

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

23 January 2008, 0930 Hours

Mr. Mark Smith, Travis Air Force Base (AFB), conducted the Remedial Program Managers (RPM) meeting on 23 January 2008 at 0930 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
- James Chang U.S. Environmental Protection Agency (USEPA)
- David Cooper U.S. Environmental Protection Agency (USEPA)
- Rich Freitas U.S. Environmental Protection Agency (USEPA)
- Tom Barry 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
- Loren Krook 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 (December 2007)
- Attachment 4 CGWTP Monthly Data Sheet (December 2007)
- Attachment 5 NGWTP Monthly Data Sheet (December 2007)

1. ADMINISTRATIVE

Introductions were made around the table and Mr. Smith asked if Mr. Cooper wanted to speak first since he was on a short timetable today. David Cooper is the EPA Community Relations contact. He is not new to the Travis Restoration Program, but wanted to get current with what's happening on the restoration projects. He is interested in coming up to speed on the overall program, including notifying the community about the five-year reviews and when the Community Involvement Plan (CIP) was updated. He is interested in knowing what CERCLA-related activities are planned in the next year. He is planning on attending the next Restoration Advisory Board (RAB) meeting, and asked about the community involvement in the RAB – is there good representation on the board? He mentioned that he has provided comments on the Guardian newsletter.

Mr. Smith responded that the RAB is doing well. There is evidence of waning community interest, most likely due to the successes of the activities on base. The base has been actively trying to get involvement, especially from the Travis Unified School District and the realtors' office, for the past six months. Representatives from these offices have dropped off of the RAB membership due to retirement and a change in job. There aren't any negative or major concerns from the community towards the base at this time, and my Project Manager, Mr. Anderson is the base point of contact for community relations and would know. The way the base has been reaching out to the community has been through the Guardian newsletters and RAB meeting announcements. The remedial soil work is nearly complete, groundwater monitoring and pump and treat has been ongoing for 10 years and a Performance Based Contract (PBC) solicitation will be going out soon that will help bring the sites closer to completion. The Air Force has required a manpower drawdown plan for all base restoration programs and Mr. Smith will be leaving the program (but still here on base and available) by the end of FY08. All in all, a lot of progress has been made by all of Travis' restoration staff over the years in setting up projects and training.

Mr. Cooper asked if the PBC is freestanding or include a community involvement plan. Mr. Smith answered it was freestanding; it gives the base more flexibility. Mr. Cooper agreed, saying that Travis is a mature base and the restoration program has been in place for many years. The current five-year review will include both soil and groundwater work. Mr. Smith had the group look at the table in the December meeting minutes to see the schedule for the five-year reviews. Mr. Cooper also asked for a copy of the agenda for the upcoming RAB and any slides to be used for the presentation.

A. EPA 5-Year Review Guidance

Mr. Chang provided an overview of the 5-year review process, along with comments from Cynthia Wentmore (EPA). Institution controls (IC) are very important in EPA's review of the 5-year review. The attachments to the email

Mr. Chang forwarded to TAFB apply mainly to private sites; some are for federal facilities, which he wants to point out, especially “Evaluating ICs during Five-Year Reviews”. The duration language of the IC, the details of how ICs will be implemented, enforced and maintained, the periodic reporting inspection requirements and descriptions of internal procedures, are all important to include in the report. EPA is looking at the process of ICs and the commitment to the ICs – provisions if boundaries are exceeded such as an easement or memo of agreement.

One question the EPA had was why the last report so long. Mr. Krook answered that this next report will be much shorter. Instead of duplicating content from existing reports, it will hit the salient points and reference the detail in other reports. All reference material will be provided on CD.

Mr. Smith mentioned that the Annual Land Use Control (LUC) Report will be out next week and available on the public website. Mr. Anderson stated that there is no formal format or guidance for the report, and it is put together to show the reader what these LUC sites look like. It is suggested that the EPA look over this report and consider the information provided in their review of the 5-year review.

Mr. Chang asked if the annual LUC report was similar to an IC implementation plan. Mr. Anderson answered yes, very much so, just not called that for legal reasons.

Mr. Chang pointed out that the 5-year review reports are reviewed by attorneys and headquarters. The EPA may need more review time for this reason – possibly more than sixty days. Electronic copies for review are the best. If the file size is too large to email, the CD could be sent or possibly use an FTP site to transfer the file.

The last concern Mr. Chang wanted to bring up (from Ms. Wentmore) was the possibility of vapor intrusion. Mr. Duke stated that this has been addressed in the groundwater treatment plant updates. Also, EPA expects to see a report on progress of the monitored natural attenuation (MNA) remedies that were cited in the first 5-year review, including the supporting data.

B. Previous Meeting Minutes

Change on page 2:

Added text under “Information Documents”.

Change on page 3:

Changed ‘draft’ to ‘pre-draft’ in reference to the Remedial Action Completion Report (Shaw).

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

C. Action Item Review

The revised schedule for 5 year reviews and CAMU Monitoring and Maintenance Report have been included in the Master Document Schedule (see below). This action item is considered complete.

D. 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

- Note meeting change for February, now on 27 February 2008. This meeting will not be a long RPM meeting. Instead it will focus on the PBC and a discussion on the Statement Of Objectives with regulatory agencies; as well as a response to comments meeting on the GSAP with the contractors. Ms. Sangalang will most likely phone in for the RPM portion of the meeting.
- Mr. Smith stated a slight change from the original planned PBC which was to strive for Remedy in Place (RIP) for the sites. Instead we will include the unfinished soil work from this summer, the current regional contract, remaining POCO project work and take the sites to completion where possible. Changing the focus to site closure and having an exit strategy in place. The intent is to accomplish as much as possible with the PBC. It is intended that the RFP go out in March.

Travis AFB Master Document Schedule

- 5-Year Review: The schedule may need to be revised for agency review. The response to comments meeting will need to be changed to give the agencies sixty days. The Draft to Agencies date still stands. Mr. Anderson stated that the information provided by Mr. Chang at this meeting is already in the report.
- Soil Remedial Action Report: The objectives and requirements in the ROD were met and made clear in the report. EPA requested an e-copy. Mr. Anderson asked Mr. Barry to put the draft on CD.
- GSAP Annual Report: Response to Comments Meeting pushed to 27 February 2008.
- Guardian quarterly newsletter: Comments from EPA have been received. Mr. Cooper's comments will be incorporated for the next issue. Once newsletter is finalized a week is needed for publishing. The list for those that are requesting newsletters by email is growing while the hardcopy list is shrinking.

- Information Documents: CAMU Monitoring and Maintenance Report has been added to schedule. Methane gas sampling will be included in this report.

2. OPERABLE UNIT UPDATE

A. Travis AFB Soil Cleanup Status Report

Mr. Anderson presented the update after recently visiting the CAMU to see how it is weathering the storms. Some erosion was noted, but not enough to be a concern. He also inspected the impact the cold weather was having on the vegetation. There is quite a visual difference between the ‘old’ side – beautiful, lush and green, and the ‘new’ side – mostly brown, and you have to look hard to see any green. It is taking time for the vegetative cover to grow in this weather. The four foot clay/bentonite layer is holding up well, as is the erosion control skirt around the edge of the CAMU; any erosion would be visible at this point. Mr. Anderson and Mr. Duke are planning to go out again this month.

Mr. Smith asked that the team make a note to include re-hydroseeding in future work plans, if needed.

Other than finalizing the RACR, the four sites (FT003, FT004, LF007E, and SD045) are done.

Mr. Freitas asked what kind of contamination was found. Mr. Anderson summarized the soil actions performed, and emphasized that no solid waste was put into the CAMU.

Mr. Chang asked which OU is covered in the report. Mr. Anderson replied that both (NEWIOU and WABOU) are included.

The soil with lead contamination from the small arms range was also put in the CAMU. The lead was at acceptable levels and the only material sent off-base was grub material. No explosives were found at the small arms range – it was not used in that capacity.

3. CURRENT PROJECTS

A. Treatment Plant Operation and Maintenance Update

Mr. Duke reported on the water treatment plant sites. The team wants to find a better use for the treated water. Mr. Anderson stated that the team is actively seeking beneficial reuse of the treated water. The treated water was used over the summer for dust suppression. The plants weren’t designed to provide water on demand, but for irrigation use only. Mr. Smith clarified that it is treated water, but not chlorinated, thus it can’t be stored very well. In fact, the water was being

used for irrigation on base. However, there were problems with broken sprinkler heads flooding the base and eventually it was shut off.

1. South Base Boundary Groundwater Treatment Plant

The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 90.3% uptime, and 3.65 million gallons of groundwater were extracted and treated during the month of December 2007. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 90.6 gallons per minute (gpm). Approximately 2.4 pounds of volatile organic compounds (VOCs) was removed during December 2007. The total mass of VOCs removed since the startup of the system is 324.5 pounds (see Attachment 3).

Mr. Freitas asked where the discharge was going. Mr. Duke answered it is going to the creek. Mr. Freitas also asked if TAFB had a permit to discharge. Mr. Smith answered that discharge is operating under the RODs requirements; under CERCLA, so although permits are not required, effluent limits are being met.

There was a shutdown of the plant on December 3rd thru the 6th due to vinyl chloride detection in the effluent. Confirmation samples were taken and the water board was notified. The plant was shut down until the results of the confirmation samples were received. Results were non-detect and the plant was restarted. The initial detection is determined to be an anomaly.

The optimization activities in December 2007 included shutting down nine groundwater extraction wells at FT005. These wells will remain off-line for one year.

2. Central Groundwater Treatment Plant

The Central Groundwater Treatment Plant (CGWTP) performed at 100% uptime with approximately 2.4 million gallons of groundwater extracted and treated during the month of December 2007. All treated water was diverted to the storm drain. The average flow rate for the CGWTP was 78.5 gpm. Approximately 6.8 pounds of VOCs were removed from groundwater, and 3.47 pounds from vapor, during December 2007. The total mass of VOCs removed since the startup of the system is 10,698 pounds. (see Attachment 4).

The CGWTP system had no downtime in December 2007. The West Treatment and Transfer Plant (WTTP) system was shut down on 7 December due to mechanical seal leaked on eductor pump. The part has been replaced and at the time of this meeting the plant is back online.

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

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. The lead carbon was taken off-line and bypassed in July 2007 due to erratic performance. The carbon change-out for the GAC vessel is on-hold while optimization options for the entire treatment system are being evaluated. The system performance will continue to be monitored in the upcoming months.

3. North Groundwater Treatment Plant

The North Groundwater Treatment Plant (NGWTP) performed at 79% uptime with approximately 220,000 gallons of groundwater extracted and treated during the month of December 2007. All treated water was discharged to the duck pond. The average flow for the NGWTP was 6.1 gpm. Less than a pound of VOCs was removed during December 2007. The total mass of VOCs removed since the startup of the system is 5,414 pounds (see Attachment 5).

There were two shutdowns of the plant, 8 and 22 December, due to low water level in the influent tank. The amount of water filling the influent tank has decreased because of the recent optimization activities of shutting down six extraction wells. The delay timer for the transfer pump has been adjusted for this.

The optimization activities in December 2007 included shutting down six extraction wells; three at SD031 and three at FT004. These wells will remain off-line for one year.

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. General Discussion

Mr. Smith offered a tour of the sites to see work that has been done and to answer questions. The first week of March is tentatively planned for a tour; however, Mr. Anderson and Mr. Duke are not available. EPA is interested in a tour of the five-year review sites to get a better idea of scope and scale of the work done.

Mr. Freitas suggested culling cross-sections out of the old RI report to use in response to comments. They might be useful the RI was nice work and contained a lot of useful information.

Mr. Wray responded that the old reports were considered, but the decision was made not to use them. Mainly it was an issue of scaling and also some of the well

names are not the same. Since they are already in the RI they don't want to reproduce them.

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	Closed

TRAVIS AIR FORCE BASE
ENVIRONMENTAL RESTORATION PROGRAM
REMEDIAL PROGRAM MANAGER'S MEETING
23 January 2008, 9:30 A.M.
AGENDA

1. ADMINISTRATIVE
 - A. EPA 5 YEAR REVIEW GUIDANCE
 - B. PREVIOUS MEETING MINUTES (ALL)
 - C. ACTION ITEM REVIEW (ALL)
 - D. 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. TBD

5. NEW ACTION ITEM REVIEW

Travis AFB Master Meeting and Document Schedule

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 7:00 p.m.) (Poster Session at 6:30 p.m.)
1-22-08	1-23-08	1-7-08*	—
2-26-08	2-27-08	2-4-08	—
3-18-08	3-19-08	—	—
4-22-08	4-23-08	4-7-08	4-24-08
5-20-08	5-21-08	5-5-08	—
6-17-08	6-18-08	6-2-08	—
7-22-08	7-23-08	7-7-08**	—
8-26-08	8-27-08	8-11-08	—
9-23-08	9-24-08	9-8-08	—
10-21-08	10-22-08	10-6-08	10-23-08
—	—	11-10-08	—
12-09-08	12-10-08	—	—

*During the 7 Jan teleconference an additional meeting with EPA was scheduled for 9-10 Jan to discuss past GSAP issues in preparation for moving ahead with the current GSAP and the upcoming Groundwater Performance Based Contract (PBC).

**Holiday Weekend

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

	PRIMARY DOCUMENTS			
	Basewide Travis, Glenn Anderson	Potrero Hills Annex Travis, Glenn Anderson	Five Year Review Travis, Glenn Anderson	Soil Remedial Action Report Travis, Glenn Anderson
Life Cycle	Groundwater ROD	Potrero Hills ROD		FT003, FT004, LF007E, SD045
Scoping Meeting	1-24-07	180 days after Water Board Order Rescinded	01-23-08	NA
Predraft to AF/Service Center	2-01-09	+ 360 days	03-11-08	01-29-08
AF/Service Center Comments Due	4-01-09	+ 420 days	03-26-08	02-13-08
Draft to Agencies	6-15-09	+ 480 days	04-10-08	02-22-08
Draft to RAB	6-15-09	+ 480 days	04-10-08	02-22-08
Agency Comments Due	8-15-09	+ 540 days	05-15-08	04-22-08
Response to Comments Meeting	9-01-09	+ 555 days	05-21-08	04-23-08
Agency Concurrence with Remedy	9-15-09	+ 570 days	NA	NA
Draft Proposed Plan to Agencies	12-01-09	+ 600 days	NA	NA
Issue Proposed Plan	1-15-10	+ 615 days	NA	NA
Public Comment Period	1-15-10 to 2-15-10	+ 615 to 645 days	NA	NA
Public Meeting	1-28-10	+ 625 days	NA	NA
Response to Comments Due	3-01-10	+ 640 days	06-18-08	05-13-08
Draft Final Due	3-01-10	+ 640 days	07-28-08	05-13-08
Final Due	5-01-10	+ 700 days	08-27-08	06-13-08

**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	02-27-08
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	1-21-2008
Response to Comments Meeting	TBD
Response to Comments Due	1-25-2008
Draft Final Due	TBD
Final Due	1-25-2008
Public Meeting	NA

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

INFORMATIONAL DOCUMENTS		
Life Cycle	Groundwater Treatment Plant O&M Reports Travis, Lonnie Duke; CH2M Hill, Mike Wray	CAMU Monitoring & Maintenance Report Travis, Lonnie Duke
	Groundwater Treatment Plants Annual Reports Fiscal Year 2008	
Scoping Meeting	NA	NA
Predraft to AF/Service Center	2-04-08	08-15-08
AF/Service Center Comments Due	2-08-08	08-30-08
Draft to Agencies	NA	NA
Draft to RAB	NA	NA
Agency Comments Due	NA	NA
Response to Comments Meeting	NA	NA
Response to Comments Due	NA	NA
Draft Final Due	NA	NA
Final Due	2-14-08	09-12-08
Public Comment Period	NA	NA
Public Meeting	NA	NA

South Base Boundary Groundwater Treatment Plant Monthly Data Sheet

Report Number: 89 Reporting Period: 1 – 31 December 2007 Date Submitted: 10 January 2008

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 2007

Operating Time: **672 hours** Percent Uptime: 90.3%

Electrical Power Usage: 17,136 kWh

Gallons Treated: **3.65 million gallons** Gallons Treated Since July 1998: **589.6 million gallons**

Volume Discharged to Union Creek: **3.65 million gallons**

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

VOC Mass Removed: **2.4 pounds^a** VOC Mass Removed Since July 1998: **324.5 pounds**

Rolling 12-Month Cost per Pound of Mass Removed: \$3,673^b

Monthly Cost per Pound of Mass Removed: \$3,396^b

^a Calculated using December 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: **90.6^a**

Average Flow Rate (gpm) ^b							
FT005				SS029		SS030	
EW01x05	2.4	EW736x05	4.3	EW01x29	2.5	EW01x30	4.8
EW02x05	0.6	EW737x05	Off line ^c	EW02x29	10.2	EW02x30	4.5
EW03x05	3.5	EW742x05	Off line ^c	EW03x29	Off line ^d	EW03x30	Off line ^d
EW731x05	Off line ^c	EW743x05	Off line ^c	EW04x29	11.9	EW04x30	19.9
EW732x05	Off line ^c	EW744x05	Off line ^c	EW05x29	4.0	EW05x30	10.2
EW733x05	Off line ^c	EW745x05	Off line ^c	EW06x29	2.4	EW06x30	0.0
EW734x05	0.0	EW746x05	Off line ^c	EW07x29	Off line ^d	EW711x30	3.5
EW735x05	4.4						
FT005 Total:		15.2		SS029 Total:		31.0	
				SS030 Total:		42.9	

^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 shutdown for a one-year rebound study in December 2007 based on the *Work Plan for RPO Actions at Sites SD031, FT004, and FT005* (CH2M HILL, 2007).

^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)	3 December 2007	17:00	6 December 2007	17:00	Awaiting confirmation effluent samples to verify treated effluent was within discharge limits.
SBBGWTP = South Base Boundary Groundwater Treatment Plant					

Summary of O&M Activities

Monthly groundwater sampling at the SBBGWTP was performed on 3 December 2007. Sample results are presented in Table 1. The total VOC concentration (77.8 µg/L) in the influent sample has increased since the November 2007 sample (61.2 µg/L). TCE was detected in the effluent sample at a concentration of 0.36 µg/L, which is less than the instantaneous maximum effluent limit (IMEL) of 5.0 µg/L.

Vinyl chloride was detected in the November 2007 effluent sample at a concentration of 1.3 µg/L, which exceeded the instantaneous maximum effluent limit (IMEL) of 0.5 µg/L. Therefore, on 4 December 2007, the influent and effluent to the SBBGWTP were resampled and sent to the laboratory with an expedited turn-around-time. These samples were collected for verification of the previous results. The SBBGWTP was shut down in the interim until the results were received and reviewed. On 5 December 2007, the resample results were received (see Table 2), and the vinyl chloride concentrations were non-detect in both the influent and effluent samples, which is consistent with historical results for this treatment plant. All other effluent sample results are within compliance of the IMEL. Based on the resample results, the treatment plant was restarted, and the effluent will continue to be sampled monthly. Vinyl chloride was not detected in the influent or effluent samples in December 2007.

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 nine groundwater extraction wells at FT005 (EW731x05, EW732x05, EW733x05, EW737x05, and EW742x05 through EW746x05) for rebound testing. Approval to initiate these activities from the agencies was received in November 2007.

On 4 December 2007, the nine extraction wells mentioned above were shut down: the hand switch for each well was turned to "OFF" inside the treatment facility, the power to the extraction wells were turned off at the circuit breaker, and valves at the extraction well heads were closed. These extraction wells will remain off-line for one year. At the end of the rebound period, the groundwater extraction wells will be sampled to assess plume stability.

Table 1

Summary of Groundwater Analytical Data for December 2007 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	3 December 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	4.8	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	73	0.36 J
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	35 J	ND
Total Petroleum Hydrocarbons – Diesel	50	33	0	ND	ND
Total Suspended Solids (mg/L)	NE	1.1	0	ND	NM
^a 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/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: 102 Reporting Period: 1 – 31 December 2007 Date Submitted: 10 January 2008

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 2007

Operating Time:	Percent Uptime:	Electrical Power Usage:
CGWTP: 744 hours	CGWTP: 100%	CGWTP: 8,700 kWh
WTTP: Water: 159 hours	WTTP: Water: 21.4%	WTTP: 6,995 kWh
Vapor: 159 hours	Vapor: 21.4%	
ThOx: 286 hours	ThOx: 38.4%	ThOx: 5,016 kWh
Gallons Treated: 2.4 million gallons	Gallons Treated Since January 1996: 368.5 million gallons	
VOC Mass Removed:	VOC Mass Removed Since January 1996:	
6.8 lbs (groundwater only)^a	2,250 lbs from groundwater	
3.47 lbs (vapor only)^b	8,448 lbs from vapor	
UV/Ox DRE: 99.9%	ThOx DRE: 99.9%	
Rolling 12-Month Cost per Pound of Mass Removed: \$867 ^c		
Monthly Cost per Pound of Mass Removed: \$1,526 ^c		
^a Calculated using December 2007 EPA Method SW8260B analytical results.		
^b Total VOC vapor mass removed was calculated using December 2007 EPA Method TO-14 analytical results for the DP039 extraction wells and 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	23.4	NA
EW02x16	4.9 ^c	NA
EW03x16	Off line ^d	NA
EW605x16	12.2	NA
EW610x16	2.9	NA
WTTP	40.1 ^e	228
ThOx	NA	58.4

^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 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

WIOU and DP039 Flow Rates

The WIOU and DP039 extraction well flow rates are measured at the end of the month. The WTPP was off-line in the latter end of December 2007; therefore, extraction well flow rates were not collected.

Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
WTPP (Groundwater and Vapor):					
WTPP	7 December 2007	15:00			Mechanical seal leaked on eductor pump. Pump seal is on order.
ThOx (vapor):					
ThOx	2 December 2007	04:00	2 December 2007	08:00	Burner flame went out.
ThOx	6 December 2007	09:00	17 December 2007	10:00	Burner high temperature alarm.
ThOx	20 December 2007	05:00	26 December 2007	09:00	Burner flame went out.
ThOx	30 December 2007	07:00	2 January 2008	08:00	Burner flame went out.
CGWTP = Central Groundwater Treatment Plant ThOx = Thermal Oxidation System WTPP = West Treatment and Transfer Plant					

Summary of O&M Activities

Monthly groundwater sampling at the CGWTP and quarterly groundwater sampling at the ThOx and WTPP were performed on 3 December 2007. Groundwater sample results are summarized in Table 1. In addition, quarterly vapor samples were collected at the ThOx unit and the WTPP SVE system on 5 December 2007. Vapor results are presented in Tables 2 and 3, respectively. Vapor samples were also collected from the three influent vapor lines (V-202, V-203, and V-204) prior to entering the manifold at the WTPP SVE system. The V-202 line collects vapors from EW563x39 and EW782x39; V-203 collects vapors from EW593x36, EW594x36, EW595x36, EW510x37, and EW700x37; and V-204 collects vapors from EW599x37, EW704x37, and EW707x37. The analytical results are presented in Table 4.

The total VOC concentration (339.6 µg/L) in the December 2007 CGWTP influent groundwater sample has increased slightly since the November 2007 sampling (335 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. Since the ThOx system was restarted in September 2007, influent vapor concentrations have steadily decreased from 75,250 ppbv in September 2007 to 51,720 ppbv in October 2007 to 9,680 ppbv in December 2007. Influent concentrations will continue to be monitored. Vapor results are shown in Table 2.

The WTPP SVE system continued to treat soil vapor from Site DP039 and the WIOU. Influent vapor concentrations have steadily decreased over the past few quarters in 2007 from 760 ppbv in June to 455 ppbv in September to 400 ppbv in December. The highest VOC concentrations were reported in V-202. Vapor results are shown in Tables 3 and 4.

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 optimization options for the entire treatment system are being evaluated. The system performance will continue to be monitored in the upcoming months.

Table 1

Summary of Groundwater Analytical Data for December 2007 – Central Groundwater Treatment Plant

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit ^b (µg/L)	N/C	3 December 2007 (µg/L)								
				WTTP Effluent	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	0.17 – 11	0	ND	ND	ND	ND	NS	ND	ND	ND	ND
Carbon Tetrachloride	0.5	0.19 – 13	0	ND	ND	ND	ND	NS	ND	ND	ND	ND
Chlorobenzene	5.0	0.17 – 11	0	0.71	ND	0.74	ND	NS	ND	ND	ND	ND
Chloroform	5.0	0.16 – 11	0	0.37 J	ND	0.23 J	0.21 J	NS	0.26 J	0.28 J	0.24 J	0.24 J
Dibromochloromethane	5.0	0.17 – 11	0	ND	ND	ND	ND	NS	ND	ND	ND	ND
1,2-Dichlorobenzene	5.0	0.13 – 8.7	0	ND	ND	0.24 J	ND	NS	ND	ND	ND	ND
1,3-Dichlorobenzene	5.0	0.16 – 11	0	ND	12 J	0.20 J	ND	NS	ND	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.16 – 11	0	ND	ND	ND	ND	NS	ND	ND	ND	ND
1,1-Dichloroethane	5.0	0.16 – 11	0	ND	ND	0.17 J	ND	NS	ND	ND	ND	ND
1,2-Dichloroethane	0.5	0.13 – 8.7	0	ND	ND	ND	ND	NS	ND	ND	ND	ND
1,1-Dichloroethene	5.0	0.14 – 9.3	0	4.2	ND	2.8	ND	NS	ND	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.15 – 10	0	11	2,100	51	ND	NS	0.43 J	0.66	0.53	0.53
trans-1,2-Dichloroethene	5.0	0.15 – 10	0	1.7	ND	2.7	ND	NS	ND	ND	ND	ND
Methylene Chloride	5.0	0.32 – 21	0	ND	ND	ND	ND	NS	ND	ND	ND	ND
Tetrachloroethene	5.0	0.20 – 13	0	1.0	24 J	1.0	ND	NS	ND	ND	ND	ND
1,1,1-Trichloroethane	5.0	0.16 – 11	0	ND	ND	ND	ND	NS	ND	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.32 – 21	0	ND	ND	ND	ND	NS	ND	ND	ND	ND
Trichloroethene	5.0	0.16 – 110	0	260	21,000	280	0.27 J	NS	2.2	1.5	1.1	1.1
Vinyl Chloride	0.5	0.17 – 11	0	ND	ND	0.54	ND	NS	ND	ND	ND	ND
Non-Halogenated Volatile Organics												
Benzene	1.0	0.16 – 11	0	ND	ND	ND	ND	NS	ND	ND	ND	ND
Ethylbenzene	5.0	0.16 – 11	0	ND	ND	ND	ND	NS	ND	ND	ND	ND
Toluene	5.0	0.17 – 11	0	ND	ND	ND	ND	NS	ND	ND	ND	ND
Total Xylenes	5.0	0.19 – 23	0	ND	ND	ND	ND	NS	ND	ND	ND	ND
Other												
Total Dissolved Solids (mg/L)	NE	4.7	0	NM	NM	NM	NM	NM	NM	800	NM	NM
^a In accordance with Appendix G of the <i>Travis AFB Central Groundwater Treatment Plant Operations and Maintenance Manual</i> (URS Group, Inc., 2002). ^b The higher detection limits were used for the TPE effluent sample; all other samples used lower detection limits.												
J	=	analyte concentration is considered an estimated value			NE	=	not established					
mg/L	=	milligrams per liter			NM	=	not measured					
N/C	=	number of samples out of compliance with discharge limits			NS	=	not sampled					
ND	=	not detected			µg/l	=	micrograms per liter					

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

Constituent	5 December 2007 (ppbv)	
	ThOx Influent	ThOx Effluent
Volatile Organics		
Benzene	ND (18)	0.75
Carbon Tetrachloride	ND (12)	ND (0.038)
Chloromethane	ND (50)	0.49 J
cis-1,2-Dichloroethene	1,300	ND (0.06)
1,2-Dichlorobenzene	ND (22)	ND (0.07)
1,3-Dichlorobenzene	ND (20)	ND (0.065)
1,4-Dichlorobenzene	ND (20)	ND (0.064)
1,2-Dichloroethane	ND (15)	ND (0.047)
Ethylbenzene	ND (21)	ND (0.068)
Freon 11	ND (7.5)	0.097 J
Freon 12	ND (21)	0.16 J
Freon 113	ND (9.7)	ND (0.031)
Methylene Chloride	27 J	ND (0.045)
Methyl Ethyl Ketone (2-Butanone)	ND (63)	1.9
Tetrachloroethene	19 J	1.3
Toluene	ND (17)	3.3
trans-1,2-Dichloroethene	33 J	ND (0.05)
1,2,4-Trimethylbenzene	ND (20)	0.069 J
1,3,5-Trimethylbenzene	ND (20)	ND (0.065)
Trichloroethene	8,300	0.064 J
Vinyl Chloride	ND (22)	ND (0.071)
Xylenes, m,p-	ND (38)	0.18 J
Xylene, o-	ND (19)	0.071 J
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 December 2007 – West Transfer and Treatment Plant

Constituent	5 December 2007 (ppbv)		
	SVE Influent	SVE Mid-Treatment	SVE Effluent
Volatile Organics			
Benzene	2.1 J	1.0 J	0.48 J
Carbon Tetrachloride	ND (0.65)	0.76 J	0.63 J
Chloroethane	ND (0.52)	ND (0.33)	ND (0.11)
Chloroform	1.7 J	1.5 J	2.4
Chloromethane	ND (2.4)	ND (1.5)	ND (0.51)
cis-1,2-Dichloroethene	35	29	15
trans-1,2-Dichloroethene	ND (0.74)	ND (0.47)	0.34 J
1,1-Dichloroethane	0.71 J	1.2 J	1.7
1,2-Dichloroethane	ND (0.70)	ND (0.44)	ND (0.15)
1,1-Dichloroethene	64	61	68
Ethylbenzene	ND (1.0)	ND (0.64)	ND (0.22)
Freon 11	ND (0.36)	0.45 J	1.6
Freon 12	ND (1.0)	ND (0.64)	0.50 J
Freon 22	ND (0.55)	ND (0.35)	0.32 J
Freon 113	ND (0.46)	0.52 J	0.95
Methylene Chloride	1.2 J	ND (0.86)	ND (0.57)
Methyl Ethyl Ketone (2-Butanone)	ND (3.0)	ND (1.9)	0.86 J
Tetrachloroethene	1.2 J	0.51 J	0.26 J
Toluene	0.89 J	1.3 J	0.57 J
1,1,1-Trichloroethane	4.3	9.1	11
1,1,2-Trichloroethane	ND (0.80)	ND (0.51)	ND (0.17)
Trichloroethene	290	21	ND (0.12)
Vinyl Chloride	ND (1.1)	ND (0.67)	ND (0.23)
Xylenes, m,p-	ND (1.8)	ND (1.1)	0.40 J
Xylene, o-	ND (0.90)	ND (0.58)	0.22 J
J = analyte concentration is considered an estimated value ND = not detected ppbv = parts per billion by volume SVE = soil vapor extraction () = detection limit			

Table 4

Soil Vapor Analytical Data for December 2007 – West Transfer and Treatment Plant

Constituent	5 December 2007 (ppbv)		
	WTPPV-202	WTPPV-203	WTPPV-204
Volatile Organics			
Benzene	ND (1.6)	3.5	0.27 J
Bromodichloromethane	ND (1.3)	ND (0.70)	0.16 J
Carbon Tetrachloride	ND (1.1)	ND (0.60)	1.1
Chloroform	ND (1.1)	ND (0.60)	3.8
Chloromethane	ND (4.6)	ND (2.5)	ND (0.48)
cis-1,2-Dichloroethene	93	9.7	4.1
trans-1,2-Dichloroethene	ND (1.4)	1.7 J	0.37 J
1,1-Dichloroethane	2.5 J	ND (0.41)	ND (0.078)
1,2-Dichloroethane	ND (1.3)	ND (0.74)	ND (0.14)
1,1-Dichloroethene	240	ND (0.51)	0.16 J
Ethylbenzene	ND (1.9)	ND (1.1)	ND (0.20)
Freon 11	ND (0.68)	ND (0.38)	0.27 J
Freon 12	ND (1.9)	ND (1.1)	0.48 J
Freon 22	ND (1.1)	ND (0.58)	0.40 J
Freon 113	ND (0.88)	ND (0.49)	ND (0.093)
Methylene Chloride	2.1 J	1.4 J	1.1 J
Methyl Ethyl Ketone (2-Butanone)	ND (5.7)	ND (3.2)	ND (0.60)
Tetrachloroethene	ND (1.1)	0.8 J	1.2
Toluene	ND (1.5)	1.1 J	0.74
1,1,1-Trichloroethane	15	ND (0.47)	ND (0.090)
1,1,2-Trichloroethane	ND (1.5)	ND (0.85)	ND (0.16)
Trichloroethene	710	50	64
1,2,4-Trimethylbenzene	ND (1.8)	ND (1.0)	ND (0.19)
Vinyl Chloride	ND (2.0)	ND (1.1)	ND (0.21)
Xylenes, m,p-	ND (3.4)	ND (1.9)	0.73
Xylene, o-	ND (1.7)	ND (0.96)	0.31 J
J = analyte concentration is considered an estimated value ND = not detected ppbv = parts per billion by volume () = detection limit			

North Groundwater Treatment Plant Monthly Data Sheet

Report Number: 91

Reporting Period: 1 – 31 December 2007

Date Submitted: 10 January 2008

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 2007

Operating Time: **Water:** 588 hours

Percent Uptime: **Water:** 79.0%

Vapor: 0^a

Vapor: 0%^a

Electrical Power Usage: **6,217 kWh**

Gallons Treated: **0.22 million gallons**

Gallons Treated Since March 2000: **78 million gallons**

Volume Discharged to Duck Pond: **0.22 million gallons**

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

Percentage of Treated Water to Beneficial Use: 100%

VOC Mass Removed:

VOC Mass Removed Since March 2000:

0.12 lbs (groundwater only)^b

173.7 lbs from groundwater

0 lbs (vapor only)^a

5,240 lbs from vapor^c

Rolling 12-Month Cost per Pound of Mass Removed: \$40,186^{de}

Monthly Cost per Pound of Mass Removed: \$56,169^d

^a The SVE system was shut down in accordance with the *Work Plan for Remedial Process Optimization (RPO) Actions at Sites SD031, FT004, and FT005* (CH2M HILL, 2007).

^b Calculated using December 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: **6.1 gpm^a**

Location	Flow Rate on 31 December 2007	
	Groundwater (gpm)	Soil Vapor (scfm) ^b
EW565x31	Off line ^c	Off line
EW566x31	Off line ^c	Off line
EW567x31	Off line ^c	NA
EW576x04	0.8	Off line
EW577x04	0.5	Off line
EW578x04	Off line ^c	Off line
EW579x04	Off line ^c	NA
EW580x04	Off line ^c	NA
EW621x04	1.3	NA
EW622x04	0.9	NA
EW623x04	0.8	NA
EW614x07	1.0 ^d	NA
EW615x07	1.0 ^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 RPO Actions at Sites SD031, FT004, and FT005* (CH2M HILL, 2007) in November 2007.

^c Extraction well was shutdown for a one-year rebound study in December 2007 based on the *Work Plan for RPO Actions at Sites SD031, FT004, and FT005* (CH2M HILL, 2007).

^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)	8 December 2007	14:00	10 December 2007	13:00	Influent tank low level alarm.
NGWTP (water)	22 December 2007	20:00	27 December 2007	09:00	Influent tank low level alarm.

NGWTP = North Groundwater Treatment Plant

Summary of O&M Activities

Monthly groundwater sampling at the NGWTP was performed on 3 December 2007. Sample results are presented in Table 1. The total VOC concentration (64.5 µg/L) in the influent sample has increased slightly over the November 2007 sample (53.7 µg/L). The influent TCE concentration decreased from 49 µg/L in November 2007 to 13 µg/L December 2007. However, concentrations of 1,1-dichloroethene (1,1-DCE) and 1,1,1-trichloroethane (1,1,1-TCA) increased. The influent concentration for 1,1-DCE, which is the indicator chemical for Site SD031, was 11 µg/L. All VOC concentrations were reported as non-detect in the effluent sample. Total dissolved solids (TDS) was detected in the effluent sample at a concentration of 1,500 mg/L.

In December 2007, the NGWTP was shutdown twice due to low water level in the influent tank. Due to the recent optimization activities of shutting down six extraction wells, the amount of water filling the influent tank decreased. The delay timer for the transfer pump was adjusted to 40 minutes on 10 December 2007 and then adjusted again on 27 December 2007 to 30 minutes.

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. The optimization activities in the work plan included shutting down the SD031 groundwater extraction system (EW565x31, EW566x31, and EW567x31) for rebound testing, shutting down three groundwater extraction wells at FT004 (EW578x04, EW579x04, and EW580x04) for rebound testing, and permanently shutting down the vapor extraction/treatment at the NGWTP. Approval to initiate these activities was received from the agencies in November 2007.

On 4 December 2007, the six extraction wells mentioned above were shutdown; the valves for the eductor supply and discharge in each well were closed. These extraction wells will remain off-line for one year. At the end of the rebound period, the groundwater extraction wells will be sampled to assess plume stability. The SVE system was also permanently shutdown, and the circuit breaker was locked and tagged out.

Table 1

Summary of Groundwater Analytical Data for December 2007 – North Groundwater Treatment Plant

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	3 December 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	ND	ND
Dibromochloromethane	0.5	0.17	0	ND	ND
1,1-Dichloroethane	5.0	0.16	0	0.27 J	ND
1,2-Dichloroethane	0.5	0.13	0	ND	ND
1,1-Dichloroethene	5.0	0.14	0	11	ND
cis-1,2-Dichloroethene	5.0	0.15	0	0.24 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	28	ND
1,1,2-Trichloroethane	5.0	0.32	0	ND	ND
Trichloroethene	5.0	0.16	0	13	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	12 J	ND
Total Petroleum Hydrocarbons – Diesel	50	32	0	ND	ND
Total Dissolved Solids (mg/L)	NE	4.7	0	NM	1,500

^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
 NE = not established
 NM = not measured
 µg/L = micrograms per liter