

**FINAL TECHNICAL INTERCHANGE MEETING NO. 5 MEETING MINUTES
 PLANS FOR UPCOMING INVESTIGATIONS, SWMU B-3 BIOREACTOR STATUS UPDATE
 AND SITE MANAGEMENT PLAN OVERVIEW
 CAMP STANLEY STORAGE ACTIVITY, BOERNE, TEXAS
 FA8903-04-D-8675/DELIVERY ORDER 0006
 PARSONS 744223.01000**

Date: Friday, March 9, 2007
 Time: 9:00 A.M. - 2:00 P.M.
 Place: Camp Stanley Storage Activity (CSSA)
 Subject: SWMU B-3 Bioreactor Status, Upcoming Investigations, Site Management Plan
 Attendees:

Attendee	Organization	Phone
Glaré Sanchez	CSSA	(210) 295-7453
Jason Shirley	CSSA	(210) 295-7416
Greg Lyssy	U.S. Environmental Protection Agency (USEPA)	(214) 665-8317
Abigail Power	Texas Commission on Environmental Quality (TCEQ)	(210) 403-4064
Sonny Rayos	TCEQ	(512) 239-2371
Henry Kasten	U.S. Army Corps of Engineers (USACE)	(817) 886-1889
Kent Rohlof	Air Force Center for Environmental Excellence (AFCEE)	(210) 536-2543
Brian Siegfried	AFCEE/Portage	(210) 536-5208
Steve Mitchell	Weston Solutions, Inc. (Weston)	(512) 651-7104
Mike Chapa	Weston	(210) 248-2428
Bob Edwards	Noblis	(210) 408-5552
Fred Price	Noblis	(210) 845-0401
Dianna Gimon	Noblis	(210) 408-4540
Brian Vanderglas	Parsons	(512) 719-6059
Julie Burdey	Parsons	(512) 719-6062
Ken Rice	Parsons	(512) 719-6050
Kimberly Vaughn	Parsons	(512) 719-6816

*Minutes prepared by Kimberly Vaughn, Julie Burdey, and Brian Vanderglas, Parsons.

The meeting was directed by Glaré Sanchez and presentations made jointly by Mike Chapa (Weston upcoming investigations), Brian Vanderglas (SWMU B-3 Bioreactor), Fred Price (Site Management Plan), and Ken Rice (Parsons upcoming investigations). The meeting discussions were conducted per the meeting agenda attached to these minutes. All attendees were present for all portions of the meeting.

The goals of the meeting were to:

Discuss plans for upcoming site investigations by both Parsons and Weston;

Discuss SWMU B-3 bioreactor status; and

Introduce the Site Management Plan.

INTRODUCTION

All meeting attendees met in the CSSA Building 98 conference room and Glaré Sanchez introduced the meeting and meeting agenda.

PLAN FOR WESTON UPCOMING INVESTIGATIONS

Mike Chapa presented the portion of slides covering the Weston upcoming investigations, titled "Sampling and Analysis Plan for Affected Property Assessments." The planned investigations cover sites AOC 63, AOC 64 and SWMU B-71. Mr. Chapa first reviewed the history and current geophysical survey results for the three sites. AOC 63 is a soil/rubble pile with drums. This site is a suspected disposal area less than 0.5 acres in size, no munitions and explosives of concern (MEC) has been identified at AOC 63. He reviewed the historical investigations and presented the anomalies identified in a geophysical survey by Weston in 2007.

SWMU B-71 is a MEC disposal area, spent small arms casings and bullets have been identified. There is surface litter present on two depressed areas. This site is located within the flood plain of Salado Creek and is approximately 2.5 acres. Mr. Chapa reviewed the previous geophysical survey results and anomalies identified for investigation.

AOC 64 is an explosive ordnance disposal (EOD) burn area. There is MEC surface litter and munitions debris (MD) present. There is a surface water drainage feature across the south end of the site. Soil mounds of refuse are present and the site is 1.5 acres. Mr. Chapa presented the results of the Weston geophysical survey and the anomalies to be investigated. Ms. Power asked about the size of the anomaly located at AOC 64 at historical feature A2, Mr. Chapa indicated another figure later on in the slides will show the scale of that feature.

Mr. Chapa presented the general sampling assumptions include the surface area test trenches to be performed to characterize maximum impact. Horizontal delineation test pits will be constructed for visual verification of horizontal limit of buried material and delineation of surface and subsurface chemicals of concern (COC). Peripheral samples will be collected to delineate surface COCs. Minor confirmation sampling will be conducted to achieve delineation of the COCs. The maximum depth to be investigated is estimated to be 12 feet below ground surface (bgs).

A more detailed sampling plan for each site was presented, including figures with anomalies identified. For AOC 63 there are two anomaly areas to be investigated. Two source area

trenches are planned. Currently planned analyses include volatile organic compounds (VOC), semivolatile organic compounds (SVOC), metals and explosives. Mr. Chapa requested concurrence from TCEQ and USEPA to remove explosives from the planned sampling. No MEC has been observed at this site. There is no evidence that MEC is an issue at AOC 63. Additionally, Mr. Chapa noted that if the investigation of magnetic anomaly area B does not indicate that buried material is present, he does not plan to extend the trenching at that anomaly.

Greg Lyssy concurred that explosives are not necessary. Mr. Rayos and Ms. Power added that if MEC is visually located on site, then the TCEQ would like to make sure that explosives analyses would be performed. Mr. Chapa agreed that if MEC is located, then explosives analysis would be run. Mr. Lyssy also indicated that if explosives analyses are necessary, that EPA's preference would be for CSSA to use analytical method SW 8330B. He initially indicated that this analytical method should be used, but upon further discussion with Steve Mitchell, it was agreed that it would not be necessary at this stage of the investigation.

Mr. Chapa continued with a description of planned sampling at SWMU B-71. To investigate the anomaly areas at this site, Mr. Chapa requested concurrence of Weston's planned approach to potentially reduce the number of samples collected at each anomaly and move those samples to delineate other anomalies, if needed. Specifically, Mr. Chapa requested that if previously investigated anomalies show no evidence of waste disposal activities, that the investigation sampling would be shifted to those areas indicated by Weston's recently completed geophysical survey. TCEQ and USEPA both agreed with this approach.

Mr. Chapa continued to discuss the plan for AOC 64, a site where he does expect to encounter rock near the surface. Exploratory trenching will be conducted at the three source area anomalies. At the drainage feature that was discussed earlier, he will place one trench across the drainage. Perchlorate analysis will be added for this site based on the spent flares observed. He has indicated that there appears to be an observed a large kickout area of debris from explosions.

In summary, Mr. Chapa indicated that their original assumption called for completing an APAR for each site, however, at AOC 63, Weston intends to present a generic investigation report to support delisting or no further action concurrence unless they encounter something completely unexpected based on initial assessment of the site. The residential standards for all sites will be used for CSSA cleanup standards.

Mr. Lyssy asked about the status of the Ecological Risk Assessment (ERA) for CSSA. It was noted during a prior meeting (TIM #3 and TIM #4) that Camp Bullis has been preparing their assessment and that their ERA would be helpful to CSSA given the similar site conditions. Mr. Lyssy indicated that he really would like to see CSSA prepare a site-wide ERA and that he intends to get Cheryl Overstreet from EPA involved in the process. Ms. Power noted that the Bullis study has been revised and has been submitted to Larry Champagne or John Wilder. Ms. Burdey noted that an ERA is about to be added to the Parsons scope of work for a pending contract. A question was asked about karst features and "critters" that prefer karst caves for habitat. Mr. Vanderglas noted that George Veni and Associates performed a karst survey at CSSA and that report should detail the locations of all surface karst features at CSSA. Mr. Lyssy would like to schedule a meeting with the risk assessors from TCEQ and USEPA prior to the preparation of the ERA.

SWMU B-3 BIOREACTOR STATUS UPDATE

Mr. Vanderglas began the presentation for the SWMU B-3 bioreactor treatability study by providing an overview of the initial removal action and construction activities. He described the previous regulatory meetings and meetings with Noblis to discuss strategies along the way. He indicated the primary objectives of the bioreactor are to gather sufficient data to determine the effectiveness of this treatment and to evaluate this study for possible application and similar treatment to the plume near AOC 65. The installed bioreactor injection and pump are currently set up to be manually operated, but adding automated controls are planned under a pending modification to the bioreactor task order (TO-06).

Mr. Vanderglas indicated that the Underground Injection Control (UIC) authorization was approved in late February so that the startup of the bioreactor could commence at any time. The startup is currently delayed to ensure that all of the necessary resources are available and scheduled to collect the data once the bioreactor operation is initiated. Mr. Vanderglas asked if CS-9 purge water could be utilized to test the delivery system from the tank to the B-3 bioreactor. Mr. Lyssy and Ms. Power state stated that the CS-9 purge water could be used for that initial test at startup.

Mr. Vanderglas reviewed the regulatory required and planned performance monitoring scheduled for the bioreactor upon startup. Bryan Smith of TCEQ's UIC section requested certain regulatory monitoring on a monthly and twice monthly basis. Mr. Vanderglas expects that after three to six months of this monitoring, the TCEQ may be more comfortable with a less rigorous regulatory monitoring schedule, and if the data from the initial 3-6 months supports it, Parsons intends to request a reduction in the regulatory required monitoring and reporting frequencies. Mr. Vanderglas also described the types of data that will be collected as part of the performance monitoring intended to evaluate the bioreactor performance.

Mr. Lyssy asks if monitoring will be done for degradation compounds. Mr. Vanderglas and Mr. Rice showed the locations of the wells to be sampled and a list of the analytical parameters planned, and explained that soil gas testing has recently been added to the planned testing regime to measure specifically for PCE and TCE breakdown products such as vinyl chloride, ethenes, and methane.

Mr. Vanderglas stated that CSSA intends to add a tracer study as part of the bioreactor study. Mr. Lyssy asked what tracer is being considered. Mr. Edwards stated this would most likely be bromide. The intention is to measure the flow of the conservative tracer between trenches and vertically through the formation using the multi-depth monitoring wells that currently surround SWMU B-3. Ms. Power pointed out that the Edwards Aquifer Authority (EAA) and regional TCEQ office will need notification of any tracer studies. There have been EAA tracer studies performed that have interfered with tracer studies conducted by others.

Mr. Vanderglas also introduced CSSA's plans to conduct a bioaugmentation study within the bioreactor.

Mr. Vanderglas concluded by discussing possible future considerations, including the possible need to install one or more additional recovery wells. Additional extraction wells have not been included in CSSA's funding plan for this year because we need to assess the percolation or retention rates from the bioreactor to assess the need. Parsons envisions that after 6 months of

data collection, there should be sufficient data collected so that we can better estimate the pumping capacity that will be needed to maintain saturated conditions in the trench. Mr. Edwards pointed out that if new wells are determined to be necessary, at least one would be constructed as close to in the center of the SWMU B-3 trenches to withdraw groundwater from the portion of the plume anticipated to be most contaminated (directly beneath SWMU B-3)..

The meeting was adjourned for a short break.

SITE MANAGEMENT PLAN INTRODUCTION AND OVERVIEW

Bob Edwards introduced the site wide management plan (SMP), and Fred Price gave the detailed presentation and demonstration. Mr. Price explained that the overall purpose of the site management plan is to provide a more effective management level tool. The SMP provides the concise descriptions and details of the CSSA environmental program and concepts, and includes links to the Environmental Encyclopedia and other internet-enabled resources if the user requests to greater details. Ms. Sanchez asked the TCEQ and EPA that if they knew of a similar tool or specific management plans to please let her know.

Ms. Gimon demonstrated the plan, which was created in Microsoft Word document format to keep its size manageable so it could be used on most personal computers. The Word document includes links such as “EE” to the environmental encyclopedia; a globe is an external internet link, and the book symbol which represents another page within the SMP.

The historical summary includes a figure which is a timeline giving a broad overview for management purposes. There are site summary tables, for example the one for B-3 was viewed. Ms. Sanchez explained that this is a way to view the entire history of activities at B-3 without having to look at several different reports to get up to speed on the site history. Ms. Power asked if milestones are included in the site history, such as closure reports or approved closure letters. Mr. Rayos also indicated that this would be helpful. Ms Power agreed that it would be helpful if the timeline could show the date report(s) were submitted for review.

Ms. Sanchez stated that regulatory milestones and documentation could be added. The site summary table for each AOC and SWMU will show a review of the detected constituents at the site and the representative (maximum detected concentrations) levels. Mr. Edwards stated that there is a timeline showing sampling since 1991.

Mr. Kasten asked who the intended audience for the tool is; Ms. Sanchez indicated it is meant to be a management tool that would be made available as a transition tool for anyone involved with the program including EPA, TCEQ, and any other new team members. She states that the information is available in the EE, but tends to be too hard to find, and too much information to dig through when only the highlights are trying to be identified. This SMP should make the EE more functional to users by providing links to the appropriate sections of the EE when more information than provided in the SMP is needed. Mr. Edwards points out that this tool helps to maintain the “view from 5,000 feet” so to speak for upper management. Mr. Price would like to send out the tool to potential users and get their feed back. Mr. Kasten agreed that beta testing the tool would be useful.

PLAN FOR PARSONS UPCOMING INVESTIGATIONS

Ken Rice presented an overview of the SWMU and AOC investigations that Parsons will conduct. Mr. Rice explained that CSSA has funded seven of the nine Parsons sites that will be investigated under the current plan, while AOC 69 and AOC 73 are included as optional sites that are anticipated to be funded later this year. Sites have been grouped based on similar characteristics and locations.

There are four north pasture sites (B-2, B-8, B-20/21 and B-24). Residual contamination exists at the north pasture sites above Tier 1 residential levels. Mr. Rice presented the historical investigations for each north pasture site. Mr. Rice reported that soil piles existing at B-20/21 and B-24 are being utilized for construction of the range berm in the east pasture as discussed during TIM #3 and per agreement with EPA and TCEQ. One APAR is planned that will cover all four north pasture sites and will incorporate the site-wide CSSA ERA discussed earlier.

Mr. Rice described the inner cantonment sites and planned investigations to include AOC 67, AOC 68 and SWMU I-1, each less than one-half acre. Ms. Burdey pointed out that though the slides states an APAR will be prepared, that closure may be requested without completing an APAR, if possible and if the data support that request. Mr. Rice described the previous transformer storage within SWMU I-1. The transformers were tested prior to their removal on July 12, 2006, and were found to be free of PCBs. The interior of the building will be washed and samples of the concrete collected. Mr. Rayos asked whether this would be a chip sample or powder. The plan will include the method to be used for sampling the concrete. Mr. Mitchell states that the EPA (Region 4) has a preferred method for concrete sampling involving a drill and powder sample. Mr. Rayos asked whether the rinsate sample might be more appropriate. Ms. Burdey pointed out that the comparison criteria for the rinsate is unclear for TRRP, because it would not really be a groundwater sample. Mr. Rice stated that a composite concrete powder sample collected from the floor of the building can be compared directly to soil criteria to determine if PCBs have been released at levels above regulatory criteria.

Mr. Rice discussed the slides depicting the AOC 67 and AOC 68 investigations planned for those areas and concluded his portion of the presentation.

SITE TOURS

It was agreed that there was time to tour AOC 64 and SWMU B-71 and drive past the bioreactor at SWMU B-3. The group was unable to view site AOC 63 since it is located in the East Pasture. Some members of the group adjourned to vehicles to take the site tour.

FOLLOW-UP ISSUES AND ACTION ITEMS

CSSA to schedule ERA meeting with USEPA and TCEQ risk assessors.

Conduct beta testing of Site Management Plan by potential users (TCEQ, EPA, CORs, Contractors).

Parsons to follow up with Edwards Aquifer Authority to notify them of plan to conduct tracer study in SWMU B-3 prior to injecting the tracer.

Parsons will sample pulverized concrete powder per EPA method from SWMU I-1 to assess whether a PCB release occurred.

OUTSTANDING ACTION ITEMS FROM PREVIOUS MEETINGS

TIM #4 – 9/29/2006

Update the mailing list for the Community Relations Plan (CRP).

Status: There were no Centex residents occupying homes prior to the December public meetings. The new Centex residences will be added to the mailing list prior to the Annual fact sheet for being mailed.

CSSA to conduct additional investigation of CS-Well 9. (downhole camera/video and sampling).

Status: This activity is complete.

TIM #3 - 4/19/2006

Determine whether TCLP-SVOCs include all explosives constituents and verify that the method used to test for explosives is acceptable to TCEQ.

Determine whether explosives analyses have ever been performed on CSSA groundwater samples and implement at least one round of explosives testing if deemed necessary by TCEQ.

Explosives sampling was done at two monitoring wells at AOC 65 in April 2001 and results were non-detect. This was done with method 8270. Water was also analyzed from RW-B1-SB04 and SB06 in 2000 and was non-detect, also with method 8270.

TIM #3 – Set up a meeting with Cheryl Overstreet and TCEQ to discuss ERA.

TIM #2 – no outstanding items.

TIM #1 – Follow up with Sonny Rayos or Jorge Salazar regarding a delisting letter for the coal bins/SWMU 14. If unable to locate the letter, TCEQ asked that the request for delisting letter be resubmitted.

3/9/07

CSSA Meeting

<u>Name</u>	<u>Organization</u>	<u>Phone</u>
Julie Burdey	Parsons	512-719-6062
Dianna Gimon	Noblis	210-408-4540
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Sonny Rayos	TCEQ	512-239,2371
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Kimberly Vaughn	Parsons	512 719 6816
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Ken Rice	Parsons	512-719-6050
Gloria Sanchez	CSSA	(210) 295-7453
Abigail Power	TCEQ-R-13	210-403-4064



DEPARTMENT OF THE ARMY
CAMP STANLEY STORAGE ACTIVITY, RRAD
25800 RALPH FAIR ROAD, BOERNE, TX 78015-4800

***Agenda for Technical Progress Meeting Number 05
CDRL B006
AFCEE WERC, Task Order 06
Camp Stanley Environmental Program Review Meeting***

Time: Friday , March 9, 2007; 09:00 am to 12:00 pm

Place: Building 98, Camp Stanley Storage Activity

Proposed Order of Discussion

Date & Time	Topic
9:00 am- 9:15 am	Introduction
9:15 am – 10:00 am	Plan for Weston Upcoming Investigations (Weston)
10:00 am – 10:45 am	SWMU B-3 Bioreactor Status Update (Parsons)
10:45 am – 11:15 am	Site Management Plan Introduction and Overview (Noblis)
11:15 am – 12:00 pm	Plan for Parsons Upcoming Investigations (Parsons)
12:00 pm -	Possible Tour of SWMU B-3 & AOC-64

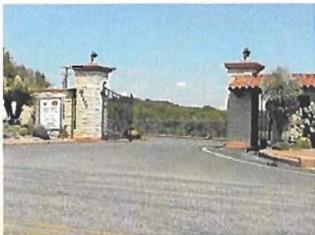
Technical Interchange Meeting March 9, 2007

Camp Stanley Storage Activity
Boerne, TX

Agenda

- Introductions
- Plan for Upcoming Investigations at AOC-63, AOC-64, and SWMU B-71 (Weston)
- SWMU B-3 Bioreactor Status Update (Parsons)
- Site Management Plan Introduction and Overview (Noblis)
- Plan for Upcoming Investigations at nine SWMUs and AOCs (Parsons)
- Site Visit (if time allows)

Sampling And Analysis Plan for Affected Property Assessments



AOC 63, AOC 64, And SWMU B-71
Camp Stanley, Texas

Overview

Review Current Site Conditions and Preliminary Investigation Results; AOC 63, SWMU B-71, AOC 64

Discuss Goals and Objectives of Next Phase of Investigation (Late-March 2007)

Outline Site-Specific Strategies

Reporting

Additional Detail Provided as Backup



Camp Stanley Storage Area

Background: AOC 63

Soil/Rubble Pile with Drums
 Suspected Disposal Area
 Bedrock Outcrop at Northeast Area Investigated
 Evidence of Surface Water Ponding to the South
 Investigation Area < 0.5 Acres



Preliminary Investigation Data: AOC 63

Soil Vapor Survey (Parsons, 2001)
 Historical Aerial Photo Review (WESTON, 2007)
 Site Recon and Geophysical Survey (WESTON, 2007)
 GIS Correlation of Critical Feature Locations

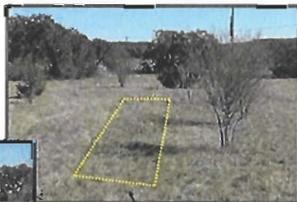


Site Background: SWMU B-71

MEC Disposal Area: Spent Small Arms Casings and Bullets Identified Circa 1990.
 Surface Litter and Depressed Areas
 Bordered on three sides by AOC 38 (Closed Sep 2004)
 Located Within Flood Plain of Salado Creek
 Investigation Area - 2.5 Acres

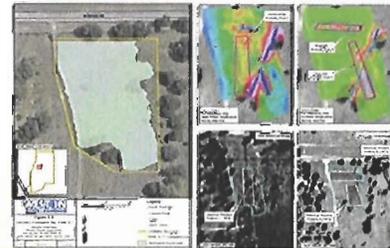


Surface Depressions with MEC Litter



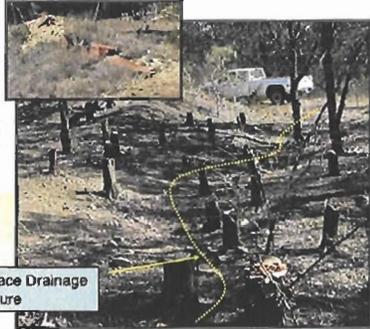
Preliminary Investigation Data: SWMU B-71

Historical Aerial Photo Review (WESTON, 2007)
 1996 Geophysical Survey on Eastern Boundary (Parsons, 1995)
 Site Recon and Geophysical Survey (WESTON, 2007)
 GIS Correlation of Critical Feature Locations



Site Background: AOC 64

- EOD Burn Area
- MEC Surface Litter, Munitions Debris
- Soil Mounds with Rubble and Refuse
- Large "Kick-Out" Area with Shrapnel and Other Litter
- Surface Water Drainage Feature through South End of Site
- Bedrock Outcrop at North Side of Site
- Investigation Area ~ 1.5 Acres

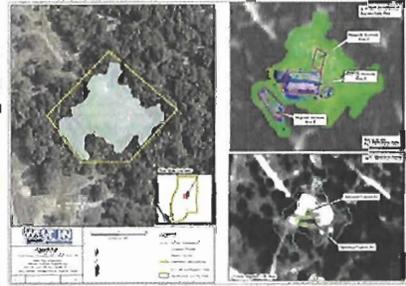


Preliminary Investigation Data: AOC 64

Historical Aerial Photo Review (WESTON, 2007)

Site Recon and Geophysical Survey (WESTON, 2007)

GIS Correlation of Critical Feature Locations



General Sampling Assumptions

Source Area Test Trenches

- Characterization of Maximum Impact

Horizontal Delineation Test Pits

- Visual Verification of Horizontal Limits of Buried Material
- Delineation of Surface or Subsurface Chemicals of Concern (COCs)

Perimeter Samples

- Delineation of Surface COCs

Efficiencies in first round sampling will allow for minor confirmation sampling if necessary to achieve delineation of any COC.

Maximum depth investigated = 12 feet below ground surface (bgs).

Sampling Plan: AOC 63

Two Anomaly Areas (A and B)

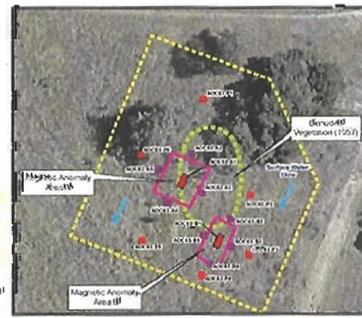
Two Source Area Trenches

VOCs, SVOCs, Metals, Explosives

Potentially Reduce Sampling and Analysis Based on Observations During Excavation

- Areas of Interest and Explosives of Concern (MEC)

- Surface Sample Locations (10' x 10')
- Subsurface (24" x 24" x 10' x 10')
- Source Area Test Trench



Sampling Plan: SWMU B-71

Three Anomaly Areas (A-C)

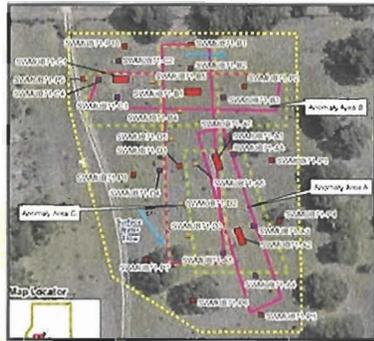
Five Source Area Trenches

Potentially Reduce Number of Samples based on Field Observations at Area C

VOCs, SVOCs, Metals, Explosives

Investigate Utility Bedding

- Surface Sample Delineation Point
- Subsurface Waste Delineation Point
- ▲ Visual Delineation Point
- Source Area Test Trench



Sampling Plan: AOC 64

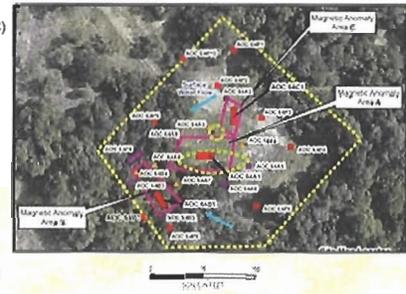
Three Anomaly Areas (A-C)

Three Source Area Trenches

Downgradient Trench for Drainage Feature

VOCs, SVOCs, Metals, Explosives, Perchlorate

- Surface Sample Delineation Point
- Subsurface Waste Delineation Point
- ▲ Visual Delineation Point
- Source Area Test Trench
- Drainage Feature Sample Point



Reporting

Currently Scoped for Individual APAR for Each Site, Combined SLERA

Sites May Be Combined Based on Similar Characteristics

No Evidence of Release – Site Investigation Report

Camp Stanley Requires Cleanup to Residential Standards, Remedial Actions Likely to be conducted under Self-Implementation Notice (SIN)

Sampling Assumptions

Source Area Test Trenches

- Characterize Maximum Impact
- Three Basic Samples: Surface, Contact of Waste to Undisturbed Soil, Vertical Delineation (in Undisturbed Soil, if Possible)
- Additional Samples for Waste Characterization, Potential Hotspots, and Previously Uncharacterized Conditions

Horizontal Delineation Test Pits

- Visual Verification of Horizontal Contour of Buried Material
- Delineation of Chemicals of Concern (COCs)
- Additional Surface or Subsurface Samples if Previously Uncharacterized Conditions are Encountered

Peripheral Samples

- Delineation of Surface Impacts
- Intervals of 0'-6" and 6'-9" deep (or pool if contact with bench)
- 4'-9" Interval Only Analyzed for COCs Exceeding Protective Concentration Levels (PCL) of 4.5

AQCSAPB

- Drainage Feature Downgradient Sampling Trench
- Surface Sample Intervals of 0'-6" and 6'-9" deep
- Field Screen Throughout Soil Profile
- Sample at Contact with Lower Confining Unit or Maximum Depth Investigated (approximately 12'-10" deep)

Site tasks assume all samples will be run for each peripheral location and no additional samples will be collected from horizontal delineation test pits.

Current project funding levels and efficiencies in first round's sampling will allow for minor confirmation sampling if necessary to achieve delineation of any COC.

The final number of samples analyzed will be based on field conditions and on preliminary analytical results.

Sample Summary: AOC 63

Sample Location	Sample Type(s)	No. of Samples	VOCs	SVOCs	Metals	Explosives	Perchlorate
AOC 63							
AOC63A1	SSS	1,2	X	X	X	X	-
AOC63A2	SS	1	X	X	X	X	-
AOC63A3	V	0	-	-	-	-	-
AOC63A4	SS	1	X	X	X	X	-
AOC63A5	SS	1	X	X	X	X	-
AOC63B	SSS	1,2	X	X	X	X	-
AOC63B2	SS	1	X	X	X	X	-
AOC63B3	SS	1	X	X	X	X	-
AOC63B4	SS	1	X	X	X	X	-
AOC63B5	V	2	-	-	-	-	-
AOC63B6	V	2	X	X	X	X	-
AOC63B7	V	2	X	X	X	X	-
AOC63B8	V	2	X	X	X	X	-
AOC63B9	V	2	X	X	X	X	-
AOC63B10	V	2	X	X	X	X	-
AOC63B11	V	2	X	X	X	X	-
AOC63B12	V	2	X	X	X	X	-
AOC63B13	V	2	X	X	X	X	-
AOC63B14	V	2	X	X	X	X	-
AOC63B15	V	2	X	X	X	X	-
AOC63B16	V	2	X	X	X	X	-
AOC63B17	V	2	X	X	X	X	-
AOC63B18	V	2	X	X	X	X	-
AOC63B19	V	2	X	X	X	X	-
AOC63B20	V	2	X	X	X	X	-
TOTAL AOC 63	S,SS	14,16	24	14	24	24	-

S – Surface Sample SS – Subsurface Sample V – Visual Delineation Point

Sample Summary: AOC 64

Sample Location	Sample Type(s)	No. of Samples	VOCs	SVOCs	Metals	Explosives	Perchlorate
AOC 64							
AOC64A1	SSS	1,2	X	X	X	X	X
AOC64A2	SS	1	X	X	X	X	X
AOC64A3	V	2	-	-	-	-	-
AOC64A4	V	2	-	-	-	-	-
AOC64A5	SS	1	X	X	X	X	X
AOC64A6	SS	1	X	X	X	X	X
AOC64A7	V	6	-	-	-	-	-
AOC64A8	V	2	-	-	-	-	-
AOC64A9	SS	1	X	X	X	X	X
AOC64B1	S,SS	1,2	X	X	X	X	X
AOC64B2	SS	1	X	X	X	X	X
AOC64B3	SS	1	X	X	X	X	X
AOC64B4	V	2	-	-	-	-	-
AOC64C1	S,SS	1,2	X	X	X	X	X

S – Surface Sample SS – Subsurface Sample V – Visual Delineation Point

Sample Summary: AOC 64 (cont.)

Sample Location	Sample Type(s)	No. of Samples	VOCs	SVOCs	Metals	Explosives	Perchlorate
AOC 64							
AOC64P1	S	2	X	X	X	X	X
AOC64P2	S	2	X	X	X	X	X
AOC64P3	S	2	X	X	X	X	X
AOC64P4	S	2	X	X	X	X	X
AOC64P5	S	2	X	X	X	X	X
AOC64P6	S	2	X	X	X	X	X
AOC64P7	S	2	X	X	X	X	X
AOC64P8	S,SS	1,2	X	X	X	X	X
AOC64P9	S	2	X	X	X	X	X
AOC64P10	S	2	X	X	X	X	X
TOTAL AOC 64	S,SS	12,14	36	36	36	36	36

S – Surface Sample SS – Subsurface Sample V – Visual Delineation Point

Sample Summary: SWMU B-71

Sample Location	Sample Type(s)	No. of Samples	VOCs	SVOCs	Metals	Explosives	Perchlorate
SWMU B-71							
SWMUB71A1	S,SS	1,2	X	X	X	X	-
SWMUB71A2	S,SS	1,2	X	X	X	X	-
SWMUB71A3	SS	1	X	X	X	X	-
SWMUB71A4	SS	1	X	X	X	X	-
SWMUB71A5	SS	1	X	X	X	X	-
SWMUB71A6	V	0	-	-	-	-	-
SWMUB71A7	V	0	-	-	-	-	-
SWMUB71A8	SS	1	X	X	X	X	-
SWMUB71B1	S,SS	1,2	X	X	X	X	-
SWMUB71B2	SS	1	X	X	X	X	-
SWMUB71B3	SS	1	X	X	X	X	-
SWMUB71B4	V	0	-	-	-	-	-
SWMUB71B5	V	0	-	-	-	-	-
SWMUB71C1	S,SS	1,2	X	X	X	X	-
SWMUB71C2	SS	1	X	X	X	X	-
SWMUB71C3	SS	1	X	X	X	X	-
SWMUB71C4	SS	1	X	X	X	X	-

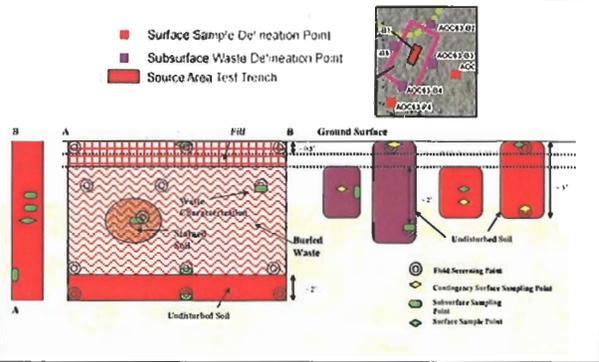
S – Surface Sample SS – Subsurface Sample V – Visual Delineation Point

Sample Summary: SWMU B-71 (cont.)

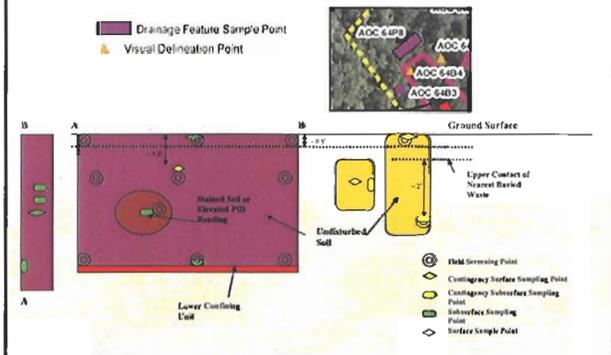
Sample Location	Sample Type(s)	No. of Samples	VOCs	SVOCs	Metals	Explosives	Perchlorate
SWMU B-71							
SWMU B1-01	S, SS	1, 2	X	X	X	X	-
SWMU B1-02	V	-	-	-	-	-	-
SWMU B1-03	V	2	-	-	-	-	-
SWMU B1-04	SS	1	X	X	X	X	-
SWMU B1-05	V	6	-	-	-	-	-
SWMU B1-07	S	2	X	X	X	X	-
SWMU B1-08	S	2	X	X	X	X	-
SWMU B1-09	S	1	X	X	X	X	-
SWMU B1-10	S	1	X	X	X	X	-
SWMU B1-11	S	1	X	X	X	X	-
SWMU B1-12	S	1	X	X	X	X	-
SWMU B1-13	S	1	X	X	X	X	-
SWMU B1-14	S	2	X	X	X	X	-
SWMU B1-15	S	2	X	X	X	X	-
SWMU B1-16	S	1	X	X	X	X	-
SWMU B1-17	S	1	X	X	X	X	-
SWMU B1-18	S	1	X	X	X	X	-
TOTAL SWMU B-71	S, SS	25, 28	45	45	45	45	-

S - Surface Sample SS - Subsurface Sample V - Visual Delineation Point

Sample Location Profiles



Sample Location Profiles (cont.)



SWMU B-3 Bioreactor Status Update and Monitoring Plan Review

Brian Vanderglas
Ken Rice
Parsons

Purpose & Objective of SWMU B-3 Bioreactor Presentation

- Present SWMU B-3 Bioreactor construction status update.
- Obtain regulatory feedback on planned O&M and monitoring efforts.

Bioreactor Overview

- Background
 - SWMU B-3 removal action
 - Opted for Mulch Backfill as passive treatment.
 - Installed MPMWs to monitor recharge from mulch-filled trenches.
 - Obtained concurrence from TCEQ to inject recovered Well 16 water under UIC authorization.
- Objective of SWMU B-3 Bioreactor Treatability Study.
 - Gather data to determine the efficacy of system to treat VOC contaminated groundwater and the underlying limestone at SWMU B-3.
 - Determine potential applicability of treatment system for addressing VOC contamination from AOC-65 (Plume 2).

SWMU B-3 Status Update

- Bioreactor system may be operated in manual mode to initiate injection of recovered groundwater from Well 16.
- Installation of automated controls is planned.



Bioreactor Start-up

- UIC authorization amendment approved on February 28, 2007
- Power restored to Well 16 on February 21.
- Pump installation and testing required.
- Question: Is it acceptable to use purge water from water supply well CS-9 to test delivery system at SWMU B-3?

SWMU B-3 Bioreactor Monitoring Plan Review

- Monitoring requirements per UIC authorization.
 - Monthly monitoring of VOCs, TDS, and pH in surrounding wells & sumps
 - Twice monthly monitoring of injection water volume, pressure, VOCs, TDS, and pH.
- Reduction in regulatory monitoring frequencies in first quarterly UIC report may be requested, if appropriate.

SWMU B-3 Bioreactor Monitoring Plan Review

- Performance monitoring
 - Monthly monitoring at trench sumps and nearby Westbay wells and monitoring wells for performance parameters.
 - Performance monitoring frequency may decrease to bimonthly or quarterly if parameters are not changing significantly or trends are consistent.

Monitoring Wells



Performance Sampling and Analytical Parameters

- - Volatile Organic Compounds (VOCs)
- - Dissolved Organic Carbon (DOC)
- - Methane, Ethane, Ethene
- - Dissolved Hydrogen
- - Temp, pH, SC
- - Oxidation Reduction Potential (ORP)
- - Dissolved Oxygen (DO)
- - Dehalococoides populations, including *vcrA* reductase, TCE reductase, BAV1
- - Total Organic Carbon (TOC)
- - Carbon Dioxide
- - Hydrogen Sulfide
- - Alkalinity
- - Nitrogen, Nitrate + Nitrite
- - Additional ions including Sulfate,
- - Chloride, Ferrous Iron, Manganese.
- - Soil gas monitoring for PCE, TCE, breakdown products

Reporting Requirements

- Monthly Reports on twice monthly data collected.
- Quarterly Reports on monthly data collected.

Date	Location	Parameter	Value
1/15/04	Well 1	Temperature	15.5
1/15/04	Well 2	Temperature	16.2
1/15/04	Well 3	Temperature	14.8
1/15/04	Well 4	Temperature	15.1
1/15/04	Well 5	Temperature	15.9
1/15/04	Well 6	Temperature	16.3
1/15/04	Well 7	Temperature	15.4
1/15/04	Well 8	Temperature	16.1
1/15/04	Well 9	Temperature	15.7
1/15/04	Well 10	Temperature	16.0
1/15/04	Well 11	Temperature	15.6
1/15/04	Well 12	Temperature	16.4
1/15/04	Well 13	Temperature	15.3
1/15/04	Well 14	Temperature	16.2
1/15/04	Well 15	Temperature	15.8
1/15/04	Well 16	Temperature	16.1
1/15/04	Well 17	Temperature	15.5
1/15/04	Well 18	Temperature	16.3
1/15/04	Well 19	Temperature	15.9
1/15/04	Well 20	Temperature	16.0

Follow-up Topics

- Future Plans
 - Add tracer to bioreactor monitoring.
 - Plan & Initiate a Bioaugmentation Study.
 - Include soil gas monitoring for VOCs, VC, ethenes, & methane for evidence of dechlorination byproducts.
 - Install transducers in select sumps to measure geochemistry, and vertical & horizontal flow dynamics of bioreactor.
 - Add controls to automate recovery well & groundwater recirculation activities.

Other Preliminary Considerations

- Gather data to better understand the bioreactor effectiveness as a remedy, and identify potential deficiencies or optimization.
- Add one or more GW recovery wells to enable bioreactor to stay saturated.
- Identified Data Needs:
 - Evidence of dechlorination process;
 - Vertical vs. lateral infiltration rates;
 - VOC retention time in mulch; and
 - Retention of saturated conditions in trench.

CSSA Management Plan Introduction and Overview

Fred Price
Bob Edwards
Noblis

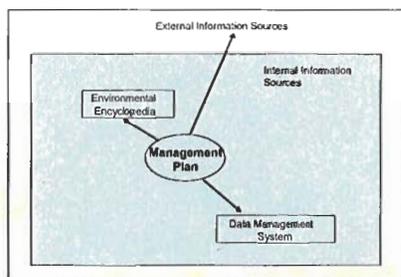
The Purpose of the Camp Stanley Management Plan

- To provide organized, high level information for the environmental restoration team that is easy to use and update.
- To provide a brief summary of past efforts, current status and future actions at all sites.

The Purpose of the Camp Stanley Management Plan (concluded)

- To provide site summary information in tables, maps and figures and link the summaries to data sources such as the Environmental Encyclopedia.
- To provide a management tool for environmental restoration that can be easily modified to include other programmatic areas.

The Conceptual Relationship between the CSMP and other Data Sources



CSSA Management Plan Demonstration

- A brief demonstration of the Management Plan will be provided at this point using the most recent version of the Plan.
- **Questions and comments are encouraged.**

Final Remarks

- The Plan is a Microsoft Word™ document and is easy to use on a PC.
- An internet connection is necessary to use external links such as the Environmental Encyclopedia.
- The Plan is a communication and management tool that can be made available to the entire environmental team.
- Comments and suggestions to improve the plan are welcome.

CSSA SWMU and AOC TRRP Investigation/Closure Project Planning Overview

Ken Rice
Parsons

Purpose and Objective

- Present general strategy and preliminary data for the investigation/closure of upcoming SWMUs and AOCs
- Obtain feedback from TCEQ and EPA on general strategy

Overall Approach to Investigation/Closure

- Use of self-implementation (removal actions) to bypass APAR requirement where appropriate.
- Post-wide Ecological Risk Assessment to establish Eco PCLs for the outer cantonment area at CSSA.
- Combining proximal, similar sites into a single APAR.

Parsons' 2007 SWMU and AOC Project

AOC-69 & AOC-73	Conduct investigation (geophysical survey, shallow borings on grid) Collect samples to delineate extents Establish PCLs and compare results of analysis from investigation Prepare APAR (one combined report for 2 sites)
I-1, AOC-67 & AOC-68	Establish PCLs and compare to previous investigation results of analysis. Pressure-wash I-1 and collect concrete samples Collect additional samples at AOC 67/68 after limited removal action, as necessary. Prepare RIR.
B-2, B-8, B-20/21, B-24	Establish PCLs and compare to previous investigation results of analysis. Collect additional samples at SWMU's in north pasture after limited removal action, as necessary. Investigate potential additional trenches at B-24. Prepare APAR (one combined report for 4 sites).

AOC 69/73 APAR sites

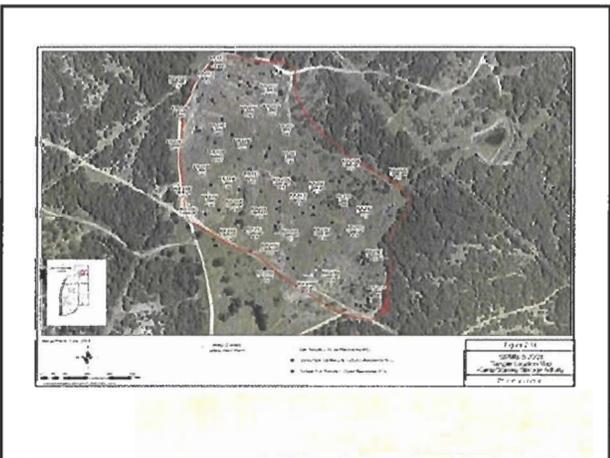
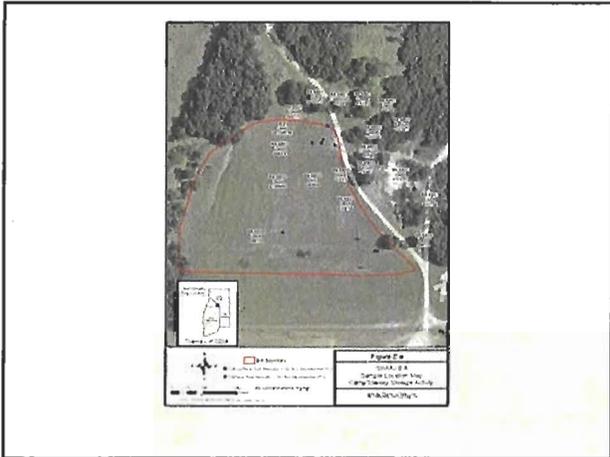
- APAR will include AOC-69 and AOC-73.
- Initial investigative survey planned.
- Establish PCL's for residential closure.



North Pasture APAR sites

- APAR will include SWMU's B-2, B-8, B-20/21, and B-24.
- Limited hot spot removal action planned.
- Establish PCL's for residential closure.





Inner Cantonment sites

- APAR will include AOC-67, AOC-68, and SWMU I-1.
- Limited removal/cleanup activities planned.
- Sample for residential closure.
- AOC 67/68 will include metals analysis, SWMU I-1 will include PCBs.

