

# PROGRESS REPORT

January 1, 2011 – June 30, 2011

(38th REPORT)



Camp Stanley Storage Activity

Boerne, Texas

USEPA ID No. TX2210020739

**July 2011**

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## ACRONYMS AND ABBREVIATIONS

µg/l	micrograms per liter
µg/m <sup>3</sup>	micrograms per cubic meter
1,1-DCE	1,1-dichloroethene
3D	three-dimensional
AEM	aerial electromagnetic
AOC	Area of Concern
APAR	affected property assessment report
APPL	Agriculture & Priority Pollutants Laboratories, Inc.
As	arsenic
CAH	chlorinated aliphatic hydrocarbons
<i>cis</i> -1,2-DCE	<i>cis</i> -1,2-dichloroethene
COC	chemical of concern
CSSA	Camp Stanley Storage Activity
CY	cubic yard
DMS	Document Management System
DQO	data quality objective
EM	electromagnetic
GAC	granular activated carbon
H&A	Hankins and Anderson
I/SM	interim/stabilization measures
LGR	Lower Glen Rose
LTMO	long-term monitoring optimization
MEC	munitions and explosives of concern
mm	millimeter
Mn	manganese
NFA	No Further Action
O&M	operations and maintenance
Order	§3008(h) Administrative Order on Consent
PBR	permit-by-rule
PCE	tetrachloroethene
PCL	Protective Concentration Limit
PIMS	Phosphate Induced Metal Stabilization
ppbv	parts per billion by volume
QAPP	Quality Assurance Program Plan
RCRA	Resource Conservation and Recovery Act
RFI	RCRA facility investigation
RIR	Release Investigation Report
RL	reporting limit
RMU	Range Management Unit
SAA	small arms and ammunition
SIW	steam injection well
SVE	soil vapor extraction
SVOC	semi-volatile organic compound
SWMU	Solid Waste Management Unit
TAC	Texas Administrative Code
TCE	trichloroethene

TCEQ	Texas Commission on Environmental Quality
<i>trans</i> -1,2-DCE	<i>trans</i> -1,2-dichloroethene
TWDB	Texas Water Development Board
UCL	upper confidence limit
UGR	Upper Glen Rose
UIC	underground injection control
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UXO	unexploded ordnance
VC	vinyl chloride
VEW	vapor extraction well
VOC	volatile organic compound
WMI	Waste Management Inc.
WP	work plan
XRF	x-ray fluorescence

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## **PROGRESS REPORT**

### **JANUARY 1, 2011 – JUNE 30, 2011**

### **(38<sup>th</sup> PERIOD)**

#### **INTRODUCTION**

This 38<sup>th</sup> Progress Report for Camp Stanley Storage Activity (CSSA), Boerne, Texas, U.S. Environmental Protection Agency (USEPA) Identification Number TX2210020739, is submitted in accordance with the Administrative Order on Consent (Order) issued to CSSA on May 5, 1999, pursuant to §3008(h) of the Safe Drinking Water Act, as amended by the Resource Conservation and Recovery Act (RCRA), and further amended by the Hazardous and Solid Waste Act of 1984, 42 United States Code §6928(h). This report addresses the project progress from January 1, 2011 through June 30, 2011. In June 2006, CSSA switched from quarterly to semi-annual progress reporting, as approved by USEPA. Subsequent progress reports will continue to be submitted on a semi-annual basis.

#### **Summary of Activities this Period**

Between January 1 and June 30, 2011, significant activities related to the Order included:

- Continuation of Solid Waste Management Unit (SWMU) B-3 bioreactor treatability studies;
- Continuation of Area of Concern (AOC)-65 Soil Vapor Extraction (SVE) and Operations and Maintenance (O&M) of the SVE system treatability study;
- Collection of soil vapor and groundwater samples in the vicinity of AOC-65;
- Continuation of the groundwater monitoring program under the regulator-approved data quality objectives (DQO);
- Submittal and regulator approval of Long-Term Monitoring Optimization (LTMO) Report for groundwater monitoring;
- Continuation of investigations of SWMUs and AOCs including SWMU B-2, SWMU B-4, SWMU B-8, SWMU B-20/21, SWMU B-24, SWMU B-34, AOC-42, AOC-45, AOC-52, AOC-58, AOC-62, AOC-72, and Range Management Unit (RMU)-2;
- Completed investigations of SWMU B-15/16, SWMU B-28, SWMU B-71, AOC-57, AOC-59, AOC-64, and AOC-70;
- Release Investigation Reports (RIRs) for SWMU B-15/16 and AOC-70 submitted to Texas Commission on Environmental Quality (TCEQ);
- Installation of monitoring wells CS-MW35-LGR and CS-MW36-LGR;
- Continued maintenance of on-post and off-post granular activated carbon (GAC) systems and on-post permitted outfalls;
- Status update meeting with USEPA and the TCEQ in January and June 2011; and
- Continuation of administrative record maintenance.

Details regarding these activities are summarized in this report.

## Report Organization

This report details work completed on tasks associated with the four project phases outlined in the Order. Phase names and task names listed in **Table 1** are taken directly from the Order. Information for tasks active from January 1 through June 30, 2011 is provided in this report. No current information is provided for tasks that are not active; however, a summary of all tasks, subtasks, and their status has been presented in previous reports. Details of the evaluation of the percent complete by awarded projects are included in **Table 2**. An updated project team contact information chart with telephone numbers and addresses is included in **Table 3**.

**Attachment 1** shows the locations of groundwater wells referenced in this report. A summary of the status of all identified SWMUs and AOCs at CSSA is provided in **Attachment 2**. **Attachment 3** is a summary of the physical percent complete of each order-related task being conducted at CSSA. **Attachment 4** is a summary of groundwater results for sampling events conducted this period. **Attachment 5** details the current and upcoming remedial activities at various SWMUs and AOCs at CSSA.

**Table 1 §3008(h) Administrative Order on Consent Project Phases**

3008(h) Order Phase and Subtasks	Phase Purpose	Phase's % of Overall Order	Subtask's % of Phase	Physical % Complete of Subtask	Subtask portion of Phase % Complete	Physical % Complete of Phase	Active During P38
<b>Interim Measures</b>		30%				99%	
Interim Measures Work Plan	Mitigate a current or potential threat to human health and/or the environment.		7%	100%	7%		No
Interim Measures Implementation			70%	99%	69%		No
Reports			23%	99%	23%		No
<b>RCRA Facility Investigation</b>		30%				80%	
Preliminary Report	Characterize the environmental setting of CSSA; define the sources of contamination; define the degree and extent of contamination; identify actual or potential receptors; and assess whether any additional interim/stabilization measures may be warranted.		5%	100%	5%		No
RFI Work Plan			5%	100%	5%		Yes
Facility Investigation			40%	83%	33%		Yes
Risk Assessment			10%	89%	9%		No
Investigation Analysis			10%	84%	8%		Yes
Groundwater Investigation			15%	85%	13%		Yes
Treatability Studies			10%	46%	5%		Yes
Progress Reports			5%	30%	2%		Yes
<b>Corrective Measures Study</b>		10%				0%	
Identify and Develop Alternatives	Identification, screening, and development of alternatives for removal, containment, treatment, and/or other remediation of the contamination.		15%	0%	0%		No
Evaluate Alternatives			60%	0%	0%		No
Reports			25%	0%	0%		No
<b>Corrective Measures Implementation</b>		30%				0%	
Implementation Program Plan	Design, construct, operate, maintain, and monitor the performance of corrective measure(s) selected to protect human health and the environment.		5%	0%	0%		No
Corrective Measure Design			15%	0%	0%		No
Corrective Measure Construction			70%	0%	0%		No
Reports			10%	0%	0%		No
<b>% of All Phases Complete</b>						<b>54%</b>	



## RCRA FACILITY INVESTIGATION

The RCRA Facility Investigation (RFI) is being conducted to characterize the environmental setting of CSSA, define the sources of contamination, define the degree and extent of contamination, identify actual or potential receptors, and assess whether any additional interim/stabilization measures (I/SM) may be warranted. The discussions below include only the tasks related to Facility Investigations and Treatability Studies. Discussion of other RFI subtasks will be included in future reports if changes or additions to previously reported activities occur. The majority of current ongoing environmental activities at CSSA are part of the RFI task. Work on each of these tasks is described in the following paragraphs. The main areas of work during this period included:

- Groundwater monitoring of on- and off-post wells;
- Groundwater monitoring of Westbay<sup>®</sup>-equipped wells;
- Verification and validation of analytical data;
- SVE system O&M and treatability studies at AOC-65;
- Continuation of bioreactor operation and other treatability studies at SWMU B-3;
- Investigations and/or interim removal actions of SWMU B-4, SWMU B-15/16, SWMU B-24, SWMU B-27, SWMU B-28, SWMU B-34, SWMU B-71/AOC-64, AOC-42, AOC-45, AOC-52, AOC-57, AOC-58, AOC-59, AOC-62, and AOC-70.

### RFI Work Plan

The Order requires the RFI work plan (WP) task to include a Project Management Plan, Data Collection Quality Assurance Plan, Health and Safety Plan, and a Community Relations Plan. As previously agreed by USEPA, because the CSSA Environmental Encyclopedia includes all information required by the Order, it is used to fulfill this requirement. The RFI WP task makes up approximately 5 percent of the RFI phase. Estimation of percent complete is difficult due to the continuing need for plan addenda as new projects are identified and awarded. As of the end of Period 38, WPs currently under scope are 100 percent complete. The CSSA Environmental Encyclopedia will continue to be updated as WPs for any new projects are finalized.

### Environmental Encyclopedia Updates

The CSSA website ([www.stanley.army.mil](http://www.stanley.army.mil)) was updated with documents added to the Environmental Encyclopedia through the end of June 2011. The website includes CSSA's Administrative Record as required under the Order. The electronic encyclopedia and hard copy encyclopedia were updated with all final reports through June 2011. Updates made in Period 38 included the following:

- Period 38 USEPA Progress Report;
- AOC-65 Soil Vapor Extraction Systems Operations and Maintenance Plan, August 2010 Update;
- Waste Management Plan and Standard Operating Procedures, Volumes 1 and 2, September 2010;
- Quarter 13, Months 37-39 (May-July 2010) Bioreactor Performance Status Reports, September 23, 2010;

- B-3 Wells Technical Memo, October 26, 2010;
- SWMU B-3 Bioreactor Operation and Maintenance Manual, November 2010;
- Bioreactor Underground Injection Control (UIC) Status Report for Months 37-42 (May-October, 2010), December 9, 2010;
- Fact Sheet No. 31, Annual Fact Sheet for 2010;
- 2011 Update to AOC-65 SVE O&M Assessment Report, January 2011;
- Work Plan Addendum for SWMU B-24 Overage Pile, February 2011;
- Work Plan/Sampling and Analysis Plan Addendum for SWMU B-27, February 2011;
- SOP for Exploratory Excavation, February 2011;
- December 2010 Off-Post well owner letters, February 10, 2011;
- Approval letter from USEPA, for the Long Term Monitoring Network Optimization Evaluation Data Quality Objectives for the Groundwater Monitoring Program Camp Stanley Storage Activity, February 16, 2011;
- Work Plan/Sampling and Analysis Plan Addendum for Area of Concern 59, March 2011;
- Final Work Plan Addendum for the Installation of Lower Glen Rose (LGR) Monitoring Wells and Area of Concern 65 SVE Enhancement Wells, March 2011;
- Work Plan/Sampling and Analysis Plan Addendum for RMU-2, March 2011;
- Off-Post Well Survey Report, March 2011;
- Work Plan/Sampling and Analysis Plan Addendum for Salado Creek Area Anomalies, March 2011;
- Work Plan/Sampling and Analysis Plan Addendum for Area of Concern 45, May 2011;
- March 2011 Off-Post well owner letters, May 4, 2011;
- Various correspondence to and from CSSA;
- Various meeting minutes; and
- Various tables of contents, site chronologies, and indices.

In an effort to improve the usability of the Environmental Encyclopedia, CSSA developed the online, interactive CSSA Environmental Summary. This summary gives a brief overview of past efforts, current status and planned actions. This summary includes active links to the encyclopedia and other appropriate web sources and will be periodically updated as work progresses. The CSSA Environmental Summary is available through password-protected access on the Environmental Encyclopedia home web page ([www.stanley.army.mil](http://www.stanley.army.mil)).

### **Facility Investigations**

An investigation of the facility is being conducted to:

- Characterize the environmental setting of the facility;
- Define the source(s) of contamination;
- Define the nature and extent of contamination; and
- Identify actual or potential receptors.

In some cases, multiple investigational phases may be necessary. Investigation results will be used to develop and evaluate alternatives during the Corrective Measures Study. All investigation activities are being conducted in accordance with the RFI WP discussed above.

Completion of the facility investigations for the planned RFI tasks is partially funded. Attachment 2 indicates the sites for which investigations have been initiated with site status, as well as sites that have been identified, but not yet investigated. The Facility Investigations subtask makes up approximately 40 percent of the RFI phase. As of the end of Period 38, this task is approximately 83 percent complete.

A total of 83 SWMUs, AOCs, and RMUs have been identified at CSSA, and investigations have been conducted at most of those sites. A summary of the status of each site, including whether the site is recommended for closure or if closure is approved, is provided in Attachment 2. To date, closure of 40 CSSA sites has been approved by TCEQ, and 13 sites were either delisted or granted No Further Action (NFA) status.

### **SWMU and AOC Investigations**

During Period 38, CSSA continued a substantial effort to proceed with field investigations and interim removal actions at its remaining open sites, with the goal of closing approximately one site per quarter. CSSA plans to continue to close as many sites as possible to background or Tier 1 Protective Concentration Limits (PCLs). At sites where Tier 1 PCLs cannot be met, closure under Tier 2 requirements will be sought. Upon completion of site investigation activities, CSSA will submit either an RIR or an Affected Property Assessment Report (APAR) depending on the results of the investigation and the type of closure sought for the site. CSSA plans to combine appropriate sites together in APARs to minimize redundant documentation requirements. Field activities at the remaining open sites, shown in Attachment 5, are anticipated to potentially include x-ray fluorescence (XRF) sampling, geophysical surveying, exploratory trenching, soil sampling and laboratory analysis, and interim removal actions.

#### **SWMU B-4**

Site assessment performed at SMWU B-4 in Period 36 identified metals (mercury, barium, cadmium, chromium, copper, lead, nickel and zinc) that exceed the CSSA background levels and/or soil cleanup standards within four disposal trenches at the SWMU B-4. Soil from the trenches tested for volatile organic compounds (VOCs), semivolatiles organic compounds (SVOCs), and explosives did not detect contaminants of concern (COCs) from these contaminant classes that exceeded cleanup standards. In Period 38, excavation of the four waste disposal trenches to remove unexploded ordnance (UXO) and munitions debris including demilitarized small arms and ammunition (SAA), vehicle parts, miscellaneous military mission and metal debris, and plastic sheeting. Approximately 8,400 cubic yards (CY) of debris were removed during this effort, including 933 CY of metal debris to be recycled, 1,000 CY of oversized debris/rock to be managed by CSSA, and 5,467 CY of non-hazardous soil materials removed to the East Pasture berm. Confirmation sampling was performed and all residual COCs at excavation limits are below Tier 1 PCLs except for cadmium and mercury which are below Tier 2 PCLs. An APAR for SWMU B-4 is expected to be submitted in August 2011.

During confirmation soil sampling, an approximately 0.5-acre area was identified to the northeast of SWMU B-4 with concentrations of mercury and barium in surface soils that exceed Tier 1 PCLs. This area was designated as AOC-75 during Period 38.

### **SWMU B-15/16**

The excavation of three trenches and a ground sifting operation to remove all debris from SWMU B-15/16 began on January 4, 2011. Areas of metals contamination exceeding Tier 1 PCLs were excavated and removed from the site, and confirmation sampling has shown no remaining concentrations above Tier 1 PCLs. Approximately 3,360 CY of non-impacted soils remaining at the site were sampled, analyzed by the lab to confirm they did not exceed Tier 1 PCLs or background metals concentrations, and used as trench backfill. Approximately 640 CY of material were excavated from the trenches for disposal or recycling. This included approximately 400 CY (274,640 pounds) of miscellaneous metal debris which were sent for recycling to Monterrey Iron and Metal Company in San Antonio, Texas; 80 CY of Styrofoam which were bagged and sent to the landfill as municipal trash; and the remaining 160 CY of Class 2 non-hazardous soils were transported and disposed off-post at Waste Management, Inc. (WMI), Covel Gardens Landfill in San Antonio, Texas.

An RIR requesting NFA for SWMU B-15/16 was submitted to TCEQ on June 6, 2011.

### **SWMU B-24**

During Period 38, soil samples were collected from the B-24 soil overage pile for laboratory analysis of lead, zinc, copper, and barium. In March 2011, the overage pile was moved to the East Pasture berm. Additional surface soil sampling of metals occurred in March 2011 to help delineate the lateral extent of metal contamination in surface soil at the site.

### **SWMU B-28**

Excavation activities at SWMU B-28 were initiated during Period 37 on November 29, 2010. Based on the confirmation sample results collected in December 2010, further excavation of 1 to 2 feet of soil in five separate areas was completed in February 2011 in order to remove soils with barium concentrations above the Tier 1 residential PCL. Further confirmation sampling and analysis for barium was completed in February following the additional excavation, and one location still exceeded the Tier 1 PCL for barium. Per Texas Administrative Code (TAC) §350.79(2)(A), a 95% upper confidence limit (UCL) of 136.5 mg/kg was calculated for the barium concentrations remaining in site soils, which does not exceed the Tier 1 PCL of 222 mg/kg. Therefore, per TAC §350.79(2)(A), further response action for barium is not required at SWMU B-28. Approximately 4,900 CY of Class 2 non-hazardous soils were transported to the East Pasture Berm and Grenade Pit for reuse, per TQEQ approval on April 19, 2006. Additionally, approximately 1,400 pounds of metal debris was collected from SWMU B-28 and were added to metal debris stored from other sites. The metal debris will eventually be processed through Monterrey Iron and Metal Company in San Antonio, Texas.

An RIR requesting NFA for SWMU B-28 has been prepared and will be submitted to TCEQ during Period 39.

### **SWMU B-71 and AOC-64**

Additional soil data was collected at AOC-64 in February and April 2011. Sidewall and floor soil samples were analyzed for VOCs, SVOCs, CSSA 9 metals and explosives to further the extent of vertical delineation at the site. Soil from follow-up ecological risk confirmation sampling in February and April did not show any COCs exceeding ecological risk benchmark screening values with the exception of two soil samples at AOC-64 that had elevated levels of barium and mercury.

The Final APAR for the combined sites is expected to be submitted to TCEQ in Period 39.

### **Salado Creek Area (AOC-42, AOC-52, AOC-58, and AOC-62)**

Investigation was initiated at four adjacent sites (AOC-42, AOC-52, AOC-58, and AOC-62) in the north-east portion of the Inner Cantonment. Due to their proximity and similarity, they have been grouped together into the “Salado Creek Area” sites. In March through June 2011, three trenches at AOC-42 were excavated to remove 3,656 CY of soil materials and metal debris such as pusher rods, bayonet slide clips, 20 millimeters (mm), 7.62 mm, and 9 mm magazines, and scrap metal debris. No COCs were detected above Tier 1 PCLs in soil samples collected from the trench sidewalls and bottoms, indicating no further excavation was needed at AOC-42.

In April and May 2011, five trenches at AOC-52 were excavated. Approximately 2,334 CY of soil materials and metal debris and 500 CY of medical debris were removed from the site. An asbestos-lined container was discovered in one of the excavated trenches. Soil samples from the sidewall and bottom of the trench showed no detections of asbestos in soils. Confirmation soil samples collected at AOC-52 showed no COCs above Tier 1 PCLs.

The excavation of 1,717 CY of soil materials and metal debris from a waste disposal trench at AOC-58 occurred in April 2011. Confirmation soil samples collected at AOC-58 showed no COC concentrations above Tier 1 PCLs.

In March 2011, 356 CY of soil and metal debris were excavated from the series of four trenches at the site. Confirmation soil samples collected at AOC-62 showed no COC concentrations above Tier 1 PCLs.

An RIR requesting NFA for the Salado Creek Area sites, AOC-42, AOC-52, AOC-58, and AOC-62, will be prepared and submitted to TCEQ during Period 39.

### **AOC-45**

Surface soil samples were collected at AOC-45 in April 2011 to further delineate the lateral extent of contamination. Soils containing lead and explosives at concentrations exceeding Tier 1 PCLs were excavated from the site in May 2011. Confirmation soil samples enabled a 95% UCL calculation for closure, leaving only one sample location above the Tier 1 PCL for lead. The contaminated area was re-excavated on May 23, 2011 and a confirmation soil sample was collected May 24, 2011 which showed no further COC concentrations above Tier 1 PCLs. An RIR requesting NFA for AOC-45 has been prepared and will be submitted to TCEQ during Period 39.

### **AOC-57**

Surface soil samples were collected at AOC-57 on January 12, 2011. All of the samples were analyzed for the CSSA 9 metals, and three were analyzed VOCs and SVOCs. Sample results showed no COC concentrations above Tier 1 PCLs. An RIR requesting NFA for AOC-57 has been prepared and will be submitted to TCEQ during Period 39.

### **AOC-59**

In January 2011, surface soil samples were collected and analyzed for metals and explosives in order to further delineate the boundary for AOC-59 and fill in data gaps remaining from the initial 2006 investigation of the site. Lab results from the 2011 samples showed lead

contamination above the Tier 1 PCL at two locations. Excavation of 1,200 CY of contaminated soil materials occurred in March 2011. Soil materials from the excavation effort were non-hazardous and were moved to the East Pasture berm. Soil samples collected to determine if further excavation was needed showed only one soil sample above Tier 1 PCLs. Additional soil samples were collected in April 2011 to enable a statistical evaluation for closure. A 95% UCL of 60.43 mg/kg was calculated for the lead concentrations remaining in site soils, which does not exceed the Tier 1 PCL for lead of 84.5 mg/kg.

An RIR requesting NFA for AOC-59 will be prepared and submitted to TCEQ during Period 39.

### **AOC-70**

Surface soil samples were collected in January 2011 and analyzed for pesticides and herbicides. No COCs were detected above Tier 1 residential soil action levels. An RIR requesting NFA for AOC-70 was completed in May 2011 and submitted to TCEQ June 8, 2011.

### **AOC-72**

XRF-sampling was conducted at 17 surface soil locations at AOC-72 in December 2010 (Period 37). There were no lead or zinc concentrations above background. The excavation of the debris encountered at this site is tentatively planned for Period 39.

### **RMU-2**

In March 2011, soil samples were collected and analyzed for metals, explosives, VOCs, and SVOCs. Lab results showed lead, chromium, copper, and zinc above Tier 1 PCLs. The XRF meter was used at the site in June 2011 to help delineate metals contamination at the site boundary. The excavation effort began in June with the removal of 2,000 CY of lead-contaminated soil. Contaminated soil from this stage of the excavation was treated to TAC non-hazardous Class 2 criteria by mixing it with Phosphate Induced Metal Stabilization (PIMS). Laboratory results verified the treatment and the soils were moved to the East Pasture berm. Confirmation soil samples were collected at the completion of the excavation which showed the need for additional excavation. Further excavation to Tier 1 PCLs to the north of the site will be completed in Period 40. An update of actions taken and future activities will be included in the next progress report.

## **United States Geological Survey (USGS) Investigations and Modeling**

CSSA contracted with the USGS to perform geophysical surveys and develop a 3-D geologic model for Camp Stanley and the immediate surrounding area. SWMUs B-20/21 and B-27 underwent geophysical surveys as a demonstration test of the USGS ALLTEM system. The ALLTEM system was used to pick out anomalies on surveyed sites and to generate a corresponding dig list for Parsons. USGS also produced a polarized target map which specifically detailed the depth, horizontal extent, and density of anomalies on the site to further aid excavation efforts.

Additionally, CSSA has contracted with the USGS to demonstrate their 3D EM surface geophysical tools which are currently under development. The USGS has developed a new methodology by which standard electromagnetic (EM) technology is processed into a 3D image of conductive materials buried in the subsurface. The potential applications of this technology include the in-situ detection and identification of munitions or other UXO/MEC items.



This geologic model is compatible with ground water modeling programs that can be used to model Middle Trinity Aquifer ground water present at the facility. The newly-funded work builds upon previous USGS work including surface geologic mapping, aerial electromagnetic (AEM) surveys, and borehole EM surveys. The work conducted at CSSA will become the framework for a larger USGS study conducted on the Trinity Aquifer in Northern Bexar County.

The USGS also conducted borehole geophysics in a select number of both on- and off-post wells in Period 38 in order to further define hydrostratigraphic model of the Middle Trinity Aquifer. The borehole logging activities included the standard suite of geophysical methods, advanced video imaging, and nuclear logging tools to aid in the estimation of stratigraphy, porosity, and permeability. The USGS combined this newly-acquired data with existing geologic data from CSSA to build a three-dimensional (3D) visualization model using the EarthVision software. The initial model includes 102 wells, 16 model layers, one major fault line, and six minor faults. Ultimately, the model will visually depict the hydrostratigraphic and structural features of model area and can form the basis for a numerical groundwater flow model.

### **Groundwater Investigation**

The groundwater investigation subtask makes up approximately 15 percent of the RFI phase. As of the end of Period 38, this task is approximately 87 percent complete.

On- and off-post groundwater monitoring was conducted in accordance with the regulator-approved DQOs during Period 38. Sampling frequencies for on-post and off-post wells are currently determined by the long term monitoring optimization LTMO study updated in November 2010, as approved by TCEQ and USEPA. A map of the well locations is provided in Attachment 1 of this report. The updated 2010 LTMO was implemented during the June 2011 sampling event for both on- and off-post wells.

The analyte list for each monitoring event was in accordance with the applicable WPs and DQOs. On- and off-post monitoring wells and Westbay-equipped wells were sampled for the SW-846 Method 8260B VOCs 1,1-dichloroethene (1,1-DCE), *cis*-1,2-dichloroethene (*cis*-1,2-DCE), *trans*-1,2-dichloroethene, tetrachloroethene (PCE), trichloroethene (TCE), and vinyl chloride (VC). On-post monitoring wells were sampled for the SW-846 Method 6010/6020 metals lead, cadmium, mercury, and chromium. On-post drinking water wells are sampled for four additional metals: barium, arsenic, copper, and zinc. Additional samples were collected off-post from the wells with GAC filtration systems. Samples were analyzed by Agriculture & Priority Pollutants Lab Inc. (APPL) in Clovis, California. Chemists validated and verified the data in accordance with the CSSA Quality Assurance Program Plan (QAPP). All detected concentrations of VOCs and metals are presented in Attachment 4.

### **December 2010 Sampling**

Ten on-post wells were sampled in December 2010. Off-post wells sampled in December 2010 included 27 private and public drinking water wells. Sampling was conducted between December 6 and 17, 2010. No VOCs exceeded the MCL in on-post monitoring wells. However, lead exceeded the action level of 15 micrograms per liter ( $\mu\text{g/L}$ ) in wells CS-MW25-LGR (18.3  $\mu\text{g/L}$ ), CS-MW25-LGR field duplicate (19.8  $\mu\text{g/L}$ ), CS-12 (18.6  $\mu\text{g/L}$ ), and CS-9 (47.4  $\mu\text{g/L}$ ). Off-post well RFR-10 exceeded the MCL for PCE and TCE; this well is equipped with a GAC unit. Well I10-4 exceeded the MCL for PCE; however, this well is not currently in use.

## March 2011 Sampling

Twenty-two on-post monitoring wells, four drinking water wells, and all 46 zones of the four AOC-65 Westbay-equipped wells were sampled in March 2011. Off-post wells sampled in March 2011 included 37 private and public off-post drinking water wells with five post-GAC samples. All samples were analyzed for VOCs. In addition, the on-post samples were analyzed for selected metals. Four wells exceeded the MCLs for PCE, TCE, and/or *cis*-1,2-DCE in on-post monitoring wells. Westbay-equipped wells CS-WB01, CS-WB02, CS-WB03, and CS-WB04 had exceedances of either PCE and/or TCE in various intervals. Of the off-post wells sampled, PCE and TCE exceeded MCLs in RFR-10 (this well has a GAC unit). PCE was also exceeded in well I10-4, which is not currently in use. Metals analyses indicated one on-post well, CS-MW16-LGR, exceeded the action level for lead of 15 µg/L with a concentration of 15.7 µg/L.

Concern about an increasing VOC trend in well I10-4 west of CSSA prompted additional sampling locations west of IH-10 in The Oaks Water Supply Corporation. PCE was detected in two of The Oaks wells added this period, OW-BARNOWL (0.15 µg/L) and OW-HH2 (0.20 µg/L). The PCE detections of at The Oaks are significant because they extend the known boundary of contamination an additional 1.5 miles west of the CSSA boundary.

## June 2011 Sampling

Acceptance letters for the updated 2010 LTMO were received from the TCEQ and USEPA prior to the June 2011 sampling event. With the new sampling frequencies in place, the June event included all wells on- and off-post, and selected Westbay zones. Forty-six on-post wells and two newly installed wells were scheduled for sampling in June 2011. Off-post wells scheduled for sampling in June 2011 included 31 private and public drinking water wells. Sampling was conducted between May 1 and June 17, 2011. Laboratory results will be received in July 2011 and summarized in the next progress report.

## On-Post GAC Systems

CSSA operated and maintained the permitted on-post GAC unit at Outfall 002 and the permitted discharge at Outfall 004 this period. A Discharge Monitoring Report is submitted each month the system operates to comply with Texas Pollution Discharge Elimination System permit requirements. No discharges occurred at either outfall this period.

## Off-Post GAC Systems

Based on sampling results received in 2001 and 2002 indicating VOC levels above or approaching the MCL, GAC filtration systems were installed at five off-post wells. In accordance with the CSSA Off-Post Monitoring Program Response Plan dated June 2002 and the Groundwater Monitoring DQOs, the off-post GAC filtration systems are maintained by CSSA and sampled every six months.

Monthly O&M activities for the off-post residential GAC filtration systems were performed this period. Work included inspection and replacement, as needed, of the pre- and post-GAC filters at wells LS-6, LS-7, RFR-10, RFR-11, and OFR-3. Post-GAC confirmation samples from all of the off-post GAC systems were collected in March 2011. All VOC results for the post-GAC water samples were non-detect. Carbon canister exchange was completed January 18, 2011 for the off-post GAC systems and will be due again in July 2011.



## **Data Validation and Verification**

Laboratory results from sampling efforts and investigations are validated and verified by chemists to ensure results are in compliance with CSSA QAPP requirements. Data validation and verification continued during Period 38.

## **LTMO Update**

In 2005, CSSA initiated a LTMO process to evaluate if statistical and spatial parameters would support a reduction in sampling locations and/or sampling frequencies without sacrificing the monitoring objectives. Validated analytical data spanning from 1992 through December 2004 from the monitoring well network was used to perform a Three-Tiered LTMO evaluation. The 2005 LTMO for the on-post and off-post wells recommended a refined monitoring program consisting of the 84 wells that would be sampled less frequently than before but still adequate to address the primary monitoring objectives. Implementation of these recommendations for the monitoring program at CSSA reduced the number of on- and off-post sampling events per year by approximately 57 percent. In 2005, USEPA and TCEQ approved the use of the LTMO recommendations for on-post monitoring wells and the Westbay multi-port wells. However, at that time, the TCEQ had reservations for implementing the off-post LTMO, and suggested that CSSA continue to follow the current approved off-post sampling program. The on-post LTMO recommendations were implemented beginning December 2005.

In November 2010, an update to the original 2005 LTMO report was submitted to the USEPA and TCEQ. An additional four years of analytical data from the existing and new wells were added to the three-tiered evaluation to determine if there had been changes in trends and if the sampling frequency could be further refined. By 2009, the monitoring network had grown to 111 wells which included new monitoring wells drilled at CSSA, and new off-post wells incorporated into the network. The same qualitative, temporal/statistical, and spatial evaluations were conducted to provide recommendations to further enhance or streamline the monitoring network. Both regulatory agencies reviewed the LTMO plan, and approved the revised sampling strategies for both on- and off-post groundwater sampling. The new LTMO plan was approved by the USEPA (February 2011) and the TCEQ (March 2011), and was implemented beginning June 2011.

## **Treatability Studies**

The Treatability Study subtask makes up approximately 10 percent of the RFI phase. As of the end of Period 38, this task is approximately 46 percent complete.

### **SWMU B-3 Bioreactor Treatability Study**

SWMU B-3 Bioreactor Performance Status Reports were submitted to CSSA, TCEQ and USEPA on a quarterly basis during Period 38. Approximately 41,399,289 gallons of groundwater extracted from CS-MW16-LGR, CS-MW16-CC, CS-B3-EXW01, and B3-EXW02 have been injected into the bioreactor trenches since the start of injection in 2007. A semiannual UIC report for the period, in accordance with CSSA's Class V Aquifer Remediation Injection Well Permit, TCEQ Authorization No. 5X2600431; WWC12002216 was submitted to the TCEQ in May 2011.

Groundwater samples were collected from sumps, monitoring wells, Westbay-equipped wells, and from the injection discharge. Sampling frequency was based on permit requirements and water availability. In general, injected groundwater samples are collected monthly and

monitoring samples from the Westbay-equipped monitoring wells and injection trench sumps are collected quarterly. All samples were analyzed for permit parameters – VOCs, total dissolved solids, and other selected performance parameters. Analyses were performed by APPL, DHL Laboratory, Microbial Insights, and Microseeps Laboratory. Collected field data included injection volumes, injection pressures and the pH of recovered groundwater for TCEQ permit compliance. Results are reported semi-annually. Analytical data collected for performance parameters include;

- Dissolved Organic Carbon
- Methane, Ethane, Ethene
- Hydrogen
- Temperature, pH, specific conductivity
- Oxidation Reduction Potential
- Dissolved Oxygen
- Total Organic Carbon
- Carbon Dioxide
- Hydrogen
- Sulfide
- Alkalinity
- Nitrogen, Nitrate + Nitrite
- Additional ions including Sulfate, Chloride, Ferrous Iron, Manganese
- Dehalococoides populations, and
- Isotopic ratio analyses.

Westbay well CS-WB07 was damaged in a March 2011 sampling event when the probe and samplers broke off the wireline approximately 245 feet below ground surface. Although the probe was successfully extracted, a camera survey showed that the well casing had been compromised. This well will be repaired during Period 39.

During Period 38, the bioreactor remained at saturated conditions due to rainfall and the continued supply of supplemental water from wells CS-MW16-CC, CS-MW16-LGR, B3-EXW01, and B3-EXW02. Approximately 6,197,000 gallons of water were injected into bioreactor trenches 1 and 6 during Period 38.

Two new extraction wells (B3-EXW03 and B3-EXW-04) are currently under construction to the west of the bioreactor. The goal of these 2 wells is to provide 2 more reliable water sources for the bioreactor and provide a measure of protection against westerly migration of contaminants in groundwater.

Monitoring results continue to indicate that effective treatment of injected groundwater in the bioreactor is occurring; however, VOC components continue to remain in strata adjacent to and beneath the trenches. Breakdown products of highly chlorinated species, such as PCE and TCE, and minor amounts of fuel components, like toluene, are identified in groundwater samples from locations surrounding the bioreactor. During Period 38 (data available through April 2011), degradation products, vinyl chloride and ethene, were identified within the bioreactor (vinyl chloride as high as 133.5 µg/L and ethene as high as 15.7 µg/L); and in significant concentrations, respectively, within shallow Upper Glen Rose (UGR) wells: MW26-UGR (85.35 µg/L and 10.4 µg/L), MW27-UGR (0.39 µg/L vinyl chloride only), MW34-UGR (147.95 µg/L

and 16.6 µg/L); and in Westbay-equipped wells WB08-UGR-01 (100.08 µg/L and 11.9 µg/L) and CS-WB07-UGR01 (9.57 µg/L vinyl chloride only).

Additionally, vinyl chloride was observed at depth in Westbay-equipped wells in zones CS-WB05-LGR03A (2.26 µg/L), CS-WB05-LGR03B (3.0 µg/L), CS-WB05-LGR04A (25.8 µg/L), CS-WB05-LGR04B (273.9 µg/L), CS-WB05-BS-01 (3.9 µg/L), and in monitoring well CS-B3-MW01 (53.3 µg/L). Less significant amounts of vinyl chloride were identified in zones WB05-CC-02, WB06-LGR02, and in monitoring well CS-MW1-LGR. Significant amounts of ethene were observed in Westbay-equipped wells in zones CS-WB05-LGR04B (12.6 µg/L), CS-WB07-UGR01 (3.9 µg/L), and WB08-UGR01 (11.8 µg/L), additionally, ethene was observed in monitoring well CS-B3-MW01 (1.3 µg/L). CS-WB05 and CS-B3-MW01 are both located north of the bioreactor, indicating reduction byproducts are migrating vertically in this area. Ethene represents one of the final degradation products of attenuated chlorinated solvents. In addition, elevated levels of manganese suggest biotic anaerobic oxidation of chlorinated aliphatic hydrocarbons (CAHs) to carbon dioxide, and elevated levels of iron and *trans*-1,2-dichloroethene (*trans*-1,2-DCE) suggest abiotic reductive dechlorination may also be occurring.

VOC analytical results from bioreactor trench sump samples indicate a decrease in contaminant mass (total molar concentration) in trench sumps T1-2 and T6-2 through the year. Increases in total molar concentrations were observed in samples from T1-1, T1-3, and T6-1 through the year. No significant change in total molar concentration was observed in samples from sump T2-2. Over the bioreactor operational period (4 years), contaminant mass appears stable or decreasing.

A study during this period utilized biotrap baited with several milligrams of *cis*-DCE per trap designed to lure dehalogenating microbes present in the trenches. Sump samples collected while the biotrap were deployed does not distinguish between *cis*-DCE originating from the traps or from the trenches. In addition, minor amounts of toluene and other fuel related compounds were identified during monitoring of bioreactor sumps from trenches 1, 2, and 6 through Period 38.

Arsenic (As) was detected in concentrations exceeding the MCL (10 µg/L) in two sumps, T1-2 (11.5 µg/L) and T2-2 (10.5 µg/L) and one Westbay well zone, CS-WB05-LGR04B (13.8 µg/L) during Period 38. Manganese (Mn) was reported in bioreactor trench water samples at concentrations ranging from 21.9 to 499.8 µg/L (MCL is 50 µg/L). All of the shallow UGR wells sampled during the year (8 of 9) had, at some point, elevated levels of Mn. Samples from 5 of 6 UGR wells indicated elevated levels of Mn, with concentrations ranging from 122 to 1,069 µg/L. Three of the shallow UGR wells did not produce enough water to sample during this Period. An elevated level of Mn was reported in CS-B3-MW01 (180 µg/L), as well as in CS-WB05-LGR-04B (58.7 µg/L), all other multi-port monitoring well zones reported Mn and As levels below the MCL. The elevated levels are likely due to changing pH conditions of the groundwater and the reduction of naturally occurring As and Mn within the limestone media to more soluble forms. Additionally, the biotic anaerobic oxidation pathway of CAHs may also be contributing to the elevated levels of Mn within the treatment system.

### **AOC-65 SVE System**

Monthly monitoring and semi-annual sampling of the AOC-65 SVE system has been ongoing since April 2008. Initial monitoring results indicate no exceedances of permit-by-rule (PBR) limits occurred for the SVE system. Soil vapor samples were collected from the AOC-65 SVE system during Period 38 and analyzed for VOCs. Results indicated that PCE emissions

from the SVE system were 7.5 lb/year during this period, which is well below the permitted level of 0.268 lbs/hr or 2,347.68 lbs/year.

During the March 2011 groundwater sampling event, significant levels of PCE and TCE were found in monitoring well CS-MW7-LGR (260 µg/L [PCE only]), and Westbay wells CS-WB01-LGR-09 (17.1 µg/L and 21.8 µg/L), WB02-LGR-09 (11.6 µg/L and 10.3 µg/L), and WB04-LGR-09 (7.2 µg/L and 5.8 µg/L).

Two new LGR monitoring wells were drilled downgradient of AOC-65 during Period 38. CS-MW35-LGR is located 1,580 feet south-southeast of Building 90 and CS-MW36-LGR is located 100 feet west of Building 90 along the CSSA fence line. Concentrations of PCE and TCE were detected that exceed the MCL in CS-MW36-LGR (25 µg/L and 13 µg/L, respectively).

During Period 38, two steam injection wells (SIW) and five vapor extraction wells (VEW) were installed at AOC-65 to enhance and expand the SVE remediation efforts at the site. The SIWs were plumbed to the steam line originating from the boiler in Building 89 to facilitate the injection of steam into the bedrock formation which will enhance the volatilization of VOCs. The VEWs were plumbed into the existing SVE system as part of a pilot study for determining the efficiency of thermally enhanced SVE to remove contaminants from vadose zone limestone.

During SIW and VEW installation, a leak in a nearby waterline was discovered. Further investigation of the waterline included a pressure test which confirmed that the leak in the waterline on the west side of Building 90. Chlorine products, PCE, TCE, chloroform, and chloromethane, detected in the new well CW-MW36-LGR could be due to the leak in the waterline. The waterline leak is expected to be located and repaired during Period 39.

Soil gas samples were collected in March 2011 as part of a pilot study on thermally enhanced SVE using steam. PCE was detected in 18 of the 19 sampled VEWs, ranging from below the reporting limit (RL) to 2,500 parts per billion by volume (ppbv). Toluene was detected in 12 of the 18 sampled VEWs, ranging from below the RL to 4.4 ppbv. A report summarizing the findings of this pilot study will be generated during Period 39.

A study during this period examined stable isotopes of PCE in the AOC-65 area. The stable isotope signatures of soil vapor and groundwater samples collected this period were compared in order to group contaminated areas within AOC-65 together. Results showed that the stable isotope signatures of PCE in VEW-25, VEW-27, and VEW-28B matched those of VEW-12; the stable isotope signatures of PCE in VEW-10 and VEW-21 were unique. PCE in groundwater from wells WB01-LGR-09 and WB03-UGR had the same signature as vapor-phase PCE from VEW-12 while PCE in groundwater from WB03-LGR-09 had the most enriched signature, possibly from the degradation of PCE.

## MEETINGS

Status meetings with TCEQ and USEPA were held at Camp Stanley on January 25, 2011 and June 13, 2011. The meetings provided summaries of current CSSA environmental investigations and proposed future work.

## SUMMARY OF CONTACTS

Letters summarizing the results of the December 2010 and March 2011 off-post groundwater monitoring events were mailed to owners of the off-post wells in Period 38. Groundwater sampling notification letters were sent to the USEPA and TCEQ one month prior to

the start of the March and June 2011 sampling events. Other correspondence during Period 38 included:

- Approval letter from USEPA, for the Long Term Monitoring Network Optimization Evaluation Data Quality Objectives for the Groundwater Monitoring Program Camp Stanley Storage Activity, February 16, 2011.

## **PROJECTED WORK FOR THE NEXT PERIOD**

### **SWMU and AOC Investigations**

Investigations (including XRF analysis), interim removal actions, and/or reporting will be continued for SWMUs B-2/B-8, B-4, B-15/16, B-20/21, B-24, B-27, B-28, and B-34; AOC-42, -45, -51, -52, -57, -58, -59, -62, -70, and -72; and RMU-2, and -5. Reports summarizing investigation results will be submitted upon completion. A summary of upcoming remedial activities at several SWMUs, AOCs, and RMUs is included as Attachment 5.

### **Groundwater Monitoring**

Continued sampling of on- and off-post monitoring and water supply wells will continue in September and December 2011. Quarterly and annual groundwater monitoring reports will be submitted next period. O&M at the residential GAC filtration systems (LS-6, LS-7, OFR-3, RFR-10, and RFR-11) will be conducted every three weeks during Period 39. The semi-annual carbon exchange will be performed in July 2011.

### **SWMU B-3 Bioreactor Treatability Study Monitoring**

Monitoring of the bioreactor at SWMU B-3 will continue during Period 39. Monitoring requirements will be performed to meet TCEQ's UIC authorization requirements. Performance monitoring data will be collected in accordance with the Bioreactor O&M Manual.

Various bioreactor system controls and components will be re-designed and constructed during Period 39 including: installation of a new storage tank(s), relocating system controls, and incorporating system instrumentation in SCADA. Westbay well CS-WB07 which was damaged during a March 2011 sampling event will be replaced in Period 39. Additionally, the completion of two new extraction wells will be completed to deliver groundwater to the bioreactor. CSSA discussed these plans with USEPA on June 14, 2011, and these improvements to the bioreactor were agreed on.

### **AOC-65 SVE System Operations**

AOC-65 SVE system O&M will continue in Period 39. The system includes four blowers operating continuously, and O&M of those systems will be performed in accordance with the Updated O&M Manual for SVE Systems at CSSA. Monitoring is expected to occur twice monthly, monthly, and semi-annually.

Next period, four flow meters with built-in flow conditioners and two time monitors will be installed to facilitate more effective monitoring of the SVE system operational parameters. Additionally, the waterline leak discovered during Period 38 will be fixed, and findings will be included in the SVE assessment report upon completion of the thermally enhanced extraction pilot study.

Finally, the investigation and evaluation of other potential treatment options for AOC-65 and Plume 2 will be continued in Period 39.

## **MEETINGS**

A status meeting will be held with TCEQ and USEPA in January 2012 (tentative date). Quarterly groundwater meetings will be held prior to the quarterly events scheduled in September and December 2011.

**Table 2, Project Task Completion to Date for Open Projects Only  
 (Values updated through May 31, 2011)**

<b>Project Number</b>	<b>Description of Task</b>	<b>Relation to Order</b>	<b>Percent Complete</b>	<b>Start/End Dates</b>
Order 37	UST Investigations	NA	100%	1991-1995
Order 52	Investigation of F-14	I/SM/RFI	100%	1992-1993
Order 67	Groundwater sampling, Water Well Inventory, Hydrogeologic Report	I/SM/RFI	100%	1992-1996
Order 71	Environmental Assessment	I/M	100%	1992-1993
Order 126	B-20, F-14 Investigations, Background Soils Study	RFI	100%	1994-1996
RL17	Geophysical surveys, Well Installations Soil Sampling and Groundwater sampling	I/SM/RFI	100%	1995-2003
RL33	Site investigations, B-20 treatability studies and unexploded ordnance investigation	RFI	100%	1996-2002
Order 23	Groundwater Sampling	RFI	100%	1996-1998
RL53	SWMU and AOC Investigations	RFI	100%	1997-2003
RL83	Geophysical Surveys	RFI	100%	1999-2003
RL74	Current Conditions Report, Community Relations, Groundwater Monitoring	RFI	100%	1999-2001
DO5068	Soil Gas Surveys	RFI	100%	1999-2002
DO23	Groundwater Monitoring	RFI	100%	1998-2001
DO5084	Building 90 Investigation, Groundwater Monitoring	RFI	100%	2000-2003
TO0058	Treatability Study for AOC-65	RFI	100%	2001-2005
TO0042	Well Installations and Groundwater Monitoring	I/SM/RFI	100%	2001-2006
TO0017	East Pasture Removal Action	Other	100%	2005-2006
TO0019	SWMU Closures	RFI	100%	2003-2006
TO0005	Environmental Program Technical Support	I/SM/RFI	100%	2003-2007
TO0098	Miscellaneous Studies	Other	100%	2004-2007
TO0008	Groundwater Monitoring	I/SM/RFI	100%	2003-2008
TO0006	SWMU B-3 and AOC-65 Remediation	I/SM/RFI	100%	2004-2008
TO0207	Environmental Support, Groundwater Monitoring	I/SM/RFI	100%	2006-2008
DY01 (Weston)	Affected Property Assessment Investigations	RFI	100%	2006-2007
DY01 (Parsons)	Environmental Compliance, SWMU, and AOC Closure Investigations	RFI	100%	2006-2010
DY02 (Parsons)	Environmental Compliance, SWMU and AOC closure Investigations	I/SM/RFI	100%	2007-2009
DO11 (Parsons)	Environmental and Groundwater Investigations	RFI	100%	2008-2010

**Table 2 Continued, Project Task Completion to Date for Open Projects Only  
 (Values updated through May 31, 2011)**

<b>Project Number</b>	<b>Description of Task</b>	<b>Relation to Order</b>	<b>Percent Complete</b>	<b>Percent Spent</b>
<b>DY02 (Weston)</b>	<b>Removal Action</b>	<b>RFI</b>		
	Plan Preparation and Mobilization	RFI	100%	100%
	AOC-64 Interim Removal Action	RFI	100%	100%
	Interim Removal Action Reporting	RFI	0%	0%
<b>H&amp;A (Parsons)</b>	<b>Administrative Support and Environmental Services</b>			
	Administrative Record, LAN & GIS and USEPA Progress Reports	RFI	100%	100%
	Miscellaneous Sampling	Other/RFI	100%	100%
	Project Management	RFI	100%	100%
<b>DO50 (Parsons)</b>	<b>Environmental and Groundwater Investigations</b>			
	Administrative Order Recording and Management	RFI	100%	100%
	Compliance and Sampling	RFI	95.9%	95.9%
	Environmental Studies	RFI	99.9%	96.2%
	Environmental Program Support	RFI	99.9%	99.4%
	Groundwater Monitoring	RFI	98.9%	98.9%
	Site Investigations and Closure	RFI	91.6%	81.3%
	Treatability Study Systems Operation	RFI	100%	100%
	Project Management	RFI	96%	96%
<b>Army Contract (Parsons)</b>	<b>Environmental and Groundwater Investigations</b>			
	Treatability Study Systems Operation	RFI	40.3%	40.3%
	Compliance and Sampling	RFI	2%	2%
	Project Management	RFI	50.7%	50.7%
	Environmental Studies	RFI	57.8%	57.8%
	Site Investigations and Closure	RFI	42.6%	35.4%
	Groundwater Monitoring	RFI	46.9%	46.9%
	Bird Survey	RFI	38%	38%
	Administrative Record	RFI	38.3%	38.3%
<b>DO07 (Parsons)</b>				
	Routine Environmental Program Support	RFI	19.7%	19.7%
	Non-Routine Environmental Program Support	RFI	20.3%	0%
	AOC-65 Waste Excavation and Removal	RFI	100%	0%
	Task Order Management	RFI	43.1%	43.1%



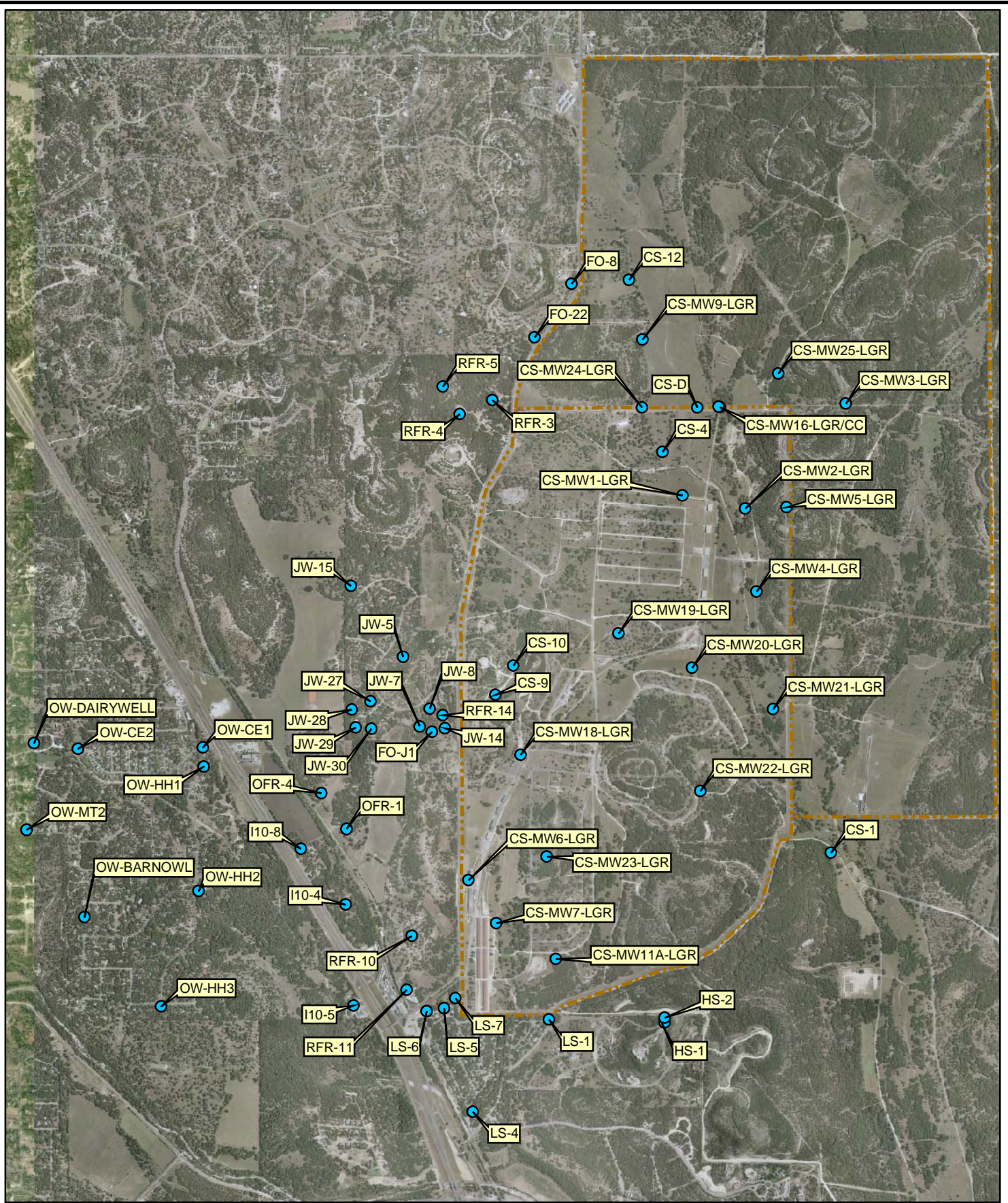
**Table 3, Project Team Contact Information**

Name	Organization/Role	Street Address	City, State, Zip	Phone No.	Fax No.	E-mail
Beal, Christopher	CSSA/Portage Environmental, Geologist and Environmental Assistant	c/o Environmental Office, 25800 Ralph Fair Road	Boerne, TX 78015-4800	(210) 336-1171	(210) 295-7386	bealc@envirodept.net
Burdey, Julie	Parsons, Project Mgr.	8000 Centre Park Dr., Suite 200	Austin, TX 78754	(512) 719-6062	(512) 719-6099	julie.burdey@parsons.com
Cason, Russ	Weston, Project Mgr	70 NE Loop 410, Suite 600	San Antonio, TX 78216	(210) 308-4338	(210) 308-4329	r.cason@westonsolutions.com
Chang, Tammy	Parsons, Senior Scientist	8000 Centre Park Dr., Suite 200	Austin, TX 78754	(512) 719-6092	(512) 719-6099	tammy.chang@parsons.com
Coulter, Kirk	TCEQ, Project Mgr	P.O. Box 13087, MC-127	Austin, TX 78711-3087	(512) 239-2572		kcoulter@tceq.state.tx.us
Edwards, Bob	Noblis, Environmental Chemist	16414 San Pedro, Suite 340	San Antonio, TX 78232	(210) 408-5552	(210) 479-0482	Robert.edwards@noblis.org
Elliott, Wayne	USACE, Program Mgr	819 Taylor Street, Room 3A12	Fort Worth, TX 76102-0300	(817) 886-1666	(817) 886-6490	Wayne.c.elliott@usace.army.mil
Lyssy, Greg	USEPA, Project Manager	1445 Ross Avenue (6PD-N)	Dallas, TX 75202-2733	(214) 665-8317	(214) 665-6660	lyssy.gregory@epa.gov
Moreno, Gaberiel	CSSA Environmental Program Manager	25800 Ralph Fair Road	Boerne, TX 78015-4800	(210) 698-5208	(210) 295-7386	morenog@envirodept.net
Pearson, Scott	Parsons, Task Mgr	8000 Centre Park Dr., Suite 200	Austin, TX 78754	(512) 719-6087	(512) 719-6099	william.scott.pearson@parsons.com
Rice, Ken	Parsons, Task Mgr	8000 Centre Park Dr., Suite 200	Austin, TX 78754	(512) 719-6050	(512) 719-6099	ken.r.rice@parsons.com
Salazar, Jorge	TCEQ	14250 Judson Road	San Antonio, TX 78233	(210) 403-4059		jsalazar@tceq.state.tx.us
Shirley, Jason (LTC, retired)	CSSA Installation Manager	25800 Ralph Fair Road	Boerne, TX 78015-4800	(210) 295-7416	(210) 295-7386	

# **ATTACHMENT 1**

## **ON-POST AND OFF-POST SAMPLED WELLS FIGURE**





- Well Sampled Dec. 2010 and Mar. 2011
- - - CSSA Fenceline

0      2,000      4,000  
 Feet

## Attachment 1

December 2010 and March 2011 Sampled  
 On-Post and Off-Post Ground Water Wells  
 Camp Stanley Storage Activity

**PARSONS**

**ATTACHMENT 2**  
**SUMMARY OF STATUS OF EACH SWMU/AOC SITE**



**Attachment 2**  
Summary of SWMUs, AOCs, and RMUs Status Table

Unit No.	Description	Investigation Report(s)	Recommendations	Requested Action				Closure Approved by	Closure Type
				RRS1	NFA	Delisting	TRRP		
B-1	Powder and ammo burn area (1954).	RFI/Closure Report July 2002	NA	X				November-02	RRS1
B-2	Small arms ammunition burning area (1954) - North Pasture	RFI/closure Report June 2002 Closure Report March 2005	Closure				X		
B-3	Landfill area (garbage disposal and burning trash); filled in 1990-91.	RFI Report March 2005	Continue bioreactor treatability study						
B-4	Classified burn area (documents and trash).	RFI Report June 2002	Closure				X		
B-5	Possible fired small arms ammo brass area. Not located.	RFI/Closure Report July 2002	NA	X				October-02	RRS1
B-6	Possible solid waste disposal area.	RFI/Closure Report July 2002	NA	X				October-02	RRS1
B-7	Possible fired small arms ammunition brass disposal area	RFI/Closure Report July 2002	NA	X				October-02	RRS1
B-8	Fired small arms ammo brass disposal area (piles of fire bricks, ammo shells) - North Pasture	RFI Report December 2003	Excavate as necessary				X		
B-9	Miscellaneous solid waste (metal and weapons) disposal area.	RFI/Closure Report September 2002	NA	X				March-03	RRS1
B-10	Ammunition disposal area.	RFI/Closure Report May 2003	NA	X				January-04	RRS1
B-11	Miscellaneous solid waste disposal (ammo, scrap metal, const. debris).	RFI Closure Report June 04	NA	X				September-04	RRS1
B-12	Landfill, WPA trash when igloos were being built	RFI Report April-05	NA	X				July-05	RRS1
B-13	Trash dump area.	RFI Report June 2002	Excavation of waste and surface sampling.						
B-14	Possible fired brass area - not located.	Delisting Request November 2007	NA			X		February-08	Delisting
B-15/16	Landfill (target vehicles, weapons mounts)	RIR June 2011	Closure		X			Submitted June-11	NFA
B-19	Solid waste disposal area (metals and weapons).	RFI/Closure Report June 2002	NA	X				September-02	RRS1

**Attachment 2**  
Summary of SWMUs, AOCs, and RMUs Status Table

Unit No.	Description	Investigation Report(s)	Recommendations	Requested Action				Closure Approved by	Closure Type
				RRS1	NFA	Delisting	TRRP		
B-20/21	Former OB/OD area & ammunition disposal areas - North Pasture	RFI Report July 2002	Excavate as necessary				X		
		Combined with B-20							
B-22	Burn area (artillery shells).	RFI/Closure Report August 2002	NA	X				December-02	RRS1
B-23	Disposal trenches (two green canisters)	RFI Report April 2005	NA	X				July-05	RRS1
B-23A	Disposal Trench (glass ampoules of liquid)	RFI Closure Report September 2004	NA	X				March-05	RRS1
B-24	Spent ammo/rockets area - North Pasture	RFI Report May 2002	Excavate as necessary				X		
B-25	Possible disposal trench	RFI Report April 2005	NA	X				July-05	RRS1
B-26	Possible disposal trench	Delisting Report August 2004	NA			X		November-04	Delisting
B-27	Sanitary landfill, consisting of 5-6 trenches (6 ft deep, 3 ft wide).	RFI Report July 2002	Excavate trenches		X				
B-28	Disposal trenches (molten metal, ammo, ammo parts)	RFI Report April 2002	Closure		X				
B-29	Solid waste disposal area (in old quarry)	RFI Report April 2005	NA	X				February-08	RRS1
B-30	Solid waste disposal area	RFI Report September 2004	NA	X				February-05	RRS1
B-31	Lead shot/sand pipe bedding	RFI/Closure Report July 2002	NA	X				November-02	RRS1
B-32	Lead shot/sand pipe bedding	RFI/Closure Report January 2003	NA	X				November-03	RRS1
B-33	Lead shot/sand pipe bedding	RFI Report September 2004	NA	X				November-04	RRS1
B-34	Maintenance pit floor drain and discharge point	RFI Report August 2002	Delineate contamination, disposal of soil				X		
B-71	Livestock area. Inner cantonment, SW of Well 16.	-- (Weston)	Closure				X		
AOC-64	Area east of SWMU B-4; flares observed in the area	-- (Weston)	Closure				X		
Bldg 40	less-than 90-day accumulation container storage area	RFI/Closure Report September 2003	NA	X				January-04 and January-06	RRS1
Bldg 43	Inactive makeshift ammo demolition facility	RFI Report April 2005	NA	X				August-05	RRS1

**Attachment 2**  
Summary of SWMUs, AOCs, and RMUs Status Table

Unit No.	Description	Investigation Report(s)	Recommendations	Requested Action				Closure Approved by	Closure Type
				RRS1	NFA	Delisting	TRRP		
DD	Dud ammunition disposal area	RFI Report January 2005	NA	X				April-05	RRS1
F-14	Hazardous waste storage area (<90-day)	RFI/Closure Report, 1995	NA	X				November-95	RRS1
I-1	Inactive incinerator (built in 1943), currently used for transformer storage	RFI Report February 2003	Investigated 2007/2008 (Parsons)				X	November-08	NFA
O-1	Waste liquid/sludge oxidation pond (1975)	RFI/Closure Report October 2000	NA	X				April-02	RRS1
Coal Bins	Coal bins (no longer in use)	Delisting Requested January 2003	NA			X		February-08	Delisting
AOC 35	Area immediately around Well 16. Northeast area of inner cantonment.	RFI/Closure Report October 2002	NA	X				February-03	RRS1
AOC 36	Area between Well 16 and B-3. Possible waste verified not present by magnetometer survey.	RFI/Closure Report April 2002	NA	X				August-02	RRS1
AOC 37	Livestock area. NW of Well 16 and N of Well D.	RFI/Closure Report June 2004	NA	X				January-05	NFA
AOC 38	Livestock area. Inner cantonment, SW of Well 16.	RFI Report September 2004	NA	X				February-05	RRS1
AOC 39	None. Area west of Well 16 between North Outer Rd and cantonment fence.	RFI/Closure Report April 2002	NA	X				September-02	RRS1
AOC 40	None. Area east of Well 16 between North Outer Rd and cantonment fence.	RFI/Closure Report May 2002	NA	X				August-02	RRS1
AOC 41	Gate area east of well 16. North Pasture, north of gate 6.	No Further Action Report April 2005	NA		X			July-05	NFA
AOC 42	None. South of SWMUs B-28 and B-19, west of B-4.	RFI Report October 2002	NA		X				
AOC 43	Shallow trench without mounds. Metal, UXO. Located 50 ft south of B-7.	RFI/Closure Report October 2002	NA	X				February-03	RRS1
AOC 44	Fox holes and trenches south of B-9 along west slope of hill. UXO includes Stokes mortars and 20-lb bombs.	Delisting Report April 2005	NA			X		July-05	Delisting
AOC 45	Flat area with spent and undamaged bullets. Located east of B-31, near bend in road.	--	Closure		X				

**Attachment 2**  
Summary of SWMUs, AOCs, and RMUs Status Table

Unit No.	Description	Investigation Report(s)	Recommendations	Requested Action				Closure Approved by	Closure Type
				RRS1	NFA	Delisting	TRRP		
<b>AOC 46</b>	Bermed area with stockpile of lead shot and sand. Located south of Engineering on east side of Thompkins Road.	RFI/Closure Report April 2005	--	X				July-05	RRS1
<b>AOC 47</b>	Area of trenches and mounds (similar to B-15/16). South of B-15/16, in SW area of East Pasture.	RFI/Closure Report June 2002	NA	X				September-02	RRS1
<b>AOC 48</b>	Three N-S trending mounds and a construction debris pile. Located north of B-15/16.	Delisting Report August 2004	NA			X		November-04	Delisting
<b>AOC 49</b>	Trench (4 x 7 ft) without surficial debris. Located SW of deer stand 41 in central East Pasture.	Delisting Report April 2005	NA			X		July-05	Delisting
<b>AOC 50</b>	Area with orange discolored material (most likely nickel penetrate) at ground surface. South of B-30 along gravel road.	RFI/Closure Report January 2005	NA	X				April-05	RRS1
<b>AOC 51</b>	East pasture, east of active range, approximately 25 acres, area around B-9	--	--						
<b>AOC 52</b>	Area west of B-4 towards Salado Creek near trees, two trenches	--	NA		X				
<b>AOC 53</b>	Building foundation near B-27 at Central Road and road to "D" Tank, batteries at rear of slab	RFI/Closure Report April 2005	NA	X				July-05	RRS1
<b>AOC 54</b>	Area near gutting pit, east of Welding Shop Building, right side of road batteries were stored in the area	Closure Report July 2004	NA	X				November-04	RRS1
<b>AOC 55</b>	Landfill, south of Tenberg Drive, east of Salado Creek	RFI/Closure Report Feb 04	Closure	X				June-08	RRS1
<b>AOC 56</b>	Landfill, at intersection of Bernard Road and East Outer Road, surface depression on south side of intersection	Closure Report June 04	NA	X				September-04	RRS1
<b>AOC 57</b>	East of Building 98 and KOA Area, cleaning/maintenance activities performed at temporary structures	--	Closure		X				
<b>AOC 58</b>	Suspected disposal trench within Inner Cantonment	RFI Report October 2002	NA		X				
<b>AOC 59</b>	Trench-type anomaly located west Test Pad in the East Pasture	--	Closure		X				
<b>AOC 60</b>	Trench located west of tunnel and entrance roadway in the East Pasture.	Delisting Report April 2005	NA			X		July-05	Delisting
<b>AOC 61</b>	Suspected landfill	RFI/Closure Report October 2002	NA	X				February-03	RRS1



**Attachment 2**  
Summary of SWMUs, AOCs, and RMUs Status Table

Unit No.	Description	Investigation Report(s)	Recommendations	Requested Action				Closure Approved by	Closure Type
				RRS1	NFA	Delisting	TRRP		
B-1	Powder and ammo burn area (1954).	RFI/Closure Report July 2002	NA	X				November-02	RRS1
B-2	Small arms ammunition burning area (1954) - North Pasture	RFI/closure Report June 2002 Closure Report March 2005	Closure				X		
B-3	Landfill area (garbage disposal and burning trash); filled in 1990-91.	RFI Report March 2005	Continue bioreactor treatability study						
B-4	Classified burn area (documents and trash).	RFI Report June 2002	Closure				X		
B-5	Possible fired small arms ammo brass area. Not located.	RFI/Closure Report July 2002	NA	X				October-02	RRS1
B-6	Possible solid waste disposal area.	RFI/Closure Report July 2002	NA	X				October-02	RRS1
B-7	Possible fired small arms ammunition brass disposal area	RFI/Closure Report July 2002	NA	X				October-02	RRS1
B-8	Fired small arms ammo brass disposal area (piles of fire bricks, ammo shells) - North Pasture	RFI Report December 2003	Excavate as necessary				X		
B-9	Miscellaneous solid waste (metal and weapons) disposal area.	RFI/Closure Report September 2002	NA	X				March-03	RRS1
B-10	Ammunition disposal area.	RFI/Closure Report May 2003	NA	X				January-04	RRS1
B-11	Miscellaneous solid waste disposal (ammo, scrap metal, const. debris).	RFI Closure Report June 04	NA	X				September-04	RRS1
B-12	Landfill, WPA trash when igloos were being built	RFI Report April-05	NA	X				July-05	RRS1
B-13	Trash dump area.	RFI Report June 2002	Excavation of waste and surface sampling.						
B-14	Possible fired brass area - not located.	Delisting Request November 2007	NA			X		February-08	Delisting
B-15/16	Landfill (target vehicles, weapons mounts)	RIR June 2011	Closure		X			Submitted June-11	NFA
B-19	Solid waste disposal area (metals and weapons).	RFI/Closure Report June 2002	NA	X				September-02	RRS1

**Attachment 2**  
Summary of SWMUs, AOCs, and RMUs Status Table

Unit No.	Description	Investigation Report(s)	Recommendations	Requested Action				Closure Approved by	Closure Type
				RRS1	NFA	Delisting	TRRP		
B-20/21	Former OB/OD area & ammunition disposal areas - North Pasture	RFI Report July 2002	Excavate as necessary				X		
		Combined with B-20							
B-22	Burn area (artillery shells).	RFI/Closure Report August 2002	NA	X				December-02	RRS1
B-23	Disposal trenches (two green canisters)	RFI Report April 2005	NA	X				July-05	RRS1
B-23A	Disposal Trench (glass ampoules of liquid)	RFI Closure Report September 2004	NA	X				March-05	RRS1
B-24	Spent ammo/rockets area - North Pasture	RFI Report May 2002	Excavate as necessary				X		
B-25	Possible disposal trench	RFI Report April 2005	NA	X				July-05	RRS1
B-26	Possible disposal trench	Delisting Report August 2004	NA			X		November-04	Delisting
B-27	Sanitary landfill, consisting of 5-6 trenches (6 ft deep, 3 ft wide).	RFI Report July 2002	Excavate trenches		X				
B-28	Disposal trenches (molten metal, ammo, ammo parts)	RFI Report April 2002	Closure		X				
B-29	Solid waste disposal area (in old quarry)	RFI Report April 2005	NA	X				February-08	RRS1
B-30	Solid waste disposal area	RFI Report September 2004	NA	X				February-05	RRS1
B-31	Lead shot/sand pipe bedding	RFI/Closure Report July 2002	NA	X				November-02	RRS1
B-32	Lead shot/sand pipe bedding	RFI/Closure Report January 2003	NA	X				November-03	RRS1
B-33	Lead shot/sand pipe bedding	RFI Report September 2004	NA	X				November-04	RRS1
B-34	Maintenance pit floor drain and discharge point	RFI Report August 2002	Delineate contamination, disposal of soil				X		
B-71	Livestock area. Inner cantonment, SW of Well 16.	-- (Weston)	Closure				X		
AOC-64	Area east of SWMU B-4; flares observed in the area	-- (Weston)	Closure				X		
Bldg 40	less-than 90-day accumulation container storage area	RFI/Closure Report September 2003	NA	X				January-04 and January-06	RRS1
Bldg 43	Inactive makeshift ammo demolition facility	RFI Report April 2005	NA	X				August-05	RRS1

**Attachment 2**  
Summary of SWMUs, AOCs, and RMUs Status Table

Unit No.	Description	Investigation Report(s)	Recommendations	Requested Action				Closure Approved by	Closure Type
				RRS1	NFA	Delisting	TRRP		
DD	Dud ammunition disposal area	RFI Report January 2005	NA	X				April-05	RRS1
F-14	Hazardous waste storage area (<90-day)	RFI/Closure Report, 1995	NA	X				November-95	RRS1
I-1	Inactive incinerator (built in 1943), currently used for transformer storage	RFI Report February 2003	Investigated 2007/2008 (Parsons)				X	November-08	NFA
O-1	Waste liquid/sludge oxidation pond (1975)	RFI/Closure Report October 2000	NA	X				April-02	RRS1
Coal Bins	Coal bins (no longer in use)	Delisting Requested January 2003	NA			X		February-08	Delisting
AOC 35	Area immediately around Well 16. Northeast area of inner cantonment.	RFI/Closure Report October 2002	NA	X				February-03	RRS1
AOC 36	Area between Well 16 and B-3. Possible waste verified not present by magnetometer survey.	RFI/Closure Report April 2002	NA	X				August-02	RRS1
AOC 37	Livestock area. NW of Well 16 and N of Well D.	RFI/Closure Report June 2004	NA	X				January-05	NFA
AOC 38	Livestock area. Inner cantonment, SW of Well 16.	RFI Report September 2004	NA	X				February-05	RRS1
AOC 39	None. Area west of Well 16 between North Outer Rd and cantonment fence.	RFI/Closure Report April 2002	NA	X				September-02	RRS1
AOC 40	None. Area east of Well 16 between North Outer Rd and cantonment fence.	RFI/Closure Report May 2002	NA	X				August-02	RRS1
AOC 41	Gate area east of well 16. North Pasture, north of gate 6.	No Further Action Report April 2005	NA		X			July-05	NFA
AOC 42	None. South of SWMUs B-28 and B-19, west of B-4.	RFI Report October 2002	NA		X				
AOC 43	Shallow trench without mounds. Metal, UXO. Located 50 ft south of B-7.	RFI/Closure Report October 2002	NA	X				February-03	RRS1
AOC 44	Fox holes and trenches south of B-9 along west slope of hill. UXO includes Stokes mortars and 20-lb bombs.	Delisting Report April 2005	NA			X		July-05	Delisting
AOC 45	Flat area with spent and undamaged bullets. Located east of B-31, near bend in road.	--	Closure		X				

**Attachment 2**  
Summary of SWMUs, AOCs, and RMUs Status Table

Unit No.	Description	Investigation Report(s)	Recommendations	Requested Action				Closure Approved by	Closure Type
				RRS1	NFA	Delisting	TRRP		
AOC 46	Bermed area with stockpile of lead shot and sand. Located south of Engineering on east side of Thompkins Road.	RFI/Closure Report April 2005	--	X				July-05	RRS1
AOC 47	Area of trenches and mounds (similar to B-15/16). South of B-15/16, in SW area of East Pasture.	RFI/Closure Report June 2002	NA	X				September-02	RRS1
AOC 48	Three N-S trending mounds and a construction debris pile. Located north of B-15/16.	Delisting Report August 2004	NA			X		November-04	Delisting
AOC 49	Trench (4 x 7 ft) without surficial debris. Located SW of deer stand 41 in central East Pasture.	Delisting Report April 2005	NA			X		July-05	Delisting
AOC 50	Area with orange discolored material (most likely nickel penetrate) at ground surface. South of B-30 along gravel road.	RFI/Closure Report January 2005	NA	X				April-05	RRS1
AOC 51	East pasture, east of active range, approximately 25 acres, area around B-9	--	--						
AOC 52	Area west of B-4 towards Salado Creek near trees, two trenches	--	NA		X				
AOC 53	Building foundation near B-27 at Central Road and road to "D" Tank, batteries at rear of slab	RFI/Closure Report April 2005	NA	X				July-05	RRS1
AOC 54	Area near gutting pit, east of Welding Shop Building, right side of road batteries were stored in the area	Closure Report July 2004	NA	X				November-04	RRS1
AOC 55	Landfill, south of Tenberg Drive, east of Salado Creek	RFI/Closure Report Feb 04	Closure	X				June-08	RRS1
AOC 56	Landfill, at intersection of Bernard Road and East Outer Road, surface depression on south side of intersection	Closure Report June 04	NA	X				September-04	RRS1
AOC 57	East of Building 98 and KOA Area, cleaning/maintenance activities performed at temporary structures	--	Closure		X				
AOC 58	Suspected disposal trench within Inner Cantonment	RFI Report October 2002	NA		X				
AOC 59	Trench-type anomaly located west Test Pad in the East Pasture	--	Closure		X				
AOC 60	Trench located west of tunnel and entrance roadway in the East Pasture.	Delisting Report April 2005	NA			X		July-05	Delisting
AOC 61	Suspected landfill	RFI/Closure Report October 2002	NA	X				February-03	RRS1

**Attachment 2**  
Summary of SWMUs, AOCs, and RMUs Status Table

Unit No.	Description	Investigation Report(s)	Recommendations	Requested Action				Closure Approved by	Closure Type
				RRS1	NFA	Delisting	TRRP		
AOC 62	Located west of monitoring well MW-2 and east of Salado Creek.	--	NA		X				
AOC 63	Area consisting of 3 barrels containing rocks, south of deer stand 41 in the East Pasture.	APAR October 2008	Closure				X	July-09	TRRP
AOC 65	A concrete pit area that housed a metal vat that contained TCE and PCE.	RFI Report August 2003	Additional investigation, SVE remediation ongoing						
AOC 66	Area north of Well 16 in the outer cantonment.	Closure Report June 04	NA	X				February-05	NFA
AOC 67	Concrete pad near Building 90 housed a vat containing cleaning solvents.	Release Investigation Report July 2010	Closure		X			September-10	NFA
AOC 68	Area includes metal slag/debris storage area from Wheelabrator operations next to Building 90-2.	Release Investigation Report July 2010	Closure		X			September-10	NFA
AOC 69	Located on west side of CSSA.	Release Investigation Report June 2009	Closure				X	October-09	TRRP
AOC 70	Building used to mix pesticides. Near Building 1.	--	Closure		X			Submitted June-11	NFA
AOC 72	Area containing concrete, possible asbestos. Located east of Building 94, in SW CSSA.	--	Excavate as necessary						
AOC 73	Ranch landfill with overgrown trenches. Near Well 11, in northwest corner of CSSA.	Release Investigation Report September 2008	Closure				X	January-09	TRRP
AOC 74	Area with scattered building debris near Building 605 in the inner cantonment.	--	XRF Survey, Map site boundaries						
AOC 75	Area with high levels of mercury and barium.	--	Excavate as necessary						
RMU1	Active firing range in the East Pasture	--	Investigation once range is inactive.						
RMU2	Rifle range located in the inner cantonment.	--	Excavate as necessary						
RMU3	Firing range berm.	--	Field mapping.						
RMU4	Former rifle range in East Pasture.	--	Field mapping.						
RMU5	Former rocket range in North Pasture.	--	Field mapping.						

**ATTACHMENT 3**  
**OVERALL H ORDER PERCENT COMPLETE**

**Attachment 3**  
**Overall (H) Order Percent Complete**

<b>Task Name</b>	<b>% of Project</b>	<b>% of Phase</b>	<b>% Complete</b>	<b>% of Activity Complete</b>	<b>% of Task Complete</b>
<b>Interim Measures</b>	30%				99%
Interim Measures Work Plan		7%	100%	7.0%	
Interim Measures Implementation Reports		70%	99%	69.3%	
		23%	99%	22.8%	
<b>RCRA Facility Investigation</b>	30%				80%
Preliminary Report		5%	100%	5%	
RFI Workplan		5%	100%	5%	
Facility Investigation		40%	83%	33%	
Risk Assessment		10%	89%	9%	
Investigation Analysis		10%	84%	8%	
Groundwater Investigation		15%	87%	13%	
Treatability Studies		10%	46%	5%	
Progress Reports		5%	31%	2%	
<b>Corrective Measures Study</b>	10%				0%
Identify and Develop Alternatives		15%	0%	0%	
Evaluate Alternatives		60%	0%	0%	
Reports		25%	0%	0%	
<b>Corrective Measures Implementation</b>	30%				0%
Implementation Program Plan		5%	0%	0%	
Corrective Measure Design		15%	0%	0%	
Corrective Measure Construction		70%	0%	0%	
Reports		10%	0%	0%	
<b>% of Phase Complete</b>					<b>53.69%</b>

**Attachment 3**  
**Overall (H) Order Percent Complete**

Task Name	% of Phase	% of Task	% Complete	% of Activity Complete	% of Activity Remaining	% of Task Complete	Comments/Status
<b>1 Interim Measures Work Plan</b>	7%					100.0%	
Draft IM Workplan		80%	100%	80%	0%		
Draft Final IM Workplan		15%	100%	15%	0%		
Final IM Workplan		5%	100%	5%	0%		
<b>2 Interim Measures Implementation</b>	70%					99.0%	
Sample 3 Off-Site Wells		1%	100%	1%	0%		
Sample 20 Off-Site Wells (6 events)		6%	100%	6%	0%		(remaining off-post sampling conducted under the RFI task)
2000 Groundwater Monitoring (4 events)		3%	100%	3%	0%		
2001 Groundwater Monitoring (4 events)		3%	100%	3%	0%		
2002 Groundwater Monitoring (4 events)		3%	100%	3%	0%		
2003 Groundwater Monitoring (4 events)		3%	100%	3%	0%		
2004 Groundwater Monitoring (4 events)		3%	100%	3%	0%		
2005 Groundwater Monitoring (4 events)		3%	100%	3%	0%		
2006 Groundwater Monitoring		3%	100%	3%	0%		
2007 Groundwater Monitoring		3%	100%	3%	0%		
2008 Groundwater Monitoring		3%	100%	3%	0%		
2009 Groundwater Monitoring		3%	100%	3%	0%		
2010 Groundwater Monitoring		3%	100%	3%	0%		
2011 Groundwater Monitoring		3%	100%	3%	0%		
Locate and map off-site wells		1%	100%	1%	0%		
O-1 Soil Borings		3%	100%	3%	0%		
O-1 Excavation, Stabilization, Diposal		12%	100%	12%	0%		
Establish Treatment Unit		1%	0%	0%	100%		may or may not be necessary. After treatability studies.
Determine appropriate disposition of soil piles		5%	100%	5%	0%		Unfunded CSSA future work.
Treat/dispose of soil piles		20%	100%	20%	0%		Not included as IM in the Order.
AOC 50 Excavation and Disposal		3%	100%	3%	0%		
AOC 65 Excavation and Disposal		8%	100%	8%	0%		
<b>3 Reports</b>	23%					99.0%	
Quarterly Progress Report 1 (August 1999)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 2 (November 1999)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 3 (February 2000)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 4 (May 2000)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 5 (August 2000)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 6 (November 2000)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 7 (February 2001)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 8 (May 2001)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 9 (August 2001)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 10 (November 2001)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 11 (February 2002)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 12 (May 2002)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 13 (August 2002)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 14 (November 2002)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 15 (February 2003)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 16 (May 2003)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 17 (August 2003)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 18 (November 2003)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 19 (February 2004)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 20 (May 2004)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 21 (August 2004)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 22 (November 2004)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 23 (February 2005)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 24 (May 2005)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 25 (August 2005)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 26 (October 2005)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 27 (January 2006)		0.69%	100%	0.69%	0%		
Quarterly Progress Report 28 (April 2006)		0.69%	100%	0.69%	0%		
Semi-annual Progress Rpt 29 (Dec 2006)		0.69%	100%	0.69%	0%		
Semi-annual Progress Rpt 30 (July 2007)		0.69%	100%	0.69%	0%		
Semi-annual Progress Rpt 31 (Dec 2007)		0.69%	100%	0.69%	0%		
Semi-annual Progress Rpt 32 (July 2008)		0.69%	100%	0.69%	0%		
Semi-annual Progress Rpt 33 (Dec 2008)		0.69%	100%	0.69%	0%		
Semi-annual Progress Rpt 34 (July 2009)		0.69%	100%	0.69%	0%		
Semi-annual Progress Rpt 35 (Dec 2009)		0.69%	100%	0.69%	0%		
Semi-annual Progress Rpt 36 (July 2010)		0.69%	100%	0.69%	0%		
Semi-annual Progress Rpt 37 (Dec 2010)		0.69%	100%	0.69%	0%		
Semi-annual Progress Rpt 38 (July 2011)		0.69%	100%	0.69%	0%		
Draft O-1 IM Report		19%	100%	19%	0%		
Draft final O-1 IM Report		12%	100%	12%	0%		
Final O-1 IM Report		5%	100%	5%	0%		
Draft Soil Pile IM Report		20%	100%	20%	0%		
Draft Final Soil Pile IM Report		12%	100%	12%	0%		
Final Soil Pile IM Report		5%	100%	5%	0%		
<b>% of Phase Complete</b>						<b>99.05%</b>	



**Attachment 3**  
**Overall (H) Order Percent Complete**

Task Name	% of Phase	% of Task	% Complete	% of Activity Complete	% of Activity Remaining	% of Task Complete	Comments/Status
<b>Preliminary Report</b>	5%					100.0%	
Draft DCC Report		80%	100%	80%	0%		
Draft Final DCC Report		15%	100%	15%	0%		
Final DCC Report		5%	100%	5%	0%		
<b>RFI Workplan</b>	5%					100.0%	
Draft Community Relations Plan		25%	100%	25%	0%		
Draft Final CRP		5%	100%	5%	0%		
Final CRP (2006)		10%	100%	10%	0%		
Draft RFI Workplans		20%	100%	20%	0%		
Draft Final RFI Workplan		5%	100%	5%	0%		
Final RFI Workplans		5%	100%	5%	0%		
Final Work Plans (DY01)		10%	100%	10%	0%		
Draft Work Plans (DY02)		10%	100%	10%	0%		
Final Work Plans (DY02)		10%	100%	10%	0%		
<b>Facility Investigation<sup>1</sup></b>	40%					83.5%	
<b>Small Areas (0-2 acres in size)</b>							
B-3 Investigation/Report		1.24%	50%	0.620%	50%		Final report submitted, additional work required.
B-4 Investigation/Report		1.24%	50%	0.620%	50%		Final report submitted. Additional work required.
B-5 Investigation/Report		1.24%	100%	1.240%	0%		RRS1 closure approved Oct 02.
B-6 Investigation/Report		1.24%	100%	1.240%	0%		RRS1 closure approved Oct 02.
B-7 Investigation/Report		1.24%	100%	1.240%	0%		RRS1 closure approved Oct 02.
B-8 Investigation/Report		1.24%	90%	1.116%	10%		Investigation underway
B-9 Investigation/Report		1.24%	100%	1.240%	0%		RRS1 closure approved Mar 03
B-10 Investigation/Report		1.24%	100%	1.240%	0%		RRS1 closure approved Jan 04
B-11 Investigation/Report		1.24%	100%	1.240%	0%		RRS1 closure approved Sept 04
B-12 Investigation/Report		1.24%	100%	1.240%	0%		RRS1 closure approved July 05
B-13 Investigation/Report		1.24%	80%	0.992%	20%		Final report submitted. Additional work required.
B-15/16 Investigation/Report		1.24%	99%	1.228%	1%		Investigation underway
B-19 Investigation/Report		1.24%	100%	1.240%	0%		RRS1 closure approved Sept 02
B-23 Investigation/Report		1.24%	100%	1.240%	0%		RRS1 closure approved July 05
B-23A Investigation/Report		1.24%	100%	1.240%	0%		RRS1 closure approved Mar 05
B-25 Investigation/Report		1.24%	100%	1.240%	0%		RRS1 closure approved July 05
B-26 Investigation/Report		1.24%	100%	1.240%	0%		Delisting approved November 04
B-27 Investigation/Report		1.24%	20%	0.248%	80%		Final report submitted, additional work required
B-28 Investigation/Report		1.24%	95%	1.178%	5%		Investigation underway
B-30 Investigation/Report		1.24%	100%	1.240%	0%		RRS1 closure approved Feb 05
B-31 Investigation/Report		1.24%	100%	1.240%	0%		RRS1 closure approved Nov 02
B-32 Investigation/Report		1.24%	100%	1.240%	0%		RRS1 closure approved Nov 03
B-33 Investigation/Report		1.24%	100%	1.240%	0%		RRS1 closure approved Nov 04
B-34 Investigation/Report		1.24%	80%	0.992%	20%		Final report and Addendum report submitted, additional work required
B-71 Investigation/Report		1.24%	99%	1.228%	1%		TRRP closure requested
BLDG-43 Investigation/Report		1.24%	100%	1.240%	0%		RRS1 closure approved Sept 05
Demo Dud Investigation/Report		1.24%	100%	1.240%	0%		RRS1 closure approved Apr 05
F-14 Investigation/Report		1.24%	100%	1.240%	0%		Closure approved Nov 95
I-1 Investigation/Report		1.24%	90%	1.116%	0%		Closure approved
AOC 35 Investigation/Report		1.24%	100%	1.240%	0%		RRS1 closure approved Feb 03
AOC 37 Investigation/Report		1.24%	100%	1.240%	0%		RRS1 closure approved Jan 05
AOC 39 Investigation/Report		1.24%	100%	1.240%	0%		RRS1 closure approved Sept 02
AOC 40 Investigation/Report		1.24%	100%	1.240%	0%		RRS1 closure approved Aug 02
AOC 43 Investigation/Report		1.24%	100%	1.240%	0%		RRS1 closure approved Feb 03
AOC 44 Investigation/Report		1.24%	100%	1.240%	0%		Delisting approved July 2005.
AOC 45 Investigation/Report		1.24%	25%	0.310%	75%		Investigation underway
AOC 46 Investigation/Report		1.24%	100%	1.240%	0%		RRS1 closure approved July 05
AOC 47 Investigation/Report		1.24%	100%	1.240%	0%		Closure approved Sep 02

**Attachment 3**  
**Overall (H) Order Percent Complete**

<b>Task Name</b>	<b>% of Phase</b>	<b>% of Task</b>	<b>% Complete</b>	<b>% of Activity Complete</b>	<b>% of Activity Remaining</b>	<b>% of Task Complete</b>	<b>Comments/Status</b>
AOC 49 Investigation/Report		1.24%	100%	1.240%	0%		Delisting approved July 05
AOC 50 Investigation/Report		1.24%	100%	1.240%	0%		Closure approved Apr 05
AOC 52 Investigation/Report		1.24%	0%	0.000%	100%		
AOC 53 Investigation/Report		1.24%	100%	1.240%	0%		Closure approved July 05.
AOC 54 Investigation/Report		1.24%	100%	1.240%	0%		Closure approved Nov 04
AOC 55 Investigation/Report		1.24%	100%	1.240%	0%		Closure approved June 08.
AOC 56 Investigation/Report		1.24%	100%	1.240%	0%		Closure approved Sept 04
AOC 58 Investigation/Report		1.24%	80%	0.992%	20%		Final RFI report submitted, additional work recommended. RIR prepared requesting NFA closure
AOC 59 Investigation/Report		1.24%	90%	1.116%	10%		
AOC 60 Investigation/Report		1.24%	100%	1.240%	0%		Delisting approved July 05.
AOC 61 Investigation/Report		1.24%	100%	1.240%	0%		Closure approved Feb 03
AOC 62 Investigation/Report		1.24%	0%	0.000%	100%		
AOC 63 Investigation/Report		1.24%	100%	1.240%	0%		Closure approved Aug 09.
AOC 64 Investigation/Report		1.24%	99%	1.228%	1%		TRRP closure requested
AOC 67 Investigation/Report		1.24%	100%	1.240%	0%		Closure approved Sept 10.
AOC 68 Investigation/Report		1.24%	100%	1.240%	0%		Closure approved Sept 10.
AOC 69 Investigation/Report		1.24%	100%	1.240%	0%		
AOC 70 Investigation/Report		1.24%	90%	1.116%	10%		
AOC 72 Investigation/Report		1.24%	50%	0.620%	50%		Investigation underway
AOC 73 Investigation/Report		1.24%	100%	1.240%	0%		Closure approved July 2009
<b>Medium Areas (2-10 acres in size)</b>							
B-1 Investigation/Report		1.2%	100%	1.220%	0%		Closure approved Nov 02
B-2 Investigation/Report		1.2%	90%	1.098%	10%		Investigation underway
B-22 Investigation/Report		1.2%	100%	1.220%	0%		Closure approved Dec 02
B-24 Investigation/Report		1.2%	80%	0.976%	20%		Final report submitted, additional work recommended
B-29 Investigation/Report		1.2%	100%	1.220%	0%		Closure approved
AOC 36 Investigation/Report		1.2%	100%	1.220%	0%		Closure approved Aug 02
AOC 41 Investigation/Report		1.2%	100%	1.220%	0%		Closure approved July 05.
AOC 42 Investigation/Report		1.2%	80%	0.976%	20%		Final report submitted, additional work recommended
AOC 48 Investigation/Report		1.2%	100%	1.220%	0%		Delisting approved Nov 04
AOC 57 Investigation/Report		1.2%	25%	0.305%	75%		Investigation underway
<b>Large Areas (&gt;10 acres in size)</b>							
B-20/21 Investigation/Report		1.2%	90%	1.098%	10%		Investigation underway
AOC 38 Investigation/Report		1.2%	100%	1.220%	0%		Closure approved February 05
AOC 51 Investigation/Report		1.2%	25%	0.305%	75%		
AOC 66 Investigation/Report		1.2%	100%	1.220%	0%		NFA Closure approved Feb 05
RMU-1 Investigation/Report		1.2%	0%	0.000%	100%		
RMU-5 Investigation/Report		1.2%	25%	0.305%	75%		
AOC 65 Investigation/Report		1.2%	80%	0.976%	20%		Final report submitted, additional work recommended
AOC 69 Investigation/Report		1.2%	100%	1.220%	0%		Closure approved Oct 09
AOC 70 Investigation/Report		1.2%	0%	0.000%	100%		
Coal Bins Investigation/Report		1.2%	100%	1.220%	0%		Site de-listed as a SWMU
RMU-2 Investigation/Report		1.2%	25%	0.305%	75%		Investigation underway
RMU-3 Investigation/Report		1.2%	25%	0.305%	75%		Investigation underway
RMU-4 Investigation/Report		1.2%	25%	0.305%	75%		Investigation underway
<b>Groundwater Investigation</b>	<b>15%</b>					<b>87%</b>	
Well Installation		10%	80%	8%	20%		
Groundwater Monitoring 1999		3.0%	100%	3%	0%		
Groundwater Monitoring 2000		3.0%	100%	3%	0%		
Groundwater Monitoring 2001		3.0%	100%	3%	0%		
Groundwater Monitoring 2002		3.0%	100%	3%	0%		
Groundwater Monitoring 2003		3.0%	100%	3%	0%		
Groundwater Monitoring 2004		3.0%	100%	3%	0%		

**Attachment 3**  
**Overall (H) Order Percent Complete**

<b>Task Name</b>	<b>% of Phase</b>	<b>% of Task</b>	<b>% Complete</b>	<b>% of Activity Complete</b>	<b>% of Activity Remaining</b>	<b>% of Task Complete</b>	<b>Comments/Status</b>
Groundwater Monitoring 2005		3.0%	100%	3%	0%		
Groundwater Monitoring 2006		3.0%	100%	3%	0%		
Groundwater Monitoring 2007		3.0%	100%	3%	0%		
Groundwater Monitoring 2008		3.0%	100%	3%	0%		
Groundwater Monitoring 2009		3.0%	100%	3%	0%		
Groundwater Monitoring 2010		3.0%	100%	3%	0%		
Conceptual Site Model (CSM)		20.0%	100%	20%	0%		
CSM Update		4.0%	80%	3%	20%		
LTMO 2005 (optimization study)		10%	100%	10%	0%		Complete
LTMO 2010 (review of optimization)		10%	100%	10%	0%		Complete
<b>Risk Assessment</b>	10%					89%	
Draft TAD		10%	100%	10%	0%		
Draft Final TAD		4%	100%	4%	0%		
Final TAD		1%	0%	0%	100%		Complete when analytical data are available for full evaluation.
Draft CSM		70%	100%	70%	0%		
Update to CSM		10%	50%	5%	50%		
Final CSM		5%	0%	0%	100%		
<b>Investigation Analysis</b>	10%					84%	
Collect Background Data		10%	100%	10%	0%		Information included in facility investigation reports; percent complete based on overall percent complete of facility investigation tasks. Information included in facility investigation reports; percent complete based on overall percent complete of facility investigation tasks.
Draft Investigation Analysis		85%	82%	70%	18%		
Final Investigation Analysis		5%	82%	4%	18%		
<b>Treatability Studies</b>	10%					46%	
Draft Treatability Study Report B-20		15%	100%	15%	0%		
Final Treatability Study Report B-20		5%	100%	5%	0%		
Continued O&M for B-3		10%	100%	10%	0%		
AOC-65 Treatability Studies		10%	90%	9%	10%		
Draft Treatability Study & Technology Evaluation Reports		10%	70%	7%	30%		
Final Treatability Study		25%	0%	0%	100%		
Recharge Study		25%	100%	25%	0%		
<b>Progress Reports</b>	5%					31.4%	
Quarter 1 (August 1999)		0.85%	100%	0.85%	0%		
Quarter 2 (November 1999)		0.85%	100%	0.85%	0%		
Quarter 3 (February 2000)		0.85%	100%	0.85%	0%		
Quarter 4 (May 2000)		0.85%	100%	0.85%	0%		
Quarter 5 (August 2000)		0.85%	100%	0.85%	0%		
Quarter 6 (November 2000)		0.85%	100%	0.85%	0%		
Quarter 7 (February 2001)		0.85%	100%	0.85%	0%		
Quarter 8 (May 2001)		0.85%	100%	0.85%	0%		
Quarter 9 (August 2001)		0.85%	100%	0.85%	0%		
Quarter 10 (November 2001)		0.85%	100%	0.85%	0%		
Quarter 11 (February 2002)		0.85%	100%	0.85%	0%		
Quarter 12 (May 2002)		0.85%	100%	0.85%	0%		
Quarter 13 (August 2002)		0.85%	100%	0.85%	0%		
Quarter 14 (November 2002)		0.85%	100%	0.85%	0%		
Quarter 15 (February 2003)		0.85%	100%	0.85%	0%		
Quarter 16 (May 2003)		0.85%	100%	0.85%	0%		
Quarter 17 (August 2003)		0.85%	100%	0.85%	0%		
Quarter 18 (November 2003)		0.85%	100%	0.85%	0%		
Quarter 19 (February 2004)		0.85%	100%	0.85%	0%		
Quarter 20 (May 2004)		0.85%	100%	0.85%	0%		
Quarter 21 (August 2004)		0.85%	100%	0.85%	0%		
Quarter 22 (November 2004)		0.85%	100%	0.85%	0%		
Quarter 23 (February 2005)		0.85%	100%	0.85%	0%		
Quarter 24 (May 2005)		0.85%	100%	0.85%	0%		

**Attachment 3**  
**Overall (H) Order Percent Complete**

<b>Task Name</b>	<b>% of Phase</b>	<b>% of Task</b>	<b>% Complete</b>	<b>% of Activity Complete</b>	<b>% of Activity Remaining</b>	<b>% of Task Complete</b>	<b>Comments/Status</b>
Quarter 25 (August 2005)		0.85%	100%	0.85%	0%		
Quarter 26 (November 2005)		0.85%	100%	0.85%	0%		
Quarter 27 (February 2006)		0.85%	100%	0.85%	0%		
Quarter 28 (May 2006)		0.85%	100%	0.85%	0%		
Semi-Annual 29 (December 2006)		0.85%	100%	0.85%	0%		
Semi-Annual 30 (July 2007)		0.85%	100%	0.85%	0%		
Semi-Annual 31 (December 2007)		0.85%	100%	0.85%	0%		
Semi-Annual 32 (July 2008)		0.85%	100%	0.85%	0%		
Semi-Annual 33 (December 2008)		0.85%	100%	0.85%	0%		
Semi-Annual 34 (July 2009)		0.85%	100%	0.85%	0%		
Semi-Annual 35 (December 2009)		0.85%	100%	0.85%	0%		
Semi-Annual 36 (July 2010)		0.85%	100%	0.85%	0%		
Semi-Annual 37 (December 2010)		0.85%	100%	0.85%	0%		
Semi-Annual 38 (November 2008)		0.85%	0%	0.00%	100%		
<b>(Add'l Quarters - rows hidden)</b>							
% of Phase Complete						79.93%	
<sup>1</sup> Breakdown of percent complete for RFI facility investigations: Field work complete (25%), data validation (20%), boring logs (if applicable)(10%), analytical data tables (10%), figures (10%), draft report (20%), final report (5%). Note: if additional investigations are needed, then the percent complete will need to be adjusted on a site by site basis.							

**Attachment 3**  
**Overall (H) Order Percent Complete**

<b>Task Name</b>	<b>% of Phase</b>	<b>% of Task</b>	<b>% Complete</b>	<b>% of Activity Complete</b>	<b>% of Task Complete</b>
<b>Identify and Develop Alternatives</b>	15%				0.0%
Update DCC Report		35%	0%	0%	
Establish Corrective Action Objectives		30%	0%	0%	
ID, Screen, Develop CM Alternatives		35%	0%	0%	
<b>Evaluate Alternatives</b>	60%				0.0%
Draft Description of CM Alternative		90%	0%	0%	
Final Description of CM Alternative		10%	0%	0%	
<b>Reports</b>	25%				0.0%
Draft CMS Report		75%	0%	0%	
Final CMS Report		5%	0%	0%	
Quarter 1 Progress Report		5%	0%	0%	
Quarter 2 Progress Report		5%	0%	0%	
Quarter 3 Progress Report		5%	0%	0%	
Quarter 4 Progress Report		5%	0%	0%	
<b>% of Phase Complete</b>					<b>0.0%</b>

**Attachment 3**  
**Overall (H) Order Percent Complete**

<b>Task Name</b>	<b>% of Phase</b>	<b>% of Task</b>	<b>% Complete</b>	<b>% of Activity Complete</b>	<b>% of Task Complete</b>
<b>Implementation Program Plan</b>	5%				0.0%
Draft Program Management Plan		40%	0%	0%	
Final Program Management Plan		10%	0%	0%	
Draft Update to CRP		40%	0%	0%	
Final Update to CRP		10%	0%	0%	
<b>Corrective Measure Design</b>	15%				0.0%
Draft CMD Report		90%	0%	0%	
Final CMD Report		10%	0%	0%	
<b>Corrective Measure Construction</b>	70%				0%
Draft Construction QAPP		35%	0%	0%	
Final Construction QAPP		5%	0%	0%	
Implementation of Construction QAPP		60%	0%	0%	
<b>Reports</b>	10%				0%
Progress Report 1		25%	0%	0%	
Progress Report 2		25%	0%	0%	
Progress Report 3		25%	0%	0%	
Progress Report 4		25%	0%	0%	
<b>% of Phase Complete</b>					<b>0.00%</b>

# **ATTACHMENT 4**

## **GROUNDWATER RESULTS SUMMARY**

**Attachment 4**  
**December 2010 Quarterly On-post Groundwater Analytical Results**

Well ID	Sample Date	Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Zinc	Mercury
CS-MW20-LGR	12/7/2010	NA	NA	--	--	NA	--	NA	--
CS-MW21-LGR	12/7/2010	NA	NA	--	--	NA	--	NA	--
CS-MW22-LGR	12/7/2010	NA	NA	--	--	NA	--	NA	--
CS-MW23-LGR	12/7/2010	NA	NA	--	--	NA	--	NA	--
CS-MW24-LGR	12/7/2010	NA	NA	--	--	NA	--	NA	--
CS-MW25-LGR	12/8/2010	NA	NA	--	--	NA	<b>0.0183F</b>	NA	--
CS-MW25-LGR FD	12/8/2010	NA	NA	--	--	NA	<b>0.0198F</b>	NA	--
CS-12	12/8/2010	<b>0.0013F</b>	<b>0.0308</b>	--	--	<b>0.043</b>	<b>0.0186F</b>	<b>0.397</b>	--
<b>CSSA Drinking Water Well System</b>									
CS-1	12/8/2010	--	<b>0.0362</b>	--	--	<b>0.023</b>	--	<b>0.141</b>	--
CS-9	12/8/2010	<b>0.0004F</b>	<b>0.0395</b>	--	--	<b>0.07</b>	<b>0.0474</b>	<b>2.608</b>	<b>0.0018</b>
CS-10	12/8/2010	--	<b>0.0404</b>	--	--	<b>0.033</b>	--	<b>0.108</b>	--

Well ID	Sample Date	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	TCE	Vinyl Chloride
CS-MW20-LGR	12/7/2010	--	--	--	<b>1.71</b>	--	--
CS-MW21-LGR	12/7/2010	--	--	--	--	--	--
CS-MW22-LGR	12/7/2010	--	--	--	--	--	--
CS-MW23-LGR	12/7/2010	--	--	--	--	--	--
CS-MW24-LGR	12/7/2010	--	--	--	--	--	--
CS-MW25-LGR	12/8/2010	--	--	--	--	--	--
CS-MW25-LGR FD	12/8/2010	--	--	--	--	--	--
CS-12	12/8/2010	--	--	--	--	--	--
<b>CSSA Drinking Water Well System</b>							
CS-1	12/8/2010	--	--	--	--	<b>0.23F</b>	--
CS-9	12/8/2010	--	--	--	--	--	--
CS-10	12/8/2010	--	--	--	--	--	--

<b>BOLD</b>	= Above the MDL
<b>BOLD</b>	= Above the RL
<b>BOLD</b>	= Above the MCL

All samples were analyzed by APPL, Inc.  
VOC data reported in ug/L & metals data reported in mg/L.

**Abbreviations/Notes:**

FD                   Field Duplicate  
TCE                   Trichloroethene  
PCE                   Tetrachloroethene  
DCE                   Dichloroethene  
AL                    Action Level  
SS                    Secondary Standard  
NA                    Not Analyzed for this parameter

**Data Qualifiers**

U-The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.  
F-The analyte was positively identified but the associated numerical value is below the RL.  
J-The analyte was positively identified; the quantitation is an estimation.



**Attachment 4**  
**December 2010 Quarterly Off-Post Groundwater Analytical Results**

Well ID	Sample Date	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	TCE	Vinyl Chloride
FO-J1	12/14/2010	--	--	--	<b>0.32F</b>	--	--
HS-1	12/16/2010	--	--	--	<b>0.24F</b>	--	--
HS-2	12/16/2010	--	--	--	--	--	--
I10-4	12/13/2010	--	--	--	<b>7.86</b>	<b>3.15</b>	--
I10-8	12/16/2010	--	--	--	--	--	--
JW-7	12/14/2010	--	--	--	<b>0.47F</b>	--	--
JW-8	12/14/2010	--	--	--	<b>0.30F</b>	--	--
JW-14	12/14/2010	--	--	--	--	--	--
JW-28	12/28/2010	--	--	--	--	--	--
JW-29	12/16/2010	--	--	--	--	--	--
JW-30	12/16/2010	--	--	--	<b>0.17F</b>	--	--
LS-1	12/16/2010	--	--	--	<b>0.33F</b>	--	--
LS-1 FD	12/16/2010	--	--	--	<b>0.34F</b>	--	--
LS-4	12/14/2010	--	--	--	--	--	--
LS-5	12/13/2010	--	--	--	<b>1.02F</b>	<b>2.17</b>	--
LS-6	12/13/2010	--	--	--	<b>0.86F</b>	<b>0.48F</b>	--
LS-7	12/13/2010	--	--	--	<b>1.75</b>	<b>0.35F</b>	--
OFR-1	12/14/2010	--	--	--	<b>0.29F</b>	--	--
OFR-1 FD	12/14/2010	--	--	--	<b>0.32F</b>	--	--
RFR-3	12/21/2010	--	--	--	--	--	--
RFR-4	12/21/2010	--	--	--	--	--	--
RFR-5	12/21/2010	--	--	--	--	--	--
RFR-5 FD	12/21/2010	--	--	--	--	--	--
RFR-10	12/13/2010	--	<b>0.45F</b>	--	<b>35.48</b>	<b>12.94</b>	--
RFR-11	12/13/2010	--	--	--	<b>1.07F</b>	<b>1.56</b>	--
RFR-14	12/16/2010	--	--	--	--	--	--

<b>BOLD</b>	= Above the MDL
<b>BOLD</b>	= Above the RL
<b>BOLD</b>	= Above the MCL

All samples were analyzed by APPL, Inc.  
VOC data reported in ug/L.  
**Abbreviations/Notes:**  
FD                      Field Duplicate  
TCE                     Trichloroethene  
PCE                     Tetrachloroethene  
DCE                     Dichloroethene

**Data Qualifiers**  
U-The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.  
F-The analyte was positively identified but the associated numerical value is below the RL.

**Attachment 4**  
**March 2011 Quarterly On-post Groundwater Analytical Results**

Well ID	Sample Date	Arsenic	Barium	Cadmium	Chromium	Copper	Lead	Zinc	Mercury
CS-MW1-LGR	3/9/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW1-LGR FD	3/9/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW2-LGR	3/9/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW3-LGR	3/8/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW4-LGR	3/10/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW5-LGR	3/8/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW6-LGR	3/10/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW7-LGR	3/10/2011	NA	NA	0.0005U	<b>0.002F</b>	NA	0.0019U	NA	0.0001U
CS-MW9-LGR	3/8/2011	NA	NA	0.0005U	<b>0.062</b>	NA	0.0019U	NA	0.0001U
CS-MW11A-LGR	3/10/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW16-LGR	3/8/2011	NA	NA	0.0005U	0.001U	NA	<b>0.0157F</b>	NA	0.0001U
CS-MW16-CC	3/8/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW18-LGR	3/9/2011	NA	NA	0.0005U	<b>0.039</b>	NA	0.0019U	NA	0.0001U
CS-MW19-LGR	3/9/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW20-LGR	3/10/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW20-LGR FD	3/10/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW21-LGR	3/10/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW22-LGR	3/10/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW23-LGR	3/10/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW23-LGR FD	3/10/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW24-LGR	3/9/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
CS-MW25-LGR	3/8/2011	NA	NA	0.0005U	<b>0.008F</b>	NA	0.0019U	NA	0.0001U
CS-D	3/8/2011	NA	NA	0.0005U	0.001U	NA	<b>0.0023F</b>	NA	0.0001U
CS-4	3/9/2011	NA	NA	0.0005U	0.001U	NA	0.0019U	NA	0.0001U
<b>CSSA Drinking Water Well System</b>									
CS-1	3/8/2011	0.0002U	<b>0.0334</b>	0.0005U	0.001U	<b>0.004F</b>	0.0019U	<b>0.137</b>	0.0001U
CS-9	3/9/2011	<b>0.0003F</b>	<b>0.0374</b>	0.0005U	0.001U	<b>0.008F</b>	<b>0.0149F</b>	<b>1.19</b>	<b>0.0017</b>
CS-10	3/9/2011	<b>0.0016F</b>	<b>0.0397</b>	0.0005U	0.001U	<b>0.021</b>	0.0019U	<b>0.122</b>	0.0001U

Well ID	Sample Date	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	TCE	Vinyl Chloride
CS-MW1-LGR	3/9/2011	0.12U	<b>17.11</b>	<b>0.23F</b>	<b>11.9</b>	<b>29.59</b>	0.08U
CS-MW1-LGR FD	3/9/2011	0.12U	<b>16.96</b>	<b>0.26F</b>	<b>12.24</b>	<b>30.15</b>	0.08U
CS-MW2-LGR	3/9/2011	0.12U	<b>0.57F</b>	0.08U	0.06U	0.05U	0.08U
CS-MW3-LGR	3/8/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW4-LGR	3/10/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW5-LGR	3/8/2011	0.12U	<b>2.71</b>	0.08U	<b>1.86</b>	<b>3.63</b>	0.08U
CS-MW6-LGR	3/10/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW7-LGR	3/10/2011	0.12U	0.07U	0.08U	<b>0.26F</b>	0.05U	0.08U
CS-MW9-LGR	3/8/2011	0.12U	0.07U	0.08U	<b>0.18F</b>	0.05U	0.08U
CS-MW11A-LGR	3/10/2011	0.12U	0.07U	0.08U	<b>1.20F</b>	0.05U	0.08U
CS-MW16-LGR	3/8/2011	0.12U	<b>189.43*</b>	<b>0.24F</b>	<b>131.48*</b>	<b>164.31*</b>	0.08U
CS-MW16-CC	3/8/2011	0.12U	<b>29.48</b>	<b>6.81</b>	<b>0.66F</b>	<b>18.3</b>	0.08U
CS-MW18-LGR	3/9/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW19-LGR	3/9/2011	0.12U	0.07U	0.08U	<b>0.56F</b>	0.05U	0.08U
CS-MW20-LGR	3/10/2011	0.12U	0.07U	0.08U	<b>1.91</b>	0.05U	0.08U
CS-MW20-LGR FD	3/10/2011	0.12U	0.07U	0.08U	<b>1.51</b>	0.05U	0.08U
CS-MW21-LGR	3/10/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW22-LGR	3/10/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW23-LGR	3/10/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW23-LGR FD	3/10/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW24-LGR	3/9/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-MW25-LGR	3/8/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-D	3/8/2011	0.12U	<b>96.47*</b>	<b>2.3</b>	<b>103.41</b>	<b>120.26*</b>	0.08U
CS-4	3/9/2011	0.12U	<b>1.09F</b>	0.08U	<b>2.36</b>	<b>2.85</b>	0.08U
<b>CSSA Drinking Water Well System</b>							
CS-1	3/8/2011	0.12U	0.07U	0.08U	0.06U	<b>0.30F</b>	0.08U
CS-9	3/9/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
CS-10	3/9/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U

<b>BOLD</b>	= Above the MDL
<b>BOLD</b>	= Above the RL
<b>BOLD</b>	= Above the MCL

All samples were analyzed by APPL, Inc.  
VOC data reported in ug/L & metals data reported in mg/L.

**Abbreviations/Notes:**  
FD Field Duplicate  
TCE Trichloroethene  
PCE Tetrachloroethene  
DCE Dichloroethene  
AL Action Level  
SS Secondary Standard  
NA Not Analyzed for this parameter

**Data Qualifiers**  
U-The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.  
F-The analyte was positively identified but the associated numerical value is below the RL.  
\* The analyte was run at a dilution of 100.

**Attachment 4**  
**March 2011 Quarterly Off-post Groundwater Analytical Results**

Well ID	Sample Date	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	TCE	Vinyl Chloride
FO-8	3/2/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
FO-22	3/2/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
FO-22 FD	3/2/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
FO-J1	3/3/2011	0.12U	0.07U	0.08U	<b>0.22F</b>	0.05U	0.08U
HS-1	3/3/2011	0.12U	0.07U	0.08U	<b>0.15F</b>	0.05U	0.08U
HS-1 FD	3/3/2011	0.12U	0.07U	0.08U	<b>0.15F</b>	0.05U	0.08U
I10-4	3/1/2011	0.12U	0.07U	0.08U	<b>6</b>	<b>2.26</b>	0.08U
I10-5	3/2/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
I10-8	3/2/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-5	3/1/2011	0.12U	0.07U	0.08U	<b>0.12F</b>	0.05U	0.08U
JW-7	3/3/2011	0.12U	0.07U	0.08U	<b>0.37F</b>	0.05U	0.08U
JW-8	3/1/2011	0.12U	0.07U	0.08U	<b>0.31F</b>	0.05U	0.08U
JW-14	3/3/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-15	3/1/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-27	3/3/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-28	3/1/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-29	3/1/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
JW-30	3/1/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
LS-1	3/2/2011	0.12U	0.07U	0.08U	<b>0.28F</b>	0.05U	0.08U
LS-4	3/2/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
LS-5	3/2/2011	0.12U	0.07U	0.08U	<b>1.10F</b>	<b>2.59</b>	0.08U
LS-6	2/28/2011	0.12U	0.07U	0.08U	<b>0.76F</b>	<b>0.85F</b>	0.08U
LS-6-A2	2/28/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
LS-7	2/28/2011	0.12U	0.07U	0.08U	<b>2.88</b>	<b>0.43F</b>	0.08U
LS-7-A2	2/28/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OFR-1	3/3/2011	0.12U	0.07U	0.08U	<b>0.24F</b>	0.05U	0.08U
OFR-4	3/3/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-10	2/28/2011	0.12U	<b>0.39F</b>	0.08U	<b>30.98</b>	<b>13.03</b>	0.08U
RFR-10-A2	2/28/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-10-B2	2/28/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-10-B2 FD	2/28/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-11	2/28/2011	0.12U	0.07U	0.08U	<b>0.68F</b>	<b>1.37</b>	0.08U
RFR-11-A2	2/28/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
RFR-14	3/3/2011	0.12U	0.07U	0.08U	<b>0.11F</b>	0.05U	0.08U
OW-BARNOWL	2/28/2011	0.12U	0.07U	0.08U	<b>0.15F</b>	0.05U	0.08U
OW-CE1	2/28/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-CE1 FD	2/28/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-CE2	2/28/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-DAIRYWELL	2/28/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-HH1	2/28/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-HH2	2/28/2011	0.12U	0.07U	0.08U	<b>0.20F</b>	0.05U	0.08U
OW-HH3	2/28/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U
OW-MT2	2/28/2011	0.12U	0.07U	0.08U	0.06U	0.05U	0.08U

<b>BOLD</b>	= Above the MDL
<b>BOLD</b>	= Above the RL
<b>BOLD</b>	= Above the MCL

All samples were analyzed by APPL, Inc.  
VOC data reported in ug/L.  
**Abbreviations/Notes:**  
FD                      Field Duplicate  
TCE                    Trichloroethene  
PCE                    Tetrachloroethene  
DCE                    Dichloroethene

**Data Qualifiers**  
U-The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.  
F-The analyte was positively identified but the associated numerical value is below the RL.

**Attachment 4**  
**March 2011 Westbay Analytical Results**

Well ID	Date Sampled	(1,1-dichloroethene)	cis-1,2-DCE (cis-1,2-dichloroethene)	TCE (trichloroethene)	PCE (tetrachloroethene)	trans-1,2-DCE (trans-1,2-dichloroethene)	Vinyl Chloride
CS-WB01-UGR-01	3/14/2011	Dry					
CS-WB01-LGR-01	3/14/2011	Dry					
CS-WB01-LGR-02	3/14/2011	--	--	3.71	13	--	--
CS-WB01-LGR-03	3/14/2011	--	--	14.16	4.18	--	--
CS-WB01-LGR-04	3/14/2011	--	--	--	--	--	--
CS-WB01-LGR-05	3/14/2011	--	--	0.35	--	--	--
CS-WB01-LGR-06	3/14/2011	--	0.34	1.95	0.22	--	--
CS-WB01-LGR-07	3/14/2011	--	0.2	13.14	13.54	--	--
CS-WB01-LGR-08	3/14/2011	--	1.62	3.08	0.16	--	--
CS-WB01-LGR-09	3/14/2011	--	0.31	21.82	17.09	--	--
CS-WB02-UGR-01	3/14/2011	Dry					
CS-WB02-LGR-01	3/14/2011	--	--	1.34	0.48	--	--
CS-WB02-LGR-02	3/14/2011	Dry					
CS-WB02-LGR-03	3/14/2011	--	--	--	3.02	--	--
CS-WB02-LGR-04	3/14/2011	--	--	5.87	2.05	--	--
CS-WB02-LGR-05	3/14/2011	--	--	2.78	0.71	0.2	--
CS-WB02-LGR-06	3/14/2011	--	1.02	4.05	1.08	2.82	--
CS-WB02-LGR-07	3/14/2011	--	0.16	0.51	0.65	--	--
CS-WB02-LGR-08	3/14/2011	--	3.7	0.58	0.19	1.41	--
CS-WB02-LGR-09	3/14/2011	--	0.2	10.34	11.58	--	--
CS-WB03-UGR-01	3/16/2011	--	--	22.30*	1767.03*	--	--
CS-WB03-LGR-01	3/16/2011	Dry					
CS-WB03-LGR-02	3/16/2011	Dry					
CS-WB03-LGR-03	3/16/2011	--	0.17	9.03	14.41	--	--
CS-WB03-LGR-04	3/16/2011	--	--	5.58	16.22	--	--
CS-WB03-LGR-05	3/16/2011	--	--	5.43	22.49	--	--
CS-WB03-LGR-06	3/16/2011	--	--	0.86	5.86	--	--
CS-WB03-LGR-07	3/16/2011	--	2.32	7	8.03	--	--
CS-WB03-LGR-08	3/16/2011	--	7.41	1.67	7.82	--	--
CS-WB03-LGR-09	3/16/2011	--	0.26	4.04	4.73	--	--
CS-WB04-UGR-01	3/15/2011	Dry					
CS-WB04-LGR-01	3/15/2011	--	--	--	0.39	--	--
CS-WB04-LGR-02	3/15/2011	Dry					
CS-WB04-LGR-03	3/15/2011	--	--	--	0.17	--	--
CS-WB04-LGR-04	3/15/2011	--	--	0.25	0.2	--	--
CS-WB04-LGR-06	3/15/2011	--	2.87	14.62	22.35	0.36	--
CS-WB04-LGR-07	3/15/2011	--	3.82	19.26	9.21	0.31	--
CS-WB04-LGR-08	3/15/2011	--	0.15	1.02	0.38	--	--
CS-WB04-LGR-09	3/15/2011	--	--	5.77	7.15	--	--
CS-WB04-LGR-10	3/15/2011	--	--	0.57	0.8	--	--
CS-WB04-LGR-11	3/15/2011	--	--	--	--	--	--
CS-WB04-BS-01	3/15/2011	--	--	--	--	--	--
CS-WB04-BS-02	3/15/2011	--	0.15	--	--	--	--
CS-WB04-CC-01	3/15/2011	--	0.41	--	--	--	--
CS-WB04-CC-02	3/15/2011	--	--	--	--	--	--
CS-WB04-CC-03	3/15/2011	--	--	--	--	--	--

**Data Qualifiers**

J-The analyte was positively identified; the quantitation is an estimation.

\* The analyte was run at a dilution of 100.

All values are reported in µg/L.

**BOLD** = Above the MDL.

**BOLD** = Above the RL.

**BOLD** = Above the MCL.

**ATTACHMENT 5**

**SUMMARY OF CURRENT AND UPCOMING REMEDIAL  
ACTIVITIES AT SWMUS AND AOCS**

**Attachment 5  
Summary of Current and Upcoming Remedial Activities at SWMUs, AOCs, and RMUs**

Site	Area	Work Needed	Current Status	Progress	Estimated Excavation Time	Description	Type of Closure Report	Potential COCs	Notes
SWMU B-28	Inner Cantonment, Salado Creek	-RIR	Drafting RIR	Surface soil samples collected on 11/15 (37 samples). Additional soil samples collected to N. of site 11/22 (3 samples). Erosion control put in place 11/29. Surface soils excavated 11/30-12/2 ( Volume removed = 2200 CY). Waste characterization samples, ditch samples sent to the lab 12/1. XRF used to verify vertical excavation on 12/1 (36 samples) and 12/02 (9 samples). Waste Characterization sample back non-hazardous (12/9). Excavation of high ditch levels (12/14). Hauled dirt 12/13-17. BOT samples collected 12/27. BOT samples returned (1/26) - hits of Barium above Tier 1 PCL in 7/10 samples. 2/17, area of site slated for re-excavation 2 additional feet accomplished. Took additional BOT samples for Barium evaluation (2/25). 3/3 95%UCL calculated for remaining samples = 207.5. 3/24 - excavate drainage ditch. Remaining soil hauled to east pasture berm.	3 weeks	Former trenches, already excavated. TRRP: residential, eco, Tier 1	RIR	Barium, Zinc, Copper	
SWMU B-2	North Pasture	APAR	In APAR queue	12/6 excavated DNT location. Collected 26 surface soil samples (lead, zinc) on 12/6. 12/16 collected additional ss for Zinc (7 samples). 1/26 ran 95%UCL calculations for all Zinc levels.	NA	former burn area TRRP: residential, eco, Tier 2	North Pasture APAR	Lead, Zinc, DNT (1 bot sample)	Lead all below tier 2, 95%UCL of zn levels below tier 2. DNT resample now clean.
SWMU B-15/16	East Pasture	Finalize RIR	Finalizing RIR	Site mowed 12/20 (USA). Silt Fencing completed 12/21 (USA). SWPPP finalized 12/27. WP/SAP finalized 12/30. Excavation began 1/4 with the middle trench, then southern trench. Estimated soils (1600CY trench 1, 1000 CY trench 2, 500 CY trench 3). 1/10 Collected WC samples as follows: WC01 – 03: trench 1; WC04: gun parts trench 2; WC05: trash to be hauled off-post; and WC06: clean of metal debris. Rained out 1/10, 1/11. Collected BOT samples 1/13. 1/18 kicked off phase 2. Completed removal action March 1st.	14 weeks Phase I: 1/3 Phase 2: 1/17	Range landfill trenches, one trench already excavated. Mounds at the end of trenches investigated (pushed over) but not sampled. TRRP: residential, eco, Tier 1.	RIR	Zn. 9 metals plus BOTs w/ VOCs, and SVOCs	
AOC-57	Inner Cantonment	Draft RIR	Drafting RIR.	XRF samples completed 12/2, 12/3, and 12/21 (67 locations). 1/12 collected 10 surface soil samples + QA/QC. 10 for CSSA 9 metals, + 3 of those for vocs and svocs). 2/14 lab results back.	none	used for cleaning and maintenance activities at temporary structures. Soil gas survey done but nothing detected other than 1 low level of PCE east of Bldg 90.		metals, VOCs	One original XRF hit above tier 1 for lead. Above tier 1 regardless if commercial/residential/ or if eco is considered. But when re-sampled, it was lower. Include samples of this, and the PCE location.
AOC-70	Inner Cantonment	RIR	Drafting RIR.	Surface soil samples collected 1/12 for pesticides (4 samples plus QA/QC). Lab results back 2/14.	none	former pesticide storage building		pesticides	
RMU-5	North Pasture	-Field effort complete for now. Will include w/ other north pasture sites.	-Field effort complete for now. Will include w/ other north pasture sites.	XRF survey conducted 12/8-9 (45 points collected).	none	Former rocket range. Unclear if accurately located, near B-20, several MD items found during cedar clearing	figure out	explosives, metals	nothing in XRF above background. No evidence found during XRF survey of rocket range. Only MD suspected to be from B-20
AOC-59	East Pasture	-RIR	Drafting RIR	XRF survey completed 12/20 (30 locations). 1/13 collected surface soil samples for metals and explosives (4 samples collected +QA/QC). Completed draft WP/SAP 1/2011. Lab results back 2/14. 3/7 excavation began and wrapped up 3/8. Confirmation samples collected 3/29 (SS05-SS08; BOT05 - BOT-06). Results back 4/7. all below TRRP but one, slightly high. Additional samples collected 4/20 (SS09, SS10, BOT07 and BOT08) to enable 95%UCL calculation.	3 days	Trench-type anomaly observed on arial photo. Started RIR, but only 4 samples collected.			RIR already started.

**Attachment 5**  
**Summary of Current and Upcoming Remedial Activities at SWMUs, AOCs, and RMUs**

Site	Area	Work Needed	Current Status	Progress	Estimated Excavation Time	Description	Type of Closure Report	Potential COCs	Notes
AOC-45	Inner Cantonment	RIR	done excavating.	XRF samples collected 12/6, 12/7, 12/21 (69 locations). XRF results contoured 12/27. Surface soil samples collected 4/7 (SS01 - SS14. all analyzed for metals, two analyzed for vocs, svocs, explosives). Results back 4/12. high lead issue at southern end of site. 4/20 collected additional samples for Pb analysis (SS15-SS17). All three came back clean so now have horizontal extent of excavation defined. Began excavation 5/11. Work halted 5/12 for weather. Picked back up 5/16. 5/16 confirmation samples collected. Excavation complete 5/16. Some hits above PCL, but not when using 95% UCL - one hot spot. re-excavation around hot spot 5/23. Confirmation sample collected 5/24.	1 week	area of disturbed soil. Nothing done to date. Estimate excavation to remove above Pb contamination (XRF results) = 1000CY		metals	XRF showed site is actually situated to the west of the original location, High Pb levels, minimal Zn above background.
AOC-42	Inner Cantonment, Salado Creek	-confirmation Geophysical Survey. -RIR	Done excavating except for fibrous glass area.	Final WP/SAP completed 3/14. 3/22 began conducting exploratory excavations. 3/23 encountered white substance. Collected sample to send to lab for identification. 3/23 pulled to the north of site to continue excavating. 4/7 collected soil pile sample (AOC42-SP01 for metals, SVOCs, VOCs, explosives). 4/12 SP01 results came back clean. 4/19 2 samples collected from soil piles (SP02 and SP03), 3-day tat. 4/18 sampled asbestos-like material uncovered at trench 2. All trench samples and SPO3 are clean. Asbestos-like material is fibrous glass. Approximately 160 CY of Fibrous glass.	5 weeks	One of the Salado Creek Anomalies south of B-28, based on geophysical survey. 6 anomalies found at this site in second geophysical survey. Soil gas, surface and subsurface soil samples. Two trenches outlined. Previously estimated at 6,000 CY of material based on areal extent of anomalies on geophysical map going to a depth of 6 feet. But now looking to go down 14 feet.	RIR, if possible	metals	Possible USGS trench site. Radios, grease guns © found during previous exploratory trenching.
AOC-52	Inner Cantonment, Salado Creek	-confirmation Geophysical Survey. -RIR	Sorting and hauling. awaiting confirmation geophysical survey	Final WP/SAP completed 3/14. Began excavation 4/18. Pocket of medical waste found - est. >500 cy of it. Suspected Asbestos sampled collected 5/24. Confirmation samples collected 5/24 (due back 5/31 and 6/1). All confirmation samples came back clean.	1 week	one of the Salado Creek anomalies. At least 2 trenches w/ metal debris. Exploratory trenching performed only. At least 2 trenches present in approximately 0.1 acres. Estimate depth to 10ft = 43,560 ft <sup>3</sup> = 1,615 CY TRRP: residential, eco, Tier 1	RIR, if possible	metals, VOCs	currently staging area for B-4. Possible USGS trench site. - spring filled clips found during previous exploratory trenching.
AOC-58	Inner Cantonment, Salado Creek	-confirmation Geophysical Survey. -RIR	Sorting and hauling. awaiting confirmation geophysical survey	Final WP/SAP completed 3/14. 4/4 Field effort began. 4/7 collected soil pile sample (AOC58-SP01 for metals, SVOCs, VOCs, explosives). 4/7 excavation complete. 4/12 SP01 results came back clean. 4/19 sample taken of soil pile (SP02) and trench - both trench and pile came back clean. Trench Backfilled.	4 weeks	suspected disposal trench - 4 separate anomalies. Geophysical survey done, 3 surface soil samples collected on top of anomalies (mercury exceeded background at SS01). anomalous area found to be approx. Estimating trench depth of 15 feet. KC and BM familiar w/ site. TRRP: residential, eco, Tier 1	RIR, if possible	metals	Possible USGS trench site. - bayonnetts w/ corrosive material found during previous exploratory trenching.
AOC-62	Inner Cantonment, Salado Creek	-Confirmation Geophysical Survey. - RIR	Sorting and hauling. awaiting confirmation geophysical survey	12/21 completed XRF Survey (16 locations). 3/14 completed final WP/SAP. 3/14 began field effort. 3/22 completed excavation of materials w/ the excavation of 405 CY. Collected confirmation and WC samples 3/29 (SW01-SW16; BOT01-BOT04). Results clean, but need to resample SW14 and BOT02 again. WC01 also TRRP clean. 4/19 sampled SW14 and BOT02 - samples came back clean. Samples SW17 and SW18 - samples were clean.	2 weeks	One of the Salado Creek Anomalies south of B-28, based on geophysical survey. 0.10 acres = 4356 ft <sup>2</sup> * 5 feet = 21780 ft <sup>3</sup> = 806 CY TRRP: residential, eco, Tier 1	RIR, if possible	metals, VOCs	XRF survey showed no hits above Tier 1 PCLs. Possible USGS trench site. - 20 mm gun lots found during previous exploratory trenching.
SWMU B-27	Inner Cantonment, Salado Creek	-Excavate trenches -RIR	excavation set for 6/13.	completed draft of WP/SAP and SWPPP - 1/2011. SWPPP and WP/SAP finalized on 2/25/2011. ESS finalized 3/14.	25-37 weeks	reportedly former sanitary landfill - however contents unknown. Geophysical indicated 5 anomaly area, 3 appear to be trenches, 10-13 ft bgs based on soil borings. But USGS data shows more like 8ft deep. 8 ft deep (13000 cy = 25 weeks) and 12 ft deep (19000 cy = 37 weeks). TRRP: residential, eco, Tier 1	RIR, if possible	metals	- MEC site - USGS trench site

**Attachment 5**  
**Summary of Current and Upcoming Remedial Activities at SWMUs, AOCs, and RMUs**

Site	Area	Work Needed	Current Status	Progress	Estimated Excavation Time	Description	Type of Closure Report	Potential COCs	Notes
RMU-2	Inner Cantonment	- excavate as necessary	currently excavating	Basemap w/ XRF survey locations completed 12/29. Completed draft WP/SAP 1/2011. Samples collected 3/1/2011. WP/SAP finalized 3/8. Samples back from lab 3/23- high Pb throughout. TCLP results back 3/29 - hazardous soils. Plans finalized 5/26/ PIMS began arriving 5/26. XRF began May 31. Excavation began June 1. Samples collected 6/1, 6/2, 6/3.	5 weeks	Small pistol range.	RIR	explosives, metals	
AOC-72	Inner Cantonment	-finalize WP/SAP -place BMPs for erosion control -excavate	ready for excavation	XRF samples collected 12/15 (17 locations).	1 week	Construction debris landfill. Not investigated yet.		VOCs, metals, and asbestos	XRF survey showed no Zn or Pb above background in surface soils.
SWMU B-4	Inner Cantonment	-WP, SWPPP, IM/WMP - Waste Management	reviewing Plans (LM)	ESS finalized 3/14.	11 weeks	Work to involve waste management of remnant piles.	NA		44 days estimated for completion. But 5 weeks are available w/ contract
SWMU B-8	North Pasture	-Confirm XRF results. -Confirm current SWPPP and update erosion control BMPs -draft WP/SAP -Excavate soils	drafting SWPPP and WP/SAP		14 weeks?	5.2 acre former burn area	North Pasture APAR	lead	
SWMU B-13	Inner Cantonment	-draft SWPPP -draft WP/SAP -place BMPs for erosion control -Excavate disposal area.	SWPPP and WP/SAP in review (LM)		5 weeks	Construction waste disposal site mixed w/ ammo boxes, etc. Geophysical survey, soil borings. buried materials - approximately 5,900 CYS	RIR, if possible	metals, VOCs	500 CY/day piling debris - so 12 days (3 weeks); 1000 CY/day to haul to landfill using 10 20CY endumps - so 6 days of hauling = approx. 2 weeks
SWMU B-20/21	North Pasture	draft SWPPP -draft WP/SAP - re-acquire and dig based on identified anomalies. place BMPs for erosion control -Excavate contaminated soils		'ESS finalized 3/14.	13 weeks	OB/OD area, MEC and MC issues. MEC will need to be addressed seperately. Estimated 1,510 for 0.5' depth w/ 3000 cy for pims. PIMS area doesn't need to be sifted.	North Pasture APAR	metals	reacquire and dig: 2 miniexcavators, 2 teams of 3 UXO techs; each team can do approx 50 anomalies/day; with an estimated anomaly estimate of 80 anomalies per 10,000 ft2. excavation rate = 500cy/day. Sift rate = 300 cy/day. Based on these assumptions, will take approx 8 weeks to reacquire and dig.



**Attachment 5  
Summary of Current and Upcoming Remedial Activities at SWMUs, AOCs, and RMUs**

Site	Area	Work Needed	Current Status	Progress	Estimated Excavation Time	Description	Type of Closure Report	Potential COCs	Notes
SWMU B-24	North Pasture	-delineate horizontal extent -estimate excavation time Estimate UXO clearing time -draft SWPPP, WP/SAP - remove soil piles -Excavate soils, if necessary.		12/6 flagged XRF sites. 12/7- 8 completed XRF survey (67 of points). XRF samples mapped 1/10. 2/16, soil piles sampled for TCLP. 21-day TAT. Soil matrix of the the overage pile (now partially on B-27 staging area) sampled for berm appropriateness on 2/24. results back 3/2/2011 - good for East Pasture Berm. 2/28 week - looked through overage for MEC, etc. Deemed ok for berm. 3/3 - 8, overage pile moved completely to east pasture berm. ESS finalized 3/14. Surface soil samples collected 3/29 (SS15 - SS29). Results back 4/11 .	??	Disposal area. Need soil excavation to get closure for MC. MEC will be addressed seperately. TRRP: residential, eco, Tier 2	North Pasture APAR	Ba, Cu, Pb, Zn	Need USGS to ALLTEM area to acquire points. Part of June effort? Then we can re-acquire and dig in prep for excavation. reacquire and dig: 2 miniexcavators, 2 teams of 3 UXO techs; each team can do approx 50 anomalies/day; with an estimated anomaly estimate of 80 anomalies per 10,000 ft2.
SWMU B-34	Inner Cantonment	- XRF survey on western boundary - identify additional sample locations -Collect confirmation surface soil samples - APAR	Awaiting additional XRF work on western boundary - June	XRF sampled 12/1/2010 (40 locations). XRF results contoured 12/27. Tentative Tier 2 PCL for lead developed.		Originally buried pipe, but soil contamination is problem. Surface and subsurface soil samples collected. No MEC concerns.	APAR	metals,TPH	commercial, no eco, tier 2
RMU-3	Inner Cantonment	adjust site boundary based on soil sample results. - SWPPP possible b/c site bigger than originally thought. -WP/SAP	Drafting Plans (Kirk)	XRF survey completed 12/8, 12/14, 12/20. (80 locations). XRF results contoured 12/27. 2/25 collected surface soil samples (10) Results back 3/2	15 days	0.5 acres is old boundary, but more like 1.5 acres based on XRF results former rifle range, field survey done. Estimated volume = 61100 SF down1 feet = 2300 cy		explosives, metals	
RMU-4	East Pasture	-Identify surface soil sample locations. -Possibly geophysical survey -excavate	Drafting Plans (Kirk)	XRF Survey completed 12/15, 12/17, and 12/21 (53 locations). XRF results contoured 12/27.	11 days	1.6 acres former rifle range, field survey done,MD found (3" stokes) during road investigation in 2006. estimated volume = 400ft*150ft*2 ft. deep = 120000ft3 = 4444CY		explosives, metals	Possible USGS scattered debris site. Zig zag trenches in area.
AOC-51	East Pasture	- field map, possible geophysical survey, MEC sweep, soil samples		XRF survey completed 12/28 (69 locations).	estimate pending	No specific records of waste management in area, yet ordnance have been found.		metals	

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Site	Area	Work Needed	Current Status	Progress	Estimated Excavation Time	Description	Type of Closure Report	Potential COCs	Notes
AOC-65		repair water line -complete engineering plan for IRA -excavate drainage ditch	completing engineering plan			Remove soils and bedrock west of Bldg 90 w/in the ditch area. Proposed trench area = 300 feet long, 2.5 to 3ft wide, and 15 to 30 ft deep. Most conservative estimate = 27,000ft <sup>3</sup> = 1,000cy			
AOC-74	Inner Cantonment	-surface soil sampling -surficial debris removal -geophysical survey of are for buried debris		XRF survey performed 6/13.	pending	new area identified as site. Scattered surficial debris including old foundation, cedar posts, old retaining wall, abandoned sewer line, etc.		PCE	
AOC-75	Inner Cantonment	additional soil sampling -draft SWPPP and WP/SAP -excavate soils RIR or APAR			unknown	Elevated mercury levels to the north of B-4.		mercury	