DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Waste Management

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TITLE: Management of Fill

AUTHORITY: This document is established in accordance with the Act of July 7, 1980, as amended, 35 P.S. §§ 6018.101 *et seq.*, known as the Solid Waste Management Act (SWMA); the Act of June 22, 1937, as amended, 35 P.S. §§ 691.1 *et seq*., known as the Clean Streams Law; the Act of April 9, 1929, Section 1917-A of the Administrative Code, 71 P.S. § 510-17; the Act of July 18, 1995, 35 P.S. §§ 6026.101 *et seq.*, known as the Land Recycling and Environmental Remediation Standards Act.

POLICY: This policy is designed to replace the Department's existing Clean Fill Policy dated February 29, 1996.

PURPOSE: This policy provides DEP's procedures for determining whether material is clean fill or regulated fill. Regulated fill may not be used unless a SWMA permit is secured by the individual or entity using the regulated fill.

APPLICABILITY: This policy shall be used to evaluate whether material qualifies as clean fill or regulated fill. This policy does not apply to mine land reclamation activities subject to a permit. Excavation, movement or reuse of fill material within a project area or right-of-way of a project is not an activity that requires a SWMA permit.

DISCLAIMER: The policies and procedures outlined in this guidance document are intended to supplement existing requirements. Nothing in the policies or procedures shall affect regulatory requirements. The policies and procedures herein are not an adjudication or a regulation. There is no intent on the part of the DEP to give the rules in these policies that weight or deference. This document establishes the framework within which DEP will exercise its administrative discretion in the future. DEP reserves the discretion to deviate from this policy statement if circumstances warrant.

PAGE LENGTH: 10 pages

LOCATION: Volume 6, Tab 40(b)

DEFINITIONS:

Act 2 - The Land Recycling and Environmental Remediation Standards Act, Act of May 18, 1995 (P.L. 4, No. 1995-2), 35 P.S. §§ 6026.101 et seq.

Clean fill - Uncontaminated, nonwater-soluble, nondecomposable inert solid material. The term includes soil, rock, stone, dredged material, used asphalt, and brick, block or concrete from construction and demolition activities that is separate from other waste and recognizable as such. (25 Pa. Code §§ 271.101 and 287.101) The term does not include materials placed in or on the waters of the Commonwealth unless otherwise authorized.

Environmental due diligence - Investigative techniques, including, but not limited to, visual property inspections, electronic data base searches, review of ownership and use history of property, Sanborn maps, environmental questionnaires, transaction screens, analytical testing, environmental assessments or audits.

Historic fill - Material (excluding landfills, waste piles and impoundments) used to bring an area to grade prior to 1988 that is a conglomeration of soil and residuals, such as ashes from the residential burning of wood and coal, incinerator ash, coal ash, slag, dredged material and construction and demolition waste. The term does not include iron or steel slag that is separate from residuals if it meets the coproduct definition and the requirements of 25 Pa. Code § 287.8. The term does not include coal ash that is separate from residuals if it is beneficially used in accordance with 25 Pa. Code § 287.661 - 287.666.

Regulated fill - Soil, rock, stone, dredged material, used asphalt, historic fill, and brick, block or concrete from construction and demolition activities that is separate from other waste and recognizable as such that has been affected by a spill or release of a regulated substance and the concentrations of regulated substances exceed the values in Table FP-1a and b.

Regulated substance - The term shall include hazardous substances and contaminants regulated under the Hazardous Sites Cleanup Act, and substances covered by the Clean Streams Law, the Air Pollution Control Act, the Solid Waste Management Act, the Infectious and Chemotherapeutic Waste Law, and the Storage Tank and Spill Prevention Act.

Release - Spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing of a regulated substance into the environment in a manner not authorized by the Department of Environmental Protection. The term includes the abandonment or discarding of barrels, containers, vessels and other receptacles containing a regulated substance.

Uncontaminated material - Material unaffected by a spill or release of a regulated substance, or if affected by a spill or release, the concentrations of regulated substances are below the concentrations specified in Table FP-1a and b.

REFERENCES:

25 Pa. Code Chapters 287 to 299 (residual waste regulations)
25 Pa. Code Chapters 271 to 285 (municipal waste regulations)
Solid Waste Management Act, 35 P.S. §§ 6018.101 *et seq.*
Land Recycling and Environmental Remediation Standards Act, 35 P.S. §§ 6026.101 *et seq.*

TECHNICAL GUIDANCE:

FILL DETERMINATION

1) To determine whether fill is clean or regulated, a person must perform environmental due diligence.[1]

   a) If due diligence shows no evidence of a release of a regulated substance, the material may be managed as clean fill under this policy.

   b) If due diligence shows evidence of a release, the material must be tested to determine if it qualifies as clean fill. Testing must be performed in accordance with Appendix A.

      i) If testing reveals that the material contains concentrations of regulated substances that are below the residential limits in Table FP-1a and b, the material must be managed as clean fill.

      ii) If testing reveals that the material contains concentrations of regulated substances that exceed the limits in Table FP-1a and b, the material must be managed as regulated fill.

2) A person may not blend or mix materials to become clean fill. Materials that contain regulated substances that are intentionally released may not be managed under this policy.

MANAGEMENT OF REGULATED FILL

1) Materials identified as regulated fill are waste and must be managed in accordance with the Department's municipal or residual waste regulations, whichever is applicable, based on 25 Pa. Code §§ 287.2 or 271.2. Regulated fill may be beneficially used under General Permit WMGR096 (proposed) if the materials and the proposed activities for the fill meet the conditions of that permit. A person may apply for an industry-wide beneficial use general permit for the beneficial use of regulated fill in lieu of this general permit.

2) Regulated fill may not be placed on a greenfield property not planned for development, or on a property currently in residential use or planned for residential use unless otherwise authorized.

3) Fill containing concentrations of regulated substances that exceed the values in Table GP-1 a and b may not be managed under the provisions of this policy or General Permit WMGR096, but must be otherwise managed in accordance with the provisions of the Department's municipal or residual waste regulations.

4) A general permit is not required for remediation activities undertaken entirely on an Act 2 site pursuant to the requirements of Section 902 of the Land Recycling and Environmental Remediation Standards Act. A general permit is also not required if regulated fill from an Act 2 site is used as construction material at a receiving site that is being remediated to attain an Act 2 standard as long as the procedural and substantive requirements of Act 2 are met. Regulated

[1] Analytical assessment, testing or sampling is only required if visual inspection or reviews of historic property use indicates evidence of a release of a regulated substance.

substances contained in the regulated fill must be incorporated into the notice of intent to remediate and the final report. Movement of regulated fill between Act 2 sites must be documented in both the sending and receiving sites' cleanup plans and final reports. Placement of the regulated fill may not cause the receiving site undergoing remediation to exceed the selected Act 2 standard.

MANAGEMENT OF CLEAN FILL

1) Use of material as clean fill does not require a permit under the Solid Waste Management Act and regulations, and it may be used in an unrestricted or unregulated manner under this Act and its regulations. The use of materials as clean fill is still regulated under other environmental laws and regulations. A person using materials as clean fill under the policy is still subject to and must comply with all applicable requirements governing the placement or use of material as clean fill, such as Chapter 102 (Erosion and Sediment Control) and Chapter 105 (Dam Safety and Waterway Management).

2) Any person placing clean fill which has been affected by a release of a regulated substance on a property must certify the origin of the fill material and results of analytical testing to qualify the material as clean fill on Form FP-001. Form FP-001 must be retained by the owner of the property receiving the fill.

3) Best management practices (BMP) must be followed prior to demolition activities to remove materials like lead-based paint surface, friable asbestos and hazardous materials such as mercury switches, PCB ballasts and fluorescent light bulbs from a building if the brick, block, or concrete is used as clean fill.

4) Clean fill may not contain any free liquids based on visual inspection, and shall not create public nuisances (for example objectionable odors) to users of the receiving property or adjacent properties.

Appendix A

Sampling and Analyses for Regulated Material to be Used as Fill:

Sampling of regulated material proposed to be used as fill shall be done either by composite samples or by discrete samples. Sampling in either case shall be random and representative of the fill material being sampled. Sampling shall be in accordance with the most current version of the EPA RCRA Manual, SW-846 *(Test Methods for Evaluating Solid Waste, Physical/Chemical Methods. Office of Solid Waste and Emergency Response).*

(a) Sampling based on composite sampling procedures shall include the following:

(i) For volumes of material equal to or less than 125 cubic yards, a total of eight samples shall be collected and analyzed as follows:

(A) For analysis of all substances other than volatile organic compounds (VOCs), the samples shall be analyzed in two composites of four samples each, in accordance with the most current version of the USEPA Manual, SW-846 *(Test Methods for Evaluating Solid Waste, Physical/Chemical Methods. Office of Solid Waste and Emergency Response).*

(B) Two samples shall be selected from the 8 samples for analysis of VOCs. The samples shall be based on field screening of the eight samples to select those samples that are most likely to contain the highest concentrations of VOCs.

(C) Two grab samples shall be taken from the same areas in the material from which the two samples used for field screening of VOCs were taken, in accordance with Method 5035 from the most current version of the USEPA Manual, SW-846 *(Test Methods for Evaluating Solid Waste, Physical/Chemical Methods. Office of Solid Waste and Emergency Response).*

(ii) For volumes of material greater than 125 cubic yards and less than or equal to 3,000 cubic yards, a total of 12 samples shall be collected and analyzed as follows:

(A) For analysis of all substances other than VOCs, the samples shall be analyzed in three composites of four samples each.

(B) Three samples shall be selected from the 12 samples for analysis of VOCs. The samples shall be based on field screening of the 12 samples to select those samples that are most likely to contain the highest concentrations of VOCs.

(C) Three grab samples shall be taken from the same areas in the material from which the three samples used for field screening of VOCs were taken, in accordance with EPA Method 5035, referenced in subparagraph (i)(C).

(iii) For each additional 3,000 cubic yards of material or part thereof over the initial 3,000 cubic yards, 12 additional samples shall be collected and analyzed as follows:

(A) For analysis of all substances other than VOCs, the samples shall be analyzed in three composites of four samples each.

(B) Three samples for analysis of VOCs shall be selected from the 12 samples for analysis of VOCs. The samples shall be based on field screening of the 12 samples to select those samples that are most likely to contain the highest concentrations of VOCs.

(C) Three grab samples shall be taken from the same areas in material from which the three samples used for field screening of VOCs were taken, in accordance with EPA Method 5035, referenced in subparagraph (i)(C).

(b) Sampling based on discrete sampling procedures shall include the following:

(i) For volumes of material equal to or less than 125 cubic yards, a minimum of eight samples shall be collected and analyzed. For volumes of material greater than 125 cubic yards and less than or equal to 3,000 cubic yards, a minimum of 12 samples shall be collected and analyzed. For each additional 3,000 cubic yards of material or part thereof over the initial 3,000 cubic yards, a minimum of 12 additional samples shall be collected and analyzed.

(ii) For VOCs analysis, grab sampling procedures shall be the procedures described in subsection (a), for the equivalent volumes of material sampled.

(c) Analyses of results:

(i) For a composite sample taken in accordance with subsection (a), the measured numeric value for a parameter shall be less than or equal to the concentration limit listed in Table FP-1a or b for that parameter in order for the material to qualify as clean fill, or in Table GP-1a or b for that parameter in order for the fill material to qualify as regulated fill.

(ii) For a grab sample, taken in accordance with subsections (a) and (b), the measured numeric value for a parameter shall be less than or equal to the concentration limit listed in Table FP-1a or b for that parameter in order for the material to qualify as clean fill, or in Table GP-1a or b for that parameter for the fill material to qualify as regulated fill.

(iii) For discrete samples required in subsection (b), the measured numeric values for a substance in 75% of the discrete samples shall be equal to or less than the concentration limit listed in Table FP-1a or b, or in Table GP-1a or b for that parameter with no single sample exceeding more than twice the concentration limit for a parameter.

(d) In lieu of subsection (c), a person may use 95% Upper Confidence Limit (UCL) of the arithmetic mean to determine whether a fill material meets the appropriate concentration limits for use as clean or regulated fill. The calculated 95% UCL of the arithmetic mean must be below the appropriate concentration limit for clean or regulated fill. Sampling shall be random and

representative of the material being sampled. The minimum number of samples shall be determined in accordance with EPA approved methods on statistical analysis of environmental data, as identified in 25 PA. Code, §250.707(e) (relating to statistical tests). The application of the 95% UCL of the arithmetic mean shall comply with the following performance standards:

(i) The null hypotheses (Ho) shall be that the true fill arithmetic average concentration is at or above the regulated fill appropriate concentration limit, and the alternative hypothesis (Ha) shall be that the true fill arithmetic average concentration is below the regulated fill appropriate concentration limit.

(ii) The underlying assumptions of the statistical method shall be met, such as data distribution.

(iii) Compositing cannot be used for volatile organic compounds.

(iv) The censoring level for each nondetect shall be the assigned value randomly generated that is between zero and the limit related to the PQL.

(v) Tests shall account for spatial variability, unless otherwise approved by the Department.

(vi) Statistical testing shall be done individually for each parameter present in the fill.

(vii) Where a fill has distinct physical, chemical or biological characteristics, or originates from different areas, the statistical testing shall be done separately.

(viii) The following information shall be documented:

(A) A description of the original areas of the fill, and physical, chemical and biological characteristics of the fill.

(B) A description of the underlying assumptions of the statistical method.

(C) Documentation showing that the sample data set meets the underlying assumptions of the statistical method.

(D) Documentation of input and output data for the statistical test, presented in tables or figures, or both, as appropriate.

(E) An interpretation and conclusion of the statistical test.

(e) The Synthetic Precipitation Leaching Procedure (SPLP, per *Technical Guidance Manual*, 253-0300-100/ May 4, 2002 /Page II-26-27), is listed below:

The value for the SPLP is the concentration of a regulated substance in soil at the site that does not produce a leachate in which the concentration of the regulated substance exceeds the groundwater MSC. Since this test must be conducted on the actual site soil, no values for the SPLP could be published in the tables of MSCs in the regulations. The following procedure should be used to determine the alternative soil-to-groundwater value based upon the SPLP:

(i) During characterization, the remediator should obtain a minimum of ten samples from within the impacted soil area. The four samples with the highest total concentration of the regulated substance should be submitted for SPLP analysis. Samples obtained will be representative of the soil type and horizon impacted by the release of the regulated substance.

(ii) Determine the lowest total concentration (TC) that generates a failing SPLP result. The alternative soil-to-groundwater standard will be the next lowest TC.

(iii) If all samples result in a passing SPLP level, the alternative soil-to-groundwater standard will be the TC corresponding to the highest SPLP result. The remediator has the option of obtaining additional samples.

(iv) If none of the samples generates a passing SPLP, the remediator can obtain additional samples and perform concurrent TC/SPLP analyses to satisfy the above requirements for establishing an alternative soil-to-groundwater standard.