DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Mining Programs

DOCUMENT NUMBER: 563-2000-301

TITLE: Use of Reclamation Fill at Active Noncoal Sites

EFFECTIVE DATE:

AUTHORITY: Solid Waste Management Act (35 P.S. §§ 6018.101 *et seq*.), Noncoal Surface Mining Conservation and Reclamation Act (52 P.S. §§ 3301 *et seq*.), Clean Streams Law (35 P.S. §§ 691.1 *et seq*.), Land Recycling and Environmental Remediation Standards Act (35 P.S. §§ 6026.101 *et seq*.), and Sections 1915-A and 1917-A of the Administrative Code (71 P.S. §§ 510-15 and 17).

POLICY: The Department of Environmental Protection (DEP or Department) may permit the use of certain fill materials obtained from an off-site source for use by the operator in the reclamation of active noncoal mine sites if the fill material qualifies as Reclamation Fill in accordance with this guidance, and the use of Reclamation Fill Material is expressly authorized by the mining permit.

PURPOSE: This policy establishes the Department's procedures and standards for using Reclamation Fill for reclamation at active permitted noncoal mine sites.

APPLICABILITY: This policy applies to the use of Reclamation Fill for reclamation purposes at active permitted noncoal mine sites.

DISCLAIMER: The policies and procedures outlined in this guidance 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 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: 20 pages

DEFINITIONS

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

Incidental Asphalt - Uncontaminated asphalt that is encountered in small amounts that cannot be readily separated for recycling, or the quantities are so small as to make recycling impractical. Incidental asphalt cannot constitute the bulk of the material (over 50%) in any truck or overall from a source.

Incidental Volumes - Insignificant quantities of reclamation fill that will not alter the reclamation plan or land use. The quantities depend on the size of the operation.

Reclamation Fill - Soil, rock, stone, incidental asphalt, or unpainted brick, block or concrete from construction and demolition activities imported to a site for reclamation purposes, where a demonstration has been made that the material is uncontaminated, non-water-soluble, non-decomposable, inert and recognizable as such. "Uncontaminated" means that the fill material does not contain any of the materials listed below or regulated substances in concentrations exceeding the concentration levels specified in Appendix A. The following materials are specifically excluded from this definition and may not be considered as reclamation fill under any circumstances:

(a) Tile, glass, plaster, pipe, wire, shingles, wallboard or other construction material not in the above definition.

(b) Discarded home or medical items and trash.

(c) Unused asphalt, such as that left over from construction jobs and cleaning up around asphalt plants.

(d) Soil from industrial or commercial sites with known spill events or contaminant storage, sites with underground storage tanks, Act 2 clean-up sites, and superfund sites unless the Department approves use after characterization of the site.

(e) Painted building materials or other materials with rebar or other metal protruding greater than 2 inches.

(f) Materials that test positive for organic vapors.

(g) Fill that may produce public nuisances (for example: objectionable odors) to users of the receiving property or adjacent properties.

(h) Materials that contain free liquids based on visual inspection.

(i) Contaminated materials mixed with uncontaminated material to improve the overall quality.

(j) Materials that exceed the mine site background radiation.

(k) Any other substance that the Department determines may pose an environmental, safety or health risk.

BACKGROUND

On August 7, 2010, the Department's Bureau of Waste Management finalized Technical Guidance Document 258-2182-773, Management of Fill. The Waste Management Technical Guidance Document provides procedures for determining whether a material constitutes "clean fill" or "regulated fill" and for proper management of clean and regulated fill. However, that document expressly ***does not apply to mine land reclamation activities subject to a mining permit***. This guidance, Use of Reclamation Fill at Active Noncoal Sites, was prompted by industry requests to standardize a process for importing fill for reclamation use at noncoal quarry sites.

This guidance describes the standard criteria for approving reclamation fill at an active noncoal site, what material is appropriate, for which sites it can be used, and how it may be used. It provides for a default approach that is generally acceptable to the Department for meeting the requirements of Chapter 77, Section 77.126. Many of the guidelines discussed are actively applied under Pennsylvania's noncoal mining program and have successfully prevented pollution and resulted in improved reclamation.

Alternatives to the guidelines herein will be considered by the Department if the methods are as effective as or more effective than the methods described herein. If an applicant chooses to deviate from the guidance, the applicant should contact the Department for approval. Failure to follow these guidelines or to obtain approval for an alternate approach may result in denial of an application to beneficially use reclamation fill or a significant delay in review. All permitting decisions are site-specific and depend on factors such as local geology, hydrologic setting, resources to be protected and reclamation goals. The ultimate decision as to whether an approval is granted for each mine site to incorporate reclamation fill depends on whether the site proposal and the material comply with regulatory requirements. Please note that conforming with the standards of this guidance does not guarantee approval.

A permittee is required to comply with 25 Pa. Code §§ 77.462 and 77.591-77.595 regarding reclamation and the minimum requirements for slopes WITHOUT the use of imported material. Reclamation fill is to be used to enhance the minimum reclamation and can also be used to reclaim pre-act areas that the permittee is not obliged to reclaim to make for an overall improved result for future land uses. Reclamation fill may be considered in order to achieve minimal reclamation requirements in rare cases, particularly with regards to safety, such as to create a safe slope that cannot be achieved by conventional means.

STANDARD CRITERIA FOR APPROVAL

For a noncoal mining permit to be issued, the applicant must demonstrate compliance with all applicable regulatory requirements including the criteria for permit approval as specified in 25 Pa. Code Chapter 77 (in particular, § 77.126). Two specific criteria are pertinent to the reclamation fill process. They are:

1. The applicant has demonstrated that the mining activities can be accomplished as required under the operation and reclamation plan contained in the application.

and

2. The applicant has demonstrated that there is no presumptive evidence of potential pollution of the waters of this Commonwealth.

Noncoal mining permits are issued with approved reclamation plans with a designated post-mining land use (§ 77.462). **The fill placement should be in accordance and consistent with the reclamation plan.** Existing overburden MUST be used from the site for reclamation purposes, not sold. That is, importation of fill material will not be allowed if usable excess overburden is removed from the site (see Final Slopes, § 77.594).

The mining regulations do not address large-scale importation of material to the site to use in reclamation. These facilities are permitted as mines, not as disposal sites. The operator should demonstrate that the imported material can enhance reclamation. That is, under § 77.462(b)(2)(iii)(B)(I)(-d), the operator must demonstrate that the land will be restored to "a condition of supporting uses equal to or higher and better than the premining uses." Consequently, in cases where the importation of reclamation fill negatively impacts site restoration by extending the reclamation timeline, ideally, the applicant will demonstrate that the use of reclamation fill will likely result in a significant enhancement to the final reclamation grade.

Because mine pits can accommodate large volumes of fill material, the Department considers the cumulative impacts of the use of imported fill, the quality of the materials, and the potential for contamination of nearby groundwater and surface water resources in order to assure compliance with § 77.126. In order to prevent contamination, the site operator must provide assurances, chemical tests, and other evidence as needed to document fill quality, and needs to conduct monitoring adequate to demonstrate ongoing compliance with environmental statutes and Department regulations. The site operator may also be required to update geologic and hydrologic information in order to completely characterize water flow and potential pollution pathways. This may involve additional tests or studies, dependent upon local geological characteristics and water uses.

Because of these criteria, the Department recommends any site operator planning to add reclamation fill as part of the reclamation plan to contact the Department to schedule a meeting to discuss the proposal at least six months in advance of an application submittal to the Department.

STANDARD PROCESS OF APPROVAL

There are two forms of approval for reclamation fill which are dependent upon the volumes of material imported to the site. "Incidental volumes" are minor amounts of material that may be accommodated on site. The larger volume category, "reclamation volumes," is for those amounts that significantly affect onsite reclamation. As such, the approval process for the latter is more involved.

Incidental volumes

To be considered incidental, the amount of material should not exceed 3,000 cubic yards per year per permit site. Small noncoal permit sites (77.108) are limited to no more than 125 tons of material (1 cubic yard is approximately equivalent to 1.8 tons) per year.

Any request for incidental volumes from any source must be made in writing and will, in most instances, be considered a minor permit revision [25 Pa. Code §§ 77.104; 77.141] which does not require public notice unless otherwise determined by the Department. There is no specific application form for this

request. The request should include a description of the source of the material, a demonstration and assurance that the material meets the definition of reclamation fill, volumes to be used, a timetable of use, identification of the area where the material will be placed and how it will be received and placed onsite. A signed affidavit attesting to the requirement that proper environmental due diligence was completed and a signature of approval from the mine site permittee and landowner to accept this material is required [25 Pa. Code §§ 77.126(a)(3); 77.462(b)(2)(iii)(B)(I)(-c-)]. (Form 5600-FM-BMP0478 can be used.)

The material needs to be placed in a manner consistent with the approved reclamation plan and not stored in piles on site for later incorporation or for other uses offsite. It should not be placed below the groundwater table or in standing water. Because of the smaller volumes and placement above the water table, mine sites receiving incidental volumes of reclamation fill will typically be assigned less stringent testing requirements than sites receiving larger quantities of reclamation fill. However, a Source Documentation Record, form 5600-FM-BMP0145, needs to be submitted for each source brought to the site.

Reclamation volumes

Approval to import reclamation fill for an active noncoal mine site has two-parts: a site approval and a source approval. The site approval includes a thorough site characterization and integrated reclamation plan. Much of this information likely exists in the permit files if the permit was recently issued or revised. However, supplemental information may be necessary as part of the reclamation fill request. If site approval is granted, then each source must be approved for use at that site to assure compliance with 25 Pa. Code § 77.126(a)(3). Source approval will, in almost all cases, be a shorter process than the site approval provided all necessary information is submitted by the operator.

Site approval

This is an approval authorized through the noncoal mining permit to allow for reclamation fill to be used at the particular site, and as such, verbal authority or other records such as inspection reports are not acceptable.

1. Use of reclamation fill should be expressly authorized by the mining permit. Reclamation fill will not be authorized under a general permit for mining (25 Pa. Code 77 Subchapter J). Use of reclamation fill will likely not be considered under a new permit application—where mining has not yet occurred—unless the proposed use applies to reclamation of existing abandoned mine lands. Because importation of fill material constitutes a change in the reclamation plan, an existing permit must typically undergo a major permit revision to authorize its use (25 Pa. Code §§ 77.101; 77.103; 77.104). This requires public notice which must also note if the final land use is being changed in accordance with reclamation fill use. [Example: "The approved final land use is being changed from "x" to "y" with this revision."]

2. Landowner consent to import reclamation fill must accompany the request for authorization [25 Pa. Code § 77.462]. See Appendix B.

3. The permittee should demonstrate, to the extent possible, that the use of reclamation fill material will enhance reclamation. This can be accomplished by citing maps, plans and appropriate permit modules (see item 5).

4. An approved groundwater (and possibly surface water) monitoring plan is needed unless the applicant can demonstrate that the material will be placed in such a way that it will not come in contact with groundwater or be subject to offsite runoff that may potentially contaminate surface waters. The sampling plan should include the location of existing or proposed monitoring wells or surface water sampling points, details of wells, sampling schedule and background data collected. For placement below the groundwater table, hydrologic characterization, a groundwater monitoring plan, and demonstrations related to protection of hydrologic balance will be required [25 Pa. Code § 77.457].

5. For an existing permit, all appropriate permit application sections must be updated or completed to reflect the use of the reclamation fill. These sections include modules for the following: erosion and sedimentation plan, hydrology, operations plan, reclamation plan, final land use and vegetation, operations map and reclamation map. Also, cross sections showing intermediate grades and plan for placement must be submitted [25 Pa. Code § 77.141].

As with any major revision, the Department reserves the right to ask for additional information to update the permit information as necessary. This may include engineering assessments demonstrating that the placement of reclamation fill will not adversely impact slope stability.

The applicant should submit a request for use of reclamation fill on the appropriate DEP permit application modules supplemented with maps, plans, reports and addendums to fully characterize the site conditions, reclamation plans, potential pollution, best management practices to be used, timetables and final configurations.

Placement below the groundwater table

To obtain approval for use of a reclamation fill source below the final groundwater elevation, the applicant must provide the following [25 Pa. Code §§ 77.457; 77.126]:

1. Hydrologic characterization of the site and the surrounding area including updating information via the most recent version of permit application modules 7: Geology and 8: Hydrology along with map Exhibits in Module 6, 9 and 18;

2. Groundwater monitoring plan;

3. Demonstration that the placement of material will be done in a way to minimize disturbance to the hydrologic balance [25 Pa. Code § 77.521].

To demonstrate that the use of reclamation fill is not causing pollution, the mine site permittee will be required to submit a groundwater monitoring plan. Wells or surface water sampling points are established in the application and installed prior to commencing placement of reclamation fill. In order to characterize the site, the wells must be properly constructed and finished at the proper depth and locations. Background samples from these points must also be submitted prior to commencing placement.

Background sampling includes, at a minimum, those parameters listed in Appendix A Table 1. No less than six monthly samples should be submitted in support of the reclamation fill permit request. The sample results should not be older than two years. Use of reclamation fill should not commence until the background sampling is completed to the Department's satisfaction. For example, any problematic

sample results should be addressed and resolved prior to reclamation fill use to assure environmental protection.

Groundwater monitoring parameters should include those constituents shown in Appendix A Table 1. The operator is free to test for additional parameters and to submit these to the Department for added documentation. Samples ought to be taken at least on a quarterly basis and continued for a period of at least 12 months (quarterly) following completion of the reclamation.

Use of the fill will be authorized through a noncoal surface mining permit and appropriate conditions for use will be included.

Source approval

In general, the greater the volume coming from a source, the greater the degree of evaluation for approval is needed. That is, for small sources (those with volumes of 3,000 cubic yards or less), preapproval by the Department is not necessary as long as the permittee provides suitable due diligence and notification to the Department. For a source of greater volume, testing and preapproval by the Department will likely be required.

Material that has been impacted by a spill or release which exceeds applicable standards is not suitable for use at a mine site. To use the uncontaminated material on a site that has been impacted by spills and/or releases, the applicant must provide a characterization of the spill area and indicate how materials will be properly separated with only suitable material sent for mine reclamation.

The process of approval of each source of fill includes the following steps:

1. Environmental due diligence and Self Certification by permittee (see section below);

2. Material Testing as outlined in this document;

3. Review by Department District Mining Office staff and authorization for those sources requiring preapproval.

After approval, suitability of the fill is monitored by periodic testing of the material at the source and/or mine site.

Permittee Responsibility

The mine site permittee assumes the primary responsibility for what is taken in and used on a permitted mine site. If an environmental problem is identified, the permittee should perform the necessary investigation and remediation. If remediation is not undertaken, the permittee risks bond forfeiture related to the site and revocation of its mining license related to all the permittee's sites [25 Pa. Code § 77.242(g)(1)(iii)].

The permittee is responsible for obtaining the necessary approvals as outlined in this guidance and in conjunction with the application process undertaken through the District Mining Office in the jurisdiction where the mine site is located. As part of the approval, the permittee certifies under penalty of law that the material being brought into the site, according to the best available information, meets the

conditions imposed by the issued permit. The permittee is responsible for following best management practices and permit conditions related to operations, record keeping, monitoring and reporting.

DUE DILIGENCE AND SELF CERTIFICATION

Due diligence refers to the review of historical and recent uses of a property to determine if the material that is to be repurposed as reclamation fill has been subject to spills or releases or other means of potential contamination by regulated substances and provides assurance that the reclamation fill is of acceptable quality and does not contain contaminants with the potential to cause pollution. A qualified and experienced environmental professional should be making this determination. The due diligence process includes site inspection, review of historical records, review of regulatory databases and interviews with people familiar with the property as described in the definition for environmental due diligence.

Often, the due diligence includes screening of the material—a process in which random or targeted samples are tested for typical inorganic and organic contaminants. This provides an initial indication if and where contamination is present. A typical screening list is included as Appendix C: Screening Parameter List. However, testing should include any parameters that are suspected to be present based on the historical review and records.

Because the ultimate responsibility for any contamination resides with the mine site permittee, the permittee undertakes a process whereby it attests that proper due diligence and screening has been carried out to demonstrate that the material to be used for reclamation fill meets the definition in this document and is suitable for the intended use. That is, there is no evidence that it will cause pollution and that the use of reclamation fill will likely enhance reclamation on the site. A Self-Certification form (5600-FM-BMP0478) provided by the Department is to be completed by the applicant for each source request.

To apply for approval for any source, the mine operator completes the Self-Certification form. As part of this form, the applicant provides a summary of the due diligence process and sampling results that were reviewed to make the determination for self-certification. This sampling data should be in a spreadsheet format. All supporting data and documents, including lab sheets and reports, should be provided on portable digital format (CD, DVD, removable drive, etc.) with the source approval request. If adequate and correct information is not provided within the summary of the self-certification process for Department review, the Department may return the request unapproved.

The requirements for all digital forms of data can be waived for incidental volumes of fill, but documentation of due diligence should still be provided. Because of the low volumes in cases of incidental fill and for small sources (3,000 cubic yards or less), due diligence requirements may be lessened. The operator is advised to consult with the District Mining Office regarding the extent of due diligence that will be adequate for approval [25 Pa. Code § 77.126].

The Department will provide written approval to the permittee for a specific source in order to begin importing reclamation fill from that source to the mine site.

MATERIAL TESTING

The following sections describe the procedures for adequate testing under due diligence and the limits of the material to be certified for use as reclamation fill.

Factors for determining approval

If the due diligence process identified no contamination issues, laboratory testing of the material is the next step to be completed. The applicant needs to determine the appropriate number of samples to adequately characterize the material. This testing must be described as part of the documentation presented to the Department with the source approval request. Appendix A: Sampling and Analyses for Material to be Used as Reclamation Fill provides the testing instructions [25 Pa. Code §§ 77.126; 77.532(b)].

Testing of the material must sufficiently demonstrate that the material will not cause pollution when used as reclamation fill. Materials meeting the limits as described in Appendix A, will generally be deemed suitable as reclamation fill that is presumed to not cause pollution.

If a problem is noted with a particular constituent (or constituents), the applicant can retest or reanalyze just for the constituents of concern as long as the applicant provides a rationale for the selection of constituents and provides this to the Department with the results.

POST APPROVAL TESTING AND PROCEDURES

Documentation of each load

Documentation needs to be maintained at the site to account for all imported reclamation fill material. This documentation should contain the following:

- The origin of each load,
- An estimate of the amount of material (in cubic yards) in the delivery,
- The name of the firm bringing in the material,
- Results of the visual inspection,
- Results of the organic vapor analyzer (OVA) or photo ionization detector (PID) testing, and
- If a load is refused, the reason why it was rejected for use.

Department Form 5600-FM-BMP0145 (Source Documentation Record) has been developed to record the information needed for each load. The mine operator should maintain these records for at least one (1) year on site, making them available to Department personnel upon request. In addition, the mine site operator is responsible for keeping the records for at least five years after the site has been reclaimed. In the event an unexpected pollution incident occurs, perhaps several years later, the operator may be asked to produce evidence that all material used for reclamation fill was accounted for by source, volume and quality.

Operational testing

To ensure the material continues to meet quality standards, testing during operations is essential.

A standard example of operational testing protocol is as follows:

- The mine operator visually inspects each load to assure that the materials are as described and suitable for use.
- The mine operator scans each load of proposed material with an OVA or PID.

- If the visual inspection reveals unsuitable material and/or OVA or PID testing reveals that the load does not qualify (i.e., an OVA or PID reading is significantly above background) the load is refused.
- A rejected load is promptly removed from the permitted mine site and the generator is notified.
- If more than one load from the same source triggers a rejection within a 30-day window, the mine site operator needs to notify the Department and determine a cause of the problem. Within 30 days, the operator should provide an explanation of the problem and of actions that the operator plans to undertake to prevent this issue from reoccurring.

Periodic grab samples from loads

The default frequency for pulling grab samples for testing should be **no less than one random sample every 70 truckloads** for the parameters in Appendix C: Screening Parameters. The mine site operator can suggest an alternative sampling frequency and procedure in the application request, but the Department will most likely make the determination for greater or lesser frequency based on the source and the overall volumes used. These requirements are typically stated in the permit conditions.

The mine operator should submit the chemical analysis results upon completion to the District Mining Office that has issued the permit. The Department may determine the format for submittal through forms or electronic submission but each analysis must contain proper identification of the material, a signed affidavit, and a copy of the lab sheets from the sample results [25 Pa. Code § 77.104]. As mentioned previously, because unexpected pollution problems may arise at a later date, the mine site operator is responsible for demonstrating that the material used was of acceptable quality. Therefore, a copy should be kept on file by the company for at least five years after the site has been reclaimed.

BEST MANAGEMENT PRACTICES

Upon approval for use of reclamation fill, the operator is expected to adhere to best management practices (BMPs). These include proper testing and monitoring general practices (such as sample collection, preparation and chain of custody), prompt submission and reporting to the Department (including identification of potential problems), and careful record keeping. In addition, BMPs apply to operational procedures such as handling and placement of material and regular data assessment to ensure pollution is not occurring.

Reclamation

The mining regulations (25 Pa. Code Chapter 77) indicate that fill can only be used in accordance with the reclamation plan to achieve the post-mining land use. Accordingly, reclamation fill imported to the site may not, in most instances, be stockpiled but should immediately be used for reclamation unless otherwise approved by the Department.

Upon commencement of using reclamation fill materials, the permittee should show the progress of reclamation regularly to the Department by reporting volumes of material used as reclamation fill from each source and updated reclamation grades. Reporting requirements such as representative cross-sections of the pit and instructions for reporting the total volumes and/or weight of materials used in a year will be specified in the permit conditions [25 Pa. Code § 77.131].

Water testing

To demonstrate that the use of reclamation fill is not causing pollution, the mine site permittee needs to submit a groundwater monitoring plan to be carried out during reclamation fill operations.

Wells or surface water sampling points may be established in the application and installed prior to commencing placement of reclamation fill. In order to characterize the site, the wells must be properly constructed and finished at the proper depth and locations. Background samples from these points must also be submitted prior to commencing placement. Department approved sampling protocols should be followed in order to produce reliable data.

Background sampling should include, at a minimum, those parameters listed in Appendix A Table 1. No less than six monthly samples ought to be collected and analyzed prior to approval for placement of reclamation fill material at the mine site.

Groundwater monitoring at the mine site should include, at a minimum, those constituents shown in Appendix A Table 1. Samples ought to be submitted to the District Mining Office that issued the mining permit on a quarterly basis and continued for a period of 12 months following completion of the reclamation.

The permittee assumes the responsibility to demonstrate that any pollution event is not a result of the placement of the fill. If water quality impacts are observed either by the permittee or by the Department, the permittee should address the issue by submitting an assessment plan to the Department. If it is determined that the pollution has occurred as a result of the reclamation fill use, the permittee needs to submit an abatement plan. The Department may ask for additional information during such an event including increased sampling, re-sampling, hydrogeological tests, additional monitoring points, studies and evaluation of the groundwater regime [25 Pa. Code § 77.532].

TRANSITION OF APPROVED SITES

Sites currently importing fill for reclamation purposes should request continued use under this guidance. In some cases, a correction letter may be issued to revise the existing file information in order to meet the specifications in this document. The operator should receive an updated set of permit conditions incorporated into the permit.

ATTACHMENTS

- Appendix A: Sampling and Analyses for Material to be Used as Reclamation Fill
- Appendix B: Landowner consent sample wording
- Appendix C: Screening Parameters

ASSOCIATED DOCUMENTS

- Form 5600-FM-BMP0145: Source Documentation Record
- Form 5600-FM-BMP0478: Self-Certification Form

APPENDIX A

Sampling and Analyses for Material to be Used as Reclamation Fill

The sampling methods and acceptable contaminant concentration limits outlined below are the default methods acceptable to the Department. Mine operators may propose and use other methods if they can demonstrate to the Department and receive approval from the Department that the alternate method is as effective as or an improvement over the methods described below, and will comply with 25 Pa. Code Chapter 77, § 77.126(a)(3).[1]

If a fill material does not meet the chemical criteria limits provided, that material will be deemed to have failed the demonstration of no presumptive evidence of pollution as stated in 25 Pa. Code Chapter 77, § 77.126, unless the applicant has demonstrated through an alternate method acceptable to the Department that the fill material will meet the requirements of § 77.126. Unless prior approval from the Department has been received, deviations from the methods and contaminant concentration limits described below may fail to meet § 77.126(a)(3).

Sampling of 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 is to be in accordance with the most current version of the US EPA Resource Conservation and Recovery Act (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 US EPA 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 eight 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 obtained, then sampled and analyzed in accordance with Method 5035 from the most current version of the US EPA Manual, SW-846 *(Test Methods for Evaluating Solid Waste, Physical/Chemical Methods. Office of Solid Waste and Emergency Response).*

[1] § 77.126(a) states "A permit, permit renewal or revised permit application will not be approved, unless the application affirmatively demonstrates and the Department finds in writing, on the basis of the information in the application or from information otherwise available, that the following apply: (3) The applicant has demonstrated that there is no presumptive evidence of potential pollution of the waters of this Commonwealth."

(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 obtained, then sampled and analyzed 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 obtained, then sampled and analyzed 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 under the Statewide health standards (see Figure 1) for that parameter in order for the material to qualify as reclamation 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 under the Statewide health standards for that parameter in order for the material to qualify as reclamation fill.

(iii) For discrete samples required in subsection (b), the measured numeric values for a substance shall be equal to or less than the concentration limit listed under the Statewide health standard for that parameter, with no single sample exceeding more than 10 times the concentration limit for a parameter, and 75% of the samples collected for each 3,000 cubic yards will not exceed the Medium Specific Concentrations (MSCs) selected using the procedures described in § 250.305 for selecting MSCs for soil under the Statewide health standard.

Chemical criteria for placement of reclamation fill relative to the groundwater table

Chemical limits for reclamation fill have been established using the MSCs under Act 2 and Chapter 250, Subchapter C. Tables 1, 2, 3A, 3B, 4A and 4B in Appendix A of Chapter 250 provide the numeric value used to determine the MSCs for groundwater and soil.

The MSCs tables are regularly updated based on current scientific findings and recommendations by the US EPA. Operators should consult the latest values (as published in the *Pennsylvania Bulletin*) when assessing new source approvals for reclamation fill and as criteria for quality of samples from existing approved sources.

In the event that a change in constituent value results in any reclamation source no longer meeting criteria, the operator should notify the Department of the situation. This may result in additional testing of the parameter in question and/or halting the importation of this source for reclamation fill at previously approved mine sites.

The Department will generally accept the limits as described below as demonstrating that a material will meet the requirements of 25 Pa. Code Chapter 77 § 77.126(3). If an alternate criteria is proposed it is the responsibility of the mine operator to demonstrate to the Department that the alternate method and criteria will meet the requirements of 25 Pa. Code Chapter 77 § 77.126(3).

For purposes of this guidance, groundwater table is defined as the top of the saturated zone. The term includes the regional groundwater table, perched water tables, seasonal high water table and mine pools. The term "smear zone" takes into account seasonal groundwater fluctuations.

Leaching limits are derived by the Synthetic Precipitation Leaching Procedure (SPLP). The SPLP test is the Department's normally accepted test method because it more closely simulates a mine environment than the TCLP method. Alternative methods may be considered if it can be demonstrated to the Department that the alternate method is as good as or better than the SPLP test method.

Total and leachate testing will be required from most sites. Those planning to take samples should allow for sufficient volumes to be collected and sent to the laboratory to allow for both phases of testing without resampling. If the laboratory detection limit exceeds any of the levels, the operator should

provide an explanation for the difference. Constituent detection limits may vary based on the sample matrix and laboratory analytical method used.

The chemical criteria for approval varies depending on the location of placement of the reclamation fill material – above or below the groundwater table. Groundwater fluctuation is taken into account by requiring more stringent "below groundwater" values to be applied at least 10 feet above the smear zone.

Below Groundwater

For the zone "below groundwater" there are two options for meeting the quality requirements for reclamation fill.

Option 1: Sample results must be less than or equal to 10% (0.1) of the generic soil to groundwater values for all parameters listed in Tables 3B (organic regulated substances) and 4B (inorganic regulated substances). If the material meets this standard, no leaching tests are required.

Option 2: Sample results must be less than or equal to the values for all parameters listed in Tables 3B (organic regulated substances) and 4B (inorganic regulated substances) **and** leaching tests results must be less than or equal to values for all parameters in Tables 1 and 2 [Used aquifer, TDS less than or equal to 2,500, residential exposure].

Above Groundwater

For the zone "above groundwater", the quality requirements are as follows with the exception of the near surface cover (see next section): Sample results must be obtained for all parameters listed in Appendix C of this guidance and compared to the Chapter 250 soil to groundwater numeric value tables (3B for organic regulated substances and 4B for inorganic regulated substances). If any individual constituent result is greater than the generic values in those tables, then the operator must include a leaching test for at least that constituent. The leaching result must not be higher than the respective value in the Chapter 250 groundwater numeric value tables 1 (organic regulated substances) and 2 (inorganic related substances) [Used aquifer, TDS less than or equal to 2,500, residential exposure].

Near Surface (0-15 below surface)

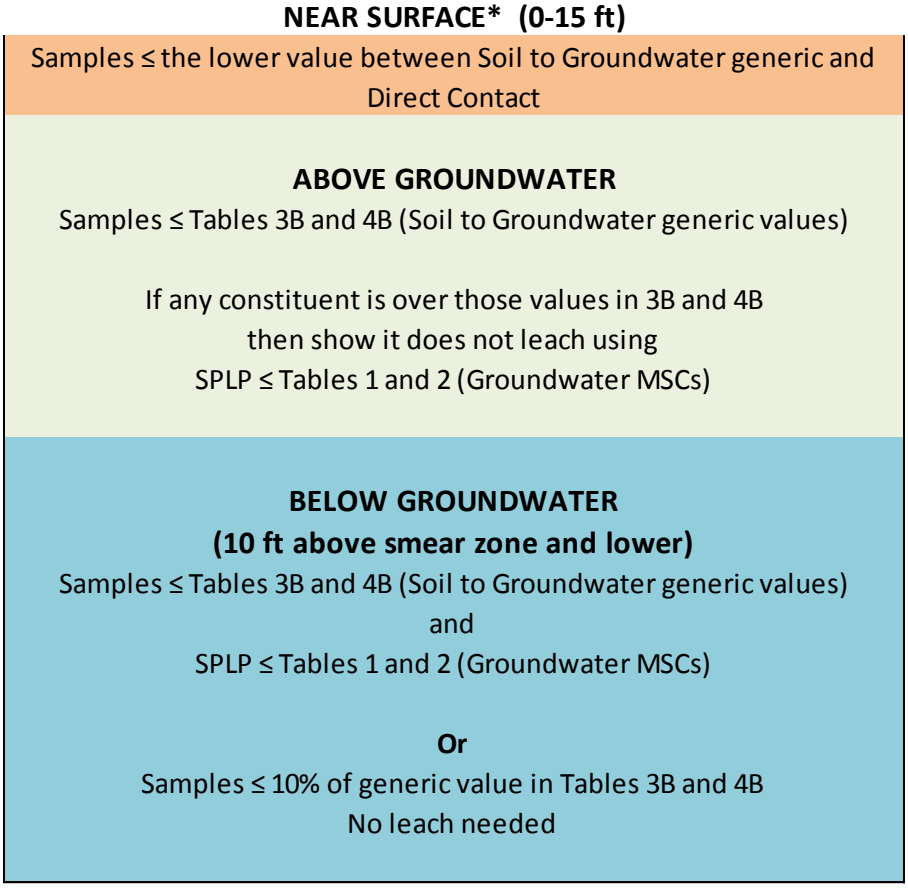
Quality criteria changes when fill is placed near the surface. Values are dependent upon residential or non-residential uses proposed for the land which have different sets of limits in the tables. Future residential use requires limits for material placed 0-15' below surface. Non-residential use includes limits for the material 0-2' below surface and another set of limits for material 2-15' below surface. Dependent upon the reclamation plan indication of residential versus non-residential use, the top 15 feet of material requires quality criteria to be chosen as follows:

- Compare the soil to groundwater values described in the "Above Groundwater" section with the appropriate direct contact values for all parameters in Tables 3A and 4A.
- Take the lower of these two values.

When approaching final reclamation grades, the operator should consult with the Department to ensure that appropriate material is being utilized in order to not preclude approval of final reclamation requirements and the release of bonds.

Figure 1 shows a general visual representation of the zones of placement and their respective requirements.

Figure 1



Tables referenced are the soil and groundwater Medium Specific found in Chapter 250, Appendix A of the Land Recycling & Environmental Remediation Standards Act (Act 2)
Also see Chapter 250, Subchapter C, Statewide Health Standards (§§ 250.304 - 305)

All values are derived from "Used aquifer, TDS ≤ 2500, Residential"

** Near surface values are dependent upon residential or non-residential use. See Appendix A: "Near Surface" section for specific criteria.*

Table 1. List of Groundwater Monitoring Parameters

pH
Acidity
Alkalinity
Aluminum
Ammonia
Arsenic
Barium
Cadmium
Calcium
Chloride
Chromium
Copper
Fluoride
Iron
Lead
Magnesium
Manganese
Mercury
Nickel
Nitrate (as N)
Selenium
Silver
Sulfate
Zinc
Biochemical Oxygen Demand
Chemical Oxygen Demand
Conductivity
Methylene Blue Active Substance (Mbas)
Semi-Volatile Organic Compounds
Total Dissolved Solids
Total Suspended Solids
Volatile Organic Compounds

APPENDIX B
Suggested Wording for Land Use Approval

(I) (We), the undersigned, are the owner(s) of _____ acres of land located in _____, (County)

_____ as described in the deed(s) recorded in the Recorder of Deeds Office, (Township, Borough, City)

Book(s) and Page(s) _____, and shown by crosshatched lines on the attached map which is signed in the original by the landowner (the Land).

_____ (the Operator) proposes to engage in use of imported reclamation fill (Name of Mining Operator)

activities on the Land, and the Operator has applied to the Department of Environmental Protection for permission to engage in such activities. This consent will be made a part of the Operator's application.

WE DO HEREBY ACKNOWLEDGE THAT THE OPERATOR HAS THE RIGHT TO ENTER UPON AND USE THE LAND FOR THE PURPOSE OF USING IMPORTED RECLAMATION FILL.

(I) (We), the undersigned, also irrevocably grant to the Operator and to the Commonwealth of Pennsylvania, the right to enter upon the Land for the purposes of inspecting, studying, collecting samples, and performing other activities related to regulation of reclamation fill activities under applicable statutes, the Department's regulations, and the provisions of any permit(s) issued to the Operator. (I) (We), the undersigned, grant this right of entry for a period of one year prior to commencement of the importation of reclamation fill on the Land described above, during the period of placement of reclamation fill on the Land, and for a period of ten (10) years after completion of the importation of reclamation fill on the Land. (I) (We) also grant to the Commonwealth, for the same period of time, a right of entry across any adjoining or contiguous lands owned by (me) (us) in order to have access to the Land.

It is specifically agreed and understood that this contractual consent gives the Commonwealth the right to enter, inspect, study, obtain samples, and perform other activities related to the regulation of reclamation fill required by law, but does not obligate the Commonwealth to do so and does not constitute any ownership interest by the Commonwealth in the Land.

This Consent shall not be construed to impair any contractual agreement between the Operator and the landowner (the Land).

In witness whereof and intending to legally bind (myself) (ourselves), (my) (our) heirs, successors and assigns, (I) (we) have set (my) (our) hand(s) and seal this _____ day of _____, _____.

_____
LANDOWNER (Print Name)

By: _____
(Signature) (Seal)

By: _____
(Signature)

_____
(Print Name)

ACKNOWLEDGEMENT OF INDIVIDUALS OR PARTNERS

LANDOWNER

STATE OF :
: ss
COUNTY OF :

On _____, before me, the undersigned Notary, personally appeared

_____
(Name (s))

known to me (or satisfactorily proven) to be the person whose name is subscribed to this instrument, and who acknowledged that

(he, she or they) executed the same and desires it to be recorded.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal.

(SEAL) _____ My Commission Expires: _____
(Notary Public) (Date)

ACKNOWLEDGEMENT OF CORPORATIONS

LANDOWNER

STATE OF :
: ss
COUNTY OF :

On _____, before me, the undersigned Notary, personally appeared

_____,
(Name (s))

who acknowledged (herself) (himself) to be the _____ of
(Title of Person)

_____, a
(Name of Corporation)

corporation, and that (she) (he), as such officer, being authorized to do so, executed the foregoing instrument on behalf of the said corporation and desires that this instrument be recorded.

IN WITNESS WHEREOF, I have hereunder set my hand and official seal.

(SEAL) _____ My Commission Expires: _____
(Notary Public) (Date)

This instrument has been recorded in _____
County, Pennsylvania, this _____ day of _____,
_____ (year), at Book _____, Page(s) _____.

_____
(Signed) + (Print Name)

_____
(Seal)

Appendix C
SCREENING PARAMETERS

Aldrin	Anthracene
Benzene	Benzo(a)anthracene
Benzo(a)pyrene	Benzo(b)fluoranthene
Benzo(ghi)perylene	Chrysene
Cumene (Isopropyl benzene)	DDD, 4,4
DDE, 4,4	DDT, 4,4
Dichloroethylene, cis-1,2-	Dieldrin
Ethylbenzene	Fluorene
Indeno(1,2,3-cd)pyrene	Napthalene
PCB-1254 (Aroclor)	Phenanthrene
Pyrene	Toluene
Trichloroethane, 1,1,1-	Trichloroethylene (TCE)
Xylenes (Total)	Arsenic
Barium	Cadmium
Chromium	Lead
Mercury	Selenium
Silver	