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HYDROSTRATIGRAPHIC AND GEOLOGIC CONTROLS ON DEFINING THE SAN MATEO PLAIN GROUNDWATER BASIN BOUNDARY AT STANFORD LINEAR ACCELERATOR CENTER (SLAC), MENLO PARK, CALIFORNIA

The boundaries of San Mateo Plain Groundwater Basin (SMPGB) as defined in the California Regional Water Quality Control Board's "A Comprehensive Groundwater Protection Evaluation for the South San Francisco Bay Basins {draft for stake holder review, December 2001}" included the eastern portion of Stanford Linear Accelerator Center (SLAC). However, geologic and hydrologic investigations conducted over the last 40 years at this facility suggest that the majority of the SLAC property should be considered outside the SMPGB. SLAC is located in an incorporated area of southeast San Mateo County on bedrock uplands east of the Santa Cruz Mountains and 6.5 miles southwest of San Francisco Bay. The 426-acre facility is located in an area dominated by Eocene to Miocene consolidated marine sedimentary rocks estimated to be in excess of 2,000 feet thick. Data from hundreds of boreholes have been integrated with hydrochemical and hydraulic data, and with the extensive geologic mapping of the SLAC site to develop a site-specific hydrogeologic model for SLAC. Our data suggest that the SLAC site is outside the basin boundary and is within the bedrock region. Our conclusions are based on: 1) the geology and hydrostratigraphy of SLAC (particularly the distribution of the Santa Clara Formation), 2) groundwater flow and hydraulic conductivity at SLAC, 3) the hydrochemistry of groundwater at SLAC, and 4) the distribution of off-site groundwater production wells. Refining the SMPGB boundary has an impact on the definition on groundwater protection priority areas in the south bay area.