RELEASE INVESTIGATION REPORT

RANGE MANAGEMENT UNIT 4
CAMP STANLEY STORAGE ACTIVITY

Prepared for:

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Boerne, Texas

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October 2013

EXECUTIVE SUMMARY

Range Management Unit (RMU) 4 is an approximately 3.7-acre site located in the western portion of the Camp Stanley Storage Activity (CSSA) East Pasture, approximately 630 yards east of the southern CSSA boundary. The site was first identified as a rifle range on a 1953 map of CSSA. Work performed at the site included environmental sampling, the removal and proper disposal of soil containing contaminants above Tier 1 protective concentration levels (PCLs), the removal and proper disposal of any associated munitions and explosives of concern (MEC) from the excavation and staging areas, and proper documentation of all activities, including preparation of this Release Investigation Report (RIR). This RIR requests No Further Action (NFA) at RMU-4.

In summary, activities at RMU-4 as described in this RIR showed the following results:

- Excavation, removal, and confirmation sampling were performed at RMU-4.
- The contaminants of concern (COCs) identified above soil background concentrations at RMU-4 were copper, lead, and nickel. Areas of soil contamination exceeding identified TRRP action levels have been either excavated and removed from the site, or were used to calculate a 95% upper confidence limit (UCL) per Texas Administrative Code (TAC) §350.79(2)(A) which does not exceed the TRRP action level/critical PCL.

From information presented in this report, the results of the investigation at RMU-4 meet the three criteria as described in the Texas Commission on Environmental Quality (TCEQ) (2003) guidance *Determining Which Releases are Subject to* Texas Risk Reduction Program (TRRP). Thus, the following three criteria were met:

- Soil found to have COC concentrations above the TRRP action levels were either excavated from the site or used to calculate a 95% UCL per TAC §350.79(2)(A) that does not exceed the TRRP action level/critical PCL.
- There is no evidence of other affected or threatened environmental media (groundwater, surface water, or sediment) at RMU-4. Soils found to have concentrations of metals above TRRP action levels were excavated and removed or used to calculate a 95% UCL, so there will be no future impact to groundwater, surface water, or sediment from RMU-4.
- RMU-4 passes the Tier 1 Ecological Exclusion Criteria Checklist (Appendix B).

Because these three criteria are met, RMU-4 is not subject to TRRP. Therefore, this RIR has been prepared to document the results and to request an NFA decision from TCEQ.

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ACRONYMS AND ABBREVIATIONS

AOC	Area of Concern
APPL	Agriculture & Priority Pollutants Laboratory, Inc.
BS	Bexar Shale
BTOC	below top of casing
CC	Cow Creek
COC	contaminant of concern
CSSA	Camp Stanley Storage Activity
CY	cubic yard
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
mg/kg	milligrams per kilogram
MQL	method quantification limit
NFA	No Further Action
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 soil combined pathway (PCL)
TRRP	Texas Risk Reduction Program
UCL	upper confidence limit

ACRONYMS AND ABBREVIATIONS *(continued)*

UGR	Upper Glen Rose
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
WMP	Waste Management Plan
XRF	x-ray fluorescence

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 Range Management Unit (RMU) 4. RMU-4 is a 3.7-acre site located in the western portion of CSSA's East Pasture (**Figure 2**). 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 RMU-4. Work included x-ray fluorescence (XRF) analysis of soils; environmental sampling; excavation and removal of impacted soil; 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 RMU-4. Section 3 describes the objectives and rationale for preparing an RIR for RMU-4 and the findings from environmental investigations for the site. The groundwater and surface water for CSSA and the area near RMU-4 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 11 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 Solid Waste Management Units (SWMUs), Areas of Concern (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.

2.2 RMU-4

2.2.1 Overview

RMU-4 was identified as a rifle range on a 1953 map of CSSA. A 1957 historical photo shows disturbed ground as well as a possible road through the area. A series of historical aerial photos of the site, including from 1957, are shown on **Figure 3,** and photographs showing investigation and excavation activities at the site are provided in **Appendix A**.

The general area including RMU-4 was used for World War I military training activities. Two remnant features from these activities were still present in the area at the start of the field effort: a small arms range abutment which ran from west to east across the middle of the site consisting of a concrete wall abutted to the south by a large berm of soils; and a series of military training trenches (zig-zag trenches). Information regarding these features is described in Section 2.2.2.

The analytical results for contaminants of concern (COCs) detected at the site are discussed in Section 3.1.

2.2.2 Setting, Size, and Description

The 3.7-acre site is located in the western portion of CSSA's East Pasture (Figure 2). The aforementioned WWI military training features, including the small arms range abutment and the series of military training trenches (zig-zag trenches) running through the area, are shown on **Figure 4**. Additional background information on RMU-4 can be found in the CSSA Environmental Encyclopedia, Volume 3-2.

2.2.3 Potential Contaminant Sources and Chemicals of Concern

The presence of the concrete abutment and the series of zig-zag trenches, which are visible on the 1934 aerial photograph (earliest available) were an indication that the area was used for training purposes. In addition the 1957 aerial photograph showed signs of disturbed ground as well as a possible road through the area. The aerial photographs did not show any signs of

disturbed areas of concern indicating waste management had occurred at the site. The reported historical use as a rifle range prompted initial investigations at the site. Based on a preliminary round of surface soil samples collected from the site in June 2011 (described in Section 3.1), the COCs at RMU-4 were identified as copper, lead, and nickel.

3.0 OBJECTIVES OF RIR FOR RMU-4

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 or were used to calculate a 95% UCL per TAC §350.79(2)(A) that does not exceed the TRRP action level/critical PCL;
- 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 a site, an RIR can be submitted to the TCEQ and a No Further Action (NFA) decision can be requested.

As referred to in the criteria listed above, the Tier 1 residential soil action levels are provided by TCEQ (2010) and were selected following TCEQ guidance (TCEQ, 2007). These action levels are referred to as protective concentration levels (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. The source area is either assumed to be 0.5 acre if the site is less than 0.5 acre in size, or assumed to be 30 acres if the site is larger than 0.5 acre. Thus, the soil action levels for RMU-4 are based on a 30-acre source area, since the size of the site is approximately 3.7 acres. The TRRP Tier 1 PCL identified for this investigation is defined as the lowest value among the following: 1) the TRRP Tier 1 Residential 30-acre PCL for total soil combined ($^{Tot}Soil_{Comb}$); 2) the TRRP Tier 1 Residential 30-acre PCL for groundwater protection ($^{GW}Soil_{Ing}$); and 3) the TCEQ Ecological Benchmark for Soil. If the lowest of these three values is less than the CSSA soil background value, the soil background value becomes the Tier 1 PCL.

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 CSSA metals (arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, and zinc) (Parsons, 2002). The statistically calculated and TCEQ-approved background metal concentrations are shown in the analytical summary table (**Table 1**) and are also available in the CSSA EE (Volume 2, Background Metals

Levels). It is noted that the action levels/PCLs for five of the nine metals are based on the CSSA background concentrations (these five metals are arsenic, barium, cadmium, lead, and mercury).

3.1 RMU-4 FIELD ACTIVITIES AND INVESTIGATIONS

Field activities conducted at RMU-4 include the initial field survey, an XRF survey (**Figure 5**), and the excavation, removal, and confirmation sampling efforts. These activities are described in the following sections.

Due to the potential presence of munitions and explosives of concern (MEC) at RMU-4, a pre-clearance was performed within the proposed excavation area and the equipment staging areas prior to performing excavation activities. Unexploded ordnance (UXO) support was also present during all sampling events. A total of 18 un-fuzed Stokes mortar were found within the RMU-4 site boundary during the investigation. The locations of these items are shown on Figure 6. These items were removed from the site and disposed of by the CSSA Surveillance Section. The list of munitions found is included as **Appendix F.** As the pre-clearance and UXO support activities were not performed as full scale MEC removal efforts, there is no guarantee that all MEC items within the site boundary were discovered and removed. Any future excavations or activities conducted in the area should be conducted using UXO construction support provided by UXO qualified personnel.

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, Sampling and Analysis Plan). 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 (Volume1-1, Correspondence).

Following the CSSA-specific plans, the investigative soil analyses for RMU-4 were performed using U.S. Environmental Protection Agency (USEPA) *Test Methods for Evaluating Solid Waste* (SW-846): Method 8260B (VOCs); Method 8270C (SVOCs); Method 6010 (arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, and zinc); and Method 8330 (explosives). 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). All samples were sent to Agriculture & Priority Pollutants Laboratory, Inc. (APPL) for analysis.

3.1.2 Initial Field Survey and Archeological Assessment

The field survey was conducted at the site in 1997. No spent ammunition was observed in the area, but the aforementioned small arms range abutment and the zig-zag trenching were identified and evaluated as part of an archeological assessment. The 1998 *Archeological Survey and Testing Report* (CSSA Environmental Encyclopedia, Volume 1-6) stated that, although the concrete abutment is associated with World War I training activities, it was determined not to be significant because the integrity of the site had been compromised. The abutment was therefore considered ineligible for National Register of Historic Places nomination. The abutment was removed during the excavation effort.

The identified zigzag trenches were used as World War I training devices and were most likely used in the filming of the 1926 movie *Wings*. Based on the 1998 archeological assessment, these trenches were determined to be historically significant and were considered eligible for listing in the National Register of Historic Places. Care was taken during the excavation effort to avoid disturbing the zigzag trenches.

3.1.3 XRF Survey

An XRF survey for lead and zinc was conducted in December 2010. Lead and zinc XRF results have shown a strong statistical correlation with laboratory-verified samples. As such, these metals were used as indicators of potential areas of metals contamination at the site. The purpose of the XRF survey was to gather field screening data regarding the presence of metals above Tier 1 PCLs in surface soils. For the sixty-two samples collected, the XRF detected lead levels above the Tier 1 PCL (89.5 mg/kg) at sixteen locations and slightly above the Tier 1 PCL for zinc (120 mg/kg) at two. Sample locations and results for the XRF survey are shown on Figure 5.

3.1.4 Waste Characterization and Disposal Activities

Prior to beginning excavation, a total of ten waste characterization samples were collected *in-situ* from across the site to evaluate if the excavated soils would meet non-hazardous Class 2 criteria. Waste characterization sample locations are shown on **Figure 7**. All results indicated that they met the criteria (**Appendix E**) and the 4,000 CY of soil excavated from the site were transported to the East Pasture Berm for reuse, as per TCEQ approval December 20, 2010 (**Appendix G**).

Waste characterization efforts were performed in accordance with requirements of CSSA's *RCRA Facility Investigation (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 RMU-4, dated September 2012.

3.1.5 Excavation, Removal, and Confirmation Sampling

In total, approximately 4,000 CY of soil was excavated from the site. Figure 6 depicts the results of the final confirmation samples used for the site. Sample locations exceeding Tier 1 PCLs were excavated and disposed of as described in Section 3.1.3. Excavated sample locations are noted in red on Table 1.

In June 2011, 14 surface soil samples (SS01 through SS14; see Figure 6) were collected at the site to confirm the elevated XRF values, and to delineate potential contamination at the site. All of the samples were analyzed for CSSA 9 metals. A total of six samples exceeded the Tier 1 PCL for lead of 84.5 milligram per kilogram (mg/kg) (SS01, SS03, SS04, SS05, SS10, and SS12). Additionally, the results for SS04 also exceeded the Tier 1 PCLs for copper (11,753 mg/kg) and nickel (2,463 mg/kg). No samples exceeded the PCL for zinc.

Two of the samples collected (SS05 and SS10) were also analyzed for VOCs, SVOCs, and explosives. No explosives or SVOCs were detected above the Tier 1 PCLs. Methylene chloride was detected at SS05 (0.019 mg/kg) at a level above the Tier 1 PCL of 0.0065 mg/kg. The presence of a low concentration of methylene chloride in the sample was most likely due to laboratory contamination as there is no known usage of this chemical at CSSA. To confirm this assumption, an additional sample (SS35) was collected at a later date, with only a trace amount of methylene chloride detected below the Tier 1 PCL. These samples and the detected results above Tier 1 PCLs are shown on Figure 6.

An additional ten soil samples were collected at the site in January 2012. Surface samples were collected at SS15, SS16, SS18, and SS19. To help delineate the vertical extent of contamination, subsurface samples were also collected from 1.0 to 1.5 feet bgs at SS17, SS20, and SS21 and from 2 to 2.5 feet bgs from SS20 and SS21. All samples were analyzed for copper, lead, and nickel. Lead levels above the Tier 1 PCL were identified at SS17 from 1 to 1.5 ft bgs, from the surface at SS18, and from 1 to 1.5 ft bgs and 2 to 2.5 ft bgs at SS21. Elevated levels of copper were also detected at SS17 from 1 to 1.5 ft bgs and at SS21 from 2 to 2.5 ft bgs (Figure 6). Two of these samples (SS18 and SS19) were also analyzed for explosives, but none were detected.

Excavation of contaminated soils began at the beginning of March 2013 and continued through April 2013. An additional thirteen confirmation samples were collected during and following excavation activities (SS22 through SS34). These samples were all analyzed for copper, lead, and nickel. Only one sample, SS31, had an elevated lead concentration (Figure 6).

All confirmation sample results remaining at the site (i.e., not excavated) were below Tier 1 PCLs with the exception of sample SS31. This location exceeded the PCL for lead (84.5 mg/kg) with a lead concentration of 165.78 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 37.4 mg/kg was calculated for the lead concentration remaining in site soils, which does not exceed the Tier 1 PCL of 84.5 mg/kg (**Appendix H**). Therefore, per TAC §350.79(2)(A), further response action for lead is not required at RMU-4.

A summary of the cleanup confirmation results at the site are shown in Table 1 (detected compounds only) and **Appendix C** (all analytes), and the confirmation soil sampling locations are shown on **Figure 6.** 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 E**. Sample locations for soils remaining at the site are shown on Figure 6. The clearance areas where soils were excavated and removed are also shown on Figure 6. Waste characterization sampling is described in Section 3.1.4. Additional information about past activities and investigations at the sites can be found in the CSSA EE (Volume 3-2, RMU-4).

3.2 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 RMU-4. 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 RMU-4 Groundwater and Surface Water

No site-specific information regarding groundwater is available for RMU-4. The three closest monitoring wells to the site include CS-MW21-LGR (625 ft to the west), CS-MW17-LGR (1,750 ft to the northeast), and CS-MW20-LGR (2,450 ft to the NW). Water levels in CS-MW21-LGR between October 1992 and March 2013 have ranged from 12.8 ft below top of casing (BTOC) (September 2007) to 251.4 ft BTOC (September 2012). Sporadic trace concentrations of metals (i.e., below their respective reporting limits) detected in CS-MW21-LGR since 2007 are likely related to rainfall events as they correspond to periods of higher water level measurements. Currently, the closest water supply well to RMU-4 is CS-1 which is located 2,663 ft. to the south of the site. CS-13 is currently used for fire suppression but may be converted to a water supply well in the future. It is located 2,572 ft to the southwest of the site.

The closest surface water body to RMU-4 is an unnamed tributary to Salado Creek that runs through the site (**Figure 8**). The tributary empties into Salado Creek approximately 1,150 ft downgradient of the site. The north-south trending Salado Creek exits the CSSA boundary approximately 2,220 ft south-southeast of the site. No significant degradation of high quality receiving waters is anticipated from RMU-4.

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 RMU-4. Thus, based on the absence of any complete or significant ecological exposure pathways, RMU-4 may be excluded from further ecological assessment.

5.0 SUMMARY AND RECOMMENDATIONS

In summary, activities at RMU-4 as described in this RIR showed the following results:

- Excavation, removal, and confirmation sampling were performed at RMU-4.
- 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 TRRP action level/critical PCL.

- Confirmation samples were collected to confirm all waste had been removed. One sample with an elevated lead level remains at the site; however the results of all remaining samples were used to calculate a 95% UCL per TAC §350.79(2)(A) that does not exceed the TRRP action level/critical PCL.
- Approximately 4,000 CY of contaminated soil were excavated and managed at the East Pasture Berm.

From information presented in this report, the results of the investigation at RMU-4 meet the three criteria as described in TCEQ's (2003) guidance *Determining Which Releases are Subject to* TRRP. Thus, the following three criteria were met:

- Soils found to have COC concentrations above TRRP action levels were either excavated from the site or were used to calculate a 95% UCL per TAC §350.79(2)(A) that does not exceed the TRRP action level/critical PCL;
- There is no evidence of other affected or threatened environmental media (groundwater, surface water, or sediment) at RMU-4; and
- RMU-4 passes the Tier 1 Ecological Exclusion Criteria Checklist (Appendix B).

Because these three criteria were met, RMU-4 is not subject to TRRP, and an NFA decision is therefore requested from TCEQ.

TABLES AND FIGURES

Table 1. Summary of Chemical Constituents Remaining in Soils at RMU-4 - Detected Results

		Volatile Organics		Metals																															
	Methylene chloride CAS: 75-09-2	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]	4.70E+02	n		2.40E+01	n		8.10E+03	n		5.20E+01	n		2.70E+04	n		5.50E+02	n		5.00E+02	n		2.10E+00	n		8.40E+02	n		9.90E+03	n	
Residential Groundwater Exposure[2]	**6.50E-03**	m		2.50E+00	m	>S	2.20E+02	m	>S	7.50E-01	m	>S	**1.20E+03**	m	>S	5.20E+02	a	>S	1.50E+00	a	>S	3.90E-03	m		**7.90E+01**	n	>S	1.20E+03	n	>S
Ecological Benchmark[3]	--			1.80E+01			3.30E+02			3.20E+01			4.00E-01			**6.10E+01**			1.20E+02			1.00E-01			3.00E+01			**1.20E+02**		
TCEQ-Approved Background Values																																			
CSSA 9 Metals Background Concentration[4]	na			**19.6**	††		**300**	†††		**3**	††		40.2	††		23.2	††		**84.5**	††		**0.77**	††		35.5	††		73.2	††	
Sample Locations (Date Collected)/(Depth Interval)																																			
RMU4-SS01 (23-Jun-2011)/(0-0) **Excavated**	--			**5.3**	F	1	**57.2**		1	0.030	U	1	**14.7**	F	1	**13.75**		1	**5,543**		100	**0.040**	F	1	**11.69**		1	**37.6**		1
RMU4-SS02 (23-Jun-2011)/(0-0)	--			**5.2**	F	1	**73.4**		1	0.030	U	1	**16.3**	F	1	**16.09**		1	**63.19**		1	**0.080**	F	1	**13.29**		1	**64.1**		1
RMU4-SS03 (23-Jun-2011)/(0-0) **Excavated**	--			**5.3**	F	1	**90.3**		1	0.030	U	1	**14.7**	F	1	**13.97**		1	**115.12**		1	**0.040**	F	1	**13.07**		1	**61.9**		1
RMU4-SS04 (23-Jun-2011)/(0-0) **Excavated**	--			**4.4**	F	1	**36.6**		1	0.030	U	1	**10.6**	F	1	**11,753**		200	**3,671**		50	**0.060**	F	1	**2,463**		50	**28.0**		1
RMU4-SS05 (23-Jun-2011)/(0-0) **Excavated**	**0.019**	M	1	**5.8**	M	1	**71.2**	M	1	0.030	M	1	**16.9**	M	1	**17.29**	M	1	**96.03**	M	1	**0.040**	F	1	**14.11**	M	1	**35.7**	M	1
RMU4-SS06 (27-Jun-2011)/(0-0)	--			**3.9**	F	1	**54.0**		1	0.030	UJ	1	**14.1**	F	1	**13.27**		1	**33.52**		1	**0.020**	F	1	**10.51**		1	**19.3**	J	1
RMU4-SS06-DUP (27-Jun-2011)/(0-0)	--			**4.0**	F	1	**51.0**		1	0.030	UJ	1	**11.0**	F	1	**11.21**		1	**29.87**		1	**0.030**	F	1	**8.6**		1	**20.8**	J	1
RMU4-SS07 (27-Jun-2011)/(0-0)	--			**5.2**	F	1	**64.2**		1	0.030	UJ	1	**15.5**	F	1	**15.09**		1	**31.58**		1	**0.030**	F	1	**12.2**		1	**28.7**	J	1
RMU4-SS08 (27-Jun-2011)/(0-0)	--			**4.0**	F	1	**40.1**		1	0.030	UJ	1	**9.6**	F	1	**9.28**		1	**10.71**		1	**0.020**	F	1	**8.02**		1	**19.7**	J	1
RMU4-SS09 (27-Jun-2011)/(0-0)	--			**4.0**	F	1	**43.5**		1	0.030	UJ	1	**12.2**	F	1	**12.17**		1	**16.78**		1	**0.020**	F	1	**9.51**		1	**20.0**	J	1
RMU4-SS10 (27-Jun-2011)/(0-0) **Excavated**	0.0013	U	1	**6.2**	F	1	**72.1**		1	0.030	UJ	1	**18.0**	F	1	**57.33**		1	**787.8**	J	1	**0.030**	F	1	**23.96**		1	**29.8**	J	1
RMU4-SS10-DUP (27-Jun-2011)/(0-0) **Excavated**	0.0013	U	1	**5.8**	F	1	**65.6**		1	0.030	UJ	1	**17.0**	F	1	**50.7**		1	**9,713**	J	100	**0.030**	F	1	**21.26**		1	**26.6**	J	1
RMU4-SS11 (27-Jun-2011)/(0-0)	--			**2.6**	F	1	**19.7**		1	0.030	UJ	1	**4.7**	F	1	**7.86**		1	**39.04**		1	**0.020**	F	1	**4.2**		1	**17.3**	J	1
RMU4-SS12 (27-Jun-2011)/(0-0) **Excavated**	--			**4.4**	F	1	**50.6**		1	0.030	UJ	1	**14.7**	F	1	**12.83**		1	**117.49**		1	**0.050**	F	1	**11.38**		1	**30.4**	J	1
RMU4-SS13 (27-Jun-2011)/(0-0)	--			**6.7**	F	1	**79.6**		1	**0.140**	F	1	**22.7**		1	**18.12**		1	**47.9**		1	**0.050**	F	1	**17.26**		1	**42.3**	J	1
RMU4-SS14 (27-Jun-2011)/(0-0)	0.0013	U	1	**5.7**	F	1	**60.6**		1	**0.070**	F	1	**20.2**		1	**15.21**		1	**34.36**		1	**0.050**	F	1	**14.87**		1	**32.4**	J	1
RMU4-SS15 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			**11.9**	J	1	**21.91**	J	1	--			**15.02**	J	1	--		
RMU4-SS16 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			**15.75**	J	1	**58.82**	J	1	--			**16.25**	J	1	--		
RMU4-SS17 (05-Jan-2012)/(1-1.5)	--			--			--			--			--			**63.33**	J	1	**206**	J	1	--			**22.2**	J	1	--		
RMU4-SS17 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			**12.8**	J	1	**63.17**	J	1	--			**18.65**	J	1	--		
RMU4-SS18 (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			**8.96**	J	1	**50.64**	M	1	--			**8.58**	J	1	--		
RMU4-SS18-DUP (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			**16.63**	J	1	**96.75**	J	1	--			**17.94**	J	1	--		
RMU4-SS19 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			**15.82**	J	1	**31.01**	J	1	--			**18.74**	J	1	--		
RMU4-SS20 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			**10.91**	J	1	**16.87**	J	1	--			**16.95**	J	1	--		
RMU4-SS20 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			**10.82**	J	1	**22.21**	J	1	--			**15.66**	J	1	--		
RMU4-SS21 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			**31.24**	J	1	**159.3**	J	1	--			**20.40**	J	1	--		
RMU4-SS21 (05-Jan-2012)/(2-2.5) **Excavated**	--			--			--			--			--			**67.65**	J	1	**2,884**	J	20	--			**25.08**	J	1	--		
RMU4-SS22 (27-Mar-2013)/(0-0)	--			--			--			--			--			**8.87**		1	**13.83**		1	--			**14.22**		1	--		
RMU4-SS23 (23-Apr-2013)/(0-0)	--			--			--			--			--			**10.41**		1	**12.52**		1	--			**16.37**		1	--		
RMU4-SS24 (27-Mar-2013)/(0-0)	--			--			--			--			--			**14.03**		1	**23.57**		1	--			**14.69**		1	--		
RMU4-SS25 (27-Mar-2013)/(0-0)	--			--			--			--			--			**35.9**		1	**38.84**		1	--			**15.97**		1	--		
RMU4-SS26 (27-Mar-2013)/(0-0)	--			--			--			--			--			**11.56**		1	**15.49**		1	--			**16.93**		1	--		
RMU4-SS27 (23-Apr-2013)/(0-0)	--			--			--			--			--			**14.0**		1	**21.17**		1	--			**17.79**		1	--		
RMU4-SS28 (23-Apr-2013)/(0-0)	--			--			--			--			--			**10.85**		1	**18.83**		1	--			**10.48**		1	--		
RMU4-SS29 (23-Apr-2013)/(0-0)	--			--			--			--			--			**9.6**		1	**53.89**		1	--			**10.46**		1	--		
RMU4-SS30 (23-Apr-2013)/(0-0)	--			--			--			--			--			**13.42**		1	**14.45**		1	--			**16.39**		1	--		
RMU4-SS31 (23-Apr-2013)/(0-0)	--			--			--			--			--			**17.51**		1	**165.78**	J	1	--			**17.19**		1	--		
RMU4-SS31-DUP (23-Apr-2013)/(0-0)	--			--			--			--			--			**15.39**		1	**70.87**	J	1	--			**16.53**		1	--		
RMU4-SS32 (23-Apr-2013)/(0-0)	--			--			--			--			--			**14.5**		1	**33.09**		1	--			**17.08**		1	--		
RMU4-SS33 (23-Apr-2013)/(0-0)	--			--			--			--			--			**10.63**		1	**20.46**		1	--			**10.48**		1	--		
RMU4-SS34 (29-Apr-2013)/(0-0)	--			--			--			--			--			**20.04**		1	**73.92**		1	--			**11.68**		1	--		
RMU4-SS35 (12-Sep-2013)/(0-0)	0.0022	F	1	--			--			--			--			--			--			--			--			--		

NOTES:

† TCEQ, TRRP Tier 1 Soil PCLs (Last Revised: June 29, 2012).

†† 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, 4].

[1] $^{Tot}Soil_{Comb}$ = 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] TCEQ Ecological Benchmark for Soil as stated in Update to Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas, Regulatory Guidance (RG)-263, Revised January 2006

[4] CSSA Soil Background Concentrations.

PCLs are shown in **blue** font.

All values are measured in milligrams per kilogram (mg/Kg) unless otherwise noted.

Depth interval is measured in feet below ground surface.

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.

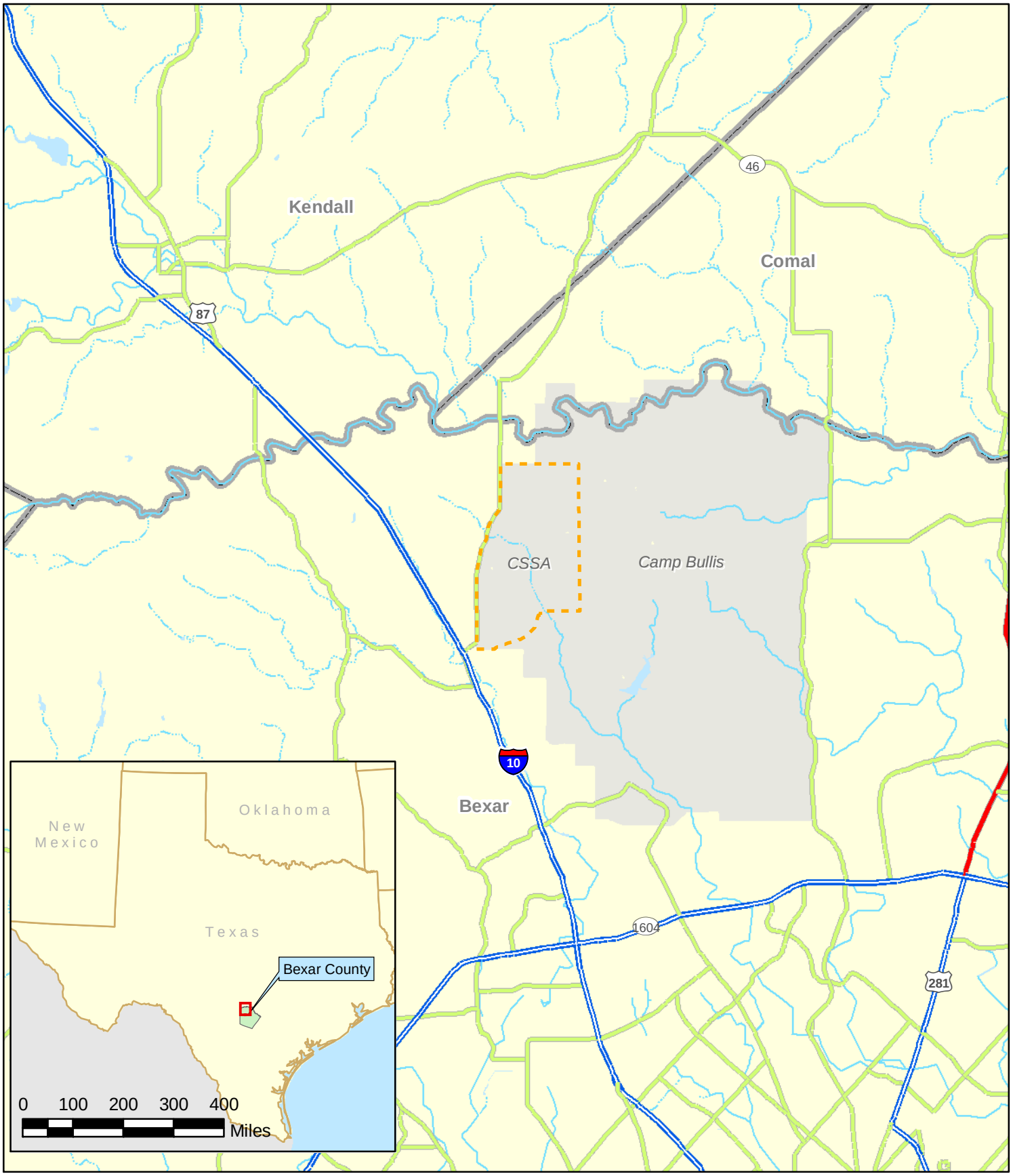

Figure 1

CSSA Location Map
Camp Stanley Storage Activity

PARSONS

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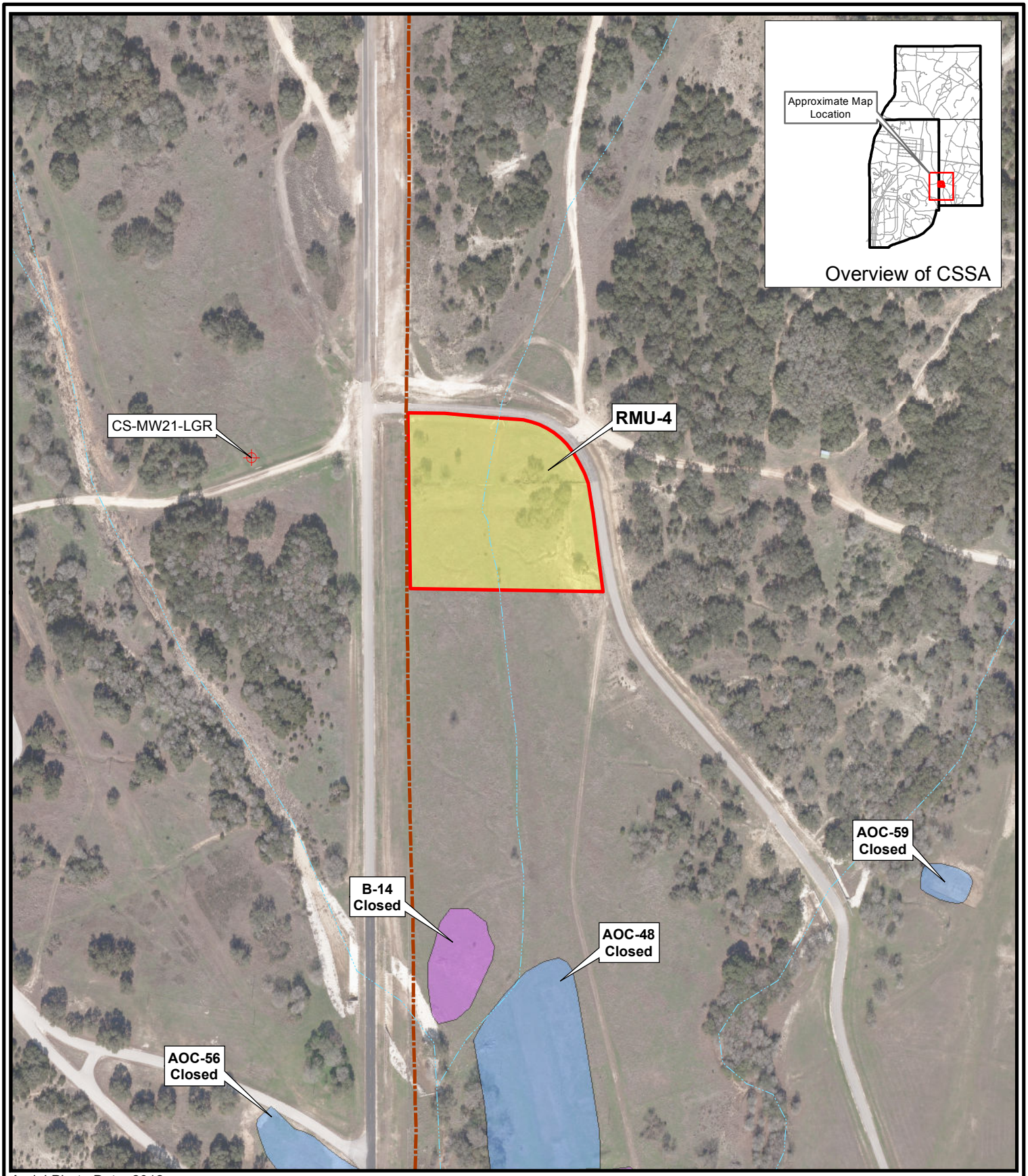

Aerial Photo Date: 2012

N
W E
S

300 150 0 300 Feet

Well Location
RMU-4 Site Boundary
AOC Boundary
SWMU Boundary
RMU Boundary
Stream
East Pasture Boundary

Figure 2

RMU-4
Site Location Map
Camp Stanley Storage Activity

PARSONS

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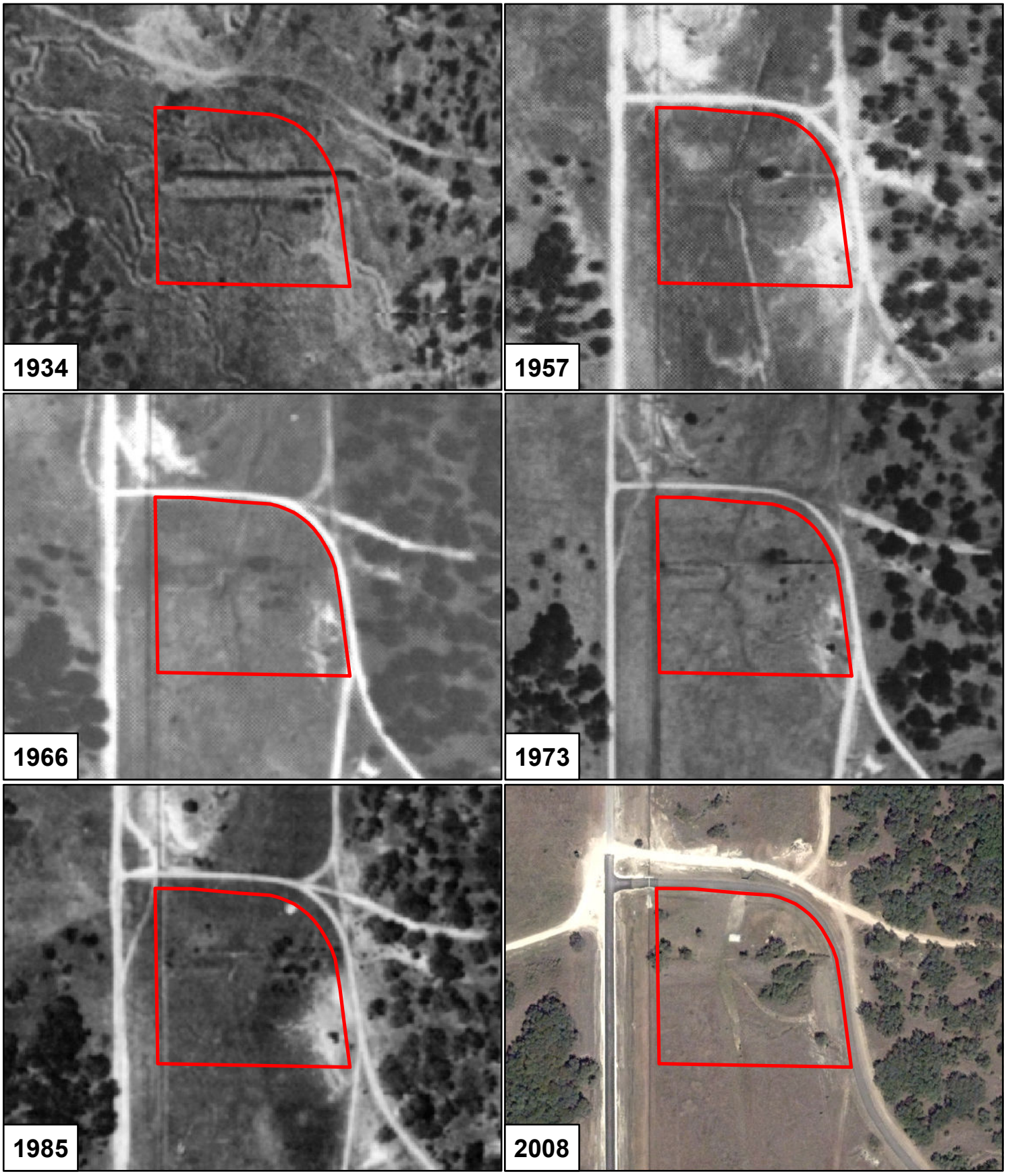

Figure 3

RMU-4
Historical Aerial Photographs
Camp Stanley Storage Activity

PARSONS

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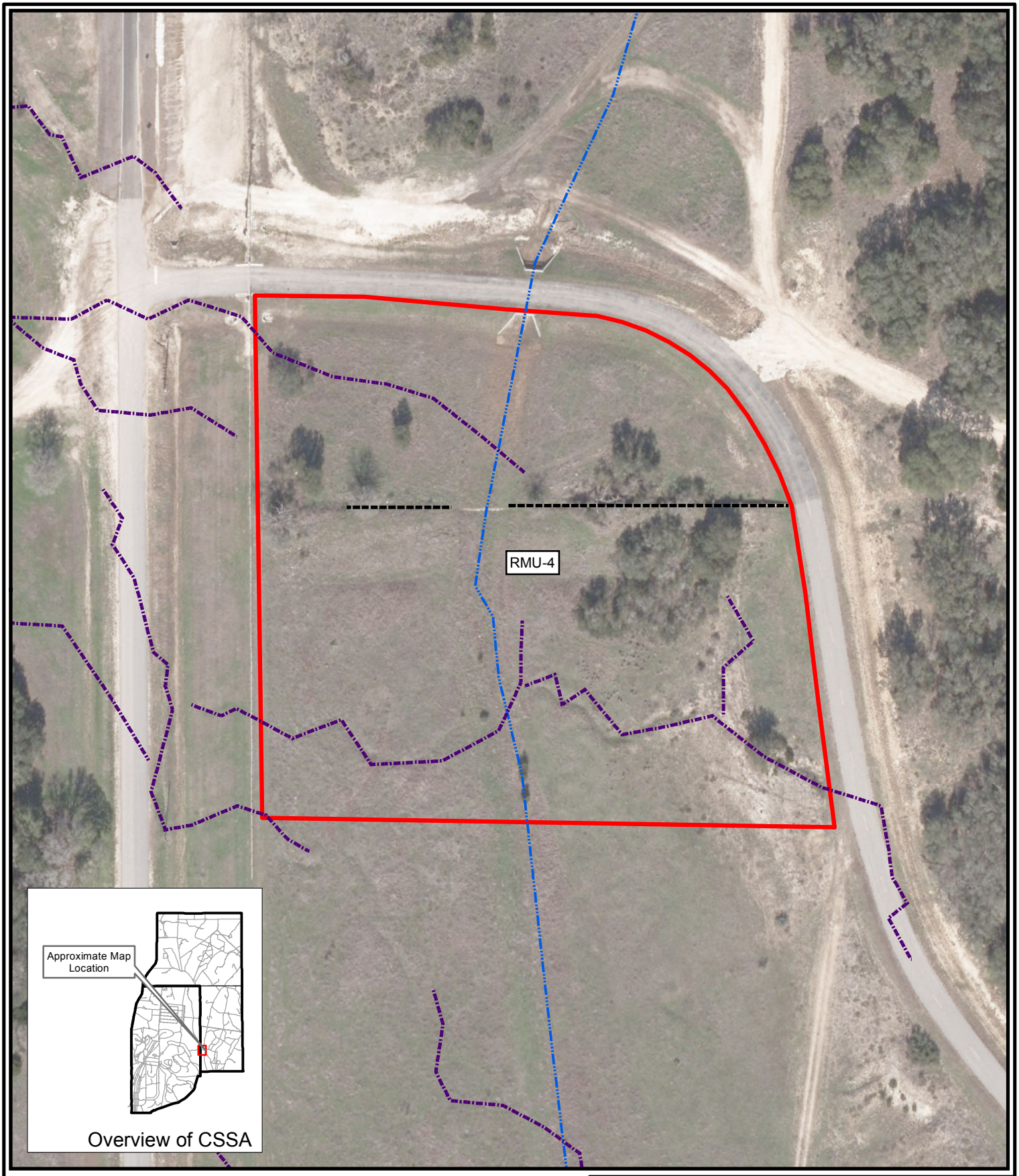

Aerial Photo Date: 2012

N
W E
S

0 50 100 200 Feet

RMU-4 Site Boundary
Intermittent Stream
Approximate Location of Concrete Abutment
Zig-Zag Trenches

Figure 4

RMU-4 Features of Interest

Camp Stanley Storage Activity

PARSONS

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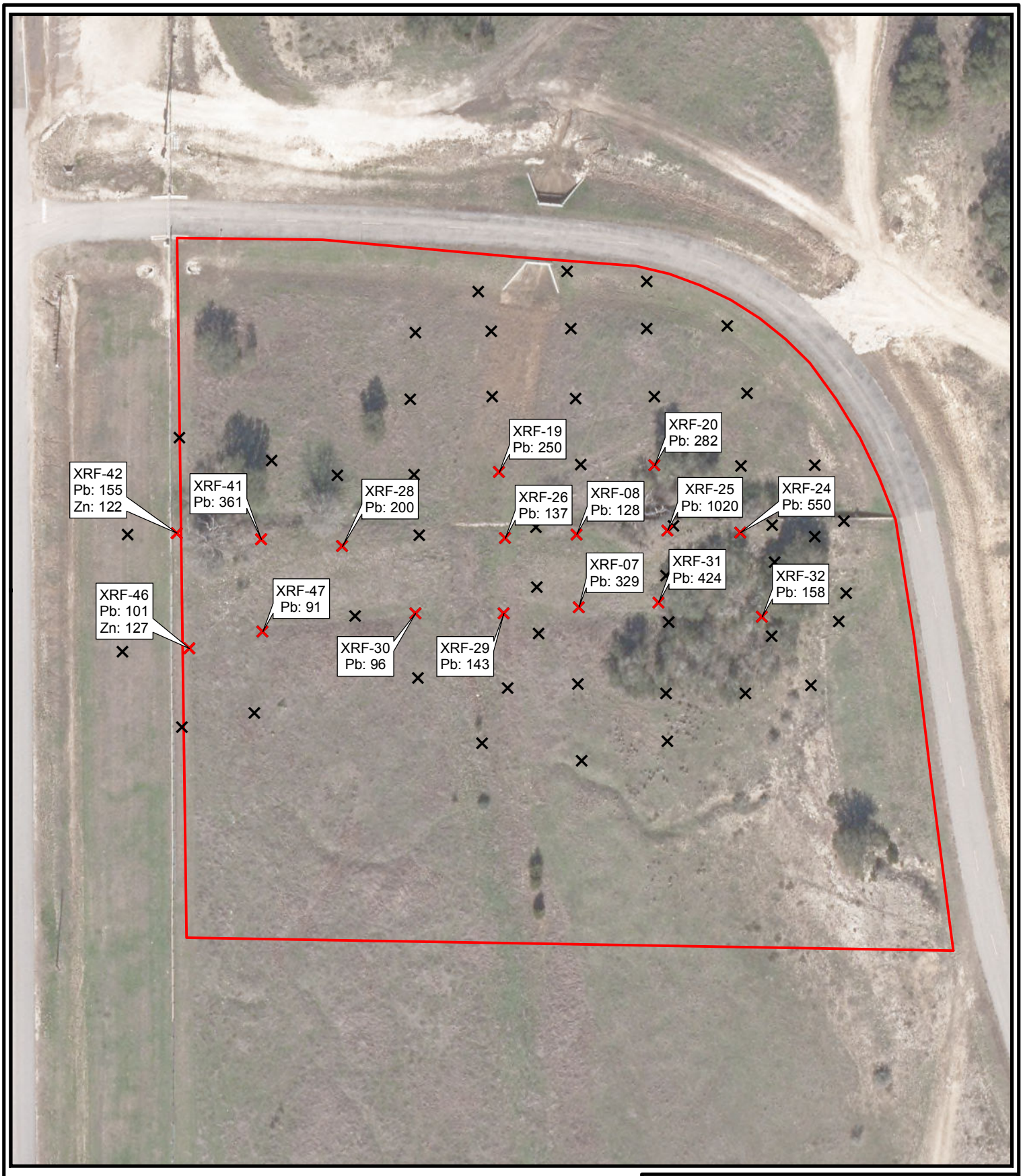

Aerial Photo Date: 2012

N
W E
S

75 37.5 0 75 Feet

RMU-4 Boundary

XRF Sample Locations

XRF Results above Tier 1 PCL

Figure 5

RMU-4
XRF Sampling Results
Camp Stanley Storage Activity

PARSONS

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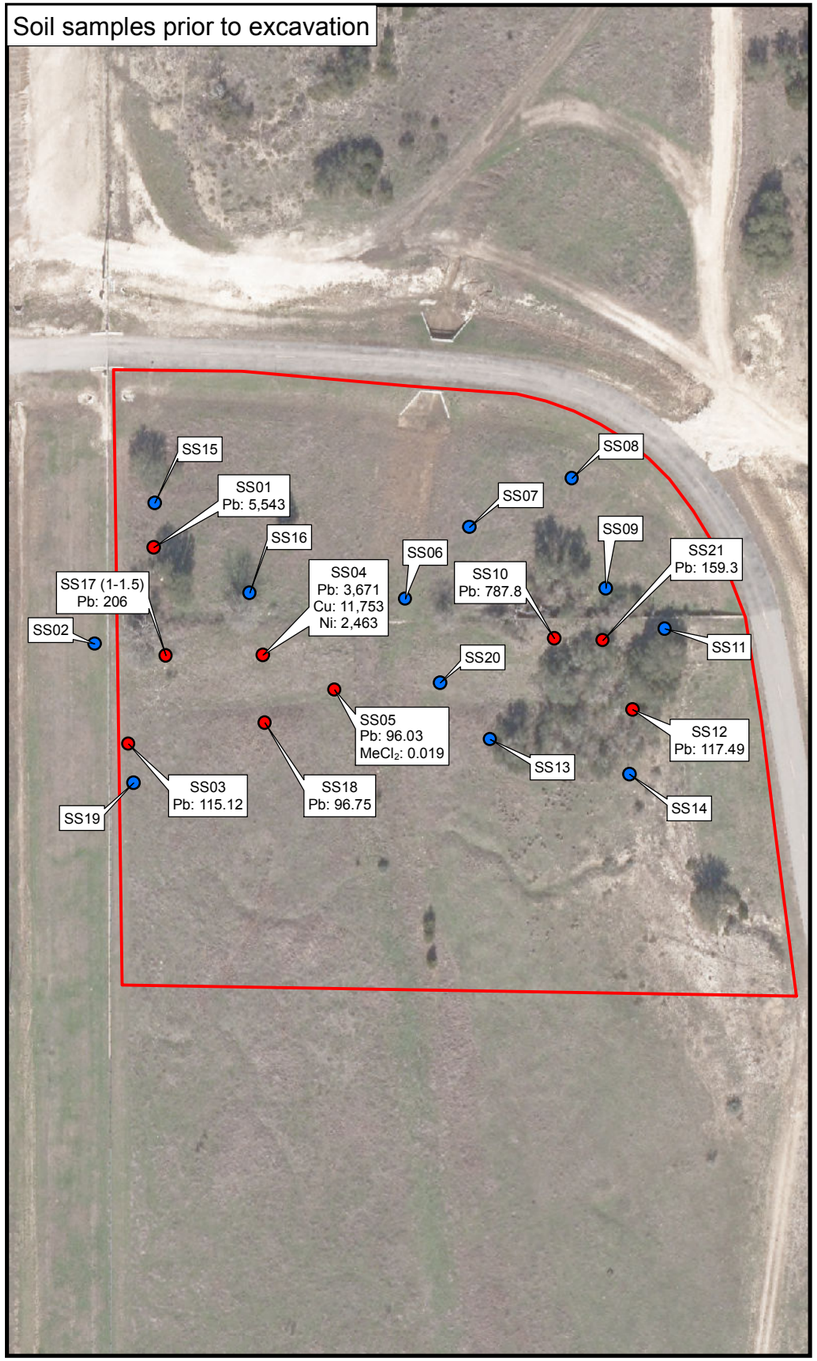
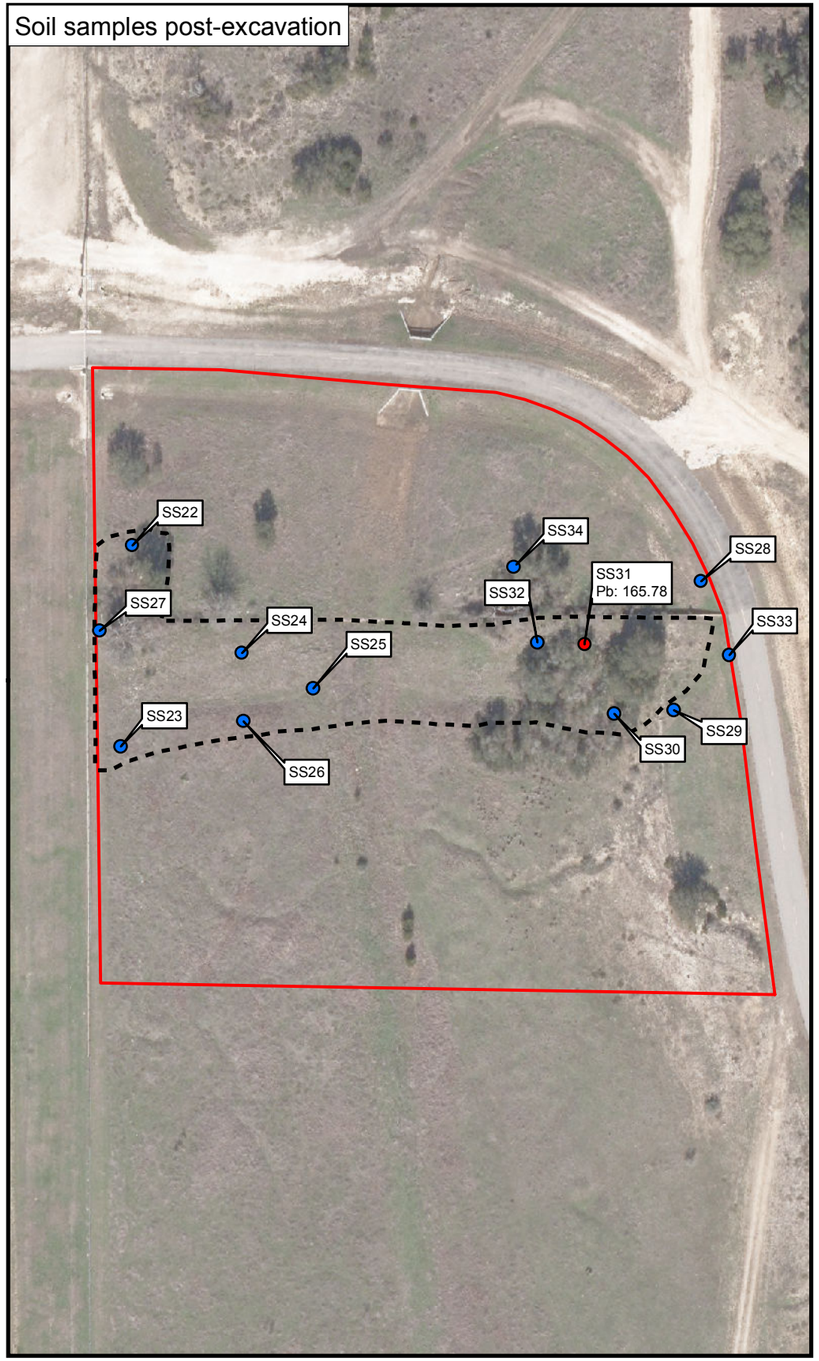
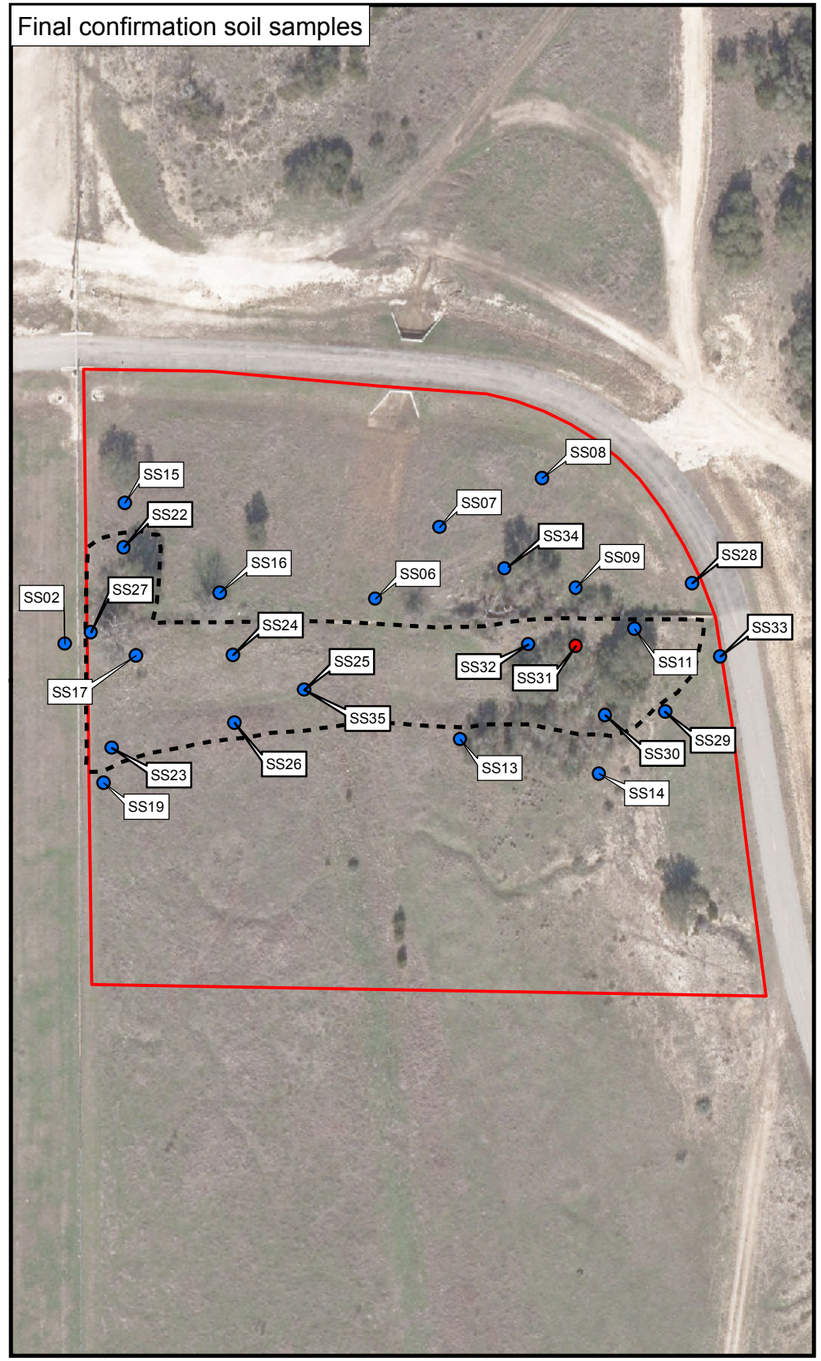
Soil samples prior to excavation



Soil samples post-excavation



Final confirmation soil samples



Aerial Photo Date: 2012

N
W E
S

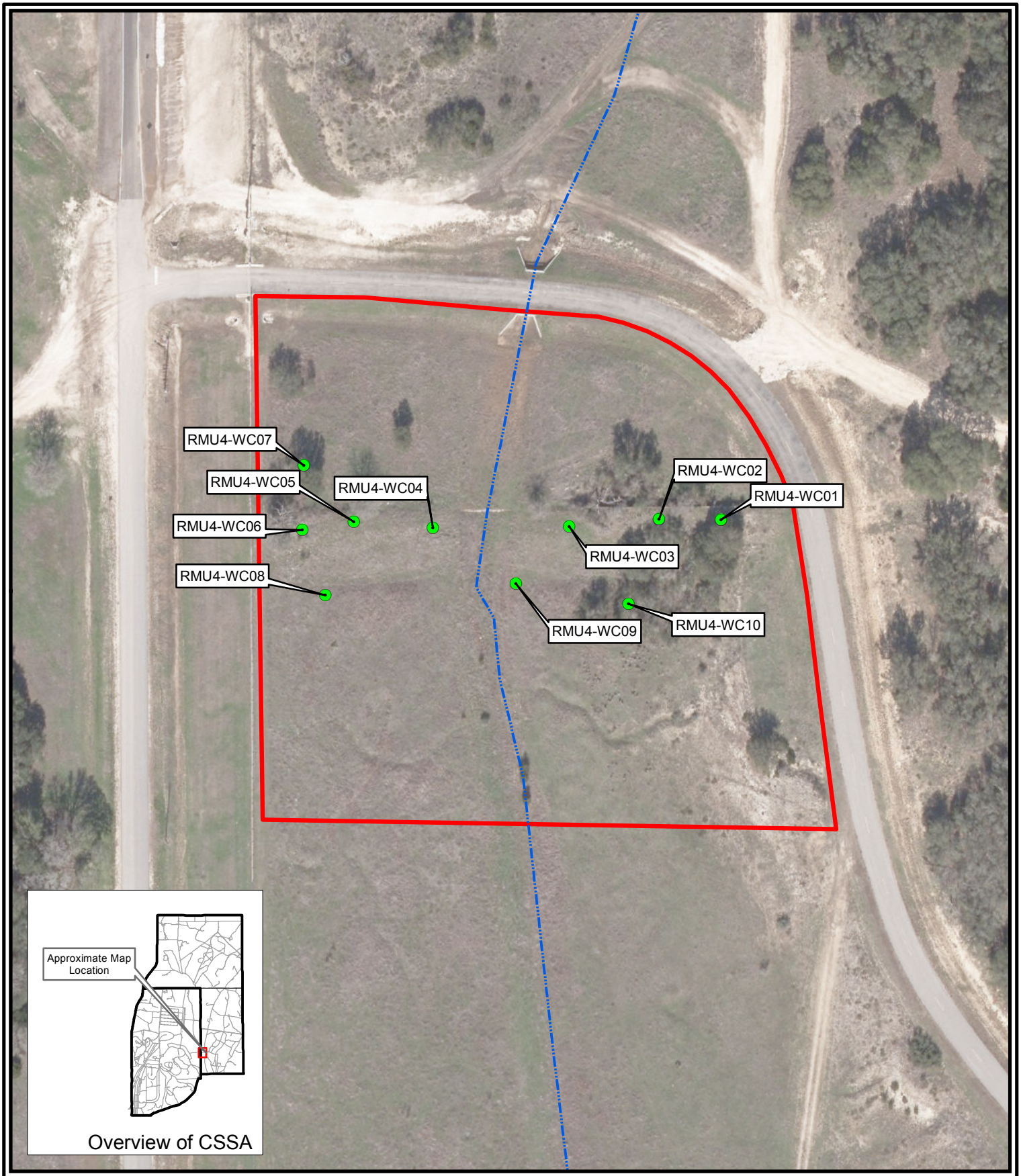
100 0 100 Feet

- Soil Sample
- Soil Sample with result above PCL in (mg/kg)
- Excavation Extent
- RMU-4 Boundary

Figure 6

RMU-4
Sample and Excavation Locations
Camp Stanley Storage Activity

PARSONS



Aerial Photo Date: 2012

N
W E
S

Waste Characterization Sample
RMU-4 Site Boundary
Intermittent Stream

0 50 100 200 Feet

Figure 7

RMU-4 Waste Characterization Sample Locations
Camp Stanley Storage Activity

PARSONS

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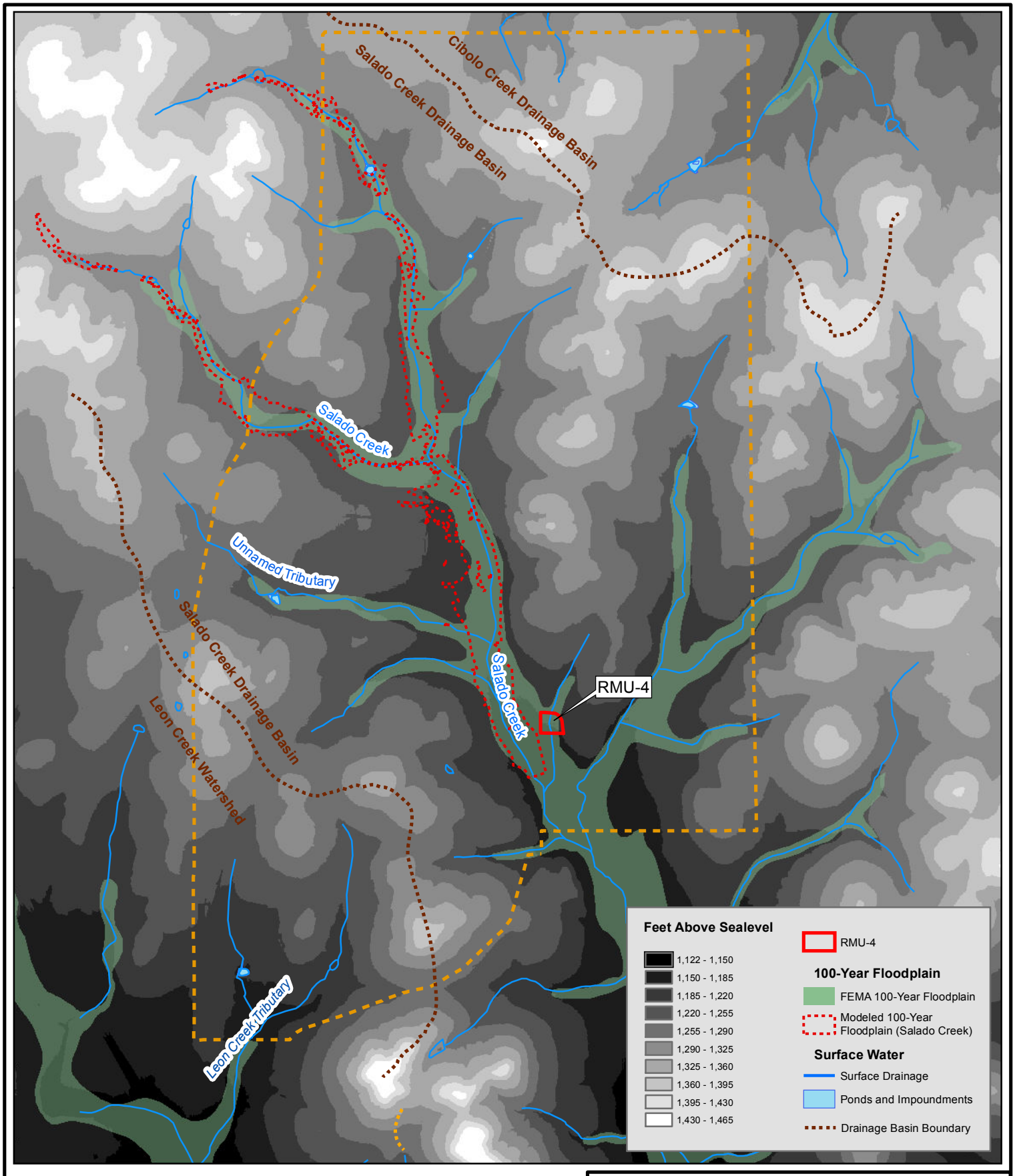

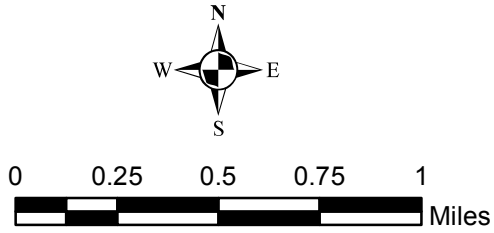

Figure 8

RMU-4 Topography, Surface Water, and Floodplains Camp Stanley Storage Activity

PARSONS

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APPENDIX A

Site Photographs

Photo 1. Clearing trees and brush.

Photo 2. Excavation process, looking west.

Photo 3. Stokes mortar.

Photo 4. Restored site, looking north.

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:

Range Management Unit 4 (RMU-4) is a 3.7-acre site located in the western portion of the Camp Stanley Storage Activity (CSSA) East Pasture, approximately 630 yards east of the southern CSSA boundary (see Figure 2 of the RIR).

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)

Definitions[1]

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

[1]These 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 Solid Waste Management Units (SWMUs), Areas of Concern (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.

RMU-4: RMU-4 is a 3.7-acre site located in the western portion of CSSA's East Pasture (see Figure 2 of the RIR).

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 RMU-4.

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

Known/Suspected COC Location	Based on sampling data?	
☐ **NO** – Soil ≤ 5 ft below ground surface	☐ Yes	☐ √No
☐ **NO** – Soil >5 ft below ground surface	☐ Yes	☐ √No
☐ **NO** – Groundwater	☐ Yes	☐ √No
☐ **NO** – Surface Water/Sediments	☐ Yes	☐ √No

Explain (previously submitted information may be referenced):

The three closest wells to the site include CS-MW21-LGR (625 ft to the west), CS-MW17-LGR (1,750 ft to the northeast), and CS-MW20-LGR (2,450 ft to the NW). Water levels in CS-MW21-LGR between October 1992 and March 2013 have ranged from 12.8 ft below top of casing (BTOC) (September 2007) to 251.4 ft BTOC (September 2012). Sporadic trace concentrations of metals (i.e., below their respective reporting limits) detected in CS-MW21-LGR since 2007 are likely related to rainfall events.

The closest surface water body to RMU-4 is Salado Creek approximately 240 ft west of the site (Figure 8). The north-south trending creek exits the CSSA boundary approximately 7,854 ft south-southeast of the site. No significant degradation of high quality receiving waters is anticipated from RMU-4.

There are no explosives at the site that exceed their respective PCL (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 RMU-4.

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, **Salado Creek**, is **approximately 1,200 feet southeast (downgradient) from** the affected property **(RMU-4).** 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 # __**1910**_____ Use Classification:

☐ No

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

Name:

Salado Creek Drainage Basin

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. 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 RMU-4.

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 RMU-4. Since soils that were found to have concentrations of metals above their PCLs were removed, there will be no impact to groundwater, surface water, or sediment from RMU-4.

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:

RMU-4 is an approximately 3.7-acre site located in the located in the western portion of CSSA's East Pasture, approximately 630 yards east of the CSSA boundary. Figure 2 of the RIR shows the location of RMU-4 and the surrounding area.

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 ☐ No

Explain:

Soils at the site found to have metals concentrations above their critical PCLs were 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 critical PCL.

There is no evidence of other affected or threatened environmental media (groundwater, surface water, or sediment) at RMU-4. Since soils found to have concentrations of COCs above their critical PCLs were excavated and removed or used to calculate a 95% UCL, there will be no impact to groundwater, surface water, or sediment in the area.

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 Minimus* 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)*

October 1, 2013 *(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)

October 1, 2013 *(Date Signed)*

APPENDIX C

Confirmation Sample Results for All Analytes at RMU-4

Appendix C. Summary of Chemical Constituents Remaining in Soils at RMU-4 - All Results

	Volatile Organics																																			
	1,1,1,2-Tetrachloroethane CAS: 630-20-6	Qualifier	Dilution	1,1,1-Trichloroethane CAS: 71-55-6	Qualifier	Dilution	1,1,2,2-Tetrachloroethane CAS: 79-34-5	Qualifier	Dilution	1,1,2-Trichloroethane CAS: 79-00-5	Qualifier	Dilution	1,1-Dichloroethane CAS: 75-34-3	Qualifier	Dilution	1,1-Dichloroethene CAS: 75-35-4	Qualifier	Dilution	1,1-Dichloropropene CAS: 563-58-6	Qualifier	Dilution	1,2,3-Trichlorobenzene CAS: 87-61-6	Qualifier	Dilution	1,2,3-Trichloropropane CAS: 96-18-4	Qualifier	Dilution	1,2,4-Trichlorobenzene CAS: 120-82-1	Qualifier	Dilution	1,2,4-Trimethylbenzene CAS: 95-63-6	Qualifier	Dilution	1,2-Dibromo-3-chloropropane CAS: 96-12-8	Qualifier	Dilution
Tier 1 Soil PCLs - 30 acre[†]																																				
Residential Combined Exposure[1]	3.90E+01	c		3.20E+04	n		3.00E+01	c		1.00E+01	c		8.80E+03	n		1.60E+03	n		2.60E+01	c		8.70E+01	n		2.00E-01	c		7.00E+01	n		7.90E+01	n		8.00E-02	c	
Residential Groundwater Exposure[2],[3]	**7.10E-01**	c		**8.10E-01**	m		**1.20E-02**	c		**1.00E-02**	m		**9.20E+00**	n		**2.50E-02**	m		**6.70E-02**	c		**1.30E+01**	n		**2.70E-04**	c		**2.40E+00**	m		**2.40E+01**	n		**8.70E-04**	m	
TCEQ-Approved Background Values																																				
CSSA 9 Metals Background Concentration[3]	na			na			na			na			na			na			na			na			na			na			na			na		
Sample Locations (Date Collected)/(Depth Interval)																																				
RMU4-SS01 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS02 (23-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS03 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS04 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS05 (23-Jun-2011)/(0-0) **Excavated**	0.00080	M	1	0.00090	U	1	0.00090	M	1	0.00090	M	1	0.0010	U	1	0.0011	U	1	0.0012	M	1	0.0010	M	1	0.0010	M	1	0.0010	M	1	0.0011	M	1	0.0020	M	1
RMU4-SS06 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS06-DUP (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS07 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS08 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS09 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS10 (27-Jun-2011)/(0-0) **Excavated**	0.00080	U	1	0.00090	U	1	0.00090	U	1	0.00090	U	1	0.0010	U	1	0.0011	U	1	0.0012	U	1	0.0010	U	1	0.0010	U	1	0.0010	U	1	0.0011	U	1	0.0020	U	1
RMU4-SS10-DUP (27-Jun-2011)/(0-0) **Excavated**	0.00080	U	1	0.00090	U	1	0.00090	U	1	0.00090	U	1	0.0010	U	1	0.0011	U	1	0.0012	U	1	0.0010	U	1	0.0010	U	1	0.0010	U	1	0.0011	U	1	0.0020	U	1
RMU4-SS11 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS12 (27-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS13 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS14 (27-Jun-2011)/(0-0)	0.00080	U	1	0.00090	U	1	0.00090	U	1	0.00090	U	1	0.0010	U	1	0.0011	U	1	0.0012	U	1	0.0010	U	1	0.0010	U	1	0.0010	U	1	0.0011	U	1	0.0020	U	1
RMU4-SS15 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS16 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS18 (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS18-DUP (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS19 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(2-2.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS22 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS23 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS24 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS25 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS26 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS27 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS28 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS29 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS30 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS31 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS31-DUP (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS32 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS33 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS34 (29-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS35 (12-Sep-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		

Appendix C. Summary of Chemical Constituents Remaining in Soils at RMU-4 - All Results

	Volatile Organics																																			
	1,2-Dibromoethane (EDB) CAS: 106-93-4	Qualifier	Dilution	1,2-Dichlorobenzene CAS: 95-50-1	Qualifier	Dilution	1,2-Dichloroethane CAS: 107-06-2	Qualifier	Dilution	1,2-Dichloropropane CAS: 78-87-5	Qualifier	Dilution	1,3,5-Trimethylbenzene (Mesitylene) CAS: 108-67-8	Qualifier	Dilution	1,3-Dichlorobenzene CAS: 541-73-1	Qualifier	Dilution	1,3-Dichloropropane CAS: 142-28-9	Qualifier	Dilution	1,4-Dichlorobenzene CAS: 106-46-7	Qualifier	Dilution	1-Chlorohexane CAS: 544-10-5	Qualifier	Dilution	2,2-Dichloropropane CAS: 594-20-7	Qualifier	Dilution	2-Chlorotoluene CAS: 95-49-8	Qualifier	Dilution	4-Chlorotoluene CAS: 106-43-4	Qualifier	Dilution
Tier 1 Soil PCLs - 30 acre[†]																																				
Residential Combined Exposure[1]	4.30E-01	c		3.90E+02	n		6.40E+00	c		3.10E+01	n		5.90E+01	n		6.20E+01	n		2.60E+01	c		2.50E+02	c		2.30E+03	n		3.10E+01	n		1.10E+03	n		1.60E+03	n	
Residential Groundwater Exposure[2],[3]	**1.00E-04**	m		**8.90E+00**	m		**6.90E-03**	m		**1.10E-02**	m		**2.70E+01**	n		**3.40E+00**	n		**3.20E-02**	c		**1.10E+00**	m		**2.00E+01**	n		**6.00E-02**	c		**4.50E+00**	n		**5.40E+00**	n	
TCEQ-Approved Background Values																																				
CSSA 9 Metals Background Concentration[3]	na			na			na			na			na			na			na			na			na			na			na			na		
Sample Locations (Date Collected)/(Depth Interval)																																				
RMU4-SS01 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS02 (23-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS03 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS04 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS05 (23-Jun-2011)/(0-0) **Excavated**	0.0013	M	1	0.0010	M	1	0.0010	M	1	0.00070	U	1	0.0011	M	1	0.0011	M	1	0.00070	U	1	0.00080	M	1	0.00090	M	1	0.0010	U	1	0.0013	M	1	0.0011	M	1
RMU4-SS06 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS06-DUP (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS07 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS08 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS09 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS10 (27-Jun-2011)/(0-0) **Excavated**	0.0013	U	1	0.0010	U	1	0.0010	U	1	0.00070	U	1	0.0011	U	1	0.0011	U	1	0.00070	U	1	0.00080	U	1	0.00090	U	1	0.0010	U	1	0.0013	U	1	0.0011	U	1
RMU4-SS10-DUP (27-Jun-2011)/(0-0) **Excavated**	0.0013	U	1	0.0010	U	1	0.0010	U	1	0.00070	U	1	0.0011	U	1	0.0011	U	1	0.00070	U	1	0.00080	U	1	0.00090	U	1	0.0010	U	1	0.0013	U	1	0.0011	U	1
RMU4-SS11 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS12 (27-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS13 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS14 (27-Jun-2011)/(0-0)	0.0013	U	1	0.0010	U	1	0.0010	U	1	0.00070	U	1	0.0011	U	1	0.0011	U	1	0.00070	U	1	0.00080	U	1	0.00090	U	1	0.0010	U	1	0.0013	U	1	0.0011	U	1
RMU4-SS15 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS16 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS18 (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS18-DUP (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS19 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(2-2.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS22 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS23 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS24 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS25 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS26 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS27 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS28 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS29 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS30 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS31 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS31-DUP (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS32 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS33 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS34 (29-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS35 (12-Sep-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		

Appendix C. Summary of Chemical Constituents Remaining in Soils at RMU-4 - All Results

	Volatile Organics																																			
	Benzene CAS: 71-43-2	Qualifier	Dilution	Bromobenzene CAS: 108-86-1	Qualifier	Dilution	Bromochloromethane CAS: 74-97-5	Qualifier	Dilution	Bromodichloromethane CAS: 75-27-4	Qualifier	Dilution	Bromoform CAS: 75-25-2	Qualifier	Dilution	Bromomethane CAS: 74-83-9	Qualifier	Dilution	Carbon tetrachloride CAS: 56-23-5	Qualifier	Dilution	Chlorobenzene CAS: 108-90-7	Qualifier	Dilution	Chloroethane CAS: 75-00-3	Qualifier	Dilution	Chloroform CAS: 67-66-3	Qualifier	Dilution	Chloromethane CAS: 74-87-3	Qualifier	Dilution	cis-1,2-Dichloroethene CAS: 156-59-2	Qualifier	Dilution
Tier 1 Soil PCLs - 30 acre[†]																																				
Residential Combined Exposure[1]	6.90E+01	c		2.80E+02	n		3.30E+03	n		9.80E+01	c		2.80E+02	c		2.90E+01	n		2.30E+01	c		3.20E+02	n		2.30E+04	n		8.00E+00	c		8.40E+01	c		1.20E+02	n	
Residential Groundwater Exposure[2],[3]	**1.30E-02**	m		**1.20E+00**	n		**1.50E+00**	n		**3.30E-02**	c		**3.20E-01**	c		**6.50E-02**	n		**3.10E-02**	m		**5.50E-01**	m		**1.50E+01**	n		**5.10E-01**	n		**2.00E-01**	c		**1.20E-01**	m	
TCEQ-Approved Background Values																																				
CSSA 9 Metals Background Concentration[3]	na			na			na			na			na			na			na			na			na			na			na			na		
Sample Locations (Date Collected)/(Depth Interval)																																				
RMU4-SS01 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS02 (23-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS03 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS04 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS05 (23-Jun-2011)/(0-0) **Excavated**	0.00090	M	1	0.00090	M	1	0.00080	U	1	0.00090	M	1	0.0011	M	1	0.00070	M	1	0.0010	M	1	0.00070	M	1	0.0015	U	1	0.00070	U	1	0.0015	M	1	0.00080	U	1
RMU4-SS06 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS06-DUP (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS07 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS08 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS09 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS10 (27-Jun-2011)/(0-0) **Excavated**	0.00090	U	1	0.00090	U	1	0.00080	U	1	0.00090	U	1	0.0011	U	1	0.00070	U	1	0.0010	U	1	0.00070	U	1	0.0015	U	1	0.00070	U	1	0.0015	U	1	0.00080	U	1
RMU4-SS10-DUP (27-Jun-2011)/(0-0) **Excavated**	0.00090	U	1	0.00090	U	1	0.00080	U	1	0.00090	U	1	0.0011	U	1	0.00070	U	1	0.0010	U	1	0.00070	U	1	0.0015	U	1	0.00070	U	1	0.0015	U	1	0.00080	U	1
RMU4-SS11 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS12 (27-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS13 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS14 (27-Jun-2011)/(0-0)	0.00090	U	1	0.00090	U	1	0.00080	U	1	0.00090	U	1	0.0011	U	1	0.00070	U	1	0.0010	U	1	0.00070	U	1	0.0015	U	1	0.00070	U	1	0.0015	U	1	0.00080	U	1
RMU4-SS15 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS16 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS18 (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS18-DUP (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS19 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(2-2.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS22 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS23 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS24 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS25 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS26 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS27 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS28 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS29 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS30 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS31 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS31-DUP (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS32 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS33 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS34 (29-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS35 (12-Sep-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		

Appendix C. Summary of Chemical Constituents Remaining in Soils at RMU-4 - All Results

	Volatile Organics																																			
	cis-1,3-Dichloropropene CAS: 10061-01-5	Qualifier	Dilution	Dibromochloromethane CAS: 124-48-1	Qualifier	Dilution	Dibromomethane CAS: 74-95-3	Qualifier	Dilution	Dichlorodifluoromethane CAS: 75-71-8	Qualifier	Dilution	Ethylbenzene CAS: 100-41-4	Qualifier	Dilution	Hexachlorobutadiene CAS: 87-68-3	Qualifier	Dilution	Isopropylbenzene CAS: 98-82-8	Qualifier	Dilution	m,p-Xylene CAS: 179601-23-1	Qualifier	Dilution	Methylene chloride CAS: 75-09-2	Qualifier	Dilution	Naphthalene CAS: 91-20-3	Qualifier	Dilution	n-Butylbenzene CAS: 104-51-8	Qualifier	Dilution	n-Propylbenzene CAS: 103-65-1	Qualifier	Dilution
Tier 1 Soil PCLs - 30 acre†																																				
Residential Combined Exposure[1]	7.80E+00	n		7.20E+01	c		4.20E+01	n		7.50E+02	n		5.30E+03	n		1.20E+01	c		3.00E+03	n		4.70E+03	n		4.70E+02	n		1.20E+02	n		3.30E+03	n		1.60E+03	n	
Residential Groundwater Exposure[2],[3]	**3.30E-03**	c		**2.50E-02**	c		**5.60E-01**	c		**1.20E+02**	n		**3.80E+00**	m		**1.60E+00**	c		**1.70E+02**	n		**5.30E+01**	m		**6.50E-03**	m		**1.60E+01**	n		**7.60E+01**	n		**2.20E+01**	n	
TCEQ-Approved Background Values																																				
CSSA 9 Metals Background Concentration[3]	na			na			na			na			na			na			na			na			na			na			na			na		
Sample Locations (Date Collected)/(Depth Interval)																																				
RMU4-SS01 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS02 (23-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS03 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS04 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS05 (23-Jun-2011)/(0-0) **Excavated**	0.00090	M	1	0.00090	M	1	0.0010	U	1	0.0018	U	1	0.0010	M	1	0.0011	M	1	0.0010	M	1	0.0018	M	1	**0.019**	M	1	0.0010	M	1	0.0010	M	1	0.0012	M	1
RMU4-SS06 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS06-DUP (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS07 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS08 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS09 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS10 (27-Jun-2011)/(0-0) **Excavated**	0.00090	U	1	0.00090	U	1	0.0010	U	1	0.0018	U	1	0.0010	U	1	0.0011	U	1	0.0010	U	1	0.0018	U	1	0.0013	U	1	0.0010	U	1	0.0010	U	1	0.0012	U	1
RMU4-SS10-DUP (27-Jun-2011)/(0-0) **Excavated**	0.00090	U	1	0.00090	U	1	0.0010	U	1	0.0018	U	1	0.0010	U	1	0.0011	U	1	0.0010	U	1	0.0018	U	1	0.0013	U	1	0.0010	U	1	0.0010	U	1	0.0012	U	1
RMU4-SS11 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS12 (27-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS13 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS14 (27-Jun-2011)/(0-0)	0.00090	U	1	0.00090	U	1	0.0010	U	1	0.0018	U	1	0.0010	U	1	0.0011	U	1	0.0010	U	1	0.0018	U	1	0.0013	U	1	0.0010	U	1	0.0010	U	1	0.0012	U	1
RMU4-SS15 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS16 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS18 (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS18-DUP (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS19 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(2-2.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS22 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS23 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS24 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS25 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS26 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS27 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS28 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS29 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS30 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS31 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS31-DUP (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS32 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS33 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS34 (29-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS35 (12-Sep-2013)/(0-0)	--			--			--			--			--			--			--			--			0.0022	F	1	--			--			--		

Appendix C. Summary of Chemical Constituents Remaining in Soils at RMU-4 - All Results

	Volatile Organics																																			
	o-Xylene CAS: 95-47-6	Qualifier	Dilution	p-Cymene (p-Isopropyltoluene) CAS: 99-87-6	Qualifier	Dilution	sec-Butylbenzene CAS: 135-98-8	Qualifier	Dilution	Styrene CAS: 100-42-5	Qualifier	Dilution	tert-Butylbenzene CAS: 98-06-6	Qualifier	Dilution	Tetrachloroethene (PCE) CAS: 127-18-4	Qualifier	Dilution	Toluene CAS: 108-88-3	Qualifier	Dilution	trans-1,2-Dichloroethene CAS: 156-60-5	Qualifier	Dilution	trans-1,3-Dichloropropene CAS: 10061-02-6	Qualifier	Dilution	Trichloroethene (TCE) CAS: 79-01-6	Qualifier	Dilution	Trichlorofluoromethane CAS: 75-69-4	Qualifier	Dilution	Vinyl chloride CAS: 75-01-4	Qualifier	Dilution
Tier 1 Soil PCLs - 30 acre[†]																																				
Residential Combined Exposure[1]	2.90E+04	n		8.20E+03	n		3.30E+03	n		4.30E+03	n		3.30E+03	n		4.20E+02	c		5.40E+03	n		3.70E+02	n		2.60E+01	c		1.10E+01	n		2.50E+04	n		3.40E+00	c	
Residential Groundwater Exposure[2],[3]	**3.50E+01**	m		**1.20E+02**	n		**4.20E+01**	n		**1.60E+00**	m		**5.00E+01**	n		**2.50E-02**	m		**4.10E+00**	m		**2.50E-01**	m		**1.80E-02**	c		**1.70E-02**	m		**6.40E+01**	n		**1.10E-02**	m	
TCEQ-Approved Background Values																																				
CSSA 9 Metals Background Concentration[3]	na			na			na			na			na			na			na			na			na			na			na			na		
Sample Locations (Date Collected)/(Depth Interval)																																				
RMU4-SS01 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS02 (23-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS03 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS04 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS05 (23-Jun-2011)/(0-0) **Excavated**	0.00070	M	1	0.0012	M	1	0.0011	M	1	0.00090	M	1	0.0012	M	1	0.00080	M	1	0.0010	M	1	0.00080	M	1	0.00090	M	1	0.0012	M	1	0.0013	U	1	0.0013	U	1
RMU4-SS06 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS06-DUP (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS07 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS08 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS09 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS10 (27-Jun-2011)/(0-0) **Excavated**	0.00070	U	1	0.0012	U	1	0.0011	U	1	0.00090	U	1	0.0012	U	1	0.00080	U	1	0.0010	U	1	0.00080	U	1	0.00090	U	1	0.0012	U	1	0.0013	U	1	0.0013	U	1
RMU4-SS10-DUP (27-Jun-2011)/(0-0) **Excavated**	0.00070	U	1	0.0012	U	1	0.0011	U	1	0.00090	U	1	0.0012	U	1	0.00080	U	1	0.0010	U	1	0.00080	U	1	0.00090	U	1	0.0012	U	1	0.0013	U	1	0.0013	U	1
RMU4-SS11 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS12 (27-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS13 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS14 (27-Jun-2011)/(0-0)	0.00070	U	1	0.0012	U	1	0.0011	U	1	0.00090	U	1	0.0012	U	1	0.00080	U	1	0.0010	U	1	0.00080	U	1	0.00090	U	1	0.0012	U	1	0.0013	U	1	0.0013	U	1
RMU4-SS15 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS16 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS18 (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS18-DUP (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS19 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(2-2.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS22 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS23 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS24 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS25 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS26 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS27 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS28 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS29 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS30 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS31 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS31-DUP (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS32 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS33 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS34 (29-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS35 (12-Sep-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		

Appendix C. Summary of Chemical Constituents Remaining in Soils at RMU-4 - All Results

Semi-volatile Organics

	1,2,4-Trichlorobenzene CAS: 120-82-1	Qualifier	Dilution	1,2-Dichlorobenzene CAS: 95-50-1	Qualifier	Dilution	1,3-Dichlorobenzene CAS: 541-73-1	Qualifier	Dilution	1,4-Dichlorobenzene CAS: 106-46-7	Qualifier	Dilution	2,4,5-Trichlorophenol CAS: 95-95-4	Qualifier	Dilution	2,4,6-Trichlorophenol CAS: 88-06-2	Qualifier	Dilution	2,4-Dichlorophenol CAS: 120-83-2	Qualifier	Dilution	2,4-Dimethylphenol CAS: 105-67-9	Qualifier	Dilution	2,4-Dinitrophenol CAS: 51-28-5	Qualifier	Dilution	2,4-Dinitrotoluene CAS: 121-14-2	Qualifier	Dilution	2,6-Dinitrotoluene CAS: 606-20-2	Qualifier	Dilution	2-Chloronaphthalene CAS: 91-58-7	Qualifier	Dilution
Tier 1 Soil PCLs - 30 acre[†]																																				
Residential Combined Exposure[1]	7.00E+01	n		3.90E+02	n		6.20E+01	n		2.50E+02	c		6.70E+03	n		6.70E+01	n		2.00E+02	n		1.30E+03	n		1.30E+02	n		6.90E+00	c		6.90E+00	c		5.00E+03	n	
Residential Groundwater Exposure[2],[3]	**2.40E+00**	m		**8.90E+00**	m		**3.40E+00**	n		**1.10E+00**	m		**1.70E+01**	n		**8.70E-02**	n		**1.80E-01**	n		**1.60E+00**	n		**4.70E-02**	n		**2.70E-03**	c		**2.40E-03**	c		**3.30E+02**	n	
TCEQ-Approved Background Values																																				
CSSA 9 Metals Background Concentration[3]	na			na			na			na			na			na			na			na			na			na			na			na		
Sample Locations (Date Collected)/(Depth Interval)																																				
RMU4-SS01 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS02 (23-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS03 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS04 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS05 (23-Jun-2011)/(0-0) **Excavated**	0.040	U	1	0.030	U	1	0.040	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.080	U	1	0.030	U	1	0.050	U	1	0.040	U	1	0.040	U	1
RMU4-SS06 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS06-DUP (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS07 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS08 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS09 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS10 (27-Jun-2011)/(0-0) **Excavated**	0.040	U	1	0.030	U	1	0.040	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.080	U	1	0.030	U	1	0.050	U	1	0.040	U	1	0.040	U	1
RMU4-SS10-DUP (27-Jun-2011)/(0-0) **Excavated**	0.040	U	1	0.030	U	1	0.040	U	1	0.030	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.080	U	1	0.030	U	1	0.050	U	1	0.040	U	1	0.040	U	1
RMU4-SS11 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS12 (27-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS13 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS14 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS15 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS16 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS18 (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS18-DUP (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS19 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(2-2.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS22 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS23 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS24 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS25 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS26 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS27 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS28 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS29 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS30 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS31 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS31-DUP (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS32 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS33 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS34 (29-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS35 (12-Sep-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		

Appendix C. Summary of Chemical Constituents Remaining in Soils at RMU-4 - All Results

	Semi-volatile Organics																																			
	2-Chlorophenol CAS: 95-57-8	Qualifier	Dilution	2-Methyl-4,6-dinitrophenol CAS: 534-52-1	Qualifier	Dilution	2-Methylnaphthalene CAS: 91-57-6	Qualifier	Dilution	2-Methylphenol CAS: 95-48-7	Qualifier	Dilution	2-Nitroaniline CAS: 88-74-4	Qualifier	Dilution	2-Nitrophenol CAS: 88-75-5	Qualifier	Dilution	3,3'-Dichlorobenzidine CAS: 91-94-1	Qualifier	Dilution	3-Nitroaniline CAS: 99-09-2	Qualifier	Dilution	4-Bromophenyl phenyl ether CAS: 101-55-3	Qualifier	Dilution	4-Chloro-3-methyl phenol CAS: 59-50-7	Qualifier	Dilution	4-Chloroaniline CAS: 106-47-8	Qualifier	Dilution	4-Chlorophenyl phenyl ether CAS: 7005-72-3	Qualifier	Dilution
Tier 1 Soil PCLs - 30 acre†																																				
Residential Combined Exposure[1]	4.10E+02	n		6.70E+00	n		2.50E+02	n		3.30E+03	n		1.10E+01	n		1.30E+02	n		1.00E+01	c		1.20E+01	n		2.70E-01	c		3.30E+02	n		2.30E+01	c		1.50E-01	c	
Residential Groundwater Exposure[2],[3]	**8.20E-01**	n		**2.30E-03**	n		**8.50E+00**	n		**3.60E+00**	n		**1.10E-02**	n		**6.70E-02**	n		**3.10E-02**	c		**1.30E-02**	n		**1.80E-01**	c		**2.30E+00**	n		**1.00E-02**	c		**1.60E-02**	c	
TCEQ-Approved Background Values																																				
CSSA 9 Metals Background Concentration[3]	na			na			na			na			na			na			na			na			na			na			na			na		
Sample Locations (Date Collected)/(Depth Interval)																																				
RMU4-SS01 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS02 (23-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS03 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS04 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS05 (23-Jun-2011)/(0-0) **Excavated**	0.030	U	1	0.030	U	1	0.050	U	1	0.020	U	1	0.040	U	1	0.040	U	1	0.020	U	1	0.010	U	1	0.050	U	1	0.040	U	1	0.040	U	1	0.040	U	1
RMU4-SS06 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS06-DUP (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS07 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS08 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS09 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS10 (27-Jun-2011)/(0-0) **Excavated**	0.030	U	1	0.030	U	1	0.050	U	1	0.020	U	1	0.040	U	1	0.040	U	1	0.020	U	1	0.010	U	1	0.050	U	1	0.040	U	1	0.040	U	1	0.040	U	1
RMU4-SS10-DUP (27-Jun-2011)/(0-0) **Excavated**	0.030	U	1	0.030	U	1	0.050	U	1	0.020	U	1	0.040	U	1	0.040	U	1	0.020	U	1	0.010	U	1	0.050	U	1	0.040	U	1	0.040	U	1	0.040	U	1
RMU4-SS11 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS12 (27-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS13 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS14 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS15 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS16 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS18 (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS18-DUP (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS19 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(2-2.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS22 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS23 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS24 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS25 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS26 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS27 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS28 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS29 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS30 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS31 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS31-DUP (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS32 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS33 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS34 (29-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS35 (12-Sep-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		

Appendix C. Summary of Chemical Constituents Remaining in Soils at RMU-4 - All Results

	Semi-volatile Organics																																			
	4-Methylphenol (p-cresol) CAS: 106-44-5	Qualifier	Dilution	4-Nitroaniline CAS: 100-01-6	Qualifier	Dilution	4-Nitrophenol CAS: 100-02-7	Qualifier	Dilution	Acenaphthene CAS: 83-32-9	Qualifier	Dilution	Acenaphthylene CAS: 208-96-8	Qualifier	Dilution	Anthracene CAS: 120-12-7	Qualifier	Dilution	Benzo(a)anthracene CAS: 56-55-3	Qualifier	Dilution	Benzo(a)pyrene CAS: 50-32-8	Qualifier	Dilution	Benzo(b)fluoranthene CAS: 205-99-2	Qualifier	Dilution	Benzo(g,h,i)perylene CAS: 191-24-2	Qualifier	Dilution	Benzoic acid CAS: 65-85-0	Qualifier	Dilution	Benzyl alcohol CAS: 100-51-6	Qualifier	Dilution
Tier 1 Soil PCLs - 30 acre†																																				
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	
Residential Groundwater Exposure[2],[3]	**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	
TCEQ-Approved Background Values																																				
CSSA 9 Metals Background Concentration[3]	na			na			na			na			na			na			na			na			na			na			na			na		
Sample Locations (Date Collected)/(Depth Interval)																																				
RMU4-SS01 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS02 (23-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS03 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS04 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS05 (23-Jun-2011)/(0-0) **Excavated**	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	M	1	0.12	U	1
RMU4-SS06 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS06-DUP (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS07 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS08 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS09 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS10 (27-Jun-2011)/(0-0) **Excavated**	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
RMU4-SS10-DUP (27-Jun-2011)/(0-0) **Excavated**	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
RMU4-SS11 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS12 (27-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS13 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS14 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS15 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS16 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS18 (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS18-DUP (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS19 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(2-2.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS22 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS23 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS24 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS25 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS26 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS27 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS28 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS29 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS30 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS31 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS31-DUP (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS32 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS33 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS34 (29-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS35 (12-Sep-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		

Appendix C. Summary of Chemical Constituents Remaining in Soils at RMU-4 - All Results

	Semi-volatile Organics																	
	Benzyl butyl phthalate CAS: 85-68-7	Qualifier	Dilution	bis(2-Chloroethoxy)methane CAS: 111-91-1	Qualifier	Dilution	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
Tier 1 Soil PCLs - 30 acre[†]																		
Residential Combined Exposure[1]	1.60E+03	c		2.50E+00	c		1.40E+00	c		4.10E+01	c		**4.30E+01**	c		**5.60E+02**	c	
Residential Groundwater Exposure[2],[3]	**1.30E+02**	c		**5.90E-03**	c		**1.10E-03**	c		**9.50E-02**	c		8.20E+01	m		7.70E+02	c	>S
TCEQ-Approved Background Values																		
CSSA 9 Metals Background Concentration[3]	na			na			na			na			na			na		
Sample Locations (Date Collected)/(Depth Interval)																		
RMU4-SS01 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--		
RMU4-SS02 (23-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS03 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--		
RMU4-SS04 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--		
RMU4-SS05 (23-Jun-2011)/(0-0) **Excavated**	0.040	U	1	0.060	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1
RMU4-SS06 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS06-DUP (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS07 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS08 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS09 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS10 (27-Jun-2011)/(0-0) **Excavated**	0.040	U	1	0.060	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1
RMU4-SS10-DUP (27-Jun-2011)/(0-0) **Excavated**	0.040	U	1	0.060	U	1	0.040	U	1	0.050	U	1	0.030	U	1	0.040	U	1
RMU4-SS11 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS12 (27-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--		
RMU4-SS13 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS14 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS15 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--		
RMU4-SS16 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--		
RMU4-SS18 (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS18-DUP (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS19 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(2-2.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS22 (27-Mar-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS23 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS24 (27-Mar-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS25 (27-Mar-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS26 (27-Mar-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS27 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS28 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS29 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS30 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS31 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS31-DUP (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS32 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS33 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS34 (29-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS35 (12-Sep-2013)/(0-0)	--			--			--			--			--			--		

	Semi-volatile Organics																	
	Dibenzo(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
Tier 1 Soil PCLs - 30 acre[†]																		
Residential Combined Exposure[1]	**5.50E-01**	c		2.70E+02	n		5.30E+04	n		5.30E+04	n		6.20E+03	n		**2.60E+03**	n	
Residential Groundwater Exposure[2],[3]	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
TCEQ-Approved Background Values																		
CSSA 9 Metals Background Concentration[3]	na			na			na			na			na			na		
Sample Locations (Date Collected)/(Depth Interval)																		
RMU4-SS01 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--		
RMU4-SS02 (23-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS03 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--		
RMU4-SS04 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--		
RMU4-SS05 (23-Jun-2011)/(0-0) **Excavated**	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.030	U	1
RMU4-SS06 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS06-DUP (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS07 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS08 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS09 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS10 (27-Jun-2011)/(0-0) **Excavated**	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.030	U	1
RMU4-SS10-DUP (27-Jun-2011)/(0-0) **Excavated**	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.040	U	1	0.030	U	1
RMU4-SS11 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS12 (27-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--		
RMU4-SS13 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS14 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS15 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--		
RMU4-SS16 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--		
RMU4-SS18 (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS18-DUP (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS19 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(2-2.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS22 (27-Mar-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS23 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS24 (27-Mar-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS25 (27-Mar-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS26 (27-Mar-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS27 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS28 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS29 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS30 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS31 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS31-DUP (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS32 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS33 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS34 (29-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS35 (12-Sep-2013)/(0-0)	--			--			--			--			--			--		

Appendix C. Summary of Chemical Constituents Remaining in Soils at RMU-4 - All Results

Semi-volatile Organics

	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	Hexachlorocyclopentadiene CAS: 77-47-4	Qualifier	Dilution	Hexachloroethane CAS: 67-72-1	Qualifier	Dilution
Tier 1 Soil PCLs - 30 acre[†]																		
Residential Combined Exposure[1]	2.30E+03	n		2.30E+03	n		1.00E+00	c		1.20E+01	c		**7.20E+00**	n		4.60E+01	n	
Residential Groundwater Exposure[2],[3]	**9.60E+02**	n	>S	**1.50E+02**	n		**5.60E-01**	m		**1.60E+00**	c		9.60E+00	m		**6.40E-01**	n	
TCEQ-Approved Background Values																		
CSSA 9 Metals Background Concentration[3]	na			na			na			na			na			na		
Sample Locations (Date Collected)/(Depth Interval)																		
RMU4-SS01 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--		
RMU4-SS02 (23-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS03 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--		
RMU4-SS04 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--		
RMU4-SS05 (23-Jun-2011)/(0-0) **Excavated**	0.040	U	1	0.040	U	1	0.050	U	1	0.060	U	1	0.030	U	1	0.040	U	1
RMU4-SS06 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS06-DUP (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS07 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS08 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS09 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS10 (27-Jun-2011)/(0-0) **Excavated**	0.040	U	1	0.040	U	1	0.050	U	1	0.060	U	1	0.030	U	1	0.040	U	1
RMU4-SS10-DUP (27-Jun-2011)/(0-0) **Excavated**	0.040	U	1	0.040	U	1	0.050	U	1	0.060	U	1	0.030	U	1	0.040	U	1
RMU4-SS11 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS12 (27-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--		
RMU4-SS13 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS14 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS15 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--		
RMU4-SS16 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--		
RMU4-SS18 (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS18-DUP (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS19 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(2-2.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS22 (27-Mar-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS23 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS24 (27-Mar-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS25 (27-Mar-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS26 (27-Mar-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS27 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS28 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS29 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS30 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS31 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS31-DUP (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS32 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS33 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS34 (29-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS35 (12-Sep-2013)/(0-0)	--			--			--			--			--			--		

	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-Nitrosodi-n-propylamine CAS: 621-64-7	Qualifier	Dilution	n-Nitrosodiphenylamine CAS: 86-30-6	Qualifier	Dilution
Tier 1 Soil PCLs - 30 acre[†]																		
Residential Combined Exposure[1]	**5.70E+00**	c		4.90E+03	c		1.20E+02	n		3.40E+01	c		4.00E-01	c		5.70E+02	c	
Residential Groundwater Exposure[2],[3]	8.70E+01	c		**1.50E+00**	c		**1.60E+01**	n		**1.80E-01**	n		**1.80E-04**	c		**1.40E+00**	c	
TCEQ-Approved Background Values																		
CSSA 9 Metals Background Concentration[3]	na			na			na			na			na			na		
Sample Locations (Date Collected)/(Depth Interval)																		
RMU4-SS01 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--		
RMU4-SS02 (23-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS03 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--		
RMU4-SS04 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--		
RMU4-SS05 (23-Jun-2011)/(0-0) **Excavated**	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1
RMU4-SS06 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS06-DUP (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS07 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS08 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS09 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS10 (27-Jun-2011)/(0-0) **Excavated**	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1
RMU4-SS10-DUP (27-Jun-2011)/(0-0) **Excavated**	0.040	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.040	U	1	0.050	U	1
RMU4-SS11 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS12 (27-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--		
RMU4-SS13 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS14 (27-Jun-2011)/(0-0)	--			--			--			--			--			--		
RMU4-SS15 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--		
RMU4-SS16 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--		
RMU4-SS18 (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS18-DUP (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS19 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(2-2.5) **Excavated**	--			--			--			--			--			--		
RMU4-SS22 (27-Mar-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS23 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS24 (27-Mar-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS25 (27-Mar-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS26 (27-Mar-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS27 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS28 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS29 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS30 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS31 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS31-DUP (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS32 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS33 (23-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS34 (29-Apr-2013)/(0-0)	--			--			--			--			--			--		
RMU4-SS35 (12-Sep-2013)/(0-0)	--			--			--			--			--			--		

Appendix C. Summary of Chemical Constituents Remaining in Soils at RMU-4 - All Results

	Semi-volatile Organics												Explosives																							
	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	2,4,6-Trinitrotoluene (TNT) CAS: 118-96-7	Qualifier	Dilution	2,4-Dinitrotoluene CAS: 121-14-2	Qualifier	Dilution	2,6-Dinitrotoluene CAS: 606-20-2	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
Tier 1 Soil PCLs - 30 acre[†]																																				
Residential Combined Exposure[1]	7.30E-01	c		1.70E+03	n		2.00E+04	n		1.70E+03	n		2.00E+03	n		6.70E+00	n		3.30E+01	n		6.90E+00	c		6.90E+00	c		2.10E+01	c		6.70E+02	n		2.70E+02	n	
Residential Groundwater Exposure[2],[3]	**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		**8.60E-02**	n		**2.70E-03**	c		**2.40E-03**	c		**1.60E-02**	c		**9.20E-01**	n		**2.20E-01**	c	
TCEQ-Approved Background Values																																				
CSSA 9 Metals Background Concentration[3]	na			na			na			na			na			na			na			na			na			na			na			na		
Sample Locations (Date Collected)/(Depth Interval)																																				
RMU4-SS01 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS02 (23-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS03 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS04 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS05 (23-Jun-2011)/(0-0) **Excavated**	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1	0.075	U	1	0.080	U	1	0.075	U	1	0.075	U	1	0.080	U	1	0.080	U	1
RMU4-SS06 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS06-DUP (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS07 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS08 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS09 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS10 (27-Jun-2011)/(0-0) **Excavated**	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1	0.075	U	1	0.080	U	1	0.075	U	1	0.075	U	1	0.080	U	1	0.080	U	1
RMU4-SS10-DUP (27-Jun-2011)/(0-0) **Excavated**	0.030	U	1	0.040	U	1	0.040	U	1	0.050	U	1	0.075	U	1	0.075	U	1	0.075	U	1	0.080	U	1	0.075	U	1	0.075	U	1	0.080	U	1	0.080	U	1
RMU4-SS11 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS12 (27-Jun-2011)/(0-0) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS13 (27-Jun-2011)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS14 (27-Jun-2011)/(0-0)	--			--			--			--			0.075	U	1	0.075	U	1	0.075	U	1	0.080	U	1	0.075	U	1	0.075	U	1	0.080	U	1	0.080	U	1
RMU4-SS15 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS16 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS17 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS18 (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			0.075	U	1	0.075	U	1	0.075	U	1	0.080	U	1	0.075	U	1	0.075	U	1	0.080	U	1	0.080	U	1
RMU4-SS18-DUP (05-Jan-2012)/(0-0.5) **Excavated**	--			--			--			--			0.075	U	1	0.075	U	1	0.075	U	1	0.080	U	1	0.075	U	1	0.075	U	1	0.080	U	1	0.080	U	1
RMU4-SS19 (05-Jan-2012)/(0-0.5)	--			--			--			--			0.075	U	1	0.075	U	1	0.075	U	1	0.080	U	1	0.075	U	1	0.075	U	1	0.080	U	1	0.080	U	1
RMU4-SS20 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS20 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS21 (05-Jan-2012)/(2-2.5) **Excavated**	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS22 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS23 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS24 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS25 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS26 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS27 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS28 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS29 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS30 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS31 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS31-DUP (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS32 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS33 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS34 (29-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		
RMU4-SS35 (12-Sep-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--		

Appendix C. Summary of Chemical Constituents Remaining in Soils at RMU-4 - All Results

	Explosives												Inorganics																							
	HMX CAS: 2691-41-0	Qualifier	Dilution	Nitrobenzene CAS: 98-95-3	Qualifier	Dilution	RDX 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	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]	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		5.50E+02	n		5.00E+02	n		2.10E+00	n		8.40E+02	n		9.90E+03	n	
Residential Groundwater Exposure[2],[3]	**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	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]	na			na			na			na			**19.6**	††		**300**	†††		**3**	††		40.2	††		23.2	††		**84.5**	††		**0.77**	††		35.5	††		73.2	††	
Sample Locations (Date Collected)/(Depth Interval)																																				
RMU4-SS01 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			**5.3**	F	1	**57.2**		1	0.030	U	1	**14.7**	F	1	**13.75**		1	**5,543**		###	**0.040**	F	1	**11.69**		1	**37.6**		1
RMU4-SS02 (23-Jun-2011)/(0-0)	--			--			--			--			**5.2**	F	1	**73.4**		1	0.030	U	1	**16.3**	F	1	**16.09**		1	**63.19**		1	**0.080**	F	1	**13.29**		1	**64.1**		1
RMU4-SS03 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			**5.3**	F	1	**90.3**		1	0.030	U	1	**14.7**	F	1	**13.97**		1	**115.12**		1	**0.040**	F	1	**13.07**		1	**61.9**		1
RMU4-SS04 (23-Jun-2011)/(0-0) **Excavated**	--			--			--			--			**4.4**	F	1	**36.6**		1	0.030	U	1	**10.6**	F	1	**11,753**		###	**3,671**		50	**0.060**	F	1	**2,463**		50	**28.0**		1
RMU4-SS05 (23-Jun-2011)/(0-0) **Excavated**	0.080	U	1	0.075	U	1	0.080	U	1	0.075	U	1	**5.8**	M	1	**71.2**	M	1	0.030	M	1	**16.9**	M	1	**17.29**	M	1	**96.03**	M	1	**0.040**	F	1	**14.11**	M	1	**35.7**	M	1
RMU4-SS06 (27-Jun-2011)/(0-0)	--			--			--			--			**3.9**	F	1	**54.0**		1	0.030	UJ	1	**14.1**	F	1	**13.27**		1	**33.52**		1	**0.020**	F	1	**10.51**		1	**19.3**	J	1
RMU4-SS06-DUP (27-Jun-2011)/(0-0)	--			--			--			--			**4.0**	F	1	**51.0**		1	0.030	UJ	1	**11.0**	F	1	**11.21**		1	**29.87**		1	**0.030**	F	1	**8.6**		1	**20.8**	J	1
RMU4-SS07 (27-Jun-2011)/(0-0)	--			--			--			--			**5.2**	F	1	**64.2**		1	0.030	UJ	1	**15.5**	F	1	**15.09**		1	**31.58**		1	**0.030**	F	1	**12.2**		1	**28.7**	J	1
RMU4-SS08 (27-Jun-2011)/(0-0)	--			--			--			--			**4.0**	F	1	**40.1**		1	0.030	UJ	1	**9.6**	F	1	**9.28**		1	**10.71**		1	**0.020**	F	1	**8.02**		1	**19.7**	J	1
RMU4-SS09 (27-Jun-2011)/(0-0)	--			--			--			--			**4.0**	F	1	**43.5**		1	0.030	UJ	1	**12.2**	F	1	**12.17**		1	**16.78**		1	**0.020**	F	1	**9.51**		1	**20.0**	J	1
RMU4-SS10 (27-Jun-2011)/(0-0) **Excavated**	0.080	U	1	0.075	U	1	0.080	U	1	0.075	U	1	**6.2**	F	1	**72.1**		1	0.030	UJ	1	**18.0**	F	1	**57.33**		1	**787.8**	J	1	**0.030**	F	1	**23.96**		1	**29.8**	J	1
RMU4-SS10-DUP (27-Jun-2011)/(0-0) **Excavated**	0.080	U	1	0.075	U	1	0.080	U	1	0.075	U	1	**5.8**	F	1	**65.6**		1	0.030	UJ	1	**17.0**	F	1	**50.7**		1	**9,713**	J	###	**0.030**	F	1	**21.26**		1	**26.6**	J	1
RMU4-SS11 (27-Jun-2011)/(0-0)	--			--			--			--			**2.6**	F	1	**19.7**		1	0.030	UJ	1	**4.7**	F	1	**7.86**		1	**39.04**		1	**0.020**	F	1	**4.2**		1	**17.3**	J	1
RMU4-SS12 (27-Jun-2011)/(0-0) **Excavated**	--			--			--			--			**4.4**	F	1	**50.6**		1	0.030	UJ	1	**14.7**	F	1	**12.83**		1	**117.49**		1	**0.050**	F	1	**11.38**		1	**30.4**	J	1
RMU4-SS13 (27-Jun-2011)/(0-0)	--			--			--			--			**6.7**	F	1	**79.6**		1	**0.140**	F	1	**22.7**		1	**18.12**		1	**47.9**		1	**0.050**	F	1	**17.26**		1	**42.3**	J	1
RMU4-SS14 (27-Jun-2011)/(0-0)	0.080	U	1	0.075	U	1	0.080	U	1	0.075	U	1	**5.7**	F	1	**60.6**		1	**0.070**	F	1	**20.2**		1	**15.21**		1	**34.36**		1	**0.050**	F	1	**14.87**		1	**32.4**	J	1
RMU4-SS15 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			**11.9**	J	1	**21.91**	J	1	--			**15.02**	J	1	--		
RMU4-SS16 (05-Jan-2012)/(0-0.5)	--			--			--			--			--			--			--			--			**15.75**	J	1	**58.82**	J	1	--			**16.25**	J	1	--		
RMU4-SS17 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			**63.33**	J	1	**206**	J	1	--			**22.2**	J	1	--		
RMU4-SS17 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--			--			--			**12.8**	J	1	**63.17**	J	1	--			**18.65**	J	1	--		
RMU4-SS18 (05-Jan-2012)/(0-0.5) **Excavated**	0.080	U	1	0.075	U	1	0.080	U	1	0.075	U	1	--			--			--			--			**8.96**	J	1	**50.64**	M	1	--			**8.58**	J	1	--		
RMU4-SS18-DUP (05-Jan-2012)/(0-0.5) **Excavated**	0.080	U	1	0.075	U	1	0.080	U	1	0.075	U	1	--			--			--			--			**16.63**	J	1	**96.75**	J	1	--			**17.94**	J	1	--		
RMU4-SS19 (05-Jan-2012)/(0-0.5)	0.080	U	1	0.075	U	1	0.080	U	1	0.075	U	1	--			--			--			--			**15.82**	J	1	**31.01**	J	1	--			**18.74**	J	1	--		
RMU4-SS20 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			**10.91**	J	1	**16.87**	J	1	--			**16.95**	J	1	--		
RMU4-SS20 (05-Jan-2012)/(2-2.5)	--			--			--			--			--			--			--			--			**10.82**	J	1	**22.21**	J	1	--			**15.66**	J	1	--		
RMU4-SS21 (05-Jan-2012)/(1-1.5) **Excavated**	--			--			--			--			--			--			--			--			**31.24**	J	1	**159.3**	J	1	--			**20.40**	J	1	--		
RMU4-SS21 (05-Jan-2012)/(2-2.5) **Excavated**	--			--			--			--			--			--			--			--			**67.65**	J	1	**2,884**	J	20	--			**25.08**	J	1	--		
RMU4-SS22 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			**8.87**		1	**13.83**		1	--			**14.22**		1	--		
RMU4-SS23 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			**10.41**		1	**12.52**		1	--			**16.37**		1	--		
RMU4-SS24 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			**14.03**		1	**23.57**		1	--			**14.69**		1	--		
RMU4-SS25 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			**35.9**		1	**38.84**		1	--			**15.97**		1	--		
RMU4-SS26 (27-Mar-2013)/(0-0)	--			--			--			--			--			--			--			--			**11.56**		1	**15.49**		1	--			**16.93**		1	--		
RMU4-SS27 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			**14.0**		1	**21.17**		1	--			**17.79**		1	--		
RMU4-SS28 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			**10.85**		1	**18.83**		1	--			**10.48**		1	--		
RMU4-SS29 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			**9.6**		1	**53.89**		1	--			**10.46**		1	--		
RMU4-SS30 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			**13.42**		1	**14.45**		1	--			**16.39**		1	--		
RMU4-SS31 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			**17.51**		1	**165.78**	J	1	--			**17.19**		1	--		
RMU4-SS31-DUP (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			**15.39**		1	**70.87**	J	1	--			**16.53**		1	--		
RMU4-SS32 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			**14.5**		1	**33.09**		1	--			**17.08**		1	--		
RMU4-SS33 (23-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			**10.63**		1	**20.46**		1	--			**10.48**		1	--		
RMU4-SS34 (29-Apr-2013)/(0-0)	--			--			--			--			--			--			--			--			**20.04**		1	**73.92**		1	--			**11.68**		1	--		
RMU4-SS35 (12-Sep-2013)/(0-0)	--			--			--			--			--			--			--			--			--			--			--			--			--		

Appendix C. Summary of Chemical Constituents Remaining in Soils at RMU-4 - All Results

NOTES:

† TCEQ, TRRP Tier 1 Soil PCLs (Last Revised: June 29, 2012).

†† 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, 4].

[1] $^{Tot}Soil_{Comb}$ = 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] For copper and zinc only: TCEQ Ecological Benchmark for Soil as stated in Update to Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas, Regulatory Guidance (RG)-263, Revised January 2006. PCL for copper = 61 mg/kg, PCL for zinc = 120 mg/kg.

[4] CSSA Soil Background Concentrations.

PCLs are shown in **blue** font.

All values are measured in milligrams per kilogram (mg/Kg) unless otherwise noted.

Depth interval is measured in feet below ground surface.

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 RMU4

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Tammy Chang
Parsons - Austin

INTRODUCTION

The following data verification summary report covers four soil samples collected from RMU4 Camp Stanley Storage Activity (CSSA) on March 27, 2013. These samples were logged in the following Sample Delivery Group (SDG) and were tested for copper, lead, and nickel:

70323

These 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 with cooler temperature of 2.0° C upon delivery which was within the recommended range is 2-6° C.

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; 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.

COPPER, LEAD, AND NICKEL

General

These four samples were collected on March 27, 2013 and were analyzed for copper, lead, and nickel.

The metal analyses were performed using USEPA SW846 Method 6010B. These samples were analyzed following the procedures outlined in the CSSA QAPP within the holding time required by the method.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the laboratory control sample (LCS).

The LCS recoveries were within acceptance criteria.

Precision

Precision could not be evaluated due to the lack of duplicate analyses 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 blanks for cross contamination of samples during samples analysis.

These samples were analyzed following the COC and the analytical procedures described in the CSSA QAPP. These 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.
- The initial calibration verification sample was prepared using a secondary source.
- All second source verification criteria were met.
- All interference check criteria were met.
- All internal standard criteria were met.
- Dilution test (DT) was analyzed on sample RMU4-SS22.

RMU4-SS22

Metals	%D	Criteria, %D
Copper	0.96	≤10
Nickel	19	
Lead	24	

- Post digestion spike (PDS) was analyzed on the same sample as the DT.

RMU4-SS22

Metal	%R	Criteria, %R
Nickel	86	75 - 125
Lead	83	

There were one method blank and several calibration blanks associated with the ICP analyses in this SDG. All blanks were free of 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 metal results for the samples in this SDG were considered usable. The completeness of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

DATA VERIFICATION SUMMARY REPORT

for soil samples collected from RMU4

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Tammy Chang
Parsons - Austin

INTRODUCTION

The following data verification summary report covers nine soil samples collected from RMU4 Camp Stanley Storage Activity (CSSA) on April 23, 2013. These samples were logged in the following Sample Delivery Group (SDG) and were tested for copper, lead, and nickel:

70559

These 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. There was a field duplicate sample collected for RMU4-SS31.

The samples in this SDG were shipped to the laboratory with cooler temperature of 3.0° C upon delivery which was within the recommended range is 2-6° C.

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; laboratory and field quality control results; calibration; 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.

COPPER, LEAD, AND NICKEL

General

These soil samples were collected on April 23, 2013 and were analyzed for copper, lead, and nickel.

The metal analyses were performed using USEPA SW846 Method 6010B. These samples were analyzed following the procedures outlined in the CSSA QAPP within the holding time required by the method.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the laboratory control sample (LCS).

The LCS recoveries were within acceptance criteria.

Precision

Precision was evaluated based on the relative percent difference (%RPD) of the parent and field duplicate samples. RMU4-SS31 was collected in duplicate.

RMU4-SS31

Metals	Parent, mg/kg	FD, mg/kg	%RPD	Criteria, %RPD
Copper	17.51	15.39	13	
Lead	165.78	70.87	80	≤25
Nickel	17.19	16.53	3.9	

"J" flag were applied to the lead result of the 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 blanks for cross contamination of samples during samples analysis.

These samples were analyzed following the COC and the analytical procedures described in the CSSA QAPP. These 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.
- The initial calibration verification sample was prepared using a secondary source.
- All second source verification criteria were met.
- All interference check criteria were met.
- All internal standard criteria were met.
- Dilution test (DT) was analyzed on sample RMU4-SS34 (from SDG 70610).

RMU4-SS34

Metals	%D	Criteria, %D
Copper	6.0	
Nickel	19	≤10
Lead	19	

- Post digestion spike (PDS) was analyzed on the same sample as the DT.

RMU4-SS34

Metal	%R	Criteria, %R
Nickel	92	75 - 125
Lead	80	

There were one method blank and several calibration blanks associated with the ICP analyses in this SDG. All blanks were free of 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 metal results for the sample in this SDG were considered usable. The completeness of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

DATA VERIFICATION SUMMARY REPORT

for one soil sample collected from RMU4

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Tammy Chang
Parsons - Austin

INTRODUCTION

The following data verification summary report covers one soil sample collected from RMU4 Camp Stanley Storage Activity (CSSA) on April 29, 2013. This sample was logged in the following Sample Delivery Group (SDG) and was tested for copper, lead, and nickel:

70610

This sample was 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 with cooler temperature of 1.5° C upon delivery which was slightly below the recommended range is 2-6° C.

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; 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.

COPPER, LEAD, AND NICKEL

General

This soil sample was collected on April 29, 2013 and was analyzed for copper, lead, and nickel.

The metal analyses were performed using USEPA SW846 Method 6010B. This sample was analyzed following the procedures outlined in the CSSA QAPP within the holding time required by the method.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the laboratory control sample (LCS).

The LCS recoveries were within acceptance criteria.

Precision

Precision could not be evaluated due to the lack of duplicate analyses 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 blanks for cross contamination of samples during samples analysis.

This sample was analyzed following the COC and the analytical procedures described in the CSSA QAPP. This sample was 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.
- The initial calibration verification sample was prepared using a secondary source.
- All second source verification criteria were met.
- All interference check criteria were met.
- All internal standard criteria were met.
- Dilution test (DT) was analyzed on sample RMU4-SS34.

RMU4-SS34

Metals	%D	Criteria, %D
Copper	6.0	≤10
Nickel	19	
Lead	19	

- Post digestion spike (PDS) was analyzed on the same sample as the DT.

RMU4-SS34

Metal	%R	Criteria, %R
Nickel	92	75 - 125
Lead	80	

There were one method blank and several calibration blanks associated with the ICP analyses in this SDG. All blanks were free of 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 metal results for the sample in this SDG were considered usable. The completeness of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

DATA VERIFICATION SUMMARY REPORT

for sample collected from RMU4

CAMP STANLEY STORAGE ACTIVITY

BOERNE, TEXAS

Data Verification by: Tammy Chang
Parsons - Austin

INTRODUCTION

The following data verification summary report covers one soil sample and the associated field quality control (QC) sample collected from Camp Stanley Storage Activity (CSSA) on September 12, 2013. The samples were assigned to the following Sample Delivery Group (SDG):

71643

RMU4-SS35 was tested for methylene chloride. The only associated field QC sample was a trip blank (TB).

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. The cooler was received by the laboratory at a temperature of 1.5°C which was slightly below the recommended range of 2-6° C.

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

Sample RMU4-SS35 was collected on 12 Sep. 2013 with a TB and were analyzed for methylene chloride only. The TB was logged in SDG 71642 with other CSSA samples.

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

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the two laboratory control sample (LCS) and the surrogate spikes. One LCS was for the soil sample and one LCS was for the TB.

Both LCSs and surrogate spike recoveries were within acceptance criteria.

Precision

Precision could not be evaluated due to the lack of duplicate analysis.

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 trip and laboratory blanks for cross contamination of samples during transit or analysis.

The soil sample in this data package and the associated TB were analyzed following the COC and the analytical procedures described in the CSSA QAPP, Version 1.0. Both 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 using 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 method blanks and one TB associated with the methylene chloride analyses in this SDG. All blanks were non-detect methylene at reporting limits. Parsons data validator also concluded that both two method blanks and the TB had no methylene chloride detected at or above the method detection limits.

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.

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

APPENDIX E

Waste Characterization Sampling Results for RMU-4

Appendix E. RMU-4 Waste Characterization Results

SAMPLE ID:		RMU4-WC01		RMU4-WC02		RMU4-WC03		RMU4-WC04		RMU4-WC05		RMU4-WC06		RMU4-WC07		RMU4-WC08		RMU4-WC09		RMU4-WC10	
DATE SAMPLED:		**3/1/2013**		**3/1/2013**		**3/1/2013**		**3/1/2013**		**3/1/2013**		**3/1/2013**		**3/1/2013**		**3/1/2013**		**3/1/2013**		**3/1/2013**	
LAB SAMPLE ID:		**AY76176**		**AY76177**		**AY76178**		**AY76179**		**AY76180**		**AY76181**		**AY76182**		**AY76183**		**AY76184**		**AY76185**	
	Units																				
Metals - SW6010B/SW7470A																					
Arsenic	mg/L	0.0020	U	0.0020	U	**0.0030**	F	0.0020	U	**0.0030**	F	0.0020	U	0.0020	U	**0.0040**	F	**0.0030**	F	0.0020	U
Barium	mg/L	**0.66**		**0.71**		**0.61**		**0.85**		**0.67**		**0.65**		**0.75**		**0.70**		**0.78**		**0.55**	
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	0.00030	U	0.00030	U
Chromium	mg/L	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
Lead	mg/L	**0.010**	F	**0.016**	F	**0.0040**	F	**0.14**		**0.045**		**1.0**		0.0012	U	0.0012	U	**0.019**	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	0.00010	U	0.00010	U	0.00010	U
Selenium	mg/L	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
Silver	mg/L	**0.0047**	F	**0.0044**	F	**0.012**		**0.0042**	F	**0.012**		**0.0045**	F	**0.013**		**0.012**		**0.012**		**0.013**	

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).
Detections are bolded.

APPENDIX F

List of Munitions Debris Found at RMU-4

RMU-4 MEC/MD Listing

Item Number	Condition	Item Discription	Depth (inches)	Area	Disposition
RMU4-MD-01	MEC[1]	Stokes, 3 inch, Unfuzed	0	RMU-4	CSSA
RMU4-MD-02	MEC[1]	Stokes, 3 inch, Unfuzed	2	RMU-4	CSSA
RMU4-MD-03	MD[2]	Stokes, 3 inch, Practice, Unfuzed	4	RMU-4	Scrap
RMU4-MD-04	MEC[1]	Stokes, 3 inch, Unfuzed	2	RMU-4	CSSA
RMU4-MD-05	MEC[1]	Stokes, 3 inch, Unfuzed	0	RMU-4	CSSA
RMU4-MD-06	MEC[1]	Stokes, 3 inch, Unfuzed	4	RMU-4	CSSA
RMU4-MD-07	MEC[1]	Stokes, 3 inch, Unfuzed	2	RMU-4	CSSA
RMU4-MD-08	MEC[1]	Stokes, 3 inch, Unfuzed	10	RMU-4	CSSA
RMU4-MD-09	MEC[1]	Stokes, 3 inch, Unfuzed	6	RMU-4	CSSA
RMU4-MD-10	MEC[1]	Stokes, 3 inch, Unfuzed	4	RMU-4	CSSA
RMU4-MD-11	MEC[1]	Stokes, 3 inch, Unfuzed	10	RMU-4	CSSA
RMU4-MD-12	MEC[1]	Stokes, 3 inch, Unfuzed	2	RMU-4	CSSA
RMU4-MD-13	MEC[1]	Stokes, 3 inch, Unfuzed	6	RMU-4	CSSA
RMU4-MD-14	MEC[1]	Stokes, 3 inch, Unfuzed	2	RMU-4	CSSA
RMU4-MD-15	MEC[1]	Stokes, 3 inch, Unfuzed	0	RMU-4	CSSA
RMU4-MD-16	MEC[1]	Stokes, 3 inch, Unfuzed	4	RMU-4	CSSA
RMU4-MD-17	MEC[1]	Stokes, 3 inch, Unfuzed	6	RMU-4	CSSA
RMU4-MD-18	MEC[1]	Stokes, 3 inch, Unfuzed	2	RMU-4	CSSA

1- These items appear to be Practice mortars that have functioned resulting in the fuze being missing from the mortar, however, there are no external differrences between the practice and the HE version of these mortars. These mortars will be collected and secured in the MEC connex located at SWMU B-4 and turned over to CSSA for disposition upon complettion site remediation.

2 - Item in condition to determine that it is/was sand filled and a "practice" mortar and has functioned as designed.

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 Engineeriong 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
Parsons
512-719-6050 (Austin)
512-497-0075 (mobile)

Safety - Make it Personal !

Appendix H

ProUCL Statistical Calculation Summary for Lead in RMU-4 Soils

General UCL Statistics for Data Sets with Non-Detects

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

Lead

General Statistics

Number of Valid Data	28	Number of Detected Data	14
Number of Distinct Detected Data	14	Number of Non-Detect Data	14
		Percent Non-Detects	50.00%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	12.5	Minimum Detected	2.526
Maximum Detected	166	Maximum Detected	5.112
Mean of Detected	41.15	Mean of Detected	3.395
SD of Detected	41.42	SD of Detected	0.773
Minimum Non-Detect	10	Minimum Non-Detect	2.303
Maximum Non-Detect	10	Maximum Non-Detect	2.303

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.696	Shapiro Wilk Test Statistic	0.908
5% Shapiro Wilk Critical Value	0.874	5% Shapiro Wilk Critical Value	0.874
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	23.07	Mean	2.502
SD	34.13	SD	1.056
95% DL/2 (t) UCL	34.06	95% H-Stat (DL/2) UCL	35.61
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	3.304	Mean in Log Scale	2.281
SD	52.65	SD in Log Scale	1.362
95% MLE (t) UCL	20.25	Mean in Original Scale	22.59
95% MLE (Tiku) UCL	24.35	SD in Original Scale	34.44
		95% t UCL	33.68
		95% Percentile Bootstrap UCL	33.47
		95% BCA Bootstrap UCL	38.27
		95% H UCL	53.44

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	1.385	**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
Theta Star	29.71		
nu star	38.78		
A-D Test Statistic	0.777	**Nonparametric Statistics**	
5% A-D Critical Value	0.749	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.749	Mean	26.82
5% K-S Critical Value	0.232	SD	31.65
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	6.207
		95% KM (t) UCL	37.4
Assuming Gamma Distribution		95% KM (z) UCL	37.03
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	36.69
Minimum	0.000001	95% KM (bootstrap t) UCL	49.67
Maximum	166	95% KM (BCA) UCL	39.06
Mean	20.57	95% KM (Percentile Bootstrap) UCL	37.69
Median	6.25	95% KM (Chebyshev) UCL	53.88
SD	35.57	97.5% KM (Chebyshev) UCL	65.59
k star	0.112	99% KM (Chebyshev) UCL	88.59
Theta star	183.7		
Nu star	6.272	**Potential UCLs to Use**	
AppChi2	1.781	95% KM (t) UCL	37.4
95% Gamma Approximate UCL	72.47		
95% Adjusted Gamma UCL	78.82		

Note: DL/2 is not a recommended method.

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, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.