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Senior Presentation Abstract

5/5/11

Indications of release of constituents into groundwater in San Diego County's

#### South Chollas Landfill

Landfills in San Diego County were not required to be lined until the 1970's, and accepted hazardous waste until the 1990's. South Chollas landfill was designed as an unlined landfill and stopped receiving waste in 1981. The by-products of trash degradation in the South Chollas Landfill produced volatile organic compounds such as tetrachloroethene (PCE), trichloroethene (TCE), and vinyl chloride, which are known to cause birth defects, cancer, and nerve damage. Without a liner system, these chemicals leached into the soil, and potentially the groundwater. My employment at the Regional Water Quality Control Board has allowed me an opportunity to examine groundwater data for this site. Through statistical analysis using the commercially available Sanitas software, I have compared monitoring well data collected from background wells with groundwater data collected from wells located down gradient to determine if there is a release of waste constituents. Results from analysis of box and whiskers plots indicate a high amount of chloride, PCE, TCE, and vinyl chloride, and prediction analysis of the groundwater indicates that at least three of the five downgradient wells indicate a release of the above mentioned chemical constituents. The measured concentrations are higher than the Environmental Protection Agency's Maximum Contaminant Levels (MCL's). According to the groundwater data reported from the landfill monitoring system, the required level of waste containment (no water quality impairment) has not been achieved at the South Chollas Landfill. Further review of these data may provide a basis for the San Diego Water Board to determine an appropriate future course of action for this facility (e.g., further analyses, potential enforcement action, etc.). There are currently plans for the San Diego Water Board to evaluate additional inactive landfills in San Diego County.