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Case Study:

Soil Vapor Extraction and Treatment of
CFC and HCFC Refrigerants

Los Angeles, CA

Project Overview

Location: Los Angeles, CA	Contaminant: CFC-11, CFC-12, CFC-113, TCE, Carbon tetrachloride, 1,1,1-TCA, Trichloromethane
Flow Rate: 200 SCFM	Contaminant Mass Collected: 93,422 lbs
Extraction Method: 10 Soil vapor extraciton (SVE) wells	Initial Off-Gas Concentrations: 18,524 ppmV
Duration: 27 months	

Project Description

The Site location was an industrial facility located in the greater South Los Angeles region that manufactured chemicals for local petrochemical and other industrial operations from 1919 through the late 1990's. Refrigerants were initially produced in 1964 including chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs), such as trichlorofluoromethane (R-11), dichlorodifluoromethane (R-12), chlorodifluoromethane (R-22), and 1,1-dichloro-1-fluoroethane (R-141b).

Raw materials for CFC/HCFC production included hydrofluoric acid, carbon tetrachloride, chloroform, 1,1,1- trichloroethane (1,1,1-TCA), and antimony pentachloride catalyst.

Pilot testing of the soil vapor extraction (SVE) remediation system was initiated in October 2000. Full-scale operation began on September 25, 2002. Routine system monitoring was conducted to maximize contaminant removal while complying with South Coast Air Quality Management District (SCAQMD) regulations and permits.

The SVE system primarily targeted volatile organic compound (VOC)-impacted soils beneath the former refrigerant plant and the immediate surrounding areas. The site had begun redevelopment during SVE remediation as shown in the site photo.



Geology:

Shallow site stratigraphy consists of interbedded sand, sandy silt, and clayey istl beds from ground surface to approximately 150 ft bgs. Groundwater present at 60 ft bgs



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