Geo-Cleanse Remediation Summary
Montclair, New Jersey
Residential Home, Former UST
Petroleum Hydrocarbons

Overview:

A compromised underground storage tank was removed from a residential home located in Montclair, New Jersey. The geology consists of sands, silts and clays overlying weathered shale. Depth to groundwater was approximately 20 feet below ground surface (ft bgs), which was encountered within the weathered shale. Following excavation, analytical soil sampling revealed extractable petroleum hydrocarbons (EPH) above the New Jersey Department of Environmental (NJDEP) standards. The primary EPH contaminants of concern consisted of volatile and semi-volatile organic compounds (VOCs and SVOCs), located in the vadose and saturated zone.

Active Injection with Catalyzed Peroxide

Post-excavation EPH soil samples collected adjacent to the home were at a maximum of 10,000 mg/kg at 17 ft bgs. The baseline groundwater data indicated SVOCs Tentatively Identified Compounds (TICs) as the primary groundwater contaminant, at concentrations as high as 50,000 µg/L. The remedial goal was to obtain EPH soil and SVOC TICs groundwater concentrations of 5,100 mg/kg and 500 µg/L, respectively.

Treatment Program Design:

Due to the location of the soil contamination (within 3 ft of the home) and saturated zone lithology, an in-situ remedial approach was desired. Geo-Cleanse International, Inc. (Geo-Cleanse) was contracted to perform a full-scale in-situ chemical oxidation (ISCO) treatment program at the residential property. Geo-Cleanse determined that catalyzed hydrogen peroxide (CHP) would be the most appropriate oxidant based on the site conditions present. A total of seven permanent injection wells and five vent wells were installed using a combination of sonic and direct push drilling methods. Sonic was used to installed wells within the weathered rock, and direct push was used for the overburden wells. The injection wells were screened at shallow and deep intervals ranging from 15 to 25 ft bgs, and the vent wells were screened from 3 to 25 ft bgs. All wells were completed as flush mounts.

Residential Property during Injection

Remediation Operations:
Based on oxidant demand calculations, approximately 24,000 lbs of 34% hydrogen peroxide was required, which was diluted to a concentration of approximately 8.5% prior to injection. The treatment program consisted of 10 days of active injection. Geo-Cleanse had to overcome several challenges during the design and implementation of the injection treatment program, which included access limitations, equipment size limitations, and high contaminant concentrations within weathered rock.

Treatment Results:
Geo-Cleanse's routine process monitoring and sampling ensured a safe and efficient process. Five post-treatment soil samples were collected by the client and exhibited an average EPH concentration of approximately 87 mg/kg. Groundwater post-treatment data exhibited a 98% reduction in SVOC TICs at a concentration of 1,200 ug/L. Based on the success of the treatment program, the property owner received a No Further Action (NFA) letter from the NJDEP for the vadose and saturated zone contamination. In-situ chemical oxidation utilizing CHP and the Geo-Cleanse® Process was able to achieve the remedial goals and provide a safe solution adjacent to the residence.

This summary sheet is intended to provide a general overview of the referenced site. For more detailed information, please contact us at (732) 970-6696 or www.GeoCleanse.com.