Final

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

7 February 2007, 0930 Hours

Mr. Mark Smith, Travis Air Force Base (AFB), conducted the Remedial Program Managers' (RPM) Partnering meeting held on 7 February 2007 at 0930 in the Base Civil Engineering Conference Room, Building 570, Travis AFB, California. Attendees included:

• Mark Smith	Travis AFB
• Wayne Williams	Travis AFB
• Gregory Parrott	Travis AFB
• Wilford Day	Travis AFB
• Glenn Anderson	Travis AFB
• Tom Sreenivasan	Travis AFB
• Jose Salcedo	Department of Toxic Substances Control (DTSC)
• Glenn Kistner	U.S. Environmental Protection Agency (U.S.EPA)
• Alan Friedman	California Regional Water Quality Control Board (CRWQCB)
• Rich Howard	Tech Law
• Mike Wray	CH2M Hill
• Carol Kontonickas	URS
• Tom Barry	Shaw Engineering and Infrastructure (Shaw E&I)
• 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 (January 2007)
• Attachment 4	CGWTP Monthly Data Sheet (January 2007)
• Attachment 5	NGWTP Monthly Data Sheet (January 2007)

1. ADMINISTRATIVE

A. Introductions

Mr. Smith introduced Mr. Glenn Kistner who has replaced Mr. John Lucey as the U.S. EPA's RPM.

B. Previous Meeting Minutes

The January 2007 Teleconference RPM meeting 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 Annual Meeting and Teleconference Schedule

— Page 1, the Monthly RPM Meeting and Suppliers Teleconference schedules were updated. Additionally, the Monthly RPM Teleconference meeting dates were changed during the meeting as follows:

3-21-07 changed to 3-28-07

4-18-07 changed to 4-25-07

5-16-07 changed to 5-23-07

8-22-07 changed to 8-29-07

Travis AFB Master Document Schedule

— Page 4, the Groundwater Sampling Analysis Program (GSAP) Annual Report schedule was updated.

2. OPERABLE UNIT UPDATE

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

Mr. Anderson stated that the review period for SD001 and SD033 Soil Remedial Design packages has ended. The Air Force has received comments from the Water Board and is currently working on the response to comments. The Air Force also received comments from the Restoration Advisory Board (RAB) and the response to comments was submitted to the RAB for approval.

Mr. Anderson stated that Mr. Lucey will review these design packages and provide comments. Mr. Kistner stated that he would contact Mr. Lucey concerning U.S. EPA's comments. Mr. Salcedo stated that he will submit his comments within a week.

Mr. Anderson stated that the draft LF007 Soil Remedial Design package was submitted 30 January 2007 for regulatory review.

B. Remedial Action Work Plan Review SD045

Mr. Anderson stated that the Remedial Action Work Plan for SD045 was previously submitted to the agencies to informally review. Mr. Friedman stated that the Water Board may not have comments; however, he will let Mr. Anderson

know. Mr. Kistner stated that he has briefly spoken with Mr. Lucey about this document.

C. Basewide Groundwater ROD Scoping Meeting Notes

Mr. Smith stated that on 24 January 2007, there was a Groundwater Record of Decision (ROD) Scoping meeting. Mr. Smith distributed a three-page handout that documented comments which were generated from this meeting. These comments provide an opportunity for the Air Force to know what the agencies biggest concerns are with the groundwater sites.

Mr. Kistner stated that he has additional concerns that he would like to discuss with the Air Force. It was agreed that U.S. EPA's concerns will be discussed after this meeting.

Mr. Smith reiterated that he wants to focus primarily on the upcoming soil cleanup actions to ensure success this dry season.

3. CURRENT PROJECTS

A. Treatment Plant Operation and Maintenance

1. South Base Boundary Groundwater Treatment Plant

Mr. Sreenivasan reported that the South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 98.9 % uptime, and 4.4 million gallons of groundwater were extracted and treated during the month of January 2007. The average flow rate for the SBBGWTP was 100 gallons per minute (gpm). Approximately 2.4 pound of volatile organic compounds (VOCs) was removed during January 2007. The total mass of VOCs removed since the startup of the system is 301 pounds (see Attachment 3).

There was one minor shutdown caused by the freezing temperatures; resulting in an instrument malfunction during the month of January 2007.

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

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

2. Central Groundwater Treatment Plant

Mr. Sreenivasan reported that the Central Groundwater Treatment Plant (CGWTP) performed at 99.7% uptime with approximately 2.5 million gallons of groundwater extracted and treated during the month of January 2007. The average flow rate for the CGWTP was 56 gpm. Approximately 13 pounds of VOCs were removed during January 2007. The total mass of VOCs removed since the startup of the system is 10,473 pounds. (see Attachment 4).

The CGWTP was down for a short time to fix a small leak to the carbon vessel.

The thermal oxidation (Th/Ox) system was down once caused by the freezing temperatures of the water lines.

The West Treatment and Transfer Plant (WTTP) experienced a few minor shut downs caused by small water leaks.

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

No optimization activities were planned or performed during January 2007.

3. North Groundwater Treatment Plant

Mr. Sreenivasan reported that the North Groundwater Treatment Plant (NGWTP) performed at 98.3% uptime with approximately 930,000 gallons of groundwater extracted and treated during the month of January 2007. The average flow for the NGWTP was 21.3 gpm. Less than a pound of VOCs was removed during January 2007, which was from groundwater and vapor. The total mass of VOCs removed since the startup of the system is 5,419 pounds (see Attachment 5).

The plant experienced two minor shutdowns caused by freezing temperatures during January 2007.

The soil vapor extraction system is off due to high water levels at the extraction wells. This is normal during the rainy season.

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

B. DP039 Field Work

Mr. Anderson stated that on 2 February 2007 the Air Force conducted and completed a shakedown of the system and everything worked as designed and built. The rebound wells were shut down to conduct the rebound study. This will take approximately three weeks to complete.

C. Variance Request for PAH and Metals Analyses

Mr. Anderson stated that the variance request for PAH and metals analyses is to support the soil actions that will take place this coming summer. The request was submitted in order to use updated methods.

Mr. Anderson asked if the regulators had made a decision. Mr. Kistner and Mr. Salcedo stated that they will follow-up with their agency.

D. Military Munitions Response Program Comprehensive Site Evaluation Handout

Mr. Anderson stated that last summer Travis AFB had a visit from the Corps of Engineers and URS who conducted a preliminary assessment of potential

munitions facilities. A Comprehensive Site Evaluation report that described the results of the assessment was submitted to the agencies for review and approval. This report will be placed on the document schedule.

E. Annual Land Use Control Report

Mr. Anderson stated that this report was submitted to the agencies via email on 31 January 2007.

Mr. Anderson stated that no comments are due on the report; however, suggestions are appreciated.

Mr. Anderson offered to demonstrate the Base General Plan website to all those who are interested. Mr. Kistner stated that he would like to see it. Mr. Smith requested that Mr. Anderson demonstrate this to Mr. Kistner after today's meeting.

Mr. Kistner stated that he thought that since the WABOU Soil ROD was signed in 2002 that it should be due for a 5 year review in 2007.

Mr. Smith stated that the next 5 year review is due in 2008, but that it should be easy enough to perform a review this year if needed. Mr. Kistner stated that U.S. EPA is making an effort in being more stringent with the five-year review process. He will check with his management to determine the requirements.

F. Petroleum Only Contamination (POCO) Sites

Mr. Day stated that CH2M Hill is progressing well with their work and expect to be in the field on 12 February 2007. Dig permits are still outstanding but are being processed in time to support field work.

Mr. Day will brief Mr. Friedman on the proposed locations for the monitoring wells after today's meeting, in support of the Triad field investigation.

Mr. Day stated that the laboratory results on ST018 were delayed and he was not able to recommend optimum placement of the monitoring wells. In the interim, the current dig permits show all possible locations.

Mr. Wray stated that the proposed monitoring well locations should be available by this afternoon for Mr. Friedman's approval.

4. PROGRAM ISSUES UPDATE

Mr. Smith stated he has no new program issues to report.

ACTION ITEM LIST

ITEM	RESPONSIBLE	ACTION ITEM	DUE DATE	STATUS
1.	Air Force	To select a date for the GSAP response to comments meeting with the regulatory agencies.	2-9-07	New Item.
2.	Air Force	To add the schedule for the CSE Phase 1 Report to the Master Meeting and Document Schedule.	3-14-07	New Item.
3.	DTSC/U.S. EPA	To comment on the variance request.	3-14-07	New Item.
4.	U.S. EPA	To provide requirements for the five-year review for the WABOU soil sites.	3-14-07	New Item.

ATTACHMENT 1

TRAVIS AIR FORCE BASE
ENVIRONMENTAL RESTORATION PROGRAM
REMEDIAL PROGRAM MANAGER'S
PARTNERING MEETING
7 February, 9:30 A.M.
(Building 570, Main Conference Room)
AGENDA

1. ADMINISTRATIVE

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

2. OPERABLE UNIT UPDATE

   A. NEWIOU SOIL REMEDIAL DESIGNS (GLENN)
   B. REMEDIAL ACTION WORK PLAN REVIEW SD045 (GLENN)
   C. BASEWIDE GROUNDWATER ROD SCOPING MEETING NOTES (MARK)

3. CURRENT PROJECTS

   A. TREATMENT PLANT OPERATION AND MAINTENANCE UPDATE (TOM)
   B. DP039 FIELD WORK (GLENN)
   C. VARIANCE REQUEST FOR PAH AND METALS ANALYSES (GLENN)
   D. MILITARY MUNITIONS RESPONSE PROGRAM CSE HANDOUT (GLENN)
   E. ANNUAL LAND USE CONTROL REPORT (GLENN)
   F. PETROLEUM ONLY CONTAMINATION (POCO) STATUS (WILFORD)

4. PROGRAM/ISSUES/UPDATE

5. NEW ACTION ITEM REVIEW

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

Please initial or print name if necessary **7 February 2007**

Initial	Name	Organization	Email Address	Telephone #
MS	Mark Smith	Travis AFB	marksmith2@travis.af.mil	(707) 424-3062
GMA	Glenn Anderson	Travis AFB	glenn.anderson@travis.af.mil	(707) 424-4359
WD	Wilford Day	Travis AFB	wilford.day@travis.af.mil	(707) 424-0452
TNS	Tom Sreenivasan	Travis AFB	tom.sreenivasan@travis.af.mil	(707) 424-3172
GP	Gregory Parrott	Travis AFB	gregory.parrott@travis.af.mil	(707) 424-1506
	Lonnie Duke	Travis AFB	lonnie.duke@travis.af.mil	(707) 424-7520
GK	Glenn Kistner	U.S. EPA	kistner.glenn@epa.gov	(415) 972-3004
JS	Jose Salcedo	DTSC	jsalcedo@dtsc.ca.gov	(916) 255-3791
ADF	Alan Friedman	CRWQCB	afriedman@waterboards.ca.gov	(510) 622-2347
	Bob Hulet	Shaw E&I	Bob.Hulet@shawgrp.com	(925) 288-2162
TB	Tom Barry	Shaw E&I	Tom.Barry@shawgrp.com	(925) 288-2018
	Adam Harvey	URS	adam_harvey@urscorp.com	(916) 679-2002
MW	Mike Wray	CH2M Hill	mwray@ch2m.com	(916) 286-0243
CK	Carol Kontonickas	URS	Carol_Kontonickas@urscorp.com	(916) 679-2309
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W	WAYNE WILLIAMS	TRAVIS	Wayne.Williams@travis.af.mil	(707) 424-7515

ATTACHMENT 2

2007

Travis AFB Annual Meeting and Teleconference Schedule

Suppliers Teleconference (8:30 a.m. - 10:00 a.m.)	Monthly RPM Meeting (Begins at 9:30 a.m.)	Monthly RPM Teleconference (Begins at 9:30 a.m.)	Restoration Advisory Board Meeting (Begins at 6:30 p.m.)
1-23-07	1-24-07[1]	1-10-07	—
2-6-07	2-7-07	2-21-07	—
3-13-07	3-14-07	3-21-07	—
4-10-07	4-11-07	4-18-07	4-19-07
5-8-07	5-9-07	5-16-07	—
6-12-07	6-13-07	6-27-07	—
7-17-07	7-18-07[2]	7-25-07	Base Tour
8-14-07	8-15-07	8-22-07	—
9-11-07	9-12-07	9-26-07	—
10-16-07	10-17-07	—	10-25-07
—	—	11-7-07	—
12-11-07	12-12-07	—	—

[1] – RPM meeting on the 24th of Feb will be followed by a Groundwater ROD scoping meeting from 1pm to 4pm with the regulatory agencies.

[2] – Switched from 7/11/07 to accommodate DTSC schedule

Travis AFB Master Document Schedule

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

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

Travis AFB Master Document Schedule
(Continued)

	PRIMARY DOCUMENTS	
	Basewide Travis, Glenn Anderson	**Potrero Hills Annex Travis, Glenn Anderson**
Life Cycle	**Groundwater ROD**	**Potrero Hills ROD**
Scoping Meeting	**1-24-07**	**180 days after Water Board 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	10-13-06
AF/Service Center Comments Due	10-30-06
Draft to Agencies	11-13-06
Draft to RAB	11-13-06
Agency Comments Due	1-19-07
Response to Comments Meeting	**2-21-07**
Response to Comments Due	3-07-07
Draft Final Due	3-07-07
Final Due	3-30-07
Public Comment Period	NA
Public Meeting	NA

Travis AFB Master Document Schedule
(Continued)

INFORMATIONAL DOCUMENTS	
Life Cycle	**Quarterly Newsletters (January 2007 Issue Deferred until April 2007 per agreement with DTSC) Travis, Mark Smith**
Scoping Meeting	NA
Predraft to AF/Service Center	NA
AF/Service Center Comments Due	NA
Draft to Agencies	3-15-07
Draft to RAB	NA
Agency Comments Due	3-29-07
Response to Comments Meeting	**TBD**
Response to Comments Due	4-12-07
Draft Final Due	TBD
Final Due	4 -12-07
Public Meeting	NA

Travis AFB Master Document Schedule
(Continued)

INFORMATIONAL DOCUMENTS				
	Groundwater Treatment Plant O&M Reports **Travis, Tom Sreenivasan;** **CH2M Hill, Mike Wray**			
Life Cycle	**Groundwater Treatment Plants Annual Reports Fiscal Year 2006**	**Groundwater Treatment Plants First Quarter Report Fiscal Year 2007**	**Groundwater Treatment Plants Second Quarter Report Fiscal Year 2007**	**Groundwater Treatment Plants Third Quarter Report Fiscal Year 2007**
Scoping Meeting	**NA**	**NA**	**NA**	**NA**
Predraft to AF/Service Center	1-22-07	4-13-07	7-13-07	10-12-07
AF/Service Center Comments Due	1-26-07	4-20-07	7-20-07	10-19-07
Draft to Agencies	NA	NA	NA	NA
Draft to RAB	NA	NA	NA	NA
Agency Comments Due	NA	NA	NA	NA
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	1-31-07	4-27-07	7-27-07	10-26-07
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: 78 **Reporting Period: 1 – 31 January 2007** **Date Submitted: 6 February 2007**

This data sheet includes the following: results for the operation of the South Base Boundary Groundwater Treatment Plant (SBBGWTP); a summary of flow rates for the individual extraction wells; a brief description of any shutdowns or significant events related to the system: and a summary of analytical results for selected samples collected.

Operations Summary – January 2007

Operating Time: **736 hours**

Percent Uptime: **98.9%**

Gallons Treated: **4.4 million gallons**

Gallons Treated Since July 1998: **543 million gallons**

Volume Discharged to Union Creek: **4.4 million gallons**

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

VOC Mass Removed: **2.4 pounds**[a]

VOC Mass Removed Since July 1998: **299.6 pounds**

Rolling 12-Month Cost per Pound of Mass Removed: $11,102[b]

Monthly Cost per Pound of Mass Removed: $4,594[b]

[a] Calculated using January 2007 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: **100.0**[a]

Average Flow Rate from SCADA (gpm)[b]							
FT005				**SS029**		**SS030**	
EW01x05	12.0	EW736x05	Off line[c]	EW01x29	7.4	EW01x30	4.7
EW02x05	3.2	EW737x05	5.3	EW02x29	7.1	EW02x30	1.3
EW03x05	2.7	EW742x05	5.2	EW03x29	Off line	EW03x30	Off line
EW731x05	0.8	EW743x05	0.5	EW04x29	9.6	EW04x30	Off line[c]
EW732x05	4.0	EW744x05	4.2	EW05x29	10.5	EW05x30	6.0
EW733x05	0.5	EW745x05	6.5	EW06x29	8.5	EW06x30	0.6
EW734x05	6.1	EW746x05	6.0	EW07x29	Off line	EW711x30	4.0
EW735x05	3.9						
		FT005 Total:	60.9	SS029 Total:	43.1	SS030 Total:	16.6

[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] Average extraction well flow rates measured by extraction well totalizer divided by the operating time.
[c] Extraction well was off line during January 2007. Extraction well pumps are scheduled to be replaced.

gpm—gallons per minute

Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
SBBGWTP (water)	16 January 2007	4:00	16 January 2007	12:30	Freezing temperatures caused false instrument readings.

SBBGWTP = South Base Boundary Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater sampling at the SBBGWTP was performed on 3 January 2007. Sample results are presented in Table 1. The total VOC concentration (65.5 µg/L) in the influent sample has decreased since the December 2006 sample (90.9 µg/L). VOC results were non-detect for effluent samples.

In January 2007, EW02x05 and EW03x05 were restarted; however, EW01x05 was still not functioning due to damaged and deteriorated wiring between the motor control centers (MCC) and the extraction wells.

Optimization Activities

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

Table 1
Summary of Groundwater Analytical Data for January 2007 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	3 January 2007 (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	ND	ND
1,1-Dichloroethene	5	0.14	0	ND	ND
cis-1,2-Dichloroethene	5	0.15	0	4.5	ND
trans-1,2-Dichloroethene	5	0.15	0	ND	ND
Methylene Chloride	5	0.32	0	ND	ND
Tetrachloroethene	5	0.2	0	ND	ND
1,1,1-Trichloroethane	5	0.16	0	ND	ND
1,1,2-Trichloroethane	5	0.32	0	ND	ND
Trichloroethene	5	0.16 – 0.43	0	61	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	4.9	0	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	32	0	NM	ND
Total Suspended Solids (mg/L)	NE	1.1	0	34	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
mg/kg = milligrams per liter
N/C = number of samples out of compliance with discharge limits
ND = not detected
NE = not established
NM = not measured
µg/L = micrograms per liter

ATTACHMENT 4

Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 91 **Reporting Period: 1 – 31 January 2007** **Date Submitted: 6 February 2007**

This data sheet includes the following: results for the operation of the Central Groundwater Treatment Plant (CGWTP), West Treatment and Transfer Plant (WTTP), and thermal oxidation (ThOx) system (previously referred to as the two-phase extraction [TPE] system); a summary of flow rates for the CGWTP, WTTP, ThOx, and extraction wells EW01x16, EW02x16, EW03x16, EW605x16, and EW610x16; a brief description of any shutdowns or significant events related to the systems: and a summary of analytical results for selected samples collected.

Operations Summary – January 2007

Operating Time:

CGWTP: 741.5 hours

WTTP: Water: 559 hours Vapor: 408 hours

ThOx: 735 hours

Percent Uptime:

CGWTP: 99.7%

WTTP: Water: 75.1% Vapor: 54.8%

ThOx: 98.8%

Gallons Treated: 2.5 million gallons

Gallons Treated Since January 1996: 335.6 million gallons

VOC Mass Removed:

10.9 lbs (groundwater only)[a]

1.9 lbs (vapor only)[b]

VOC Mass Removed Since January 1996:

2,145 lbs from groundwater

8,310 lbs from vapor

UV/Ox DRE: 100%

ThOx DRE: 79%

Rolling 12-Month Cost per Pound of Mass Removed: $242[c]

Monthly Cost per Pound of Mass Removed: $1,710[c]

[a] Calculated using January 2007 EPA Method SW8260B analytical results.
[b] Total VOC vapor mass removed was calculated using January 2007 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: **56.0 gpm**[a]

Location	Average Flow Rate	
	Groundwater (gpm)	Soil Vapor (scfm)
EW01x16	24.9[b]	NA
EW02x16	Off line[c]	NA
EW03x16	Off line[d]	NA
EW605x16	12.8[b]	NA
EW610x16	0.0[e]	NA
WTTP	24.2[f]	56.7
ThOx	NA	72.0[g]

[a] as measured by the effluent discharge to the storm drain divided by the operating time.
[b] as measured by extraction well totalizer divided by the operating time.
[c] EW02x16 (water) was taken off line due to pump failure.
[d] EW03x16 (water) was taken off line in September 2002 due to a significant decrease in flow rates.
[e] pump is operational; however, there is no flow.
[f] as measured by the effluent groundwater pumped to the CGWTP divided by the operating time.
[g] flow rate measured using pitot tube

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

Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
WTTP (water)	1 January 2007	0:00	8 January 2007	14:30	A small leak was noticed coming from the flow meter gasket. In addition, the input/output card from the WTTP PLC was removed and used for the UV/Ox PLC board to restart the CGWTP.
WTTP (vapor)	1 January 2007	0:00	9 January 2007	9:30	(Same problem)
Th-Ox (vapor)	14 January 2007	2:30	14 January 2007	11:20	Low temperatures overnight froze the water lines, thus restricting flow.
CGWTP (water)	17 January 2007	14:30	17 January 2007	17:00	Repaired leaking PVC T-fitting at the carbon treatment inlet.
WTTP	17 January 2007	14:30	17 January 2007	17:00	CGWTP was shutdown.
WTTP (vapor)	26 January 2007	12:00			WTTP SVE rebound analysis for EW782x39.

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 3 January 2007. In addition, quarterly groundwater sampling was performed at the ThOx and the WTTP unit on 3 and 9 January 2007, respectively. Groundwater sample results are summarized in Table 1. Vapor samples were collected at the ThOx unit and the WTTP SVE system on 4 and 9 January 2007, respectively. Vapor results are shown in Tables 2 and 3.

The total VOC concentration (525 µg/L) in the influent groundwater sample has increased since the November 2006 sample (401 µg/L). Chloroform, cis-1,2-dichloroethene (DCE), trans-1,2-DCE, and trichloroethene (TCE) were present in groundwater samples downstream of the UV-Ox treatment. The detections in these samples are likely attributed to desorption from the granular activated carbon (GAC). In addition, in November and December 2006, the UV-Ox system failed, and some of the influent groundwater may have bypassed the UV-Ox system and may have been treated by the GAC. The chloroform, cis-1,2-DCE, trans-1,2-DCE, and TCE concentrations and system performance will continue to be monitored in the upcoming months.

The ThOx system continues to treat soil vapor from the 2-Phase® well (TPE-W) as part of SS016 focused vapor extraction activities. Quarterly vapor samples collected in January 2007 indicated a continued decrease in TCE concentrations from 2,000 ppbv in September 2006 to 63 ppbv in January 2007. Vapor results are shown in Table 2.

Pitot tubes and thermometers were installed at the WTTP and several duel-phase extraction (DPE) wells. In addition, the flow transmitters were replaced at several extraction wells.

The WTTP SVE system continued to treat soil vapor from the EW563x39. Quarterly vapor samples collected in January 2007 indicated an increase in total VOC concentrations from 634 ppbv in September 2006 to 3,835 ppbv in January 2007. Vapor results are shown in Table 3. On 4 January 2007, the 2,000-pound GAC was changed out from the lead vessel, and the lead and lag vessels swapped positions. On 26 January 2007, the initial start up and testing of EW782x39 was completed. The WTTP SVE system is off-line for 3 weeks for rebound analysis.

Optimization Activities

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

Table 1
Summary of Groundwater Analytical Data for January 2007 – Central Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	3 January 2007 (µg/L) WTTP Effluent[b]	TPE Effluent	Influent	After UV/OX	After Carbon 1 Effluent	After Carbon 2 Effluent	After Carbon 3 Effluent	System Effluent
Halogenated Volatile Organics											
Bromodichloromethane	5.0	0.15 – 4.5	0	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	0.5	0.17 – 5.1	0	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	5.0	0.16 – 4.3	0	0.25 J	ND	ND	ND	ND	0.23 J	0.20 J	ND
Dibromochloromethane	5.0	0.19 – 4.5	0	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	5.0	0.13 – 3.5	0	ND	26	0.33 J	ND	ND	ND	ND	ND
1.3-Dichlorobenzene	5.0	0.16 – 4.3	0	ND	6.2 J	0.42 J	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.16 – 4.3	0	ND	16	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	5.0	0.12 – 4.3	0	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.5	0.17 – 3.5	0	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	5.0	0.14 – 3.7	0	0.78	ND	1.2	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.15 – 40	0	11 J	4,400	88	ND	9.2	0.26 J	0.25 J	0.17 J
trans-1,2-Dichloroethene	5.0	0.15 – 4.0	0	1.2 J	7.5 J	3.2	ND	0.42 J	ND	ND	ND
Methylene Chloride	5.0	0.12 – 8.5	0	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	5.0	0.20 – 5.3	0	0.47 J	6.0 J	0.72 J	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	5.0	0.13 – 4.3	0	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.23 – 8.5	0	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	5.0	0.16 – 43	0	170	6,500	430	ND	6.0	0.23 J	ND	ND
Vinyl Chloride	0.5	0.17 – 4.5	0	ND	ND	1.0	ND	ND	ND	ND	ND
Non-Halogenated Volatile Organics											
Benzene	1.0	0.18 – 4.3	0	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	5.0	0.11 – 4.3	0	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	5.0	0.12 – 4.5	0	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	5.0	0.36 – 9.1	0	ND	ND	ND	ND	ND	ND	ND	ND
Other											
Total Dissolved Solids (mg/L)	NE	4.7	0	NM	NM	NM	NM	NM	NM	870	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 WTTP effluent sample was collected on 9 January 2007

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

TABLE 2
Soil Vapor Analytical Data for January 2007 – Central Groundwater Treatment Plant

Constituent	4 January 2007 (ppbv)	
	ThOx Influent	ThOx Effluent
Volatile Organics		
Benzene	0.32 J	18
Chloromethane	0.63 J	ND (0.52)
cis-1,2-Dichloroethene	36	ND (0.33)
1,2-Dichlorobenzene	0.64	ND (0.19)
1,3-Dichlorobenzene	ND (0.20)	ND (0.19)
1,4-Dichlorobenzene	0.32 J	ND (0.16)
1,2-Dichloroethane	ND (0.18)	ND (0.17)
Ethylbenzene	ND (0.19)	ND (0.18)
Freon 11	0.24 J	ND (0.094)
Freon 12	0.48 J	ND (0.11)
Freon 22	0.25 J	ND (0.16)
Methylene Chloride	ND (0.094)	ND (0.091)
Methyl Ethyl Ketone (2-Butanone)	ND (0.57)	2.3 J
Tetrachloroethene	0.32 J	0.32 J
Toluene	0.35 J	1.0
trans-1,2-Dichloroethene	ND (0.44)	ND (0.43)
1,2,4-Trichlorobenzene	ND (0.21)	ND (0.21)
1,3,5-Trimethylbenzene	ND (0.18)	ND (0.17)
Trichloroethene	63	ND (0.10)
Vinyl Chloride	ND (0.16)	ND (0.16)
Xylenes, m,p-	ND (0.17)	ND (0.16)
Xylene, o-	ND (0.15)	ND (0.15)

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

Table 3
Soil Vapor Analytical Data for January 2007 – West Transfer and Treatment Plant

Constituent	9 January 2007 (ppbv)		
	SVE Influent	SVE Mid-Treatment	SVE Effluent
Volatile Organics			
Benzene	ND (3.6)	2.9	0.087 J
Bromodichloromethane	3.4 J	ND (0.036)	ND (0.036)
Chloroform	29	ND (0.049)	ND (0.049)
Chloromethane	ND (12)	1.3	0.27
cis-1,2-Dichloroethene	44	ND (0.11)	ND (0.11)
1,1-Dichloroethane	4.7 J	ND (0.056)	ND (0.056)
1,1-Dichloroethene	280	6.4	ND (0.084)
Ethylbenzene	2.3	2.6	ND (0.059)
Freon 11	ND (2.3)	0.43	ND (0.31)
Freon 12	ND (2.6)	0.74	ND (0.036)
Freon 22	5.8 J	0.99	4.9
Methylene Chloride	ND (2.2)	2.5	ND (0.03)
Tetrachloroethene	5.2 J	2.0	0.13 J
Toluene	5.8 J	73	0.17 J
1,1,1-Trichloroethane	84	ND (0.038)	ND (0.038)
1,1,2-Trichloroethane	ND (3.6)	ND (0.049)	ND (0.049)
Trichloroethene	3,400	0.056 J	0.13 J
Vinyl Chloride	ND (3.7)	ND (0.051)	ND (0.051)
Xylenes, m,p-	ND (3.9)	8.4	0.056 J
Xylene, o-	ND (3.5)	2.4	ND (0.048)

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

ATTACHMENT 5

North Groundwater Treatment Plant Monthly Data Sheet

Report Number: 80 **Reporting Period: 1 – 31 January 2007** **Date Submitted: 6 February 2007**

This data sheet includes the following: results for the operation of the groundwater extraction and soil vapor extraction (SVE) systems; a summary of flow rates for the individual extraction wells; a brief description of any shutdowns or significant events related to the systems: and a summary of analytical results for selected samples collected.

Operations Summary – January 2007

Operating Time: **Water:** 731 hours
Vapor: 0[a]

Percent Uptime: **Water:** 98.3%
Vapor: 0%[a]

Gallons Treated: 0.93 million gallons

Gallons Treated Since March 2000: 71.6 million gallons

Volume Discharged to Storm Drain: 0 gallons

Volume Discharged to Duck Pond: 0.93 million gallons

Percentage of Treated Water to Beneficial Use: 100%

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

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

VGAC Removal Efficiency: **NA**

Rolling 12-Month Cost per Pound of Mass Removed: $32,407[de]

Monthly Cost per Pound of Mass Removed: $34,931[d]

[a] The SVE system was shut down on 12 October 2006 due to low vapor VOC concentrations.
[b] Calculated using January 2007 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 groundwater concentrations and low flow rates.
[e] The rolling 12-month cost per pound of mass removed is calculated by the sum of the monthly cost over the past 12 months divided by the sum of pounds removed during the same period.

Flow Rates

Average Groundwater Total Flow Rate: **21.3 gpm**[a]

Location	Flow Rate on 31 January 2007	
	Groundwater (gpm)	Soil Vapor (scfm)[b]
EW565x31	2.0	Off line
EW566x31	1.3	Off line
EW567x31	2.1	NA
EW576x04	1.7	Off line
EW577x04	1.3	Off line
EW578x04	1.9	Off line
EW579x04	0.5	NA
EW580x04	1.7	NA
EW621x04	1.4	NA
EW622x04	2.2	NA
EW623x04	0.5	NA
EW614x07	Off line[c]	NA
EW615x07	Off line[c]	NA
SVE System	NA	Off line

[a] The flow rate was calculated using the effluent discharge totalizer divided by the operating time of the plant.
[b] The SVE system was shut down on 12 October 2006 due to low vapor VOC concentrations.
[c] LF007 wells were turned off for the wet season on 15 November 2006. During the dry season, these submersible pumps are solar powered, and only operate during day light hours.

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

Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
NGWTP (water)	14 January 2007	5:30	14 January 2007	14:30	Low temperatures overnight froze the potable water supply line causing it to rupture in several placed and filling the containment.
NGWTP (water)	16 January 2007	9:10	16 January 2007	13:30	Freezing temperatures caused false instrument readings.

NGWTP = North Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater sampling at the NGWTP was performed on 3 January 2007. Sample results are presented in Table 1. The total VOC concentration (34.1 µg/L) in the influent sample has decreased since the December 2006 sample (48.5 µg/L). VOC results were non-detect for effluent samples.

Optimization Activities

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

Table 1.
Summary of Groundwater Analytical Data for January 2007 – North Groundwater Treatment Plant

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	3 January 2007 (µg/L) Influent	3 January 2007 (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	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	1.7	ND
cis-1,2-Dichloroethene	5.0	0.15	0	0.39 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	2.0	ND
1,1,2-Trichloroethane	5.0	0.32	0	ND	ND
Trichloroethene	5.0	0.16	0	30	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	4.9	0	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	32	0	NM	ND

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

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