

3745-40-08

Requirements for the beneficial use of biosolids: general requirements, prohibitions, isolation distance requirements, site specific requirements, and additional site restrictions for the beneficial use of class B biosolids.

[Comment: Definitions relevant to this chapter can be found in rule 3745-40-01 of the Administrative Code.]

(A) General requirements.

- (1) Any biosolids beneficially used on a lawn or a home garden shall be exceptional quality biosolids, as defined in rule 3745-40-01 of the Administrative Code and described in rule 3745-40-04 of the Administrative Code.
- (2) Except as provided in paragraphs (A)(3) to (A)(4) of this rule, when class B or bulk exceptional quality biosolids are beneficially used they shall be beneficially used at an agronomic rate at any beneficial use site. The agronomic rate utilized for beneficial use on a beneficial use site shall be derived from the following for the purpose of protecting waters of the state:
 - (a) From the effective date of these rules until June 30, 2013, the agronomic rate shall be calculated in accordance with the following:
 - (i) For soils with soil phosphorus test results less than or equal to one hundred fifty parts per million Bray-Kurtz P1 extraction or one hundred seventy parts per million Mehlich III extraction, the nitrogen agronomic rate; and
 - (ii) For soils with soil phosphorus test results greater than one hundred fifty parts per million Bray-Kurtz P1 extraction or one hundred seventy parts per million Mehlich III extraction, beneficial use shall be completed in accordance with the phosphorus index;
 - (b) After July 1, 2013, the agronomic rate shall be the most limiting factor derived from the following for the purpose of protecting waters of the state:
 - (i) For soils with soil phosphorus test results less than or equal to forty parts per million Bray-Kurtz P1 extraction or forty-five parts per million Mehlich III extraction;
 - (a) The nitrogen agronomic rate;
 - (b) A phosphate beneficial use rate of two hundred fifty pounds per acre or less; or

- (c) A phosphate beneficial use rate between two hundred fifty six pounds per acre and five hundred pounds per acre if one of the following criteria are met, upon which no further phosphorus sources may be beneficially used at the beneficial use site for three calendar years:
 - (i) All biosolids are injected or are incorporated within twenty four hours of beneficial use; or
 - (ii) There is greater than fifty per cent ground cover at the time of beneficial use
 - (ii) For soils with soil phosphorus test results greater than forty parts per million Bray-Kurtz P1 extraction or forty-five parts per million Mehlich III extraction and less than or equal to one hundred parts per million Bray-Kurtz P1 extraction or one hundred fifteen parts per million Mehlich III extraction:
 - (a) The nitrogen agronomic rate; or
 - (b) A multi-year phosphate agronomic rate.
 - (iii) For soils with soil phosphorus test results greater than one hundred parts per million Bray-Kurtz P1 extraction or one hundred fifteen parts per million Mehlich III extraction and less than or equal to one hundred fifty parts per million Bray-Kurtz P1 extraction or one hundred seventy parts per million Mehlich III extraction:
 - (a) The nitrogen agronomic rate; or
 - (b) The single-year phosphate agronomic rate.
 - (iv) For soils with soil phosphorus test results greater than one hundred fifty parts per million Bray-Kurtz P1 extraction or one hundred seventy parts per million Mehlich III extraction, beneficial use shall be completed in accordance with the phosphorus index.
- (3) For all beneficial use sites, beneficial of class B or bulk exceptional quality biosolids may be completed in accordance with the phosphorus index.
- (4) Special requirement regarding land reclamation sites. The agronomic rate may be exceeded during land reclamation projects using biosolids provided the beneficial use is in accordance with paragraphs (B) to (B)(2) of rule 3745-40-03 of the Administrative Code.

- (5) Special requirement regarding liquid class B or liquid bulk exceptional quality biosolids. The beneficial use of liquid class B or bulk exceptional quality biosolids shall be at or below the agronomic rate for the reasonably expected yield goal of planned crops or crop rotation, or at or below the available water capacity of the upper eight inches of soil, whichever is less at the time of beneficial use.

(B) Prohibitions and restrictions.

- (1) Precipitation prohibitions and restrictions for hydrologic soil groups A, B, and C.

[Comment: Information on Ohio hydrologic soil groups can be found on the United States department of agriculture, natural resources conservation services web site at the following link: www.oh.nrcs.usda.gov/technical/soils/.]

- (a) Except as provided in paragraphs (B)(1)(b) to (B)(1)(b)(iii) of this rule, no person shall beneficially use class B or bulk exceptional quality biosolids during a precipitation event, or when the forecast indicates that there is at least a fifty per cent chance that 0.5-inch of rain will occur within twenty-four hours after beneficial use. The forecast consulted shall be for the nearest municipality where the beneficial use site is located and shall be printed out or otherwise recorded and kept on file for each beneficial use event.

[Comment: Information on hourly forecasts may be located at the National Oceanic and Atmospheric Administration's website: www.weather.gov by entering a zip code or City, State in the box where indicated, selecting "Go" and selecting the "Hourly Weather Graph" under "Additional Forecasts and Information."]

- (b) Class B or bulk exceptional quality biosolids may be beneficially used when the forecast indicates that there is at least a fifty per cent chance that 0.5-inch of rain will occur within twenty-four hours after beneficial use if:
 - (i) The biosolids are injected;
 - (ii) The biosolids are immediately incorporated; or
 - (iii) The beneficial user can provide records of actual rainfall data indicating that less than 0.5-inch of rain occurred within the twenty-four hours following the beneficial use of biosolids.

- (2) Precipitation prohibitions and restrictions for hydrologic soil group D soils.

- (a) Except as provided in paragraphs (B)(2)(b) to (B)(2)(b)(iii) of this rule, no person shall beneficially use class B or bulk exceptional quality biosolids

during a precipitation event or when the forecast indicates that there is at least a fifty per cent chance that 0.25-inch of rain will occur within twenty-four hours after beneficial use. The forecast consulted shall be for the nearest municipality where the beneficial use site is located and shall be printed out or otherwise recorded and kept on file for each beneficial use event.

[Comment: Information on hourly forecasts may be located at the National Oceanic and Atmospheric Administration's website: www.weather.gov by entering a zip code or City, State in the box where indicated, selecting "Go" and selecting the "Hourly Weather Graph" under "Additional Forecasts and Information."]

- (b) Class B or bulk exceptional quality biosolids may be beneficially used when the forecast indicates that there is at least a fifty per cent chance that 0.25-inch of rain will occur within twenty-four hours after beneficial use for any hydrologic soil group (HSG) D soils if:
 - (i) The biosolids are injected;
 - (ii) The biosolids are immediately incorporated; or
 - (iii) The beneficial user can provide records of actual rainfall data indicating that less than 0.25-inch of rain occurred within the twenty-four hours following the beneficial use of biosolids.
- (3) No person shall beneficially use class B or bulk exceptional quality biosolids if such beneficial use is likely to adversely affect a threatened or endangered species listed under section four of the Endangered Species Act or its designated critical habitat.

(C) Isolation distance requirements.

- (1) Except as provided in paragraph (C)(2) of this rule, no person shall beneficially use class B or bulk exceptional quality biosolids within the following isolation distances listed in table C-1 of this rule.

-Table C-1: Isolation distance requirements-

	Surface application isolation distance requirements (feet)	Injected or immediately incorporated isolation distance requirements (feet)	Applicable biosolids classification
Bedrock	3	3	Class B or bulk exceptional quality
Surface waters of the state	33	33	Class B or bulk exceptional quality
Sinkhole or UIC class V drainage	300 without a grass buffer; 100 with a grass buffer	300 without a grass buffer; 100 with a grass buffer	Class B or bulk exceptional quality
Occupied building	300	100	Class B
Private potable water source	300	100	Class B
Medical care facility	1000	300	Class B

(2) The director or an authorized representative may allow a reduction in isolation distance for those occupied buildings that are located adjacent to an authorized beneficial use site, provided such a request is made from both the building owner and, if applicable, the resident of the occupied building. A request for an isolation distance reduction shall be made on forms approved by the director.

(D) Site specific requirements. Any person who beneficially uses class B or bulk exceptional quality biosolids shall meet the following site specific requirements.

(1) Pollutant ceiling concentrations. No person shall beneficially use biosolids if the concentration of any pollutant in the biosolids exceeds the ceiling concentration limits for the pollutants established in rule 3745-40-04 of the Administrative Code.

(2) Frozen or snow covered ground.

[Comment: The Ohio agricultural research and development center at the Ohio state university provides daily site specific data at several sites around Ohio for soil temperatures at the following internet address: www.oardc.ohio-state.edu/newweather.]

(a) Unless otherwise authorized by the director, between December fifteenth and March first of any two consecutive calendar years, the beneficial use of class B or bulk exceptional quality biosolids shall be accomplished by either same day incorporation or through injection.

(b) Between March first and December fifteenth of any calendar year, no person shall beneficially use class B or bulk exceptional quality biosolids on the

surface of a beneficial use site that is frozen or snow-covered, unless beneficial use is completed in accordance with paragraphs (D)(2)(b)(i) to (D)(2)(b)(iv) of this rule.

- (i) At the time of beneficial use, the beneficial use site shall have no less than ninety per cent ground cover and the ground cover shall not be covered by ice or snow.
- (ii) Liquid class B or liquid bulk exceptional quality biosolids shall not be beneficially used at a rate that exceeds five thousand gallons per acre to frozen or snow covered ground.
- (iii) No person shall beneficially use class B or bulk exceptional quality biosolids on more than twenty contiguous acres. Beneficial use shall occur as far from surface waters of the state as possible, but no closer than two hundred feet, and at a location that presents the least potential for runoff.
- (iv) No person shall beneficially use class B or bulk exceptional quality biosolids on the surface of a beneficial use site that is frozen or snow covered with a slope greater than six per cent.
- (v) Concentrated beneficial use site surface drainage and tile outlets shall be visually monitored at the conclusion of the class B or bulk exceptional quality biosolids beneficial use, and periodically afterwards when weather is likely to produce runoff including when temperatures rise, snow melts, and in conjunction with rainfall, etc., until the class B or bulk exceptional quality biosolids have been assimilated into the beneficial use site and are no longer likely to discharge into surface waters of the state. If the beneficially used class B or bulk exceptional quality biosolids discharge to surface waters of the state, then the beneficial user shall notify Ohio EPA within two hours of detection of the runoff event.
- (vi) If the ammonia nitrogen level in a water quality sample is determined to be twenty-six mg/L or greater in the discharge at the point it enters surface waters of the state, then any additional beneficial use of class B or bulk exceptional quality biosolids on the surface of a beneficial use site that is frozen or snow covered is prohibited on the beneficial use site where the runoff event occurred. In the event that runoff from a frozen or snow covered beneficial use site discharges to surface waters of the state with an ammonia nitrogen content of twenty-six mg/L or greater in a total of three beneficial use events, then beneficial use of class B or bulk exceptional quality biosolids on any frozen or snow covered ground is prohibited for that beneficial user from that point on.

- (3) Beneficial use sites that are frequently flooded. No person shall beneficially use class B or bulk exceptional quality biosolids at a beneficial use site that is frequently flooded so that the class B or bulk exceptional quality biosolids enter surface waters of the state, except as provided in an NPDES permit issued under Chapter 6111. of the Revised Code. Beneficial use of class B or bulk exceptional quality biosolids at a beneficial use site shall be limited to same day incorporation or injection on areas of beneficial use sites that are frequently flooded during periods when flooding is expected.
- (4) Ground slope and ground cover. No person shall beneficially use class B or bulk exceptional quality biosolids at food crop, feed crop, fiber crop, or cover crop land over fifteen per cent slope or at pasture land or vegetation land over twenty per cent slope unless one of the following activities is performed:
 - (a) Same day incorporation or injection with operations done on the contour; or
 - (b) The field is established and managed in contour strips with alternate strips in cover crop, pasture, or vegetation.
- (5) Soil monitoring requirements. If soil monitoring results for either soil phosphorus or soil pH are more than three years old, the soil shall be retested prior to the class B or bulk exceptional quality biosolids being delivered to a beneficial use site for beneficial use. Soil grab samples shall be taken to plow depth or within the top eight inches of soil and shall be considered representative of the top eight inches of soil for:
 - (a) Soil phosphorus. Prior to the beneficial use of class B or bulk exceptional quality biosolids, the soil phosphorus level shall be monitored utilizing either the Bray-Kurtz P1 extraction or Mehlich 3 extraction method; and
 - (b) Soil pH. Minimum soil pH for beneficial use of class B biosolids shall be 5.5. If the soil pH at a beneficial use site is less than 5.5, sufficient liming material shall be added such that the class B biosolids and soil mixture pH is calculated to reach 5.5 or greater.

[Comment: Soil samples can be collected at any time; however, it is recommended to obtain the soil sample prior to spring planting. A soil probe, auger, spade, or garden trowel can be used to sample soil. A plastic bucket should be used to collect soil grab samples. Each composite sample should represent fifteen to twenty acres of uniform area (uniform in soil series, slope, drainage, erosion, and fertilizer application (including sewage sludge)) and less than five acres of rolling land. Generally, any area that is large enough to spread separately should be sampled separately. Grab samples should be taken seventy-five to one hundred feet apart with a minimum of fifteen grab samples in a composite sample. Low spots or other unusual areas (biosolids stockpiling area or liming material and fertilizer spills) should be omitted or sampled separately.

For row crops, samples should be taken between rows. For establishing grass pasture crops, samples should be collected to the rooting zone (three to four inches). All grab samples should be broken up and mixed thoroughly before a composite sample is taken.]

- (6) Beneficial use sites with subsurface tile drainage.
- (a) For beneficial use sites with subsurface tile drainage, all field outlets shall be visually monitored before, during and after beneficial use of liquid class B or liquid bulk exceptional quality biosolids at the beneficial use site and the results of that monitoring shall be recorded. Methods or devices to stop or capture subsurface drain flow shall be accessible. If liquid class B or liquid bulk exceptional quality biosolids reach the subsurface drain outlet to surface waters of the state, the beneficial use of liquid biosolids shall cease and the flow shall be stopped or captured.
 - (b) For beneficial use of liquid class B or liquid bulk exceptional quality biosolids at beneficial use sites with subsurface tile drainage, the following criteria must be followed:
 - (i) Beneficial use rates shall be less than or equal to 0.5-inch or thirteen thousand gallons per acre per beneficial use event;
 - (ii) A tool shall be used that can disrupt or close the preferential flow paths in the soil using horizontal fracturing, or the surface of the soil shall be tilled three to five inches deep to a seedbed condition to soak up the liquid class B or liquid bulk exceptional quality biosolids and keep it out of preferential flow channels;
 - (iii) If injection is used, liquid class B or liquid bulk exceptional quality biosolids shall only be injected deep enough to cover the biosolids with soil. The soil shall be tilled at least three inches below the depth of injection prior to or at the time of beneficial use; and
 - (iv) For beneficial use sites where tillage is not an option, all tile outlets from the beneficial use site are to be plugged and all tile stops are to be closed prior to or at the same time as beneficial use.

(E) Additional site restrictions for the beneficial use of class B biosolids:

- (1) No person shall beneficially use class B biosolids:
- (a) Within the sanitary isolation distance a public water system must maintain for a drinking water supply well, as established in rule 3745-9-04 of the Administrative Code;

(b) Within an emergency management zone for a public water system using surface water. Where no emergency management zone has been delineated or endorsed by the Ohio environmental protection agency, the isolation distance shall consist of a circle with a radius of one thousand five hundred feet from the intake; or

(c) Within the following areas, as defined in table E-1 of this rule:

-Table E-1: -

Type of public water system	Isolation distance
Community or non-transient, non-community public water system	The inner management zone; if the drinking water source protection area is underlain by karst or fractured bedrock and has been determined to be highly susceptible to contamination, the setback shall be extended to include the entire drinking water source protection area
Transient, non-community public water system	Three hundred feet from a drinking water supply well

- (2) Food crops with harvested parts that touch the biosolids or soil mixture and are on the surface of the authorized beneficial use site shall not be harvested for fourteen months after the beneficial use of class B biosolids;
- (3) Food crops with harvested parts below the surface of the authorized beneficial use site shall not be harvested for twenty months after the beneficial use of class B biosolids when the biosolids remained on the surface of the authorized beneficial use site for four months or longer prior to incorporation into the soil;
- (4) Food crops with harvested parts below the surface of the authorized beneficial use site shall not be harvested for thirty-eight months after the beneficial use of class B biosolids when the class B biosolids remained on the surface of the authorized beneficial use site for less than four months prior to incorporation into the soil;
- (5) All other food crops, feed crops, and fiber crops shall not be harvested for thirty days after the beneficial use of class B biosolids;
- (6) Animals shall not be allowed to graze on the authorized beneficial use site for thirty days after the beneficial use of class B biosolids;
- (7) Turf or other vegetation grown for landscaping purposes that is grown on an authorized beneficial use site where class B biosolids are beneficially used shall not be harvested for one year after the beneficial use of class B biosolids when the harvested turf or other vegetation is placed on either land with a high

potential for public exposure or a lawn, unless otherwise specified by the director;

- (8) Public access to a high potential public exposure site shall be restricted for one year after the beneficial use of class B biosolids;
- (9) Public access to a low potential public exposure site shall be restricted for thirty days after the beneficial use of class B biosolids; and
- (10) The mixing of class B biosolids from different treatment works at an authorized beneficial use site is prohibited, unless in accordance with paragraph (A)(3) of rule 3745-40-06 of the Administrative Code.

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