Maryland Voluntary Cleanup Program
Preparing Phase II ESAs for VCP Projects

The Maryland Department of the Environment (MDE) administers the Maryland Voluntary Cleanup Program (VCP), which encourages the investigation, cleanup, and redevelopment of eligible properties with known or suspected contamination. Enrollment in the program requires the submission of a complete VCP application package as defined statutorily in Maryland's Environment Article at §7-506. Except in those instances where MDE determines there are no Recognized Environmental Conditions (REC) at a property, a complete VCP application package needs to include a Phase II Environmental Site Assessment (ESA) prepared in accordance with the ASTM International *Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process* (ASTM E1903).

The VCP process relies on an applicant's Phase II ESA to help identify a property's potential environmental contamination and associated human health risk concerns, need for remedial action, and appropriate regulatory closure path. Phase II ESAs adhering to the ASTM E1903 standard are more likely to meet these objectives without the need for field remobilizations and multiple comment-and-response cycles with MDE; thereby, improving VCP processing efficiency.

The following elements of ASTM E1903 are of particular importance to VCP review and approval process. By paying close attention to these elements when planning and conducting Phase II ESA work, assessors will dramatically increase the likelihood that a Phase II ESA will obtain VCP approval.

1. Statement of Objectives

   The assessor and VCP Applicant should develop a clear, concise, well-reasoned Statement of Objectives at the outset of the Phase II ESA process and clearly include it as a standalone section in the Phase II ESA document. The Statement of Objectives must be developed with intended property use in mind as it will help ensure the collection of sufficient and appropriate data.

2. Identify the Areas Warranting Phase II Investigation

   As part of the investigation planning process, the assessor should carefully document those areas of the site being targeted for field investigation and the rationale for doing so based on the findings of the Phase I ESA. Similarly, those areas not being targeted for field investigation should also be documented, along with the rationale for omitting them from the sampling program. All of this information should be included in the Phase II

ESA document that is submitted to MDE. When designing the sampling program, the assessor must include sampling locations from all portions of the property to provide a comprehensive view of the environmental conditions across the full extent of the parcel or parcels being enrolled into the VCP and focused sampling around the identified RECs. The assessor should also be mindful of the fact that VCP presumes the following site features to be RECs, in the absence of information to the contrary:

a. Urban fill material, fill material of unknown origin, demolition debris, and stockpiled materials of unknown origin.
b. Land with past or present structures (e.g., rowhomes, water towers, storage tanks, industrial infrastructure, etc.) that could have had lead or PCB painted surfaces, asbestos containing building materials, or other materials or contents containing petroleum products or controlled hazardous substances.
c. Agricultural land and orchards.
d. Rail spurs, rail road tracks, and railroad right of ways.
e. Automotive repair shops, salvage yards, junk yards, and vehicle maintenance areas.
f. Potential soil gas and groundwater plumes of an off-site origin.

3. Conceptual Site Model

The assessor must develop a preliminary conceptual site model (CSM), tempered by professional judgment, at the outset of the Phase II ESA process and include it in the Phase II ESA document as a table or figure. The CSM should be well reasoned, clearly stated, and technically defensible. A preliminary CSM developed prior to any environmental sampling activities promotes a comprehensive investigation that takes into account site conditions, historical site uses, topography, geologic setting, site hydrogeology, Phase I ESA RECs, previous sampling results, and chemicals of concern.

4. Interpretation and Reporting

In order to receive MDE approval, Phase II ESA Reports must:

a. Follow a logical progression, provide sufficient contextual background information, and include all of the supporting information needed to tell a complete story (e.g., laboratory reports, boring logs, maps, load tickets, photographs, etc.) in an easy-to-follow, well written format that leaves no room for ambiguity.
b. Thoroughly evaluate each of the identified RECs by collecting and analyzing samples of soil, groundwater, and vapor. The report should include the evaluation

of potential risks and guide the development of the conceptual site model to address any necessary remediation efforts.

c. Discuss the reliability and usability of the data collected from the site, types of media that were tested.
d. Sampling methodologies that were used, project data quality objectives, and quality assurance and control protocols that were used.
e. Present site data and findings in clear and easy to understand tables, figures, cross sections, and maps as appropriate.
f. Identify the depth to groundwater and groundwater flow direction at the property.
g. Clearly explain the site CSM and Statement of Objectives, using supporting figures and tables as needed, and how they guided the investigation work.
h. Identify all potential contamination-related human health risks at the site.
i. Identify any remaining data gaps or unanswered questions associated with the property's environmental condition.
j. Strive to include all elements outlined in ASTM E1903, Section X3.2 – Report Option B.