STANDARDS FOR THE USE OR SURFACE DISPOSAL OF BIOSOLIDS

CHAPTER 15

PART A
GENERAL PROVISIONS

Section 1. **Authority and Purpose.**

(a) This chapter is promulgated pursuant to the Environmental Quality Act. Specifically, W.S. 35-11-302 (a) (iii) requires the administrator to establish standards for the issuance of permits for disposal systems or other facilities capable of causing or contributing to pollution.

(b) This chapter contains the minimum standards for the use or surface disposal of biosolids.

(c) This chapter establishes standards, which consist of general requirements, pollutant limits, management practices, and operational standards, for the final use or surface disposal of biosolids generated during the treatment of domestic sewage in a treatment works. Standards are included in this part for biosolids applied to the land or placed on a surface disposal site. Also included in this chapter are pathogen and alternative vector attraction reduction requirements for biosolids applied to the land or placed on a surface disposal site.

(d) In addition, the standards in this chapter include the frequency of monitoring, record keeping and reporting requirements when biosolids are applied to the land or placed on a surface disposal site.

Section 2. **Applicability.**

(a) This chapter applies to any person who prepares biosolids or applies biosolids to the land and to the owner/operator of a surface disposal site.

(b) This chapter applies to biosolids applied to the land or placed on a surface disposal site.

(c) This chapter applies to land where biosolids are applied and to surface disposal sites.

(d) This chapter supersedes all of the provisions in Part E, Chapter 11, Wyoming Water Quality Rules and Regulations, Waste and Wastewater Land Application Facilities, which pertain to the land application or surface disposal of biosolids and domestic septage.

Section 3. **General definitions**. The following definitions supplement those definitions contained in Section 35-11-103 of the Wyoming Environmental Quality Act.

(a) "Apply biosolids or biosolids applied to the land" means land application of biosolids.

(b) "Base flood" is a flood that has a one percent (1%) chance of occurring in any given year (i.e., a flood with a magnitude equaled once in 100 years).

(c) "Biosolids" are solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Biosolids include, but are not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from biosolids. Biosolids do not include ash generated during the firing of biosolids in a biosolids incinerator or grit and screenings generated during preliminary treatment of domestic sewage in a treatment works.

(d) "Biosolids management facility" is any treatment works, land application system or person who prepares or applies biosolids to the land and the owner/operator of a surface disposal site.

(e) "Cover crop" is a small grain crop, such as oats, wheat, or barley, not grown for harvest.

(f) "CWA" means the Clean Water Act , 333 U.S.C. 1251 et seq.

(g) "Domestic septage" is either liquid or solid material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device, or similar treatment works that receives only domestic sewage. Domestic septage does not include liquid or solid material removed from a septic tank, cesspool, or similar treatment works that receives either commercial wastewater or industrial wastewater and does not include grease removed from a grease trap at a restaurant.

(h) "Domestic sewage" is waste and wastewater from humans or household operations that is discharged to or otherwise enters a treatment works.

(i) "Dry weight basis" means calculated on the basis of having been dried at 105 degrees Celsius until reaching a constant mass (i.e., essentially 100 % solids content).

(j) "EPA" means the United States Environmental Protection Agency.

(k) "Feed crops" are crops produced primarily for consumption by animals.

(l) "Fiber crops" are crops, such as flax and cotton, that are not produced for consumption.

(m) "Food crops" are crops consumed by humans. These include, but are not limited to, fruits, vegetables, and tobacco.

(n) "Ground water" is subsurface water that fills available openings in rock or soil material such that they may be considered water saturated under hydrostatic pressure.

(o) "Industrial wastewater" is wastewater generated in a commercial or industrial process.

(p) "Municipality" means a city, town, borough, county, parish, district, association, or other public body (including an intermunicipal agency of two or more of the foregoing entities) created by or under state law; or a designated and approved management agency under section 208 of the CWA, as amended. The definition includes a special district created under state law, such as a water district, sewer district, sanitary district, utility district, drainage district, or similar entity, or an integrated waste management facility as defined in section 201(e) of the CWA, as amended, that has as one of its principal responsibilities the treatment, transport, use, or surface disposal of biosolids.

(q) "Permitting authority" is the EPA and/or the Department of Environmental Quality, Water Quality Division.

(r) "Person who prepares biosolids" is either the person who generates biosolids during
the treatment of domestic sewage in a treatment works or the person who derives a material from biosolids.

(s) "Place biosolids or biosolids placed" means disposal of biosolids on a surface disposal
site.

(t) "Pollutant" is an organic substance, an inorganic substance, a combination of organic and inorganic substances, or a pathogenic organism that, after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism either directly from the environment or indirectly by ingestion through the food chain, could, on the basis of information available to the administrator of EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunction in reproduction), or physical deformations in either organisms or offspring of the organisms.

(u) "Pollutant limit" is a numerical value that describes the amount of a pollutant allowed per unit amount of biosolids (e. g., milligrams per kilogram of total solids); the amount of a pollutant that can be applied to a unit area of land (e. g., kilograms per hectare); or the volume of a material that can be applied to a unit area of land (e.g., gallons per acre).

(v) "Runoff" is rainwater, leachate, or other liquid that drains overland on any part of a land surface and runs off of the land surface.

(w) "Store or storage of biosolids" is the placement of biosolids on land on which the biosolids remains for two years or less. This does not include the placement of biosolids on land for treatment.

(x) "Treat or treatment of biosolids" is the preparation of biosolids for final use or disposal. This includes, but is not limited to, thickening, stabilization, and dewatering of biosolids. This does not include storage of biosolids.

(y) "Treatment works" is either a federally owned, publicly owned, or privately owned device or system used to treat (including recycle and reclaim) either domestic sewage or a combination of domestic sewage and industrial waste of a liquid nature. This definition is applicable to this chapter only and has a more limited application than the same term as defined in W.S. 35-11-103 (c) (iv).

Section 4. **Compliance period.** Compliance with the standards in this part shall be achieved as expeditiously as practicable, but in no case later than one year after final adoption. When compliance with the standards requires construction of new pollution control facilities, compliance with the standards shall be achieved as expeditiously as practicable, but in no case later than two years after final adoption.

Section 5. **Permits, enforceability and applications.**

(a) Permits. The requirements in this chapter may be implemented through:

(i) An EPA Authorization To Land Apply or Surface Dispose Sludge Under The National Pollution Discharge Elimination System, issued to a "treatment works treating domestic sewage," as defined in 40 CFR Part 122.2, in accordance with 40 CFR Parts 122 and 124 by EPA;

(ii) A land application permit issued by the state of Wyoming;

(iii) A permit issued under subtitle C of the Solid Waste Disposal Act; Part C of the Safe Drinking Water Act; or the Marine Protection, Research, and Sanctuaries Act of 1972; or

(iv) A general statewide permit issued by the Department of Environmental Quality, Water Quality Division for the land application of domestic septage based issued in accordance with the requirements of a General Statewide Permit for Land Application of Domestic Septage In Remote Areas, see Appendix C.

(b) Direct enforceability. No person shall use or dispose of biosolids through any practice for which requirements are established in this chapter except in accordance with such requirements.

(c) Applications. Applications for permits shall be submitted to the permitting authority in accordance with 40 CFR Part 122.21 and/or state application requirements. The application materials submitted shall be adequate to demonstrate compliance with all requirements of these regulations.

Section 6. **Relationship to other regulations**. Disposal of biosolids in a municipal solid waste landfill unit that complies with the requirements in Chapter 2, Wyoming Solid Waste Management Rules and Regulations constitutes compliance with these regulations. Any person who prepares biosolids that are disposed in a municipal solid waste landfill unit shall ensure that the biosolids meet the requirements of Chapter 2, Solid Waste Management Rules and Regulations concerning the quality of materials disposed in a municipal solid waste landfill unit.

Section 7. **Additional or more stringent requirements and determination of process equivalency**.

(a) In accordance with 40 CFR Part 503.5, the United States Environmental Protection Agency on a case-by-case basis has the authority to impose requirements for the use or surface disposal of biosolids in addition to or more stringent than the requirements in Part 503 and this chapter when necessary to protect public health and the environment from any adverse effect of a pollutant in the biosolids. Similar authority is not provided to the Department of Environmental Quality, Water Quality Division.

(b) Nothing in this chapter precludes the United States Environmental Protection Agency from imposing requirements for the use or surface disposal of biosolids more stringent than the requirements in 40 CFR Part 503 or this chapter or from imposing additional requirements for the use or surface disposal of biosolids. Similar authority is not provided to the Water Quality Division, Department of Environmental Quality.

(c) The Department of Environmental Quality, Water Quality Division, in conjunction with EPA, may determine that a process is equivalent to the pathogen and vector attraction alternatives described in Section 31, Section 32 and Appendix B.

Section 8. **Exclusions.**

(a) Treatment processes. This chapter does not establish requirements for processes used to treat domestic sewage or for processes used to treat biosolids prior to final use or disposal, except as provided in Section 31, Pathogens, and Section 32, Vector attraction reduction.

(b) Selection of a use or surface disposal practice. This chapter does not require the selection of a biosolids use or surface disposal practice. The determination of the manner in which biosolids are used or disposed is a local determination.

(c) Sludge generated at an industrial facility. This chapter does not establish requirements for the use or surface disposal of sludge generated at an industrial facility during the treatment of industrial wastewater, including biosolids generated during the treatment of industrial wastewater combined with domestic sewage.

(d) Hazardous biosolids. This chapter does not establish requirements for the use or surface disposal of biosolids determined to be hazardous in accordance with Chapter 2, Solid Waste Management Rules and Regulations.

(e) Biosolids with high PCB concentrations. This chapter does not establish requirements for the use or surface disposal of biosolids with a concentration of polychlorinated biphenyls (PCBs) equal to or greater than 50 milligrams per kilogram of total solids (dry weight basis).

(f) Grit and screenings. This chapter does not establish requirements for the use or surface disposal of grit (e.g., sand, gravel, cinders, or other materials with a high specific gravity) or screenings (e.g., relatively large materials such as rags) generated during preliminary treatment of domestic sewage in a treatment works.

(g) Drinking water treatment sludge. This chapter does not establish requirements for the use or surface disposal of sludge generated during the treatment of either surface water or ground water used for drinking water.

(h) Commercial and industrial septage. This chapter does not establish requirements for the use or surface disposal of commercial septage, industrial septage, a mixture of domestic septage and commercial septage, or a mixture of domestic septage and industrial septage.

(i) Fertilizer. This chapter does not establish requirements for the use of biolsolids registered by the Wyoming Department of Agriculture.

Section 9. **Requirement for any person who prepares, applies, or surface disposes biosolids.**

(a) Any person who prepares biosolids shall ensure that the applicable requirements in this chapter are met when the biosolids are applied to the land or placed on a surface disposal site. This requirement can be met through a written agreement between the preparer and applier ensuring all applicable requirements of this chapter are met or a separate permit for the applier.

(b) In accordance with 40 CFR 503.12, any person who prepares bulk biosolids outside of the State of Wyoming that are to be applied to land within the State of Wyoming shall provide written notice to the Department of Environmental Quality, Water Quality Division prior to the initial application of bulk biosolids. The notice shall include the following:

(i) The location, by either street address or latitude and longitude, of each land application site;

(ii) The approximate time period bulk biosolids will be applied to the site;

(iii) The name, address, telephone number, and National Pollutant Discharge Elimination System permit number (if appropriate) for the person who prepares the bulk biosolids; and

(iv) The name, address, telephone number, and National Pollutant Discharge Elimination System permit number (if appropriate) and state permit number of the person who will apply the bulk biosolids.

(c) Any person who intends to land apply biosolids that are prepared outside of the State of Wyoming shall obtain a land application permit from the Department of Environmental Quality, Water Quality Division prior to application of the biosolids or ensure that the applicable requirements in this chapter are met when the biolsolids are applied to the land or surface disposed by a written agreement with the applier.

Section 10. **Sampling and analysis.**

(a) Sampling. Representative samples of biosolids that are applied to the land or placed on a surface disposal site shall be collected and analyzed.

(b) Methods. The references listed below are incorporated by reference in this chapter. The materials are incorporated as they existed on February 19, 1993.

(i) Enteric viruses. ASTM Designation: D 4994-89, "Standard Practice for Recovery of Viruses From Wastewater Sludges," Annual Book of ASTM Standards: Section 11 - Water and Environmental Technology, ASTM, Philadelphia, PA., 1992.

(ii) Fecal coliform. Part 9221 E. or Part 9222 D., "Standard Methods for the Examination of Water and Wastewater," 18th Edition, American Public Health Association, Washington, D.C., 1992.

(iii) Helminth ova. Yanko, W.A., "Occurrence of Pathogens in Distribution and Marketing Municipal Sludges," EPA 600/1-87-014, 1987. PB 88-154273/AS, National Technical Information Service, Springfield, Virginia.

(iv) Inorganic pollutants. "Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods," EPA Publication SW-846, Second Edition (1982) with Updates I and II and Third Edition (1986) with Revision I. Second Edition - PB87-120-291, National Technical Information Service, Springfield, Virginia. Third Edition - Document number 955-001-00000-1, Superintendent of Documents, Government Printing Office, Washington, D.C.

(v) Salmonella sp. bacteria. Part 9260 D., Standard Methods for the Examination of Water and Wastewater," 18th Edition, American Public Health Association, Washington, D.C., 1992; or Kenner, B.A. and H.P. Clark, "Detection and enumeration of Salmonella and Pseudomonas aeruginosa," J. Water Pollution Control Federation, 46(9) :2163-2171, 1974.

(vi) Specific oxygen uptake rate. Part 2710 B., "Standard Methods for the Examination of Water and Wastewater," 18th Edition, American Public Health Association, Washington, D.C., 1992.

(vii) Total, fixed, and volatile solids. Part 2540 G., "Standard Methods for the Examination of Water and Wastewater," 18th Edition, American Public Health Association, Washington, D.C., 1992.

(viii) Percent volatile solids reduction calculation. "Environmental Regulations and Technology - Control of Pathogens and Vectors in Biosolids," EPA-625/R-92/013, U.S. Environmental Protection Agency, Cincinnati, Ohio, 1992.

PART B
LAND APPLICATION

Section 11. **Applicability.**

(a) This part applies to any person who prepares biosolids that are applied to the land, to any person who applies biosolids to the land, to biosolids applied to the land, and to the land on which biosolids are applied.

(b) The general requirements in Section 13 and the management practices in Section 15 do not apply when bulk biosolids are applied to the land if the bulk biosolids meet the pollutant concentrations in Section 14 (b) (iii), the Class A pathogen requirements in Section 31 (a), and one of the vector attraction reduction requirements in Section 32 (f) through Section 32 (m).

(c) The United States Environmental Protection Agency may apply any or all of the general requirements in 40 CFR Part 503 and Section 13 and the management practices in Section 15 to the bulk biosolids in Section 11 (b) on a case-by-case basis after determining that the general requirements or management practices are needed to protect public health and the environment from any reasonably anticipated adverse effect that may occur from any pollutant in the bulk biosolids. Similar authority is not provided to the Water Quality Division, Department of Environmental Quality.

(d) The general requirements in Section 13 and the management practices in Section 15 do not apply when a bulk material derived from biosolids is applied to the land if the derived bulk material meets the pollutant concentrations in Section 14 (b) (iii), the Class A pathogen requirements in Section 31 (a), and one of the vector attraction reduction requirements in Section 32 (f) through Section 32 (m).

(e) The United States Environmental Protection Agency may apply any or all of the general requirements in 40 CFR Part 503 and Section 13 and the management practices in Section 15 to the bulk material in Section 11 (d) on a case-by-case basis after determining that the general requirements or management practices are needed to protect public health and the environment from any reasonably anticipated adverse effect that may occur from any pollutant in the bulk biosolids. Similar authority is not provided to the Water Quality Division, Department of Environmental quality

(f) The requirements in this part do not apply when a bulk material derived from biosolids is applied to the land if the biosolids from which the bulk material is derived meets the pollutant concentrations in Section 14 (b) (iii), the Class A pathogen requirements in Section 31 (a), and one of the vector attraction reduction requirements in Section 32 (f) through Section 32 (m).

(g) The general requirements in Section 13 and the management practices in Section 15 do not apply when biosolids are sold or given away in a bag or other container for application to the land if the biosolids sold or given away in a bag or other container for application to the land meets the pollutant concentrations in Section 14 (b) (iii), the Class A pathogen requirements in Section 31 (a), and one of the vector attraction reduction requirements in Section 32 (f) through Section 32 (m).

(h) The general requirements in Section 13 and the management practices in Section 15 do not apply when a material derived from biosolids is sold or given away in a bag or other container for application to the land if the derived material meets the pollutant concentrations in Section 14 (b) (iii), the Class A pathogen requirements in Section 31 (a), and one of the vector attraction reduction requirements in Section 32 (f) through Section 32 (m).

(i) The requirements in this part do not apply when a material derived from biosolids is sold or given away in a bag or other container for application to the land if the biosolids from which the material is derived meets the pollutant concentrations in Section 14 (b) (iii), the Class A pathogen requirements in Section 31 (a), and one of the vector attraction reduction requirements in Section 32 (f) through Section 32 (m).

Section 12. **Special definitions**.

(a) "Agricultural land" is land on which a food crop, a feed crop, or a fiber crop is grown. This includes range land and land used as pasture.

(b) "Agronomic rate" is the whole sludge application rate (dry weight basis) designed: (1) to provide the amount of nitrogen needed by the food crop, feed crop, fiber crop, cover crop, or vegetation grown on the land; and (2) to minimize the amount of nitrogen in the biosolids that passes below the root zone of the crop or vegetation grown on the land to the ground water.

(c) "Annual pollutant loading rate" is the maximum amount of a pollutant that can be applied to a unit area of land during a 365 day period.

(d) "Annual whole sludge application rate" is the maximum amount of biosolids (dry weight basis) that can be applied to a unit area of land during a 365 day period.

(e) "Bulk biosolids" are biosolids that are not sold or given away in a bag or other container for application to the land.

(f) "Cumulative pollutant loading rate" is the maximum amount of an inorganic pollutant that can be applied to an area of land.

(g) "Forest" is a tract of land thick with trees and underbrush.

(h) "Land application" is the spraying or spreading of biosolids onto the land surface; the injection of biosolids below the land surface; or the incorporation of biosolids into

the soil so that the biosolids can either condition the soil or fertilize crops or vegetation grown in the soil.

(i) "Monthly average" is the arithmetic mean of all measurements taken during the month.

(j) "Other container" is either an open or closed receptacle. This includes, but is not limited to, a bucket, a box, a carton, and a vehicle or trailer with a load capacity of one metric ton or less.

(k) "Pasture" is land on which animals feed directly on feed crops such as legumes, grasses, grain stubble, or stover.

(l) "Public contact site" is land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.

(m) "Range land" is open land, used for grazing by livestock or wildlife, on which the natural potential plant community is dominated by grasses, grasslike plants, forbs and shrubs.

(n) "Reclamation site" is drastically disturbed land that is reclaimed using biosolids. This includes, but is not limited to, strip mines and construction sites.

Section 13. **General requirements**.

(a) No person shall apply biosolids to the land except in accordance with the requirements in this part.

(b) No person shall apply bulk biosolids subject to the cumulative pollutant loading rates in Section 14 (b) (ii) to agricultural land, forest, a public contact site, or a reclamation site if any of the
cumulative pollutant loading rates in Section 14 (b) (ii) has been reached.

(c) No person shall apply domestic septage to agricultural land, forest, or a reclamation site during a 365 day period if the annual application rate in Section 14 (c) has been reached during that period. This requirement is met through compliance with the conditions of the General Statewide Permit for Land Application of Domestic Septage In Remote Areas, see Appendix C.

(d) The person who prepares bulk biosolids that are applied to agricultural land, forest, a public contact site, or a reclamation site shall provide the person who applies the bulk biosolids written notification of the concentration of total nitrogen (as N on a dry weight basis) in the bulk biosolids.

(e) The person who applies biosolids to the land shall obtain information needed to comply with the requirements in this part.

(i) Before bulk biosolids subject to the cumulative pollutant loading rates in Section 14 (b) (ii) are applied to the land, the person who proposes to apply the bulk biosolids shall contact the permitting authority to determine whether bulk biosolids subject to the cumulative pollutant loading rates in Section 14 (b) (ii) have been applied to the site since July 20, 1993.

(ii) If bulk biosolids subject to the cumulative pollutant loading rates in Section 14 (b) (ii) have not been applied to the site since July 20, 1993, the cumulative amount for each pollutant listed in Table 2 of Section 14 may be applied to the site in accordance with Section 14 (a) (ii) (A).

(iii) If bulk biosolids subject to the cumulative pollutant loading rates in Section 14 (b) (ii) have been applied to the site since July 20, 1993, and the cumulative amount of each pollutant applied to the site in the bulk biosolids since that date is known, the cumulative amount of each pollutant applied to the site shall be used to determine the additional amount of each pollutant that can be applied to the site in accordance with Section 14 (a) (ii) (A). (iv) If bulk biosolids subject to the cumulative pollutant loading rates in Section 14 (b) (ii) have been applied to the site since July 20, 1993, and the cumulative amount of each pollutant applied to the site in the bulk biosolids since that date is not known, an additional amount of each pollutant shall not be applied to the site.

(f) When a person who prepares bulk biosolids provides the bulk biosolids to a person who applies the bulk biosolids to the land, the person who prepares the bulk biosolids shall provide the person who applies the bulk biosolids notice and necessary information to comply with the requirements in this part.

(g) When a person who prepares biosolids provides the biosolids to another person who prepares the biosolids, the person who provides the biosolids shall provide the person who receives the biosolids notice and necessary information to comply with the requirements in this part.

(h) The person who applies bulk biosolids to the land shall provide the owner or lease holder of the land on which the bulk biosolids is applied notice and necessary information to comply with the requirements in this part.

(i) Any person who prepares bulk biosolids outside of the State of Wyoming that are to be applied to land within the State of Wyoming shall provide written notice to the permitting authority prior to the initial application of bulk biosolids. The notice shall include the following:

(i) The location, by either street address or latitude and longitude, of each land application site;

(ii) The approximate time period bulk biosolids will be applied to the site;

(iii) The name, address, telephone number, the National Pollutant Discharge Elimination System permit number (if appropriate) for the person who prepares the bulk biosolids; and

(iv) The name, address, telephone number, the National Pollutant Discharge Elimination System permit number (if appropriate) and the state permit number of the person who will apply the bulk biosolids.

(j) Any person who land applies biosolids that were prepared outside of the state shall obtain a land application permit from the Water Quality Division, Department of Environmental Quality prior to the initial application of biosolids.

(k) Any person who land applies bulk biosolids subject to the cumulative pollutant loading rates in Section 14 (b) (ii) shall provide written notice to the permitting authority, prior to the initial application of bulk biosolids to a land application site by the applier. The permitting authority shall retain and provide access to the notice. The notice shall include:

(i) The location, by either street address or latitude and longitude, of the land application site; and

(ii) The name, address, telephone number, and National Pollutant Discharge Elimination System permit number (if appropriate) of the person who will apply the bulk biosolids.

Section 14. **Pollutant limits.**

(a) Biosolids.

(i) Bulk biosolids or biosolids sold or given away in a bag or other container shall not be applied to the land if the concentration of any pollutant in the biosolids exceeds the ceiling concentration for the pollutant in Table 1 of Section 14.

(ii) If bulk biosolids are applied to agricultural land, forest, a public contact site, or a reclamation site, either:

(A) The cumulative loading rate for each pollutant shall not exceed the cumulative pollutant loading rate for the pollutant in Table 2 of Section 14; or

(B) The concentration of each pollutant in the biosolids shall not exceed the concentration for the pollutant in Table 3 of Section 14.

(iii) If bulk biosolids are applied to a lawn or a home garden, the concentration of each pollutant in the biosolids shall not exceed the concentration for the pollutant in Table 3 of Section 14.

~~(iv) If biosolids are sold or given away in a bag or other container for application to the land, either:~~

~~(A) The concentration of each pollutant in the biosolids shall not exceed the concentration for the pollutant in Table 3 of Section 14; or~~

~~(B) The product of the concentration of each pollutant in the biosolids and the annual whole sludge application rate for the biosolids shall not cause the annual pollutant loading rate for the pollutant in Table 4 of Section 14 to be exceeded. The procedure used to determine the annual whole sludge application rate is presented in Appendix A of this chapter.~~

~~(b) Pollutant concentrations and loading rates - biosolids.~~

~~(i) Ceiling concentrations.~~

Table 1 of Section 14

Pollutant	Ceiling Concentration (milligrams per kilogram)*
Arsenic	75
Cadmium	85
Copper	4300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7500

* Dry weight basis

(ii) Cumulative pollutant loading rates.

Table 2 of Section 14

Pollutant	Cumulative Pollutant Loading Rate (kilograms per hectare)
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Molybdenum	_*
Nickel	420
Zinc	2800

* Currently under review by EPA.

(iii) Pollutant concentrations.

Table 3 of Section 14

Pollutant	Pollutant concentrations (milligrams per kilogram)*
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Molybdenum	_**
Nickel	420
Selenium	100
Zinc	2800

* Dry weight basis.
** Currently under review by EPA.

(iv) Annual pollutant loading rates.

Table 4 of Section 14

Pollutant	Annual Pollutant Loading Rate (kilograms per hectare per 365 day period)
Arsenic	2.0
Cadmium	1.9
Copper	75
Lead	15
Mercury	0.85
Molybdenum	*
Nickel	21
Zinc	140

* Currently under review by EPA.

(c) Domestic septage. The annual application rate for domestic septage applied to agricultural land, forest, or a reclamation site shall not exceed the annual application rate calculated using equation (1).

$$AAR = \frac{N}{0.0026} \qquad \text{Eq.(1)}$$

Where:

AAR = Annual application rate in gallons per acre per 365 day period.

N = Amount of nitrogen in pounds per acre per 365 day period needed by the crop or vegetation grown on the land.

Section 15. **Management practices.**

(a) Under the provisions of 40 CFR Part 503, the United State Environmental Protection Agency is authorized to ensure that bulk biosolids shall not be applied to the land if it is likely to adversely affect a threatened or endangered species listed under Section 4 of the Endangered Species Act or its designated critical habitat. No similar authority is provided to the Department of Environmental Quality, Water Quality Division.

(b) Bulk biosolids shall not be applied to agricultural land, forest, a public contact site, or a reclamation site that is flooded, frozen, or snow-covered so that the bulk biosolids enters a wetland or waters of the state, except as provided in a permit issued pursuant to Chapter 2, Wyoming Water Quality Rules and Regulations.

(c) Bulk biosolids shall not be applied to agricultural land, forest, or a reclamation site that is ten (10) meters or less from waters of the state, unless otherwise specified by the permitting authority.

(d) Bulk biosolids shall be applied to agricultural land, forest, a public contact site, or a reclamation site at a whole sludge application rate that is equal to or less than the agronomic rate for the bulk biosolids, unless, in the case of a reclamation site, otherwise specified by the permitting authority.

(e) Either a label shall be affixed to the bag or other container in which biosolids that are sold or given away for application to the land, or an information sheet shall be provided to the person who receives biosolids sold or given away in an other container for application to the land. The label or information sheet shall contain the following information:

(i) The name and address of the person who prepared the biosolids that are sold or given away in a bag or other container for application to the land;

(ii) A statement that application of the biosolids to the land is prohibited except in accordance with the instructions on the label or information sheet; and

(iii) The annual whole sludge application rate for the biosolids that does not cause any of the annual pollutant loading rates in Table 4 of Section 14 to be exceeded.

Section 16. **Operational standards - pathogens and vector attraction reduction.**

(a) Pathogens - biosolids.

(i) The Class A pathogen requirements in Section 31 (a) or the Class B pathogen requirements and site restrictions in Section 31 (b) shall be met when bulk biosolids are applied to agricultural land, forest, a public contact site, or a reclamation site.

(ii) The Class A pathogen requirements in Section 31 (a) shall be met when bulk biosolids are applied to a lawn or a home garden.

(iii) The Class A pathogen requirements in Section 31 (a) shall be met when biosolids are sold or given away in a bag or other container for application to the land.

(b) Pathogens - domestic septage. The requirements in either Section 31 (c) (i) or Section 31 (c) (ii) shall be met when domestic septage is applied to agricultural land, forest, or a reclamation site. Compliance with the conditions of a General Statewide Permit for Land Application of Domestic Septage In Remote Areas, see Appendix C, are considered equivalent to these pathogen requirements.

(c) Vector attraction reduction - biosolids.

(i) One of the vector attraction reduction requirements in Section 32 (f) through Section 32 (p) shall be met when bulk biosolids are applied to agricultural land, forest, a public contact site, or a reclamation site.

(ii) One of the vector attraction reduction requirements in Section 32 (f) through Section 32 (m) shall be met when bulk biosolids are applied to a lawn or a home garden.

(iii) One of the vector attraction reduction requirements in Section 32 (f) through Section 32 (m) shall be met when biosolids are sold or given away in a bag or other container for application to the land.

(d) Vector attraction reduction - domestic septage. The vector attraction reduction requirements in Section 32 (n), or (o) and (p), or 32 (r) shall be met when domestic septage is applied to agricultural land, forest, or a reclamation site. Compliance with the conditions of a General Statewide Permit for Land Application of Domestic Septage In Remote Areas, see Appendix C, are considered equivalent to the vector attraction requirements.

Section 17. **Frequency of monitoring.**

(a) Biosolids.

(i) The frequency of monitoring for the pollutants listed in Table 1, Table 2, Table 3 and Table 4 of Section 14; the pathogen density requirements in Section 31 (a) and in Section 31 (b) (ii) through Section 31 (b) (iv); and the vector attraction reduction requirements Section 32 (f) through Section 32 (m) shall be the frequency in Table 1 of Section 17. Any person who prepares or derives bulk biosolids shall conduct the monitoring required by this section.

Table 1 of Section 17
Frequency Of Monitoring - Land Application

Amount of biosolids* (metric tons per 365 day period)	Frequency
Greater than zero but less than 290	Once per year
Equal to or greater than 290 but less than 1,500	Once per quarter (four times per year)
Equal to or greater than 1,500 but less than 15,000	Once per 60 days (six times per year)
Equal to or greater than 15,000	Once per month (12 times per year)

* Either the amount of bulk biosolids applied to the land or the amount of biosolids received by a person who prepares biosolids that are sold or given away in a bag or other container for application to the land (dry weight basis).

(ii) After the biosolids have been monitored for two years at the frequency in Table 1 of Section 17, the permitting authority may reduce the frequency of monitoring for pollutant concentrations and for the pathogen density requirements in Section 31 (a) (v) (B) through (I), but

in no case shall the frequency of monitoring be less than once per year when biosolids are applied to the land.

(b) Domestic septage. If either the pathogen requirements in Section 31 (c) (ii) or the vector attraction reduction requirements in Section 32 (r) are met when domestic septage is applied to agricultural land, forest, or a reclamation site, each container of domestic septage applied to the land shall be monitored for compliance with those requirements. Compliance with the conditions in General Statewide Permit for Land Application of Domestic Septage In Remote Areas, see Appendix C, are considered equivalent with these pathogen and vector attraction reduction requirements.

Section 18. **Record keeping.**

(a) Biosolids.

(i) The person who prepares the biosolids in Section 11 (b) or (g) shall develop the following information and shall retain the information for five (5) years:

(A) The concentration of each pollutant listed in Table 3 of Section 14 in the biosolids;

(B) The following certification statement: "I certify, under penalty of law, that the Class A pathogen requirements in Section 31 (a) of Chapter 15, Wyoming Water Quality Rules and Regulations and the vector attraction reduction requirement in [insert one of the vector attraction reduction requirements in Section 32 (f) through Section 32 (m)] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements and vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fines and imprisonment.";

(C) A description of how the Class A pathogen requirements in Section 31 (a) are met; and

(D) A description of how one of the vector attraction reduction requirements in Section 32 (f) through Section 32 (m) is met.

(ii) The person who derives the material in Section 11 (d) or (h) shall develop the following information and shall retain the information for five (5) years:

(A) The concentration of each pollutant listed in Table 3 of Section 14 in the material;

(B) The following certification statement: "I certify, under penalty of law, that the Class A pathogen requirements in Section 31 (a) of Chapter 15, Wyoming Water Quality Rules and Regulations and the vector attraction reduction requirement in [insert one of

the vector attraction reduction requirements in Section 32 (f) through Section 32 (m)] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements and the vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fines and imprisonment.";

(C) A description of how the Class A pathogen requirements in Section 31 (a) are met; and

(D) A description of how one of the vector attraction reduction requirements in Section 32 (f) through Section 32 (m) is met.

(iii) If the pollutant concentrations in Section 14 (b) (iii), the Class A pathogen requirements Section 31 (a), and the vector attraction reduction requirements in either Section 32 (n) or Section 32 (o) and (p) are met when bulk biosolids are applied to agricultural land, forest, a public contact site, or a reclamation site:

(A) The person who prepares the bulk biosolids shall develop the following information and shall retain the information for five (5) years:

(I) The concentration of each pollutant listed in Table 3 of Section 14 in the bulk biosolids;

(II) The following certification statement: "I certify, under penalty of law, that the pathogen requirements in Section 31 (a) of Chapter 15, Wyoming Water Quality Rules and Regulations have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fines and imprisonment. "; and

(III) A description of how the pathogen requirements in Section 31 (a) are met.

(B) The person who applies the bulk biosolids shall develop the following information and shall retain the information for five (5) years:

(I) The following certification statement: "I certify, under penalty of law, that the management practices in Section 15 of Chapter 15, Wyoming Water Quality Rules and Regulations and the vector attraction reduction requirement in [insert either Section 32 (n) or Section 32 (o) and (p)] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices and vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including fines and imprisonment.";

(II) A description of how the management practices in Section 15 are met for each site on which bulk biosolids are applied; and

(III) A description of how the vector attraction reduction requirements in either Section 32 (n) or (o) and (p) are met for each site on which bulk biosolids are applied.

(iv) If the pollutant concentrations in Section 14 (b) (iii) and the Class B pathogen requirements in Section 31 (b) are met when bulk biosolids are applied to agricultural land, forest, a public contact site, or a reclamation site:

(A) The person who prepares the bulk biosolids shall develop the following information and shall retain the information for five (5) years:

(I) The concentration of each pollutant listed in Table 3 of Section 14 in the bulk biosolids;

(II) The following certification statement: "I certify under, penalty of law, that the Class B pathogen requirements in Section 31 (b) of Chapter 15, Wyoming Water Quality Rules and Regulations and the vector attraction reduction requirement in [insert one of the vector attraction reduction requirements in Section 32 (f) through Section 32 (m) if one of those requirements is met] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements [and vector attraction reduction requirements if applicable] have been met. I am aware that there are significant penalties for false certification including the possibility of fines and imprisonment.";

(III) A description of how the Class B pathogen requirements in Section 31 (b) are met; and

(IV) When one of the vector attraction reduction requirements in Section 32 (f) through Section 32 (m) is met, a description of how the vector attraction reduction requirement is met.

(B) The person who applies the bulk biosolids shall develop the following information and shall retain the information for five (5) years:

(I) The following certification statement: "I certify, under penalty of law, that the management practices in Section 15 of Chapter 15, Wyoming Water Quality Rules and Regulations, the site restrictions in Section 31 (b) (vi), and the vector attraction reduction requirements in [insert either Section 32 (n) or Section 32 (o), if one of those requirements is met] have been met for each site on which bulk biosolids are applied. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to

determine that the management practices and site restrictions [and the vector attraction reduction requirements if applicable] have been met. I am aware that there are significant penalties for false certification including the possibility of fines and imprisonment. ";

(II) A description of how the management practices Section 15 are met for each site on which bulk biosolids are applied;

(III) A description of how the site restrictions in Section 31 (b) (vi) are met for each site on which bulk biosolids are applied; and

(IV) When the vector attraction reduction requirement in either Section 32 (n) or (o) are met, a description of how the vector attraction reduction requirement is met.

(v) If the requirements in Section 14 (a) (ii) (A) are met when bulk biosolids are applied to agricultural land, forest, a public contact site, or a reclamation site:

(A) The person who prepares the bulk biosolids shall develop the following information and shall retain the information for five (5) years:

(I) The concentration of each pollutant listed in Table 1 of Section 14 in the bulk biosolids;

(II) The following certification statement: "I certify, under penalty of law, that the pathogen requirements in [insert either Section 31 (a) or Section 31 (b)] of Chapter 15, Wyoming Water Quality Rules and Regulations and the vector attraction reduction requirement in [insert one of the vector attraction reduction requirements in Section 32 (f) through (m) if one of those requirements is met] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements [and vector attraction reduction requirements] have been met. I am aware that there are significant penalties for false certification including the possibility of fines and imprisonment.";

(III) A description of how the pathogen requirements in either Section 31 (a) or Section 31 (b) are met; and

(IV) When one of the vector attraction requirements in Section 32 (f) through (m) is met, a description of how the vector attraction requirement is met.

(B) The person who applies the bulk biosolids shall develop the following information, retain the information in Section 18 (a) (v) (B) (I) through Section 18 (a) (v) (B) (VII) indefinitely, and retain the information in Section 18 (a) (v) (B) (VIII) through Section 18 (a) (v) (B) (XIII) for five (5) years:

(I) The location, by either street address or latitude and longitude, of each site on which bulk biosolids are applied;

(II) The number of hectares in each site on which bulk biosolids are applied;

(III) The date and time bulk biosolids are applied to each site;

(IV) The cumulative amount of each pollutant (i.e., kilograms) listed in Table 2 of Section 14 in the bulk biosolids applied to each site, including the amount in Section 13 (e) (iii);

(V) The amount of biosolids (i.e., metric tons) applied to each site;

(VI) The following certification statement: "I certify, under penalty of law, that the requirements to obtain information in Section 13 (e) (ii) of Chapter 15, Wyoming Water Quality Rules and Regulations have been met for each site on which bulk biosolids is applied. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the requirements to obtain information have been met. I am aware that there are significant penalties for false certification including fines and imprisonment.";

(VII) A description of how the requirements to obtain information in Section 13 (e) (ii) are met;

(VIII) The following certification statement: "I certify, under penalty of law, that the management practices in Section 15 of Chapter 15, Wyoming Water Quality Rules and Regulations have been met for each site on which bulk biosolids is applied. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices have been met. I am aware that there are significant penalties for false certification including fines and imprisonment.";

(IX) A description of how the management practices in Section 15 are met for each site on which bulk biosolids are applied;

(X) The following certification statement when the bulk biosolids meets the Class B pathogen requirements in Section 31 (b): "I certify, under penalty of law, that the site restrictions in Section 31 (b) (vi) of Chapter 15, Wyoming Water Quality Rules and Regulations have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the site restrictions have been met. I

am aware that there are significant penalties for false certification including fines and imprisonment.";

(XI) A description of how the site restrictions in Section 31 (b) (vi) are met for each site on which Class B bulk biosolids are applied;

(XII) The following certification statement when the vector attraction reduction requirement in either Section 32 (n) or (o) and (p) is met: "I certify, under penalty of law, that the vector attraction reduction requirement in [insert either Section 32 (n) or (o) and (p)] of Chapter 15, Wyoming Water Quality Rules and Regulations has been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the vector attraction reduction requirement has been met. I am aware that there are significant penalties for false certification including the possibility of fines and imprisonment." (XIII) If the vector attraction reduction requirements in either Section 32 (n) or (o) and (p) are met, a description of how the requirements are met.

(vi) If the requirements in Section 14 (a) (iv) (B) are met when biosolids is sold or given away in a bag or other container for application to the land, the person who prepares the biosolids that is sold or given away in a bag or other container shall develop the following information and shall retain the information for five (5) years:

(A) The annual whole sludge application rate for the biosolids that does not cause the annual pollutant loading rates in Table 4 of Section 14 to be exceeded;

(B) The concentration of each pollutant listed in Table 4 of Section 14 in the biosolids;

(C) The following certification statement: "I certify, under penalty of law, that the management practice in Section 15 (e) of Chapter 15, Wyoming Water Quality Rules and Regulations, the Class A pathogen requirement in Section 31 (a), and the vector attraction reduction requirement in [insert one of the vector attraction reduction requirements in Section 32 (f) through (m)] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practice, pathogen requirements, and vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fines and imprisonment.";

(D) A description of how the Class A pathogen requirements in Section 31(a) are met; and

(E) A description of how one of the vector attraction requirements in Section 32 (f) through (m) is met.

(b) Domestic septage. When domestic septage is applied to agricultural land, forest, or a reclamation site, the person who applies the domestic septage shall develop the following information and shall retain the information for five (5) years:

(i) The location, by either street address or latitude and longitude, of each site on which domestic septage is applied;

(ii) The number of acres in each site on which domestic septage is applied;

(iii) The date and time domestic septage is applied to each site;

(iv) The nitrogen requirement for the crop or vegetation grown on each site during a 365 day period;

(v) The rate, in gallons per acre per 365 day period, at which domestic septage isapplied to each site;

(vi) The following certification statement: "I certify, under penalty of law, that the pathogen requirements in [insert either Section 31 (c) (i) or (c) (ii)] of Chapter 15, Wyoming Water Quality Rules and Regulations and the vector attraction reduction requirements in [insert Section 32 (n), (o) and (p), or (r)] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements and vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fines and imprisonment.";

(vii) A description of how the pathogen requirements in either Section 31 (c) (i) or (c) (ii) are met;

(viii) A description of how the vector attraction reduction requirements in Section 32 (n), (o) and (p), or (r) are met; and

(ix) The record keeping requirements of this section are considered equivalent to the requirements of a General Statewide Permit for Land Application of Domestic Sewage In Remote Areas, see Appendix C.

Section 19. **Reporting.**

(a) Biosolids management facilities shall submit the following information to the permitting authority:

(i) The information in Section 18 (a), except the information in Sections 18 (a) (iii) (B), (a) (iv) (B) and (a) (v) (B), for the appropriate requirements on February 19 of each year;

(ii) The information in Sections 18 (a) (v) (B) (I) through (a) (v) (B) (VII) on February 19 of each year when 90% or more of any of the cumulative pollutant loading rates in Table 2 of Section 14 is reached at a site; and

(b) Submitting the completed worksheet for each land application of septage authorized by a General, Statewide Permit for Land Application of Domestic Septage In Remote Areas to the Department of Environmental Quality, Water Quality Division or the appropriate delegated local small wastewater permitting authority within fifteen (15) days of the date of application is considered equivalent to the reporting requirements of this section.

PART C
SURFACE DISPOSAL

Section 20. **Applicability.**

(a) This part applies to any person who prepares biosolids that are placed on a surface disposal site, to the owner/operator of a surface disposal site, to biosolids placed on a surface disposal site, and to a surface disposal site.

(b) This part does not apply to biosolids stored on the land or to the land on which biosolids are stored. It also does not apply to biosolids that remain on the land for longer than two (2) years when the person who prepares the biosolids demonstrates that the land on which the biosolids remains is not an active biosolids unit. The demonstration shall include the following information, which shall be retained by the person who prepares the biosolids for the period that the biosolids remains on the land:

(i) The name and address of the person who prepares the biosolids;

(ii) The name and address of the person who either owns the land or leases the land;

(iii) The location, by either street address or latitude and longitude, of the land;

(iv) An explanation of why biosolids need to remain on the land for longer than two years prior to final use or disposal; and

(v) The approximate time period when the biosolids will be used or disposed.

(c) This part does not apply to biosolids treated on the land or to the land on which biosolids are treated.

(d) Application of biosolids to the land for treatment and storage of biosolids are regulated under separate provisions of Chapter 11, Wyoming Water Quality Rules and Regulations.

Section 21. **Special definitions.**

(a) "Active biosolids unit" is a biosolids unit that has not closed.

(b) "Aquifer" is a geologic formation, group of geologic formations, or a portion of a geologic formation capable of yielding ground water to wells or springs.

(c) "Biosolids unit" is land on which only biosolids are placed for final disposal. This does not include land on which biosolids are either stored or treated. Land does not include waters of the state, as defined in W.S. 35-11-103 (c) (vi).

(d) "Biosolids unit boundary" is the outermost perimeter of an active biosolids unit.

(e) "Contaminate an aquifer" means to introduce a substance that causes the maximum contaminant level for nitrate in Chapter 8, Wyoming Water Quality Rules and Regulations to be exceeded in ground water or that causes the existing concentration of nitrate in ground water to increase when the existing concentration of nitrate in the ground water exceeds the maximum contaminant level for nitrate in Chapter 8, Wyoming Water Quality Rules and Regulations.

(f) "Cover" is soil or other material used to cover biosolids placed on an active biosolids unit.

(g) "Displacement" is the relative movement of any two sides of a fault measured in any direction.

(h) "Fault" is a fracture or zone of fractures in any materials along which strata on one side are displaced with respect to strata on the other side.

(i) "Final cover" is the last layer of soil or other material placed on a biosolids unit at closure.

(j) "Holocene time" is the most recent epoch of the Quaternary period, extending from the end of the Pleistocene epoch to the present.

(k) "Leachate collection system" is a system or device installed immediately above a liner that is designed, constructed, maintained, and operated to collect and remove leachate from a biosolids unit.

(l) "Liner" is soil or synthetic material that has a hydraulic conductivity of 1 x 10 -7 centimeters per second or less.

(m) "Lower explosive limit for methane gas" is the lowest percentage of methane gas in air, by volume, that propagates a flame at 25 degrees Celsius and atmospheric pressure.

(n) "Qualified ground water scientist" is an individual with a baccalaureate or post-graduate degree in the natural sciences or engineering who has sufficient training and experience in ground water hydrology and related fields, as may be demonstrated by State registration, professional certification, or completion of accredited university programs, to make sound professional judgments regarding ground water monitoring, pollutant fate and transport, and corrective action.

(o) "Seismic impact zone" is an area that has a ten percent (10%) or greater probability that the horizontal ground level acceleration of the rock in the area exceeds 0.10 gravity once in 250 years.

(p) "Surface disposal site" is an area of land that contains one or more active biosolids units.

(q) "Unstable area" is land subject to natural or human-induced forces that may damage the structural components of an active biosolids unit. This includes, but is not limited to, land on which the soils are subject to mass movement.

Section 22. **General requirements.**

(a) No person shall place biosolids on an active biosolids unit unless the requirements in this part are met.

(b) An active biosolids unit located within 60 meters of a fault that has displacement in Holocene time; located in an unstable area; or located in a wetland, except as provided in a permit issued pursuant to Sections 402 or 404 of the CWA, shall close within one year after the adoption of this chapter, unless, in the case of an active biosolids unit located within 60 meters of a fault that has displacement in Holocene time, approval is obtained from the permitting authority.

(c) The owner/operator of an active biosolids unit shall submit a written closure and post closure plan to the permitting authority 180 days prior to the date that the active biosolids unit closes. The plan shall describe how the biosolids unit will be closed and, at a minimum, shall include:

(i) A discussion of how the leachate collection system will be operated and maintained for three years after the biosolids unit closes if the biosolids unit has a liner and leachate collection system;

(ii) A description of the system used to monitor for methane gas in the air in any structures within the surface disposal site and in the air at the property line of the surface disposal site, as required in Section 24 (l); and

(iii) A discussion of how public access to the surface disposal site will be restricted for three years after the last biosolids unit in the surface disposal site closes.

(d) The owner of a surface disposal site shall provide written notification to the subsequent owner of the site that biosolids were placed on the land.

Section 23. **Pollutant limits (other than domestic septage)**.

(a) Active biosolids unit without a liner and leachate collection system.

(i) Except as provided in Section 23 (a) (ii) and 23 (b), the concentration of each pollutant listed in Table 1 of Section 23 in biosolids placed on an active biosolids unit shall not exceed the concentration listed for the pollutant in Table 1 of Section 23.

Table 1 Of Section 23
Pollutant Concentrations - Active Biosolid Unit
Without a Liner And Leachate Collection System

Pollutant	Concentration (milligrams per kilogram*)
Arsenic	73
Chromium	600
Nickel	420

* Dry weight basis

(ii) Except as provided in Section 23 (b), the concentration of each pollutant listed in Table 1 of Section 23 in biosolids placed on an active biosolids unit with a boundary less than 150 meters from the property line of the surface disposal site shall not exceed the concentration determined using the following procedure.

(A) The actual distance from the active biosolids unit boundary to the property line of the surface disposal site shall be determined.

(B) The concentration of each pollutant listed in Table 2 of Section 23 in the biosolids shall not exceed the concentration in Table 2 of Section 23 that corresponds to the actual distance in Section 23 (a) (ii) (A).

Table 2 Of Section 23
Pollutant Concentrations - Active Biosolids Unit Without a Liner and Leachate Collection System That Has a Unit Boundary to Property Line Distance less than 150 Meters

	Pollutant concentration*		
Unit boundary to property line distance (meters)	Arsenic (mg/kg)	Chromium (mg/kg)	Nickel (mg/kg)
0 to less than 25	30	200	210
25 to less than 50	34	220	240
50 to less than 75	39	260	270
75 to less than 100	46	300	320
100 to less than 125	53	360	390
125 to less than 150	62	450	420

* Dry weight basis

(b) Active biosolids unit without a liner and leachate collection system - site-specific limits.

(i) At the time of permit application, the owner/operator of a surface disposal site may request site-specific pollutant limits in accordance with Section 23 (b) (ii) for an active biosolids unit without a liner and leachate collection system when the existing values for site parameters specified by the permitting authority are different from the values for those parameters used to develop the pollutant limits in Table 1 of Section 23 and when the permitting authority determines that site-specific pollutant limits are appropriate for the active biosolids unit.

(ii) The concentration of each pollutant listed in Table 1 of Section 23 in biosolids placed on an active biosolids unit without a liner and leachate collection system shall not exceed either the concentration for the pollutant determined during a site-specific assessment, as specified by the permitting authority, or the existing concentration of the pollutant in the biosolids, whichever is lower.

Section 24. **Management practices.**

(a) Under the provisions of 40 CFR Part 503, the United State Environmental Protection Agency is authorized to ensure that bulk biosolids shall not be applied to the land if it is likely to adversely affect a threatened or endangered species listed under Section 4 of the Endangered Species Act or its designated critical habitat. No similar authority is provided to the Water Quality Division, Department of Environmental Quality.

(b) An active biosolids unit shall not restrict the flow of a base flood (i.e., a flood with a magnitude equaled once in 100 years).

(c) When a surface disposal site is located in a seismic impact zone, an active biosolids unit shall be designed to withstand the maximum recorded horizontal ground level acceleration.

(d) An active biosolids unit shall be located 60 meters or more from a fault that has displacement in Holocene time, unless otherwise specified by the permitting authority.

(e) An active biosolids unit shall not be located in an unstable area.

(f) An active biosolids unit shall not be located in a wetland, except as provided in a permit issued pursuant to Chapter 2, Wyoming Water Quality Rules and Regulations.

(g) Run-off from an active biosolids unit shall be collected and shall be disposed in accordance with National Pollutant Discharge Elimination System permit requirements and any other applicable requirements.

(h) The run-off collection system for an active biosolids unit shall have the capacity to handle run-off from a 24-hour, 25-year storm event.

(i) The leachate collection system for an active biosolids unit that has a liner and leachate collection system shall be operated and maintained during the period the biosolids unit is active and for three years after the biosolids unit closes.

(j) Leachate from an active biosolids unit that has a liner and leachate collection system shall be collected and shall be disposed in accordance with the applicable requirements during the period the biosolids unit is active and for three years after the biosolids unit closes.

(k) When a cover is placed on an active biosolids unit, the concentration of methane gas in air in any structure within the surface disposal site shall not exceed 25% of the lower explosive limit for methane gas during the period that the biosolids unit is active and the concentration of methane gas in air at the property line of the surface disposal site shall not exceed the lower explosive limit for methane gas during the period that the biosolids unit is active.

(l) When a final cover is placed on a biosolids unit at closure, the concentration of methane gas in the air in any structure within the surface disposal site shall not exceed 25% of the lower explosive limit for methane gas for three years after the biosolids unit closes and the concentration of methane gas in the air at the property line of the surface disposal site shall not exceed the lower explosive limit for methane gas for three years after the biosolids unit closes, unless otherwise specified by the permitting authority.

(m) A food crop, a feed crop, or a fiber crop shall not be grown on an active biosolids unit, unless the owner/operator of the surface disposal site demonstrates to the permitting authority that through management practices public health and the environment are protected from any reasonably anticipated adverse effects of pollutants in biosolids when crops are grown.

(n) Animals shall not be grazed on an active biosolids unit, unless the owner/operator of the surface disposal site demonstrates to the permitting authority that through management practices public health and the environment are protected from any reasonably anticipated adverse effects of pollutants in biosolids when animals are grazed.

(o) Public access to a surface disposal site shall be restricted for the period that the surface disposal site contains an active biosolids unit and for three years after the last active biosolids unit in the surface disposal site closes.

(p) Biosolids placed on an active biosolids unit shall not contaminate an aquifer.

(q) Results of a ground water monitoring program developed by a qualified ground water scientist or a certification by a qualified ground water scientist shall be used to demonstrate that biosolids placed on an active biosolids unit does not contaminate an aquifer.

Section 25. **Operational standards - pathogens and vector attraction reduction.**

(a) Pathogens - biosolids (other than domestic septage). The Class A pathogens requirements in Section 31 (a) or one of the Class B pathogen requirements in Section 31 (b) (iii) through (b) (v) shall be met when biosolids are placed on an active biosolids unit, unless the vector attraction reduction requirement in Section 32 (q) is met.

(b) Vector attraction reduction - biosolids (other than domestic septage). One of the vector attraction reduction requirements in Section 32 (f) through (q) shall be met when biosolids is placed on an active biosolids unit.

(c) Vector attraction reduction - domestic septage. One of the vector attraction reduction requirements in Section 32 (n) through (r) shall be met when domestic septage is placed on an active biosolids unit.

Section 26. **Frequency of monitoring.**

(a) Biosolids (other than domestic septage).

(i) The frequency of monitoring for the pollutants in Tables 1 and 2 of Section 23; the pathogen density requirements in Section 31 (a) and in Section 31 (b) (iii) through (b) (v); and the vector attraction reduction requirements in Section 32 (f) through (m) for biosolids placed on an active biosolids unit shall be the frequency in Table 1 of Section 26. The preparer of the biosolids shall conduct the monitoring required by this section.

Table 1 Of Section 26
Frequency of Monitoring – Surface Disposal

Amount of biosolids* (metric tons per 365 day period)	Frequency
Greater than zero but less than 290	Once per year
Equal to or greater than 290 but less than 1,500	Once per quarter (four times per year)
Equal to or greater than 1,500 but less than 15,000	Once per 60 days (six times per year)
Equal to or greater than 15,000	Once per month (12 times per year)

* Amount of biosolids placed on an active biosolids unit (dry weight basis).

(ii) After the biosolids have been monitored for two years at the frequency in Table 1 of Section 26, the permitting authority may reduce the frequency of monitoring for pollutant concentrations and for the pathogen density requirements in Section 31 (a) (v) (B) through (I), but in no case shall the frequency of monitoring be less than once per year when biosolids are placed on an active biosolids unit.

(b) Domestic septage. If the vector attraction reduction requirements in Section 32 (r) are met when domestic septage is placed on an active biosolids unit, each container of domestic septage shall be monitored for compliance with those requirements.

(c) Air. Air in structures within a surface disposal site and at the property line of the surface disposal site shall be monitored continuously for methane gas during the period that the surface disposal site contains an active biosolids unit on which the biosolids is covered and for three years after a biosolids unit closes when a final cover is placed on the biosolids.

Section 27. **Record keeping.**

(a) When biosolids (other than domestic septage) are placed on an active biosolids unit:

(i) The person who prepares the biosolids shall develop the following information and shall retain the information for five (5) years:

(A) The concentration of each pollutant listed in Table 1 of Section 23 in the biosolids when the pollutant concentrations in Table 1 of Section 23 are met;

(B) The following certification statement: "I certify, under penalty of law, that the pathogen requirements in [insert Section 31 (a), (b) (iii), (b) (iv), or (b) (v) when one of those requirements is met] of Chapter 15, Wyoming Water Quality Rules and Regulations and

the vector attraction reduction requirements in [insert one of the vector attraction reduction requirements in Section 32 (f) through (m) when one of those requirements is met] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine the [pathogen requirements and vector attraction reduction requirements if appropriate] have been met. I am aware that there are significant penalties for false certification including the possibility of fines and imprisonment. ";

(C) A description of how the pathogen requirements in Section 31 (a), (b) (iii), (b) (iv), or (b) (v) are met when one of those requirements is met; and

(D) A description of how one of the vector attraction reduction requirements in Section 32 (f) through (m) is met when one of those requirements is met.

(ii) The owner/operator of the surface disposal site shall develop the following information and shall retain the following information for five (5) years:

(A) The concentration of each pollutant listed in Table 2 of Section 23 in the biosolids when the pollutant concentrations in Table 2 of Section 23 are met or when site-specific pollutant limits in Section 23 (b) are met;

(B) The following certification statement: "I certify, under penalty of law, that the management practices in Section 24 and the vector attraction reduction requirement in [insert one of the requirements in Section 32 (n) through (q) if one of those requirements is met] of Chapter 15, Wyoming Water Quality Rules and Regulations have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices [and the vector attraction reduction requirements if appropriate] have been met. I am aware that there are significant penalties for false certification including the possibility of fines and imprisonment.";

(C) A description of how the management practices in Section 24 are met; and

(D) A description of how the vector attraction reduction requirements in Section 32 (n) through (q) are met if one of those requirements is met.

(b) When domestic septage is placed on a surface disposal site:

(i) If the vector attraction reduction requirements in Section 32 (r) are met, the person who places the domestic septage on the surface disposal site shall develop the following information and shall retain the information for five (5) years:

(A) The following certification statement: "I certify, under penalty of law, that the vector attraction reduction requirements in Section 32 (r) of Chapter 15, Wyoming Water Quality Rules and Regulations have been met. This determination has been made under my

direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the vector attraction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fines and imprisonment."; and

(B) A description of how the vector attraction reduction requirements in Section 32 (r) are met.

(ii) The owner/operator of the surface disposal site shall develop the following information and shall retain that information for five (5) years:

(A) The following certification statement: "I certify, under penalty of law, that the management practices in Section 24 of Chapter 15, Wyoming Water Quality Rules and Regulations and the vector attraction reduction requirements in [insert Section 32 (n) through (q) when one of those requirements is met] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices [and the vector attraction reduction requirements if appropriate] have been met. I am aware that there are significant penalties for false certification including the possibility of fines and imprisonment.";

(B) A description of how the management practices in Section 24 are met; and

(C) A description how the vector attraction reduction requirements in Section 32 (n) through (q) are met if one of those requirements is met.

Section 28. **Reporting.**

(a) Biosolids management facilities shall submit the information in Section 27 (a) to the permitting authority on February 19 of each year.

PART D
PATHOGEN AND VECTOR ATTRACTION REDUCTION

Section 29. **Scope.**

(a) This part contains the requirements for a biosolids to be classified either Class A or Class B with respect to pathogens.

(b) This part contains the site restrictions for land on which Class B biosolids are applied.

(c) This part contains the pathogen requirements for domestic septage applied to agricultural land, forest, or a reclamation site.

(d) This part contains alternative vector attraction reduction requirements for biosolids that are applied to the land or placed on a surface disposal site.

Section 30. **Special definitions.**

(a) "Aerobic digestion" is the biochemical decomposition of organic matter in biosolids into carbon dioxide and water by microorganisms in the presence of air.

(b) "Anaerobic digestion" is the biochemical decomposition of organic matter in biosolids into methane gas and carbon dioxide by microorganisms in the absence of air.

(c) "Density of microorganisms" is the number of microorganisms per unit mass of total solids (dry weight) in the biosolids.

(d) "Land with a high potential for public exposure" is land that the public uses frequently. This includes, but is not limited to, a public contact site and a reclamation site located in a populated area (e.g, a construction site located in a city).

(e) "Land with a low potential for public exposure" is land that the public uses infrequently. This includes, but is not limited to, agricultural land, forest, and a reclamation site located in an unpopulated area (e.g., a strip mine located in a rural area).

(f) "Pathogenic organisms" are disease-causing organisms. These include, but are not limited to, certain bacteria, protozoa, viruses, and viable helminth ova.

(g) "pH" means the logarithm of the reciprocal of the hydrogen ion concentration.

(h) "Specific oxygen uptake rate (SOUR)" is the mass of oxygen consumed per unit time per unit mass of total solids (dry weight basis) in the biosolids.

(i) "Total solids" are the materials in biosolids that remain as residue when the biosolids is dried at 103 to 105 degrees Celsius.

(j) "Unstabilized solids" are organic materials in biosolids that have not been treated in either an aerobic or anaerobic treatment process.

(k) "Vector attraction" is the characteristic of biosolids that attracts rodents, flies, mosquitos, or other organisms capable of transporting infectious agents.

(l) "Volatile solids" is the amount of the total solids in biosolids lost when the biosolids are combusted at 550 degrees Celsius in the presence of excess air.

Section 31. **Pathogens.**

(a) Biosolids - Class A.

(i) The requirement in Section 31 (a) (ii) and the requirements in either Section 31 (a) (iii), (a) (iv), (a) (v), (a) (vi), (a) (vii), or (a) (viii) shall be met for a biosolids to be classified Class A with respect to pathogens.

(ii) The Class A pathogen requirements in Section 31 (a) (iii) through (viii) shall be met either prior to meeting or at the same time the vector attraction reduction requirements in Section 32, except the vector attraction reduction requirements in Section 32 (k) through (m), are met. (iii) Class A - Alternative 1.

(A) Either the density of fecal coliform in the biosolids shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in the biosolids shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the biosolids is used or disposed; at the time the biosolids is prepared for sale or give away in a bag or other container for application to the land; or at the time the biosolids or material derived from biosolids is prepared to meet the requirements in Section 11 (b) through (e), (g) or (h).

(B) The temperature of the biosolids that are used or disposed shall be maintained at a specific value for a period of time.

(I) When the percent solids of the biosolids is seven percent (7%) or higher, the temperature of the biosolids shall be 50 degrees Celsius or higher; the time period shall be 20 minutes or longer; and the temperature and time period shall be determined using equation (2), except when small particles of biosolids are heated by either warmed gases or an immiscible liquid.

Eq.(2)

$$D = \frac{131{,}700{,}000}{10^{0.1400t}}$$

Where,

D = time in days.

t = temperature in degrees Celsius.

(II) When the percent solids of the biosolids is seven percent (7%) or higher and small particles of biosolids are heated by either warmed gases or an immiscible liquid, the temperature of the biosolids shall be 50 degrees Celsius or higher; the time period shall be 15 seconds or longer; and the temperature and time period shall be determined using equation (2).

(III) When the percent solids of the biosolids is less than seven percent (7%) and the time period is at least 15 seconds, but less than 30 minutes, the temperature and time period shall be determined using equation (2).

(IV) When the percent solids of the biosolids is less than seven percent (7%); the temperature of the biosolids is 50 degrees Celsius or higher; and the time period is 30 minutes or longer, the temperature and time period shall be determined using equation (3).

Eq.(3)

$$D = \frac{50{,}070{,}000}{10^{0.1400t}}$$

Where,

D = time in days.

t = temperature in degrees Celsius.

(iv) Class A - Alternative 2.

(A) Either the density of fecal coliform in the biosolids shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in the biosolids shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the biosolids is used or disposed; at the time

the biosolids is prepared for sale or give away in a bag or other container for application to the land; or at the time the biosolids or material derived from biosolids is prepared to meet the requirements in Section 11 (b) through (e), (g) or (h).

(B) The pH of the biosolids that is used or disposed shall be raised to above 12 and shall remain above 12 for 72 hours.

(C) The temperature of the biosolids shall be above 52 degrees Celsius for 12 hours or longer during the period that the pH of the biosolids is above 12.

(D) At the end of the 72 hour period during which the pH of the biosolids is above 12, the biosolids shall be air dried to achieve a percent solids in the biosolids greater than 50 %.

(v) Class A – Alternative 3.

(A) Either the density of fecal coliform in the biosolids shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in biosolids shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the biosolids is used or disposed; at the time the biosolids is prepared for sale or give away in a bag or other container for application to the land; or at the time the biosolids or material derived from biosolids is prepared to meet the requirements in Section 11 (b) through (e), (g) or (h).

(B) The biosolids shall be analyzed prior to pathogen treatment to determine whether the biosolids contain enteric viruses.

(C) When the density of enteric viruses in the biosolids prior to pathogen treatment is less than one Plaque-forming Unit per four grams of total solids (dry weight basis), the biosolids is Class A with respect to enteric viruses until the next monitoring episode for the biosolids.

(D) When the density of enteric viruses in the biosolids prior to pathogen treatment is equal to or greater than one Plaque-forming Unit per four grams of total solids (dry weight basis), the biosolids are Class A with respect to enteric viruses when the density of enteric viruses in the biosolids after pathogen treatment is less than one Plaque-forming Unit per four grams of total solids (dry weight basis) and when the values or ranges of values for the operating parameters for the pathogen treatment process that produces the biosolids that meets the enteric virus density requirement are documented.

(E) After the enteric virus reduction in (a) (v) (D) of this subsection is demonstrated for the pathogen treatment process, the biosolids continues to be Class A with respect to enteric viruses when the values for the pathogen treatment process operating parameters are consistent with the values or ranges of values documented in (a) (v) (D) of this subsection.

(F) The biosolids shall be analyzed prior to pathogen treatment to determine whether the biosolids contains viable helminth ova.

(G) When the density of viable helminth ova in the biosolids prior to pathogen treatment is less than one per four grams of total solids (dry weight basis), the biosolids is Class A with respect to viable helminth ova until the next monitoring episode for the biosolids.

(H) When the density of viable helminth ova in the biosolids prior to pathogen treatment is equal to or greater than one per four grams of total solids (dry weight basis), the biosolids is Class A with respect to viable helminth ova when the density of viable helminth ova in the biosolids after pathogen treatment is less than one per four grams of total solids (dry weight basis) and when the values or ranges of values for the operating parameters for the pathogen treatment process that produces the biosolids that meets the viable helminth ova density requirement are documented.

(I) After the viable helminth ova reduction in (a) (v) (C) of this subsection is demonstrated for the pathogen treatment process, the biosolids continues to be Class A with respect to viable helminth ova when the values for the pathogen treatment process operating parameters are consistent with the values or ranges of values documented in (a) (v) (C) of this subsection.

(vi) Class A - Alternative 4.

(A) Either the density of fecal coliform in the biosolids shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in the biosolids shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the biosolids is used or disposed; at the time the biosolids is prepared for sale or give away in a bag or other container for application to the land; or at the time the biosolids or material derived from biosolids is prepared to meet the requirements in Section 11 (b) through (e), (g) or (h).

(B) The density of enteric viruses in the biosolids shall be less than one Plaque-forming Unit per four grams of total solids (dry weight basis) at the time the biosolids is used or disposed; at the time the biosolids is prepared for sale or give away in a bag or other container for application to the land; or at the time the biosolids or material derived from biosolids is prepared to meet the requirements in Section 11 (b) through (e), (g) or (h), unless otherwise specified by the permitting authority.

(C) The density of viable helminth ova in the biosolids shall be less than one per four grams of total solids (dry weight basis) at the time the biosolids is used or disposed; at the time the biosolids is prepared for sale or give away in a bag or other container for application to the land; or at the time the biosolids or material derived from biosolids is prepared to meet the requirements in Section 11 (b) through (e), (g) or (h), unless otherwise specified by the permitting authority.

(vii) Class A - Alternative 5.

(A) Either the density of fecal coliform in the biosolids shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella, sp. bacteria in the biosolids shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the biosolids is used or disposed; at the time the biosolids is prepared for sale or give away in a bag or other container for application to the land; or at the time the biosolids or material derived from biosolids is prepared to meet the requirements in Section 11 (b) through (e), (g) or (h).

(B) Biosolids that are used or disposed shall be treated in one of the Processes to Further Reduce Pathogens described in Appendix B.

(viii) Class A - Alternative 6.

(A) Either the density of fecal coliform in the biosolids shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella, sp. bacteria in the biosolids shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the biosolids is used or disposed; at the time the biosolids is prepared for sale or give away in a bag or other container for application to the land; or at the time
the biosolids or material derived from biosolids is prepared to meet the requirements in Section 11 (b) through (e), (g) or (h).

(B) Biosolids that are used or disposed shall be treated in a process that is equivalent to a Process to Further Reduce Pathogens, see Appendix B, as determined by the permitting authority.

(b) Biosolids - Class B.

(i) The requirements in one of the following will be met, Section 31 (b) (iii), (b) (iv), or (b) (v), for biosolids to be classified Class B with respect to pathogens.

(ii) The site restrictions in Section 31 (b) (vi) shall be met when biosolids that meets the Class B pathogen requirements in Section 31 (b) (iii), (b) (iv), or (b) (v) is applied to the land.

(iii) Class B - Alternative 1.

(A) Seven samples of the biosolids shall be collected at the time the biosolids are used or disposed.

(B) The geometric mean of the density of fecal coliform in the samples collected in (b) (iii) (A) of this subsection shall be less than either 2,000,000 Most Probable Number per gram of total solids (dry weight basis) or 2,000,000 Colony Forming Units per gram of total solids (dry weight basis).

(iv) Class B - Alternative 2. Biosolids that are used or disposed shall be treated in one of the Processes to Significantly Reduce Pathogens described in Appendix B.

(v) Class B - Alternative 3. Biosolids that are used or disposed shall be treated in a process that is equivalent to a Process to Significantly Reduce Pathogens, as determined by the permitting authority.

(vi) Site Restrictions.

(A) Food crops with harvested parts that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested for 14 months after application of biosolids.

(B) Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after application of biosolids when the biosolids remains on the land surface for four months or longer prior to incorporation into the soil.

(C) Food crops with harvested parts below the surface of the land shall not be harvested for 38 months after application of biosolids when the biosolids remains on the land surface for less than four months prior to incorporation into the soil.

(D) Food crops, feed crops, and fiber crops shall not be harvested for 30 days after application of biosolids.

(E) Animals shall not be allowed to graze on the land for 30 days after application of biosolids.

(F) Turf grown on land where biosolids are applied shall not be harvested for one year after application of the biosolids when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority.

(G) Public access to land with a high potential for public exposure shall be restricted for one year after application of biosolids.

(H) Public access to land with a low potential for public exposure shall be restricted for 30 days after application of biosolids.

(c) Domestic septage.

(i) The site restrictions in Section 31 (b) (vi) shall be met when domestic septage is applied to agricultural land, forest, or a reclamation site; or

(ii) The pH of domestic septage applied to agricultural land, forest, or a reclamation site shall be raised to 12 or higher by alkali addition and, without the addition of

more alkali, shall remain at 12 or higher for 30 minutes and the site restrictions in Section 31 (b)(vi) (A) through (b)(vi) (D) shall be met.

(iii) The requirements of this section are satisfied by compliance with the conditions in a General Statewide Permit for Land Application of Domestic Sewage In Remote Areas, see Appendix C.

Section 32. **Vector attraction reduction.**

(a) One of the vector attraction reduction requirements in Section 32 (f) through (p) shall be met when bulk biosolids are applied to agricultural land, forest, a public contact site, or a reclamation site.

(b) One of the vector attraction reduction requirements in Section 32 (f) through (m) shall be met when bulk biosolids are applied to a lawn or a home garden.

(c) One of the vector attraction reduction requirements in Section 32 (f) through (m) shall be met when biosolids are sold or given away in a bag or other container for application to the land.

(d) One of the vector attraction reduction requirements in Section 32 (f) through (q) shall be met when biosolids (other than domestic septage) are placed on an active biosolids unit.

(e) One of the vector attraction reduction requirements in Section 32 (n), (o) and (p), or (r) shall be met when domestic septage is applied to agricultural land, forest, or a reclamation site and one of the vector attraction reduction requirements in Section 32 (n) through (r) shall be met when domestic septage is placed on an active biosolids unit. Compliance with the conditions of a General Statewide Permit for Land Application of Domestic Sewage In Remote Areas satisfies the requirements of this section.

(f) The mass of volatile solids in the biosolids shall be reduced by a minimum of 38%.

(g) When the 38% volatile solids reduction requirement in Section 32 (f) cannot be met for an anaerobically digested biosolids, vector attraction reduction can be demonstrated by digesting a portion of the previously digested biosolids anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 degrees Celsius. When at the end of the 40 days, the volatile solids in the biosolids at the beginning of that period is reduced by less than 17%, vector attraction reduction is achieved.

(h) When the 38% volatile solids reduction requirement in Section 32 (f) cannot be met for an aerobically digested biosolids, vector attraction reduction can be demonstrated by digesting a portion of the previously digested biosolids that has a percent solids of two percent (2%) or less aerobically in the laboratory in a bench-scale unit for 30 additional days at 20 degrees Celsius. When at the end of the 30 days, the volatile solids in the biosolids at the beginning of that period is reduced by less than 15%, vector attraction reduction is achieved.

(i) The specific oxygen uptake rate (SOUR) for biosolids treated in an aerobic process shall be equal to or less than 1.5 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of 20 degrees Celsius.

(j) Biosolids shall be treated in an aerobic process for 14 days or longer. During that time, the temperature of the biosolids shall be higher than 40 degrees Celsius and the average temperature of the biosolids shall be higher than 45 degrees Celsius.

(k) The pH of biosolids shall be raised to 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for two hours and then at 11.5 or higher for an additional 22 hours.

(l) The percent solids of biosolids that does not contain unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 75 % based on the moisture content and total solids prior to mixing with other materials.

(m) The percent solids of biosolids that contains unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 90% based on the moisture content and total solids prior to mixing with other materials.

(n) Biosolids shall be injected below the surface of the land.

(i) No significant amount of the biosolids shall be present on the land surface within one hour after the biosolids are injected.

(ii) When the biosolids that are injected below the surface of the land is Class A with respect to pathogens, the biosolids shall be injected below the land surface within eight hours after being discharged from the pathogen treatment process.

(o) Biosolids applied to the land surface or placed on a surface disposal site shall be incorporated into the soil within six hours after application to or placement on the land.

(p) When biosolids that are incorporated into the soil are Class A with respect to pathogens, the biosolids shall be applied to or placed on the land within eight hours after being discharged
from the pathogen treatment process.

(q) Biosolids placed on an active biosolids unit shall be covered with soil or other material at the end of each operating day.

(r) The pH of domestic septage shall be raised to 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for 30 minutes.
(s) Compliance with the conditions of a General Statewide Permit for Land Application In Remote Areas, see Appendix C, is considered equivalent to these vector attraction reduction requirements.

APPENDIX A
Procedure to Determine The Annual Whole Sludge Application Rate For Biosolids

Section 14 (a) (iv) (B) requires that the product of the concentration for each pollutant listed in Table 4 of Section 14 in biosolids sold or given away in a bag or other container for application to the land and the annual whole sludge application rate (AWSAR) for the biosolids not cause the annual pollutant loading rate for the pollutant in Table 4 of Section 14 to be exceeded. This appendix contains the procedure used to determine the AWSAR for a biosolids that does not cause the annual pollutant loading rates in Table 4 of Section 14 to be exceeded. The relationship between the annual pollutant loading rate (APLR) for a pollutant and the annual whole sludge application rate (AWSAR) for a biosolids is shown in equation (1).

$$APLR = C \times AWSAR \times 0.001 \qquad (1)$$

Where:

APLR = Annual pollutant loading rate in kilograms per hectare per 365 day period.

C = Pollutant concentration in milligrams per kilogram of total solids (dry weight basis).

AWSAR = Annual whole sludge application rate in metric tons per hectare per 365 day period (dry weight basis).

0.001 = A conversion factor.

To determine the AWSAR, equation (1) is rearranged into equation (2):

$$AWSAR = \frac{APLR}{C \times 0.001} \qquad (2)$$

The procedure used to determine the AWSAR for a biosolids is presented below.

PROCEDURE:

(i) Analyze a sample of the biosolids to determine the concentration for each of the pollutants listed in Table 4 of Section 14 in the biosolids.

(ii) Using the pollutant concentrations from Step 1 and the APLRs from Table 4 of Section 14, calculate an AWSAR for each pollutant using equation (2) above.

(iii) The AWSAR for the biosolids is the lowest AWSAR calculated in Step 2.

APPENDIX B
Pathogen Treatment Processes

(a) Process to Significantly Reduce Pathogens (PSRF).

(i) Aerobic digestion. Biosolids are agitated with air or oxygen to maintain aerobic conditions for a specific mean cell residence time at a specific temperature. Values for the mean cell residence time and temperature shall be between 40 days at 20 degrees Celsius and 60 days at 15 degrees Celsius.

(ii) Air drying. Biosolids are dried on sand beds or on paved or unpaved basins. The biosolids dries for a minimum of three months. During two of the three months, the ambient average daily temperature is above zero degrees Celsius.

(iii) Anaerobic digestion. Biosolids are treated in the absence of air for a specific mean cell residence time at a specific temperature. Values for the mean cell residence time and temperature shall be between 15 days at 35 to 55 degrees Celsius and 60 days at 20 degrees Celsius.

(iv) Composting. Using either the within-vessel, static aerated pile, or windrow composting methods, the temperature of the biosolids is raised to 40 degrees Celsius or higher and remains at 40 degrees Celsius or higher for five days. For four hours during the five days, the temperature in the compost pile exceeds 55 degrees Celsius.

(v) Lime stabilization. Sufficient lime is added to the biosolids to raise the pH of the biosolids to 12 after two hours of contact.

(b) Process to Further Reduce Pathogens (PFRP).

(i) Composting. Using either the within-vessel composting method or the static aerated pile composting method, the temperature of the biosolids is maintained at 55 degrees Celsius or higher for three days.

Using the windrow composting method, the temperature of the biosolids is maintained at 55 degrees or higher for 15 days or longer. During the period when the compost is maintained at 55 degrees or higher, there shall be a minimum of five turnings of the windrow.

(ii) Heat drying. Biosolids are dried by direct or indirect contact with hot gases to reduce the moisture content of the biosolids to ten percent (10%), or lower. Either the temperature of the biosolids particles exceeds 80 degrees Celsius or the wet bulb temperature of the gas in contact with the biosolids as the biosolids leaves the dryer exceeds 80 degrees Celsius.

(iii) Heat treatment. Liquid biosolids are heated to a temperature of 180 degrees Celsius or higher for 30 minutes.

~~(iv) Thermophilic aerobic digestion. Liquid biosolids are agitated with air or oxygen to maintain aerobic conditions and the mean cell residence time of the biosolids is tne (10) days at 55 to 60 degrees Celsius.~~

~~(v) Beta ray irradiation. Biosolids are irradiated with beta rays from an accelerator at dosages of at least 1.0 megarad at room temperature (ca. 20 degrees Celsius).~~

~~(vi) Gamma ray irradiation. Biosolids are irradiated with gamma rays from certain isotopes, such as Cobalt 60 and Cesium 137, at room temperature (ca. 20 degrees Celsius).~~

~~(vii) Pasteurization. The temperature of the biosolids is maintained at 70 degrees Celsius or higher for 30 minutes or longer.~~

APPENDIX C

General Statewide Permit

For Land Application of Domestic Septage in Remote Areas

Department of Environmental Quality/Water Quality Division

Septage Land Application Worksheet

To qualify for the land application of domestic septage (domestic septage being defined as either liquid or solid material removed from a septic tank result from normal household wastes) in remote areas the following requirements must be met.

DEFINITIONS

* "Permanent waterbody" means perennial streams, lakes, wetlands, etc. that have water throughout the year

* "Intermittent stream" means a stream or part of a stream that is below the local water table for some part of the year but is not a perennial stream.

* "Ephemeral stream" means a stream which flows only in direct response to precipitation in the immediaste watershed or in response to snow melt, and has a channel bottom that is always above the prevaling water table.

* "Wetland" means those areas having all three essential characteristics:

(A) Hydrophytic vegetation;

(B) Hydric soils;

(C) Wetlands hydrology.

LOCATION RESTRICTIONS

- A minimum distance of at least 1,000 feet must be maintained from all adjacent properties.
- Only domestic septage generated on the property owner's location may be land applied on the same property owner's location.
- No land application of domestic septage may occur within 300 feet of a permanent waterbody, intermittent stream, ephemeral stream or wetland.
- No land application of domestic septage may occur within 300 feet of public road.
- No land application of domestic sewage may occur within 1000 feet of a residence.

SITE RESTRICTIONS

- The land application of domestic septage may only occur on those sites with established vegetation such as rangeland, pasture or hay meadows.
- No more than 5,000 gallons of domestic septage per acre per year may be land applied.
- No land application of domestic septage may occur where the depth from the surface to groundwater is less than four (4) feet.
- No land application of domestic septage may occur where site slopes exceed five percent (5%).
- The land application of domestic septage may not occur between November 1 and May 1, or any other time when frozen or saturated ground conditions exits.
- No public access shall be allowed for one (1) year to any site where domestic septage has been applied.
- Lime stabilization of the septage to pH 12 for 30 minutes prior to land application is optional.
- No grazing animals shall be allowed access for 30 days to any site where domestic septage has been land applied.

CROP RESTRICTIONS

- No root crops shall be harvested for 38 months from soils where domestic septage has been land applied.
- No truck crops (harvested parts touch land surface) shall be harvested for 14 months from soils where domestic septage has been land applied.
- No commodity crops (other food, feed, and fiber crops whose harvested parts do not touch land surface) shall be harvested for 30 days from soils where domestic septage has been land applied.
- No turf shall be harvested for one (1) year from soils where domestic septage has been land applied.

REPORTING REQUIREMENTS

- The property owner shall notify the appropriate Department of Environmental Quality, Water
- Quality Division (DEQ/WQD) District Office prior to the land application of domestic septage to confirm requirements, and arrange a possible DEQ/WQD inspection of land application.
- All records concerned with each septage application will be maintained for at least five (5) years.
- This worksheet must be completed, signed and returned to the Department of Environmental Quality, Water Quality Division or the appropriate delegated local permitting authority within 15 days of the land application.

- Provide the following information concerning your site. Enter NA if not applicable.

1) Date of the application: _____

2) Number of acres receiving septage: _____
3) Number of gallons of septage land applied: _____

4) Type of vegetation receiving: _____

5) Name, address and telephone number of septage hauler:
_____
_____
_____
_____
_____
_____

6) If septage was optionally alkali stabilized, please indicate what material was used for stabilization and how pH was measured:
_____
_____
_____

7) Please indicate that the site sketch on the back of this sheet has been completed and complies with the site restriction distances yes/no:
_____
_____

8) Please indicate if photos of the land application site will be sent to the appropriate District Office: Yes/no._____

9) Please provide physical address or legal description of land application site:
_____
_____
_____
_____

10) Please give the name of the DEQ/WQD representative contacted, and time and date. This contact needs to be made prior to the domestic septage land application:
_____
_____
_____
_____

SITE SKETCH

REQUIRED ISOLATION DISTANCES FROM LAND APPLICATION SITE.

) 1,000 feet from adjacent properties.
) 1,000 feet from any dwelling.
) 300 feet from any live water, intermittent stream or drainage

I certify that the information provided in this worksheet is accurate and meets the requirements set forth herein.

Signature of landowner Date

Name (printed)

Signature of applicator Date

Name (printed)

/pjb
70253.doc