Final

Travis Air Force Base
Environmental Management
Building 570, Travis AFB, California
Environmental Restoration Program
Remedial Program Managers
Meeting Minutes

16 August 2006, 0930 Hours

Mr. Mark Smith, Travis Air Force Base (AFB), conducted the Remedial Program Managers (RPM) meeting held on 16 August 2006 at 0930 via teleconference. Attendees included:

• Mark Smith	Travis AFB
• Wilford Day	Travis AFB
• Gregory Parrott	Travis AFB
• Jose Salcedo	Department of Toxic Substances Control (DTSC)
• John Lucey	U.S. Environmental Protection Agency (U.S.EPA)
• Alan Friedman	California Regional Water Quality Control Board (CRWQCB)
• Adam Harvey	URS
• Dale Malsberger	URS
• John McGuire	Shaw Engineering and Infrastructure (Shaw E&I)
• Mike Wray	CH2M Hill
• Allen Mason	EQM

Handouts distributed throughout the meeting included:

• Attachment 1	Meeting Agenda
• Attachment 2	Master Meeting, Teleconference, and Document Schedules
• Attachment 3	SBBGWTP Monthly Data Sheet (July 2006)
• Attachment 4	CGWTP Monthly Data Sheet (July 2006)
• Attachment 5	NGWTP Monthly Data Sheet (July 2006)

1. ADMINISTRATIVE

A. Previous Meeting Minutes

The July 2006 RPM meeting minutes were approved and finalized.

B. Master Meeting and Document Schedule

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

Travis AFB Monthly Meeting Schedule

— Page 1, Monthly Meetings Schedule was updated as follows:

Suppliers Teleconference	RPM Meeting	RPM Teleconference
08-15-2006	08-16-2006	08-30-2006
09-26-2006	09-27-2006	09-13-2006
10-24-2006	10-25-2006	10-11-2006 @ 1:30 p.m.

Mr. Friedman stated that he will not be present for the August teleconference.

Travis AFB Master Document Schedule

— Page 6, the Remedial Designs for FT003 and FT004 slipped for the ecological sections that were rewritten. An updated schedule will be provided.

2. OPERABLE UNIT UPDATE

A. North, East, West Industrial Operable Unit (NEWIOU)

1. Review of New Remedial Design Section on Wetlands

Mr. Smith stated that Mr. Anderson previously submitted to the agencies via email the revised wetland section for the Draft Final FT003 Remedial Design Package. This section will also be included in FT003, FT004, FT005, and LF007.

Mr. Lucey stated that he will submit his comments on 17 August 2006. Mr. Friedman stated he had no comments. Mr. Salcedo stated that he has reviewed the section and has no comments; however, he forwarded the section to the DTSC's attorney for review.

Mr. Smith stated that he would like the agencies to provide feedback by 21 August 2006.

2. Draft Final FT003 Remedial Design Package.

Mr. Smith stated that the Air Force is waiting for comments from DTSC. Mr. Salcedo stated that he has no comments.

Travis AFB will finalize this document once the ecological section has been reviewed.

3. CURRENT PROJECTS

A. South Base Boundary Groundwater Treatment Plant

Mr. Mason reported that the South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 100 % uptime, and 2.7 million gallons of groundwater were extracted and treated during the month of July 2006. The average flow rate

for the SBBGWTP was 59.8 gallons per minute (gpm). Approximately 0.4 pound of volatile organic compounds (VOCs) was removed during July 2006. The total mass of VOCs removed since the startup of the system is 291 pounds (see Attachment 3).

There were no shutdowns during the month of July 2006.

No construction water was processed at this plant during July 2006.

No optimization activities were planned or performed during July 2006.

B. Central Groundwater Treatment Plant

Mr. Mason reported that the Central Groundwater Treatment Plant (CGWTP) performed at 97.2% uptime with approximately 2.6 million gallons of groundwater extracted and treated during the month of July 2006. The average flow rate for the CGWTP was 59.4 gpm. Approximately 32 pounds of VOCs were removed during July 2006. The total mass of VOCs removed since the startup of the system is 10,402 pounds. (see Attachment 4).

The thermal oxidation (Th/Ox) system continued to treat vapor from the 2-phase well as part of the SS016 focused vapor extraction activities. There were a couple of shutdowns due to high water level in the knockout tank preventing the burner to operate at its best efficiency. The focused extractions will continue at this well.

The West Treatment and Transfer Plant (WTTP) experienced intermittent shutdowns for the installation of a new vapor flow meter and due to high water level in the blower knockout tank.

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

No optimization activities were planned or performed during July 2006.

C. North Groundwater Treatment Plant

Mr. Mason reported that the North Groundwater Treatment Plant (NGWTP) performed at 46.8% uptime with approximately 460,000 gallons of groundwater extracted and treated during the month of July 2006. The average flow for the NGWTP was 22.1 gpm. Less than a pound of VOC was removed during July 2006, which was from groundwater. The total mass of VOCs removed since the startup of the system is 5,411 pounds (see Attachment 5).

The plant experienced one short and a long shutdown during July 2006. The short one was due to high water level in the wet well. The long shutdown from July 12 through July 28 was due to the eductor supply pump failure. A rock was lodged in the impeller which damaged multiple stages of the impeller.

The soil vapor extraction (SVE) system has been taken off line since November 2005 due to high water levels rising above the well screens. The system was

checked for water levels at the extraction wells and found to be high, thus preventing the start of the vapor extraction system.

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

D. Community Involvement Plan Update

Mr. Smith stated that the Community Involvement Plan (CIP) has been reviewed by DTSC. The tentative date for this document to be submitted is by the end of next week.

4. PROGRAM ISSUES UPDATE

A. Document Reviews

Mr. Smith stressed that the face-to-face meetings (RPM) can be used as remedial design review meetings, in order to ensure that the projects stay on schedule.

B. Toxicity Test Results

Mr. Harvey stated that the preliminary laboratory results for toxicity are negative. A summary technical memorandum on the results will be submitted to the Air Force.

C. Potrero Hills

Mr. Lucey stated that U.S. EPA posed the question to the Air Force asking what is the long-term schedule and plan for the site (Potrero Hills), and what are the criteria in determining the long-term schedule. He posed the question, whether the Air Force really needs to wait for the groundwater to be addressed.

Mr. Smith stated that the Air Force has responded that the cleanup is being performed under a Water Board order. Once the cleanup is completed, it will meet the Water Board's requirements. The Air Force will then step in and close the sites with the exception of land use controls for groundwater.

Mr. Lucey stated that in the interest of saving the tax payers' money, could the Air Force in fact include these sites with the Basewide Groundwater Record of Decision (ROD).

Mr. Lucey asked if the Air Force needed to wait for the Water Board's action to go all the way to closure before it can be written into a ROD stating that there was a cleanup out there. If the answer is yes that it can be placed in a ROD now, then why not place it in the Basewide Groundwater ROD.

Mr. Smith stated that it is the Air Force's intent to proceed on with Potrero Hills as a separate operable unit and prepare a separate ROD. The groundwater contamination is the result of the activities of tenants and not the Air Force. The

Air Force will address the decisions that need to be made once the Water Board has completed their effort at Potrero Hills.

Mr. Lucey stated that it is his preference to get this as a Federal Facility Agreement (FFA) item and create a schedule for Potrero Hills.

Mr. Smith stated that the Air Force will revisit these issues when Ms. Cassa is available and noted that U.S. EPA desires to bring these issues to a close and plan for a cleanup effort at Potrero Hills

D. Other

Mr. Lucey asked if there is any field work going on at DP039. Mr. Smith stated that there is ongoing field work at DP039 and that Travis AFB is about to install a dual phase well and extraction well along with a few soil borings which is scheduled to begin next week.

Mr. Lucey stated that there are new employees and interns who would like to observe field activities such as the installation of new wells. He asked if Travis AFB could be a candidate for this.

Mr. Smith welcomed the idea and suggested also touring the treatment plants.

Mr. Smith offered to contact Mr. Lucey to provide a schedule of the activities that are planned to take place.

ACTION ITEM LIST

ITEM	RESPONSIBLE	ACTION ITEM	DUE DATE	STATUS
1.	DTSC	To provide status on the review for the Community Involvement Plan.	2 Aug 2006	**Completed. Item Closed.**
2.	Air Force	To complete the ecological issues for the FT003 and FT004 remedial designs.	3 Aug 2006	**Completed. Item Closed.** Wetland section has been provided to the agencies
3.	Water Board	To consult with Ms. Cassa and provide a date that the Water Board may rescind the Potrero Hills Order No. R2-2002-103.	Open	Ongoing
4.	Water Board	U.S. EPA is recommending that the Water Board update the status of groundwater monitoring in Potrero Hills' Order No. R2-2002-103, and ensure that it meets CERCLA requirements.	Open	Ongoing
5.	Water Board	Extend an invitation to have Ms. Cassa attend the next RPM teleconference	30 Aug 2006	Ongoing.
6.	Agencies	To provide comments on the ecological section of remedial designs.	21 Aug 2006	New Item.

ATTACHMENT 1

TRAVIS AIR FORCE BASE ERP
REMEDIAL PROGRAM MANAGER'S MEETING
16 August, 9:30 A.M.
Teleconference (707) 424-8811
AGENDA

1. ADMINISTRATIVE

   A. PREVIOUS MEETING MINUTES
   B. ACTION ITEM REVIEW (ALL)
   C. MEETING DATES AND MASTER DOCUMENT SCHEDULE REVIEW

2. OPERABLE UNIT UPDATE

   A. NEWIOU (MARK)
      (1). REVIEW OF NEW RD SECTION ON WETLANDS
      (2). DRAFT FINAL FT003 RD PACKAGE REVIEW

3. CURRENT PROJECTS

   A. SOUTH BASE BOUNDARY GROUNDWATER TREATMENT PLANT
      (1). OPERATIONAL STATUS (TOM)
   B. CENTRAL GROUNDWATER TREATMENT PLANT
      (1). OPERATIONAL STATUS (TOM)
   C. NORTH GROUNDWATER TREATMENT PLANT
      (1). OPERATIONAL STATUS (TOM)
   D. COMMUNITY INVOLVEMENT PLAN UPDATE (MARK)

4. PROGRAM/ISSUES/UPDATE
   A. DOCUMENT REVIEWS

5. NEW ACTION ITEM REVIEW

ATTACHMENT 2

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.)
1-10-06	1-11-06	1-25-06	*01-26-06
2-7-06	2-8-06	2-22-06	—
~~3-7-06~~	**3-15-06	3-22-06	—
4-18-06	4-19-06	4-26-06	4-27-06
5-9-06	5-10-06	5-24-06	—
6-27-06	6-28-06	NA	—
7-25-06	7-26-06	NA	—
***8-15-06	***8-16-06	***8-30-06	—
***9-26-06	***9-27-06	***9-13-06	—
***10-24-06	***10-25-06	***10-11-06 (1:30 pm)	10-26-06
—	—	11-15-06	—
12-12-06	12-13-06	—	—

* Public Meeting for the NEWIOU Soil Record of Decision

** NEWIOU ROD Response to Comments Meeting (Actual date held was 3/22/06 with follow on comments from EPA on 3/27/06 and 3/30/06)

*** These dates were established during the 28 June 2006 RPM meeting.

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Travis AFB Master Document Schedule
(Continued)

	PRIMARY DOCUMENTS					
	Remedial Design Travis, Glenn Anderson; URS, Adam Harvey	Remedial Design Travis, Glenn Anderson; URS, Adam Harvey	Remedial Design Travis, Glenn Anderson; URS, Adam Harvey	Remedial Design Travis, Glenn Anderson; URS, Adam Harvey	Remedial Design Travis, Glenn Anderson; URS, Adam Harvey	Remedial Design Travis, Glenn Anderson; CH2M Hill, Mike Wray
Life Cycle	**SD001**	**SD033**	**FT003**	**FT004**	**FT005**	**LF007**
Scoping Meeting	**8-23-06**	**8-23-06**	**5-07-04**	**5-10-06**	**6-01-06**	**9-28-06**
Predraft to AF/Service Center	9-20-06	9-20-06	5-28-04	5-31-06	7-03-06	10-30-06
AF/Service Center Comments Due	10-18-06	10-18-06	6-25-04	6-20-06	7-31-06	11-27-06
Draft to Agencies	11-01-06	11-01-06	7-16-04	7-20-06	9-06-06	1-02-07
Draft to RAB	11-01-06	11-01-06	7-16-04	7-20-06	9-06-06	1-02-07
Agency Comments Due	12-06-06	12-06-06	8-16-04	8-18-06	10-06-06	2-01-07
Response to Comments Meeting	**12-13-06**	**12-13-06**	**8-23-04**	**8-23-06**	**10-18-06**	**2-7-07**
Response to Comments Due	01-24-07	01-24-07	9-29-04	9-18-06	11-03-06	2-23-07
Draft Final Due	01-24-07	01-24-07	9-29-04	9-18-06	11-03-06	2-23-07
Final Due	02-21-07	02-21-07	7-26-06*	10-18-06	12-06-06	3-23-07
Public Comment Period	NA	NA	NA	NA	NA	NA
Public Meeting	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.

Travis AFB Master Document Schedule
(Continued)

	PRIMARY DOCUMENTS	
	Basewide Travis, Glenn Anderson	**Potrero Hills Annex Travis, Glenn Anderson**
Life Cycle	**Groundwater ROD**	**Potrero Hills ROD**
Scoping Meeting	**1-30-07**	**180 days after Order Rescinded**
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
Response to Comments Meeting	**9-01-09**	**+ 555 days**
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
Public Meeting	**1-28-10**	**+ 625 days**
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)

SECONDARY DOCUMENTS	
Life Cycle	**2006 GSAP Annual Report Travis, Tom Sreenivasan; CH2M Hill, Mike Wray**
Scoping Meeting	**NA**
Predraft to AF/Service Center	09-29-06
AF/Service Center Comments Due	10-30-06
Draft to Agencies	11-13-06
Draft to RAB	11-13-06
Agency Comments Due	01-15-07
Response to Comments Meeting	**02-14-07**
Response to Comments Due	02-28-07
Draft Final Due	02-28-07
Final Due	03-30-07
Public Comment Period	NA
Public Meeting	NA

Travis AFB Master Document Schedule
(Continued)

INFORMATIONAL DOCUMENTS	
Life Cycle	**Quarterly Newsletters (for the 26 October 2006 RAB) Travis, Mark Smith**
Scoping Meeting	NA
Predraft to AF/Service Center	NA
AF/Service Center Comments Due	NA
Draft to Agencies	9-14-06
Draft to RAB	NA
Agency Comments Due	9-28-06
Response to Comments Meeting	**TBD**
Response to Comments Due	10-12-06
Draft Final Due	TBD
Final Due	10-12-06
Public Meeting	NA

Travis AFB Master Document Schedule
(Continued)

INFORMATIONAL DOCUMENTS				
	Groundwater Treatment Plant O&M Reports **Travis, Tom Sreenivasan;** **CH2M Hill, Mike Wray**			
Life Cycle	**Groundwater Treatment Plants Annual Reports Fiscal Year 2005**	**Groundwater Treatment Plants First Quarter Report Fiscal Year 2006**	**Groundwater Treatment Plants Second Quarter Report Fiscal Year 2006**	**Groundwater Treatment Plants Third Quarter Report Fiscal Year 2006**
Scoping Meeting	**NA**	**NA**	**NA**	**NA**
Predraft to AF/Service Center	1-16-06	4-14-06	7-14-06	10-13-06
AF/Service Center Comments Due	1-20-06	4-21-06	7-21-06	10-20-06
Draft to Agencies	NA	NA	NA	NA
Draft to RAB	NA	NA	NA	NA
Agency Comments Due	NA	NA	NA	NA
Response to Comments Meeting	**NA**	**NA**	**NA**	**NA**
Response to Comments Due	NA	NA	NA	NA
Draft Final Due	NA	NA	NA	NA
Final Due	1-27-06	4-28-06	7-28-06	10-27-06
Public Comment Period	NA	NA	NA	NA
Public Meeting	**NA**	**NA**	**NA**	**NA**

ATTACHMENT 3

South Base Boundary Groundwater Treatment Plant
Monthly Data Sheet

Report Number: 72 **Reporting Period: 1 – 31 July 2006** **Date Submitted: 8 August 2006**

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 2006

Operating Time: **744 hours**

Percent Uptime: **100.0%**

Gallons Treated: **2.7 million gallons**

Gallons Treated Since July 1998: **524 million gallons**

Volume Discharged to Union Creek: **2.7 million gallons**

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

VOC Mass Removed: **0.38 pounds**[a]

VOC Mass Removed Since July 1998: **290.3 pounds**

Rolling 12-Month Cost per Pound of Mass Removed: **$30,770**[b]

Monthly Cost per Pound of Mass Removed: **$35,121**[b]

[a] Calculated using July 2006 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. High costs are due to low influent concentrations and low flow rate.

Flow Rates

Average Groundwater Total Flow Rate: **59.8**[a]

Average Flow Rate from SCADA (gpm)							
FT005				**SS029**		**SS030**	
EW01x05	16.3	EW736x05	0.2	EW01x29	0.1	EW01x30	10.3
EW02x05	Off line[b]	EW737x05	Off line[b]	EW02x29	0.2	EW02x30[b]	Off line[b]
EW03x05	0.1[c]	EW742x05	Off line	EW03x29	Off line	EW03x30[b]	Off line[b]
EW731x05	Off line[b]	EW743x05	0.6[c]	EW04x29	0.5	EW04x30	Off line[b]
EW732x05	1.4	EW744x05	1.1	EW05x29	10.5	EW05x30	21.2
EW733x05	Off line	EW745x05	0.1	EW06x29	Off line	EW06x30	Off line[b]
EW734x05	Off line	EW746x05	0.1	EW07x29	Off line[b]	EW711x30	Off line
EW735x05	0.0						
		FT005 Total:	20	SS029 Total:	11	SS030 Total:	32

[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 was shutdown in July 2006 due to pump failure, low recharge or no flow.
[c] Extraction well was restarted in July 2006.

gpm—gallons per minute

Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
SBBGWTP	NA	NA	NA	NA	No shutdowns during the month of July 2006

NA = not applicable
SBBGWTP = South Base Boundary Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater sampling at the SBBGWTP was performed on 5 July 2006. Sample results are presented in Table 1. The total VOC concentration (16.95 µg/L) in the influent sample has increased since the June 2006 sample (9.54 µg/L).

On 14 June 2006, the air stripper and effluent piping were acid washed to remove a calcium carbonate buildup. The acid washing has improved the efficiency of the air stripper to remove contaminants from the groundwater. As seen on Table 1, all analytes were non-detect in the effluent sample. The average groundwater flow rate has decreased; however, this is due to the shutdown of several extraction wells due to pump failure, low recharge, and no flow.

Optimization Activities

There were no optimization activities associated with SBBGWTP during July 2006.

Table 1.
Summary of Groundwater Analytical Data for July 2006 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	5 July2006 (µg/L) Influent	5 July2006 (µg/L) Effluent
Halogenated Volatile Organics					
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	ND	ND
1,1-Dichloroethene	5	0.14	0	ND	ND
cis-1,2-Dichloroethene	5	0.15	0	0.95	ND
trans-1,2-Dichloroethene	5	0.15	0	ND	ND
Methylene Chloride	5	0.32	0	ND	ND
Tetrachloroethene	5	0.2	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	0	16	ND
Vinyl Chloride	0.5	0.38	0	ND	ND
Non-Halogenated Volatile Organics					
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
Other					
Total Petroleum Hydrocarbons – Gasoline	50	5.2	0	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	52	0	NM	ND
Total Suspended Solids (mg/L)	NE	1.1	0	7.6	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.
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

ATTACHMENT 4

Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 85 **Reporting Period: 1 – 31 July 2006** **Date Submitted: 8 August 2006**

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 – July 2006

Operating Time:

CGWTP:	723 hours	
WTTP:	Water: 727 hours	Vapor: 706 hours
ThOx:	726 hours	

Percent Uptime:

CGWTP:	97.2%	
WTTP:	Water: 97.7%	Vapor: 94.9%
ThOx:	97.6%	

Gallons Treated: 2.6 million gallons

Gallons Treated Since January 1996: 323.2 million gallons

VOC Mass Removed:

9.9 lbs (groundwater only)[a]

8.6 lbs (vapor only)[b]

VOC Mass Removed Since January 1996:

2,095 lbs from groundwater

8,296 lbs from vapor

UV/Ox DRE: 99.9%

ThOx DRE: 99.6%[c]

Rolling 12-Month Cost per Pound of Mass Removed: $335[d]

Monthly Cost per Pound of Mass Removed: $766[d]

[a] Calculated using July 2006 EPA Method SW8260B analytical results.
[b] Total VOC vapor mass removed includes vapor mass removed from the DP039 extraction well and the ThOx. The DP039 extraction well vapor mass removed was calculated using June 2006 EPA Method TO-14 analytical results, and the ThOx vapor mass removed was calculated using July 2006 EPA Method TO-14 analytical results.
[c] Only the influent vapor sample was collected at the ThOx in July 2006. The ThOx DRE is based on June 2006 analytical results.
[d] Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the system. High monthly cost per pound of mass removed are due to low influent vapor concentration and low flow rates.

DRE = destruction removal efficiency UV/Ox = ultraviolet oxidation

Flow Rates

Average Groundwater Flow Rate: **59.4 gpm**[a]

Location	Average Flow Rate	
	Groundwater (gpm)	Soil Vapor (scfm)
EW01x16	30.8	NA
EW02x16	--[b]	NA
EW03x16	Off line[c]	NA
EW605x16	13.5	NA
EW610x16	0.0[d]	NA
WTTP	14.7[e]	55.8
ThOx	NA	77[f]

[a] as measured by the effluent discharge to the storm drain divided by the operating time.
[b] the totalizer is not working and the flow rate is unknown.
[c] EW03x16 (water) was taken off line in September 2002 due to a significant decrease in flow rates.
[d] pump is operational; however, there is no flow.
[e] as measured by the effluent groundwater pumped to the CGWTP divided by the operating time.
[f] flow rate measured using pitot tube

gpm = gallons per minute
scfm = standard cubic feet per minute

Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
CGWTP (water)	5 July 2006	16:30	5 July 2006	20:15	Base power failure.
WTTP (vapor)	5 July 2006	16:30	5 July 2006	20:30	High water level in knockout tank.
WTTP (vapor)	9 July 2006	16:00	10 July 2006	7:20	(Same Problem)
CGWTP (water)	10 July 2006	9:15	10 July 2006	9:45	Shut down plant to install lower ceramic insulator on UV lamp #2.
WTTP (vapor)	13 July 2006	8:30	13 July 2006	9:30	Shut down to install new vapor flow meter.
ThOx (vapor)	13 July 2006	22:30	14 July 2006	8:00	High water level in tank.
ThOx (vapor)	14 July 2006	15:00	14 July 2006	23:30	Alarm for low process flow. Standing water was noticed in burner, which is likely restricting the flow.
CGWTP (water)	23 July 2006	14:45	24 July 2006	8:00	UV-Ox Lamp #4 fan failure. Outside temperature (115ºF) causing motors to overheat.
WTTP	23 July 2006	14:45	24 July 2006	8:00	WTTP was shutdown because the CGWTP was shutdown.

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 5 July 2006. Groundwater sample results are summarized in Table 1. An influent vapor sample was collected at the ThOx unit on 20 July 2006 to confirm the low vapor concentrations detected in June 2006. The WTTP SVE system was restarted on 26 June 2006. A grab vapor sample was collected from the extraction wellhead on 30 June 2006.

Analytical results for treated groundwater samples continue to indicate that cis-1,2-dichloroethene (DCE) was present at low levels (less than 10% of the instantaneous discharge limits indicated in the *Central Groundwater Treatment Plant Operations and Maintenance Manual*) in groundwater samples downstream of the UV-Ox treatment. The detection in these samples is likely attributed to desorption of cis-1,2-DCE into the water stream from the granular activated carbon as the influent concentrations vary slightly and as contaminants with higher adsorption affinity are adsorbed over time. Cis-1,2-DCE has been historically detected in the "After Carbon 1 Effluent" samples since March 2004 at concentrations near the levels detected this month. It should also be noted that the cis-1,2-DCE detections in samples downstream of the UV-Ox treatment are estimated values (J-flag detections), as they are detected at concentrations less than the reporting limit of 0.5 µg/L. Cis-1,2-DCE concentrations and system performance will continue to be monitored.

Chloroform continues to be present at estimated (J-flagged) concentrations in groundwater samples downstream of the carbon 1 vessel at levels less than 10% of the instantaneous discharge limits indicated in the *Central Groundwater Treatment Plant Operations and Maintenance Manual*. The chloroform concentrations and system performance will continue to be monitored in the upcoming months.

The ThOx system continues to treat soil vapor from the 2-Phase® well (TPE-W) as part of SS016 focused vapor extraction activities. Quarterly vapor samples collected in June 2006 indicated a significant decrease in TCE concentrations from 190 ppmv in January 2006 to 2.6 ppmv in June 2006. The TCE concentration increased slightly in July 2006 to 6.9 ppmv. Vapor results are shown in Table 2.

The WTTP SVE system continues to treat soil vapor from the EW563x39.

Optimization Activities

There were no optimization activities associated with CGWTP during July 2006.

Table 1.
Summary of Groundwater Analytical Data for July 2006 – Central Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	5 July 2006 (µg/L) Influent	After UV/OX	After Carbon 1 Effluent	After Carbon 2 Effluent	After Carbon 3 Effluent	System Effluent
Halogenated Volatile Organics									
Bromodichloromethane	5.0	0.15	0	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	0.5	0.17	0	ND	ND	ND	ND	ND	ND
Chloroform	5.0	0.16	0	ND	ND	ND	0.29 J	0.32 J	0.24 J
Dibromochloromethane	5.0	0.19	0	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	5.0	0.13	0	0.39 J	ND	ND	ND	ND	ND
1.3-Dichlorobenzene	5.0	0.16	0	0.32 J	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.16	0	0.17 J	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 – 1.5[b]	0	94	ND	0.18 J	0.37 J	0.38 J	0.30 J
trans-1,2-Dichloroethene	5.0	0.15	0	3.1	ND	ND	ND	ND	ND
Methylene Chloride	5.0	0.12	0	ND	ND	ND	ND	ND	ND
Tetrachloroethene	5.0	0.20	0	0.82	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[c]	0	360	ND	0.49 J	0.22 J	ND	ND
Vinyl Chloride	0.5	0.17	0	1.4	ND	ND	ND	ND	ND
Non-Halogenated Volatile Organics									
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

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

[b] The detection limit for cis-1,2-DCE in the influent sample was elevated to 1.5 µg/L due to sample dilution to bring cis-1,2-DCE concentration within linear range. The detection limit for cis-1,2-DCE in all other samples was 0.15 µg/L.

[c] The detection limit for TCE in the influent sample was elevated to 1.6 µg/L due to sample dilution to bring the TCE concentration within linear range. The detection limit for TCE in all other samples was 0.16 µg/L.

DCE = dichloroethene
J = analyte concentration is considered an estimated value
ND = not detected
N/C = number of samples out of compliance with discharge limits
TCE = trichloroethene
µG/L = micrograms per liter

TABLE 2.
Soil Vapor Analytical Data for July 2006 – Central Groundwater Treatment Plant

Constituent	20 July 2006 (ppbv) TPE Influent
Volatile Organics	
Acetone	ND (62)
Benzene	ND (5.9)
1,3-Butadiene	ND (12)
cis-1,2-Dichloroethene	730
1,2-Dichlorobenzene	ND (7.6)
1,3-Dichlorobenzene	ND (7.6)
1,2-Dichloroethane	ND (6.9)
Ethylbenzene	ND (7.2)
Methylene Chloride	6.1 J
m,p-Xylenes	ND (6.4)
Tetrachloroethene	14 J
Toluene	ND (6.3)
trans-1,2-Dichloroethene	ND (17)
1,2,4-Trichlorobenzene	ND (8.2)
1,3,5-Trimethylbenzene	ND (6.9)
Trichloroethene	6,900
Vinyl Chloride	17 J

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

ATTACHMENT 5

North Groundwater Treatment Plant Monthly Data Sheet

Report Number: 74 **Reporting Period: 1 – 31 July 2006** **Date Submitted: 8 August 2006**

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 – July 2006

Operating Time: **Water:** 348 hours
Vapor: Off line[a]

Percent Uptime: **Water:** 46.8 %
Vapor: Off line[a]

Gallons Treated: 0.46 million gallons

Gallons Treated Since March 2000: 67.0 million gallons

Volume Discharged to Storm Drain: 0 gallons

Volume Discharged to Duck Pond: 0.46 million gallons

Percentage of Treated Water to Beneficial Use: 100%

VOC Mass Removed:
0.14 lbs (groundwater only)[b]
0 lbs (vapor only)[a]

VOC Mass Removed Since March 2000:
170.1 lbs from groundwater
5,240 lbs from vapor[c]

VGAC Removal Efficiency: **NA**[a]

Rolling 12-Month Cost per Pound of Mass Removed[d]: $73,373

Monthly Cost per Pound of Mass Removed: $53,327

[a] SVE system was off line throughout most of July 2006 due to high water table. SVE was started momentarily in July 2006. However, after running for several minutes, the knockout tank quickly filled with water and the SVE system was shutdown.
[b] Calculated using July 2006 EPA Method SW8260B analytical results.
[c] 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.
[d] 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 concentration, low flow rate, and lack of vapor mass removal.

Flow Rates

Average Groundwater Total Flow Rate: **22.1 gpm**[a]

Location	Flow Rate on 28 July 2006	
	Groundwater (gpm)[b]	Soil Vapor (scfm)
EW565x31	2.5	Off line[b]
EW566x31	1.2	Off line[b]
EW567x31	1.6	NA
EW576x04	2.0	Off line[b]
EW577x04	2.0	Off line[b]
EW578x04	3.1	Off line[b]
EW579x04	1.9	NA
EW580x04	3.8	NA
EW621x04	0.9	NA
EW622x04	0.5	NA
EW623x04	0.4	NA
EW614x07	1.1[c]	NA
EW615x07	1.4[c]	NA
SVE System	NA	Off line[b]

[a] The flow rate was calculated using the effluent discharge totalizer divided by the operating time of the plant.
[b] SVE system was off line throughout most of July 2006 due to high water table. SVE was started momentarily in July 2006. However, after running for several minutes, the knockout tank quickly filled and the SVE system was shutdown.
[c] LF007 wells were turned on for the season on May 12, 2006.

gpm—gallons per minute
scfm—standard cubic feet per minute

Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
NGWTP (water)	9 July 2006	7:45	9 July 2006	19:30	Shut down due to high water level in wet well.
NGWTP (water)	12 July 2006	14:30	28 July 2006	14:30	Eductor supply pump failure. A rock was lodged in impeller and three stages were damaged.

NGWTP = North Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater sampling at the NGWTP was performed on 5 July 2006. Sample results are presented in Table 1. The total VOC concentration (36.2 µg/L) in the influent sample has slightly increased since the June 2006 sample (21.6 µg/L). VOC results were non-detect for effluent samples.

The SVE blower was replaced on 8-9 March 2006. The SVE system was off line throughout most of July 2006 due to high water table. SVE was started momentarily in July 2006. However, after running for several minutes, the knockout (KO) tank quickly filled with water and the SVE system was shutdown.

Optimization Activities

There were no optimization activities associated with the NGWTP during July 2006.

Table 1.
Summary of Groundwater Analytical Data for July 2006 – North Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	5 July 2006 (µg/L)	
				Influent	Effluent
Halogenated Volatile Organics					
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	4.6	ND
cis-1,2-Dichloroethene	5.0	0.15	0	0.59	ND
trans-1,2-Dichloroethene	5.0	0.15	0	ND	ND
Methylene Chloride	5.0	0.32	0	ND	ND
Tetrachloroethene	5.0	0.20	0	ND	ND
1,1,1-Trichloroethane	5.0	0.16	0	8	ND
1,1,2-Trichloroethane	5.0	0.32	0	ND	ND
Trichloroethene	5.0	0.16	0	23	ND
Vinyl Chloride	0.5	0.38	0	ND	ND
Non-Halogenated Volatile Organics					
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
Other					
Total Petroleum Hydrocarbons – Gasoline	50	5.2	0	NM	5.4 J
Total Petroleum Hydrocarbons – Diesel	50	32	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).

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