

CASE HISTORY: Casper, Wyoming -Baker Hughes Inteq

May 2004:

Lineage Solutions, LLC.* was invited by Baker Hughes Inteq to come to Casper, Wyoming for the purpose of evaluating and developing a plan to remediate contaminated soil underneath of their Oil Tool Division - Northwestern States.

Upon arriving on-site, a strong hydrocarbon odor could be smelled around the main warehouse/tooling shop, staging yard, and parking lot. A local third-party coring company was brought in by Baker Hughes to drill several test wells to determine just how far beneath the surface the contamination had migrated to.

Additional testing for hydrocarbon-contamination was performed by Lineage Solutions at surface level, two feet below surface level, and 22 feet below surface. Using Lineage Solutions' portable field lab, it was determined that the background TPH (Total Petroleum Hydrocarbons) levels ranged from 3.4% at the surface to 2.8% at 22 feet deep. Wyoming's DEQ regulatory agency mandates that not more than 2,000 ppm is allowable for hydrocarbon contamination.

The soil was contaminated in an area that measured 150 feet wide by 250 feet long by 18 to 22 feet deep (approx. 30,555 cubic yards). The challenge came when Lineage Solutions was informed that a previous decision was made by another local company to work in stages and remove limited amounts of contaminated soil, clean it, or haul it to a landfill for disposal. For obvious reasons, this plan was abandoned.

Lineage Solutions developed a basic non-invasive approach by using a local boring company to drill holes to a depth of 22 feet at a 45 degree angle and then at a 90 degree angle traveling the width of the building (150 ft) and then back up at a 45 degree angle. The next step was to place perforated, 3-inch PVC pipe every 6 feet and manifold it together. LS-1000* was then injected into the manifold, an air compressor was hooked up to it, and the chemical was forced into the soil. The soil, being highly porous, accepted the chemical and water blend, and an immediate change in color of the soil and reduction in the odor was noticed.

Once the leaching process started, samples were taken, and the TPH levels showed an immediate improvement. After 8 hours, it was noted that the TPH levels had been reduced by 91%. Monitoring was continued at 24, 48, and 72 hours and at 7, 14, and 30 days, respectively.

Conclusion:

Lineage Solutions, along with a boring company, were able to achieve what many would have considered impossible. By employing off-the-shelf technology (boring machine) and a premier environmentally-safe chemical (LS-1000), Lineage Solutions was able to reduce heavy concentrations of hydrocarbon-contaminated soil beneath a building. Utilizing this process allowed Lineage Solutions to achieve its goal within 7 days without interrupting the client's daily operations.

* Formerly known as Texas EnviroChem, Inc.

** Formerly known as TxChem HE-1000