



California Landfill Site

Beacon Samplers

Summary

Media:	Soil gas
Study Type:	Site characterization
Technology:	Accumulation
Peer Reviewed:	No
Publication Date:	April 2021

Site Description

General Site Description and Conditions

The site is a former hazardous waste and municipal solid waste landfill that was certified closed in 2002. Historic leaching prior to cap installation resulted in landfill contaminants reaching groundwater and migrating downgradient.

Compounds

Compounds include volatile organic compounds (VOCs), including primarily tetrachloroethene (PCE) and trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride (VC).

Sampling Frequency of COCs

One round of sampling was performed to characterize lateral extent of soil gas impacts in the vicinity of two soil gas wells.

Technology Used

A total of 68 Beacon passive samplers were installed in a grid pattern in February 2011, in 1-inch borings to approximately 3 feet depth. A sampler vial fitted with a mesh screen at one end was inserted into a 1-inch diameter metal sleeve placed in the upper portion of the borehole. A wire secured to the top of the sleeve allowed for retrieval of the sampler. The hole was plugged with aluminum foil ball and then covered with soil or concrete (in paved areas). After a sampling period of 18 days, the samplers were removed from the boreholes and submitted to Beacon Environmental Services, Inc., for analysis by thermal desorption, gas chromatography, and mass spectrometry by U.S. EPA Method 8260C.

Remedial Phase

The Beacon passive samplers were used to semiquantitatively characterize the lateral extent of soil gas impacts.

Outcome

The limit of quantitation for the VOCs was reported to be 10 ng per sampler, with the highest concentration of PCE reported to be 2,569 ng in mass.

PCE soil gas impacts were reported to be more widespread around the second well. TCE was reported to be as high as 147 ng in mass in one area, with all samplers adjacent to that location reporting below the limit of quantitation. From



the two orders of magnitude decrease in concentration of adjacent samplers, it could be deduced that the shallow soil gas impacts were localized at one of the wells.

Active soil gas samples collected in January 2011 were compared to the Beacon passive sampling results. The report concluded good spatial correlation between the active and passive sampling.

Case Study Source

TRC, Passive Soil Vapor Investigation Report, GBF/Pittsburg Landfill, Antioch, California May 5, 2010, TRC (Concord, CA).