



# ***Facts About...***

## ***VCP - Clean Imported Fill Material***

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*The purpose of the Voluntary Cleanup Program (VCP) is to encourage the cleanup and redevelopment of properties throughout Maryland. In many cases, fill materials are imported onto a property as part of the redevelopment process. As more properties are relying upon the use of imported fill materials, the VCP has prepared this guidance document for assisting participants who anticipate using imported fill material at VCP sites.*

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### **Introduction**

No one wants to introduce new contamination onto a VCP site through the importation of fill material that is believed to be clean. This document was developed specifically for VCP participants who seek guidance on steps to take to minimize the possibility of importing contaminated fill onto VCP sites.

### **Overview**

Because fill material may come from a variety of sources, it is important to determine that any material brought onto a VCP site not only meets engineering specifications for a particular use, but that it also passes some level of screening to ensure that it is, in fact, clean.

### **Residential or Commercial/ Industrial Scenario**

Depending upon the land use scenario, a VCP participant may be required to characterize the fill or provide a certification stating that the imported fill is not contaminated. As indicated in Exhibit 1, all imported fill materials for properties where the land use is determined to be residential must be characterized. In limited circumstances, the VCP may allow a participant to use imported fill material that has not been characterized

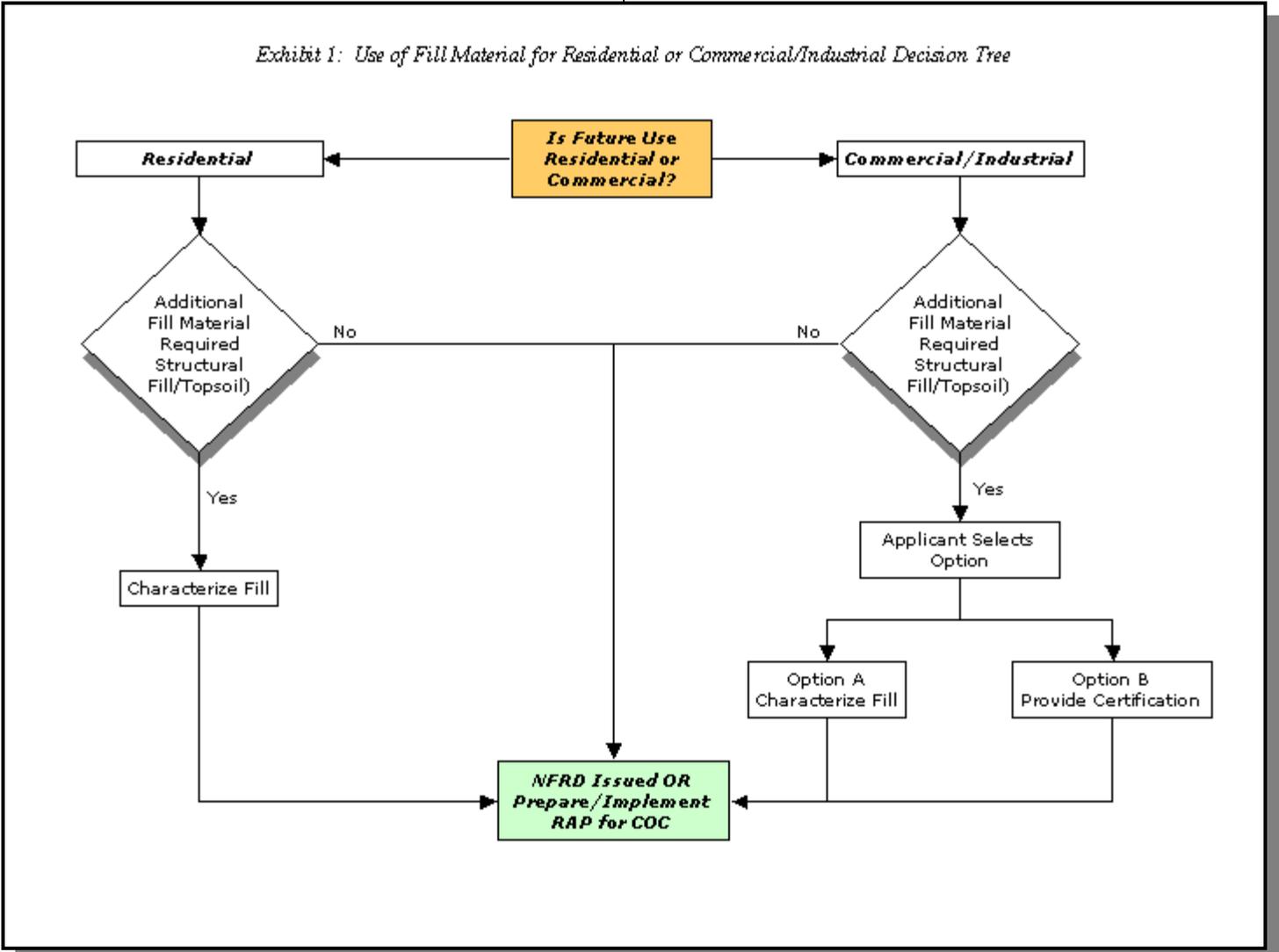
for areas where no pathway will exist between the fill material and the property's end-users. In such circumstances, a Phase I Environmental Site Assessment conducted within a year from the date of scheduled delivery of fill material documenting that no recognized environmental conditions are present must be submitted to the VCP.

For commercial or industrial land uses, a VCP participant has the option of either characterizing the imported fill material or relying upon an affidavit from the vendor stating that the imported material has not been contaminated by controlled hazardous substances or oil. A template of the affidavit is attached to this guidance.

### **Selecting Fill Material**

In general, the fill source area should be located in non-industrial areas, and not from sites undergoing an environmental cleanup. Non-industrial sites include those that were previously undeveloped, or used solely for residential or agricultural purposes. If the source is from an agricultural area, care should be taken to insure that the fill does not include pesticides, herbicides or metals. Unacceptable sources of fill material include industrial and/or commercial sites where

Exhibit 1: Use of Fill Material for Residential or Commercial/Industrial Decision Tree



hazardous materials were used, handled or stored as part of the business operations, or unpaved parking areas where petroleum hydrocarbons could have been spilled or leaked into the soil. Commercial sites to avoid include former gasoline service stations, retail strip malls that contained dry cleaners or photographic processing facilities, paint stores, auto repair and/or painting facilities, and agricultural supply stores. Industrial facilities to avoid include metal processing shops,

manufacturing facilities, aerospace facilities, oil refineries, waste treatment plants, or other similar facilities.

Alternatives to using fill from construction sites include the use of fill material obtained from a commercial supplier of fill material or from soil pits in rural or suburban areas. However, care should be taken to ensure that those materials are also uncontaminated.



**Table 1: Potential Contaminants Based on the Fill Source Area**

<i>Fill Source</i>	<i>Target Compounds/Recommended Analyses*</i>
Land near to an existing highway	<ul style="list-style-type: none"> <li>• Lead (EPA method 6020 [Rev 0 – 9/9])</li> <li>• PAHs (EPA method 8270C [Rev 3 – 12/96])</li> </ul>
Land near a mining area or rock quarry	<ul style="list-style-type: none"> <li>• Heavy Metals (EPA method 6020 [Rev 0 – 9/9])</li> <li>• Asbestos (polarized light microscopy)</li> <li>• pH</li> </ul>
Agricultural land	<ul style="list-style-type: none"> <li>• Pesticides (Organochlorine Pesticides: EPA method 8081A or 8080A; Organophosphorus Pesticides: EPA method 8141A; Chlorinated Herbicides: EPA method 8151A [Rev 1 – 12/96])</li> <li>• Heavy Metals (EPA method 6020 [Rev 0 – 9/9])</li> </ul>
Residential/acceptable commercial land	<ul style="list-style-type: none"> <li>• VOCs (EPA Method 8260B (Rev 2 - 12/96); Note: The soil and sediment collection method has changed to EPA Method 5035)</li> <li>• SVOCs (EPA method 8270C)</li> <li>• TPH (modified EPA method 8015)</li> <li>• PCBs (EPA method 8082)</li> <li>• Heavy Metals including lead (EPA methods 6010B and 7471A)</li> <li>• Asbestos (OSHA Method ID-191)</li> </ul>
<p>*The recommended analyses should be performed in accordance with USEPA SW-846 methods (1996). Other possible analyses include Hexavalent Chromium: EPA method 3060A.</p>	

## Documentation and Analysis

In order to minimize the potential of introducing unacceptable fill material onto a site, it is necessary to verify through documentation that the fill source is appropriate and/or to have the fill material analyzed for potential contaminants based on the location and history of the source area. Fill documentation should include detailed information on the previous use of the land from where the fill is taken, whether an environmental site assessment was performed and its findings, and the results of any testing performed. It is recommended that an environmental professional, as defined by ASTM, should sign any such documentation. If such documentation is not available or is inadequate, samples of the fill material should be chemically analyzed. Analysis of the fill material should be based on the source of the fill and knowledge of the prior land use. The Department recommends using the analytical methods in Table 1 to determine whether potential contaminants are present in fill source areas.

Detectable amounts of compounds of concern within the fill material should be evaluated for risk in accordance with the *Soil and Groundwater Cleanup Guidance Document, August 2001*. A standard laboratory data package, including a summary of the QA/QC (Quality Assurance/Quality Control) sample results should also accompany all analytical reports. When possible, representative samples should be collected at the borrow area while the potential fill material is still in place, and analyzed prior to removal from the borrow area. In addition to performing the appropriate analyses of the fill material, an appropriate number of samples should also be determined based on the approximate volume or area of soil to be used as fill material. Table 2 can be used as a guide to determine the number of samples needed to adequately characterize the fill material when sampled at the borrow site.



## Alternative Sampling

A Phase I environmental site assessment may be conducted prior to sampling to determine whether the borrow area may have been impacted by previous activities on the property. After the property has been evaluated, any sampling that may be required can be determined during a meeting with MDE. However, if it is not possible to analyze the fill material at the borrow area or determine that it is appropriate for use via a Phase I, it is recommended that the participant use Table 2 to determine the fill material sampling schedule. (See chart on Potential Contaminants Based on the Fill Source Area for appropriate analyses).

This sampling frequency may be modified upon consultation with the MDE if all of the fill material is derived from a common borrow area. However, fill material that is not characterized at the borrow area will need to be stockpiled either on or off-site until the analyses have been completed. In addition, should contaminants exceeding the criteria in *Soil and Groundwater Cleanup Guidance Document, August 2001* be identified in the stockpiled fill material, that material will be deemed unacceptable and new fill material will need to be obtained, sampled and analyzed. Therefore, MDE recommends that all sampling and analyses should

be completed prior to delivery to the site to ensure the soil is free of contamination, and to eliminate unnecessary transportation charges for unacceptable fill material.

Composite sampling for fill material characterization may or may not be appropriate, depending on quality and homogeneity of source/borrow area, and compounds of concern. It is not acceptable to composite samples for volatile and semi-volatile constituents. Composite sampling for heavy metals, pesticides, herbicides or PAH's from unanalyzed stockpiled soil is also unacceptable, unless it is stockpiled at the borrow area and originates from the same source area. In addition, if samples are composited, they should be from the same soil layer, and not from different soil layers.

When very large volumes of fill material are anticipated, or when larger areas are being considered as borrow areas, MDE recommends that a Phase I be conducted on the area to ensure that the borrow area has not been impacted by previous activities on the property. After the property has been evaluated, any sampling that may be required can be determined during a meeting with MDE.

**Table 2: Recommended Fill Material Sampling Schedule**

<i>Area of Individual Borrow Area</i>	<i>Sampling Requirements</i>
2 acres or less	Minimum of 4 samples
2 to 4 acres	Minimum of 1 sample every 1/2 acre
4 to 10 acres	Minimum of 8 samples
Greater than 10 acres	Minimum of 8 locations with 4 sub samples per location
<i>Volume of Borrow Area Stockpile</i>	<i>Samples per Volume</i>
Up to 1,000 cubic yards	1 sample per 250 cubic yards
1,000 to 5,000 cubic yards	4 samples for first 1000 cubic yards +1 sample per each additional 500 cubic yards
Greater than 5,000 cubic yards	12 samples for first 5,000 cubic yards + 1 sample per each additional 1,000 cubic yards

