



CENTER FOR PUBLIC ENVIRONMENTAL OVERSIGHT

A project of the Pacific Studies Center

278-A Hope Street, Mountain View, CA 94041

Voice: 650-961-8918 or 650-969-1545 Fax: 650-961-8918 <lsiegel@cpeo.org>

<http://www.cpeo.org>

TO: Richard Kapuscinski, U.S. EPA
FROM: Lenny Siegel, Center for Public Environmental Oversight
SUBJECT: Additional comments for EPA's Final Vapor Intrusion Guidance
DATE: June 12, 2012

We would like to raise two issues that we believe should be addressed in EPA's Final Vapor Intrusion Guidance, based primarily upon our experience overseeing the environmental response at Moffett Field and MEW Superfund Study Area here in Mountain View, California.

1. At buildings that have been constructed since there has been awareness of shallow groundwater contamination in Mountain View, heating, ventilation, and air conditioning (HVAC) systems appear to adequately mitigate vapor intrusion. There has been some debate whether the primary effect is ventilation or the maintenance of positive air pressure indoors, but sampling has shown, with certain exceptions, that HVAC operation can be protective.

However, particularly because of the cost of continuous operation, there is no guarantee that HVAC systems will be run in a manner to remain consistently protective. In fact, commercial property owners at the MEW site opposed making HVAC operation a mandatory element of the vapor intrusion remedy. They insisted that the Responsible Parties, not current owners, be responsible for vapor intrusion mitigation.

We believe that EPA properly resolved this concern by allowing building owners to voluntarily agree to operate HVAC systems at the level necessary to protect against vapor intrusion, and to negotiate with the responsible parties over the additional cost. This depends, of course, on sufficient monitoring to demonstrate that indoor air concentrations of contaminants of concern lie within acceptable limits.

Equally important, sampling should determine the potential for vapor intrusion in the absence of HVAC operation. Such baseline data is necessary to establish the requirements for HVAC operations, to prepare or respond to building modification and construction as well as HVAC

system breakdown, and to determine when source concentrations have fallen to the point where mitigation is no longer necessary.

Based upon our experience reviewing data at the Information Technology High School in Queens, New York, we believe that sequential sampling, with HVAC off and then HVAC on, of the same locations within a building may be the best way to fill in the conceptual site model for vapor intrusion—that is, to know when and where toxic vapors are entering the building.

2. We have been following EPA Region 9's efforts to establish a Removal Action Level for short-term exposure to trichloroethylene (TCE) because of the potential for TCE exposure to cause or contribute to cardiac birth defects at levels often found at vapor intrusion sites. We do not have the expertise to know what those levels should be, but we feel strongly that pregnant women should be able to live, work, study, or otherwise occupy buildings safely above shallow TCE contamination. Therefore, EPA should enforce exposure standards that assure that building occupants are *not* exposed to TCE at levels above the reference concentration, as established in the September 2011 IRIS Assessment, over a suitable short-term exposure timeframe.

Recent studies have found high level of temporal variability in indoor air concentrations of TCE due to vapor intrusion. It is unlikely, therefore, that even quarterly Summa canister samples can assure that short-term exposures remain below the Removal Action Level. While modeling based on periodic sampling may suggest that levels are consistently below the exposure standard, the best way to ensure that the air is safe is to conduct frequent or continuous sampling.

The Final Vapor Intrusion Guidance, therefore, should call for the employment of sampling strategies designed to provide continuous or near-continuous indoor air data. Wireless communications make the collection and analysis of such data practical. The only obstacle is the refinement of sensors to enable widespread, cost-effective real-time sampling. Such sensors have been demonstrated at bench scale. We believe that a requirement to use them, based upon the identified public health need of protecting against cardiac birth defects, would hasten their availability.

Until such sensors are generally available, it may be possible to use low-cost continuous radon measurements as a proxy. That is, once the site-specific relationship between indoor levels of radon and TCE (from vapor intrusion only) is known, at some sites radon measurements may prove satisfactory in estimating TCE concentrations at any given time.

In light of current knowledge of the possible short-term health effects of TCE exposure at the low levels characteristic of vapor intrusion, occasional sampling of such a variable factor is like the proverbial poker game: "crooked, but the only game in town." Sampling technologies and strategies must be developed to ensure that short-term exposures do not exceed unsafe levels. We believe that can be done in a way that is protective of building occupants, cost-effective for responsible parties, and transparent to the public at large.