

MUNICIPAL SETTING DESIGNATION APPLICATION SUPPORTING VCP CLOSURE STRATEGY

 [Houston, Texas](#)

PROJECT OVERVIEW

ESE prepared a Municipal Setting Designation application for a municipal redevelopment area in Texas to support a corrective action pathway and long-term redevelopment flexibility by restricting groundwater use for potable purposes within the designated boundary. The application was developed to align with Texas Risk Reduction Program concepts and to position the property for regulatory closure through the TCEQ Voluntary Cleanup Program.

CHALLENGES

Historical commercial and light industrial use at the property was associated with chlorinated solvent impacts to groundwater, with plume behavior and exposure pathways driving the remedial strategy. The site had a long history of investigations conducted by multiple consultants over decades, and the project required consolidating that data into a single, defensible submittal that demonstrated plume delineation, stability, and a clear basis for how an MSD would eliminate the groundwater ingestion exposure pathway.

ESE'S APPROACH

ESE compiled and evaluated historical assessment data and prepared the MSD application package to City of Houston requirements, including site history, contaminant characterization, exposure pathway evaluation, and mapping of the ingestion PCL exceedance zone. The technical basis documented chlorinated solvent contaminants of concern including PCE, TCE, and related daughter products, and presented how the critical TRRP metrics shift to non-ingestion pathways once the MSD ordinance restricts groundwater use.

KEY ELEMENTS DELIVERED

- Documented contaminant conditions and COCs including chlorinated solvents in groundwater and supporting comparisons to TRRP ingestion and non-ingestion PCLs
- Demonstrated horizontal and vertical delineation using a network of monitoring wells across three transmissive zones and multiple sampling events
- Summarized soil and groundwater investigation results showing soil and non-ingestion pathway benchmarks were not exceeded based on compiled data
- Supported plume stability using Mann-Kendall trend analysis and documented consistent shallow groundwater flow direction over time
- Linked MSD implementation to a clear closure plan through the TCEQ VCP Certificate of Completion following City adoption and TCEQ certification

RESULTS

The MSD application package established a consolidated, regulator-ready technical record demonstrating that the groundwater plume is delineated and stable, that the MSD ordinance would eliminate the groundwater ingestion pathway, and that the site is positioned to pursue regulatory closure through the TCEQ Voluntary Cleanup Program utilizing the MSD.

PROJECT IMPACT

In dense redevelopment settings, long-term project certainty depends on pairing sound science with a practical regulatory mechanism that addresses exposure pathways. By developing a defensible MSD application supported by decades of assessment data, a comprehensive monitoring network, and plume stability analysis, ESE helped reduce uncertainty, support municipal groundwater protection objectives, and advance a clear corrective action pathway toward VCP closure.