
- EVO injection scheduled for late October

Site SS015 Investigation

- Drilled and sampled two new monitoring wells on 21 July 2010: MW2124x15 mid-plume, and MW2125x15 east of plume
- Sample results from well MW2124x15 indicate TCE at 563 $\mu\text{g/L}$, cis-1,2-DCE at 33.7 $\mu\text{g/L}$, and vinyl chloride at 2J $\mu\text{g/L}$ (see following maps)
- Sample results from well MW2125x15 indicate ND for TCE and daughter products
- Groundwater plume trends to the northeast
- EVO Injection and monitoring well network design scheduled for completion in early September







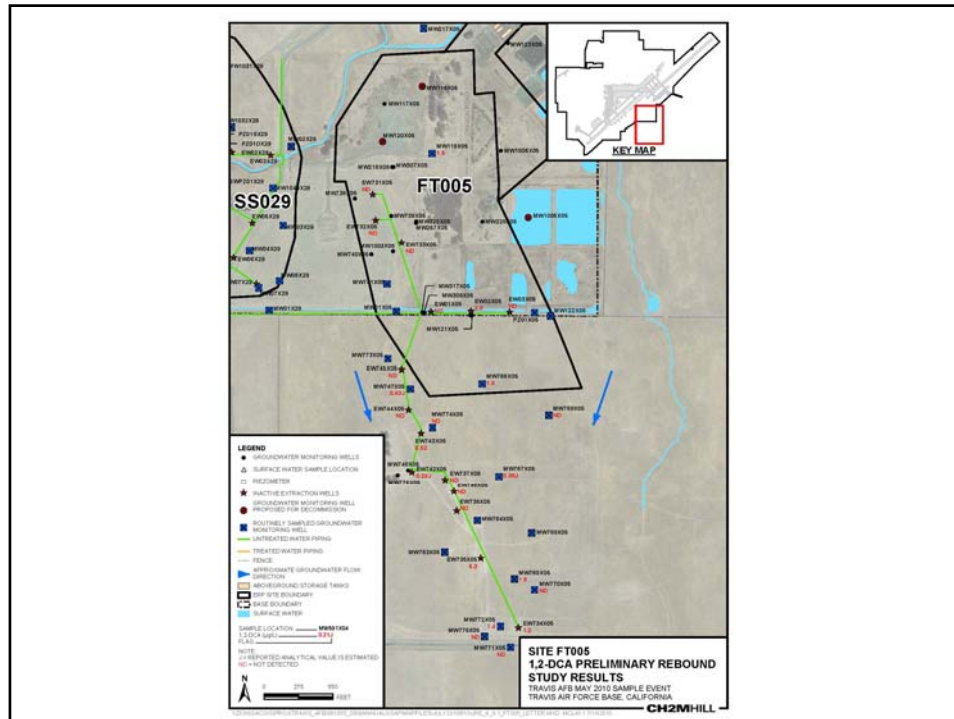
Site DP039 OSA - Location of In-situ Solar-Powered Bioreactor

Site SS030 Investigation

- Maximized groundwater extraction at the site
- Continuing to monitor groundwater levels and TCE concentrations across the site
- Will determine if additional monitoring wells and extraction wells are needed to obtain capture of the SS030 TCE plume following the GSAP event
- Groundwater levels from 2010 GSAP show improving capture of the TCE plume

FT005 Sampling

- Conducted rebound sampling during GSAP event
- Results indicate some rebound occurred in a few wells at the site
- Have turned select extraction wells on to capture areas where rebound has occurred (see following map)
- Turned well EW02x05 on 27 July 2010
- After making repairs to the PLC system, turned wells EW734x05 and EW735x05 back on 09 August 2010



Questions/Comments?

Travis AFB Groundwater Program

Management Overview Briefing

RPM Meeting
August 25, 2010

Completed Documents

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

Documents

- 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 and Second 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 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**

In-Progress Documents & Field Work

Documents

- Phytostabilization Study Report (Draft)

Field Work

- **SS016 Bioreactor Installation**
- **SS016 Position Survey of EW03**

Upcoming Documents

- | | |
|---|------------|
| • 2010 Annual GSAP Report | Nov |
| • Focused Feasibility Study (FFS) | Jan 2011 |
| • SS015 Remedy Optimization Work Plan | Oct |
| • ISCO/ERD Tech Memo | Oct |
| • <i>Comprehensive Site Evaluation Phase II Report</i> | Oct |
| • <i>FT005 Data Gap Investigation Report</i> | TBD |

Upcoming Field Work

- | | |
|---|-----------------|
| • ST018 GETS Installation | Sep- Oct |
| • SD036 Injection Well Installation | Sep- Oct |
| • SS015 Injection Well Installation | Oct |
| • SS015 EVO Baseline Sampling | Oct |
| • SD036 EVO Baseline Sampling | Oct |
| • SS015 EVO Injection | Oct |
| • DP039 EVO Quarterly Performance Sampling | Oct |
| • SD036 EVO Injection | Oct-Nov |
| • SS016 Bioreactor Initial Quarterly Performance Sampling | Nov |
| • DP039 Bioreactor Quarterly Performance Sampling | Nov |
| • <i>Rebound Sampling (FT004, SD031, LF008, FT005, & WIOU)</i> | Nov |
| • <i>ST018 GETS Startup</i> | Nov |
| • LF007C Site Characterization (Wetlands) | TBD |

July 2010

Field Schedule – Travis PBC

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
				Sample 6 new wells @ SS015 & SD037		
				GSAP Water Levels		
				DP039 EOS Injection		
4	5	6	7	8	9	10
	GSAP Water Levels (Complete)					
	DP039 EOS Injection					
11	12	13	14	15	16	17
	SD037 EOS Injection					
18	19	20	21	22	23	24
	SD037 EOS Injection					
			Drill SS015 MW2124x15 & MW2125x15		Develop SS015 MW2124x15 & MW2125x15	
25	26	27	28	29	30	31
	SD037 EOS Injection					
	SS015 Sample new wells MW2124x15 & MW2125x15 (1 week TAT)					

August 2010

Field Schedule – Travis PBC

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
				GAC Change-out @ South Plant		
22	23	24	25	26	27	28
	SS016 Bioreactor Kickoff meeting + Pb Sampling					
29	30	31				

September 2010

Field Schedule – Travis PBC

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
			SS016 Bioreactor ERRG move, remove steel fencing, saw-cut concrete			
				ST018 GETS Bid walk		
5	6	7	8	9	10	11
		SS016 Bioreactor Dismantle wash rack				
12	13	14	15	16	17	18
	SS016 Bioreactor Excavate & build bioreactor					
19	20	21	22	23	24	25
	SS016 Bioreactor Install bollards + Install solar-powered pump in EW03x16					
26	27	28	29	30		
	SS016 Bioreactor Soil load-out, clean up & demob					
		ST018 GETS Construction				

October 2010

Field Schedule – Travis PBC

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
	ST018 GETS Construction					
3	4	5	6	7	8	9
	SS015 Injection Well Installation					
	SD036 Injection Well Installation					
	ST018 GETS Construction					
10	11	12	13	14	15	16
	SS015 Pre EVO-Injection Baseline Sampling					
	SD036 Pre EVO-Injection Baseline Sampling					
	ST018 GETS Construction					
17	18	19	20	21	22	23
	SS015 EVO Injection					
	DP039 Biobarrier Quarterly Performance Sampling					
	SD036 EVO Injection					
	ST018 GETS Construction					
24	25	26	27	28	29	30
	SD036 EVO Injection					
	ST018 GETS Construction					
31						

November 2010

Field Schedule – Travis PBC

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
	ST018 GETS Construction					
	SD036 EVO Injection					
	Rebound Sampling Semiannual (sites FT004, SD031, LF008, FT005, & WIOU)					
7	8	9	10	11	12	13
	ST018 GETS Construction					
	Rebound Sampling Semiannual (sites FT004, SD031, LF008, FT005, & WIOU)					
	SD036 EVO Injection					
	GSAP Semiannual Sampling					
14	15	16	17	18	19	20
	DP039 Semiannual Bioreactor Performance Monitoring		SD037 Quarterly EVO Performance Sampling			
	GSAP Semiannual Sampling					
21	22	23	24	25	26	27
	SS016 Quarterly Bioreactor Performance Monitoring					
28	29	30				

December 2010

Field Schedule – Travis PBC

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
				ST018 GETS Startup (pending receipt of NPDES permit)		
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		