

INSTRUCTIONS

VPDES SEWAGE SLUDGE PERMIT APPLICATION FORM

**OVERVIEW**

This application form is intended to facilitate the collection of sewage sludge permit application information. This application form will constitute the applicant's Sludge Management Plan for the purposes of the VPDES permit.

**STATUTORY AND REGULATORY BASIS**

In May 1996, the State Water Control Board adopted the Virginia Pollutant Discharge Elimination System (VPDES) Permit Regulation, 9 VAC 25-31-10 et seq.

It included for the first time in state regulation Part VI - Standards for the Use or Disposal of Sewage Sludge. This section of the VPDES Permit Regulation is based on the U.S. EPA's standards for sewage sludge use or disposal promulgated in the Code of Federal Regulations at 40 CFR Part 503. These standards consist of general requirements, pollutant limits, management practices, operational standards, and requirements for frequency of monitoring, recordkeeping, and reporting for sewage sludge that is applied to the land or placed on a surface disposal site. Part VI also requires compliance with the criteria in the Virginia Solid Waste Management Regulation, 9 VAC 20-80-10 et seq. when sewage sludge is placed on a municipal solid waste landfill, but does not impose additional requirements for such sewage sludge.

At this time, Virginia is not authorized to administer the EPA Part 503 sludge program. The Department of Environmental Quality (DEQ) is conducting this program under state law and regulations separate and in addition to the federal program. Until further notice, permittees are still responsible for complying with Part 503 requirements through the EPA regional office in Philadelphia, PA.

This regulation requires all treatment works treating domestic sewage to submit information regarding their sewage sludge use and disposal practices (9 VAC 25-31-100 C 2). For most treatment works the information is required at the time the application is submitted for issuance or reissuance of the facility's VPDES discharge permit. The information requirements for sewage sludge are specified in the VPDES Permit Regulation. Under 9 VAC 25-31-100 J 4, applicants for VPDES permits which are Publicly Owned Treatment Works (POTWs) or other treatment works treating domestic sewage (TWTDS) must submit the following information:

- The activities conducted by the applicant that require it to obtain a permit;
- The applicant's name, mailing address, and location;
- The facility operator's name, address, telephone number, and status as Federal, State, private, public, or other entity;
- Whether the facility is located in Indian Country;
- A listing of all relevant environmental permits or construction approvals received or applied for;
- A topographic map showing sewage sludge management facilities, water bodies, and drinking water wells;
- Sewage sludge monitoring data and ground water monitoring data (if applicable);

- A description of the applicant's sludge sewage use or disposal practices, including the location of treatment or disposal sites and the identities of any other land applicers or distributors;
- A description of each land application site (and a Land Application Plan if all sites have not been identified);
- Annual sludge production volume;
- Information required to determine appropriate standards for permitting under Part VI of the VPDES Permit Regulation; and
- Any other information requested by the DEQ to assess sewage sludge use or disposal practices, determine whether to issue a permit, or ascertain appropriate permit requirements.

#### WHO MUST SUBMIT APPLICATION INFORMATION?

The following persons are "treatment works treating domestic sewage" (TWTDS) that are required to submit sewage sludge permit application information:

- Any person who generates sewage sludge that is applied to the land or placed on a surface disposal site, fired in a sewage sludge incinerator, or placed in a municipal solid waste landfill unit;
- Any person who derives material from, or otherwise changes the quality of, sewage sludge (e.g., an intermediate treatment facility such as a composting facility, or a facility that processes sewage sludge for sale or give away in a bag or other container for application to the land), if that sludge is used or disposed of in a manner subject to Part VI of the VPDES Permit Regulation;
- Any person who owns or operates a sewage sludge surface disposal site;
- Any other person required by the DEQ to submit permit application information.

For purposes of this form, you refers to the applicant. This facility and your facility refer to the facility for which application information is being submitted.

Facility should be interpreted to include activities potentially subject to regulation under the sewage sludge program - e.g., areas of sewage sludge treatment, storage, land application, or surface disposal, even if such activities do not occur at the same location.

#### WHICH PARTS OF THE FORM APPLY?

This application form is presented in a modular format, enabling information collection to be tailored to your facility's sewage sludge generation, treatment, use, or disposal practices. Some or all of the information must be submitted by facilities that are submitting a VPDES permit application at this time. These include the following:

- Facilities with a currently effective VPDES permit.

- Facilities that are required to have, or are requesting, site-specific pollutant limits, including "sludge-only" facilities that are applying for site-specific pollutant limits for surface disposal.
- Facilities that are required by the DEQ to apply for a permit at this time.

The form is divided into the following sections:

- Section A is general information to be provided by all applicants.
- Section B must be completed by any facility that generates sewage sludge or derives a material from sewage sludge.
- Section C must be completed by any facility that applies bulk sewage sludge to the land, or whose bulk sewage sludge is applied to the land. (Most applicants that provide this information will also submit Section B information.)
- Section D must be completed by the owner/operator of a surface disposal site.

You need only submit the Sections of the application that you actually fill out.

Complete Questions 1-6 of the Screening Information section to determine which sections of the application cover your facility's sewage sludge management activities. Table 1, below, summarizes which sections cover which activities.

**TABLE 1**  
**GUIDELINES FOR COMPLETING SLUDGE APPLICATION FORM**

ACTIVITY(IES) PERFORMED	A	B	C	D
Generates sewage sludge or derives Material from sewage sludge	✓	✓ (B.1-B.3)		
-that meets ceiling concentrations in Table 1 and pollutant concentrations in Table 3 of 9 VAC 25-31-540, Class A pathogen requirements in 9 VAC 25-31-710, and one of the eight vector attraction reduction options in 9 VAC 25-31-720 B 1-8. (EQ sludge)	✓	✓ (B.4)		
-that is sold or given away in bag or other container for application to the land	✓	✓ (B.5)		
-that is shipped off site for treatment or blending	✓	✓ (B.6)		
-that is applied to the land in bulk form	✓	✓ (B.7)	✓	
-that is placed on a surface disposal site	✓	✓ (B.8)		
-that is fired in a sewage sludge incinerator	✓	✓ (B.9)		
-that is sent to a municipal solid waste landfill	✓	✓ (B.10)		
Applies bulk sewage sludge to land	✓		✓	
Owns or operates a surface disposal site	✓			✓

Ceiling concentration limits, pollutant concentration limits, pathogen control options and vector attraction reduction options from 9 VAC 25-31-10 et seq. are listed in Appendices I, II and III of these instructions.

**Section A: General Information**

All applicants must complete Section A, which requests general information about the facility.

**A.1. Facility Identification.**

- a. Provide the facility's official or legal name. Do not use a colloquial name.
- b. Provide the name, title, and work telephone number of a person who is thoroughly familiar with the operation of the facility and with the facts reported in this application, and who can be contacted by the DEQ if necessary.
- c. Provide the complete mailing address of the office where correspondence should be sent. This may differ from the facility location given in Question 1.d.
- d. Provide the physical location (street address) of the facility. If the facility lacks a street address or route number, provide the most accurate alternative geographic information (e.g., township and range, section or quarter section number, nearby highway intersection).
- e. Indicate whether the facility is a Class I sludge management facility. A Class I sludge management facility is either:
  - Any POTW required to have an approved pretreatment program under Part VII of the VPDES Permit Regulation, 9 VAC 25-31-730 to 900; or
  - Any treatment works treating domestic sewage classified as a Class I sludge management facility by the EPA Regional Administrator in conjunction with the DEQ because of the potential for its sewage sludge use or disposal practices to adversely affect public health and the environment.
- f. Provide the facility's design influent flow rate. Design influent flow rate means the average flow the treatment works was designed to treat. Enter the design influent flow rate in million gallons per day (mgd) to two decimal places (e.g. 3.12 mgd translates to three million one hundred twenty thousand gallons per day).
- g. Enter the best estimate of the actual population served by the treatment facility at the time of application. Include all areas served (municipalities and unincorporated service areas).
- h. Indicate the type of facility.

"Publicly owned treatment works (POTW)" means any device or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a state or municipality. This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment.

"Privately owned treatment works" means any device or system which is not a POTW and which is used to treat wastes from any facility whose operator is not the operator of the treatment works.

"Federally owned treatment works" means a facility that is owned and operated by a department, agency, or instrumentality of the federal government that treats wastewater, a majority of which is domestic sewage, prior to discharge in accordance with a VPDES permit.

"Blending or treatment operation" means any sewage sludge or wastewater treatment device or system, regardless of ownership, used in the storage, treatment, recycling, and reclamation of domestic sewage, including land dedicated for the disposal of sewage sludge. For purposes of this form, such devices or systems include blending or treatment operations that derive material from sewage sludge but do not generate sewage sludge.

"Surface disposal site" means an area of land that contains one or more active sewage sludge units. An "active sewage sludge unit" is land on which only sewage sludge is placed for final disposal this does not include land on which sewage sludge is either stored or treated.

**A.2. Applicant Information.**

- a-b. If the applicant's name is different from the name in Question A.1., provide the applicant's name, telephone number, and mailing address.
- c. If the contact person is different from the person provided in Question A.1, provide the contact person's name, title, and telephone number.
- d. The owner of a facility is the person that owns a part of or the entire facility.
- e. The operator is the person responsible for the overall operation of the facility. In general, the operator is the person responsible for the daily functioning of the facility, including sewage sludge use or disposal.

**A.3. Permit Information.** Provide the facility's VPDES permit number, if any. Also provide the number and type of any relevant Federal, State, or local environmental permits or construction approvals received or applied for, including but not limited to permits issued under any of the following programs:

- Hazardous Waste Management program under RCRA;
- UIC program under SDWA;
- Prevention of Significant Deterioration (PSD) program under the Clean Air Act;
- Nonattainment program under the Clean Air Act;
- National Emission Standards for Hazardous Air Pollutants (NESHAPS) preconstruction approval under the Clean Air Act;
- Ocean dumping permits under the Marine Protection, Research, and Sanctuaries Act; or
- Dredge or fill permits under Section 404 of CWA.

**A.4. Indian Country.** Identify any generation, treatment, storage, application to land, or disposal of sewage sludge that occurs in Indian Country.

- A.5. Topographic Map.** Provide a topographic map or maps (or other appropriate map(s) if a topographic map is unavailable) that shows the items identified below, including the areas one mile beyond the property boundaries of the facility. Sewage sludge use and disposal sites located more than one mile beyond the property boundary of the facility need not be included with the topographic map except as specifically requested by the DEQ.

On each map, include the map scale, a meridian arrow showing north, and latitude and longitude at the nearest whole second. Use a 7 1/2-minute series map published by the U.S. Geological Survey (USGS), which may be obtained through the USGS Offices listed below. If a 7 1/2-minute series map has not been published for your facility site, then you may use a 15-minute series map from the U.S. Geological Survey. If neither a 7 1/2-minute nor 15-minute series map has been published for your facility site, use a plat map or other appropriate map, including all the requested information; in this case, briefly describe land uses in the map area (e.g., residential, commercial). If you have previously prepared a map that includes these three items, that map may be submitted to fulfill this requirement if it is still accurate.

Maps may be purchased at local dealers (listed in your local yellow pages) or purchased over the counter at the following USGS Earth Science Information Centers (ESIC):

Room 2650 Interior Building, 1849 C St. NW Washington, DC 20240.  
(202)208-4047

507 National Center, Reston, VA 22092. (703)648-6045

All maps should be either on paper or other material appropriate for reproduction. If possible, all sheets should be approximately letter size with margins suitable for filing and binding. As few sheets as necessary should be used to clearly show what is involved. Each sheet should be labeled with your facility's name, permit number, location (city, county, or town), date of drawing, and designation of the number of sheets of each diagram as "page \_\_\_ of \_\_\_."

- A.6. Line Drawing.** Attach to the form a line drawing, simple flow diagram or narrative description that identifies all sewage sludge processes employed during the permit term, include the information requested on the application form.
- A.7. Contractor Information.** If the use or disposal of sewage sludge from your facility is the responsibility of another person under a contract or similar binding agreement, provide the requested information for each contractor. Provide a description of the service to be provided to the applicant and the respective obligations of the applicant and the contractor(s).
- A.8. Pollutant Concentrations.** Provide sewage sludge monitoring data for the pollutants which limits have been established at the time of permit application. Please note that:
- Provide all data from a minimum of three samples taken within the last four and one-half years prior to the date of application. Sample must be representative of the sewage sludge and should be taken at least one month apart.
  - Express pollutant concentrations as dry weight concentrations.



- You may use a separate attachment in addition to or instead of the table provided.

Calculations on a dry weight basis are based on sewage sludge having been dried at 105 degrees Celsius until reaching a constant mass (i.e., essentially 100 percent solids content).

The sewage sludge use and disposal regulations require the use of EPA Test Method SW-846 ("Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," Second and Third Editions) to analyze samples of sewage sludge.

**A.9. Certification.** All permit applications must be signed and certified.

An application submitted by a municipality, State, Federal, or other public agency must be signed by either a principal executive officer or ranking elected official.

An application submitted by a corporation must be signed by a responsible corporate officer, which is either: (1) a president, secretary, treasurer, or vice president in charge of a principal business function, or any other person who performs similar policy- or decision-making functions, or (2) the manager of manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

An application submitted by a partnership or sole proprietorship must be signed by a general partner or the proprietor, respectively.

**Section B: Generation of Sewage Sludge or Preparation of a Material Derived from Sewage Sludge**

Complete this section if you are a "person who prepares sewage sludge." A person who prepares sewage sludge is a person who generates sewage sludge during the treatment of domestic sewage in a treatment works or who derives a material from sewage sludge. This section, therefore, pertains to any POTW or other treatment works that generates sewage sludge, as well as to any facility that derives a material from sewage sludge (e.g., it composts sewage sludge or blends sewage sludge with another material). Simply distributing sewage sludge or placing it in a bag or other container for sale or give-away is not considered "deriving a material" from sewage sludge (because it does not change sludge quality), and thus a facility that only distributes or bags a sewage sludge would not be automatically required to provide the information in this section.

**B.1. Amount Generated On Site.** Provide the total dry metric tons per 365-day period of sewage sludge that is generated at your facility. Report only the amount of sewage sludge that is generated during treatment of domestic sewage in a treatment works, not the amount of material that is derived from sewage sludge.

**B.2. Amount Received from Off Site.** Provide the following information if your facility receives any sewage sludge from an off-site facility for further treatment (including blending), use or disposal at your facility. If your facility receives sewage sludge from more than one off-site facility, provide this information separately for each such facility. Attach additional pages as necessary.

For purposes of this form, an off-site facility is a facility or site that is located on land physically separate from the land used in connection with your facility. "Off site" may include facilities or sites that you own if they are not located on the same property or on adjacent property.

- a. Provide the official or legal name of the off-site facility. Do not use a colloquial name.
- b. Provide the name, title, and work telephone number of a person who is thoroughly familiar with the operation of the off-site facility and with the facts reported in this section, and who can be contacted by the DEQ if necessary.
- c. Provide the complete mailing address at the off-site facility where correspondence should be sent. This may differ from the facility location given below.
- d. Provide the physical location (street address) of the off-site facility. If the facility lacks a street address or route number, provide the most accurate alternative geographic information (e.g., township and range, section or quarter section number, nearby highway intersection).

The off-site facility providing the sewage sludge is, by definition, also a "person who prepares sewage sludge". Both you and the off-site facility are required to apply for a permit and are required to ensure that applicable Part VI requirements are met.

- e. Provide the total dry metric tons per 365-day period received from the off-site facility.
- f. Describe any treatment processes occurring at the off-site facility, including blending activities and treatment to reduce pathogens or vector attraction characteristics. "Treatment" does not include dewatering.

**B.3. Treatment Provided at Your Facility.** Provide the following information regarding sewage sludge treatment and handling at your facility. This question does not request information on sewage sludge treatment or handling at an off-site use or disposal facility.

- a. Indicate the class of pathogen reduction (Class A or Class B) that is achieved before sewage sludge leaves the facility. You may select "neither or unknown" only if sewage sludge is placed on an active sewage sludge unit that is covered with soil or other material at the end of each operating day, sent to another facility for additional treatment, or fired in a sewage sludge incinerator.

Options for meeting Class A or Class B pathogen reduction are listed in Appendix II.

- b. Provide a written description of any treatment processes used to reduce pathogens in sewage sludge, including an indication of how the treatment fulfills one of the options for meeting Class A or Class B pathogen reduction. You may attach existing documentation (e.g., technical or process specifications) to meet this requirement.
- c. Indicate whether any of vector attraction reduction options 1-8 are met before sewage sludge leaves the facility. Options 1-8 are in Appendix III of these instructions, and typically are met at the

point of sewage sludge generation.

Options 9, 10, and 11 (Appendix III) are also available, but are typically met at the point of use or disposal and are covered elsewhere in this form.

You may select "none or unknown" only in the following cases:

- If sewage sludge is sent to another facility for additional treatment;
- If option 9 (injection below land surface) or option 10 (incorporation into soil within six hours) is met at a land application site;
- If option 9 (injection below land surface), option 10 (incorporation into soil within six hours), or option 11 (daily cover) is met at an active sewage sludge unit at a surface disposal site;
- If sewage sludge is fired in a sewage sludge incinerator; or
- If sewage sludge is placed on a municipal solid waste landfill unit.

Land application: Sewage sludge applied to agricultural land, a forest, a public contact site, or a reclamation site must meet one of the vector attraction reduction options 1-10. Sewage sludge applied to a lawn or home garden, or placed in a bag or other container for sale or give-away, must meet any of options 1-8.

Surface disposal: Sewage sludge placed on an active sewage sludge unit must meet one of vector attraction reduction options 1-11.

- d. Provide a written description of any treatment processes used to reduce vector attraction characteristics of sewage sludge, including an indication of how the treatment fulfills one of options 1-8 for vector attraction reduction. You may attach existing documentation (e.g., technical or process specifications) to meet this requirement.
- e. Provide a written description of any other treatment activities (including blending with other sewage sludge or another material) not described in B.3.b or B.3.d above. "Other treatment" does not include dewatering or placement of sewage sludge in a bag or other container for sale or give-away. You may attach existing documentation (e.g., technical or process specifications) to meet this requirement.

**B.4. Preparation of Sewage Sludge Meeting Pollutant Concentrations, Class A Pathogen Requirements, and One of Vector Attraction Reduction Options 1-8.**

Complete this section if sewage sludge from this facility meets all of the following criteria, which is often referred to as exceptional quality (EQ):

- The ceiling concentrations in Table 1 and the pollutant concentrations in Table 3 of 9 VAC 25-31-540 (See Appendix I);
- The Class A pathogen reduction requirements in 9 VAC 25-31-710 A (See

Appendix II); and

- One of the vector attraction reduction options in 9 VAC 25-31-720 B 1-8 (See Appendix III).

Sewage sludge meeting all of these criteria is exempt from the general requirements of 9 VAC 25-31-530 and the management practices of 9 VAC 25-31-550, and thus fewer permitting and permit application requirements typically pertain to facilities generating such sludge. For this reason, if you are eligible to complete Section B.4, you may skip Sections B.5 - B.7 unless specifically required to complete any of them by the DEQ.

- a. Provide the total dry metric tons per 365-day period of sewage sludge that is applied to the land and that meets the Table 1 ceiling concentrations, Table 3 pollutant concentrations, Class A pathogen requirements, and one of vector attraction reduction options 1-8.
- b. Indicate whether sewage sludge that meets the Table 1 ceiling concentrations, Table 3 pollutant concentrations, Class A pathogen requirements, and one of vector attraction reduction options 1-8 is placed in bags or other containers at your facility.

Sewage sludge placed in a bag or other container must meet Class A pathogen requirements, one of vector attraction reduction options 1-8, Table 1 ceiling concentrations, and either it must meet Table 3 pollutant concentrations, or the annual pollutant loading rates (APLRs) in Table 4 of Appendix I must not be exceeded. This question does not pertain to sewage sludge meeting APLRs.

An other container is either an open or closed receptacle, including but not limited to a bucket, a box, a carton, and a vehicle or trailer with a load capacity of one metric ton or less.

**B.5. Sale or Give-Away in a Bag or Other Container for Application to the Land.** Complete this section if sewage sludge from this facility is sold or given away in a bag or other container for application to the land. Skip this section, however, for any sewage sludge you reported in Section B.4 (i.e., EQ sludge).

A bag or other container includes an open or closed receptacle such as a bucket, box, carton, or vehicle or trailer with a load capacity of one metric ton or less.

- a. Provide the total dry metric tons per 365-day period placed in bags or other containers for sale or give-away for application to the land.
- b. Attach with this application a copy of any label or information sheet that accompanies the product being sold or given away. When sewage sludge is placed in a bag or other container for sale or give-away for application to the land, either a label must be affixed to the bag or other container, or an information sheet must be provided to the person receiving the sewage sludge. The label or information sheet must contain the following information:
  - The name and address of the person who prepared the sewage sludge that is sold or given away in a bag or other container for application to the land;
  - A statement that application of the sewage sludge to the land is prohibited except in accordance with the instructions on the label

or information sheet; and

- The annual whole sludge application rate for the sewage sludge that does not cause any of the annual pollutant loading rates in Table 4 of Appendix I to be exceeded.

**B.6. Shipment Off Site for Treatment or Blending.** Complete this section if you provide sewage sludge to another facility, and that facility:

- Provides treatment (i.e., it derives a material from sewage sludge); or blending.

Skip this section, however, for any sewage sludge that is:

- Covered in Section B.4 (i.e., it meets the Table 1 ceiling concentrations, Table 3 pollutant concentrations, Class A pathogen reduction requirements, and one of vector attraction reduction options 1-8);
- Covered in Section B.5 (i.e., it is placed in a bag or other container at your facility for application to the land); or
- Sent directly from your facility to a land application site or surface disposal site.

If you provide sewage sludge to more than one facility that provides treatment or blending, complete Section B.6 for each such facility. Attach additional pages as necessary.

- a. Provide the official or legal name of the facility receiving the sewage sludge. Do not use a colloquial name.
- b. Provide the name, title, and work telephone number of a person who is thoroughly familiar with the operation of the facility receiving the sewage sludge, and who can be contacted by the DEQ, if necessary.
- c. Provide the complete mailing address of the receiving facility where correspondence should be sent. This may differ from the facility location given below.
- d. Provide the total dry metric tons per 365-day period your facility sends to the receiving facility. Do not include sewage sludge that other facilities send to the receiving facility.
- e. Provide the VPDES permit number, as well as the number and type of any relevant Federal, State, or local environmental permits issued to the facility receiving the sewage sludge.
- f. Indicate whether the facility receiving the sewage sludge provides additional treatment to reduce pathogens in sewage sludge from your facility. Also indicate whether Class A or Class B pathogen reduction is achieved before the sewage sludge leaves the receiving facility, regardless of whether that level of pathogen reduction was achieved at your facility, the receiving facility, or both.

Options for meeting Class A or Class B pathogen reduction are listed in Appendix II.

Provide a written description of any treatment processes used at the receiving facility to reduce pathogens in sewage sludge, including an

indication of how the treatment fulfills one of the options for meeting Class A or Class B pathogen reduction. You may attach existing documentation (e.g., technical or process specifications) to meet this requirement.

- g. Indicate whether the facility receiving the sewage sludge provides additional treatment to reduce vector attraction characteristics of the sewage sludge from your facility. Also indicate whether any of vector attraction reduction options 1-8, Appendix III, are met before the sewage sludge leaves the receiving facility, regardless of whether the vector attraction reduction option is met at your facility, the receiving facility, or both. Options 1-8 are typically met at the point of sewage sludge generation or treatment; additional options are available, but these are typically met at the point of use or disposal.

Land application: Sewage sludge applied to agricultural land, forest, a public contact site, or a reclamation site must meet one of vector attraction reduction options 1-10. Sewage sludge applied to a lawn or home garden, or placed in a bag or other container for sale or give-away, must meet one of vector attraction reduction options 1-8.

Surface disposal: Sewage sludge placed on an active sewage sludge unit meet one of vector attraction reduction options 1-11.

Provide a written description of any treatment processes used at the receiving facility to reduce vector attraction reduction characteristics of sewage sludge, including an indication of how the treatment fulfills one of options 1-8 for vector attraction reduction. You may attach existing documentation (e.g., technical or process specifications) to meet this requirement.

- h. Provide a written description of any other treatment or processing activities (including blending with other sewage sludge or another material) not described in B.6.f or B.6.g above. This does not include dewatering of sewage sludge. You may attach existing documentation (e.g., technical or process specifications) to meet this requirement.
- i. If you generate sewage sludge or derive a material from sewage sludge, and you provide that sewage sludge to another person who derives a material from the sewage sludge, 9 VAC 25-31-530 G requires you to provide that person with notice and necessary information to comply with land application requirements of Part VI. If you answered "yes" to B.6.f, B.6.g, or B.6.h, the receiving facility is a "person who prepares sewage sludge" and you must provide, with this application, a copy of any notice and other information you provide to the receiving facility.
- j. If the receiving facility places sewage sludge from your facility in a bag or other container for sale or give-away for application to the land, provide a copy of all labels or notices that accompany the product being sold or given away.

A bag or other container includes an open or closed receptacle such as a bucket, box, carton, or vehicle or trailer with a load capacity of one metric ton or less.

When sewage sludge is placed in a bag or other container for sale or give-away for application to the land, either a label must be affixed to the bag or other container, or an information sheet must be

provided to the person receiving the sewage sludge. The label or information sheet must contain the following information:

- The name and address of the person who prepared the sewage sludge that is sold or given away in a bag or other container for application to the land;
  - A statement that application of the sewage sludge to the land is prohibited except in accordance with the instructions on the label or information sheet; and
  - The annual whole sludge application rate for the sewage sludge that does not cause any of the annual pollutant loading rates in Table 4 of Appendix I to be exceeded.
- k. Provide description and specification on the vehicle used to transport the sewage sludge to the receiving facility if a truck-mounted tank is not used. Also provide haul route(s) on a location map or briefly describe the haul route and indicate the operation days and time.

**B.7. Land Application of Bulk Sewage Sludge.** Complete this section if bulk sewage sludge from your facility is sprayed or spread onto the land surface, injected below the land surface, or incorporated into the soil in order to condition the soil or fertilize crops or vegetation grown in the soil.

Skip this section, however, for sewage sludge that is:

- Covered in Section B.4 (i.e., it meets the ceiling concentrations in Table 1 and the pollutant concentrations in Table 3 of Appendix I, the Class A pathogen reduction requirements in Appendix II, and one of the vector attraction reduction options in Appendix III B 1-8);
- Covered in Section B.5 (i.e., it is placed in a bag or other container for sale or give-away for application to the land); or
- Covered in Section B.6 (i.e., it is sent to another facility for treatment or blending).

Bulk sewage sludge is defined as sewage sludge that is not sold or given away in a bag or other container for application to the land. (A bag or other container includes an open or closed receptacle such as a bucket, box, carton, or vehicle or trailer with a load capacity of one metric ton or less.)

If you complete this section (which requests summary information for all bulk sewage sludge that is applied to the land), also complete Section C for each land application site.

- a. Provide the total dry metric tons per 365-day period your facility sends to all land application sites. Do not include sewage sludge sent to land application sites by other facilities.

Skip items b. c and d. below if you contract land application to someone else who is responsible for the operation (as indicated under A.7)

- b. Indicate whether all land application sites are identified in Section C of this application. If you are not identifying all sites in Section C, provide a copy of the Land Application Plan with this

permit application. (Information is collected in Section C for each land application site that has been identified at the time of permit application.)

Current regulations require you to submit a Land Application Plan at the time of permit application if you intend to apply sewage sludge to land application sites that have not been identified at the time of permit application. (This requirement does not apply if your sewage sludge meets the ceiling concentrations in Table 1 and the pollutant concentrations in Table 3 of Appendix I, the Class A pathogen reduction requirements in Appendix II, and one of the vector attraction reduction options in Appendix III B 1-8.)

At a minimum, the Land Application Plan must:

- describe the geographical area covered by the plan;
- identify site selection criteria;
- describe how sites will be managed;
- provide for advance notice to the DEQ of specific land application sites and a reasonable time, for the DEQ to object prior to the sewage sludge application; and
- provide for public notice in a newspaper of general circulation in the area of the land application site and notice to land owners and occupants adjoining the proposed land application sites.

The permit writer will work with you to develop additional details of the Land Application Plan on a case-by-case basis. Such details include site selection criteria (site slope, run-on and run-off control, etc.) and site management guidelines (sludge application rates, access controls, etc.).

The Land Application Plan is an alternative to either (1) requiring identification of, and permit conditions for, all potential land application sites at the time of permit issuance, or (2) requiring an individual permit action (i.e. permit modification) for each approval of a land application site. A Land application Plan provides for public notice when the Land Application Plan is developed as part of the permit, and it discusses how the public will be notified on a case-by-case basis. The public notice must indicate that the permit includes a Land Application Plan, and the fact sheet must briefly describe the contents of the Land Application Plan.

- c. If any land application sites are located in States other than Virginia, describe how the permitting authority will be notified in the States where the land application sites are located and provide a copy of the notice.

The permitting authority is either:

- The State, in cases where the State has an EPA-approved sewage sludge management program; or
- The EPA Region, in cases where a State sewage sludge management program has not yet been approved.

The notice must include the following:



- The physical location, by either street address or latitude and longitude, of each land application site;
  - The approximate time period bulk sewage sludge will be applied to the site;
  - The name, address, and telephone number of the person who prepares the bulk sewage sludge and the NPDES permit number (if applicable) of their facility; and
  - The name, address, and telephone number of the person who will apply the bulk sewage sludge and the NPDES permit number (if applicable) for their facility.
- d. As a preparer and/or land applier of the bulk sewage sludge to the land, you are required to provide notice and necessary information to land applier and/or the owner or lease holder of the land on which the bulk sewage sludge is applied in order to comply with 9 VAC 25-31-510 through 9 VAC 25-31-590. A sample format of the notice and necessary information may be obtained in Appendix IV.

**B.8. Surface Disposal.** Complete this section if sewage sludge from your facility is placed on a surface disposal site. If you own or operate a surface disposal site, also complete Section D.

- a. Provide the total dry metric tons per 365-day period that is sent from your facility to all surface disposal sites. Do not include sewage sludge sent to surface disposal sites by other facilities.

A surface disposal site is an area of land that contains one or more active sewage sludge units. An active sewage sludge unit is a sewage sludge unit that has not closed. A sewage sludge unit is land on which only sewage sludge is placed for final disposal, excluding land on which sewage sludge is either stored or treated.

- b. If sewage sludge from your facility is placed on any surface disposal sites that you do not own or operate, complete B.8.c - B.8.g for each surface disposal site that you do not own or operate. If you send sewage sludge to more than one surface disposal site that you do not own or operate, attach additional pages as necessary.
- c. Provide the official or legal name (or number) of the site receiving the sewage sludge. Do not use a colloquial name.
- d. Provide the name, title, and work telephone number of a person who is thoroughly familiar with the operation of the surface disposal site, and who can be contacted by the DEQ if necessary.

Indicate whether the facility contact is the site owner, the site operator, or both. For purposes of this form, the owner is the person that owns a part of or the entire facility. The operator is the person responsible for the overall operation of the facility, and may be different from the owner. In general, the operator is the person responsible for the daily functioning of the facility, including sewage sludge use or disposal.

- e. Provide the complete mailing address at the surface disposal site where correspondence should be sent. This may differ from the facility location given below.

- f. Provide the total dry metric tons of sewage sludge per 365-day period from your facility placed on this surface disposal site. Do not include sewage sludge sent to this surface disposal site by other facilities.
- g. Provide the VPDES permit number, as well as the number and type of any relevant Federal, State, or local environmental permits issued to the surface disposal site.

**B.9. Incineration.** Complete this section if sewage sludge from your facility is fired in a sewage sludge incinerator.

- a. Provide the total dry metric tons of sewage sludge per 365-day period that is sent from your facility to all sewage sludge incinerators. Do not include sewage sludge sent to sewage sludge incinerators by other facilities.

A sewage sludge incinerator is an enclosed device in which only sewage sludge and auxiliary fuel are fired. Auxiliary fuel is fuel used to augment the fuel value of sewage sludge, including natural gas, fuel oil, coal, gas generated during anaerobic digestion of sewage sludge, and municipal solid waste (not to exceed 30 percent of the dry weight of sewage sludge and auxiliary fuel together).

- b. If you do not own or operate a sewage sludge incinerator in which sewage sludge from your facility is fired, complete B.9.c - B.9.g each sewage sludge that you do not own or operate.
- c. Provide the official or legal name or number of the sewage sludge incinerator. Do not use a colloquial name.
- d. Provide the name, title, and work telephone number of a person who is thoroughly familiar with the operation of the sewage sludge incinerator, and who can be contacted by the DEQ if necessary.

Indicate whether the facility contact is the site owner, the site operator, or both. For purposes of this form, the owner is the person that owns a part of or the entire facility. The operator is the person responsible for the overall operation of the facility, and may be different from the owner. In general, the operator is the person responsible for the daily functioning of the facility, including sewage sludge use or disposal.

- e. Provide the complete mailing address at the sewage sludge incinerator where correspondence should be sent. This may differ from the incinerator location given below.
- f. Provide the total dry metric tons of sewage sludge per 365-day period from your facility fired in this sewage sludge incinerator. Do not include sewage sludge sent to this incinerator by other facilities.
- g. Provide the VPDES permit number, as well as the number and type of any relevant Federal, State, or local environmental permits issued to the sewage sludge incinerator.

**B.10. Disposal on a Municipal Solid Waste Landfill.** Complete this section if sewage sludge from your facility is placed on a municipal solid waste landfill (MSWLF) unit.

Provide the information in this section once for each MSWLF on which sewage sludge from your facility is placed. If sewage sludge from your facility is placed on more than one MSWLF, attach additional pages as necessary.

The sewage sludge use and disposal regulations do not impose additional requirements on sewage sludge that is sent to a MSWLF, but they cross-reference existing criteria for MSWLFs in the Virginia Solid Waste Management Regulation, 9 VAC 20-80-10 et seq. Therefore, if sewage sludge from your facility is placed on a MSWLF unit, your permit must contain conditions regulating such disposal.

A MSWLF unit is a discrete area of land or an excavation that receives household waste, and that is not a land application unit, surface impoundment, injection well, or waste pile. A MSWLF unit also may receive other types of RCRA subtitle D wastes, such as commercial solid waste, nonhazardous sludge, small quantity generator waste and industrial solid waste. Such a landfill may be publicly or privately owned.

- a. Provide the official or legal name of the MSWLF. Do not use a colloquial name.
- b. Provide the name, title, and work telephone number of a person who is thoroughly familiar with the operation of the MSWLF, and who can be contacted by the permitting authority if necessary.
- c. Provide the complete mailing address at the MSWLF where correspondence should be sent. This may differ from the MSWLF location given below.
- d. Provide the physical location (street address) of the MSWLF. If the MSWLF lacks a street address or route number, provide the most accurate alternative geographic information (e.g., township and range, section or quarter section number, nearby highway intersection).
- e. Provide the total dry metric tons per 365-day period that is sent from your facility to this MSWLF. Do not include sewage sludge sent to the MSWLF by other facilities.
- f. Provide the number and type of any relevant Federal, State, or local environmental permits issued to the MSWLF.
- g. Indicate whether sewage sludge meet applicable requirements in the Virginia Solid Waste Management Regulation, 9 VAC 20-80-10 et seq., concerning the quality of materials disposed in a MSWLF.

Sewage sludge placed on a MSWLF must meet the following requirements listed in 9 VAC 20-80-10 et seq.:

- Placement on a MSWLF of bulk or noncontainerized liquid waste, as determined using the Paint Filter Liquids Test (Method 9095 in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods - EPA Pub. No. SW-846.), is prohibited.
- Placement on a MSWLF of a regulated hazardous waste, as defined

in the Virginia Hazardous Waste Regulation, 9 VAC 20-60-10, is prohibited.

- If sewage sludge is used as a cover at a MSWLF, the MSWLF owner/operator must demonstrate that the sewage sludge is suitable for use as a cover, and that it provides sufficient control of disease vectors, fires, odors, blowing litter, and scavenging and does not present a threat to human health and the environment.
- h. Indicate whether the MSWLF complies with criteria set forth in the Virginia Solid Waste Management Regulation, 9 VAC 20-80-10 et seq.

The Solid Waste Management Regulation specifies minimum criteria for MSWLFs, including landfills that accept sewage sludge along with municipal solid waste. Among these requirements are location restrictions, facility design and operating criteria, ground-water monitoring, and corrective action, closure and post-closure care, along with financial assurance requirements. DEQ concluded that if sewage sludge is disposed of in a MSWLF complying with 9 VAC 20-80-10 criteria, public health and the environment are protected.

- i. The vehicle that transports the sewage sludge to the MSWLF should be watertight and covered. Also provide the haul route(s) on a location map or describe the route and indicate the operation days and time.

### **Section C: Land Application of Bulk Sewage Sludge.**

Complete this section if you completed Section B.7 (Land Application in Bulk Form). Unless the DEQ specifically requires you to complete this section, you may skip this section for sewage sludge that is covered in any of the following sections of this application:

- Section B.4 (the sewage sludge meets the ceiling concentrations in Table 1 and the pollutant concentrations in Table 3 of Appendix I, the Class A pathogen reduction requirements in Appendix II, and one of the vector attraction reduction options in Appendix III B 1-8). Such sewage sludges are exempt from the general requirements and management practices of Part VI (unless the DEQ requires otherwise), and thus the site information in Section C is not required for permitting.
- Section B.5 (the sewage sludge is placed in a bag or other container for sale or give-away for application to the land). Section C does not cover the sale or give-away of sewage sludge in a bag or other container.
- Section B.6 (the sewage sludge is sent to another facility for treatment or blending). Section C does not apply to a generator that sends sewage sludge to another facility for treatment or blending, because the Part VI requirements addressed by Section C will largely be the responsibility of the receiving facility.

Bulk sewage sludge is defined as sewage sludge that is not sold or given away in a bag or other container for application to the land. (A bag or other container includes an open or closed receptacle such as a bucket, box, carton, or vehicle or trailer with a load capacity of one metric ton or less.)

Provide the information in this section for each land application site that has been identified at the time of permit application. Attach additional pages as necessary. In cases where the sewage sludge is applied to numerous sites with similar characteristics, you may combine the information for

several sites under a single response (the name and address of each site must still be provided, however).

**C.1. Identification of Land Application Site.**

- a. Provide the site name and/or number. The name and/or number is any designation commonly used to refer to the site. If the site has been previously designated in another permit, use that designation.
- b. Provide the physical location (street address) of the land application site. If the site lacks a street address or route number, provide the most accurate alternative geographic information (e.g., county, nearby highway intersection). Also provide the latitude and longitude of the land application site and the method of latitude/longitude determination.
- c. Provide a topographic map or other appropriate map (if a topographic map is unavailable) that shows the site location. See additional instructions in A.5.

**2. Owner Information.**

- a. Indicate whether you are the owner of this land application site.
- b. If you are not the owner of this land application site, provide the complete mailing address for the site owner.

**C.3. Applier Information.**

- a. Indicate whether you are the person who applies sewage sludge to this land application site.
- b. If you are not the person who applies sewage sludge to this land application site, provide the name and mailing address of the person who applies sewage sludge to this land application site.
- c. If you are not the person who applies sewage sludge to this land application site, provide the numbers of all federal, state and local permits that regulate the person who applies sewage sludge to this land application site.

**C.4. Site Type.** The "type of land application site" is the intended end use of the land. Part VI regulates bulk sewage sludge applied to agricultural land, forest, public contact sites, reclamation sites, and lawns and home gardens. Proper identification of the type of land application site is important because the applicable Part VI requirements - and thus permit conditions - differ according to the type of site.

Agricultural land is land on which a food crop, a feed crop, or a fiber crop is grown. This includes range land, which is open land with indigenous vegetation, and pasture, which is land on which animals feed directly on crops such as grasses, grain stubble, or stover.

Forest is a tract of land thick with trees and underbrush.

A public contact site is land with a high potential for contact by the public. Public contact sites include public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.

A reclamation site is land that has been drastically disturbed by strip mining, fires, construction, etc. As part of the reclamation process,

sewage sludge is applied for its nutrient and soil conditioning properties to help stabilize and revegetate the land.

For purposes of this form, a lawn or home garden is privately-owned land on which crops or other vegetation are grown for private, non-commercial use and on which use by the general public does not occur.

- C.5. Vector Attraction Reduction.** Identify any vector attraction reduction requirements that are met at the land application site. Specifically, indicate whether vector attraction reduction option 9 (injection below soil surface) or option 10 (incorporation into soil within 6 hours) is met. Provide a written description of how the vector attraction reduction is met.

Bulk sewage sludge that is applied to the land may meet any of vector attraction reduction options 1-10, as identified in 9 VAC 25-31-720 B. Options 1-8 were covered in Section B.3, which requests information on sewage sludge treatment at the facility generating the sewage sludge. If you met any of options 1-8 (e.g., processes to reduce volatile solids, reduce specific oxygen uptake rate, raise pH, raise percent solids), you should have identified that option in Question B.3.c and described how the option is met in Question B.3.d.

By contrast, vector attraction reduction options 9 and 10 are typically met at the land application site. Options 9 and 10 are not available for sewage sludge applied to a lawn or home garden.

- C.6. Cumulative Pollutant Loadings and Remaining Allotments.**

**Complete Section C.6. only for sewage sludge that is applied to the site subject to cumulative pollutant loading rates (CPLRs). Sewage sludge applied to the site on or before July 20, 1993, is not subject to this section. This section collects the additional tracking information that is necessary for sewage sludge subject to CPLRs, as identified in 9 VAC 25-31-530.**

- a. Indicate whether you have contacted the DEQ or the permitting authority in another state if the sludge is to be applied outside Virginia to ascertain whether bulk sewage sludge subject to CPLRs has been applied to the site since July 20, 1993.

You may not apply bulk sewage sludge subject to CPLRs to the site until you have contacted the DEQ or the permitting authority in another state for sludge being applied outside Virginia.

The permitting authority is either:

- The State, in cases where the State has an EPA-approved sewage sludge management program; or
- The EPA Region, in cases where a State sewage sludge management program has not yet been approved.

**If you answered yes to C.6.a, continue on to the next question. If you answered no, skip the rest of Section C.6.**

- b. Indicate whether, based on your investigation in Section C.8.a or other information, sewage sludge subject to CPLRs has been applied to the site since July 20, 1993.

**If you answered yes to C.6.b, continue on to the next question. If you**

answered no, skip the rest of Section C.6.

- c. Provide the size of the site in hectares. To convert acres to hectares, multiply acres by 0.4047. To convert square feet to hectares, divide square feet by  $1.076 \times 10^5$ .
- d. Provide the following information for every other facility that sends (or has sent since July 20, 1993) bulk sewage sludge subject to CPLRs to this site:
  - The official or legal name of the facility. Do not use a colloquial name.
  - If available, the name, title, and work telephone number of a person who is thoroughly familiar with the facility, and who can be contacted by the DEQ if necessary.
  - The complete mailing address at the facility where correspondence should be sent.
- e. List the cumulative loading and remaining allotment for each of the pollutants listed below.

In the first column, provide the cumulative loading, in kilograms per hectare (kg/ha), of each listed pollutant in sewage sludge that has been applied to this site since July 20, 1993. The cumulative loading does not include loadings of pollutants from non-CPLR sewage sludges (e.g., sludges meeting the Table 3 pollutant concentrations, Class A pathogen requirements, and one of vector attraction reduction options 1-8). To convert lb/ac to kg/ha, multiply lb/ac by 1.121.

In the second column, provide the allotment remaining for each listed pollutant. To determine the remaining allotment of each pollutant that may be applied to the site, subtract the cumulative loading (amount of pollutant applied since July 20, 1993, in kilograms per hectare) from the CPLR listed in Table 2 of Appendix I of these instructions.

If any of the calculated remaining allotments are equal to or less than 0, no additional pollutants in bulk sewage sludge subject to CPLRs may be applied to the site. Additionally, if the cumulative amount of each pollutant applied to the site cannot be determined, no additional bulk sewage sludge subject to CPLRs may be applied to the site.

**Complete Section C.7-C.12, which are more site-specific information, only if you apply sewage sludge yourself, or if you are responsible for the land application activities. If instructions beyond those provided below are needed, contact the DEQ regional offices for assistance. A preliminary meeting with the local DEQ regional office is recommended prior to completing the following questions.**

**C.7 Sludge Characterization.** At least one analysis for each parameter listed shall be conducted on sewage sludge to be land applied. For proposed operations, estimates may be used based on the characteristics of similar facilities. Provide the reference to identify the similar facility.

**C.8 Storage Requirements.** Facilities must be designed and operated to prevent point source discharge of pollutants to State waters except in

the case of a storm event greater than the 25 year-24 hour storm. DEQ requires storage capacity be sufficient to ensure that sewage sludge does not have to be applied in inclement weather or during periods when fields are unavailable for waste utilization because of the cropping plan. A minimum 60-day storage capacity for sludge is recommended. DEQ suggests that the storage facilities have a 2 ft freeboard at all times.

Detailed plans and specifications are required for all proposed facilities. DEQ requires lagoon liners to have a maximum coefficient of permeability of  $1 \times 10^{-6}$  cm/sec. It is recommended that soils used as liners be capable of achieving a maximum coefficient of permeability of  $1 \times 10^{-7}$  cm/sec or less. Total soil liner thickness should be one foot after compaction of two separate lifts of equal thickness. Synthetic liners should be a minimum of 20 mil. thickness and be appropriately protected from puncture both below and above the liner. A 2-foot separation distance between the facility bottom and the seasonal high water table is recommended.

- C.9 Land Area Requirements.** Land area calculation is an essential part of land application design. Regarding plant available nitrogen (PAN) loading, DEQ recommends sewage sludge application rates be calculated based on the Virginia Agronomic Land Use Evaluation System (VALUES) which has been incorporated into the Virginia Nutrient Management Standards and Criteria, 1995, published by the Department of Conservation And Recreation. Site specific loading rates may be justified by documenting historic crop yield records (average of three highest yields in five years of record), or by written verification from the Virginia Polytechnic Institute and State University, the cooperative Extension Service or Department of Conservation and Recreation Nutrient Management Specialist.

Application rates for sewage sludge-borne calcium carbonate equivalence (CCE) may be restricted in accordance with the soil pH. Unless properly controlled, lime treated sewage sludges which exhibit high CCE may have an adverse effect on soil pH and ultimately on crop productivity. Therefore, land application of sewage sludge with high CCE content should be controlled to correspond with current agriculture liming practices.

For CPLR sewage sludge, land area calculation should be based on the cumulative pollutant loading and remaining allotments as provided under Section C.7 above. Relate PAN, CCE and metal loadings to demonstrate the most limiting factor for land application.

- C.10 Landowner Agreement Forms.** If sewage sludge is to be land applied onto land not owned by the applicant, the Sludge Application Agreement Form shall be completed by each landowner.

- C.11. Ground Water Monitoring.** If any ground water monitoring data are available for this land application site, submit the following with the application:

- Available ground water monitoring data; and
- A written description of the well locations, approximate depth to ground water, and the ground water monitoring procedures used to obtain these data.

For purposes of this form, ground water monitoring means the installation and periodic sampling and analysis of small diameter wells screened in the aquifer below the base of the deepest active sewage



sludge unit.

**C.12 Land Application Site Information.** Complete items a-d for sites receiving infrequent applications and items a-h for sites receiving frequent applications. Infrequent application is defined as land application of sewage sludge up to the agronomic rate at a frequency of once in a 3 year period. Frequent application is defined as land application of sewage sludge in excess of 70% the agronomic rate at a frequency greater than once in a 3 year period.

The location of land application of sewage sludge should not occur within the following minimum buffer zone requirements:

Adjacent Features	Minimum Distance (feet) to Land Application Area		
	Surface Application <sup>(1)</sup>	Incorporation	Winter <sup>(2)</sup>
Occupied dwellings	200	200	200
Water supply wells and springs	100	100	100
Property lines	100	50	100
Perennial streams and other surface waters except intermittent streams	50	35	100
Intermittent streams/drainage ditches	25	25	50
All improved roadways	10	5	10
Rock outcrops and sinkholes	25	25	25
Agricultural drainage ditches with slopes equal to or less than 2.0%	10	5	10

<sup>(1)</sup> Not plowed or disced to incorporate within 48 hours.

<sup>(2)</sup> Application occurs on average site slope greater than 7.0% during the time between November 16 of one year and March 15 of the following year.

Calculation of the net acreage for each field should take into account the proposed buffer zones. The site plan and the net acreage may be finalized after inspection has been conducted by the DEQ staff.

Regarding endangered species or critical habitat protection, the applicant is required to notify, by a letter, the field office of the U. S. Fish and Wildlife Service (FWS) the proposed land application activities with the identification of the land application sites. A copy of the notification letter must accompany the application.

If it is determined that the proposed action may impact federally listed threatened or endangered species or federally designated critical habitat, the applicant should consult with the FWS to determine and develop necessary modifications to the application to ensure that the proposed activities will not adversely impact federally listed threatened or endangered species or federally designated critical habitat.

**Section D: Surface Disposal**

Complete this section if you own or operate a surface disposal site.

A sewage sludge surface disposal site is, by definition, a treatment works treating domestic sewage, and the owner/operator of the site is required to apply for a permit. You are required to submit Section D of this form if:

- The surface disposal site is already covered by an VPDES permit

(e.g., a POTW's VPDES permit);

- You are requesting site-specific pollutant limits for an active sewage sludge unit at the surface disposal site; or
- You have been required by the DEQ to submit a full permit application at this time.

If none of these criteria apply, you may skip Section D.

- D.1. Information on Active Sewage Sludge Units.** Complete Section D for each active sewage sludge unit at the surface disposal site. If the site has more than one unit, attach additional pages as necessary.

An active sewage sludge unit is an area of land on which only sewage sludge is placed for final disposal. Sewage sludge units include, but are not limited to, natural topographical depressions, man-made excavations, or diked areas designed to dispose of (not treat) sewage sludge. Sewage sludge units do not include areas where sewage sludge is generated as a result of ongoing treatment (e.g., polishing ponds) or land on which sewage sludge is placed for either treatment or storage. Sewage sludge may be stored on an area of land for a period equal to or less than two years. If sewage sludge remains on an area of land for greater than two years, the person who prepares the sewage sludge must develop a rationale for why the land should not be considered an active sewage sludge unit.

Most requirements for surface disposal of sewage sludge under Part VI pertain to individual active sewage sludge units at a surface disposal site. Permit conditions for your facility may be developed on a unit-by-unit basis, or may be developed for the entire surface disposal site if all units are sufficiently similar.

- a. Provide the name or number of the active sewage sludge unit. The name or number is any designation commonly used to refer to the unit. If the active sewage sludge unit has been previously designated in another permit, use that designation.
- b. Provide the physical location (street address) of the active sewage sludge unit. If the unit lacks a street address or route number, provide the most accurate alternative geographic information (e.g., county, nearby highway intersection). Also, provide the latitude and longitude of the site location and the method of latitude/longitude determination.
- c. Provide a topographic map or other appropriate map (if a topographic map is unavailable) that shows the site location. See additional instructions in A.5.
- d. Provide the total dry metric tons per 365-day period placed on the active sewage sludge unit.
- e. Provide the cumulative total dry metric tons placed on the active sewage sludge unit since it began operation.

The amount of sewage sludge placed on an active sewage sludge unit determines the frequency of monitoring for sewage sludge placed on the active sewage sludge unit.

- f. Indicate whether the active sewage sludge unit has a liner. A liner is defined as soil or synthetic material with a hydraulic

conductivity (permeability) of  $1 \times 10^{-7}$  cm/sec.

If the active sewage sludge unit has a liner, describe the material from which the liner is constructed and specify the design hydraulic conductivity of that material. Also describe any known factors that may indicate the liner is not performing to its design specifications.

- g. Indicate whether the active sewage sludge unit has a leachate collection system. A 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 sewage sludge unit.

If the active sewage sludge unit has a leachate collection system, describe how the system is designed and operated. Also describe the method used for leachate disposal, such as discharge to surface water (provide all applicable permit numbers) or disposal at a hazardous waste treatment, storage, or disposal facility (provide Federal, State, and local permit numbers for this facility).

- h. If you answered yes to both D.2.f and D.2.g, pollutant limits do not apply to the active sewage sludge unit. Additional management practices do apply, however, and will be developed on a case-by-case basis and specified in the permit.

If the boundary of the active sewage sludge unit is less than 150 meters from the property line of the surface disposal site, provide the actual distance in meters.

When the boundary of an active sewage sludge unit without a liner and leachate collection system is less than 150 meters from the property line of the surface disposal site, the pollutant limits for the unit are determined according to the actual distance as indicated in Table 2 of 9 VAC 25-31-630.

- i. Provide the remaining capacity of the active sewage sludge unit, in dry metric tons, and the anticipated closure date, if known. Attach to the application a copy of any closure plan that has been developed for the active sewage sludge unit.

**D.2. Sewage Sludge from Other Facilities.** If sewage sludge is sent to this active sewage sludge unit by any facilities other than your facility, complete this section for each such facility. If sewage sludge from more than one facility other than your facility is placed on this active sewage sludge unit, attach additional pages as necessary.

- a. Provide the official or legal name of the facility providing the sewage sludge. Do not use a colloquial name.
- b. Provide the name, title, and work telephone number of a person who is thoroughly familiar with the operation of the facility that is providing the sewage sludge, and who can be contacted by the DEQ if necessary.
- c. Provide the complete mailing address of the facility providing the sewage sludge.
- d. Provide the VPDES permit number, as well as the number and type of any relevant Federal, State, or local environmental permits issued to the facility providing the sewage sludge.

- e. Indicate the class of pathogen reduction that is achieved before sewage sludge leaves the facility providing the sewage sludge.

Options for meeting Class A or Class B pathogen reduction are listed in Appendix II.

- f. Provide a written description of any treatment processes used at the facility providing the sewage sludge to reduce pathogens in the sewage sludge, including, where applicable, how the treatment fulfills one of the options for meeting Class A or Class B pathogen reduction. You may attach existing documentation (e.g., technical or process specifications) to meet this requirement.
- g. Indicate whether any of the vector attraction reduction options 1-8, (See Appendix III B) are met at the facility providing the sewage sludge. Options 1-8 are typically met at the point of sewage sludge generation. Additional options are available, but these are typically met at the point of disposal.

You may select "none or unknown" only if option 9 (injection below land surface), option 10 (incorporation into soil within six hours), or option 11 (daily cover) is met at the point of disposal at this active sewage sludge unit (see Section D.4.a).

- h. Provide a written description of any treatment processes used at the facility providing the sewage sludge to reduce vector attraction reduction characteristics of sewage sludge, including an indication of how the treatment fulfills one of options 1-8 for vector attraction reduction. You may attach existing documentation (e.g., technical or process specifications) to meet this requirement.
- i. Provide a written description of any other treatment processes (excluding dewatering) at the facility providing the sewage sludge that are not described in D.3.e - D.3.h. You may attach existing documentation (e.g., technical or process specifications) to meet this requirement.

**D.3. Vector Attraction Reduction.** Complete this section for each active sewage sludge unit.

- a. Indicate whether any of vector attraction reduction options 9-11 (See Appendix III B) are met when the sewage sludge is placed on this active sewage sludge unit.

Sewage sludge placed on an active sewage sludge unit must meet one of vector attraction reduction options B 1-11. Options 1-8 are typically met at the point of sewage sludge generation (see Question D.3.e). Options 9-11 are typically met at the point of disposal.

- b. Provide a written description of any treatment processes used at the active sewage sludge unit to reduce vector attraction reduction characteristics of sewage sludge, including an indication of how the treatment fulfills one of options 9-11 for vector attraction reduction. You may attach existing documentation (e.g., technical or process specifications) to meet this requirement.

**D.4. Ground Water Monitoring.**

Placement of sewage sludge on an active sewage sludge unit must not contaminate an aquifer, as demonstrated through either: (1) the results of a ground water monitoring program developed by a qualified ground water scientist, or (2) certification by a qualified ground water

scientist that contamination has not occurred.

Contaminate an aquifer means to introduce a substance that causes the standard for nitrate in the Virginia Water Quality Standards Regulation, 9 VAC 25-260-220, 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 standard for nitrate in 9 VAC 25-260-220.

The ground water quality standard for nitrate is 5 milligrams/liter, except in the Cumberland Plateau physiographic province, where it is 0.5 milligrams/liter.

This section solicits existing ground water monitoring data and other documentation to indicate the potential for contamination of an aquifer at the active sewage sludge unit, and the capability of the owner/operator of the surface disposal site to demonstrate that contamination has not occurred.

- a. If ground water monitoring is conducted for this active sewage sludge unit, provide the following:
  - Available ground water monitoring data; and
  - A written description of the well locations, approximate depth to ground water, and the ground water monitoring procedures used to obtain these data (you may attach existing documentation to fulfill this requirement).

For purposes of this application, ground water monitoring means the installation and periodic sampling and analysis of small diameter wells screened in the aquifer below the base of the deepest active sewage sludge unit.

- b. If a ground water monitoring program has been prepared for this active sewage sludge unit (regardless of whether ground water monitoring is currently conducted), submit a copy of the program with this permit application. The program should include the number, depth, and location of all wells; the frequency and method of sampling; and the parameters for which the ground water is tested.
- c. If you have obtained a certification from a qualified ground water scientist that contamination of the aquifer below the active sewage sludge unit has not occurred, submit a copy of the certification with this permit application.

A 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.

- D.5. Site-Specific Limits.** Indicate whether you are seeking site-specific pollutant limits in your permit for the sewage sludge placed on this active sewage sludge unit.

You are allowed to seek site-specific pollutant limits only for good

cause, and must do so within 180 days of becoming aware that good cause exists. If you request site-specific pollutant limits with this permit application, you are required to submit information supporting the request, including a demonstration that existing values for site parameters specified by the DEQ differ from the values for those parameters used to develop the pollutant limits in Table 1 of Appendix I. You must also submit follow-up information at the request of the DEQ.

If the DEQ determines that site-specific pollutant limits are appropriate, the DEQ may specify site-specific limits in the permit as long as the existing concentrations of the pollutants in the sewage sludge are not exceeded.

## EXCERPTS FROM THE VPDES PERMIT REGULATION, 9 VAC 25-31-10 et seq.

## APPENDIX I

## SEWAGE SLUDGE POLLUTANT LIMITS

TABLE 1 OF 9 VAC 25-31-540 -- CEILING CONCENTRATIONS

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

TABLE 2 OF 9 VAC 25-31-540 -- CUMULATIVE POLLUTANT LOADING RATES

Pollutant	Cumulative Pollutant Loading Rate (kilograms per hectare)
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Nickel	420
Selenium	100
Zinc	2800

TABLE 3 OF 9 VAC 25-31-540 -- POLLUTANT CONCENTRATIONS

Pollutant	Monthly Average Concentration (milligrams per kilogram)*
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Nickel	420
Selenium	100
Zinc	2800

\* Dry weight basis

TABLE 4 OF 9 VAC 25-31-540 -- ANNUAL POLLUTANT LOADING RATES

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
Nickel	21
Selenium	5.0
Zinc	140

## APPENDIX II

## PATHOGEN CONTROL OPTIONS

## 9 VAC 25-31-710. Pathogens.

## A. Sewage sludge - Class A.

1. The requirement in 9 VAC 25-31-710 A 2 and the requirements in either 9 VAC 25-31-710 A 3, A 4, A 5, A 6, A 7, or A 8 shall be met for a sewage sludge to be classified Class A with respect to pathogens.

2. The Class A pathogen requirements in 9 VAC 25-31-710 A 3 through A 8 shall be met either prior to meeting or at the same time the vector attraction reduction requirements in 9 VAC 25-31-720, except the vector attraction reduction requirements in 9 VAC 25-31-720 B 6 through B 8, are met.

## 3. Class A - Alternative 1

a. Either the density of fecal coliform in the sewage sludge 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 sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 9 VAC 25-31-510 B, C, E, or F.

b. The temperature of the sewage sludge that is used or disposed shall be maintained at a specific value for a period of time.

(1) When the percent solids of the sewage sludge is seven percent or higher, the temperature of the sewage sludge 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 (3), except when small particles of sewage sludge are heated by either warmed gases or an immiscible liquid.

$$D = \frac{131,700,000}{10^{0.1400t}} \quad (3)$$

Where,

D = time in days.

t = temperature in degrees Celsius.

(2) When the percent solids of the sewage sludge is seven percent or higher and small particles of sewage sludge are heated by either warmed gases or an immiscible liquid, the temperature of the sewage sludge 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 (3).

(3) When the percent solids of the sewage sludge is less than seven percent and the time period is at least 15 seconds, but less than 30 minutes, the temperature and time period shall be determined using equation (3).

(4) When the percent solids of the sewage sludge is less than seven percent; the temperature of the sewage sludge 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 (4).

$$D = \frac{50,070,000}{10^{0.1400t}} \quad (4)$$

Where,

D = time in days.

t = temperature in degrees Celsius.



## 4. Class A - Alternative 2

a. Either the density of fecal coliform in the sewage sludge 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 sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 9 VAC 25-31-510 B, C, E, or F.

b. (1) The pH of the sewage sludge that is used or disposed shall be raised to above 12 and shall remain above 12 for 72 hours.

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

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

## 5. Class A - Alternative 3

a. Either the density of fecal coliform in the sewage sludge shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 9 VAC 25-31-510 B, C, E, or F.

b. (1) The sewage sludge shall be analyzed prior to pathogen treatment to determine whether the sewage sludge contains enteric viruses.

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

(3) When the density of enteric viruses in the sewage sludge prior to pathogen treatment is equal to or greater than one Plaque-forming Unit per four grams of total solids (dry weight basis), the sewage sludge is Class A with respect to enteric viruses when the density of enteric viruses in the sewage sludge 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 sewage sludge that meets the enteric virus density requirement are documented.

(4) After the enteric virus reduction in paragraph b (3) of this subsection is demonstrated for the pathogen treatment process, the sewage sludge 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 paragraph b (3) of this subsection.

c. (1) The sewage sludge shall be analyzed prior to pathogen treatment to determine whether the sewage sludge contains viable helminth ova.

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

(3) When the density of viable helminth ova in the

sewage sludge prior to pathogen treatment is equal to or greater than one per four grams of total solids (dry weight basis), the sewage sludge is Class A with respect to viable helminth ova when the density of viable helminth ova in the sewage sludge 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 sewage sludge that meets the viable helminth ova density requirement are documented.

(4) After the viable helminth ova reduction in paragraph c (3) of this subsection is demonstrated for the pathogen treatment process, the sewage sludge 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 paragraph c (3) of this subsection.

6. Class A - Alternative 4

a. Either the density of fecal coliform in the sewage sludge 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 sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 9 VAC 25-31-510 B, C, E, or F.

b. The density of enteric viruses in the sewage sludge shall be less than one Plaque-forming Unit per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 9 VAC 25-31-510 B, C, E, or F, unless otherwise specified by the Board.

c. The density of viable helminth ova in the sewage sludge shall be less than one per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 9 VAC 25-31-510 B, C, E, or F, unless otherwise specified by the Board.

7. Class A - Alternative 5

a. Either the density of fecal coliform in the sewage sludge 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 sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 9 VAC 25-31-510 B, C, E, or F.

b. Sewage sludge that is used or disposed shall be treated in one of the Processes to Further Reduce Pathogens described in 9 VAC 25-31-710 E.

8. Class A - Alternative 6

a. Either the density of fecal coliform in the sewage sludge 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 sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 9 VAC 25-31-510 B, C, E, or F.

b. Sewage sludge that is used or disposed shall be treated

in a process that is equivalent to a Process to Further Reduce Pathogens, as determined by the Board.

B. Sewage sludge - Class B.

1. a. The requirements in either 9 VAC 25-31-710 B 2, B 3, or B 4 shall be met for a sewage sludge to be classified Class B with respect to pathogens.

b. The site restrictions in 9 VAC 25-31-710 B 5 shall be met when sewage sludge that meets the Class B pathogen requirements in 9 VAC 25-31-710 B 2, B 3, or B 4 is applied to the land.

2. Class B - Alternative 1

a. Seven samples of the sewage sludge shall be collected at the time the sewage sludge is used or disposed.

b. The geometric mean of the density of fecal coliform in the samples collected in paragraph 2 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).

3. Class B - Alternative 2

Sewage sludge that is used or disposed shall be treated in one of the Processes to Significantly Reduce Pathogens described in 9 VAC 25-31-710 D.

4. Class B - Alternative 3

Sewage sludge that is used or disposed shall be treated in a process that is equivalent to a Process to Significantly Reduce Pathogens, as determined by the Board.

5. Site Restrictions

a. Food crops with harvested parts that touch the sewage sludge/soil mixture and are totally above the land surface shall not be harvested for 14 months after application of sewage sludge.

b. Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after application of sewage sludge when the sewage sludge 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 sewage sludge when the sewage sludge 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 sewage sludge.

e. Animals shall not be allowed to graze on the land for 30 days after application of sewage sludge.

f. Turf grown on land where sewage sludge is applied shall not be harvested for one year after application of the sewage sludge when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the Board.

g. Public access to land with a high potential for public exposure shall be restricted for one year after application of sewage sludge.

h. Public access to land with a low potential for public exposure shall be restricted for 30 days after application of sewage sludge.

C. Domestic septage.

1. The site restrictions in 9 VAC 25-31-710 B 5 shall be met when domestic septage is applied to agricultural land, forest, or a reclamation site; or

2. The pH of domestic septage applied to agricultural land, forest, or a reclamation site shall be raised to 12 or higher by alkaline addition and, without the addition of more alkaline material, shall remain at 12 or higher for 30 minutes and the site restrictions in 9 VAC 25-31-710 B 5 a through B 5 d shall be met.

D. Processes to significantly reduce pathogens (PSRP).

1. Aerobic digestion

Sewage sludge is 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.

2. Air drying

Sewage sludge is dried on sand beds or on paved or unpaved basins. The sewage sludge dries for a minimum of three months. During two of the three months, the ambient average daily temperature is above zero degrees Celsius.

3. Anaerobic digestion

Sewage sludge is 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.

4. Composting

Using either the within-vessel, static aerated pile, or windrow composting methods, the temperature of the sewage sludge 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.

5. Lime stabilization

Sufficient lime is added to the sewage sludge to raise the pH of the sewage sludge to 12 after two hours of contact.

E. Processes to further reduce pathogens (PFRP).

1. Composting

Using either the within-vessel composting method or the static aerated pile composting method, the temperature of the sewage sludge is maintained at 55 degrees Celsius or higher for three days.

Using the windrow composting method, the temperature of the sewage sludge 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.

2. Heat drying

Sewage sludge is dried by direct or indirect contact with hot gases to reduce the moisture content of the sewage sludge to 10 percent or lower. Either the temperature of the sewage sludge particles exceeds 80 degrees Celsius or the wet bulb temperature of the gas in contact with the sewage sludge as the sewage sludge leaves the dryer exceeds 80 degrees Celsius.

3. Heat treatment

Liquid sewage sludge is heated to a temperature of 180 degrees Celsius or higher for 30 minutes.

4. Thermophilic aerobic digestion

Liquid sewage sludge is agitated with air or oxygen to maintain aerobic conditions and the mean cell residence time of the sewage sludge is 10 days at 55 to 60 degrees Celsius.

5. Beta ray irradiation

Sewage sludge is irradiated with beta rays from an accelerator at dosages of at least 1.0 megarad at room temperature (ca. 20 degrees Celsius).

6. Gamma ray irradiation

Sewage sludge is irradiated with gamma rays from certain isotopes, such as Cobalt 60 and Cesium 137, at room temperature (ca. 20 degrees Celsius).

7. Pasteurization

The temperature of the sewage sludge is maintained at 70 degrees Celsius or higher for 30 minutes or longer.

## APPENDIX III

## VECTOR ATTRACTION REDUCTION OPTIONS

**9 VAC 25-31-720. Vector attraction reduction.**

A. 1. One of the vector attraction reduction requirements in 9 VAC 25-31-720 B 1 through B 10 shall be met when bulk sewage sludge is applied to agricultural land, forest, a public contact site, or a reclamation site.

2. One of the vector attraction reduction requirements in 9 VAC 25-31-720 B 1 through B 8 shall be met when bulk sewage sludge is applied to a lawn or a home garden.

3. One of the vector attraction reduction requirements in 9 VAC 25-31-720 B 1 through B 8 shall be met when sewage sludge is sold or given away in a bag or other container for application to the land.

4. One of the vector attraction reduction requirements in 9 VAC 25-31-720 B 1 through B 11 shall be met when sewage sludge (other than domestic septage) is placed on an active sewage sludge unit.

5. One of the vector attraction reduction requirements in 9 VAC 25-31-720 B 9, B 10, or B 12 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 9 VAC 25-31-720 B 9 through B 12 shall be met when domestic septage is placed on an active sewage sludge unit.

B. 1. The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38 percent, calculated according to the method in 9 VAC 25-31-490 B 8.

2. When the 38 percent volatile solids reduction requirement in 9 VAC 25-31-720 B 1 cannot be met for an anaerobically digested sewage sludge, vector attraction reduction can be demonstrated by digesting a portion of the previously digested sewage sludge 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 sewage sludge at the beginning of that period is reduced by less than 17 percent, vector attraction reduction is achieved.

3. When the 38 percent volatile solids reduction requirement in 9 VAC 25-31-720 B 1 cannot be met for an aerobically digested sewage sludge, vector attraction reduction can be demonstrated by digesting a portion of the previously digested sewage sludge that has a percent solids of two percent 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 sewage sludge at the beginning of that period is reduced by less than 15 percent, vector attraction reduction is achieved.

4. The specific oxygen uptake rate (SOUR) for sewage sludge 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.

5. Sewage sludge shall be treated in an aerobic process for 14 days or longer. During that time, the temperature of the sewage sludge shall be higher than 40 degrees Celsius and the average temperature of the sewage sludge shall be higher than 45 degrees Celsius.

6. The pH of sewage sludge shall be raised to 12 or higher by alkaline addition and, without the addition of more alkaline material, shall remain at 12 or higher for two hours and then at 11.5 or higher for an additional 22 hours.

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

8. The percent solids of sewage sludge that contains unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids

prior to mixing with other materials.

9. a. Sewage sludge shall be injected below the surface of the land.

b. No significant amount of the sewage sludge shall be present on the land surface within one hour after the sewage sludge is injected.

c. When the sewage sludge that is injected below the surface of the land is Class A with respect to pathogens, the sewage sludge shall be injected below the land surface within eight hours after being discharged from the pathogen treatment process.

10. a. Sewage sludge 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.

b. When sewage sludge that is incorporated into the soil is Class A with respect to pathogens, the sewage sludge shall be applied to or placed on the land within eight hours after being discharged from the pathogen treatment process.

11. Sewage sludge placed on an active sewage sludge unit shall be covered with soil or other material at the end of each operating day.

12. The pH of domestic septage shall be raised to 12 or higher by alkaline addition and, without the addition of more alkaline material, shall remain at 12 or higher for 30 minutes.

APPENDIX IV

NOTICE AND NECESSARY INFORMATION

This form is to assist compliance with the bulk sewage sludge notification requirements (9 VAC 25-31-530 F and/or H). Please note, however, that if the sewage sludge meets the exceptional quality criteria, then the notification requirements do not apply. This form can be used by preparers of sewage sludge to transmit information to land appliers and also by land appliers to transmit information to land owners or lease holders.

Part I - To Be Completed by PREPARERS of Sewage Sludge

A. Please provide pollutant concentrations

Name	Concentration (mg/kg) Dry Weight	Pollutant Concentrations (Table 3, 9 VAC 25-31-540) (Monthly Average)	Ceiling Concentrations (Table 1, 9 VAC 25-31-540) (Daily Maximum)
Arsenic		41 mg/kg	75 mg/kg
Cadmium		39 mg/kg	85 mg/kg
Copper		1500 mg/kg	4300 mg/kg
Lead		300 mg/kg	840 mg/kg
Mercury		17 mg/kg	57 mg/kg
Molybdenum		-	75 mg/kg
Nickel		420 mg/kg	420 mg/kg
Selenium		100 mg/kg	100 mg/kg
Zinc		2800 mg/kg	7500 mg/kg
Total Nitrogen		N/A	N/A

- Sludge may not be land applied if any pollutant exceeds these values.

B. Pathogen Reduction (9 VAC 25-31-710)

Class A                       Class B

C. Vector Attraction Reduction (9 VAC 25-31-720)

Option 1                       Option 2                       Option 3                       Option 4  
 Option 5                       Option 6                       Option 7                       Option 8  
 No vector attraction reduction options were performed

D. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and official title \_\_\_\_\_

Signature \_\_\_\_\_ Date Signed \_\_\_\_\_

Telephone number \_\_\_\_\_

**Part II - To Be Completed by LAND APPLIER of Sewage Sludge**

A. If the pollutant levels in the sewage sludge do not meet the pollutant concentration limits in Table 3, then the land applier must provide the land owner with the following information:

- 1. Location of land application site \_\_\_\_\_
- 2. Number of hectares where the sewage sludge was applied \_\_\_\_\_
- 3. Date and time bulk sewage sludge was applied \_\_\_\_\_
- 4. Amount of bulk sewage sludge applied \_\_\_\_\_
- 5. Record the amount of each metal and nitrogen applied in pounds per acre or kilogram per hectare \_\_\_\_\_

B. If the preparer did not perform vector attraction reduction options (see Part I), then either option 9 or 10 must be performed by the land applier. Please indicate if option 9 or 10 was performed.

- Option 9 - Subsurface Injection
- Option 10 - Incorporated into the soil
- N/A

C. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and official title \_\_\_\_\_

Signature \_\_\_\_\_ Date Signed \_\_\_\_\_

Telephone number \_\_\_\_\_