

Environmental Assessment of an Abandoned Saltwater Disposal Site in Manvel, Texas

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Abstract

In 2001, we performed an environmental assessment at the Manvel Saltwater Disposal Site in Manvel, Texas. The site had been involved in oil-field related activities since at least the late 1950's before being abandoned in 1986.

This study included multi-media sampling to determine the volume and classification of drilling-mud waste inside disposal pits and the nature and extent of contamination in soil, groundwater, and surface-water bodies. During this study, barium, benzene, specific conductance, and chloride data provided insight into the sources of off-site and on-site contamination and the hydraulic connectiveness between the uppermost aquifer and several surface water bodies. Both human-health and ecological risk assessments were performed that indicated petroleum hydrocarbons and barium were above protective concentration levels. Intera estimated volumes of all impacted media and provided remediation options based on wetland issues, cost considerations, and surrounding land use.

The site rests upon the Pleistocene-age Beaumont Formation that is approximately 200 feet thick at the site and is comprised of a series of alternating clay and sand units that vary in thickness and lateral continuity. The site is also overtop near-surface sand that trends southeast and is part of the fluvial-deltaic deposits of the ancient Brazos River system. The two uppermost sandy aquifers at the site have thicknesses of approximately 15 feet and are part of the Chicot Aquifer. Monitor wells were installed in both units and aquifer testing was performed to facilitate contaminant transport calculations.