

Demonstrating Plume Stability to Support Risk-based Closure

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Background/Objectives. In 1997 Universal City Property Management (UCPM) purchased approximately 2,000 acres of property in the Orlando I-Drive tourist district area. Due to historical operations at the site, 46 solid waste management units (SWMUs) and areas of concern (AOC) were identified at the facility. Soil and groundwater contamination was identified at 17 SWMU/AOCs. UCPM has implemented corrective measures at each of the impacted SWMUs. All impacted soils have been removed from the facility. Groundwater treatment technologies have included excavation, air sparge, chemical oxidation, and bioremediation. Eight sites have been closed without conditions and five sites have been closed with conditions. To date, over 800 acres of the facility have been redeveloped including the expansion of the Orange County Convention Center, construction of two hotels, a golf course, shopping center, and two apartment/condominium complexes.

Approach/Activities. To support redevelopment of the impacted property and adjacent land parcels, UCPM has performed a preliminary facility-wide risk assessment to evaluate future land use based on current and predicted groundwater contaminant concentrations. Risk assessment activities included development of alternative cleanup target levels (ACTLs) associated with several possible development scenarios including: commercial and residential use, onsite utility workers, short- and long-term construction projects, and vapor intrusion thresholds. Following contaminant reduction to acceptable levels, UCPM has completed post active remediation monitoring (PARM) to confirm that contaminant concentrations remain below cleanup target level criteria and remnant groundwater plumes remain stable.

Results/Lessons Learned. UCPM has used several techniques to demonstrate that remnant groundwater plumes are stable and contained onsite. These techniques have included: analysis of groundwater contamination plume maps, groundwater contaminant trend analysis, Bichlor modeling, analysis of stable isotope data, and MAROS and Mann Kendall statistical analysis. This presentation will provide a summary of how UCPM has evaluated plume stability to support site closure.