ABSTRACT

An abstract of the project of William Earl Ackland for the Master of Science in Geology - Geohydrology Option presented February 16, 2001.

Title: Hydrogeology of the Joe Ney Solid Waste Disposal Site, Coos County, Oregon.

The Joe Ney Disposal Site in Coos County, Oregon, was originally established in 1970 without an environmental liner or leachate control system. Throughout its history, the site has been used for disposal of various commercial, industrial and residential wastes. Some hazardous wastes as well as material from the local sewage treatment plant were also disposed of at the site.

With 161 cm of average annual precipitation at the site, concern over contamination is high. Local sensitive receptors include the South Slough National Estuarine Research Reserve, private wells, nearby oyster beds, and municipal water use from the neighboring Joe Ney Watershed.

Well logs, potentiometric contouring, soil maps and seismic profiles indicate the presence of two hydrogeologic units on site - a western Metcalf marine terrace unit, and the steeply dipping upper Coaledo member of the Coaledo Formation which angularly underlies the Metcalf. A shallow silt layer in the marine terrace unit may be a lagoonal facies deposit. A distinct sand layer within this silt may have been deposited by a storm event.
Independent study of data gathered for the county was used to generate isopleth maps of selected contaminants. These maps indicate impacted groundwater plumes emanating from both the western and eastern disposal cells. The plume from the eastern cell may be split by radial flow southward toward a tributary of Day Creek and westward toward Shana Creek. The western plume also appears to be split. One “arm” may be directed northwest out of the monitoring area, and the other is oriented south toward another tributary of Day Creek. Based on estimates of hydraulic conductivity, and the operational span of the site, a plume from the Metcalf may have migrated to South Slough, 1.1 km to the west, and an eastern plume may have traveled 150 m.

Recharge of both local and regional flow systems seems to be occurring on site. Potentially, the most important one would involve recharge in the vicinity of the western disposal cell with possible discharge to springs utilized for residential purposes in the neighboring western section.