



## Pilot Test Report, California Site

### Beacon Sampler

### Summary

<b>Media:</b>	Soil gas
<b>Study Type:</b>	Site characterization
<b>Technology:</b>	Beacon (Accumulation)
<b>Peer Reviewed:</b>	No
<b>Publication Date:</b>	April 2021

### Study Description

#### General Site Description and Conditions

The site consists of a parking lot and three single-story buildings with units used for commercial/retail businesses. Previous active soil gas sampling reported volatile organic compound impacts to the vadose zone. Historic rubber company operations, several former aboveground storage tanks and underground storage tanks, and recent dry-cleaning operations (1989–1995) have contributed to constituents released at this site.

#### Contaminants of Concern (COCs)

COCs include volatile organic compounds (VOCs), including tetrachloroethene (PCE) and trichloroethene (TCE).

#### Sampling Frequency of COCs

Only one round of sampling has been performed for this initial phase of site characterization and to inform future site investigations. Soil gas sampling was conducted along the perimeter of the property and in a general grid pattern throughout the parking lot.

#### Technology Used

A total of 40 Beacon hydrophobic absorbent samplers were installed to characterize soil gas site conditions and assess potential for vapor intrusion. Beacon adsorbent samplers were installed in 1-inch-diameter boreholes approximately 3 feet below grade using a hammer drill. A sanitized metal pipe sleeve was temporarily installed in the upper portion of the borehole to facilitate placement of the sampler module. Each sampler module, consisting of a glass vial containing adsorbent cartridge, was then inserted and suspended within the upper 4 inches of the borehole. An aluminum foil plug and concrete patch were placed over each borehole to minimize soil gas exchange with the atmosphere. Upon completion of the 14-day sampling period, the sample modules were removed and sent out for analysis of VOCs by U.S. EPA Method 8260C using thermal desorption-gas chromatography/mass spectrometry.

### Remedial Phase

The Beacon passive samplers were used for site characterization, to identify potential source areas of soil gas contamination and guide future site investigations.

### Outcome

The passive soil gas sampling results identified three areas of soil gas where PCE and/or TCE were potentially elevated. The results of the soil gas sampling were reported as mass measurements in nanograms (ng). Three areas of potentially

elevated VOC mass in soil gas were identified. The detection limits for the Beacon passive samplers were 10–25 ng, depending on the sample and the constituent.

- PCE and TCE in Area 1 were reported as high as 14,100 ng and 21,300 ng, respectively, compared to 92,000  $\mu\text{g}/\text{m}^3$  (PCE) and 210,000  $\mu\text{g}/\text{m}^3$  (TCE) reported from previous active soil gas sampling in that general area.
- PCE and TCE in Area 2 were reported as high as 8,040 ng and 7,290 ng, respectively, compared to 140,000  $\mu\text{g}/\text{m}^3$  (PCE) and 22,000  $\mu\text{g}/\text{m}^3$  (TCE) reported from previous active soil gas sampling nearest to that area.
- PCE and TCE in Area 3 were reported as high as 2,700 ng and 993 ng, respectively, compared to 23,000  $\mu\text{g}/\text{m}^3$  (PCE) and 1,400  $\mu\text{g}/\text{m}^3$  (TCE) reported from previous active soil gas sampling in that area.

### Case Study Source

Environmental Resource Management, Additional Site Assessment and Sub-Slab Depressurization Pilot Test Report, California Site, Environmental Resources Management (Irvine, CA).