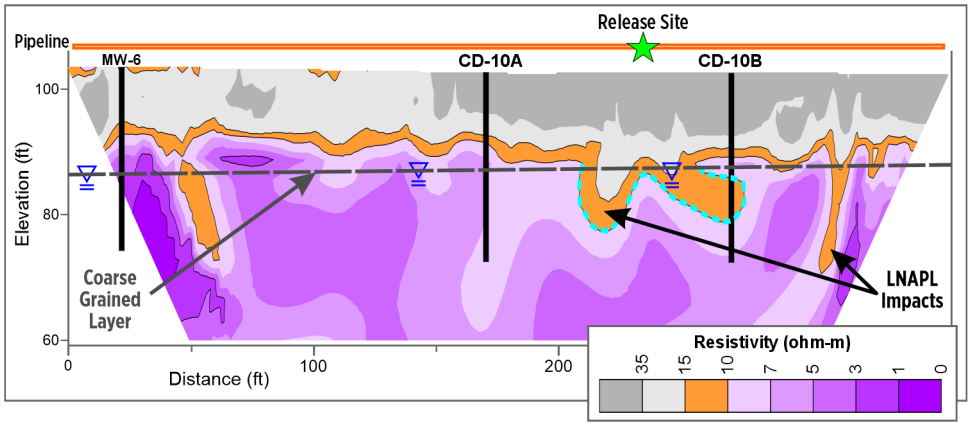
Case Study

Approved Monitored Natural Attenuation Remedy

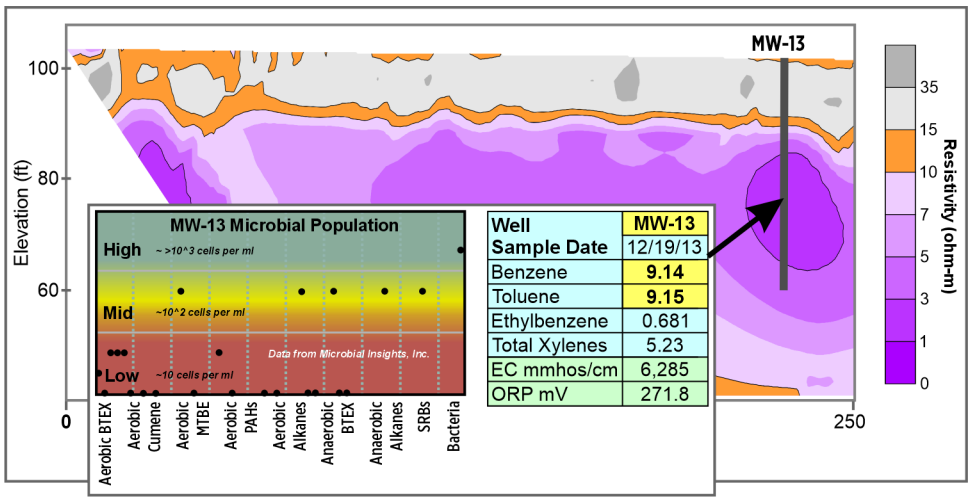
A pipeline site located in rural Arkansas (Site) had recorded releases from ~2004 leaving an LNAPL (diesel fuel) plume with unknown vertical and horizontal extents. Aestus' GeoTrax CSM+™ process was leveraged for remedial design characterization and confirmed the presence of a coarse-grained interval in the shallow subsurface. This distinct layer near the groundwater table was controlling horizontal migration of LNAPL impacts, while vertical migration was also a function of intermittent breakthrough of LNAPL across this horizon.

Identified LNAPL Targets Below the Coarse Grain Layer at Water Table



Aestus' GeoTrax Survey™ images revealed a bulk subsurface resistivity that was unexpectedly low given the known geology of the area and the associated geochemistry. Bioactivity was the suspected cause of the high electrical conductivity across the site. This hypothesis was supported by the microbial DNA testing performed on groundwater samples taken from the site, confirming the presence of hydrocarbon degrading bacteria.

Targeted Sampling Confirmed High Levels of Ongoing Bioactivity



The State of Arkansas determined that the updated conceptual site model (CSM) made it a candidate for Monitored Natural Attenuation (MNA), the first such site in the state. Specifically, the confirmed presence of hydrocarbon degrading bacteria, favorable geochemical parameters for bacterial growth, and the presence of a coarse-grained interval capable of supplying oxygen to the system supported the conclusion that no additional amendments or enhancements were needed at the Site to achieve remedial goals.

Results

- ☑ Delineated vertical and horizontal extents of LNAPL (Diesel) impacts
- ☑ Identified coarse-grained layer controlling contaminant migration
- ☑ Confirmed high levels of bioactivity via multiple lines of evidence
- ☑ Helped our client negotiate a monitored natural attenuation (MNA) remedy, saving resources and time
- ☑ First approved MNA Remedy in State of Arkansas history

More Certainty & Optimal Outcomes

Our client needed more certainty in their subsurface data. We integrated existing site data, our GeoTrax Survey™ electrical images, and targeted confirmation drilling data to yield a more complete understanding of the subsurface. This allowed them to:

- ☑ Make better technical/business decisions
- ☑ Have clear road map for next steps
- ☑ Achieve project goals faster and cheaper

Aestus

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