Camp Stanley Storage Activity
Off-Post Monitoring Program Response Plan

Prepared by
Camp Stanley Storage Activity

Revised June 6, 2002

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Introduction

Camp Stanley Storage Activity (CSSA) is an U.S. Army facility located in northwestern Bexar County, about 19 miles northwest of downtown San Antonio. The installation consists of 4,004 acres situated immediately east of State Highway 3351 (Ralph Fair Road) and approximately 0.5 miles east of Interstate Highway 10. Camp Bullis, a separate Army installation, is located adjacent to the east, north, and south boundaries of CSSA. Vacant land and residential subdivisions border the remainder of the base. A CSSA Location Map that highlights adjacent subdivisions, roads, and other significant landmarks is provided in Attachment A.

Ground water contamination was discovered at CSSA in 1991, when the Texas Department of Health found volatile organic compounds (VOCs) in two on-post water wells. Since 1991, the ground water contamination plume has been monitored using on-post and selected off-post wells. In December 1999, low levels of VOCs, below the maximum contaminant level (MCL) allowed in drinking water, were found in one off-post well. Since that time, off-post sampling has identified additional wells impacted by VOCs.

Several maps and summary tables referenced in this document can be found in the CSSA Environmental Encyclopedia. The Encyclopedia is the Administrative Record for the CSSA Environmental Program and can be found at the San Antonio Public Library, located at 600 Soledad Street in downtown San Antonio. The Encyclopedia is updated on a periodic basis and includes the most current information available.

Purpose

The purposes of the CSSA Off-Post Monitoring Program Response Plan are to (1) confirm area drinking water meets United States Environmental Protection Agency (EPA) and Texas Natural Resource Conservation Commission (TNRCC) standards, (2) determine the lateral and vertical extent of VOC contamination (3) determine if there any potential off-post VOC source areas, (4) provide the framework to monitor off-post water wells that are located downgradient of known VOC source areas and within close proximity of CSSA, and (5) provide action levels and Army response guidance if additional off-post ground water contamination is encountered.

Background

The land on which CSSA is located was used for ranching and agriculture until the 1900s. During 1906 and 1907, six tracts of land were purchased by the U.S. Government and designated the Leon Springs Military Reservation. In 1917, the Reservation was renamed CSSA and hosted the First Officers' Training Camp. In 1925, the installation was selected as an ammunition depot under the jurisdiction of the San Antonio Arsenal. The Works Progress Administration began construction of earthen-covered and aboveground magazines to adequately house ordnance materiel circa 1938. In 1949, CSSA was transferred to the jurisdiction of Red River Army Depot. Since the early 1950s, federal and private land transfers and acquisitions have increased the installation to approximately 4,000 acres. The primary mission of CSSA is receipt, storage, and issuance of ordnance materiel as well as quality assurance testing and maintenance of military weapons and ammunition.

Geology and Aquifers

CSSA is located along a large regional fault trend known as the Balcones Escarpment. Movement along the fault trend ended many million years ago, but evidence of movement can

still be seen on the Hill Country topography. Geologic investigations at CSSA have identified two local fault trends running across CSSA. The approximate locations of these faults are shown on Figure 1 below. The upper and lower members of the Glen Rose formation underlie CSSA. The Glen Rose consists of alternating layers of dolomite, limestone, and marl of varying thickness and hardness. In general, CSSA soils are very thin and outcrops of the Glen Rose, exposed fractured rock, and scattered karst features are common.

The Middle Trinity Aquifer supplies drinking water for CSSA, and most of the surrounding area. The Middle Trinity includes the Lower Glen Rose, Bexar Shale, and Cow Creek Limestone. During periods of heavy precipitation, water levels have reached as high as 45 feet below ground surface (October 1998 flood). During drought conditions water levels are as deep as 375 feet. Residential development surrounding CSSA over the last decades has greatly increased the demand for ground water locally. As of February 2002, there are a total of 35 wells at CSSA. Three are used for drinking water supply; and the remainders are used for agricultural and or monitoring purposes.

Groundwater Contamination

Ground water contamination has been a concern at CSSA since 1991 when the Texas Department of Health found elevated levels of tetrachloroethene (PCE), trichloroethene (TCE), and other volatile organic compounds (VOCs) in a water sample from Well 16. Follow up sampling confirmed VOC contamination was also present in Well D, an agricultural well located approximately 300 feet west of Well 16. After the initial contamination discovery, CSSA removed Well 16 from the water supply distribution. Based on the 1991 ground water contamination findings, CSSA initiated a program of periodic monitoring of all CSSA water wells. In 1996 a selected group of off-post wells were included in the sampling/analyses program. In general, contamination levels in the on-post wells have fluctuated over time. PCE levels in Well 16 have ranged from 24 up to 212 parts per billion (ppb) PCE and from 21 up to 509 ppb TCE. A historical summary of all VOC data from both on and off-post wells tested by CSSA can be found in the Environmental Encyclopedia, Volume 5-1, Introduction to Quarterly Monitoring Program, Table 6.

Since 1991, CSSA has identified three source areas for the VOC contamination. These known source areas include solid waste management unit (SWMU) B-3SWMU O-1, and an area located in the vicinity of Building 90, area of concern – AOC-65. Remediation at SWMU B-3 began in 1997 when a soil vapor extraction (SVE) system was installed. During the summer of 2000, contaminated soil associated with SWMU O-1 was excavated and taken off-post for proper disposal at a Texas Natural Resource Conservation Commission (TNRCC) authorized landfill. AOC-65 was identified as a VOC source in mid 2000. Further investigation and evaluation of cleanup options for this site is being planned. A map showing the CSSA's well locations and known/potential VOC source areas is provided as part of CSSA Environmental Fact Sheets Numbers 3 and 4, found in the Environmental Encyclopedia, Volume 1-1.1, Community Correspondence.

Review of the ground water monitoring results has suggested that the highest levels of ground water contamination are confined to the central portion of the post, with lower levels of contamination, below the maximum contaminant limit (MCL), found near the southern post perimeter. The initial off-post sampling effort occurred in 1995 when four wells located along the western perimeter of CSSA were sampled. Analyses of these wells, which were cross gradient and downgradient of the SWMU B-3 and O-1 source areas, found no VOC contamination. Three of these wells were re-sampled in September 1999 with similar non-detect results.

In December 1999, a fifth well (LS-7) was added to the off-post sampling program. Analyses of water samples from this well, located less than 0.25 miles southwest of the post boundary, found 2.51 ppb PCE and 0.3 ppb TCE. These levels do not exceed Safe Drinking Water Act MCLs. After data validation was completed, this sampling information was provided to the well owner, TNRCC and the EPA. Follow-up samples have been collected from LS-7 on a quarterly basis since the initial VOC detection. Over the course of sampling, VOC concentrations have fluctuated with the highest levels (4.6 ppb PCE) being found in September 2001

Potential Off-post Wells for Monitoring

Starting in the fall of 1999, CSSA contractors have reviewed water well databases and undertaken visual surveys to identify all water wells within a one-quarter mile radius of the post. Based on the findings of this survey work, CSSA has identified several water wells that are located down gradient of the VOC source areas and within close proximity of LS-7 where low levels of VOCs were detected. This list includes residential wells, commercial wells (located at businesses), and public supply wells. A map depicting the approximate locations of these wells in relation to CSSA is provided in the Environmental Encyclopedia, Volume 5-2, Water Well Survey, Figure 3.1. Of the identified wells, it is anticipated that 20 will be selected for sampling. Summary tables that include the map reference name, addresses for these wells, and available well completion data is also provided in the Well Survey Report.

Well Owner Notification

Owners of wells selected for sampling will be contacted by CSSA or its' representatives to request permission for well sampling. The initial contact will be by mail and include an access agreement with general background information regarding groundwater issues and an invitation to contact CSSA to work out the sampling schedule and to answer any questions.

All analytical data generated by the sampling event will be shared with the well owner. The Right of Entry Access Agreement consent form will state the purpose of the sampling event and that CSSA will deliver the sampling results to the well owner, return the well owner's property to the same condition it existed prior to performing sampling work, and that the well owner will not be liable for any property damage or injuries suffered during the sampling event. CSSA will require the well owner to sign the Right of Entry Access Agreement prior to sampling his or her well. The Right of Entry Access Agreement is included in the Attachment B.

Bexar Metropolitan Water District and Fair Oaks Water Utility Company will be contacted separately to discuss the number of connections they have and for other details related to their water distribution system, including well data (geologic, depth, casing, pump location, etc.) pumping rates, and contaminant history for Leon Springs Villa, Hidden Springs Estate, and City of Fair Oaks water distribution systems.

Well Sampling

All of the above listed wells are to be sampled by CSSA through Parsons Incorporated, or other designated contractors. To assure samples are as representative of aquifer conditions as possible, the samples will be collected as close to the wellhead as possible. Where sampling ports are not available, if feasible, one will be installed with permission of and at no cost to the well owner. All samples will be collected in a preserved 40-milliliter (ml) glass volatile organic analyte container, stored on ice, and shipped immediately to a laboratory contracted by CSSA, Parsons

Engineering Science, or other contractor for analyses using EPA SW-846 Method 8260. Where possible, water levels will be collected during the sampling event and the well location will be surveyed using a geographical positioning system (GPS) device. Further details on CSSA's Field Sampling Procedures and Quality Assurance Project Plan can be found in Volume 1-4 of the Environmental Encyclopedia.

Sample Analyses

During the initial sampling event, all samples will be analyzed for a full suite of volatile organic compounds (VOCs) using EPA Method SW8260. A complete list of analytes covered under SW8260B is provided in the Environmental Encyclopedia, Volume 1-4, under Quality Assurance Project Plan (QAPP), Table 7.2.9-1. For future sampling events, CSSA may elect to reduce the VOC analyte list based on the findings of previous sampling events. Well owners, EPA , and TNRCC will be notified of any proposed reduction in the analyte list. Regulatory approval will be obtained prior to well owner notification.

VOC Action Levels

After the analytical results are returned and data verification/validation is complete, CSSA, in coordination with the EPA, TNRCC, and San Antonio Metropolitan Health District will evaluate the sample results and determine the most appropriate course of action. Letters that include the analytical results, an explanation of the findings, and the next appropriate step will be prepared and sent to each well owner.

For residential and commercial wells the Action Levels and Army responses Off-post are:

- If VOC contaminant levels are within 90% of the MCL (4.5 ppb for PCE and TCE) and the well is used as a potable water source, bottled water will be supplied within 24 hours. A confirmation sample will be collected from the well. The re-sampling will take place within 14 days of the receipt of the final validated analytical report. If the follow-up sampling confirms contaminants of concern above 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 feasible and the preferred alternative. Cost related to the installation and maintenance of wellhead treatment equipment or connection to an alternative water source will be borne by the US Army.

- If VOC contaminant levels are ≥ 80% 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, it shall be monitored monthly. If the follow-up sampling confirms contaminants of concern are ≥ 80% of the MCL, it will be re-sampled until the level falls below the 80% value. Should the value be ≥ 90% of the MCL see bullet above.

- If any VOC contaminant of concern (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 the concurrence of EPA and TNRCC.

- If VOCs are not detected during the initial sampling event, (i.e. no VOC contaminant levels above the MDL), further sampling of the well would 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, EPA and TNRCC will be apprised of any re-sampling decisions regarding the non-detect wells.

When off-post public supply systems are adversely impacted, CSSA will cooperate and coordinate solutions to the maximum extent practicable.

Modification of CSSA Off-post Monitoring Program Response Plan

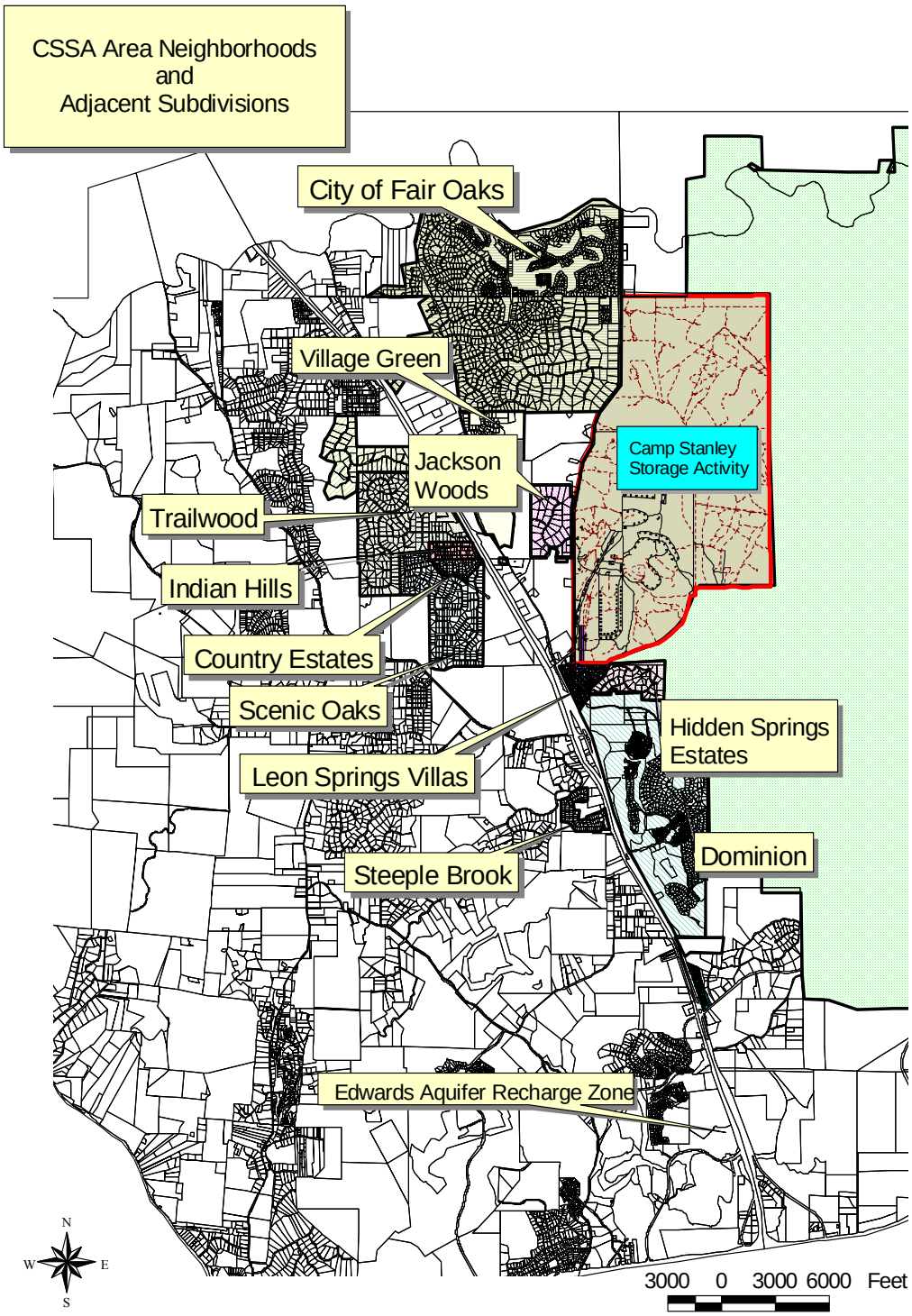
After the initial round of sampling is complete, CSSA, in coordination with EPA and TNRCC, will evaluate the sampling results to determine the need to expand the off-post sampling program. Program expansion would be required to (1) ensure that all impacted wells are identified and appropriate remedial actions are taken, and (2) ensure an accurate assessment of migration of the plume off-post, if at all, has been made. If it is determined that data is needed from additional wells, CSSA will follow the Well Owner Notification procedures as described above to contact the well owner(s) to obtain consent for access.

Comments

Comments can be made to CSSA by writing to the address below or calling Lieutenant Colonel, Jason D. Shirley, CSSA Commander at (210) 295-7416. Comments can also be made to CSSA's EPA Regional Program Manager, Mr. Greg Lyssy at (214) 665-8317, or to U.S. Army, Corps of Engineers, Public Affairs Office, Ms. Anita Horky at (817) 978-3395.

CMDR, CSSA
25800 Ralph Fair Road
Attn: Environmental Office
Boerne, Texas 78015-4800

Attachment A - Area Neighborhoods and Adjacent Subdivisions



Attachment B - Right of Entry Access Agreement

June 6, 2001

Office of the Commander

Name
And Address
of Property Owner

In October 2000, Camp Stanley Storage Activity (CSSA) provided responses to community questions regarding environmental issues at our installation. Included was information regarding our on-going effort to verify groundwater quality on and around our facility. Additional information about the CSSA's Environmental Program and related ground water concerns was recently mailed out to area residents as fact sheets.

As part of our groundwater monitoring efforts, we periodically sample selected on-post and off-post drinking water wells and analyze them for volatile organic compounds (VOCs). This is conducted to confirm that the drinking water well meets United States Environmental Protection Agency (EPA) and Texas Natural Resources Conservation Commission (TNRCC) requirements under the Safe Drinking Water Act. In September 2001, Camp Stanley will expand its' off-post sampling program to include up to 20 off-post wells.

A review of Texas State drilling records indicates a drinking water well is located on your property and within our study area. With your permission, we request access to your property for the purpose of sampling this well. This work will be done at no cost to you and be performed by Parsons Engineering Science, Inc. (Parsons), who has been contracted with by CSSA. In the next few weeks, a Parsons representative will contact you regarding the possibility of sampling your well and also to ask questions about casing depths, pump depths, potential sampling points, and other pertinent well information. If you agree to participate the Parson's representative will provide a summary of what types of information you will receive from the study and an estimate of when you can expect data from the sampling event.

If you have questions or concerns regarding the well sampling, please be sure to discuss your concerns with the Parson's representative when they contact you. Once you and the Parson's representative have discussed the project and sampling details, we strongly encourage you to participate in the study. However, you are under no obligation to participate and the decision is yours.

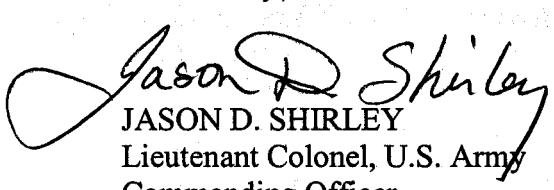
If you elect to participate in the program, you will be required to sign the enclosed Right of Entry Access Agreement. This

agreement releases you from any liability regarding the sampling effort, allows Parson's representatives access to your well for up to three years to collect samples, and holds CSSA responsible for repairs or settlements from damage which occurs from sampling events only. If you wish to participate, please sign the agreement in the block labeled "owner" and send the correspondence back to CSSA at 25800 Ralph Fair Road, Attn: Commander, Boerne, Texas 78015-4800.

If you sign and return the agreement, a Parson's representative will contact you to schedule the sampling. The sampling team will consist of two Parson's employees who will need access to your well to collect the sample. In order to make the sampling as convenient as possible, Parson's representatives will alert you at least 72 hours prior to the sampling day. It is estimated that it will take approximately 0.5 to 1 hour to complete the sample collection.

Although, you are not required to participate in this study, your help and cooperation with this effort would be greatly appreciated. All costs associated with this work will be paid by CSSA, and all analytical results from your well will be provided to you at no expense. If you have any questions, either before or after you speak with a Parson's representative, please contact Lieutenant Colonel Jason Shirley, Commander, CSSA, at 210/295-7416.

Sincerely,



JASON D. SHIRLEY
Lieutenant Colonel, U.S. Army
Commanding Officer

Department of the Army
Camp Stanley Storage Activity

Right-of-Entry for Water Well Sampling

The undersigned, hereinafter called the "Owner", hereby grants to Camp Stanley Storage Activity, hereinafter called "CSSA", a permit or right-of-entry upon the following terms and conditions:

1. The Owner hereby grants CSSA or its agents, a right to enter upon the land hereinafter described at any time within a period of thirty-six (36) months from the date of this instrument to carry out groundwater sampling of water wells to complete a groundwater investigation of groundwater under said lands by CSSA.
2. The permission/permit includes the right of ingress and egress on other lands of the Owner, not described below, provided such ingress and egress is necessary and not otherwise conveniently available to CSSA.
3. CSSA agrees to be responsible for damages arising from the activity of CSSA, its officers, employees, or representatives on said land in the exercise of rights under this permit or right-of-entry, either by repairing such damage or at the option of CSSA by making an appropriate settlement with the Owner in lieu thereof.
4. CSSA will provide notify you at least 72 hours prior to the sampling event.
5. The land affected by this permit or right-of-entry is located in the State of Texas, County of Bexar, and is described as follows:

PROPERTY OWNER

Name: _____

Address – Street: _____

City, State, Zip Code: _____

Phone Number: _____

Signed this _____day of _____, 20_____

BY:_____
Owner's Name (Printed)

BY:_____
Owner's Name (Signature)

CSSA Acknowledgement
United States of America

BY:_____ _____
Commander Date

*A copy of this Right-of-Entry will be provided to the property owner for their records after all signatures are obtained.