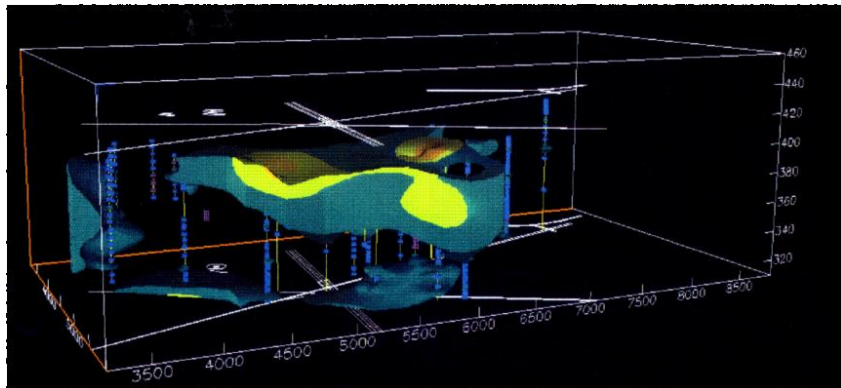


## CASE HISTORY

### 3-D Characterization of Contaminant Distribution Guides Future Sampling and Remediation Efforts – Illinois Central Railroad

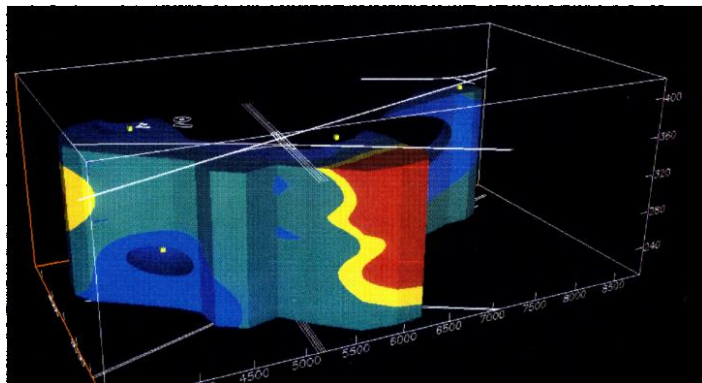
**Challenge:**

An active rail yard in Kentucky was shown to be impacted by petroleum hydrocarbons after several phases of subsurface investigation. Sampling of the site soils with depth at 63 locations revealed a complex distribution of chemical concentrations that indicated active remediation was necessary. However, a straightforward interpretation of these residual impacts by standard presentation methods proved to be difficult. MUNDELL personnel were contracted to aid in the development of a site soil and analysis plan to aid in the selection of future soil and groundwater sampling locations for the development of remedial alternatives.



**Action:**

MUNDELL first developed a three-dimensional model of the distribution of total petroleum hydrocarbons (TPH) and polynuclear aromatic hydrocarbons (PNAs) for the site. The *Earth Vision* software was used to estimate the mass of site-specific contaminants of concern (COCs) that remained in the soil using irregularly spaced sampling and testing data.



**Results:**

The results indicated specific locations where the addition of sampling data would aid in the accuracy of the impacted volume distribution. A site sampling and analysis plan was developed that obtained selected soil and groundwater data. Ultimately, this data was added to the original *Earth Vision* model, and allowed for an updated calculation of total mass and distribution of petroleum hydrocarbons. This resulted in a detailed remedial action plan that was implemented for the site.