UNITED STATES AIR FORCE
INSTALLATION RESTORATION PROGRAM
KELLY AIR FORCE BASE
SAN ANTONIO, TEXAS

IMPACT OF JP-8 EMISSIONS FROM THE KELLY AFB STORAGE AND DISTRIBUTION FACILITY ON THE AIR QUALITY IN NORTH KELLY GARDENS

Prepared By Southwest Research Institute (For CH2M Hill)
Kelly Air Force Base, Texas
(Contract No.) Subcontract No. 408-0-R; Job 140308 (SwRI Project 01-1116)
June 8, 1998

EXECUTIVE SUMMARY

Southwest Research Institute (SwRI), along with CH2M Hill, conducted ambient air surveys at Fuel Storage and Distribution Facility, System 1592, and neighboring North Kelly Gardens community. The surveys were requested by the Environmental Management Directorate at Kelly AFB in response to concerns of the neighboring community regarding health risks associated with System 1592 operations.

This study assessed fugitive emissions from System 1592 at storage tank vents, fuel truck vents, piping and valves, and conducted an ambient air survey within the System 1592 boundary during multiple operations at the site. This information was used to determine the operations which resulted in the highest ambient emissions of JP-8 vapor. This operational scenario was used during a second ambient air survey conducted within North Kelly Gardens. This second survey was conducted to measure ambient concentrations of JP-8, JP-8 related species, and total hydrocarbons for the purpose of determining any exposure risk in the North Kelly Gardens community.

Methodologies were selected for use during the surveys and determinations made of their applicability. Literature searches, interviews, and laboratory verification of these methods were performed. A worst-case opera-

tional scenario was designed for use during sample collection, environmental conditions were identified, and sampling locations were selected which would provide the most conservative measure of risk estimates for North Kelly Gardens.

The study indicated a very slight increase in background hydrocarbon levels attributable to the worst case operations at System 1592. These increases were below the Texas Natural Resource Conservation Commission Estimated Screening Limit (ESL) for individual compounds within JP-8. These individual compounds included benzene, toluene, xylene, and C9 and Cl0 hydrocarbons. Based on USEPA-accepted, non-occupational risk determination methods, the JP-8 vapor and individual JP-8 constituents attributable to System 1592 operations and measured in North Kelly Gardens could not produce measurable health impacts. Given the variability in background hydrocarbon concentrations found across the nation, the levels measured would not be discernable from normal background hydrocarbon concentrations.

The System 1592 operations used during the survey were intentionally increased above any normal scenario to allow a conservative estimate of risk to be conducted. Multiple sampling events conducted across a year of operations at System 1592 would provide a definitive answer to the actual impact of System 1592 operations on the ambient air quality in North Kelly Gardens. Given the results of this study, any reduction in operational activity to that used during this survey would result in ambient hydrocarbon concentrations in North Kelly Gardens that could not be discerned from the natural background.