Swenson – Marzec & Associates, Inc.

MONARCH TEXTILE RENTAL SERVICES, INC.
Source Area Investigation / Soil and Groundwater Remediation
South Bend, Indiana

A Project Team managed by current Swenson – Marzec & Associates, Inc. (SMA) employees was retained by Monarch Textile Rental Services, Inc. (Monarch) to take over the extent of contamination investigations and remedial activities for their site in South Bend, Indiana. Initial work performed by SMA included: (A) source area investigations at the location of the former dry cleaning operations, (B) groundwater investigations to delineate the extent of groundwater impacts downgradient from the site, (C) installation of monitoring wells, and (D) collecting indoor air and sub-slab soil gas samples. SMA was able to provide Monarch with several cost saving measures, including for the semi-annual groundwater sampling and the proposed methodology for the groundwater remediation.

Based on the initial site investigations, two source areas of tetrachloroethene (PCE) contamination were identified. Based on this identification, SMA designed and installed a soil vapor extraction (SVE) system to remove the VOCs from the unsaturated soils. The SVE system consists of nine extraction wells located across the site. Granular activated carbon is used to treat the air removed from the subsurface prior to it being discharged to the atmosphere.

To delineate the groundwater impacts that had been identified downgradient from the site, SMA completed vertical profiles and acquired multiple discreet groundwater samples from each boring location. Based on the results of these groundwater samples, SMA installed monitoring wells along the axis of and around the perimeter of the impacted groundwater. The monitoring wells were constructed with screens through the entire vertical saturated thickness of the aquifer and multiple discreet samples are collected from each well using Hydrasleeves®.

To remediate groundwater impacts and address DNAPL PCE below the water table in the source area at the site, SMA first demonstrated that complete anaerobic, reductive dechlorination of PCE to ethene/ethane and other mineralized end-products was occurring currently at the site (utilizing the petroleum hydrocarbon as a carbon source). On this basis, IDEM approved full-scale implementation of a biological groundwater remediation system at the site to address DNAPL in the source area below the water table and the plume downgradient of it. This saved Monarch a considerable amount of money by avoiding the performance of an expensive pilot test and more importantly, the cost of implementing other remedial technologies in the source area that would likely cost an order of magnitude more than the biological remediation.

On a semi-annual basis, SMA collects indoor air and sub-slab soil gas samples using 6-liter summa canisters from two building downgradient of the former dry cleaner. A sub-slab depressurization system is installed in one of the buildings to address potential vapor intrusion issues. SMA has also submitted a work plan to IDEM to sample the indoor air at residential homes downgradient of the site.

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