7.0 Vadose Zone

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The vadose zone is the area between the ground surface and the water table. Radioactive and hazardous waste in the soil from past intentional liquid waste disposals, unplanned leaks, solid waste burial grounds, and underground tanks at the Hanford Site are sources of continuing and future vadose zone contamination. During 2002, subsurface source characterization, vadose zone monitoring, and soil-gas monitoring were conducted to better understand the distribution of subsurface contaminants and to track the movement of vadose zone contamination. Also, vadose zone remediation and associated characterization to assess post-remediation contamination were conducted during 2002 as part of cleanup efforts at the Hanford Site.

This chapter summarizes the results of vadose zone studies associated with reactor operations, past single-shell tank leaks, and liquid disposals from spent fuel processing. This chapter contains the results of several technical studies, which could lead to new understanding of moisture and contaminant movement in the vadose zone, contaminant interactions with the soil column, and new and improved methods to characterize and monitor the vadose zone. Information is included about how vadose zone contamination could affect groundwater in the future.