Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Secretary of Natural and Historic Resources

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Director

SOLID WASTE FACILITY PERMIT
SWP563

Facility Name: Amherst County Landfill

Facility Type: Sanitary Landfill **Latitude:** N 37º 28' 35"

Site Location: Amherst County **Longitude:** W 79º 02' 05"

Location Description: The facility is located at 715 Kentmoor Farm Road (Route 613), Madison Heights, Virginia 24572, approximately six miles northeast of Madison Heights.

Background: The facility is a publicly owned sanitary landfill that serves Amherst County, the Town of Amherst and the unincorporated Town of Madison Heights. The wastes accepted include those wastes identified in Module II and is based on the information provided on DEQ Form SW PTB, dated March 29, 2024. The facility also operates a household hazardous waste collection center on site. The facility's Operations Manual includes details about the operations of the household hazardous waste collection center.

Amherst County was issued SWP563 on January 21, 1994. The site is comprised of approximately 280 acres, of which approximately 34.1 acres will be used for actual disposal area. The facility consists of Cells 1 through 4, with a total permitted capacity of 3,266,700 cubic yards, as provided in the Design Report. Cell 1 is approximately 13.6 acres, Cell 2 is approximately 7.2 acres, Cell 3 is approximately 6.8 acres and Cell 4 is approximately 6.5 acres. The estimated site life for the total landfill as of March 2024 is approximately 34 years assuming an intake rate of approximately 97 tons/day and in-place waste density of 1200 pounds per cubic yard.

Permit Modification: This major permit modification approves liner design changes to Cell 2/Cell 3 that shift Cell 2/Cell 3 boundary horizontally ~60 feet to the east placing future waste toe-of-slope elevations along the Cell 2 eastern boundary ~10 feet higher. The design of the leachate collection system of Cells 2, 3 and 4 is changing from a liner penetration with gravity sewer liner to a sideslope riser with submersible pump and forcemain. Former Site Specific Condition I.F.4. has been removed from the permit. The permit introduction, permit modules I, III, XII and the Design Plans, Design Report, Leachate Management Plan, Closure Plan, Post Closure Plan, CQA Manual and Technical Specifications have been updated. All previous permit modifications are outlined in detail in Module I, Section I.G.

THIS IS TO CERTIFY THAT:

Amherst County
P.O. Box 779
Madison Heights, Virginia 24572

is hereby granted a permit to construct, operate, and maintain the facility as described in the attached Permit Modules I, II, III, X, XI, XII, and XIII, and Permit Documents incorporated by reference. These Permit Modules and Permit Documents are as referenced hereinafter and are incorporated into and become a part of this permit.

The herein described activity is to be established, modified, constructed, installed, operated, used, maintained, and closed in accordance with the terms and conditions of this permit and the plans, specifications, and reports submitted and cited in the permit. The facility shall comply with all regulations of the Virginia Waste Management Board. In accordance with Chapter 14, § 10.1 - 1408.1(D) of the Code of Virginia, prior to issuing this permit or major modification, any comments by the local government and general public have been investigated and evaluated and it has been determined that the facility poses no substantial present or potential danger to human health or the environment. The permit contains such conditions and requirements as are deemed necessary to comply with the requirements of the Virginia Code, the regulations of the Board, and to prevent substantial or present danger to human health or the environment.

Failure to comply with the terms and conditions of this permit shall constitute grounds for the revocation or suspension of this permit and for the initiation of necessary enforcement actions.

The permit is issued in accordance with the provisions of 10.1-1408.1.A, Chapter 14, Title 10.1, Code of Virginia (1950) as amended. Variances that have been approved for this facility are included in Permit Attachment I-1.

Issued: January 21, 1994
Modifications: October 17, 1994
April 29, 1999
January 9, 2003
November 29, 2004
May 23, 2006
April 13, 2009
July 28, 2016
July 30, 2020
June 1, 2022

APPROVED: _____
R. Nelson Dail
Deputy Regional Director

DATE: _____

PERMIT MODULES
REFERENCE LIST

PERMIT MODULE I – GENERAL PERMIT CONDITIONS (DRAFT, 2025)*
PERMIT ATTACHMENT I-1, PREVIOUS PERMIT APPROVAL LETTERS

PERMIT MODULE II – CONDITIONS OF OPERATION (JUNE 1, 2022)

PERMIT MODULE III – SANITARY LANDFILL DESIGN (DRAFT, 2025)

PERMIT MODULE X – DETECTION MONITORING (JULY 28, 2016)

PERMIT MODULE XI – ASSESSMENT MONITORING (JULY 28, 2016)

PERMIT MODULE XII – CLOSURE (DRAFT, 2025)

PERMIT MODULE XIII – POST CLOSURE CARE (JULY 30, 2020)

*Note the date listed after each module identifies the last time the module was updated and is the current module for this permit.

Should information contained in any permit module that consists of documents submitted by the permittee, conflict with the any requirement or condition contained in Permit Modules I, II, V, X, XI, XII, XIII or 9VAC20-81, the regulatory/permit module requirement or condition shall prevail (unless an appropriate variance has been granted). The Department is not responsible for spelling, typographical, or syntax errors in modules based on information submitted by the permittee.

PERMIT DOCUMENTS

The documents listed below are hereby incorporated into this permit and the permittee is subject to all conditions contained therein. It is the responsibility of the permittee to properly maintain and update these documents. Any version with a revision date other than as listed below is not considered to be the official approved version and is subject to Department review and approval prior to being recognized as the "permitted" version.

1. *Design Plans, Amherst County Landfill, Solid Waste Permit # 563, Part B Major Permit Modification Requested March 29, 2024,* prepared by SCS Engineers April 23, 2025.
2. *Closure Plan,* prepared by Draper Aden Associates December 18, 2013, last revised by SCS Engineers November 1, 2024.
3. *Post-Closure Plan,* prepared by Draper Aden Associates December 18, 2013, last revised by SCS Engineers November 1, 2024.
4. *Design Report,* prepared by Draper Aden Associates December 18, 2013, last revised by SCS Engineers April 23, 2025.
5. *Construction Quality Assurance Plan,* prepared by Draper Aden Associates December 18, 2013, last revised November 1, 2024.
6. *Technical Specifications,* prepared by Draper Aden Associates December 18, 2013, last revised November 1, 2024.
7. *Leachate Management Plan,* prepared by Draper Aden Associates December 18, 2013, last revised by SCS Engineers April 23, 2025.
8. *Landfill Gas Management Plan,* prepared by Draper Aden Associates December 18, 2013, last revised by SCS Engineers October 22, 2021.
9. *Groundwater Monitoring Plan,* prepared by Draper Aden Associates, last revised February 23, 2016
10. *Underdrain Monitoring Plan,* prepared by Draper Aden Associates, dated June 24, 2020.
11. *Proposed Uncapping and Reactivation Plan,* prepared by SCS Engineers dated November 16, 2020 last revised September 21, 2021.

The following documents have been submitted to satisfy permit or regulatory requirements; however, are considered reference documents and are not incorporated into SWP563. This list may not be all-inclusive.

1. *Part A Permit Application for Proposed Amherst County Landfill, Municipal Solid Waste Disposal Facility*, prepared by Hurt & Proffitt, Inc., dated June 23, 1989; *Part A Application Addendum, Proposed Amherst County Landfill,* prepared by Hurt & Proffitt, Inc., dated March 19, 1990.
2. *Construction Documentation and Engineering Certification Report, Trench A/B Phase I Partial Closure, Amherst County Landfill, Amherst County, Virginia, Permit #563,* prepared by Draper Aden Associates, dated April 23. 2001.

3. *CQA Documentation, Trench A, Phases 3 and 4,* prepared by Hurt & Proffitt, last revised January 3, 2001.

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 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. Additionally, the permittee is subject to the recording and reporting requirements detailed in 9VAC20-81-530. In addition to these requirements, the following additional 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 is 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 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/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 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. Specifications for all drainage media should specify that the material shall contain no greater than 15% calcium carbonate 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 percentage is specified or allowed, a demonstration that performance is not 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 when the area to be irrigated is 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.B.15. The facility shall maintain and follow an approved Erosion & Sediment Control Plan for all land-disturbing activities in accordance with the Erosion and Sediment Control Regulations, 9 VAC 25-840.

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 additional documents:

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

I.C.2. Detailed, written estimate, in current dollars, of the cost of closing the facility, post-closure care and corrective action measures

I.C.3. All other documents/records required and applicable from the following:

I.C.3.a. Monitoring records from leachate, gas, groundwater, and underdrain monitoring.

I.C.3.b. Inspection records as required from construction/installation, operational, closure, post-closure inspection requirements.

I.C.3.c. Personnel training records.

I.C.3.d. Daily operational records (i.e., solid waste received and processed, fill area records, records of special wastes accepted, a logbook which is a daily narrative account of the activities at the landfill).

I.C.3.e. Construction quality assurance reports, record drawings and engineers certifications for all new liner and/or final cover construction.

I.C.4. An approved copy of the complete Part A permit application

I.C.5. Documentation of the authorization to discharge leachate into the publicly/privately owned treatment works, 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 City of Lynchburg Regional Wastewater Treatment Plant to discharge the increased volume of leachate and wastewater to the sewerage system and treatment works.

I.D.1.b. Report and supporting documents resulting from quality control/quality assurance activities performed during construction and installation of the liner/drainage systems, including the 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 from 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) from 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 is not limited to, 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

All reports, notifications, or other submissions which are required by this permit to be sent or given to the Director should be sent by certified mail to:

Virginia Department of Environmental Quality
Division of Land Protection & Revitalization
Blue Ridge Regional Office
901 Russell Drive
Salem, VA 24153

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 that are incorporated into SWP563 have been evaluated for administrative and technical adequacy and have been approved as proposed. Therefore, any references to a 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 November 29, 1990.

I.F.3. The permittee shall perform a topographic survey of all active portions of the landfill units on an annual basis (at least every 12 months) unless otherwise requested by the Director. The 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 permit's final site topography plan. Within 90 days of the survey, the permittee shall submit to the Blue Ridge Regional Office Waste Program a drawing comparing surveyed elevations, permitted final elevations, and the disposal unit boundary. The drawing shall note areas that have reached final elevation or lateral extent, and any areas of overfill (waste outside the constructed disposal unit boundary or above the vertical design capacity) including an estimate of total area and volume of overfill. The remaining capacity and estimated life within the permitted disposal unit boundary shall also be included as part of the submittal. 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 permitted or approved in writing by DEQ for exigent or emergency situations, no waste shall be placed outside of the disposal unit boundary and in areas where the elevation exceeds the vertical design capacity that can be derived from Drawing No. 12 - Cells 1 Through 4 Intermediate Cover revised date April 23, 2025.

I.F.4 Cell 1 areas that will remain capped, as described in Sections 2.1 and 2.6 of the Proposed Uncapping and Reactivation Plan, shall be marked so that they can be visually identified in the field. Markers shall be installed so as to not damage the geosynthetic cap components and maintained during facility operation until final capping of Cell 1 as described in Section 2.6 of the Proposed Uncapping and Reactivation Plan.

I.G. PERMIT MODIFICATIONS

(Note that modification reference numbers are not sequential.)

I.G.1. On October 17, 1994, a major modification was approved to increase the number of stages in each phase of Trench A and to reroute the groundwater underdrain line. (This modification was inadvertently omitted during initial permitting.)

I.G.2. The permit was modified by a major modification on April 29, 1999. During this modification Trench A and Trench B were combined into Trench A/B and the witness zone was removed from the permit and replaced with a single composite liner system. The liner system consisted of the following components from bottom to top: 24 inches of clay with a maximum permeability of 1 x 10-7 cm/s, 60-mil textured HDPE, 16-oz geotextile, 12-inch VDOT #57 stone drainage layer, and a 6-inch VDOT #57 stone cushion layer. (Previously identified as Modification 1)

I.G.3. A minor modification on January 9, 2003, approved changes to the technical specifications and QA/QC Program. This involved reduced testing frequencies for the soil borrow source, liner test pad, soil liner, synthetic liner, and drainage layer that will not compromise the quality of construction. (Previously identified as Modification 2)

I.G.4. On November 29, 2004, a minor permit modification approved the relocation of gas probe GP-2 and changed the operational hours of the facility. (Previously identified as Modification 3)

I.G.5. A minor modification on May 23, 2006, approved temporary acceptance of waste from Nelson County while Nelson County makes repairs to the tipping floor of their transfer station. (Previously identified as Modification 4)

I.G.6. The permit was modified by a major modification on April 13, 2009, approving the sequence of filling and working face configuration, the daily tonnage amount, and the maximum daily tonnage (1,000 tons per day). (Previously identified as Modification 5)

I.G.7. The permit was modified by a major modification on July 28, 2016, approving an alternate liner design, alternate cap design, and a lateral expansion combining Cells A/B, C, D, and E into Cells 1 through 4 and including underdrain monitoring requirements. (Previously identified as Modification 6)

I.G.8 On July 30, 2020, a minor permit modification incorporated an underdrain monitoring plan, current underdrain permit language, the requirements for an annual facility survey and updates the landfill gas monitoring requirements per DEQ Guidance Memo No. LPR-SW-2017-01 Clarification of Landfill Gas Regulatory Requirements. (Previously identified as Modification 7)

I.G.9 On June 1, 2022, a permit was approved for major and minor modifications. The major modification approved the uncapping and reactivating of the former partial closure area in the northern portion of Cell 1 to reclaim airspace volume. The minor modification incorporated revisions to the Landfill Gas Management Plan. Permit Modules I, II and III were updated as well as the Design Plans, Design Report, Leachate Management Plan. The Proposed Uncapping and Reactivation Plan was incorporated in the permit also. (Modification 9)

I.G.10. This major permit modification approves liner design changes to Cell 2/Cell 3 that shift Cell 2/Cell 3 boundary horizontally ~60 feet to the east placing future waste toe-of-slope elevations along the Cell 2 eastern boundary ~10 feet higher (based on the Design Report and June 24, 2025 letter from SCS Engineers). The design of the leachate collection system of Cells 2, 3 and 4 is changing from a liner penetration with gravity sewer liner to a sideslope riser with submersible pump and forcemain. Former Site Specific Condition I.F.4. that required the submittal of a revised Landfill Gas Management Plan upon future cell construction, has been removed from the permit. The permit introduction, permit modules I, III, XII and the Design Plans, Design Report, Leachate Management Plan, Closure Plan, Post Closure Plan, CQA Manual and Technical Specifications have been updated.

END OF MODULE I

PERMIT MODULE III
SANITARY LANDFILL DESIGN

III.A. LINER DESIGN

Cells 2-4 of the landfill shall be underlain by the composite liner system described below (from top to bottom) (9VAC20-81-130.J.1.b.):

- 18-inches VDOT #57, #58, or #8 aggregate as drainage layer;
- 16-ounce per square yard geotextile cushion layer;
- 60-mil High Density Polyethylene (HDPE) textured geomembrane;
- Geosynthetic clay liner (GCL) with maximum permeability of 5.0×10^{-9} cm/sec; and
- 12-inch thick compacted sub-base.

Cell 1 of the landfill is underlain by the composite liner system described below (from top to bottom):

- 12 to 18 inches of cover soil;
- 10.5 oz/sy geotextile fabric;
- Six-inches of VDOT #57 aggregate as drainage layer containing collection pipes;
- Geocomposite drainage layer and geonet with geotextile;
- 60-mil textured High Density Polyethylene (HDPE);
- HDPE Geonet Witness Zone (only Phase 1 of former Trench A/B);
- 60-mil textured HDPE (only Phase 1 of former Trench A/B); and
- 24-inches of clay liner with a maximum permeability of 1×10^{-7} cm/s.

III.B. LINER CONSTRUCTION & CERTIFICATION

The landfill base liner for Cells 2-4 shall be constructed in accordance with the approved Design Plans, Technical Specifications, and Construction Quality Assurance Plan.

Prior to expansion into each new Cell, the permittee shall submit all required certification documents as indicated in Permit Module I Section I.D.1 – 3 as required by 9 VAC 20-81-490.A. Once this documentation has been submitted and approved by the Department, and a site inspection of the new Cell has been conducted, a Certificate to Operate (CTO) must be issued by the Regional Office prior to the facility accepting waste in the newly constructed Cell.

III.C. LANDFILL GAS MANAGEMENT SYSTEM

III.C.1. The facility shall implement and maintain a gas management plan in accordance with 9 VAC 20-81-200 to provide for the protection of public health, safety, and the environment during the periods of operation, closure, and post-closure care, in accordance with the following requirements:

III.C.1.a. The concentration of methane gas generated by the facility does not exceed 25 percent of the lower explosive limit for methane (1.25% methane) in facility structures (excluding gas control or recovery system components); and

III.C.1.b. The concentration of methane gas does not exceed the lower explosive limit for methane (5.0% methane) at the facility boundary.

III.C.2. The facility shall perform quarterly landfill gas monitoring of the perimeter gas monitoring wells and occupied structures, in accordance with 9 VAC 20-81-200.B.4.

III.C.3 The facility shall make any necessary repairs to the gas monitoring network (including, but not limited to, dewatering if necessary because probes cannot be routinely monitored or making repairs to the concrete pad, cap, lock, or cover) and gas management and remediation systems prior to the next quarterly gas monitoring event unless an alternate repair timeframe is requested and approved.

III.C.4. Perimeter Gas Monitoring Network

III.C.4.a. The facility shall install and maintain perimeter gas monitoring probes at the locations specified in the Landfill Gas Management Plan on Figure 1 and on Drawing 8 in the Design Plans. The current perimeter gas monitoring network consists of a series of two landfill gas monitoring probes [GP-1 and GP-2A] located along the southwestern property boundary. Additional perimeter gas monitoring probes shall be added to the network if onsite or offsite property development encroaches within 1000 feet of the waste management boundary along that property boundary.

III.C.4.b. Upon construction of Cell 2, gas probes GP-3, GP-4, and GP-5 will be installed. Upon construction of Cell 3, gas probes GP-6 and GP-7 will be installed. Once the perimeter gas monitoring network is expanded with the installation of new or replacement gas monitoring wells, the facility shall submit copies of the well boring logs for inclusion in Appendix 2 of the Landfill Gas Management Plan within 30 days following construction completion.

III.C.4.c. If the perimeter gas monitoring network is expanded with the installation of new or replacement gas monitoring wells, the facility shall submit copies of the well boring logs and probe as-builts for inclusion in Appendix 2 of the Landfill Gas Management Plan within 30 days following construction completion.

III.C.4.d. All existing and future onsite structures shall be monitored in accordance with condition III.C.2 or have explosive gas monitoring equipment installed.

III.C.5. Landfill Gas Control Components

The existing and planned gas control system at the landfill consists of the following main elements:

III.C.5.a. Passive landfill gas vents installed to a depth of 5 feet above the top of the cushion/leachate collection layer. The passive gas vents GV-7, GV-8 and GV-21A in Cell 1, have been temporarily removed and will be installed with final closure construction. Future passive gas vents shall be installed in the approximate locations shown on Figure 2 in Appendix 1 of the Landfill Gas Management Plan and vent depths shall be as indicated in Table 1 or as adjusted to account for final landfill elevations and to ensure no impact to the landfill bas liner or leachate collection layer.

III.C.6. Landfill Gas Monitoring Response and Remediation

III.C.6.a. Should the results of landfill gas monitoring indicate concentrations of methane in excess of the methane action level (4% methane or 80% of the lower explosive limit (LEL) at the facility boundary or 1.25% or 25% LEL in facility structures), the Operator shall:

i. Take all immediate steps necessary to protect public health and safety (safety precautions should include evacuation of occupied structures, if affected; notifying local fire/safety officials of potential landfill gas migration, and coordinating for off-site monitoring of structures located within 1,000 feet of the facility boundary.

ii. Investigate any active or passive gas control or remediation system for proper connections and operation and make adjustments to vacuum, flow or control valves, remove condensate, or make any other adjustments or repairs necessary to ensure proper operation, if applicable;

iii. Provide written notification to DEQ within 5 working days of the methane action level exceedance indicating what has been done or is planned to be done to resolve the problem; and

iv. Increase the gas monitoring frequency per the requirements of III.C.6.c.

III.C.6.b. Should the results of perimeter landfill gas monitoring indicate concentrations of methane in excess of the methane compliance level (5% methane or 100% of the LEL at the facility boundary or 1.25% methane or 25% LEL in facility structures), the Operator shall:

i. Perform the response actions outlined under III.C.6.a.i and a.ii.;

ii. Provide 24-hour oral notification of the methane compliance level exceedance;

iii. Provide written notification within 5 working days of the methane compliance exceedance containing a description of the circumstances and its cause; the period of occurrence, including exact dates and times, and, if the circumstance has not been corrected, the anticipated time it is expected to continue. It shall also contain steps taken or planned to reduce, eliminate, and prevent reoccurrence of the circumstances resulting in an unusual condition or noncompliance.

iv. Increase the gas monitoring frequency per the requirements of III.C.6.c.

v. Implement a remediation plan within 60 days and submit the plan to DEQ for approval; and

vi. Assess the spacing of the entire perimeter monitoring network. If spacing between any probes exceeds 250-foot spacing, the facility shall install additional perimeter probes unless the facility can show that such spacing is unwarranted based on site-specific factors.

III.C.6.c. The facility shall monitor a subset of the perimeter monitoring network consisting of the exceeding probe(s) and structure(s) and those probes /structures immediately adjacent, such that at least one (1) probe on either side of each exceeding probe/structure is being monitored a the increased frequency.

i. The increased monitoring frequency shall be weekly unless an alternate frequency is approved by the Department.

ii. Weekly monitoring shall continue until four consecutive weekly readings yield methane concentrations below 80% LEL at the facility boundary or 25% LEL in facility structures. At that time, the facility shall implement monthly monitoring of the network subset until three consecutive monthly readings yield methane concentrations below 80% LEL at the facility boundary or 25% LEL in facility structures. At that time, the facility can return to quarterly monitoring.

iii. Once the required minimum number of consecutive monitoring events resulting in gas concentrations below action level are completed per III.C.6.c.ii to justify returning to a lesser monitoring frequency, the facility shall submit monitoring data for ALL monitoring events since the implementation of the remedial action or remediation plan phase in order to assess progress towards return to compliance. If the return to a lesser monitoring frequency takes longer than six (6) months, monitoring data shall be submitted in tabular form with an accompanying graph to clearly document trends in data over time to justify the change in the monitoring frequency.

III.D. LEACHATE MANAGEMENT

III.D.1. Leachate Storage

All leachate collected in the leachate collection system is stored in the leachate collection basin that has a storage capacity of 74,466 cubic feet (557,044 gallons). Leachate in Cell 1 gravity drains to the junction box located north of the cell and flows to the leachate collection basin. Leachate from Cells 2-4 will convey by sideslope risers with a leachate pump, pumping leachate to forcemain piping that will run beneath the perimeter road to the junction box located north of Cell 1 and gravity drain to the leachate collection basin.

III.D.2. Leachate Disposal

Collected leachate will be pumped and hauled offsite to the City of Lynchburg Regional Wastewater Treatment Plant. Leachate will be analyzed and characterized in accordance with the Virginia Hazardous Waste Management Regulations (9 VAC 20-60) to determine if it is a characteristic hazardous waste.

III.D.3. Leachate Monitoring System

Part of Cell 1 (Phase 1 of former Trench A/B) includes a double liner with a witness zone. No monitoring information is currently available for the witness zone and no monitoring of the witness zone is occurring at this time.

III.E UNDERDRAIN SYSTEM

III.E.1. Underdrain System Description

Cell 1 of this landfill was designed and constructed with an underdrain system below the landfill liner as a groundwater cut-off drain to prevent groundwater from impacting the bottom liner system. The underdrain system consists of a groundwater drain line originating from south portion of the landfill flowing by gravity northward and draining the eastern side of Cell 1. The groundwater drain line divides into two branches, a northern branch and a western branch. The northern branch discharges via UD-1, which discharges into sediment basin #1 near MW-21. The western branch discharges via UD-2, which is located outside the western side of Cell 1 approximately 100 feet southwest of MW-2.

An underdrain originating in the southern portion of the landfill flows around the southern end to the west and discharges at UD-3, which is suspected to be located in close proximity to MW-20. Due to unknown events, UD-3 has not been visible and accessible for many years. In 2016, UD-3 was removed from the facility permit as a monitoring point.

III.E.2. The landfill, including any discharge of water collected in an underdrain system, may not cause a discharge of pollutants into waters of the United States, including wetlands, that violates any requirements of the Clean Water Act (33 USC § 1251 et seq.), including, but not limited to, VPDES requirements and Virginia Water Quality Standards (9VAC25-260).

III.E.3 Underdrain Performance Sampling

To ensure the underdrain system is operating as designed, and to detect whether or not landfill constituents have gained entry into the system, the collected water shall be sampled as follows:

Upgradient Sampling Location[1]	Downgradient Sampling Locations[2]	Sampling Frequency[3]
MW-25A	UD-1	Semi-annual
	UD-2	Semi-annual

Notes:

1. This location is the permitted upgradient compliance well for the facility and is monitored under Modules X or XI.
2. Due to system design, samples shall be collected at pipe discharge and in a manner to minimize the escape of VOCs.
3. Samples shall be collected during groundwater sampling events if flow is present.

III.E.3.a The samples shall be collected, handled, and transported in a manner consistent with applicable USEPA RCRA guidance including use of a Chain-of-Custody. The collected water shall be analyzed for the constituent list provided below using SW-846 methods, unless an alternate method has been approved by the Director.

III.E.3.b Both the method used and the laboratory completing the work must be VELAP certified/accredited (1 VAC 30-45 & 36). Laboratory LOQ's must be equivalent to those achieved during the groundwater monitoring well compliance sampling undertaken for 9 VAC 20-81-250.B and Permit Modules X and XI.

III.E.3.c The collected water shall be analyzed for volatile organic compounds (VOCs) listed on Table 3.1 Column A under 9 VAC 20-81-250.B.

III.E.3.d The results of underdrain sampling and analysis completed during the calendar year shall be reported to the DEQ Regional Office by December 31st of each year on the Annual Landfill Underdrain Monitoring Summary (ALUMS) Report form. Underdrain sampling and analysis results must also be maintained on site in the facility Operating Record during the active life and post-closure care period.

III.E.4 Underdrain Sample Evaluation

III.E.4.a If the analytical results from the underdrain sampling event show any VOC equal to or above its respective limit of quantification (LOQ), the owner/operator must notify the Director in writing within 14 days of receipt of the laboratory analyses.

III.E.4.b The written notification must include either:

i. a plan to obtain a single verification sample within 15-days of the notification;
ii. a plan to submit an Alternate Source Demonstration within 30-days of the notification if the identified constituent(s) is (are) proven to be either laboratory or cross contaminants sourced from something other than the solid waste; or
iii. a statement that the underdrain discharge containing landfill constituents will be handled in a manner consistent with the requirements of 9 VAC 20-81-210.D within a minimum of 60 days. The notification shall also outline any interim steps the facility is taking to minimize risk to human health or the environment.

III.E.4.c. If the Permittee undertakes verification sampling to refute a suspect SSI, verification sampling results shall be submitted to the Director within 14 days of receipt of laboratory analyses.

III.E.5 The Director may require the owner/operator undertake an assessment of potential options to remediate the condition(s) causing the release of solid waste constituents into the underdrain system.

III.E.6 If the proposed remediation or actions related to the collection/disposal of the discharge from the underdrain require modification of the Permit or associated Permit Document, the proposed modification(s) shall be submitted to the Department within 30 days of the notification unless an extension to this timeframe is approved by the Department.

END OF MODULE III

PERMIT MODULE XII
CLOSURE

XII.A. CLOSURE PLAN MODIFICATION

XII.A.1. The closure plan shall be amended any time changes in operating plans or landfill design affect the closure plan.

XII.A.2. Amended closure plans shall be submitted to the department at least 180 days before the date the facility expects to begin construction activities related to closure.

XII.B. TIME ALLOWED FOR CLOSURE

The facility shall close each unit and install a final cover system in accordance with the timeframes specified in 9 VAC 20-81-140.B.1.e. and 9 VAC 20-81-160.

XII.C. FINAL COVER SYSTEM

The landfill final cover design profile from top to bottom is as follows:

- Minimum 6-inch topsoil layer;
- 18-inch erosion/vegetation support layer;
- 8-ounce non-woven geotextile/275-mil HDPE geonet/8-ounce non-woven geotextile;
- 40-mil textured Linear Low Density Polyethylene (LDDP) geomembrane;
- Geocomposite Clay Liner (GCL) with permeability no more than 5×10^{-9} cm/sec.;
- Minimum 6-inch cap bedding layer; and
- Intermediate cover.

XII.D. CLOSURE CERTIFICATION

XII.D.1. Following construction of the final cover system for each unit, certification, signed by a registered professional engineer, shall be submitted verifying that closure has been completed in accordance with the permit, approved plans, and specifications. A certification will be required for each capped landfill phase and shall include the results of the CQA/QC requirements under 9VAC20-81-130.Q.1.b.(6).

XII.D.2. Following the closure of all units, certification, signed by a registered professional engineer, shall be submitted verifying that closure has been completed in accordance with the requirements of 9VAC20-81-160.D.5.a. through 5.c., which require posting a sign at the facility entrance and erecting suitable barriers to prevent access; submitting a survey plat to the local land reporting authority; and recording a notation on the deed to the facility property.