

EXECUTIVE SUMMARY

Science Applications International Corporation (SAIC) is conducting a study of existing site characteristics and other data for Operable Unit One at Hill Air Force Base (AFB), Utah, as part of the U.S. Department of Defense (DOD) Installation Restoration Program (IRP). Operable Unit One includes Landfills 3 and 4 and Chemical Disposal Pits 1 and 2. The results of this study will help in guiding the Remedial Investigation/Feasibility Study (RI/FS), which will be conducted by other firms.

A significant amount of background geologic, hydrogeologic, and water quality data have been collected for these sites, including the work conducted under IRP Phase I (Records Search) and Phase II (Confirmation/Quantification) studies as early as 1982. This report has been prepared to evaluate and analyze this information to: (1) define its use and defensibility in supporting baseline assumptions, and (2) identify data gaps that must be filled during RI field efforts. Plots, graphs, and map overlays have been prepared for this report to display data graphically for ease of evaluation and identification of data gaps.

SAIC's analysis of the existing data confirms that several areas exist in which additional data are needed during the RI/FS, including:

- Deep soil borings to determine continuity and thickness of clay underlying the site and to ascertain if deep, confined aquifers are or can be contaminated from the site.
- Deep wells, only if a water-producing zone is encountered at a depth greater than depths for existing shallow wells. Groundwater samples would be collected and analyzed to determine the presence of contaminants and aquifer tests would be conducted to determine water-producing properties.
- Shallow groundwater monitoring wells at locations north (downgradient) of the Base boundary to determine if contaminants in shallow groundwater near the Base boundary have migrated downgradient toward the Davis-Weber Canal, the Weber River, and potential receptors. These wells would be located based on the results of a soil gas survey that will identify areas having high potential for the presence of volatile organic compounds (VOCs) in shallow groundwater.
- Sampling and analysis of surface water and seeps downgradient of Operable Unit One, including the Davis-Weber Canal upstream, downstream, and directly downgradient of the site, and seeps and associated surface soil at each seep to support the risk assessment.

- Shallow onsite soil boring chemical and physical analysis of soil samples to support the risk assessment and the evaluation of remedial action alternatives in the FS.
- Double ring infiltrometer testing of capping materials to verify analysis showing that the Landfill 4 cap allows higher infiltration of precipitation than it should, while the Landfill 3 cap adequately inhibits infiltration.
- Privately owned wells north of the site, identified using a Water Rights Search through the State of Utah, require verification of information, such as location, depth, and ultimate use of the groundwater. Sampling and analysis of wells that could potentially be impacted by Operable Unit One are recommended to support the risk assessment.

In addition, SAIC recommends in this report other activities that will support the defensibility of the RI, including:

- Completing the IRP Phase II, Stage 2 data base by sampling Well M-31, which is the only well screened in gravel and sand alluvium (not across the alluvium/clay interface) that was not sampled during the IRP Phase II, Stage 2 field program.
- Abandoning 17 wells that will not provide any further useful data, because of damaged casings, unknown locations, the depth and screened interval are unknown, or the well is screened through an upper clay layer into an underlying sand unit.
- Surveying offsite sampling points, including seeps, springs, and the infiltration collection gallery, to assess more accurately the cause and effect relationship between these sampling points and the shallow clay layer.
- Additional monitoring to define further the extent and movement of contaminant plumes and to define further the changes in potentiometric surface and localized changes that occur because of groundwater removal for treatment.

SAIC also recommends that the propagation and migration of groundwater contamination from the chemical disposal pit area be mitigated as soon as possible by extraction and treatment of the floating material. While the slurry wall is generally effective in reducing inflow of upgradient groundwater into Operable Unit One, future remedial actions can further reduce inflow by means such as grouting areas of the slurry wall that are known to leak. Future remedial actions should include means for cutting off movement

of contaminants in two separate areas northwest of the Chemical Disposal Pits and north of Landfill 4, such as by installing new or extending existing infiltration galleries in these areas.