STATEMENT OF BASIS
RCRA CORRECTIVE ACTION

CAMP STANLEY STORAGE ACTIVITY
BOERNE, TEXAS

THE PURPOSE OF THE STATEMENT OF BASIS IS TO:

- Identify the proposed remedy for addressing contamination at the site and explain the reasons for the preference;
- Describe remedial options considered in the Corrective Measures Study;
- Solicit public review and comment on the alternatives and information contained in the Administrative Record;
- Provide information on how the public can be involved in the remedy selection process; and
- Provide history and background about the facility and environmental sites

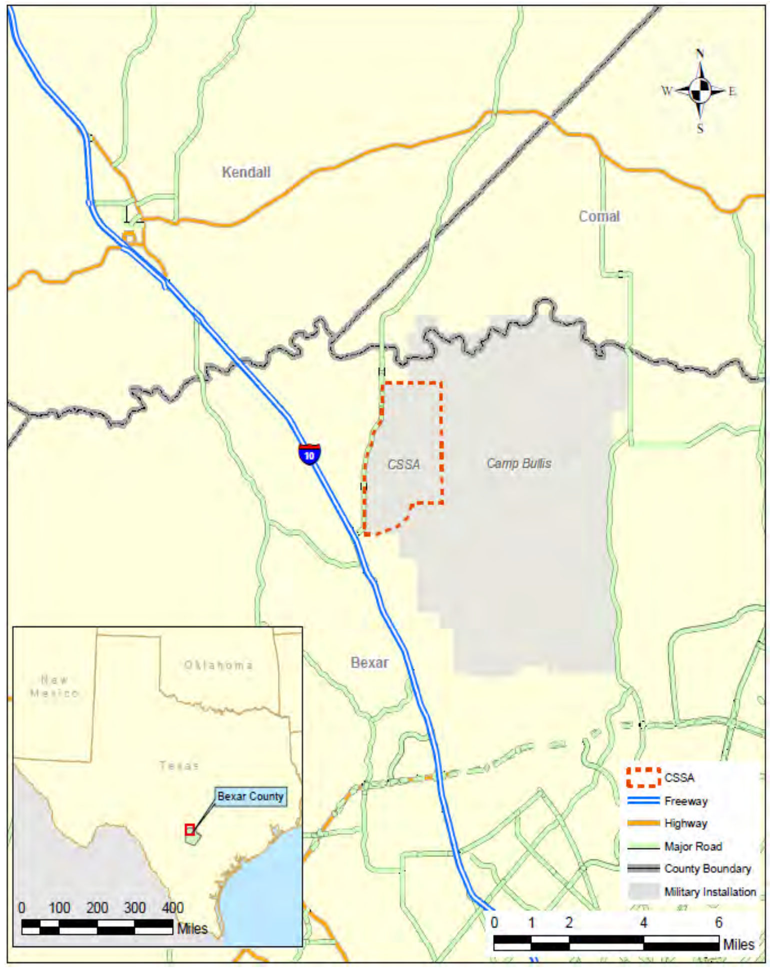

Figure 1: Camp Stanley Storage Activity Location Map

USEPA ANNOUNCES STATEMENT OF BASIS

This Statement of Basis issued by the U.S. Environmental Protection Agency (USEPA) describes the proposed remedies to address groundwater contamination at US Army Camp Stanley Storage Activity (CSSA) in Boerne, Texas (**Figure 1**) as required by the **Resource Conservation and Recovery Act** (RCRA) 3008(h) **Administrative Order on Consent** (Order) issued on May 5, 1999. In addition, the Statement of Basis includes summaries of other alternative remedies evaluated for the facility and the rationale for USEPA's preference. USEPA, the lead agency for remedial activities at the site, in consultation with the Texas Commission on Environmental Quality (TCEQ), will select a final remedy for CSSA only after the public comment period has ended, and the information submitted during this time is reviewed and considered in the decision-making process.

This Statement of Basis is issued by USEPA as part of its public participation responsibilities under **RCRA**. Addressing stakeholders concerns is critical to the success of the final remedy. Words in **bold text** are defined in the glossary at the end of this Statement of Basis. The Statement of Basis summarizes information that can be found in greater detail in the **Administrative Record** (the CSSA Environmental Encyclopedia). The **conceptual site model** and summation of the current status of **Solid Waste Management Units (SWMUs)** and environmental **Areas of Concern (AOCs)** are provided in **RCRA Facility Investigation (RFI)** (Parsons 2014b) and **Corrective Measures Study (CMS)** (Parsons 2014c) reports.

FACILITY BACKGROUND

SITE DESCRIPTION AND HISTORY

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

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

In October 1917, the installation was re-designated Camp Stanley. Extensive construction started during World War I to provide temporary cantonments and support facilities. In 1931, the installation was selected as an ammunition depot. Construction of standard earth-covered 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 had a number of waste sites, including SWMUs, AOCs, and **Range Management Units (RMUs)** (**Figure 2**).

HISTORY OF CONTAMINATION AT CSSA

In 1991, routine water well testing by the Texas Department of Health (TDH) detected the presence of dissolved cleaning solvent tetrachloroethene (PCE) and related degradation products above **maximum contaminant levels (MCLs)** in a CSSA water supply well (Well 16 [CS-16]). Consequently, the well was taken out of service. Subsequent sampling showed **volatile organic compound (VOC)** contaminant concentrations greater than MCLs in several other wells. The potential sources of the contamination were identified as the former oxidation pond (SWMU O-1) and Burn Area 3 (SWMU B-3); this area is referred to as Plume 1 (**Figure 3**). Later, AOC-65, an area of past solvent use, was identified as another source of groundwater contamination, referred to as Plume 2 (**Figure 3**). In 1999, VOCs were detected in privately owned wells off-post near Plume 2. A synopsis of historical use and remedial activities at each of these sites is provided in the RFI Report (Parsons 2014b), and a brief description of the contaminant plumes is provided in the Facility Investigation portion of this document. The main CSSA Contaminants of Concern (COCs) are tetrachloroethene (PCE), trichloroethene (TCE), *cis*-1,2-dichloroethene, *trans*-1,2-dichloroethene, and vinyl chloride (VC).

REGULATORY HISTORY

The 1999 Order requires CSSA to identify, investigate, and prevent the further spread of releases of hazardous wastes and/or hazardous constituents to the environment at and/or from CSSA, and to ensure that corrective action activities are implemented to protect human health and the environment.

CSSA engaged in a series of environmental investigations during the ensuing 15 years to aid in the horizontal and vertical delineation of solvent contamination source areas within the **aquifer**. Since the Order was issued in 1999, CSSA has been closing sites under State of

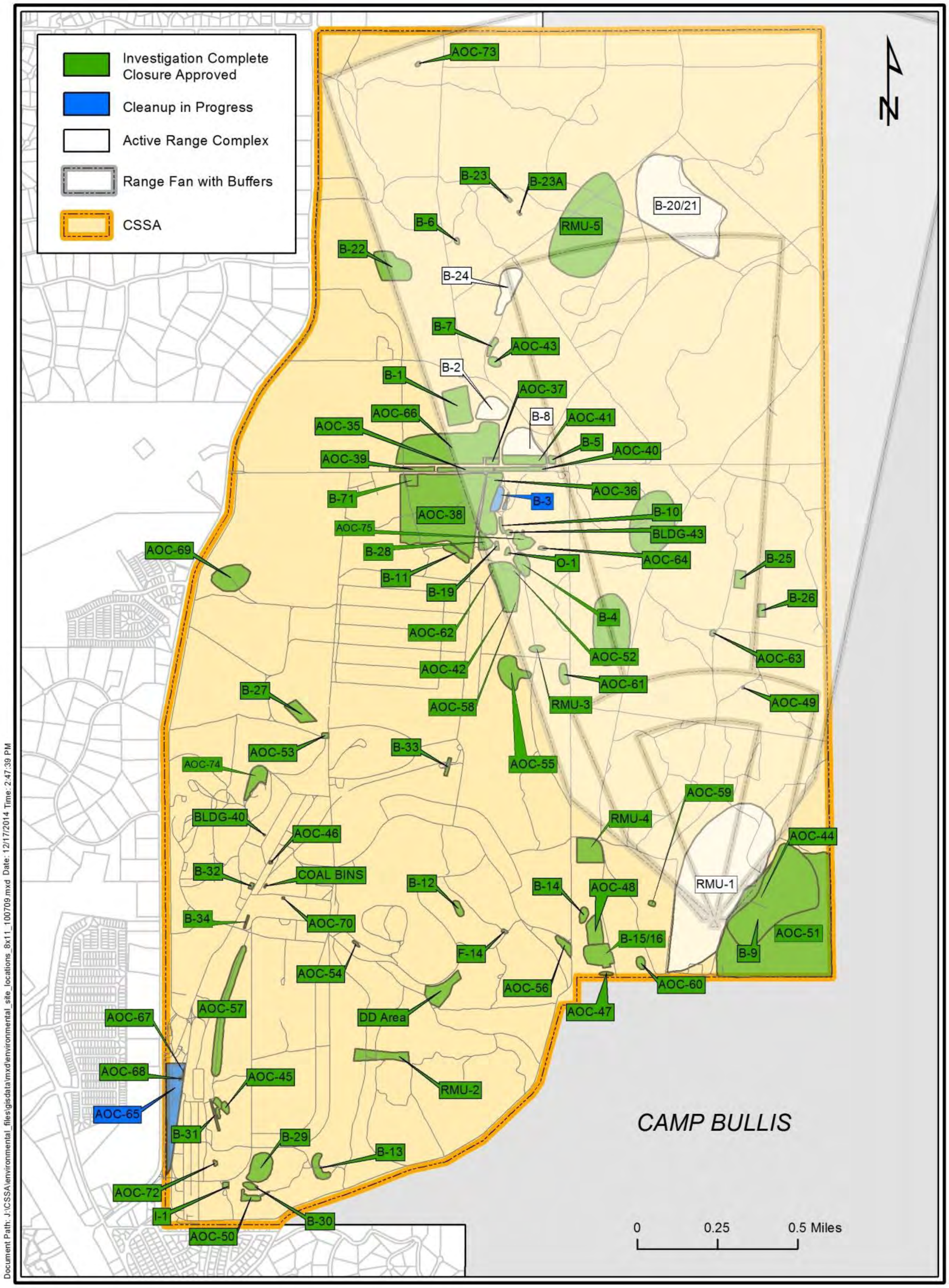

Figure 2: Locations and Status of Remedial Sites at CSSA

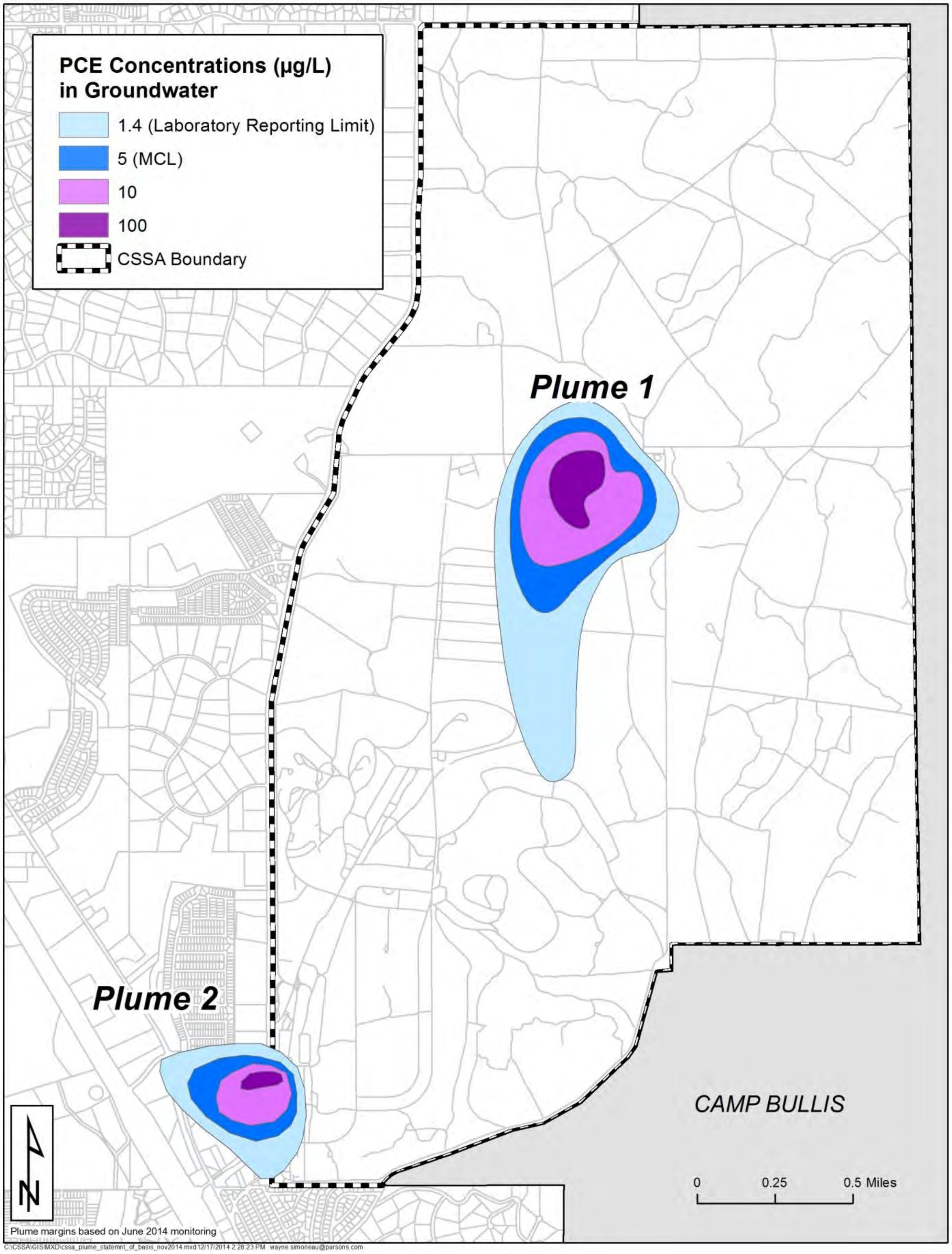

Figure 3: Plume Location Map

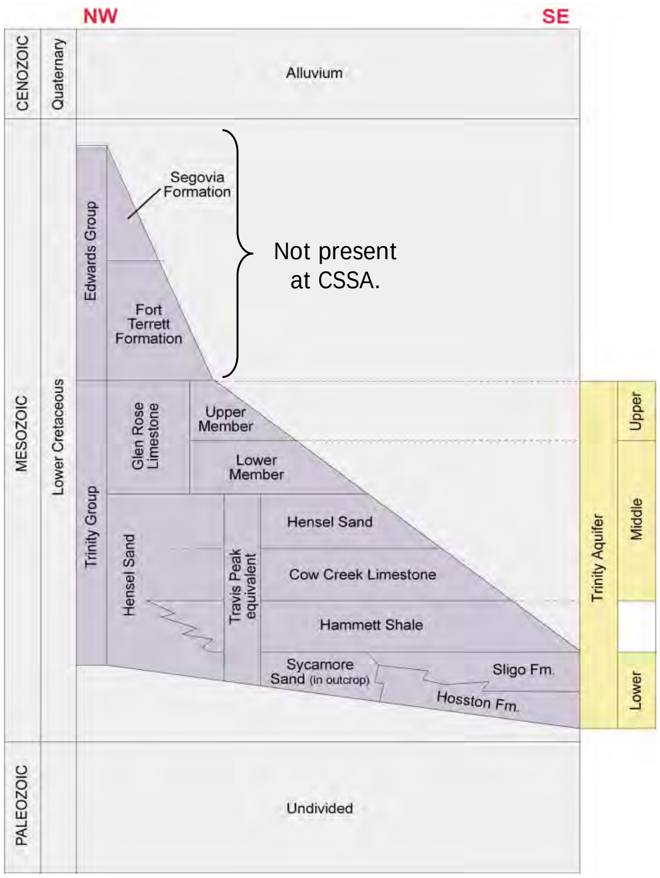

Figure 4: Generalized Stratigraphic and Hydrostratigraphic Section of the Hill Country Area

Texas regulations. With TCEQ and USEPA oversight, a total of 84 sites, including 39 SWMUs, 41 AOCs, and five RMUs, were identified at CSSA. Investigations and interim removal actions (if warranted) were conducted at a total of 83 of these sites. One RMU, the location of CSSA's current active firing range, will be investigated when it is closed. Today, 77 sites have either been delisted or closed to **residential land use** standards in accordance with TCEQ requirements. Four munitions SWMUs (B-2, B-8, B-20/21, and B-24) have been combined with RMU-1 because they are located within the active firing range where munitions continue to be tested. These sites will be investigated and remediated as necessary when the range is no longer active.

The two remaining open sites at CSSA, SWMU B-3 and AOC-65, are the remaining sources of groundwater contamination, and will be the focus of future remediation efforts. Treatability studies to address the remaining open sites were initiated in 1996 (SWMU B-3) and 2002 (AOC-65) and continue to present day. Throughout the site closure and treatability study process, USEPA and TCEQ have actively participated in planning, review, and approval.

SITE GEOLOGY AND HYDROGEOLOGY

CSSA is characterized by a rolling terrain of hills and valleys in which nearly flat-lying limestone formations have been eroded and dissected by streams draining to the east and southeast. CSSA is situated over Cretaceous-age deposits of the Travis Peak and Glen Rose Formations of the Trinity Group (**Figure 4**).

Faulting has occurred near the central area and southern boundary of the installation. The faults are northeast-southwest trending, but most are not as continuous as the fractures. Soil cover is relatively thin, and bedrock is frequently exposed in most areas other than stream valleys (**Figure 5**). Topographic relief across the area ranges from about 1,100 to 1,500 feet above sea level.

Groundwater occurrence and movement is highly variable due to the faulting and fractures in the limestone. Three aquifers are present in the area of CSSA: the Upper, Middle, and Lower Trinity aquifers. The Glen Rose Formation and the Travis Peak and Pearsall Formations are the principle water-bearing units.

The primary groundwater source at CSSA and surrounding areas is the Middle Trinity aquifer, consisting of the Lower Glen Rose (LGR) Limestone, the Bexar Shale (BS), and the Cow Creek (CC) Limestone. The Middle Trinity aquifer supplies drinking water to CSSA and neighboring landowners and communities. In the vicinity of CSSA, the LGR portion of the Middle Trinity aquifer is recharged by direct precipitation on the outcrop and stream flow infiltration. Groundwater depth at CSSA averages approximately 200-250 feet below the ground surface, though the depth can vary significantly with precipitation, drought, and topographic location.

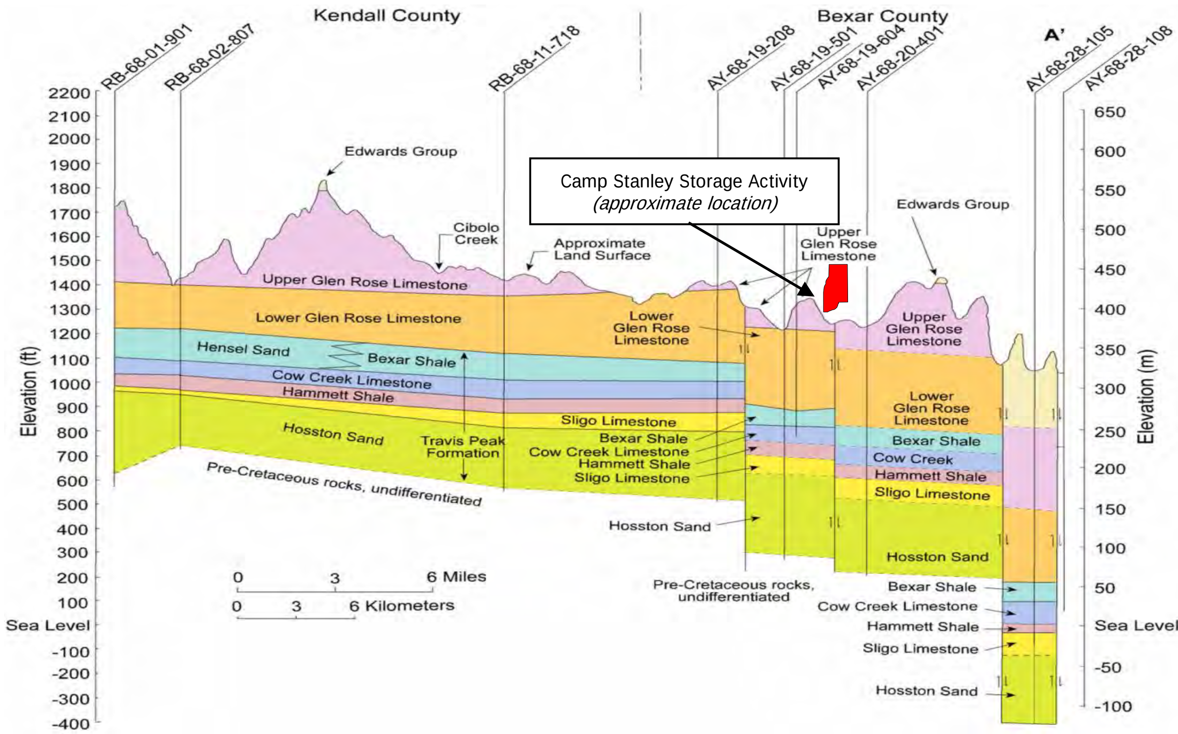

Figure 5: Geologic Cross-section through the CSSA Area

The Upper Trinity aquifer consists of the Upper Glen Rose (UGR) Limestone. Recharge to the Upper Trinity aquifer is from direct precipitation to UGR Limestone outcrop and from stream flow infiltration. Regionally groundwater flows to the south-southeast, with local variability depending on faults, fractures, and other pumping wells.

FACILITY INVESTIGATION

The Order requires CSSA to: (1) perform **interim/stabilization measures (IM)** at the facility to prevent or minimize the further migration of contaminants due to releases of hazardous constituents to the environment, or to mitigate current or potential threats to human health or the environment; (2) perform an RFI to determine the nature and extent of any release(s) of hazardous waste or hazardous constituents at or from the facility; (3) create a CMS to identify and evaluate alternatives for corrective action(s) to prevent or mitigate any migration of release(s) of hazardous wastes or hazardous constituents at or from the facility, and to collect any other information necessary to support the selection of corrective measures at the facility; and (4) implement the corrective measures (**Corrective Measure Implementation [CMI]**) selected by USEPA for the facility (**Figure 6**).

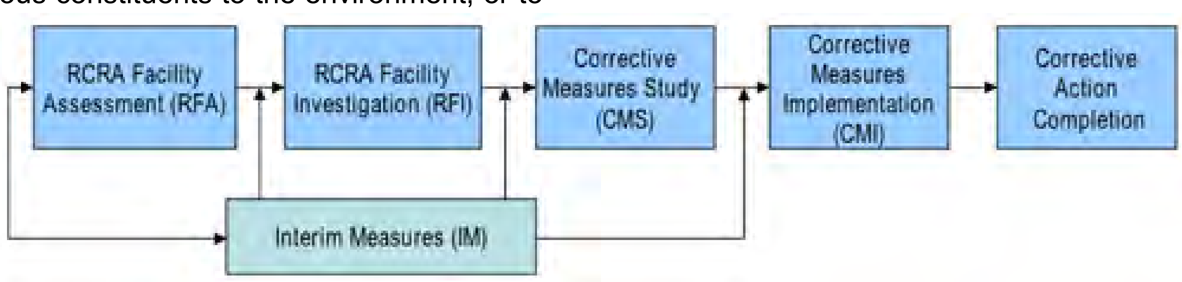

Figure 6: RCRA Corrective Action Process

INTERIM MEASURES

The following IMs were completed at CSSA:

Waste site closures. Between 1999 and 2014, investigations and removal of soil (if warranted) were conducted at 83 identified waste sites. A total of 77 sites were closed to TCEQ's residential land use standards. Two sites with groundwater contamination remain open, and four additional SWMUs were combined with RMU-1 as they are part of the active firing range.

On- and Off-Post Groundwater Monitoring and Installation of Point-of-Use Treatment Units. Groundwater monitoring has been conducted at CSSA since 1991. Quarterly sampling of both on- and off-post wells began in 1999. Scheduled groundwater monitoring continues as part of the RFI task. All private groundwater wells with solvents present at concentrations greater than 90 percent of the MCL have been equipped with granular activated carbon (GAC) units to prevent **exposure** to contaminated groundwater.

RCRA FACILITY INVESTIGATION

Under the Order, CSSA performed an RFI to characterize soil and groundwater contamination, identify and evaluate associated hazards and risk(s), and provide documentation supporting necessary corrective action planning for CSSA (Parsons 2014b).

As previously described under Regulatory History, CSSA closed 77 sites under State of Texas regulations, with both TCEQ and USEPA oversight since the Order was issued in 1999. The two remaining open sites that were further evaluated in the RFI are AOC-65 and SWMU B-3 (Figure 2). Contamination from past disposal activities resulted in multiple groundwater units, referred to as Plume 1 (SWMUs B-3 and O-1) and Plume 2 (AOC-65) as shown on **Figure 3**.

Waste and contaminated soil at SWMUs B-3 and O-1 have been removed. (These two sites are located next to each other and were the source of groundwater contamination in Plume 1.) Due to its proximity to SWMU B-3, groundwater at SWMU O-1 was evaluated as part of the SWMU B-3 investigation. Plume 1 has migrated primarily south-southeast toward Camp Bullis. A component of the plume has also migrated west-southwest. VOC concentrations over 500 micrograms per liter (µg/L) are present in Middle Trinity aquifer wells near the source area. In contrast, little to no contamination within the deeper BS and CC Limestone has been identified within Plume 1 except in association with open borehole well completions.

Contamination at Plume 2 originated at AOC-65, and spread southward and westward. The greatest concentrations of solvents are reported in the subsurface adjacent to the source area, nearby a maintenance building where solvents were used. Concentrations greater than 100 µg/L have been reported in perched groundwater zones above the main aquifer body in the LGR. Below the perched intervals, within the shallower portions of the Middle Trinity aquifer, VOC concentrations are generally less than 100 µg/L. The deeper, more productive portion of the Middle Trinity aquifer has had only sporadic trace level contaminant concentrations. Off-post, concentrations above MCLs have been detected in private and public wells with open borehole completions. All private groundwater wells with solvents present at concentrations greater than 90 percent of the MCL have been equipped with GAC units and wells in the area are monitored quarterly.

SUMMARY OF RISK ASSESSMENT

Based on the results of the 2013 **human health risk assessment (HHRA)**, which evaluated samples collected before GAC treatment, unacceptable risks to human health could potentially occur in some locations off-post from exposure to contaminants in untreated groundwater at CSSA (Parsons 2014a). Cumulative **carcinogenic** risks greater than the USEPA acceptable range were calculated in several off-post wells. The highest cumulative carcinogenic risk calculated using the **Protective Concentration Limits (PCLs)** was in well RFR-10, while the highest cumulative carcinogenic risk calculated using the **regional screening levels (RSLs)** was in well LS-5. Private wells with VOC concentrations greater than 90% of the MCL have been equipped with a GAC treatment unit.

Unacceptable risks to human health could potentially occur in some locations on-post from exposure to contaminants in untreated groundwater at CSSA. There are several locations on-post with cumulative **non-carcinogenic hazards** greater than 1. The highest cumulative hazard was calculated in well CS-9, a former water supply well that will be plugged and abandoned in 2015. Additionally, cumulative carcinogenic risks greater than the USEPA acceptable level were calculated in several on-post wells. The highest cumulative carcinogenic risk was calculated within the LGR geologic unit of Westbay monitoring well CS-WB05-LGR.

In 2007, six new LGR wells (CS-MW20-LGR through CS-MW25-LGR) were drilled at CSSA. The initial sampling results in June 2007 indicated the presence of mercury, chromium, and lead in three of these wells (CS-MW22-LGR, CS-MW23-LGR, and CS-MW25-LGR). The notable trend of these particular wells is that inorganic constituents in groundwater have attenuated within a year of their initial sampling event in June 2007. With the exception of a single detection of lead above the action level in December 2010, this set of wells has not exceeded regulatory thresholds since March 2008 (Parsons 2014b).

Lead hazards (e.g., **non-carcinogenic hazards**) greater than 1 were calculated for four on-post wells. The hazards ranged from 2 to 13. Where the risk assessment identified a non-carcinogenic hazard due to lead concentrations, a correlation with historic lead-containing well piping and pumps is suspected based on the timing of the detections after well maintenance activities. Two of the wells where lead was detected are former water supply wells, CS-9 and CS-11, which will be abandoned in 2015 and have not been used for water supply since 2008 (CS-9) and 1999 (CS-11). Past lead exceedances in water supply well CS-1 were sporadic after well maintenance activities, and in 2011, the well was rehabilitated with new materials. Since December 2011, lead levels in all samples have been below the action level.

CORRECTIVE MEASURES STUDY

Under the Order, CSSA performed a CMS to screen and develop corrective measures alternatives for removal, containment, treatment, and/or other remediation of groundwater contamination identified at SWMU B-3 and AOC-65 (Parsons 2014c).

Corrective Action Objectives (CAOs) were developed to identify CSSA's goals for reducing hazards to ensure protection of human health, safety, and the environment. The CAO for soil at CSSA was to clean up contaminated soil at each site to Tier 1 or Tier 2 TCEQ Residential PCLs. All soil at identified SWMUs, AOCs, and RMUs at CSSA was remediated to residential PCLs with the exception of RMU-1. RMU-1 will be remediated and closed when the range is no longer active.

CAOs for groundwater at CSSA include:

1. Prevent or minimize migration of COCs in ground water within the source area at concentrations exceeding the MCLs and restore groundwater to its most beneficial use in a reasonable timeframe.
2. Prevent human exposure to groundwater containing COCs at concentrations that exceed MCLs in water supply wells.
3. Prevent on-site worker dermal contact and/or ingestion of COCs in shallow groundwater at concentrations exceeding acceptable human health risk values.

All potential technologies that may be used to achieve the CAOs were identified and preliminarily evaluated for potential further consideration as part of corrective measures alternatives (CMAs). Upon consideration of various containment technologies, four CMAs were developed and evaluated to address groundwater contamination at CSSA:

<u>Alternative 1 – No Action</u>. No corrective measures will be implemented to reduce the exposure to contaminated groundwater at CSSA, and would involve continued use of the site in its current condition. This alternative is provided as a baseline against which other CMAs can be compared.

<u>Alternative 2 – Point-of-Use Treatment, Land Use Controls (LUCs), and Long-Term Monitoring (LTM)</u>. Implement institutional and engineering LUCs to prevent contact with contaminated media.

Current off-post point-of-use treatment systems (GAC units) would continue to be operated and monitored. New GAC units would be installed at additional off-post drinking water wells if COC concentrations exceeding the MCLs are detected during the long-term monitoring program. Any reduction in plume or source area contaminant concentrations would occur only through natural attenuation processes, and would be monitored as part of the LTM program.

Alternative 3 – Source Area Treatment, Alternative Drinking Water Source, Land Use Controls, and Long-Term Monitoring. Implement institutional and engineering LUCs to prevent contact with contaminated media. Off-post groundwater users supplied with drinking water from San Antonio Water System (SAWS).

Continued use of **bioremediation** (bioreactor) to treat the source area at SWMU B-3. Continued use of ***in situ*** **chemical oxidation (ISCO)** to treat source area contamination at AOC-65.

Alternative 4 – Source Area Treatment, Point-of-Use Treatment, Land Use Controls, and Long-Term Monitoring. Implement institutional and engineering LUCs to prevent contact with contaminated media. Current off-post GAC units would continue to be operated and monitored. New GAC units would be installed at additional off-post drinking water wells if COC concentrations exceeding the MCLs are detected during the long-term monitoring program.

Continued use of bioremediation (bioreactor) to treat the source area at SWMU B-3. Continued use of ISCO to treat source area contamination at AOC-65.

EVALUATION OF CORRECTIVE MEASURES ALTERNATIVES

In compliance with the Order, each alternative is evaluated according to the USEPA (1994 and 1999) criteria listed in **Table 1**.

Alternative 1: No Action

Cost

Capital Cost	$0
30-Year O&M Cost	$0
30-Year Total Cost	$0
30-Year Total Present Value	$0

Alternative 1 must be ruled out because it is not protective of human health, does not achieve the CAO, is not effective over the long-term, and does not reduce the **toxicity, mobility, and volume (TMV)** of wastes.

Alternative 2: Point-of-Use Treatment, Land Use Controls, and Long-Term Monitoring

Cost

Capital Cost	$1,300
30-Year O&M Cost	$16.4M
30-Year Total Cost	$22.1M
30-Year Total Present Value	$11.5M

Alternative 2 is protective of human health and the environment, complies with applicable waste management standards, and provides both short- and long-term effectiveness for the protection of human health. It would attain media cleanup standards; however, Alternative 2 relies only on natural attenuation to degrade contamination in the groundwater, and therefore would take a longer time to achieve those standards. Reduction of TMV is similar to attainment of cleanup standards in that Alternative 2 would take a longer time to reduce TMV in groundwater than active remedial technologies. Alternative 2 is easily implementable since all of the elements for these alternatives are already in place at CSSA, and it address CSSA's desire to choose environmentally sustainable remedial alternatives in that they utilize several **best management practices (BMPs)** of Green Remediation (USEPA 2008).

Alternative 2 achieves two of the CAOs (prevent human ingestion and control on-post exposure to contaminated groundwater); however, it does not directly achieve the CAO of controlling the source areas and preventing migration of groundwater contamination within a reasonable timeframe.

Alternative 3: Source Area Treatment, Alternative Drinking Water Source, Land Use Controls, and Long-Term Monitoring

Cost

Capital Cost	$4.6M
30-Year O&M Cost	$37.9M
30-Year Total Cost	$55.8M
30-Year Total Present Value	$26.3M

Alternative 3 is protective of human health and the environment, complies with applicable waste management standards, and provides both short- and long-term effectiveness for the protection of human health. Alternative 3 would also attain media cleanup standards. The remedial methods employed by Alternative 3 (bioremediation and ISCO) are already reducing TMV at SWMU B-3 and AOC-65 at CSSA, and would continue to do so effectively in the future. Alternative 3 is difficult to implement both technically, logistically (as the U.S. government cannot force private well owners to abandon their wells), and administratively. Alternative 3 does not utilize BMPs of Green Remediation (USEPA, 2008) because the area disturbed for the SAWS conversion is extensive, and significant resources are utilized.

Alternative 4: Source Area Treatment, Point-of-Use Treatment, Land Use Controls, and Long-Term Monitoring

<u>Cost</u>

Capital Cost	$693,500
30-Year O&M Cost	$38.8M
30-Year Total Cost	$52.8M
30-Year Total Present Value	$23.5M

Alternative 4 is protective of human health and the environment, complies with applicable waste management standards, and provides both short- and long-term effectiveness for the protection of human health. Alternative 4 would also attain media cleanup standards. The remedial methods employed by Alternative 4 (bioremediation and ISCO) are already reducing TMV at SWMU B-3 and AOC-65 at CSSA, and would continue to do so effectively in the future. Alternative 4 is easily implementable since all of the elements for these alternatives are already in place at CSSA. Alternatives 4 also address CSSA's desire to choose environmentally sustainable remedial alternatives in that they utilize several BMPs of Green Remediation (USEPA 2008).

Table 1
Evaluation Criteria for Corrective Measures Alternatives

Overall Protectiveness of Human Health and the Environment determines whether an alternative adequately protects human health and the environment from unacceptable risks posed by contamination in both the short- and long-term.
Attain Media Cleanup Standards evaluates whether the alternative meets federal and state environmental statutes, regulations, and other requirements that pertain to the site, or whether a waiver is justified.
Control the Sources of Releases addresses the issue of whether source control measures are necessary, and if so, the type of actions that would be appropriate.
Comply with Any Applicable Standards for Management of Waste includes a discussion of how the specific waste management activities will be conducted to comply with all applicable state or federal regulations (e.g., closure requirements, land disposal restrictions).
Long-term Reliability and Effectiveness considers the ability of an alternative to maintain protection of human health and the environment over time.
Reduction of Toxicity, Mobility, and Volume (TMV) of Waste evaluates use of treatment to reduce harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.
Short-term Effectiveness considers the length of time needed to implement an alternative and the risks the alternative poses to workers, residents, and the environment during implementation.
Implementability considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.
Cost Estimate includes estimated capital and annual operations and maintenance costs for a 30-year period, as well as present worth cost. Cost estimates are expected to be accurate within a range of +50 to -30 percent.
Public Involvement considers whether the local community agrees with CSSA's analyses and preferred alternative. Comments received on the Statement of Basis are an important indicator of community acceptance.
Sustainability addresses CSSA's goal of utilizing "Green" environmental remediation practices.

Table 2
Detailed Analysis of Corrective Measures Alternatives

Criteria	Alternative 1 No Action	Alternative 2 Point-of-Use Treatment, Land Use Controls, and Long-Term Monitoring	Alternative 3 Source Area Treatment, Alternative Drinking Water Source, Land Use Controls, and Long-Term Monitoring	Alternative 4 Source Area Treatment, Point-of-Use Treatment, Land Use Controls, and Long-Term Monitoring
1. Protective of Human Health and the Environment	No	Yes	Yes	Yes
2. Attain Media Cleanup Standards	Yes, but will take an unacceptably long time.	Yes, but will take an unacceptably long time.	Yes	Yes
3. Control the Sources of Releases	No	No	Yes	Yes
4. Comply with Any Applicable Standards for Management of Wastes	Not applicable, no waste generated.	Not applicable, no waste generated.	Yes	Yes
5. Long-Term Reliability and Effectiveness	No	Yes	Yes	Yes
6. Reduction in the Toxicity, Mobility, or Volume of Wastes	No	No	Yes	Yes
7. Short-Term Effectiveness	No	Yes	Yes	Yes
8. Implementability	Technically feasible, but may not be administratively implementable given potential unacceptable risks.	Easily implementable as all elements of this alternative are already in place.	Difficult to implement both technically and administratively. Requires extensive off-post work including concurrence with multiple landowners, municipalities, and agencies.	Easily implementable as all elements of this alternative are already in place.
9. Cost Estimate Capital 30-Year Annual O&M Total Present Value	 $0 $0 $0	 $1,300 $16,443,984 $11,497,901	 $4,594,915 $37,927,568 $26,273,737	 $693,559 $38,804,837 $23,489,660
10. Sustainability	Not applicable.	Utilizes Best Management Practices (BMPs) of Green Remediation	Does not utilize BMPs of Green Remediation because the area disturbed is extensive and significant resources are utilized.	Utilizes BMPs of Green Remediation

PREFERRED ALTERNATIVE

Alternative 4 (Source Area Treatment, Point-of-Use Treatment, LUCs, and LTM) is recommended for implementation because it achieves the CAOs, achieves the highest reduction in TMV, and is effective over the short- and long-term. While Alternative 2 is estimated to be less costly, it does not meet all of the CAOs within a reasonable timeframe. Alternative 3 meets the CAOs, but is difficult to implement both technically, logistically, and administratively.

COMMUNITY PARTICIPATION

USEPA invites the public to review the Administrative Record (Environmental Encyclopedia) in order to gain a more comprehensive understanding of the RCRA investigation and corrective measures activities that have been conducted at the Facility. The Environmental Encyclopedia is available for review online at http://www.stanley.army.mil/index.htm, and at the following locations:

San Antonio Public Library
600 Soledad Street
San Antonio, TX 78205-1208
(210) 207-2500
Mon. – Thur. - 9:00 a.m. to 9:00 p.m.
Fri. & Sat. - 9:00 a.m. to 5:00 p.m.
Sun. - 11:00 a.m. to 5:00 p.m.

Patrick Heath Public Library
451 N. Main
Boerne, TX 78006
(830) 249-3053
Mon. – Thur. - 9:00 a.m. to 7:00 p.m.
Fri. - 9:00 a.m. to 6:00 p.m.
Sat. - 10:00 a.m. to 4:00 p.m.

USEPA welcomes public review and comment on all of the remedial alternatives described in this document and on any additional options not previously identified and/or studied. Public input on all potential remedial alternatives, and on the information that supports the alternatives, is an important contribution to the remedy selection process. USEPA may modify the proposed remedy or select another remedy based on new and/or substantive information presented to USEPA through public comments. Therefore, the public is encouraged to review and comment on all alternatives.

The public comment period for the Statement of Basis begins April 8, 2015, and ends on May 8, 2015. During the public comment period, written comments must be postmarked or emailed by May 8, 2015, submitted to:

lyssy.gregory@epa.gov or:

U.S. Environmental Protection Agency
New Mexico – Federal Facilities Section (6PD-F)
Attention: Greg Lyssy
1445 Ross Avenue
Dallas, Texas 75202

USEPA will also hold a public meeting beginning at 6:30 pm on April 23, 2015, to inform the community about the proposed remedy. The public meeting will be held at the following location:

Leon Springs Baptist Church
24133 Boerne Stage Road
San Antonio, TX 78255

USEPA will address all comments received during the public comment period in the Response to Comments/Final Decision document (RTC). The **RTC** will explain USEPA's rationale for the remedy selected to address contamination at CSSA. The preferred remedy in the Statement of Basis is a preliminary determination. Should another option be selected as the remedy based upon public comment, new information, or a re-evaluation of existing information, any significant differences from this Statement of Basis will be explained in the RTC. The RTC will be incorporated into the Administrative Record and made available to the public in the information repositories.

The final remedy selected by USEPA will be implemented through the CMI phase in the corrective action process, as outlined in the USEPA Order.

REFERENCES

Parsons 2014a. *Baseline Risk Assessment.* Prepared for Camp Stanley Storage Activity, Boerne, Texas. January.

Parsons, 2014b. *RCRA Facility Investigation Report for Camp Stanley Storage Activity*. Prepared for Camp Stanley Storage Activity, Boerne, TX by Parsons. August.

Parsons, 2014c. *Corrective Measures Study Report for Camp Stanley Storage Activity*. Prepared for Camp Stanley Storage Activity, Boerne, TX by Parsons. October.

USEPA, 1994. *RCRA Corrective Action Plan - Fina*l. Office of Solid Waste and Emergency Response, Washington, DC. May. Available online: http://www.epa.gov/epawaste/hazard/correctiveaction/resources/guidance/gen_ca/rcracap.pdf

USEPA, 1999. *Administrative Order on Consent. Docket No. RCRA-VI 002(h)99-H FY99. In the Matter of: Camp Stanley Storage Activity, Boerne, Texas,* United States Environmental Protection Agency, May.

USEPA, 2008. *Green Remediation: Incorporating Sustainable Environmental Practices into Remediation of Contaminated Sites*. Available online: http://ne-pis.epa.gov/Exe/ZyPURL.cgi?Dockey=P1000NZ3.txt

GLOSSARY OF TERMS

Administrative Order on Consent – A legal agreement issued by USEPA and signed by USEPA and potentially responsible parties (PRPs). It contains the details of a settlement whereby PRPs will conduct all or part of the cleanup at a site. It may be subject to a public comment period, and is enforceable in court. An administrative order on consent does not have to be approved by a judge. CSSA's Administrative Record is available at http://www.stanley.army.mil/.

Administrative Record – An administrative record is the complete body of documents that forms the basis for selecting a RCRA corrective action (i.e., documents considered or relied upon in selecting a remedy). The administrative record acts as a vehicle for public participation in selecting a response action because the administrative record must be made available for public inspection and comment during the appropriate comment periods.

Aquifer – A saturated geologic unit, often of sand or gravel, which contains and transmits significant quantities of water under normal conditions.

Area of Concern (AOC) – AOCs are those sites where field investigations and/or historical aerial photograph research indicate a possibility that waste disposal activities or spills may have taken place, as evidenced by disturbed areas, exposed surface debris, or detection of contamination.

Best Management Practices (BMPs) – Methods, measures, or practices that are determined to be reasonable and cost-effective means for a land owner to meet certain, generally nonpoint source, pollution control needs. BMPs include structural and nonstructural controls, and operation and maintenance procedures.

Bioremediation – Techniques using biological processes to treat contaminated soil or groundwater. Bioremediation can occur either *in situ* or in bioreactors where contaminated media are placed in contact with organisms to degrade the contaminants in a controlled environment. Generally, the technique involves stimulating organisms by adding materials such as nutrients or oxygen to increase the rate of biodegradation.

Carcinogenic – Describes a substance that causes or is likely to cause cancer.

Conceptual Site Model – A planning tool that provides the framework from which a study design is structured. It is frequently created as a site map that organizes information that already is known about a site.

Corrective Action Objective (CAO) – Site-specific objectives that support the performance standards. They are medium-specific (e.g., soil or groundwater) and must be linked to a cleanup standard in order to measure remedy performance.

Corrective Measure Implementation (CMI) – The process of designing, constructing, operating, maintaining, and monitoring the corrective remedy approved by the regulator on the basis of the information presented in the CMS.

Corrective Measures Study (CMS) – The objective of a CMS is to identify and evaluate alternative corrective measures and to recommend a corrective measure(s) for remediation of the contaminated site. To achieve this objective, the CMS considers all of the necessary data and information to evaluate the proposed alternatives.

Exposure – Human contact with a physical, chemical, or biological agent through dermal absorption, inhalation, injection, or ingestion.

Human Health Risk Assessment (HHRA) – Qualitative and quantitative evaluation of the risk posed to human health by the actual or potential presence of specific contaminants.

***In Situ* Chemical Oxidation (ISCO)** – ISCO involves the introduction of a chemical oxidant into the subsurface for the purpose of transforming groundwater or soil contaminants into less harmful chemicals.

Interim/Stabilization Measures (IM) – Under RCRA, interim/stabilization measures are the recommended actions that are used to quickly control risk of exposure to, or limit further migration of, contamination at a site.

Maximum Contaminant Level (MCL) – The maximum permissible level of a contaminant in water that is delivered to any user of a public water system.

Non-Carcinogenic Hazard – A number indicating whether a non-carcinogenic hazard is possible from a given concentration of a certain pollutant or group of pollutants. A hazard below 1.0 indicates that an effect is unlikely, while 1.0 or above indicates the possibility of an effect.

Phosphate-Induced Metal Stabilization (PIMS) – A technology that uses an Apatite II material (made from processed fish bones and other fish hard parts) that chemically binds metals into stable, insoluble minerals. PIMS works in all types of soils and groundwater, under most pH and environmental conditions, and at all contaminant concentrations.

Protective Concentration Limit (PCL) – Cleanup levels that are protective of human health and the environment as set forth by the TCEQ Texas Risk Reduction Program.

Range Management Unit (RMU) – An area currently or formerly occupied by a munitions range.

RCRA Facility Investigation (RFI) – The RFI takes place when releases, or potential releases, have been identified and further investigation is necessary. The purpose of the RFI is to gather enough data to fully characterize the nature, extent, and rate of migration of contaminants to determine the appropriate response action.

Regional Screening Level (RSL) – Screening developed using risk assessment guidance from the USEPA Superfund program that can be used for Superfund sites. They are risk-based concentrations derived from standardized equations combining exposure information assumptions with USEPA toxicity data. RSLs are considered by USEPA to be protective for humans (including sensitive groups) over a lifetime.

Residential Land Use – Property used for dwellings such as single family houses and multi-family apartments, children's homes, nursing homes, and residential portions of government-owned lands. Because of the similarity of exposure potential and the sensitive nature of the potentially exposed population, day care facilities, educational facilities, hospitals, and parks are also considered residential.

Resource Conservation and Recovery Act (RCRA) – A federal law intended to protect human health and the environment from the potential hazards of waste disposal, conserve energy and natural resources, reduce the amount of waste generated, and ensure that wastes are managed in an environmentally sound manner.

Solid Waste Management Unit (SWMU) – Includes any unit at a facility from which hazardous constituents might migrate irrespective of whether the units were intended for the management of solid and/or hazardous waste.

Toxicity, Mobility, and Volume (TMV) – Degree to which an alternative reduces (1) the harmful nature of the contaminants, (2) their ability to move through the environment, and (3) the amount of contamination at the site

Volatile Organic Compound (VOC) – An organic (carbon-containing) compound that evaporates (volatilizes) readily at room temperature.

ACRONYMS AND ABBREVIATIONS

AOC	Area of Concern
BFZ	Balcones fault zone
BMP	best management practices
BS	Bexar Shale
CAO	corrective action objectives
CC	Cow Creek
CMA	Corrective measures alternatives
CMI	Corrective Measures Implementation
CMS	Corrective Measures Study
CSM	conceptual site model
CSSA	Camp Stanley Storage Activity
GAC	granular activated carbon
HHRA	human health risk assessment
IH	Interstate Highway
IM	Interim/stabilization measures
ISCO	*in situ* chemical oxidation
LGR	Lower Glen Rose
LTM	Long-Term Monitoring
LUC	Land Use Controls
MCL	Maximum contaminant level
µg/L	Micrograms per liter
Order	Administrative Order on Consent
PCE	Tetrachloroethene
PCL	Protective Concentration Limits
PIMS	phosphate-induced metal stabilization
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RMU	Range Management Unit
RSL	regional screening level
RTC	Response to Comments
SAWS	San Antonio Water System
SWMU	Solid Waste Management Unit
TCE	Trichloroethene
TCEQ	Texas Commission on Environmental Quality
TDH	Texas Department of Health
TMV	toxicity, mobility, and volume
UGR	Upper Glen Rose
USEPA	U.S. Environmental Protection Agency
UU/UE	unrestricted use/unrestricted exposure
VOC	Volatile organic compound

CAMP STANLEY STORAGE ACTIVITY – PUBLIC COMMENT PERIOD

The 30-day public comment period for the Camp Stanley Storage Activity will begin on, April 8, 2015**,** and end on May 8, 2015. Your written comments must be postmarked or e-mailed by May 8, 2015. USEPA would like your comments on the Statement of Basis for Camp Stanley Storage Activity. Please write your comments below, then fold, tape, stamp, and mail this form. USEPA will address all comments received during the public comment period in the Response to Comments/Final Decision document (RTC). If you would like to receive a copy of the RTC, please state in your comments that you would like to receive the RTC and include your full name and address on the return address form.

CAMP STANLEY STORAGE ACTIVITY – PUBLIC COMMENT PERIOD
RCRA CORRECTIVE ACTION
PUBLIC COMMENT PERIOD

The public comment period for Camp Stanley Storage Activity begins APRIL 8, 2015. Your comments must be post marked by May 8, 2015.

Name: ______________________________________

Address: ______________________________________

City: ______________________________________

State and Zip: ______________________________________

U.S. EPA
Attn: Greg Lyssy
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