

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

26 July 2006, 0930 Hours

Mr. Mark Smith, Travis Air Force Base (AFB), conducted the Remedial Program Managers (RPM) meeting held on 26 July 2006 at 0930 in the Base Civil Engineering Conference Room, Building 570, Travis AFB, California. Attendees included:

- Mark Smith Travis AFB
- Glenn Anderson 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)
- Adriana Constantinescu California Regional Water Quality Control Board (CRWQCB)
- Carol Kontonickas 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 (June 2006)
- Attachment 4 CGWTP Monthly Data Sheet (June 2006)
- Attachment 5 NGWTP Monthly Data Sheet (June 2006)
- Attachment 6 CRWQCB – Order No. R2-2002-103, Final Site Cleanup Requirements and Rescission of Order No. 99-072 For: Universal Propulsion Company, Inc.

1. ADMINISTRATIVE

A. Previous Meeting Minutes

The June 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.

Travis AFB Master Document Schedule

— Page 6, the Quarterly Newsletter, *Guardian*, (for the 26 October 2006 Restoration Advisory Board [RAB] meeting) was established.

— Page 8, DP039 Field Report was placed in the historical section.

2. OPERABLE UNIT UPDATE

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

1. Draft Final FT003 Remedial Design Package Review

Mr. Anderson asked the agencies if they had an opportunity to review the Draft Final FT003 Remedial Design Package. Mr. Salcedo stated that he has reviewed the document and will submit his comments. Ms. Constantinescu stated that she reviewed the document and has no additional comments.

Mr. Anderson stated that U.S. EPA made a comment concerning how wetlands and protected habitat are addressed. This comment is a good global comment because it will affect other remedial design documents. Travis AFB is revising the FT003 Remedial Design package to accommodate this comment.

A revised section will be added to the FT003 Remedial Design and sent to the agencies for review. Mr. Anderson emphasized to the agencies that he would like an expedited review of this section in the report.

Mr. Anderson stated that the remedial design schedules will also be revised as a result of this comment.

Mr. Anderson reiterated that the design packages must stay on schedule.

3. CURRENT PROJECTS

A. South Base Boundary Groundwater Treatment Plant

Mr. Smith reported that the South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 98.9% uptime, and 3 million gallons of groundwater were extracted and treated during the month of June 2006. The average flow rate for the SBBGWTP was 69.9 gallons per minute (gpm). Approximately 0.3 pound of volatile organic compounds (VOCs) was removed during June 2006. The total mass of VOCs removed since the startup of the system is 290 pounds (see Attachment 3).

There were two short plant shutdowns during the month of June. The first shutdown was due to acid washing at the air stripper, and the second shutdown was due to the temporary hookup of the carbon vessels for effluent concentration evaluation.

No construction water was processed at this plant in June 2006.

No optimization activities were planned or performed during June 2006.

B. Central Groundwater Treatment Plant

Mr. Smith reported that the Central Groundwater Treatment Plant (CGWTP) performed at 97.9% uptime with approximately 2.0 million gallons of groundwater extracted and treated during the month of June 2006. The average flow rate for the CGWTP was 47.7 gpm. Approximately 13.4 pounds of VOCs were removed during June 2006. The total mass of VOCs removed since the startup of the system is 10,370 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. Quarterly vapor sample collected in June indicated a significant decrease in TCE concentrations from 190 parts per million by volume (ppmv) in January 2006 to 2.6 ppmv in June 2006. The focused extractions will continue at this well.

The West Treatment and Transfer Plant (WTTP) experienced several intermittent shutdowns due to a series of process logic control (PLC) failures and base power outages. A concrete pad and control box were installed for the placement of the fiber optics splice into an aboveground control panel.

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

No optimization activities were planned or performed during June 2006.

C. North Groundwater Treatment Plant

Mr. Smith reported that the North Groundwater Treatment Plant (NGWTP) performed at 95.6% uptime with approximately 520,000 gallons of groundwater extracted and treated during the month of June 2006. The average flow for the

NGWTP was 12.5 gpm. Less than a pound of VOC was removed during June 2006, which was from groundwater. The total mass of VOCs removed since the startup of the system is 5,410 pounds (see Attachment 5).

The plant experienced a series of shutdowns due to high water level in the wet well. Also, another duration shutdown was a result of a leaking pipe on the discharge side of the air stripper.

The soil vapor extraction (SVE) system was taken off line since November 2005 due to high water levels rising above the well screens. The system was started on 29 June 2006 and after a short run it was shut down due to the water build-up in the knock out tank. The water in the knock out tank was drained and the SVE system remained off line since then.

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

D. Community Involvement Plan Update

Mr. Anderson stated that the Community Involvement Plan (CIP) has been updated and was to be reviewed by DTSC. Mr. Anderson asked Mr. Salcedo if the document had been reviewed. Mr. Salcedo stated that he is awaiting comments from Ms. Escarda and will check with her.

4. PROGRAM ISSUES UPDATE

A. Document Reviews

Mr. Smith stated that he is pleased with the progress that Travis AFB has done over the years. There is still quite a bit of work to take place in preparation for the next construction season such as developing the Remedial Designs and the Remedial Action Work Plans for the soil cleanups in 2007. Support is needed from everyone to complete their reviews on time.

Mr. Smith stated that previously he suggested that the RPM meetings be used for review and that option is still available.

B. Other

Ms. Constantinescu commented that she has accepted a position in the Toxic Division of the Water Board effective 1 August 2006. She will be replaced by Mr. Alan Friedman.

**ACTION ITEM LIST
(Action Items Opened)**

ITEM	RESPONSIBLE	ACTION ITEM	DUE DATE	STATUS
1.	Agencies	To provide comments on Basewide Groundwater ROD Schedule.	Ongoing.	
2.	DTSC	To provide status on the review for the Community Involvement Plan.	2 Aug 2006	New Item.
3.	U.S. EPA	To present the Potrero Hills Water Board cleanup report that clarifies the question(s) he wants to ask.	Ongoing.	<p>Mr. Lucey distributed the CRWQCB – Order No. R2-2002-103, Final Site Cleanup Requirements and Rescission of Order No. 99-072 For: Universal Propulsion Company, Inc., (see Attachment 6) – a report that he has referred to in the past, which has generated questions for Mr. Lucey.</p> <p>Item Closed. Additional action items were generated.</p>
4.	Water Board	<p>U.S. EPA would like to know when will the cleanup be completed, when will the order be rescinded, and will cleanup levels be up to U.S. EPA's standard.</p> <p>Also, is there a clear designation of the removal action.</p>		<p>Mr. Lucey's concern is that the master document schedule for Potrero Hills does not take place until 180 days after the order has been rescinded. The question is when and what is constituted as "rescinded".</p>

Discussion on Item 4:

Mr. Smith stated that any further cleanup action required by the EPA will involve a joint effort between the Air Force and the private companies responsible for the contamination. After the Water Board Order is lifted, it is the Air Force intent to implement land use controls since there is a groundwater concern (perchlorate) that resulted from leaking containers belonging to one of the contractors that leased the annex.

ACTION ITEM LIST
(Action Items Opened)

ITEM	RESPONSIBLE	ACTION ITEM	DUE DATE	STATUS
<p>Mr. Lucey stated that the U.S. EPA is not concerned about who created the contamination, but the question is whether the site has been cleaned.</p> <p>Ms. Constantinescu stated that the final Water Board order, dated October 2002, was sent to U.S. EPA. At that time U.S. EPA had the opportunity to comment on the order. Ms. Constantinescu stated that she has noted Mr. Lucey's concerns and would like Mr. Lucey to inform her of the numbers which he is uncomfortable with.</p> <p>Mr. Lucey stated that it is not that U.S. EPA wants to change the cleanup levels; EPA's concern is that the Air Force is the lead agency that is performing a CERCLA action at this site and must comply with CERCLA requirements. Mr. Smith stated that the Air Force has deferred CERCLA at this site until the Water Board order is complete. Once the order is complete, the Air Force is required to make a decision on the three ERP sites at the annex based on the remedial investigation, which cites no contamination. The sites would be closed; however, because of perchlorate in the groundwater a land use control will be put in place.</p> <p>Mr. Parrott stated the Water Board has already extracted land use controls from the private property owners.</p> <p>Mr. Anderson stated that CERCLA was deferred due to the technical and legal issues that were involved in trying to apply Travis AFB program requirements to the surrounding properties. These issues have not changed. A memorandum was written in 1997 that described all the problems (i.e., cleanup standards, laboratory quality standards, etc.). All parties agreed to defer CERCLA and let the Water Board oversee the cleanup project to ensure that the actions meet CERCLA requirements. This was a way to get the cleanup completed and avoid a lot of the problems that Travis AFB was experiencing. This was a potential solution. It may be beneficial to review the memorandum.</p> <p>Mr. Lucey is unclear as to what the cleanup levels were based on. It is his opinion that the ROD will document and formalize the work (removal actions) that was previously conducted at Potrero Hills. Mr. Smith asked if the Air Force will have to document what the Water Board has done.</p> <p>Mr. Anderson stated that Travis AFB will review the administrative records to determine what has been done at this site by the Water Board.</p> <p>Mr. Lucey asked if there is a requirement to wait until the monitoring is completed and the site is closed out.</p> <p>Mr. Smith stated that Travis AFB would like to excess the property; however, the CERCLA process must be completed first.</p>				
5.	Air Force	To complete the ecological issues for the FT003 and FT004 remedial designs.	3 Aug 2006	New Item.

ACTION ITEM LIST
(Action Items Opened)

ITEM	RESPONSIBLE	ACTION ITEM	DUE DATE	STATUS
6.	Water Board	To consult with Ms. Casa and provide a date that the Water Board may rescind the Potrero Hills Order No. R2-2002-103.	Open	New Item.
7.	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	New Item.
8.	Water Board	Extend an invitation to have Ms. Casa attend the next RPM teleconference	30 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.

Travis AFB Master Document Schedule

	PRIMARY DOCUMENTS					
	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				
Life Cycle	Groundwater Treatment Plant O&M Reports Travis, Tom Sreenivasan; CH2M Hill, Mike Wray			
	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

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

2006 HISTORICAL DOCUMENTS	
Life Cycle	DP039 Field Report Travis, Glenn Anderson CH2M Hill, Mike Wray
Scoping Meeting	NA
Predraft to AF/Service Center	3-13-06
AF/Service Center Comments Due	3-16-06
Draft to Agencies	3-20-06
Draft to RAB	3-20-06
Agency Comments Due	4-07-06
Response to Comments Meeting	TBD
Response to Comments Due	4-14-06
Draft Final Due	NA
Final Due	4-14-06
Public Meeting	NA

ATTACHMENT 3

South Base Boundary Groundwater Treatment Plant Monthly Data Sheet

Report Number: 72

Reporting Period: 1 – 30 June 2006

Date Submitted: 20 July 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 – June 2006

Operating Time: **712 hours**

Percent Uptime: **98.9%**

Gallons Treated: **3.0 million gallons**

Gallons Treated Since July 1998: **522 million gallons**

Volume Discharged to Union Creek: **3.0 million gallons**

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

VOC Mass Removed: **0.24 pounds^a**

VOC Mass Removed Since July 1998: **289.9 pounds**

Rolling 12-Month Cost per Pound of Mass Removed: **\$28,315^b**

Monthly Cost per Pound of Mass Removed: **\$36,464^b**

^a Calculated using June 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: **69.9^a**

Average Flow Rate from SCADA (gpm)							
FT005				SS029		SS030	
EW01x05 ^b	0.0	EW736x05	0.1	EW01x29	0.1	EW01x30	10.1
EW02x05	1.2	EW737x05	0.3	EW02x29	0.2	EW02x30 ^b	3.4
EW03x05	Off line	EW742x05	Off line	EW03x29	Off line	EW03x30 ^b	7.0
EW731x05	0.0	EW743x05	Off line	EW04x29	0.5	EW04x30	0.2
EW732x05	1.5	EW744x05	1.1	EW05x29	10.4	EW05x30	21.2
EW733x05	Off line	EW745x05	0.1	EW06x29	Off line	EW06x30	0.1
EW734x05	Off line	EW746x05 ^b	0.1	EW07x29	0.1	EW711x30 ^c	Off line
EW735x05	0.0						
FT005 Total:			4	SS029 Total:		11	SS030 Total: 42

^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 wells was restarted in June 2006.
^c Extraction wells was shutdown in June 2006.
gpm—gallons per minute

Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
SBBGWTP (water)	14 June 2006	8:30	14 June 2006	14:45	Acid washed air stripper and effluent piping.
SBBGWTP (water)	15 June 2006	12:30	15 June 2006	14:15	Included LGAC vessels 1 & 2 in the treatment process between the air stripper and the discharge point to Union Creek.

SBBGWTP = South Base Boundary Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater sampling at the SBBGWTP was performed on 6 June 2006. Sample results are presented in Table 1. The total VOC concentration (9.54 µg/L) in the influent sample has decreased since the May 2006 samples (14.00 µg/L). It should be noted that the effluent TCE concentration was 3.4 µg/L, which is approaching the instantaneous discharge limit. In response to the high TCE effluent concentration, LGAC vessels 1 and 2 were included in the treatment system on 15 June 2006. The vessels were connected between the air stripper and the plant discharge point to Union Creek. The TCE concentrations and system performance will continue to be monitored in the upcoming months.

On 14 June 2006, the air stripper and effluent piping were acid washed to remove the calcium carbonate buildup. Following the washing, effluent samples from the plant were collected and analyzed for TCE. Results of TCE samples were reported as "non-detected". Therefore, it was determined that the acid washing improved the efficiency of the air stripper to remove TCE contamination.

Optimization Activities

There were no optimization activities associated with SBBGWTP during June 2006. Although the removal of calcium carbonate buildup is more a repair than an optimization activity, this repair may increase the flow through the plant, and may result in increased mass removal over time. In addition, the efficiency of the air stripper in removing the TCE contamination should increase.

Table 1.

Summary of Groundwater Analytical Data for June 2006 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	6 June 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	0.16	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	0.49 J	0.49 J
1,1-Dichloroethene	5	0.14	0	ND	ND
cis-1,2-Dichloroethene	5	0.15	0	0.45 J	0.26 J
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	8.6	3.4
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	5.9 J	ND
Total Petroleum Hydrocarbons – Diesel	50	52	0	ND	ND
Total Suspended Solids (mg/L)	NE	1.1	0	ND	NM
Hardness (as CaCO ₃ —mg/L)	NE	1.3	0	NM	440
^a In accordance with Appendix B of the <i>Travis AFB South Base Boundary Groundwater Treatment Plant Operations and Maintenance Manual</i> (CH2M HILL, 2004).					
CaCO ₃ = calcium carbonate					
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: 84

Reporting Period: 1 – 30 June 2006

Date Submitted: 20 July 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 – June 2006

Operating Time:

CGWTP: 705 hours
WTTP: Water: 108 hours Vapor: 108 hours
ThOx: 706 hours

Percent Uptime:

CGWTP: 97.9%
WTTP: Water: 15.0 % Vapor: 15.0%
ThOx: 98.1%

Gallons Treated: 2.0 million gallons

Gallons Treated Since January 1996: 320.6 million gallons

VOC Mass Removed:

9.4 lbs (groundwater only)^a
4.0 lbs (vapor only)^b

VOC Mass Removed Since January 1996:

2,085 lbs from groundwater
8,286 lbs from vapor

UV/Ox DRE: 95.0%

ThOx DRE: 99.6%

Rolling 12-Month Cost per Pound of Mass Removed: \$312^c

Monthly Cost per Pound of Mass Removed: \$1,196^c

^a Calculated using June 2006 EPA Method SW8260B analytical results.

^b Total VOC vapor mass removed was calculated using June 2006 EPA Method TO-14 analytical results for the DP039 extraction well and the ThOx.

^c 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: 47.7 gpm^a

Location	Average Flow Rate	
	Groundwater (gpm)	Soil Vapor (scfm)
EW01x16	30.1	NA
EW02x16	-- ^b	NA
EW03x16	Off line ^c	NA
EW605x16	12.4	NA
EW610x16	4.3	NA
WTTP	21.1 ^d	165.5 ^e
ThOx	NA	79.8 ^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 as measured by the effluent groundwater pumped to the CGWTP divided by the operating time.

^e based on 30 June 2006 measurement.

^f effluent flow meter from the TPE-W well.

gpm = gallons per minute

scfm = standard cubic feet per minute

Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
WTTP (water and vapor)	1 June 2006	0:00	26 June 2006	12:00	WTTP system was down due to a communication failure.
CGWTP (water)	6 June 2006	1:30	6 June 2006	7:30	Base power failure.
ThOx (vapor)	6 June 2006	1:30	6 June 2006	7:30	(Same Problem)
CGWTP (water)	10 June 2006	19:30	11 June 2006	3:30	Recirculating system failure. UV-Ox lamp #4 over-current.
ThOx (vapor)	10 June 2006	19:30	11 June 2006	3:30	(Same Problem)
CGWTP (water)	12 June 2006	14:00	12 June 2006	15:00	Routine maintenance on UV lamps #3 and #4.
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 7 June 2006. Groundwater sample results are summarized in Table 1. Vapor sampling at the ThOx unit was performed in 6 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. Vapor results are shown in Table 2.

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. Vapor results are shown in Table 3.

Trichloroethene (TCE) was detected in the groundwater system effluent sample at a concentration of 26 µg/L. However, TCE was not detected in the sample after the holding tank. The TCE concentrations and system performance will continue to be monitored in the upcoming months.

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. However, a sharp increase was detected in the system effluent, which was 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 concentrations and system performance will continue to be monitored.

Chloroform continues to be present at estimated (J-flagged) concentrations in most system treated water samples 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 WTTP was shutdown due to problems with PLC computer's ability to communicate with the CGWTP. Damaged fiber optics cables are the suspected cause of the communication failure. A concrete pad and control box was constructed for the placement of the fiber optics splice into an aboveground control panel. In addition, the broken fiber optics cable was repaired. On 26 June 2006, the WTTP and the SVE system were restarted.

Optimization Activities

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

Table 1.

Summary of Groundwater Analytical Data for June 2006 – Central Groundwater Treatment Plant

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	7 June 2006 (µg/L)								
				WTTP Effluent	TPE Effluent	Influent	After UV/OX	After Carbon 1 Effluent	After Carbon 2 Effluent	After Carbon 3 Effluent ^b	System Effluent	
Halogenated Volatile Organics												
Bromodichloromethane	5.0	0.15 – 1.7	0	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	0.5	0.17 – 1.9	0	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	5.0	0.16 – 1.6	0	ND	2.5 J	ND	ND	0.17 J	0.3 J	ND	ND	0.25 J
Dibromochloromethane	5.0	0.19 – 1.7	0	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	5.0	0.13 – 1.3	0	ND	8.9	0.46 J	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	5.0	0.16 – 1.6	0	ND	6.1	0.39 J	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.14 – 1.6	0	ND	7.8	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5.0	0.12 – 1.6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.5	0.17 – 1.3	0	ND	3.5 J	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	5.0	0.14 – 1.4	0	2.6	ND	1.4	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.15 – 60	0	39	630	120	ND	0.33 J	0.4 J	ND	ND	0.33 J
trans-1,2-Dichloroethene	5.0	0.15 – 1.5	0	1.4	2 J	3.8	ND	ND	ND	ND	ND	ND
Methylene Chloride	5.0	0.12 – 3.2	0	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	5.0	0.20 – 2.0	0	0.55 J	8.9	0.77 J	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	5.0	0.13 – 1.6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.23 – 2.3	0	ND	5.7 J	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	5.0	0.16 – 64	0	490	4,800	430	ND	0.65	0.24 J	ND	ND	ND
Vinyl Chloride	0.5	0.17 – 1.7	0	ND	ND	1.5	ND	ND	ND	ND	ND	ND
Non-Halogenated Volatile Organics												
Benzene	1.0	0.18	0	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	5.0	0.11	0	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	5.0	0.12	0	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	5.0	0.36	0	ND	ND	ND	ND	ND	ND	ND	ND	ND
Other												
Total Dissolved Solids (mg/L)	NE	4.7	0	NM	NM	NM	NM	NM	NM	NM	1,100	NM
Total Petroleum Hydrocarbons – Gasoline	50	5.2	0	NM	NM	NM	NM	NM	NM	NM	5.5 J	NM
Total Petroleum Hydrocarbons – Diesel	50	32	0	NM	NM	NM	NM	NM	NM	NM	ND	NM

^a In accordance with Appendix G of the *Travis AFB Central Groundwater Treatment Plant Operations and Maintenance Manual* (URS Group, Inc., 2002).^b The After Carbon 3 Effluent sample was run outside of the holding time. However, the preliminary data for July 2006 confirmed that concentration were less than the instantaneous maximum.

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

Table 2.
Soil Vapor Analytical Data for June 2006 – West Transfer and Treatment Plant

Constituent	30 June 2006 (ppbv)
	EW-563 ^a
Volatile Organics	
Benzene	ND (0.979)
Chloroform	1.51 J
Chloromethane	ND (1.55)
cis-1,2-Dichloroethene	99.6
1,1-Dichloroethane	7.56 J
1,1-Dichloroethene	180
Ethylbenzene	ND (1.09)
Freon 12	ND (0.774)
Freon 113	2.16 J
Methylene Chloride	24.8
Tetrachloroethene	ND (0.729)
Toluene	3.24 J
1,1,1-Trichloroethane	53.6
1,1,2-Trichloroethane	0.864 J
Trichloroethene	1,770
Vinyl Chloride	ND (0.899)
Xylenes, m,p-	ND (1.94)

^a A grab vapor sample was collected from the DP039 extraction well EW-563. Vapor samples were not collected at the WTTP SVE system.

ND = not detected
ppbv = parts per billion by volume
() = detection limit

TABLE 3.
Soil Vapor Analytical Data for June 2006 – Central Groundwater Treatment Plant

Constituent	6 June 2006 (ppbv)	
	TPE Influent	TPE Effluent
Volatile Organics		
Acetone	ND (47)	8.6
Benzene	ND (4.5)	0.7
1,3-Butadiene	ND (9.2)	ND (0.1)
cis-1,2-Dichloroethene	250	ND (0.11)
1,2-Dichlorobenzene	ND (5.8)	ND (0.063)
1,3-Dichlorobenzene	ND (5.8)	ND (0.063)
1,2-Dichloroethane	ND (5.3)	0.34
Ethylbenzene	ND (5.4)	0.22
Methylene Chloride	ND (2.8)	ND (0.03)
m,p-Xylenes	ND (4.9)	1
Tetrachloroethene	4.2 J	ND (0.032)
Toluene	ND (4.8)	0.52
trans-1,2-Dichloroethene	ND (13)	ND (0.14)
1,2,4-Trichlorobenzene	7 J	1.2
1,3,5-Trimethylbenzene	ND (5.3)	0.29
Trichloroethene	2,600	ND (0.033)
Vinyl Chloride	ND (4.7)	ND (0.051)
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: 73

Reporting Period: 1 – 30 June 2006

Date Submitted: 20 July 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 – June 2006

Operating Time: **Water:** 688 hours

Percent Uptime: **Water:** 95.6%

Vapor: Off line^a

Vapor: Off line^a

Gallons Treated: 0.52 million gallons

Gallons Treated Since March 2000: 66.6 million gallons

Volume Discharged to Storm Drain: 0 gallons

Volume Discharged to Duck Pond: 0.52 million gallons

Percentage of Treated Water to Beneficial Use: 100%

VOC Mass Removed:

VOC Mass Removed Since March 2000:

0.09 lbs (groundwater only)^b

170.0 lbs from groundwater

0 lbs (vapor only)^a

5,240 lbs from vapor^c

VGAC Removal Efficiency: **NA^a**

Rolling 12-Month Cost per Pound of Mass Removed^d: \$69,575

Monthly Cost per Pound of Mass Removed: \$79,758

^a SVE system was off line throughout most of June 2006 due to high water table. SVE was started momentarily on 29 June 2006. However, after running for several minutes, the knockout tank was filled with water and the SVE system was shutdown.

^b Calculated using June 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: **12.5 gpm^a**

Location	Flow Rate	
	Groundwater (gpm) ^b	Soil Vapor (scfm)
EW565x31	2.9	Off line ^c
EW566x31	1.2	Off line ^c
EW567x31	1.6	NA
EW576x04	3.9	Off line ^c
EW577x04	2.8	Off line ^c
EW578x04	3.1	Off line ^c
EW579x04	2.9	NA
EW580x04	1.0	NA
EW621x04	0.9	NA
EW622x04	-- ^b	NA
EW623x04	-- ^b	NA
EW614x07	1.1 ^d	NA
EW615x07	1.4 ^d	NA
SVE System	NA	Off line ^c

^a The flow rate was calculated using the effluent discharge totalizer divided by the operating time of the plant.

^b Extraction well flow rates were not measured from the wellhead.

^c SVE system was off line throughout most of June 2006 due to high water table. SVE was started momentarily on 29 June 2006. However, after running for several minutes, the knockout tank was filled and the SVE system was shutdown.

^d 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)	1 June 2006	13:30	1 June 2006	16:00	Repaired leaking pipe on discharge side of air stripper.
NGWTP (water)	4 June 2006	20:30	5 June 2006	3:00	NGWTP was shutdown due to high water level in the wet well.
NGWTP (water)	6 June 2006	5:30	6 June 2006	8:30	(Same Problem)
NGWTP (water)	7 June 2006	14:00	7 June 2006	17:30	(Same Problem)
NGWTP (water)	16 June 2006	4:15	16 June 2006	14:30	NGWTP was shutdown due to high water level in the wet well. In addition, eductor supply pump mechanical seal failed.
NGWTP (water)	18 June 2006	20:45	19 June 2006	0:15	NGWTP was shutdown due to high water level in the wet well.
NGWTP = North Groundwater Treatment Plant					

Summary of O&M Activities

Monthly groundwater sampling at the NGWTP was performed on 5 June 2006. Sample results are presented in Table 1. The total VOC concentration (21.55 µg/L) in the influent sample has decreased since the April 2006 sample (75.55 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 June 2006 due to high water table. SVE was started momentarily on 29 June 2006. However, after running for 3-4 minutes, the knockout (KO) tank was filled and the SVE system was shutdown. The KO tank was manually drained, and the SVE system remained off line.

Optimization Activities

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

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

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	5 June 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	2.2	ND
cis-1,2-Dichloroethene	5.0	0.15	0	0.35 J	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	5	ND
1,1,2-Trichloroethane	5.0	0.32	0	ND	ND
Trichloroethene	5.0	0.16	0	14	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	7.4 J	13 J
Total Petroleum Hydrocarbons – Diesel	50	32	0	NM	ND
Total Dissolved Solids (mg/L)	NE	4.7	0	NM	1,800

^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