



## SITE S-4 FACT SHEET

September 1999

A fact sheet describing alternatives for cleaning up the groundwater at Site S-4

The purpose of this fact sheet is to describe the preferred alternative for cleaning up groundwater contamination in Kelly Air Force Base Installation Restoration Program Site S-4.

The information includes a brief history of the site, and an outline of remedial alternatives for Site S-4 groundwater.

### BACKGROUND

Site S-4 is located along the eastern boundary of Kelly AFB within Zone 3, which is the center of industrial operations and aircraft maintenance for the base. Most of the site is a grassy area on base near the base boundary but S-4 also extends off base into adjacent railroad property and residential areas.

### WHAT'S THERE AND HOW DID IT GET THERE?

Probable sources of JP-4 fuel found in the shallow groundwater at the site were underground storage tanks, hydrant fueling systems and the former **Industrial Wastewater Collection System (ICWS)**.

Major sources of dissolved solvents at this site are located up-gradient of Site S-4, in the direction from which the shallow groundwater flows past the site. The solvents present are **Perchloroethylene (PCE)**, **Trichloroethylene (TCE)**, **Dichloroethylene (DCE)** and **Vinyl Chloride (VC)**. The ICWS may also be a contributing source of the solvent contamination.

### HOW WILL IT AFFECT ME?

The Agency for Toxic Substance and Disease Registry (ATSDR) evaluated the possible ways community members could come into contact with groundwater, surface water, and soil contaminants, and released its findings in a public health assessment report August 1999.

According to the groundwater summary, the report states that there is "No apparent health hazard. No known exposure at levels of health concerns." In regard

to soil gas vapors at Site S-4, the report summary states that there is "No apparent health hazard. Below levels of health concern for North Kelly Gardens and Quintana Road."

Simply stated, the amounts of contaminants resulting from Kelly AFB are *too low* to cause any health affects to residents.

### WHAT IS THE AIR FORCE DOING ABOUT IT?

Corrective measure alternatives are currently being evaluated. Interim groundwater contamination recovery systems have been in place since the early 1990's.

The **JP-4** fuel off-base contamination is almost completely cleaned up. The S-4 CMS addendum is the report that selects which final corrective measure alternative is the best for the clean-up of the solvent contamination.

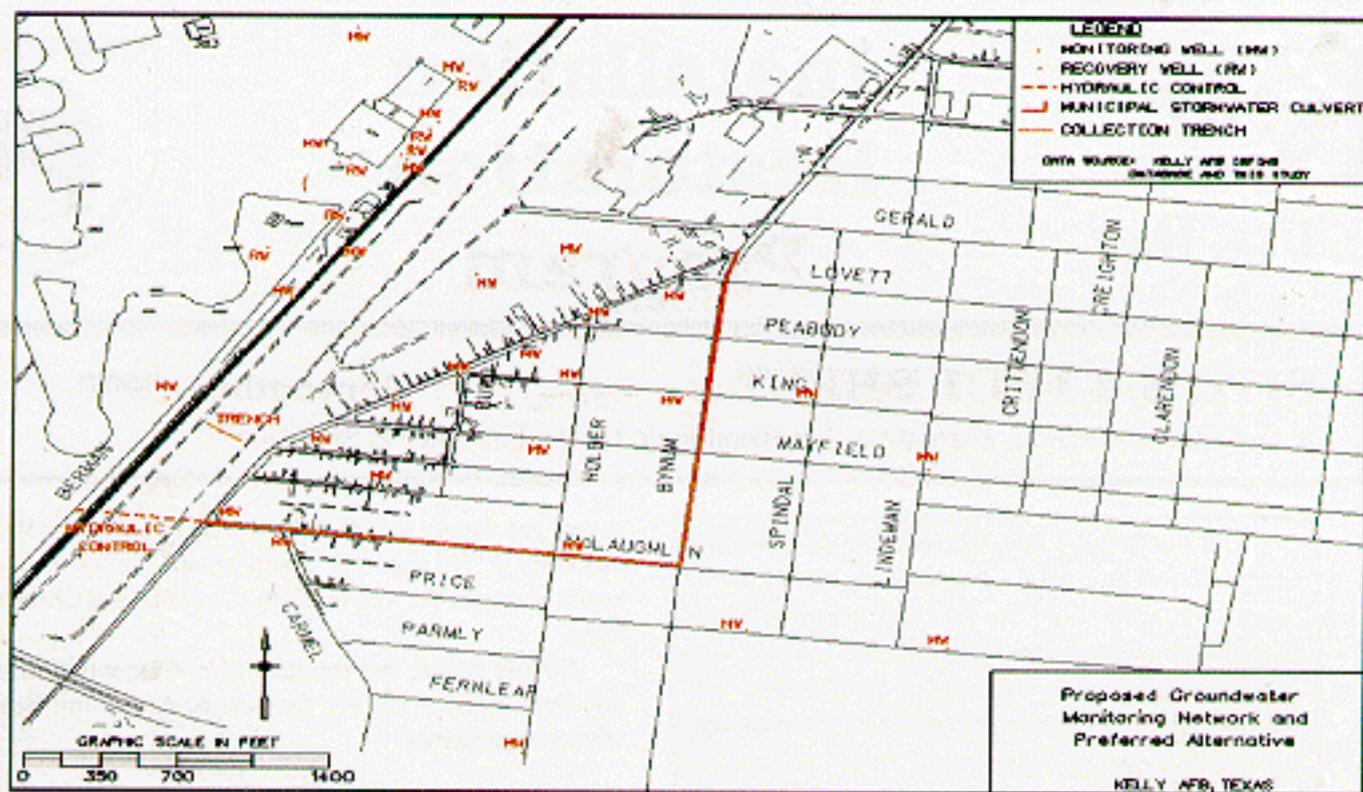
### RECOMMENDED ALTERNATIVE

Five remediation alternatives are proposed to remove contamination from the site. These five remediation alternatives include three different well extraction networks, monitoring of naturally occurring biodegradation, and enhanced degradation caused by bioaugmentation and reactive walls.

All three proposed well networks were designed to capture and contain the entire S-4 plume up-gradient of the proposed Quintana Road Barrier. For all alternatives, the **Maximum Containment Level (MCL)** are reached off base before they are reached on base.

> **Alternative 1** consists of six on-base extraction wells, a 200-foot trench off-base on railroad property and a groundwater capture and containment system located near the leading edge of contamination.

> In addition to the wells associated with **Alternative 1**, **Alternative 2** and **4** have added three wells and five wells, respectively, in the off-base portion of the S-4 plume.



> Both Alternatives 3 and 5 have the same well extraction network as Alternative 1, however, Alternate 3 includes a triangular area where enhanced in-situ biodegradation (bioaugmentation) occurs and Alternate 5 includes two reactive walls.

Alternative 1 has been recommended as the preferred alternative.

## GLOSSARY

**Perchloroethylene (PCE):** Also called tetrachloroethylene, this substance is a common industrial solvent used by the Air Force to remove grease from aircraft parts.

**Trichloroethylene (TCE):** A common industrial solvent used by the Air Force to remove grease from aircraft parts. TCE is considered a hazardous chemical.

**JP-4:** A kerosene-like fuel for jet engines.

**Plume:** A concentration of contaminants in air or water usually extending from a distinct source.

**Vinyl Chloride (VC):** A chemical compound, used in producing some plastics, that is believed to be carcinogenic. It was not used at Kelly AFB, but is a degradation product of PCE and TCE. VC degrades further into less harmful compounds.

**Up-gradient:** The direction from which water flows toward or past the site.

**Industrial Waste Collection System:** Underground pipes that connected shops at Kelly AFB with the wastewater treatment plant. Over many years of use, these pipes leaked, contaminating groundwater with chemicals.

**Maximum Containment Level (MCL):** This is the highest allowable amount of a chemical in the drinking water. According to federal and state law, public drinking water may not contain more than the MCL of a particular containment.

**Contaminants:** Any substance that degrades an environmental resource or makes the resource unfit or unsafe for its typical use.

**Preferred Alternative:** The remedial alternative that is selected by Kelly AFB and presented in the proposal. After review and comment by regulatory agencies and the public, it may be modified or implemented as originally submitted.

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