

Response to Comments

For comments received on Implementation Memorandum No. 15, “[Draft] Frequently Asked Questions (FAQ’s) Regarding Empirical Demonstrations and Related Issues” (Publication No. 16-09-047)

Date: June 16, 2016

To: Interested Persons

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Comment No. 1 – The answer to Question No. 9, Example 2 discusses the appropriateness of using VPH/EPH test methods. VPH/EPH methods were designed to evaluate the toxicity of TPH using hydrocarbon fractions. If the results do not report detections in some hydrocarbon fractions, isn’t it most likely that they are not present? Ecology seems to be indicating that the Method B workbook equations are flawed and not applicable at low TPH concentrations. Isn’t it more likely that polar constituents are eluting in the Gx and Dx analyses? I am concerned that Ecology site managers are going to use their discretion to reject an empirical argument based on MTCA Method B Workbook calculations.

Response – The intent of including Example No. 2 was to identify those situations where the Method A TPH groundwater cleanup levels can be used in lieu of having to calculate a Method B groundwater cleanup level that will often be more stringent. This approach has been previously allowed by Ecology to address the complications that can occur when low residual soil concentrations of TPH are present. Providing written criteria should help ensure more consistent implementation when this option is being considered.

Comment No. 2 – Under Confirmation Soil Testing on page 10, where does the 500 mg/kg total TPH by NWTPH-Gx and NWTPH-Dx come from? Why are the Gx and Dx results added? This is not what Method A stipulates, is not explained, and does not appear in the MTCA reference for empirical data. Please explain. Also, this section indicates that, in Ecology’s experience, sites with residual soil TPH concentrations greater than several hundred ppm typically will not meet other specified criteria (not sure exactly what these are). I assume you are saying that a Method B TPH calculation is needed, which circles back to the question above, and how Ecology will decide when EPH/VPH is “appropriate” and when another approach (i.e., adding the Gx and Dx results) is more acceptable.

Response – The Section on “Confirmation Soil Testing” on page 10 has been removed from the document.

Comment No. 3 – Under Question No. 10, Example 3 on page 10, Ecology states here that an environmental covenant would be required if soil contamination is located above the water table and a cap/cover is present. The Attachment A calculations are all based on soil type, and do not take into consideration any cap/cover. Why would the current cap/cover factor into consideration of future potential impacts? The “worst case” assumption is that the soil is exposed at the surface. Therefore, a current cap/cover should not require an environmental covenant requirement.

Response – The reason an environmental covenant would be necessary in this example is because contaminated soil beneath a cap/cover is not necessarily representative of future site conditions as required by WAC 173-340-747(9)(b)ii. If the cap/cover is removed, leaching of contaminants could be increased and ultimately result in exceedances of the applicable groundwater cleanup levels.

A note has been added to Attachment A which clarifies that when a cap/cover is present and the contamination is located above the water table, it is not necessary to perform infiltration calculations in order to estimate the travel time for contaminants to migrate through the unsaturated zone, since an environmental covenant will be necessary.

Comment No. 4 – In Section 1, the phrasing of the third paragraph is somewhat unclear to me, but seems to indicate that measured concentrations in the soil would be protective of the leaching pathway and in effect would be site- or sample-specific cleanup levels (by Method B or C exposure assumptions for the groundwater pathway). This makes sense, but it may be helpful to make it more specific (as these Method B or Method C cleanup levels would not be applicable for other sites).

Response – The language in Section 1 was expanded to clarify that the soil cleanup levels are site specific and can’t be applied to other sites pursuing an empirical demonstration.

Comment No. 5 – In Section 4, the bullet list of factors to be considered to determine if groundwater protection is unlikely is accurate (and reflects the Ecology 2011 guidance document) except for the inclusion of the, “and,” at the end of the fourth bullet. This is important to note as these factors can, should, and have been used independently of each other to make this determination – for instance, I’ve had Ecology identify a gasoline plume (fifth bullet) that showed considerable depth to groundwater (fourth bullet) and still determine that groundwater contamination was unlikely. Each factor should certainly be evaluated to provide as many lines of evidence as possible, but any one of these lines may in fact be enough to establish this.

Response – The “and” was meant to mean that all of these factors need to be considered, not that all of the factors need to be met. To clarify the intent, a note was added after the list of factors which specifies that it may not be necessary to provide information on each factor in order to determine that groundwater contamination is unlikely.

Comment No. 6 – In Section 5, Question No. 9 what is the basis for the 3x rule for benzene? Is there a similar rule for TPH (later on in the section it indicates 75-90 mg/kg wouldn't be "significantly" higher)?

Response – With the increased attention to vapor intrusion, Ecology has recently received several inquiries as to how the MTCA term "significantly higher soil cleanup level" is defined when assessing whether there is a need to evaluate the soil to vapor pathway. The 3x guideline was developed to answer this question and was based on several site specific examples as well as to provide consistency between EPA's TPH screening levels and the Method A TPH soil cleanup levels. In addition, measured concentrations in soil do not always provide a good indication of the potential for vapor intrusion, which is why there is language in that Section specifying that only limited contaminant mass can remain in the soil in order to use the 3x guideline. The VI discussion on TPH on page 11 includes a references the 3x guideline.

Comment No. 7 – Section 5, Question No. 9, Example 2 indicates that an environmental covenant would not be necessary. However, I'm unclear about this, as it appears that the site is an active gas station (paved and covered by convenience store) which functions as a cap for groundwater infiltration. As such, wouldn't the empirical demonstration only work to prove protectiveness of groundwater with the cap in place, and thus that cap should be maintained? Removal of the cap would change groundwater conditions/infiltration rate which would change the leaching rate, so it would seem a covenant would be necessary (unless all contaminated soil was saturated already, so leaching would not need to be considered).

Response – The language at the end of Example 2 was modified to indicate that an environmental covenant would necessary to require that the existing structures remain in-place and be adequately maintained so they continue to serve as a barrier to water migration through the contaminated soil.

Comment No. 8 – In Attachment A, under the General Considerations Section, the second paragraph indicates that, "If sampling cannot confirm the location of the source, conservative assumptions should be used to estimate contaminant travel times." I note that similar conservative assumptions are built into many of the equations Ecology uses for establishing cleanup values in soil for protection of groundwater as well. It might be useful to indicate that use of conservative assumptions would also be possible in lieu of collecting data to determine basic soil physics, etc. and include acceptable conservative assumptions for these values.

Response – The term "conservative" was removed and replaced with the phrase "assumptions based on available site specific information".