

Corrective Measures Implementation Program Plan for Camp Stanley Storage Activity



Prepared for:

Camp Stanley Storage Activity
Boerne, Texas

November 2015

EXECUTIVE SUMMARY

INTRODUCTION

In accordance with Section VI.4 of the Order, this Corrective Measures Implementation Program Plan (CMIPP) consists of two parts: the Program Management Plan (PMP) and the Community Relations Plan (CRP). The purpose of the PMP is to document the overall management strategy for performing the design, construction, operation, maintenance and monitoring of the corrective measures specified in the Statement of Basis (USEPA, 2015) for the remediation of groundwater at CSSA. The purpose of the CRP is to inform the public of the issues and remediation alternatives at CSSA.

FACILITY BACKGROUND

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 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.

SUMMARY OF ENVIRONMENTAL HISTORY

Contamination from past disposal activities resulted in multiple groundwater units, referred to as Plume 1 (Solid Waste Management Unit (SWMUs B-3 and O-1) and Plume 2 (Area of Concern (AOC)-65). Plume 1 has advectively migrated southward and west-southwest toward CSSA well fields and several off-post public and private wells. Due to its proximity to SWMU B-3, groundwater at SWMU O-1 was evaluated as part of the SWMU B-3 investigation. Contamination at Plume 2 originated at AOC-65, and spread southward and westward from the post. The greatest concentrations of solvents are reported at the near subsurface adjacent to the source area.

In general, due to the depth of groundwater (greater than 100 feet), the faulted karst nature of the aquifer, the existence of plumes associated with two areas (SWMUs B-3/O-1 and AOC-65), and CSSA's ongoing groundwater monitoring program, investigation of groundwater was conducted on a sitewide scale rather than during the investigation and closure of each individual SWMU, AOC, or RMU. CSSA is actively implementing remediation options for groundwater contamination associated with SWMU B-3/O-1 (Plume 1) and AOC-65 (Plume 2) as detailed in the Corrective Measures Study (CMS) Report (Parsons, 2014b).

SUMMARY OF CORRECTIVE MEASURES

Corrective action objectives (CAOs) were developed during the CMS to identify goals for reducing hazards to ensure protection of human health, safety, and the environment. The CAOs were intended to be as specific as possible, without limiting the range of alternatives that could be developed or to prescribe a particular alternative. CAOs for groundwater at CSSA include:

1. Control migration of contaminated groundwater through source area treatment so contaminants of concern (COCs) above Maximum Contaminant Levels (MCLs) do not migrate to groundwater in adjacent areas where concentrations are below MCLs.
2. Prevent human exposure to groundwater containing COCs at concentrations that exceed MCLs.
3. Control and monitor on-site worker dermal contact with, or ingestion of, COCs in shallow groundwater.

Source area treatment, point-of-use treatment, land use controls (LUCs), and long-term monitoring (LTM) are the recommended corrective measures for to achieve the CAOs, the highest reduction in toxicity, mobility, and volume (TMV), and to be effective over the short- and long-term.

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ACRONYMS AND ABBREVIATIONS

AOC	Area of Concern
CRP	Community Relations Plan
CQA	Construction Quality Assurance
COC	contaminants of concern
CAO	Corrective Action Objective
CMA	Corrective Measures Alternative
CMD	Corrective Measures Design
CMI	Corrective Measures Implementation
CMIPP	Corrective Measures Implementation Program Plan
CMS	Corrective Measures Study
CSSA	Camp Stanley Storage Activity
DQO	Data Quality Objective
EE	Environmental Encyclopedia
GAC	Granular-Activated Charcoal
HASP	Health and Safety Plan
HHRA	Human Health Risk Assessment
ISCO	<i>in situ</i> Chemical Oxidation
LTM	Long-Term Monitoring
LUC	Land Use Control
MCL	Maximum Contaminant Limit
O&M	Operations & Maintenance
Order, the	Administrative Order on Consent
POC	Point of Contact
PMP	Program Management Plan
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RMU	Range Management Unit
ROE	Rights of Entry
SWMU	Solid Waste Management Unit
TCEQ	Texas Commission on Environmental Quality
TMV	toxicity, mobility, and volume
UIC	underground injection control
USEPA	U.S. Environmental Protection Agency
UU/UE	unrestricted use/unrestricted exposure

SECTION 1 INTRODUCTION

1.1 BACKGROUND

Camp Stanley Storage Activity (CSSA) is located in northwestern Bexar County, Texas about 19 miles northwest of downtown San Antonio and 11 miles southeast of Boerne (**Figure 1.1**). As a result of the groundwater contamination, the U.S. Environmental Protection Agency's (USEPA) issued CSSA an Administrative Order on Consent (the Order) under Section 3008(h) of the Resource Conservation and Recovery Act (RCRA) on May 5, 1999. With the Order, USEPA is the lead agency for investigation and remediation of groundwater.

A total of 85 sites, including 39 solid waste management units (SWMUs), 41 areas of concern (AOCs), and 5 Range Management Units (RMUs), have been identified at CSSA since 1993, and investigations and interim removal actions (if warranted) were conducted at a total of 83 of those sites. As of July 2014, 77 waste disposal sites were either delisted or closed to unrestricted use/unrestricted exposure (UU/UE) in accordance with Texas Commission on Environmental Quality (TCEQ) requirements. A summary of past investigations and findings is provided in the RCRA Facility Investigation (RFI) Report (Parsons, 2014a).

Five of the seven remaining sites are part of the active firing range, and contaminated soil at these sites will be addressed when the range is no longer active. The two remaining open sites at CSSA, SWMU B-3/O-1 and AOC-65, are the sources of groundwater contamination, and are the focus of groundwater remediation efforts going forward. The Corrective Measures Study (CMS) Report (Parsons, 2014b) details several corrective measures alternatives evaluated for SWMU B-3/O-1 and AOC-65. Both the CMS and RFI Reports are available in Volume 7 of the CSSA Environmental Encyclopedia (EE) (<http://www.stanley.army.mil/>) which serves as the Administrative Record for the Order.

1.2 PURPOSE AND OBJECTIVES

In accordance with Section VI.4 of the Order, this Corrective Measures Implementation Program Plan (CMIPP) consists of two parts: the Program Management Plan (PMP) and the Community Relations Plan (CRP). The purpose of the PMP is to document the overall management strategy for performing the design, construction, operation, maintenance and monitoring of the corrective measures specified in the Statement of Basis (USEPA, 2015) for the remediation of groundwater at CSSA. The purpose of the CRP is to inform the public of the environmental issues and remediation alternatives at CSSA.

The chosen remedial alternative for contaminated groundwater at CSSA includes source area treatment, point-of-use treatment, land use controls (LUCs), and long-term monitoring (LTM). This alternative involves implementing institutional and engineering LUCs to prevent contact with contaminated media. Current off-post point-of-use treatment systems (Granular-Activated Charcoal (GAC) units) would continue to be operated and monitored, and new GAC units would be installed at additional off-post drinking water wells if necessary. The use of bioremediation to treat source area contamination at SWMU B-3 and *in situ* Chemical Oxidation

(ISCO) to treat source area contamination at AOC-65 would be continued. LTM of groundwater, both on- and off-post, will continue, with optimizations as appropriate.

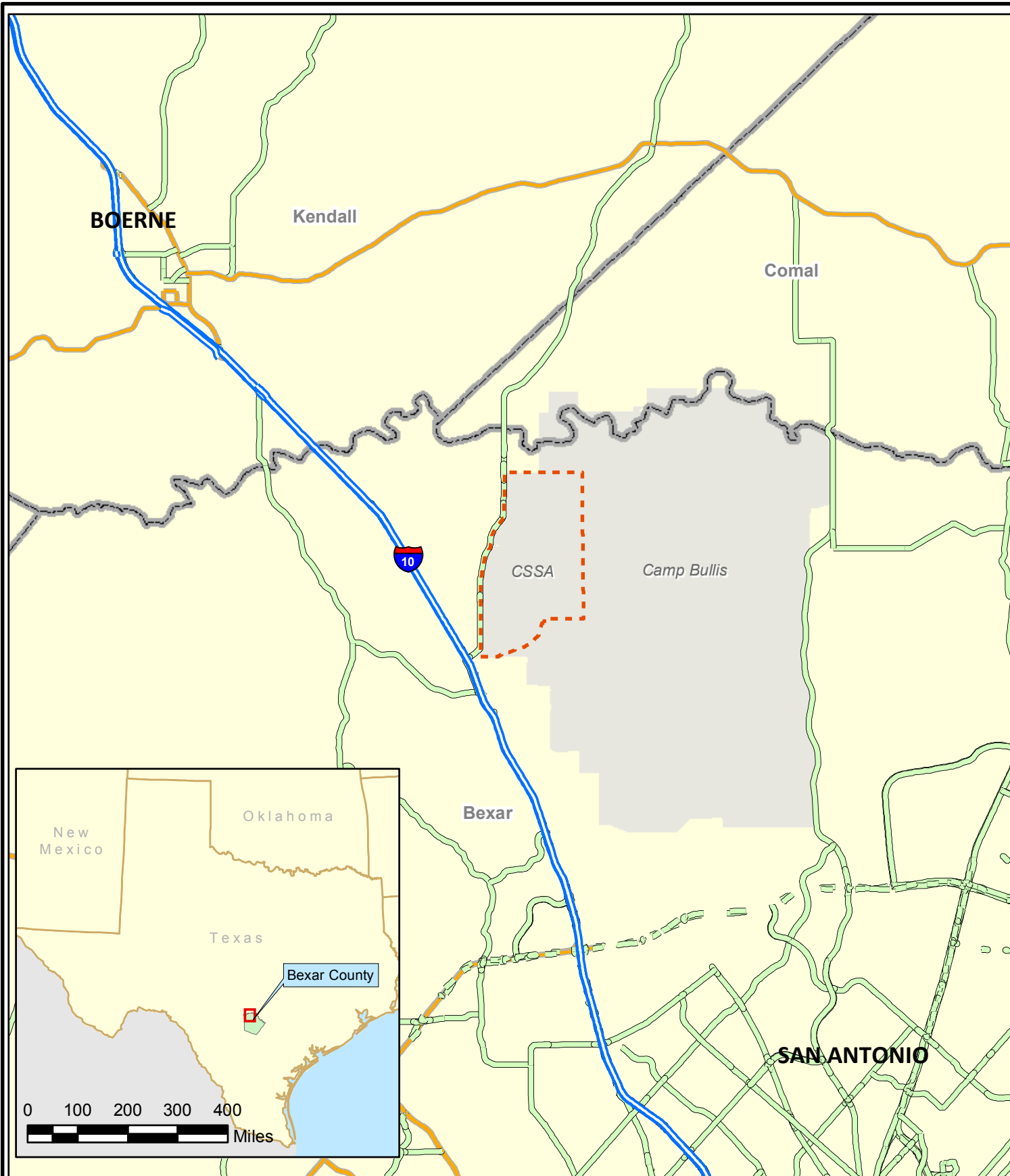
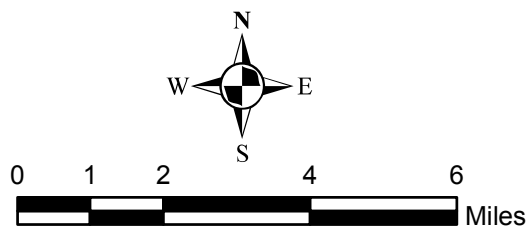


Figure 1.1

CSSA Location Map
Camp Stanley Storage Activity

PARSONS



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

SECTION 2

PROGRAM MANAGEMENT PLAN

This section describes roles, responsibilities, and contact information for parties responsible for the Corrective Measures Implementation (CMI): the regulatory authority – USEPA; the owner – CSSA; and the contractor – Parsons.

2.1 REGULATORY AUTHORITY

The USEPA has is the lead regulatory agency for selecting and implementing final corrective measures for CSSA. USEPA consults with the TCEQ.

2.2 PROJECT ORGANIZATION AND RESPONSIBILITIES

The project organization for implementing remedial activities at CSSA is shown on **Figure 2.1**.

Project responsibilities and authority are outlined in the Responsibility (RACI) matrix presented in **Table 2.1**. The term “RACI” stands for Responsible (R), Accountable (A), Consulted (C), and Informed (I) where each letter indicates the entity’s role(s) in performing the indicated task. The entity that is assigned the role type ‘Responsible’ is the one who performs the work. In other words they are the ‘doer’ of the task or activity. The person who is ‘Responsible’ need not be accountable for that task, even though in some cases the same person can be ‘Responsible’ and ‘Accountable.’ The degree of ‘Responsibility’ can vary and multiple roles can share the responsibility of a single task. ‘Accountable’ is the person or role who has the final authority and accountability to a given task. For any given task, there is only one role/person accountable. ‘Consulted’ are the people/roles who are consulted and taken advice from before and during performance of the task. ‘Informed’ are the people/roles who are informed **after** the task is completed.

Figure 2.1
Project Organization Chart

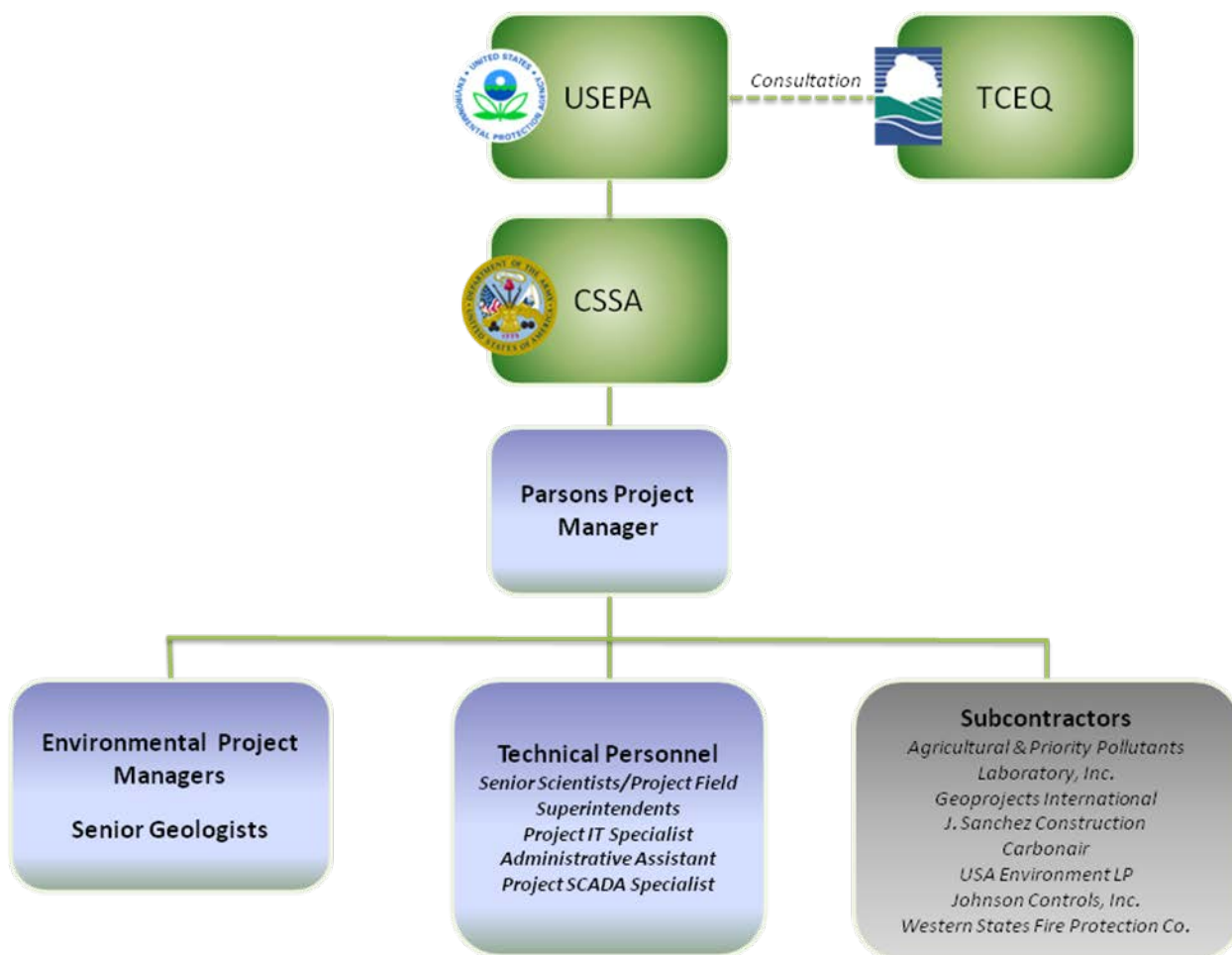


Table 2.1
Project Responsibility Matrix

Tasks	Frequency	CSSA	USEPA	Parsons
Overall Project Management				
Monitor, assess, record, and report on the technical performance of the corrective measures	Annually	A	C	R
Participate in project related meetings/calls	Weekly	A, R	C, I	R
Manage all requirements of the project	Daily	A	C	R
Oversee performance of all individuals on the project team	Daily	C		A, R
Coordinate contract work	As needed	A		R
Oversee specific task identification and resolutions	As needed	A	C	R
Schedule field efforts, ensure that equipment and manpower needs are met, implement project QC and safety procedures, and direct personnel to achieve successful and timely completion of the project task	As needed	C	I	A, R
Prepare and update project site Health and Safety Plan (HASP) and project work plans to ensure compliance with the project HASP	As needed	I		A, R
Perform field audits	Annually	I		A, R
Oversee activities to ensure that the project complies with health and safety requirements		I		A, R
Identify and report any quality deficiencies	As needed	I	I	A, R
Evaluate and verify corrective action measures to address deficiencies	As needed	I	I	A, R
Groundwater Monitoring				
Update Data Quality Objectives (DQOs)	As needed	A	C, I	R
Optimize groundwater monitoring program	Every 5 years	A	C, I	R

Table 2.1
Project Responsibility Matrix (continued)

Groundwater Monitoring (cont.)				
Collect groundwater samples in accordance with DQOs	Quarterly	I	I	A, R
Obtain Rights of Entry (ROEs)	As needed	I		A, R
Maintain GAC units	As needed	I		A, R
Install new GAC units	As needed	A	C, I	R
Plume 1 - Bioremediation				
Underground Injection Control (UIC) Permit Reporting	Annually	I		A, R
UIC Permit Sampling	Semi-annually	I		A, R
Performance Sampling	Semi-annually	I		A, R
Operations & Maintenance (O&M)	Monthly	I		A, R
Repairs	As needed	C, I		A, R
Plume 2 - Bioremediation				
UIC Permit Reporting	Annually	I		A, R
Post-Injection Sampling	Monthly for 3 months	I		A, R
Performance Sampling	Quarterly	I		A, R
O&M	As needed	I		A, R
Repairs	As needed	C, I		A, R
Documentation				
Corrective Measures Design Report	Once	A	C, I	R
Construction QA Program Plan	Once	A	C, I	R
CMI Report	Once	A	C, I	R
Progress Reports	Annually	A	C, I	R

R = Responsible, A = Accountable, C = Consulted, I = Informed

2.2.1 Points of Contact

The Points of Contact (POCs) for CSSA, USEPA, and Parsons are included in **Table 2.2** below. This table will be updated if changes in POC status occur.

Table 2.2
Project Points of Contact

Name/Title/Address	Phone	Fax	Email
Contracting Officer Camp Stanley Storage Activity 25800 Ralph Fair Road Boerne, TX 78015	210-531-8720	210-295-7009	mailto:acquisitions@cssamma.com
Felicia Krintz Environmental and Safety Program Manager Camp Stanley Storage Activity 25800 Ralph Fair Road Boerne, TX 78015	210-295-7067	210-861-5217	krantz@cssamma.com
Julie Burdey, PG Project Manager Parsons 8000 Centre Park Dr, Suite 200 Austin, TX 78754	512-719-6062 Cell: 512-825-4281	512-719-6099	julie.burdey@parsons.com
Ken Rice Environmental Manager Parsons 8000 Centre Park Dr, Suite 200 Austin, TX 78754	512-719-6050	512-719-6099	ken.r.rice@parsons.com
Jerry Ostrowiecki Contracts Manager Parsons 100 W Walnut Street Pasadena, CA 91124	626-440-2037	626-440-2977	jerry.ostrowiecki@parsons.com
Scott Pearson, PG Technical Director Parsons 8000 Centre Park Dr, Suite 200 Austin, TX 78754	512-719-6087 Cell: 512-657-5797	512-719-6099	scottpearson@parsons.com
Ed Grunwald, CIH Health and Safety Manager Parsons 3577 Parkway Lane Norcross, GA 30092	678-969-2394 Cell: 678-429-6887	770-446-4910	ed.grunwald@parsons.com
Claudia Torres Subcontract Administrator Parsons 219 E Houston Street San Antonio, TX 78205	210-805-2282	210-227-9704	claudia.torres@parsons.com

2.3 DOCUMENTATION AND REPORTS

2.3.1 Corrective Measures Design Report

CSSA will prepare a Corrective Measures Design (CMD) Report that addresses the requirements necessary to implement the selected corrective measures. The CMD Report will include the following elements for SWMU B-3, AOC-65, and associated groundwater contamination at CSSA (further detailed in Attachment 1, Task XII of the Order):

- Design Plans and Specifications;
- Operation and Maintenance Plan;
- Cost Estimate;
- Project Schedule;
- Construction Quality Assurance Objectives;
- Health and Safety Plan;
- Design Phases; and
- Pre-Final and Final Designs

2.3.2 Construction Quality Assurance Plan

CSSA will prepare a Construction Quality Assurance (CQA) Plan that ensures, with a reasonable degree of certainty, that the completed corrective measures meet or exceed all design criteria, plans, and specifications. The CQA Plan will include the following elements (further detailed in Attachment 1, Task XIII of the Order):

- Responsibility and Authority;
- Inspection Activities;
- Sampling Requirements; and
- Documentation

2.3.3 Progress Reports to USEPA

CSSA will submit semi-annual progress reports to USEPA during the operation and maintenance of the corrective measures per Attachment 1, Task XIV of the Order. Progress reports will address the following:

- Summaries of all findings and data;
- Summaries of any changes made to the corrective measures during the reporting period;
- Summaries of contact with the local community or State government during the reporting period;
- Summaries of all problems or potential problems encountered during the reporting period;

- Actions taken to rectify problems;
- Projected work for the next period; and
- Copies of applicable daily reports, inspection reports, laboratory data, etc.

2.3.4 Additional Reporting

On- and off-post monitoring reports will be submitted quarterly and annually, and off-post well owners will be provided with monitoring results for their well(s). Parsons will continue to update the administrative record (Environmental Encyclopedia) with copies of all plans and reports submitted to regulators, meeting minutes from technical progress meetings, and key correspondence between CSSA and regulatory agencies. The Environmental Encyclopedia is available to the public at www.stanley.army.mil

2.4 MEETINGS

Weekly planning meetings will be conducted via teleconference between CSSA and Parsons project staff to discuss technical, administrative, and/or health and safety aspects of the corrective measures at CSSA.

Regulatory meetings with USEPA will be conducted on a regular basis (annually or semi-annually as the project progresses) to discuss the status of and future plans or optimization for the corrective measures.

CSSA will hold a public meeting approximately every 5 years to facilitate continued community participation in the CSSA environmental program, if deemed necessary. These meetings will be advertised in the local newspapers, and through invitation to community members on the CSSA mailing list.

SECTION 3

IMPLEMENTATION SCHEDULE

The corrective measures for SWMU B-3 (bioreactor), AOC-65 (ISCO), and groundwater (LTM and GAC) are already in place at CSSA. Sampling to ensure these corrective measures continue to be protective of human health and the environment, as well as address source area contamination, will occur as follows unless the LTM program is optimized by USEPA:

- The SWMU B-3 Bioreactor will be sampled on a semi-annual (6-month) basis.
- AOC-65 ISCO samples will be collected at 30, 60, and 90 days following injections; and monitored on a quarterly basis thereafter.
- On- and off-post drinking water and groundwater monitoring wells will be sampled according to the current DQOs and LTM program, with a “snapshot” event occurring every 9 months.

SECTION 4

COMMUNITY RELATIONS PLAN

The CRP for CSSA is included as Appendix A of this CMIPP.

SECTION 5 REFERENCES

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

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

USEPA, 2015. *Statement of Basis, RCRA Corrective Action, Camp Stanley Storage Activity, Boerne, Texas*. USEPA Region 6. March.

Appendix A

Community Relations Plan

COMMUNITY RELATIONS PLAN UPDATE



Prepared for:

Department of the Army
Camp Stanley Storage Activity
Boerne, Texas

July 2014

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ACRONYMS AND ABBREVIATIONS

µg/L	Microgram per liter
AOC	Area of Concern
CMI	Corrective Measures Implementation
CMS	Corrective Measures Study
COC	Contaminants of Concern
CRP	Community Relations Plan
CSSA	Camp Stanley Storage Activity
DCE	Dichloroethene
EA	Environmental Assessment
GAC	Granular Activated Carbon
IM	Interim Measure
LTMO	Long-Term Monitoring Optimization
MCL	Maximum Contaminant Level
MDL	Method Detection Limit
Order	Section 3008(h) Administrative Order on Consent
PAO	Public Affairs Officer
PCE	Tetrachloroethene
PCL	Protective Concentration Limit
ppb	parts per billion
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RFA	RCRA Facility Assessment
RMU	Rifle Management Unit
RRS1	Risk Reduction Standard One
RTC	Response to comment
SB	Statement of Basis
SVE	Soil Vapor Extraction
SWMU	Solid Waste Management Unit
TAC	Texas Administrative Code
TCE	Trichloroethene
TCEQ	Texas Commission on Environmental Quality
the Plan	Off-post Monitoring Response Plan
TRRP	Texas Risk Reduction Program
U.S.	United States
USEPA	U.S. Environmental Protection Agency
VOC	Volatile organic compound

SECTION 1 INTRODUCTION

1.1 PURPOSE

The Community Relations Plan (CRP) for Camp Stanley Storage Activity (CSSA) is a formal plan for documenting community relations activities performed by CSSA and planned for the future. The CRP is a requirement under the May 5, 1999, **§3008(h) Administrative Order on Consent** (Order) issued by the United States Environmental Protection Agency (USEPA).

The initial CRP was completed in August 1999, and outlined the process of community involvement, availability of the document, and public comment opportunities to be conducted throughout the investigation and remediation processes. CSSA conducted various community outreach activities from August 1999 to the present. The CRP was updated in 2002 with recommendations for additional community outreach activities. The CRP was again updated in May 2006 to summarize CSSA's activities to involve the local community in the environmental program at CSSA through April 2006, and provided results of community surveys conducted to determine if the outreach activities are effective.

The CRP focuses on environmental work conducted under the Resource Conservation and Recovery Act (RCRA). The August 1999 CRP, the December 2002 and May 2006 updates, and this update are located in **Volume 1-6, Other Plans and Approaches**, behind the **Community Relations Plan** tab.

The CRP helps provide the widest possible dissemination of information regarding post restoration activities at CSSA. Further information about this CRP can be obtained by contacting Mr. Jason D. Shirley, CSSA Installation Manager. The Public Affairs Officer (PAO) from Fort Sam Houston, Mr. Phil Reidinger, supports Mr. Shirley in responding to inquiries from the public. An administrative record of environmental activities being performed at CSSA is available for public review on the internet at www.stanley.army.mil.

This updated CRP is consistent with federal and state guidance for implementing community relations efforts and will be updated, as appropriate, throughout the environmental restoration process. The restoration processes are collectively referred to as the "environmental program" throughout the remainder of this document.

1.2 REGULATORY COMPLIANCE

An environmental assessment (EA) conducted under RCRA was performed in 1993 to identify and describe potential environmental impacts associated with current and past operations. The EA serves as the RCRA Facility Assessment (RFA) required under the RCRA Corrective Action Process. Additional information regarding the EA is located in **Volume 1-1, Scoping Documents, Work Plans, Environmental Assessment (Parsons, September 1993)**. The Order sets out the RCRA requirements and time frames for the Corrective Action Process at CSSA, including the Interim Measures (IM), RCRA Facility Investigations (RFI), and Corrective Measures Study (CMS). A key component of the Corrective Action Process is to inform the public of the issues and remediation alternatives, and to solicit public input. This

CRP describes the activities that CSSA has performed to inform the public and solicit public input. Appendix A provides an overview of the Corrective Action Process, the required documents, and the associated public involvement activities.

SECTION 2

LOCATION AND HISTORY OF CAMP STANLEY STORAGE ACTIVITY

CSSA, formerly known as Leon Springs Military Reservation, is located in Bexar County, northwest of downtown San Antonio (**Figure 1**). The post consists of approximately 4,000 acres immediately east of State Highway 3351, approximately 0.5 mile east of Interstate Highway 10. Camp Bullis borders CSSA on the east and south (**Figure 2**). The land on which 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, and other lands were acquired through the 1950s and 1960s. The land included campgrounds and cavalry shelters.

In October 1917, the post was designated Camp Stanley. The United States (U.S.) involvement in World War I spurred extensive construction to provide housing for temporary cantonments and installation support facilities. In 1931, Camp Stanley was selected as an ammunition depot, and construction of standard magazines and igloo magazines began in 1938. Camp Stanley was transferred to the jurisdiction of the Red River Army Depot in 1949. In addition to ammunition storage, CSSA land was used to test, fire, and overhaul ammunition components. In 2005, CSSA was placed under the Jurisdiction of McAlester Army Ammunition Plant, U.S. Army Field Support Command, Army Materiel Command, U.S. Army.

Today, the primary mission of CSSA is the receipt, storage, issuance, and maintenance of ordnance materiel. Because of its ordnance mission, CSSA is a restricted-access facility. No significant changes to the CSSA mission and military activities are expected in the foreseeable future.

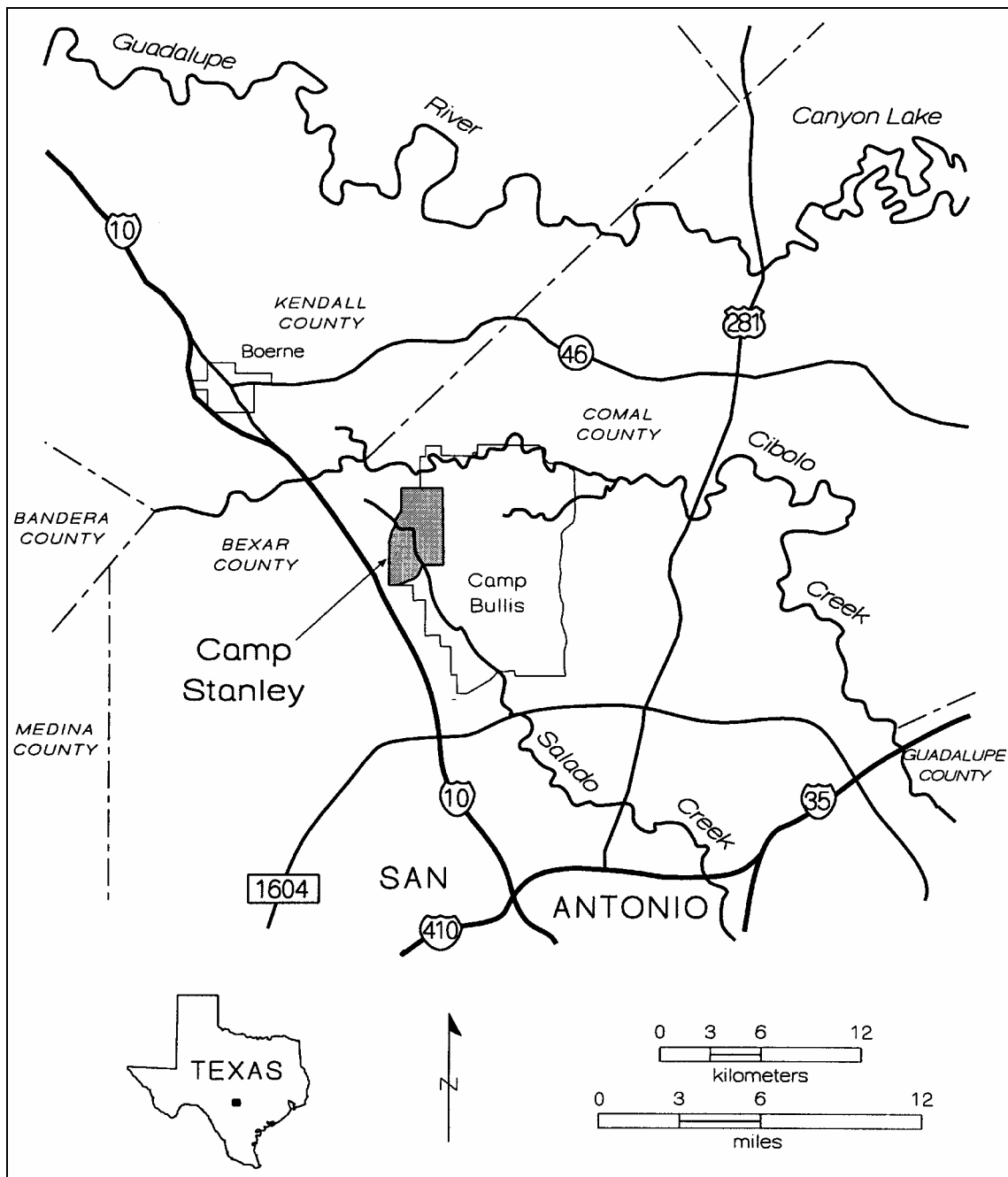
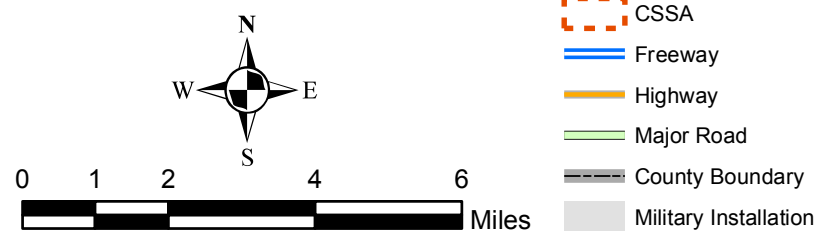
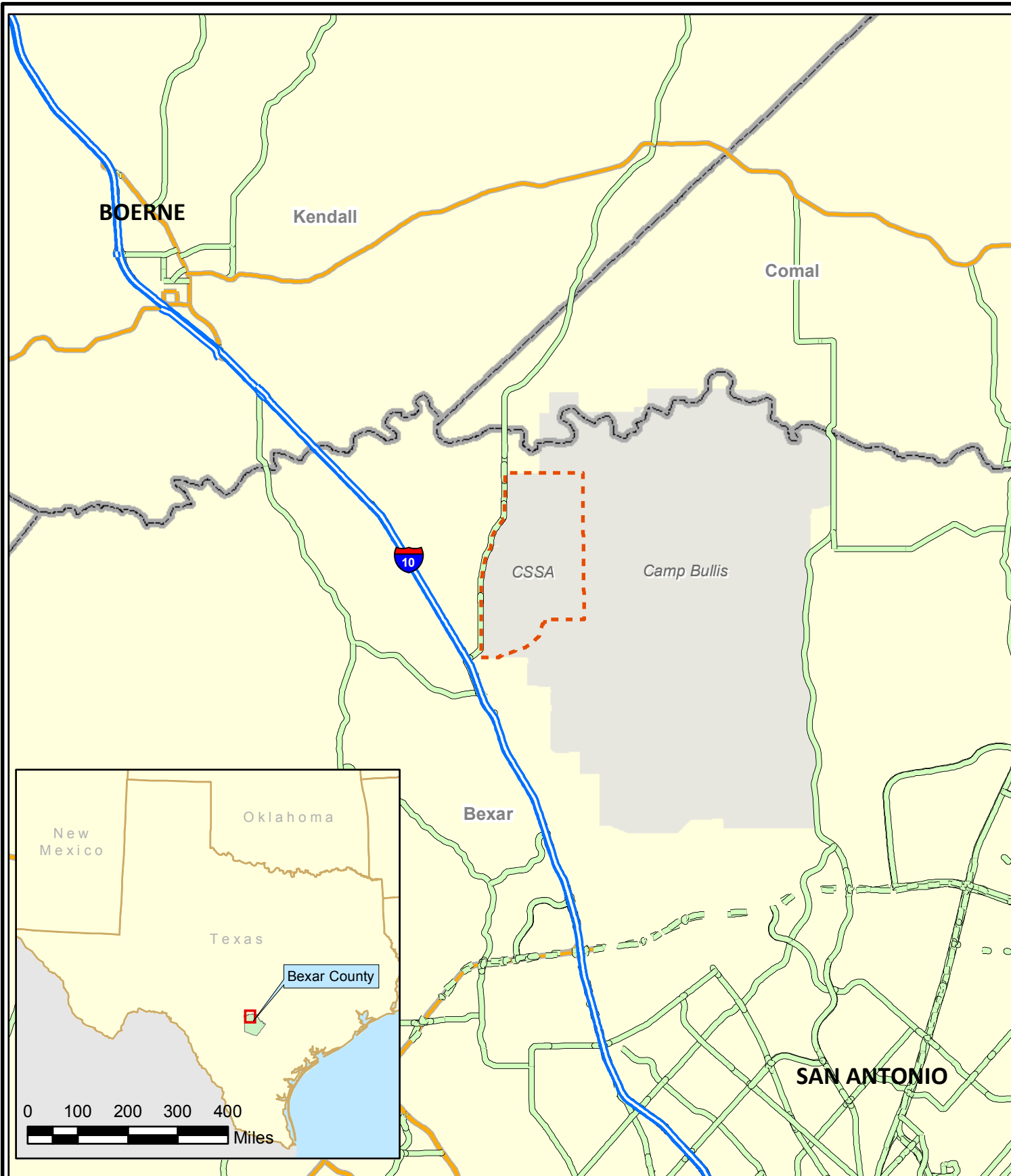


Figure 1: Location Map



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

Figure 2

CSSA Location Map
Camp Stanley Storage Activity

PARSONS

SECTION 3

HISTORY OF ENVIRONMENTAL ASSESSMENTS AT CSSA

The 1993 EA was performed to identify and describe potential environmental impacts associated with current and past operations. The EA also addressed the groundwater contamination that was first identified in 1991. Additional information regarding the EA is located in **Volume 1-1, Scoping Documents, Work Plans, Environmental Assessment (Parsons, September 1993)**.

This section provides a brief overview of ongoing groundwater and waste management unit investigations at CSSA. **Appendix B**, Status of Actions/Investigations, provides a comprehensive listing of corrective action events from 1991 to the present along with the status of each site.

3.1 GROUNDWATER

The Trinity aquifer is the principal aquifer underlying CSSA. The Middle Trinity aquifer is composed of the Lower Glen Rose Limestone, the Bexar Shale, and the Cow Creek Limestone formations. The Middle Trinity aquifer is the primary source of drinking water in northern-most Bexar County, including the area surrounding CSSA.

Like the surrounding community, CSSA uses the Middle Trinity aquifer as its water source. During a routine screening site visit on August 9, 1991, the Texas Department of Health sampled CSSA's five water supply wells. Analytical results revealed that water supply well CS-16 contained 127 micrograms per liter ($\mu\text{g/L}$) *cis*- and *trans*-1,2-dichloroethene (DCE) (*cis*-1,2-DCE and *trans*-1,2-DCE), 151 $\mu\text{g/L}$ trichloroethene (TCE), and 137 $\mu\text{g/L}$ tetrachloroethene (PCE). These concentrations exceed the drinking water maximum contaminant levels (MCL) of 70 $\mu\text{g/L}$ for *cis*-1,2-DCE, 100 $\mu\text{g/L}$ for *trans*-1,2-DCE, 5 $\mu\text{g/L}$ for TCE, and 5 $\mu\text{g/L}$ for PCE. Subsequent sampling on August 23, 1991, confirmed the earlier results, and well CS-16 was taken out of service and disconnected from the potable water system. Well locations are shown in Figure E-1 in Appendix E.

Detection of contaminants above MCLs in groundwater spurred groundwater investigation and monitoring programs at CSSA. Since 1992, numerous groundwater monitoring events have been conducted at CSSA. As part of these events, all on-post wells and selected off-post wells were sampled. Quarterly monitoring began on-post in December 1999, was expanded to include off-post wells in September 2001, and currently continues to include both on- and off-post wells. Additional wells have been installed to monitor groundwater quality in various locations at CSSA.

Groundwater monitoring at CSSA includes a total of 49 wells, including potable water supply wells, agricultural water supply wells, discrete interval and standard groundwater monitoring wells, on-post. As new wells are installed in the vicinity by private landowners and utilities off-post, CSSA evaluates them for inclusion in its groundwater monitoring program, using the **Off-Post Groundwater Monitoring and Response Plan**. For detailed information

pertaining to analytical results from groundwater monitoring events, refer to **Volume 5, Groundwater Investigation** of the **CSSA Environmental Encyclopedia**, specifically the **On-post Groundwater Monitoring** and **Off-post Groundwater Monitoring** tabs.

The Edwards aquifer does not occur within CSSA boundaries. However, the Edwards Underground Water District has defined two recharge and transition zones of concern for the Edwards aquifer; one north and one south of CSSA. One recharge area is along Cibolo Creek where outcrops of the Lower Glen Rose are present. This is the only area of the Lower Glen Rose that is defined as a recharge zone to the Edwards aquifer. The Cibolo Creek recharge area is 0.5 mile north of the northeast corner of CSSA. A second recharge zone located on Edwards Limestone is about 4 or 5 miles to the south-southeast of CSSA.

3.2 WASTE MANAGEMENT UNITS

Thirty-nine potential solid waste management units (SWMU) were identified during the EA following a review of records and historic aerial photographs, interviews with CSSA personnel, and field CSSA investigations. The identified sites were areas used for solid waste disposal, four burn areas (B-1, B-2, B-4, and B-22), two ordnance demolition areas (B-20 and Building 43), one incinerator (I-1), one oxidation pond (O-1), and one less than 90-day waste materials storage area (F-14).

Forty-one potential Areas of Concern (AOC) were also identified. AOCs are those sites where field investigations and/or historical aerial photograph research indicate a possibility that waste disposal activities may have taken place, as evidenced by disturbed areas or exposed surface debris. Since there are no records at CSSA that waste activities actually took place at those AOCs, they are considered to be low priority sites.

Field surveys indicated spent ammunition at five Range Management Units (RMUs). One RMU (RMU-1) still serves as an active firing range. As of 2013, RMU-1 also includes SWMUs B-2, B-8, B-20/21, and B-24. Table 3.1 summarizes site status.

Table 3.1 Site Status Summary

Status	SWMUs	AOCs	RMUs
RRS1 Closure (Approved or Pending TCEQ Approval)	23	15	
De-listed	2	5	
NFA/TRRP	9	20	4
Investigation or Remediation in Progress	5*	1	
No action to date			1
Total:	35	41	5

*SWMUs B-2, B-8, B-20/21, and B-24 were combined with RMU-1 as part of the active range fan in 2013. Although these four sites have been investigated in the past, no further investigation or remediation will occur at these SWMUs until RMU-1 is no longer active.

Remediation and closure activities have been initiated at most of these sites, as described in the following paragraphs.

3.3 SWMU CLOSURE

CSSA environmental investigations identified 39 SWMUs, 41 AOCs, and five RMUs as potential contamination source areas. Through May 2005, the clean-up or closure strategy for CSSA's SWMUs and AOCs followed Texas Commission on Environmental Quality (TCEQ) Risk Reduction Rules (30 Texas Administrative Code [TAC] §335 Subchapter S). After May 2005 the clean-up or closure strategy for these sites fell under the Texas Risk Reduction Program (TRRP) 30 TAC §350, which became effective May 1, 2000. As of June 2014, the TCEQ approved Risk Reduction Standard 1 (RRS1) closure of 38 sites, de-listing of seven sites, and No Further Action for 29 sites. Table 3.2 provides a list of waste management units at CSSA. Information specific to each site is included in **Volume 1-1**, behind the **Investigation Matrix** tab of the **CSSA Environmental Encyclopedia**.

Remaining open sites (highlighted in Table 3.2) will eventually be closed in accordance with TRRP. TRRP has three tiers of acceptable Protective Concentration Limits (PCL) which are established levels for constituents in an environmental medium considered safe for human health and the environment. Tier I PCLs are based on conservative default assumptions regarding chemical mobility or exposure risk factors about the contaminant and site conditions. Tiers II and III incorporate increasing amounts of site-specific information to calculate a PCL that is more reflective of actual site conditions. While Tiers II and III provide more accurate representations of site conditions, they are more labor intensive and thus are more expensive.

For sites where constituent levels concentrations exceed the applicable PCLs, there are two Remedy Standards available to complete the remedial action (Remedy Standards A and B). Remedy Standard A requires that constituents above the PCL be removed or decontaminated to acceptable levels in all areas. This standard is useful for small sites, sites that are being sold or transferred, and sites near the property boundaries. Remedy Standard B allows consideration of migration of the constituents to a point of exposure not necessarily at the source of the contamination. This standard will allow constituents to remain in place at concentrations greater than the PCL with controls, but will not allow the migration of contaminants off-site.

The choice of the appropriate Tier and Remedy Standard is dependent on numerous site conditions. Therefore, the choice for each site must be evaluated carefully before a decision is made.

Table 3.2 Waste Management Units at CSSA

Solid Waste Management Units	Areas of Concern	Range Management Units
SWMU B-1 (RRS1 closed)	AOC-35 (RRS1 closed)	RMU-1
SWMU B-2*	AOC 36 (RRS1 closed)	RMU-2 (NFA closed)
SWMU B-3	AOC-37 (RRS1 closed)	RMU-3 (NFA closed)
SWMU B-4 (TRRP closed)	AOC-38 (NFA closed)	RMU-4 (NFA closed)
SWMU B-5 (RRS1 closed)	AOC-39 (RRS1 closed)	RMU-5 (NFA closed)
SWMU B-6 (RRS1 closed)	AOC-40 (RRS1 closed)	
SWMU B-7 (RRS1 closed)	AOC-41 (NFA closed)	
SWMU B-8*	AOC-42 (NFA closed)	
SWMU B-9 (RRS1 closed)	AOC-43 (RRS1 closed)	
SWMU B-10 (RRS1 closed)	AOC-44 (de-listed)	
SWMU B-11 (RRS1 closed)	AOC-45 (NFA closed)	
SWMU B-12 (RRS1 closed)	AOC-46 (RRS1 closed)	
SWMU B-13 (NFA closed)	AOC-47 (RRS1 closed)	
SWMU B-14 (de-listing requested)	AOC-48 (RRS1 closed)	
SWMU B-15/16 (NFA closed)	AOC-49 (de-listed)	
SWMU B-19 (RRS1 closed)	AOC-50 (RRS1 closed)	
SWMU B-20/21*	AOC-51 (NFA closed)	
SWMU B-22 (RRS1 closed)	AOC-52 (NFA closed)	
SWMU B-23 (RRS1 closed)	AOC-53 (RRS1 closed)	
SWMU B-23A (RRS1 closed)	AOC-54 (RRS1 closed)	
SWMU B-24*	AOC-55 (RRS1 closed)	
SWMU B-25 (RRS1 closed)	AOC-56 (RRS1 closed)	
SWMU B-26 (de-listed)	AOC-57 (NFA closed)	
SWMU B-27 (NFA closed)	AOC 58 (NFA closed)	
SWMU B-28 (NFA closed)	AOC-59 (NFA closed)	
SWMU B-29 (RRS1 closure requested)	AOC-60 (de-listed)	
SWMU B-30 (RRS1 closed)	AOC-61 (RRS1 closed)	
SWMU B-31 (RRS1 closed)	AOC-62 (NFA closed)	
SWMU B-32 (RRS1 closed)	AOC-63 (TRRP closed)	
SWMU B-33 (RRS1 closed)	AOC-64 (TRRP closed)	
SWMU B-34 (NFA closure requested)	AOC-65	
SWMU F-14 (RRS1 closed)	AOC-66 (NFA closed)	
SWMU B-71 (TRRP closed)	AOC-67 (NFA closed)	
SWMU Bldg 40 (RRS1 closed)	AOC-68 (NFA closed)	
SWMU Bldg. 43 (RRS1 closure requested)	AOC-69 (NFA closed)	
SWMU DD Area (RRS1 closed)	AOC-70 (NFA closed)	
SWMU I-1 (NFA closed)	AOC-72 (NFA closed)	
SWMU O-1 (RRS1 closed)	AOC-73 (NFA closed)	
SWMU Coal Bins (de-listing requested)	AOC-74 (NFA closed)	
	AOC-75 (NFA closed)	

*SWMUs B-2, B-8, B-20/21, and B-24 are now part of the active firing range (RMU-1).

3.3.1 SWMU Remediation

Two sources of hazardous waste constituents found in the contaminated wells were identified. These source areas included SWMU O-1 and SWMU B-3 located near the center of CSSA (see **Figure E1, Appendix E**), and AOC-65 near the southwest corner of the post. As part of on- and off-post groundwater monitoring being conducted by CSSA, another potential source area was identified. In December 1999, CSSA sampled well LS-7, a private off-post well near the southwest corner of the post. Analytical results indicated low levels of PCE and TCE contamination. CSSA's continued monitoring of well LS-7 revealed that contamination levels increased toward the MCL (drinking water standard). Based on the sampling results, CSSA installed a granular activated carbon (GAC) filtration system at LS-7. In August 2001, CSSA extended its off-post monitoring program to include four additional private wells (LS-2, LS-3, LS-5, and LS-6) near the southwest corner of the post. Analyses of water samples from these off-post wells also found PCE and TCE contamination, and additional GAC systems were installed in accordance with the CSSA off-post monitoring and response plan. Since 2001 on- and off-post sampling has continued on a regular basis. A total of 119 monitoring wells were installed on-post between 1996 and 2013 to delineate and monitor groundwater contamination. Off-post contamination was first reported by CSSA in December 1999 at a private well adjacent to the facility. CSSA has identified and sampled more than 60 off-post private, commercial, and public supply wells surrounding the post.

CSSA used PCE and TCE, which are volatile organic compounds (VOC), prior to 1995 to degrease ordnance materiel. Solvents containing both PCE and TCE were used in Building 90, which was identified as a third potential source area at the southwest corner of CSSA and identified as AOC-65 (see **Figure E1, Appendix E**). The history and current status of the three potential source areas identified at CSSA include:

- **Oxidation Pond:** The oxidation pond (SWMU O-1) was built about 1975. The pond had a vinyl plastic liner and was used for evaporation of waste liquids from the ordnance-related maintenance process. This pond was filled with dirt in 1985 after solid and liquid residues were removed. SWMU O-1 is located in the central portion of CSSA (**Figure E1, Appendix E**). Soil gas surveys conducted in 1995 identified VOCs within the pond boundaries. Subsequent soil tests have shown PCE, chromium, and cadmium to be above action levels established by the TCEQ. Geophysical surveys, surface and subsurface soil sampling, soil gas surveys, excavations, and an electrokinetics treatability study have been performed at SWMU O-1. In September 2000, CSSA excavated and removed approximately 1,515 cubic feet of non-hazardous soil and rock from the site and disposed of the material in an approved landfill. Subsequently, CSSA collected samples to confirm that no soil with concentrations above the TCEQ action levels remained in the surface soil. Low levels of chromium remained in limestone below the site, and the TCEQ concurred that these levels constituted a low risk to groundwater. Contamination in the limestone bedrock is to be addressed as part of the groundwater evaluation and continuing environmental program. Therefore, formal closure of SWMU O-1 for surface soil was received from the TCEQ on April 23, 2002. Additional information on remediation activities at

SWMU O-1 is located in **Volume 3-1.2, Solid Waste Management Units**, behind the SWMU O-1 tab of the **CSSA Environmental Encyclopedia**.

- **SWMU B-3:** SWMU B-3 consists of trenches that cover approximately one-half acre and is located in the central portion of CSSA (**Figure E1, Appendix E**). SWMU B-3 was a landfill area used for disposal and burning of waste. Tests identified PCE and TCE in the trench area, indicating that as a likely source of the VOCs detected in well CS-16. CSSA installed a soil vapor extraction (SVE) system to clean up VOCs in the trench soil and underlying limestone in 1996/97, and the system removed more than 500 pounds of VOCs while it was operating. Geophysical surveys, surface and subsurface soil and rock sampling, and soil gas surveys were conducted at SWMU B-3. The SVE system was dismantled in 2002 and CSSA excavated approximately one quarter of the contaminated soil in 2003. A new pilot SVE system was installed at SWMU B-3 in February 2004. In 2006, approximately 15,000 cubic yards of waste and contaminated media were excavated from six trenches at SWMU B-3 and disposed of off-post. Some of the excavated waste included metal debris and potential MEC. At this time, the SVE system was also removed

Following the excavation of the trenches, a bioreactor was designed and installed at the site. The trenches were backfilled with deciduous tree mulch and pea-gravel, and water lines with spray nozzles were installed to facilitate uniform water delivery to the trenches. The system was plumbed to Well CC-16, which provides a source of solvent-contaminated water. The solvents are a food source for the bio-organisms which dechlorinate PCE through the following process: $\text{PCE} \rightarrow \text{TCE} \rightarrow \text{DCE} \rightarrow \text{vinyl chloride} \rightarrow \text{ethene}$. Four multi-port monitoring wells (MPMW) were installed surrounding the bioreactor for groundwater monitoring. Three of the MPMWs were installed such that six hydrostratigraphic zones could be sampled and the fourth was installed in nine zones.

Bioreactor operations at SWMU B-3 were initiated in April 2007, delivering contaminated groundwater extracted from CS-MW16-LGR and CS-MW16-CC to Trench 1. Groundwater samples were collected and analyzed monthly for natural attenuation parameters (e.g. VOC's, hydrogen, etc) to monitor the ongoing treatment of chlorinated compounds in groundwater at SWMU B-3.

New extraction wells CS-B3-EXW01 through EXW05 were installed between July 2009 and June 2012 to provide additional groundwater to the bioreactor. A new task order was awarded in September 2009 for continued bioreactor operations and monitoring at SWMU B-3. Nine piezometers were installed in the Upper Glen Rose (UGR-01) Formation around the bioreactor so that bioreactor influence in the vadose zone may be better understood. Additional shallow monitoring wells were installed in 2010 to monitor bioreactor influence in the areas adjacent to the bioreactor trenches. In addition to maintaining saturated conditions within the trenches, these wells provide contaminant mass to sustain the bacteria populations that drive the treatment of PCE and TCE in groundwater.

In 2013, enhanced anaerobic bioremediation via bioreactor was selected as the final remedy to treat VOC contamination at SWMU B-3. System upgrades including the construction of a semi-permanent building to house the injection controls and holding

tanks was completed in 2013. Additionally, the trenches were recharged with fresh mulch and new injection lines were installed.

As of December 2013, more than 90 million gallons of extracted groundwater from wells CS-MW16-LGR, CS-MW16-CC, and extraction wells B3-EXW01 through EXW05 have been applied to the bioreactor. Ethene, a natural attenuation dechlorination end-product, has been observed in trench sumps, and in discrete zones of nearby MPMWs and monitoring wells. Abiotic dechlorination processes have also been identified which has carbon dioxide as an end product

Additional information regarding ongoing remediation activities at SWMU B-3 is located in **Volume 3-1.1, Investigation Reports, Solid Waste Management Units**, behind the **SWMU B-3** tab of the **CSSA Environmental Encyclopedia**.

- **AOC-65:** AOC-65 is located in an area in the south and west portion of Building 90 and adjacent areas at the southwest corner of CSSA (see **Figure E1, Appendix E**). Solvent releases at AOC-65 resulted in soil and groundwater contamination. Investigations, interim removal actions, and treatability studies have been conducted there, and continue today. The groundwater plume resulting from releases at AOC-65 is referred to as Plume 2. Groundwater monitoring efforts both on- and off-post are described in Section 5. Source characterization of the Building 90 vicinity included a 2001 soil gas survey that involved the collection and analysis of 319 soil gas samples. PCE, TCE, cis-1,2- DCE and trans-1,2-DCE were detected around and inside Building 90. The detection of DCE indicates that natural degradation of PCE/TCE is occurring in the subsurface.

An RFI report for AOC-65 was completed in September 2002 followed by an interim removal action including excavation of soils underlying the pavement and drainage swale on the west side of the building.

Pilot testing was initiated at AOC-65 to evaluate the effectiveness of SVE for the removal of VOC contamination from the vadose zone. SVE was demonstrated to be an effective method for source removal in surface formations at CSSA during the earlier pilot and treatability study at SWMU B-3. Two SVE systems were installed at AOC-65 in late 2002.

Expansions of the system in 2008 included installation of five shallow (20-foot) and three intermediate-depth (50-foot) VEWs west of the drainage ditch next to Building 90 as well as a deeper two-VEW nested well installed adjacent to the western loading dock of Building 90 to assess the potential for significant mass removal from deeper zones beneath the building, and to investigate the vertical extent under the building and suspected source areas. The system was expanded again in 2010 as part of a steam enhanced extraction treatability study. The 2010 expansion included the installation of five additional VEWs within the paved area between the concrete-lined drainage ditch and building 90, and the installation of two steam injection wells. The steam injection wells were located as close to suspected source areas as possible; one was installed within the concrete-lined vault within Building 90, the other was installed adjacent to the concrete-lined drainage ditch. Although enhanced volatilization of VOCs did occur

during the SEE study, condensate accumulation within the steam injection wells rendered this enhancement method ineffective.

Overall results of the SVE and SEE treatability studies indicated the system had reached the point of diminishing returns. The SVE system was taken out of service in 2012, and the above ground equipment (blowers, knockout pots, and associated piping) was removed. VEWs located within Building 90 were plugged and abandoned in anticipation of remodeling efforts. VEWs located outside of building 90 have been repurposed as monitoring wells for current and future treatability studies.

An interim removal action in 2012 included the excavation and removal of contaminated media beneath the concrete lined drainage ditch west of Building 90. Approximately 1,000 CY of material was removed. The material met Class 3 waste characteristics and was reused on-site as construction fill for road maintenance.

The completion of the interim removal action allowed for evaluation of other treatment technologies. Infiltration galleries were installed within the excavation for an in-situ chemical oxidation treatability study. This study is ongoing, and to date two injections of activated sodium persulfate totaling approximately 64,000 lbs have been completed. An additional ISCO application is planned for 2014 including the injection of 145,000 lbs of the oxidant, followed by quarterly groundwater monitoring. Additional details regarding the ISCO treatability study are described in the November 2013 In-Situ Chemical Oxidation Operations and Monitoring Plan.

Additional information on investigations, completed tasks, and planned activities at AOC-65 is located in **Volume 3-2, Areas of Concern** behind the **AOC-65** tab of the **CSSA Environmental Encyclopedia**.

SECTION 4

COMMUNITY BACKGROUND

CSSA is located in northernmost Bexar County, Texas, southeast of the City of Fair Oaks Ranch, Texas, and east of Interstate 10. Bexar County has a population of approximately 1.49 million, 1.1 million located in San Antonio, Texas.

The majority of Bexar County (an estimated 60 percent) is undeveloped acreage. Developed land accounts for approximately 28 percent of total county land use (15.5 percent residential, 1.5 percent commercial, 3.0 percent industrial, and 7.6 percent military, institutional, or cultural/recreational). The remainder of the land is either open space (*e.g.*, parks, water), vacant, or used for transportation. Most of the development in San Antonio in recent years has occurred north of the city. Although the area surrounding CSSA is primarily rural, the density of residential development on the north, west, and south of the post is increasing. Adjacent communities include:

- City of Fair Oaks bordering CSSA on the northwest;
- Village Green, a large-lot single-family subdivision to the west;
- Jackson Woods, single-family homes bordering CSSA on the west;
- Trailwood, Indian Hills, Country Estates, and Scenic Oaks, various single family residential subdivisions across Interstate 10 from CSSA to the west;
- Hidden Springs Estates and The Dominion, single-family large lot subdivisions to the southeast bordering CSSA and Camp Bullis; and
- Leon Springs, a few small businesses (light industrial, shopping, and restaurants), a single-family subdivision, and a mobile home park, bordering CSSA on the southwest.

SECTION 5

PAST COMMUNITY RELATIONS ACTIVITIES

CSSA has maintained good relations with the surrounding community. Public interviews, public meetings, and fact sheet mailings have been conducted to maintain public relations. Additional information on past community relations activities are located in **Volume 1, Other Plans and Approaches**, behind the **Community Relations Plan** tab, in **Section 5.0** of the **CSSA Environmental Encyclopedia**. The following activities have been conducted to promote CSSA's community relations since December 2002.

As part of CSSA's community relations efforts, 13 people were interviewed and their responses reported in the August 1999 CRP. Two public meetings (Subsection 5.7) were held in October 2001 and October 2002, and numerous fact sheets (Subsection 5.4) were prepared and distributed to persons on the CSSA mailing list (Subsection 5.5) as part of CSSA's public information program. The initial CRP was implemented in August 1999. An update describing CSSA's activities from 1999 to 2002 and reporting the results of the 16 persons interviewed was completed in December 2002.

5.1 ADMINISTRATIVE RECORD

CSSA has maintained an administrative record for its environmental program (the Environmental Encyclopedia) at the main branch of the San Antonio Public Library, 600 Soledad Plaza, San Antonio, TX 78205. A copy of the administrative record is also maintained at the TCEQ Region 13 offices at 14250 Judson Rd., San Antonio, TX, and at the CSSA Environmental Office. Electronic copies are available to the public at the facility internet website (www.stanley.army.mil). The administrative record contains copies of all plans and reports submitted to regulators, meeting minutes from all technical progress meetings, and key correspondence between CSSA and the regulatory agencies. The internet website has been made more accessible to the public through the addition of keyword search capability.

5.2 OFF-POST MONITORING RESPONSE PLAN AND OFF-POST GROUNDWATER MONITORING

In July 2001, CSSA created its Off-post Monitoring Response Plan (later re-titled *Data Quality Objectives [DQOs] for the Groundwater Monitoring Program*). The DQOs were most recently revised in November 2010 (**Volume 5, Groundwater** of the **CSSA Environmental Encyclopedia**). The purpose of the Plan/DQOs was to:

- Confirm that area drinking water meets USEPA and TCEQ standards;
- Determine the lateral and vertical extent of contamination released from CSSA;
- Identify any potential off-post source areas of groundwater contamination;

- Provide the framework to monitor off-post water wells located downgradient of known source areas within proximity to CSSA; and
- Provide action levels and Army response guidance when off-post ground water contamination is encountered.

The Plan describes the well access agreements signed by off-post well owners before sampling their wells, and describes sampling procedures and laboratory analytical methods. The contaminants of concern (COC) identified in off-post wells have been VOCs, such as *cis*-1,2-DCE, PCE, and TCE. The action levels for VOCs are based on MCLs established by the USEPA under the Safe Drinking Water Act. The Plan sets out the following guidelines for action by CSSA dependent upon laboratory analytical results:

- If VOC concentrations are greater than or equal to 90 percent of the MCL (4.5 parts per billion [ppb] for PCE and TCE) and the well is used as a potable water source, bottled water will be supplied to the well owner within 24 hours. A confirmation sample will be collected from the well. Re-sampling will take place within 14 days after receipt of the final validated analytical report. If the follow-up sampling confirms COCs above 90 percent of the MCLs, the residence or supply well will be evaluated, and CSSA will determine an appropriate method for wellhead treatment; or, connection to an alternative water source, will be selected if CSSA deems it feasible as the preferred alternative. Costs related to installation and maintenance of wellhead treatment equipment or connection to an alternative water source will be borne by the U.S. Army.
- If VOC contaminant levels are ≥ 80 percent of the MCL during any single monitoring event based on preliminary data from the laboratory (4.0 ppb for PCE and TCE) and the well is used as a potable water source, the well will be monitored monthly. If the follow-up sampling confirms COCs are ≥ 80 percent of the MCL, the well will be re-sampled until the level falls below the 80 percent value. Should the value be ≥ 90 percent of the MCL, see previous bullet.
- If any VOC COC is detected at levels greater than the method detection limit (MDL) for SW846 Method 8260 (historically 0.11 ppb for PCE, 0.14 ppb TCE), the well will be re-sampled on a quarterly basis. This sampling will be completed in concert with on-post sampling events and will be used to develop historical trends in the area. Quarterly sampling will continue for a minimum of one year, after which the sampling frequency will be reviewed and possibly decreased with concurrence from the USEPA and TCEQ.
- If VOCs are not detected during the initial sampling event, (*i.e.*, no VOC contaminant levels above the MDL), further sampling of the well will be considered on an as needed basis. Future sampling of such a well may be required to evaluate potential seasonal variation in contaminant trends. The well owner, USEPA, and TCEQ will be apprised of any re-sampling decisions regarding non-detect wells.

When off-post public supply systems are adversely impacted, CSSA will cooperate and coordinate solutions to the maximum extent practicable. As required by the Order, a Water Well Survey Report (Parsons, August 2001) identified and located both privately and publicly owned groundwater wells within one-quarter mile of CSSA. The Water Well Survey Report is located in the **Environmental Encyclopedia** in **Volume 5-2, Groundwater Investigation**.

CSSA samples selected off-post public and private water wells as part of its environmental program. Quarterly off-post groundwater monitoring events will continue to be conducted on a quarterly basis for the foreseeable future. Letters summarizing and explaining sampling results are sent to individual off-post well owners after the sampling results have been verified. In addition, a report presenting analytical results for each event is located in the **Environmental Encyclopedia** in **Volume 5-1, Groundwater**, behind the **Off-post Groundwater Monitoring** tab. Based on the laboratory analytical results obtained from each sampling event and the requirements of the Plan, CSSA has responded to community concerns and needs for various environmental activities in accordance with the CRP.

5.3 GRANULAR ACTIVATED CARBON FILTRATION SYSTEMS INSTALLED OFF-POST

CSSA has installed GAC filtration systems at five locations off-post, in accordance with the Plan. Operation and maintenance of the GAC treatment systems are performed by CSSA on a monthly basis and every 6 months by Carbonair, the company that supplies the activated carbon filtration systems and replacement filters. Pre- and post-GAC samples have been routinely collected during the quarterly sampling events from each well with a GAC installed. Post-GAC sample results indicate that all GAC treatment systems are effectively eliminating contaminants from the respective wells. There have been no reported detections of VOCs above the applicable MCL from any of the post-GAC sample results. The MCLs are 70 µg/L for *cis*-1,2-DCE, 100 µg/L for *trans*-1,2-DCE, 5 µg/L for TCE, and 5 µg/L for PCE. The GAC systems will continue to be maintained at no cost to private well owners for the foreseeable future. Off-post wells with VOC detections above MCLs will continue to be sampled and monitored on a quarterly basis until results meet CSSA's Off-post Groundwater Monitoring Plan requirements of four consecutive quarterly events with no detection of contaminants.

CSSA began sampling off-post well LS-7 in December 1999. In March 2000, sampling of LS-7 reported PCE and TCE at concentrations of 2.87 µg/L and 0.5 µg/L, respectively. By June 2001, the PCE concentration reported in off-post well LS-7 increased to 4.0 µg/L. Based on linear regression statistics using the limited number of data points collected to date, CSSA concluded that an MCL exceedance at LS-7 was inevitable, and on August 7, 2001 installed a GAC system. In August 2001 the PCE level in LS-6, which measured 6.5 µg/L, was the first measured exceedance of the MCL of all off-post samples tested. Based on this finding, CSSA immediately provided bottled water to residents using LS-6 and installed a GAC filtration system on August 15, 2001, in accordance with the Plan.

In September 2001, PCE and TCE levels in RFR-10, which were reported at 14.0 and 7.5 µg/L, respectively, were in exceedance of the MCLs for both compounds (5.0 µg/L). Based on those findings, CSSA immediately provided bottled water to residents using RFR-10 and installed a GAC filtration system on October 9, 2001. In October 2001, wells RFR-11 and OFR-3 were sampled for the first time due to concentrations detected in RFR-10. RFR-11 had concentrations of PCE at 16.0 µg/L, exceeding the MCL of 5.0 µg/L, and TCE at 0.35 µg/L. CSSA immediately provided bottled water to residents using RFR-11 and installed a GAC filtration system on October 16, 2001. In March 2002, PCE and TCE concentrations in well

OFR-3 were 12.15 µg/L and 5.70 µg/L, respectively. CSSA immediately provided bottled water to residents using OFR-3 and installed a GAC filtration system in April 2002.

In the December 2001 sampling event, increasing concentration trends approaching the MCL for PCE were identified in two public supply wells, LS-2 and LS-3. PCE and TCE were present in distribution system entry point samples. Because of increasing VOC concentrations, CSSA installed a GAC treatment system for those wells, which was completed in April 2002. Installation of the GAC system was coordinated with Bexar Metropolitan Water District, the operator of the public supply wells.

5.4 NEWSLETTERS/FACT SHEETS

To inform the public, an initial newsletter and various fact sheets were distributed to residents in the area of CSSA. An initial mailing to the public in December 1999 was intended to gauge public interest in CSSA's environmental program and create an initial mailing list. In October 2000, CSSA provided responses to questions submitted by the public. A Congressional Fact Sheet was generated in July 2001. Early Fact Sheets mailed in 2001 supplied general information about CSSA, the environmental program, and specific information regarding the contamination plume in the central region of CSSA.

To continue to inform the public, various Fact Sheets were mailed from 2002 to the present, providing results of quarterly groundwater monitoring and specific items of interest such as chloroform detections or clean-up activities at specific sites. See Table 5.1 for a complete list of Fact Sheets to date. Additional fact sheets will continue to be prepared and distributed by U.S. Mail and e-mail to present results of future sampling events and/or clean-up activities at CSSA.

Table 5.1 Summary of Fact Sheets Distributed

Fact Sheet	Title	Subject	Date Issued
11	Groundwater Contamination – Chloroform	To inform area residents about the chemical nature, uses and action levels for Chloroform	December 2002
12	Groundwater Contamination – Sept 2002 Sampling	September 2002 sampling results for on-post and off-post wells.	February 2003
13	Groundwater Contamination – Dec 2002 Sampling	December 2002 sampling results for on-post and off-post wells.	February 2003
14	Groundwater Contamination – March 2003 Sampling	March 2003 sampling results for on-post and off-post wells.	May 2003
15	Groundwater Contamination – June 2003 Sampling	June 2003 sampling results for on-post and off-post wells.	September 2003
16	Groundwater Contamination – Sept 2003 Sampling	September 2003 sampling results for on-post and off-post wells.	January 2004
17	Groundwater Contamination – Dec 2003 Sampling	December 2003 sampling results for on-post and off-post wells.	March 2004
18	Groundwater Contamination – March 2004 Sampling	March 2004 sampling results for on-post and off-post wells.	May 2004
19	Groundwater Contamination – June 2004 Sampling	June 2004 sampling results for on-post and off-post wells.	June 2004
20	Groundwater Contamination – Sept 2004 Sampling	September 2004 sampling results for on-post and off-post wells.	Nov 2004

Fact Sheet	Title	Subject	Date Issued
21	Groundwater Contamination – Dec 2004 Sampling	December 2004 sampling results for on-post and off-post wells.	March 2005
22	Groundwater Contamination – March 2005 Sampling	March 2005 sampling results for on-post and off-post wells.	June 2005
23	Groundwater Contamination – June 2005 Sampling	June 2005 sampling results for on-post and off-post wells.	March 2006
24	Groundwater Contamination – September 2005 Sampling	September 2005 sampling results for on-post and off-post wells.	March 2006
25	Groundwater Contamination – December 2005 Sampling	December 2005 sampling results for on-post and off-post wells.	March 2006
26	Cleanup Activities at SWMU B-3	An overview of cleanup activities SWMU B-3, and removal actions as well as the remediation system to be installed.	March 2006
27	Groundwater Contamination – 2006 Sampling	2006 sampling results for on-post and off-post wells. Updates on source area cleanup and the 2006 public meeting.	March 2007
28	Groundwater Contamination – 2007 Sampling	2007 sampling results for on-post and off-post wells. Updates on source area cleanup.	March 2008
29	Fact Sheet	Extended fact sheet prepared for the 2009 public meetings. An overview of source area cleanup, groundwater sampling program, 2008 sampling results, LTMO, and public meeting details.	November 2009
30	Groundwater Contamination – 2009 Sampling	2009 sampling results for on-post and off-post wells. Updates on source area cleanup.	March 2010
31	Groundwater Contamination – 2010 Sampling	2010 sampling results for on-post and off-post wells. Updates on source area cleanup.	March 2011
32	Groundwater Contamination – 2011 Sampling	2011 sampling results for on-post and off-post wells. Updates on source area cleanup.	March 2012
33	Groundwater Contamination – 2012 Sampling	2012 sampling results for on-post and off-post wells. Updates on source area cleanup.	March 2013
34	Groundwater Contamination – 2013 Sampling	2013 sampling results for on-post and off-post wells. Updates on source area cleanup.	March 2014

5.5 MAILING LIST

The initial mailing list for fact sheets and newsletters included over 2,700 local residents and landowners in the CSSA area and was based on addresses obtained from county appraisal records. The current mailing list was created based on responses to a postcard mailout by local residents and landowners which requested that the postcard be returned by the recipient in order to remain on the mailing list.

Approximately 225 area residents requested to join the original CSSA mailing list. In addition, the mailing list includes media representatives, city and county officials, state and federal agencies, and key regulatory officials. Newspaper notices invited community members and local residents attending public meetings to be added to the mailing list. Following each newsletter or fact sheet mail out, the mailing list was edited as appropriate based on forwarding order notices or returned mail items. More recent mailing lists have been compiled using past recipients and new recipients who have requested to join the mailing list by phone/mail/email or in person at a public meeting. The current version of the mailing list contains approximately 223 recipients including nearby residents, businesses, and local officials.

5.6 CONTACT PERSON

The contact person in the newsletters and fact sheets is listed as Mr. Jason D. Shirley, CSSA Installation Manager, 25800 Ralph Fair Road, Boerne, Texas 78015, telephone: (210) 295-7416. The PAO from Fort Sam Houston, Mr. Phil Reidinger, supports Mr. Shirley in responding to inquiries from the public and statements to various media. Mr. Shirley and Mr. Reidinger responded to requests for information from community members in person at public meetings and from telephone requests. Mr. Shirley attended meetings with local City and Homeowner Association boards and presented information on CSSA's environmental program. Mr. Shirley has responded to various citizen comments by telephone or written correspondence.

5.7 PUBLIC MEETINGS HELD

CSSA held public meetings in both 2001, 2002, 2006, 2009, and 2014. Approximately 120 people attended the public meetings hosted in October 2001, less than 25 people attended the subsequent meetings. The low public turnout for the meetings in 2002 through 2014 suggest that community concerns are being effectively addressed by the proactive approach CSSA has taken to address off-post environmental concerns and CSSA's community relations program set out in this CRP Update report. Additional information on those public meetings can be found in the August 1999 CRP and the December 2002 and May 2006 updates located in **Volume 1-6, Other Plans and Approaches**, behind the **Community Relations Plan** tab of the **CSSA Environmental Encyclopedia**.

A public meeting was held on January 16, 2014 at the Leon Springs Baptist Church, 24133 Boerne Stage Road, San Antonio, TX 78255. Approximately two weeks prior to the meeting, invitation postcards were sent to stakeholders and 2,015 landowners within a one-mile of the Plume 2 and/or CSSA boundary. Landowners were identified using Bexar County Appraisal District records. A public notice was published in the San Antonio Express-News (English), Conexion (Spanish), and the Boerne Star (English) newspapers.

A total of ten nearby residents and three local officials attended the 2014 meeting. Representatives from USEPA and TCEQ, as well as the Fort Sam Houston Public Affairs Officer, Phil Reidinger, were available to discuss issues specific to concerns raised by those in attendance.

The 2014 meeting was conducted in an open house format, with five laptop stations playing continually-looped PowerPoint presentations. Parsons personnel were available at each station to discuss the site and answer questions. The presentation topics included: 1) CSSA History and Mission; 2) Restoration Efforts; 3) Groundwater Compliance, 4) SWMU B-3 Treatment Technologies, and 5) AOC-65 Treatment Technologies. Several attendees had questions or concerns that were discussed with CSSA representatives at each meeting.

A meeting was also held on February 13, 2014 with Mayor Cheryl Landman of the City of Fair Oaks Ranch to brief her on recent CSSA environmental issues and successes.

SECTION 6

FUTURE PUBLIC INVOLVEMENT PLANS

The public involvement activities implemented since August 1999 have both maintained and improved CSSA's existing relations with the community. Public participation in the corrective action process is required to begin upon completion of the RFI and CMS. The RFI is still active at CSSA, and the CMS has not been initiated. Details of the RCRA Corrective Action Process and the associated documents required by the USEPA can be found in Appendix A.

To comply with the Order, and foster effective communication between CSSA and the community, interviews with community members were held in August 1999, April through June 2002, and May 2005. Discussions with state and local officials, well owners whose wells are sampled by CSSA, and interested citizens identified the public information needs, as well as the most effective method for disseminating this information. Input from the community provides information that maximizes efforts and provides effective management of the CRP. In addition, information gathered during the 2005 interviews regarding the best way to continue providing information to the community should be evaluated.

Based on information gathered in the original CRP and updates, four objectives were developed for the CRP at CSSA:

- Provide the community with timely and accurate information;
- Establish and maintain two-way communication between CSSA and the community;
- Respond to specific community concerns and needs that arise for environmental activities; and
- Provide opportunities for citizen input and involvement.

These objectives guide the overall community relations activities. Past activities conducted to ensure the community is properly informed were discussed in Section 5 and in previous CRPs. The following paragraphs discuss future activities designed to ensure these four objectives are met:

6.1 PROVIDE THE COMMUNITY WITH INFORMATION

6.1.2 Administrative Record/Information Repository

The Environmental Encyclopedia Administrative Record will continue to be updated and maintained at the main branch of the San Antonio Library, 600 Soledad Plaza, San Antonio, TX 78205. Updated information will be added to the Administrative Record on a quarterly basis.

6.1.3 Newsletters/Fact Sheets

Information releases in the form of fact sheets will be prepared on an annual basis. The most up-to-date mailing list will be used for each Fact Sheet. Fact Sheets will continue to be prepared to report the results of each groundwater monitoring event. Future Fact Sheets may be considered for concerns about noise levels near CSSA, the Long-Term Monitoring Optimization (LTMO) plan for groundwater, or site cleanup and removal actions. All information releases or Fact Sheets should include the name, address, and telephone number of a CSSA representative responsible for inquiries about the CSSA environmental program.

6.1.4 Mailing List

The mailing list will continue to be updated for forwarded addresses or returned items following each informational mail out. In addition, the mailing list will include media representatives, city and county officials, state and federal agencies with jurisdiction over wildlife resources, and key regulatory agency officials. Newspaper notices can be used to invite people to be added to the mailing list so they can receive any public notices or other information disseminated during the corrective action process.

6.1.5 Contact Person

The CSSA contact person is Mr. Jason D. Shirley, Installation Manager. The PAO from Fort Sam Houston, Mr. Phil Reidinger, supports Mr. Shirley by responding to inquiries from the public.

6.1.6 Statement of Basis

A Statement of Basis (SB) will be prepared by USEPA which summarizes the information contained in the RFI and CMS reports. The SB is designed to facilitate public participation in the remedy selection. The SB will be placed in the administrative record so it is available for public review and comment, upon completion of the RFI reports and the CMS report.

6.1.7 Public Notice

A public notice will be issued after the CMS has been completed. A notice and brief analysis of the SB will be published, and appropriate documents will be made available to the public for review at the local information repository. Sufficient information will be included in the notice and analysis to provide a reasonable explanation of the proposed remedy and a list of the remedial alternatives analyzed during the CMS (refer to Table 7.1 for an outline). The notice and analysis will be published, at a minimum, in a major local newspaper of general circulation in both Spanish and English. The notification will also be sent to facility mailing list recipients. Appendix D, Media Contacts, lists local newspapers intended to carry all public notices.

Table 6.1 Newspaper Notification Content Summary

The newspaper notification should include the following:	
<ul style="list-style-type: none">• <i>Facility name and location</i>• <i>Date and location of public meeting</i> (if scheduled) - If a meeting has not been requested or scheduled, the notice will inform the public of its right to request one.• <i>Public participation</i> - The notice will inform the public of its role in the remediation selection process and provide the following information:<ol style="list-style-type: none">1. Location of the information repositories and administrative record2. Methods by which the public may submit comments3. The dates of the public comment period• <i>Identification of a proposed remedy</i>• <i>Alternative remedies evaluated in the CMS</i>• <i>Request for public comments</i> - The notice will emphasize that the agency is soliciting public comment on ALL of the corrective measure alternatives, as well as on the proposed remedy. It will include a clear statement that the proposed remedy is only a preliminary determination and that other options could be selected as the remedy based upon public comment, new information, or a reevaluation of existing information.	

6.2 ESTABLISH TWO-WAY COMMUNICATION BETWEEN CSSA AND THE COMMUNITY

As part of its CRP, CSSA will continue to conduct public meetings if the public continues to indicate that these meetings are helpful. CSSA will host future meetings in subsequent years based on community interest. These meetings will follow the format of the meetings held in January 2014, with CSSA's environmental contractor technical staff presenting displays of information describing CSSA's environmental program. Representatives from the USEPA, TCEQ, Edwards Aquifer Authority, Bexar Metropolitan Water District, San Antonio Metropolitan Health District, and other entities involved in the environmental program at CSSA will be invited to participate in the public meetings.

6.3 RESPOND TO COMMUNITY CONCERNS AND NEEDS THAT ARISE FOR ENVIRONMENTAL ACTIVITIES

CSSA will continue to respond to concerns and questions from citizens or groups, to the need for environmental activities such as GAC filtration units, under the guidelines of the Off-post Groundwater Monitoring Response Plan, LTMO Plan, and the data quality objectives for the Groundwater Monitoring Program. The CSSA contact point for the community, Mr. Shirley, will continue to be identified in all newsletters and Fact Sheets. Any change in contact person, as may be affected by any future change in post command, will be noted on subsequent mailouts. Each question or comment will receive a telephone response or written response, if requested, in a timely manner. Based on comments made by local residents during interviews, two additional off-post wells should be considered for sampling as requested by the well owners.

6.4 PROVIDE FOR CITIZEN INPUT AND INVOLVEMENT

6.4.1 Hold Public Meetings

USEPA plans to hold a meeting late in 2014 or early 2015 to present to the public its SB for the closure of the CSSA Administrative Order. In addition to the quarterly mailings, CSSA will hold a public meeting approximately every 5 years to facilitate continued community participation in the CSSA environmental program, if deemed necessary. These meetings will be advertised in the local newspapers, and through invitation to community members on the CSSA mailing list. Meetings are not recorded for the public record.

6.4.2 Public Comment Period

A public comment period is a designated time period in which citizens can formally review and comment on the proposed course of action or decision in response to the CMS or CMI work plan. A public comment period is required before corrective measures can be implemented. Upon publication of the SB for CSSA, a public comment period will be held to allow comment on the proposed remedy.

6.4.3 Response to Comments/Responsiveness Summary

A response to comments (RTC) identifies changes to the SB and the reasons for the changes. It also briefly describes and responds to all significant comments received during the public comment period. The RTCs are written in a clear and understandable style so it is easy for the community to understand how public comments were considered. Following the public comment period for the SB, a responsiveness summary will be compiled which lists all comments received and the responses to each.

SECTION 7

SCHEDULE OF COMMUNITY RELATIONS ACTIVITIES

The Administrative Record will continue to be maintained at the main branch of the San Antonio Public Library located at 600 Soledad Plaza, San Antonio, TX 78205 and at the Region 13 offices of the TCEQ located at 14250 Judson Rd., San Antonio, TX. Fact Sheets will be issued to update the public on significant events related to the CSSA environmental program. The updated mailing list will be used for fact sheet mailouts. A public meeting will be tentatively planned for every 5 years in subsequent years. Public notice will be given to individuals on the mailing list and through the media for public meetings.

Following completion of the CMS, a public comment period will take place concerning the Administrative Record and the proposed corrective measures. After consideration of the public's comment on the proposed corrective measure(s), additional public involvement activities may be necessary.

APPENDIX A

RCRA CORRECTIVE ACTION PROCESS

- **Figure A1** shows the stages of a corrective action process and the documents required for each stage. Following is a brief summary of each stage. *
- RCRA Facility Assessment - The RFA is often the first step in the corrective action process. An RFA is conducted prior to the issuance of a corrective action order. The RFA process is for identifying and gathering information on potential releases at RCRA facilities, and evaluating and identifying SWMUs and other areas of concern.
- Interim Measures - IMs for corrective action may be initiated, when appropriate, prior to the initiation or completion of the RFI, CMS, or Corrective Measures Implementation (CMI). Decisions concerning interim measures are made based on the immediacy and magnitude of the potential threat to human health or the environment. It is not necessary to prepare an SB or a public notice for IM implementation.
- RCRA Facility Investigation - If the regulatory agency determines that an RFI is necessary, the owner or operator will be required to perform an RFI either under a permit schedule of compliance or under an administrative order. The RFI generally includes the characterization/identification of the hydrogeological setting, the type and concentration of hazardous waste or hazardous constituents released, the rate and direction at which the releases are migrating, and the extent over which releases have migrated. A risk assessment can also be a part of the RFI. A risk assessment at CSSA will follow the Risk Reduction Rules (30 TAC § 335 Subchapter S) or the TRRP, depending on the current applicability. The risk assessment determines the potential threat to human health and the environment. The information generated during the RFI is used not only to determine the need for CMI, but also to aid in the selection and implementation of these measures. The findings of the RFI provide the rationale and basis for the CMS.

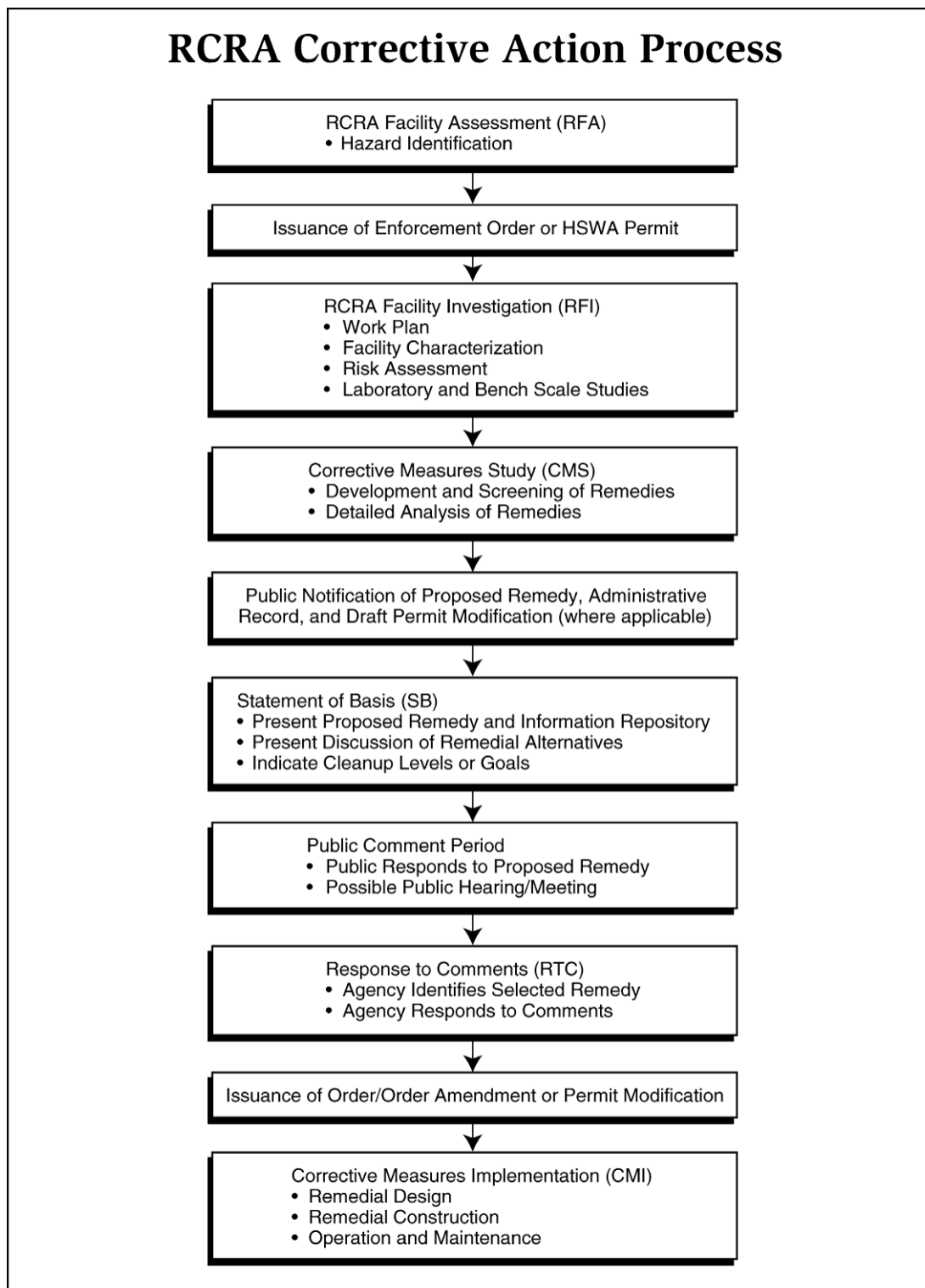
If no evidence of a release is observed (*i.e.*, metals concentrations do not exceed background and organics are not detected), the site can be closed. The State of Texas or the EPA, depending on the jurisdiction of the particular site, will approve the closure using the appropriate regulations.

- Corrective Measures Study - If the need for corrective measures is verified during the RFI process, the owner or operator is then responsible for performing a CMS. A CMS is required for closure under the Texas RRS3. During this step, the owner or operator will identify, evaluate, and recommend specific remedies that will remediate the release(s) based on a detailed engineering evaluation of the data and the corrective measure technologies.
- Statement of Basis - The SB summarizes the information contained in the RFI/CMS reports. The SB is designated to facilitate public participation in the remedy selection by identifying the proposed remedy, explaining the reasons for the proposal, and soliciting public review and comment on all possible remedies considered in the RFI and CMS reports.

* Source: *Guidance on RCRA Corrective Action Decision Documents*, U. S. EPA, February, 1991.
TCEQ Risk Reduction Rules (30 TAC §335, Subchapter S)

- Public Comment Period for Selection of Remedy(ies) - The regulatory agency's proposed remedy for a facility is presented to the public in a SB. The SB provides a brief summary of all the alternatives studied in the detailed analysis phase of the CMS, highlighting the key factors that lead to the identification of the proposed remedy.
- Response to Comments - Following receipt of public comments, the regulatory agency is required to prepare a RTC prior to the issuance of any final permit decision. A RTC should also be prepared after the public comment period but prior to those facilities undertaking corrective action pursuant to an administrative order. The RTC responds to comments received during or prior to the public comment period and describes the technical parameters of the selected remedy.
- Corrective Measures Implementation - The permit modification or corrective action order provides the framework for the transition into the next phase of the remedial process, CMI. The CMI program includes designing, constructing, operating, maintaining, and monitoring the performance of the remedy(ies) selected to protect human health and the environment.

Figure A1 Stages of the Corrective Action Process



APPENDIX B

STATUS OF ACTIONS/INVESTIGATIONS

**APPENDIX B
STATUS OF ACTIONS/INVESTIGATIONS**

Unit No.	Description	Investigation Report(s)	Recommendations	Requested Action				Closure Approved	Closure Type
				RRS1	NFA	Delisting	TRRP		
B-1	Powder and ammo burn area (1954).	RFI/Closure Report July 2002	NA	X				November-02	RRS1
B-2	Small arms ammunition burning area (1954) - North Pasture	RFI/Closure Report June 2002 Closure Report March 2005	Closure once range is inactive						
B-3	Landfill area (garbage disposal and burning trash); filled in 1990-91.	RFI Report March 2005	Bioreactor remediation ongoing						
B-4	Classified burn area (documents and trash).	APAR October 2012	Closure				X	February-13	TRRP
B-5	Possible fired small arms ammo brass area. Not located.	RFI/Closure Report July 2002	NA	X				October-02	RRS1
B-6	Possible solid waste disposal area.	RFI/Closure Report July 2002	NA	X				October-02	RRS1
B-7	Possible fired small arms ammunition brass disposal area	RFI/Closure Report July 2002	NA	X				October-02	RRS1
B-8	Fired small arms ammo brass disposal area (piles of fire bricks, ammo shells) - North Pasture	RFI Report December 2003	Excavate as necessary once range is inactive						
B-9	Miscellaneous solid waste (metal and weapons) disposal area.	RFI/Closure Report September 2002	NA	X				March-03	RRS1
B-10	Ammunition disposal area.	RFI/Closure Report May 2003	NA	X				January-04	RRS1
B-11	Miscellaneous solid waste disposal (ammo, scrap metal, const. debris).	RFI Closure Report June 04	NA	X				September-04	RRS1
B-12	Landfill, WPA trash when igloos were being built	RFI Report April 2005	NA	X				July-05	RRS1
B-13	Trash dump area.	RIR April 2013	Closure		X			July-13	NFA
B-14	Possible fired brass area - not located.	Delisting Request November 2007	NA			X		February-08	Delisting
B-15/16	Landfill (target vehicles, weapons mounts)	RIR June 2011	NA		X			September-11	NFA
B-19	Solid waste disposal area (metals and weapons).	RFI/Closure Report June 2002	NA	X				September-02	RRS1
B-20/21	Former OB/OD area & ammunition disposal areas - North Pasture	RFI Report July 2002	Closure once range is inactive						
		Combined with B-20							
B-22	Burn area (artillery shells).	RFI/Closure Report August 2002	NA	X				December-02	RRS1

**APPENDIX B
STATUS OF ACTIONS/INVESTIGATIONS**

Unit No.	Description	Investigation Report(s)	Recommendations	Requested Action				Closure Approved	Closure Type
				RRS1	NFA	Delisting	TRRP		
B-23	Disposal trenches (two green canisters)	RFI Report April 2005	NA	X				July-05	RRS1
B-23A	Disposal Trench (glass ampoules of liquid)	RFI Closure Report September 2004	NA	X				March-05	RRS1
B-24	Spent ammo/rockets area - North Pasture	RFI Report May 2002	MC removal once range is inactive						
B-25	Possible disposal trench	RFI Report April 2005	NA	X				July-05	RRS1
B-26	Possible disposal trench	Delisting Report August 2004	NA			X		November-04	Delisting
B-27	Sanitary landfill, consisting of 5-6 trenches (6 ft deep, 3 ft wide).	RFI Report July 2002 RIR September 2011	NA		X			December-11	NFA
B-28	Disposal trenches (molten metal, ammo, ammo parts)	RFI Report April 2002 RIR July 2011	NA		X			November-11	NFA
B-29	Solid waste disposal area (in old quarry)	RFI Report April 2005	NA	X				February-08	RRS1
B-30	Solid waste disposal area	RFI Report September 2004	NA	X				February-05	RRS1
B-31	Lead shot/sand pipe bedding	RFI/Closure Report July 2002	NA	X				November-02	RRS1
B-32	Lead shot/sand pipe bedding	RFI/Closure Report January 2003	NA	X				November-03	RRS1
B-33	Lead shot/sand pipe bedding	RFI Report September 2004	NA	X				November-04	RRS1
B-34	Maintenance pit floor drain and discharge point	RFI Report August 2002	Closure		X			April-14	NFA
B-71	Livestock area. Inner cantonment, SW of Well 16.	APAR	NA				X	October 2011	TRRP
AOC-64	Area east of SWMU B-4; flares observed in the area	APAR	NA				X	October 2011	TRRP
Bldg 40	less-than 90-day accumulation container storage area	RFI/Closure Report September 2003	NA	X				January-04 and January-06	RRS1
Bldg 43	Inactive makeshift ammo demolition facility	RFI Report April 2005	NA	X				August-05	RRS1
DD	Dud ammunition disposal area	RFI Report January 2005	NA	X				April-05	RRS1
F-14	Hazardous waste storage area (<90-day)	RFI/Closure Report, 1995	NA	X				November-95	RRS1

**APPENDIX B
STATUS OF ACTIONS/INVESTIGATIONS**

Unit No.	Description	Investigation Report(s)	Recommendations	Requested Action				Closure Approved	Closure Type
				RRS1	NFA	Delisting	TRRP		
I-1	Inactive incinerator (built in 1943), currently used for transformer storage	RFI Report February 2003	NA				X	November-08	NFA
O-1	Waste liquid/sludge oxidation pond (1975)	RFI/Closure Report October 2000	NA	X				April-02	RRS1
Coal Bins	Coal bins (no longer in use)	Delisting Requested January 2003	NA			X		February-08	Delisting
AOC-35	Area immediately around Well 16. Northeast area of inner cantonment.	RFI/Closure Report October 2002	NA	X				February-03	RRS1
AOC-36	Area between Well 16 and B-3. Possible waste verified not present by magnetometer survey.	RFI/Closure Report April 2002	NA	X				August-02	RRS1
AOC-37	Livestock area. NW of Well 16 and N of Well D.	RFI/Closure Report June 2004	NA	X				January-05	NFA
AOC-38	Livestock area. Inner cantonment, SW of Well 16.	RFI Report September 2004	NA	X				February-05	RRS1
AOC-39	None. Area west of Well 16 between North Outer Rd and cantonment fence.	RFI/Closure Report April 2002	NA	X				September-02	RRS1
AOC-40	None. Area east of Well 16 between North Outer Rd and cantonment fence.	RFI/Closure Report May 2002	NA	X				August-02	RRS1
AOC-41	Gate area east of well 16. North Pasture, north of gate 6.	NFA Report April 2005	NA		X			July-05	NFA
AOC-42	None. South of SWMUs B-28 and B-19, west of B-4.	RFI Report October 2002 RIR August 2011	NA		X			December-11	NFA
AOC-43	Shallow trench without mounds. Metal, UXO. Located 50 ft south of B-7.	RFI/Closure Report October 2002	NA	X				February-03	RRS1
AOC-44	Fox holes and trenches south of B-9 along west slope of hill. UXO includes Stokes mortars and 20-lb bombs.	Delisting Report April 2005	NA			X		July-05	Delisting
AOC-45	Flat area with spent and undamaged bullets. Located east of B-31, near bend in road.	RIR July 2011	NA		X			October-11	NFA
AOC-46	Bermed area with stockpile of lead shot and sand. Located south of Engineering on east side of Thompkins Road.	RFI/Closure Report April 2005	NA	X				July-05	RRS1
AOC-47	Area of trenches and mounds (similar to B-15/16). South of B-15/16, in SW area of East Pasture.	RFI/Closure Report June 2002	NA	X				September-02	RRS1
AOC-48	Three N-S trending mounds and a construction debris pile. Located north of B-15/16.	Delisting Report August 2004	NA			X		November-04	Delisting

APPENDIX B
STATUS OF ACTIONS/INVESTIGATIONS

Unit No.	Description	Investigation Report(s)	Recommendations	Requested Action				Closure Approved	Closure Type
				RRS1	NFA	Delisting	TRRP		
AOC-49	Trench (4 x 7 ft) without surficial debris. Located SW of deer stand 41 in central East Pasture.	Delisting Report April 2005	NA			X		July-05	Delisting
AOC-50	Area with orange discolored material (most likely nickel penetrate) at ground surface. South of B-30 along gravel road.	RFI/Closure Report January 2005	NA	X				April-05	RRS1
AOC-51	East pasture, east of active range, approximately 25 acres, area around B-9	RIR July 2012	Closure		X			October-12	NFA
AOC-52	Area west of B-4 towards Salado Creek near trees, two trenches	RIR August 2011	NA		X			December-11	NFA
AOC-53	Building foundation near B-27 at Central Road and road to "D" Tank, batteries at rear of slab	RFI/Closure Report April 2005	NA	X				July-05	RRS1
AOC-54	Area near gutting pit, east of Welding Shop Building, right side of road batteries were stored in the area	Closure Report July 2004	NA	X				November-04	RRS1
AOC-55	Landfill, south of Tenberg Drive, east of Salado Creek	RFI/Closure Report Feb 04	NA	X				June-08	RRS1
AOC-56	Landfill, at intersection of Bernard Road and East Outer Road, surface depression on south side of intersection	Closure Report June 04	NA	X				September-04	RRS1
AOC-57	East of Building 98 and KOA Area, cleaning/maintenance activities performed at temporary structures	RIR May 2011	NA		X			September-11	NFA
AOC-58	Suspected disposal trench within Inner Cantonment	RFI Report October 2002 RIR August 2011	NA		X			December-11	NFA
AOC-59	Trench-type anomaly located west Test Pad in the East Pasture	RIR July 2011	NA		X			October-11	NFA
AOC-60	Trench located west of tunnel and entrance roadway in the East Pasture.	Delisting Report April 2005	NA			X		July-05	Delisting
AOC-61	Suspected landfill	RFI/Closure Report October 2002	NA	X				February-03	RRS1
AOC-62	Located west of monitoring well MW-2 and east of Salado Creek.	RIR August 2011	NA		X			December-11	NFA
AOC-63	Area consisting of 3 barrels containing rocks, south of deer stand 41 in the East Pasture.	APAR October 2008	NA				X	July-09	TRRP
AOC-65	A concrete pit area that housed a metal vat that contained TCE and PCE.	RFI Report August 2003	Additional investigation, ISCO remediation ongoing						

**APPENDIX B
STATUS OF ACTIONS/INVESTIGATIONS**

Unit No.	Description	Investigation Report(s)	Recommendations	Requested Action				Closure Approved	Closure Type
				RRS1	NFA	Delisting	TRRP		
AOC-66	Area north of Well 16 in the outer cantonment.	Closure Report June 04	NA	X				February-05	NFA
AOC-67	Concrete pad near Building 90 housed a vat containing cleaning solvents.	RIR July 2010	NA		X			September-10	NFA
AOC-68	Area includes metal slag/debris storage area from Wheelabrator operations next to Building 90-2.	RIR July 2010	NA		X			September-10	NFA
AOC-69	Located on west side of CSSA.	RIR June 2009	NA		X			October-09	NFA
AOC-70	Building used to mix pesticides. Near Building 1.	RIR June 2011	NA		X			September-11	NFA
AOC-72	Area containing concrete, possible asbestos. Located east of Building 94, in SW CSSA.	RIR March 2012	Closure		X			May-12	NFA
AOC-73	Ranch landfill with overgrown trenches. Near Well I1, in northwest corner of CSSA.	RIR September 2008	NA		X			January-09	NFA
AOC-74	Area with scattered building debris near Building 605 in the inner cantonment.	RIR February 2012	Closure		X			May-12	NFA
AOC-75	Area with high levels of mercury and barium.	RIR July 2013	Closure		X			November-13	NFA
RMU-1	Active firing range in the East Pasture	--	Investigation once range is inactive.						
RMU-2	Rifle range located in the inner cantonment.	RIR November 2011	NA		X			February-12	NFA
RMU-3	Firing range berm.	RIR May 2013	Closure		X			May-13	NFA
RMU-4	Former rifle range in East Pasture.	RIR October 2013	Closure		X			February-14	NFA
RMU-5	Former rocket range in North Pasture.	RIR June 2012	Closure		X			September-12	NFA

APPENDIX C

KEY CONTACTS

CAMP STANLEY STORAGE ACTIVITY

Mr. Jason D. Shirley, Installation Manager
Camp Stanley Storage Activity
25800 Ralph Fair Road
Boerne, Texas 78015
(210) 295-7416

Mr. Phillip A. Reidinger
Public Affairs Officer
1212 Stanley Rd. (Bldg. 124)
Fort Sam Houston, Texas 78234
(210) 221-1151

CSSA Environmental Project Manager
Camp Stanley Storage Activity
25800 Ralph Fair Road
Boerne, Texas 78015
(210) 698-5208

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Mr. Michael Kuitu, GIT, Project Manager, MC 127
VCP-CA Section, Remediation Division
TCEQ
P.O. Box 13087
Austin, TX 78711-3087
Michael.kuitu@tceq.texas.gov
(512) 239-2261

Mr. Jorge Salazar
San Antonio Region 13
14250 Judson Rd.
San Antonio, TX 78233-4480
(210) 490-3096

U. S. ENVIRONMENTAL PROTECTION AGENCY, REGION 6

Mr. Greg Lyssy
USEPA
New Mexico Liaison
1445 Ross Avenue (MC 6PD-F)
Dallas, TX 75202
(214) 665-8317

APPENDIX D

LIST OF ELECTED OFFICIALS AND MEDIA

ELECTED OFFICIALS

Texas Governor	Texas U.S. Representatives
<p>Governor Rick Perry Office of Governor P.O. Box 12428 Austin, TX 78711 512-463-2000</p>	<p>Congressman Pete P. Gallego, Congressional District 23 1427 Longworth House Office Building Washington, DC 20515 Phone: (202) 225-4511</p> <p>Congressman Lamar Smith Congressional District 21 2231 Rayburn HOB Washington, DC 20515 Phone: (202) 225-4236</p>
Texas State Senator	Texas State Representative
<p>Senator Donna Campbell, Senate District 25 Capitol Address: P.O. Box 12068, Capitol Station, Austin, TX 78711 District Address: 9601 McAllister Freeway, Ste. 150, San Antonio TX 78216 Phone: (210) 979-0013</p>	<p>Representative Lyle Larson House District 122 Capitol Office: EXT E2.604 Capitol Phone: (512) 463-0646 Capitol Address: P.O. Box 2910 Austin, TX 78768 District Address: 14607 San Pedro, Ste. 180 San Antonio TX 78232</p> <p>Representative Doug Miller House District 73 Capitol Office: EXT E2.604 Capitol Phone: (512) 463-0646 Capitol Address: P.O. Box 2910 Austin, TX 78768 District Address: 14607 San Pedro, Ste. 180 San Antonio TX 78232</p>
County Judge	Bexar County Commissioners
<p>Hon. Nelson W. Wolff Bexar County Judge Bexar County Courthouse 100 Dolorosa, Suite 1.20 San Antonio, Texas 78205 Phone: (210) 335-2626</p>	<p>Bexar County Courthouse 100 Dolorosa, Suite 1.20 San Antonio, Texas 78205</p> <p>Sergio "Chico" Rodriguez (Precinct 1) (210) 335-2611</p> <p>Paul Elizondo (Precinct 2) (210) 335-2612</p> <p>Kevin Wolff (Precinct 3) (210) 335-2613</p> <p>Tommy Adkisson (Precinct 4) (210) 335-2614</p>
Mayors	
<p>Mike Shultz Mayor, City of Boerne 402 E. Blanco Boerne, TX 78006</p> <p>Cheryl Landman Mayor, City of Fair Oaks Ranch 7286 Dietz-Elkhorn Road Fair Oaks, TX 78015</p>	

MEDIA CONTACTS

Newspapers

Alamo City Courier

9726 Hidden Fls.
San Antonio, TX
Phone: 210-509-7459

San Antonio Express-News

400 3rd Street
San Antonio, TX 78287
Phone: 210-250-3000
Fax: 210-250-3105

San Antonio Current

1500 N. St. Mary's Street
San Antonio, TX 78215
Phone: 210-227-0044

San Antonio Informer

333 S Hackberry
San Antonio, TX
Phone: 210-227-8300

San Antonio Register

P.O. Box 1598
San Antonio, TX 78296
Phone: 210-222-1721
Fax: 210-227-3455

La Prensa

318 S. Flores Street
San Antonio, TX 78204
Phone: 210-242-7900

San Antonio Business Journal

70 NE Loop 410, Ste 350
San Antonio, TX 78216
Phone: 210-341-3202
Fax: 210-341-3031

Hill Country Recorder

P.O. Box 905
Boerne, TX 78006
Phone: 830-249-9524

Television

KABB 29

4335 NW Loop 410
San Antonio, TX 78229
Phone: 210-366-1129
Fax: 210-442-6333

KENS 5 CBS

5400 Fredericksburg Rd.
San Antonio, TX 78229
Phone: 210-366-5000
Fax: 210-366-2716

KEA

6011 Fountainwood St. #C
San Antonio, TX
Phone: 210-225-0052

KHCE 23 SPN

15533 Capital Port
San Antonio, TX 78249
Phone: 210-479-0123

KLRN 9 PBS

501 Broadway
San Antonio, TX 78215
Phone: 210-270-9000
Fax: 210-270-9078

WOAI 4 NBC

P.O. Box 2641
San Antonio, TX 78299
Phone: 210-226-4444
Fax: 210-224-9898

KRRT WB 35

4335 NW Loop 410
San Antonio, TX 78229
Phone: 210-366-1129

KSAT 12 ABC

1408 N. Saint Mary's St.
San Antonio, TX 78215
Phone: 210-351-1200
Fax: 210-351-1310

KVDA 60 SPN

6234 San Pedro Avenue
San Antonio, TX 78216
Phone: 210-340-8860
Fax: 210-341-3962

KWEX 41 UNI

411 E. Durango Blvd.
San Antonio, TX 78204
Phone: 210-227-4141
Fax: 210-226-0131

KSYM 1300

San Antonio, TX 78212

Radio

KCHL (Gospel)

P.O. Box 200880
San Antonio, TX 78220
Phone: 210-333-0050
Fax: 210-333-0081

KCOR/KROM (Spanish/Romantic)

1635 NE Loop 410, Ste 500
San Antonio, TX 78209
Phone: 210-826-3876
Fax: 210-826-2992

KEDA (Spanish)

510 S. Flores Street
San Antonio, TX 78204
Phone: 210-226-5254
Fax: 210-227-7937

KENS (News)

1635 NE Loop 410, Ste 500.
San Antonio, TX 78209
Phone: 210-826-3876
Fax: 210-826-2992

KCHG

1802 NE Loop 410 #530
San Antonio, TX

KSAH

7800 IH-10 West, Ste 300
San Antonio, TX 78230
Phone: 210-340-1234

KSLR (Religious)

9601 McAllister Freeway, Suite 1200
San Antonio, TX 78216
Phone: 210-344-8481
Fax: 210-340-1213

KSJL (Contemporary)

6222 NW IH-10
San Antonio, TX 78201
Phone: 210-736-9700

KXTN (Tejano)

1777 NE Loop 410, Suite 400
San Antonio, TX 78217
Phone: 210-829-1075
Fax: 210-804-7825

KZDC

2700 NE Loop 410, Ste 300
San Antonio, TX 78217
Phone: 210-226-6444

KISS (Rock)

8930 Four Winds Drive, Suite 500
San Antonio, TX 78239
Phone: 210-646-0105
Fax: 210-871-6116

KKYX/KCYY/KCJZ (Classic Country/Country/Jazz)

8122 Datapoint Drive, Suite 500
San Antonio, TX 78229
Phone: 210-615-5400
Fax: 210-615-5300

KONO (Oldies)

7800 NW IH-10, Suite 330
San Antonio, TX 78230
Phone: 210-340-1234
Fax: 210-344-7611

KPOZ

5372 Fredericksburg Rd #240
San Antonio, TX
Phone: 210-344-9500

KJ 97

6222 NW IH-10
San Antonio, TX 78201
Phone: 210-736-9700
Fax: 210-736-9777

KRIO

7800 W IH10
San Antonio, TX
Phone: 210-340-1234

KLUP

9601 McAllister Freeway, Ste 1200
San Antonio, TX 78216
Phone: 210-344-8481

KSYM (Alternative)

1300 San Pedro Avenue
San Antonio, TX 78212
Phone: 210-733-2787
Fax: 210-733-2778

KTSA/KTFM (News Talk/Contemporary)

4050 Eisenhower Road
San Antonio, TX 78218
Phone: 210-599-5500
Fax: 210-599-5539

KZEP-AM/FM (Hard Rock/Classic Rock)

427 E. 9th Street
San Antonio, TX 78215
Phone: 210-226-6444
Fax: 210-225-5736

WOAI (News Talk)

6222 NW IH-10
San Antonio, TX 78201
Phone: 210-736-9700
Fax: 210-735-8811

Z-91

1566 NE Loop 410
San Antonio, TX
Phone: 210-824-9100

KPAC (Classical)/KSTX (News/Talk)

8401 Datapoint Drive, Suite 800
San Antonio, TX 78229
Phone: 210-614-8977
Fax: 210-614-8983

APPENDIX E

SITE LOCATION MAP

