Final

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

22 September 2010, 0930 Hours

Mr. Mark Smith, Travis Air Force Base (AFB), conducted the Remedial Program Manager's (RPM) meeting on 22 September 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
• Brian Sassaman	Travis AFB
• 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
• Doug Berwick	CH2M HILL

Mr. Smith began the meeting by welcoming and introducing EPA's new representative Ms. Nadia Hollan Burke.

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 (August 2010)
• Attachment 4	CGWTP Monthly Data Sheet (August 2010)
• Attachment 5	NGWTP Monthly Data Sheet (August 2010)
• Attachment 6	Presentation: SS016 Bioreactor Installation, An overview of installation activities during September 2010
• Attachment 7	Presentation: SS015 EVO Injection Design Update
• Attachment 8	Presentation: Program Update: Activities Completed, In Progress and Upcoming

- Attachment 9 Presentation: 2010 Field Schedule

1. ADMINISTRATIVE

A. Previous Meeting Minutes

The 25 August 2010 RPM meeting minutes were approved and finalized as written.

B. Action Item Review.

Action items from August were reviewed.

Action item one still open. No change.

Action item two still open. No change.

Action item three – Report status of new EPA representative at next RPM meeting - closed.

New action item three. EPA to review past site closure completion reports to determine if future site closure reports are necessary.

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 21 October 2010 at 1:00 PM. The next RAB meeting will also be held on 21 October 2010, at 7:00 PM.

Travis AFB Master Document Schedule *(Mr. Anderson gave a brief history on the documents for the new EPA representative, Ms. Burke)*

Ms. Burke needs to check her calendar to see if she can attend the 12/08/2010 RPM meeting, might be available to call in. Mr. Smith said if a presentation is planned, all the regulators should be present. If all the regulators cannot be present, we will look into rescheduling the RPM meeting in December.

— Focused Feasibility Study (FFS): Dates changed to give 60 day regulatory review period.

— Proposed Plan (PP): No change.

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

— Comprehensive Site Evaluation Phase II: No change.

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

— ISCO/ERD Technical Memorandum: New document added to provide an evaluation of these in-situ technologies, and as they apply to the subsurface conditions at Travis AFB.

— Site SS015 Work Plan: New document added that describes the site characterization and remedial process optimization activities planned for Site SS015.

— Phytostabilization Study Report: Ms. Burke/EPA indicated approval of the Air Force responses to the EPA comments on the document. This document will be finalized, and moved to the Historical section.

— Quarterly Newsletter (October 2010): The date for submittal of the draft document was pushed back one week due to the high level of field activity and required inspections by the Travis staff.

— 2009/2010 GSAP: New dates were added for the 2009/2010 annual GSAP report.

Mr. Salcedo asked about a completion letter for Union Creek Site SD001. Mr. Anderson gave an explanation of the completion report background.

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. Ms. Burke asked if these completion letters are included in the ROD. Mr. Anderson replied yes. Mr. Parrott stated that the completion letter is not required in the ROD and the Air Force Headquarters is opposed to including any documents that are not required in the ROD. Mr. Anderson said he would like to have a signed agreement indicating closure of a particular site, and that there are no more media of concern. Ms. Burke will check with her management, and will also review a previous completion report.

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 53.1% uptime, and 3.1 million gallons of groundwater were extracted and treated during the month of August 2010. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 129 gallons per minute (gpm) and electrical power usage was 13,140 kWh. Approximately 18,002 pounds of CO_2

was created (based on DOE calculation); approximately 1.27 pounds of volatile organic compounds (VOCs) were removed in August. The total mass of VOCs removed since the startup of the system is 386 pounds.

Optimization Activities: Both 6,000 pound liquid-phase carbon vessels underwent a carbon change-out on 19 August 2010. Following the change-out, the carbon soaked until 27 August 2010 when the system was restarted. The SBBGWTP currently uses carbon filtration as the only form of process treatment. The air stripper was turned off and is no longer needed for treatment of the extracted groundwater. Next month there is expected to be a significant reduction in electrical use.

Central Groundwater Treatment Plant (see Attachment 4)

The Central Groundwater Treatment Plant (CGWTP) performed at 87.9% uptime with approximately 1.37 million gallons of groundwater extracted and treated during the month of August 2010. All treated water was diverted to the storm drain. The average flow rate for the CGWTP, while operating, was 34.9 gpm and electrical power usage was 60 kWh for all equipment connected to the Central plant; approximately 82 pounds of CO_2 was created. Approximately 4.77 pounds of VOCs were removed from groundwater in August. The total mass of VOCs removed since the startup of the system is 11,187 pounds.

Ms. Burke asked about the Vinyl Chloride (VC) detection in the "System Effluent". Mr. Berwick said the Vinyl Chloride was a low level detection and a J flag (estimated value), and it could be the result of PVC glue used for recent repair work. Ms. Burke asked if there was a backup plan if there was a higher concentration of VC in the future. Mr. Berwick said in the event that were to occur, the system would be shut down and a confirmation sample would be collected. If necessary, the treated water in the holding tanks would be re-run through the carbon filters a second time. Mr. Duke added that they will continue to monitor the system to make sure discharge limits are not exceeded.

The West Treatment and Transfer Plant (WTTP) remains turned off for the ongoing rebound study.

North Groundwater Treatment Plant (see attachment 5)

The North Groundwater Treatment Plant (NGWTP) performed at 100% uptime with approximately 21,460 gallons of groundwater extracted and treated during the month of August 2010. The average flow rate of the NGWTP, while operating, was 0.48 gpm and electrical power use was 479 kWh for all the equipment connected to the North plant; approximately 656 pounds of CO_2 was created. The amount of VOCs removed, were very low and consequently difficult to measure. The total mass of VOCs removed since the startup of the system is 656 pounds (see Attachment 5).

Ms. Burke questioned electrical use if both extractions wells are powered by solar. Mr. Duke explained that the Air Stripper was on line for a small period of time while

the carbon was being sampled and analyzed. There is also a booster pump (which pumps treated water to the Duck Pond) that turns on once the holding tank is full.

Land Use Control Sites Update

Mr. Duke reported on the Land Use Control Sites Update. Mr. Duke said the new signs for the Corrective Action Management Unit (CAMU) have been completed and will be picked up at the end of this week and installed.

Site LF044, also known as Landfill X, is the location of the Kinder Morgan aboveground storage tank construction project. The surface piles of asphalt, concrete, vegetation, and soil are currently being removed from the site and taken to a local landfill. "The footprint of the debris piles will be shrinking dramatically,"; this will be documented in the annual Land Use Control (LUC) report.

3. Presentations

SS016 Bioreactor Installation Presentation (see Attachment 6)

Mr. Berwick presented a series of photographs documenting construction of the SS016 Bioreactor installation.

The key points made in the presentation include:

- The Building 18 wash rack area is believed to be the biggest source area of TCE on base.
- The new bioreactor is located immediately south of Building 18.
- The dimensions of the bioreactor are 20'x 20', and 25' deep.
- Excavated soil from the bioreactor is expected to contain elevated concentrations of volatile organic compounds (VOCs).
- There is an existing horizontal well at Site SS016, named EW03x16, which will be tied into the bioreactor for recirculation of untreated groundwater. The next step is to install a solar powered extraction pump in EW03x16.

  Mr. Berwick provided a map of the bioreactor location and the proximity of EW03x16 to the source area (catch basin).
  (see attachment 6 for detail).

  A series of photographs were shown which depicted the construction activities conducted during installation of the bioreactor. The pictures detailed the process of dismantling the wash rack canopy, excavating the soil, contaminant staining in the soil, installation of the shoring, and the completed bioreactor. (see attachment 6)

Mr. Wray commended Mr. Berwick for safety management. Despite the dangerous work, there were no safety incidences during the entire duration of the project. Mr. Duke added that soil samples were collected for profiling at 5–ft intervals in quadrants from ground surface down to the bottom of the bioreactor.

Mr. Krook said the remaining task is to install the solar panels to power the bioreactor. Mr. Berwick said that should be completed sometime next week.

Mr. Friedman asked how long the entire project took. Mr. Berwick answered, from September 1st through September 20th.

SS015 EVO Injection Design Update (see Attachment 7)

Mr. Krook reported on the SS015 EVO Injection Design Update. (SD036 was tabled until the next RPM meeting)

This site was the location for the first vegetable oil treatability study at Travis AFB (occurred in the late 1990's). The method of delivery used was direct push, and not a lot of oil was injected into the subsurface. Additionally, the oil was not emulsified. The treatability study was cut short because Travis needed that site to construct a new building directly over the injection points.

To characterize this site, additional monitoring wells were needed, and seven new monitoring wells were installed. The contaminants are TCE ("parent compound"), and cis-1,2-DCE and vinyl chloride ("daughter products").

The current injection design is more advanced in that it uses emulsified vegetable oil (EVO) and a much greater volume of the oil. More monitoring wells will be needed to complete the site characterization. The plan is to install three injection wells for EVO near the highest concentrations of TCE and daughter products.

Mr. Anderson said that building 554 has a passive ventilation system built in to the subfloor. The passive vent system is directly underneath the offices in building 554.

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

Mr. Wray reported on the status of field work and documents which are completed, in progress, and upcoming. See attachment 8 for details.

2010 Field Schedule (see attachment 9)

Mr. Wray reported on the 2010 Field Schedule. See attachment 9 for details.

4. New Action Item Review

1) EPA to review past site closure completion reports to determine if future site closure reports are necessary.

5. PROGRAM/ISSUES/UPDATE

Mr. Anderson said that before Mr. Chang left he suggested a site visit be set up for the EPA's new representative, Mr. Henning, and EPA's new attorney, to visit the new Bioreactor and the Potrero Hills annex. Mr. Anderson suggested the morning of October 21, 2010, which is the same date as the RPM and RAB meetings.

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.	EPA	Review past site closure completion reports to determine if future site closure reports are necessary.	TBD	Open

TRAVIS AIR FORCE BASE
ENVIRONMENTAL RESTORATION PROGRAM
REMEDIAL PROGRAM MANAGER'S MEETING
BLDG 570, Main Conference Room
22 September 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. SS016 Bioreactor Presentation
   B. SS015/SD036 EVO Injection Design Update
   C. Program update: activities completed, in progress and upcoming
   D. 2010 Field Schedule Update

4. New Action Item Review

5. PROGRAM/ISSUES/UPDATE

   A. Potential Regulator Visit to potrero Hills

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	03-31-11	08-31-11	03-28-12
Response to Comments Meeting	**05-04-11**	**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	06-01-11	12-14-11	05-29-12
Draft Final Due	06-01-11	12-14-11	05-29-12
Final Due	07-01-11	01-13-12	06-27-12

*Public meeting to coincide with RAB meeting.

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	10-22-10
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			
	Potrero Hills Annex Travis, Glenn Anderson		
Life Cycle	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	10-13-10
AF/Service Center Comments Due	09-08-10 (09-10-10)	10-27-10
Draft to Agencies	10-06-10	11-10-10
Draft to RAB	10-06-10	11-10-10
Agency Comments Due	11-05-10	12-10-10
Response to Comments Meeting	**12-08-10**	**01-19-11**
Response to Comments Due	01-05-11	02-16-11
Draft Final Due	NA	NA
Final Due	01-05-11	02-16-11
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	**09-22-10**
Response to Comments Due	09-30-10
Draft Final Due	NA
Final Due	09-30-10
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**
Scoping Meeting	**NA**	**NA**
Predraft to AF/Service Center	NA	10-27-10
AF/Service Center Comments Due	NA	11-10-10
Draft to Agencies	09-29-10	11-19-10
Draft to RAB	NA	11-19-10
Agency Comments Due	10-6-10	12-19-10
Response to Comments Meeting	**TBD**	**01-26-11**
Response to Comments Due	10-8-10	02-08-11
Draft Final Due	NA	NA
Final Due	10-13-10	02-08-11
Public Comment Period	NA	**NA**
Public Meeting	**NA**	**NA**

HISTORICAL	
Life Cycle	**2008-2009 CAMU Monitoring Annual Report Travis AFB, Lonnie Duke ITSI Rachel Hess**
Scoping Meeting	**NA**
Predraft to AF/Service Center	11-24-09
AF/Service Center Comments Due	12-24-09
Draft to Agencies	01-27-10
Draft to RAB	03-08-10
Agency Comments Due	03-08-10
Response to Comments Meeting	**TBD**
Response to Comments Due	05-19-10 (08-02-10)
Draft Final Due	NA
Final Due	05-19-10 (08-02-10)
Public Comment Period	**NA**
Public Meeting	**NA**

South Base Boundary Groundwater Treatment Plant
Monthly Data Sheet

Report Number: 121 **Reporting Period: 30 July 2010-31 August 2010** **Date Submitted: 22 September 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 – August 2010

Operating Time: **395 hours** Percent Uptime: **53.1%**

Electrical Power Usage:**13,140 kWh (18,002 lbs CO_2)**

Gallons Treated: **3.1 million gallons** Gallons Treated Since July 1998: **703 million gallons**

Volume Discharged to Union Creek: **3.1 million gallons**

VOC Mass Removed: **1.27 lbs**[a] VOC Mass Removed Since July 1998: **386 lbs**

Rolling 12-Month Cost per Pound of Mass Removed : $4,393.63[b]

Monthly Cost per Pound of Mass Removed : $9,442.74[b]

[a] Calculated using August2010 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: 129 gpm[a]

Average Flow Rate (gpm)[b]							
FT005[c]				SS029		SS030	
EW01x05	Off line	EW736x05	Off line	EW01x29	0.65	EW01x30	7.98
EW02x05	2.1	EW737x05	Off line	EW02x29	5.3	EW02x30	1.78
EW03x05	Off line	EW742x05	Off line	EW03x29	Off line[e]	EW03x30	3.40
EW731x05	Off line	EW743x05	Off line	EW04x29	9.15	EW04x30	21.4
EW732x05	Off line	EW744x05	Off line	EW05x29	14.3	EW05x30	11.0
EW733x05	Off line	EW745x05	Off line	EW06x29	15.2	EW06x30	Dry
EW734x05	10.3	EW746x05	Off line	EW07x29	16.6	EW711x30	10.0[f]
EW735x05	NM[d]						
FT005 Total:		**12.4**		**SS029 Total:**	**61.2**	**SS030 Total:**	**55.6**

[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] Flow rate not shown on SCADA due to stripped pump splines. Scheduled repair in September 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	19 August 2010	08:30	27 August 2010	15:00	Carbon change out (2-6k lb vessels) and carbon soak time

SBBGWTP = South Base Boundary Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater samples at the SBBGWTP were collected on 16 August 2010. Sample results are presented in Table 1. The total VOC concentration (49.9 µg/L) in the influent sample has increased since the July 2010 sample (43.2 µg/L) was collected. VOCs were not detected in the effluent sample indicating good treatment efficiency.

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). EW02x05 was returned to service in July 2010, EW734x05 was brought back on line in August 2010, after the programmable logic controller (PLC) was fixed, and EW735x05 is scheduled to start up in September 2010 when the pump is replaced.

The increased monthly cost per pound of mass removed ($9,080.70) in August 2010 is a result of the carbon change out that occurred in the 6,000 pound vessels at the SBBGWTP. Travis AFB expects this cost to return to near average in September 2010.

Optimization Activities

Both 6,000 pound liquid-phase carbon vessels underwent a carbon change out on 19 August 2010. Following the change out, the carbon soaked until 27 August 2010 when the system was restarted. The SBBGWTP currently uses carbon filtration as the only form of process treatment. The air stripping unit is bypassed in the current configuration.

Table 1
Summary of Groundwater Analytical Data for August 2010 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	16 August 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	2.9	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	47.0	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	12 J	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

Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 133 **Reporting Period: 30 July 2010- 31 August 2010** **Date Submitted: 22 September 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 – August 2010

Operating Time:		Percent Uptime:		Electrical Power Usage:	
CGWTP:	654 hours	**CGWTP:**	87.90%	**CGWTP:**	60 kWh (82 lbs CO2)
WTTP:	Water: 0 hours	**WTTP:**	Water: 0%	**WTTP:**	0 kWh
	Vapor: 0 hours		Vapor: 0%		

Gallons Treated: **1.37 million gallons**

Gallons Treated Since January 1996: **431.3 million gallons**

VOC Mass Removed:

4.77 lbs[a] (groundwater only)

0 lbs (vapor only)

VOC Mass Removed Since January 1996:

2,501 lbs from groundwater

8,686 lbs from vapor

Rolling 12-Month Cost per Pound of Mass Removed: $1,181.62[b]

Monthly Cost per Pound of Mass Removed: $1,598.62[b]

[a] Calculated using August2010 EPA Method SW8260B analytical results.
[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: **34.9 gpm[a]**

Location	Average Flow Rate	
	Groundwater (gpm)	Soil Vapor (scfm)[b]
EW01x16	23.3	Off line
EW02x16	7.35	Off line
EW03x16	Off line [c]	Off line
EW605x16	12.2	Off line
EW610x16	24.7	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 August 2010
[c] EW03x16 off line June 2010-August 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			No system shutdowns during August 2010
WTTP (Vapor):			
WTTP	24 August 2009		SVE system shut down for rebound study

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

Summary of O&M Activities

Monthly groundwater samples at the CGWTP were collected on 16 August 2010. Sample results are presented in Table 1. The total VOC concentration (417.47 µg/L) in the influent sample has decreased since the July 2010 sample (444.17 µg/L) was collected.

No contamination was detected in the sample taken after the holding tank indicating good treatment efficiency. However, in the effluent sample there was a slight detection of vinyl chloride (0.23 J). In the following months, Travis AFB will continue to monitor the effluent sample to ensure treated water remains in compliance with the discharge requirements.

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

Optimization Activities

No optimization activities occurred in August 2010. The WTTP remained off line since being shut down in April 2010 for the ongoing rebound study.

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

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	16 August 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	0.60	ND	ND	ND
1.3-Dichlorobenzene	5.0	0.15	0	0.74	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.15	0	0.34 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	0.93	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.19	0	101	ND	ND	ND
trans-1,2-Dichloroethene	5.0	0.33	0	4.90	ND	ND	ND
Methylene Chloride	5.0	0.66	0	ND	ND	ND	ND
Tetrachloroethene	5.0	0.21	0	1.10	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	307	ND	ND	ND
Vinyl Chloride	0.5	0.18	0	1.20	ND	ND	0.23 J
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

North Groundwater Treatment Plant Monthly Data Sheet

Report Number: 108 **Reporting Period: 31 July 2010 - 30 August 2010** **Date Submitted: 22 September 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 – August 2010

Operating Time: **Water:** 744 hours

Percent Uptime: **Water:** 100%

Electrical Power Usage: **479 kWh (656 lbs CO_2)**

Gallons Treated: **21,460**

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

Volume Discharged to Duck Pond: **21,460**

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

VOC Mass Removed:

0[a,b]

VOC Mass Removed Since March 2000:

174.3 lbs from groundwater

Rolling 12-Month Cost per Pound of Mass Removed: **Extremely high due to low influent concentrations**

Monthly Cost per Pound of Mass Removed: **Extremely high due to low influent concentrations**

[a] Low influent VOC concentrations resulted in non-measurable mass removed

[b] Calculated using August 2010 EPA Method SW8260B analytical results.

Flow Rates

Average Groundwater Total Flow Rate: **0.48**

Location	Average Flow Rate (gpm)
EW614x07	NM[a]
EW615x07	NM[a]

[a] Individual flow rates were not recorded in August 2010

gpm = gallons per minute

Shutdown/Restart Summary

	Shutdown		Restart		
Location	Date	Time	Date	Time	Cause
NGWTP (water)					No system shutdowns during August 2010

NGWTP = North Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater sampling at the NGWTP was performed on 16 August 2010. The total VOC concentration (7.1 µg/L) was a slight increase from the June 2010 concentration (6.8 µg/L). The only VOCs detected in the influent samples were Trichloroethene (6.6 µg/L) and cis-1-2,dichloroethene (0.48 J µg/L). No VOCs were detected in the effluent sample.

Optimization Activities

No additional optimization activities were performed at the NGWTP in August 2010.

Table 1
Summary of Groundwater Analytical Data for August 2010 – North Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	16 August 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	.48 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	6.6	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	ND
Total Petroleum Hydrocarbons – Diesel	50	100	0	NM	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).

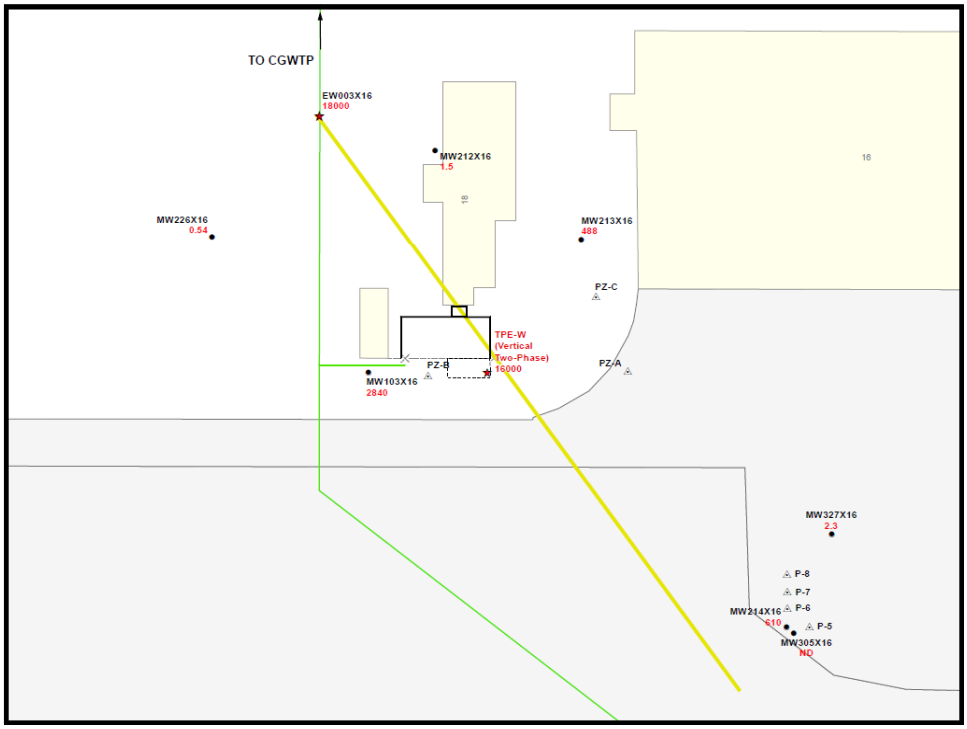
J = analyte concentration is considered an estimated value
N/C = number of samples out of compliance with discharge limits
ND = not detected
NM = not measured
µg/L = micrograms per liter

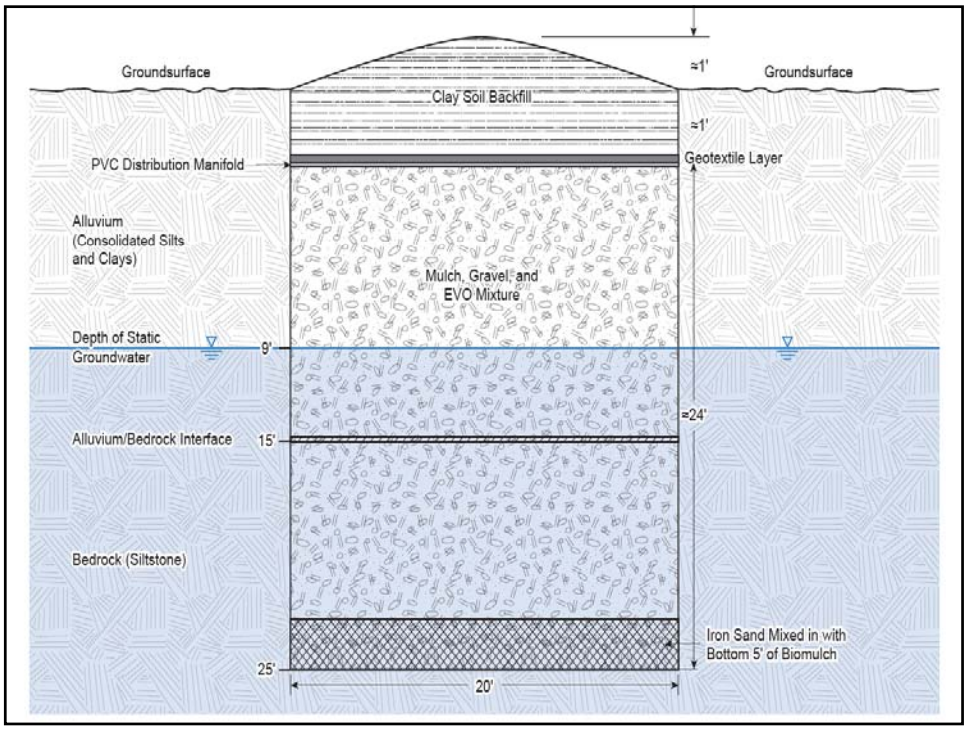
Site SS016 Bioreactor Installation

An overview of installation activities during September 2010

Bioreactor Plan – a Recap

- Bioreactor location immediately south of Building 18
- Bioreactor dimensions are 20'x20', and 25' deep
- Excavated soil from bioreactor likely to contain elevated concentrations of volatile organic compounds (VOCs)
- Use horizontal well EW03x16 to supply water to bioreactor


TO CGWTP
EW003X16
18000
MW212X16
1.5
MW226X16
0.54
MW213X16
488
PZ-C
TPE-W
(Vertical
Two-Phase)
16000
PZ-B
PZ-A
MW103X16
2840
MW327X16
2.3
P-8
P-7
P-6
MW214X16
610
P-5
MW305X16
ND


Groundsurface
≈1'
Groundsurface
Clay Soil Backfill
≈1'
PVC Distribution Manifold
Geotextile Layer
Alluvium
(Consolidated Silts
and Clays)
Mulch, Gravel, and
EVO Mixture
Depth of Static
Groundwater
9'
≈24'
Alluvium/Bedrock Interface
15'
Bedrock (Siltstone)
Iron Sand Mixed in with
Bottom 5' of Biomulch
25'
20'

Installation Plan Overview

- Site preparation
- Removal of existing washrack canopy
- Break ground
- Install shoring
- Complete excavation to depth
- Backfill with biomulch, iron sand, and vegetable oil; remove shoring
- Install distribution manifold, complete well installation
- Complete bioreactor installation


United Rentals

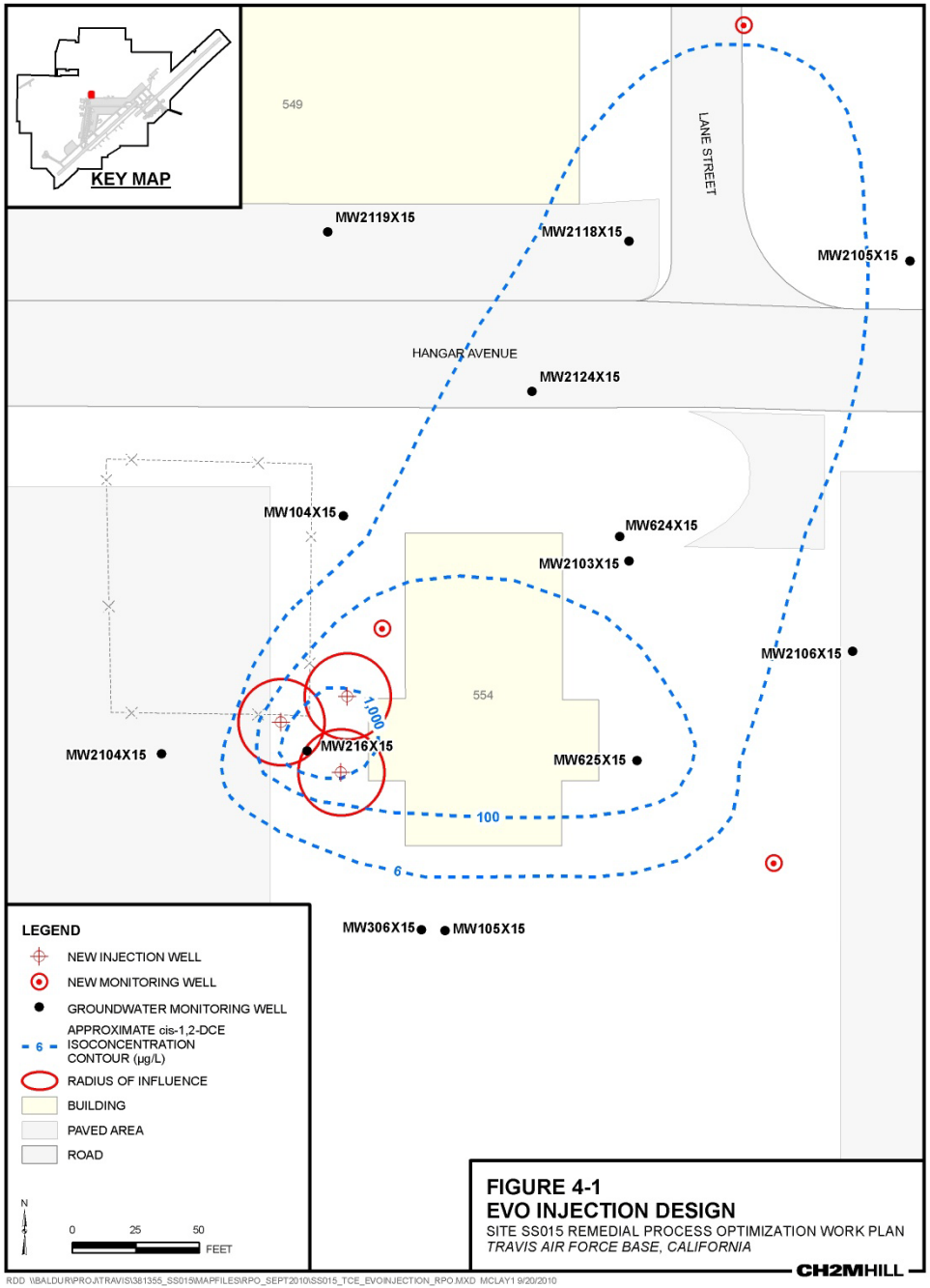


FIGURE 4-1
EVO INJECTION DESIGN
SITE SS015 REMEDIAL PROCESS OPTIMIZATION WORK PLAN
TRAVIS AIR FORCE BASE, CALIFORNIA

CH2MHILL

RDD \\BALDUR\PROJ\TRAVIS\381355_SS015\MAPFILES\RPO_SEPT2010\SS015_TCE_EVOINJECTION_RPO.MXD MCLAY1 9/20/2010

Travis AFB
Groundwater Program

Management Overview Briefing

RPM Meeting

September 22, 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

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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***

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In-Progress Documents & Field Work

<u>Documents</u>

- Phytostabilization Study Report (Draft)

<u>Field Work</u>

- SS016 Bioreactor Installation

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Upcoming Documents

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

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Upcoming Field Work

- ***SS016 Bioreactor Startup*** — ***Oct***
- ST018 GETS Installation — ***Oct-Dec***
- SD036 Injection Well Installation — ***Nov***
- SS015 Injection Well Installation — ***Nov***
- SS015 EVO Baseline Sampling — ***Dec***
- SD036 EVO Baseline Sampling — ***Dec***
- SS015 EVO Injection — ***Dec***
- DP039 EVO Quarterly Performance Sampling — ***Nov***
- SD036 EVO Injection — ***Jan***
- SS016 Bioreactor Initial Quarterly Performance Sampling — ***Nov***
- DP039 Bioreactor Quarterly Performance Sampling — ***Nov***
- ***Semiannual GSAP, incl Rebound Sampling (FT004, SD031, LF008, FT005, & WIOU)*** — ***Nov***
- ***ST018 GETS Startup*** — ***Dec***
- LF007C Site Characterization (Wetlands) — TBD

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Travis Field Schedule

September through December 2010

22 September 2010

September 2010
Field Schedule – Travis PBC

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
			SS016 Bioreactor ERRG mobe, 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 Excavate & build bioreactor					
26	27	28	29	30		
	SS016 Bioreactor Install bollards + Install solar-powered pump in EW03x16, Bioreactor Startup					

October 2010
Field Schedule – Travis PBC

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
					Bioreactor Startup	
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
	ST018 GETS Construction					
24	25	26	27	28	29	30
	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					
	DP039 Semiannual Bioreactor Performance Monitoring		SD037 Quarterly EVO Performance Sampling			
7	8	9	10	11	12	13
	ST018 GETS Construction					
	SS016 Quarterly Bioreactor Performance Monitoring					
	DP039 Biobarrier Quarterly Performance Sampling					
14	15	16	17	18	19	20
	SS015 Injection Well Installation					
	ST018 GETS Construction					
	SD036 Injection Well Installation					
	GSAP Semiannual Sampling, Including Rebound Sampling (sites FT004, SD031, LF008, FT005, & WIOU					
21	22	23	24	25	26	27
	ST018 GETS Construction					
	GSAP Semiannual Sampling, Including Rebound Sampling (sites FT004, SD031, LF008, FT005, & WIOU					
28	29	30				
	SS015 Pre EVO-Injection Baseline Sampling					
	ST018 GETS Construction					

December 2010
Field Schedule – Travis PBC

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
			ST018 GETS Construction			
5	6	7	8	9	10	11
	ST018 GETS Construction					
	SD036 Pre EVO-Injection Baseline Sampling					
12	13	14	15	16	17	18
	SS015 EVO Injection					
	ST018 GETS Startup (pending receipt of NPDES permit)					
19	20	21	22	23	24	25
26	27	28	29	30		