

NUMBER: DSW 0400.007

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BENEFICIAL USE OF NON-TOXIC BOTTOM ASH, FLY ASH AND SPENT FOUNDRY SAND, AND OTHER EXEMPT WASTES

PURPOSE

This policy was developed to facilitate the beneficial use of non-toxic bottom ash, fly ash, and spent foundry sand, and other exempted wastes, and to assure that such uses do not cause water pollution.

SCOPE

This policy sets forth beneficial uses of non-toxic bottom ash, fly ash, and spent foundry sand, and other exempted wastes. It describes notification requirements, design and operating standards, and siting criteria.

APPLICABILITY

This policy applies only to that non-toxic bottom ash, fly ash, non-toxic foundry sand, and other exempted wastes used or proposed to be used for a particular beneficial purpose in lieu of a competing raw material or finished product. This policy does not apply to residual or non-toxic waste disposal, or indiscriminate dumping/filling. This policy does not address construction or permit-to-install requirements for wastewater treatment as addressed in O.R.C. Chapter 6111, or permit to drill or permit to operate requirements of O.R.C. Chapter 6111 and Chapter 3745-34 of the O.A.C.

Non-toxic bottom ash, fly ash and spent foundry sand are exempt from regulation as hazardous or residual solid wastes and are subject to Ohio's air, land, and water pollution laws, this policy and Policy Number 0400.028 (for disposal). Residual wastes, as defined in O.A.C. Rule 3745-34-01, may be beneficially used in accordance with this policy.

Generators of waste should actively explore and implement all feasible alternatives to reduce the volume and toxicity of wastes, as well as on-site recycling, or recovery, before evaluating potential beneficial uses of the material.

Proposed uses of iron and steelmaking slag are not addressed by this policy. A separate policy covers this subject. Underground injection is not addressed by this policy and requires permits under O.R.C. Chapter 6111 and O.A.C. Chapter 3745-34.

Refer to Policy Number 0400.028 for design and construction of a disposal facility for non-toxic fly ash, bottom ash and spent foundry sand.

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APPROVAL OF PLANS

Beneficial use of a waste covered by this policy shall not require a permit from the Agency, unless otherwise noted, if such use complies with the provisions of this policy. This policy does not provide any exemption from the requirements of O.R.C. 611.043 and rules promulgated thereunder.

Proposals for land application (e.g. for nutrient benefits, soil conditioning, agronomic liming) require a plan approval from the Ohio EPA (except use in composting process and as a soil blending ingredient, as described by this policy). Low volume, experimental projects for land application may fall under a beneficial use Category 4 (see below).

DEFINITIONS

1. "Non-Toxic Bottom Ash, Fly Ash and Spent Foundry Sand" means bottom ash and fly ash generated by fuel burning operations which burn as fuel primarily coal, and spent foundry sand generated from foundry operations, where the leachate (from either an acid or deionized water extraction of the material, as determined in accordance with the testing procedures described in this policy) does not exceed thirty times the levels* specified in O.A.C. Rule 3745-81-11(B) for any parameter listed in the following table.

<u>Parameter</u>	<u>3745-81-11(B) Ohio Drinking Water Standards</u>	<u>Non-toxic Criteria = 30x Standard</u>
	mg/L	mg/L
Arsenic	0.05	1.5
Barium	2.00	60.0
Cadmium ⁺	0.005	0.15
Chromium	0.1	3.0
Lead	0.05	1.5
Mercury	0.002	0.06

* For a waste to be considered non-toxic, the selenium concentration in the leachate may not exceed 1 mg/L.

In addition, spent foundry sand leachate shall not contain:

phenol exceeding 10.5 mg/L
 cyanide exceeding 0.6 mg/L
 fluoride exceeding 12.0 mg/L

2. "Beneficial Use" means the environmentally sound and technically feasible use of waste materials as products or raw materials in

lieu of a competing product or raw material in accordance with the conditions outlined in this policy or in accordance with conditions specified by the Ohio EPA. Beneficial use is not disposal and does not normally require a permit to use the material from the Ohio Environmental Protection Agency. Beneficial use status does not provide exemption from permit-to-install requirements for installation or operation of waste disposal systems. Beneficial use status does not provide exemption from permit to drill or permit to operate requirements for installation or operation of underground injection control wells. The term does not include valley fills, or the use of waste covered by this policy to fill open pits from coal or industrial mineral mining.

3. "Other Exempt Wastes" means wastes that are exempted from Solid Waste Regulation (O.A.C. Chapter 3745-27) or Residual Waste Regulation (O.A.C. Chapter 3745-30), not including non-toxic fly ash, bottom ash and spent foundry sand. Wastes can be exempted by definition (in the Solid Waste Rules), or by beneficial use in compliance with O.R.C. 6111.

4. "Category 1" means beneficial uses, indicated with an "x" in the table on Page 5 of 12, that do not require Ohio EPA review or notification. "General Requirements" apply.

"Category 2" means beneficial uses, indicated with an "o" in the table on Page 5 of 12, where "Isolation Distances," "Other Criteria," and "Annual Report" apply. Examples: certain volumes of waste as structural fill; pipe bedding, roads/parking lots, and borrow pits when metals levels are not less than 5x Drinking Water Standards (DWS).

"Category 3" means beneficial uses, indicated with an "xx" in the table on Page 5 of 12, of certain volumes of waste as structural fill, where "Isolation Distances," "Other Criteria," and a "30-day Prior Notification to Ohio EPA" apply.

"Category 4" means beneficial uses not categorized or listed in this policy, where a 60-day prior notification of Ohio EPA is required. Ohio EPA consent is required to proceed.

MATERIAL TESTING REQUIREMENTS

1. Sampling Methods: A representative sample of waste shall be obtained by forming a composite of six (6) to twelve (12) discrete samples. The sampler should employ all reasonable measures, such as sampling at different times or conducting

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random sampling of a representative pile, to ensure a representative composite is obtained.

2. Toxicity Testing and Analysis: Representative samples of waste should be characterized using the Toxicity Characteristic Leaching Procedure (TCLP, USEPA Method 1311). The TCLP acid extraction test or a modified TCLP extraction test (water solution specified in ASTM D 3987-85) may be used. The solutions may each be used for specific parameters as appropriate to utilize characterization knowledge from past testing. The solution chosen for a parameter in the initial test shall be used for that parameter in all subsequent tests of the material. For the purpose of obtaining an extract which will be analyzed for phenol, cyanide, fluoride, specific conductance, chlorides, sulfates, total dissolved solids, acidity, alkalinity, and pH, the water solution must be used.

3. Number of samples: Three initial test results for each parameter (listed below, Item 4) are required to show compliance with the non-toxic criteria, where applicable. If the beneficial use is in Category 4 (as described on pages 6, 10 and 11), the results shall be submitted to Ohio EPA Division of Surface Water with the beneficial use proposal.

Alternatively, a statistical procedure, specified in SW-846 (USEPA's TEST METHODS FOR EVALUATING SOLID WASTES), may be used where a larger data base is available which is representative of the material (e.g. monthly analysis from the preceding 12 months), and where the testing and analysis criteria given in paragraphs 1 and 2, above, were used. The concentration of a parameter shall then be based on the upper limit of the 80% confidence interval for the test results.

Proposed uses of other exempt wastes should use the same procedure, and results may be compared to the non-toxic criteria for ash and sand. Results of other exempt waste analyses may also be compared to the criteria for a "Class III Residual Waste" (O.A.C. Chapter 3745-30) when other constituents (above the seven metals) are present.

4. Parameters: The solution must be analyzed for the following parameters: acidity, alkalinity, aluminum, arsenic, barium, cadmium, chlorides, chromium, copper, fluoride, iron, lead, manganese, mercury, pH, selenium, specific conductance, sulfates, total dissolved solids, vanadium, and zinc. For proposed uses of other exempt wastes, an organic or dioxin analysis of the simulated leachate, or a chemical analysis of the material, may be required on a case-by-case basis.

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5. Additional testing for continued beneficial uses: At a minimum, annual tests must be performed on the materials. In general, the annual analyses need not be submitted to Ohio EPA, but shall be kept for at least five years at the generating facility. The results shall be available to Ohio EPA upon request.

Any result which exceeds the non-toxic criteria for bottom ash, fly ash, and spent foundry sand must be reported immediately to the Ohio EPA, Central Office, Division of Surface Water, Permits Section.

POLICY

Non-toxic bottom ash, fly ash, and spent foundry sand, and other exempted wastes may be beneficially used for the following applications without a wastewater or solid waste permit to install or permit to discharge. Notification of Ohio EPA is only required where specifically stated.

TYPE OF MATERIAL → TYPE OF BENEFICIAL USE (See definitions)	RW			NON-TOXIC AND PHENOL 10.5 mg/L CN 0.6 FL 12.0 *			20x DWS AND PHENOL 7.0 mg/L CN 0.4 FL 8.0 *			10x DWS AND PHENOL 3.5 mg/L CN 0.2 FL 4.0 *			5x DWS AND PHENOL 3.5 mg/L CN 0.2 FL 4.0 *			DWS AND PHENOL 3.5 mg/L CN 0.2 FL 4.0 *		
	FA	BA	FS	FA	BA	FS	FA	BA	FS	FA	BA	FS	FA	BA	FS	FA	BA	FS
Manufacturing another product	X		X	X		X	X		X		X	X		X		X		X
Stabilization/solidification of other waste (for disposal)	X		X	X		X	X		X		X	X		X		X		X
In composting process	X		X	X		X	X		X		X	X		X		X		X
Subject to procurement guidelines	X		X	X		X	X		X		X	X		X		X		X
With ODNR approval	X		X	X		X	X		X		X	X		X		X		X
Anti-stick agent/road surface prep.			X			X			X		X			X		X		X
Soil blending ingredient			X			X			X		X			X		X		X
Daily cover @ landfill			X			X			X		X			X		X		X
Structural fill							XX (600-30,000 TONS) O (< 600 TONS)									XX (>30,000 TONS) O (600-30,000 TONS) X (<600 TONS)		
Pipe bedding							O		O		X		X	X		X		X
Roads/parking lots							O		O		X		X	X		X		X
Commercial uses (general)											X ¹		X ¹	X ¹		X ¹		X ¹
Generator give-away																X ²		X ²
Borrow pits							O		O		O		X ¹	X ¹		X		X

FA - FLY ASH; BA = BOTTOM ASH; FS = SPENT FOUNDRY SAND; RW = RESIDUAL WASTE.

NOTE: PHENOL, CYANIDE AND FLUORIDE CRITERIA ONLY APPLY TO SPENT FOUNDRY SAND.

X CATEGORY 1 = NO OHIO EPA REVIEW OR NOTIFICATION.

O CATEGORY 2 = ANNUAL REPORT; ISOLATION DISTANCES, OTHER CRITERIA.

XX CATEGORY 3 = 30-DAY PRIOR NOTIFICATION TO OHIO EPA; ISOLATION DISTANCES, OTHER CRITERIA.

X¹ VOLUME LIMITATION (<200 TONS PER PROJECT); ISOLATION DISTANCES.

X² RECEIVER NOTIFICATION.

ALL BENEFICIAL USES SUBJECT TO THE GENERAL REQUIREMENTS LISTED ON PAGE 7. USES NOT CATEGORIZED OR LISTED ARE CATEGORY 4, i.e. 60-DAY PRIOR NOTIFICATION WITH OHIO EPA CONSENT.

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BENEFICIAL USES

Manufacturing another product: The use as a raw material in manufacturing another final product, e.g., including, but not limited to, grout, flowable fill, lightweight aggregate, concrete block, bricks, asphalt, roofing materials, plastics, paint, glass, fiberglass, ceramics (except ceramic dishes or other kitchenware) and other non-land applications, or as a substitute for a product (e.g. blasting grit), excluding soil products.

Stabilization/solidification of other waste (for disposal): The use as a stabilization/solidification agent, singly or in combination with other additives or agents, for other wastes which will be disposed of.

In composting process: The use of a waste in a composting process when the process is performed in accordance with applicable composting regulations. This term does not include use of waste as a post-composting additive, or land application of waste.

Subject to procurement guidelines: The uses which are subject to procurement guidelines issued by the Environmental Protection Agency under Section 6002 of the Solid Waste Disposal Act (Public Law 89-272, 42 U.S.C. 6962).

With ODNR approval: Uses authorized and approved by the Ohio Department of Natural Resources (ODNR), i.e. use for mine subsidence control, mine fire control, mine sealing, and for neutralization in active surface mines. This term does not include land reclamation of mined lands, which would require a plan approval for land application from Ohio EPA Division of Surface Water.

Anti-skid agent/road surface preparation material: The use as an anti-skid material or road surface preparation material, if such use is consistent with Ohio Department of Transportation (ODOT) specifications or other applicable specifications.

Soil blending ingredient: The use as an additive in commercial soil blending operations, where the product will be used for growth of trees or ornamentals, when the waste constitutes no more than 50% of the mixture, and, if the waste does not meet 5x Ohio's Primary Drinking Water Standards, the mixture may not be applied to grazed pastures, home vegetable/fruit gardens, or used for growing crops or fruit trees. This term includes use of waste as a post-composting additive.

Daily cover at landfill: Uses as daily cover at a solid or residual waste landfill if approved by DSIWM, meeting all technical requirements for daily cover. The amount of daily cover shall not exceed the amount required under an approved permit to install.

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Structural fill: An engineered use of waste material as a building or equipment supportive base or foundation. The term does not include valley fills or filling of open pits from coal or industrial mineral mining.

Pipe bedding: The use as pipe bedding, for uses other than transport of potable water. Materials used in sanitary sewer projects shall comply with the specifications of Ohio EPA Policy DSW 0400.001, "Sewage: Collection, Treatment, and Disposal Where Sewers are Not Available."

Roads/parking lots: The use as a construction material (sub-base or final cover) for roads or parking lots, if approved by a Professional Engineer or the property owner, and ODOT (where applicable).

Commercial uses (general): Beneficial uses for commercial projects, in single project (location) volumes of less than 200 tons (except for generator give-away programs; see below). May include structural fill or foundation backfill if volume is less than 200 tons.

Generator give-away: A generator may give away or sell an ash or spent foundry sand, at the facility, in small volumes (e.g. to plant employees).

Borrow pits: Use of a waste to fill empty borrow pits that were created during road construction or other construction activities.

GENERAL REQUIREMENTS APPLICABLE TO ALL BENEFICIAL USE PROJECTS

1. The use shall not create a nuisance condition. The waste may not be used in a manner which is likely to cause an adverse impact to public health or the environment.
2. Storage piles at the site or facility where the material will be used shall not create a nuisance. Erosion control practices shall be used for the pile. Runoff should be eliminated or handled appropriately.

Storage at the generating facility shall be provided in accordance with solid or residual waste regulations. Runoff at the generator must be handled pursuant to a general or individual NPDES permit.

3. Waste may not be placed in a stream bed, leach field or well.

ANNUAL REPORT

For Category 2, each applying facility shall submit an annual report to the Ohio EPA. The annual report shall be submitted by April 1 and shall include a summary of each beneficial use project completed during the previous calendar year. Each project summary shall include, at a minimum:

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- a. a description of the nature, purpose, and location of the project;
- b. type of waste and estimated volume of wastes used; and
- c. the leachate test results.

ISOLATION DISTANCES

Unless otherwise approved by the Ohio EPA, for Category 1 (only as noted), and all uses in Categories 2 and 3, waste may not be placed within:

1. 100 feet of any intermittent or perennial streams, unless the waste is otherwise protected by a properly engineered diversion or structure.
2. 300 feet of any drinking water well, including a well used for livestock watering;
3. the 100 year floodplain of any water of the state unless a properly engineered dike, levee or other structure that can protect the structural fill from a 100 year flood is permitted.
4. 5 feet above the aquifer system used as the primary source of water to wells within 2500 feet of the beneficial use site;
5. 100 feet of any wetland.

OTHER CRITERIA (APPLICABLE TO ALL USES IN CATEGORY 2 AND 3)

Surface runoff from the fill area is minimized during filling and construction activity. Erosion and sediment control measures are implemented in accordance with sound engineering practices. Run-on from adjacent areas must be diverted around the site.

2. Structural fill shall be covered with a minimum of 12 inches of compacted soil or an unspecified thickness of asphalt or concrete.

30-DAY NOTIFICATION (APPLICABLE TO ALL CATEGORY 3 USES)

At least 30 calendar days before initiating the proposed project, the person proposing such use shall submit a written notice to the Ohio EPA Division of Surface Water. Ohio EPA Division of Surface Water shall notify, in a timely manner, the applicant if there appear to be any problems with or deficiencies of the beneficial use request. Consent of the Ohio EPA Division of Surface Water is not required; however Ohio EPA Division of Surface Water may request more information or, if environmental problems seem likely, require that an alternative use be found.

The notice shall contain, at a minimum:

1. A description of the nature, purpose, and location of the project, including a topographic map showing limits of waste placement, the project area, including any wells, springs, streams, and wetlands within 1,000 feet, and any available soil maps of the project area.

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2. The estimated beginning and ending dates for the project.
3. Construction plans for the structural fill, including a stability analysis when necessary, which shall be prepared by a registered professional engineer in accordance with sound engineering practice and which shall be signed and sealed by the engineer.
4. An estimate of the volume of a non-toxic bottom ash, fly ash, or spent foundry sand to be used for the project.
5. A leaching analysis for the material to be used in the project, in accordance with the testing procedures described in this policy.

If the waste is bottom ash and the TCLP test indicates that it meets Ohio's Primary Drinking Water Standards, then no notice is required. Project summaries shall be submitted annually as described in the previous section.

RECEIVER NOTIFICATION

For generator give/sell-away programs, each receiver shall be informed of the nature of the waste and that the waste may contaminate water if water is in prolonged contact with the waste.

DEVIATIONS

If the applicant can affirmatively demonstrate to the Ohio EPA Division of Surface Water that the non-toxic bottom ash, fly ash, or spent foundry sand or other exempt waste will not adversely impact the public health or the environment, the Ohio EPA Division of Surface Water may modify the design and location requirements set forth above.

CATEGORY 4: BENEFICIAL USES WITH OHIO EPA DIVISION OF SURFACE WATER REVIEW

Except for those uses which are defined in this policy, no person shall manage a non-toxic bottom ash, fly ash, or spent foundry sand, or other exempt waste for any beneficial use unless such person has first requested and received written approval from the Ohio EPA Division of Surface Water, or other appropriate divisions of the Agency.

A request for approval of beneficial use under this policy shall be on forms provided by the Ohio EPA Division of Surface Water (Attachment 1), shall be complete, received at least 60 days prior to the proposed use, and shall:

1. Chemically and physically characterize the material and identify the quantity, quality, and source of material to be used.

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2. Describe the proposed method of application and demonstrate the beneficial use of the material.
3. Demonstrate that the intended use will not adversely affect public health or the environment.
4. If the Ohio EPA Division of Surface Water consents to a beneficial use request the Ohio EPA may:
 - a. Limit the type, source, or amount of material to be used.
 - b. Limit the term of the approval.
 - c. Require the submission of an annual analysis or other appropriate information to ensure that the quality of the material to be beneficially used remains consistent with that stated in the approval.
 - d. Include any other conditions the Ohio EPA Division of Surface Water believes appropriate.
5. The Ohio EPA Division of Surface Water, after considering the potential for water pollution, shall notify the applicant of the final determination on each beneficial use request in a timely manner.
6. The Ohio EPA may require discontinuation of a beneficial use if it is found that the beneficial use is being conducted in a manner inconsistent with the original request, or whenever the beneficial use is adversely affecting public health or the environment.

REQUESTS FOR INFORMATION

The Ohio EPA may at any reasonable time request all documents and other information necessary to demonstrate that an ongoing or proposed beneficial use of waste is being, or will be, conducted in a manner that is consistent with this policy.

Failure to have documentation of compliance with this policy available after initiation of a claimed beneficial use may be cause for Ohio EPA to require discontinuation of the use.

