Final

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

12 December 2007, 1012 Hours

Mr. Mark Smith, Travis Air Force Base (AFB), conducted the Remedial Program Managers (RPM) meeting on 12 December 2007 at 1012 in the Environmental Flight Conference Room, Building 570, Travis AFB, California. Attendees included:

• Mark Smith	Travis AFB
• Lonnie Duke	Travis AFB
• Glenn Anderson	Travis AFB
• Greg Parrott	Travis AFB
• James Chang	U.S. Environmental Protection Agency (USEPA)
• Jose Salcedo	Department of Toxic Substances Control (DTSC)
• Bob Hulet	Shaw Engineering and Infrastructure (Shaw E&I)
• Alan Friedman	California Regional Water Quality Control Board (CRWQCB)
• Mary Snow	TechLaw
• Allen Mason	EQM
• Mike Wray	CH2M Hill

Handouts distributed throughout the meeting included:

• Attachment 1	Meeting Agenda
• Attachment 2	Master Meeting, Teleconference, and Document Schedules
• Attachment 3	SBBGWTP Monthly Data Sheet (October and November 2007)
• Attachment 4	CGWTP Monthly Data Sheet (October and November 2007)
• Attachment 5	NGWTP Monthly Data Sheet (October and November 2007)

1. ADMINISTRATIVE

A. Previous Meeting Minutes

Corrections on page 5:
4A: Change MAJCOM CE to Wing CC.
4B: Add detailed information to the planned draw down.

With these suggested changes, the October 2007 RPM meeting minutes were approved and finalized.

B. Action Item Review

Mr. Smith has sent the question on to AMC concerning the identification of the chain of dispute resolution.

C. Master Meeting and Document Schedule

The Travis AFB Master Meeting, Teleconference, and Document Schedules were discussed during this meeting (see Attachment 2).

Travis AFB Annual Meeting and Teleconference Schedule

— 2008 suggested schedule will be distributed. Mr. Smith asked the group to consider a government only meeting to discuss the Statement of Objectives (SOOs) for the Performance Based Contract (PBC) solicitation. Tentative suggestion is the 23rd of January.

Travis AFB Master Document Schedule

— Pre-draft of the Groundwater ROD to the Air Force in February 2009.

— Potrero Hills: only contamination present is perchlorate. Waiting for release from the water board to start the ROD for this site.

— GSAP Report: Draft is out. There is a lot of material to review. There has been much success in groundwater treatment. Mr. Chang asked about having a meeting before comments are due for the GSAP. It might not be possible to fit a meeting in addition to the regular January RPM meeting. Mr. Smith suggested stay on schedule for the GSAP, possibly move the Response to Comments Meeting up a little, and then have the meeting for the SOOs.

— Guardian quarterly newsletter: it is due to be printed the end of January. It will describe the success of the work over the summer.

— Information Documents: take the quarterly reports off the schedule. Use the monthly Groundwater Treatment Plant reports in their place, as agreed to with the regulatory agencies.

2. OPERABLE UNIT UPDATE

A. Travis AFB Soil Cleanup Status Report

Mr. Anderson presented the update. This will probably be the last status report. The work is wrapping up for the year. The CAMU has been hydroseeded. Erosion control fabric has been put into place. The heavy equipment has been

transferred off-base. 270 cubic yards of grub material considered hazardous has been sent off-base also. Another grub pile (approximately 125 cubic yards) of non-hazardous material is still on base. DTSC was contacted and asked if the pile can be covered up with plastic sheeting and sand bags until next year.

The remaining funds will be used to complete projects at the CAMU and restoring LF007.

Overall, over 20 thousand man hours have been put in to this effort. 18.2 million gallons of water has been used in the CAMU and for dust suppression. All attempts were made to use treated water – about 5% of water used was treated. However, the treatment plants are not suited to put out water quickly. Mr. Anderson is putting together other numbers on the project, such as how much diesel fuel used, etc.

Mr. Smith asked Mr. Anderson to describe the CAMU. The CAMU was placed over an existing closed landfill. The CAMU was designed in 2001, and created in 2003. The advantages include not only savings on cost, but the ability to achieve residential cleanup goals on the sites. It holds approximately 22,000 cubic yards, has a clean cap and has been hydroseeded.

Shaw is working on the Remedial Action Completion Report. Mr. Hulet said the pre-draft should be done the end of January. There is a lot of information; the agencies should plan on making time for the review.

Mr. Salcedo asked about the schedule for the remaining three sites. Mr. Smith stated there is not one yet. The schedule for the five-year review needs to be put in place, and all the new information needs to be put into the FFA. Also, the request for additional funding will be through AMC for FY08 – a revised estimate needs to be done for SD001 and SD033. FT005 is a different type of site requiring different equipment. FY09 will go through the PMO. The schedule is affected by the additional funding needed.

Methane gas sampling will resume on the CAMU, which is already funded. Mr. Smith asked Mr. Duke to add CAMU monitoring and maintenance report to the schedule.

3. CURRENT PROJECTS

A. Treatment Plant Operation and Maintenance Update

Mr. Duke reported on the water treatment plant sites. Optimization results will be reported at the next RPM meeting.

1. South Base Boundary Groundwater Treatment Plant

The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 99.3% uptime, and 4.23 million gallons of groundwater were extracted and

treated during the month of November 2007. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 98.7 gallons per minute (gpm). Approximately 2.2 pounds of volatile organic compounds (VOCs) was removed during November 2007. The total mass of VOCs removed since the startup of the system is 322 pounds (see Attachment 3).

There was a shutdown of the plant on November 6 to acid wash the air stripper.

The RPO Work Plan has been approved. Implementation of the actions, including shutting down several groundwater extraction wells at FT005 for rebound testing, is planned for early December 2007.

Mr. Salcedo asked about the vinyl chloride reported in the effluent. Mr. Duke stated that the resampling result came back non-detect.

2. Central Groundwater Treatment Plant

The Central Groundwater Treatment Plant (CGWTP) performed at 96.1% uptime with approximately 3.26 million gallons of groundwater extracted and treated during the month of November 2007. All treated water was diverted to the storm drain. The average flow rate for the CGWTP was 78.5 gpm. Approximately 9 pounds of VOCs were removed from groundwater, and 35.6 pounds from vapor, during November 2007. The total mass of VOCs removed since the startup of the system is 10,689 pounds. (see Attachment 4).

The plant was down infrequently during the month of November 2007 for routine maintenance activities. The CGWTP system was down on 15 November due to a UV/Ox lamp #3 fault (broken quartz tube). The West Treatment and Transfer Plant (WTTP) system was down on 13 November due to pump P-903 mechanical seal leaked; and also 15 November as the alarm interlocks with CGWTP.

The ThOx system was shutdown on several occasions due to the burner flame going out.

Mr. Mason stated that parts for the pump seal have been ordered for the WTTP and should be in within a week. In the meantime, both groundwater and vapor extraction have been shut off.

The presence of three VOCs in the system effluent, as well as at the granular activated carbon (GAC) sample points, may be attributed to desorption from the GAC. An evaluation of the GAC system to determine optimum configuration of the treatment system is in progress.

Mr. Salcedo asked about the persistence of TCE after the carbon. Mr. Wray stated that it is desorbing at low levels. They need to stress the system to see where the problem is.

3. North Groundwater Treatment Plant

The North Groundwater Treatment Plant (NGWTP) performed at 100% uptime with approximately 240,000 gallons of groundwater extracted and treated during the month of November 2007. All treated water was discharged to the duck pond. The average flow for the NGWTP was 5.5 gpm. Less than a pound of VOCs was removed during November 2007. The soil vapor extraction (SVE) system was approved to be permanently shut down in the RPO Work Plan in November 2007. The total mass of VOCs removed since the startup of the system is 5,413 pounds (see Attachment 5).

No shutdowns were recorded during the month of November.

The plant influent flow rates have decreased significantly in November. The cause is unknown and under investigation. The educator pumps may need to be back flushed or flow adjustment may need to be made for each extraction well.

Implementation of the actions in the RPO Work Plan, including shutting down the SD031 groundwater extraction system for rebound testing, shutting down three extraction wells at FT004 for rebound testing, and permanently shutting down the SVE at NGWTP, are planned for early December 2007.

B. Petroleum Only Contamination (POCO) Status

Mr. Duke gave an update on the Petroleum Only Contamination (POCO) status.

The fourth and final sampling event is on schedule in February. Project is on track to be completed next year.

4. Program/Issues/Update

A. Centralization of the Air Force's ERP

Mr. Smith informed the group that the new POC at AMC is Gary DeWerff. The personnel at PMO are being put in place and should be ready by April 2008. The PM for TAFB is not known at this time.

Mr. Parrott pointed out that the chain of dispute resolution should not be revised.

B. Travis' FY08 GW PBC

Mr. Smith wants to have the RFP out to contractors by February, take sixty days to bid, and award by June 2008. At the very latest, award by September 2008. TAFB would like to have regulatory involvement in development of the Statement of Objectives (SOOs) and the Performance Based Contract (PBC). He would like for the regulators to be involved in strategy discussions, etc. An attempt to meet in January 2007 did not work. Begin with focused feasibility

study, do a proposed plan with additional site characterizations as needed, and generally work through a ROD or RODs, Remedial Designs or Actions, and come up with MNA or best remedial selection. First of all, revisit the ARARs to make sure they are correct.

Mr. Smith remarked on how the GSAP relates to the GW PBC. He wants EPA to sit down with TAFB and the contractors involved in the GSAP to discuss past response to comments, and have an in length discussion. Then he could bring in the other agencies to move forward on the SOOs. The EPA meeting may need to take place prior to 18 January for this to happen.

C. Five Year Review Discussion

Mr. Smith presented on the white board a suggested schedule for the five-year reviews.

Five year review schedule			
IROD (GW) NEWIOU 97	Review in 03	Review in 08	Review in 12
IROD (GW) WABOU 99			
WABOU ROD (Soil) 02	NA		
NEWIOU ROD (Soil) 06	NA	NA	
GW ROD ECD 10	NA	NA	

Subsequent five-year reviews would be conducted in 2012, 2017, 2022, etc.

Mr. Chang stated that he wanted to see the process that is planned. The EPA considers the five-year review as a primary document. Plus, everyone needs to factor in review time.

5. Action Items

ITEM	RESPONSIBLE	ACTION ITEM	DUE DATE	STATUS
1.	Air Force	Revise schedule for 5 year reviews and CAMU Monitoring and Maintenance Report.	Jan 30 2008	**Ongoing**
2.				

TRAVIS AIR FORCE BASE
ENVIRONMENTAL RESTORATION PROGRAM
REMEDIAL PROGRAM MANAGER'S MEETING
12 December 2007, 9:30 A.M.
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. TRAVIS AFB SOIL CLEANUP STATUS (GLENN A)

3. CURRENT PROJECTS

   A. TREATMENT PLANT OPERATION AND MAINTENANCE UPDATE (LONNIE)
   B. PETROLEUM ONLY CONTAMINATION (POCO) STATUS (LONNIE)

4. PROGRAM/ISSUES/UPDATE

   A. CENTRALIZATION OF THE AF'S ER PROGRAM
   B. TRAVIS' FY08 GW PBC
   C. FIVE YEAR REVIEW DISCUSSION

5. NEW ACTION ITEM REVIEW

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	3-28-07	—
~~4-10-07~~ (Cancelled)	4-4-07	4-25-07 (Mark out)	4-19-07
5-8-07	5-9-07	5-23-07	—
6-12-07	6-13-07	6-27-07 (EPA out)	—
7-10-07	7-11-07 (Jose out)	~~7-25-07 (Alan out)~~	Base Tour
8-14-07	8-15-07	8-29-07	—
9-11-07	9-12-07 (telecon)	9-26-07	—
10-16-07	10-17-07[2]	—	10-25-07
—	—	11-7-07	—
12-11-07	12-12-07	—	—

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

[2] – Senior Partnering Meeting

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	**2007 GSAP Annual Report Travis, Lonnie Duke; CH2M Hill, Mike Wray**
Scoping Meeting	**NA**
Predraft to AF/Service Center	10-19-07
AF/Service Center Comments Due	11-02-07
Draft to Agencies	11-16-07
Draft to RAB	11-16-07
Agency Comments Due	01-18-08
Response to Comments Meeting	**02-20-08**
Response to Comments Due	03-05-08
Draft Final Due	03-05-08
Final Due	03-05-08
Public Comment Period	NA
Public Meeting	NA

Travis AFB Master Document Schedule
(Continued)

INFORMATIONAL DOCUMENTS	
Life Cycle	**Quarterly Newsletters (Jan 2008)** **Travis, Mark Smith**
Scoping Meeting	NA
Predraft to AF/Service Center	NA
AF/Service Center Comments Due	NA
Draft to Agencies	1-10-2008
Draft to RAB	NA
Agency Comments Due	1-23-2008
Response to Comments Meeting	**TBD**
Response to Comments Due	1-24-2008
Draft Final Due	TBD
Final Due	1-25-2008
Public Meeting	NA

Travis AFB Master Document Schedule
(Continued)

INFORMATIONAL DOCUMENTS				
	Groundwater Treatment Plant O&M Reports **Travis, Lonnie Duke;** **CH2M Hill, Mike Wray**			
Life Cycle	**Groundwater Treatment Plants Annual Reports Fiscal Year 2007**	**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	1-21-08	~~4-13-07~~	~~7-13-07~~	~~10-12-07~~
AF/Service Center Comments Due	1-25-08	~~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	1-31-08	~~4-27-07~~	~~7-27-07~~	~~10-26-07~~
Public Comment Period	NA	~~NA~~	~~NA~~	~~NA~~
Public Meeting	**NA**	~~**NA**~~	~~**NA**~~	~~**NA**~~

South Base Boundary Groundwater Treatment Plant
Monthly Data Sheet

Report Number: 87 **Reporting Period: 1 – 31 October 2007** **Date Submitted: 14 November 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 – October 2007

Operating Time: **735.5 hours** Percent Uptime: 98.9**%**

Electrical Power Usage: 18,570 kWh

Gallons Treated: **3.88 million gallons** Gallons Treated Since July 1998: **581.7 million gallons**

Volume Discharged to Union Creek: **3.88 million gallons**

Volume Used for Dust Suppression: **0 gallons**

VOC Mass Removed: **2.5 pounds**[a] VOC Mass Removed Since July 1998: **320 pounds**

Rolling 12-Month Cost per Pound of Mass Removed: $3,552[b]

Monthly Cost per Pound of Mass Removed: $2,807[b]

[a] Calculated using October 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

Flow Rates

Average Groundwater Total Flow Rate: **88.0**[a]

Average Flow Rate (gpm)[b]							
FT005				**SS029**		**SS030**	
EW01x05	1.4	EW736x05	3.2	EW01x29	2.4	EW01x30	5.4
EW02x05	2.2	EW737x05	3.5	EW02x29	5.4	EW02x30	1.5
EW03x05	2.5	EW742x05	5.4	EW03x29	Off line[e]	EW03x30	Off line[e]
EW731x05	0.8	EW743x05	Off line[d]	EW04x29	10.6	EW04x30	20.1
EW732x05	2.2	EW744x05	0.9	EW05x29	14.6	EW05x30	Off line[f]
EW733x05	0.7	EW745x05	7.8	EW06x29	11.1	EW06x30	0.0
EW734x05	10.2	EW746x05	4.4	EW07x29	Off line[e]	EW711x30	4.4
EW735x05	4.5						
FT005 Total:		**49.7**		**SS029 Total:**	**44.1**	**SS030 Total:**	**31.4**

[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 each extraction well totalizer divided by the well's operating time. The average flow rates were based on data collected from 10 – 26 October 2007. From 1 – 9 October 2007, the plant SCADA system was malfunctioning and not communicating with the plant computer.
[d] Extraction well was off line during October 2007 due to pump failure.
[e] Extraction well was off line due to low VOC concentrations.
[f] Extraction well pump was replaced on 29 October 2007 and the flow rate was 10.1 gpm.

gpm—gallons per minute

Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
SBBGWTP (water)	22 October 2007	06:30	22 October 2007	15:00	Electrical power surge/outage.

SBBGWTP = South Base Boundary Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater sampling at the SBBGWTP was performed on 1 October 2007. Sample results are presented in Table 1. The total VOC concentration (78.8 µg/L) in the influent sample has generally remained the same since the September 2007 sample (78.5 µg/L). 1,2-DCA, the indicator chemical for Site FT005, was detected at a concentration of 0.38 J µg/L in the influent sample in October 2007. There were no VOCs detected in the effluent sample.

On 3 October 2007, the SCADA system was malfunctioning. The extraction wells were still operational; however, the plant computer was not receiving any data. On 9 – 10 October 2007, the plant SCADA was back online and operational. In addition, on 29 October 2007, the extraction well pump for EW05x30 was replaced, and the initial flow rate measurement was 10.1 gpm.

Optimization Activities

The Work Plan for Remedial Process Optimization (RPO) Actions at Sites SD031, FT004, and FT005 (Technical Memorandum, CH2M HILL, September 26, 2007) was submitted to the regulatory agencies for approval. The optimization activities in the work plan included shutting down several groundwater extraction wells at FT005 for rebound testing. Approval to initiate these activities has not been received yet.

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

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	1 October 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	0.38 J	ND
1,1-Dichloroethene	5	0.14	0	ND	ND
cis-1,2-Dichloroethene	5	0.15	0	5.3	ND
trans-1,2-Dichloroethene	5	0.15	0	0.15 J	ND
Methylene Chloride	5	0.32	0	ND	ND
Tetrachloroethene	5	0.20	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 – 0.64	0	73	ND
Vinyl Chloride	0.5	0.17	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	33	0	NM	ND
Total Suspended Solids (mg/L)	NE	1.1	0	1.6 J	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/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

South Base Boundary Groundwater Treatment Plant
Monthly Data Sheet

Report Number: 88 Reporting Period: 1 – 30 November 2007 Date Submitted: 10 December 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 – November 2007

Operating Time: **715 hours** Percent Uptime: 99.3**%**

Electrical Power Usage: 20,316 kWh

Gallons Treated: **4.23 million gallons** Gallons Treated Since July 1998: **586 million gallons**

Volume Discharged to Union Creek: **4.23 million gallons**

Volume Used for Dust Suppression: **0 gallons**

VOC Mass Removed: **2.2 pounds**[a] VOC Mass Removed Since July 1998: **322 pounds**

Rolling 12-Month Cost per Pound of Mass Removed: $3,543[b]

Monthly Cost per Pound of Mass Removed: $3,425[b]

[a] Calculated using November 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

Flow Rates

Average Groundwater Total Flow Rate: **98.7**[a]

Average Flow Rate (gpm)[b]							
FT005				**SS029**		**SS030**	
EW01x05	0.3	EW736x05	3.3	EW01x29	6.6	EW01x30	5.2
EW02x05	1.2	EW737x05	3.5	EW02x29	5.6	EW02x30	2.8
EW03x05	2.3	EW742x05	5.3	EW03x29	Off line[d]	EW03x30	Off line[d]
EW731x05	0.8	EW743x05	Off line[c]	EW04x29	10.2	EW04x30	20.1
EW732x05	2.2	EW744x05	1.0	EW05x29	10.3	EW05x30	8.3
EW733x05	0.7	EW745x05	7.5	EW06x29	9.9	EW06x30	0.0
EW734x05	11.0	EW746x05	4.4	EW07x29	Off line[d]	EW711x30	4.3
EW735x05	4.5						
FT005 Total:		**48.0**		**SS029 Total:**	**42.6**	**SS030 Total:**	**40.7**

[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 each extraction well totalizer divided by the well's operating time.
[c] Extraction well was off line during November 2007 due to pump failure.
[d] Extraction well was off line due to low VOC concentrations.

gpm—gallons per minute

Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
SBBGWTP (water)	6 November 2007	09:00	6 November 2007	14:00	Air stripper was acid washed.

SBBGWTP = South Base Boundary Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater sampling at the SBBGWTP was performed on 1 November 2007. Sample results are presented in Table 1. The total VOC concentration (61.2 µg/L) in the influent sample has decreased since the October 2007 sample (78.8 µg/L). 1,2-DCA, the indicator chemical for Site FT005, was detected at a concentration of 0.43 J µg/L in the influent sample. Vinyl chloride was detected in the effluent sample at a concentration of 1.3 µg/L, which exceeded the instantaneous maximum effluent limit (IMEL) of 0.5 µg/L. The influent concentration was non-detect for vinyl chloride. In addition, the treatment process includes air stripping which readily removes vinyl chloride from the aqueous phase. For these reasons, the effluent result is highly suspect. The laboratory was contacted concerning this detection on 30 November 2007, and the system was to be resampled for verification of the result (see letter from Travis AFB to the Water Board dated December 6, 2007). In response to the initial result, the Water Board was notified, and the system was shut down on December 3 until the results can be verified. Results of the resampling activities will be reported in the December 2007 monthly report.

Optimization Activities

The Work Plan for Remedial Process Optimization (RPO) Actions at Sites SD031, FT004, and FT005 (Technical Memorandum, CH2M HILL, September 26, 2007) was submitted to the regulatory agencies for approval. The optimization activities in the work plan included shutting down several groundwater extraction wells at FT005 for rebound testing. Approval to initiate these activities was received in November 2007, and implementation of the RPO actions is planned for early December 2007.

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

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	1 November 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	0.43 J	ND
1,1-Dichloroethene	5	0.14	0	ND	ND
cis-1,2-Dichloroethene	5	0.15	0	3.8	ND
trans-1,2-Dichloroethene	5	0.15	0	ND	ND
Methylene Chloride	5	0.32	0	ND	ND
Tetrachloroethene	5	0.20	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	57	ND
Vinyl Chloride	0.5	0.17	0	ND	1.3[b]
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	33	0	NM	ND
Total Suspended Solids (mg/L)	NE	1.1	0	12	NM

[a] In accordance with Appendix B of the *Travis AFB South Base Boundary Groundwater Treatment Plant Operations and Maintenance Manual* (CH2M HILL, 2004).

[b] The SBBGWTP system's influent and effluent groundwater was resampled to verify the result.

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

Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 100 Reporting Period: 1 – 31 October 2007 Date Submitted: 14 November 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 – October 2007

Operating Time:		Percent Uptime:		Electrical Power Usage:	
CGWTP:	704 hours	**CGWTP:**	94.6%	**CGWTP:**	7,871 kWh
WTTP:	Water: 695 hours	**WTTP:**	Water: 93.4%	**WTTP:**	26,195 kWh
	Vapor: 693 hours		Vapor: 93.1%		
ThOx:	716 hours	**ThOx:**	96.2%	**ThOx:**	13,984 kWh

Gallons Treated: **3.42 million gallons**

Gallons Treated Since January 1996: **363 million gallons**

Volume Used for Dust Suppression: **0 gallons**

VOC Mass Removed:

11.0 lbs (groundwater only)[a]

41.3 lbs (vapor only)[b]

VOC Mass Removed Since January 1996:

2,235 lbs from groundwater

8,409 lbs from vapor

UV/Ox DRE: 100%

ThOx DRE: 100%

Rolling 12-Month Cost per Pound of Mass Removed: $1,037[c]

Monthly Cost per Pound of Mass Removed: $298[c]

[a] Calculated using October 2007 EPA Method SW8260B analytical results.
[b] Total VOC vapor mass removed was calculated using September 2007 EPA Method TO-14 analytical results for the DP039 extraction wells and October 2007 EPA Method TO-14 analytical results for the ThOx.
[c] 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: **81.0 gpm**[a]

Location	Average Flow Rate	
	Groundwater (gpm)[b]	Soil Vapor (scfm)
EW01x16	23.8	NA
EW02x16	4.9[c]	NA
EW03x16	Off line[d]	NA
EW605x16	12.6	NA
EW610x16	1.5[e]	NA
WTTP	37.1[f]	239
ThOx	NA	54.8

[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 turned on 21 June 2007.
[d] EW03x16 (water) was taken off line in September 2002 due to a significant decrease in flow rates.
[e] the flow rate at EW610x16 (water) decreased to 0 gpm towards the end of October 2007. It was noted that the well is recharging.
[f] as measured by the effluent groundwater pumped to the CGWTP divided by the operating time.

gpm = gallons per minute
NA = not applicable
scfm = standard cubic feet per minute

Flow Rate from the WIOU and DP039 Extraction Wells on 26 October 2007 (gpm)							
SD037				**SD033/SD034/DP039**		**SD036/SS041/SD043**	
EW599x37	5.8	EW705x37	1.3	EW501x33	0.9	EW593x36	3.1
EW700x37	Off line	EW706x37	0.4	EW503x33	1.5	EW594x36	0.8
EW701x37	0.4	EW707x37	1.8	EW01x34	0.4	EW595x36	1.9
EW702x37	3.4	EW510x37	4.6	EW02x34	0.0	EW542x41	Off line
EW703x37	8.5	EW511x37	1.5	EW563x39[a]	4.5	EW555x43	0.9
EW704x37	2.1			EW782x39[a]	--		

[a] The groundwater flow rates for the DP039 wells were combined in October 2007.

gpm—gallons per minute

Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
CGWTP:					
CGWTP	8 October 2007	02:45	9 October 2007	13:00	Blown fuse on 24-Volt power supply.
CGWTP	22 October 2007	06:30	22 October 2007	12:00	Electrical power surge/outage.
WTTP (GW):					
WTTP	8 October 2007	02:45	9 October 2007	18:00	Alarm interlocks with CGWTP.
WTTP	22 October 2007	06:30	22 October 2007	16:00	Electrical power surge/outage.
WTTP (Vapor):					
WTTP (SVE)	8 October 2007	02:45	9 October 2007	20:15	Alarm interlocks with CGWTP.
WTTP (SVE)	22 October 2007	06:30	22 October 2007	16:00	Electrical power surge/outage.
ThOx (vapor):					
ThOx	24 October 2007	21:00	25 October 2007	09:00	Burner flame went out.
ThOx	31 October 2007	08:00	2 November 2007	12:00	Burner flame went out.

CGWTP = Central Groundwater Treatment Plant
SVE = Soil Vapor Extraction
ThOx = Thermal Oxidation System
WTTP = West Treatment and Transfer Plant

Summary of O&M Activities

Monthly groundwater sampling at the CGWTP was performed on 1 October 2007. Groundwater sample results are summarized in Table 1. In addition, vapor samples were re-collected at the ThOx unit on 1 October 2007. Vapor results are presented in Table 2.

The total VOC concentration (385 µg/L) in the October 2007 CGWTP influent groundwater sample has decreased since the September 2007 sample (438 µg/L). Chloroform, cis-1,2-dichloroethene, and trichloroethene were present in all the groundwater samples from the granular activated carbon (GAC) sample points. All three VOCs were detected in the system effluent, but at low concentrations and less than their respective effluent limits. The detections in these samples may be attributed to desorption from the GAC. The lead carbon was taken off-line and bypassed in July 2007 due to erratic performance.

The WTTP SVE system continued to treat soil vapor from Site DP039 and the WIOU.

Optimization Activities

The ThOx system was shutdown on 5 June 2007 for a 3-month rebound study. The system was re-started and sampled for rebound on 4 September 2007. Vapor samples were collected again on 1 October 2007 to verify the removal efficiency of the ThOx unit. Results of the rebound study will be discussed in the Annual LTO report. The vapor results indicated a decrease in total VOC concentrations from 75,250 ppbv in September 2007 to 51,720 ppbv in October 2007. Influent concentrations will continue to be monitored. Vapor results are shown in Table 2.

An evaluation of the GAC system at the CGWTP to determine the optimum configuration of the treatment system (GAC and UV-Ox) is in progress. The system is currently running without the lead carbon. The carbon change-out for the GAC vessel is on-hold while CH2M HILL evaluates optimization options for the entire treatment system. The system performance will continue to be monitored in the upcoming months.

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

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	1 October 2007 (µg/L) Influent	After UV/OX	After Carbon 1 Effluent[b]	After Carbon 2 Effluent	After Carbon 3 Effluent	System Effluent
Halogenated Volatile Organics									
Bromodichloromethane	5.0	0.17	0	ND	ND	NS	ND	ND	ND
Carbon Tetrachloride	0.5	0.19	0	ND	ND	NS	ND	ND	ND
Chloroform	5.0	0.16	0	0.24 J	0.24 J	NS	0.30 J	0.32 J	0.25 J
Dibromochloromethane	5.0	0.17	0	ND	ND	NS	ND	ND	ND
1,2-Dichlorobenzene	5.0	0.13	0	0.30 J	ND	NS	ND	ND	ND
1.3-Dichlorobenzene	5.0	0.16	0	0.27 J	ND	NS	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.16	0	0.16 J	ND	NS	ND	ND	ND
1,1-Dichloroethane	5.0	0.16	0	ND	ND	NS	ND	ND	ND
1,2-Dichloroethane	0.5	0.13	0	ND	ND	NS	ND	ND	ND
1,1-Dichloroethene	5.0	0.14	0	1.0	ND	NS	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.15	0	50	ND	NS	0.79	1.0	0.82
trans-1,2-Dichloroethene	5.0	0.15	0	2.5	ND	NS	ND	ND	ND
Methylene Chloride	5.0	0.32	0	ND	ND	NS	ND	ND	ND
Tetrachloroethene	5.0	0.20	0	0.76	ND	NS	ND	ND	ND
1,1,1-Trichloroethane	5.0	0.16	0	ND	ND	NS	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.32	0	ND	ND	NS	ND	ND	ND
Trichloroethene	5.0	0.16 – 1.6	0	330	ND	NS	2.8	0.91	0.65
Vinyl Chloride	0.5	0.17	0	ND	ND	NS	ND	ND	ND
Non-Halogenated Volatile Organics									
Benzene	1.0	0.16	0	ND	ND	NS	ND	ND	ND
Ethylbenzene	5.0	0.16	0	ND	ND	NS	ND	ND	ND
Toluene	5.0	0.17	0	ND	ND	NS	ND	ND	ND
Total Xylenes	5.0	0.34	0	ND	ND	NS	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 lead carbon unit was taken off-line and bypassed. The system is currently running w/o the lead carbon unit.

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

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

Constituent	1 October 2007 (ppbv)	
	ThOx Influent	ThOx Effluent
Volatile Organics		
Benzene	ND (96)	0.45
Carbon Tetrachloride	ND (65)	ND (0.038)
Chloromethane	800 J	1.9
cis-1,2-Dichloroethene	5,900	0.15 J
1,2-Dichlorobenzene	260 J	0.36
1,3-Dichlorobenzene	ND (110)	0.12 J
1,4-Dichlorobenzene	130 J	0.2
1,2-Dichloroethane	ND (81)	ND (0.047)
Ethylbenzene	ND (120)	ND (0.068)
Freon 11	ND (41)	ND (0.024)
Freon 12	ND (120)	ND (0.068)
Freon 113	ND (53)	ND (0.031)
Methylene Chloride	350 J	0.33 J
Methyl Ethyl Ketone (2-Butanone)	ND (340)	1.0
Tetrachloroethene	110 J	ND (0.04)
Toluene	ND (93)	0.26
trans-1,2-Dichloroethene	ND (86)	ND (0.05)
1,2,4-Trimethylbenzene	ND (110)	0.34
1,3,5-Trimethylbenzene	ND (110)	ND (0.065)
Trichloroethene	44,000	2.3
Vinyl Chloride	170 J	ND (0.071)
Xylenes, m,p-	ND (210)	0.14 J
Xylene, o-	ND (100)	ND (0.061)

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

Central Groundwater Treatment Plant Monthly Data Sheet

Report Number: 101 Reporting Period: 1 – 30 November 2007 Date Submitted: 10 December 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 – November 2007

	Operating Time:	Percent Uptime:	Electrical Power Usage:
CGWTP:	692 hours	96.1%	7,948 kWh
WTTP:	Water: 688 hours	Water: 95.6%	24,966 kWh
	Vapor: 688 hours	Vapor: 95.6%	
ThOx:	617 hours	85.7%	9,988 kWh

Gallons Treated: **3.26 million gallons**

Gallons Treated Since January 1996: **366 million gallons**

VOC Mass Removed:

9.0 lbs (groundwater only)[a]

35.6 lbs (vapor only)[b]

VOC Mass Removed Since January 1996:

2,244 lbs from groundwater

8,445 lbs from vapor

UV/Ox DRE: 99.9%

ThOx DRE: 100%

Rolling 12-Month Cost per Pound of Mass Removed: $894[c]

Monthly Cost per Pound of Mass Removed: $329[c]

[a] Calculated using November 2007 EPA Method SW8260B analytical results.
[b] Total VOC vapor mass removed was calculated using September 2007 EPA Method TO-14 analytical results for the DP039 extraction wells and October 2007 EPA Method TO-14 analytical results for the ThOx.
[c] 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: **78.5 gpm**[a]

Location	Average Flow Rate	
	Groundwater (gpm)[b]	Soil Vapor (scfm)
EW01x16	23.8	NA
EW02x16	4.8[c]	NA
EW03x16	Off line[d]	NA
EW605x16	12.4	NA
EW610x16	0.1[e]	NA
WTTP	36.2[f]	239
ThOx	NA	54.6

[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 turned on 21 June 2007.
[d] EW03x16 (water) was taken off line in September 2002 due to a significant decrease in flow rates.
[e] the flow rate at EW610x16 (water) has decreased significantly near the beginning of November 2007. It was noted that the well is recharging.
[f] as measured by the effluent groundwater pumped to the CGWTP divided by the operating time.

gpm = gallons per minute
NA = not applicable
scfm = standard cubic feet per minute

Flow Rates

Flow Rate from the WIOU and DP039 Extraction Wells on 30 November 2007 (gpm)							
SD037				**SD033/SD034/DP039**		**SD036/SS041/SD043**	
EW599x37	5.8	EW705x37	0.9	EW501x33	0.0	EW593x36	3.0
EW700x37	0.0	EW706x37	0.4	EW503x33	1.6	EW594x36	1.0
EW701x37	0.4	EW707x37	11.5	EW01x34	0.4	EW595x36	2.1
EW702x37	3.5	EW510x37	4.5	EW02x34	0.0	EW542x41	Off line
EW703x37	8.3	EW511x37	1.6	EW563x39	1.1	EW555x43	0.3
EW704x37	2.1			EW782x39	2.3		
gpm—gallons per minute							

Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
CGWTP:					
CGWTP	15 November 2007	13:00	16 November 2007	17:00	UV/Ox lamp #3 fault. Broken quartz tube.
WTTP (Groundwater and Vapor):					
WTTP	13 November 2007	13:00	13 November 2007	17:00	Pump P-903 mechanical seal leaked.
WTTP	15 November 2007	13:00	16 November 2007	17:00	Alarm interlocks with CGWTP.
ThOx (vapor):					
ThOx	2 November 2007	14:00	5 November 2007	09:00	Burner flame went out.
ThOx	6 November 2007	01:30	6 November 2007	09:30	Burner flame went out.
ThOx	12 November 2007	03:30	12 November 2007	14:30	Burner flame went out.
ThOx	25 November 2007	16:00	26 November 2007	09:00	Burner flame went out.

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 1 November 2007. Groundwater sample results are summarized in Table 1. The total VOC concentration (334.6 µg/L) in the November 2007 CGWTP influent groundwater sample has decreased since the October 2007 sample (385 µg/L). Chloroform, cis-1,2-dichloroethene, and trichloroethene were present in all the groundwater samples from the granular activated carbon (GAC) sample points. All three VOCs were detected in the system effluent, but at low concentrations and less than their respective effluent limits. The detections in these samples may be attributed to desorption from the GAC. The lead carbon was taken off-line and bypassed in July 2007 due to erratic performance.

The ThOx system continues to treat soil vapor from the 2-Phase® well (TPE-W) as part of SS016 focused vapor extraction activities. The WTTP SVE system continued to treat soil vapor from Site DP039 and the WIOU.

Optimization Activities

An evaluation of the GAC system at the CGWTP to determine the optimum configuration of the treatment system (GAC and UV/Ox) is in progress. The system is currently running without the lead carbon. The carbon change-out for the GAC vessel is on-hold while CH2M HILL evaluates optimization options for the entire treatment system. The system performance will continue to be monitored in the upcoming months.

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

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	1 November 2007 (µg/L) Influent	After UV/OX	After Carbon 1 Effluent[b]	After Carbon 2 Effluent	After Carbon 3 Effluent	System Effluent
Halogenated Volatile Organics									
Bromodichloromethane	5.0	0.17	0	ND	ND	NS	ND	ND	ND
Carbon Tetrachloride	0.5	0.19	0	ND	ND	NS	ND	ND	ND
Chloroform	5.0	0.16	0	0.19 J	0.17 J	NS	0.24 J	0.28 J	0.23 J
Dibromochloromethane	5.0	0.17	0	ND	ND	NS	ND	ND	ND
1,2-Dichlorobenzene	5.0	0.13	0	0.25 J	ND	NS	ND	ND	ND
1.3-Dichlorobenzene	5.0	0.16	0	0.26 J	ND	NS	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.16	0	0.16 J	ND	NS	ND	ND	ND
1,1-Dichloroethane	5.0	0.16	0	ND	ND	NS	ND	ND	ND
1,2-Dichloroethane	0.5	0.13	0	ND	ND	NS	ND	ND	ND
1,1-Dichloroethene	5.0	0.14	0	2.3	ND	NS	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.15	0	48	ND	NS	0.53	0.88	0.74
trans-1,2-Dichloroethene	5.0	0.15	0	2.6	ND	NS	ND	ND	ND
Methylene Chloride	5.0	0.32	0	ND	ND	NS	ND	ND	ND
Tetrachloroethene	5.0	0.20	0	0.84	ND	NS	ND	ND	ND
1,1,1-Trichloroethane	5.0	0.16	0	ND	ND	NS	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.32	0	ND	ND	NS	ND	ND	ND
Trichloroethene	5.0	0.16 – 1.6	0	280	ND	NS	2.6	1.4	1.0
Vinyl Chloride	0.5	0.17	0	ND	ND	NS	ND	ND	ND
Non-Halogenated Volatile Organics									
Benzene	1.0	0.16	0	ND	ND	NS	ND	ND	ND
Ethylbenzene	5.0	0.16	0	ND	ND	NS	ND	ND	ND
Toluene	5.0	0.17	0	ND	ND	NS	ND	ND	ND
Total Xylenes	5.0	0.34	0	ND	ND	NS	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 lead carbon unit was taken off-line and bypassed. The system is currently running w/o the lead carbon unit.

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

North Groundwater Treatment Plant Monthly Data Sheet

Report Number: 89 **Reporting Period: 1 – 31 October 2007** **Date Submitted: 14 November 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 – October 2007

Operating Time: **Water:** 696.5 hours
Vapor: 0[a]

Percent Uptime: **Water:** 93.6%
Vapor: 0%[a]

Electrical Power Usage: **11,889 kWh**

Gallons Treated: **0.65 million gallons**

Gallons Treated Since March 2000: **77.6 million gallons**

Volume Discharged to Duck Pond: **0.65 million gallons**

Volume Used for Dust Suppression: **0 million gallons**

Volume Discharged to Storm Drain: **0 gallons**

Percentage of Treated Water to Beneficial Use: 100%

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

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

Rolling 12-Month Cost per Pound of Mass Removed: $33,069[de]

Monthly Cost per Pound of Mass Removed: $43,650[d]

[a] The SVE system was shut down on 12 October 2006 due to low vapor VOC concentrations.
[b] Calculated using October 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: **15.5 gpm**[a]

Location	Flow Rate on 26 October 2007	
	Groundwater (gpm)	Soil Vapor (scfm)[b]
EW565x31	2.1	Off line
EW566x31	1.4	Off line
EW567x31	1.6	NA
EW576x04	1.4	Off line
EW577x04	1.3	Off line
EW578x04	1.0	Off line
EW579x04	1.0	NA
EW580x04	Off line[c]	NA
EW621x04	1.6	NA
EW622x04	2.0	NA
EW623x04	1.1	NA
EW614x07	1.1[d]	NA
EW615x07	1.1[d]	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] EW580x04 was shutdown on 26 October 2007 due to leaking fittings.
[d] LF007 wells were turned on for the dry season on 5 April 2007. 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)	13 October 2007	14:30	15 October 2007	14:00	Air stripper transfer pump failure. A replacement pump/motor (which is no longer in use) was taken from the NGWTP SVE system.

NGWTP = North Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater sampling at the NGWTP was performed on 1 October 2007. Sample results are presented in Table 1. The total VOC concentration (24.4 µg/L) in the influent sample has increased slightly since the September 2007 sample (21.2 µg/L). Note that the influent concentration for 1,1-dichlororethene (1,1-DCE) was 0.69 µg/L, which is significantly less than the instantaneous maximum of 5 µg/L. 1,1-DCE is the indicator chemical for Site SD031. Three VOCs were detected in the effluent sample, including bromodichloromethane, bromoform, chloroform, and dibromochloromethane; however, all concentrations were less than their instantaneous maximums or effluent discharge limits. These compounds were either not detected in the influent sample, or had a higher concentration in the effluent sample than in the influent sample (see Table 1). The presence of these compounds may indicate sampling or laboratory contamination. The system performance will continue to be monitored in the upcoming months.

Optimization Activities

The Work Plan for Remedial Process Optimization (RPO) Actions at Sites SD031, FT004, and FT005 (Technical Memorandum, CH2M HILL, September 26, 2007) was submitted to the regulatory agencies for approval. The optimization activities in the work plan included shutting down the SD031 groundwater extraction system for rebound testing, and shutting down several groundwater extraction wells at FT004 for rebound testing. Approval to initiate these activities has not been received yet.

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

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	1 October 2007 (µg/L)	
				Influent	Effluent
Halogenated Volatile Organics					
Bromodichloromethane	0.5	0.17	0	ND	0.28 J
Bromoform	NE	0.19	0	ND	0.93
Carbon Tetrachloride	0.5	0.19	0	ND	ND
Chloroform	5.0	0.16	0	0.26 J	0.75
Dibromochloromethane	0.5	0.17	0	ND	0.21 J
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	0.69	ND
cis-1,2-Dichloroethene	5.0	0.15	0	0.40 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	23	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

[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
NE = not established
µg/L = micrograms per liter

North Groundwater Treatment Plant Monthly Data Sheet

Report Number: 90 **Reporting Period: 1 – 30 November 2007** **Date Submitted: 10 December 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 – November 2007

Operating Time: **Water:** 720 hours
Vapor: 0[a]

Percent Uptime: **Water:** 100%
Vapor: 0%[a]

Electrical Power Usage: **11,360 kWh**

Gallons Treated: **0.24 million gallons**

Gallons Treated Since March 2000: **77.8 million gallons**

Volume Discharged to Duck Pond: **0.24 million gallons**

Volume Discharged to Storm Drain: **0 gallons**

Percentage of Treated Water to Beneficial Use: 100%

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

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

Rolling 12-Month Cost per Pound of Mass Removed: $36,042[de]

Monthly Cost per Pound of Mass Removed: $57,194[d]

[a] The SVE system was approved to be permanently shut down in the *Work Plan for Remedial Process Optimization (RPO) Actions at Sites SD031, FT004, and FT005* (CH2M HILL, 2007) in November 2007.
[b] Calculated using November 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: **5.5 gpm**[a]

Location	Flow Rate on 30 November 2007	
	Groundwater (gpm)	Soil Vapor (scfm)[b]
EW565x31	2.0	Off line
EW566x31	1.5	Off line
EW567x31	1.1	NA
EW576x04	1.6	Off line
EW577x04	1.3	Off line
EW578x04	0.7	Off line
EW579x04	1.0	NA
EW580x04	Off line[c]	NA
EW621x04	0.5	NA
EW622x04	1.6	NA
EW623x04	0.5	NA
EW614x07	1.0[d]	NA
EW615x07	1.1[d]	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 approved to be permanently shut down in the *Work Plan for Remedial Process Optimization (RPO) Actions at Sites SD031, FT004, and FT005* (CH2M HILL, 2007) in November 2007.
[c] EW580x04 was shutdown on 26 October 2007 due to leaking fittings.
[d] LF007 wells were turned on for the dry season on 5 April 2007. 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)	NA	NA	NA	NA	No shutdowns during the month of November 2007

NA = Not applicable
NGWTP = North Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater sampling at the NGWTP was performed on 1 November 2007. Sample results are presented in Table 1. The total VOC concentration (53.7 µg/L) in the influent sample has increased since the October 2007 sample (24.4 µg/L). Note that the influent concentration for 1,1-dichlororethene (1,1-DCE), which is the indicator chemical for Site SD031, was 0.73 µg/L, which is significantly less than the maximum contaminant level (MCL) of 6 µg/L. 1,1-DCE. All VOC concentrations were reported as non-detect in the effluent sample. Total petroleum hydrocarbons as gasoline (TPH-G) was detected in the effluent sample at a concentration of 10 J µg/L, which is less than the instantaneous maximum of 50 µg/L.

Bromodichloromethane, bromoform, and dibromochloromethane were detected in the October 2007 effluent sample (see October 2007 monthly report). These compounds were not detected in the October and November 2007 influent samples as well as the November 2007 effluent sample. The presence of these compounds was likely due to sampling or laboratory error. The system performance will continue to be monitored in the upcoming months.

The plant influent flow rates have decreased significantly in November 2007. The cause of the decreased flow rates is unknown. The eductor pumps may need to be backflushed or flow adjustments may need to be made for each extraction well.

Optimization Activities

The Work Plan for Remedial Process Optimization (RPO) Actions at Sites SD031, FT004, and FT005 (Technical Memorandum, CH2M HILL, September 26, 2007) was submitted to the regulatory agencies for approval. The optimization activities in the work plan included shutting down the SD031 groundwater extraction system for rebound testing, shutting down three groundwater extraction wells at FT004 for rebound testing, and permanently shutting down the vapor extraction/treatment at the NGWTP. Approval to initiate these activities was received in November 2007, and implementation of the RPO actions is planned for early December 2007.

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

Constituent	Instantaneous Maximum[a] (µg/L)	Detection Limit (µg/L)	N/C	1 November 2007 (µg/L)	
				Influent	Effluent
Halogenated Volatile Organics					
Bromodichloromethane	0.5	0.17	0	ND	ND
Bromoform	NE	0.19	0	ND	ND
Carbon Tetrachloride	0.5	0.19	0	ND	ND
Chloroform	5.0	0.16	0	0.33 J	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	0.73	ND
cis-1,2-Dichloroethene	5.0	0.15	0	0.75	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	1.0	ND
1,1,2-Trichloroethane	5.0	0.32	0	ND	ND
Trichloroethene	5.0	0.16	0	49	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	10 J
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
N/C = number of samples out of compliance with discharge limits
ND = not detected
NM = not measured
µg/L = micrograms per liter