

# Clean Ohio Fund Guidance for Landfills

June 20, 2008

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## Scope/Applicability

This guidance is intended to help applicants with a landfill project undergoing cleanup or remediation through solid waste regulations or the voluntary action program determine what specific costs are eligible for funding under the Clean Ohio Revitalization Fund (CORF) or the Clean Ohio Assistance Fund (COAF) programs. For the purposes of this guidance, landfills include permitted solid waste landfills, unregulated landfills, and other disposal areas (i.e. open dumps). This guidance in no way supersedes the regulatory requirements of Ohio EPA's solid waste or voluntary action programs.

## Introduction

The Clean Ohio Fund (COF) statute designates Ohio Revised Code (ORC) Chapter 3746 (the Voluntary Action Program or VAP) and ORC Chapter 3734 (Hazardous & Solid Waste) as applicable cleanup standards. Therefore, properties subject to VAP regulations or solid waste rules and regulations are eligible to be funded for cleanup and remediation. In addition, the statute defines cleanup or remediation as any action to contain, remove, or dispose of hazardous substances or petroleum.

The following COF policies also apply to this guidance:

- CORF Policy 3.07 and COAF Policy 3.11. Only to the extent that hazardous substances or petroleum exceed applicable cleanup standards, will clean up or remediation be funded.
- CORF Policy 3.15 and COAF Policy 3.05. Cleanup or remediation of solid waste is not eligible, except when solid waste is co-mingled with hazardous substances or petroleum.

The following guidance and procedures describe assessment activities that should be used to determine the extent that COF will provide funds for landfill or disposal area projects. The applicant will be required to provide funds for any remaining costs to complete a remedy if COF will only provide partial funding. For example, if a solid waste closure requires a property to be capped, but the assessment activities described

in this guidance indicates only half of the landfill is impacted by hazardous substances or petroleum, then COF will provide half of the funds to complete the cap. The applicant must then provide the remainder of the capping costs. COF funding will not be distributed to any project where the applicant cannot demonstrate funding to complete the entire cleanup or remediation required by state law.

To meet the requirements of COF statute and policies, assessment activities at a landfill or disposal property must demonstrate the presence of hazardous substances or petroleum above an applicable standard within the landfill (or disposal area) and/or beyond the limits of the landfill due to releases. VAP generic unrestricted use standards compared to samples collected from soil, waste, water, leachate, or ground water at the property will be used to make this demonstration. "VAP unrestricted use generic standards" are defined as VAP generic residential soil standards or VAP unrestricted potable use standards (maximum contaminant levels or risk-based) as indicated in tables found in OAC Rule 3745-300-08. If a VAP generic standard does not exist, generic standards can be developed using the generic standards spreadsheets available through the Division of Emergency and Remedial Response, Voluntary Action Program. In addition, potential remedy(ies) must be considered when performing assessment activities in order to determine the extent that the remedy can be funded by COF. Typical landfill remedial options include capping, cover material, cap or cover maintenance/ augmentation, ground water remediation, waste removal and off-property disposal, leachate collection, and explosive gas collection. Details concerning how COF can be used to implement each of these remedies are discussed below.

Please note, that authorization under OAC Rule 3745-27-13 may be required prior to implementing any assessment and/or remedial activities at a landfill or disposal area. Ohio EPA's Division of Solid and Infectious Waste Management should be contacted when determining the applicability of this rule prior to conducting assessment and/or remedial activities at a landfill or disposal area.

### **Capping, Cover Material, or Repair**

In order to qualify for COF to fund remedial activities involving capping, providing cover material, or repairing any existing cap/cover material, the presence of hazardous substances or petroleum above VAP generic unrestricted use standards must be demonstrated.

To make this demonstration at least one soil, waste, water, leachate, or ground water sample per acre of landfill or disposal area must exceed a VAP generic unrestricted use

standard. For each ground water or leachate sample collected outside the limits of landfill waste that exceed VAP generic unrestricted use standards, three acres of landfill cap up-gradient from the monitoring well or leachate seeps can be funded by COF. For each acre of landfill area within the limits of landfill waste that exceeds VAP generic unrestricted use standards, one acre of landfill cap can be funded by COF.

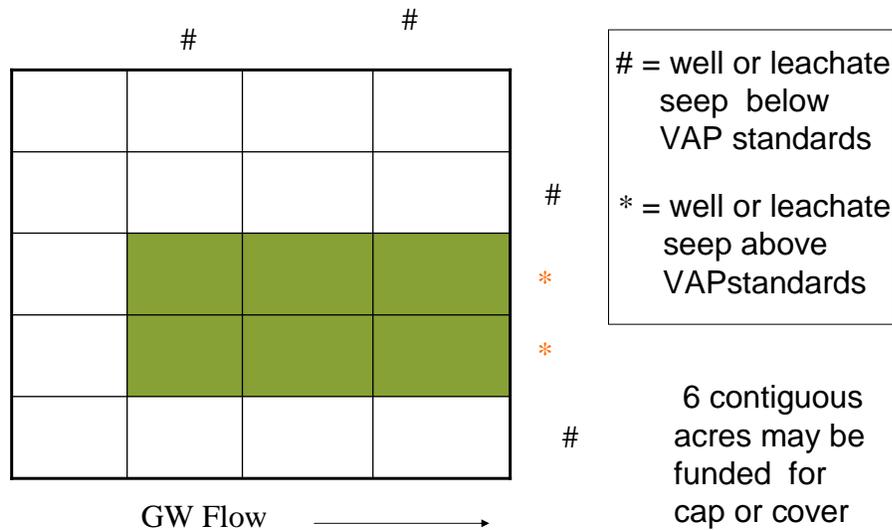
Procedure:

A sampling grid, based on acre units of surface area, should be developed for the surface of the landfill within the limits of waste placement. Based on samples collected from monitoring wells or leachate seeps outside the limits of waste, and samples collected within the limits of waste, total acreage of landfill cap, cover, or repair that is eligible for COF can be determined. Any remaining unfunded acreage must be funded by the applicant.

If available, ground water monitoring wells and leachate seeps outside the limits of waste should be evaluated first. For each water sample from a ground water monitoring well and/or leachate seep (both located outside of waste placement and down-gradient of the landfill) that exceeds VAP generic unrestricted use standards, COF can be used to provide funds to cap, cover, or repair up to three contiguous acres of landfill area immediately up-gradient of the monitoring well or leachate seep. Ground water or leachate sample concentrations must be attributable to the landfill and not related to background or an off-property, up-gradient source. A minimum separation distance of 200 feet between ground water monitoring wells and/or leachate seeps must be demonstrated if multiple wells and/or leachate seeps exceed VAP generic unrestricted use standards.

For example, when evaluating a 20-acre landfill, if one ground water monitoring well and one leachate seep are sampled and exceed VAP generic unrestricted use standards, six contiguous acres of up-gradient landfill are subject to funding under COF for cap, cover, or repair. (Note: wells and leachate seeps must be separated by a minimum distance of 200 feet, outside the limits of waste, and sample concentrations attributed to the landfill.)

## Cap or Cover - Example 20 acre landfill

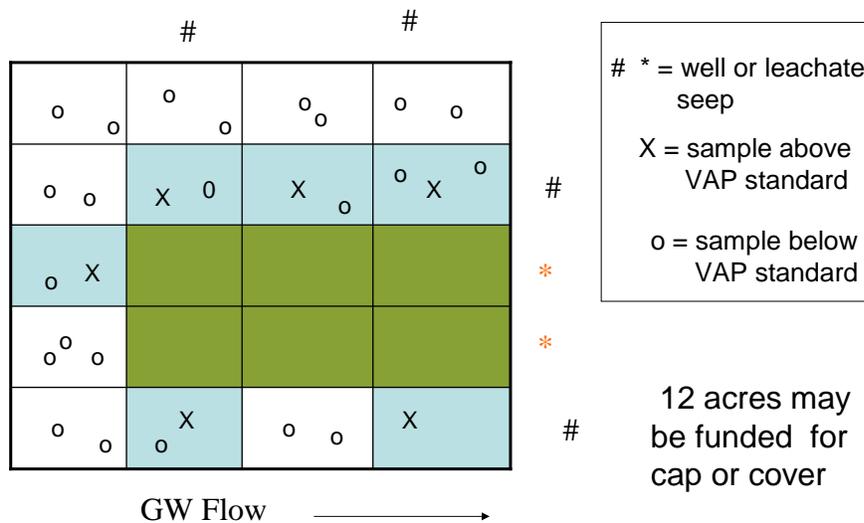


After any ground water monitoring wells or leachate seeps outside the limits of waste have been evaluated, sampling within the limits of waste placement should be conducted to determine if any additional acreage of cap, cover, or repair may be funded by COF. Sampling should occur within the previously determined sampling grid (based on acre units of area) within the limits of landfill wastes to determine if hazardous substances or petroleum exist above VAP generic unrestricted use standards. Sampling is not required in previously designated acre grids already determined to be eligible for funding due to monitoring well or leachate seep exceedances. At least one sample (soil, waste, water, leachate, or ground water) per acre of landfill or disposal area to be capped, covered, or repaired must exceed a VAP generic unrestricted use standard [direct contact generic soil standards for residential use, or unrestricted potable use ground water (MCL's or risk-based generic)]. Several sampling locations within each designated acre unit are acceptable, but if several samples from a single designated acre unit exceed VAP generic unrestricted use standards, only one acre of landfill cap, cover, or repair can be funded. In addition, the minimum distance between sample locations within the limits of waste must be at least 30 feet. If desired, a multiple chemical adjustment can be made to show an exceedance of a VAP generic unrestricted use standard if more than one compound exists in a single sample or multiple compounds are detected in more than one sample collected from a single designated acre unit. [Note: Ground water sampling that causes a confining layer beneath landfill wastes to

be breached may cause the potential spread of contamination and should be considered when planning for sample collection.]

For example, after determining that six contiguous acres of the 20-acre landfill are eligible for COF funding to cap, cover, or repair, at least 14 samples (at least one soil, waste, water, or ground water sample from each designated acre unit) must exceed a VAP generic unrestricted use standard in the remaining 14 acre units. If only six samples exceed a VAP generic unrestricted use standards in six of the 14 remaining designated acre units of the landfill, then COF could fund a cap, cover, or repair for 12 acres of the 20 acre landfill. [6 acres (ground water/leachate) + 6 acres (within limits of waste sampling) = 12 total acres eligible for COF.] The applicant would then have to provide the funds to cap the remainder of the landfill.

### Cap or Cover - Example 20 acre landfill



### Ground Water Remediation

The cleanup or remediation of any releases to ground water above applicable standards (VAP, hazardous & solid waste) are eligible costs for COF.

For VAP properties: Ground water should be addressed as required by the VAP rules.  
 For solid waste properties: Solid waste corrective measures requirements should be implemented to address ground water issues.

## **Removal of Wastes**

To comply with COF policies, sampling must be conducted of the soil or wastes to demonstrate the extent of contamination above VAP generic unrestricted use standards before any landfill or disposal area wastes can be removed from the property as part of a cleanup or remediation. Appropriate site investigation activities to define the nature and extent of contamination should be conducted to: 1) define the extent that hazardous substances or petroleum exist above VAP generic unrestricted use standards; 2) determine the volume wastes to be removed to develop an adequate cost estimate; and 3) to demonstrate compliance with COF Policies.

For example, if an enforcement action at a small open dump requires removal of all wastes, COF can only fund the removal of wastes that are commingled with hazardous substances or petroleum that exceed applicable standards. Sampling of soil or waste must be conducted to determine the nature and extent of contamination and define the volume of waste to be removed.

## **Leachate Collection**

Leachate or associated sediment samples must exceed VAP applicable standards before a remedy to address leachate can be funded by COF. Appropriate leachate, surface water, and sediment samples should be collected and compared to VAP applicable standards (e.g. generic direct contact standards, surface water standards, sediment benchmarks, or bio-criteria analysis).

## **Explosive Gas (Methane)**

Explosive gas is typically associated with methane gas generation at landfills. Remediation will only be funded to the extent that the methane gas contains hazardous substances or petroleum above VAP applicable standards. Appropriate sampling of air, soil, waste, water, or ground water to determine concentrations of hazardous substances or petroleum combined with appropriate modeling of migration pathways should be completed to determine if landfill explosive gas may pose a threat to human health or the environment. Upon making the determination that VAP applicable standards are exceeded, appropriate remedial actions, including engineering controls, can be funded by COF to address explosive gas issues. The above procedures for cap, cover, or repair may also be applicable to determine the extent that COF can fund a cap or cover that acts as an engineering control to prevent the migration of and exposure to explosive gases that exceed VAP applicable standards.

If you have any questions regarding this guidance, please contact the Vladimir Cica of Ohio EPA's Division of Emergency & Remedial Response, Site Assessment & Brownfield Revitalization program at (614) 644-2276.