

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

**10 January 2007, 0930 Hours**

Mr. Mark Smith, Travis Air Force Base (AFB), conducted the Remedial Program Managers (RPM) meeting via a teleconference on 10 January 2007 at 0930 from the Environmental Flight Conference Room, Building 570, Travis AFB, California. Attendees included:

- Mark Smith Travis AFB
- Gregory Parrott Travis AFB
- Wilford Day Travis AFB
- Tom Sreenivasan Travis AFB
- Glenn Anderson Travis AFB
- Jose Salcedo (via phone) Department of Toxic Substances Control (DTSC)
- John Lucey (via phone) U.S. Environmental Protection Agency (U.S.EPA)
- Alan Friedman (via phone) California Regional Water Quality Control Board (CRWQCB)

Handouts distributed throughout the meeting included:

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

**1. ADMINISTRATIVE**

**A. Previous Meeting Minutes**

The December 2006 RPM meeting minutes were approved and finalized with one comment from Mr. Salcedo regarding his recommendation to move the RPM meeting in July from the 11<sup>th</sup> to the 18<sup>th</sup>. He did not request moving the Supplier's Teleconference.

**B. 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, Mr. Smith reviewed the Meeting Schedule, explaining that the 24 January 2007 RPM meeting will be handled very much like a teleconference. There will be no meeting minutes to approve, no schedule to review, and no monthly groundwater treatment plant reports to review. Only updates on the operable unit projects and treatment plant operation will be presented at the RPM meeting.

**Note:** Mr. Lucey announced that he will be leaving the Travis AFB project. He will going to a section within the U.S. EPA that focuses on mining sites. His replacement will be Mr. Glenn Kistner, who is familiar with Superfund sites. Mr. Lucey will attend the 24 January 2007 meeting along with Mr. Kistner and Mr. Rich Howard. Mr. Lucey will also participate in the Groundwater Record of Decision (ROD) scoping meeting.

Mr. Smith requested that Mr. Lucey introduce Mr. Kistner to Travis AFB via email prior to the 24 January 2007 RPM meeting in order to allow Travis AFB to schedule a tour of the sites with Mr. Kistner.

## **Travis AFB Master Document Schedule**

- Page 2, the Remedial Design (RD) schedule for FT004 was updated and the final was due date was changed to 3 November 2006.
- Page 2, the RD schedule for FT005 was updated and the final due date was changed to 16 January 2007.
- Page 2, the RD schedule for LF007 was revised. Mr. Anderson stated that these dates are tentative, in order to give adequate time for the agencies to review the RD package for SD001 and SD033.
- Page 3, the Basewide Groundwater ROD scoping meeting was changed to 24 January 2007.
- Page 5, the 2006 GSAP Annual Report agency comments due date was changed to 19 January 2007. Mr. Smith stated that Mr. Lucey had previously requested an extension. Mr. Sreenivasan stated that he sent Mr. Lucey an email explaining how an extension would impact the GSAP and that an extension would not be advisable.
- Page 5, the Quarterly Newsletter schedule was updated. Due to funding, the January 2007 issue was deferred until April 2007 per agreement with DTSC.

## **2. OPERABLE UNIT UPDATE**

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

#### **1. SD001 and SD033 Sediment Remedial Design (RD) Package Review**

Mr. Anderson stated that the Sediment RD Package for SD001 and SD003 was issued to the agencies on 22 December 2006 for review. Due to the holidays, the review time was extended to 2 February 2007.

Mr. Anderson requested that Mr. Lucey use his remaining time on the Travis AFB projects to review this Sediment RD Package.

#### **2. Remedial Action Work Plans**

Mr. Anderson stated Shaw Engineering and Infrastructure (Shaw E&I) is the soil/sediment remedial action (RA) contractor for Travis AFB, and they are in the process of completing their first RA work plan. These RA work plans were produced during the 2003 construction period and were reviewed and approved during the RPM meetings.

Travis AFB proposes to issue a semi-official RA work plan for site SD045 to the agencies for an informal review. If the regulatory agencies are comfortable with the concept, then all the follow-on RA work plans could be expedited.

Mr. Anderson requested Mr. Lucey to inform his replacement that the supporting documentation for the upcoming remedial actions (other than the design packages for SD001/SD033 and LF007) has been completed and approved by the agencies. Mr. Anderson reiterated that it is the Air Force's responsibility to ensure that the remedial actions are carried out properly and successfully, and the remedial action work plans allow the base to verify that the RA contractor understands how to conduct the action.

#### **3. Model QAPP**

Mr. Anderson stated that the last time the Model QAPP was updated was in the year 2000. Since that time, methods have changed and procedures have been updated and improved. Shaw E&I has requested several small QAPP variances and provided the rationale for this request. Travis AFB will be submitting this information to the agencies for approval.

Mr. Lucey asked how drastic are the changes. Mr. Anderson stated that there are two variances: one deals with PAHs (Method SW8270) and the other deals with the analysis of metals (Method SW6010B).

Mr. Anderson will send an email to agencies that describes the updated analytical methods and requests the variances.

### **3. CURRENT PROJECTS**

#### **A. South Base Boundary Groundwater Treatment Plant**

Mr. Sreenivasan reported that the South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 100% uptime, and 4.4 million gallons of groundwater were extracted and treated during the month of December 2006. The average flow rate for the SBBGWTP was 98.3 gallons per minute (gpm). Approximately 3.3 pound of volatile organic compounds (VOCs) was removed during December 2006. The total mass of VOCs removed since the startup of the system is 298 pounds (see Attachment 3).

There were no shutdowns during the month of December 2006.

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

No optimization activities were planned or performed at this plant during December 2006.

#### **B. Central Groundwater Treatment Plant**

Mr. Sreenivasan reported that the Central Groundwater Treatment Plant (CGWTP) performed at 7.5% uptime with approximately 85,000 gallons of groundwater extracted and treated during the month of December 2006. The average flow rate for the CGWTP was 25.3 gpm. Approximately 8.1 pounds of VOCs were removed during December 2006. The total mass of VOCs removed since the startup of the system is 10,460 pounds. (see Attachment 4).

The plant was down almost 90% of the operational period during December due to the system failure at the ultraviolet oxidation (UV/Ox) system.

The thermal oxidation (Th/Ox) system was down during much of the month of December due to the fact that the Central plant was not in operation.

The West Treatment and Transfer Plant (WTTP) also experienced a similar shut down duration in December due to the same reason.

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

No optimization activities were planned or performed during December 2006.

#### **C. North Groundwater Treatment Plant**

Mr. Sreenivasan reported that the North Groundwater Treatment Plant (NGWTP) performed at 99.6% uptime with approximately 870,000 gallons of groundwater extracted and treated during the month of December 2006. The average flow for the NGWTP was 19.5 gpm. Less than a pound of VOCs was removed during December 2006, which was from groundwater and vapor. The total mass of VOCs removed since the startup of the system is 5,418 pounds (see Attachment 5).

The plant experienced a minor shutdown to perform acid-washing the air stripper and replacing the valve at the holding tank discharge.

The SVE system was off due to high water levels at the extraction wells which are normal during the rainy season.

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

**D. DP039 Field Work**

Mr. Anderson stated that the DP039 field work is not completed at this time; due to the CGWTP being out of operation for repairs. The remaining work will take place next week and includes the electrical tie-in to the dual phase extraction wells and the startup test.

Mr. Anderson has asked CH2M Hill to write a summary report that discusses all the field and analytical work that was conducted as part of the process optimization project at DP039. They will also create a figure depicting the locations of the dual-phase wells and the latest sampling results from wherever the source.

Mr. Anderson stated that he has the results from the September 2006 well sampling. The results were as expected with one exception, and that is the TCE concentration in groundwater at the extraction well was below the maximum contaminant level – this was also the point where there was a high soil gas detection.

Mr. Lucey requested that Mr. Anderson give an overview of DP039 to Mr. Kistner during the 24 January 2007 RPM meeting. He also requested that the DP039 summary be included in the document schedule.

### ACTION ITEM LIST

ITEM	RESPONSIBLE	ACTION ITEM	DUE DATE	STATUS
1.	Air Force	To provide a verbal summary of the groundwater results from DP039.	10 Jan 2007	<b>Item Closed.</b>

# **ATTACHMENT 1**

TRAVIS AIR FORCE BASE  
ENVIRONMENTAL RESTORATION PROGRAM  
REMEDIAL PROGRAM MANAGER'S MEETING  
10 January, 9:30 A.M.  
(Building 570, Environmental Flight 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 (GLENN)
  - (1). SD001 AND SD033 SEDIMENT REMEDIAL DESIGN (RD) PACKAGE REVIEW
  - (2). REMEDIAL ACTION WORK PLANS
  - (3). MODEL QAPP

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. DP039 FIELD WORK (GLENN)

4. NEW ACTION ITEM REVIEW

# **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 <sup>2</sup>	1-10-07	—
2-6-07	2-7-07	2-21-07	—
3-6-07	3-7-07	3-21-07	—
4-3-07	4-4-07	4-18-07	4-19-07
5-1-07	5-2-07 & 5-30-07 <sup>1</sup>	5-16-07	—
6-12-07	6-13-07	6-27-07	—
7-17-07	7-18-07 <sup>3</sup>	7-25-07	Base Tour
8-7-07	8-8-07	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	—	—

<sup>1</sup> – Second RPM meeting scheduled to support RD/RA document reviews if necessary.

<sup>2</sup> – RPM meeting on the 24<sup>th</sup> of Feb will be followed by a Groundwater ROD scoping meeting from 1pm to 4pm with the regulatory agencies.

<sup>3</sup> – Switched from 7/11/07 to accommodate DTSC schedule

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

	<b>PRIMARY DOCUMENTS</b>					
	Remedial Design Travis, Glenn Anderson; URS, Adam Harvey	Remedial Design Travis, Glenn Anderson; CH2M Hill, Mike Wray				
<b>Life Cycle</b>	<b>SD001</b>	<b>SD033</b>	<b>FT003</b>	<b>FT004</b>	<b>FT005</b>	<b>LF007</b>
<b>Scoping Meeting</b>	<b>8-23-06</b>	<b>8-23-06</b>	<b>5-07-04</b>	<b>5-10-06</b>	<b>6-01-06</b>	<b>9-28-06</b>
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	<del>1-02-07</del> 01-30-07
Draft to RAB	12-22-06	12-22-06	7-16-04	9-29-06	11-24-06	<del>1-02-07</del> 1-30-07
Agency Comments Due	2-02-07	2-02-07	8-16-04	10-30-06	12-29-06	3-01-07
<b>Response to Comments Meeting</b>	<b>2-14-07</b>	<b>2-14-07</b>	<b>8-23-04</b>	<b>11-08-06</b>	<b>1-10-07</b>	<b>3-7-07</b>
Response to Comments Due	2-28-07	2-28-07	9-29-04	<del>11-22-06</del> NA**	<del>1-19-07</del> NA**	3-23-07
Draft Final Due	2-28-07	2-28-07	9-29-04	<del>11-22-06</del> NA**	<del>1-19-07</del> NA**	3-23-07
Final Due	3-30-07	3-30-07	9-21-06*	<del>12-20-06</del> 11-13-06	<del>2-21-07</del> 1-16-07	4-23-07
Public Comment Period	NA	NA	NA	NA	NA	NA
<b>Public Meeting</b>	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)**

	<b>PRIMARY DOCUMENTS</b>	
	<b>Basewide Travis, Glenn Anderson</b>	<b>Potrero Hills Annex Travis, Glenn Anderson</b>
<b>Life Cycle</b>	<b>Groundwater ROD</b>	<b>Potrero Hills ROD</b>
<b>Scoping Meeting</b>	<b><del>1-30-07</del> 1-24-07</b>	<b>180 days after Water Board Order Rescinded</b>
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
<b>Response to Comments Meeting</b>	<b>9-01-09</b>	<b>+ 555 days</b>
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
<b>Public Meeting</b>	<b>1-28-10</b>	<b>+ 625 days</b>
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)**

<b>SECONDARY DOCUMENTS</b>	
<b>Life Cycle</b>	<b>2006 GSAP Annual Report Travis, Tom Sreenivasan; CH2M Hill, Mike Wray</b>
<b>Scoping Meeting</b>	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	<del>01-15-07</del> 01-19-07
<b>Response to Comments Meeting</b>	<b>02-14-07</b>
Response to Comments Due	02-28-07
Draft Final Due	02-28-07
Final Due	03-30-07
Public Comment Period	NA
<b>Public Meeting</b>	NA

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

<b>INFORMATIONAL DOCUMENTS</b>	
<b>Life Cycle</b>	<b>Quarterly Newsletters (January 2007 Issue Deferred until April 2007 per agreement with DTSC) Travis, Mark Smith</b>
<b>Scoping Meeting</b>	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
<b>Response to Comments Meeting</b>	<b>TBD</b>
Response to Comments Due	4-12-07
Draft Final Due	TBD
Final Due	4 -12-07
<b>Public Meeting</b>	NA

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

<b>INFORMATIONAL DOCUMENTS</b>				
<b>Life Cycle</b>	<b>Groundwater Treatment Plant O&amp;M Reports</b> <b>Travis, Tom Sreenivasan;</b> <b>CH2M Hill, Mike Wray</b>			
	<b>Groundwater Treatment Plants Annual Reports Fiscal Year 2006</b>	<b>Groundwater Treatment Plants First Quarter Report Fiscal Year 2007</b>	<b>Groundwater Treatment Plants Second Quarter Report Fiscal Year 2007</b>	<b>Groundwater Treatment Plants Third Quarter Report Fiscal Year 2007</b>
<b>Scoping Meeting</b>	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
<b>Response to Comments Meeting</b>	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
<b>Public Meeting</b>	NA	NA	NA	NA

# **ATTACHMENT 3**

# South Base Boundary Groundwater Treatment Plant

## Monthly Data Sheet

Report Number: 77

Reporting Period: 1 – 31 December 2006

Date Submitted: 8 January 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 – December 2006

Operating Time: **744 hours**

Percent Uptime: **100%**

Gallons Treated: **4.4 million gallons**

Gallons Treated Since July 1998: **539 million gallons**

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

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

VOC Mass Removed: **3.3 pounds<sup>a</sup>**

VOC Mass Removed Since July 1998: **297.1 pounds**

Rolling 12-Month Cost per Pound of Mass Removed: \$14,307<sup>b</sup>

Monthly Cost per Pound of Mass Removed: \$2,360<sup>b</sup>

<sup>a</sup> Calculated using December 2006 EPA Method SW8260B analytical results.

<sup>b</sup> 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: **98.3<sup>a</sup>**

Average Flow Rate from SCADA (gpm) <sup>b</sup>							
FT005				SS029		SS030	
EW01x05	Off line <sup>c</sup>	EW736x05	Off line <sup>c</sup>	EW01x29	6.1	EW01x30	4.2
EW02x05	Off line <sup>c</sup>	EW737x05	4.6	EW02x29	10.1	EW02x30	5.5
EW03x05	Off line <sup>c</sup>	EW742x05	5.9	EW03x29	Off line	EW03x30	Off line
EW731x05	0.6	EW743x05	6.1	EW04x29	6.3	EW04x30	Off line <sup>c</sup>
EW732x05	4.6	EW744x05	5.3	EW05x29	8.9	EW05x30	7.6
EW733x05	0.8	EW745x05	6.7	EW06x29	6.9	EW06x30	0.7
EW734x05	8.5	EW746x05	6.3	EW07x29	Off line	EW711x30	5.6
EW735x05	4.3						
FT005 Total:			53.7	SS029 Total:		38.3	SS030 Total: 23.6

<sup>a</sup> The average groundwater flow rate was calculated using the Union Creek Discharge Totalizer and dividing it by the operating time of the plant.  
<sup>b</sup> Average extraction well flow rates measured by extraction well totalizer divided by the operating time.  
<sup>c</sup> Extraction well was off line during December 2006 due to pump failure, VFD fault, or no flow.  
gpm—gallons per minute

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## Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
SBBGWTP (water)	NA	NA	NA	NA	No shutdowns during the month of December 2006
SBBGWTP = South Base Boundary Groundwater Treatment Plant					

## Summary of O&M Activities

Monthly groundwater sampling at the SBBGWTP was performed on 4 December 2006. Sample results are presented in Table 1. The total VOC concentration (90.9 µg/L) in the influent sample has increased since the November 2006 sample (79.5 µg/L). VOC results were non-detect for effluent samples.

In December 2006, the pumps and flow meters for EW734x05 and EW737x05 were replaced. In addition, the flow meter was replaced for EW735x05. New variable frequency drives (VFD) were installed at EW01x05, EW02x05, and EW03x05; however, the wells are 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 December 2006. System optimization recommendations were included in the Third Quarter 2006 report.

Table 1.

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

Constituent	Instantaneous Maximum <sup>a</sup> (µg/L)	Detection Limit (µg/L)	N/C	4 December 2006 (µg/L)	
				Influent	Effluent
<b>Halogenated Volatile Organics</b>					
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	5.9	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	85 J	ND
Vinyl Chloride	0.5	0.38	0	ND	ND
<b>Non-Halogenated Volatile Organics</b>					
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
<b>Other</b>					
Total Petroleum Hydrocarbons – Gasoline	50	4.9	0	37 J	ND
Total Petroleum Hydrocarbons – Diesel	50	32	0	ND	ND
Total Suspended Solids (mg/L)	NE	1.1	0	2.4 J	NM
<sup>a</sup> In accordance with Appendix B of the <i>Travis AFB South Base Boundary Groundwater Treatment Plant Operations and Maintenance Manual</i> (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: 90

Reporting Period: 1 – 31 December 2006

Date Submitted: 8 January 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 – December 2006

Operating Time:

**CGWTP:** 56 hours  
**WTTP:** Water: 0 hours Vapor: 0 hours  
**ThOx:** 56 hours

Percent Uptime:

**CGWTP:** 7.5%  
**WTTP:** Water: 0% Vapor: 0%  
**ThOx:** 7.5%

Gallons Treated: 0.085 million gallons

Gallons Treated Since January 1996: 333.1 million gallons

VOC Mass Removed:

**0.3 lbs (groundwater only)<sup>a</sup>**  
**0.2 lbs (vapor only)<sup>b</sup>**

VOC Mass Removed Since January 1996:

**2,134 lbs from groundwater**  
**8,308 lbs from vapor**

UV/Ox DRE: NA

ThOx DRE: NA

Rolling 12-Month Cost per Pound of Mass Removed: \$212<sup>c</sup>

Monthly Cost per Pound of Mass Removed: \$26,708<sup>d</sup>

<sup>a</sup> Calculated using November 2006 EPA Method SW8260B analytical results.

<sup>b</sup> Total VOC vapor mass removed was calculated using September 2006 EPA Method TO-14 analytical results for the DP039 extraction well and the ThOx.

<sup>c</sup> Costs include operations and maintenance, reporting, analytical laboratory, project management, and utility costs related to operation of the system. 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.

<sup>d</sup> 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 operating time, low influent vapor concentration, and low flow rates.

DRE = destruction removal efficiency

UV/Ox = ultraviolet oxidation

## Flow Rates

Average Groundwater Flow Rate: **25.3 gpm<sup>a</sup>**

Location	Average Flow Rate	
	Groundwater (gpm)	Soil Vapor (scfm)
EW01x16	24.1 <sup>b</sup>	NA
EW02x16	Off line <sup>c</sup>	NA
EW03x16	Off line <sup>d</sup>	NA
EW605x16	13.1 <sup>b</sup>	NA
EW610x16	0.0 <sup>e</sup>	NA
WTTP	0.0 <sup>f</sup>	0.0 <sup>f</sup>
ThOx	NA	88.8 <sup>g</sup>

<sup>a</sup> as measured by the effluent discharge to the storm drain divided by the operating time.

<sup>b</sup> flow rate measured on 31 December 2006.

<sup>c</sup> EW02x16 (water) was taken off line due to pump failure.

<sup>d</sup> EW03x16 (water) was taken off line in September 2002 due to a significant decrease in flow rates.

<sup>e</sup> pump is operational; however, there is no flow.

<sup>f</sup> WTTP was off line in December 2006.

<sup>g</sup> flow rate measured using pitot tube

gpm = gallons per minute

scfm = standard cubic feet per minute

## Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
CGWTP (water)	1 December 2006	0:00	29 December 2006	15:40	UV-Ox system failure (high temperature alarm).
ThOx (vapor)	1 December 2006	0:00	29 December 2006	15:40	The ThOx could not be operated because the CGWTP was shutdown.
WTTP	1 December 2006	0:00			The WTTP could not be operated because the CGWTP was shutdown. In addition, a small leak was noticed coming from the flow meter gasket which prevented the WTTP from being restarted on 29 December 2006.
CGWTP = Central Groundwater Treatment Plant ThOx = Thermal Oxidation System WTTP = West Treatment and Transfer Plant					

## Summary of O&M Activities

On 28 November 2006, the CGWTP was shutdown due to the UV-Ox system failure. The ThOx and WTTP were also shutdown. Because the system did not operate virtually the entire month, due to the UV-Ox system failure, monthly groundwater sampling was not performed in December 2006. In addition, quarterly vapor and groundwater samples from the ThOx and WTTP were not collected. On 29 December 2006, the UV-Ox system was repaired; however, UV lamps 3 and 4 remained off line. The CGWTP and ThOx were restarted on 29 December. The WTTP remained off line because a small leak was noticed from the flow meter gasket during startup.

## Optimization Activities

There were no optimization activities initiated at the CGWTP during December 2006. System optimization recommendations were listed in the Third Quarter 2006 report.

# **ATTACHMENT 5**

# North Groundwater Treatment Plant Monthly Data Sheet

Report Number: 79

Reporting Period: 1 – 31 December 2006

Date Submitted: 8 January 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 – December 2006

Operating Time: <b>Water:</b> 741 hours	Percent Uptime: <b>Water:</b> 99.6%
<b>Vapor:</b> 0 <sup>a</sup>	<b>Vapor:</b> 0% <sup>a</sup>
Gallons Treated: 0.87 million gallons	Gallons Treated Since March 2000: 70.6 million gallons
Volume Discharged to Storm Drain: 0 gallons	
Volume Discharged to Duck Pond: 0.87 million gallons	
Percentage of Treated Water to Beneficial Use: 100%	
VOC Mass Removed:	VOC Mass Removed Since March 2000:
<b>0.35 lbs (groundwater only)<sup>b</sup></b>	<b>171.6 lbs from groundwater</b>
<b>0 lbs (vapor only)<sup>a</sup></b>	<b>5,240 lbs from vapor<sup>c</sup></b>
VGAC Removal Efficiency: <b>NA</b>	
Rolling 12-Month Cost per Pound of Mass Removed: \$41,365 <sup>de</sup>	
Monthly Cost per Pound of Mass Removed: \$18,230 <sup>d</sup>	

<sup>a</sup> The SVE system was shut down on 12 October 2006 due to low vapor VOC concentrations.  
<sup>b</sup> Calculated using December 2006 EPA Method SW8260B analytical results.  
<sup>c</sup> 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.  
<sup>d</sup> 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.  
<sup>e</sup> 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: **19.5 gpm<sup>a</sup>**

Location	Flow Rate on 28 December 2006	
	Groundwater (gpm)	Soil Vapor (scfm) <sup>b</sup>
EW565x31	1.2	Off line
EW566x31	0.7	Off line
EW567x31	0.8	NA
EW576x04	1.4	Off line
EW577x04	2.2	Off line
EW578x04	2.9	Off line
EW579x04	0.7	NA
EW580x04	2.8	NA
EW621x04	1.7	NA
EW622x04	2.9	NA
EW623x04	2.1	NA
EW614x07	Off line <sup>c</sup>	NA
EW615x07	Off line <sup>c</sup>	NA
SVE System	NA	Off line

<sup>a</sup> The flow rate was calculated using the effluent discharge totalizer divided by the operating time of the plant.  
<sup>b</sup> The SVE system was shut down on 12 October 2006 due to low vapor VOC concentrations.  
<sup>c</sup> 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)	20 December 2006	7:15	20 December 2006	10:30	Acid-washed the air stripper and replaced the ball valve at the irrigation tank discharge.
NGWTP = North Groundwater Treatment Plant					

## Summary of O&M Activities

Monthly groundwater sampling at the NGWTP was performed on 4 December 2006. Sample results are presented in Table 1. The total VOC concentration (48.5 µg/L) in the influent sample has slightly decreased since the November 2006 sample (48.7 µg/L). VOC results were non-detect for effluent samples.

The SVE system was restarted on 14 August 2006 when sufficient screen area was available in one Site 31 DPE well for vapor extraction; however, only vapor from EW565x31 was being extracted. The vapor extraction wells from FT004 remained shut down due to high water table conditions. The NGWTP SVE system was again shut down on 12 October 2006 due to the very low vapor VOC concentrations from the one well.

The LF007 solar extraction wells (EW614x07 and EW615x07) were turned off for the wet season on 15 November 2006.

On 20 December 2006, the air stripper was acid washed and the PVC ball valve at the irrigation tank outlet was replaced.

## Optimization Activities

There were no optimization activities conducted at the NGWTP during December 2006. System optimization recommendations were included in the Third Quarter 2006 Long-Term Optimization (LTO) report.

Table 1.

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

Constituent	Instantaneous Maximum <sup>a</sup> (µg/L)	Detection Limit (µg/L)	N/C	4 December 2006 (µg/L)	
				Influent	Effluent
<b>Halogenated Volatile Organics</b>					
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	3.2	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	2.8	ND
1,1,2-Trichloroethane	5.0	0.32	0	ND	ND
Trichloroethene	5.0	0.16	0	42	ND
Vinyl Chloride	0.5	0.38	0	ND	ND
<b>Non-Halogenated Volatile Organics</b>					
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
<b>Other</b>					
Total Petroleum Hydrocarbons – Gasoline	50	4.9	0	20 J	27
Total Petroleum Hydrocarbons – Diesel	50	32	0	ND	ND
Total Dissolved Solids (mg/L)	NE	1.1	0	NM	1,300

<sup>a</sup> 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  
NE = not established  
NM = not measured  
µg/L = micrograms per liter