

Ground Water Contamination of the Estes Landfill, Phoenix, Arizona

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ABSTRACT

The ground water contamination potential of the Estes Landfill, Phoenix, Arizona has been evaluated by the City of Phoenix and the Arizona Dept. of Health Services. The landfill is located in a recharge zone of the Salt River Valley aquifer. The aquifer is under water table conditions. The depth to ground water ranges from 80 feet to 15 feet. Ground water monitoring wells were installed up-gradient and down-gradient from the landfill. Ground water samples collected from the wells during flow events of the Salt River indicated leachate production from the landfill; a mound of ground water develops and intrudes the solid waste. The leachate characteristics include volatile organics and heavy metals: vinyl chloride, trichloroethylene and barium. Analysis of solid waste borings indicated only small quantities of organics and heavy metals. Currently the ground water is used for industrial and agricultural purposes. However, the ground water could be used as a domestic water supply because it has an acceptable ambient water quality. Ground water monitoring is continuing with the intent of using the data to design a leachate migration control system for the landfill and to distinguish contaminants from an adjacent landfill.