

RELEASE INVESTIGATION REPORT

SOLID WASTE MANAGEMENT UNIT B-27 CAMP STANLEY STORAGE ACTIVITY



Prepared for:

**Camp Stanley Storage Activity
Boerne, Texas**

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EXECUTIVE SUMMARY

Solid Waste Management Unit (SWMU) B-27 is located in the northwestern portion of the Inner Cantonment, approximately 650 yards east of the western facility boundary, and is approximately 2 acres in size. The site was used as a landfill area prior to the 1960s. Between June and July 2011, waste material from eight trenches and soil containing contaminants above Tier 1 protective concentration levels (PCLs) was removed and properly disposed. This Release Investigation Report (RIR) requests No Further Action (NFA) at SWMU B-27.

In summary, activities at SWMU B-27 as described in this RIR showed the following results:

- Excavation, waste removal, and confirmation sampling was performed at SWMU B-27.
- The contaminant of concerns (COCs) identified above soil background concentrations at SWMU B-27 were barium, cadmium, copper, and zinc. Waste materials have been excavated and removed from the site; or were used to calculate a 95% upper confidence limit (UCL) per TAC §350.79(2)(A) that does not exceed the Tier 1 PCL.

From the information summarized above and presented in this report, the results of the investigations at SWMU B-27 meet the three criteria as described in Texas Commission on Environmental Quality (TCEQ) (2003) guidance *Determining Which Releases are Subject to the Texas Risk Reduction Program (TRRP)*:

- Soils found to have COC concentrations above the Tier 1 PCLs were excavated and removed from the site or were used to calculate a 95% upper confidence limit (UCL) per TAC §350.79(2)(A) that does not exceed the Tier 1 PCL.
- There is no evidence of other affected or threatened environmental media (groundwater, surface water, or sediment) at SWMU B-27. Inorganic groundwater contamination has not been reported in the closest well to SWMU B-27 (well CS-MW19-LGR located approximately 830 feet downgradient). Since soils that were found to have concentrations of metals above their PCLs were excavated and removed, there will be no impact to groundwater, surface water, or sediment from SWMU B-27.
- SWMU B-27 passes the Tier 1 Ecological Exclusion Criteria Checklist (**Appendix B**).

Because these three criteria are met, SWMU B-27 is not subject to TRRP. Therefore, this RIR was prepared to document the results and a NFA decision is requested from the TCEQ.

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ACRONYMS AND ABBREVIATIONS

AOC	Area of Concern
APPL	Agriculture & Priority Pollutants Laboratory, Inc.
bgs	below ground surface
BS	Bexar Shale
CC	Cow Creek
COC	contaminant of concern
CSSA	Camp Stanley Storage Activity
CY	cubic yards
DQO	Data Quality Objective
EE	Environmental Encyclopedia
FSP	Field Sampling Plan
ft	feet
^{GW} Soil _{Ing}	Soil to Groundwater Ingestion Pathway (PCL)
IM	Interim Measures
LGR	Lower Glen Rose
MCL	Maximum Contaminant Level
MD	munitions debris
mg/kg	milligrams per kilogram
MEC	munitions and explosives of concern
mm	millimeters
MQL	Method Quantification Limit
NFA	No Further Action
PCE	tetrachloroethene
PCL	protective concentration level
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RIR	Release Investigation Report
RL	reporting limit
RMU	Range Management Unit
SAP	Sampling and Analysis Plan
SVOC	semivolatile organic compound
SWMU	Solid Waste Management Unit
TAC	Texas Administrative Code

TCEQ	Texas Commission on Environmental Quality
TCLP	toxicity characteristic leaching procedure
^{Tot} Soil _{Comb}	Total Combined Soil (PCL)
TPH	total petroleum hydrocarbons
TRRP	Texas Risk Reduction Program
UCL	upper confidence limit
UGR	Upper Glen Rose
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
UXO	unexploded ordnance
VOC	volatile organic compound
WMP	Waste Management Plan

1.0 INTRODUCTION

Parsons is under contract to provide investigations and environmental services for waste sites located at Camp Stanley Storage Activity (CSSA) in Boerne, Texas (**Figure 1**). This contract includes characterization of selected waste disposal sites and preparation of appropriate documentation, including a Release Investigation Report (RIR) for Solid Waste Management Unit (SWMU) B-27 (**Figure 2**). SWMU B-27 is located in the northwest portion of the Inner Cantonment area, approximately 650 yards east of the western facility boundary. The site covers approximately 2 acres. This work was performed in accordance with requirements of the Resource Conservation and Recovery Act (RCRA) 3008(h) Order in effect for CSSA and in accordance with 30 Texas Administrative Code (TAC) §350, the Texas Risk Reduction Program (TRRP) of the Texas Commission on Environmental Quality (TCEQ). This RIR was prepared following TCEQ reporting and documentation requirements for releases that do not trigger applicability to the TRRP rule.

This report describes environmental investigation activities at SWMU B-27. Work included surface and subsurface sampling; excavation and removal of impacted soil and waste; waste characterization and confirmatory sampling and analysis; and proper documentation of all activities, including preparation of this closure report. All work was performed according to applicable federal, state, and local rules and regulations.

For this report, Section 1 provides the introduction and the documentation to support this RIR. Section 2 provides historical background information for CSSA and for SWMU B-27. Section 3 describes the objectives and rationale for preparing an RIR for SWMU B-27 and the findings from environmental investigations for the site. The groundwater and surface water for CSSA and the area near SWMU B-27 are also described in Section 3. Section 4 summarizes the findings from completing the Tier 1 Ecological Exclusion Criteria Checklist, which is included as an appendix to this RIR. Section 5 summarizes the overall findings and recommendations for the site. All figures and tables are provided at the end of this RIR (pages 15 through 20). References cited in this report can be found in the CSSA Environmental Encyclopedia (EE) ([Volume 1-1, Bibliography](#)) at www.stanley.army.mil.

2.0 HISTORICAL BACKGROUND

2.1 CAMP STANLEY STORAGE ACTIVITY

Camp Stanley Storage Activity is located in northwestern Bexar County, about 19 miles northwest of downtown San Antonio. The installation consists of approximately 4,004 acres immediately east of Ralph Fair Road, and approximately 0.5 mile east of Interstate Highway 10 (Figure 1). Camp Bullis borders CSSA on the north, east, and south.

The land where CSSA is located was used for ranching and agriculture until the 1900s. During 1906 and 1907, six tracts of land were purchased by the U.S. Government and designated the Leon Springs Military Reservation. The land included campgrounds and cavalry shelters.

In October 1917, the installation was re-designated Camp Stanley. Extensive construction was started during World War I to provide housing for temporary cantonments and support facilities. In 1931, the installation was selected as an ammunition depot, and construction of standard magazines and igloo magazines began in 1938. Land was also used to test, fire and overhaul ammunition components. As a result of these historic activities, CSSA has several historical waste sites, including SWMUs, Areas of Concern (AOCs), and Range Management Units (RMUs).

The present mission of CSSA is the receipt, storage, issue, and maintenance of ordnance as well as quality assurance testing and maintenance of military weapons and ammunition. Because of its mission, CSSA has been designated a restricted access facility. No changes to the CSSA mission and/or military activities are expected in the future.

2.2 SWMU B-27

2.2.1 Overview

SWMU B-27 was reportedly used as a sanitary landfill prior to the 1960s. A series of historical aerial photos of the sites are shown on **Figure 3**. The 1957 photograph shows slight ground disturbance on the southern boundary of the site, and a narrow dirt road can be seen north of the main road along the site boundary. All later photographs show a grass-covered area, and the narrow road is no longer visible by the 1973 photo. The history of the site and previous investigations at the site are discussed below.

2.2.2 Setting, Size, and Description

SWMU B-27 is located in the northwestern portion of the Inner Cantonment Area, approximately 650 yards east of the western facility boundary. SWMU B-27 covers approximately 2 acres. Prior to the excavation activities described herein, the area was open and covered by grass. Some low brush, oak, and juniper trees had grown up in areas around the site. An intermittent creek bed lies just north of the site.

Prior to excavation, several low soil mounds (less than 1 foot tall) and shallow trenches ran the length of the site, ranging in length from 375 to 525 feet (ft). The crests of the soil mounds had a rounded shape suggestive of erosion since the time of their emplacement. Soil borings drilled at the site have shown evidence of buried waste which appears to have been burned. Additional background information on SWMU B-27 can be found in the CSSA EE ([Volume 3-1, SWMU B-27](#)).

2.2.3 Potential Contaminant Sources, Chemicals of Concern, and Previous Investigations

A geophysical survey performed in March 1996 identified five different anomalous areas throughout SWMU B-27 potentially related to waste management activities at the site (**Figure 4**). Based on the configuration and size of the areas, three of those areas were presumed

to be buried trenches ranging in depths from 10 to 13 ft below ground surface (bgs), and containing approximately 17,800 cubic yards (CY) of material, including buried waste.

In March 2000, three surface soil samples (RW-B27-SS01, RW-B27-SS02, and RWB27-SS03) were collected to replace samples collected in 1996 that were determined unusable by the U.S. Environmental Protection Agency (USEPA). These “rework samples” were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, and zinc). The sample locations are shown on **Figure 5**. The results were all below the identified Tier 1 protective concentration levels (PCLs).

Three soil borings (RW-B27-SB01, RW-B27-SB02, and RW-B27-SB03) were also drilled in 2000 to replace previously drilled but unusable samples. These were drilled to refusal depths ranging from 10.5 to 13.7 ft bgs at the locations identified on Figure 5. These samples were also analyzed for the nine metals, VOCs, and SVOCs. Bis(2-ethylhexyl)phthalate was detected in four of the six subsurface samples. Since no other VOCs or SVOCs were detected and there is no history of its use at CSSA, the detection of bis(2-ethylhexyl)phthalate was considered to be associated with laboratory contamination and VOCs and SVOCs were removed from the list of contaminants of potential concern. Concentrations of barium, copper, lead, and zinc exceeded background levels in two of the samples (RW-B27-SB01 and RW-B27-SB03). Detailed soil analytical results are included in the *RCRA Facility Investigation Report* (RFI), July 2002 (CSSA EE, [Volume 3-1, SWMU B-27 RFI](#)).

A series of exploratory excavations were performed across the site in October 2004 to help delineate the existing trench locations and composition. In addition to miscellaneous debris such as railroad ties, banding material, and 5-gallon empty cans, unexploded ordnance (UXO) was encountered in two locations, which included 37 millimeter (mm) projectiles, .75mm fuses, and 20mm and 37mm casings. The locations of the exploratory excavations are shown on Figure 4.

In February 2011, the U.S. Geological Survey (USGS) performed a geophysical survey at SWMU B-27 to demonstrate the ALLTEM system. The survey produced a polarized target map which included detailed depth, horizontal extent, and density of anomalies on site (**Appendix I**). USGS also performed earth resistivity imaging at SWMU B-27 in February 2011. Several shallow, closely-spaced trenches were evident on site as zones of low resistivity. Additional information about past activities and investigations at the site can be found in the CSSA EE ([Volume 3-1, SWMU B-27](#)).

3.0 OBJECTIVES OF RIR FOR SWMU B-27

In accordance with TCEQ (2003) guidance, *Determining Which Releases are Subject to TRRP* (www.tceq.state.tx.us/assets/public/remediation/trrp/releasesTRRPrev.pdf), an RIR can be prepared for a site when results of an investigation lead to the following conclusions:

- Concentrations of chemicals detected at the site do not exceed Tier 1 residential soil action levels;

- There is no evidence of other affected or threatened environmental media (groundwater, surface water, or sediment) at the site; and
- The site passes the Tier 1 Ecological Exclusion Criteria Checklist (the completed checklist is provided in **Appendix B**).

When these three criteria are met for a site, the release is not subject to TRRP. For such sites, an RIR can be submitted to document the results and a No Further Action (NFA) decision can be requested from the TCEQ.

As referred to in the criteria listed above, the Tier 1 residential soil action levels are provided by TCEQ and were selected following TCEQ guidance (TCEQ, 2007). The most current action levels were used (May 2011). These action levels are referred to as PCLs and are selected for each chemical detected at the site (i.e., COCs). The PCLs are based on the general size of the site, which is also referred to as the “source area” size. If the source area is greater than 0.5 acre, then the source area is assumed to be 30 acres. Thus, the soil action levels for SWMU B-27 are based on a 30-acre source area. The PCL is then selected based on the lower of the two PCLs listed for either (1) the total soil combined pathway ($^{Tot}Soil_{Comb}$) (i.e., exposure to a COC from incidental ingestion, dermal contact, inhalation of volatiles and particulates, and vegetable consumption); or (2) the soil to groundwater pathway ($^{GW}Soil_{Ing}$) (i.e., soil-to-groundwater leaching of a COC to groundwater, where the PCL is the highest concentration of COC allowed in soil to be protective of Class 1 or Class 2 groundwater).

Also based on the TCEQ guidance, if the background level or the method quantification limit (MQL) is a higher concentration than the PCL, then the higher of the background or MQL is used as the action level. Based on the metals that are most common to past activities at CSSA, TCEQ has approved background concentrations for nine metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, and zinc). The statistically calculated and TCEQ-approved background metal concentrations are available in the CSSA EE ([Volume 2, Background Metals Levels](#)). Note that the PCLs for five of the nine metals are based on the background concentrations (these four metals are arsenic, barium, cadmium, lead, and mercury).

3.1 FIELD ACTIVITIES AND INVESTIGATIONS

A summary of the cleanup confirmation results at the sites are shown in **Table 2** (detected compounds only) and **Appendix C** (all analytes), and the confirmation soil sampling locations are shown on Figure 5. The data verification summary report for the sampling and analytical results is provided in **Appendix D**. Waste characterization results for samples collected from stockpiled soil excavated as part of this effort are shown in **Appendix F**. Sample locations for soils remaining at the site are shown on Figure 5. The clearance areas where soils were excavated and removed are also shown on Figure 5. Additional information about past activities and investigations at the site can be found in the CSSA EE ([Volume 3-1, SWMU B-27](#)).

3.1.1 Sampling and Analytical Procedures

For all sampling and analytical activities at CSSA, Parsons follows TCEQ-approved Quality Assurance (QA) and Quality Control (QC) procedures as described in the post-wide CSSA Quality Assurance Project Plan (QAPP) which can be found in the CSSA EE ([Volume 1-4, QAPP](#)). The detailed CSSA QAPP presents specific policies, organization, functions, and QA/QC requirements for environmental programs at CSSA, including TCEQ-approved analytical methods, reporting limits (RL), and QA/QC procedures.

The CSSA QAPP (1) was prepared for use by contractors that perform environmental services at CSSA to ensure that the data are scientifically valid and defensible; (2) establishes the analytical protocols and documentation requirements to ensure that the samples are collected and analyzed, and that the data are reviewed and validated in a specified manner; and (3) provides detailed guidance for using the Data Quality Objective (DQO) process for specific investigations. The CSSA QAPP and delivery/task order specific Field Sampling Plans (FSP) constitute the CSSA Sampling and Analysis Plan (SAP). The SAP defines data quality for a specific project. Information regarding post-wide and site-specific plans and TCEQ correspondence can be found in the CSSA EE ([Volume 1-1, Correspondence](#)).

Following the CSSA-specific plans, the investigative soil analyses for SWMU B-27 were performed using USEPA *Test Methods for Evaluating Solid Waste* (SW-846): Method 8260B (VOCs); Method 8270C (SVOCs); Method 8330 (explosives); and Method 6010 (arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, and zinc, referred to as CSSA 9 metals). Prior to soil/waste disposal, waste characterization samples were collected from the excavated material and analyzed for toxicity characteristic leaching procedure (TCLP) metals (Methods SW1311/6010B and SW1311/7470A) and total petroleum hydrocarbons (TPH) (Method TX1005). All samples were sent to Agriculture & Priority Pollutants Laboratory, Inc. (APPL) for analyses.

3.1.2 Excavation, Removal, and Confirmation Sampling at SWMU B-27

Excavation activities at SWMU B-27 were initiated on June 15, 2011 to remove the contents of eight trenches located at the site. The easternmost trench (Trench 1) was excavated first while two UXO technicians performed inspections on the excavated material as it was stockpiled. Each trench was banked to allow safe ingress and egress for sampling. A summary of trench dimensions and contents is listed in **Table 1**.

Once all eight trenches were excavated and materials were placed into stockpiles, an excavator was used to remove larger metal debris from the soil matrix. After the excavator had worked through the stockpiles, a front end loader was used to spread out the material in 2-3 inch layers in the inspection area. UXO technicians, assisted by laborers, handpicked foreign debris from the soil matrix. When munitions items were observed during this effort a UXO technician would identify it as munitions and explosives of concern (MEC) or munitions debris (MD), certify it as inert (if appropriate), and place it in a secure area. No MEC was found in any of the trenches. All MD was segregated from other metal debris, removed from the site, and shipped to

Bonetti Explosives in Columbus, Texas for disposal. All MD removed from the trenches during this effort is listed in **Appendix E**.

On June 28, 2011, 14 soil samples were collected along Trench 1 and analyzed for CSSA 9 metals, SVOCs, and explosives. No explosives or SVOCs were detected; however the barium concentration for one sample (B27-SW06) exceeded the Tier 1 PCL of 300 milligrams per kilogram (mg/kg). VOC samples were collected; however, due to a sample cooler exceeding QA/QC temperature requirements in transit, the samples were not analyzed by the laboratory. Four additional soil samples were collected on July 6, 2011 and analyzed for VOCs. The results were all below Tier 1 PCLs.

Following completion of the excavation effort, all trench bottoms and sidewalls were sampled and the results are shown in Table 1. Samples were collected approximately every 50 ft along trench sidewalls to confirm the horizontal extent of contamination and approximately one sample every 10,000 square ft to confirm the vertical extent of contamination. Sampling frequency was in accordance with CSSA's *RFI and Interim Measures (IM) Waste Management Plan (WMP) – Revised*, dated May 2006 (approved by TCEQ in August 2006) and the RFI/IM WMP Addendum for SWMU B-27, dated February 2011. A total of 86 samples were collected from trench sidewalls (SW01-86) and 22 samples were collected from trench bottoms (SS01-22). Samples were analyzed for metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, and zinc), VOCs, SVOCs, and explosives.

Only six samples exceeded Tier 1 PCLs. Two of these six sample locations were removed: SW06, which contained barium at a concentration of 404 mg/kg; and SW67, which contained copper at 178.43 mg/kg and zinc at 341.4 mg/kg. The areas surrounding SW06 and SW67 were over-excavated on August 22, 2011 and two confirmation samples were collected (SW85 and SW86). Samples SS09, SS10, and SS14 exceeded the PCL for methylene chloride (0.0065 mg/kg). The presence of low concentrations of methylene chloride in the samples is most likely due to laboratory contamination as there is no known usage of this chemical at CSSA. To confirm this assumption, three additional samples (SS20, SS21, and SS22) were collected from the original sample locations and analyzed for methylene chloride. All re-sample results were below the Tier 1 PCL for methylene chloride. Sample SS18 exceeded the PCL for zinc (120 mg/kg) with a zinc concentration of 305.7 mg/kg. Per TAC §350.79(2)(A), a 95% upper confidence limit (UCL) may be calculated to determine if there is a statistical basis for no further action on a particular COC. A 95% UCL of 40.32 mg/kg was calculated for the zinc concentrations remaining in site soils, which does not exceed the Tier 1 PCL of 120 mg/kg (**Appendix H**). Therefore, per TAC §350.79(2)(A), further response action for zinc is not required at SWMU B-27.

3.1.3 Waste Characterization and Off-Post Disposal Activities

Waste characterization efforts were performed in accordance with requirements of CSSA's *RFI and Interim Measures (IM) Waste Management Plan (WMP) – Revised*, dated May 2006 (approved by TCEQ in August 2006) and the RFI/IM WMP Addendum for SWMU B-27, dated February 2011. Waste characterization sample results for excavated soils are included in Appendix F.

Results of waste characterization showed that the impacted media from SWMU B-27 met State of Texas Class 2 non-hazardous criteria (30 TAC §335 Subchapter R). Approximately 9,130 CY of Class 2 non-hazardous soil was transported to the East Pasture Berm for reuse, as per TCEQ approval December 20, 2010 (**Appendix G**). Additionally, approximately 20 CY of miscellaneous metal debris was collected from SWMU B-27 and were sent for recycling to Monterrey Iron and Metal Company in San Antonio, Texas. All MD was segregated from other metal debris, removed from the site, and shipped to Bonetti Explosives in Columbus, Texas for disposal. The waste manifests and profile data, including the waste analytical results, are kept on file at the CSSA Environmental Office.

3.2 SITE GEOLOGY/HYDROGEOLOGY

Based on the sampling results and the geological and hydrogeological characteristics of the site, surface water and groundwater have not been affected by historical activities at SWMU B-27. A description of the geology and hydrogeology of the area is provided below. Additional information on geology, hydrology and physiography at CSSA are also available in the CSSA EE ([Volume 1-1, Background Information Report](#)).

3.2.1 CSSA Geology/Hydrogeology

The Lower Glen Rose (LGR) is the uppermost geologic stratum in the CSSA area. The LGR is a massive, fossiliferous, vuggy limestone that grades upward into thin beds of limestone, marl, and shale. The LGR is approximately 300-330 ft thick in the CSSA area and is underlain by the Bexar Shale (BS) facies of the Hensell Sand, which is estimated to be from 60 to 150 ft thick under the CSSA area. The BS consists of silty dolomite, marl, calcareous shale, and shaley limestone. The geologic strata dip approximately 1 to 2 degrees to the south-southeast at CSSA.

The uppermost hydrogeologic layer at CSSA is the unconfined Upper Trinity aquifer, which consists of the Upper Glen Rose (UGR) Limestone. Locally at CSSA, very low-yielding perched zones of groundwater can exist in the UGR; however, it is very sporadic and seasonal. Transmissivity values are not available for the UGR. Regionally, groundwater flow is thought to be enhanced along the bedding contacts between marl and limestone; however, the hydraulic conductivity between beds is thought to be poor. This interpretation is based on the observation of discordant static water levels in adjacent wells completed in different beds. Principal development of solution channels is limited to evaporite layers in the UGR Limestone.

The Middle Trinity aquifer functions as the primary source of groundwater at CSSA. It consists of the LGR Limestone, the BS, and the Cow Creek (CC) Limestone. The LGR Limestone outcrops north of CSSA, along Cibolo Creek, and within the central and southwestern portions of CSSA. As such, principal recharge into the Middle Trinity aquifer is via precipitation infiltration at outcrops and along creek beds during flood events. At CSSA, the BS is interpreted as a confining layer, except where it is fractured and faulted, allowing vertical flow from the up-dip CC Limestone into the overlying, down-dip LGR. Fractures and faults within the BS may allow hydraulic communication between the LGR and CC Limestones. Regional groundwater flow within the Middle Trinity aquifer is toward the south and southeast and the average

transmissivity coefficient is 1,700 gallons per day per ft (CSSA EE, [Volume 5, Hydrogeologic Report](#)). In general, groundwater at CSSA flows in a northeast to southwest direction. However, local flow gradient may vary depending on rainfall, recharge, and possibly well pumping.

3.2.2 SWMU B-27 Groundwater and Surface Water

No site-specific information regarding groundwater is available. However, between September 2002 and March 2011, measured water levels at Well CS-MW19-LGR, which is located approximately 830 ft downgradient of the site, have ranged from 69.0 ft below top of casing (BTOC) (December 2004) to 307.7 ft BTOC (September 2009). Groundwater samples have been collected from this well and analyzed for metals and VOCs since September 2002. No inorganic analytes have exceeded Maximum Contaminant Levels (MCL). Sporadic low-level tetrachloroethene (PCE) detections at CS-MW19-LGR (below the MCL) are attributed to contaminated groundwater from Plume 2.

The closest surface water body to SWMU B-27 is an unnamed intermittent tributary or drainage which runs along the northern edge of the site (**Figure 6**). The tributary, which only contains water immediately after significant rain events, drains to Salado Creek, located approximately 3,330 ft west of SWMU B-27. The north-south trending creek exits the CSSA boundary approximately 6,600 ft south-southeast of the site. No significant degradation of high quality receiving waters is anticipated from SWMU B-27.

4.0 TIER 1 ECOLOGICAL EXCLUSION CRITERIA CHECKLIST

In accordance with TCEQ (2003) guidance, an RIR is submitted when the results of an investigation lead to a conclusion that COCs do not exceed Tier 1 residential soil action levels and there is no evidence of other affected media. The site must also pass the Tier 1 Ecological Exclusion Criteria Checklist. The checklist must be completed as part of the RIR for a site. The completed checklist is provided in Appendix B. Results show that the site passes the checklist and that there are no ecological exposure pathways of concern at SWMU B-27. Thus, based on the absence of any complete or significant ecological exposure pathways, SWMU B-27 may be excluded from further ecological assessment.

5.0 SUMMARY AND RECOMMENDATIONS

SWMU B-27 is located in the northwestern portion of the Inner Cantonment Area, approximately 650 yards east of the western facility boundary, and is approximately 2 acres in size. The site was used as a landfill area prior to the 1960s. In June and July 2011, waste material from eight trenches and soil containing contaminants above Tier 1 PCLs was removed and properly disposed.

In summary, activities at SWMU B-27 as described in this RIR showed the following results:

- Excavation, waste removal, and confirmation sampling was performed at SWMU B-27.

- Approximately 9,150 CY of soil and waste materials in eight trenches were excavated, inspected for UXO, and properly disposed of.
- Confirmation samples were collected from trench bottoms and sidewalls to confirm all waste had been removed.
- Soils found to have COC concentrations above Tier 1 PCLs were either excavated and removed from the site or used to calculate a 95% UCL per TAC §350.79(2)(A) that does not exceed the Tier 1 PCL.

From the information summarized above and presented in this report, the results of the investigations at SWMU B-27 meet the three criteria as described in TCEQ (2003) guidance *Determining Which Releases are Subject to the TRRP*. Thus, the following criteria were met:

- Soils found to have COC concentrations above the Tier 1 PCLs were excavated from the site or were used to calculate a 95% UCL per TAC §350.79(2)(A) that does not exceed the Tier 1 PCL.
- SWMU B-27 passes the Tier 1 Ecological Exclusion Criteria Checklist (Appendix B).
- COC concentrations remaining in soil at SWMU B-27 were all below Tier 1 residential PCLs or the calculated 95% UCL, both of which are protective of groundwater; therefore, no other media (surface water, sediment, or groundwater) have been affected, nor will be affected in the future, by the site.

Because these three criteria are met, SWMU B-27 is not subject to TRRP. Therefore, this RIR was prepared to document the results and a NFA decision is requested from the TCEQ.

TABLES AND FIGURES

Table 1 Summary of Volumes of Excavated Soil and Metal Debris at SWMU B-27

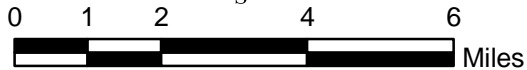
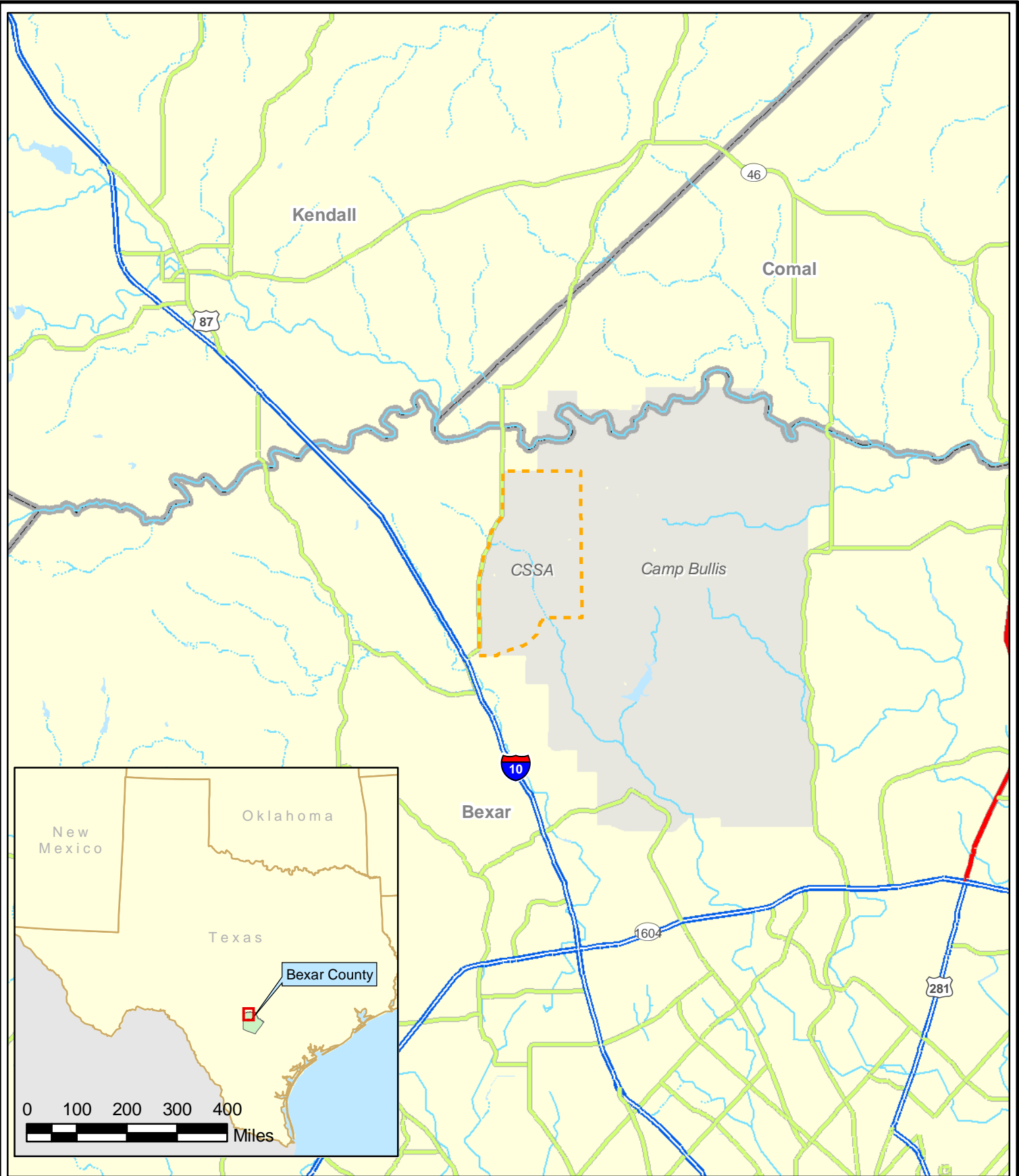
Trench	Length (ft)	Width (ft)	Depth (ft)	Contents	Total Volume (CY)
1	525	8	6	Metal debris; 40mm cartridge cases; projectile burster tubes; anti-tank pressure plates; and household trash	1,400
2	440	8.5	7.5	Metal debris; miscellaneous bottles; mortar fuses; grenades; grenade project adapters; ground smoke signals; and 20mm and 40mm cartridge cases	1,440
3	420	6	7	Metal debris; fuses; cartridge igniters; 37mm projectiles; and 20mm, 37mm, 40mm, 75mm, and 5-inch cartridge cases	1,010
4	330	6	7	Metal debris and 37mm and 40mm cartridge cases	855
5	430	8.5	7	Metal debris; 37mm, 40mm, 75mm, 105mm, and 3-inch cartridge cases; 37mm projectiles; fuses; cartridge igniters; and a 2.36-inch rocket	1,250
6	290	12	9.5	Metal debris and a 100-pound bomb	1,220
7	260	6.5	9	Metal debris	1,250
8	260	4.5	6	Metal debris; 40mm cartridge cases; and grenades	710

Table 2. Summary of Chemical Constituents Remaining in Soils at SWMU B-27

	Volatile Organics						Semi-Volatile Organics						Metals													
	Methylene chloride CAS: 75-09-2 Qualifier Dilution	Toluene CAS: 108-88-3 Qualifier Dilution	Benzo(b)fluoranthene CAS: 205-99-2 Qualifier Dilution	Benzo(g,h,i)perylene CAS: 191-24-2 Qualifier Dilution	Di-n-butyl phthalate CAS: 84-74-2 Qualifier Dilution	Arsenic CAS: 7440-38-2 Qualifier Dilution	Barium CAS: 7440-39-3 Qualifier Dilution	Cadmium CAS: 7440-43-9 Qualifier Dilution	Chromium CAS: 7440-47-3 Qualifier Dilution	Copper CAS: 7440-50-8 Qualifier Dilution	Lead CAS: 7439-92-1 Qualifier Dilution	Mercury CAS: 7439-97-6 Qualifier Dilution	Nickel CAS: 7440-02-0 Qualifier Dilution	Zinc CAS: 7440-66-6 Qualifier Dilution												
Tier 1 Soil PCLs - 30 acre†																										
Residential Combined Exposure ^[1]	2.60E+02	5.40E+03	5.70E+00	1.80E+03	6.20E+03	2.40E+01	8.10E+03	5.20E+01	2.70E+04	5.50E+02	5.00E+02	2.10E+00	8.30E+02	9.90E+03												
Residential Groundwater Exposure ^[2]	6.50E-03	4.10E+00	3.00E+01	2.30E+04	1.70E+03	2.50E+00	2.20E+02	7.50E-01	1.20E+03	5.20E+02	1.50E+00	3.90E-03	7.90E+01	1.20E+03												
TCEQ-Approved Background Values																										
CSSA 9 Metals Background Concentration ^[3]	na	na	na	na	na	19.6**	300***	3**	40.2**	23.2**	84.5**	0.77**	35.5**	73.2**												
Sample Locations (Date Collected)																										
B27-SW68 (09-Aug-2011)	--	--	--	--	--	5.7	F 1	71	1	0.030	U 1	14	F 1	9.2	1	49	1	0.010	U 1	11	1	29	1			
B27-SW69 (09-Aug-2011)	--	--	--	--	--	4.7	F 1	34	1	0.030	U 1	8.5	F 1	6.6	1	10	1	0.020	F 1	6.4	1	18	1			
B27-SW70 (04-Aug-2011)	--	--	--	--	--	2.6	F 1	34	1	0.030	U 1	11	F 1	4.1	1	1.5	F 1	0.010	U 1	7.4	1	17	1			
B27-SW71 (04-Aug-2011)	--	--	--	--	--	4.3	F 1	56	1	0.030	U 1	15	F 1	6.1	1	6.6	F 1	0.010	U 1	9.5	1	32	1			
B27-SW72 (04-Aug-2011)	--	--	--	--	--	2.8	F 1	38	1	0.030	U 1	11	F 1	3.2	J 1	5.4	F 1	0.010	U 1	8.6	1	19	J 1			
B27-SW72-DUP (04-Aug-2011)	--	--	--	--	--	2.9	F 1	37	1	0.030	U 1	11	F 1	4.3	J 1	6.4	F 1	0.010	U 1	7.9	1	13	J 1			
B27-SW73 (04-Aug-2011)	--	--	--	--	--	4.7	F 1	75	1	0.030	U 1	19	F 1	6.3	1	7.1	F 1	0.010	U 1	12	1	24	1			
B27-SW74 (04-Aug-2011)	--	--	--	--	--	5.3	F 1	91	1	0.030	U 1	22	1	6.7	1	9.2	F 1	0.010	U 1	14	1	22	1			
B27-SW74-DUP (04-Aug-2011)	--	--	--	--	--	5.1	F 1	77	1	0.030	U 1	18	F 1	6.9	1	8.4	F 1	0.010	U 1	12	1	18	1			
B27-SW75 (04-Aug-2011)	--	--	--	--	--	5.0	F 1	94	1	0.030	U 1	20	1	6.8	1	9.1	F 1	0.010	U 1	13	1	20	1			
B27-SW76 (04-Aug-2011)	--	--	--	--	--	3.8	F 1	55	1	0.030	U 1	15	F 1	5.2	1	4.8	F 1	0.010	U 1	9.5	1	14	1			
B27-SW77 (04-Aug-2011)	--	--	--	--	--	3.1	F 1	45	1	0.030	U 1	13	F 1	3.9	1	2.8	F 1	0.010	U 1	7.8	1	9.6	1			
B27-SW78 (04-Aug-2011)	--	--	--	--	--	3.2	F 1	37	1	0.030	U 1	11	F 1	5.4	1	7.2	F 1	0.010	U 1	7.4	1	17	1			
B27-SW79 (17-Aug-2011)	--	--	--	--	--	5.0	F 1	44	1	0.030	UJ 1	13	F 1	2.7	J 1	5.6	F 1	0.010	U 1	9.5	J 1	13	J 1			
B27-SW80 (17-Aug-2011)	--	--	--	--	--	5.3	F 1	46	1	0.030	UJ 1	15	F 1	3.8	J 1	7.0	F 1	0.010	U 1	9.8	J 1	16	J 1			
B27-SW81 (17-Aug-2011)	--	--	--	--	--	5.4	F 1	30	1	0.030	UJ 1	11	F 1	2.4	J 1	4.3	F 1	0.010	U 1	8.8	J 1	11	J 1			
B27-SW82 (17-Aug-2011)	--	--	--	--	--	5.3	F 1	44	1	0.030	UJ 1	12	F 1	4.2	J 1	12	J 1	0.010	U 1	8.4	J 1	15	J 1			
B27-SW83 (17-Aug-2011)	--	--	--	--	--	7.8	F 1	35	1	0.030	UJ 1	12	F 1	24	J 1	27	J 1	0.020	F 1	17	J 1	49	J 1			
B27-SW83-DUP (17-Aug-2011)	--	--	--	--	--	5.9	F 1	36	1	0.030	UJ 1	12	F 1	16	J 1	37	J 1	0.020	F 1	9.3	J 1	50	J 1			
B27-SW84 (17-Aug-2011)	--	--	--	--	--	4.7	F 1	59	1	0.030	UJ 1	13	F 1	3.9	J 1	6.5	F 1	0.020	F 1	10	J 1	21	J 1			
B27-SW85 (23-Aug-2011)	--	--	--	--	--	--		--						10	1	--				--		28	1			
B27-SW86 (23-Aug-2011)	--	--	--	--	--	--		130	1	--		--		--		--				--		--				

NOTES:
† TCEQ, TRRP Tier 1 Soil PCLs (Last Revised: May 24, 2011).
†† CSSA Soil Background Concentrations. Second Revision, Evaluation of Background Metals Concentrations in Soils and Bedrock at CSSA. February 2002. Values from Table 3.3.
††† Texas-Specific median background concentration.
PCLs and CSSA background values coded in this table as [1, 2, 3].
[1] ^{Soil}Soil_{comb} = PCL for COPC in soil for a 30 acre source area and a potential future resident (combined exposure for ingestion, dermal contact, inhalation of volatiles and particulates, and ingestion of above-ground and below-ground vegetables).
[2] ^{GW}Soil_{ing} = PCL for COPC in soil for a 30 acre source area and a potential future resident (soil-to-groundwater leaching of COPC to Class 1 and 2 groundwater).
[3] CSSA Soil Background Concentrations.
PCLs are shown in **blue** font.
All values are measured in milligrams per kilogram (mg/Kg) unless otherwise noted.
c = carcinogenic.
n = noncarcinogenic.
m = primary MCL-based.
a = EPA Action Level-based.
>S = solubility limit exceeded during calculation.
na = not applicable.

QA NOTES AND DATA QUALIFIERS:
(NO CODE) - Confirmed identification.
U - Analyte was not detected above the indicated Method Detection Limit (MDL).
F - Analyte was positively identified, but the quantitation is an estimation above the MDL and below the Reporting Limit (RL).
J - Analyte was positively identified, but the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
UJ - Analyte was not detected above the indicated RL; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
M = Concentration is estimated due to a matrix effect.
Values shown in **BOLD** indicate detections above the MDL.
Values **HIGHLIGHTED** indicate detections above the PCL.









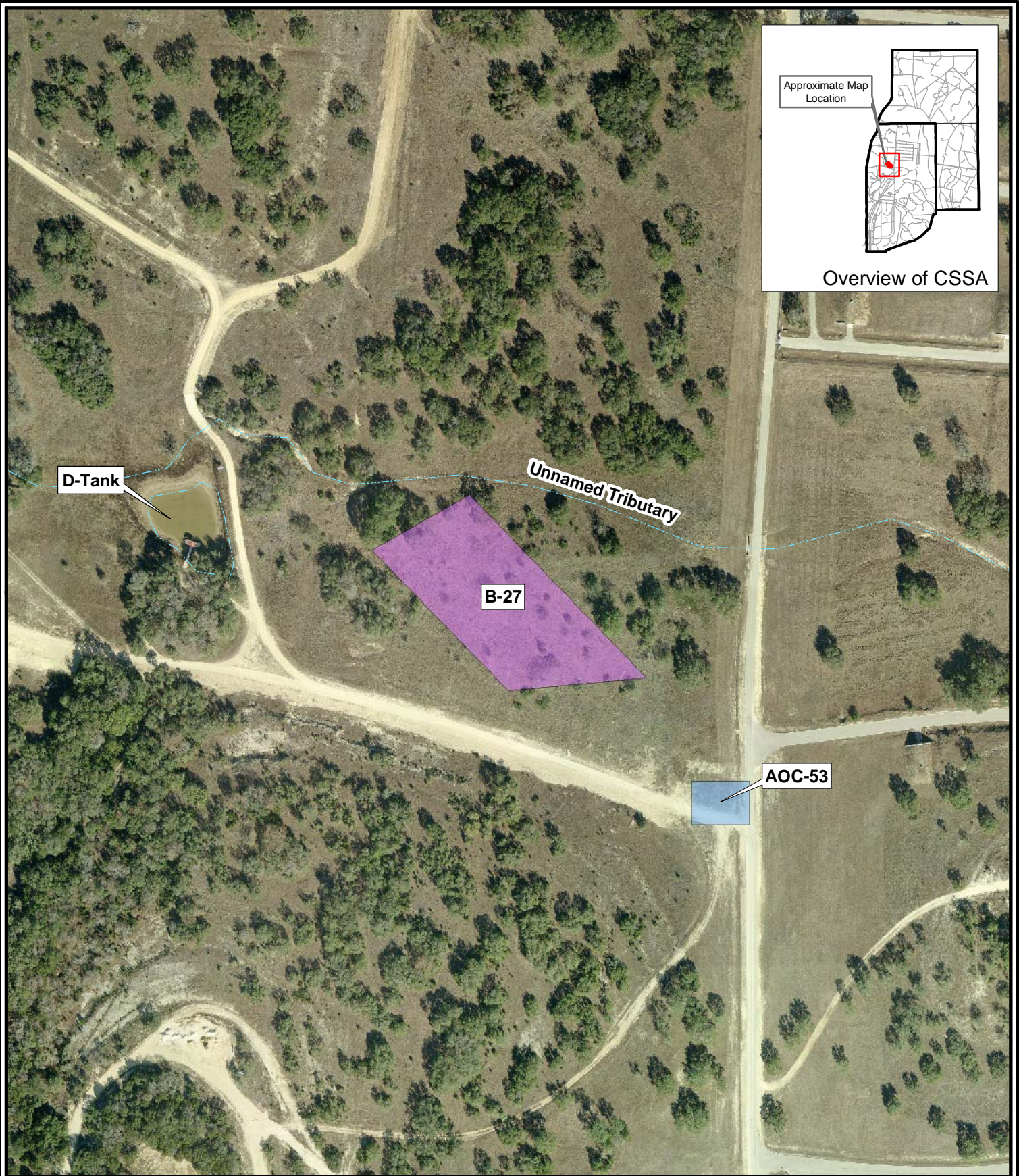
-  CSSA
-  Freeway
-  Highway
-  Major Road
-  County Boundary
-  Military Installation

Figure 1

CSSA Location Map
Camp Stanley Storage Activity

PARSONS



Aerial Photo Date: 2009



250 125 0 250 Feet

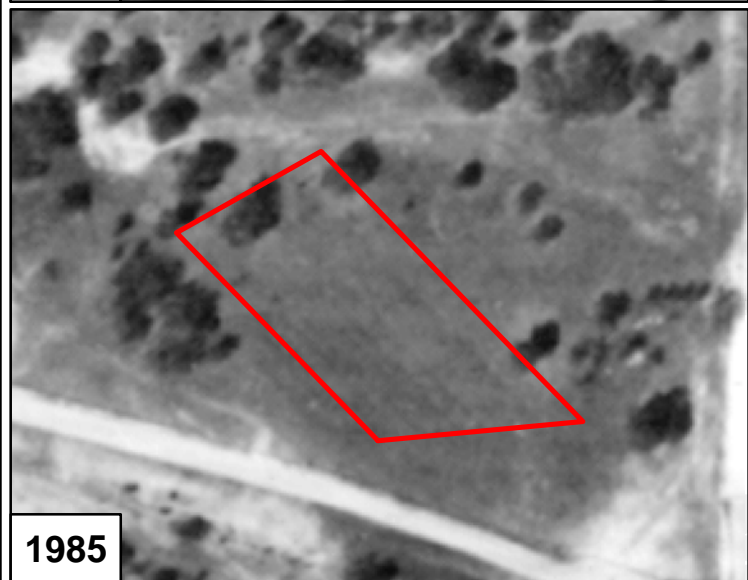
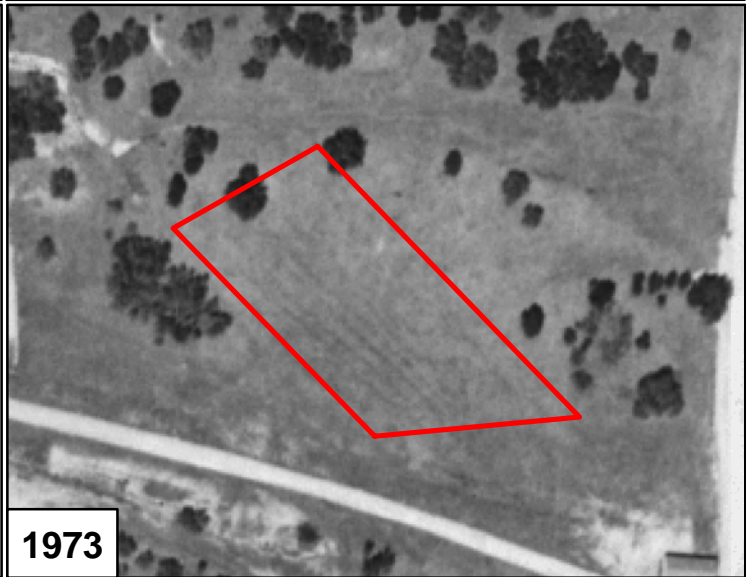
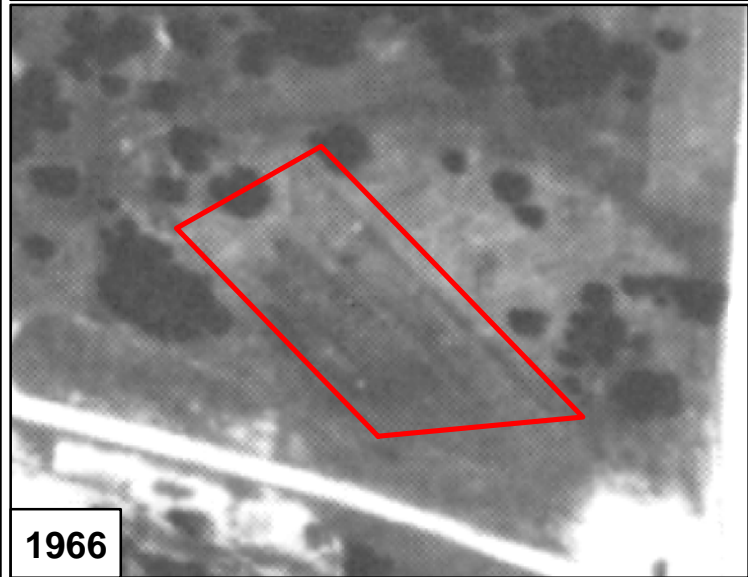
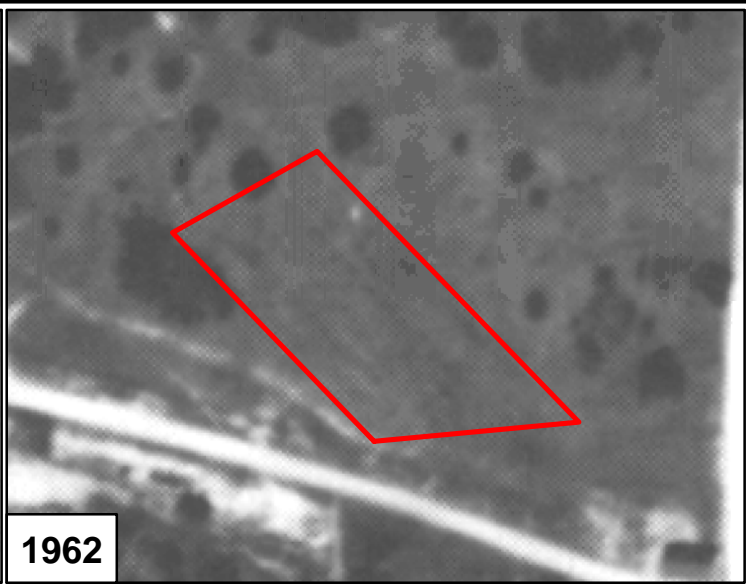
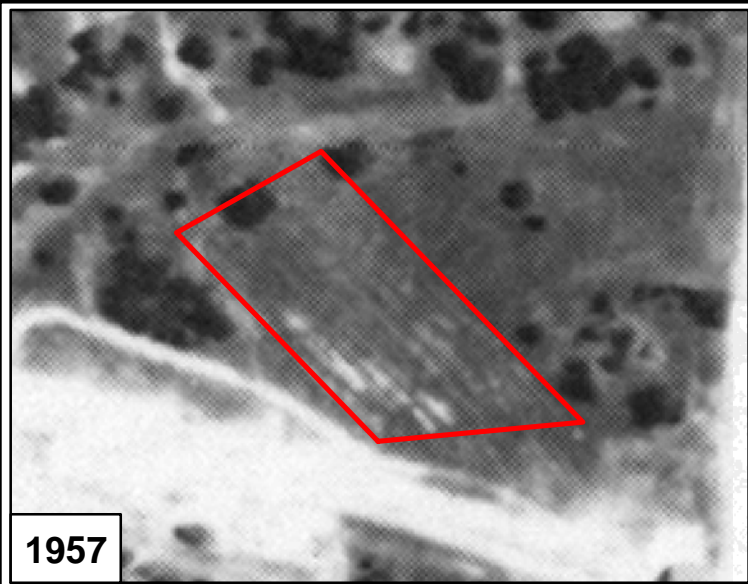


- SWMU B-27
- AOC Boundary
- SWMU Boundary
- Stream

Figure 2

SWMU B-27
Site Location Map
Camp Stanley Storage Activity

PARSONS



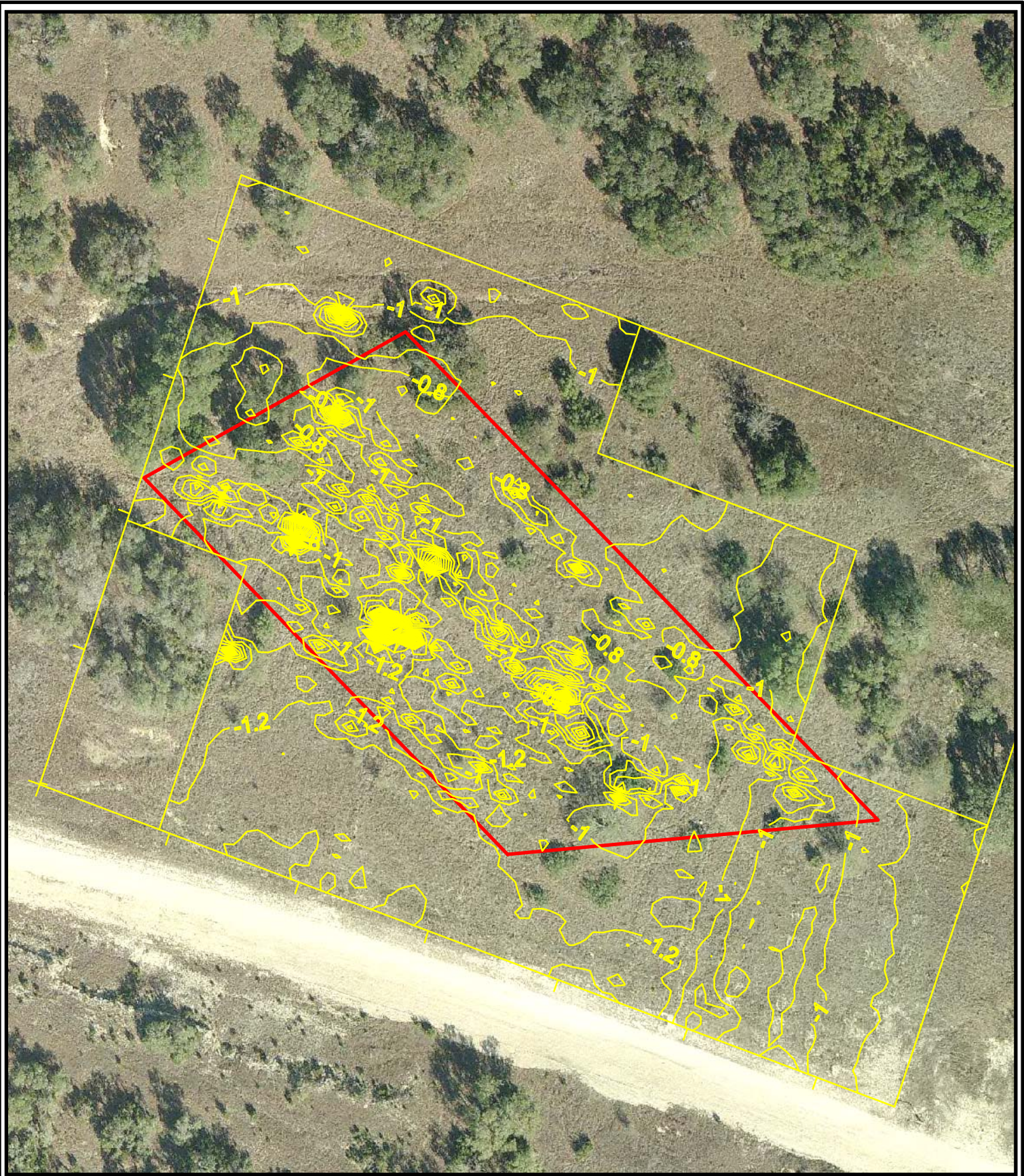
 SWMU B-27

0 125 250 500
Feet

Figure 3

SWMU-B27
Aerial Photographs
Camp Stanley Storage Activity

PARSONS



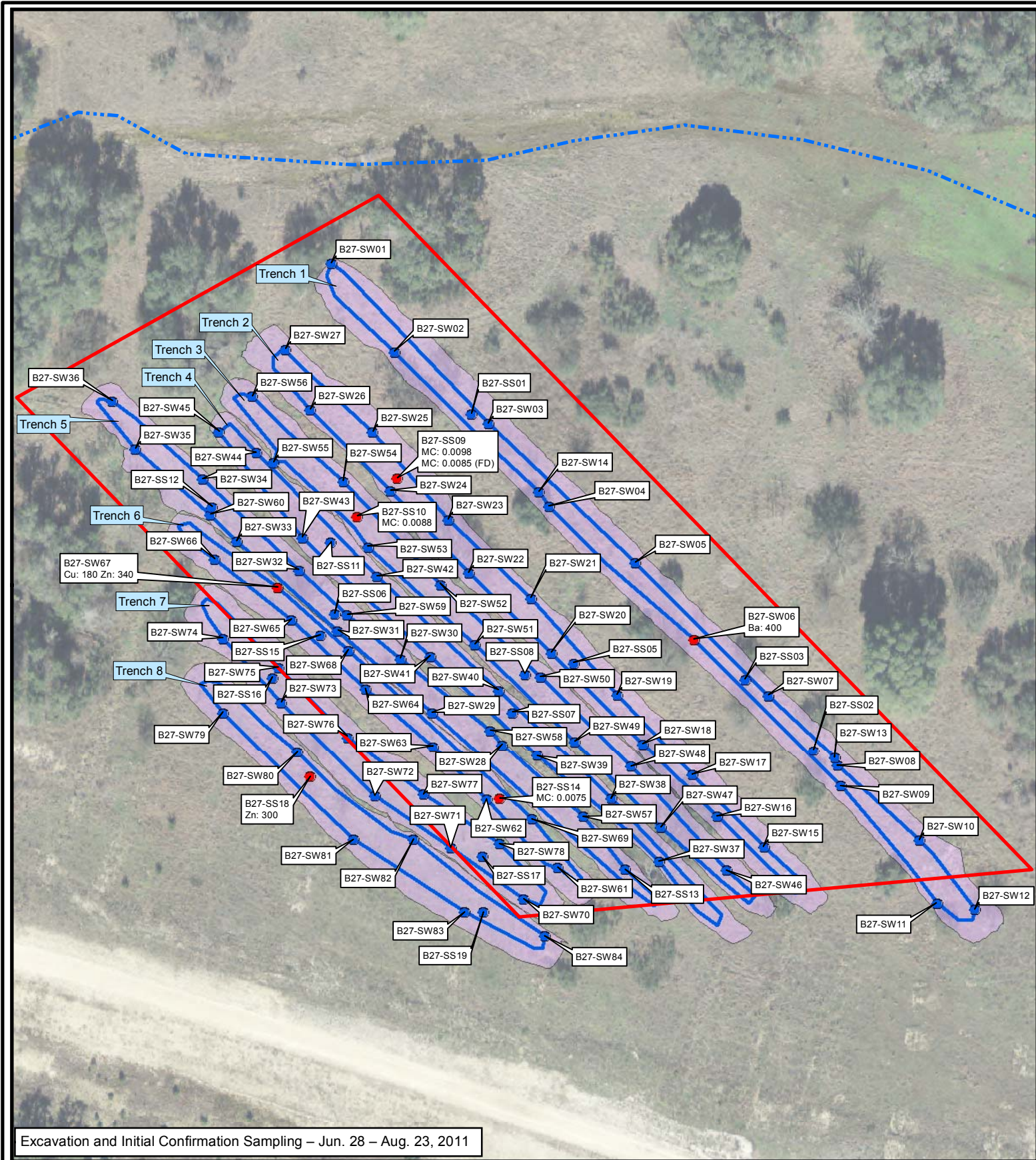
Aerial Photo Date: 2009



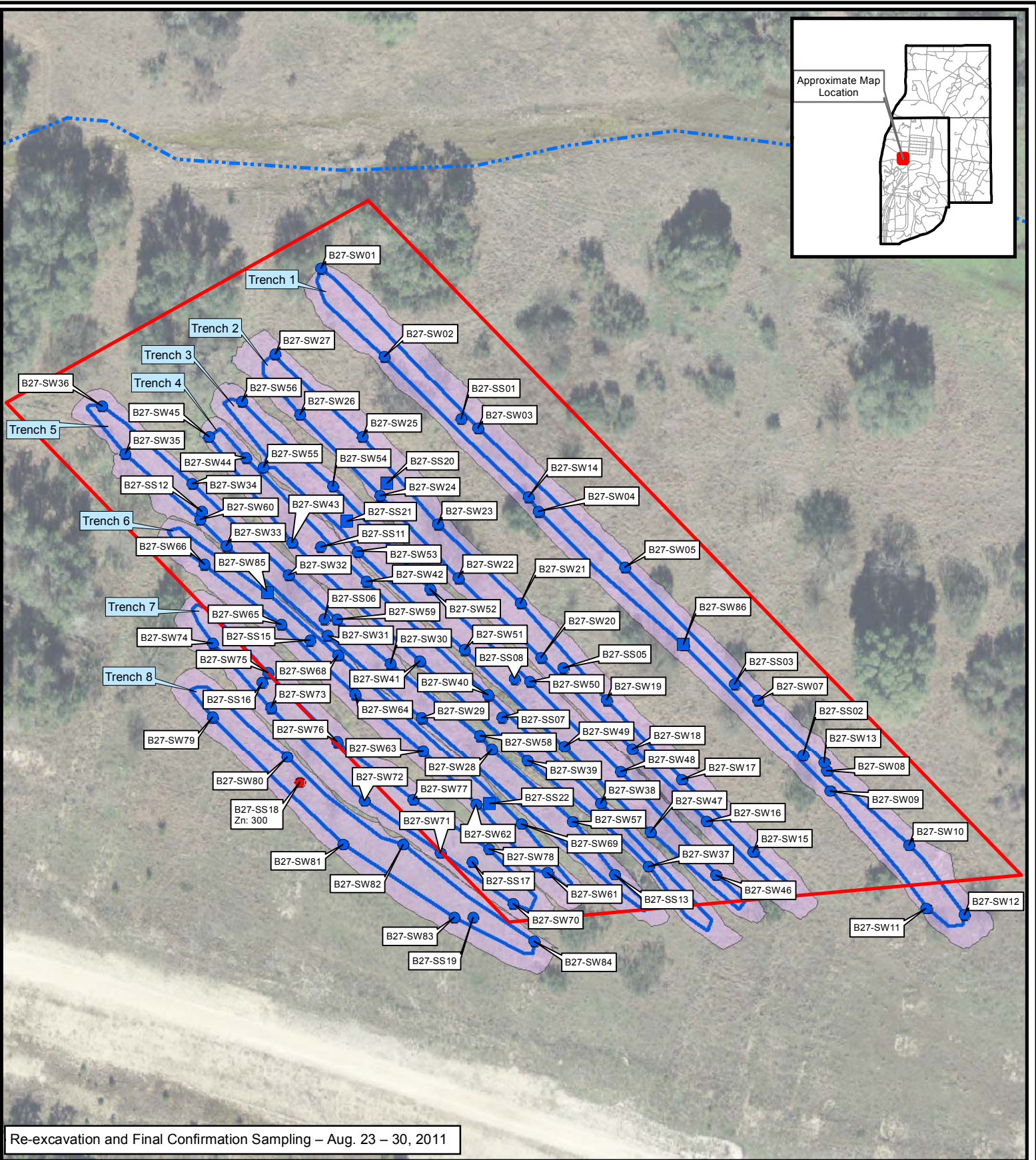
— Conductivity in milli-Siemens per meter (mS/m) contour lines; EM-31 survey, 1996
— SWMU B-27 Boundary

100 50 0 100 Feet

Figure 4
 SWMU B-27
 1996 Geophysical Survey
 Camp Stanley Storage Activity
PARSONS

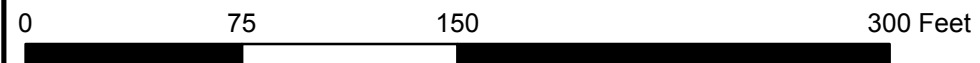


Excavation and Initial Confirmation Sampling – Jun. 28 – Aug. 23, 2011



Re-excavation and Final Confirmation Sampling – Aug. 23 – 30, 2011

Aerial Photo Date: 2010



- Soil Sample with COC concentration detected above Tier 1 PCL
- Soil Sample
- Soil Sample collected Aug. 23 - Aug. 30, 2011
- Intermittent Stream
- SWMU Boundary
- Trench Boundary
- Surficial Excavation Extent

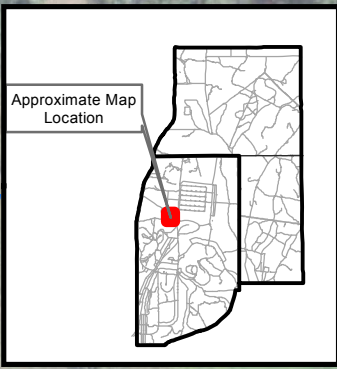


Figure 5
 SWMU B-27
 Sampling and Excavation Locations
 Camp Stanley Storage Activity
PARSONS

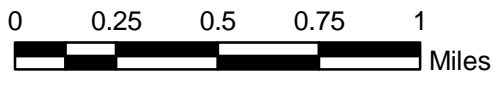
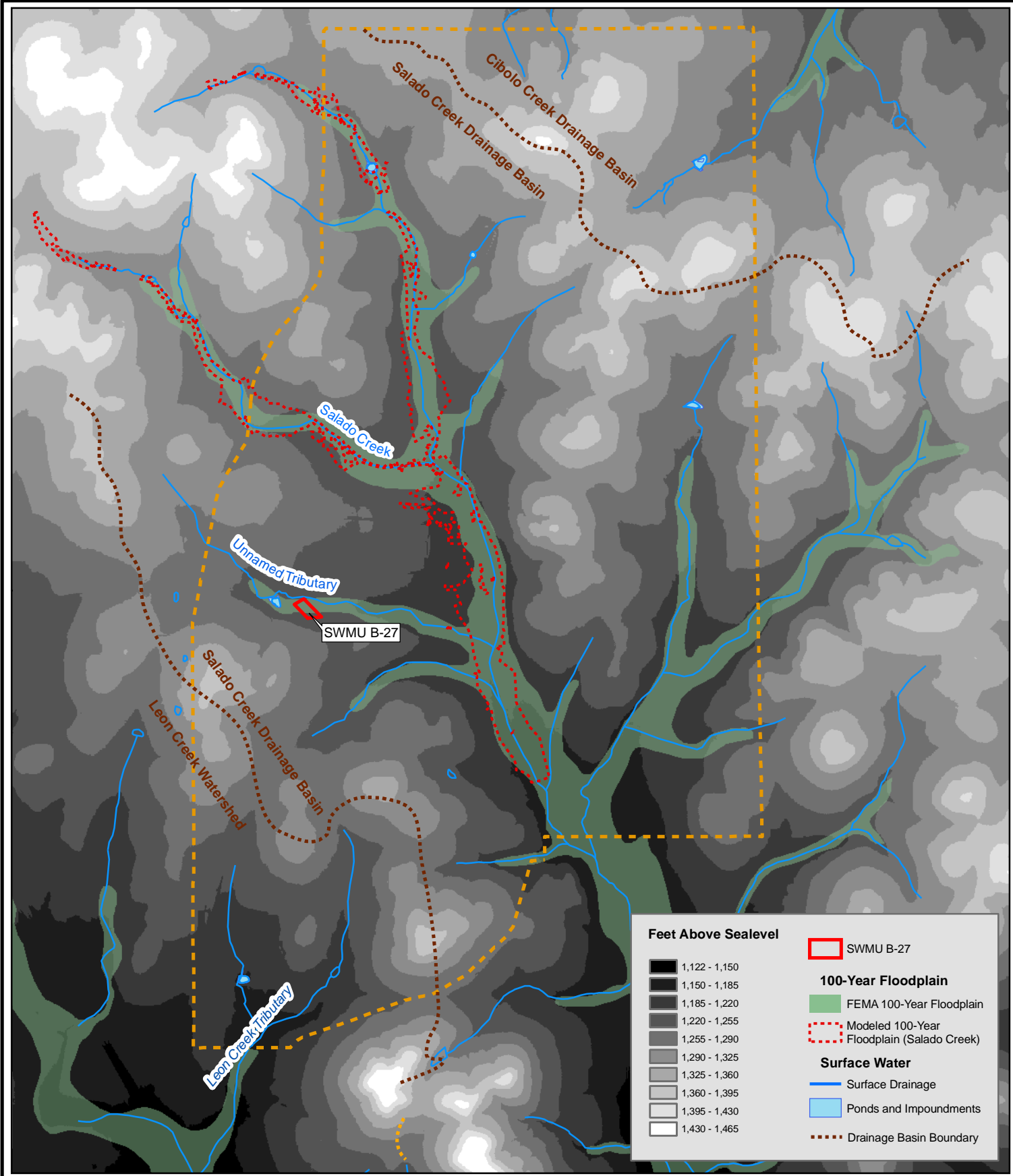


Figure 6

**SWMU B-27 Topography, Surface Water, and Floodplains
Camp Stanley Storage Activity**

PARSONS

APPENDIX A
Site Photographs



Photo 1. SWMU B-27 prior to excavation, looking northeast (March 2011).



Photo 2. SWMU B-27 prior to excavation, looking northwest (March 2011).



Photo 3. Excavation at SWMU B-27, looking west (August 2011).



Photo 4. Excavated Trench 1, looking northwest (June 2011).



Photo 5. Excavated Trench 2, looking northwest (July 2011).



Photo 6. Excavated Trench 5, looking northwest (July 2011).



Photo 7. Sifting metal debris at SWMU B-27, looking west (July 2011).



Photo 8. MD found at SWMU B-27, looking south (July 2011).



Photo 9. Confirmation sampling at Trench 1, looking southeast (July 2011).



Photo 10. Final graded site, looking west (July 2011).

APPENDIX B

Tier 1 Ecological Exclusion Criteria Checklist

Figure: 30 TAC §350.77(b)

TIER 1: Exclusion Criteria Checklist

This exclusion criteria checklist is intended to aid the person and the TNRCC in determining whether or not further ecological evaluation is necessary at an affected property where a response action is being pursued under the Texas Risk Reduction Program (TRRP). Exclusion criteria refer to those conditions at an affected property which preclude the need for a formal ecological risk assessment (ERA) because there are **incomplete or insignificant ecological exposure pathways** due to the nature of the affected property setting and/or the condition of the affected property media. This checklist (and/or a Tier 2 or 3 ERA or the equivalent) must be completed by the person for all affected property subject to the TRRP. The person should be familiar with the affected property but need not be a professional scientist in order to respond, although some questions will likely require contacting a wildlife management agency (i.e., Texas Parks and Wildlife Department or U.S. Fish and Wildlife Service). The checklist is designed for general applicability to all affected property; however, there may be unusual circumstances which require professional judgement in order to determine the need for further ecological evaluation (e.g., cave-dwelling receptors). In these cases, the person is strongly encouraged to contact TNRCC before proceeding.

Besides some preliminary information, the checklist consists of three major parts, **each of which must be completed unless otherwise instructed**. PART I requests affected property identification and background information. PART II contains the actual exclusion criteria and supportive information. PART III is a qualitative summary statement and a certification of the information provided by the person. **Answers should reflect existing conditions and should not consider future remedial actions at the affected property**. Completion of the checklist should lead to a logical conclusion as to whether further evaluation is warranted. Definitions of terms used in the checklist have been provided and users are strongly encouraged to familiarize themselves with these definitions before beginning the checklist.

Name of Facility:

Camp Stanley Storage Activity (CSSA), Boerne, Texas.

Affected Property Location:

SWMU B-27 is located in the northwest portion of the Inner Cantonment area (see Figure 2 of this RIR). The site lies approximately 650 yards east of the western CSSA boundary and is approximately 2 acres in size.

Mailing Address:

**Camp Stanley Storage Activity
25800 Ralph Fair Road
Boerne, TX 78015**

TNRCC Case Tracking #s:

**Water Customer No.: CN602728206.
Air Customer No.: CN600126262.**

Solid Waste Registration #s:

Texas Solid Waste Registration No.: 69026.

Voluntary Cleanup Program #: **Not applicable.**

EPA I.D. #s:

USEPA Identification No.: TX2210020739.

Figure: 30 TAC §350.77(b)

Definitions¹

Affected property - The entire area (i.e., on-site and off-site; including all environmental media) which contains releases of chemicals of concern at concentrations equal to or greater than the assessment level applicable for residential land use and groundwater classification.

Assessment level - A critical protective concentration level for a chemical of concern used for affected property assessments where the human health protective concentration level is established under a Tier 1 evaluation as described in §350.75(b) of this title (relating to Tiered Human Health Protective Concentration Level Evaluation), except for the protective concentration level for the soil-to-groundwater exposure pathway which may be established under Tier 1, 2, or 3 as described in §350.75(i)(7) of this title, and ecological protective concentration levels which are developed, when necessary, under Tier 2 and/or 3 in accordance with §350.77(c) and/or (d), respectively, of this title (relating to Ecological Risk Assessment and Development of Ecological Protective Concentration Levels).

Bedrock - The solid rock (i.e., consolidated, coherent, and relatively hard naturally formed material that cannot normally be excavated by manual methods alone) that underlies gravel, soil or other surficial material.

Chemical of concern - Any chemical that has the potential to adversely affect ecological or human receptors due to its concentration, distribution, and mode of toxicity. Depending on the program area, chemicals of concern may include the following: solid waste, industrial solid waste, municipal solid waste, and hazardous waste as defined in Texas Health and Safety Code, §361.003, as amended; hazardous constituents as listed in 40 Code of Federal Regulations Part 261, Appendix VIII, as amended; constituents on the groundwater monitoring list in 40 Code of Federal Regulations Part 264, Appendix IX, as amended; constituents as listed in 40 CFR Part 258 Appendices I and II, as amended; pollutant as defined in Texas Water Code, §26.001, as amended; hazardous substance as defined in Texas Health and Safety Code, §361.003, as amended, and the Texas Water Code §26.263, as amended; regulated substance as defined in Texas Water Code §26.342, as amended and §334.2 of this title (relating to Definitions), as amended; petroleum product as defined in Texas Water Code §26.342, as amended and §334.122(b)(12) of this title (relating to Definitions for ASTs), as amended; other substances as defined in Texas Water Code §26.039(a), as amended; and daughter products of the aforementioned constituents.

Community - An assemblage of plant and animal populations occupying the same habitat in which the various species interact via spatial and trophic relationships (e.g., a desert community or a pond community).

Complete exposure pathway - An exposure pathway where a human or ecological receptor is exposed to a chemical of concern via an exposure route (e.g., incidental soil ingestion, inhalation of volatiles and particulates, consumption of prey, etc).

De minimus - The description of an area of affected property comprised of one acre or less where the ecological risk is considered to be insignificant because of the small extent of contamination, the absence of protected species, the availability of similar unimpacted habitat nearby, and the lack of adjacent sensitive environmental areas.

Ecological protective concentration level - The concentration of a chemical of concern at the point of exposure within an exposure medium (e.g., soil, sediment, groundwater, or surface water) which is determined in accordance with §350.77(c) or (d) of this title (relating to Ecological Risk Assessment and Development of Ecological Protective Concentration Levels) to be protective for ecological receptors. These concentration levels are primarily intended to be protective for more mobile or wide-ranging ecological receptors and, where appropriate, benthic invertebrate communities within the waters in the state. These concentration levels are not intended to be directly protective of receptors with limited mobility or range (e.g., plants, soil invertebrates, and small rodents), particularly those residing within active areas of a facility, unless these receptors are threatened/endangered species or unless

¹These definitions were taken from 30 TAC §350.4 and may have both ecological and human health applications. For the purposes of this checklist, it is understood that only the ecological applications are of concern.

impacts to these receptors result in disruption of the ecosystem or other unacceptable consequences for the more mobile or wide-ranging receptors (e.g., impacts to an off-site grassland habitat eliminate rodents which causes a desirable owl population to leave the area).

Ecological risk assessment - The process that evaluates the likelihood that adverse ecological effects may occur or are occurring as a result of exposure to one or more stressors; however, as used in this context, only chemical stressors (i.e., COCs) are evaluated.

Environmental medium - A material found in the natural environment such as soil (including non-waste fill materials), groundwater, air, surface water, and sediments, or a mixture of such materials with liquids, sludges, gases, or solids, including hazardous waste which is inseparable by simple mechanical removal processes, and is made up primarily of natural environmental material.

Exclusion criteria - Those conditions at an affected property which preclude the need to establish a protective concentration level for an ecological exposure pathway because the exposure pathway between the chemical of concern and the ecological receptors is not complete or is insignificant.

Exposure medium - The environmental medium or biologic tissue in which or by which exposure to chemicals of concern by ecological or human receptors occurs.

Facility - The installation associated with the affected property where the release of chemicals of concern occurred.

Functioning cap - A low permeability layer or other approved cover meeting its design specifications to minimize water infiltration and chemical of concern migration, and prevent ecological or human receptor exposure to chemicals of concern, and whose design requirements are routinely maintained.

Landscaped area - An area of ornamental, or introduced, or commercially installed, or manicured vegetation which is routinely maintained.

Off-site property (off-site) - All environmental media which is outside of the legal boundaries of the on-site property.

On-site property (on-site) - All environmental media within the legal boundaries of a property owned or leased by a person who has filed a self-implementation notice or a response action plan for that property or who has become subject to such action through one of the agency's program areas for that property.

Physical barrier - Any structure or system, natural or manmade, that prevents exposure or prevents migration of chemicals of concern to the points of exposure.

Point of exposure - The location within an environmental medium where a receptor will be assumed to have a reasonable potential to come into contact with chemicals of concern. The point of exposure may be a discrete point, plane, or an area within or beyond some location.

Protective concentration level - The concentration of a chemical of concern which can remain within the source medium and not result in levels which exceed the applicable human health risk-based exposure limit or ecological protective concentration level at the point of exposure for that exposure pathway.

Release - Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment, with the exception of:

- (A) A release that results in an exposure to a person solely within a workplace, concerning a claim that the person may assert against the person's employer;
- (B) An emission from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, or pipeline pumping station engine;
- (C) A release of source, by-product, or special nuclear material from a nuclear incident, as those terms are defined by the Atomic Energy Act of 1954, as amended (42 U.S.C. §2011 et seq.), if the release is subject to requirements concerning financial protection established by the Nuclear Regulatory Commission under §170 of that Act;

(D) For the purposes of the environmental response law §104, as amended, or other response action, a release of source, by-product, or special nuclear material from a processing site designated under §102(a)(1) or §302(a) of the Uranium Mill Tailings Radiation Control Act of 1978 (42 U.S.C. §7912 and §7942), as amended; and

(E) The normal application of fertilizer.

Sediment - Non-suspended particulate material lying below surface waters such as bays, the ocean, rivers, streams, lakes, ponds, or other similar surface water body (including intermittent streams). Dredged sediments which have been removed from below surface water bodies and placed on land shall be considered soils.

Sensitive environmental areas - Areas that provide unique and often protected habitat for wildlife species. These areas are typically used during critical life stages such as breeding, hatching, rearing of young, and overwintering. Examples include critical habitat for threatened and endangered species, wilderness areas, parks, and wildlife refuges.

Source medium - An environmental medium containing chemicals of concern which must be removed, decontaminated and/or controlled in order to protect human health and the environment. The source medium may be the exposure medium for some exposure pathways.

Stressor - Any physical, chemical, or biological entity that can induce an adverse response; however, as used in this context, only chemical entities apply.

Subsurface soil - For human health exposure pathways, the portion of the soil zone between the base of surface soil and the top of the groundwater-bearing unit(s). For ecological exposure pathways, the portion of the soil zone between 0.5 feet and 5 feet in depth.

Surface cover - A layer of artificially placed utility material (e.g., shell, gravel).

Surface soil - For human health exposure pathways, the soil zone extending from ground surface to 15 feet in depth for residential land use and from ground surface to 5 feet in depth for commercial/industrial land use; or to the top of the uppermost groundwater-bearing unit or bedrock, whichever is less in depth. For ecological exposure pathways, the soil zone extending from ground surface to 0.5 feet in depth.

Surface water - Any water meeting the definition of surface water in the state as defined in §307.3 of this title (relating to Abbreviations and Definitions), as amended.

PART I. Affected Property Identification and Background Information

1) Provide a description of the specific area of the response action and the nature of the release. Include estimated acreage of the affected property and the facility property, and a description of the type of facility and/or operation associated with the affected property. Also describe the location of the affected property with respect to the facility property boundaries and public roadways.

Camp Stanley Storage Activity: CSSA is located in northwestern Bexar County, about 19 miles northwest of downtown San Antonio. The installation consists of approximately 4,004 acres immediately east of Ralph Fair Road, and approximately 0.5 mile east of Interstate Highway 10 (see Figure 1 of the RIR). CSSA has several historical waste sites, including SWMUs, AOCs, and RMUs. The present mission of CSSA is the receipt, storage, issue, and maintenance of ordnance as well as quality assurance testing and maintenance of military weapons and ammunition. Because of its mission, CSSA has been designated a restricted access facility. No changes to the CSSA mission and/or military activities are expected in the future.

SWMU B-27 is located in the northwest portion of the Inner Cantonment area. The site lies approximately 650 yards east of the western CSSA boundary and covers approximately 2 acres. Prior to the excavation activities described herein, the area was open and covered by grass. The site is bounded by roads to the east, south, and west. An intermittent creek bed lies just north of the site.

Several low soil mounds and shallow trenches originally ran the length of the site, ranging in length from 375 to 525 ft. The crests of the soil mounds had a rounded shape suggestive of erosion since the time of their emplacement. The trenches were less than ten feet wide.

Attach available USGS topographic maps and/or aerial or other affected property photographs to this form to depict the affected property and surrounding area. Indicate attachments:

Topo map Aerial photo Other

Aerial photos of the site and land adjacent to the site are shown on Figure 3 of the RIR. Figure 2 of the RIR shows the general location of SWMU B-27.

2) Identify environmental media known or suspected to contain chemicals of concern (COCs) at the present time. Check all that apply:

<u>Known/Suspected COC Location</u>	<u>Based on sampling data?</u>	
<input type="checkbox"/> NO – Soil ≤ 5 ft below ground surface	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<input type="checkbox"/> NO – Soil >5 ft below ground surface	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<input type="checkbox"/> NO – Groundwater	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<input type="checkbox"/> NO – Surface Water/Sediments	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

Explain (previously submitted information may be referenced):

Based on soil samples collected at SWMU B-27, there are no VOCs or SVOCs at the sites (see Appendix C of this RIR). Metals with concentrations exceeding Tier 1 PCLs at the site were excavated and removed or used to calculate a 95% UCL per TAC §350.79(2)(A) that does not exceed the Tier 1 PCL. There is no evidence of other affected or threatened environmental media (groundwater, surface water, or sediment) at SWMU B-27. Inorganic groundwater contamination has not been reported in the closest well to SWMU B-27 (well CS-MW19-LGR located approximately 830 feet downgradient). Low concentrations of VOCs detected in CS-MW19-LGR (below their MCLs) are attributed to contaminated groundwater from Plume 2. Additionally, since soils found to have concentrations of

metals above their PCLs were excavated and removed, there will be no impact to groundwater, surface water, or sediment from SWMU B-27.

3) Provide the information below for the nearest surface water body which has become or has the potential to become impacted from migrating COCs via surface water runoff, air deposition, groundwater seepage, etc. Exclude wastewater treatment facilities and stormwater conveyances/impoundments authorized by permit. Also exclude conveyances, decorative ponds, and those portions of process facilities which are:

- a. Not in contact with surface waters in the State or other surface waters which are ultimately in contact with surface waters in the State; and
- b. Not consistently or routinely utilized as valuable habitat for natural communities including birds, mammals, reptiles, etc.

The nearest surface water body, **an unnamed tributary that drains to Salado Creek**, is **approximately 35 feet** from the affected property (**north of SWMU B-27**). The water body is best described as a:

- freshwater stream: _____ perennial (has water all year)
- intermittent (dries up completely for at least 1 week a year) [only has water during and immediately after rain events]**
- _____ intermittent with perennial pools
- freshwater swamp/marsh/wetland
- saltwater or brackish marsh/swamp/wetland
- reservoir, lake, or pond; approximate surface acres: _____
- drainage ditch
- tidal stream bay estuary
- other; specify _____

Is the water body listed as a State classified segment in Appendix C of the current Texas Surface Water Quality Standards; §§307.1 - 307.10?

- Yes Segment # _____

Use Classification:

No

If the water body is not a State classified segment, identify the first downstream classified segment.

Name:

Salado Creek

Segment #:

Segment 1910 - From the confluence with the San Antonio River in Bexar County to Rocking Horse Lane west of Camp Bullis in Bexar County.

Use Classification:

Salado Creek is classified as an intermittent creek upstream (south) of CSSA to Loop 410 in San Antonio. The creek is classified as perennial downstream of Loop 410. The distance downgradient of SWMU B-27 to perennial surface water of Salado Creek is approximately 21.6 miles. Although water uses are not distinguished between the upstream intermittent and the downstream perennial sections, the designated uses of Segment 1910 as a whole are high aquatic life, contact recreation, public water

supply, and aquifer protection. No significant degradation of high quality receiving waters is anticipated from SWMU B-27.

As necessary, provide further description of surface waters in the vicinity of the affected property:

PART II. Exclusion Criteria and Supportive Information

Subpart A. Surface Water/Sediment Exposure

1) Regarding the affected property where a response action is being pursued under the TRRP, have COCs migrated and resulted in a release or imminent threat of release to either surface waters or to their associated sediments via surface water runoff, air deposition, groundwater seepage, etc.? Exclude wastewater treatment facilities and stormwater conveyances/impoundments authorized by permit. Also exclude conveyances, decorative ponds, and those portions of process facilities which are:

- a. Not in contact with surface waters in the State or other surface waters which are ultimately in contact with surface waters in the State; and
- b. Not consistently or routinely utilized as valuable habitat for natural communities including birds, mammals, reptiles, etc.

Yes No

Explain:

There is no evidence of other affected or threatened environmental media (groundwater, surface water, or sediment) at SWMU B-27. Since soils that were found to have concentrations of metals above their PCLs were excavated/removed, there will be no impact to groundwater, surface water, or sediment from SWMU B-27.

The closest surface water body to SWMU B-27 is an unnamed tributary approximately 35 ft north of the site that drains to Salado Creek. This creek, and all other creeks at CSSA, are intermittent and only contain water during and immediately following rain events.

If the answer is Yes to Subpart A above, the affected property does not meet the exclusion criteria. However, complete the remainder of Part II to determine if there is a complete and/or significant soil exposure pathway, then complete PART III - Qualitative Summary and Certification. If the answer is No, go to Subpart B.

Subpart B. Affected Property Setting

In answering "Yes" to the following question, it is understood that the affected property is not attractive to wildlife or livestock, including threatened or endangered species (i.e., the affected property does not serve as valuable habitat, foraging area, or refuge for ecological communities). (May require consultation with wildlife management agencies.)

1) Is the affected property wholly contained within contiguous land characterized by: pavement, buildings, landscaped area, functioning cap, roadways, equipment storage area, manufacturing or process area, other surface cover or structure, or otherwise disturbed ground?

Yes No

Explain:

Concentrations of chemicals detected in soil samples at SWMU B-27 do not exceed Tier 1 residential soil action levels. Soils found to have metals concentrations above their PCLs were excavated and removed

from the site or were used to calculate a 95% UCL per TAC §350.79(2)(A) that does not exceed the Tier 1 PCL.

There is no evidence of other affected or threatened environmental media (groundwater, surface water, or sediment) at SWMU B-27. Since soils found to have concentrations of metals above their PCLs were excavated/removed, there will be no impact to groundwater, surface water, or sediment in the area. Inorganic groundwater contamination has not been reported in the closest well to SWMU B-27 (well CS-MW19-LGR located approximately 830 feet downgradient of the site).

Additionally, several surveys have been conducted at CSSA for T&E species. The only T&E species that have been documented at CSSA are the black-capped vireo (*Vireo atricapillus*) [BCVI] and golden-cheeked warbler (*Dendroica chrysoparia*) [GCWA]. SWMU B-27 is not located within BCVI or GCWA habitat. The nearest potential habitats for local endangered species are approximately 4,400 ft east. Additional information can be found in the following references:

- Parsons, 2007. *Final Integrated Natural Resource Management Plan*. Prepared for Camp Stanley Storage Activity, Boerne, Texas. October 2007. Available online: [CSSA EE \(Volume 1.6, Other Plans and Approaches\)](#)
- Parsons, 2009. *Final Species and Habitat Distributions of Black-Capped Vireos and Golden-Cheeked Warblers, 2009 Breeding/Nesting Season*. Prepared for Camp Stanley Storage Activity, Boerne, Texas. September 2009. Available online: [CSSA EE \(Volume 1.6, Other Plans and Approaches\)](#)

If the answer to Subpart B above is Yes, the affected property meets the exclusion criteria, assuming the answer to Subpart A was No. Skip Subparts C and D and complete PART III - Qualitative Summary and Certification. If the answer to Subpart B above is No, go to Subpart C.

Subpart C. Soil Exposure

1) Are COCs which are in the soil of the affected property solely below the first 5 feet beneath ground surface or does the affected property have a physical barrier present to prevent exposure of receptors to COCs in surface soil?

Yes [See explanation](#) No

Explain:

Based on Table 1 of this RIR there are no longer any COCs at the site. What contaminated soil horizon that was present at the site was removed during excavation activities.

If the answer to Subpart C above is Yes, the affected property meets the exclusion criteria, assuming the answer to Subpart A was No. Skip Subpart D and complete PART III - Qualitative Summary and Certification. If the answer to Subpart C above is No, proceed to Subpart D.

Subpart D. *De Minimis* Land Area **Subpart D skipped based on answers to Subparts A and C.**

In answering "Yes" to the question below, it is understood that all of the following conditions apply:

- The affected property is not known to serve as habitat, foraging area, or refuge to threatened/endangered or otherwise protected species. (Will likely require consultation with wildlife management agencies.)
- Similar but unimpacted habitat exists within a half-mile radius.
- The affected property is not known to be located within one-quarter mile of sensitive environmental areas (e.g., rookeries, wildlife management areas, preserves). (Will likely require consultation with wildlife management agencies.)
- There is no reason to suspect that the COCs associated with the affected property will migrate such that the affected property will become larger than one acre.

1) Using human health protective concentration levels as a basis to determine the extent of the COCs, does the affected property consist of one acre or less and does it meet all of the conditions above?

- Yes No

Explain how conditions are met/not met:

If the answer to Subpart D above is Yes, then no further ecological evaluation is needed at this affected property, assuming the answer to Subpart A was No. Complete PART III - Qualitative Summary and Certification. If the answer to Subpart D above is No, proceed to Tier 2 or 3 or comparable ERA.

PART III. Qualitative Summary and Certification (Complete in all cases).

Attach a brief statement (not to exceed 1 page) summarizing the information you have provided in this form. This summary should include sufficient information to verify that the affected property meets or does not meet the exclusion criteria. The person should make the initial decision regarding the need for further ecological evaluation (i.e., Tier 2 or 3) based upon the results of this checklist. After review, TNRCC will make a final determination on the need for further assessment. **Note that the person has the continuing obligation to re-enter the ERA process if changing circumstances result in the affected property not meeting the Tier 1 exclusion criteria.**

Completed by: Laura Marbury, P.G. (Typed/Printed Name)


Principal Geologist (Title)

September 26, 2011 (Date)

I believe that the information submitted is true, accurate, and complete, to the best of my knowledge.

Julie Burdey, P.G. (Typed/Printed Name of Person)

Project Manager (Title of Person)


_____ (Signature of Person)

September 26, 2011 (Date Signed)

APPENDIX C

Confirmation Sample Results for All Analytes at SWMU B-27

Appendix C. Summary of Chemical Constituents Remaining in Soils at SWMU B-27

	Semi-Volatile Organics																															
	4-Methylphenol (p-cresol) CAS: 106-44-5	4-Nitrophenol CAS: 100-01-6	4-Nitrophenol CAS: 100-02-7	Acenaphthene CAS: 83-32-9	Acenaphthylene CAS: 208-96-8	Anthracene CAS: 120-12-7	Benzo(a)anthracene CAS: 56-55-3	Benzo(a)pyrene CAS: 50-32-8	Benzo(b)fluoranthene CAS: 205-99-2	Benzo(g,h,i)perylene CAS: 191-24-2	Benzoic acid CAS: 65-85-0	Benzyl alcohol CAS: 100-51-6	Benzyl butyl phthalate CAS: 85-68-7	bis(2-Chloroethoxy)methane CAS: 111-91-1																		
	Qualifier	Dilution	Qualifier	Dilution	Qualifier	Dilution	Qualifier	Dilution	Qualifier	Dilution	Qualifier	Dilution	Qualifier	Dilution	Qualifier	Dilution																
Tier 1 Soil PCLs - 30 acre¹																																
Residential Combined Exposure ⁽¹⁾	3.30E+02	n	1.90E+02	n	1.30E+02	n	3.00E+03	n	3.80E+03	n	1.80E+04	n	5.60E+00	c	5.60E-01	c	5.70E+00	c	1.80E+03	n	2.70E+05	n	6.70E+03	n	1.60E+03	c	2.50E+00	c				
Residential Groundwater Exposure ⁽²⁾	3.20E-01	n	5.40E-02	c	5.00E-02	n	1.20E+02	n	2.00E+02	n	3.40E+03	n	>S		8.90E+00	c	3.80E+00	m	3.00E+01	c	2.30E+04	n	>S		9.50E+01	n	2.90E+00	n	1.30E+02	c	5.90E-03	c
TCEQ-Approved Background Values																																
CSSA 9 Metals Background Concentration ⁽³⁾	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na			
Sample Locations (Date Collected)																																
B27-SW30 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW31 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW32 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW33 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW34 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW35 (19-Jul-2011)	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.050	U 1	0.060	U 1	0.040	U 1	0.020	U 1	0.12	U 1	0.040	U 1	0.060	U 1	0.060	U 1		
B27-SW35-DUP (19-Jul-2011)	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.050	U 1	0.060	U 1	0.040	U 1	0.020	U 1	0.12	U 1	0.040	U 1	0.060	U 1	0.060	U 1		
B27-SW36 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW37 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW38 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW39 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW40 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW41 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW42 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW43 (19-Jul-2011)	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.050	U 1	0.060	U 1	0.040	U 1	0.020	U 1	0.12	U 1	0.040	U 1	0.060	U 1	0.060	U 1		
B27-SW44 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW45 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW46 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW47 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW48 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW48-DUP (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW49 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW50 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW51 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW52 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW53 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW54 (19-Jul-2011)	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.050	U 1	0.060	U 1	0.040	U 1	0.020	U 1	0.12	U 1	0.040	U 1	0.060	U 1	0.060	U 1		
B27-SW55 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW56 (19-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW57 (09-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW58 (09-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW59 (09-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW60 (09-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW61 (09-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW61-DUP (09-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW62 (09-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW63 (09-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW64 (09-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW65 (09-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW66 (09-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW67 (09-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW68 (09-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW69 (09-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW70 (04-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW71 (04-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW72 (04-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW72-DUP (04-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW73 (04-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW74 (04-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW74-DUP (04-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW75 (04-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW76 (04-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW77 (04-Aug-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--			
B27-SW78 (04-Aug-2011)	--																															

Appendix C. Summary of Chemical Constituents Remaining in Soils at SWMU B-27

	Semi-Volatile Organics																																																					
	bis[2-Chloroethyl]ether CAS: 111-44-4	Qualifier Dilution		bis[2-Chloroisopropyl]ether CAS: 108-60-1	Qualifier Dilution		bis[2-Ethylhexyl] phthalate CAS: 117-81-7	Qualifier Dilution		Chrysene CAS: 218-01-9	Qualifier Dilution		Dibenzof(a,h)anthracene CAS: 53-70-3	Qualifier Dilution		Dibenzofuran CAS: 132-64-9	Qualifier Dilution		Diethyl phthalate CAS: 84-66-2	Qualifier Dilution		Dimethyl phthalate CAS: 131-11-3	Qualifier Dilution		Di-n-butyl phthalate CAS: 84-74-2	Qualifier Dilution		Di-n-octyl phthalate CAS: 117-84-0	Qualifier Dilution		Fluoranthene CAS: 206-44-0	Qualifier Dilution		Fluorene CAS: 86-73-7	Qualifier Dilution		Hexachlorobenzene CAS: 118-74-1	Qualifier Dilution		Hexachlorobutadiene CAS: 87-68-3	Qualifier Dilution													
Tier 1 Soil PCLs - 30 acre¹																																																						
Residential Combined Exposure ^[1]	1.40E+00	c	4.10E+01	c	4.30E+01	c	5.60E+02	c	5.50E-01	c	2.70E+02	n	5.30E+04	n	5.30E+04	n	6.20E+03	n	2.60E+03	n	2.30E+03	n	2.30E+03	n	1.00E+06	n	>S	9.60E+02	n	>S	1.50E+02	n	5.60E-01	m	1.60E+00	c																		
Residential Groundwater Exposure ^[2]	1.10E-03	c	9.50E-02	c	8.20E+01	m	7.70E+02	c	>S	7.60E+00	c	1.70E+01	n	7.80E+01	n	3.10E+01	n	1.70E+03	n	1.00E+06	n	>S	9.60E+02	n	>S	1.50E+02	n	5.60E-01	m	1.60E+00	c																							
TCEQ-Approved Background Values																																																						
CCSA 9 Metals Background Concentration ^[3]	na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na		na							
Sample Locations (Date Collected)																																																						
B27-SS01 (28-Jun-2011)	0.040	U 1	0.050	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.050	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1				
B27-SS01-DUP (28-Jun-2011)	0.040	U 1	0.050	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.050	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1		
B27-SS02 (28-Jun-2011)	0.040	U 1	0.050	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.050	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1		
B27-SS03 (06-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--		--		--		--		--		--		--		--		--		--		--					
B27-SS04 (06-Jul-2011)	--		--		--		--		--		--		--		--		--		--		--		--		--		--		--		--		--		--		--		--		--		--		--		--		--					
B27-SS05 (18-Jul-2011)	0.040	U 1	0.050	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.050	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1		
B27-SS06 (19-Jul-2011)	0.040	U 1	0.050	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.050	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1
B27-SS07 (19-Jul-2011)	0.040	U 1	0.050	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.050	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1
B27-SS08 (19-Jul-2011)	0.040	U 1	0.050	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.050	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1
B27-SS09 (09-Aug-2011)	0.040	U 1	0.050	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.050	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1
B27-SS09-DUP (09-Aug-2011)	0.040	U 1	0.050	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.050	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1
B27-SS10 (09-Aug-2011)	0.040	U 1	0.050	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.050	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1
B27-SS11 (09-Aug-2011)	0.040	U 1	0.050	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.050	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1
B27-SS12 (09-Aug-2011)	0.040	U 1	0.050	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.050	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1
B27-SS13 (09-Aug-2011)	0.040	U 1	0.050	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.050	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1
B27-SS14 (09-Aug-2011)	0.040	U 1	0.050	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.050	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1
B27-SS15 (09-Aug-2011)	0.040	U 1	0.050	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.050	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1
B27-SS16 (04-Aug-2011)	0.040	U 1	0.050	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.050	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1
B27-SS17 (04-Aug-2011)	0.040	U 1	0.050	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.030	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.040	U 1	0.050	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1	0.060	U 1
B27-SS18 (17-Aug-2011)	0.040	U 1	0.050	U 1	0.030																																																	

Appendix C. Summary of Chemical Constituents Remaining in Soils at SWMU B-27

		Semi-Volatile Organics																			Explosives																		
		Hexachlorocyclopentadiene CAS: 7447-4 Qualifier Dilution	Hexachloroethane CAS: 67-72-1 Qualifier Dilution	Indeno(1,2,3-cd)pyrene CAS: 193-39-5 Qualifier Dilution	Isophorone CAS: 78-59-1 Qualifier Dilution	Naphthalene CAS: 91-20-3 Qualifier Dilution	Nitrobenzene CAS: 98-95-3 Qualifier Dilution	n-Nitrosodipropylamine CAS: 621-64-7 Qualifier Dilution	n-Nitrosodiphenylamine CAS: 86-30-6 Qualifier Dilution	Pentachlorophenol CAS: 87-86-5 Qualifier Dilution	Phenanthrene CAS: 85-01-8 Qualifier Dilution	Phenol CAS: 108-95-2 Qualifier Dilution	Pyrene CAS: 129-00-0 Qualifier Dilution	1,3,5-Trinitrobenzene CAS: 99-35-4 Qualifier Dilution	1,3-Dinitrobenzene CAS: 99-65-0 Qualifier Dilution																								
Tier 1 Soil PCLs - 30 acre¹																																							
Residential Combined Exposure ⁽¹⁾	7.20E+00	n	6.70E+01	n	5.70E+00	c	4.90E+03	c	1.20E+02	n	3.40E+01	c	4.00E-01	c	5.70E+02	c	7.30E-01	c	1.70E+03	n	2.00E+04	n	1.70E+03	n	2.00E+03	n	6.70E+00	n											
Residential Groundwater Exposure ⁽²⁾	9.60E+00	m	9.20E-01	n	8.70E+01	c	1.50E+00	c	1.60E+01	n	1.80E-01	n	1.80E-04	c	1.40E+00	c	9.20E-03	m	2.10E+02	n	9.60E+00	n	5.60E+02	n	>S	9.10E-01	n	3.80E-03	n										
TCEQ-Approved Background Values																																							
CSSA 9 Metals Background Concentration ⁽³⁾		na		na		na		na		na		na		na		na		na		na		na		na		na		na											
Sample Locations (Date Collected)																																							
B27-SS01 (28-Jun-2011)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1
B27-SS01-DUP (28-Jun-2011)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1
B27-SS02 (28-Jun-2011)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1
B27-SS03 (06-Jul-2011)	--			--			--			--			--			--			--			--			--			--			--			--			--		
B27-SS04 (06-Jul-2011)	--			--			--			--			--			--			--			--			--			--			--			--			--		
B27-SS05 (18-Jul-2011)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1
B27-SS06 (19-Jul-2011)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1
B27-SS07 (19-Jul-2011)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1
B27-SS08 (19-Jul-2011)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1
B27-SS09 (09-Aug-2011)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1
B27-SS09-DUP (09-Aug-2011)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1
B27-SS10 (09-Aug-2011)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1
B27-SS11 (09-Aug-2011)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1
B27-SS12 (09-Aug-2011)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1
B27-SS13 (09-Aug-2011)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1
B27-SS14 (09-Aug-2011)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1
B27-SS15 (09-Aug-2011)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1
B27-SS16 (04-Aug-2011)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1
B27-SS17 (04-Aug-2011)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1
B27-SS18 (17-Aug-2011)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1
B27-SS19 (17-Aug-2011)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1
B27-SS20 (30-Aug-2011)	--			--			--			--			--			--			--			--			--			--			--			--			--		
B27-SS21 (30-Aug-2011)	--			--			--			--			--			--			--			--			--			--			--			--			--		
B27-SS22 (30-Aug-2011)	--			--			--			--			--			--			--			--			--			--			--			--			--		
B27-SW01 (28-Jun-2011)	--			--			--			--			--			--			--			--			--			--			--			--			--		
B27-SW02 (28-Jun-2011)	--			--			--			--			--			--			--			--			--			--			--			--			--		
B27-SW03 (28-Jun-2011)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1
B27-SW04 (28-Jun-2011)	--			--			--			--			--			--			--			--			--			--			--			--			--		
B27-SW05 (28-Jun-2011)	--			--			--			--			--			--			--			--			--			--			--			--			--		
B27-SW06 (28-Jun-2011)	--			--			--			--			--			--			--			--			--			--			--			--			--		
B27-SW07 (28-Jun-2011)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1
B27-SW08 (28-Jun-2011)	--			--			--			--			--			--			--			--			--			--			--			--			--		
B27-SW09 (28-Jun-2011)	--			--			--			--			--			--			--			--			--			--			--			--			--		
B27-SW10 (28-Jun-2011)	--			--			--			--			--			--			--			--			--			--			--			--			--		
B27-SW11 (28-Jun-2011)	--			--			--			--			--			--			--			--			--			--			--			--			--		
B27-SW11-DUP (28-Jun-2011)	--			--			--			--			--			--			--			--			--			--			--			--			--		
B27-SW12 (28-Jun-2011)	--			--			--			--			--			--			--			--			--			--			--			--			--		
B27-SW13 (06-Jul-2011)	--			--			--			--			--			--			--			--			--			--			--			--			--		
B27-SW14 (06-Jul-2011)	--			--			--			--			--			--			--			--			--			--			--			--			--		
B27-SW15 (18-Jul-2011)	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1
B27-SW16 (18-Jul-2011)	--			--			--			--			--			--			--			--			--			--			--			--			--		
B27-SW17 (18-Jul-2011)	--			--																																			

Appendix C. Summary of Chemical Constituents Remaining in Soils at SWMU B-27

	Explosives																	Metals														
	2,4,6-Trinitrotoluene (TNT) CAS: 118-96-7 Qualifier Dilution	2,4-Dinitrotoluene CAS: 121-14-2 Qualifier Dilution	2,6-Dinitrotoluene CAS: 686-20-2 Qualifier Dilution	2-Nitrotoluene CAS: 88-72-2 Qualifier Dilution	3-Nitrotoluene CAS: 99-08-1 Qualifier Dilution	4-Nitrotoluene CAS: 99-99-0 Qualifier Dilution	HMX CAS: 2691-41-0 Qualifier Dilution	Nitrobenzene CAS: 98-95-3 Qualifier Dilution	RD-X CAS: 121-82-4 Qualifier Dilution	Tetryl CAS: 479-45-8 Qualifier Dilution	Arsenic CAS: 7440-38-2 Qualifier Dilution	Barium CAS: 7440-39-3 Qualifier Dilution	Cadmium CAS: 7440-43-9 Qualifier Dilution	Chromium CAS: 7440-47-3 Qualifier Dilution																		
Tier 1 Soil PCLs - 30 acre ¹																																
Residential Combined Exposure ⁽¹⁾	3.30E+01	n	6.90E+00	c	6.90E+00	c	2.10E+01	c	6.70E+02	n	2.70E+02	n	1.60E+03	n	3.40E+01	c	4.30E+01	c	2.70E+02	n	2.40E+01	n	8.10E+03	n	5.20E+01	n	2.70E+04	n				
Residential Groundwater Exposure ⁽²⁾	8.60E-02	n	2.70E-03	c	2.40E-03	c	1.60E-02	c	9.20E-01	n	2.20E-01	c	1.20E+00	n	1.80E-01	n	1.80E-02	c	5.50E-01	n	2.50E+00	m	>S	2.20E+02	m	>S	7.50E-01	m	>S	1.20E+03	m	>S
TCEQ-Approved Background Values																																
CSA 9 Metals Background Concentration ⁽³⁾	na		na		na		na		na		na		na		na		na		na		19.6	**	300	***	3	**	40.2	**				
Sample Locations (Date Collected)																																
B27-SS01 (28-Jun-2011)	0.075	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	3.8	F	1	67	1	0.030	U	1	10	F	1
B27-SS01-DUP (28-Jun-2011)	0.075	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	5.3	F	1	73	1	0.030	U	1	12	F	1
B27-SS02 (28-Jun-2011)	0.075	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	2.7	F	1	32	1	0.030	U	1	8.2	F	1
B27-SS03 (06-Jul-2011)	--			--			--			--			--			--			--													
B27-SS04 (06-Jul-2011)	--			--			--			--			--			--			--													
B27-SS05 (18-Jul-2011)	0.075	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	3.3	F	1	32	1	0.030	U	1	8.3	F	1
B27-SS06 (19-Jul-2011)	0.075	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	2.8	F	1	25	1	0.030	U	1	5.2	F	1
B27-SS07 (19-Jul-2011)	0.075	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	2.4	F	1	17	1	0.030	U	1	4.5	F	1
B27-SS08 (19-Jul-2011)	0.075	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	7.7	F	1	190	1	0.030	U	1	18	F	1
B27-SS09 (09-Aug-2011)	0.075	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	6.5	F	1	86	1	0.030	U	1	15	F	1
B27-SS09-DUP (09-Aug-2011)	0.075	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	5.8	F	1	83	1	0.030	U	1	14	F	1
B27-SS10 (09-Aug-2011)	0.075	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	11	F	1	140	1	0.030	U	1	22	F	1
B27-SS11 (09-Aug-2011)	0.075	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	3.4	F	1	42	1	0.030	U	1	7.0	F	1
B27-SS12 (09-Aug-2011)	0.075	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	3.3	F	1	31	1	0.030	U	1	6.0	F	1
B27-SS13 (09-Aug-2011)	0.075	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	2.0	F	1	16	1	0.030	U	1	3.0	F	1
B27-SS14 (09-Aug-2011)	0.075	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	3.0	F	1	20	1	0.030	U	1	5.4	F	1
B27-SS15 (09-Aug-2011)	0.075	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	1.7	F	1	17	1	0.030	M	1	3.7	F	1
B27-SS16 (04-Aug-2011)	0.075	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	2.3	F	1	38	1	0.030	U	1	7.8	F	1
B27-SS17 (04-Aug-2011)	0.075	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	12	F	1	59	1	0.030	U	1	15	F	1
B27-SS18 (17-Aug-2011)	0.075	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	4.4	F	1	54	1	0.030	U	1	12	F	1
B27-SS19 (17-Aug-2011)	0.075	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	3.7	F	1	32	1	0.030	U	1	8.4	F	1
B27-SS20 (30-Aug-2011)	--			--			--			--			--			--			--													
B27-SS21 (30-Aug-2011)	--			--			--			--			--			--			--													
B27-SS22 (30-Aug-2011)	--			--			--			--			--			--			--													
B27-SW01 (28-Jun-2011)	--			--			--			--			--			--			--			5.3	F	1	120	1	0.10	F	1	15	F	1
B27-SW02 (28-Jun-2011)	--			--			--			--			--			--			--			6.4	F	1	160	1	0.030	U	1	17	F	1
B27-SW03 (28-Jun-2011)	0.075	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	5.3	F	1	110	1	0.030	U	1	14	F	1
B27-SW04 (28-Jun-2011)	--			--			--			--			--			--			--			6.4	F	1	110	1	0.030	U	1	18	F	1
B27-SW05 (28-Jun-2011)	--			--			--			--			--			--			--			5.8	F	1	90	1	0.030	U	1	17	F	1
B27-SW06 (28-Jun-2011)	--			--			--			--			--			--			--			19	F	1	400	1	0.030	U	1	18	F	1
B27-SW07 (28-Jun-2011)	0.075	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	4.3	F	1	51	1	0.030	U	1	12	F	1
B27-SW08 (28-Jun-2011)	--			--			--			--			--			--			--			4.6	F	1	50	1	0.030	U	1	12	F	1
B27-SW09 (28-Jun-2011)	--			--			--			--			--			--			--			2.6	F	1	16	1	0.030	U	1	4.2	F	1
B27-SW10 (28-Jun-2011)	--			--			--			--			--			--			--			4.5	F	1	60	1	0.030	U	1	12	F	1
B27-SW11 (28-Jun-2011)	--			--			--			--			--			--			--			5.0	F	1	57	1	0.030	U	1	14	F	1
B27-SW11-DUP (28-Jun-2011)	--			--			--			--			--			--			--			5.3	F	1	54	1	0.030	U	1	13	F	1
B27-SW12 (28-Jun-2011)	--			--			--			--			--			--			--			6.3	F	1	82	1	0.030	U	1	18	F	1
B27-SW13 (06-Jul-2011)	--			--			--			--			--			--			--			--										
B27-SW14 (06-Jul-2011)	--			--			--			--			--			--			--			--										
B27-SW15 (18-Jul-2011)	0.075	U	1	0.080	U	1	0.075	U	1	0.080	U	1	0.080	U	1	0.080	U	1	0.075	U	1	3.3	M	1	36	1	0.030	M	1	10	F	1
B27-SW16 (18-Jul-2011)	--			--			--			--			--			--			--			3.9	F	1	41	1	0.030	U	1	12	F	1
B27-SW17 (18-Jul-2011)	--			--			--			--			--			--			--			5.4	F	1	57	1	0.030	U	1	17	F	1
B27-SW18 (18-Jul-2011)	--			--			--			--			--			--			--			3.6	F	1	49	1	0.030	U	1			

Appendix C. Summary of Chemical Constituents Remaining in Soils at SWMU B-27

	Metals											
	Copper CAS: 7440-50-8 Qualifier Dilution	Lead CAS: 7439-92-1 Qualifier Dilution	Mercury CAS: 7439-97-6 Qualifier Dilution	Nickel CAS: 7440-02-0 Qualifier Dilution	Zinc CAS: 7440-66-6 Qualifier Dilution							
Tier 1 Soil PCLs - 30 acre[†]												
Residential Combined Exposure ^[1]	5.50E+02	n	5.00E+02	n	2.10E+00	n	8.30E+02	n	9.90E+03	n		
Residential Groundwater Exposure ^[2]	5.20E+02	a >S	1.50E+00	a >S	3.90E-03	m	7.90E+01	n >S	1.20E+03	n >S		
TCEQ-Approved Background Values												
CSSA 9 Metals Background Concentration ^[3]	23.2	**	84.5	**	0.77	**	35.5	**	73.2	**		
Sample Locations (Date Collected)												
B27-SS01 (28-Jun-2011)	7.2	1	9.6	F 1	0.020	F 1	9.0	1	19	J 1		
B27-SS01-DUP (28-Jun-2011)	8.1	1	11	1	0.020	F 1	11	1	25	J 1		
B27-SS02 (28-Jun-2011)	30	1	32	1	0.040	F 1	4.8	1	29	J 1		
B27-SS03 (06-Jul-2011)	--		--		--		--		--			
B27-SS04 (06-Jul-2011)	--		--		--		--		--			
B27-SS05 (18-Jul-2011)	0.19	U 1	3.6	F 1	0.010	U 1	5.2	1	12	J 1		
B27-SS06 (19-Jul-2011)	0.19	U 1	0.57	F 1	0.010	U 1	4.4	1	8.1	J 1		
B27-SS07 (19-Jul-2011)	0.19	U 1	2.0	F 1	0.010	U 1	2.8	1	19	J 1		
B27-SS08 (19-Jul-2011)	8.6	1	39	1	0.090	F 1	11	1	120	J 1		
B27-SS09 (09-Aug-2011)	9.2	1	15	1	0.030	F 1	12	1	22	J 1		
B27-SS09-DUP (09-Aug-2011)	9.1	1	14	1	0.040	F 1	12	1	22	J 1		
B27-SS10 (09-Aug-2011)	24	1	67	1	0.24	1	11	1	100	J 1		
B27-SS11 (09-Aug-2011)	3.8	1	5.6	F 1	0.010	U 1	6.5	1	10	J 1		
B27-SS12 (09-Aug-2011)	4.5	1	2.3	F 1	0.010	U 1	5.8	1	7.5	J 1		
B27-SS13 (09-Aug-2011)	1.5	F 1	0.18	U 1	0.010	U 1	2.6	1	2.6	F 1		
B27-SS14 (09-Aug-2011)	4.7	1	7.4	F 1	0.010	U 1	4.6	1	6.2	J 1		
B27-SS15 (09-Aug-2011)	5.2	1	0.54	F 1	0.010	U 1	3.1	1	7.9	J 1		
B27-SS16 (04-Aug-2011)	3.6	1	9.9	F 1	0.010	U 1	6.3	1	22	J 1		
B27-SS17 (04-Aug-2011)	23	1	56	1	0.020	F 1	13	1	71	J 1		
B27-SS18 (17-Aug-2011)	20	J 1	33	J 1	0.010	U 1	8.3	J 1	310	J 1		
B27-SS19 (17-Aug-2011)	6.3	J 1	28	J 1	0.020	F 1	6.2	J 1	19	J 1		
B27-SS20 (30-Aug-2011)	--		--		--		--		--			
B27-SS21 (30-Aug-2011)	--		--		--		--		--			
B27-SS22 (30-Aug-2011)	--		--		--		--		--			
B27-SW01 (28-Jun-2011)	9.1	1	12	1	0.020	F 1	15	1	29	J 1		
B27-SW02 (28-Jun-2011)	8.8	1	14	1	0.020	F 1	16	1	19	J 1		
B27-SW03 (28-Jun-2011)	7.1	1	11	1	0.010	U 1	12	1	26	J 1		
B27-SW04 (28-Jun-2011)	9.5	1	15	1	0.010	U 1	13	1	30	J 1		
B27-SW05 (28-Jun-2011)	6.8	1	11	1	0.010	U 1	11	1	19	J 1		
B27-SW06 (28-Jun-2011)	19	1	43	1	0.030	F 1	15	1	51	J 1		
B27-SW07 (28-Jun-2011)	4.8	1	6.3	F 1	0.020	F 1	7.2	1	10	J 1		
B27-SW08 (28-Jun-2011)	7.2	1	10.0	F 1	0.010	U 1	8.3	1	26	J 1		
B27-SW09 (28-Jun-2011)	5.3	1	3.4	F 1	0.010	U 1	4.2	1	15	J 1		
B27-SW10 (28-Jun-2011)	6.6	1	9.7	F 1	0.010	U 1	8.0	1	22	J 1		
B27-SW11 (28-Jun-2011)	5.9	1	7.2	F 1	0.020	F 1	8.6	1	23	J 1		
B27-SW11-DUP (28-Jun-2011)	6.2	1	6.9	F 1	0.020	F 1	8.4	1	20	J 1		
B27-SW12 (28-Jun-2011)	7.0	1	9.4	F 1	0.020	F 1	11	1	20	J 1		
B27-SW13 (06-Jul-2011)	--		--		--		--		--			
B27-SW14 (06-Jul-2011)	--		--		--		--		--			
B27-SW15 (18-Jul-2011)	2.0	M 1	5.6	M 1	0.040	F 1	6.1	M 1	16	M 1		
B27-SW16 (18-Jul-2011)	1.4	F 1	7.0	F 1	0.020	F 1	7.0	1	18	J 1		
B27-SW17 (18-Jul-2011)	2.9	1	6.3	F 1	0.020	F 1	9.9	1	20	J 1		
B27-SW18 (18-Jul-2011)	0.20	F 1	3.7	F 1	0.030	F 1	6.0	1	29	J 1		
B27-SW19 (18-Jul-2011)	3.6	1	20	1	0.010	U 1	9.6	1	36	J 1		
B27-SW20 (18-Jul-2011)	9.2	1	25	1	0.050	F 1	12	1	62	J 1		
B27-SW21 (19-Jul-2011)	5.2	1	7.9	F 1	0.010	U 1	11	1	22	J 1		
B27-SW22 (19-Jul-2011)	4.4	J 1	9.5	F 1	0.010	U 1	11	1	17	J 1		
B27-SW22-DUP (19-Jul-2011)	5.5	J 1	10	1	0.010	U 1	13	1	19	J 1		
B27-SW23 (19-Jul-2011)	12	1	20	1	0.010	U 1	16	1	46	J 1		
B27-SW24 (19-Jul-2011)	7.6	1	10	1	0.010	U 1	14	1	27	J 1		
B27-SW25 (19-Jul-2011)	9.3	1	13	1	0.010	U 1	15	1	28	J 1		
B27-SW26 (19-Jul-2011)	9.3	1	13	1	0.010	U 1	17	1	30	J 1		
B27-SW27 (19-Jul-2011)	9.1	1	14	1	0.010	U 1	18	1	30	J 1		
B27-SW28 (19-Jul-2011)	2.9	1	7.4	F 1	0.080	F 1	9.2	1	19	J 1		
B27-SW29 (19-Jul-2011)	2.6	1	7.4	F 1	0.010	U 1	9.9	1	19	J 1		

Appendix C. Summary of Chemical Constituents Remaining in Soils at SWMU B-27

	Metals											
	Copper CAS: 7440-50-8		Lead CAS: 7439-92-1		Mercury CAS: 7439-97-6		Nickel CAS: 7440-02-0		Zinc CAS: 7440-66-6			
	Qualifier	Dilution	Qualifier	Dilution	Qualifier	Dilution	Qualifier	Dilution	Qualifier	Dilution	Qualifier	Dilution
Tier 1 Soil PCLs - 30 acre[†]												
Residential Combined Exposure ^[1]	5.50E+02	n	5.00E+02	n	2.10E+00	n	8.30E+02	n	9.90E+03	n		
Residential Groundwater Exposure ^[2]	5.20E+02	a >S	1.50E+00	a >S	3.90E-03	m	7.90E+01	n >S	1.20E+03	n >S		
TCEQ-Approved Background Values												
CSSA 9 Metals Background Concentration ^[3]	23.2	**	84.5	**	0.77	**	35.5	**	73.2	**		
Sample Locations (Date Collected)												
B27-SW30 (19-Jul-2011)	3.5	1	6.4	F 1	0.010	U 1	9.9	1	20	1		1
B27-SW31 (19-Jul-2011)	5.2	1	25	1	0.010	U 1	10	1	33	1		1
B27-SW32 (19-Jul-2011)	7.5	1	10	1	0.010	U 1	12	1	24	1		1
B27-SW33 (19-Jul-2011)	11	1	12	1	0.010	U 1	16	1	28	1		1
B27-SW34 (19-Jul-2011)	9.4	1	12	1	0.010	U 1	16	1	31	1		1
B27-SW35 (19-Jul-2011)	6.4	J 1	13	1	0.010	U 1	14	1	20	J 1		1
B27-SW35-DUP (19-Jul-2011)	8.8	J 1	14	1	0.010	U 1	15	1	23	J 1		1
B27-SW36 (19-Jul-2011)	10	1	15	1	0.010	U 1	19	1	32	1		1
B27-SW37 (19-Jul-2011)	0.38	F 1	3.9	F 1	0.010	U 1	6.3	1	16	J 1		1
B27-SW38 (19-Jul-2011)	0.19	U 1	1.4	F 1	0.010	U 1	5.2	1	11	J 1		1
B27-SW39 (19-Jul-2011)	7.4	1	14	1	0.13	1	6.0	1	36	J 1		1
B27-SW40 (19-Jul-2011)	3.2	1	6.7	F 1	0.010	U 1	9.4	1	17	1		1
B27-SW41 (19-Jul-2011)	3.4	1	5.1	F 1	0.010	U 1	8.0	1	14	1		1
B27-SW42 (19-Jul-2011)	4.6	1	7.0	F 1	0.010	U 1	10	1	16	1		1
B27-SW43 (19-Jul-2011)	13	1	13	1	0.010	U 1	15	1	30	J 1		1
B27-SW44 (19-Jul-2011)	8.3	1	11	1	0.010	U 1	14	1	22	1		1
B27-SW45 (19-Jul-2011)	10	1	16	1	0.010	U 1	15	1	32	J 1		1
B27-SW46 (19-Jul-2011)	0.19	U 1	0.18	U 1	0.010	U 1	2.8	1	7.7	J 1		1
B27-SW47 (19-Jul-2011)	0.93	F 1	14	1	0.010	U 1	5.5	1	33	J 1		1
B27-SW48 (19-Jul-2011)	15	J 1	17	M 1	0.010	U 1	9.3	M 1	66	M 1		1
B27-SW48-DUP (19-Jul-2011)	2.3	J 1	5.2	F 1	0.010	U 1	6.9	1	24	J 1		1
B27-SW49 (19-Jul-2011)	5.4	1	9.1	F 1	0.010	U 1	9.6	1	24	J 1		1
B27-SW50 (19-Jul-2011)	5.3	1	7.7	F 1	0.010	U 1	9.3	1	24	J 1		1
B27-SW51 (19-Jul-2011)	6.0	1	7.4	F 1	0.14	1	11	1	21	J 1		1
B27-SW52 (19-Jul-2011)	5.5	1	8.7	F 1	0.11	1	12	1	22	J 1		1
B27-SW53 (19-Jul-2011)	7.3	1	13	1	0.020	F 1	13	1	25	J 1		1
B27-SW54 (19-Jul-2011)	8.6	1	13	1	0.010	U 1	16	1	33	1		1
B27-SW55 (19-Jul-2011)	9.3	1	12	1	0.010	U 1	14	1	26	J 1		1
B27-SW56 (19-Jul-2011)	8.3	1	12	1	0.010	U 1	14	1	25	J 1		1
B27-SW57 (09-Aug-2011)	5.8	1	2.8	F 1	0.010	U 1	5.5	1	9.8	J 1		1
B27-SW58 (09-Aug-2011)	6.2	1	6.9	F 1	0.030	F 1	8.8	1	16	J 1		1
B27-SW59 (09-Aug-2011)	8.9	1	8.3	F 1	0.050	F 1	10	1	14	J 1		1
B27-SW60 (09-Aug-2011)	17	1	12	1	0.050	F 1	12	1	33	J 1		1
B27-SW61 (09-Aug-2011)	4.7	1	2.0	F 1	0.010	U 1	6.0	1	9.3	J 1		1
B27-SW61-DUP (09-Aug-2011)	4.1	1	1.2	F 1	0.010	U 1	5.2	1	5.2	J 1		1
B27-SW62 (09-Aug-2011)	5.1	1	6.1	F 1	0.010	U 1	6.6	1	12	1		1
B27-SW63 (09-Aug-2011)	7.9	1	12	1	0.020	F 1	8.8	1	15	1		1
B27-SW64 (09-Aug-2011)	22	1	44	1	0.040	F 1	9.8	1	38	1		1
B27-SW65 (09-Aug-2011)	10	1	7.9	F 1	0.020	F 1	11	1	16	1		1
B27-SW66 (09-Aug-2011)	10	1	8.0	F 1	0.020	F 1	10	1	20	1		1
B27-SW67 (09-Aug-2011)	180	1	68	1	0.050	F 1	12	1	340	1		1
B27-SW68 (09-Aug-2011)	9.2	1	49	1	0.010	U 1	11	1	29	1		1
B27-SW69 (09-Aug-2011)	6.6	1	10	1	0.020	F 1	6.4	1	18	1		1
B27-SW70 (04-Aug-2011)	4.1	1	1.5	F 1	0.010	U 1	7.4	1	17	1		1
B27-SW71 (04-Aug-2011)	6.1	1	6.6	F 1	0.010	U 1	9.5	1	32	1		1
B27-SW72 (04-Aug-2011)	3.2	J 1	5.4	F 1	0.010	U 1	8.6	1	19	J 1		1
B27-SW72-DUP (04-Aug-2011)	4.3	J 1	6.4	F 1	0.010	U 1	7.9	1	13	J 1		1
B27-SW73 (04-Aug-2011)	6.3	1	7.1	F 1	0.010	U 1	12	1	24	1		1
B27-SW74 (04-Aug-2011)	6.7	1	9.2	F 1	0.010	U 1	14	1	22	1		1
B27-SW74-DUP (04-Aug-2011)	6.9	1	8.4	F 1	0.010	U 1	12	1	18	1		1
B27-SW75 (04-Aug-2011)	6.8	1	9.1	F 1	0.010	U 1	13	1	20	1		1
B27-SW76 (04-Aug-2011)	5.2	1	4.8	F 1	0.010	U 1	9.5	1	14	1		1
B27-SW77 (04-Aug-2011)	3.9	1	2.8	F 1	0.010	U 1	7.8	1	9.6	1		1
B27-SW78 (04-Aug-2011)	5.4	1	7.2	F 1	0.010	U 1	7.4	1	17	1		1
B27-SW79 (17-Aug-2011)	2.7	J 1	5.6	F 1	0.010	U 1	9.5	J 1	13	J 1		1
B27-SW80 (17-Aug-2011)	3.8	J 1	7.0	F 1	0.010	U 1	9.8	J 1	16	J 1		1
B27-SW81 (17-Aug-2011)	2.4	J 1	4.3	F 1	0.010	U 1	8.8	J 1	11	J 1		1
B27-SW82 (17-Aug-2011)	4.2	J 1	12	J 1	0.010	U 1	8.4	J 1	15	J 1		1
B27-SW83 (17-Aug-2011)	24	J 1	27	J 1	0.020	F 1	17	J 1	49	J 1		1
B27-SW83-DUP (17-Aug-2011)	16	J 1	37	J 1	0.020	F 1	9.3	J 1	50	J 1		1
B27-SW84 (17-Aug-2011)	3.9	J 1	6.5	F 1	0.020	F 1	10	J 1	21	J 1		1
B27-SW85 (23-Aug-2011)	10	1	--		--		--		28	1		1
B27-SW86 (23-Aug-2011)	--		--		--		--		--			

NOTES:

- † TCEQ, TRRP Tier 1 Soil PCLs (Last Revised: May 24, 2011).
- †† CSSA Soil Background Concentrations. Second Revision, Evaluation of Background Metals Concentrations in Soils and Bedrock at CSSA. February 2002. Values from Table 3.3.
- ††† Texas-Specific median background concentration.
- PCLs and CSSA background values coded in this table as [1, 2, 3].
- [1] ^{††}Soil_{Comb} = PCL for COPC in soil for a 30 acre source area and a potential future resident (combined exposure for ingestion, dermal contact, inhalation of volatiles and particulates, and ingestion of above-ground and below-ground vegetables).
- [2] ^{†††}Soil_{ing} = PCL for COPC in soil for a 30 acre source area and a potential future resident (soil-to-groundwater leaching of COPC to Class 1 and 2 groundwater).
- [3] CSSA Soil Background Concentrations. PCLs are shown in blue font. All values are measured in milligrams per kilogram (mg/Kg) unless otherwise noted.
- c = carcinogenic.
- n = noncarcinogenic.
- m = primary MCL-based.
- a = EPA Action Level-based.
- >S = solubility limit exceeded during calculation.
- na = not applicable.

QA NOTES AND DATA QUALIFIERS:

- (NO CODE) - Confirmed identification.
- U - Analyte was not detected above the indicated Method Detection Limit (MDL).
- F - Analyte was positively identified, but the quantitation is an estimation above the MDL and below the Reporting Limit (RL).
- J - Analyte was positively identified, but the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
- UJ - Analyte was not detected above the indicated RL; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.
- M = Concentration is estimated due to a matrix effect.
- Values shown in **BOLD** indicate detections above the MDL.
- Values **HIGHLIGHTED** indicate detections above the PCL.

APPENDIX D

Data Verification Summary Report

DATA VERIFICATION SUMMARY REPORT
for samples collected from B27 and AOC42
CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Tammy Chang
Parsons - Austin

INTRODUCTION

The following data verification summary report covers soil samples and the associated field quality control (QC) samples collected from Camp Stanley Storage Activity (CSSA) under Environmental Protection Support, Investigations, and Treatability Studies on June 28, 2011. The samples in the following Sample Delivery Group (SDG) included samples collected from B27 and AOC42:

64996

Samples were analyzed for semi-volatile organic compounds (SVOCs), explosives, and metals. Not all samples were analyzed for all parameters.

Field QC samples collected in association with this SDG included two field duplicates (FDs).

All samples were collected by Parsons and analyzed by Agriculture & Priority Pollutants Laboratories, Inc. (APPL) in Clovis, California, following the procedures outlined in the Statement of Work and CSSA QAPP, Version 1.0.

The samples in this SDG were shipped to the laboratory in one cooler. The cooler was received by the laboratory at a temperature of 8.0°C which was 2 degrees higher than the 2 – 6 degree recommended. No flags were applied due to this insignificant exceedance.

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in the CSSA QAPP, Version 1.0. Information reviewed in the data packages included sample results; field and laboratory quality control results; calibrations; case narratives; raw data; COC forms and the cooler receipt checklist. The analyses and findings presented in this report are based on the reviewed information, and whether guidelines in the CSSA QAPP, Version 1.0, were met.

ICP METALS

General

The ICP metals portion of this SDG consisted of eighteen (18) soil samples and two (2) FDs. All samples were collected on June 28, 2011 and were analyzed for arsenic,

barium, cadmium, chromium, copper, lead, nickel and zinc. Also included were two waste characterization samples which were tested for TCLP-metals.

The ICP metals analyses were performed using USEPA SW846 Method 6010B. All samples in this SDG were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method.

The ICP metals samples were digested in two analytical batches.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the two laboratory control samples (LCSs).

All LCS recoveries were within acceptance criteria for both batches.

Precision

Precision was evaluated based on the relative percent difference (%RPD) of the parent/FD results.

Samples B27-SS01 and B27-SW11 were collected in duplicate. %RPD was applicable when both parent and FD sample have concentration reported greater than reporting limit.

B27-SS01

Metals	Parent, mg/kg	FD, mg/kg	%RPD	Criteria, %RPD
Barium	67.4	72.9	7.8	≤ 20
Copper	7.15	8.10	12	
Nickel	8.97	10.87	19	
Zinc	19.1	25.2	28	

Instead applying “J” flags to all zinc results in this SDG, “J” flag was only applied to the zinc results of the parent and FD sample due to the fact that all other metal results of this set met the criteria and the other pair of parent/FD (see table below) has compliant %RPD for zinc. There was no evidence of inconsistent sampling technique on the sampling date.

B27-SW11

Metals	Parent, mg/kg	FD, mg/kg	%RPD	Criteria, %RPD
Barium	56.6	53.7	5.3	≤ 20
Copper	5.94	6.20	4.3	
Nickel	8.58	8.39	2.2	
Zinc	23.3	19.9	16	

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the CSSA QAPP;
- Comparing actual analytical procedures to those described in the CSSA QAPP;
- Evaluating holding times; and
- Examining laboratory blanks for cross contamination of samples during sample analysis.

The samples in this SDG were analyzed following the COC and the analytical procedures described in the CSSA QAPP. All samples were prepared and analyzed within the holding times required by the method.

- All instrument tune criteria were met.
- All initial calibration criteria were met.
- All calibration verification criteria were met.
- Both ICV were prepared using a secondary source.
- All second source verification criteria were met.
- All interference check criteria were met.
- All internal standard criteria were met.
- A dilution test (DT) was performed with sample RMU4-SS05 (in SDG 64984).

RMU4-SS05

Metal	%D	Criteria
Barium	15	$\%D \leq 10$
Chromium	23	
Copper	12	
Nickel	21	
Lead	20	
Zinc	20	

- A post digestion spike (PDS) was analyzed on the same samples as the DT. All metals met criteria in the PDS:

RMU2-SS09 FD

Metal	%R	Criteria
Arsenic	92	
Barium	91	
Cadmium	87	

Chromium	92	75-125%
Copper	97	
Nickel	90	
Lead	82	
Zinc	85	

- Another set of DT was performed on sample B27-WC11 (in SDG 65011). The DT was only applicable for barium, chromium, nickel and zinc since all other metals were not detected in the parent sample at a concentration of 50 times the MDL or greater.

B27-WC11

Metal	%D	Criteria
Barium	18	%D ≤ 10
Chromium	26	
Nickel	19	
Zinc	18	

- * A PDS was analyzed on the same samples as the DT. All metals met criteria in the PDS:

B27-WC11

Metal	%R	Criteria
Arsenic	93	75-125%
Barium	90	
Cadmium	88	
Chromium	91	
Copper	95	
Nickel	92	
Lead	87	
Zinc	86	

There were two method blanks (MBs) and several calibration blanks associated with the ICP analyses in this SDG. All blanks were free of any target metals at or above the RL.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All ICP results for the samples in this SDG were considered usable. The completeness for the ICP portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

MERCURY

General

The mercury portion of this SDG consisted of eighteen (18) soil samples and two (2) FDs. All samples were collected on June 28, 2011 and were analyzed mercury.

The mercury analyses were performed using USEPA SW846 Method 7471A. All samples in this SDG were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method.

The mercury samples were prepared in two analytical batches.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the two LCSs.

Both LCS recoveries were within acceptance criteria.

Precision

Precision was evaluated based on the relative percent difference (%RPD) of the parent/FD results.

Samples B27-SS01 and B27-SW11 were collected in duplicate. None of the four samples had mercury detected above the reporting limit, therefore, the %RPD calculation is not applicable.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- * Comparing the COC procedures to those described in the CSSA QAPP;
- * Comparing actual analytical procedures to those described in the CSSA QAPP;
- * Evaluating holding times; and
- * Examining laboratory blanks for cross contamination of samples during sample analysis.

The samples in this SDG were analyzed following the COC and the analytical procedures described in the CSSA QAPP. All samples were prepared and analyzed within the holding times required by the method.

- * All initial calibration criteria were met.
- * All calibration verification criteria were met.
- * All second source verification criteria were met. Both ICV were prepared using a secondary source.

There were two MBs and several calibration blanks associated with the mercury analyses in this SDG. All blanks were free of mercury at or above the RL.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All mercury results for the samples in this SDG were considered usable. The completeness for the mercury portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

SEMI-VOLATILES

General

This data package consisted of six (6) soil samples and one FD. The samples were collected on June 28, 2011 and were analyzed for a full list of SVOCs.

The SVOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8270C. The samples were analyzed in one analytical batch under one set of initial calibration (ICAL) curves. All samples were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method. All samples were analyzed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the LCS and the surrogate spikes.

All LCS and surrogate spike recoveries were within acceptance criteria.

Precision

Precision was evaluated based on the %RPD of parent/FD results. Sample B27-SS01 was collected in duplicate.

None of the target compounds were detected in parent and FD samples.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- * Comparing the COC procedures to those described in the CSSA QAPP;
- * Comparing actual analytical procedures to those described in the CSSA QAPP;
- * Evaluating holding times; and
- * Examining laboratory blank for cross contamination of samples during sample analysis.

All samples in this data package were analyzed following the COC and the analytical procedures described in the CSSA QAPP, Version 1.0. All samples were prepared and analyzed within the holding time required by the method.

- All instrument performance check criteria were met.

- * All initial calibration criteria were met.
- * The LCS sample was prepared with a secondary source. All second source verification criteria were met.
- * All initial calibration verification (ICV) criteria were met.
- * All continuing calibration verification (CCV) criteria were met.
- * All internal standard criteria were met.

There were one MB and few calibration blanks associated with the SVOC analyses in this SDG. All blanks were non-detect for all target SVOCs.

Completeness

Completeness has been evaluated in accordance with the CSSA QAPP. The number of usable results has been divided by the number of possible individual analyte results and expressed as a percentage to determine the completeness of the data set.

All SVOC results for the samples in this SDG were considered usable. The completeness for this SDG is 100%, which meets the minimum acceptance criteria of 95%.

EXPLOSIVES

General

This data package consisted of six (6) soil samples and one FD. All samples were collected on June 28, 2011 and were analyzed for a full list of explosives by SW8330B.

The explosive analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8330B. The samples were analyzed in one analytical batch under one set of initial calibration (ICAL) curves. All samples were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method. All samples were analyzed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the LCS and the surrogate spikes.

All LCS and surrogate spike recoveries were within acceptance criteria.

Precision

Precision was evaluated based on the %RPD of parent/FD sample results. Sample B27-SS01 was collected in duplicate.

None of the target compounds were detected in the parent and FD set.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- * Comparing the COC procedures to those described in the CSSA QAPP;
- * Comparing actual analytical procedures to those described in the CSSA QAPP;
- * Evaluating holding times; and
- * Examining laboratory blank for cross contamination of samples during sample analysis.

All samples in this data package were analyzed following the COC and the analytical procedures described in the CSSA QAPP, Version 1.0. All samples were prepared and analyzed within the holding time required by the method.

- All instrument performance check criteria were met.
- * All initial calibration criteria were met.
- * Both LCSs were prepared with a secondary source. All second source verification criteria were met.
- * All initial calibration verification (ICV) criteria were met.
- * All continuing calibration verification (CCV) criteria were met.

There were one MB and few calibration blanks associated with the explosive analyses in this SDG. All blanks were non-detect for all target explosives.

Completeness

Completeness has been evaluated in accordance with the CSSA QAPP. The number of usable results has been divided by the number of possible individual analyte results and expressed as a percentage to determine the completeness of the data set.

All explosive results for the samples in this SDG were considered usable. The completeness for this SDG is 100%, which meets the minimum acceptance criteria of 95%.

DATA VERIFICATION SUMMARY REPORT

for samples collected from B27

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Tammy Chang
Parsons - Austin

INTRODUCTION

The following data verification summary report covers soil samples and the associated field quality control (QC) samples collected from Camp Stanley Storage Activity (CSSA) under Environmental Protection Support, Investigations, and Treatability Studies on June 29, 2011. The samples in the following Sample Delivery Group (SDG) included samples collected from B27:

65011

Samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), explosives, TCLP metals and total metals. Not all samples were analyzed for all parameters.

Field QC samples collected in association with this SDG included one field duplicate (FD), one set of matrix spike/matrix spike duplicate (MS/MSD), one trip blank (TB), and one equipment blank (EB).

All samples were collected by Parsons and analyzed by Agriculture & Priority Pollutants Laboratories, Inc. (APPL) in Clovis, California, following the procedures outlined in the Statement of Work and CSSA QAPP, Version 1.0.

The samples in this SDG were shipped to the laboratory in one cooler. The cooler was received by the laboratory at a temperature of 2.5°C which was within the 2 – 6 degree recommended.

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in the CSSA QAPP, Version 1.0. Information reviewed in the data packages included sample results; field and laboratory quality control results; calibrations; case narratives; raw data; COC forms and the cooler receipt checklist. The analyses and findings presented in this report are based on the reviewed information, and whether guidelines in the CSSA QAPP, Version 1.0, were met.

ICP METALS

General

The ICP metals portion of this SDG consisted of three (3) soil samples for total metals, eight (8) soil samples for TCLP metals including one FD, and one (1) EB.. All samples were collected on June 29, 2011 and were analyzed for arsenic, barium, cadmium, chromium, copper, lead, nickel and zinc. All waste characterization samples which were tested for TCLP-RCRA 8 metals.

The ICP metals analyses were performed using USEPA SW846 Method 6010B. All samples in this SDG were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method.

The ICP metals samples were digested in four analytical batches, one for the EB, two for the TCLP extract and one for total metals in soil.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the four laboratory control samples (LCSs) and one set of MS/MSD. Sample B28-WC11 was designated as the parent sample for MS/MSD analyses.

All LCS recoveries were within acceptance criteria for all four batches.

All MS/MSD recoveries were within acceptance criteria for the TCLP batch.

The non-compliant %Rs of the MS/MSD for the total metal batch are listed below:

Metals	MS, %R	MSD, %R	Criteria, %R
Arsenic	68	73	75 - 125
Barium	171	(104)	
Cadmium	66	68	
Lead	141	352	
Zinc	(92)	74	

() indicates the %R was compliant.

“M” flags were applied to the above metal results of the parent sample. Parsons’ data validator removed the “M” from the zinc result due to the minor exceedance of the MSD %R.

Precision

Precision was evaluated based on the relative percent difference (%RPD) of the parent/FD results and MS/MSD.

The only non-compliant %RPD of the MS/MSD are barium and lead. Since “M” flags have already been applied to the parent sample results, no additional flags are needed.

Sample B27-WC06 was collected in duplicate. %RPD was applicable when both parent and FD sample have concentration reported greater than reporting limit.

B27-WC06

Metals	Parent, mg/L	FD, mg/L	%RPD	Criteria, %RPD
Barium	0.8716	0.8150	6.7	≤ 20

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the CSSA QAPP;
- Comparing actual analytical procedures to those described in the CSSA QAPP;
- Evaluating holding times; and
- Examining laboratory and equipment blanks for cross contamination of samples during sample collection and analysis.

The samples in this SDG were analyzed following the COC and the analytical procedures described in the CSSA QAPP. All samples were prepared and analyzed within the holding times required by the method.

- All instrument tune criteria were met.
- All initial calibration criteria were met.
- All calibration verification criteria were met.
- All ICVs were prepared using a secondary source.
- All second source verification criteria were met.
- All interference check criteria were met.
- All internal standard criteria were met.
- A dilution test (DT) was performed on sample B27-WC11. The DT was only applicable for barium, chromium, nickel and zinc since all other metals were not detected in the parent sample at a concentration of 50 times the MDL or greater.

B27-WC11

Metal	%D	Criteria
Barium	18	%D ≤ 10
Chromium	26	
Nickel	19	
Zinc	18	

- * A PDS was analyzed on the same samples as the DT. All metals met criteria in the PDS:

B27-WC11

Metal	%R	Criteria
Arsenic	93	75-125%

Barium	90	
Cadmium	88	
Chromium	91	
Copper	95	
Nickel	92	
Lead	87	
Zinc	86	

There were four method blanks, one EB and several continuing calibration blanks involved in this SDG. Zinc in the EB was detected above the reporting limit at 0.075 mg/L, the three associated soil samples had zinc detected at 20 – 40 mg/kg. Therefore, the detection of zinc in the EB was not significant enough to warrant a “B” flag.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All ICP results for the samples in this SDG were considered usable. The completeness for the ICP portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

MERCURY

General

The mercury portion of this SDG consisted of one (1) EB, three (3) soil samples for total mercury and eight (8) soil samples for TCLP-mercury including one FD. All samples were collected on June 29, 2011 and were analyzed mercury.

The mercury analyses were performed using USEPA SW846 Method 7470A or 7471A. All samples in this SDG were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method.

The mercury samples were prepared in three analytical batches, one for the EB, one for soil and one for TCLP extract.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the three LCSs and two sets of MS/MSD. Sample B27-WC11 was designated for MS/MSD analyses.

All LCS recoveries were within acceptance criteria.

Both MS and MSD had compliant %Rs in total mercury and TCLP-mercury batches.

Precision

Precision was evaluated based on the relative percent difference (%RPD) of the parent/FD results and MS/MSD results

%RPD of both sets of MS/MSD analyses were compliant.

Sample B27-WC06 was collected in duplicate. Neither of these two samples had mercury detected above the reporting limit, therefore, the %RPD calculation is not applicable.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- * Comparing the COC procedures to those described in the CSSA QAPP;
- * Comparing actual analytical procedures to those described in the CSSA QAPP;
- * Evaluating holding times; and
- * Examining laboratory and equipment blanks for cross contamination of samples during sample collection and analysis.

The samples in this SDG were analyzed following the COC and the analytical procedures described in the CSSA QAPP. All samples were prepared and analyzed within the holding times required by the method.

- * All initial calibration criteria were met.
- * All calibration verification criteria were met.
- * All second source verification criteria were met. All three ICVs were prepared using a secondary source.

There were three MBs, one EB, and several calibration blanks associated with the mercury analyses in this SDG. All blanks were free of mercury at or above the RL.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All mercury results for the samples in this SDG were considered usable. The completeness for the mercury portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

VOLATILES

General

This data package consisted of three (3) soil samples, one (1) TB, and one (1) EB. This sample was collected on June 29, 2011 and was analyzed for a full list of VOCs.

The VOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260B. The samples were analyzed in two analytical batches, one for water and one for soil, All samples were analyzed undiluted following the procedures outlined in the CSSA QAPP, prepared and analyzed within the holding time required by the method.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the two LCSs, MS, MSD, and the surrogate spikes. Sample B27-WC11 was designated as the parent sample for MS and MSD analyses.

All LCSs and surrogate spike recoveries were within acceptance criteria.

There were thirty-three compounds with non-compliant %Rs in the MS and/or MSD analyses. Lab reanalyzed MS and MSD with similar results. "M" flags have been applied to the associated parent sample results.

Precision

Precision was evaluated based on the %RPDs of the MS and MSD results.

Dichlorodifluoromethane had a non-compliant %RPDs between MS and MSD results, "M" flag has already been applied to the parent sample result due to accuracy issue discussed above.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the CSSA QAPP;
- Comparing actual analytical procedures to those described in the CSSA QAPP;
- Evaluating holding times; and
- Examining laboratory blanks, EB and TB for cross contamination of samples during sample collection and analysis.

All samples were analyzed following the COC and the analytical procedures described in the CSSA QAPP, Version 1.0. All samples were prepared and analyzed within the holding time required by the method.

- All instrument performance check criteria were met.
- All initial calibration criteria were met.
- Both LCSs were prepared with a secondary source standard. All second source verification criteria were met.
- All ICV criteria were met.
- All CCV criteria were met.

There were two MB, one TB, one EB, and few calibration blanks associated with the VOC analyses in this SDG. All blanks were non-detect for all target VOCs at RLs.

Completeness

Completeness has been evaluated in accordance with the CSSA QAPP. The number of usable results has been divided by the number of possible individual analyte results and expressed as a percentage to determine the completeness of the data set.

All VOC results for the samples in this SDG were considered usable. The completeness for this SDG is 100%, which meets the minimum acceptance criteria of 95%.

SEMI-VOLATILES

General

This data package consisted of three (3) soil samples and one EB. The samples were collected on June 29, 2011 and were analyzed for a full list of SVOCs.

The SVOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8270C. The samples were analyzed in two analytical batches under two sets of initial calibration (ICAL) curves. All samples were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method. All samples were analyzed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the two LCSs and the surrogate spikes.

All LCS and surrogate spike recoveries were within acceptance criteria.

Precision

Since there were no duplicate analyses involved in this SDG, the precision could not be measured.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- * Comparing the COC procedures to those described in the CSSA QAPP;
- * Comparing actual analytical procedures to those described in the CSSA QAPP;
- * Evaluating holding times; and
- * Examining laboratory blanks and EB for cross contamination of samples during sample collection analysis.

All samples in this data package were analyzed following the COC and the analytical procedures described in the CSSA QAPP, Version 1.0. All samples were prepared and analyzed within the holding time required by the method.

- All instrument performance check criteria were met.
- * All initial calibration criteria were met.
- * Both LCSs were prepared with a secondary source. All second source verification criteria were met.
- * All initial calibration verification (ICV) criteria were met.

- * All continuing calibration verification (CCV) criteria were met.
- * All internal standard criteria were met.

There were two MBs, one EB, and few calibration blanks associated with the SVOC analyses in this SDG. All blanks were non-detect for all target SVOCs.

Completeness

Completeness has been evaluated in accordance with the CSSA QAPP. The number of usable results has been divided by the number of possible individual analyte results and expressed as a percentage to determine the completeness of the data set.

All SVOC results for the samples in this SDG were considered usable. The completeness for this SDG is 100%, which meets the minimum acceptance criteria of 95%.

EXPLOSIVES

General

This data package consisted of three (3) soil samples and one EB. All samples were collected on June 29, 2011 and were analyzed for a full list of explosives by SW8330B.

The explosive analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8330B. The samples were analyzed in two analytical batches, each batch was run under one set of initial calibration (ICAL) curves. All samples were analyzed following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method. All samples were analyzed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the two LCSs and the surrogate spikes.

All LCS and surrogate spike recoveries were within acceptance criteria.

Precision

Precision could not be evaluated due to the lack of duplicate analyses involved in this SDG.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- * Comparing the COC procedures to those described in the CSSA QAPP;
- * Comparing actual analytical procedures to those described in the CSSA QAPP;
- * Evaluating holding times; and

- * Examining laboratory blank for cross contamination of samples during sample analysis.

All samples in this data package were analyzed following the COC and the analytical procedures described in the CSSA QAPP, Version 1.0. All samples were prepared and analyzed within the holding time required by the method.

- All instrument performance check criteria were met.
- * All initial calibration criteria were met.
- * Both LCSs were prepared with a secondary source. All second source verification criteria were met.
- * All initial calibration verification (ICV) criteria were met.
- * All continuing calibration verification (CCV) criteria were met.

There were two MBs, one EB, and few calibration blanks associated with the explosive analyses in this SDG. All blanks were non-detect for all target explosives.

Completeness

Completeness has been evaluated in accordance with the CSSA QAPP. The number of usable results has been divided by the number of possible individual analyte results and expressed as a percentage to determine the completeness of the data set.

All explosive results for the samples in this SDG were considered usable. The completeness for this SDG is 100%, which meets the minimum acceptance criteria of 95%.

DATA VERIFICATION SUMMARY REPORT

for samples collected from B27

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Tammy Chang
Parsons - Austin

INTRODUCTION

The following data verification summary report covers soil samples and the associated field quality control (QC) sample collected from Camp Stanley Storage Activity (CSSA) under Environmental Protection Support, Investigations, and Treatability Studies on July 6, 2011. The samples in the following Sample Delivery Group (SDG) included samples collected from B27:

65057

Samples were analyzed for volatile organic compounds (VOCs).

Field QC sample collected in association with this SDG was one trip blank (TB).

All samples were collected by Parsons and analyzed by Agriculture & Priority Pollutants Laboratories, Inc. (APPL) in Clovis, California, following the procedures outlined in the Statement of Work and CSSA QAPP, Version 1.0.

The samples in this SDG were shipped to the laboratory in one cooler. The cooler was received by the laboratory at a temperature of 4.0°C which was within the recommended 2 – 6°C range.

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in the CSSA QAPP, Version 1.0. Information reviewed in the data packages included sample results; field and laboratory quality control results; calibrations; case narratives; raw data; COC forms and the cooler receipt checklist. The analyses and findings presented in this report are based on the reviewed information, and whether guidelines in the CSSA QAPP, Version 1.0, were met.

VOLATILES

General

This data package consisted of four (4) soil samples and one (1) TB. The samples were collected on July 6, 2011 and were analyzed for a full list of VOCs.

The VOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260B. The samples were analyzed in two analytical batches under two sets of initial calibration (ICAL) curves. All samples were analyzed

following the procedures outlined in the CSSA QAPP. All samples were prepared and analyzed within the holding time required by the method. All samples were analyzed undiluted.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the two laboratory control samples (LCSs) and the surrogate spikes.

All LCSs %Rs were within acceptance criteria for both batches.

Precision

Precision is normally evaluated based on the relative percent difference (%RPD) of a set of duplicate analyses. .

Since there were no duplicate analyses involved in this SDG, therefore, the precision could not be measured.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the CSSA QAPP;
- Comparing actual analytical procedures to those described in the CSSA QAPP;
- Evaluating holding times; and
- Examining laboratory blanks and TB for cross contamination of samples during sample collection and analysis.

All samples in this data package were analyzed following the COC and the analytical procedures described in the CSSA QAPP, Version 1.0. All samples were prepared and analyzed within the holding time required by the method.

- All instrument performance check criteria were met.
- All initial calibration criteria were met.
- Both two LCS samples were prepared with a secondary source. All second source verification criteria were met.
- All initial calibration verification (ICV) criteria were met.
- All continuing calibration verification (CCV) criteria were met.

There were two method blanks (MBs), one TB, and few calibration blanks associated with the VOC analyses in this SDG. All blanks were non-detect for all target VOCs at RLs.

Completeness

Completeness has been evaluated in accordance with the CSSA QAPP. The number of usable results has been divided by the number of possible individual analyte results and expressed as a percentage to determine the completeness of the data set.

All VOC results for the samples in this SDG were considered usable. The completeness for this SDG is 100%, which meets the minimum acceptance criteria of 95%.

DATA VERIFICATION SUMMARY REPORT

for samples collected from B27

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Tammy Chang

Parsons - Austin

INTRODUCTION

The following data verification summary report covers soil samples and one associated field quality control (QC) samples collected from Camp Stanley Storage Activity (CSSA) under Environmental Protection Support, Investigations, and Treatability Studies on September 7, 2011. The samples in the following Sample Delivery Group (SDG) included samples collected from B27 site:

65603

QC sample included one trip blank (TB), one set of parent and field duplicate (FD) samples, and one pair of matrix spike and matrix spike duplicate (MS/MSD) samples. All field samples and the QC samples were analyzed for methylene chloride only. TB was logged in under SDG 65604.

Both samples were collected by Parsons and analyzed by Agriculture & Priority Pollutants Laboratories, Inc. (APPL) in Clovis, California, following the procedures outlined in the Statement of Work and CSSA QAPP, Version 1.0.

The samples in this SDG were shipped to the laboratory in one cooler. This cooler was received by the laboratory at a temperature of 2.0°C which was within the 2 – 6 degree recommended.

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in the CSSA QAPP, Version 1.0. Information reviewed in the data packages included sample results; field and laboratory quality control results; calibrations; case narratives; raw data; COC forms and the cooler receipt checklist. The analyses and findings presented in this report are based on the reviewed information, and whether guidelines in the CSSA QAPP, Version 1.0, were met.

METHYLENE CHLORIDE

General

This data package consisted of ten (10) soil sample including one FD and one set of MS/MSD. All samples were collected on September 7, 2011 and were analyzed for a methylene chloride only.

The methylene chloride analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8260B. The samples were analyzed in two analytical batches. All samples were analyzed undiluted following the procedures outlined in the CSSA QAPP, prepared and analyzed within the holding time required by the method.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the two LCSs, MS/MSD, and the surrogate spikes. Sample B27-WC45 was designated as the parent sample for MS/MSD analyses.

All LCSs, MS/MSD and surrogate spike recoveries were within acceptance criteria.

Precision

Precision was evaluated based on the relative percent difference (%RPD) of MS/MSD results and parent/FD results. Sample B27-WC46 was collected in duplicate.

The %RPD of MS/MSD was 33% which barely exceeded the 30% limits. The “M” flag applied by the lab was removed by Parsons data validator.

Both parent and FD samples had no detection of methylene chloride at the reporting limit, therefore, the %RPD calculation was not applicable.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the CSSA QAPP;
- Comparing actual analytical procedures to those described in the CSSA QAPP;
- Evaluating holding times; and
- Examining laboratory blanks and TB for cross contamination of samples during sample collection and analysis.

All samples were analyzed following the COC and the analytical procedures described in the CSSA QAPP, Version 1.0. All samples were prepared and analyzed within the holding time required by the method.

- All instrument performance check criteria were met.
- All initial calibration criteria were met.
- Both LCSs were prepared with a secondary source standard. All second source verification criteria were met.
- All ICV criteria were met.
- All CCV criteria were met.

There were two MBs, one TB, and several calibration blanks associated with the methylene chloride analyses in this SDG. All blanks were non-detect for methylene chloride at RL.

Completeness

Completeness has been evaluated in accordance with the CSSA QAPP. The number of usable results has been divided by the number of possible individual analyte results and expressed as a percentage to determine the completeness of the data set.

All methylene chloride result for the samples in this SDG were considered usable. The completeness for this SDG is 100%, which meets the minimum acceptance criteria of 95%.

APPENDIX E

List of Munitions Debris Found at SWMU B-27

Munitions Debris Found at SWMU B-27

Item Description	Location
Cartridge Case, Anti-Aircraft, 40mm	Trench #1
Pressure Plate (Spider) from, Mine, Practice, Anti-Tank, M1	Trench #1
Projectile Burster Tube, Type Unknown	Trench #1
Cartridge Case, 20mm	Trench #2
Cartridge Case, Anti-Aircraft, 40mm	Trench #2
Cartridge Case, Signal, Illumination, Aircraft, Single Star, AN-M43 Series	Trench #2
Grenade Projection Adapter, M2A1	Trench #2
Grenade, Rifle, Practice, M11, Ogive only (Nose)	Trench #2
Pressure Plate (Spider) from, Mine, Anti-Tank, M1	Trench #2
Signals, Smoke, Ground: Red, M62 (Tali Booms)	Trench #2
Fuze, Mortar, Stokes, MkVI	Trench #2 Surface
Cartridge Case, 20mm	Trench #3
Cartridge Case, 37mm	Trench #3
Cartridge Case, 5"	Trench #3
Cartridge Case, 75mm	Trench #3
Cartridge Case, Anti-Aircraft, 40mm	Trench #3
Cartridge Igniters	Trench #3
Fuze. Time, Powder Train, M1907	Trench #3
Projectile, 37mm, HE, MkII	Trench #3
Cartridge Case, 37mm	Trench #4
Cartridge Case, Anti-Aircraft, 40mm	Trench #4
Cartridge Case, 105mm	Trench #5
Cartridge Case, 3 Inch	Trench #5
Cartridge Case, 3"	Trench #5
Cartridge Case, 37mm	Trench #5
Cartridge Case, 40mm	Trench #5
Cartridge Case, 75mm	Trench #5
Cartridge Case, Anti-Aircraft, 40mm	Trench #5
Cartridge Case, Signal, Illumination, Aircraft, Single Star, AN-M43 Series	Trench #5
Cartridge Igniters	Trench #5
Delay, Fuze, Chemical	Trench #5
Fuze, Bomb, Nose, M103	Trench #5
Fuze, Bomb, Nose, M111	Trench #5
Fuze, Mine, Anti-Tank, M1	Trench #5

Munitions Debris Found at SWMU B-27 Continued

Item Description	Location
Fuze, Mortar, Stokes, MkVI	Trench #5
Fuze, Point Detonating, Delay, MkIV	Trench #5
Fuze, Projectile, Base Detonating, M38	Trench #5
Grenade, Hand, Practice, MkII	Trench #5
Projectile, 37mm, AP	Trench #5
Projectile, 37mm, AP, M59	Trench #5
Projectile, 37mm, HE, M63	Trench #5
Projectile, 37mm, HE, MkII	Trench #5
Projectile, 37mm, High Explosive-Self Destruct (HESD), M54	Trench #5
Rocket, 2.36 Inch, High Explosive Anti Tank (HEAT), M6A1	Trench #5
Bomb, 100lb, Practice, M85	Trench #6
Cartridge Case, 40mm	Trench #8
Grenade, Hand, Practice, MkII	Trench #8
Cartridge Case, 37mm	Overs Pile
Cartridge Case, 40mm	Overs Pile
Fuze, Mine, Anti-Tank, M1	Overs Pile
Fuze, Mortar, Stokes, MkVI	Overs Pile
Grenade, Rifle, High Explosive, VB, MkI	Overs Pile
Projectile, 37mm, High Explosive-Self Destruct (HESD), M54	Overs Pile

APPENDIX F

Waste Characterization Sampling Results for SWMU B-27

Appendix F - Validated Analytical Results for CSSA B27 Waste Characterization Soil Samples

	SAMPLE ID:	B27-WC06	B27-WC06-DUP	B27-WC07	B27-WC08	B27-WC09	B27-WC10	B27-WC11	B27-WC12	B27-WC13	B27-WC14	B27-WC15	B27-WC16	B27-WC17
	DATE SAMPLED:	6/29/2011	6/29/2011	6/29/2011	6/29/2011	6/29/2011	6/29/2011	6/29/2011	6/29/2011	7/18/2011	7/18/2011	7/18/2011	7/18/2011	7/18/2011
	LAB SAMPLE ID:	AY40585	AY40586	AY40587	AY40588	AY40590	AY40589	AY40591	AY40592	AY42159	AY42160	AY42164	AY42161	AY42162
	Units													
Volatiles Organics - SW8260B														
1,1,1,2-Tetrachloroethane	mg/kg	--	--	--	--	--	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
1,1,1-Trichloroethane	mg/kg	--	--	--	--	--	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U
1,1,2,2-Tetrachloroethane	mg/kg	--	--	--	--	--	0.00090 U	0.00090 M	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U
1,1,2-Trichloroethane	mg/kg	--	--	--	--	--	0.00090 U	0.00090 M	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U
1,1-Dichloroethane	mg/kg	--	--	--	--	--	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
1,1-Dichloroethene	mg/kg	--	--	--	--	--	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U
1,1-Dichloropropene	mg/kg	--	--	--	--	--	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
1,2,3-Trichlorobenzene	mg/kg	--	--	--	--	--	0.0010 U	0.0010 M	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
1,2,3-Trichloropropane	mg/kg	--	--	--	--	--	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
1,2,4-Trichlorobenzene	mg/kg	--	--	--	--	--	0.0010 U	0.0010 M	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
1,2,4-Trimethylbenzene	mg/kg	--	--	--	--	--	0.0011 U	0.0011 M	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U
1,2-Dibromo-3-chloropropane	mg/kg	--	--	--	--	--	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0020 U
1,2-Dibromoethane (EDB)	mg/kg	--	--	--	--	--	0.0013 U	0.0013 M	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
1,2-Dichlorobenzene	mg/kg	--	--	--	--	--	0.0010 U	0.0010 M	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
1,2-Dichloroethane	mg/kg	--	--	--	--	--	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
1,2-Dichloropropane	mg/kg	--	--	--	--	--	0.00070 U	0.00070 U	0.00070 U	0.00070 U	0.00070 U	0.00070 U	0.00070 U	0.00070 U
1,3,5-Trimethylbenzene (Mesitylene)	mg/kg	--	--	--	--	--	0.0011 U	0.0011 M	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U
1,3-Dichlorobenzene	mg/kg	--	--	--	--	--	0.0011 U	0.0011 M	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U
1,3-Dichloropropane	mg/kg	--	--	--	--	--	0.00070 U	0.00070 U	0.00070 U	0.00070 U	0.00070 U	0.00070 U	0.00070 U	0.00070 U
1,4-Dichlorobenzene	mg/kg	--	--	--	--	--	0.00080 U	0.00080 M	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
1-Chlorohexane	mg/kg	--	--	--	--	--	0.00090 U	0.00090 M	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U
2,2-Dichloropropane	mg/kg	--	--	--	--	--	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
2-Chlorotoluene	mg/kg	--	--	--	--	--	0.0013 U	0.0013 M	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
4-Chlorotoluene	mg/kg	--	--	--	--	--	0.0011 U	0.0011 M	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U
Benzene	mg/kg	--	--	--	--	--	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U
Bromobenzene	mg/kg	--	--	--	--	--	0.00090 U	0.00090 M	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U
Bromochloromethane	mg/kg	--	--	--	--	--	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Bromodichloromethane	mg/kg	--	--	--	--	--	0.00090 U	0.00090 M	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U
Bromoform	mg/kg	--	--	--	--	--	0.0011 U	0.0011 M	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U
Bromomethane	mg/kg	--	--	--	--	--	0.00070 U	0.00070 M	0.00070 U	0.00070 U	0.00070 U	0.00070 U	0.00070 U	0.00070 U
Carbon tetrachloride	mg/kg	--	--	--	--	--	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
Chlorobenzene	mg/kg	--	--	--	--	--	0.00070 U	0.00070 M	0.00070 U	0.00070 U	0.00070 U	0.00070 U	0.00070 U	0.00070 U
Chloroethane	mg/kg	--	--	--	--	--	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U
Chloroform	mg/kg	--	--	--	--	--	0.00070 U	0.00070 U	0.00070 U	0.00070 U	0.00070 U	0.00070 U	0.00070 U	0.00070 U
Chloromethane	mg/kg	--	--	--	--	--	0.0015 U	0.0015 M	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U
cis-1,2-Dichloroethene	mg/kg	--	--	--	--	--	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
cis-1,3-Dichloropropene	mg/kg	--	--	--	--	--	0.00090 U	0.00090 M	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U
Dibromochloromethane	mg/kg	--	--	--	--	--	0.00090 U	0.00090 M	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U
Dibromomethane	mg/kg	--	--	--	--	--	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
Dichlorodifluoromethane	mg/kg	--	--	--	--	--	0.0018 U	0.0018 M	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U
Ethylbenzene	mg/kg	--	--	--	--	--	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
Hexachlorobutadiene	mg/kg	--	--	--	--	--	0.0011 U	0.0011 M	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U
Isopropylbenzene	mg/kg	--	--	--	--	--	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
m,p-Xylene	mg/kg	--	--	--	--	--	0.0018 U	0.0018 M	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U	0.0018 U
Methylene chloride	mg/kg	--	--	--	--	--	0.017	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
Naphthalene	mg/kg	--	--	--	--	--	0.0010 U	0.0010 M	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
n-Butylbenzene	mg/kg	--	--	--	--	--	0.0010 U	0.0010 M	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
n-Propylbenzene	mg/kg	--	--	--	--	--	0.0012 U	0.0012 M	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
o-Xylene	mg/kg	--	--	--	--	--	0.00070 U	0.00070 M	0.00070 U	0.00070 U	0.00070 U	0.00070 U	0.00070 U	0.00070 U
p-Cymene (p-Isopropyltoluene)	mg/kg	--	--	--	--	--	0.0012 U	0.0012 M	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
sec-Butylbenzene	mg/kg	--	--	--	--	--	0.0011 U	0.0011 M	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U
Styrene	mg/kg	--	--	--	--	--	0.00090 U	0.00090 M	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U
tert-Butylbenzene	mg/kg	--	--	--	--	--	0.0012 U	0.0012 M	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
Tetrachloroethene (PCE)	mg/kg	--	--	--	--	--	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
Toluene	mg/kg	--	--	--	--	--	0.0011	0.0010 F	0.0010 M	0.0010 U	0.0010 U	0.0010 U	0.0010 U	0.0010 U
trans-1,2-Dichloroethene	mg/kg	--	--	--	--	--	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U	0.00080 U
trans-1,3-Dichloropropene	mg/kg	--	--	--	--	--	0.00090 U	0.00090 M	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U	0.00090 U
Trichloroethene (TCE)	mg/kg	--	--	--	--	--	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
Trichlorofluoromethane	mg/kg	--	--	--	--	--	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
Vinyl chloride	mg/kg	--	--	--	--	--	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U

Appendix F - Validated Analytical Results for CSSA B27 Waste Characterization Soil Samples

	SAMPLE ID:	B27-WC06	B27-WC06-DUP	B27-WC07	B27-WC08	B27-WC09	B27-WC10	B27-WC11	B27-WC12	B27-WC13	B27-WC14	B27-WC15	B27-WC16	B27-WC17
	DATE SAMPLED:	6/29/2011	6/29/2011	6/29/2011	6/29/2011	6/29/2011	6/29/2011	6/29/2011	6/29/2011	7/18/2011	7/18/2011	7/18/2011	7/18/2011	7/18/2011
	LAB SAMPLE ID:	AY40585	AY40586	AY40587	AY40588	AY40590	AY40589	AY40591	AY40592	AY42159	AY42160	AY42164	AY42161	AY42162
	Units													
Semi-Volatile Organics - SW8270C														
1,2,4-Trichlorobenzene	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
1,2-Dichlorobenzene	mg/kg	--	--	--	--	--	0.030	U	0.030	U	0.030	U	0.030	U
1,3-Dichlorobenzene	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
1,4-Dichlorobenzene	mg/kg	--	--	--	--	--	0.030	U	0.030	U	0.030	U	0.030	U
2,4,5-Trichlorophenol	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
2,4,6-Trichlorophenol	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
2,4-Dichlorophenol	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
2,4-Dimethylphenol	mg/kg	--	--	--	--	--	0.080	U	0.080	M	0.080	U	0.080	U
2,4-Dinitrophenol	mg/kg	--	--	--	--	--	0.030	U	0.030	M	0.030	U	0.030	U
2,4-Dinitrotoluene	mg/kg	--	--	--	--	--	0.050	U	0.050	U	0.050	U	0.050	U
2,6-Dinitrotoluene	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
2-Chloronaphthalene	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
2-Chlorophenol	mg/kg	--	--	--	--	--	0.030	U	0.030	U	0.030	U	0.030	U
2-Methyl-4,6-dinitrophenol	mg/kg	--	--	--	--	--	0.030	U	0.030	U	0.030	U	0.030	U
2-Methylnaphthalene	mg/kg	--	--	--	--	--	0.050	U	0.050	U	0.050	U	0.050	U
2-Methylphenol	mg/kg	--	--	--	--	--	0.020	U	0.020	U	0.020	U	0.020	U
2-Nitroaniline	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
2-Nitrophenol	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
3,3'-Dichlorobenzidine	mg/kg	--	--	--	--	--	0.020	U	0.020	U	0.020	U	0.020	U
3-Nitroaniline	mg/kg	--	--	--	--	--	0.010	U	0.010	U	0.010	U	0.010	U
4-Bromophenyl phenyl ether	mg/kg	--	--	--	--	--	0.050	U	0.050	U	0.050	U	0.050	U
4-Chloro-3-methyl phenol	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
4-Chloroaniline	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
4-Chlorophenyl phenyl ether	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
4-Methylphenol (p-cresol)	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
4-Nitroaniline	mg/kg	--	--	--	--	--	0.030	U	0.030	U	0.030	U	0.030	U
4-Nitrophenol	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
Acenaphthene	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
Acenaphthylene	mg/kg	--	--	--	--	--	0.030	U	0.030	U	0.030	U	0.030	U
Anthracene	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
Benzo(a)anthracene	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
Benzo(a)pyrene	mg/kg	--	--	--	--	--	0.050	U	0.050	U	0.050	U	0.050	U
Benzo(b)fluoranthene	mg/kg	--	--	--	--	--	0.060	U	0.060	U	0.060	U	0.060	U
Benzo(g,h,i)perylene	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
Benzoic acid	mg/kg	--	--	--	--	--	0.020	U	0.020	M	0.020	U	0.020	U
Benzyl alcohol	mg/kg	--	--	--	--	--	0.12	U	0.12	U	0.12	U	0.12	U
Benzyl butyl phthalate	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
bis(2-Chloroethoxy)methane	mg/kg	--	--	--	--	--	0.060	U	0.060	U	0.060	U	0.060	U
bis(2-Chloroethyl)ether	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
bis(2-Chloroisopropyl)ether	mg/kg	--	--	--	--	--	0.050	U	0.050	U	0.050	U	0.050	U
bis(2-Ethylhexyl) phthalate	mg/kg	--	--	--	--	--	0.030	U	0.030	U	0.030	U	0.030	U
Chrysene	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
Dibenzo(a,h)anthracene	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
Dibenzofuran	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
Diethyl phthalate	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
Dimethyl phthalate	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
Di-n-butyl phthalate	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
Di-n-octyl phthalate	mg/kg	--	--	--	--	--	0.030	U	0.030	U	0.030	U	0.030	U
Fluoranthene	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.060	F
Fluorene	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
Hexachlorobenzene	mg/kg	--	--	--	--	--	0.050	U	0.050	U	0.050	U	0.050	U
Hexachlorobutadiene	mg/kg	--	--	--	--	--	0.060	U	0.060	U	0.060	U	0.060	U
Hexachlorocyclopentadiene	mg/kg	--	--	--	--	--	0.030	U	0.030	M	0.030	U	0.030	U
Hexachloroethane	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
Indeno(1,2,3-cd)pyrene	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.080	F
Isophorone	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
Naphthalene	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
Nitrobenzene	mg/kg	--	--	--	--	--	0.050	U	0.050	U	0.050	U	0.050	U
n-Nitrosodi-n-propylamine	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U
n-Nitrosodiphenylamine	mg/kg	--	--	--	--	--	0.050	U	0.050	U	0.050	U	0.050	U

Appendix F - Validated Analytical Results for CSSA B27 Waste Characterization Soil Samples

SAMPLE ID:		B27-WC06	B27-WC06-DUP	B27-WC07	B27-WC08	B27-WC09	B27-WC10	B27-WC11	B27-WC12	B27-WC13	B27-WC14	B27-WC15	B27-WC16	B27-WC17								
DATE SAMPLED:		6/29/2011	6/29/2011	6/29/2011	6/29/2011	6/29/2011	6/29/2011	6/29/2011	6/29/2011	7/18/2011	7/18/2011	7/18/2011	7/18/2011	7/18/2011								
LAB SAMPLE ID:		AY40585	AY40586	AY40587	AY40588	AY40590	AY40589	AY40591	AY40592	AY42159	AY42160	AY42164	AY42161	AY42162								
Units																						
Pentachlorophenol	mg/kg	--	--	--	--	--	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U
Phenanthrene	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.090	F	0.040	U	0.040	U	0.040	U	0.040	U
Phenol	mg/kg	--	--	--	--	--	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
Pyrene	mg/kg	--	--	--	--	--	0.050	U	0.050	U	0.050	U	0.20	F	0.050	U	0.050	U	0.050	U	0.050	U
Explosives-SW8330																						
1,3,5-Trinitrobenzene	mg/kg	--	--	--	--	--	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U
1,3-Dinitrobenzene	mg/kg	--	--	--	--	--	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U
2,4,6-Trinitrotoluene (TNT)	mg/kg	--	--	--	--	--	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U
2,4-Dinitrotoluene	mg/kg	--	--	--	--	--	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U
2,6-Dinitrotoluene	mg/kg	--	--	--	--	--	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U
2-Nitrotoluene	mg/kg	--	--	--	--	--	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U
3-Nitrotoluene	mg/kg	--	--	--	--	--	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U
4-Nitrotoluene	mg/kg	--	--	--	--	--	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U
HMX	mg/kg	--	--	--	--	--	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U
Nitrobenzene	mg/kg	--	--	--	--	--	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U
RDX	mg/kg	--	--	--	--	--	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U
Tetryl	mg/kg	--	--	--	--	--	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U
Metals - SW6010B/SW7471A																						
Arsenic	mg/kg	--	--	--	--	--	6.2	F	5.0	M	4.7	F	4.1	F	3.7	F	5.0	F	6.4	F	5.3	F
Barium	mg/kg	--	--	--	--	--	92		65	M	66		54	F	64		64	F	87	F	73	F
Cadmium	mg/kg	--	--	--	--	--	0.030	U	0.030	M	0.030	U	0.030	U	0.030	U	0.61		0.14	F	0.030	U
Chromium	mg/kg	--	--	--	--	--	16	F	12	F	13	F	13	F	12	F	16	F	21		16	F
Copper	mg/kg	--	--	--	--	--	11		8.9		12		19		11		21		46		28	
Lead	mg/kg	--	--	--	--	--	15		15	M	14		25		14		22		43		31	
Mercury	mg/kg	--	--	--	--	--	0.020	F	0.010	U	0.030	F	0.090	F	1.6		0.080	F	0.090	F	0.19	
Nickel	mg/kg	--	--	--	--	--	13		8.5		9.0		8.7		7.9		9.0		13		10	
Zinc	mg/kg	--	--	--	--	--	34		26		23		94		52		69		130		120	
TCLP Metals - SW6010B/SW7470A																						
Arsenic	mg/L	0.0030	F	0.0040	F	0.0040	F	0.0030	F	0.0040	F	0.0050	F	0.0040	F	0.0030	F	--		--		--
Barium	mg/L	0.87		0.82		1.0		0.90		0.92		0.71		0.75		--		--		--		--
Cadmium	mg/L	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00030	U	--		--		--		--
Chromium	mg/L	0.0010	U	0.0010	U	0.0010	U	0.0020	F	0.0050	F	0.0010	U	0.0010	U	--		--		--		--
Lead	mg/L	0.051		0.012	F	0.075		0.0012	U	0.042		0.0012	U	0.022	F	0.0012	U	--		--		--
Mercury	mg/L	0.00010	U	0.00010	U	0.00010	U	0.00010	U	0.00010	U	0.00010	U	0.00010	U	--		--		--		--
Selenium	mg/L	0.0070	F	0.0060	F	0.0080	F	0.0040	F	0.0060	F	0.0060	F	0.0060	F	--		--		--		--
Silver	mg/L	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.0013	F	0.00020	U	0.00050	F	0.00040	F	--		--		--

Appendix F - Validated Analytical Results for CSSA B27 Waste Characterization Soil Samples

SAMPLE ID:	B27-WC18	B27-WC19	B27-WC20	B27-WC21	B27-WC22	B27-WC23	B27-WC24	B27-WC25	B27-WC25-DUP	B27-WC26	B27-WC27	B27-WC28	B27-WC29														
DATE SAMPLED:	7/18/2011	7/18/2011	7/18/2011	7/18/2011	7/18/2011	7/18/2011	7/18/2011	7/20/2011	7/20/2011	7/20/2011	7/20/2011	8/4/2011	8/4/2011														
LAB SAMPLE ID:	AY42163	AY41873	AY41874	AY41875	AY41876	AY41877	AY41878	AY42255	AY42256	AY42257	AY42258	AY43921 AY44443	AY43922 AY44444														
Units																											
Volatile Organics - SW8260B																											
1,1,1,2-Tetrachloroethane	mg/kg	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U		
1,1,1-Trichloroethane	mg/kg	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U
1,1,2,2-Tetrachloroethane	mg/kg	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U
1,1,2-Trichloroethane	mg/kg	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U
1,1-Dichloroethane	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
1,1-Dichloroethene	mg/kg	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	M	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U
1,1-Dichloropropene	mg/kg	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.0012	U
1,2,3-Trichlorobenzene	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	M	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
1,2,3-Trichloropropane	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
1,2,4-Trichlorobenzene	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	M	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
1,2,4-Trimethylbenzene	mg/kg	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U
1,2-Dibromo-3-chloropropane	mg/kg	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U
1,2-Dibromoethane (EDB)	mg/kg	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U
1,2-Dichlorobenzene	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
1,2-Dichloroethane	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
1,2-Dichloropropane	mg/kg	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U
1,3,5-Trimethylbenzene (Mesitylene)	mg/kg	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	M	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U
1,3-Dichlorobenzene	mg/kg	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U
1,3-Dichloropropane	mg/kg	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U
1,4-Dichlorobenzene	mg/kg	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U
1-Chlorohexane	mg/kg	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U
2,2-Dichloropropane	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
2-Chlorotoluene	mg/kg	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U
4-Chlorotoluene	mg/kg	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U
Benzene	mg/kg	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U
Bromobenzene	mg/kg	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U
Bromochloromethane	mg/kg	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U
Bromodichloromethane	mg/kg	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U
Bromoform	mg/kg	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U
Bromomethane	mg/kg	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U
Carbon tetrachloride	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
Chlorobenzene	mg/kg	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U
Chloroethane	mg/kg	0.0015	U	0.0015	U	0.0015	U	0.0015	U	0.0015	U	0.0015	U	0.0015	M	0.0015	U	0.0015	U	0.0015	U	0.0015	U	0.0015	U	0.0015	U
Chloroform	mg/kg	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U
Chloromethane	mg/kg	0.0015	U	0.0015	U	0.0015	U	0.0015	U	0.0015	U	0.0015	U	0.0015	U	0.0015	U	0.0015	U	0.0015	U	0.0015	U	0.0015	U	0.0015	U
cis-1,2-Dichloroethene	mg/kg	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U
cis-1,3-Dichloropropene	mg/kg	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U
Dibromochloromethane	mg/kg	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U
Dibromomethane	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
Dichlorodifluoromethane	mg/kg	0.0018	U	0.0018	U	0.0018	U	0.0018	U	0.0018	U	0.0018	U	0.0018	M	0.0018	U	0.0018	U	0.0018	U	0.0018	U	0.0018	U	0.0018	U
Ethylbenzene	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U
Hexachlorobutadiene	mg/kg	0.0011	U	0.0011	U	0.0																					

Appendix F - Validated Analytical Results for CSSA B27 Waste Characterization Soil Samples

SAMPLE ID:	B27-WC18	B27-WC19	B27-WC20	B27-WC21	B27-WC22	B27-WC23	B27-WC24	B27-WC25	B27-WC25-DUP	B27-WC26	B27-WC27	B27-WC28	B27-WC29
DATE SAMPLED:	7/18/2011	7/18/2011	7/18/2011	7/18/2011	7/18/2011	7/18/2011	7/18/2011	7/20/2011	7/20/2011	7/20/2011	7/20/2011	8/4/2011	8/4/2011
LAB SAMPLE ID:	AY42163	AY41873	AY41874	AY41875	AY41876	AY41877	AY41878	AY42255	AY42256	AY42257	AY42258	AY43921	AY43922
Units												AY44443	AY44444
Semi-Volatile Organics - SW8270C													
1,2,4-Trichlorobenzene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
1,2-Dichlorobenzene	mg/kg	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U
1,3-Dichlorobenzene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
1,4-Dichlorobenzene	mg/kg	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U
2,4,5-Trichlorophenol	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
2,4,6-Trichlorophenol	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
2,4-Dichlorophenol	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
2,4-Dimethylphenol	mg/kg	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U
2,4-Dinitrophenol	mg/kg	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U
2,4-Dinitrotoluene	mg/kg	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
2,6-Dinitrotoluene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
2-Chloronaphthalene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
2-Chlorophenol	mg/kg	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U
2-Methyl-4,6-dinitrophenol	mg/kg	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U
2-Methylnaphthalene	mg/kg	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
2-Methylphenol	mg/kg	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
2-Nitroaniline	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
2-Nitrophenol	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
3,3'-Dichlorobenzidine	mg/kg	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
3-Nitroaniline	mg/kg	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
4-Bromophenyl phenyl ether	mg/kg	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
4-Chloro-3-methyl phenol	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
4-Chloroaniline	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
4-Chlorophenyl phenyl ether	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
4-Methylphenol (p-cresol)	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
4-Nitroaniline	mg/kg	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U
4-Nitrophenol	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
Acenaphthene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
Acenaphthylene	mg/kg	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U
Anthracene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
Benzo(a)anthracene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
Benzo(a)pyrene	mg/kg	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Benzo(b)fluoranthene	mg/kg	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U
Benzo(g,h,i)perylene	mg/kg	0.040	U	0.040	U	0.060	F	0.040	U	0.040	U	0.040	U
Benzoic acid	mg/kg	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
Benzyl alcohol	mg/kg	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U
Benzyl butyl phthalate	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
bis(2-Chloroethoxy)methane	mg/kg	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U
bis(2-Chloroethyl)ether	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
bis(2-Chloroisopropyl)ether	mg/kg	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
bis(2-Ethylhexyl) phthalate	mg/kg	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U
Chrysene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
Dibenzo(a,h)anthracene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
Dibenzofuran	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
Diethyl phthalate	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
Dimethyl phthalate	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
Di-n-butyl phthalate	mg/kg	0.17	F	0.040	U	0.20	F	0.040	U	0.040	U	0.040	U
Di-n-octyl phthalate	mg/kg	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U
Fluoranthene	mg/kg	0.040	U	0.040	U	0.13	F	0.040	U	0.040	U	0.040	U
Fluorene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
Hexachlorobenzene	mg/kg	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Hexachlorobutadiene	mg/kg	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U
Hexachlorocyclopentadiene	mg/kg	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U
Hexachloroethane	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
Indeno(1,2,3-cd)pyrene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
Isophorone	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
Naphthalene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
Nitrobenzene	mg/kg	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
n-Nitrosodi-n-propylamine	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
n-Nitrosodiphenylamine	mg/kg	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U

Appendix F - Validated Analytical Results for CSSA B27 Waste Characterization Soil Samples

	SAMPLE ID:	B27-WC18	B27-WC19	B27-WC20	B27-WC21	B27-WC22	B27-WC23	B27-WC24	B27-WC25	B27-WC25-DUP	B27-WC26	B27-WC27	B27-WC28	B27-WC29					
	DATE SAMPLED:	7/18/2011	7/18/2011	7/18/2011	7/18/2011	7/18/2011	7/18/2011	7/18/2011	7/20/2011	7/20/2011	7/20/2011	7/20/2011	8/4/2011	8/4/2011					
	LAB SAMPLE ID:	AY42163	AY41873	AY41874	AY41875	AY41876	AY41877	AY41878	AY42255	AY42256	AY42257	AY42258	AY43921 AY44443	AY43922 AY44444					
	Units																		
Pentachlorophenol	mg/kg	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U		
Phenanthrene	mg/kg	0.040	U	0.040	U	0.10	F	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U		
Phenol	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U		
Pyrene	mg/kg	0.050	U	0.050	U	0.080	F	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U		
Explosives-SW8330																			
1,3,5-Trinitrobenzene	mg/kg	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U		
1,3-Dinitrobenzene	mg/kg	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U		
2,4,6-Trinitrotoluene (TNT)	mg/kg	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U		
2,4-Dinitrotoluene	mg/kg	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U		
2,6-Dinitrotoluene	mg/kg	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U		
2-Nitrotoluene	mg/kg	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U		
3-Nitrotoluene	mg/kg	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U		
4-Nitrotoluene	mg/kg	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U		
HMX	mg/kg	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U		
Nitrobenzene	mg/kg	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U		
RDX	mg/kg	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U		
Tetryl	mg/kg	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U		
Metals - SW6010B/SW7471A																			
Arsenic	mg/kg	4.0	F	5.8	F	5.1	F	6.1	F	7.0	F	5.1	F	6.1	F	--	--		
Barium	mg/kg	51		64		59		69		110		54		66		--	--		
Cadmium	mg/kg	0.090	F	1.1		1.4		0.030	U	0.050	F	0.030	U	0.030	U	--	--		
Chromium	mg/kg	12	F	16	F	14	F	17	F	19	F	12	F	15	F	--	--		
Copper	mg/kg	15		38		10		9.7		13		13		11		--	--		
Lead	mg/kg	18		46		21		14		14		14		10		--	--		
Mercury	mg/kg	0.050	F	0.070	F	0.080	F	0.070	F	0.040	F	0.33	F	0.040	F	--	--		
Nickel	mg/kg	7.8		9.8		8.3		11		18		8.1		10		--	--		
Zinc	mg/kg	100		98	J	330	J	34	J	33	J	33	J	33	J	--	--		
TCLP Metals - SW6010B/SW7470A																			
Arsenic	mg/L	--		--		--		--		--		--		--		0.0020	U	0.0080	F
Barium	mg/L	--		--		--		--		--		--		--		0.75		1.4	
Cadmium	mg/L	--		--		--		--		--		--		--		0.00030	U	0.00030	U
Chromium	mg/L	--		--		--		--		--		--		--		0.0020	F	0.0010	U
Lead	mg/L	--		--		--		--		--		--		--		0.0012	U	0.013	F
Mercury	mg/L	--		--		--		--		--		--		--		0.00010	U	0.00010	U
Selenium	mg/L	--		--		--		--		--		--		--		0.0020	U	0.0060	F
Silver	mg/L	--		--		--		--		--		--		--		0.0076	F	0.040	

Appendix F - Validated Analytical Results for CSSA B27 Waste Characterization Soil Samples

SAMPLE ID:	B27-WC30	B27-WC31	B27-WC32	B27-WC33	B27-WC34	B27-WC35	B27-WC36	B27-WC37	B27-WC38	B27-WC39	B27-WC40	B27-WC41	B27-WC42			
DATE SAMPLED:	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	9/1/2011	9/7/2011	9/7/2011			
LAB SAMPLE ID:	AY43923	AY43924	AY43915	AY43916	AY43917	AY43918	AY43913	AY43914	AY43919	AY43920	AY45655	AY45808	AY45809			
Units	AY44445	AY44446	AY44437	AY44438	AY44439	AY44440	AY44435	AY44436	AY44441	AY44442						
Volatil Organic - SW8260B																
1,1,1,2-Tetrachloroethane	mg/kg	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	--	--	--
1,1,1-Trichloroethane	mg/kg	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	--	--	--
1,1,2,2-Tetrachloroethane	mg/kg	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	--	--	--
1,1,2-Trichloroethane	mg/kg	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	--	--	--
1,1-Dichloroethane	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	--	--	--
1,1-Dichloroethene	mg/kg	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	--	--	--
1,1-Dichloropropene	mg/kg	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.0012	U	--	--	--
1,2,3-Trichlorobenzene	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	--	--	--
1,2,3-Trichloropropane	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	--	--	--
1,2,4-Trichlorobenzene	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	--	--	--
1,2,4-Trimethylbenzene	mg/kg	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	--	--	--
1,2-Dibromo-3-chloropropane	mg/kg	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	0.0020	U	--	--	--
1,2-Dibromoethane (EDB)	mg/kg	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	--	--	--
1,2-Dichlorobenzene	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	--	--	--
1,2-Dichloroethane	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	--	--	--
1,2-Dichloropropane	mg/kg	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	--	--	--
1,3,5-Trimethylbenzene (Mesitylene)	mg/kg	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	--	--	--
1,3-Dichlorobenzene	mg/kg	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	--	--	--
1,3-Dichloropropane	mg/kg	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	--	--	--
1,4-Dichlorobenzene	mg/kg	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	--	--	--
1-Chlorohexane	mg/kg	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	--	--	--
2,2-Dichloropropane	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	--	--	--
2-Chlorotoluene	mg/kg	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	--	--	--
4-Chlorotoluene	mg/kg	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	--	--	--
Benzene	mg/kg	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	--	--	--
Bromobenzene	mg/kg	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	--	--	--
Bromochloromethane	mg/kg	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	--	--	--
Bromodichloromethane	mg/kg	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	--	--	--
Bromoform	mg/kg	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	--	--	--
Bromomethane	mg/kg	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	--	--	--
Carbon tetrachloride	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	--	--	--
Chlorobenzene	mg/kg	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	--	--	--
Chloroethane	mg/kg	0.0015	U	0.0015	U	0.0015	U	0.0015	U	0.0015	U	0.0015	U	--	--	--
Chloroform	mg/kg	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	--	--	--
Chloromethane	mg/kg	0.0015	U	0.0015	U	0.0015	U	0.0015	U	0.0015	U	0.0015	U	--	--	--
cis-1,2-Dichloroethene	mg/kg	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	--	--	--
cis-1,3-Dichloropropene	mg/kg	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	--	--	--
Dibromochloromethane	mg/kg	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	--	--	--
Dibromomethane	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	--	--	--
Dichlorodifluoromethane	mg/kg	0.0018	U	0.0018	U	0.0018	U	0.0018	U	0.0018	U	0.0018	U	--	--	--
Ethylbenzene	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	--	--	--
Hexachlorobutadiene	mg/kg	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	--	--	--
Isopropylbenzene	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	--	--	--
m,p-Xylene	mg/kg	0.0018	U	0.0018	U	0.0018	U	0.0018	U	0.0018	U	0.0018	U	--	--	--
Methylene chloride	mg/kg	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013
Naphthalene	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	--	--	--
n-Butylbenzene	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	--	--	--
n-Propylbenzene	mg/kg	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.0012	U	--	--	--
o-Xylene	mg/kg	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	0.00070	U	--	--	--
p-Cymene (p-Isopropyltoluene)	mg/kg	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.0012	U	--	--	--
sec-Butylbenzene	mg/kg	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	0.0011	U	--	--	--
Styrene	mg/kg	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	--	--	--
tert-Butylbenzene	mg/kg	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.0012	U	--	--	--
Tetrachloroethene (PCE)	mg/kg	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	--	--	--
Toluene	mg/kg	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	0.0010	U	--	--	--
trans-1,2-Dichloroethene	mg/kg	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	0.00080	U	--	--	--
trans-1,3-Dichloropropene	mg/kg	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	0.00090	U	--	--	--
Trichloroethene (TCE)	mg/kg	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.0012	U	0.0012	U	--	--	--
Trichlorofluoromethane	mg/kg	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	--	--	--
Vinyl chloride	mg/kg	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U	--	--	--

Appendix F - Validated Analytical Results for CSSA B27 Waste Characterization Soil Samples

		B27-WC30	B27-WC31	B27-WC32	B27-WC33	B27-WC34	B27-WC35	B27-WC36	B27-WC37	B27-WC38	B27-WC39	B27-WC40	B27-WC41	B27-WC42
SAMPLE ID:		8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	9/1/2011	9/7/2011	9/7/2011
DATE SAMPLED:		AY43923	AY43924	AY43915	AY43916	AY43917	AY43918	AY43913	AY43914	AY43919	AY43920	AY45655	AY45808	AY45809
LAB SAMPLE ID:		AY44445	AY44446	AY44437	AY44438	AY44439	AY44440	AY44435	AY44436	AY44441	AY44442			
	Units													
Semi-Volatile Organics - SW8270C														
1,2,4-Trichlorobenzene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	--
1,2-Dichlorobenzene	mg/kg	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	--
1,3-Dichlorobenzene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	--
1,4-Dichlorobenzene	mg/kg	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	--
2,4,5-Trichlorophenol	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	--
2,4,6-Trichlorophenol	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	--
2,4-Dichlorophenol	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	--
2,4-Dimethylphenol	mg/kg	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	--
2,4-Dinitrophenol	mg/kg	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	--
2,4-Dinitrotoluene	mg/kg	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	--
2,6-Dinitrotoluene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	--
2-Chloronaphthalene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	--
2-Chlorophenol	mg/kg	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	--
2-Methyl-4,6-dinitrophenol	mg/kg	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	--
2-Methylnaphthalene	mg/kg	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	--
2-Methylphenol	mg/kg	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	--
2-Nitroaniline	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	--
2-Nitrophenol	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	--
3,3'-Dichlorobenzidine	mg/kg	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	--
3-Nitroaniline	mg/kg	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	--
4-Bromophenyl phenyl ether	mg/kg	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	--
4-Chloro-3-methyl phenol	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	--
4-Chloroaniline	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	--
4-Chlorophenyl phenyl ether	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	--
4-Methylphenol (p-cresol)	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	--
4-Nitroaniline	mg/kg	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	--
4-Nitrophenol	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	--
Acenaphthene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	--
Acenaphthylene	mg/kg	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	--
Anthracene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.050	F	0.040	U	--
Benzo(a)anthracene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.070	F	0.14	F	0.080
Benzo(a)pyrene	mg/kg	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.20	F	0.060
Benzo(b)fluoranthene	mg/kg	0.060	U	0.080	F	0.070	F	0.060	U	0.22	F	0.37	F	0.080
Benzo(g,h,i)perylene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.070	F	0.15	F	0.050
Benzoic acid	mg/kg	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020
Benzyl alcohol	mg/kg	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12
Benzyl butyl phthalate	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040
bis(2-Chloroethoxy)methane	mg/kg	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U	0.060
bis(2-Chloroethyl)ether	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040
bis(2-Chloroisopropyl)ether	mg/kg	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050
bis(2-Ethylhexyl) phthalate	mg/kg	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030
Chrysene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.090	F	0.16	F	0.040
Dibenzo(a,h)anthracene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040
Dibenzofuran	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040
Diethyl phthalate	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040
Dimethyl phthalate	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040
Di-n-butyl phthalate	mg/kg	0.040	U	0.26	F	0.040	U	0.040	U	0.040	U	0.040	U	0.040
Di-n-octyl phthalate	mg/kg	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030
Fluoranthene	mg/kg	0.040	U	0.050	F	0.050	F	0.040	U	0.19	F	0.32	F	0.080
Fluorene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040
Hexachlorobenzene	mg/kg	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050
Hexachlorobutadiene	mg/kg	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U	0.060
Hexachlorocyclopentadiene	mg/kg	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030
Hexachloroethane	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040
Indeno(1,2,3-cd)pyrene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.060	F	0.090	F	0.040
Isophorone	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040
Naphthalene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040
Nitrobenzene	mg/kg	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050
n-Nitrosodi-n-propylamine	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040
n-Nitrosodiphenylamine	mg/kg	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U	0.050

Appendix F - Validated Analytical Results for CSSA B27 Waste Characterization Soil Samples

	SAMPLE ID:	B27-WC30	B27-WC31	B27-WC32	B27-WC33	B27-WC34	B27-WC35	B27-WC36	B27-WC37	B27-WC38	B27-WC39	B27-WC40	B27-WC41	B27-WC42										
	DATE SAMPLED:	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	8/4/2011	9/1/2011	9/7/2011	9/7/2011										
	LAB SAMPLE ID:	AY43923	AY43924	AY43915	AY43916	AY43917	AY43918	AY43913	AY43914	AY43919	AY43920	AY45655	AY45808	AY45809										
	Units	AY44445	AY44446	AY44437	AY44438	AY44439	AY44440	AY44435	AY44436	AY44441	AY44442													
Pentachlorophenol	mg/kg	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U	--	--	--		
Phenanthrene	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.070	F	0.19	F	0.040	U	0.13	F	0.040	U	--	--	--		
Phenol	mg/kg	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U	--	--	--		
Pyrene	mg/kg	0.050	U	0.050	U	0.050	U	0.050	U	0.080	F	0.23	F	0.050	U	0.12	F	0.080	F	--	--	--		
Explosives-SW8330																								
1,3,5-Trinitrobenzene	mg/kg	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	--	--	--
1,3-Dinitrobenzene	mg/kg	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	--	--	--
2,4,6-Trinitrotoluene (TNT)	mg/kg	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	--	--	--
2,4-Dinitrotoluene	mg/kg	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	--	--	--
2,6-Dinitrotoluene	mg/kg	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	--	--	--
2-Nitrotoluene	mg/kg	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	--	--	--
3-Nitrotoluene	mg/kg	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	--	--	--
4-Nitrotoluene	mg/kg	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	--	--	--
HMX	mg/kg	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	--	--	--
Nitrobenzene	mg/kg	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	--	--	--
RDX	mg/kg	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U	--	--	--
Tetryl	mg/kg	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	0.075	U	--	--	--
Metals - SW6010B/SW7471A																								
Arsenic	mg/kg	--	--	--	--	--	--	--	--	--	--	6.5	F	5.5	F	--	--	--	--	--	--	--	--	
Barium	mg/kg	--	--	--	--	--	--	--	--	--	--	54	--	52	--	--	--	--	--	--	--	--	--	
Cadmium	mg/kg	--	--	--	--	--	--	--	--	--	--	0.030	U	0.030	U	--	--	--	--	--	--	--	--	
Chromium	mg/kg	--	--	--	--	--	--	--	--	--	--	14	F	14	F	--	--	--	--	--	--	--	--	
Copper	mg/kg	--	--	--	--	--	--	--	--	--	--	8.7	--	8.6	--	--	--	--	--	--	--	--	--	
Lead	mg/kg	--	--	--	--	--	--	--	--	--	--	23	--	25	--	--	--	--	--	--	--	--	--	
Mercury	mg/kg	--	--	--	--	--	--	--	--	--	--	0.060	F	0.040	F	--	--	--	--	--	--	--	--	
Nickel	mg/kg	--	--	--	--	--	--	--	--	--	--	9.5	--	9.0	--	--	--	--	--	--	--	--	--	
Zinc	mg/kg	--	--	--	--	--	--	--	--	--	--	41	--	46	--	--	--	--	--	--	--	--	--	
TCLP Metals - SW6010B/SW7470A																								
Arsenic	mg/L	0.0030	F	0.010	F	0.013	F	0.0020	U	0.0030	F	0.0080	F	--	--	0.0030	F	0.0030	F	--	--	--	--	
Barium	mg/L	0.82	--	1.6	--	1.2	--	0.70	--	0.46	--	0.87	--	--	--	0.73	--	0.76	--	--	--	--	--	
Cadmium	mg/L	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00030	U	0.00030	U	--	--	0.00030	U	0.00030	U	--	--	--	--	
Chromium	mg/L	0.0020	F	0.0020	F	0.0010	U	0.0010	U	0.0030	F	0.0010	U	--	--	0.0010	U	0.0010	U	--	--	--	--	
Lead	mg/L	0.0012	U	0.0091	F	0.0012	U	0.0012	U	0.0012	U	0.038	--	--	--	0.0012	U	0.0012	U	--	--	--	--	
Mercury	mg/L	0.00010	U	0.00010	U	0.00010	U	0.00010	U	0.00010	U	0.00010	U	--	--	0.00010	U	0.00010	U	--	--	--	--	
Selenium	mg/L	0.0020	U	0.0040	F	0.0020	U	0.0020	U	0.0020	U	0.0020	U	--	--	0.0030	F	0.0020	U	--	--	--	--	
Silver	mg/L	0.0077	F	0.040	--	0.040	--	0.0078	F	0.0080	F	0.039	--	--	--	0.0072	F	0.0073	F	--	--	--	--	

Appendix F - Validated Analytical Results for CSSA B27 Waste Characterization Soil Samples

SAMPLE ID:	B27-WC43	B27-WC44	B27-WC45	B27-WC46	B27-WC46-DUP	B27-WC47	B27-WC48	B27-WC49									
DATE SAMPLED:	9/7/2011	9/7/2011	9/7/2011	9/7/2011	9/7/2011	9/7/2011	9/7/2011	9/7/2011									
LAB SAMPLE ID:	AY45810	AY45811	AY45812	AY45813	AY45814	AY45815	AY45816	AY45817									
Units																	
Volatile Organics - SW8260B																	
1,1,1,2-Tetrachloroethane	mg/kg	--	--	--	--	--	--	--									
1,1,1-Trichloroethane	mg/kg	--	--	--	--	--	--	--									
1,1,2,2-Tetrachloroethane	mg/kg	--	--	--	--	--	--	--									
1,1,2-Trichloroethane	mg/kg	--	--	--	--	--	--	--									
1,1-Dichloroethane	mg/kg	--	--	--	--	--	--	--									
1,1-Dichloroethene	mg/kg	--	--	--	--	--	--	--									
1,1-Dichloropropene	mg/kg	--	--	--	--	--	--	--									
1,2,3-Trichlorobenzene	mg/kg	--	--	--	--	--	--	--									
1,2,3-Trichloropropane	mg/kg	--	--	--	--	--	--	--									
1,2,4-Trichlorobenzene	mg/kg	--	--	--	--	--	--	--									
1,2,4-Trimethylbenzene	mg/kg	--	--	--	--	--	--	--									
1,2-Dibromo-3-chloropropane	mg/kg	--	--	--	--	--	--	--									
1,2-Dibromoethane (EDB)	mg/kg	--	--	--	--	--	--	--									
1,2-Dichlorobenzene	mg/kg	--	--	--	--	--	--	--									
1,2-Dichloroethane	mg/kg	--	--	--	--	--	--	--									
1,2-Dichloropropane	mg/kg	--	--	--	--	--	--	--									
1,3,5-Trimethylbenzene (Mesitylene)	mg/kg	--	--	--	--	--	--	--									
1,3-Dichlorobenzene	mg/kg	--	--	--	--	--	--	--									
1,3-Dichloropropane	mg/kg	--	--	--	--	--	--	--									
1,4-Dichlorobenzene	mg/kg	--	--	--	--	--	--	--									
1-Chlorohexane	mg/kg	--	--	--	--	--	--	--									
2,2-Dichloropropane	mg/kg	--	--	--	--	--	--	--									
2-Chlorotoluene	mg/kg	--	--	--	--	--	--	--									
4-Chlorotoluene	mg/kg	--	--	--	--	--	--	--									
Benzene	mg/kg	--	--	--	--	--	--	--									
Bromobenzene	mg/kg	--	--	--	--	--	--	--									
Bromochloromethane	mg/kg	--	--	--	--	--	--	--									
Bromodichloromethane	mg/kg	--	--	--	--	--	--	--									
Bromoform	mg/kg	--	--	--	--	--	--	--									
Bromomethane	mg/kg	--	--	--	--	--	--	--									
Carbon tetrachloride	mg/kg	--	--	--	--	--	--	--									
Chlorobenzene	mg/kg	--	--	--	--	--	--	--									
Chloroethane	mg/kg	--	--	--	--	--	--	--									
Chloroform	mg/kg	--	--	--	--	--	--	--									
Chloromethane	mg/kg	--	--	--	--	--	--	--									
cis-1,2-Dichloroethene	mg/kg	--	--	--	--	--	--	--									
cis-1,3-Dichloropropene	mg/kg	--	--	--	--	--	--	--									
Dibromochloromethane	mg/kg	--	--	--	--	--	--	--									
Dibromomethane	mg/kg	--	--	--	--	--	--	--									
Dichlorodifluoromethane	mg/kg	--	--	--	--	--	--	--									
Ethylbenzene	mg/kg	--	--	--	--	--	--	--									
Hexachlorobutadiene	mg/kg	--	--	--	--	--	--	--									
Isopropylbenzene	mg/kg	--	--	--	--	--	--	--									
m,p-Xylene	mg/kg	--	--	--	--	--	--	--									
Methylene chloride	mg/kg	0.0013	U	0.0013	U	0.0013	M	0.0013	U	0.0013	U	0.0013	U	0.0013	U	0.0013	U
Naphthalene	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Butylbenzene	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
o-Xylene	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
p-Cymene (p-Isopropyltoluene)	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
sec-Butylbenzene	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Styrene	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
tert-Butylbenzene	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene (PCE)	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Toluene	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,3-Dichloropropene	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene (TCE)	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichlorofluoromethane	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl chloride	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Appendix F - Validated Analytical Results for CSSA B27 Waste Characterization Soil Samples

SAMPLE ID:	B27-WC43	B27-WC44	B27-WC45	B27-WC46	B27-WC46-DUP	B27-WC47	B27-WC48	B27-WC49
DATE SAMPLED:	9/7/2011	9/7/2011	9/7/2011	9/7/2011	9/7/2011	9/7/2011	9/7/2011	9/7/2011
LAB SAMPLE ID:	AY45810	AY45811	AY45812	AY45813	AY45814	AY45815	AY45816	AY45817
	Units							
Semi-Volatile Organics - SW8270C								
1,2,4-Trichlorobenzene	mg/kg	--	--	--	--	--	--	--
1,2-Dichlorobenzene	mg/kg	--	--	--	--	--	--	--
1,3-Dichlorobenzene	mg/kg	--	--	--	--	--	--	--
1,4-Dichlorobenzene	mg/kg	--	--	--	--	--	--	--
2,4,5-Trichlorophenol	mg/kg	--	--	--	--	--	--	--
2,4,6-Trichlorophenol	mg/kg	--	--	--	--	--	--	--
2,4-Dichlorophenol	mg/kg	--	--	--	--	--	--	--
2,4-Dimethylphenol	mg/kg	--	--	--	--	--	--	--
2,4-Dinitrophenol	mg/kg	--	--	--	--	--	--	--
2,4-Dinitrotoluene	mg/kg	--	--	--	--	--	--	--
2,6-Dinitrotoluene	mg/kg	--	--	--	--	--	--	--
2-Chloronaphthalene	mg/kg	--	--	--	--	--	--	--
2-Chlorophenol	mg/kg	--	--	--	--	--	--	--
2-Methyl-4,6-dinitrophenol	mg/kg	--	--	--	--	--	--	--
2-Methylnaphthalene	mg/kg	--	--	--	--	--	--	--
2-Methylphenol	mg/kg	--	--	--	--	--	--	--
2-Nitroaniline	mg/kg	--	--	--	--	--	--	--
2-Nitrophenol	mg/kg	--	--	--	--	--	--	--
3,3'-Dichlorobenzidine	mg/kg	--	--	--	--	--	--	--
3-Nitroaniline	mg/kg	--	--	--	--	--	--	--
4-Bromophenyl phenyl ether	mg/kg	--	--	--	--	--	--	--
4-Chloro-3-methyl phenol	mg/kg	--	--	--	--	--	--	--
4-Chloroaniline	mg/kg	--	--	--	--	--	--	--
4-Chlorophenyl phenyl ether	mg/kg	--	--	--	--	--	--	--
4-Methylphenol (p-cresol)	mg/kg	--	--	--	--	--	--	--
4-Nitroaniline	mg/kg	--	--	--	--	--	--	--
4-Nitrophenol	mg/kg	--	--	--	--	--	--	--
Acenaphthene	mg/kg	--	--	--	--	--	--	--
Acenaphthylene	mg/kg	--	--	--	--	--	--	--
Anthracene	mg/kg	--	--	--	--	--	--	--
Benzo(a)anthracene	mg/kg	--	--	--	--	--	--	--
Benzo(a)pyrene	mg/kg	--	--	--	--	--	--	--
Benzo(b)fluoranthene	mg/kg	--	--	--	--	--	--	--
Benzo(g,h,i)perylene	mg/kg	--	--	--	--	--	--	--
Benzoic acid	mg/kg	--	--	--	--	--	--	--
Benzyl alcohol	mg/kg	--	--	--	--	--	--	--
Benzyl butyl phthalate	mg/kg	--	--	--	--	--	--	--
bis(2-Chloroethoxy)methane	mg/kg	--	--	--	--	--	--	--
bis(2-Chloroethyl)ether	mg/kg	--	--	--	--	--	--	--
bis(2-Chloroisopropyl)ether	mg/kg	--	--	--	--	--	--	--
bis(2-Ethylhexyl) phthalate	mg/kg	--	--	--	--	--	--	--
Chrysene	mg/kg	--	--	--	--	--	--	--
Dibenzo(a,h)anthracene	mg/kg	--	--	--	--	--	--	--
Dibenzofuran	mg/kg	--	--	--	--	--	--	--
Diethyl phthalate	mg/kg	--	--	--	--	--	--	--
Dimethyl phthalate	mg/kg	--	--	--	--	--	--	--
Di-n-butyl phthalate	mg/kg	--	--	--	--	--	--	--
Di-n-octyl phthalate	mg/kg	--	--	--	--	--	--	--
Fluoranthene	mg/kg	--	--	--	--	--	--	--
Fluorene	mg/kg	--	--	--	--	--	--	--
Hexachlorobenzene	mg/kg	--	--	--	--	--	--	--
Hexachlorobutadiene	mg/kg	--	--	--	--	--	--	--
Hexachlorocyclopentadiene	mg/kg	--	--	--	--	--	--	--
Hexachloroethane	mg/kg	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	mg/kg	--	--	--	--	--	--	--
Isophorone	mg/kg	--	--	--	--	--	--	--
Naphthalene	mg/kg	--	--	--	--	--	--	--
Nitrobenzene	mg/kg	--	--	--	--	--	--	--
n-Nitrosodi-n-propylamine	mg/kg	--	--	--	--	--	--	--
n-Nitrosodiphenylamine	mg/kg	--	--	--	--	--	--	--

Appendix F - Validated Analytical Results for CSSA B27 Waste Characterization Soil Samples

	SAMPLE ID:	B27-WC43	B27-WC44	B27-WC45	B27-WC46	B27-WC46-DUP	B27-WC47	B27-WC48	B27-WC49
	DATE SAMPLED:	9/7/2011	9/7/2011	9/7/2011	9/7/2011	9/7/2011	9/7/2011	9/7/2011	9/7/2011
	LAB SAMPLE ID:	AY45810	AY45811	AY45812	AY45813	AY45814	AY45815	AY45816	AY45817
	Units								
Pentachlorophenol	mg/kg	--	--	--	--	--	--	--	--
Phenanthrene	mg/kg	--	--	--	--	--	--	--	--
Phenol	mg/kg	--	--	--	--	--	--	--	--
Pyrene	mg/kg	--	--	--	--	--	--	--	--
Explosives-SW8330									
1,3,5-Trinitrobenzene	mg/kg	--	--	--	--	--	--	--	--
1,3-Dinitrobenzene	mg/kg	--	--	--	--	--	--	--	--
2,4,6-Trinitrotoluene (TNT)	mg/kg	--	--	--	--	--	--	--	--
2,4-Dinitrotoluene	mg/kg	--	--	--	--	--	--	--	--
2,6-Dinitrotoluene	mg/kg	--	--	--	--	--	--	--	--
2-Nitrotoluene	mg/kg	--	--	--	--	--	--	--	--
3-Nitrotoluene	mg/kg	--	--	--	--	--	--	--	--
4-Nitrotoluene	mg/kg	--	--	--	--	--	--	--	--
HMX	mg/kg	--	--	--	--	--	--	--	--
Nitrobenzene	mg/kg	--	--	--	--	--	--	--	--
RDX	mg/kg	--	--	--	--	--	--	--	--
Tetryl	mg/kg	--	--	--	--	--	--	--	--
Metals - SW6010B/SW7471A									
Arsenic	mg/kg	--	--	--	--	--	--	--	--
Barium	mg/kg	--	--	--	--	--	--	--	--
Cadmium	mg/kg	--	--	--	--	--	--	--	--
Chromium	mg/kg	--	--	--	--	--	--	--	--
Copper	mg/kg	--	--	--	--	--	--	--	--
Lead	mg/kg	--	--	--	--	--	--	--	--
Mercury	mg/kg	--	--	--	--	--	--	--	--
Nickel	mg/kg	--	--	--	--	--	--	--	--
Zinc	mg/kg	--	--	--	--	--	--	--	--
TCLP Metals - SW6010B/SW7470A									
Arsenic	mg/L	--	--	--	--	--	--	--	--
Barium	mg/L	--	--	--	--	--	--	--	--
Cadmium	mg/L	--	--	--	--	--	--	--	--
Chromium	mg/L	--	--	--	--	--	--	--	--
Lead	mg/L	--	--	--	--	--	--	--	--
Mercury	mg/L	--	--	--	--	--	--	--	--
Selenium	mg/L	--	--	--	--	--	--	--	--
Silver	mg/L	--	--	--	--	--	--	--	--

QA NOTES AND DATA QUALIFIERS:

(NO CODE) - Confirmed identification.

U - Analyte was not detected above the indicated Method Detection Limit (MDL).

F - Analyte was positively identified, but the quantitation is an estimation above the MDL and below the Reporting Limit (RL).

J - Analyte was positively identified, but the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

M = Concentration is estimated due to a matrix effect.

Detections are bolded.

APPENDIX G

TCEQ Approval for Non-Hazardous Soils Reuse, December 20, 2010



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

December 3, 2010

U-029-10

Mr. Kirk Coulter, P.G., Project Manager
Texas Commission on Environmental Quality
Corrective Action Team 1, VCP-CA Section
Remediation Division
PO Box 13087 (MC-127)
Austin, TX 78711-3087

SUBJECT: Movement of Non-Hazardous Metals Impacted Soils from SWMU/AOC Closure Efforts to East Pasture Firing Range, Camp Stanley Storage Activity, Boerne, Texas
TCEQ Industrial Solid Waste Registration #69026, EPA Identification Number TX2210020739

Dear Mr. Coulter:

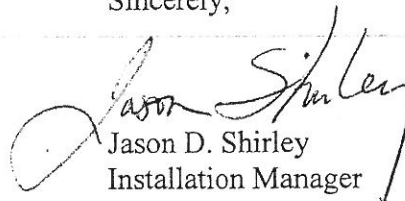
The Camp Stanley Storage Activity (CSSA), McAlester Army Ammunition Plant, U.S. Army Field Support Command, Army Material Command, U.S. Army, is providing this letter to notify the TCEQ of CSSA's plan to move and manage non-hazardous metals-impacted soils generated during remedial actions at CSSA's Solid Waste Management Units (SWMU) and Area of Concerns (AOC) to CSSA's East Pasture Firing Range Berm located in Range Management Unit 1 (RMU-1).

CSSA currently has a need for additional soils on the small arms firing range berm in the east pasture. In recent years, this berm has been modified with non-hazardous soils generated from various SWMUs and AOCs remedial actions. The non-hazardous soil movement and management within the east pasture RMU-1 was authorized by TCEQ and USEPA during a Technical Interchange Meeting held on April 19, 2006 and subsequent letter by Mr. Sonny Rayos, TCEQ Project Manager, dated May 7, 2008. This letter is provided to TCEQ to reaffirm regulatory agreement with this practice.

To verify the generated remediation soils are non-hazardous prior to movement to the east pasture, soil samples will be collected and analyzed for TCLP metals in accordance with CSSA's approved RFI/IM Waste Management Plan dated May 2006. Movement of the non-hazardous metals-impacted soils from CSSA SWMUs and AOCs to the East Pasture Firing Range Berm is expected to occur on an as needed basis as determined by CSSA.

If you have any questions regarding this notification, please contact Gabriel Moreno-Fergusson at (210) 698-5208 or Mr. Ken Rice, Parsons, at (512) 719-6050.

Sincerely,


Jason D. Shirley
Installation Manager

cc: Mr. Greg Lyssy, EPA Region 6
Mr. Jorge Salazar, TCEQ Region 13
Ms. Julie Burdey, Parsons

Schoepflin, Shannon

From: Kirk Coulter [KCoulter@tceq.state.tx.us]
Sent: Monday, December 20, 2010 2:40 PM
To: Rice, Ken R
Subject: Re: Revised workplan fo Vapor Intrusion Survey Investigation at AOC-65

Hi Ken

On the movement of non-haz waste letter. I am sending this E-Mail to you as an informal approval of the letter sent to me on December 3, 2010. I understand that this procedure was approved during Technical meeting held on April 19, 2006 between Camp Stanley, Mr. Sonny Rayos (TCEQ), Parsons Engineering and Mr. Greg Lyssy (EPA).

If you have any questions, please call me

Thanks

Kirk

>>> "Rice, Ken R" <Ken.R.Rice@parsons.com> 12/7/2010 4:48 PM >>>
Greg,

I was preparing for our upcoming meeting in January and realized I have not set you the attached revised vapor intrusion survey work plan you requested from our last meeting. This was revised to include that three additional soil gas samples within AOC-65 southwest of building 90 for TO-15 PCE SIM analysis. We have collected soil gas samples directly west of building 90 (at CSSA's fence line) and indoor air samples within building 90. The remaining effort is to collect soil gas data similar to what may be present off-post. That is, the groundwater PCE concentrations within the LGR aquifer in the southern portion of AOC-65 are conservatively similar in off-post groundwater PCE concentrations. Therefore soil gas samples collected in the southern portion of AOC-65 may be more representative of the off-post soil gas present above similar LGR contaminated groundwater. We intend to take the soil gas samples for TO-15 PCE SIM analysis prior to our meeting so that all results may be discussed and finalization of the Vapor Intrusion Survey Report initiated. If you have any questions or concerns please do not hesitate to call or contact me.

Regards,

Ken Rice
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Safety - Make it Personal !

APPENDIX H

ProUCL Statistical Calculation Summary for Zinc in SWMU B-27 Soils

User Selected Options

From File WorkSheet.wst
 Full Precision OFF
 Confidence Coefficient 95%
 Number of Bootstrap Operations 2000

Zinc

General Statistics

Number of Valid Observations 109 Number of Distinct Observations 99

Raw Statistics

Minimum 2.6
 Maximum 305.7
 Mean 27.1
 Median 21.1
 SD 31.67
 Std. Error of Mean 3.033
 Coefficient of Variation 1.169
 Skewness 6.8

Log-transformed Statistics

Minimum of Log Data 0.956
 Maximum of Log Data 5.723
 Mean of log Data 3.061
 SD of log Data 0.622

Relevant UCL Statistics

Normal Distribution Test

Lilliefors Test Statistic 0.304
 Lilliefors Critical Value 0.0849

Data not Normal at 5% Significance Level

Lognormal Distribution Test

Lilliefors Test Statistic 0.119
 Lilliefors Critical Value 0.0849

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL 32.13

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL (Chen-1995) 34.2
 95% Modified-t UCL (Johnson-1978) 32.46

Assuming Lognormal Distribution

95% H-UCL 29.02

95% Chebyshev (MVUE) UCL 33.11
 97.5% Chebyshev (MVUE) UCL 36.25
 99% Chebyshev (MVUE) UCL 42.43

Gamma Distribution Test

k star (bias corrected) 2.192
 Theta Star 12.36
 MLE of Mean 27.1
 MLE of Standard Deviation 18.3
 nu star 477.8
 Approximate Chi Square Value (.05) 428.1
 Adjusted Level of Significance 0.0478
 Adjusted Chi Square Value 427.5
 Anderson-Darling Test Statistic 4.403
 Anderson-Darling 5% Critical Value 0.764
 Kolmogorov-Smirnov Test Statistic 0.177
 Kolmogorov-Smirnov 5% Critical Value 0.0881

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL 30.24
 95% Adjusted Gamma UCL 30.29

Potential UCL to Use

Data Distribution

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

95% CLT UCL 32.09
 95% Jackknife UCL 32.13
 95% Standard Bootstrap UCL 31.94
 95% Bootstrap-t UCL 37
 95% Hall's Bootstrap UCL 53.44
 95% Percentile Bootstrap UCL 32.77
 95% BCA Bootstrap UCL 35.53
 95% Chebyshev(Mean, Sd) UCL 40.32
 97.5% Chebyshev(Mean, Sd) UCL 46.04
 99% Chebyshev(Mean, Sd) UCL 57.28

Use 95% Chebyshev (Mean, Sd) UCL 40.32

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

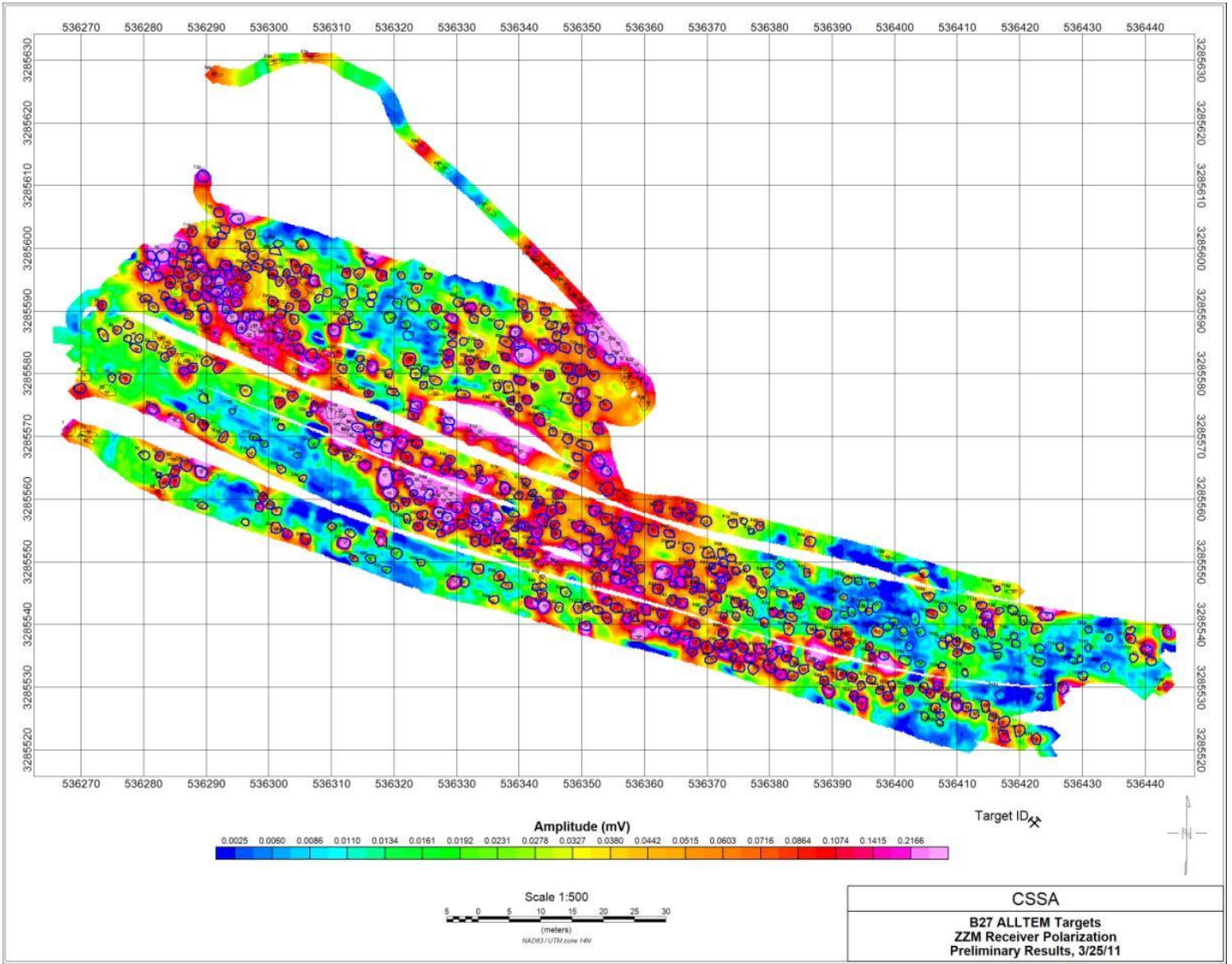
APPENDIX I

Summary of 2011 USGS Geophysical Survey Results for SWMU B-27

USGS Geophysical Surveys



ALLTEM Polarized Target Map



Earth DC Resistivity Imaging

