Final

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

10 May 2006, 0930 Hours

Mr. Mark Smith, Travis Air Force Base (AFB), conducted the Remedial Program Managers (RPM) meeting held on 10 May 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
• John Lucey	U.S. Environmental Protection Agency (U.S. EPA)
• Alan Friedman	California Regional Water Quality Control Board (CRWQCB)
• Adriana Constantinescu	CRWQCB
• Carol Kontonickas	URS
• John McGuire	Shaw Engineering and Infrastructure (Shaw E&I)
• Mike Wray	CH2M Hill
• Steve Mitchell	EQM
• Allen Mason	EQM
• Ed Wise	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 (April 2006)
• Attachment 4	CGWTP Monthly Data Sheet (April 2006)
• Attachment 5	NGWTP Monthly Data Sheet (April 2006)

1. ADMINISTRATIVE

A. Introduction

B. Previous Meeting Minutes

The April 2006 RPM meetings minutes were approved and finalized.

C. 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 RPM Meeting scheduled for 12 July 2006 was cancelled. Ms. Constantinescu stated that she has a conflict with meeting on the second Wednesdays of the month because of monthly Water Board meetings and would like to know if a different day can be set up. Mr. Smith will get back via email as to the change in scheduling.

Travis AFB Master Document Schedule

— Page 1, North, East, West Industrial Operable Unit (NEWIOU) Soil/Sediment/Surface Water Record of Decision (ROD) schedule was updated.

— Page 3, 2006 Groundwater Sampling and Analysis Program (GSAP) Annual Report schedule was updated.

— Page 4, Quarterly Newsletter for 27 July 2006 Restoration Advisory Board schedule was updated.

2. OPERABLE UNIT UPDATE

A. NEWIOU Soil, Sediment, and Surface Water Record of Decision

1. ROD Status and Document Schedule

Mr. Anderson stated that the ROD has been signed, and he distributed the new covers and change-out pages. Travis AFB will develop a schedule for the remedial designs and will email this schedule out to the agencies within the 21-day timeframe.

Mr. Anderson stated that a notification will be placed in the newspaper informing the public that the ROD is available for review at the information repository. Mr. Anderson asked the agencies if they would like to review the notice prior to being sent to the newspapers. All three agencies requested to review the ad and provide comments. (Mr. Anderson will email this notice to Ms. Kristine Estrada and Mr. Jose Salcedo for comments.)

Mr. Anderson stated that the *Guardian* newsletter will be exclusively on the topic of the ROD.

FT003

Mr. Anderson stated that the remedial design for FT003 (Fire Training Area 2) was developed and submitted as a draft final (September 2004). This document was placed on hold until the ROD was finalized. This

document has been updated based on the ROD and is available for the agencies to review. Mr. Anderson will submit an electronic copy of the draft final remedial design to the agencies for their concurrence.

3. CURRENT PROJECTS

A. South Base Boundary Groundwater Treatment Plant

Mr. Steve Mitchell reported that the South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 99.6% uptime and 2.3 million gallons of groundwater was treated during the month of April 2006. The average flow rate for the SBBGWTP was 53.4 gallons per minute (gpm).The total mass of volatile organic compounds (VOCs) removed since the start up of the system is 289 pounds (see Attachment 3).

Two shutdowns occurred during the month of April 2006 due to the replacement of the Union Creek totalizer (flowmeter) and the installation of the sump pump water return line which had completely separated from the pump case.

No optimization activities were planned or performed during April 2006.

B. Central Groundwater Treatment Plant

Mr. Mitchell reported that the Central Groundwater Treatment Plant (CGWTP) performed at 99.9% uptime with approximately 3.2 million gallons of groundwater extracted and treated during the month of April 2006. The average flow rate for the CGWTP was 73.9 gpm. Approximately 250 pounds of VOCs (of which 222 pounds were from vapor) were removed in April 2006. The total mass of VOCs removed since the start up of the system is 11,106 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 samples collected in January 2006 indicated an increase in TCE concentration from 85 parts per million by volume (ppmv) in September 2005 to 190 ppmv in January 2006.

No optimization activities were planned or performed during April 2006.

C. North Groundwater Treatment Plant

Mr. Mitchell reported that the North Groundwater Treatment Plant (NGWTP) performed at 82.4% uptime with approximately 0.50 million gallons of groundwater extracted and treated during the month of April 2006. The average flow for the NGWTP was 15.5 gpm. Less than a pound of VOC was removed during April 2006. The total mass of VOCs removed since the start up of the system is 5,509 pounds (see Attachment 5).

There were shutdowns due to condensation buildup and for maintenance.

No optimization activities were planned or performed during April 2006.

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

D. Community Involvement Plan

Mr. Anderson stated that the Community Involvement Plan has been updated and will be reviewed by DTSC. Mr. Anderson asked if the remaining agencies would like an electronic copy of this document to review and provide comments. Mr. Lucey stated that he would like to have an electronic version of the final document and did not need to review it ahead of time.

E. DP039 Field Work

Mr. Anderson stated that the DP039 Field Report was submitted to the agencies for review on 20 March 2006. Comments were due on 7 April 2006.

The agencies requested additional time to review the document. Mr. Anderson gave Ms. Constantinescu a copy for review. Mr. Lucey stated that he will have comments to Travis AFB next week. Mr. Friedman will submit comments in two weeks. Mr. Smith will check with Mr. Salcedo when he can expect to have his comments submitted.

Mr. Anderson stated that the comments will help develop the field effort for DP039 to optimize the system.

Mr. Anderson commented that the Restoration Advisory Board submitted three pages of comments.

4. PROGRAM ISSUES UPDATE

A. RPM Meeting Schedule

Mr. Smith opened discussion for rescheduling the June 2006 meeting, canceling the July 2006 meeting, and determining a new schedule for the RPM meetings. He agreed to follow up with the agencies by email to finalize the schedule.

Mr. Smith commented that the RPM meetings for the remainder of this year might become document review-type meetings. He is considering scaling down the RPM meetings in the future and will discuss this further during the June 2006 meeting.

B. Long Term Planning

Mr. Smith stated that since the ROD is completed, work is being conducted for the remedial design (RD) and remedial action work plans (RAWP). Once the RDs and the RAWPs are completed, the groundwater technical evaluation project will be awarded in the early calendar year of 2007. He commented that it no longer should be necessary to refer to the NEWIOU and

West/Annexes/Basewide Operable Units (WABOU) as the next ROD will be the Basewide Groundwater ROD.

ACTION ITEM LIST
(Action Items Opened)

AGENDA	RESPONSIBLE	ACTION ITEM	DUE DATE	STATUS
1.	Agencies	To provide comments on Basewide Groundwater ROD Schedule.	Ongoing.	
2.	U.S. EPA	To review the status of the Potrero Hills Water Board order rescission date for comments.	Ongoing.	Mr. Friedman explained that the Water Board does not have a date as to when the order will be rescinded. Additionally, Potrero Hills is in compliance with monitoring the groundwater. The Mr. Lucey requested clarification of a Water Board Report concerning whether additional action was required. Mr. Lucey was unsure of the title of the report but stated that he will send the coversheet to the Water Board for further investigation.
3.	Air Force	To provide the RD/RA schedules	21 May 2006	Completed. **Item Closed.**

ATTACHMENT 1

TRAVIS AIR FORCE BASE ERP
REMEDIAL PROGRAM MANAGER'S MEETING
10 May, 9:30 A.M.
(Building 570, Main Conference Room)
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 ROD (GLENN)
      (1). ROD STATUS AND DOCUMENT SCHEDULE

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 (GLENN)
   E. DP039 FIELD WORK REPORT (GLENN)

4. PROGRAM/ISSUES/UPDATE
   A. RPM MEETING SCHEDULE
   B. LONG TERM PLANNING

5. NEW ACTION ITEM REVIEW

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

Please initial or print name if necessary **May 10, 2006**

Initial	Name	Organization	Email Address	Telephone #
	Mark Smith	Travis AFB	marksmith2@travis.af.mil	(707) 424-3062
	Glenn Anderson	Travis AFB	glenn.anderson@travis.af.mil	(707) 424-4359
	Wilford Day	Travis AFB	wilford.day@travis.af.mil	(707) 424-0452
	Dale Malsberger	Travis AFB	dale.malsberger@travis.af.mil	(707) 424-7520
	Tom Sreenivasan	Travis AFB	tom.sreenivasan@travis.af.mil	(707) 424-3172
	Gregory Parrott	Travis AFB	gregory.parrott@travis.af.mil	(707) 424-1506
	John Lucey	U.S. EPA	lucey.john@epa.gov	(415) 972-3145
	Jose Salcedo	DTSC	jsalcedo@dtsc.ca.gov	(916) 255-3791
	Alan Friedman	CRWQCB	afriedman@waterboards.ca.gov	(510) 622-2347
	John McGuire	Shaw E&I	john.mcguire@shawgrp.com	(925) 288-2220
	Adam Harvey	URS	adam_harvey@urscorp.com	(916) 679-2002
	Mike Wray	CH2M Hill	mwray@ch2m.com	(916) 286-0243
	Steve Mitchell	EQM	smitchell@eqm.com	(530) 409-6218
	ADRIANA CONSTANTINESCU	WATER BOARD	AConstantinescu@waterboards.ca.gov	(510) 622-2353
	Carol G. Kontonickas	URS	Carol_kontonickas@urscorp.com	(916) 679-2309
	Alan Mascari	EQM	amascri@eqm.com	916 203 2881
	Ed Wise	EQM	EWISE@EQM.COM	513 825 7500

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	—
6-13-06	6-14-06	6-28-06	—
7-11-06	7-12-06	7-26-06	—
8-8-06	8-9-06	8-23-06	—
9-12-06	9-13-06	9-27-06	—
10-10-06	10-11-06	10-25-06	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)

Travis AFB Master Document Schedule

PRIMARY DOCUMENTS	
	NEWIOU **Travis, Dale Malsberger;** **URS, Amir Matin**
Life Cycle	**Soil/Sediment/Surface Water ROD**
Scoping Meeting	**4-3-98**
Predraft to AF/Service Center	10-04-04
AF/Service Center Comments Due	11-03-04
Draft to Agencies	3-16-05
Draft to RAB	3-16-05
Agency Comments Due	5-16-05
Response to Comments Meeting	**08-24-05**
Agency Concurrence with Remedy	09-01-05
Revised Draft at AMC for Review	09-21-05
Revised Draft at ILEVR Review	**10-24-05**
Response to Comments Due	01-13-06
Revised Draft to Agencies	01-13-06
Agency Comments Due	02-27-06
Response to Comments Meeting for Revised Draft	**03-15-06**
Draft Fact Sheet to Agencies	12-07-05
Agency Comments Due	12-23-05
Publish Fact Sheet	01-13-06
Public Comment Period	01-16-06 to 02-15-06
Public Meeting	**01-26-06**
Response to Revised Comments Due	03-21-06
Draft Final Due	05-10-06
Final Due	04-24-06

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 27 July 2006 RAB) Travis, Mark Smith**	**DP039 Field Report Travis, Glenn Anderson CH2M Hill, Mike Wray**
Scoping Meeting	NA	NA
Predraft to AF/Service Center	NA	3-13-06
AF/Service Center Comments Due	NA	3-16-06
Draft to Agencies	6-14-06	3-20-06
Draft to RAB	NA	3-20-06
Agency Comments Due	6-28-06	4-07-06
Response to Comments Meeting	**TBD**	**TBD**
Response to Comments Due	7-11-06	4-14-06
Draft Final Due	TBD	NA
Final Due	7-11-06	4-14-06
Public Meeting	NA	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: 70 **Reporting Period: 1 – 30 April 2006** **Date Submitted: 5 May 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 – April 2006

Operating Time: **717 hours**

Percent Uptime: **99.6%**

Gallons Treated: **2.3 million gallons**[a]

Gallons Treated Since July 1998: **516 million gallons**[b]

Volume Discharged to Union Creek: **2.3 million gallons**[a]

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

VOC Mass Removed: **0.23 pounds**[c]

VOC Mass Removed Since July 1998: **289.4 pounds**[b]

Rolling 12-Month Cost per Pound of Mass Removed: **$22,721**[b,d]

Monthly Cost per Pound of Mass Removed: $**68,529**[d]

[a] The Union Creek Discharge Totalizer was replaced in April 2006. The total gallons treated was calculated using the volume of groundwater treated from 24 – 28 April 2006 to estimate the flow rate and then multiplying the flow rate by total operating time.
[b] The March 2006 total gallons treated was back-calculated using the average groundwater flow rate for April 2006.
[c] Calculated using April 2006 EPA Method SW8260B analytical results
[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 concentrations and low flow rate.

Flow Rates

Average Groundwater Total Flow Rate: **53.35**[a]

Average Flow Rate from SCADA (gpm)							
FT005				**SS029**		**SS030**	
EW01x05[b]	0.0	EW736x05	2.1	EW01x29	0.1	EW01x30	11.6
EW02x05	0.5	EW737x05	4.1	EW02x29	0.2	EW02x30[b]	0.0
EW03x05[b]	0.0	EW742x05	Off line	EW03x29	0.1	EW03x30[c]	Off line
EW731x05	Off line	EW743x05	6.7	EW04x29	1.0	EW04x30[b]	0.1
EW732x05	1.4	EW744x05	1.3	EW05x29	11.4	EW05x30	18.7
EW733x05	Off line	EW745x05	0.2	EW06x29	Off line	EW06x30	Off line
EW734x05[b]	0.0	EW746x05[b]	0.0	EW07x29[c]	Off line	EW711x30	7.2
EW735x05[b]	0.0						
		FT005 Total:	16.3	SS029 Total:	12.8	SS030 Total:	37.6

[a] The Union Creek Discharge Totalizer was replaced in April 2006. The average groundwater flow rate was calculated using the volume of groundwater treated from 24 – 28 April 2006 and dividing it by the operating time of the plant.
[b] Extraction well pumps or SCADA may be malfunctioning.
[c] Extraction wells shut down on 18 February 2004 due to low TCE concentrations.

gpm—gallons per minute

Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
SBBGWTP (water)	7 April 2006	11:00	7 April 2006	13:00	Plant was shut down to replace Union Creek Discharge Totalizer.
SBBGWTP (water)	12 April 2006	14:20	12 April 2006	15:30	Plant was shut down to install the sump pump water return line which had completely separated from the pump case.

SBBGWTP = South Base Boundary Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater sampling at the SBBGWTP was performed on 6 April 2006. Sample results are presented in Table 1. The total VOC concentration (11.89 µg/L) in the influent sample has increased slightly since the March 2006 sample (11.62 µg/L), but decreased from the February 2006 sample (14.03 µg/L).

The SCADA system was back online at the end of February 2006. Individual extraction well flow rates will be able to be measured remotely for SS029, SS030, FT005 wells. However, the SCADA is not yet recording the total gallons removed from the FT005 wells and readings will need to be measured from the individual wellheads.

The Union Creek totalizer was replaced on 7 April 2006.

Optimization Activities

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

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

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	6 April 2006 (µg/L) Influent	6 April 2006 (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	0.28 J	0.23 J
1,1-Dichloroethene	5	0.14	0	ND	ND
cis-1,2-Dichloroethene	5	0.15	0	0.61	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	11	3
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	13 J
Total Petroleum Hydrocarbons – Diesel	50	52	0	NM	ND
Total Suspended Solids	NE	1,100	0	12,000	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: 82 **Reporting Period: 1 – 30 April 2006** **Date Submitted: 5 May 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 – April 2006

Operating Time:

CGWTP:	719 hours	
WTTP:	Water: 702 hours	Vapor: 700 hours
ThOx:	693 hours	

Percent Uptime:

CGWTP:	99.9%	
WTTP:	Water: 97.5%	Vapor: 97.2%
ThOx:	93.1%	

Gallons Treated: 3.2 million gallons

Gallons Treated Since January 1996: 315.5 million gallons

VOC Mass Removed:

12.2 lbs (groundwater only)[a]

222.3 lbs (vapor only)[b,c]

VOC Mass Removed Since January 1996:

2,064 lbs from groundwater

8,042 lbs from vapor

UV/Ox DRE: 99.9%

ThOx DRE: 99.7%[b]

Rolling 12-Month Cost per Pound of Mass Removed: $221[d]

Monthly Cost per Pound of Mass Removed: $124[d]

[a] Calculated using April 2006 EPA Method SW8260B analytical results.
[b] Total VOC vapor mass removed is from the ThOx system. The total vapor VOC mass removed from the ThOx was calculated using January 2006 EPA Method TO-14 analytical results.
[c] The flow rate for the WTTP SVE was not available. Therefore, the calculated vapor VOC mass removed is only from the ThOx system.
[d] Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the system. Costs per unit mass do not take into account the vapor VOC mass removed from the WTTP SVE system.

DRE = destruction removal efficiency UV/Ox = ultraviolet oxidation

Flow Rates

Average Groundwater Flow Rate: **73.9 gpm**[a]

Location	Average Flow Rate	
	Groundwater (gpm)	Soil Vapor (scfm)
EW01x16	29.6	NA
EW02x16	--[b]	NA
EW03x16	Off line[c]	NA
EW605x16	14.6	NA
EW610x16	--[b]	NA
WTTP	27.9[d]	NA[e]
ThOx	NA	76.24[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] the soil vapor extraction flow rate was not available.
[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	5 April 2006	13:45	5 April 2006	15:45	The WTTP system was down due to a communication failure. Historically, an old fiber optic link was spliced after being ripped from a backhoe. The splice was placed in a weather-proof (not water-proof) box, and the box filled with water during the rainy season.
WTTP	8 April 2006	9:30	8 April 2006	10:45	(Same Problem)
WTTP	8 April 2006	22:30	8 April 2006	23:30	(Same Problem)
WTTP	12 April 2006	11:08	12 April 2006	11:48	(Same Problem)
WTTP	12 April 2006	12:16	12 April 2006	12:45	(Same Problem)
WTTP	13 April 2006	9:04	13 April 2006	11:05	(Same Problem)
WTTP	13 April 2006	12:11	13 April 2006	13:50	(Same Problem)
WTTP	13 April 2006	14:53	13 April 2006	15:30	(Same Problem)
WTTP	17 April 2006	9:32	17 April 2006	10:00	(Same Problem)
WTTP	17 April 2006	10:35	17 April 2006	13:00	(Same Problem)
WTTP (water)	17 April 2006	14:03	17 April 2006	15:45	The P-903 VFD motor failed due to thermal overload (high temperatures).
WTTP (vapor)	17 April 2006	14:03	17 April 2006	17:40	(Same Problem)
WTTP	20 April 2006	13:30	20 April 2006	15:00	(Same Problem)
CGWTP (water)	20 April 2006	13:35	20 April 2006	14:40	Plant was shutdown to trouble shoot sump pump operation and efficiency. It was determined that the sump outlet pipe had become disconnected.
ThOx (vapor)	20 April 2006	13:35	20 April 2006	14:40	ThOx system was shutdown because the CGWTP was shutdown.
WTTP	20 April 2006	18:33	20 April 2006	20:15	The P-903 VFD motor failed due to thermal overload (high temperatures).
ThOx (vapor)	22 April 2006	20:56	23 April 2006	8:15	ThOx system was shutdown possibly due to moisture in the burner.
ThOx (vapor)	28 April 2006	15:56	28 April 2006	16:30	(Same Problem)
ThOx (vapor)	28 April 2006	18:30	29 April 2006	3:30	(Same Problem)

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 6 April 2006. Groundwater sample results are summarized in Table 1. Vapor sampling at the ThOx unit was not performed in April 2006; therefore, mass calculations are based on January 2006 sample results. The WTTP SVE system was restarted in January 2006.

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 January 2006 indicated an increase in TCE concentrations from 85 ppmv in September 2005 to 190 ppmv in January 2006.

Analytical results for treated groundwater samples continue to indicate that cis-1,2-dichloroethene (DCE) was present at low levels in groundwater samples downstream of the lag granular activated carbon vessel (all samples are below 10% of the instantaneous discharge limits indicated in the *Central Groundwater Treatment Plant Operations and Maintenance Manual*). 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 "Lead Carbon Effluent" samples and the "Lag Carbon Effluent" sample 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 lag granular activated carbon vessel 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 at all system treated water samples at levels below 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.

Optimization Activities

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

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

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	6 April 2006 (µg/L) Influent	After UV/OX	Lead Carbon Effluent	Lag Carbon Effluent	System Effluent	After Holding Tank
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	0.32 J	0.27 J	0.25 J	0.26 J	0.28 J	0.22 J
Dibromochloromethane	5.0	0.19	0	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	5.0	0.13	0	0.2 J	ND	ND	ND	ND	ND
1.3-Dichlorobenzene	5.0	0.16	0	0.2 J	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.14	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	6.2	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.15 – 1.5[b]	0	60	ND	ND	0.30 J	0.34 J	0.22 J
trans-1,2-Dichloroethene	5.0	0.15	0	2.4	ND	ND	ND	ND	ND
Methylene Chloride	5.0	0.12	0	ND	ND	ND	ND	ND	ND
Tetrachloroethene	5.0	0.20	0	0.84	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	390	ND	0.35 J	ND	ND	ND
Vinyl Chloride	0.5	0.17	0	0.49 J	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

ATTACHMENT 5

North Groundwater Treatment Plant Monthly Data Sheet

Report Number: 71 Reporting Period: 1 – 30 April 2006 Date Submitted: 5 May 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 – April 2006

Operating Time: **Water:** 593 hours
Vapor: Off line[a]

Percent Uptime: **Water:** 82.4%
Vapor: Off line[a]

Gallons Treated: 0.55 million gallons

Gallons Treated Since March 2000: 65.4 million gallons

Volume Discharged to Storm Drain: 0 gallons

Volume Discharged to Duck Pond: 0.55 million gallons

Percentage of Treated Water to Beneficial Use: 100%

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

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

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

Rolling 12-Month Cost per Pound of Mass Removed[d]: $62,104

Monthly Cost per Pound of Mass Removed: $62,892

[a] The SVE system was off line throughout the month of April 2006 due to high water table.
[b] Calculated using April 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 uptime, low influent concentration, low flow rate, and lack of vapor mass removal.

Flow Rates

Average Groundwater Total Flow Rate: **15.5 gpm**[a]

Location	Average Flow Rate	
	Groundwater (gpm)	Soil Vapor (scfm)
EW565x31	--[b]	Off line[c]
EW566x31	--[b]	Off line[c]
EW567x31	Off line	NA
EW576x04	Off line	Off line[c]
EW577x04	Off line	Off line[c]
EW578x04	Off line	Off line[c]
EW579x04	Off line	NA
EW580x04	--[b]	NA
EW621x04	--[b]	NA
EW622x04	--[b]	NA
EW623x04	--[b]	NA
EW614x07	Off line[d]	NA
EW615x07	Off line[d]	NA
SVE System	NA	Off line[c]

[a] Flow rate calculated from the effluent discharge totalizer divided by hours of operation
[b] SCADA system malfunctioning during April 2006. Extraction well flow rates were not measured from the individual wellheads.
[c] SVE system off line at the NGWTP during April 2006 due to high water table.
[d] LF007 wells were turned off for the season on December 21, 2005.

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

Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
NGWTP (water)	14 April 2006	10:00	17 April 2006	11:45	Cracked coupling on inlet side of transfer pump 99P-041. Pipe was temporarily repaired.
NGWTP (water)	18 April 2006	13:07	18 April 2006	14:30	Plant was shut down to repair transfer pump 99P-041 inlet supply line.
NGWTP (water)	19 April 2006	16:00	19 April 2006	17:00	The EW Area 04 Inlet alarm detected a leak and stopped the system. However, the alarm was due condensation build up in the influent containment pipes, which the sensors mistaken for build up from a water leak. The sensors were dried and the plant was restarted.
NGWTP (water)	24 April 2006	10:30	24 April 2006	12:30	Plant was shut down to repair leaking pipes around the transfer pump on the effluent side of the air stripper.
NGWTP (water)	26 April 2006	14:00	28 April 2006	15:30	The air stripper shut down due to high water level. In addition, the air stripper float appears to be sticking and triggering shutdowns.

NGWTP = North Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater sampling at the NGWTP was performed on 6 April 2006. Sample results are presented in Table 1. The total VOC concentration (47.16 µg/L) in the influent sample has increased since the March 2006 sample (38.43 µg/L), but decreased from the February 2006 sample (76.02 µg/L). VOC results were non-detect for effluent samples.

The SVE blower was replaced on 8-9 March 2006. The SVE system is ready for operation; however, the system remained off line in April 2006 due to the rainy season and high water table.

Foam was slightly coming out of the stack of the air stripper. The sporadic foam emissions were regulated by restricting the air stripper flow rate.

Optimization Activities

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

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

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	6 April 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	5.7	ND
cis-1,2-Dichloroethene	5.0	0.15	0	0.46 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	14	ND
1,1,2-Trichloroethane	5.0	0.32	0	ND	ND
Trichloroethene	5.0	0.32	0	27	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	14 J
Total Petroleum Hydrocarbons – Diesel	50	32	0	NM	36 J

[a] In accordance with Appendix G of the *Travis AFB North Groundwater Treatment Plant Operations and Maintenance Manual*, Sites FT004, SD031, and LF007 Area C (URS Group, Inc., 2005).

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