Camp Stanley Storage Activity
Groundwater Contamination – Plume 1
FACT SHEET

No. 3 – October 2001

The purpose of this fact sheet is to provide an overview of groundwater investigation and cleanup activities at Camp Stanley Storage Activity (CSSA) specific to Plume 1. A plume is an area below the surface defined by measurable levels of a groundwater contaminant. The investigation is in response to the detection of volatile organic compounds (VOCs) in groundwater at CSSA. In the past, these compounds were used to degrease and clean metal surfaces. At three on-post locations, residue from these compounds has been detected in soil and rock and has resulted in groundwater contamination. CSSA has initiated cleanup at the two VOC source areas associated with Plume 1. Another fact sheet will provide information for the third VOC source area. This fact sheet provides detailed information about the investigation findings, past cleanup activity, and future planned activities.

Background/Mission

CSSA is a U.S. Army post located in Bexar County, approximately 19 miles northwest of downtown San Antonio, Texas. Its mission is the receipt, storage, and issuance of ordnance materiel as well as quality assurance testing and maintenance of military weapons and ammunition. Because of its ordnance mission, CSSA is a restricted-access facility.

Chemicals of Concern (COCs)

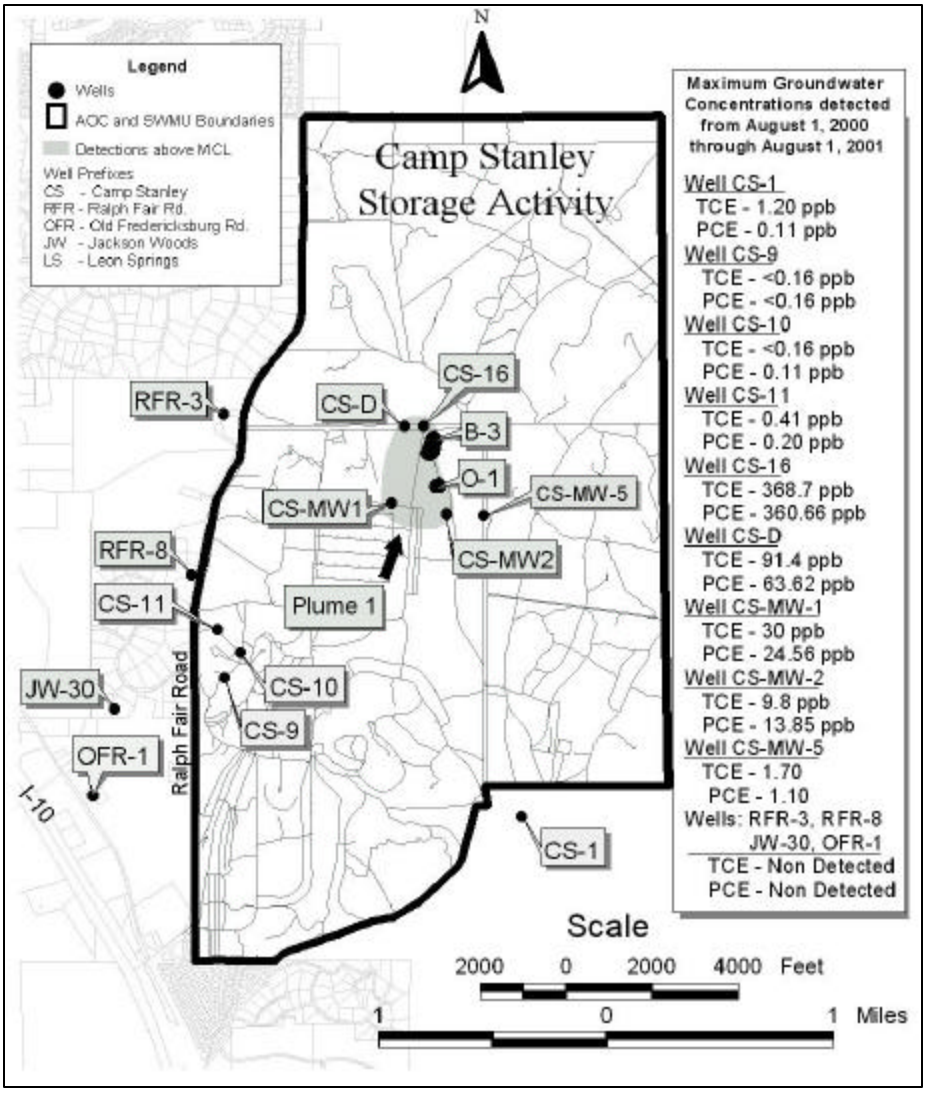
Groundwater contamination at CSSA is caused by a group of chemical compounds commonly referred to as chlorinated solvents. These solvents are also referred to as VOCs. Tetrachloroethene (PCE) and trichloroethene (TCE) are the two most common VOCs found in the CSSA groundwater contamination plumes. The U. S. Environmental Protection Agency (EPA) has established drinking water maximum contaminant levels (MCLs) for PCE and TCE to be 5.0 parts per billion (ppb). Concentrations below 5.0 ppb are considered safe for drinking water.

Groundwater Contamination History – Plume 1

CSSA first became aware of groundwater contamination beneath the post in 1991, when VOCs were detected in water from CSSA Well 16 (CS-16). This well is located in the central portion of the post, approximately 500 feet from a known VOC source area. CSSA immediately removed Well CS-16 was from its drinking water supply system and began to test additional on- and off-post wells for VOCs. Based on many sampling events, it was determined that contamination associated with the Well CS-16 area is confined to the central portion of CSSA. This plume is called Plume 1. In 1995 and 1999, four off-post wells located west of the post along Ralph Fair Road (Wells RFR-3, RFR-8, JW-30, and OFR-1) were tested and found free of VOC contamination (see Figure 1).

CSSA expanded its investigations to identify additional potential VOC source areas and installed new monitoring wells to evaluate groundwater conditions at various locations on-post.

Figure 1



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Plume 1 Location and VOC Levels

Plume 1 is in the north central area of CSSA approximately 2,400 feet east of the nearest post boundary. VOCs have been detected at concentrations above MCLs in several CSSA wells. The locations of these wells and the maximum concentrations detected from August 1, 2000, through August 1, 2001 are shown on Figure 1. The highest VOC concentration levels detected at Plume 1 were found in Well CS-16. These concentrations were 360.66 ppb for PCE (9/13/00) and 509 ppb for TCE (8/23/91).

Identification of Plume 1 Source Areas

After groundwater contamination was identified in 1991, CSSA conducted extensive reviews of historical records and aerial photographs to identify potential source areas for the VOC contamination. Landfill sites, where VOCs may have been disposed, were found in the vicinity of Well CS-16. Geophysical surveys were conducted to define the extent of the landfill trenches, and soil gas surveys to determine the presence of VOCs. Soil and groundwater samples were collected to measure contaminant concentrations.

As a result of these investigations, two potential source areas were identified for Plume 1. These areas include a former on-site landfill/burn pit (designated solid waste management unit (SWMU B-3) and a former vinyl-lined oxidation/evaporation pond (designated SWMU O-1). Both of these sites are less than 1,800 feet from Well CS-16. These sites are shown on Figure 1.

Remediation (Cleanup) Activities for Plume 1

- **SWMU B-3 Remediation** SWMU B-3 consists of two trenches that cover approximately one-half acre. Tests identified PCE and TCE in the trench area, indicating this is a likely source for the VOCs detected in Well CS-16. CSSA installed a soil vapor extraction (SVE) system to cleanup VOCs in the soils and limestone in 1995 and the system has removed approximately 500 pounds of VOCs. CSSA anticipates performing a removal action of contaminated soil and the SVE system from this site in the next year.

- **SWMU O-1 Remediation** SWMU O-1 was a permitted vinyl-lined oxidation/evaporation pond. The pond was built in 1975 and included a vinyl liner to prevent leakage to the soil and rock below. CSSA used the pond for disposal/evaporation of used chemicals from ordnance maintenance activities. Soil gas surveys conducted in 1995 identified VOCs within the pond boundaries. Subsequent soil tests have shown PCE, chromium and cadmium in the soil above action levels established by the Texas Natural Resource Conservation Commission (TNRCC).

  In 1997, an electrokinetics treatability study was conducted at the site. The study was successful in lowering metals contamination levels in a localized area, however was not economically feasible on a larger scale due to alkalinity of the soils. 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 no soil with concentrations above the TNRCC action levels remained. Formal closure of the site has been requested from the TNRCC.

- **Ongoing Plume 1 Remediation Activities** CSSA is continuing investigations and limited response actions at additional SWMUs and other areas near Plume 1. Recent work has included on-post soil gas surveys and installation and sampling of six new on-post monitoring wells. The soil gas surveys concluded that there were no unidentified sites north of Well CS-16. Data from the June 2001 monitoring event has indicated low level VOCs in one of these new wells (MW-5 Lower Glen Rose). PCE was detected at 1.10 ppb and TCE at 1.70 ppb in MW-5 LGR. At the present time no additional source areas have been identified.

CSSA will continue to test on- and off-post wells on a quarterly basis. In addition, CSSA has contracted to install additional monitoring wells, ten of which will be used to monitor groundwater conditions in the vicinity of Plume 1. CSSA will initiate contracting activities to begin cleaning up the contaminated soils from SWMU B-3.

Previous CSSA Fact Sheets

- Fact Sheet No. 1 – CSSA's Environmental Program
- Fact Sheet No. 2 – CSSA's Soil and Groundwater Contamination

Public Comment

CSSA will distribute additional fact sheets to inform the public about different aspects of its environmental program. The public is welcome to comment on this fact sheet and environmental activities at CSSA by writing to:

Commander, Camp Stanley Storage Activity
25800 Ralph Fair Road
Boerne, Texas 78015-4800

You may also comment by calling:

- CSSA Commander, Lt. Col. Jason D. Shirley, at (210) 295-7416;
- EPA Regional Program Manager, Mr. Greg Lyssy, at (214) 665-8317; or
- U.S. Army Corps of Engineers, Fort Worth District Public Affairs Office, Ms. Anita Horky, at (817) 978-3395

Definition of terms:

CSSA or CS	Camp Stanley Storage Activity
LGR	Lower Glen Rose Formation
MCL	Maximum Contaminant Level
PCE	Tetrachloroethene
SVE	Soil vapor extraction is a remediation technology that removes subsurface volatile organic compound contamination that is contained in soil gas.
SWMU	Solid Waste Management Unit is a regulatory designation for an area of known waste disposal or contamination of potential environmental concern.
TCE	Trichloroethene