

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

22 July 2009, 0930 Hours

Mr. Mark Smith, Travis Air Force Base (AFB), conducted the Remedial Program Manager's (RPM) meeting on 22 July 2009 at 0930 in the Base Civil Engineer's Conference Room, Building 570, Travis AFB, California. Attendees included:

- Glenn Anderson Travis AFB
- Lonnie Duke Travis AFB
- Mark Smith Travis AFB
- Gregory Parrott Travis AFB
- James Chang U.S. Environmental Protection Agency (USEPA)
- Alan Friedman California Regional Water Quality Control Board (Water Board)
- Jose Salcedo California Department of Toxic Substances Control (DTSC)
- Dezso Linbrunner United States Army Corp of Engineers (USACE), Omaha District
- Mike Wray CH2M HILL
- Leslie Royer CH2M HILL
- Rachel Hess ITSI
- Mary Snow TechLaw Inc.

Handouts distributed at the meeting and presentations included:

- Attachment 1 Meeting Agenda
- Attachment 2 Master Meeting, Teleconference, and Document Schedules
- Attachment 3 SBBGWTP Monthly Data Sheet (June 2009)
- Attachment 4 CGWTP Monthly Data Sheet (June 2009)
- Attachment 5 Presentation: Natural Attenuation Assessment Report
- Attachment 6 Presentation: ST027 Site Characterization Status
- Attachment 7 Presentation: Program Update

1. ADMINISTRATIVE

A. Previous Meeting Minutes

The 24 June 2009 RPM meeting minutes were approved and finalized as written, with the following exception.

Mr. Chang asked to add clarification in the General Discussion section concerning the TAFB inspection of the Administrative Record files to verify the accuracy of the database.

B. Action Item Review

Action Items from June were reviewed.

Action items 1 and 2 are in progress. It was clarified that these two action items were in reference to the respective remedial action work plans for the sediments sites and FT005. ITSI will revise the Shaw template to update names and dates.

Action item three is unchanged. The site visit would be open to any interested people, not just RAB members.

C. Master Meeting and Document Schedule Review

The Travis AFB Master Meeting and Document Schedule was discussed during this meeting (see Attachment 2).

Travis AFB Annual Meeting and Teleconference Schedule

— The next RPM meeting will be 26 August 2009.

Travis AFB Master Document Schedule

— Basewide GW ROD, Potrero Hills Annex ROD: No change.

— RD/RA QAPP Update: Move to historical.

— Model QAPP Update: New to the schedule. The Model QAPP update will be the last hurdle before work can begin on the sediment actions. Mr. Anderson asked if the Water Board would like to review the document; Mr. Friedman replied they did not (Mr. Anderson requested a confirmation email). Mr. Salcedo added that the chemist at DTSC will review and provide comments if necessary. Mr. Linbrunner pointed out that the USACE chemist and geologist provided review and their comments have already been incorporated into the draft document. Mr. Chang asked for a copy of those comments for reference. Mr. Anderson then indicated that the USACE comments were not substantial, and that there was no need to send to USEPA. Mr. Chang agreed.

- Comprehensive Site Evaluation Phase II Work Plan: No change. The Response to Comments (RTC) meeting and subsequent dates are TBD pending EPA review schedule. Mr. Anderson asked if there was any word on the review schedule. Ms. Snow replied that there should be comments from Mr. Chang by Friday.
- Focused Feasibility Study (FFS), Phases 1 & 2 Vapor Intrusion Report: No change.
- Phytostabilization Tech Memo: Comments have been received and TAFB is working on responses. This document will be sent to the regulatory agencies soon for review.
- SS016 RPO Work Plan: No change.
- Field Sampling Plan: Dates have been updated to reflect actual dates.
- Natural Attenuation Assessment Report (NAAR): No change. Presentation will be given today.
- DP039 RPO Work Plan: Dates have been updated to reflect revised dates.
- SD036/SD037 RPO Work Plan: Dates have been updated to reflect revised timeline.
- ST018 POCO Remedial Action (RA) Work Plan: Dates have been updated to reflect revised timeline.
- Site ST032 POCO Evaluation Work Plan: No change. Comments from the Water Board expected this week.
- ST027B Site Characterization Report: Dates have been updated to reflect revised timeline. A presentation on investigation progress and status will be given today.
- LF008 Rebound Test Tech Memo: Dates have been updated to reflect revised timeline. The contractor has just received the GSAP data and more time is needed to evaluate the data.
- Quarterly Newsletter (Guardian): Will be sent out next week.

2. CURRENT PROJECTS

A. Treatment Plant Operation and Maintenance Update

Mr. Duke reported on the water treatment plant status.

South Base Boundary Groundwater Treatment Plant

The South Base Boundary Groundwater Treatment Plant (SBBGWTP) performed at 100% uptime, and 3.5 million gallons of groundwater were extracted and treated during the month of June 2009. All of the treated water was discharged to Union Creek. The average flow rate for the SBBGWTP was 75.6 gallons per minute (gpm)

and electrical power usage was 16,980 kWh; 23,000 pounds of CO₂ was created (based on DOE calculation). Approximately 1.7 pounds of volatile organic compounds (VOCs) were removed in June. The total mass of VOCs removed since the startup of the system is 365 pounds (see Attachment 3).

No shutdowns or restarts occurred in June 2009. The total influent VOC concentrations were slightly higher in June compared to May; however the indicator chemical for site FT005, 1,2-dichloroethane, was not detected. No VOCs were detected in the effluent sample.

No additional optimization activities were conducted during June.

Central Groundwater Treatment Plant

The Central Groundwater Treatment Plant (CGWTP) was offline most of June due to the carbon changeout. The CGWTP performed at 2.9% uptime with approximately 90,750 gallons of groundwater extracted and treated during the month of June 2009. All treated water was diverted to the storm drain. The average flow rate for the CGWTP, while operating, was 89.0 gpm and electrical power usage was 1,803 kWh for all equipment connected to the Central plant; 2,470 pounds of CO₂ was created. Natural gas usage for the ThOx was 149 therms. Approximately 0.34 pounds of VOCs were removed from groundwater, and 0.4 pounds from vapor, in June. The total mass of VOCs removed since the startup of the system is 11,073 pounds (see Attachment 4).

CGWTP systems were restarted for approximately 4 hours on 2 June 2009 in order to collect regularly scheduled O&M samples.

No optimization activities were conducted during June.

B. Field Work Update

Mr. Duke gave an update on the fieldwork at TAFB. Site ST027 near flight line, still causing some issues. Need to collect more groundwater samples and will probably need to install a well or two. Most likely, this will be the last phase of fieldwork, because it will extend the investigation area right up to the edge of the hold line to an active runway. Mr. Duke discussed this with the Airfield Manager who does not like the fact that the drilling operation will be so close to the active runway, but will allow us to collect samples within 100 ft of the runway. This will be final phase of drilling.

The draft SS016 work plan is in review, and comments are due 3 August 2009. We are starting to gear up for the fieldwork at site SS016. Mr. Duke stated that the agencies will see the draft SD036/037 work plan later; he has some data from a sewer survey where we know there was a break and has a good idea why the hotspots are where they are.

Mr. Duke stated that we want to conduct some further site characterization at SS016. Additionally, we are planning on drilling at ST018, a petroleum site.

Mr. Duke asked if the agency representatives were comfortable with the use of the Triad approach that supported the ST027 field investigation, to start collecting data before the associated work plan is finalized. We would like to get in the field at several sites before the rainy season starts. Mr. Wray said the agencies would receive drafts of the work plans for all these tasks in a few weeks, recognizing that field activities could be altered based on agency review. Everyone agreed it made sense to start fieldwork as soon as possible. Mr. Chang and Mr. Friedman would like TAFB to provide a copy of the schedule of field activities. Mr. Chang agreed with the Triad approach but asked that Travis remain receptive to any follow up fieldwork based on agency feedback that was provided in the field or during work plan review.

C. Vapor Intrusion Assessment Status

Mr. Anderson gave an update on the VI Assessment status. Fieldwork for the assessment is complete. Greg Nagle made it very easy for us to coordinate both the split samples as well as the regular field samples that we asked EPA to collect at buildings 836 and 864. We are now waiting for the analytical results from the lab before putting together a report for all three VI phases. When we get our results, EPA should be receiving their results at about the same time. Mr. Anderson asked Mr. Chang if they would do a data validation when received, and keep them in the loop. Mr. Chang said he would ask Mr. Nagle to email a copy of the validated data to Mr. Anderson at the same time he emails it to him. Mr. Anderson said that before we start putting the report together, we want to look at the “big picture” and identify ways that the VI results may affect the groundwater remedy selection process. VI will most likely have an impact on land use controls associated with groundwater sites. Mr. Chang asked that Mr. Anderson read and follow the Department of Toxic Substance Control (DTSC) advisory before marching forward. Mr. Anderson said that by the next meeting we will be able to put together a schedule for when a report on the VI assessment will be ready for regulatory review.

D. Model QAPP Update

Mr. Anderson gave an update on the Model QAPP update status. The QAPP was emailed last Monday; it was sent in two parts due to the size of the pdf file. If you need a hard copy, let Mr. Anderson know. Because of the impact of this document on the SD001/SD033 sediment remedial actions, Mr. Anderson asked Mr. Salcedo and Mr. Chang to please complete their reviews on schedule.

3. PRESENTATIONS

A. Natural Attenuation Assessment Report (NAAR)

Ms. Royer gave a presentation on the NAAR (see Attachment 5). The Natural Attenuation Assessment Report (NAAR) objectives are to provide a summary of existing data, determine whether Monitored Natural Attenuation (MNA) is an effective remedy at each site, support evaluation of permanent groundwater remedies

(basewide - focused feasibility study), and to modify the monitoring network to reflect current plume conditions and ensure protectiveness over the remainder of the interim period.

The WABOU and NEWIOU IRODs selected MNA as an interim remedy or potential remedy at all or a portion of several sites. The TAFB Natural Attenuation Assessment Plan (NAAP) was prepared in 1998. The NAAP specified that an initial assessment be performed at each potential MNA site. There have been 8 to 10 years of data collected during the interim period, which is available for evaluation of plume stability. The data collected from GSAP monitoring tells us that, at most sites, the plume has not only been stable, but has decreased in extent and concentration. Ms. Royer gave an overview of chemicals of concern (COCs) concentration levels for the following sites: FT004, LF006, LF007, SS015, SD031, SD033, SD037, and DP039.

B. ST027 Site Characterization Status

Mr. Wray gave a presentation on the ST027 Site Characterization status update. (see Attachment 6).

As mentioned before, this site is very difficult to investigate because of its proximity to the flight line. Work at this site has to be done on weekends and holidays due to the requirement for runway closure during drilling and sample collection.

To date, three phases of sample collection have been conducted:

Phase 1: A Gore Sorber survey was conducted back in November and completed in December 2008. That program was very successful. We installed forty passive soil gas points. Based on the results, there are four key Gore Sober points; points 23 and 27 are in the center of the TCE plume, and points 24 and 30 are in the center of the DCE plume.

Phase 2: We sampled soil, soil gas, and groundwater in Phase 2. We advanced three soil borings at 23, 27, and 30. That work was completed in April 2009. The Phase 2 conclusions were: No significant contamination is present in the vadose zone soil, in-situ groundwater results are generally consistent with the Gore Sorber results, and additional work was needed to identify the downgradient extent of the cis-1,2-DCE and TCE plume.

Phase 3: Two soil borings were advanced, in-situ groundwater samples were collected, and two monitoring wells were installed. Conclusions: Dissolved TCE and cis-1,2-DCE plume are elongated in the north/south direction, and are not defined to IRGs to the south. Additional work is still needed to define downgradient extent of the dissolved TCE and cis-1,2-DCE plumes.

Phase 4: This next phase of work will include advancing four soil borings to define the downgradient extent of the TCE and cis-1,2-DCE. This work is schedule to begin in August or September 2009.

C. Program Update, Management Overview Briefing

Mr. Wray gave an update on activities completed, in progress and upcoming (see Attachment 7). In keeping with the Triad approach to the project, this presentation is given to keep everyone informed on what's been completed and what's upcoming. As mentioned in our last meeting, any monthly changes to the document and activities lists will be in bold and italic font.

“Completed” Slide:

In terms of newly completed documents: The RDRA QAPP update has been completed.

The field portion of site LF008 rebound study has been completed; this site was sampled as part of the GSAP. Once we get the results, we will start working on the rebound study tech memo.

The GSAP has been completed with the exception of two wells at site DP039; they will be sampled tomorrow.

The Phase 1 portion at site SS030 site characterization is complete. We are now waiting on data from the in-situ groundwater sampling to evaluate what needs to be done for Phase 2.

Mr. Anderson mentioned that The Vapor Intrusion (VI) assessment fieldwork has been completed and can be added to the ‘completed’ list.

“In-Progress” Slide:

The NAAR is in pre-draft form and is under review by the Air Force and the USACE. The Model QAPP is now a submitted draft.

Fieldwork: Both the work plan and the site characterization for sites SD036/SD037 will be pushed out to August. For site SS027, an updated report will be out in October for phase 4 site characterization. The Site SS016 fieldwork for site characterization will start in August. Site LF007C fieldwork is on hold now for California Tiger Salamander and vernal pool issues. Site SS030 phase 2 characterization will be done in August; all parties will be getting the data fairly soon from the phase 1 fieldwork. The Sites SD001 and SD033 sediment remedial action fieldwork is expected to start in August and September.

Mr. Wray asked if everyone was getting copies of the presentations. Ms. Sangalang said she emails them in a pdf file along with the meetings minutes. Mr. Chang asked if they could be emailed separately. Mr. Duke suggested sending out updates for the fieldwork routinely.

4. NEW ACTION ITEM REVIEW

Provide the Field Schedule monthly, emphasizing that dates are draft.

5. PROGRAM/ISSUES/UPDATE

A. Impact of California Budget and Employee Furloughs

Mr. Smith invited the regulators to comment on the current status of employee furloughs and its impact on the TAFB work schedule.

Mr. Friedman said that state employees are required to take three furlough days per month until further notice as part of the California budget solution. This will reduce his overall project management time by 15%. Mr. Friedman stated that he will continue to support the Travis AFB restoration program, but he will need to prioritize his work load, particularly considering the ambitious nature of the Travis field work and document production schedule. Mr. Salcedo stated DTSC faces the same reduction in work days. The conversation ended with a discussion on the Department of Defense State Memorandum of Agreement, which is the source of federal funds that the state regulatory agencies use to support restoration projects.

6. POTENTIAL RESPONSE TO COMMENTS (RTC) MEETINGS

None.

General Discussion

Mr. Chang relayed a comment from Mr. Nagle, how appreciative he was with your staff on the VI assessment, everything was set up, no hassles getting in the gate. It was a pleasant experience.

5. Action Items

ITEM	RESPONSIBLE	ACTION ITEM	DUE DATE	STATUS
1.	Air Force	Update document schedule to include revised names and dates in Remedial Action Work Plan for Sediment Sites	July 2009	In progress
2.	Air Force	Update document schedule to include revised names and dates for interim plans for FT005	July 2009	In progress
3.	Air Force	Coordinate site visit of sediment excavations with RAB members	TBD	Open

TRAVIS AIR FORCE BASE
ENVIRONMENTAL RESTORATION PROGRAM
REMEDIAL PROGRAM MANAGER'S MEETING
22 July 2009, 9:30 A.M.
AGENDA

1. ADMINISTRATIVE

- A. PREVIOUS MEETING MINUTES
- B. ACTION ITEM REVIEW
- C. MASTER MEETING AND DOCUMENT SCHEDULE REVIEW

2. CURRENT PROJECTS

- A. TREATMENT PLANT OPERATION AND MAINTENANCE UPDATE (LONNIE)
- B. FIELD WORK UPDATE (LONNIE)
- C. VAPOR INTRUSION ASSESSMENT STATUS (GLENN)
- D. MODEL QAPP (GLENN)

3. PRESENTATIONS

- A. NATURAL ATTENUATION ASSESSMENT REPORT (NAAR)
- B. ST027 SITE CHARACTERIZATION STATUS
- C. PROGRAM UPDATE: ACTIVITIES COMPLETED, IN PROGRESS AND UPCOMING

4. NEW ACTION ITEM REVIEW

5. PROGRAM/ISSUES/UPDATE

- A. IMPACT OF CALIFORNIA BUDGET AND EMPLOYEE FURLOUGHS

6. POTENTIAL RESPONSE TO COMMENTS MEETINGS

Travis AFB Master Document Schedule

Annual Meeting and Teleconference Schedule

Monthly RPM Meeting (Begins at 9:30 a.m.)	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.)
01-28-09		—
02-25-09		—
03-25-09		—
04-22-09		04-23-09
05-20-09		—
06-24-09		—
07-22-09		—
08-26-09		—
09-23-09		—
10-21-09		10-22-09
—	11-16-09	—
12-09-09		—

Travis AFB Master Document Schedule

PRIMARY DOCUMENTS					
Life Cycle	Basewide Groundwater Travis, Glenn Anderson		Potrero Hills Annex Travis, Glenn Anderson	RD/RA QAPP Update Travis, Glenn Anderson CH2M Hill, Mark Fesler	Model QAPP Update Travis, Glenn Anderson ITSI, Rachel Hess
	Proposed Plan	ROD	ROD	Plan	Plan
Scoping Meeting	NA	01-24-07	180 days after Water Board Order Rescinded	NA	06-26-09
Predraft to AF/Service Center	04-14-10	07-21-10	+ 360 days	12-30-08	07-03-09
AF/Service Center Comments Due	04-28-10	08-04-10	+ 420 days	01-16-09	07-10-09
Draft to Agencies	05-12-10	08-18-10	+ 480 days	02-06-09	07-20-09
Draft to RAB	05-12-10	08-18-10	+ 480 days	02-06-09	07-20-09
Agency Comments Due	07-07-10	10-13-10	+ 540 days	04-10-09	08-20-09
Response to Comments Meeting	TBD	TBD	+ 555 days	04-22-09	08-26-09
Agency Concurrence with Remedy	TBD	NA	+ 570 days	NA	NA
Public Comment Period	TBD	NA	+ 615 to 645 days	NA	NA
Public Meeting	TBD	NA	+ 625 days	NA	NA
Response to Comments Due	TBD	TBD	+ 640 days	04-29-09	08-31-09
Draft Final Due	08-04-10	11-10-10	+ 640 days	06-11-09	09-07-09
Final Due	09-01-10	12-08-10	+ 700 days	07-13-09	10-07-09

PRIMARY DOCUMENTS		
	Comprehensive Site Evaluation Phase II Travis, Glenn Anderson Sky Research, Ian Roberts	Focused Feasibility Study Travis, Glenn Anderson CH2M Hill, Loren Krook
Life Cycle	Work Plan	FFS
Scoping Meeting	NA	NA
Predraft to AF/Service Center	01-15-09	09-17-09
AF/Service Center Comments Due	02-12-09	10-01-09
Draft to Agencies	04-29-09	10-15-09
Draft to RAB	04-29-09	10-15-09
Agency Comments Due	05-29-09	12-17-09
Response to Comments Meeting	TBD	01-20-10
Agency Concurrence with Remedy	NA	NA
Public Comment Period	NA	NA
Public Meeting	NA	NA
Response to Comments Due	TBD	02-17-10
Draft Final Due	TBD	02-17-10
Final Due	TBD	03-17-10

SECONDARY DOCUMENTS			
Life Cycle	Phases 1 and 2 Vapor Intrusion Report Travis, Glenn Anderson CH2M HILL, Leslie Royer	Phytostabilization Tech Memo Travis, Glenn Anderson Parsons, Bill Plaehn	SS016 RPO Work Plan Travis AFB, Lonnie Duke CH2M HILL, Doug Berwick
Scoping Meeting	NA	10-09-08	NA
Predraft to AF/Service Center	12-08-08	02-09-09	06-11-09
AF/Service Center Comments Due	12-15-08	02-16-09	06-25-09
Draft to Agencies	01-12-09	04-29-09	07-02-09
Draft to RAB	01-12-09	04-29-09	07-02-09
Agency Comments Due	02-17-09	05-29-09	08-03-09
Response to Comments Meeting	02-25-09	TBD	08-13-09
Response to Comments Due	TBD*	TBD	08-27-09
Draft Final Due	NA	NA	NA
Final Due	TBD*	TBD	08-27-09
Public Comment Period	NA	NA	NA
Public Meeting	NA	NA	NA

*The Vapor Intrusion report will be rescheduled to incorporate the Phase 3 data and evaluation per discussion with EPA on 30 March.

SECONDARY DOCUMENTS			
Life Cycle	Field Sampling Plan Travis AFB, Glenn Anderson CH2M HILL, Loren Krook	Natural Attenuation Assessment Report Travis AFB, Glenn Anderson CH2M HILL, Leslie Royer	DP039 RPO Work Plan Travis AFB, Glenn Anderson CH2M HILL, Doug Berwick
Scoping Meeting	NA	NA	NA
Predraft to AF/Service Center	04-28-09	07-07-09	08-07-09
AF/Service Center Comments Due	05-12-09	07-21-09	08-21-09
Draft to Agencies	06-26-09	08-07-09	08-31-09
Draft to RAB	06-26-09	08-07-09	08-31-09
Agency Comments Due	07-27-09	09-08-09	09-29-09
Response to Comments Meeting	08-05-09	09-23-09	10-22-09
Response to Comments Due	08-13-09	10-06-09	11-03-09
Draft Final Due	NA	NA	NA
Final Due	08-13-09	10-06-09	11-03-09
Public Comment Period	NA	NA	NA
Public Meeting	NA	NA	NA

SECONDARY DOCUMENTS

Life Cycle	SD036/SD037 RPO Work Plan Travis AFB, Lonnie Duke CH2M HILL, Tony Chakurian	ST018 POCO Remedial Action Work Plan Travis AFB, Lonnie Duke CH2M HILL, Gavan Heinrich	SITE ST032 POCO Evaluation Work Plan Travis AFB, Lonnie Duke CH2M HILL, Gavan Heinrich	ST027B Site Characterization Report Travis AFB, Lonnie Duke CH2M HILL, Gavan Heinrich	LF008 Rebound Test Technical Memorandum Travis AFB, Glenn Anderson CH2M HILL, Doug Berwick
Scoping Meeting	NA	NA	NA	NA	NA
Predraft to AF/Service Center	07-17-09	07-24-09	05-12-09	10-16-09	08-05-09
AF/Service Center Comments Due	07-31-09	08-07-09	05-26-09	10-30-09	08-19-09
Draft to Agencies	08-14-09	08-21-09	06-09-09	11-16-09	09-02-09
Draft to RAB	08-14-09	08-21-09	06-09-09	11-16-09	09-02-09
Agency Comments Due	09-14-09	09-18-09	07-07-09	12-18-09	10-02-09
Response to Comments Meeting	09-23-09	09-23-09	07-14-09	01-06-10	10-21-09
Response to Comments Due	10-16-09	10-23-09	07-21-09	01-20-10	10-30-09
Draft Final Due	NA	NA	NA	NA	NA
Final Due	10-16-09	10-23-09	07-21-09	01-20-10	10-30-09
Public Comment Period	NA	NA	NA	NA	NA
Public Meeting	NA	NA	NA	NA	NA

INFORMATIONAL DOCUMENTS	
Life Cycle	Quarterly Newsletters (Jul 2009) Travis, Glenn Anderson
Scoping Meeting	NA
Predraft to AF/Service Center	NA
AF/Service Center Comments Due	NA
Draft to Agencies	06-10-2009
Draft to RAB	NA
Agency Comments Due	07-02-2009
Response to Comments Meeting	TBD
Response to Comments Due	07-06-2009
Draft Final Due	NA
Final Due	07-13-2009
Public Comment Period	NA
Public Meeting	NA

HISTORICAL		
Life Cycle	2008 Annual GWTP RPO Report Travis AFB, Lonnie Duke CH2M HILL, Doug Berwick	Passive Diffusion Bag (PDB) Tech Memo Travis AFB, Lonnie Duke CH2M HILL, Leslie Royer
Scoping Meeting	NA	NA
Predraft to AF/Service Center	03-27-09	04-01-09
AF/Service Center Comments Due	04-02-09	04-03-09
Draft to Agencies	04-13-09	04-07-09
Draft to RAB	04-13-09	04-07-09
Agency Comments Due	05-13-09	05-05-09
Response to Comments Meeting	05-20-09	NA
Response to Comments Due	06-10-09	05-18-09
Draft Final Due	NA	NA
Final Due	06-25-09	06-03-09
Public Comment Period	NA	NA
Public Meeting	NA	NA

South Base Boundary Groundwater Treatment Plant Monthly Data Sheet

Report Number: 107

Reporting Period: 1-30 June 2009

Date Submitted: 21 July 2009

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 – June 2009

Operating Time: **840 hours**

Percent Uptime: 100%

Electrical Power Usage: 16,980 kWh

Gallons Treated: **3.5 million gallons**

Gallons Treated Since July 1998: **653 million gallons**

Volume Discharged to Union Creek: **3.5 million gallons**

VOC Mass Removed: **1.7 pounds^a**

VOC Mass Removed Since July 1998: **365 pounds**

Rolling 12-Month Cost per Pound of Mass Removed: \$3,565^b

Monthly Cost per Pound of Mass Removed: \$2,611^b

^a Calculated using June 2009 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.

Flow Rates

Average Groundwater Total Flow Rate: 75.6 gpm^a

Average Flow Rate (gpm) ^b							
FT005				SS029		SS030	
EW01x05	1.2	EW736x05	3.8	EW01x29	.8	EW01x30	9.0
EW02x05	1.8	EW737x05	Off line ^c	EW02x29	5.2	EW02x30	4.2
EW03x05	1.3	EW742x05	Off line ^c	EW03x29	Off line ^d	EW03x30	Off line ^d
EW731x05	Off line ^c	EW743x05	Off line ^d	EW04x29	6.9	EW04x30	Off line ^e
EW732x05	Off line ^c	EW744x05	Off line ^c	EW05x29	0.7	EW05x30	11.6
EW733x05	Off line ^c	EW745x05	Off line ^c	EW06x29	15.4	EW06x30	Dry ^f
EW734x05	Off line ^e	EW746x05	Off line ^c	EW07x29	16.5	EW711x30	Off line ^e
EW735x05	3.8						
FT005 Total:		11.9		SS029 Total:		45.4	
				SS030 Total:		24.8	

^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 Extraction well flow rates are based on the average of the weekly readings.

^c Extraction well was shut down for a 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 is off line due to low VOC concentrations.

^e Extraction well was not operational during June 2009 due to malfunctioning equipment.

gpm—gallons per minute

Shutdown/Restart Summary

No shutdowns or restarts occurred in June 2009.

Summary of O&M Activities

Monthly groundwater samples at the SBBGWTP were collected on 2 June 2009. Sample results are presented in Table 1. The total VOC concentration (74.0 µg/L) in the influent sample has increased since the May 2009 sample (62.8 µg/L). TCE and cis-1,2-DCE were the only VOCs detected in the influent sample. 1,2-Dichloroethane, the indicator chemical for Site FT005, was not detected in the influent sample. VOCs were not detected in the effluent sample, indicating good treatment efficiency.

In addition to analyzing the SBBGWTP samples for the methods shown in Table 1, the June 2009 effluent samples were analyzed for semi-volatile organic compounds (SVOCs) and levels of acute toxicity (96-hour bioassay). The level of acute toxicity is measured by placing live fathead minnows into a one (1) gallon container containing (treated) water from the SBBGWTP. Toxicity levels are determined based on how many of the fathead minnows die over the course of a 96-hour period. In these additional analytical tests, no SVOCs were detected and the survival rate of the fathead minnows was 100%. The results of the acute toxicity analysis are presented in Table 2. Full analytical results, including SVOCs, are available upon request.

EW07x30 and EW04x30 were off line in June 2009 due to malfunctioning equipment. Both pumps exhibit symptoms typical of stripped splines (pumps have power but do not pump water). Replacements for both groundwater pumps have been ordered and will be replaced in July 2009.

Optimization Activities

On 4 December 2007, nine extraction wells (EW731x05, EW732x05, EW733x05, EW737x05, and EW742x05 through EW746x05) were shut down for rebound testing in accordance with the *Work Plan for Remedial Process Optimization (RPO) Actions at Sites SD031, FT004, and FT005* (CH2M HILL, 2007). These wells continue to remain off line.

All of the extraction wells within FT005 will be turned off as part of a continuing rebound study in accordance with the optimization activities discussed in the *2008 Annual Remedial Process Optimization Report for the Central Groundwater Treatment Plant, North Groundwater Treatment Plant, and South Base Boundary Groundwater Treatment Plant* (CH2M HILL, 2009). Prior to initiating the extended rebound study, analytical results from FT005 monitoring and extraction well samples collected during the June 2009 GSAP event will be used to ensure that contaminant concentrations have stabilized or decreased, and that the rebound study remains appropriate.

No other optimization activities were performed.

Table 1

Summary of Groundwater Analytical Data for June 2009 – South Base Boundary Groundwater Treatment Plant

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	N/C	2 June 2009 (µg/L)	
				Influent	Effluent
Halogenated Volatile Organics					
Bromodichloromethane	5.0	0.17	0	ND	ND
Carbon Tetrachloride	0.5	0.18	0	ND	ND
Chloroform	5.0	0.17	0	ND	ND
Dibromochloromethane	5.0	0.17	0	ND	ND
1,1-Dichloroethane	5.0	0.24	0	ND	ND
1,2-Dichloroethane	0.5	0.22	0	ND	ND
1,1-Dichloroethene	5.0	0.24	0	ND	ND
cis-1,2-Dichloroethene	5.0	0.23	0	4.3	ND
trans-1,2-Dichloroethene	5.0	0.54	0	ND	ND
Methylene Chloride	5.0	0.61	0	ND	ND
Tetrachloroethene	5.0	0.2	0	ND	ND
1,1,1-Trichloroethane	5.0	0.16	0	ND	ND
1,1,2-Trichloroethane	5.0	0.2	0	ND	ND
Trichloroethene	5.0	1	0	69.7	ND
Vinyl Chloride	0.5	0.24	0	ND	ND
Non-Halogenated Volatile Organics					
Benzene	1.0	0.091	0	ND	ND
Ethylbenzene	5.0	0.15	0	ND	ND
Toluene	5.0	0.098	0	ND	ND
Xylenes	5.0	0.093 - 024	0	ND	ND
Other					
Total Petroleum Hydrocarbons – Gasoline	50	32	0	NM	ND
Total Petroleum Hydrocarbons – Diesel	50	51.5	0	NM	ND
Total Suspended Solids (mg/L)	NE	2.5	0	10.5 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

Table 2

Summary of Bioassay Analytical Data for June 2009 – South Base Boundary Groundwater Treatment Plant

Analysis	2 June 2009 (Survival %)	
	Lab Control	EFFT-004
96 Hour Static Renewal – Rainbow Trout	100	100

Flow Rates

Average Flow Rate from the WIOU, DP039, and LF008 Extraction Wells (gpm) ^a							
SD037/ SD043				SD033/SD034/ DP039		LF008/SD036	
EW599x37	1.5	EW705x37	1.0	EW501x33	3.2	EW719x08	Off line ^c
EW700x37	4.6	EW706x37	4.1	EW503x33	0.9	EW720x08	Off line ^c
EW701x37	1.5	EW707x37	0.9	EW01x34	0.2	EW721x08	Off line ^c
EW702x37	0.5	EW510x37	4.1	EW03x34	0.3	EW593x36	2.4
EW703x37	0.4	EW511x37	1.9	EW563x39	Off line ^b	EW594x36	3.2
EW704x37	2.0	EW555x43	0.1	EW782x39	Off line ^b	EW595x36	0.5

gpm—gallons per minute

^a Extraction well flow rates are based on the average of previous month's readings.
^b Extraction wells were shut off to facilitate the Bioreactor Sustainability Study at Site DP039.
^c Extraction wells were shut off to support a rebound study at Site LF008.

Shutdown/Restart Summary

Location	Shutdown		Restart		Cause
	Date	Time	Date	Time	
CGWTP (Groundwater):					
CGWTP	27 May 2009	08:00	2 June 2009	10:50	CGWTP Carbon changeout
CGWTP	2 June 2009	15:00			CGWTP Carbon changeout/Rebound Period
WTTP (Groundwater):					
WTTP	27 May 2009	08:00	2 June 2009	10:50	CGWTP Carbon changeout
WTTP	2 June 2009	15:00			CGWTP Carbon changeout/Rebound Period
WTTP (Vapor):					
WTTP	27 May 2009	08:00	2 June 2009	10:50	CGWTP Carbon changeout
WTTP	2 June 2009	15:00			CGWTP Carbon changeout/Rebound Period
ThOx (Vapor):					
ThOx	27 May 2009	08:00	2 June 2009	10:50	CGWTP Carbon changeout
ThOx	2 June 2009	15:00			CGWTP Carbon changeout/Rebound Period
CGWTP = Central Groundwater Treatment Plant WTTP = West Treatment and Transfer Plant ThOx = Thermal Oxidation System					

Summary of O&M Activities

Monthly groundwater sampling at the CGWTP was performed on 2 June 2009. Groundwater sample results are summarized in Table 1. The total VOC concentration (455.2 µg/L) in the June 2009 CGWTP influent groundwater sample has increased slightly since the May 2009 event, and remains nearly double that of the influent sample collected in March 2009 (230 µg/L). Benzene, Toluene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, and 1,4-dichlorobenzene (J flagged), were detected in the system influent.

In addition to the analyses presented in Table 1, samples from the CGWTP were also analyzed for total metals and semi-volatile organic compounds (SVOCs). No SVOCs were detected in any of the samples collected from the CGWTP. Analytical results from the total metals analysis are presented in Table 2.

The CGWTP was offline the entire month of June due to a carbon changeout on the two (2) 20,000lb vessels. On 2 June, 2009 the CGWTP, WTP, and ThOx systems were restarted for approximately four (4) hours to collect system samples. These samples were collected as part of the monthly O&M sampling program, and also to verify proper operation of the CGWTP in its new configuration (UV/Ox and polish carbon vessels bypassed, new carbon in both 20,000-pound carbon vessels). After collecting these samples, the CGWTP, WTP, and ThOx systems were taken off line.

Soil vapor samples were collected from the WTP as part of the monthly O&M sampling schedule. Results from these vapor samples are presented in Table 3. Vapor samples were not collected from the ThOx unit. At the time of sample collection, the ThOx system had been offline for approximately fourteen (14) days. Samples collected at that time would likely not have been representative of normal operating conditions as contaminant rebound may have begun to occur. Fourteen (14) days, however, is not a long enough time to establish accurate rebound conditions. Typically, rebound conditions can be assessed after approximately four to six (4 – 6) weeks of system or extraction well downtime. Because the CGWTP (and therefore the ThOx and WTP) would continue to remain offline while waiting for analytical results, collection of ThOx system samples was postponed until enough time had passed to represent rebound conditions. Rebound samples from the ThOx unit will be collected in July 2009.

Optimization Activities

A carbon changeout involving both 20,000-pound carbon vessels at the CGWTP took place on 27 May, 2009. Upon completion of this changeout, the carbon was left to soak and de-gas for approximately five (5) days. On 2 June, 2009, the CGWTP (and ThOx and WTP) was restarted in order to collect the regularly-scheduled O&M samples for June 2009. The CGWTP was operated for approximately four (4) hours to ensure steady state operating conditions. In keeping with the optimization activities described in the *2008 Annual Remedial Process Optimization Report for the Central Groundwater Treatment Plant, North Groundwater Treatment Plant, and South Base Boundary Groundwater Treatment Plant (CH2M HILL, 2009)*, the UV/Ox and polish carbon vessels (three [3] 2,000-pound GAC vessels) were bypassed, leaving only the 20,000-pound carbon vessels to treat the process water.

Analytical results from the CGWTP samples collected on 2 June, 2009 have verified that the new carbon in the 20,000-pound carbon vessels is effectively treating the incoming process water to the CGWTP. No contaminants present in the influent samples were detected after even the first 20,000-pound carbon vessel. The groundwater sample collected after both 20,000-pound carbon vessels likewise contained no detectable amounts of contamination present in the influent sample.

After collection of all system samples, the CGWTP was taken offline pending analytical results. After the results had verified the effectiveness of the modified CGWTP treatment system, the systems remained offline in order to achieve rebound conditions (no operation for approximately 4 – 6 weeks). All systems will be restarted in July 2009 after rebound sampling is complete.

The CGWTP will continue to operate without the UV/Ox and polish carbon portions of the treatment system. Since the UV/Ox system has been bypassed, samples CGWTPWINF and CGWTPWAUV have become redundant. The CGWTPWAUV sample has previously been used to establish how effective the UV/Ox system is at removing contaminant mass from the influent stream. Since the UV/Ox is no longer in use, the influent (CGWTPWINF) sample and “after UV/Ox” sample (CGWTPWAUV) are identical. Similarly, the three (3) 2,000-pound polish carbon vessels have also been bypassed. Samples taken after the 20,000-pound carbon vessels (CGWTPWBC2) and prior to entering the holding tank (CGWTPWEFF) are now identical. Due to this redundancy, samples CGWTPWAUV and CGWTPWBC2 will be removed from the monthly sampling list.

No other optimizations were performed in June 2009.

Table 1

Summary of Groundwater Analytical Data for June 2009 – Central Groundwater Treatment Plant

Constituent	Instantaneous Maximum ^a (µg/L)	Detection Limit (µg/L)	2 June 2009 (µg/L)						
			N/C	Influent	After UV/OX	After Carbon 1 Effluent	After Carbon 2 Effluent	After Carbon 3 Effluent	System Effluent
Halogenated Volatile Organics									
Bromodichloromethane	5.0	0.18 – 0.36	0	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	0.5	0.22 – 0.44	0	ND	ND	ND	ND	ND	ND
Chloroform	5.0	0.17 – 0.34	0	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	5.0	0.16 – 0.32	0	0.3 J	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	5.0	0.13 – 0.26	0	0.22 J	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	5.0	0.10 – 0.20	0	0.21 J	ND	ND	ND	ND	ND
1,1-Dichloroethane	5.0	0.19 – 0.38	0	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.5	0.22 – 0.44	0	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	5.0	0.24 – 0.48	0	.78	.56	ND	ND	ND	ND
cis-1,2-Dichloroethene	5.0	0.16 – 0.32	0	65.8	52.3	ND	ND	ND	3.6
trans-1,2-Dichloroethene	5.0	0.21 – 0.42	0	3.1	2.5	ND	ND	ND	ND
Methylene Chloride	5.0	0.27 – 0.54	0	ND	ND	ND	ND	ND	ND
Tetrachloroethene	5.0	0.16 – 0.32	0	.96	.89	ND	ND	ND	ND
1,1,1-Trichloroethane	5.0	0.20 – 0.40	0	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	5.0	0.14 – 0.28	0	ND	ND	ND	ND	ND	ND
Trichloroethene	5.0	0.50 – 1.0	0	383	361	ND	ND	ND	2.2
Vinyl Chloride	0.5	0.19 – 0.38	0	.61	ND	ND	ND	ND	ND
Non-Halogenated Volatile Organics									
Benzene	1.0	0.12 – 0.24	0	.1 J	ND	ND	ND	ND	ND
Ethylbenzene	5.0	0.10 – 0.20	0	ND	ND	ND	ND	ND	ND
Toluene	5.0	0.14 – 0.28	0	.1 J	ND	ND	ND	ND	ND
Total Xylenes	5.0	0.10 - 0.42	0	ND	ND	ND	ND	ND	ND

^a In accordance with Appendix G of the *Travis AFB Central Groundwater Treatment Plant Operations and Maintenance Manual* (URS Group, Inc., 2002).

J = analyte concentration is considered an estimated value

N/C = number of samples out of compliance with discharge limits

ND = not detected

µg/L = micrograms per liter

Table 2

Soil Vapor Analytical Data for June 2009 – Site SS016

Constituent	2 June 2009 (ppbv)					
	WTTPVIN	WTTPVEFF	WTTPV202	WTTPV203	WTTPV204	WTTPVBC1
Volatile Organics						
Acetone	ND (0.598)	ND (0.299)	ND (0.299)	ND (0.299)	3.70	ND (0.299)
Chloroform	1.02	0.330 J	1.02	ND (0.151)	2.6	0.220 J
Chloromethane	ND (0.573)	0.790	ND (0.286)	ND (0.286)	ND (01.43)	ND (0.286)
cis-1,2-Dichloroethene	7.96	4.08	8.84	3.53	18.3	1.44
1,1-Dichloroethene	ND (0.382)	0.310 J	ND (0.198)	ND (0.198)	ND (0.990)	ND (0.198)
Ethylbenzene	ND (0.382)	ND (0.191)	0.580	ND (0.191)	ND (0.955)	ND (0.191)
Freon 11	ND (0.573)	0.430 J	0.340 J	0.300 J	ND (01.43)	0.420 J
Freon 12	0.540 J	0.860	0.510	0.590	ND (01.22)	0.670

Table 2

Soil Vapor Analytical Data for June 2009 – Site SS016

Constituent	2 June 2009 (ppbv)					
	WTPPVINF	WTPPVEFF	WTPPV202	WTPPV203	WTPPV204	WTPPVBC1
Volatile Organics						
Acetone	ND (0.598)	ND (0.299)	ND (0.299)	ND (0.299)	3.70	ND (0.299)
Hexane	ND (0.263)	ND (0.131)	0.350 J	ND (0.131)	ND (0.657)	ND (0.250)
Methyl Ethyl Ketone (2-Butanone)	ND (0.811)	ND (0.406)	1.69	0.990	ND (02.03)	6.29
Tetrachloroethene	0.860 J	ND (0.191)	1.63	0.920	ND (0.955)	ND (0.191)
trans-1,2-Dichloroethene	1.74	0.310 J	1.90	0.550	3.65	0.290 J
Trichloroethene	113	ND (0.281)	105	37.2	256	77.6
Toluene	ND (0.311)	0.670	10.4	0.630	ND (0.778)	ND (0.156)
Xylenes, m,p-	ND (0.978)	ND (0.489)	ND (0.489)	0.550	ND (02.44)	ND (0.489)

J = analyte concentration is considered an estimated value

ND = not detected

ppbv = parts per billion by volume

() = detection limit

Table 3
 Total Metals Analytical Data for June 2009 – Central Groundwater Treatment Plant

Constituent	2 June 2009 (mg/L)
	CGWTPWEFF
Metals-SW6010B	
Aluminum	ND (0.2)
Antimony	ND (0.2)
Arsenic	ND (0.3)
Barium	0.0111
Beryllium	ND (0.002)
Cadmium	ND (0.005)
Calcium	8.8
Chromium	0.000539 J
Cobalt	ND (0.01)
Copper	ND (0.02)
Iron	ND (0.05)
Lead	ND (0.1)
Magnesium	8.88
Manganese	0.019
Molybdenum	ND (0.05)
Nickel	ND (0.03)
Potassium	428
Selenium	ND (0.3)
Silver	ND (0.01)
Sodium	153
Thallium	ND (0.1)
Vanadium	0.0043 J
Zinc	ND (0.02)

J = analyte concentration is considered an estimated value
 ND = not detected
 () = detection limit