

Sonic Injection Coal Tar

Former Coal Gasification Plant

Ashland, WI

Pilot Scale Sonic Injection

Project Summary: The proximity of Lake Superior is the primary environmental driver for a historical, industrial site contaminated with heavy coal tars. Given the limited mobility of coal tar in the subsurface, the existing pump and treat system has extracted diminishing amounts of NAPL overtime. Data indicated recalcitrant presence of NAPL in the subsurface. ORIN conducted in-situ treatment using a sonic method of drilling into a tight lithology of well graded sands, silts, and gravels. Chemical oxidation targeted the heavy hydrocarbons to catalyze soil desorption, breakdown, and mobility. A second approach of BAM and calcium peroxide was injected near the perimeter of the ISCO area to target dissolve phase PAH impacts. A vac truck was onsite to assist in simultaneous extraction and influence of the injection interval.



Site Conditions:

Contaminants –

DNAPL Coal Tar
PAH Hydrocarbons
Benzene, Naphthalene

Impacted Matrix –

Groundwater – 45-35 ft-bgs

Treatment Chemistries –

- 1) BAM Ultra
- 2) Catalyzed Sodium Persulfate w/ PermeOx® Ultra



Project Results: The client reported the desired results of a surge in free product removal following the injection treatment. ORIN has been asked to complete additional injections at this site. In-situ treatment successfully improved the extractability of the site contaminant. In addition, sonic drilling allowed for greater flexibility of reagent injection though tighter and more complex geology.