

PERMIT MODULE I GENERAL PERMIT CONDITIONS

I.A. EFFECT OF PERMIT

The permittee is allowed to dispose solid waste on-site in accordance with the conditions of this permit. Any disposal of solid waste not authorized by this permit is prohibited. Compliance with the terms of this permit does not constitute a defense to any order issued or any action brought under Sections 10.1-1402(18), 10.1-1402(19), or 10.1-1402(21) of the Virginia Waste Management Act (Chapter 14, Title 10.1, Code of Virginia (1950), as amended); or any other law or regulation for protection of public health or the environment. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstances is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby. For purposes of this permit, terms used herein shall have the same meaning as those in the Virginia Waste Management Act, and Part I and other pertinent parts of the Virginia Solid Waste Management Regulations (VSWMR, 9VAC20-81), unless this permit specifically provides otherwise; where terms are not defined in the regulations or the permit, the meaning associated with such terms shall be defined by the generally accepted scientific or industrial meaning of the term or a standard dictionary reference. "Director" means the Director of the Department of Environmental Quality, or his, or her designated or authorized representative.

I.B. DUTIES AND REQUIREMENTS

The permittee shall comply with all conditions of this permit and 9VAC20-81. The effect of this permit is detailed in 9VAC20-81-490, and it shall be the duty of the permittee to ensure the applicable requirements are met. In addition, the permittee is subject to the recording and reporting requirements detailed in 9VAC20-81-530. Furthermore, the following conditions are invoked per 9VAC20-81-430, and shall be complied with:

- I.B.1. Noncompliance may be authorized by a schedule of compliance [9VAC20-81-490.D. and 9VAC20-81-490.H.]. Any other permit noncompliance constitutes a violation of Virginia Waste Management Act and provides grounds for enforcement action, or for permit revocation, revocation and reissuance, or modification [9VAC20-81-570 and 9VAC20-81-600].
- I.B.2. The permittee shall comply with the requirements of this permit and any provisions of the Resources Conservation and Recovery Act (RCRA) Subtitle D (Title 40, Code of Federal Regulations, Section 258) requirements as they become applicable upon their effective date. This permit may not act as a shield against compliance with any part of RCRA or any other applicable federal regulation, state regulation or state law.
- I.B.3. In an enforcement action, it shall not be a defense for the permittee that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

- I.B.4. In the event of noncompliance with this permit, the permittee shall take all reasonable steps to minimize releases of solid wastes or waste constituents to the environment and shall carry out measures to prevent substantial adverse impacts on human health or the environment.
- I.B.5. The permittee shall at all times properly operate and maintain all units, and related appurtenances, which are installed or used by the permittee to achieve compliance with the operations manual and the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing, and training, and adequate laboratory and process controls, including appropriate quality assurance and quality control procedures. This provision requires the operation of back-up or auxiliary equipment only when necessary to achieve compliance with the conditions of this permit.
- I.B.6. The permittee shall furnish to the Director, within a reasonable time, any relevant information that the Director may request to determine compliance with this permit, regulations or the Act. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit by the date specified in the request.
- I.B.7. The permittee shall allow the Director, or an authorized representative, at a reasonable time, upon the presentation of appropriate credentials, to:
- I.B.7.a. Enter the permitted facility where a regulated unit or activity is located or conducted, or where records must be kept under the conditions of this permit;
 - I.B.7.b. Have access to and copy any records that must be kept under the conditions of this permit;
 - I.B.7.c. Inspect any unit, equipment, including monitoring and control equipment, practices, or operations regulated or required under this permit; and
 - I.B.7.d. Sample or monitor, for the purposes of assuring permit compliance or as otherwise authorized by Virginia Waste Management Act, any substances or parameters at any location within his, or her control.
- I.B.8. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample to be analyzed must be the appropriate method from the latest edition of Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, EPA Publication SW-846, if available.

Laboratory samples shall be analyzed in accordance with 1 VAC 30-45, Certification for Noncommercial Environmental Laboratories, or 1 VAC 30-46, Accreditation for Commercial Environmental Laboratories.

- I.B.9. This permit is not transferable to any person, unless approved by the Director. The Director may require modification or revocation and reissuance of the permit, pursuant to 9VAC20-81-490.G. Before transferring ownership or operation of the facility during its operational life, the permittee shall notify the new owner or operator in writing of the requirements of Parts III and V, of the Virginia Solid Waste Management Regulations, the Financial Assurance Regulations, 9VAC20-70, and this permit.
- I.B.10. In accordance with § 10.1-1408.2, all facilities must have a Certified Operator as required by the Board of Waste Management Facility Operators-Licensing Regulations, 18 VAC 155-20.
- I.B.11. All drainage media should consist of materials containing less than 15% Calcium Carbonate (CaCO₃) equivalent. Department literature regarding research on leachate collection media indicates that weight loss greater than 15% results in an unacceptable loss of performance. If a greater Calcium Carbonate content in the drainage media is proposed, a demonstration that performance will not be adversely affected must be provided to the Department for review and approval.
- I.B.12. Recirculation of collected leachate shall not be allowed, in accordance with 9VAC20-81-210.D.3., except in areas underlain by a composite liner system. Furthermore, in accordance with 9VAC20-81-200.C.3.c., decomposition gas condensate may be recirculated into the landfill provided the facility complies with the composite liner requirement and the leachate control system requirements of Part III of VSWMR. A composite liner system is a system designed to meet the requirements of 9VAC20-81-130.J.1.
- I.B.13. The closure cost estimate must reflect the maximum cost of closure at all times. The owner has the responsibility to maintain the closure and post closure cost estimate and associated financial assurance funding as conditions change.
- I.B.14. Land-clearing, excavation, and construction activities that involve the disturbance of wetlands or streams shall not commence without authorization from the Virginia Water Protection (VWP) Program and/or Army Corps of Engineers.

I.C. DOCUMENTS TO BE MAINTAINED AT THE FACILITY

The permittee shall maintain a complete copy of the Solid Waste Permit and incorporated Permit Documents at the facility, or another location approved by the director, until post-closure is complete and certified by a professional engineer, and shall maintain amendments, revisions, and modification to these documents. In addition, the facility shall maintain the following documents:

- I.C.1. Operations Manual with annual certification by Responsible Official

- I.C.2. Detailed, written and current estimate of the cost of closing the facility, post-closure care and corrective action measures
- I.C.3. All other applicable and required documents and records as follow:
 - I.C.3.a. Leachate, gas and groundwater monitoring records.
 - I.C.3.b. Construction, installation, operational, closure, and post-closure inspection records, as required.
 - I.C.3.c. Personnel training records.
 - I.C.3.d. Daily operational records, such as: solid waste received and processed, fill area records, records of special wastes accepted, a logbook of narrative account of daily activities at the landfill.
 - I.C.3.e. Construction Quality Assurance (CQA) reports, record drawings and engineer certifications for all new cell and final cover constructions.
- I.C.4. An approved copy of the complete Part A permit application.
- I.C.5. Documentation authorizing the facility to discharge leachate into the Publicly, or Privately Owned Treatment Works (POTW), records of leachate volumes sent to the POTW, and periodic leachate sampling analytical results.
- I.C.6. Research, Development, and Demonstration Plan documentation and testing data, if applicable.

I.D. DOCUMENTS TO BE SUBMITTED

In addition to the documents/records/reports to be submitted per the requirements of this permit or 9VAC20-81, the permittee shall also submit the following documents to the Director according to indicated schedules:

- I.D.1. Prior to expansion into each new phase, the permittee shall submit all required certification documents per 9VAC20-81-490.A., and:
 - I.D.1.a. Authorization from the POTW to discharge the increased volume of leachate and wastewater to the sewerage system and treatment works.
 - I.D.1.b. Reports and supporting documents pertaining to quality control and quality assurance activities performed during construction and installation of the liner and drainage systems, including installation contractor's written acceptance of the surfaces to be lined, synthetic liner manufacturer and installer warranties, laboratory test results of the permeability of the clay liner and the drainage

media overlying the liner, and representative copies, sufficient to demonstrate responsible control, of the accumulated inspection schedules resulting from the professional engineer's oversight of the construction.

- I.D.2. In accordance with 9VAC20-81-490.A., certification by a design engineer, who must be a professional engineer licensed to practice in the Commonwealth, that the construction of the facility has been completed in accordance with the permit, approved plans and specifications and is ready to begin operation. A certification will be required for each lined phase of development.
- I.D.3. Certification, separate from I.D.2, above, by the Construction Quality Assurance (CQA) officer that the approved CQA plan has been successfully carried out and that the constructed unit meets all requirements of the permitted CQA plan, in accordance with 9VAC20-81-130.Q. A certification will be required for each lined phase of development. The CQA officer must be a professional engineer licensed to practice in Virginia.
- I.D.4. The as-built plans of all new groundwater and gas monitoring wells shall be submitted as these wells are installed. Information to be included on the as-built plans shall include, but not be limited to, the following: the total depth of the well; the surveyed elevations of the top of casing and ground surface, or apron; and the length and location of the screened interval and annular space seal. All dimensions are to be shown on well construction schematics.

I.E. REPORTS, NOTIFICATIONS, AND SUBMISSIONS TO THE DIRECTOR

All reports, notifications, or other documents, which are required by this permit to be submitted to the Director, should be sent to:

Virginia Department of Environmental Quality
Land Protection and Revitalization Program
Northern Regional Office
13901 Crown Court
Woodbridge, Virginia 22193

I.F. SITE SPECIFIC CONDITIONS

The provisions of this section are in addition to the permit conditions and regulatory requirements and are specifically developed for this facility. The permittee shall comply with all conditions of this section, as follows:

- I.F.1. The final permit is based on permit application submittals, drawings and reports that may contain the word “proposed” and similarly tentative language. The documents

incorporated into SWP586 have been evaluated for administrative completeness and technical adequacy and have been approved as proposed. Therefore any references to design, construction, operation, monitoring or closure criteria are considered to be approved as proposed.

- I.F.2. The facility is subject to the conditions listed in the Part A approval letter, dated August 16, 1994.
- I.F.3. By December 31 each year, the permittee shall perform an annual topographic survey of the active portions of the landfill. This survey shall be certified by a professional engineer or certified land surveyor licensed in the Commonwealth of Virginia, unless exempt pursuant to § 54.1-402. The survey results shall be compared to the landfill's final permitted topography plan. Within 90 days of the survey, by April 1 each year, the permittee shall prepare and submit to the Department a report, including the drawings comparing surveyed elevations, permitted final elevations, and the disposal boundary. The report shall include the areas of the landfill that have attained final elevations, grades, and lateral extent, and any areas of overfill, including an estimate of total area and volume of overfill. The report shall also include the calculated remaining capacity, and the estimated life within the permitted disposal unit boundary. Areas that have attained final elevations and slopes must be stabilized in accordance with the permit until final cover is applied within the timeframe specified in the Closure Plan. Except as may be separately approved or permitted in writing by DEQ for exigent or emergency situations, no waste shall be placed in areas where the elevation exceed those shown on Drawing CAP-01, Capping Plan, dated October 23, 2014.
- I.F.4. The facility shall notify the Department at least 30 days prior to installation of down drains and gas collection wells.
- I.F.5. The facility implements a desulfurization process to remove Hydrogen Sulfide (H₂S) from the landfill gas prior to utilizing the gas in the electrical power generating facility existing onsite. The process creates an elemental sulfur by-product, which must be properly managed. Prior to disposal in the landfill, the facility must adequately characterize this material to ensure that it will not cause odors, or other concerns. Alternately, the facility may determine a beneficial use for this material, and proceed with the Beneficial Use Determination process as described in 9VAC20-81-97.
- I.F.6. No later than December 1, 2022, the facility will submit a revised Groundwater Monitoring and Reporting Plan. The plan shall include all information related to Alternate Source Demonstrations and other groundwater activities on the facility.
- I.F.7. The facility will implement a program to determine the efficacy of the approved Alternate Daily Covers (ADC) that are being used on the facility. The program shall include surface monitoring for methane and hydrogen sulfide in areas where intermediate cover is in place along a pattern that traverses the landfill at 30 meter intervals with the probe inlet placed within 5 to 10 centimeters off the ground and where visual observations indicate elevated concentrations of landfill gas, such as distressed

vegetation and cracks or seeps in the cover. The facility will also monitor the working face after daily cover has been applied, but before new waste is in place. The monitoring shall be performed at least quarterly. From November 15th through February 15th each year, the facility will perform monthly surface emission monitoring. Monthly monitoring shall be performed until improvement of cover and operations has been demonstrated. At such time, King George Landfill may request to reduce the frequency of surface emission monitoring within the November 15th through February 15th timeframe.

The monitoring results shall include the date, start and end time of the monitoring event, weather conditions at the start and end of the monitoring event, measured quantities of hydrogen sulfide above 0.10 ppm and methane above 500 ppm, and a map outlining the monitoring path. Based upon the monitoring results, the Department may request additional monitoring or control measures to be implemented. These measures shall be put in place within a timeframe agreed upon by the facility and the Department. In addition, the Department will determine if further revisions to the Landfill Gas Management Plan are necessary and whether the conditions of approved ADCs need to be re-evaluated.

From November 15th through February 15th each year, the facility shall restrict the usage of approved ADC's to only those containing at least 50% of soil in the mixture, excluding the mixture of crushed glass and soil.

- I.F.8. The facility shall follow their odor management plan and should the facility be unable to control odors from migrating off of the landfill in an effective manner, the DEQ may request additional monitoring or control measures to be taken. These measures shall be put in place within a timeframe agreed upon by the facility and the DEQ.

I.G. PERMIT MODIFICATIONS

- I.G.1. Part A permit application was approved on August 16, 1994, and the permit was issued on August 17, 1995. Concurrently with the permit issuance, a variance petition, dated June 1, 1995, was approved to authorize an alternate bottom liner system.
- I.G.2. The first minor permit modification was issued on November 6, 1995, to change the hours of operation, and to clarify the waste acceptance and service area.
- I.G.3. The second minor permit modification was issued on November 7, 1996, to revise the previously approved technical specifications regarding geosynthetic material, in order to meet then currently available commercial products.
- I.G.4. The third minor permit modification was approved on April 21, 1997, to revise phasing sequence for the landfill development.

- I.G.5. The fourth minor permit modification, issued on February 17, 1999, incorporated revised CQA Plan and Technical Specifications into the permit.
- I.G.6. The fifth minor permit modification, approved April 20, 1999, authorized the abandonment of groundwater monitoring wells TW02U and TW07D, and incorporated a revised Groundwater Monitoring Plan into the permit.
- I.G.7. The sixth minor permit modification was issued on November 15, 1999, to allow for the use of shredded tires, mixed with soil in 1:1 ratio by volume, and the use of coal ash mixed with soil in 1:1 ratio by volume, as Alternate Daily Cover (ADC) materials.
- I.G.8. The seventh major permit modification, issued October 30, 2002., authorized an experimental program for operating a bioreactor landfill under the Final Project Agreement (FPA) involving Virginia Department of Environmental Quality, USA Waste of Virginia Inc., now Waste Management, Inc., and the United States Environmental Protection Agency (USEPA) under the USEPA Project XL program. The experiment involved the application of bulk liquids, including leachate from the landfill, and other liquids, to an area of about 10 acres in Cell 3. Cells 2 and 4 were to be used as control cells, where no liquids would be applied. In addition, technical specifications were updated, in order to meet then currently available commercial products, and the groundwater monitoring plan was modified to comply with then current regulations and to be consistent with the revised phasing plans. Concurrently with this permit modification, two variance petitions, dated December 5, 2001, were approved to authorize the facility to operate the bioreactor landfill, and to apply 8,000,000 gallons of bulk liquids per year to the experimental bioreactor area.
- I.G.9. The eighth minor permit modification was issued on July 27, 2007, to amend the groundwater monitoring network, which involved replacement of well TW-15D with TW-15DR, and to incorporate the revised Groundwater Monitoring Plan into the permit.
- I.G.10. The ninth minor permit modification was issued on January 17, 2008, to allow the facility to use a Linear Low Density Polyethylene (LLDPE) geomembrane in the final cover system as a replacement for the originally permitted, but no longer available, coextruded geomembrane.
- I.G.11. The tenth minor permit modification, approved on March 31, 2008, incorporated the revised Groundwater Monitoring Plan, as well as permit modules X and XI, into the permit, in order to allow the facility to comply with then current regulations.
- I.G.12. The eleventh minor permit modification, approved on July 14, 2008, authorized the facility to recirculate leachate through a direct application to the working face.
- I.G.13. The twelfth minor permit modification was issued on May 29, 2009, to allow the facility to redesign of the leachate sump house to minimize the potential buildup of landfill gas in the structure. In addition, the modification authorized the facility to

- conduct a pilot study to determine the effectiveness of treating leachate with ammonia recapture followed by an algal based controlled eutrophication process.
- I.G.14. The thirteenth minor permit modification was issued on July 12, 2012, in order to incorporate the revised permit modules I, II, X, and XI, as well as the following documents into the permit: Landfill Gas Monitoring Plan, revised August 2010; Odor Management Plan, dated August 2011, and revised June 2012; Closure and Post Closure Plan, revised September 2010; and Technical Specifications and Construction Quality Assurance Plan, revised January 2012.
- I.G.15. The fourteenth minor permit modification, approved on December 21, 2012, authorized the facility to install and operate a nonhazardous liquid solidification and stabilization unit, in addition to converting the previously permitted incinerator ash disposal cells into the Municipal Solid Waste (MSW) disposal cells.
- I.G.16. The fifteenth major permit modification, issued on December 28, 2016, authorized an increase of the final elevation of the landfill by 100 ft; from initially permitted 275 ft to 375 ft above the mean sea level, and to increase the total landfill capacity by approximately 22 million yd³; from initially permitted 45 million yd³ to approximately 67 million yd³. The permit modification also removed all references to the algae leachate treatment project, since the pilot project had been completed and the facility determined that a full scale algae leachate treatment program was not feasible.
- I.G.17. The sixteenth minor permit modification, approved on October 21, 2019, authorized the facility to use RusFoam, a starch modified hydrolyzed surfactant, as an ADC material.

END OF MODULE I