

**Travis Air Force Base  
Environmental Management  
Building 570, Travis AFB, California  
Environmental Restoration Program  
Remedial Program Manager's Partnering  
Meeting Minutes**

**9 May 2007, 0930 Hours**

Mr. Mark Smith, Travis Air Force Base (AFB), conducted the Remedial Program Manager's (RPM) Partnering meeting held on 9 May 2007 at 0930 in the Environmental Conference Room, Building 570, Travis AFB, California. Attendees included:

- Mark Smith Travis AFB
- Gregory Parrott Travis AFB
- Wilford Day Travis AFB
- Glenn Anderson Travis AFB
- Tom Sreenivasan Travis AFB
- Kerry Settle Air Mobility Command/A7VR (via telephone)
- Jose Salcedo Department of Toxic Substance Control (DTSC)
- Glenn Kistner U.S. Environmental Protection Agency (U.S.EPA)
- Alan Friedman California Regional Water Quality Control Board (CRWQCB)
- Mike Wray CH2M Hill
- Tom Barry Shaw Engineering and Infrastructure (Shaw E&I)
- Allen Mason EQM

Handouts for the meeting included:

- Attachment 1 Meeting Agenda
- Attachment 2 Master Meeting, Teleconference, and Document Schedules
- Attachment 3 SBBGWTP Monthly Data Sheet (April 2007)
- Attachment 4 CGWTP Monthly Data Sheet (April 2007)
- Attachment 5 NGWTP Monthly Data Sheet ( April 2007)

**1. ADMINISTRATIVE**

**A. Previous Meeting Minutes**

The April 2007 RPM meeting minutes were distributed and reviewed today. The minutes were approved and finalized.

**B. Master Meeting and Document Schedule**

The revised Travis AFB Master Meeting, Teleconference, and Document Schedules were distributed by email previously (see Attachment 2).

## **Travis AFB Annual Meeting and Teleconference Schedule**

— The following changes were agreed upon for the month July 2007:

Suppliers Teleconference	10 July 2007
Monthly RPM Meeting	11 July 2007
Monthly RPM Teleconference	Cancelled.

## **Travis AFB Master Document Schedule**

- Page 2, Remedial Designs for SD001, SD033, and LF007 were updated to reflect the actual dates of submission. (Mr. Smith stated that he will email to the regulators a PowerPoint® slide of the base showing the soil sites that will be excavated.)
- Page 3, Potrero Hills Annex Record of Decision (ROD) – Mr. Settle asked Mr. Kistner what his thoughts were on the acceptance of the remedial action that was done according to the Water Board. Mr. Kistner stated that it would depend on the results. Mr. Smith stated that the regulatory agencies will have an opportunity to review what the Water Board agreed to for cleanup. Once Potrero Hills comes back under CERCLA, Travis AFB will write a ROD for the remaining sites and work with the regulatory agencies from there.  
  
Mr. Settle stated that it was his understanding that the Water Board was not providing these documents to the U.S. EPA. Mr. Friedman stated that the Water Board has submitted all documents to the U.S. EPA. Mr. Smith stated that he would update Mr. Kistner on the history and progress for Potrero Hills sites.
- Page 4, the 2007 GSAP Annual Report schedule was established.
- Page 5, Quarterly Newsletter (July 2007) and DP039 Optimization Field Report schedules were updated. Mr. Smith requested that Mr. Anderson move the Quarterly Newsletter out about two weeks in order to include pictures from the Restoration Advisory Board tour which is scheduled during the third week of July. Mr. Anderson concurred.
- Page 6, Groundwater Treatment Plant Operation and Maintenance (O&M) Reports schedules were updated. There will be an Annual Report for the Groundwater Treatment Plants rather than quarterly reports.

## **2. OPERABLE UNIT UPDATE**

### **A. North, East, West Industrial Operable Unit (NEWIOU) Soil Cleanup Status Report**

#### **1. LF007 Remedial Design**

Mr. Anderson stated that the last remedial design package which is for LF007 will be completed and then the field work will begin.

**2. FT003 Remedial Action Work Plan**

Mr. Anderson stated that time has been set aside after today's RPM meeting for the regulatory agencies to review the FT003 Remedial Action Work Plan.

Mr. Anderson asked if regulators' vacation plans will impact the review period for the remedial action work plans. Mr. Anderson stated that he will make an effort to submit these documents expeditiously, and work with the regulators to get comments submitted timely.

Mr. Settle asked Mr. Anderson if there is a great amount of difference in the various site work plans. Mr. Anderson stated that there is a huge difference in the sediment sites and the soil sites. LF007 will be the most challenging due to the off-base property that is involved. The challenges will be in how to access off-base property and what type of security measures will be implemented. The simple work plans are completed.

(Mr. Smith stated that Sites FT003, FT004, and FT005 are similar; LF007 is unique; and SD001 and SD003 are similar sediment sites.)

**3. Burrowing Owl Survey**

Mr. Anderson reported that the Burrowing Owl Survey is completed. One nest was found in the vicinity of the soil cleanup actions. It impacts the action by placing a 250 foot buffer zone around nest. (**Note:** The nest has been acclimated to the presence of human beings.) One additional survey will be conducted to ensure that this is the only nest.

**4 Wetlands Delineation**

Mr. Anderson stated that the Wetlands Delineation field work was completed. Travis AFB submitted a delineation report to the Sacramento District of the U.S. Army Corps of Engineers; however, it was determined that Travis AFB is located within the purview of the San Francisco District, U.S. Army Corps of Engineers office. Mr. Dan Martell from the San Francisco office has been assigned to this project.

Mr. Anderson asked Mr. Kistner to encourage Mr. Martell to review this document. Mr. Smith suggested that Mr. Anderson send an email to Mr. Martell, courtesy copying Mr. Kistner, explaining the urgency of this report.

**3. CURRENT PROJECTS**

**A. Treatment Plant Operation and Maintenance**

**1. South Base Boundary Groundwater Treatment Plant**

Mr. Sreenivasan reported that the South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 99.5 % uptime with 35.8million gallons of groundwater were extracted and treated during the month of April

2007. The average flow rate for the SBBGWTP was 135.4 gallons per minute (gpm). Approximately 2.8 pound of volatile organic compounds (VOCs) was removed during April 2007. The total mass of VOCs removed since the startup of the system is 307 pounds (see Attachment 3).

There was one shutdown during the month of April 2007 to get the air stripper acid washed. This was done two days after the plant effluent sample was taken (4 April 2007) and sent to the laboratory for analysis.

1,2-Dichloroethane (DCA), cis-1,2-dichloroethene (DCE), and trichloroethene (TCE) were detected in the effluent sample. TCE was detected at a concentration of 7.9 µg/L, which exceeded the instantaneous maximum effluent limit (IMEL) of 5.0 µg/L. The Travis AFB POC and the Water Board were contacted immediately upon receipt of the laboratory results. On 20 April 2007, the effluent groundwater was re-sampled to verify that the acid washing of the air stripper earlier in the month (4 April 2007) increased the efficiency of the air stripper. And as an interim solution, the groundwater was also routed to the two liquid granular activated carbon (LGAC) units prior to discharge. In a memorandum dated 25 April 2007, Travis AFB notified the Water Board that there had been a discharge exceedance at the SBBGWTP. The preliminary results of the 20 April 2007 resample were received on 26 April 2007. None of the analytes were detected in the effluent groundwater sample. Sample results are presented in Table 2. Because the effluent sample results were within compliance of the IMEL, the LGAC units were removed from the treatment stream. 1,2-DCA, cis-1,2-DCE, and TCE will continue to be closely monitored.

No construction water was processed at this plant during April 2007.

No optimization activities were planned or performed at this plant during April 2007.

## **2. Central Groundwater Treatment Plant**

Mr. Sreenivasan reported that the Central Groundwater Treatment Plant (CGWTP) performed at 99% uptime with approximately 3.4 million gallons of groundwater extracted and treated during the month of April 2007. The average flow rate for the CGWTP was 79.3 gpm. Approximately 15 pounds of VOCs were removed during April 2007. The total mass of VOCs removed since the startup of the system is 10,492 pounds. (see Attachment 4).

The plant was down infrequently during the month of April 2007 to take care of the maintenance issues.

The thermal oxidation (Th/Ox) system shutdown on 28 April 2007 was due to a low pressure alarm on the natural gas supply. The system was restarted and operated normally at 17:00 on this same date.

All treated water from this plant is being diverted to the storm drain.

### **3. North Groundwater Treatment Plant**

Mr. Sreenivasan reported that the North Groundwater Treatment Plant (NGWTP) performed at 100% uptime with approximately 0.76 million gallons of groundwater extracted and treated during the month of April 2007. The average flow for the NGWTP was 17.5 gpm. Less than a pound of VOCs was removed during April 2007, which was from groundwater and vapor. The total mass of VOCs removed since the startup of the system is 5,420 pounds (see Attachment 5).

The plant experienced no shutdowns during April 2007.

The soil vapor extraction system is off due to high water levels at the extraction wells, which is normal until the beginning of summer.

All the treated groundwater from the plant was sent to the duck pond for beneficial use.

The GSAP annual sampling event started last week and will last six to eight weeks.

Mr. Smith stated that Travis AFB will make a recommendation to shut down the SVE system.

#### **B. Military Munitions Response Program Comprehensive Site Evaluation Review**

Mr. Anderson stated that comments were received from U.S. EPA on 8 May 2007. Mr. Anderson sent out the response to comments table on 8 May 2007 and requested feedback as soon as possible. Mr. Kistner stated that he has reviewed the response to comments and stated that the responses were appropriated.

#### **C. Petroleum Only Contamination (POCO) Sites**

Mr. Day gave an update on the Petroleum Only Contamination (POCO) Sites (SD018, SD027, and SD028).

The contractors are conducting the first quarterly monitored natural attenuation (MNA) event. They anticipate this quarterly MNA event will be completed by 18 May 2007. A remedial design report is expected by the end of September 2007.

### **4. PROGRAM ISSUES UPDATE**

- A.** Mr. Smith stated that he attended a program review (Corporate Board Meeting) at Scott AFB. Travis AFB's fiscal year (FY) 2008 funding requirements will be met after Air Mobility Command validates and awards the projects.

The main change to the program for FY08 is that instead of writing the Groundwater ROD in-house, Travis AFB will award a performance based contract

(PBC) that will take all 19 groundwater sites that do not have remedies in place (RIP) to a RIP status.

Travis AFB will play a major role in developing the Groundwater ROD and strategies to reach RIP, however, a PBC does not dictate to the contractor how objectives will be met. A statement of objectives will be published and the performance-based contract will be awarded in June 2008.

Mr. Settle emphasized that the Air Force desires the regulators to actively participate in this acquisition process, (i.e. review packages from the contractors). He will contact the Corps of Engineers to provide a schedule to give overview of the Performance-Based Acquisition process. (Mr. Smith gave Mr. Settle contingency dates of 13 June or 20 June 2007 for the ACOE visit).

Mr. Smith noted that within performance-based contracting, the objectives are spelled out as far as what the Air Force wants the contractors to achieve, but the contractor will determine how they will meet the objectives. This will result in more contractor involvement with the negotiations.

## ACTION ITEM LIST

ITEM	RESPONSIBLE	ACTION ITEM	DUE DATE	STATUS
1.	Air Force	To review the perchlorate guidance as it applies to the EOD range, discuss this issue with compliance to determine what and what cannot be accomplished.	4-11-07	Completed. <b>Item Closed.</b>
2.	Air Force/ U.S. EPA	To review the GSAP response to comments table and discuss groundwater issues as applicable to the groundwater ROD and schedule a teleconference with the remaining regulatory agencies.	TBD	Ongoing.
3.	Air Force	To schedule a performance base acquisition briefing by the Corps of Engineers.	5-13-07	Mr. Settles will check on the Corps of Engineers' availability for the 13 June 2007 RPM meeting.  It has been determined that the ACOE intends to come to Travis AFB for a 15 August 2007 presentation on PBC.
4.	U.S. EPA	To review performance base acquisition experience.	4-11-07	Completed. <b>Item Closed.</b>

# **ATTACHMENT 1**

TRAVIS AIR FORCE BASE  
ENVIRONMENTAL RESTORATION PROGRAM  
REMEDIAL PROGRAM MANAGER'S  
PARTNERING MEETING  
9 May 2007, 9:30 A.M.  
AGENDA

1. ADMINISTRATIVE
  - A. PREVIOUS MEETING MINUTES (ALL)
  - B. ACTION ITEM REVIEW (ALL)
  - C. MEETING DATES AND MASTER DOCUMENT SCHEDULE REVIEW (ALL)
2. OPERABLE UNIT UPDATE
  - A. NEWIOU SOIL CLEANUP STATUS REPORT (GLENN A)
3. CURRENT PROJECTS
  - A. TREATMENT PLANT OPERATION AND MAINTENANCE UPDATE (TOM)
  - B. MILITARY MUNITIONS RESPONSE PROGRAM CSE REVIEW (GLENN A)
  - C. PETROLEUM ONLY CONTAMINATION (POCO) STATUS (WILFORD)
4. PROGRAM/ISSUES/UPDATE
5. NEW ACTION ITEM REVIEW
6. REGULATORY REVIEW PERIOD FOR FT003 REMEDIAL ACTION WORK PLAN

**Travis Air Force Base  
Remedial Program Managers' Partnering Meeting  
Sign-In Sheet**

Please initial or print name if necessary

9 May 2007

Initial	Name	Organization	Email Address	Telephone #
<i>MS</i>	Mark Smith	Travis AFB	marksmith2@travis.af.mil	(707) 424-3062
<i>GAC</i>	Glenn Anderson	Travis AFB	glenn.anderson@travis.af.mil	(707) 424-4359
<i>WD</i>	Wilford Day	Travis AFB	wilford.day@travis.af.mil	(707) 424-0452
<i>TNS</i>	Tom Sreenivasan	Travis AFB	tom.sreenivasan@travis.af.mil	(707) 424-3172
<i>GP</i>	Gregory Parrott	Travis AFB	gregory.parrott@travis.af.mil	(707) 424-1506
	Lonnie Duke	Travis AFB	lonnie.duke@travis.af.mil	(707) 424-7520
<i>GK</i>	Glenn Kistner	U.S. EPA	kistner.glenn@epa.gov	(415) 972-3004
<i>J</i>	Jose Salcedo	DTSC	jsalcedo@dtsc.ca.gov	(916) 255-3791
<i>AF</i>	Alan Friedman	CRWQCB	afriedman@waterboards.ca.gov	(510) 622-2347
	Bob Hulet	Shaw E&I	Bob.Hulet@shawgrp.com	(925) 288-2162
<i>TB</i>	Tom Barry	Shaw E&I	Tom.Barry@shawgrp.com	(925) 288-2018
	Adam Harvey	URS	adam_harvey@urscorp.com	(916) 679-2002
<i>MW</i>	Mike Wray	CH2M Hill	mwwray@ch2m.com	(916) 286-0243
	Carol Kontonickas	URS	Carol_Kontonickas@urscorp.com	(916) 679-2309
<i>AM</i>	Allen Mason	EQM	amason@eqm.com	(916) 203-2888
	Rich Howard	TechLaw	[RHoward@TechLawInc.com	(916) 497-0438

# **ATTACHMENT 2**

## 2007

### Travis AFB Annual Meeting and Teleconference Schedule

Suppliers Teleconference (8:30 a.m. - 10:00 a.m.)	Monthly RPM Meeting (Begins at 9:30 a.m.)	Monthly RPM Teleconference (Begins at 9:30 a.m.)	Restoration Advisory Board Meeting (Begins at 6:30 p.m.)
1-23-07	1-24-07 <sup>1</sup>	1-10-07	—
2-6-07	2-7-07	2-21-07	—
3-13-07	3-14-07	3-28-07	—
4-10-07 (Cancelled)	4-4-07	4-25-07 (Mark out)	4-19-07
5-8-07	5-9-07	5-23-07	—
6-12-07	6-13-07	6-27-07 (EPA out)	—
7-17-07	7-18-07 (Alan out)	7-25-07 (Alan out)	Base Tour
8-14-07	8-15-07	8-29-07	—
9-11-07	9-12-07	9-26-07	—
10-16-07	10-17-07	—	10-25-07
—	—	11-7-07	—
12-11-07	12-12-07	—	—

<sup>1</sup> – RPM meeting on the 24<sup>th</sup> of Jan will be followed by a Groundwater ROD scoping meeting from 1pm to 4pm with the regulatory agencies.

**Travis AFB Master Document Schedule  
(Continued)**

	<b>PRIMARY DOCUMENTS</b>					
	Remedial Design Travis, Glenn Anderson; URS, Adam Harvey	Remedial Design Travis, Glenn Anderson; CH2M Hill, Mike Wray				
<b>Life Cycle</b>	<b>SD001</b>	<b>SD033</b>	<b>FT003</b>	<b>FT004</b>	<b>FT005</b>	<b>LF007</b>
<b>Scoping Meeting</b>	<b>8-23-06</b>	<b>8-23-06</b>	<b>5-07-04</b>	<b>5-10-06</b>	<b>6-01-06</b>	<b>9-28-06</b>
Predraft to AF/Service Center	11-15-06	11-15-06	5-28-04	5-31-06	7-03-06	10-30-06
AF/Service Center Comments Due	12-08-06	12-08-06	6-25-04	6-20-06	7-31-06	11-27-06
Draft to Agencies	12-22-06	12-22-06	7-16-04	9-29-06	11-24-06	01-30-07
Draft to RAB	12-22-06	12-22-06	7-16-04	9-29-06	11-24-06	01-30-07
Agency Comments Due	(2-02-07) 3-1-07	(2-02-07) 3-1-07	8-16-04	10-30-06	12-29-06	3-01-07
<b>Response to Comments Meeting</b>	<b>2-14-07</b>	<b>2-14-07</b>	<b>8-23-04</b>	<b>11-08-06</b>	<b>1-10-07</b>	<b>3-7-07</b>
Response to Comments Due	(2-28-07) 3-14-07	(2-28-07) 3-14-07	9-29-04	NA**	NA**	(3-23-07) 4-27-07
Draft Final Due	(2-28-07) 3-14-07	(2-28-07) 3-14-07	9-29-04	NA**	NA**	(3-23-07) 4-27-07
Final Due	(3-30-07) 4-13-07	(3-30-07) 4-13-07	9-21-06*	11-13-06	1-16-07	(4-23-07) 5-29-07
Public Comment Period	NA	NA	NA	NA	NA	NA
<b>Public Meeting</b>	NA	NA	NA	NA	NA	NA

\* The FT003 Soil Remedial Design Package was produced in 2004 and finalized after the NEWIOU Soil, Sediment and Surface Water ROD was signed.

\*\* These design packages were not produced as Draft Final, because their regulatory agency reviews did not result in comments and requested revisions to the Draft version.

**Travis AFB Master Document Schedule  
(Continued)**

	<b>PRIMARY DOCUMENTS</b>	
	<b>Basewide Travis, Glenn Anderson</b>	<b>Potrero Hills Annex Travis, Glenn Anderson</b>
<b>Life Cycle</b>	<b>Groundwater ROD</b>	<b>Potrero Hills ROD</b>
<b>Scoping Meeting</b>	<b>1-24-07</b>	<b>180 days after Water Board Order Rescinded</b>
Predraft to AF/Service Center	2-01-09	+ 360 days
AF/Service Center Comments Due	4-01-09	+ 420 days
Draft to Agencies	6-15-09	+ 480 days
Draft to RAB	6-15-09	+ 480 days
Agency Comments Due	8-15-09	+ 540 days
<b>Response to Comments Meeting</b>	<b>9-01-09</b>	<b>+ 555 days</b>
Agency Concurrence with Remedy	9-15-09	+ 570 days
Draft Proposed Plan to Agencies	12-01-09	+ 600 days
Issue Proposed Plan	1-15-10	+ 615 days
Public Comment Period	1-15-10 to 2-15-10	+ 615 to 645 days
<b>Public Meeting</b>	<b>1-28-10</b>	<b>+ 625 days</b>
Response to Comments Due	3-01-10	+ 640 days
Draft Final Due	3-01-10	+ 640 days
Final Due	5-01-10	+ 700 days

**Travis AFB Master Document Schedule  
(Continued)**

<b>SECONDARY DOCUMENTS</b>	
<b>Life Cycle</b>	<b>2007 GSAP Annual Report Travis, Tom Sreenivasan; CH2M Hill, Mike Wray</b>
<b>Scoping Meeting</b>	NA
Predraft to AF/Service Center	10-19-07
AF/Service Center Comments Due	11-02-07
Draft to Agencies	11-16-07
Draft to RAB	11-16-07
Agency Comments Due	01-18-08
<b>Response to Comments Meeting</b>	<b>02-20-08</b>
Response to Comments Due	03-05-08
Draft Final Due	03-05-08
Final Due	03-05-08
Public Comment Period	NA
<b>Public Meeting</b>	NA

**Travis AFB Master Document Schedule  
(Continued)**

<b>INFORMATIONAL DOCUMENTS</b>		
<b>Life Cycle</b>	<b>Quarterly Newsletters (July 2007) Travis, Mark Smith</b>	<b>DP039 Optimization Field Report Travis, Glenn Anderson; Mike Wray CH2M Hill,</b>
<b>Scoping Meeting</b>	NA	10-03-05
Predraft to AF/Service Center	NA	NA
AF/Service Center Comments Due	NA	NA
Draft to Agencies	6-29-07	3-30-07
Draft to RAB	NA	3-30-07
Agency Comments Due	7-13-07	4-30-07
<b>Response to Comments Meeting</b>	<b>TBD</b>	<b><del>5-23-07</del></b>
Response to Comments Due	7-30-07	<del>5-30-07</del>
Draft Final Due	TBD	NA
Final Due	7-30-07	05-04-07
<b>Public Meeting</b>	NA	

**Travis AFB Master Document Schedule  
(Continued)**

<b>INFORMATIONAL DOCUMENTS</b>				
<b>Life Cycle</b>	<b>Groundwater Treatment Plant O&amp;M Reports</b> <b>Travis, Tom Sreenivasan;</b> <b>CH2M Hill, Mike Wray</b>			
	<b>Groundwater Treatment Plants Annual Reports Fiscal Year 2007</b>	<b>Groundwater Treatment Plants First Quarter Report Fiscal Year 2007</b>	<b>Groundwater Treatment Plants Second Quarter Report Fiscal Year 2007</b>	<b>Groundwater Treatment Plants Third Quarter Report Fiscal Year 2007</b>
<b>Scoping Meeting</b>	NA	NA	NA	NA
Predraft to AF/Service Center	1-21-08	4-13-07	7-13-07	10-12-07
AF/Service Center Comments Due	1-25-08	4-20-07	7-20-07	10-19-07
Draft to Agencies	NA	NA	NA	NA
Draft to RAB	NA	NA	NA	NA
Agency Comments Due	NA	NA	NA	NA
<b>Response to Comments Meeting</b>	NA	NA	NA	NA
Response to Comments Due	NA	NA	NA	NA
Draft Final Due	NA	NA	NA	NA
Final Due	1-31-08	4-27-07	7-27-07	10-26-07
Public Comment Period	NA	NA	NA	NA
<b>Public Meeting</b>	NA	NA	NA	NA

# **ATTACHMENT 3**

# South Base Boundary Groundwater Treatment Plant

## Monthly Data Sheet

Report Number: 81

Reporting Period: 1 – 30 April 2007

Date Submitted: 4 May 2007

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 – April 2007

Operating Time: **716.5 hours**

Percent Uptime: 99.5%

Gallons Treated: **5.8 million gallons**

Gallons Treated Since July 1998: **558.5 million gallons**

Volume Discharged to Union Creek: **5.8 million gallons**

Percentage of Treated Water to Beneficial Use: **0%**

VOC Mass Removed: **2.8 pounds<sup>a</sup>**

VOC Mass Removed Since July 1998: **307.4 pounds**

Rolling 12-Month Cost per Pound of Mass Removed: \$6,263<sup>b</sup>

Monthly Cost per Pound of Mass Removed: \$1,654<sup>b</sup>

<sup>a</sup> Calculated using April 2007 EPA Method SW8260B analytical results.

<sup>b</sup> Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the system. High costs are due to low influent concentrations.

### Flow Rates

Average Groundwater Total Flow Rate: **135.4<sup>a</sup>**

Average Flow Rate from SCADA (gpm) <sup>b</sup>							
FT005				SS029		SS030	
EW01x05	4.0	EW736x05	3.3 <sup>c</sup>	EW01x29	8.0	EW01x30	11.1
EW02x05	2.3	EW737x05	4.5	EW02x29	6.5	EW02x30	2.1
EW03x05	2.4	EW742x05	4.9	EW03x29	Off line <sup>e</sup>	EW03x30	Off line <sup>e</sup>
EW731x05	0.9	EW743x05	Off line <sup>d</sup>	EW04x29	8.4	EW04x30	16.4
EW732x05	5.3	EW744x05	6.1	EW05x29	10.3	EW05x30	9.7 <sup>f</sup>
EW733x05	0.4	EW745x05	7.1	EW06x29	10.8	EW06x30	0.3
EW734x05	4.3	EW746x05	5.2	EW07x29	Off line <sup>e</sup>	EW711x30	4.6
EW735x05	4.4						
<b>FT005 Total:</b>		<b>55.1</b>		<b>SS029 Total:</b>		<b>44.0</b>	
				<b>SS030 Total:</b>		<b>44.2</b>	

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

<sup>b</sup> Average extraction well flow rates measured by each extraction well totalizer divided by the operating time.

<sup>c</sup> Extraction well pump was repaired and was on line on 12 April 2007

<sup>d</sup> Extraction well was off line during April 2007 due to pump malfunction. Pump is scheduled to be replaced.

<sup>e</sup> Extraction well was off line due to low VOC concentrations.

<sup>f</sup> Extraction well was turned off line on 23 April 2007 due to pump malfunction.

gpm—gallons per minute

## Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
SBBGWTP (water)	4 April 2007	10:30	4 April 2007	14:00	Acid washed air stripper and flushed conveyance piping.
SBBGWTP = South Base Boundary Groundwater Treatment Plant					

## Summary of O&M Activities

Monthly groundwater sampling at the SBBGWTP was performed on 2 April 2007. Sample results are presented in Table 1. The total VOC concentration (57.9 µg/L) in the influent sample has decreased since the March 2007 sample (73.4 µg/L).

1,2-Dichloroethane (DCA), cis-1,2-dichloroethene (DCE), and trichloroethene (TCE) were detected in the effluent sample. TCE was detected at a concentration of 7.9 µg/L, which exceeded the instantaneous maximum effluent limit (IMEL) of 5.0 µg/L. The Travis AFB POC and the California Regional Water Quality Control Board (RWQCB) were contacted immediately upon receipt of the laboratory results. On 20 April, the effluent groundwater was re-sampled to verify that the acid washing of the air stripper earlier in the month (on 4 April) increased the efficiency of the air stripper. And, as an interim solution, the groundwater was also routed to the two liquid granular activated carbon (LGAC) units prior to discharge. In a memorandum dated 25 April 2007, Travis AFB notified the RWQCB that there had been a discharge exceedance at the SBBGWTP. The preliminary results of the 20 April re-sample were received on 26 April. None of the analytes were detected in the effluent groundwater sample. Sample results are presented in Table 2. Because the effluent sample results were within compliance of the IMEL, the LGAC units were removed from the treatment stream. 1,2-DCA, cis-1,2-DCE, and TCE will continue to be closely monitored.

On 4 April 2007, approximately 1,700 gallons of water was received and treated through the carbon vessels at the SBBGWTP. The water originated from the newly installed wells at the Petroleum Only Contaminant (POCO) site through well development/purging and decontamination activities.

On 11 and 12 April 2007, the extraction well pump for EW736x05 was repaired and was turned on line. On 23 April 2007, the circuit breaker for EW05x30 tripped, and when then breaker was reset, the pump failed to start. EW05x30 is currently off line.

## Optimization Activities

There were no optimization activities conducted at the SBBGWTP during April 2007. System optimization recommendations were included in the 2006 Annual O&M Report.

Table 1

Summary of Groundwater Analytical Data for April 2007 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum <sup>a</sup> (µg/L)	Detection Limit (µg/L)	N/C	2 April 2007 (µg/L)	
				Influent	Effluent
<b>Halogenated Volatile Organics</b>					
Bromodichloromethane	0.5	0.17	0	ND	ND
Carbon Tetrachloride	0.5	0.19	0	ND	ND
Chloroform	5	0.16	0	ND	ND
Dibromochloromethane	0.5	0.17	0	ND	ND
1,1-Dichloroethane	5	0.16	0	ND	ND
1,2-Dichloroethane	0.5	0.13	0	0.54	0.29 J
1,1-Dichloroethene	5	0.14	0	ND	ND
cis-1,2-Dichloroethene	5	0.15	0	3.4	0.81
trans-1,2-Dichloroethene	5	0.15	0	ND	ND
Methylene Chloride	5	0.32	0	ND	ND
Tetrachloroethene	5	0.20	0	ND	ND
1,1,1-Trichloroethane	5	0.16	0	ND	ND
1,1,2-Trichloroethane	5	0.32	0	ND	ND
Trichloroethene	5	0.16	1	54	7.9
Vinyl Chloride	0.5	0.38	0	ND	ND
<b>Non-Halogenated Volatile Organics</b>					
Benzene	1.0	0.16	0	ND	ND
Ethylbenzene	5.0	0.16	0	ND	ND
Toluene	5.0	0.17	0	ND	ND
Xylenes	5.0	0.34	0	ND	ND
<b>Other</b>					
Total Petroleum Hydrocarbons – Gasoline	50	4.9	0	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	32	0	NM	ND
Total Suspended Solids (mg/L)	NE	1.1	0	31	NM
<sup>a</sup> 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 April 2007 (Confirmation) – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum <sup>a</sup> (µg/L)	Detection Limit (µg/L)	N/C	20 April 2007
				(µg/L) Effluent
<b>Halogenated Volatile Organics</b>				
Bromodichloromethane	0.5	0.17	0	ND
Carbon Tetrachloride	0.5	0.19	0	ND
Chloroform	5	0.16	0	ND
Dibromochloromethane	0.5	0.17	0	ND
1,1-Dichloroethane	5	0.16	0	ND
1,2-Dichloroethane	0.5	0.13	0	ND
1,1-Dichloroethene	5	0.14	0	ND
cis-1,2-Dichloroethene	5	0.15	0	ND
trans-1,2-Dichloroethene	5	0.15	0	ND
Methylene Chloride	5	0.32	0	ND
Tetrachloroethene	5	0.20	0	ND
1,1,1-Trichloroethane	5	0.16	0	ND
1,1,2-Trichloroethane	5	0.32	0	ND
Trichloroethene	5	0.16	0	ND
Vinyl Chloride	0.5	0.38	0	ND
<b>Non-Halogenated Volatile Organics</b>				
Benzene	1.0	0.16	0	ND
Ethylbenzene	5.0	0.16	0	ND
Toluene	5.0	0.17	0	ND
Xylenes	5.0	0.34	0	ND

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

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

# **ATTACHMENT 4**

# Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 94

Reporting Period: 1 – 30 April 2007

Date Submitted: 4 May 2007

This data sheet includes the following: results for the operation of the Central Groundwater Treatment Plant (CGWTP), West Treatment and Transfer Plant (WTTP), and thermal oxidation (ThOx) system (previously referred to as the two-phase extraction [TPE] system); a summary of flow rates for the CGWTP, WTTP, ThOx, 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.

## Operations Summary – April 2007

Operating Time:

**CGWTP:** 713 hours  
**WTTP:** Water: 688 hours Vapor: 686 hours  
**ThOx:** 697 hours

Percent Uptime:

**CGWTP:** 99.0%  
**WTTP:** Water: 95.6% Vapor: 95.3%  
**ThOx:** 96.8%

Gallons Treated: 3.4 million gallons

Gallons Treated Since January 1996: 345 million gallons

VOC Mass Removed:

**12.9 lbs (groundwater only)<sup>a</sup>**  
**2.0 lbs (vapor only)<sup>b</sup>**

VOC Mass Removed Since January 1996:

**2,177.5 lbs from groundwater**  
**8,314 lbs from vapor**

UV/Ox DRE: 100%

ThOx DRE: NA<sup>c</sup>

Rolling 12-Month Cost per Pound of Mass Removed: \$535<sup>d</sup>

Monthly Cost per Pound of Mass Removed: \$584<sup>d</sup>

<sup>a</sup> Calculated using April 2007 EPA Method SW8260B analytical results.

<sup>b</sup> Total VOC vapor mass removed was calculated using March 2007 EPA Method TO-14 analytical results for the DP039 extraction wells and the ThOx.

<sup>c</sup> Due to the very low influent VOC concentrations, the destruction removal efficiency was not calculated.

<sup>d</sup> Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the system.

DRE = destruction removal efficiency

UV/Ox = ultraviolet oxidation

## Flow Rates

Average Groundwater Flow Rate: **79.3 gpm<sup>a</sup>**

Location	Average Flow Rate	
	Groundwater (gpm)	Soil Vapor (scfm)
EW01x16	27.7 <sup>b</sup>	NA
EW02x16	Off line <sup>c</sup>	NA
EW03x16	Off line <sup>d</sup>	NA
EW605x16	13.7 <sup>b</sup>	NA
EW610x16	5.2 <sup>b,e</sup>	NA
WTTP	31.2 <sup>f</sup>	94.0 <sup>g</sup>
ThOx	NA	57.5 <sup>g</sup>

<sup>a</sup> as measured by the effluent discharge to the storm drain divided by the operating time.

<sup>b</sup> as measured by extraction well totalizer divided by the operating time.

<sup>c</sup> EW02x16 (water) was taken off line due to pump failure.

<sup>d</sup> EW03x16 (water) was taken off line in September 2002 due to a significant decrease in flow rates.

<sup>e</sup> extraction well pump was replaced on 15 March 2007

<sup>f</sup> as measured by the effluent groundwater pumped to the CGWTP divided by the operating time.

<sup>g</sup> flow rate measured using pitot tube

gpm = gallons per minute

NA = not applicable

scfm = standard cubic feet per minute

## Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
WTTP	8 April 2007	13:00	8 April 2007	17:00	Low flow rate alarm on eductor supply.
CGWTP (water)	9 April 2007	12:30	9 April 2007	16:30	Replaced UV/Ox lamp #1 quartz tube and wiper assembly.
ThOx	9 April 2007	12:30	9 April 2007	16:30	CGWTP was shutdown
WTTP	9 April 2007	12:30	9 April 2007	16:30	CGWTP was shutdown
CGWTP (water)	10 April 2007	12:00	10 April 2007	15:00	Replaced UV/Ox lamp #2, 3, and 4 wiper actuators.
ThOx	10 April 2007	12:00	10 April 2007	15:00	CGWTP was shutdown
WTTP	10 April 2007	12:00	10 April 2007	15:00	CGWTP was shutdown
WTTP (vapor)	13 April 2007	7:00	13 April 2007	9:00	Electrical power outage or surge
WTTP	14 April 2007	16:00	15 April 2007	12:00	(Same Problem)
WTTP	23 April 2007	11:00	23 April 2007	12:00	(Same Problem)
ThOx (vapor)	28 April 2007	1:00	28 April 2007	17:00	Low pressure in natural gas supply.
CGWTP = Central Groundwater Treatment Plant ThOx = Thermal Oxidation System WTTP = West Treatment and Transfer Plant					

## Summary of O&M Activities

Monthly groundwater sampling at the CGWTP was performed on 2 April 2007. Groundwater sample results are summarized in Table 1. The total VOC concentration (455 µg/L) in the April 2007 influent groundwater sample has increased slightly since the March 2007 sample (436 µg/L). Chloroform, cis-1,2-dichloroethene (DCE), and trichloroethene (TCE) were present in groundwater samples downstream of the UV-Ox system, but within the carbon treatment system. Cis-1,2-DCE and TCE were completely treated by the carbon system and were not detected in the system effluent. Chloroform was detected in the system effluent, but at a concentration much lower than the effluent limit. The detections in these samples may be attributed to desorption from the granular activated carbon (GAC). The system performance will continue to be monitored in the upcoming months.

On 3 April 2007, the wells from DP039 were shutdown for groundwater extraction only. A vault located 200 feet south of the WTTP had filled with water from the sprinklers. The vault was drained and the system was returned to normal operations. In addition, EW555x43 eductor discharge flow meter was repaired on the same day. On 17 April 2007, the flow transmitter for EW501x33 was replaced, and the eductor supply meter was replaced for EW510x33.

On 9 April 2007, the quartz tube and wiper assembly were replaced for the UV/Ox lamp #1. On 10 April 2007, the wiper actuators were replaced for the UV/Ox lamps #2, 3, and 4.

## Optimization Activities

There were no optimization activities conducted at the CGWTP during April 2007. System optimization recommendations were included in the 2006 Annual O&M Report, and are currently being considered by the Restoration Staff.

Table 1

Summary of Groundwater Analytical Data for April 2007 – Central Groundwater Treatment Plant

Constituent	Instantaneous Maximum <sup>a</sup> (µg/L)	Detection Limit (µg/L)	N/C	2 April 2007 (µg/L)					
				Influent	After UV/OX	After Carbon 1 Effluent	After Carbon 2 Effluent	After Carbon 3 Effluent	System Effluent
<b>Halogenated Volatile Organics</b>									
Bromodichloromethane	5.0	0.15	0	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	0.5	0.19	0	ND	ND	ND	ND	ND	ND
Chloroform	5.0	0.16	0	0.17 J	ND	0.18 J	0.24 J	0.27 J	0.19 J
Dibromochloromethane	5.0	0.19	0	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	5.0	0.13	0	0.21 J	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	5.0	0.16	0	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.16	0	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5.0	0.12	0	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.5	0.17	0	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	5.0	0.14	0	2.9	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.15	0	58	ND	ND	1.3	ND	ND
trans-1,2-Dichloroethene	5.0	0.15	0	2.1	ND	ND	ND	ND	ND
Methylene Chloride	5.0	0.12	0	ND	ND	ND	ND	ND	ND
Tetrachloroethene	5.0	0.20	0	0.51	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	5.0	0.13	0	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.23	0	ND	ND	ND	ND	ND	ND
Trichloroethene	5.0	0.16 – 1.6	0	390	ND	2.4	1.2	ND	ND
Vinyl Chloride	0.5	0.17	0	1.1	ND	ND	ND	ND	ND
<b>Non-Halogenated Volatile Organics</b>									
Benzene	1.0	0.18	0	ND	ND	ND	ND	ND	ND
Ethylbenzene	5.0	0.11	0	ND	ND	ND	ND	ND	ND
Toluene	5.0	0.12	0	ND	ND	ND	ND	ND	ND
Total Xylenes	5.0	0.36	0	ND	ND	ND	ND	ND	ND

<sup>a</sup> 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  
 ND = not detected  
 N/C = number of samples out of compliance with discharge limits  
 µg/L = micrograms per liter

# **ATTACHMENT 5**

# North Groundwater Treatment Plant Monthly Data Sheet

Report Number: 83

Reporting Period: 1 – 30 April 2007

Date Submitted: 4 May 2007

This data sheet includes the following: results for the operation of the groundwater extraction and soil vapor extraction (SVE) systems; 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 selected samples collected.

## Operations Summary – April 2007

Operating Time: **Water:** 720 hours

Percent Uptime: **Water:** 100%

**Vapor:** 0<sup>a</sup>

**Vapor:** 0%<sup>a</sup>

Gallons Treated: 0.76 million gallons

Gallons Treated Since March 2000: 73.9 million gallons

Volume Discharged to Storm Drain: 0 gallons

Volume Discharged to Duck Pond: 0.76 million gallons

Percentage of Treated Water to Beneficial Use: 100%

VOC Mass Removed:

VOC Mass Removed Since March 2000:

**0.33 lbs (groundwater only)<sup>b</sup>**

**172.9 lbs from groundwater**

**0 lbs (vapor only)<sup>a</sup>**

**5,240 lbs from vapor<sup>c</sup>**

VGAC Removal Efficiency: **NA**

Rolling 12-Month Cost per Pound of Mass Removed: \$27,218<sup>de</sup>

Monthly Cost per Pound of Mass Removed: \$11,682<sup>d</sup>

<sup>a</sup> The SVE system was shut down on 12 October 2006 due to low vapor VOC concentrations.

<sup>b</sup> Calculated using April 2007 EPA Method SW8260B analytical results.

<sup>c</sup> Cumulative total VOC vapor mass removed includes 4,860 pounds of petroleum hydrocarbon VOC mass removed and treated by a portable catalytic oxidizer system between 15 July and 17 September 2003.

<sup>d</sup> Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the system. High costs are due to low influent groundwater concentrations and low flow rates.

<sup>e</sup> The rolling 12-month cost per pound of mass removed is calculated by the sum of the monthly cost over the past 12 months divided by the sum of pounds removed during the same period.

## Flow Rates

Average Groundwater Total Flow Rate: **17.5 gpm<sup>a</sup>**

Location	Flow Rate on 27 April 2007	
	Groundwater (gpm)	Soil Vapor (scfm) <sup>b</sup>
EW565x31	2.0	Off line
EW566x31	2.6	Off line
EW567x31	1.3	NA
EW576x04	1.1	Off line
EW577x04	1.2	Off line
EW578x04	2.1	Off line
EW579x04	0.5	NA
EW580x04	2.1	NA
EW621x04	1.6	NA
EW622x04	1.1	NA
EW623x04	1.0	NA
EW614x07	0.8 <sup>c</sup>	NA
EW615x07	1.1 <sup>c</sup>	NA
SVE System	NA	Off line

<sup>a</sup> The flow rate was calculated using the effluent discharge totalizer divided by the operating time of the plant.

<sup>b</sup> The SVE system was shut down on 12 October 2006 due to low vapor VOC concentrations.

<sup>c</sup> LF007 wells were turned on for the dry season on 5 April 2007. During the dry season, these submersible pumps are solar powered, and only operate during day light hours.

gpm = gallons per minute

scfm = standard cubic feet per minute

## Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
NGWTP (water)	NA	NA	NA	NA	No shutdowns during the month of April 2007
NA = not applicable NGWTP = North Groundwater Treatment Plant					

## Summary of O&M Activities

Monthly groundwater sampling at the NGWTP was performed on 2 April 2007. Sample results are presented in Table 1. The total VOC concentration (52.03 µg/L) in the influent sample has remained relatively steady since the February 2007 sample (52.81 µg/L) and March 2007 sample (52.36 µg/L). There were no VOCs detected in the effluent sample. The air stripper and associated piping at the NGWTP were acid washed on 19 March 2007.

The LF007 solar extraction wells (EW614x07 and EW615x07) were turned on for the dry season on 5 April 2007. In addition, a new totalizer was installed at the NGWTP that will display the total gallons extracted from the LF007C site and the combined flow rate of both wells.

## Optimization Activities

There were no optimization activities conducted at the NGWTP during April 2007. System optimization recommendations were included in the 2006 Annual O&M Report, and are currently being considered by the Restoration Staff.

Table 1

Summary of Groundwater Analytical Data for April 2007 – North Groundwater Treatment Plant

Constituent	Instantaneous Maximum <sup>a</sup> (µg/L)	Detection Limit (µg/L)	N/C	2 April 2007 (µg/L)	
				Influent	Effluent
<b>Halogenated Volatile Organics</b>					
Bromodichloromethane	0.5	0.17	0	ND	ND
Carbon Tetrachloride	0.5	0.19	0	ND	ND
Chloroform	5.0	0.16	0	ND	ND
Dibromochloromethane	0.5	0.17	0	ND	ND
1,1-Dichloroethane	5.0	0.16	0	ND	ND
1,2-Dichloroethane	0.5	0.13	0	ND	ND
1,1-Dichloroethene	5.0	0.14	0	3.8	ND
cis-1,2-Dichloroethene	5.0	0.15	0	0.53	ND
trans-1,2-Dichloroethene	5.0	0.15	0	ND	ND
Methylene Chloride	5.0	0.32	0	ND	ND
Methyl Ethyl Ketone (2-Butanone)	5.0	1.8	0	ND	ND
Tetrachloroethene	5.0	0.20	0	ND	ND
1,1,1-Trichloroethane	5.0	0.16	0	6.7	ND
1,1,2-Trichloroethane	5.0	0.32	0	ND	ND
Trichloroethene	5.0	0.16	0	41	ND
Vinyl Chloride	0.5	0.38	0	ND	ND
<b>Non-Halogenated Volatile Organics</b>					
Benzene	1.0	0.16	0	ND	ND
Ethylbenzene	5.0	0.16	0	ND	ND
Toluene	5.0	0.17	0	ND	ND
Xylenes	5.0	0.34	0	ND	ND
<b>Other</b>					
Total Petroleum Hydrocarbons – Gasoline	50	4.9	0	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	32	0	NM	ND

<sup>a</sup> 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).

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