

Technology Acceptance and Reciprocity Partnership

**TIER II GUIDANCE DOCUMENT
FOR
BENEFICIAL USE DETERMINATION
OF NON-HAZARDOUS MATERIALS**

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I. INTRODUCTION

A. TARP Program

California (CA), Illinois (IL), Massachusetts (MA), New Jersey (NJ), New York (NY), Pennsylvania (PA), and Virginia (VA) have agreed upon a common pathway for reciprocating States' approval and permitting of environmental technologies, under a Technology Acceptance and Reciprocity Partnership (TARP) program. "Environmental Technology", as defined in the Strategy Document and the Tier I Guidance Document for this TARP group effort means, "a new, innovative or alternative method, procedure, process, system or facility, which is not a proven technology". By assuring that technology data and performance tests are conducted according to agreed upon protocols, Host States can make the results of their ongoing evaluation and regulatory approval efforts accessible and useful to other States. Such reciprocity speeds up the implementation of the technology, which may result in reduced costs, to both the States and the vendors applying for an approval for the acceptance of a technology. States participating could consider the data, approvals, and permits from another State as if they had been produced in their respective States. HOWEVER, THIS RECIPROCITY AGREEMENT DOES NOT SUPERSEDE INDIVIDUAL STATES REQUIREMENTS OR COMPEL ONE STATE TO SIMPLY "RUBBER STAMP" THE PERMITS OR APPROVALS OF ANOTHER.

B. Beneficial Use Determination (BUD) Protocol Acceptance

For technology evaluations following the elements of this protocol, the endorsing State partners in Illinois, Massachusetts, New Jersey, New York, Pennsylvania, and Virginia have agreed to:

1. Address technology review/approval barriers in policy and regulations that do not advance knowledge of a technology's performance or recognize innovative approaches to meet environmental protection goals;
2. Accept the performance tests/data and acknowledge the approval results of a partner's review of a technology demonstration, as appropriate, in order to reduce subsequent review and approval time;
3. Increase expertise in the applications and advantages of technologies that may have superior environmental and economic benefits in providing beneficial use of materials;
4. Apply the protocol to State-supported or funded studies, initiatives and programs for beneficial use technologies;
5. Share technology information with potential users in the public and private sectors using existing State supported programs; and
6. Monitor and evaluate the results of using this protocol, and periodically review and revise the protocol to maintain its viability.

This protocol describes a set of uniform criteria acceptable to the endorsing States. However, a specific State's requirements must be considered when applying for beneficial use in a particular

State. Each partner reserves the right to evaluate a specific application in order to satisfy an individual State's requirements.

Any State, regional or private entity interested in using the BUD protocol should contact the beneficial use program leads listed in Appendix B. States wishing to join the partnership and endorse this protocol should contact Calvin Kirby, Pennsylvania Department of Environmental Protection; contact information is provided in Appendix C.

C. What is Beneficial Use?

In the past, the safest and easiest way to manage non-hazardous RCRA solid wastes, that were not traditionally recycled, was to dispose of in a secure landfill, or by incineration. However, beneficial uses of solid wastes can provide an environmentally preferable source of raw materials, save energy, reduce greenhouse gas emissions, reduce emissions of air and water pollutants, and conserve natural resources. The beneficial use program goals are to encourage the use of non-hazardous RCRA solid wastes, provided that the uses maintain the specified State's acceptable level of risk, protect human health and the environment, and are managed in accordance with the conditions of the determination.

To put a non-hazardous RCRA solid waste, which is initially destined for a landfill, incinerator, or other disposal facility, to "beneficial use" implies that there must be some benefit to diverting it for use in another location or application. In general, for such a waste to be beneficially used it must have chemical and physical properties similar to the raw material it is replacing or, when incorporated into another product, its use must be beneficial to the final product. Also, beneficial use must not adversely affect human health or the environment. Typically, beneficial uses have one or more of the following characteristics: (1) Part of a manufacturing process to make a product; (2) Substitute for a raw material, or with other materials in a construction project; or (3) Substitute for a commercial product. (**Source:** *Association of State and Territorial Solid Waste Management Officials*)

D. Purpose of this Protocol

This Tier II guidance document provides vendors and States with general guidance on testing and administrative procedures for obtaining comprehensive testing required in order to receive beneficial use determinations for a non-hazardous RCRA solid waste as a valuable material. Since the intent of the BUD protocol is to introduce usable materials, non-hazardous RCRA solid waste will be referred to as "material" throughout the rest of this document.

The protocol was developed by surveying the beneficial use determination requirements of each participating State (as declared in statutes, regulations, and policy directives). In addition, the Association of State and Territorial Solid Waste Management Officials (ASTSWMO) and the Northeast Waste Management Officials Association (NEWMOA), which are surveying current beneficial use determination practices of respective States, were contacted for supplemental information. Finally, information from the documents referenced in the bibliography was used to develop the recommended testing methods in this BUD protocol.

E. *Who Will Use This Document?*

The two primary groups that will use this document are, 1) States participating in the TARP process; and 2) Vendors or applicant users of materials who wish to conduct business in multiple States.

States will use this document:

- To establish an approval/permitting process (Tier III protocols) for the proposed beneficial use.
- To develop a reciprocity pathway for acceptance of the proposed beneficial use.

Vendors/Applicant users of materials will use this document:

- To verify a set of environmental and operational data for the proposed beneficial use, in order to demonstrate that its use will meet regulatory criteria.
- To verify, where appropriate, the environmental and operational performance of the technology used to produce the material for beneficial reuse, including its ability to meet regulatory criteria.
- To demonstrate the marketability, or project effectiveness, of the proposed beneficial use.

F. *BUD Approval Criteria*

Certain materials intended for beneficial use may be self-implementing, more readily approved, or statutorily exempt from regulation when beneficially used, or pre-approved for beneficial use with or without conditions, and thus make it easier to obtain a BUD. However, the various States may have varying conditions and standards for pre-approved materials, and obtaining a BUD is not guaranteed. Appendix A, of this document, identifies States that have made determinations regarding the use of certain materials. Therefore, an applicant can contact the respective State to obtain information about a specific material. This can save considerable effort, since applicants can now directly contact the respective States for which approvals of a BUD are listed, and compare the manner in which the material is regulated by the environmental agency of the Home State.

During a BUD application process, the participating TARP States tend to ask for the following information about proposed beneficial uses:

1. What is the source of the material under review?
2. How is the material to be processed, if necessary, to make it acceptable for reuse?
3. Where and how is the material to be reused?
4. How will the material be properly managed at the end of its useful life?

A complete submittal will address these basic questions. More specific guidance for ensuring complete submittals follows in Section III of this guidance document.

II. ADMINISTRATIVE PROCESS

A. Overview

Defining comprehensive testing for all future beneficial use applications is not possible due to the number of materials and potential uses for them. In order to develop comprehensive testing, based upon the hazards of concern and the exposure pathways, the material and beneficial use must be known. As a result, the beneficial use Tier II protocol contains administrative procedures for development of comprehensive testing of each unique beneficial use application. These administrative procedures rely on the continued partnering of the TARP States in the spirit of cooperation to accomplish the agreed upon items identified in Section I (B) of this document (BUD Protocol Acceptance).

This section contains the outline of the administrative process the TARP States will use in order to develop comprehensive testing for various unique beneficial use determinations (BUDs). It provides several scenarios for TARP States coordination. Specifically, it describes the role that a Host State should take in response to an application for a material use and the response of the other TARP States in assisting the applicant seeking the BUD approval. The Host State is defined as the State in which the applicant originally applies for a BUD approval.

The three basic scenarios that require different levels of coordination among the TARP States are as follows:

1. When most or all States have extensive experience with the material and may have already issued an approval for the proposed use. Specific Tier II requirements can readily be prepared within a short time period.
2. When a few States have issued approvals for the use of the material, but enough information exists and is available among the TARP States to assist in developing application requirements and standards for approval. The group can prepare specific Tier II requirements after all States have established application requirements and standards. The coordination to develop the specific Tier II requirements is internal to TARP and would take longer to complete than the first scenario.
3. When none of the participating TARP States have issued approvals for the proposed material use, and sufficient information is not available to develop application requirements and standards. Here, the TARP States would need to go outside the group for assistance in developing application requirements and standards for approval, which could include partnering with public or private institutions to conduct the necessary research, thus making it a lengthy process. However, through TARP, the resources required, to develop the requirements and standards can be shared, thus removing the burden from the Host State.

The Tier II guidance document results in a vendor/applicant user knowing, after submitting the preliminary information, which of the TARP States have existing application requirements and approval standards, and those that are interested in pursuing standards for use of the material. Vendor/applicant users will also know the relative length of time it will take to develop application requirements and standards for approval. This would enable the vendor/applicant users to decide to, do business with the TARP States where a speedy approval is more likely or, start with those States and work with the other TARP participants to develop Tier II requirements for all States interested in using the material. The Tier II is a working document

and is not finalized until specific project boundaries have been defined and specific Tier II application requirements can be compiled.

This process may or may not achieve complete reciprocity through a Tier III regulatory approval protocol as originally envisioned by the TARP States. The Tier III aspect of this process is handled by the individual regulatory review within the respective State in which the BUD application is filed.

B. Steps of Application Process [See TARP BUD Review Flow Chart on Page 7]

- 1) Applicant Submits Preliminary Application to Host State
 - a) The preliminary application should contain information describing the technology or material and use, the performance claim, and other background information sufficient for the State reviewer to determine which tests, standards, procedures, and results are applicable.
- 2) Host State Screens Application
 - a) If the application is for the Host State only, then the Host State determines the application requirements, unless the Host State needs assistance from the other TARP States.
 - b) If the application is for multiple States, then the Host State distributes preliminary application to the applicable States from which an approval is sought for using the material. The Host State also coordinates the efforts of the other TARP States that are interested in developing a specific Tier II document for the use of the proposed material.
 - c) TARP States requested for inclusion by the applicant respond to the Host State with their application requirements, if readily available. Similarly, Host State must also be notified if no application requirements are available.
 - d) The Host State may accept assistance from other TARP States to develop the respective Tier II document, even though these States were not requested for inclusion in the application.
 - e) The participating TARP States determine the level of coordination, and proposed time frame for developing the specific Tier II requirements. Action items would be developed on a case by case basis.
- 3) Development of Specific Tier II and Tier III Documents
 - a) TARP States develop the specific Tier II document that contains the application requirements.
 - b) Host State requests that the applicant submit the application requirements, as agreed upon by the participating TARP States.
 - c) The Host State also notifies applicant of TARP States that are involved in developing the Tier II and Tier III protocols, and the expected time frame for completing the documents.

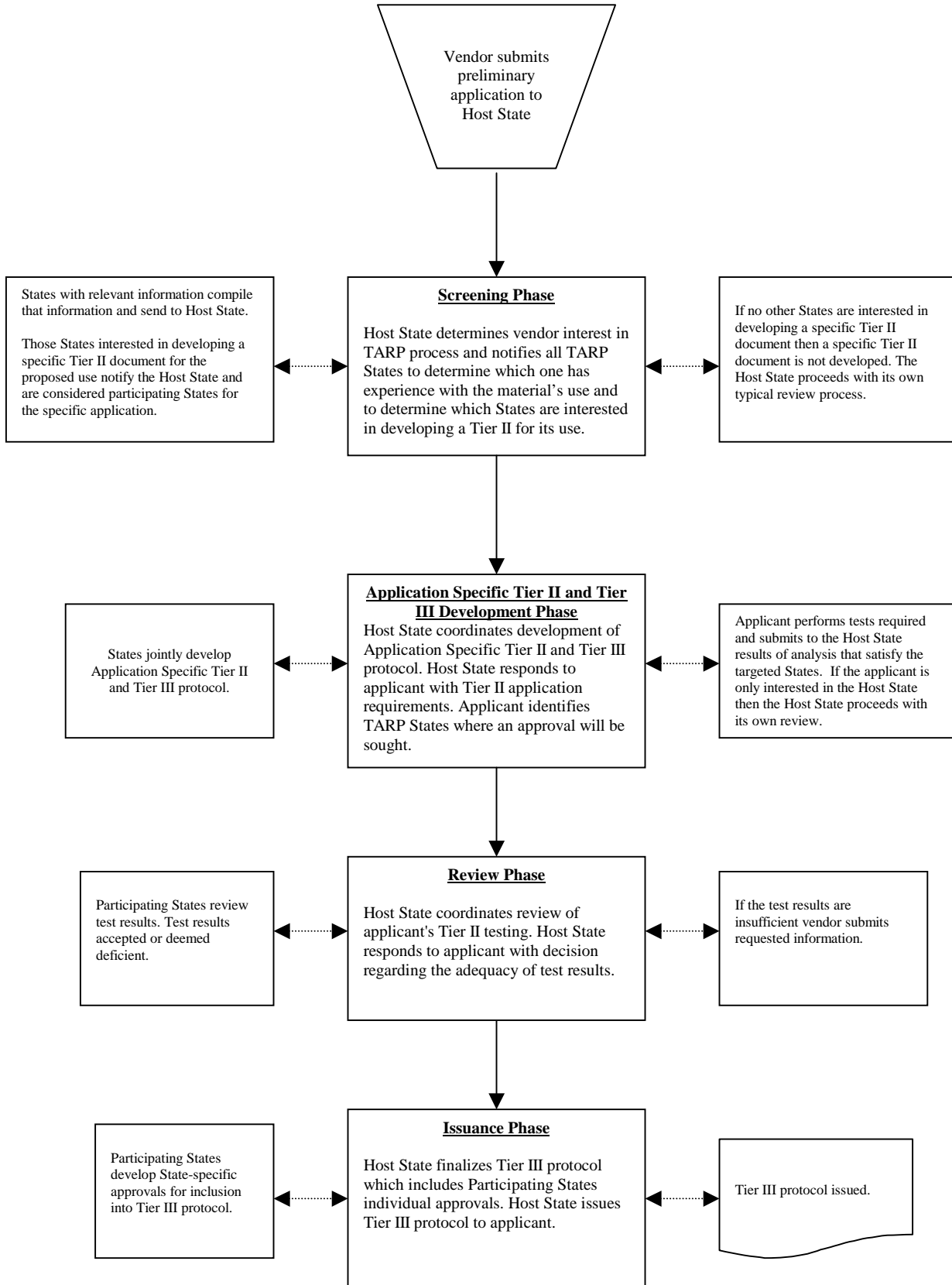
4) Review of Test Results

- a) Applicant performs tests on the material to satisfy the application requirements, and submits results to Host State.
- b) All participating TARP States review applicant's test results.
- c) Host State requests for any deficient information that is required to satisfy all of the application requirements. If deficient items are not corrected, application for the use of the material may be denied or approved with conditions.

5) Issuance of Tier III Protocol

- a) Upon satisfying the application requirements, the TARP States prepare State-specific approvals for inclusion into Tier III protocol.
- b) Host State issues Tier III protocol to applicant.

TARP BUD Review Flow Chart



III. GENERAL GUIDANCE

This section outlines the validation/verification requirements related to BUD approvals; additional information will be requested if the application is deficient.

A. *Goals and Objectives*

The BUD application should clearly and concisely define the goals of the beneficial use in quantitative terms to the extent possible. The application should establish what the procedures are for characterizing the material, the data that has been or will be generated, the test methods that have been or will be used to evaluate the data, and the performance standards that the material will meet prior to beneficial use. Basically, the following questions should be answered before submitting a BUD application:

- *What is the material you want to use and how do you want to use it?*
- *How will you demonstrate that the material is an effective product or substitute for a commercial product or commodity?*
- *How will you demonstrate that the material is protective to public health, safety and the environment?*

B. *Material /Technology Description*

A beneficial use determination may have varying functions: 1) To permit the use of a material; 2) To allow technology-specific processing of a material; or 3) To permit the end product of a technology that uses a material as a feedstock. The submitted application should address whether the approval is for either a material reuse application or a technology-based application.

1. *Material Reuse Application*

When the applicant is proposing reuse of a material, which does not require washing, physical separation, processing, etc. prior to use, the following must be demonstrated:

- *How is the material an effective substitute for the replaced product, or feedstock?*
- *How does the new product serve a specific need?*

Therefore, the applicant's material should be described, both physically and chemically, to include at a minimum, the following information:

- a) Underlying scientific principles of the beneficial use proposal.
- b) Advantages of the proposed beneficial use, its benefit to the product, and the material as an equally effective substitute for an analogous raw material or fuel.

- c) Applicable performance requirements of the product feedstock or commodity, and the method of converting the material to be beneficially used to meet performance standards and goals of its intended end use.
- d) Significant modifications and technical advancements inherent in the beneficially used material versus the virgin material traditionally used.
- e) Performance impacts versus use of analogous raw material or fuel.
- f) Generation, handling, removal and disposal of discharges, emissions, and waste by-products in terms of mass balance, maintenance requirements, and cost for the beneficially used material.
- g) Assessment of the environmental benefit to all media, as well as the negative environmental impacts to all media. This includes soils, groundwater, surface water, wastewater, air and sludge/residue. The discussion should include, as appropriate, the multimedia impacts and the transfer across media.
- h) End-markets for the material to be beneficially used. The applicant must demonstrate that there is a known or potential market for the intended use of the solid waste under review and of all proposed products by providing one or more of the following:
 - i. A letter of intent to purchase the proposed product or to have the material under review used in the manner proposed;
 - ii. A description of how the proposed product will be used;
 - iii. A demonstration that the proposed product complies with industry standards and specifications for that product; or
 - iv. Other documentation that a market exists for the proposed product. This can include a contract to purchase.

2. Technology-Based Application

When the applicant is proposing a process, which transforms the material, then the condition that needs to be demonstrated is:

How is the material to be processed, to make it acceptable for reuse?

The technology-specific processing conditions or end product of a technology, and the technology components and all process units should be described completely. The information should include the following:

- a) Processing technology specifications, such as physical constraints and limitations, transportability, durability, energy requirements, and consumable materials.

- b) Construction specifications, process configurations and operational characteristics.
- c) Generation, handling, removal and disposal of discharges, emissions, and waste by-products in terms of mass balance, maintenance requirements, and cost for the beneficially used material.
- d) Special licensing or hauling requirements associated with the operation or maintenance of the beneficial use technology and end product of the technology (such as solid waste management facility's permit or waste transporter's permit).
- e) The environmental benefit and impact to all media associated with the operation or maintenance of the beneficial use technology. This includes soils, groundwater, surface water, wastewater, air and sludge/residue. The discussion should include, as appropriate, the multimedia impacts and the transfer across media.

C. Site Description

The application should contain information regarding the origin of the material, and the conditions at the site, which may have impacted the material proposed for beneficial use. Similarly, the destination of the material should also be discussed. In instances of multiple location end-uses, certification that the proposed end-use is protective of environmental and public health, without specific information related to each end-use location, will be satisfactory.

The destination of the material should include:

- a) A description of the history of use and ownership of the site, as applicable.
- b) The quantity of material proposed to be beneficially used at the site.
- c) A key map and site plan map. The format for these maps should be GIS compatible as appropriate.
- d) A discussion of the adjoining properties, including setback distances, and nearest residential and environmentally sensitive areas.
- e) The geology and hydrogeology, soil types, and surface hydraulics at the site, as applicable.
- f) A description of run-on and run-off controls or engineering controls.
- g) The range of concentrations, mass loading for each contaminant present at the site (in instances of soils reuse from contaminated sites), and the media physical/chemical description, including analytical data.

D. Supporting Technical, Scientific and Engineering Data

This section should include the scientific, engineering and technical claims underlying the proposed beneficial use, performance and reliability of the material, and information to demonstrate that the reuse is protective of the public health and the environment.

Engineering Data Requirements

The material must be demonstrated to perform as an effective substitute for a product or commodity by meeting the standards or specifications for the replaced products or feedstock. Therefore, from an engineering standpoint, the following information should be provided:

- a) A test plan outlining sampling and analysis, with respect to the Sampling Plan, Analytical Plan, and Quality Assurance, Quality Control of this Guidance Document.
- b) Criteria for determination of acceptable performance must be established.
- c) Data demonstrating that the materials and engineering properties of the proposed materials or the proposed product containing the recycled material are similar to reference materials or meet appropriate standards. If this data is not available, the application should include a description of additional testing or field demonstration, which will be conducted to provide the data.

Environmental Health and Safety Data Requirements

The material must be demonstrated to be protective of public health, safety and the environment. Consequently, the following information should be provided:

- a) A test plan outlining sampling and testing requirements, utilizing the guidance in Section G (Sampling Plan), Section H (Analytical Plan), and Section I (Quality Assurance, Quality Control) of this Guidance Document.
- b) Performance criteria for decision making, including identification of and justification for selection of constituents and performance standards.
- c) Data supporting claim that the proposed and reference materials are similar, or within acceptable ranges for organic and inorganic composition and leaching, particulate release, and organic volatilization. Leaching, particulate release and volatilization during processing should also satisfy this standard.
- d) Potential for leaching, particulate release and volatilization releases during subsequent reuses, and data that demonstrates that these releases meet

appropriate criteria, to the extent that subsequent reuses can be reliably predicted.

- e) The range and concentrations of contaminants which may be present in the material to be beneficially used.
- f) The effects of varying ranges and concentrations of contaminants on the performance and reliability of the beneficially used material.
- g) Environmental control mechanisms or countermeasures to ensure protectiveness of the public health and the environment in response to any variation in range and concentrations of contaminants in the material to be beneficially used.

If these data are not available, the application should include a description of additional testing or demonstrations, which will be conducted to satisfy these requirements.

If the material to be beneficially used is derived from a contaminated site, and if land application of the material is proposed, the applicant should fully characterize the contaminants based on the applicable Soil Cleanup Criteria, and apply standards enumerated in the applicable technical requirements for site remediation.

Standard Testing

The following list contains commonly requested tests and information used to characterize a material. Actual testing and other informational requirements are dependent upon the hazards associated with the material or processing of it.

a) Testing Requirements

- SW-846 METHODS SUCH AS:
 - TCLP (USEPA Test Method 1311)
 - SPLP (USEPA Test Method 1312)
 - TOTAL METALS ANALYSIS (USEPA Test Method 6010B)
 - DIOXIN/FURAN ANALYSIS (USEPA Test Method 1613)
- TOTAL ORGANIC ANALYSIS, Including, on a dry weight basis:
 - PCBs (USEPA Test method 8082)
 - VOCs (USEPA Test Method 8260B)
- Pesticides (USEPA Test Method 8081A)
- LEACHING BEHAVIOR, INORGANICS – DUTCH TOTAL AVAILABILITY LEACHING TEST (NEN 7341)
- LEACHING BEHAVIOR, OF SOLUBLE ORGANICS – MODIFIED DUTCH TOTAL LEACHING TEST (NEN 7341) USING APPROPRIATE USEPA METHODS
- MONOLITHIC INORGANIC LEACH TEST USING ASTM C 1308 OR DUTCH TANK LEACH TEST (NEN 7345), OR EQUIVALENT

- MONOLITHIC ORGANIC LEACH TEST USING MODIFIED ASTM C 1308 OR DUTCH TANK LEACH TEST (NEN 7345), OR EQUIVALENT USING APPROPRIATE USEPA METHODS
- COLUMN LEACH TEST USING ASTM D 4874 or DUTCH COLUMN TEST (NEN 7343) or EQUIVALENT
- NEUTRAL WATER (ASTM 39876)

b) Requested Information

- WASTE CLASSIFICATION
- MATERIAL SAFETY DATA SHEETS
- SOIL CLEANUP CRITERIA

E. *Operational Conditions and Parameters*

This section should include the following information:

- a) The range and concentrations of contaminants, which may be present in the material to be beneficially used.
- b) The effects of varying ranges and concentrations of contaminants on the performance and reliability of the beneficially used material.
- c) Environmental control mechanisms or countermeasures to ensure protectiveness of the public health and the environment in response to any variation in range and concentrations of contaminants in the material to be beneficially used.

F. *Health and Safety Plan*

This section should include the following information:

- a) An assessment of the potential hazards and risks associated with the proposed beneficial use.
- b) Written procedures on responding to malfunctions, spills or other problems associated with the proposed beneficial use.
- c) Outline of required training to operate the technology involved in the proposed beneficial use.

G. Sampling Plan

For this and the following three sections, refer to the Tier I Guidance Document for more detail on requirements and suggestions.

The sampling plan should include provisions for a sufficient number and volume of samples to satisfy objective data quality. The following information should be provided:

- a) Sampling procedures conforming to guidelines such as those contained in the following:

USEPA Publication SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods

Chapter 7 of the USEPA Guidance Document 230/02-89-042 Methods for Evaluating the Attainment of Cleanup Standards

NJDEP Field Sampling Procedures Manual (where applicable)

NOTE: Any deviations from these established sampling/testing methods must be approved by the TARP participants prior to sampling/testing, otherwise the results may be rejected.

- b) Description of sampling devices, particularly in terms of physical and chemical comparability with the sampled media and constituents sampled, and the sampling method.
- c) Depth and location of sampling within ranges.
- d) The sampling equipment or instrumentation should be described in terms of physical and chemical compatibility with the sampled media and constituents to be sampled.
- e) Procedures for sample retrieval, processing and handling, methods for the exchange of sampling containers, site and equipment inspection frequencies, operating and calibrating equipment, and environmental data collection.
- f) The sampling should ensure that a sufficient amount samples with adequate volumes to satisfy the requirements of analytical and data quality.
- g) Physical requirements for sampling the material and operator requirements should be described.
- h) Cross-contamination potential in sampling and any required decontamination process.
- i) Documentation of field activities should include:
 - i. Field log documentation.

- ii. Sample preparation procedure.
 - iii. Sample location.
 - iv. Field SOP.
 - v. Storage and holding times.
 - vi. Chain of custody.
- j) References for the methodologies used to select beneficially used material quality and analytical methods.
 - k) References for the third-party analytical lab that will provide quality control for analyses performed by the technology developer.

H. Analytical Plan

The analytical plan should describe the methods that will be used to test the samples collected, in order to ensure the consistency and integrity of the testing to meet the data quality objectives. Information that is submitted should documents the following:

- a) An appropriate State or Federal generated protocol (such as SW 846) or other acceptable protocol such as Standard Methods for the analytical activity, or applicable Soil Cleanup Criteria, is being used. If an acceptable protocol is not previously defined for the test method, the applicant should submit a Standard Operating Procedure (SOP).
- b) Methods validation will follow appropriate EPA guidance. The analytical plan should ensure the consistency and integrity of the testing to meet the data quality objectives.
- c) A matrix of the analytical technique and procedures shall be described.
- d) The laboratory used is in compliance with ISO Guide 25, NELAC standards, or is a State and/or Federal certified lab under a laboratory accreditation program or other accrediting body.
- e) The laboratory is independent of the beneficial use applicant.

I. Quality Assurance / Quality Control (QA/QC) Plan

Quality assurance practices are necessary to ensure data quality and integrity. The QA/QC plan, as recommended in the Tier 1 Guidance, should detail the following quality parameters:

- a) Representativeness: The samples that are taken should be a reasonable representation of the quantity of material to be beneficially used.
- b) Comparability: The data should be comparable to a reference or baseline method for the beneficial use demonstration.

- c) Completeness: The measure of the percent of data collected compared to the amount that was expected, or the proportion of valid acceptable data that is generated.
- d) Accuracy: The measure of how close in average the values are to the true value.
- e) Precision: The degree of mutual agreement among individual measurements of the material to be beneficially used and/or the constituents of concern within that material.

The QA/QC plan should describe the calibration procedures and QC checks for the laboratory testing including initial calibration procedures, continuing calibration procedures, method blanks, spike samples, laboratory control samples, performance evaluation methods and duplicate samples.

The laboratory should verify the completeness of data forms and data acquisition. The laboratory should review standard operating procedures, formulas, models, and software used for calculations; inspect laboratory logbooks and data sheets to verify accuracy, completeness, and adherence to the specific test plan or analytical methods protocols; and assess equipment calibration and quality control data.

Laboratory staff must verify that all instruments are functioning according to manufacturer standards and that detection limits have been met. All raw sample data should be reported or be available upon request.

The application should include references for the third-party analytical lab that will provide quality control for analyses performed by the technology developer.

J. *Data Management*

Describe the procedures that will be followed during data reduction, validation and reporting. This section should describe the statistical procedures that will be used to evaluate and report the data.

BIBLIOGRAPHY

Six State MOU Interstate Reciprocity for Technology Acceptance, Tier I Guidance, April, 1999

United States Environmental Protection Agency, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication SW-846

United States Environmental Protection Agency, Methods for Evaluating the Attainment of Cleanup Standards, guidance document 230/02-89-042

New Jersey Department of Environmental Protection, New Jersey Department of Environmental Protection, Field Sampling Procedures Manual, May, 1992

APPENDIX A

Material Types & Uses

Material Type Uses	Aggregate (Asphalt-Encapsulated)	Aggregate (Concrete-Encapsulated)	Aggregate (Non-Encapsulated)	Bedding (Animal)	Cement	Compost	Construction Use/Material	Dust Palliative	Erosion Control	Fertilizer	Fill (Structural)	Filler (Concrete - Encapsulated)	Fuel	Gypsum	Landfill	Mulch
Ash (Coal Bottom)	NY, IL, NJ, VA	NY, IL, NJ, VA	VA, NJ, MA ¹ , PA ¹		NY, IL, NJ						NY, IL, VA	NJ, VA			NJ	
Ash (Coal-Fly)	IL, NJ, VA	IL, NJ, VA	VA, NY, IL, MA ¹ , PA ¹		NY, NJ			NY			NY, VA	NY		NY, NJ		
Ash (Wood)		MA				MA				VA, NY, NJ*						
Ash (Waste to Energy)		MA				MA	PA, NJ*									
C&D	IL	IL	NY						IL		NY, IL, NJ*				MA, IL, NJ	
Food ⁵						NY										
Foundry Sand							PA				NJ*				MA	
Foundry or Blast Furnace Slag							PA				NJ*					
Glass (Uncont.) ³	NY		NY													
Lime – Drinking Water Treatment						PA										
Metal Shredder Residue															NJ, MA ²	
Paper (News-Uncont.)				NY, IL, NJ												
Pulp & Paper Mill Waste				NJ*		MA, PA									MA	
Roofing Shingles																
Sediments (Stormwater)			MA, NY								NJ*				MA, NJ*	
Septage ⁶						NY										

Material Type Uses	Aggregate (Asphalt-Encapsulated)	Aggregate (Concrete-Encapsulated)	Aggregate (Non-Encapsulated)	Bedding (Animal)	Cement	Compost	Construction Use/Material	Dust Palliative	Erosion Control	Fertilizer	Fill (Structural)	Filler (Concrete - Encapsulated)	Fuel	Gypsum	Landfill	Mulch
	Sludge (WWTP) ⁶						MA, NY, PA (WTP only)									
Soil (Contaminated)	MA, PA		NY				PA				NJ ⁸				MA, NJ	
Soil (PCS – Petroleum)	NY										NJ ⁸				NJ	
Soil (Street Sweepings)			MA, NY								NJ ⁸				MA, NJ ⁸	
Soil (Uncont.) ⁷			NY													
Steel Slag		NJ ⁸	NJ ⁸		NJ ⁸		PA				NJ ⁸					
Tire (Whole, Chips, Shreds)	IL		MA, NY				PA						NY		MA, NJ	
Wood (Unadulterated) ⁵				NY		NY			NY				NY		IL	NY, IL
Yard Waste ⁵						MA, NY, PA ⁴ , IL				NY						

¹MA, both fly and bottom ash statutorily exempt in manufactured products, construction fill and sand blast; PA, permit exemption for coal ash

²Needs hazwaste conditional declassification

³MA has BUD PGA in construction; NJ defers to local codes, as material meets definition of clean fill

⁴Use governed under Yard Waste Composting Guidelines

⁵NJ regulates as a recyclable material in N.J.A.C. 7:26A

⁶NJ defers to Federal 503 Regulations

⁷Not regulated in NJ

⁸Regulatory exemption

⁹Conditions apply to these BUDs

Notes:

Aggregate (Asphalt-Encapsulated): in Hot/Cold-Mix Asphalt or Roofing Shingles as aggregate/filler material

Aggregate (Concrete-Encapsulated): in Concrete or Flowable Fill

Aggregate (Non-Encapsulated): includes Road Base, Sub-base, Drainage, and Fill (except Structural Fill)

Bedding (Animal): includes farm and caged animals and Kitty Litter

C&D: recognizable, uncontaminated concrete and concrete products, asphalt pavement, brick, glass, soil, and rock

Cement: the use of material as a substitute for a mineral in the production of cement (i.e. substitute for alumina, iron, silica, red shale)

Compost: includes Compost Amendments, and Bulking Agents for Compost

Dust Palliative: means Dust Suppressant

Filler (Concrete-Encapsulated): means fine aggregate encapsulated in Concrete or Flowable Fill

Landfill: means any use at a landfill including Cover (Daily, Immediate, Final), Layers (Barrier Protection, Gas Vent, Vegetative (Topsoil)), Fill, Grading/Contouring Material, Closure, Road, Berm

Mulch: includes Landscaping Material

APPENDIX B

Beneficial Use Determination State Agencies Contacts

These agencies may be contacted for information regarding each State's Beneficial Use determination process.

Illinois

Illinois EPA
Bureau of Land #33
Permit Section
1021 North Grand Avenue East
Springfield, IL 62794-9276
Phone: (217) 524-3300
Website: www.epa.state.il.us

Massachusetts

Massachusetts Department of Environmental Protection
Business Compliance Division
Regulatory Standards and Outreach
One Winter Street
Boston, MA 02108
Phone (617) 292-5967
Website: www.state.ma.us/dep

New Jersey

New Jersey Department of Environmental Protection
Bureau of Resource Recovery and Technical Programs
401 East State Street
Trenton, NJ 08625-0410
Phone (609) 984-6985
Website: www.state.nj.us/dep

New York

New York State Department of Environmental Conservation
Bureau of Waste Reduction
50 Wolf Road
Albany, NY 12233
Phone (518) 457-6072
Website: www.dec.state.ny.us

Pennsylvania

Pennsylvania Department of Environmental Protection
Bureau of Land Recycling and Waste Management
Division of Municipal and Residual Waste
14th Floor, RCSOB
PO Box 8472
Harrisburg, PA 17105-8472
Phone (717) 787-7381
Fax (717) 787-1904
Website: www.dep.state.pa.us

Virginia

Larry Gavan
Stormwater Program Manager
Virginia Department of Conservation and Recreation
203 Governor St.
Richmond, VA 23219-2094
Phone (804) 786-4508
E-Mail lgavan@dcr.state.va.us

APPENDIX C

TARP Program Co-Leaders

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Calvin Kirby
PA DEP, Office of Pollution Prevention & Compliance Assistance
400 Market St
Harrisburg, PA 17105-8772
Phone (717) 772-5834
Fax (717) 783-2703
Email: kirby.calvin@dep.state.pa.us