

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

8 February 2006, 0930 Hours

Mr. Mark Smith, Travis Air Force Base (AFB), conducted the Remedial Program Managers (RPM) meeting held on 8 February 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
- Dale Malsberger Travis AFB
- Tom Sreenivasan Travis AFB
- Gregory Parrott Travis AFB
- Jose Salcedo Department of Toxic Substances Control (DTSC)
- Alan Friedman California Regional Water Quality Control Board (CRWQCB)
- Adam Harvey URS
- Carol Kontonickas URS
- John McGuire Shaw Engineering and Infrastructure (Shaw E&I)
- Mike Wray CH2M Hill
- Leslie Royer CH2M Hill
- Steven Mitchell EQM
- Jackie Doan EQM
- *John Downs EDAW, Inc.
- *Amy Hawkins Naval Facilities Engineering Command
- *Tonia Mehlhorn Oak Ridge National Laboratory (ORNL)
- *Jana Tarver ORNL

*These individuals were present only for the Effect of Soil Properties on Toxic Metal Bioavailability: Field Scale Validation to Support Regulatory Acceptance presentation.

Handouts distributed throughout the meeting included:

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

1. ADMINISTRATIVE

A. Introduction

A presentation titled The Effect of Soil Properties on Toxic Metal Bioavailability: Field Scale Validation to Support Regulatory Acceptance was presented by Ms. Amy Hawkins. This study is headed by Ms. Tonia Mehlhorn.

B. Previous Meeting Minutes

The January 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 Master Meeting, Teleconference

- Page 1, Mr. Smith stated that he may need to extend the 8 March and 12 April 2006 RPM meetings out one week each since he will be visiting other Air Force Base installations.

Travis AFB Master Document Schedule

- Page 3, Groundwater Sampling and Analysis Plan (GSAP) Annual Report was revised.
- Page 4, Quarterly Newsletter (for the 27 April 2006 Restoration Advisory Board) was updated.
- Page 4, DP039 Field Report schedule has been established.

2. OPERABLE UNIT UPDATE

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

1. Revised Draft Record of Decision

Mr. Malsberger stated the Revised Draft Record of Decision (ROD) was submitted to the agencies for review. Agency comments are due on 27 February 2006. Mr. Salcedo stated that his legal division is currently reviewing the document. Mr. Salcedo stated that he will meet with his supervisor, Mr. Landis, on 22 February 2006, which will result in DTSC's review being completed.

Mr. Smith stated that he will be briefing Travis AFB's commanders up to Lt Col Zadalis, the Vice Wing Commander, on the specifics and benefits of the ROD.

2. Public Comment Period

Mr. Malsberger stated that the ROD public comment period is ongoing and as of this date, no public comments have been received.

The public meeting was held on 26 January 2006. The meeting was attended by regulatory agencies and Mr. John Foster, Travis Restoration Advisory Board member. This meeting was captured by a certified legal recorder. A transcript will be made available by the end of next week.

Mr. Smith thanked DTSC for their assistance in making the public comment period and public meeting successful.

3. CURRENT PROJECTS

A. Corrective Action Management Unit (CAMU) Annual Report

Mr. Malsberger stated that the CAMU Annual Report has been completed and will be submitted by the end of the week.

B. South Base Boundary Groundwater Treatment Plant

Mr. Sreenivasan reported that the South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 100% uptime with approximately 7.7 million gallons of groundwater extracted and treated during the month of January 2006. The average flow rate for the SBBGWTP was 173 gallons per minute (gpm). Less than a pound of volatile organic compound (VOC) was removed during January 2006. The total mass of VOCs removed since the start up of the system is 288 pounds (see Attachment 3).

There was no shutdown occurred during the month of January 2006.

No optimization activities were planned or performed during January.

All treated groundwater was sent to the storm drain.

C. Central Groundwater Treatment Plant

Mr. Sreenivasan reported that the Central Groundwater Treatment Plant (CGWTP) performed at 100% uptime with approximately 2.9 million gallons of groundwater extracted and treated during the month of January 2006. The average flow rate for the CGWTP was 76.4 gpm. Approximately 231 pounds of VOCs (of which 218 lbs were from vapor) were removed in January. The total mass of VOCs removed since the start up of the system is 9,479 pounds. (see Attachment 4).

The West Treatment and Transfer Plant (WTTP) experienced shutdowns due to malfunctioning of the float in the knockout tank and was replaced to get the system back in operation.

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 sample collected in January showed increase in TCE concentration of 190 ppmv compared to the previous quarterly value of 85 ppmv. Focused extractions will continue at this well and sample will be collected in April 2006(see Attachment 4).

No optimization activities were planned or performed during January.

All treated groundwater was sent to the storm drain.

D. North Groundwater Treatment Plant

Mr. Sreenivasan reported that the North Groundwater Treatment Plant (NGWTP) performed at 64% uptime with approximately 0.36 million gallons of groundwater extracted and treated during the month of January 2006. The average flow for the NGWTP was 19.4 gpm. Less than a pound of VOC was removed during January which was due to a series of plant shut downs caused by foam build up in the wet well. Malfunctioning of the sensor was the problem and was rectified by replacing it with a pressure type to alleviate potential problems in the future. The total mass of VOCs removed since the start up of the system is 5,509 pounds (see Attachment 5).

There was one other shutdown caused primarily due to base power failure.

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

E. Annual Land Use Control Report

Mr. Anderson stated that the Annual Land Use Control inspection was completed without any problems. The Annual Land Use Control report is currently going through internal review. The completed Annual Land Use Control Report will be submitted to the agencies electronically. (Hard copies are available upon request.)

Once the North, East, West Industrial Operable Unit (NEWIOU) Soil ROD is finalized, documentation for those sites with land use controls as the selected remedy will be developed, depicting site descriptions and the specific land use controls that will be implemented.

F. Base General Plan

Mr. Anderson stated that the Travis AFB General Plan is being electronically converted and placed on the base's intranet. (The Base Community Planner is responsible for the Base General Plan.)

Mr. Anderson explained that placing the Base General Plan on the intranet will increase its accessibility to base personnel and will enable Environmental

Management to become more effective in applying environmental restrictions to planning decisions.

Mr. Salcedo stated that this information should be added to the ROD if it is in effect when the ROD is signed.

G. DP039 Field Work

Mr. Anderson stated that the DP039 Field Report schedule has been established.

4. PROGRAM ISSUES UPDATE

Mr. Smith stated that all projects have been funded and validated.

- Travis AFB will be awarding its first performance base contract on our POCO sites. We will work out the milestones and deliverables for the contract on Sites 14, 18, 27, and 28.
- Travis AFB is required by Air Mobility Command to award contracts by 31 March 2006. Due to periods of performance of some existing projects, some of the Fiscal Year 2006 projects have been allowed to slip.
- CH2M Hill request for stop work on Task Order 265 have been placed on hold by AFCEE and the period of performance has been extended to September 2006. (This project is the remedial design at LF007 and cannot be design until the second sampling event which will occur at the end of the rainy season.)

5. Other

Mr. Salcedo stated that an update on the Community Involvement Plan is needed. The update will entail changing the names of the government representatives.

Mr. Smith stated that he appreciates URS attention to detail and support in their preparation of the draft GSAP and the NEWIOU ROD, and personally thanked Mr. Adam Harvey and Ms Kontonickas for her work on the GSAP and the 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.	Open.
2.	U.S. EPA	To review the status of the Potrero Hills Water Board order rescission date for comments.	Ongoing.	Open.

ATTACHMENT 1

TRAVIS AIR FORCE BASE ERP
REMEDIAL PROGRAM MANAGER'S MEETING
8 February, 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 (DALE)
 - (1). REVISED DRAFT ROD
 - (2). PUBLIC COMMENT PERIOD

3. CURRENT PROJECTS

- A. CAMU ANNUAL REPORT (DALE)
- B. SOUTH BASE BOUNDARY GROUNDWATER TREATMENT PLANT
 - (1). OPERATIONAL STATUS (TOM)
- C. CENTRAL GROUNDWATER TREATMENT PLANT
 - (1). OPERATIONAL STATUS (TOM)
- D. NORTH GROUNDWATER TREATMENT PLANT
 - (1). OPERATIONAL STATUS (TOM)
- E. ANNUAL LAND USE CONTROL REPORT (GLENN)
- F. DP039 FIELD WORK (GLENN)

4. PROGRAM/ISSUES/UPDATE

5. NEW ACTION ITEM REVIEW

6. GSAP RESPONSE TO COMMENTS MEETING

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

Please initial or print name if necessary

February 8, 2006

Initial	Name	Organization	Email Address	Telephone #
<i>ms</i>	Mark Smith	Travis AFB	marksmith2@travis.af.mil	(707) 424-3062
<i>GNA</i>	Glenn Anderson	Travis AFB	glenn.anderson@travis.af.mil	(707) 424-4359
<i>WD</i>	Wilford Day	Travis AFB	wilford.day@travis.af.mil	(707) 424-0452
<i>Dm</i>	Dale Malsberger	Travis AFB	dale.malsberger@travis.af.mil	(707) 424-7520
<i>TS</i>	Tom Sreenivasan	Travis AFB	tom.sreenivasan@travis.af.mil	(707) 424-3172
<i>P</i>	Gregory Parrott	Travis AFB	gregory.parrott@travis.af.mil	(707) 424-1506
	John Lucey	U.S. EPA	lucey.john@epa.gov	(415) 972-3145
<i>J</i>	Jose Salcedo	DTSC	jsalcedo@dtsc.ca.gov	(916) 255-3741
<i>A</i>	Alan Friedman	CRWQCB	afriedman@waterboards.ca.gov	(510) 622-2347
<i>JM</i>	John McGuire	Shaw E&I	john.mcquire@shawgrp.com	(707) 437-4408
	Amir Matin	URS	amir.matin@urscorp.com	(916) 679-2398
<i>MW</i>	Mike Wray	CH2M Hill	mwray@ch2m.com	(916) 286-0243
<i>SM</i>	Steve Mitchell	EQM	smitchell@eqm.com	(530) 409-6218
	Rich Howard	TechLaw Inc.		
<i>JD</i>	Jackie Doan	EQM	jdoan@eqm.com	(513) 673-4210

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	03-21-06
Final Due	04-24-06

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

	PRIMARY DOCUMENTS	
	NEWIOU/WABOU Travis, Glenn Anderson	Potrero Hills Annex Travis, Glenn Anderson
Life Cycle	Basewide 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	GSAP Annual Report Travis, Tom Sreenivasan; CH2M Hill, Mike Wray
Scoping Meeting	NA
Predraft to AF/Service Center	10-12-05
AF/Service Center Comments Due	11-02-05
Draft to Agencies	11-30-05
Draft to RAB	11-30-05
Agency Comments Due	2-6-06
Response to Comments Meeting	2-8-06
Response to Comments Due	2-15-06
Draft Final Due	NA
Final Due	3-6-06
Public Comment Period	NA
Public Meeting	NA

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

INFORMATIONAL DOCUMENTS		
Life Cycle	Quarterly Newsletters (for the 27 April 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	3-14-06	3-20-06
Draft to RAB	NA	3-20-06
Agency Comments Due	3-28-06	4-07-06
Response to Comments Meeting	TBD	TBD
Response to Comments Due	4-11-06	4-14-06
Draft Final Due	TBD	NA
Final Due	4-11-06	4-14-06
Public Meeting	4-27-06	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

ATTACHMENT 3

South Base Boundary Groundwater Treatment Plant Monthly Data Sheet

Report Number: 67 Reporting Period: 1 – 31 January 2006 Date Submitted: 3 February 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 – January 2006

Operating Time: **744 hours** Percent Uptime: **100%**
 Gallons Treated: **7.7 million gallons^a** Gallons Treated Since July 1998: **504 million gallons^a**
 Volume Discharged to Union Creek: **7.7 million gallons^a**
 Percentage of Treated Water to Beneficial Use: **0%**
 VOC Mass Removed: **0.43 pounds^b** VOC Mass Removed Since July 1998: **288.1 pounds**
 Rolling 12-Month Cost per Pound of Mass Removed: **\$13,022^c**
 Monthly Cost per Pound of Mass Removed: **\$46,024^c**

^a The Union Creek Discharge Totalizer was not working, so the total gallon treated was estimated using the December 2005 average flow rate multiplied by the total operating time.

^b Calculated using January 2006 EPA Method SW8260B analytical results

^c Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the system. High costs are due to low influent concentrations.

Flow Rates

Average Groundwater Total Flow Rate: 172.6 gpm^a

Average Flow Rate (gpm)								
FT005				SS029		SS030		
EW01x05	-- ^b	EW736x05	-- ^b	EW01x29	-- ^b	EW01x30	-- ^b	
EW02x05	-- ^b	EW737x05	-- ^b	EW02x29	-- ^b	EW02x30	-- ^b	
EW03x05	-- ^b	EW742x05	-- ^b	EW03x29 ^c	Off line	EW03x30 ^c	Off line	
EW731x05	-- ^b	EW743x05	-- ^b	EW04x29	-- ^b	EW04x30	-- ^b	
EW732x05	-- ^b	EW744x05	-- ^b	EW05x29	-- ^b	EW05x30	-- ^b	
EW733x05	-- ^b	EW745x05	-- ^b	EW06x29	-- ^b	EW06x30	-- ^b	
EW734x05	-- ^b	EW746x05	-- ^b	EW07x29 ^c	Off line	EW711x30 ^c	Off line	
EW735x05	-- ^b							
FT005 Total:			-- ^b	SS029 Total:		-- ^b	SS030 Total:	-- ^b

^a Average groundwater total flow rate was estimated using December 2005.

^b Flow rate data from extraction wells not available.

^c Extraction wells shut down on 18 February 2004 due to low TCE concentrations.

Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
SBBGWTP	NA	NA	NA	NA	No shutdowns during the month of January 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 January 2006. Sample results are presented in Table 1. The total VOC concentration (7.03 µg/L) in the influent sample has decreased since the December 2005 sample (38.71 µg/L).

The Union Creek totalizer is broken due to sun and water damage. The part is being ordered.

Optimization Activities

The table below summarizes optimization activities associated with SBBGWTP during January 2006.

Activity	Status	Comments
None to report		

Table 1.

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

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	5 January 2006 (µg/L)	
				Influent	Effluent
Halogenated Volatile Organics					
Carbon Tetrachloride	0.5	0.19	0	ND	ND
Chloroform	5.0	0.16	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	ND	ND
cis-1,2-Dichloroethene	5.0	0.15	0	0.33 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	ND	ND
1,1,2-Trichloroethane	5.0	0.32	0	ND	ND
Trichloroethene	5.0	0.16	0	6.7	0.26 J
Vinyl Chloride	0.5	0.38	0	ND	ND
Non-Halogenated Volatile Organics					
Benzene	1.0	0.18	0	ND	ND
Ethylbenzene	5.0	0.11	0	ND	ND
Toluene	5.0	0.12	0	ND	ND
Xylenes	5.0	0.36	0	ND	ND
Other					
Total Petroleum Hydrocarbons – Gasoline	50	5.2	0	ND	ND
Total Petroleum Hydrocarbons – Diesel	50	52	0	ND	ND
Total Suspended Solids	NE	1,100	0	ND	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
TPH = total petroleum hydrocarbons
µg/L = micrograms per liter

ATTACHMENT 4

Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 79 Reporting Period: 1 – 31 January 2005 Date Submitted: 3 February 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 – January 2006

Operating Time:	Percent Uptime:
CGWTP: 744 hours	CGWTP: 100%
WTTP: Water: 694 hours Vapor: 370 hours ^a	WTTP: Water: 93% Vapor: 50%
ThOx: 744 hours	ThOx: 100%
Gallons Treated: 2.9 million gallons	Gallons Treated Since January 1996: 307.9 million gallons
VOC Mass Removed:	VOC Mass Removed Since January 1996:
13.0 lbs (groundwater only)^b	2,029 lbs from groundwater
217.8 lbs (vapor only)^c	7,450 lbs from vapor
UV/Ox DRE: 99.9%	ThOx DRE: 99.7% ^c
Rolling 12-Month Cost per Pound of Mass Removed: \$240 ^d	
Monthly Cost per Pound of Mass Removed: \$166	

^a WTTP vapor treatment system was restarted on 11 January 2006, and became fully operational on 18 January 2006.
^b Calculated using January 2006 EPA Method SW8260B analytical results.
^c Calculated using January 2006 EPA Method TO-14 analytical results. Total vapor VOC mass removed include mass removed from the ThOx and the WTTP SVE system. Because the January 2006 analytical results for the WTTP SVE system have not been received, the most recent analytical data for the SVE startup investigation (7 October 2005) were used to calculate vapor VOC mass removed.
^d Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the system.

DRE = destruction removal efficiency UV/Ox = ultraviolet oxidation

Flow Rates

Average Groundwater Flow Rate: **76.4 gpm^a**

Location	Average Flow Rate	
	Groundwater (gpm)	Soil Vapor (scfm)
EW01x16	17.8	NA
EW02x16	-- ^b	NA
EW03x16	-- ^c	NA
EW605x16	16.0	NA
EW610x16	4	NA
WTTP	27.0 ^d	122 ^e
ThOx	NA	69.5 ^f

^a As measured by flow rate at the ultra-violet oxidation (UV Ox) system.
^b EW02x16 was off line since October 2005; however, the extraction well was restarted on 27 January 2006. The totalizer was not working.
^c EW03x16 (water) was taken off line in September 2002 due to a significant decrease in flow rates.
^d effluent groundwater pumped to the CGWTP
^e average soil vapor extraction SCADA outlet flow
^f influent soil vapor 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 (Vapor)	1 Jan. 2006	0:00	11 Jan. 2006	9:00	The SVE system was off line due to low asymptotic vapor concentrations. The system was restarted several times during this period to test the equipment.
WTTP (water)	7 Jan. 2006	8:12	9 Jan. 2006	10:23	Power outage or phase failure.
WTTP (Vapor)	11 Jan. 2006	18:00	12 Jan. 2006	8:00	The SVE system was manually shut off in the evening for safety reasons because it was unsure if the high float in the knock out tank works to shut the system down.
WTTP (Vapor)	12 Jan. 2006	18:00	13 Jan. 2006	7:00	(Same as above)
WTTP (Vapor)	13 Jan. 2006	18:00	16 Jan. 2006	7:30	(Same as above)
WTTP (Vapor)	16 Jan. 2006	13:30	17 Jan. 2006	6:30	(Same as above)
WTTP (Vapor)	17 Jan. 2006	12:30	18 Jan. 2006	7:30	(Same as above)
WTTP (Vapor)	18 Jan. 2006	11:00	18 Jan. 2006	11:30	The float in the knock out tank was replaced.

Summary of O&M Activities

Monthly groundwater sampling at the CGWTP was performed on 5 January 2006. Groundwater sample results are summarized in Table 1. Vapor sampling at the ThOx unit was performed on 6 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.

In October 2005, the DP039 SVE system was restarted as part of an initial investigation to assess whether resuming SVE operations at this site would be cost-effective. Results from this investigation indicate that it will be cost-effective to start up the DP039 system, and therefore the WTTP blowers restarted on 11 January 2006. In preparation for this event, the broken heat exchanger at the WTTP was replaced in December and the carbon changed in the vapor granular activated carbon (VGAC) unit. From 11 to 18 January 2006, the SVE system was only operated during the day and manually shut off in the evening for safety reasons. It was unsure if the high float worked in the knock out tank to shut the system down. On 18 January 2006, the float in the knock out tank was replaced and the SVE system was left on to operate continuously throughout the day and night. Vapor samples were collected from the SVE systems on 13 and 24 January 2006; however, the analytical results have not been received.

Analytical results for groundwater samples continue to indicate that cis-1,2-dichloroethene (DCE) was present at low levels in all system groundwater samples downstream of the carbon vessels (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 has been detected in 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 at the system effluent and after-holding tank are estimated values (J-flag detections), as they are below 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 concentrations at all system groundwater samples downstream of the influent at levels below 10% of the instantaneous discharge limits indicated in the *Central Groundwater Treatment Plant Operations and Maintenance Manual*. All chloroform concentrations and system performance will continue to be monitored in the upcoming months.

Optimization Activities

The table below summarizes current optimization activities associated with CGWTP.

Activity	Status	Comments
None to report		

Table 1.

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

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	5 January 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	0.12	0	ND	0.21 J	0.23 J	0.27 J	0.32 J	0.27 J
Dibromochloromethane	5.0	0.19	0	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	5.0	0.16	0	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	5.0	0.17	0	ND	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	0.15	0	2.2	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.15 – 0.3 ^b	0	54	ND	0.17 J	0.44 J	0.43 J	0.37 J
trans-1,2-Dichloroethene	5.0	0.15	0	2.1	ND	ND	ND	ND	ND
Methylene Chloride	5.0	0.12	0	0.67 J	ND	ND	ND	ND	ND
Tetrachloroethene	5.0	0.18	0	0.96 J	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 – 3.2 ^c	0	480	ND	0.34 J	ND	ND	ND
Vinyl Chloride	0.5	0.25	0	ND	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 0.3 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 3.2 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 January 2006 – Central Groundwater Treatment Plant

Constituent	6 January 2006 (ppbv)	
	TPE Influent ^a	TPE Effluent
Volatile Organics		
Acetone	ND (2,400)	ND (4.4)
Benzene	ND (540)	44
1,3-Butadiene	ND (530)	ND (0.96)
cis-1,2-Dichloroethene	20,000	ND (0.5)
1,2-Dichlorobenzene	ND (860)	ND (1.6)
1,3-Dichlorobenzene	ND (900)	ND (1.6)
Methylene Chloride	ND (600)	ND (1.1)
Methyl Ethyl Ketone (MEK)	ND (970)	77
m,p-Xylenes	ND (630)	7
Tetrachloroethene	ND (320)	ND (0.59)
Toluene	ND (710)	24
trans-1,2-Dichloroethene	ND (270)	ND (0.5)
Trichloroethene	190,000	ND (0.67)
Vinyl Chloride	660 J	ND (0.91)

^a The method detection limits (MDL) for the influent sample were significantly higher than the effluent sample. Therefore, many more analytes were detected in the effluent sample and not detected in the influent sample.

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: 68 Reporting Period: 1 – 31 January 2006 Date Submitted: 3 February 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 –January 2006

Operating Time: **Water:** 475 hours

Vapor: Off line^a

Percent Uptime: **Water:** 64%

Vapor: Off line

Gallons Treated: 0.36 million gallons

Gallons Treated Since March 2000: 63.5 million gallons

Volume Discharged to Storm Drain: 0 gallons

Volume Discharged to Duck Pond: 0.36 million gallons

Percentage of Treated Water to Beneficial Use: 100%

VOC Mass Removed:

0.064 lbs (groundwater only)^b

0 lbs (vapor only)^a

VOC Mass Removed Since March 2000:

168.7 lbs from groundwater

5,240 lbs from vapor^c

VGAC Removal Efficiency: **NA^a**

Rolling 12-Month Cost per Pound of Mass Removed^d: \$53,802

Monthly Cost per Pound of Mass Removed: \$462,854

^a The SVE system was off line throughout the month of January 2006.

^b Calculated using January 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 concentrations, low operational uptime, and lack of vapor mass removal.

Flow Rates

Average Groundwater Total Flow Rate: **19.4 gpm**

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

^a SCADA readings malfunctioning during January 2006. Extraction well flows not available.

^b SVE system off line at the NGWTP during December 2005.

^c 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)	2 Jan. 2006	14:02	3 Jan. 2006	12:41	A foam build up in the wet well again caused the sensor to read high fluid levels. The foam was dissipated and the sensor functioned normally. A repair being evaluated is to install a pressure sensor in the bottom of the tank to read fluid levels.
NGWTP (water)	3 Jan. 2006	19:12	4 Jan. 2006	8:10	(same problem)
NGWTP (water)	5 Jan. 2006	2:51	5 Jan. 2006	7:30	(same problem)
NGWTP (water)	5 Jan. 2006	23:05	6 Jan. 2006	7:50	(same problem)
NGWTP (water)	6 Jan. 2006	17:25	9 Jan 2006	8:23	(same problem)
NGWTP (water)	10 Jan. 2006	2:05	10 Jan. 2006	8:10	(same problem)
NGWTP (water)	11 Jan. 2006	14:03	12 Jan. 2006	7:28	(same problem)
NGWTP (water)	12 Jan. 2006	7:50	13 Jan. 2006	14:01	(same problem)
NGWTP (water)	16 Jan. 2006	12:59	17 Jan. 2006	10:30	(same problem)
NGWTP (water)	17 Jan. 2006	14:00	18 Jan. 2006	11:01	(same problem) The sensor was replaced with a pressure sensor in the bottom of the tank to read fluid levels.
NGWTP (water)	20 Jan. 2006	2:09	20 Jan. 2006	13:05	The air stripper failed.
NGWTP (water)	24 Jan. 2006	23:37	25 Jan. 2006	12:50	The EW Area 04 Inlet alarm detected a leak and stopped the system. However, the actual problem was due to sensors in the containment casing that were wet due to moisture build up. The sensors were dried and the plant was restarted.
NGWTP: North Groundwater Treatment Plant					

Summary of O&M Activities

Monthly groundwater samples were collected on 5 January 2006. Analytical results are summarized in Table 1. VOC results were non-detect for effluent samples. However, TPH-G and TPH-D were detected in the effluent sample at low levels.

Build up of foam in the wet well caused the high level sensor to repeatedly malfunction during January. The Ultra Sonic sensor was replaced with a pressure sensor located at the bottom of the wet well, which will more accurately read the water levels and prevent ongoing high level shut downs.

Optimization Activities

Activity	Status	Comments
None to report.		

Table 1.

Summary of Groundwater Analytical Data for January 2006 – North Groundwater Treatment Plant

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	5 January 2006 (µg/L)	
				Influent	Effluent
Halogenated Volatile Organics					
Bromodichlormethane	0.5	0.17	0	0.3 J	ND
Carbon Tetrachloride	0.5	0.19	0	ND	ND
Chloroform	5.0	0.16	0	0.34 J	ND
Dibromochloromethane	0.5	0.17	0	0.39 J	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	ND	ND
cis-1,2-Dichloroethene	5.0	0.15	0	0.37 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	7.9	ND
1,1,2-Trichloroethane	5.0	0.32	0	ND	ND
Trichloroethene	5.0	0.16	0	12	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	7.2 J
Total Petroleum Hydrocarbons – Diesel	50	0.052	0	NM	0.053 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)..

J = analyte concentration is considered an estimated value

N/C = Number of samples out of compliance with discharge limits.

ND = not detected

NM = not measured

TPH = total petroleum hydrocarbons

µg/L = micrograms per liter