EXECUTIVE SUMMARY

A groundwater monitoring program has been implemented at Operable Unit 5 (OU 5) at Hill Air Force Base, Utah (Hill AFB). The purpose of the monitoring program is to continue tracking of a trichloroethene (TCE) groundwater plume which extends from the western edge of Hill AFB approximately 1 mile west to the city of Clinton, Utah. Another objective of the monitoring program is to gather additional data on identified contaminants of concern (COCs) present in groundwater at OU 5. These data may be used for remedial action and/or risk assessment decisions.

Following the remedial investigation, semi-annual groundwater sampling at OU 5 has been conducted to continue tracking of the TCE plume and gather additional data on identified COCs. The initial two rounds of sampling were conducted during October 1994 (round 1) and March 1995 (round 2). Results obtained from these sampling events were summarized in the *Long Term Monitoring Annual Report 1995; Operable Unit 5* (Radian Corporation, 1995). Two additional rounds of groundwater monitoring have been completed at OU 5. Round 3 was conducted during September and October 1995; round 4 was conducted during March and April 1996.

At OU 5, groundwater is encountered at depths ranging from approximately 15 to 50 feet below ground surface (bgs) at on-Base locations. Depth to groundwater at off-Base locations ranges from approximately 5 to 12 feet (bgs). Groundwater flows to the west-northwest at a measured hydraulic gradient of 0.03 ft/ft (Tooele Army Rail Shop to Clinton). Groundwater elevations may vary by as much as 3 feet between the fall and spring months with water elevations being higher in the spring. This is likely the result of snow melt run-off from the mountain front to the east.

The TCE groundwater plume (as defined by a concentration of 5 micrograms per liter (µg/L) or greater) is approximately one mile in length extending from the Tooele Army Rail Shop to the city of Clinton. The widest portion of the TCE plume is observed along 250 West in Sunset. Along 250 West, the TCE plume is approximately 1400 feet wide. There is little variation observed in the shape of the TCE plume between the fall and spring months. The current measured maximum concentration of TCE is 643 µg/L, detected in monitor well MW-138 (March 1996). This well is located off Base, approximately 900 feet downgradient from the suspected TCE source area.

Several decomposition products of TCE indicative of reductive dehalogenation have been detected within the TCE plume. These constituents consist of cis-1,2-dichloroethene, trans-1,2-dichloroethene, and 1,1-dichloroethene. The presence of these compounds alone however does not conclusively indicate that TCE is being reductively dehalogenated. Additional data for monitor wells located within and outside the boundaries of the TCE plume should be collected to test this hypothesis. At a minimum, groundwater collected from these wells should be analyzed for volatile organic compounds, dissolved oxygen, anions, alkalinity, ferrous iron, sulfide, methane, ethane, ethene, and propane.

Several other volatile organic compounds were detected in groundwater at OU 5. Of these compounds, only tetrachloroethene and carbon tetrachloride were present at concentrations exceeding the MCL. Additionally, three VOCs identified as COCs in groundwater at the Tooele Army Rail Shop were detected during round 3 and round 4 sampling. These included 1,1,1-trichloroethane (TCA), chloroform, and 1,1-dichloroethene (DCE). TCE was detected in 68 of 101 samples with a maximum concentration of 91 µg/L. Chloroform was detected in 69 of 101

samples with a maximum concentration of 3.99 µg/L. DCE was detected in 25 of 101 samples with a maximum concentration of 2.32 µg/L.

Arsenic and manganese, COCs at Bamberger Pond, were present in groundwater samples collected from monitor wells located adjacent to Bamberger Pond. Future sampling efforts for these compounds should include additional wells located upgradient from and downgradient from Bamberger Pond to document the apparent limited mobility of these compounds.

With exception of low-level detection of phthalates, semi-volatile organic compounds (SVOCs) have not been detected in groundwater during round 1 or round 3. Based on these data, continued analysis of groundwater for SVOCs is not warranted.

PCB-1242, a COC at the Tooele Army Rail Shop, was not detected in monitor well TAD-4 and therefore additional sampling at this location is not warranted.