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Risk-Based Corrective Action for Leaking Storage Tank Sites

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For many years, assessment of environmental contamination in leaking petroleum storage tank (LPST) cases, as well as the direction of corrective action at LPST sites in Texas, was conducted using generic soil contaminant Action Levels and predetermined soil and groundwater contaminant clean-up concentrations. These generic contaminant concentrations were based on the Maximum Contaminant Level (MCL) promulgated by the U.S. Environmental Protection Agency (USEPA) for each contaminant of concern in groundwater, and soil contaminant concentrations considered to be protective of groundwater resources (i.e., DRASTIC Index). Although widely considered to be adequately protective of human health and safety and the environment, these predetermined contaminant cleanup concentrations allowed only a limited amount of flexibility in the use of site-specific information. Consequently, until 1994, cleanup levels for all LPST sites in Texas were derived using a narrow set of criteria which often yielded cleanup levels that fell within a predetermined range of media-specific contaminant concentrations.

Through the advent of Risk-Based Corrective Action for Leaking Storage Tank Sites

(TNRCC Guidance Document RG-36), media-specific cleanup concentrations are now determined using a much greater degree of site-specific information. The result has been a better allocation and distribution of available resources and an increased focus on those sites that pose the highest potential threat to human health and safety and the environment. Together with release prevention requirements adopted within the last five years (i.e., cathodic protection, leak detection, fill and overflow prevention, inventory control, and containment measures), Risk-Based Corrective Action has aided greatly in the resolution of problems related to subsurface releases of hazardous substances from underground storage tanks.

Risk-Based Corrective Action is based on the principle of acceptable Target Risk (for carcinogenic chemicals) and Hazards Index (for non-carcinogenic chemicals) for the receptor populations identified. These values are determined based on the current and potential future land use of the subject site. The Risk-Based Corrective Action procedure incorporates the use of mathematical simulation of contaminant fate and transport processes, toxicology, and data about

receptors, affected media, and the contaminants of concern at the subject site. The procedure is outlined and explained within a regulatory context and the benefits and shortfalls are addressed.

Roger Miranda is a geochemist by education and training. He is presently a Risk Assessment Coordinator in the Responsible Party Remediation Section (R.R.) of the Petroleum Storage Tank Division (PST). Among his responsibilities is the review of Risk Assessment reports submitted to the R.R. Section under PST's Risk-Based Corrective Action Program and the issuance of official Commission response to these reports. Roger has a B.S. in Geology from the University of Texas at Arlington and an M.S. in Geosciences (with emphasis in Geochemistry) from the University of Texas at Dallas. He has been with the Commission since June 1994. Before going to work for the Commission, Roger was a research geochemist with ARCO Exploration and Production Technology in Plano, Texas. ■