

ARCHIVE: Archived due to the 2014 rule revision. Revision was necessary to update rule citations within the TGC. Refer to VA30007.14.020 for the updated document.

TITLE: Characterization of Soil for Placement onto a VAP Property

DATE EFFECTIVE: September 2011

HISTORY: New addition to the Technical Guidance Compendium

KEYWORDS: Phase I property assessment, soil, identified area, chemicals of concern, incremental sampling methodology, 95% UCL, Phase II property assessment, applicable standards demonstrations.

RULES: OAC 3745-300-06(C); 3745-300-07; 3745-300-07(E)(5); 3745-300-07(F)(5), 3745-300-07(I)(1),

QUESTION: How does a volunteer characterize soil for use at a VAP property?

BACKGROUND: The means of assessment of soils from off-property borrow locations (borrow soils) has been inconsistently applied under the VAP, so Ohio EPA has developed this Technical Guidance Compendium document to better define evaluation of borrow soils brought to VAP properties. Historically, the VAP has not required a volunteer or the certified professional (CP) overseeing the voluntary action to complete a soil assessment prior to the distribution at a VAP property of off-site soil from borrow locations. Additionally, the VAP has allowed evaluation of the borrow soils to be determined either after placement on the property, as an identified area (IA), or as a fill area that may contain concentrations of hazardous substances or petroleum which exceed applicable VAP standards.

ANSWER: Focused Phase I assessment of the borrow soil

The VAP recommends completion of a focused or limited phase I assessment of the borrow soil source to determine if there are reasons to believe a release or impact has occurred at the soil borrow area. This assessment does not necessarily need to be a

complete, VAP-compliant phase I assessment pursuant to OAC 3745-300-06. Instead, the assessment may include a review of available information to determine historic operations and uses of the property to determine site conditions. The volunteer should use paragraphs OAC 3745-300-06(C)(1) and (C)(2) for guidance on what items to include in the limited phase I assessment. A letter report documenting the information review and sources which support the final conclusion is all that would be necessary under this initial step. Further, the report gives information the volunteer may use when documented that the VAP property complies with the applicable VAP standards for direct contact to the soil.

A focused assessment may include an interview whereby the borrow soil supplier responds to a series of questions through an environmental questionnaire. Such a form could help in determining the level and extent of potential contamination that might be found in the borrow soil. Example questions could relate to the following:

- What are the historical property operations/activities of the borrow soil source area?
- Have there been historic releases of hazardous substances or petroleum potentially at or near the borrow soil source area?
- Are there, or have there been, underground storage tank systems on or near the borrow soil source area?
- Have there been historical environmental investigations completed at or near the borrow soil source area that provided information or data of the borrow soil?
- Has off-property fill been brought to the borrow soil source area?

If the focused phase I assessment results show no reason to believe a release of hazardous substances or petroleum has occurred, the volunteer may elect to transport the soil to the VAP property without further assessment. However, the volunteer should conduct phase II characterization of the borrow soil (see section below) if the phase I assessment or environmental questionnaire finds the potential for releases of hazardous substances or petroleum in the soils. This characterization would

be focused based upon the findings of the phase I assessment (as described above). Any information regarding the soil should be used to help the volunteer develop a sampling and analysis plan. If the focused phase I assessment does not provide any information on the property constituents, the volunteer should assume that a wide range of chemicals of concern (COCs) needs to be assessed. Therefore, it is recommended that a volunteer analyze for a complete suite of hazardous substances and petroleum COCs including PCBs and asbestos.

Please be advised that before the borrow soil is removed some constituents should be evaluated pursuant to OAC 3745-52-11, as potentially hazardous (such as heavy metals), to avoid generating a characteristic hazardous waste upon removal of the borrow soil. Although a constituent may meet applicable standards under the VAP, the chemical may potentially be above characteristic hazardous waste criteria. An example is lead, where the VAP direct contact standard is 400ppm, but the hazardous waste TCLP value is 5 ppm (20x the TCLP rule value would be a 100ppm total concentration as a guide). If this material is excavated from the borrow site, it could be considered generation and unpermitted disposal of a hazardous waste. Further, materials such as slag, fly ash, sludge, fill etc. are not considered soil for the purposes of this TGC, and therefore need to be evaluated for potential releases of hazardous substances or petroleum.

Other potentially applicable laws and rules should be considered in the assessment of borrow soil before any removal. For example, the potential for petroleum-contaminated soils or solid waste activities should be considered given the regulatory requirements that may apply to excavation at those sites.

Overall, caution should be exercised that a new identified area (IA) is not created by bringing borrow soils containing releases of hazardous substance or petroleum onto the property, and in particular any subject to regulation as wastes.

Targeted Phase II Sampling Assessment¹

The volunteer could better ensure the VAP property would meet applicable VAP standards if borrow soils were evaluated preemptively as opposed to sampling on the VAP property post-

¹ The VAP encourages targeted phase II sampling of any borrow source material.

distribution of the borrow soil. A thorough characterization of the borrow soil area would involve collecting multiple samples², or (preferentially) using the incremental sampling methods (ISM) in accordance with OAC 3745-300-07(F)(5)(c)(iii). The ISM technique is not advisable for certain constituents such as VOCs and the more volatile SVOCs. In these scenarios, the VAP recommends sampling in accordance with OAC 3745-300-07(F)(5)(c); specifically, using multiple discrete samples evaluated through the 95% UCL.

If the volunteer designates the borrow soil area as a single sampling unit, then a minimum of 30 random, separate increments need to be collected from that unit. The increments should be subsequently homogenized to form one sample that would be submitted for lab analysis. The sample collection should include all depths from the sample unit/source area to ensure a representative sample. The VAP methodology approved within OAC 3745-300-07(F)(5)(c)(iii) should be followed if using the ISM sampling methodology. If the sample results are above applicable standards³, then the entire designated sampling unit/borrow soil area would fail and the entire source would not be appropriate to be placed on the VAP property given the noncompliance with standards.

Alternatively, a volunteer may elect to collect multiple discrete samples from the borrow area and perform a 95% UCL calculation on the sample data. The 95% UCL would be performed in accordance with OAC 3745-300-07(F)(5)(c)(i). As with the ISM technique, if the sample results indicate that the sampling unit/borrow area are above applicable standards, then the entire source area would fail; thus the soil would not be permitted to be placed on the VAP property. A minimum of eight samples are required to be collected to derive a sufficient dataset when using 95% UCL. Under this methodology, the discrete samples should be collected randomly for all depth levels and be biased toward any visual concerns.

As a precaution, neither the 95% UCL of the mean approach nor the ISM approach should be used if the discrete samples indicate the existence of contamination “hot spots” (for example, PCBs

² A volunteer can use a RCRA authorized statistical sampling system – see Section 4.2 of RCRA Closure Plan Review Guidance – 2009 for characterization.

³ Applicable standards include soil direct contact, leach-based soil values, construction and excavation activities, and any other VAP applicable standards.

above TSCA levels or chemicals potentially in excess of TCLP). These hotspots should be evaluated and removed, if possible, to avoid adversely impacting the results.

All samples collected from the borrow source area should be analyzed by a certified laboratory (CL) which holds current VAP certification for the COCs and methods being analyzed. The data generated by the CL, also referred to as “certified data”, is needed to support a determination that a VAP property meets applicable standards. The intent is to place borrow source soil on a VAP property that meets all applicable standards. The demonstration that environmental media (e.g., soil) either meets or exceeds applicable standards can only be completed using CL data. Therefore, all soil data results generated from the borrow source area should be CL data to support the demonstrations needed for the property overall.

Finally, the VAP also recognizes that events happen beyond a volunteer’s or CP’s control. Therefore, if soils are placed prior to evaluation defined above, the property must be re-assessed, as needed to comply with VAP rule requirements, to document the property complies with applicable standards. This re-assessment would be initiated pursuant to OAC 3745-300-07(F)(5), to assess the property area as an IA, to support the demonstrations needed to encompass the added borrow soil.

SUMMARY:

If a phase I assessment is not available for the borrow soil area, the VAP first recommends completion of a focused phase I assessment which may include an environmental questionnaire to determine if any releases or impacts may have potentially affected the soils. In the absence of relevant environmental history related to the borrow source area, the VAP requires that borrow soil be analyzed for potential COCs prior to distribution at the VAP site. The VAP recommends that the volunteer sample borrow source soil as a single sampling unit. It is recommended that ISM be used when characterizing soil; however, the volunteer may elect to collect discrete samples and perform a 95% UCL determination. The volunteer should also assume that the soil could have a wide ranging array of historical releases and thus analyze for a broad spectrum of COCs, based upon current knowledge of the borrow area.

CONTACT:

For questions concerning this issue, please contact the VAP central office at: (614) 644-2924.

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