

**Twiggs Corporation  
Indiana Voluntary Remediation Program  
Martinsville, Indiana**

In 2019, Swenson – Marzec & Associates (SMA) principals were retained by the Twiggs Corporation to take over as project lead and close out this site in Martinsville, Indiana, which at the time had been enrolled in the Indiana Department of Environmental Management's (IDEM) Voluntary Remediation Program (VRP) since 1997. The site is an active aerospace metal alloy parts fabrication facility with a documented history of chlorinated solvent use for vapor degreasing operations. Previous consultants had conducted more than two decades of investigation and active remediation at the site, including operation of a soil vapor extraction (SVE) system, ozone sparging, and pilot-scale bioremediation; however, IDEM had identified unresolved data gaps in the site's Conceptual Site Model (CSM) that had prevented closure for nearly a decade.

SMA led a targeted high-resolution site characterization (HRSC) and risk-based closure effort that delivered the following:

- Resolved horizontal and vertical plume structure using Membrane Interface Probe and Electrical Conductivity Dipole high-resolution site characterization across the investigation area – data that reframed the Conceptual Site Model, demonstrated the residual plume core sits well below the water table, and eliminated the vapor intrusion pathway as a concern.
- Installed and integrated additional monitoring wells to complete downgradient delineation, then used Mann-Kendall trend analysis to demonstrate plume stability across the monitoring network.
- Conducted a comprehensive private well outreach and sampling program in partnership with the City of Martinsville, eliminating the drinking water exposure pathway as a concern.
- Ruled out sewer-mediated vapor migration through targeted summa canister sampling of nearby sanitary manholes.
- Negotiated and assisted in securing the adoption of an Environmental Restrictive Ordinances by the City of Martinsville that extinguished the groundwater exposure pathway across the full plume footprint.
- Delivered the Remediation Completion Report that closed out the VRP project and secured IDEM's Certificate of Completion and Covenant Not to Sue, with Environmental Restrictive Covenants recorded on title.

SMA's focused HRSC and risk-based approach closed a VRP project that had been active for more than twenty-five years without the need for any further active remediation.