



## Industrial Site in Midwest, US

### AGI Universal Sampler

#### Summary

<b>Media:</b>	Soil gas
<b>Study Type:</b>	Comparison study
<b>Technology:</b>	AGI Universal Sampler (Accumulation),
<b>Peer Reviewed:</b>	No
<b>Publication Date:</b>	January 2009

#### Study Description

- The site was an industrial facility in the midwestern United States. Existing permanent soil gas probes provided an opportunity to collect active and passive soil gas data for site evaluation and comparative purposes.
- Compounds: Volatile organic compounds (VOCs), particularly tetrachloroethene (PCE).
- This investigation was conducted during the site-characterization stage for this project. Sampling was conducted in two stages. The first, completed between June and December 2006, included a limited passive soil gas sampling scope (to compare to active methods), followed by active soil gas sampling. The second stage included a sitewide passive soil gas investigation to delineate source areas and focus any subsequent intrusive sampling.
- The soil gas probes were installed (depths of 1, 5, and 8 feet below ground surface [bgs]) in June 2006 and subsequently sampled using active methods, including Tedlar bags with vacuum box or evacuated canisters and sorbent tubes collected using a low-flow air pump. For comparison of seasonal variability, a second active sampling event was performed in December 2006, and included the collection of soil gas samples from select probes using Bottle-Vac samplers (also known as the “bottle technique”). Upon completion of the two active sampling events, passive soil gas samples were collected from 2.5-foot borings drilled at the same locations as the probes using AGI Universal Samplers. Only the 5-foot active soil gas samples were used for the comparison study.
- The sitewide passive soil gas investigation, completed as the second stage of this study, was performed in March 2008 and involved no further active sampling methods.

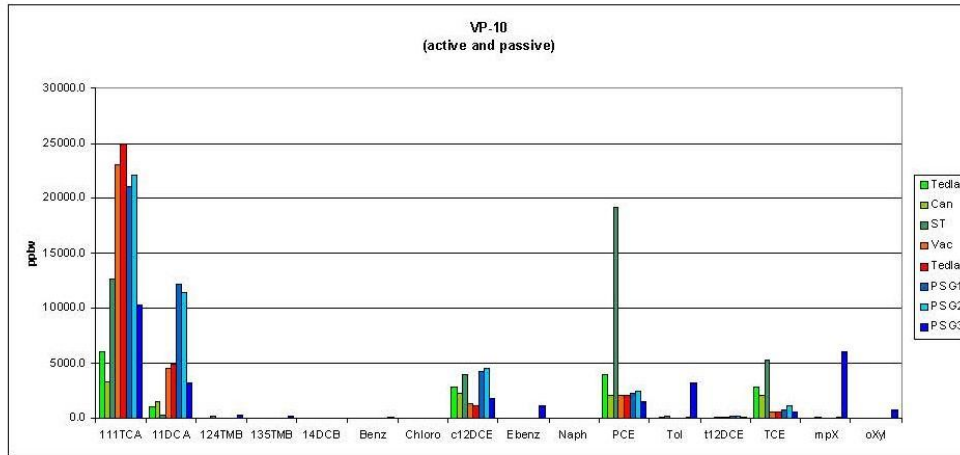
#### Remedial Phase

The objective of this investigation was initially to compare active and passive soil gas sampling methods at the site. Once the data was shown to be comparable, the objectives of the sitewide investigation were to delineate source areas laterally and create more focus for any subsequent intrusive sampling.

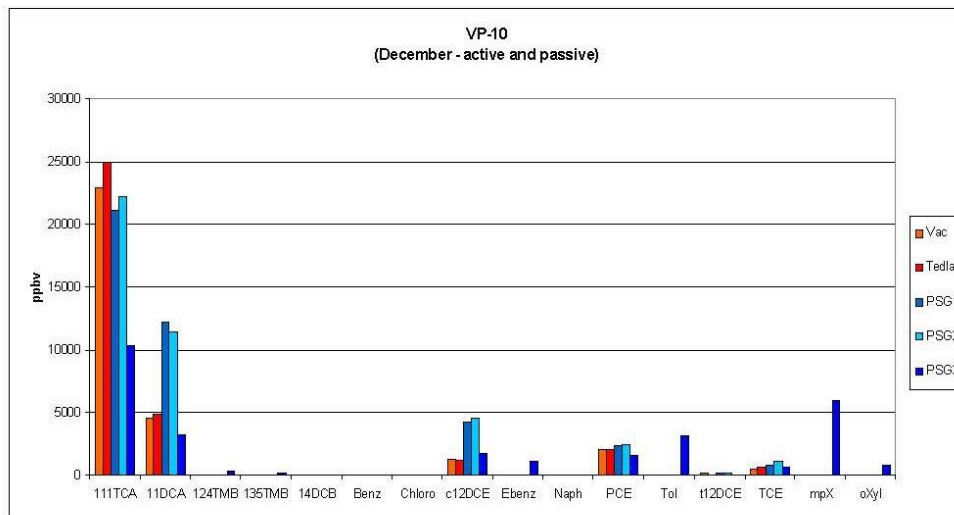
#### Outcome

Initially, the passive data were compared to both the June and December active data. It was apparent that variability existed in the active method results. However, when comparing only the December data, the variability was much less significant. Spatial variability was also observed at sampling locations where the active and passive probes were separated by only a few lateral feet.

### VOC Data from All Sampling Events



### VOC Data from December Sampling Event



The sitewide passive sampling was able to delineate PCE in shallow soil gas, allowing future investigations to be more targeted when identifying additional soil, groundwater, and permanent vapor sampling locations. The figure below presents the soil gas results for PCE. Since then, additional soil vapor, soil, and groundwater data have been collected that generally correlate with the passive soil gas sampling investigation.

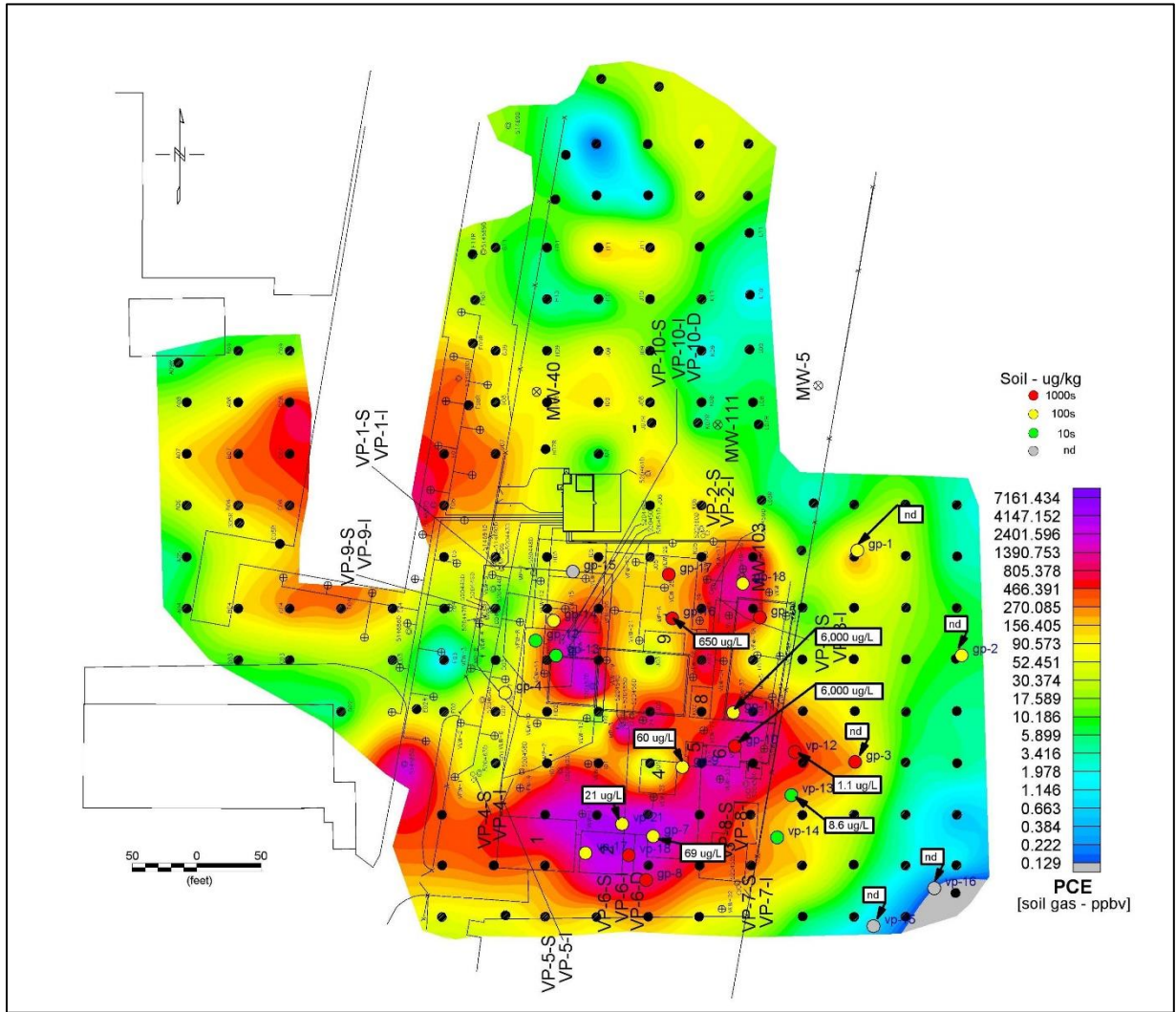


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**Case Study Reference**

Jay W. Hodny, James E. Whetzel, Jr., and Harry S. Anderson II. Proceedings of Vapor Intrusion. 2009. Air & Waste Management Association. San Diego, CA; January.