Summary of Ecology Listening Session December 2018

Feedback on Draft Implementation Memo No. 22: Vapor Intrusion (VI) Investigations and Short-term Trichloroethene (TCE) Toxicity

December 17, 2018 2:00 – 4:00 PM, Northwest Regional Office, Bellevue, Washington

Introduction

The purpose of this listening session was to give participants an opportunity to ask questions and provide feedback on Draft Implementation Memo No. 22: *Vapor Intrusion (VI) Investigations and Short-term Trichloroethene (TCE) Toxicity,* which was released for public comment on November 21, 2018. Participants also had an opportunity to ask about other VI-related issues or other topics that were of interest to them. The draft memo (Publication No. 18-09-047) is available on Ecology's website at: https://fortress.wa.gov/ecy/publications/SummaryPages/1809047.html

Summary of the Major Discussion Points

The meeting began with Ecology providing background information related to ongoing work associated with short-term TCE. A copy of the slides are available on Ecology's VI webpage at: https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Vapor-intrusion-overview. The remainder of this document summarizes the key questions and discussion points but does not represent a complete record of the meeting.

1. ***It was noted that for several contaminants in CLARC [Cleanup Levels and Risk Calculation] (including TCE) there are links to guidance documents that provide additional discussion on how the cleanup levels were determined. Does Ecology plan to link Implementation Memo No. 22 to TCE so people are aware of how the short-term action levels were determined?*** Ecology indicated that it is our intent to provide a link in CLARC once the memo has been finalized.

2. ***How should situations where women only spend a limited amount of time in a commercial or industrial building be addressed? Specifically, can the action level be adjusted to account for more limited exposures?*** Ecology indicated that Implementation Memo No. 22 does not discuss adjusting the action level to account for exposures less than 45 hours/week. While exposure timeframes less than those used for calculating the short-term action levels may be appropriate under some situations, investigators should seek Ecology input prior to selecting an alternative action level.

3. ***Will the short-term TCE actions levels be applicable to situations where TCE is being used in the workplace and regulated by OSHA [Occupational Safety and Health Administration]?*** Ecology stated that as long as TCE use results in significantly higher indoor air levels than the short-term action levels, an evaluation of TCE vapor intrusion would not be required. However, the following factors also need to be considered:

- A VI evaluation may be needed if other contaminants pose a threat to indoor air quality,
- Cleanup of the contaminated soil and groundwater would still be necessary if the applicable cleanup levels are exceeded, and
- If the VI pathway cannot be fully assessed, a No Further Action (NFA) letter could not be issued unless an environmental covenant was filed to ensure the use of the property does not change without first evaluating the VI pathway.

4. ***How many situations is Ecology aware of where the source of the TCE is from within the building?*** Ecology acknowledged that there are a number of products that could contain TCE, but we have not formally identified sites where indoor sources were the primary contributors to the measured results.
5. ***Does Ecology intend to re-evaluate older sites to determine whether the VI pathway was adequately addressed?*** There is currently no plan to look back at sites unless new information suggests there may be a VI issue.
6. ***If a responsible party decides to proactively install a sub-slab depressurization system and can demonstrate the VI pathway is effectively interrupted, is it still necessary to collect indoor air samples?*** Ecology stated that indoor air samples would generally be necessary to document the system is functioning as intended and any previous VI-caused exceedances are at acceptable levels.
7. ***If the TCE source is from indoors, then does the VI pathway still require evaluation?*** If the source is from a manufacturing process or other business use essential to operations, then an evaluation of TCE vapor intrusion would not be necessary as long as TCE use continues. If the source is determined to be a product being used or stored in a structure, then the item should be removed or effectively isolated and the pathway re-evaluated.
8. ***Are there areas of the state that have large TCE VI issues?*** Ecology indicated that one of the largest potential sources of TCE are from dry cleaners releases. Many use perchloroethylene (PCE) in the cleaning process which, if released, can biodegrade in the environment to TCE. Some dry cleaners also used TCE for spot removal.
9. ***How will sampling techniques change due to short-term TCE threats and the release of Implementation Memo No. 22?*** Ecology mentioned that both draft Implementation Memo No. 22 and the recently issued Implementation Memo No. 21 (Pub. No. 18-09-046, https://fortress.wa.gov/ecy/publications/SummaryPages/1809046.html) rely on the potentially liable person(s) (PLP) and their consultant to propose the appropriate sampling method, based on the specific situation. Ecology also indicated that often the most difficult question is how many sampling events should be performed to determine

if VI impacts are occurring, especially if the initial results are below the indoor air cleanup levels.

10. ***When is the best time to sample in order to achieve a worst case scenario for VI?*** Implementation Memo No. 21 indicates that the potential for vapor intrusion is likely to be greater during the winter season when outdoor temperatures are significantly lower than indoor air temperatures and falling. While measured concentrations below the applicable indoor air cleanup level during this period provide a line of evidence that VI is not occurring, data from Environmental Protection Agency (EPA) and others have revealed that temperature differential will not always result in the highest VI-caused indoor air concentrations. Another approach is to mechanically create negative pressure within the building to simulate naturally occurring conditions conducive to VI.

11. ***Is there a simple answer to the question of how many indoor air samples are needed to document compliance, similar to groundwater monitoring?*** Ecology stated there is not a similar approach to groundwater monitoring. This is a site-specific decision that is typically determined using multiple lines of evidence.

12. ***Has Ecology evaluated existing groundwater and indoor air concentrations to determine how well the screening levels predict indoor air concentrations?*** Ecology indicated that this type of evaluation has not been undertaken. The groundwater and soil gas screening levels in CLARC and in draft Implementation Memo No. 22 are not intended to be quantitative predictors of indoor air concentrations from VI. Rather they are concentrations below which the probability of indoor air exceedances from VI are very low.

    Ecology also mentioned that the attenuation factors used to calculate our VI screening levels come from EPA's national database which represents a large number of sites with a variety of different conditions. We have not considered compiling a similar database to develop Washington State-specific attenuation factors.

13. ***If a site investigation shows TCE contamination, and the PLP intends to pursue 2 sub-slab soil vapor sampling events, should they use temporary or permanent probes?*** Ecology does not specify how to collect sub-slab samples. The PLPs need to make the case for which method is most appropriate. While either option can provide accurate data, permanent probes can save time/money when multiple sampling rounds are necessary.

14. ***Is Ecology familiar with situations where TCE has permeated a concrete floor and then subsequently off-gases to indoor air?*** Ecology did not have experience with this situation.

15. ***Is Ecology familiar with the use of radon to determine a building specific attenuation factor?*** Ecology was aware of a site in Vancouver, Washington, that used radon to help determine the attenuation factor where TCE and PCE were the contaminants of concern. The available literature appears to indicate that while radon can be useful in developing a building-specific attenuation factor, its ability to accurately predict attenuation is less than 50% effective.
16. ***Does Ecology have a fact sheet with the TCE screening levels?*** Ecology indicated that TCE screening levels are currently only contained in Implementation Memo No. 22.
17. ***Will Ecology post today's presentation slides?*** Yes, both the slides and a summary of the questions and answers will be posted on Ecology's VI webpage at: https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Vapor-intrusion-overview

For more information, contact:

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