

CHAPTER 108  
BENEFICIAL USE DETERMINATIONS:  
SOLID BY-PRODUCTS AS RESOURCES AND ALTERNATIVE COVER MATERIAL

[Prior to 7/1/83, DEQ Ch 39]

[Prior to 12/3/86, Water, Air and Waste Management[900]]

**567—108.1(455B,455D) Purpose.** The purpose of this chapter is to establish rules for determining when a solid by-product is a resource and not a solid waste. Solid by-products determined by the department not to be a solid waste through a beneficial use determination may not be subject to all sanitary disposal project (SDP) permitting requirements. Furthermore, the purpose of this chapter is to encourage the utilization of solid by-products as resources when such utilization improves, or at a minimum does not adversely affect, human health and the environment.

**567—108.2(455B,455D) Applicability and compliance.**

**108.2(1)** These rules apply to industrial, commercial, and institutional generators and users or proposed users of solid by-products and to sanitary landfills utilizing or desiring to utilize alternative cover material. These rules apply to solid by-products that before receiving a beneficial use determination by the department were being disposed of as solid waste. These rules do not apply to solid by-products that have already been disposed of as solid waste by the generator.

**108.2(2)** These rules do not pertain to the land application of solid waste. For rules pertaining to the land application of solid waste, see 567—Chapter 121. However, for solid by-products that are land-applied pursuant to 567—Chapter 121, a variance from some or all of the requirements of 567—Chapter 121 may be gained through receipt of a beneficial use determination from the department.

**108.2(3)** These rules do not pertain to solid waste processing operations pursuant to 567—Chapter 104. However, for solid by-products that are processed pursuant to 567—Chapter 104, a variance from some or all of the requirements of 567—Chapter 104 may be gained through receipt of a beneficial use determination from the department.

**108.2(4)** These rules do not pertain to solid waste composting pursuant to 567—Chapter 105. However, for solid by-products that are composted pursuant to 567—Chapter 105, a variance from some or all of the requirements of 567—Chapter 105 may be gained through receipt of a beneficial use determination from the department.

**108.2(5)** Beneficial use determinations granted by the department before April 23, 2003, shall remain in effect unless specifically addressed by these rules or by written notification pursuant to 567—108.11(455B,455D).

**108.2(6)** The issuance of a beneficial use determination by the department relieves the generator and user(s) of all Iowa solid waste requirements specifically noted in the written determination. Requirements that may be relieved by a beneficial use determination may include rules, SDP permits, and permit conditions and variances. Solid by-products that have not received a beneficial use determination by the department are subject to all of Iowa's regulations pertaining to solid waste. The issuance of a beneficial use determination by the department in no way relieves the generator or user of the responsibility of complying with all other local, state, and federal statutes, ordinances, and rules or other applicable requirements.

**567—108.3(455B,455D) Definitions.** For the purposes of this chapter, the following terms shall have the meaning indicated in this chapter. The definitions set out in Iowa Code section 455B.301 shall be considered to be incorporated verbatim in these rules.

*“Alternative cover material”* means a substitute material or mix of materials that can be utilized in lieu of soil as cover material at a sanitary landfill.

*“Beneficial use”* means a specific utilization of a solid by-product as a resource, that constitutes reuse rather than disposal, does not adversely affect human health or the environment, and is approved by the department.

*“Beneficial use determination”* means a written formal decision or rule issued by the department as approval for a solid by-product to be utilized in a specific manner as a beneficial use.

“*Coal combustion by-product*” means any solid by-product produced by the burning of coal, by itself or in conjunction with natural gas or other fossil fuel, which is suitable for disposal as solid waste in a sanitary landfill. Examples include boiler slag, bottom ash, fly ash, and flue gas desulfurization by-products from pollution control equipment. Coal combustion by-products are also referred to as coal combustion residue.

“*Cover material*” means soil placed as daily, intermediate, or final cover at a sanitary landfill.

“*Fill material*” means material that is used to raise the elevation of, take up space in, or build up the level of the land. For the purposes of this chapter, fill material is not considered subbase for hard-surface road construction.

“*Foundry sand*” means a solid by-product from the foundry industry that is derived from molding, core-making, and casting cleaning processes that primarily contain sand, olivine, or clay and that is suitable for disposal as solid waste in a sanitary landfill.

“*High water table*” is the position of the water table which occurs in the spring in years of normal or above-normal precipitation.

“*Resource*” means a solid by-product that can provide greater benefit to the environment or human welfare in its beneficial use as a safe and effective substitute for a raw material, fuel or energy source, or natural resource, rather than being disposed of as a solid waste in a sanitary landfill.

“*Solid by-product*” means a secondary material or residual, produced or created by an industrial, commercial or institutional process or activity, that has been source separated by the generating entity and that would otherwise be disposed of as solid waste. Solid by-products are composed of materials suitable for disposal as solid waste in a sanitary landfill.

“*Subbase for hard-surface road construction*” means material that is used in subsurface applications for the construction of roads, including their shoulders, and parking lots that have hard surfaces such as concrete or asphalt. For the purposes of this chapter, subbase for hard-surface road construction is not considered fill material.

“*Suitable for disposal as solid waste in a sanitary landfill*” means that the material is in compliance with all state and federal rules and regulations pertaining to what may be disposed of in an Iowa sanitary landfill. Such materials are at a minimum nonhazardous and nonradioactive, are solid or semisolid, and do not contain free liquids pursuant to the Paint Filter Liquids Test (Reference: 40 CFR 258.28).

“*Vector*” means a carrier organism that is capable of transmitting a pathogen from one organism to another. Vectors include, but are not limited to, birds, rats and other rodents, and insects.

“*Water table*” means the water surface below the ground at which the unsaturated zone ends and the saturated zone begins.

**567—108.4(455B,455D) Universally approved beneficial use determinations.** The following solid by-products may be utilized as resources in the specific manners listed provided that such utilization is in compliance with 567—108.6(455B,455D) and 567—108.7(455B,455D). Unless a user is otherwise notified by the department pursuant to 567—108.11(455B,455D), such utilization does not require further approval from the department.

**108.4(1) Alumina.** Alumina may be used as a raw material in the manufacture of cement or concrete products. Alumina includes refractory brick for the purpose of this subrule.

**108.4(2) Asphalt shingles.** Asphalt shingles that are certified, consistent with federal regulations (Reference: Appendix E, Subpart E, 40 CFR Part 763, Section 1, Polarized Light Microscopy), as not containing more than 1 percent asbestos may be used as follows:

- a. Raw material in the manufacture of asphalt products.
- b. Subbase for hard-surface road construction.
- c. Road surfacing granular material.
- d. Alternative cover material at a sanitary landfill pursuant to 567—108.8(455B,455D).

**108.4(3) Cement kiln dust.** Cement kiln dust may be used as follows:

- a. Raw material in the manufacture of absorbents.
- b. Raw material in the manufacture of cement or concrete products.
- c. Subbase for hard-surface road construction.

*d.* A soil amendment pursuant to 567—Chapter 121 and the rules of the Iowa department of agriculture and land stewardship or a compost amendment.

*e.* A stabilizer for manure and waste sludge.

*f.* A soil stabilizer for construction purposes.

*g.* Fill material pursuant to 108.6(1).

**108.4(4) Coal combustion by-products.**

*a.* Coal combustion fly ash and flue gas desulfurization by-products may be used as follows:

(1) Raw material in manufactured gypsum, wallboard, plaster, or similar product.

(2) Raw material in manufactured calcium chloride.

(3) Raw material in the manufacture of absorbents.

(4) Fill material pursuant to 108.6(1).

(5) Alternative cover material at a sanitary landfill pursuant to 567—108.8(455B,455D).

*b.* Coal combustion fly ash or bottom ash or boiler slag may be used as follows:

(1) Raw material in the manufacture of cement or concrete products.

(2) Raw material to be used in mineral recovery.

(3) Raw material in the manufacture of asphalt products.

(4) Raw material in plastic products.

(5) Subbase for hard-surface road construction.

(6) Soil stabilization for construction purposes.

(7) Fill material pursuant to 108.6(1).

(8) Alternative cover material at a sanitary landfill pursuant to 567—108.8(455B,455D).

*c.* Coal combustion bottom ash may also be used as follows:

(1) Traction agent for surfaces used by vehicles.

(2) Sandblasting abrasive.

**108.4(5) Compost.** Cured or finished compost, as defined in 567—Chapter 105, is not solid waste and may be used for any purpose recognized by the U.S. Composting Council or the department.

**108.4(6) Foundry sand.** Foundry sand may be used as follows:

*a.* Raw material in the manufacture of asphalt products.

*b.* Raw material in the manufacture of cement or concrete products.

*c.* Leachate control drainage material at a sanitary landfill.

*d.* Subbase for hard-surface road construction.

*e.* Fill material pursuant to 108.6(1).

*f.* Emergency flood control use for sandbags.

*g.* Alternative cover material at a sanitary landfill pursuant to 567—108.8(455B,455D).

**108.4(7) Glass.** Uncontaminated, unleaded glass may be used as follows:

*a.* Raw material in the manufacture of asphalt products.

*b.* Fill material pursuant to 108.6(1).

*c.* Sandblasting or other abrasive.

*d.* Leachate control drainage material at a sanitary landfill.

*e.* Filter media.

*f.* Subbase for hard-surface road construction.

*g.* Alternative cover material at a sanitary landfill pursuant to 567—108.8(455B,455D).

**108.4(8) Gypsum and gypsum wallboard.**

*a.* All gypsum and gypsum wallboard may be used as follows:

(1) Raw material in the manufacture of absorbents.

(2) Raw material in the manufacture of other gypsum products, wallboard, plaster, or similar products.

(3) Alternative cover material at a sanitary landfill pursuant to 567—108.8(455B,455D).

*b.* Gypsum and gypsum wallboard that have not been treated to be water-resistant or flame-retardant may be used as a calcium additive for agricultural use or soil amendment pursuant to 567—Chapter 121 or a compost amendment.

**108.4(9) Lime.** Lime produced as a by-product of public water supplies may be used as follows:

a. A soil amendment pursuant to 567—Chapter 121 and the rules of the Iowa department of agriculture and land stewardship or a compost amendment.

b. Raw material in the manufacture of calcium carbonate or similar substance.

**108.4(10) *Lime kiln dust.*** Lime kiln dust may be used as follows:

a. Raw material in the manufacture of absorbents.

b. Raw material in the manufacture of cement or concrete products.

c. Subbase for hard-surface road construction.

d. A soil amendment pursuant to 567—Chapter 121 and the rules of the Iowa department of agriculture and land stewardship or a compost amendment.

e. A stabilizer for manure and waste sludge.

f. A soil stabilizer for construction purposes.

g. Fill material pursuant to 108.6(1).

**108.4(11) *Paper mill sludge.*** Uncontaminated, dewatered paper mill sludge may be used as follows:

a. A fuel or energy source.

b. Bulking agent or carbon source for composting.

c. Animal bedding.

d. Raw material in the manufacture of absorbents.

e. Alternative cover material at a sanitary landfill pursuant to 567—108.8(455B,455D).

**108.4(12) *Rubble.*** Uncontaminated rubble such as concrete, brick, asphalt pavement, soil and rock may be used for fill, landscaping, excavation or grading or as a substitute for conventional aggregate. Asphalt, however, shall not be used for any of the aforementioned uses if the use will cause the asphalt to be placed in a waterway or wetland or any waters of the state or within the high water table.

**108.4(13) *Sandblasting abrasives.*** Sandblasting abrasives that do not contain lead-based paint may be used as follows:

a. Raw material in the manufacture of cement or concrete products.

b. Raw material in the manufacture of asphalt products.

c. Subbase for hard-surface road construction.

d. Raw material in the manufacture of abrasive products.

e. Fill material pursuant to 108.6(1).

f. Alternative cover material at a sanitary landfill pursuant to 567—108.8(455B,455D).

**108.4(14) *Soil, including petroleum-contaminated soil.***

a. Uncontaminated soil may be used for fill, landscaping, excavation or grading, or other suitable purpose.

b. Petroleum-contaminated soils that have been decontaminated to the satisfaction of the department pursuant to 567—Chapter 120 may be used as follows:

(1) Fill material at the original excavation site pursuant to 108.6(1).

(2) Alternative cover material at a sanitary landfill pursuant to 567—108.8(455B,455D).

**108.4(15) *Tires.*** This chapter does not pertain to tires other than those used as alternative cover material pursuant to 567—108.8(455B,455D). Refer to 567—Chapter 117 for rules regarding the beneficial use of tires.

**108.4(16) *Wastewater filter sand.*** Wastewater filter sand may be used as follows:

a. Fill material pursuant to 108.6(1).

b. Subbase for hard-surface road construction.

**108.4(17) *Wood.*** Uncontaminated, untreated or raw wood may be used as follows:

a. A fuel or energy source.

b. Bulking agent for composting.

c. Mulch.

d. Animal bedding.

e. Raw material in the manufacture of paper products, particle board, or similar materials.

**108.4(18) *Wood ash.*** Ash from the combustion of uncontaminated, untreated or raw wood may be used as follows:

a. A soil amendment pursuant to 567—Chapter 121.

- b. A carbon source for composting.
- c. Raw material in the manufacture of cement or concrete products.
- d. Fill material pursuant to 108.6(1).

**567—108.5(455B,455D) Application requirements for beneficial use determinations other than alternative cover material.** Unless the beneficial use is approved pursuant to 567—108.4(455B,455D), the applicant shall submit the following application information to the department. The department may request that additional information be submitted in order to make a beneficial use determination. The department may also require specific conditions on a beneficial use determination and issue a temporary beneficial use determination on a trial basis.

The generator of a solid by-product may apply to the department in writing for a beneficial use determination. If the department finds the application information to be incomplete, then it shall notify the applicant in writing of that fact and of the specific deficiencies and return the application materials to the applicant within 30 days of such notification. The applicant may reapply without prejudice.

**108.5(1)** The name, address, and telephone number of:

- a. Owner of the site where the project will be located.
- b. Applicant for the beneficial use determination.
- c. Official responsible for the operation of the project.
- d. Professional engineer (P.E.) licensed by the state of Iowa and retained for the project, if any.

The department may, at its sole discretion, require the applicant to retain a professional engineer for the project or specific parts thereof.

e. Agency to be served by the project, if any.

f. Responsible official of agency to be served.

**108.5(2)** A description of the solid by-product under review and its proposed use.

**108.5(3)** The chemical and physical characteristics of the solid by-product under review and of each type of proposed product.

**108.5(4)** A demonstration that there is a known or reasonably probable market for the intended use of the solid by-product under review by providing one or more of the following:

- a. A contract to purchase or utilize the solid by-product for the use proposed.
- b. A description of how the solid by-product will be used.
- c. A demonstration that the solid by-product complies with industry standards and specifications for that product.
- d. Other documentation that a market for the solid by-product exists.

**108.5(5)** A demonstration that the proposed use of the solid by-product will not adversely affect human health or the environment. The demonstration may include, but is not limited to, a toxicity characteristics leaching procedure (TCLP, EPA Method 1311) analysis and total metals testing of a representative sample of the solid by-product.

**108.5(6)** A solid by-product management plan pursuant to 108.6(2).

**567—108.6(455B,455D) Requirements for beneficial uses other than alternative cover material.**

**108.6(1)** *Solid by-products beneficially used as fill material.* All beneficial uses, including those listed in 567—108.4(455B,455D) other than rubble and soil, shall meet the following requirements, unless a variance is granted in writing by the department for a specific location, if the beneficial use entails the solid by-product's being used as fill material:

a. Leachate characteristics of the solid by-product shall be measured by the synthetic precipitation leaching procedure (SPLP, EPA Method 1312) and shall be less than or equal to ten times the maximum contaminant levels (MCL) for drinking water. Foundry sand and coal combustion by-products may limit the SPLP analytes to total metals for drinking water.

b. Total metals testing results, which shall include thallium, shall be consistent with the department's statewide standards for soil pursuant to 567—Chapter 137. Arsenic levels shall be consistent with the statewide standards for soil or the naturally occurring (i.e., background) arsenic levels of the soil, whichever are greater.

- c.* The solid by-product shall produce a fill that has a pH:
- (1) Greater than or equal to 5 and less than or equal to 8 if the fill may be used as growing media either now or in the future.
  - (2) Greater than or equal to 5 and less than 12 if the fill is specifically intended not to be used as growing media either now or in the future. In this category of fill, materials with a pH equal to or greater than 10 but less than 12 shall be used only in areas where direct physical contact by humans for long periods of time is not expected to occur.
  - (3) For deep fills where only the surface may serve as growing media either now or in the future, then at a minimum the top three feet shall have a pH greater than or equal to 5 and less than or equal to 8. Fill material below the top three feet shall have a pH greater than or equal to 5 and less than or equal to 12.
- d.* The by-product shall not be placed in a waterway or wetland or any waters of the state or extend below or within five feet of the high water table.
- e.* The by-product shall not be placed within the 100-year flood plain unless in accordance with all local and department regulations including rule 567—71.5(455B).
- f.* The by-product shall not be placed closer than 200 feet to a sinkhole or to a well that is being used or could be used for human or livestock water consumption.
- g.* The by-product shall not be putrescible.

**108.6(2) Solid by-product management plans.** All recipients of beneficial use determinations granted pursuant to 567—108.5(455B,455D) and coal combustion by-product and foundry sand beneficial uses listed in 567—108.4(455B,455D) shall develop and maintain a solid by-product management plan that satisfies the following requirements:

- a.* Lists the source(s) of the solid by-product.
- b.* Lists procedures for periodic testing of the solid by-product to ensure that the chemical and physical composition has not changed significantly.
- c.* Provides a description of storage procedures including:
  - (1) Storage location(s).
  - (2) Maximum anticipated inventory, including dimensions of any stockpiles.
  - (3) Run-on and run-off controls, which may include a storm water National Pollutant Discharge Elimination System (NPDES) permit.
  - (4) Management practices to minimize uncontrolled dispersion of the solid by-product.
  - (5) Maximum storage time, not to exceed six months unless authorized in writing by the department.

**567—108.7(455B,455D) Record-keeping and reporting requirements for beneficial use projects other than alternative cover material.**

**108.7(1)** Any entity that engages in the beneficial use of a solid by-product, other than for alternative cover material, and that satisfies at least one of the following criteria shall comply with record-keeping and reporting requirements set forth in this rule:

- a.* The entity has been granted a beneficial use determination pursuant to 567—108.5(455B,455D).
- b.* The solid by-product is not rubble or soil and is being beneficially used as fill material.
- c.* The solid by-product is a coal combustion by-product or foundry sand.

**108.7(2)** Record keeping. Generators shall maintain all records related to the solid by-product management plan for a minimum duration of five years.

**108.7(3)** Reporting. Reports shall be filed with the department's central office and the field office with jurisdiction over the generator as follows:

*a.* Unless otherwise directed by the department, generators shall submit to the department a copy of the solid by-product management plan whenever that plan is revised or within 60 days of the end of the calendar year, whichever is earlier.

*b.* Generators whose solid by-products are being beneficially used as fill material shall submit to the department within 60 days of the end of the calendar year the following information for each beneficial use project or activity:

- (1) The location of the project.
- (2) The tons of solid by-product utilized for the project.

**567—108.8(455B,455D) Universally approved beneficial use determinations for alternative cover material.** Unless the landfill is otherwise notified pursuant to 567—108.11(455B,455D), the following alternative cover materials may be beneficially used as daily cover material at sanitary landfills in the manner and volume specified by sanitary landfill rules. However, sanitary landfills shall amend their sanitary landfill permits by notifying the department, and the department field office with jurisdiction over the facility, of their intent to utilize solid by-products pursuant to this rule at least 30 days prior to actual utilization of the by-products as alternative cover material.

**108.8(1) Asphalt shingles.** Asphalt shingles that are certified, consistent with federal regulations (Reference: Appendix E, Subpart E, 40 CFR Part 763, Section 1, Polarized Light Microscopy), as not containing more than 1 percent asbestos and are ground to an average size of 3 inches or less in any dimension may be mixed with soil in a 50/50 volume.

**108.8(2) Coal combustion by-products.** Coal combustion by-products may be mixed with soil in a 50/50 volume.

**108.8(3) Compost.** One hundred percent cured or finished compost, and compost rejects, may be used.

**108.8(4) Diatomaceous earth.** Diatomaceous earth may be mixed with soil in a 50/50 volume.

**108.8(5) Foundry sand.** Foundry sand may be mixed with soil in a 50/50 volume.

**108.8(6) Glass.** Glass that has been ground to an average size of ½ inch or less in any dimension may be mixed with soil in a 10 percent glass and 90 percent soil by volume mixture.

**108.8(7) Gypsum and gypsum wallboard.** Gypsum and gypsum wallboard that have been ground to an average size of 3 inches or less in any dimension may be mixed with soil in a 50/50 volume.

**108.8(8) Paper mill sludge.** Uncontaminated, dewatered paper mill sludge may be mixed with soil in a 50/50 volume.

**108.8(9) Sandblasting abrasive.** Sandblasting abrasive and residuals may be mixed with soil in a 50/50 volume.

**108.8(10) Soil, including petroleum-contaminated soil.** Petroleum-contaminated soils that have been decontaminated to the satisfaction of the department pursuant to 567—Chapter 120 may be utilized.

**108.8(11) Tire chips.** Tire chips that are an average size of 3 inches or less in any dimension may be mixed with soil in a 50/50 volume.

**567—108.9(455B,455D) Beneficial use determination application requirements for alternative cover material.** Unless the alternative cover material beneficial use is approved pursuant to 567—108.8(455B,455D), the applicant shall submit the following application information to the department to amend the sanitary landfill permit. The department may request that additional information be submitted in order to make a beneficial use determination. The department may also require specific beneficial use determination conditions and issue a temporary beneficial use determination on a trial basis.

If the department finds the application information to be incomplete, then it shall notify the applicant in writing of that fact and of the specific deficiencies and return the application materials to the applicant within 30 days of such notification. The applicant may reapply without prejudice.

**108.9(1)** The name, address, and telephone number of:

- a. Owner of the site where the project will be located.
- b. Applicant for the beneficial use determination.
- c. Official responsible for the operation of the project.
- d. Professional engineer (P.E.) licensed by the state of Iowa and retained for the project, if any.

The department may, at its sole discretion, require the applicant to retain a professional engineer for the project or specific parts thereof.

- e. Agency to be served by the project, if any.

*f.* Responsible official of agency to be served.

**108.9(2)** A description of the proposed alternative cover material and whether it is to be used as daily, intermediate, or final cover.

**108.9(3)** The chemical and physical characteristics of the alternative cover material.

**108.9(4)** The proposed volume ratio of the alternative cover material(s) to soil or other alternative cover material(s).

**108.9(5)** A demonstration that there is a known or reasonably probable suitability of the alternative cover material as cover material by providing previous case studies of the alternative cover material being utilized as cover material's or the following information:

*a.* Information on the ability of the alternative cover material to reduce or maintain current odor levels.

*b.* Information on the ability of the alternative cover material to reduce or deter vectors.

*c.* Information on the ability of the alternative cover material to reduce or maintain the current risk of fire.

*d.* Information on the ability of the alternative cover material to control litter and dust.

*e.* Information on the ability of the alternative cover material to impede the infiltration of liquids and precipitation.

*f.* Information on the ability of the alternative cover material to control landfill gas migration.

*g.* Information on the ability of the alternative cover material to provide a safe and effective working surface.

*h.* Information on the ability of the alternative cover material to provide effective growing media.

*i.* Other documentation that the alternative cover material is suitable for cover material.

**108.9(6)** A demonstration that the proposed use of the alternative cover material will not adversely affect human health or the environment. The demonstration may include, but is not limited to, a toxicity characteristics leaching procedure (TCLP, EPA Method 1311) analysis of a representative sample of the alternative cover material.

**567—108.10(455B,455D) Beneficial use of alternative cover material and state goal progress.** Alternative cover material placed at no more than the thickness required by sanitary landfill rules shall be exempt from landfill tonnage measurements used for state goal progress and waste diversion calculations.

**567—108.11(455B,455D) Revocation of beneficial use determinations.** The department may revoke any beneficial use determination given pursuant to this chapter if it finds one or more of the following:

1. The matters serving as the basis for the department's determination were incomplete or incorrect or are no longer valid.

2. The department finds that there has been a violation of any law, rule, permit or other authorization in its jurisdiction.

3. The department has reasonable cause to suspect a significant risk to or adverse affect on human health or the environment.

These rules are intended to implement Iowa Code sections 455B.304 and 455D.4.

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