

APPENDIX J-6

LANDFILL PERMIT AND SITE PLAN



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Blue Ridge Regional Office

www.deq.virginia.gov

Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

Robert J. Weld
Regional Director

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7705 Timberlake Road
Lynchburg, Virginia 24502
(434) 582-5120
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(540) 562-6700
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SOLID WASTE FACILITY PERMIT PERMIT NUMBER 610

Facility Name: Region 2000 Regional Landfill - Livestock Road Facility

Facility Type: Sanitary Landfill

Latitude: N 37° 16 ' 48"

Site Location: Campbell County

Longitude: W 79° 09' 42"

Location Description: The facility is located east of US Route 29, at the end of State Route 674, approximately five miles south of Lynchburg, Virginia in Campbell County.

Background: The facility is a sanitary landfill serving the following Region 2000 members: the City of Lynchburg, Campbell County, Nelson County, and Appomattox County. The site is comprised of approximately 107 acres, of which approximately 55.4 acres will be used for actual disposal area.

The facility consists of Phases III, IV, and V. The facility is currently operating in Phase III, consisting of Cells 1-7. Phases IV and V have also been approved and are yet to be constructed. Part A approval for the entire waste management boundary was approved on February 1, 1991.

Below is a summary of the estimated remaining fill capacity of Phase III, as of December 2013, and the proposed permitted capacity of Phases IV and V of the Region 2000 Regional Landfill – Livestock Road Facility: Fill capacity is waste plus cover soils, exclusive of liner and cap layers.

Phase	Acreage	Estimated Fill Volume (cubic yards)	Estimated Tonnage* (tons)	Estimated Remaining Site Life (Years)
III	28.4	1,105,109	780,207	3.4
IV	17.9	1,836,000	1,296,216	5.6
V	9.1	1,448,000	1,022,288	4.4
Total	55.4	4,389,109	3,098,711	13.4

*Assuming landfill utilization factor of 1412 pounds per cubic yard and fill volume

The total capacity of the Region 2000 Regional Landfill – Livestock Road Facility, as provided in the Design Report, Part B Attachment III, is approximately 5,971,000 cubic yards of waste and intermediate/daily cover soils (fill volume). The landfill life is based on the average waste intake of 746 tons per day, based on operating six days per week, 308 working days per year, and four holidays off.

Permit Modification: This permit modification involves a lateral expansion between previously permitted Phases III and IV. All previous permit modifications are outlined in detail in Module I, Section I.G.

THIS IS TO CERTIFY THAT:

Region 2000 Services Authority
361 Livestock Road
Rustburg, VA 24588

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, 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: March 19, 2012

Modification No. 1 (minor): November 21, 2013

APPROVED:



Robert J. Weld
Regional Director

DATE: 10/26/2015
Permit Modification No. 2

PERMIT MODULES REFERENCE LIST

PERMIT MODULE I – GENERAL PERMIT CONDITIONS

PERMIT ATTACHMENT I-1, PREVIOUS PERMIT APPROVAL LETTERS

PERMIT MODULE II – CONDITIONS OF OPERATION

PERMIT MODULE III – SANITARY LANDFILL DESIGN

PERMIT MODULE X – DETECTION MONITORING

PERMIT MODULE XI – ASSESSMENT MONITORING

PERMIT MODULE XII – CLOSURE

PERMIT MODULE XIII – POST CLOSURE CARE

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 cover sheet 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. It is understood that pages within the documents may have different dates depending on the date of final preparation.

1. Part B Application:
 - a. *Design Plans, Region 2000 Regional Landfill Livestock Road Facility, DEQ SWP 610*, prepared by Draper Aden Associates, dated September 22, 2014, and last revised April 28, 2015 (Attachment III).
 - b. *Closure Plan*, prepared by Draper Aden Associates, dated September 22, 2014, and last revised March 6, 2015 (Attachment IV).
 - c. *Post Closure Plan*, prepared by Draper Aden Associates, dated September 22, 2014, and last revised March 6, 2015 (Attachment V).
 - d. *Design Report*, prepared by Draper Aden Associates, dated September 22, 2014, and last revised October 23, 2015 (Attachment VI).
 - e. *Construction Quality Assurance Plan and Technical Specifications*, prepared by Draper Aden Associates, dated September 22, 2014, and last revised March 6, 2015 (Attachment VII).
 - f. *Leachate Management Plan*, prepared by Draper Aden Associates, dated September 22, 2014, and last revised March 6, 2015 (Attachment VIII).
 - g. *Landfill Gas Management Plan*, prepared by Draper Aden Associates, dated September 22, 2014, and last revised March 6, 2015 (Attachment IX).
 - h. *Groundwater Monitoring Plan*, prepared by Draper Aden Associates, last revised September 16, 2014 (Attachment X).
2. *Odor Management and Control Plan, Region 2000 Regional Landfill - Livestock Road Facility*, prepared by SCS Engineers, dated November 10, 2011.

The following documents have been submitted to satisfy permit or regulatory requirements; however, they are considered reference documents and are not incorporated into Permit No. 610. This list may not be all-inclusive.

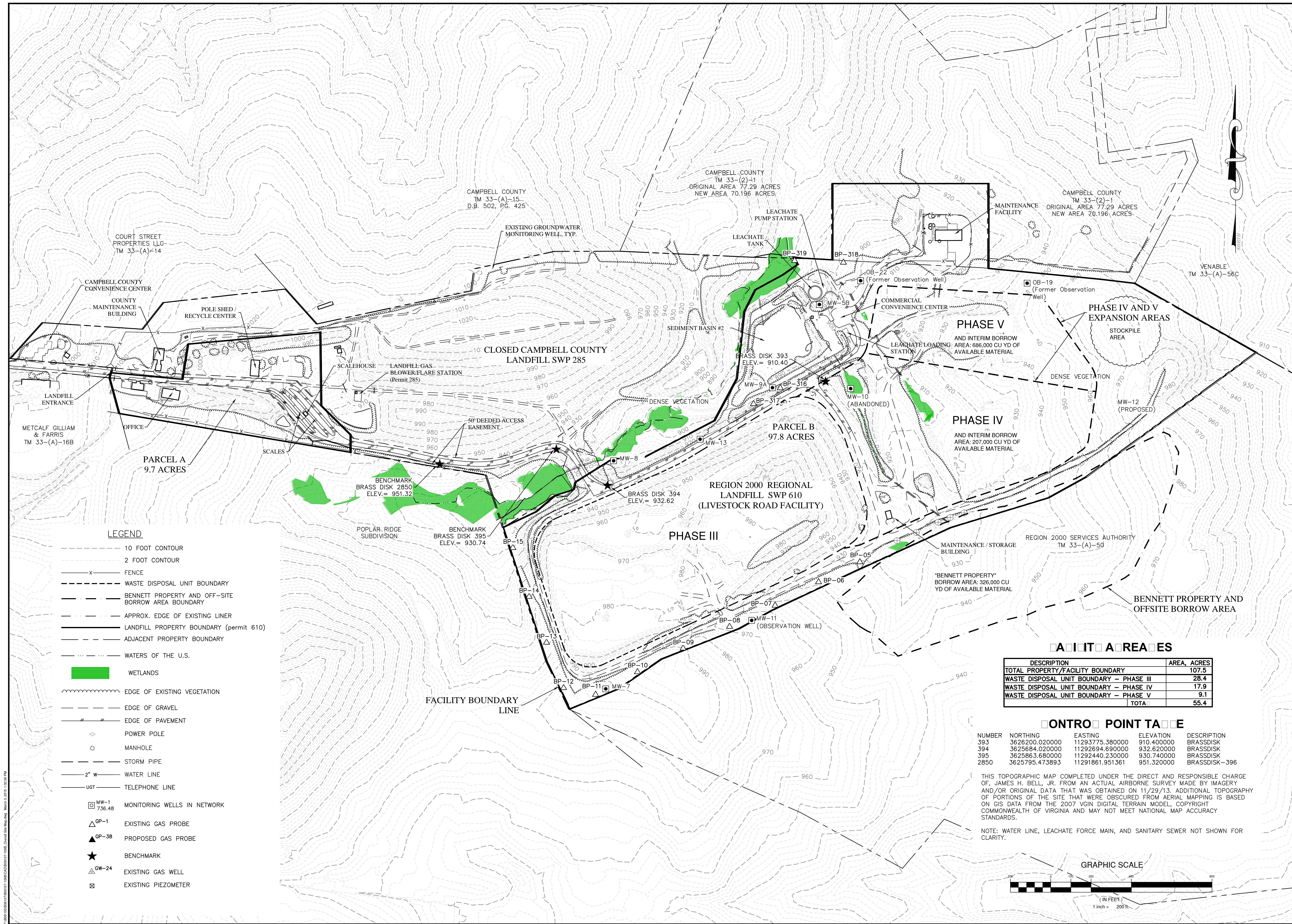
1. *Campbell County Sanitary Landfill, SWP 285, Part A Permit Application, Phases III & IV*, prepared by Hurt & Proffit, Inc., dated November 9, 1989.
2. *Exhibit IV, Revisions to Part A Permit Application for the Proposed Phases III & IV, prepared by Bain, Palmer, and Assoc., Inc., for Joyce Engineering, Inc.*, dated September 28, 1990.
3. *Construction Quality Assurance Report, Cells 6 and 7, Permit #285*, prepared by Draper Aden Associates, dated January 31, 2012.
4. *VWP Individual Permit 14-1361, Region 2000 Campbell County Lateral Expansion, Rustburg, VA*, effective February 19, 2015, expires February 18, 2020.



OVERALL SITE MAP
PERMIT MODIFICATION FOR LATERAL EXPANSION
REGION 2000 REGIONAL LANDFILL
LIVESTOCK ROAD FACILITY
 CAMPBELL COUNTY, VIRGINIA

REVISIONS
 03/06/2015
 DEQ TR1 RESPONSES

DESIGNED BY: WGH
 DRAWN BY: JWL/DLD
 CHECKED BY: LPK
 SCALE: 1" = 200'
 DATE: 09/22/2014
 PROJECT NUMBER: B09107-109B



LEGEND

- 10 FOOT CONTOUR
- 2 FOOT CONTOUR
- x- FENCE
- - - WASTE DISPOSAL UNIT BOUNDARY
- - - BENNETT PROPERTY AND OFF-SITE BORROW AREA BOUNDARY
- - - APPROX. EDGE OF EXISTING LINER
- - - LANDFILL PROPERTY BOUNDARY (permit 610)
- - - ADJACENT PROPERTY BOUNDARY
- - - WATERS OF THE U.S.
- WETLANDS
- ~ EDGE OF EXISTING VEGETATION
- - - EDGE OF GRAVEL
- - - EDGE OF PAVEMENT
- POWER POLE
- MANHOLE
- - - STORM PIPE
- 2" W - WATER LINE
- UGT - TELEPHONE LINE
- MW-1 736.48 MONITORING WELLS IN NETWORK
- △ GP-1 EXISTING GAS PROBE
- ▲ GP-38 PROPOSED GAS PROBE
- ★ BENCHMARK
- △ GW-24 EXISTING GAS WELL
- ⊠ EXISTING PIEZOMETER

AREA TABLE

DESCRIPTION	AREA, ACRES
TOTAL PROPERTY/FACILITY BOUNDARY	107.5
WASTE DISPOSAL UNIT BOUNDARY - PHASE III	28.4
WASTE DISPOSAL UNIT BOUNDARY - PHASE IV	17.9
WASTE DISPOSAL UNIT BOUNDARY - PHASE V	9.1
TOTAL	55.4

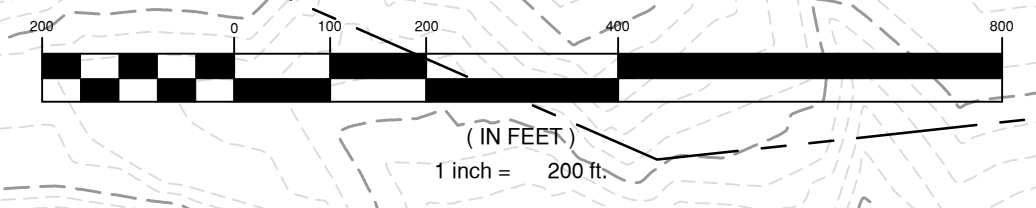
CONTROL POINT TABLE

NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
393	3626200.020000	11293775.380000	910.400000	BRASSDISK
394	3625684.020000	11292694.690000	932.620000	BRASSDISK
395	3625863.680000	11292440.230000	930.740000	BRASSDISK
2850	3625795.473893	11291861.951361	951.320000	BRASSDISK-396

THIS TOPOGRAPHIC MAP COMPLETED UNDER THE DIRECT AND RESPONSIBLE CHARGE OF, JAMES H. BELL, JR. FROM AN ACTUAL AIRBORNE SURVEY MADE BY IMAGERY AND/OR ORIGINAL DATA THAT WAS OBTAINED ON 11/29/13. ADDITIONAL TOPOGRAPHY OF PORTIONS OF THE SITE THAT WERE OBSERVED FROM AERIAL MAPPING IS BASED ON GIS DATA FROM THE 2007 VGIN DIGITAL TERRAIN MODEL, COPYRIGHT COMMONWEALTH OF VIRGINIA AND MAY NOT MEET NATIONAL MAP ACCURACY STANDARDS.

NOTE: WATER LINE, LEACHATE FORCE MAIN, AND SANITARY SEWER NOT SHOWN FOR CLARITY.

GRAPHIC SCALE



P:\09107\B09107-109B\CAD\09107-109B.dwg
 09/22/2014 10:52:36 AM
 Mans 3/2015 12:30 PM



COMMONWEALTH of VIRGINIA

Matthew J. Strickler
Secretary of Natural Resources

DEPARTMENT OF ENVIRONMENTAL QUALITY

Blue Ridge Regional Office

901 Russell Drive, Salem, VA, 24153
(540) 562-6700; Fax (540) 562-6725
www.deq.virginia.gov

David K. Paylor
Director

Robert J. Weld
Regional Director

September 25, 2020

Via Electronic Mail

Mr. Clarke Gibson, P.E., Director
Region 2000 Services Authority
361 Livestock Road
Rustburg, VA 24588
cgibson@region2000.org

RE: Region 2000 Regional Landfill – Livestock Road Facility SWP 610
Approval of Permit Modification No. 4

Dear Mr. Gibson:

The Department of Environmental Quality (DEQ) Blue Ridge Regional Office (BRRO) has reviewed the revised plans, calculations and documents which were submitted as part of multiple minor modification requests on behalf of Region 2000 Services Authority by Draper Aden Associates. The minor permit modification application which involves stormwater changes to the partial closure cap installation in Phase III, an increase in tire storage from 1,000 to 3,000 to allow for tire processing at the facility, and incorporation of an Underdrain Monitoring Plan. These changes include additional design drawings for closure, updates to the Design Report, Closure Plan Groundwater Monitoring Plan, a new Underdrain Monitoring Plan, and additions to the Operations Manual for tire processing. The submitted drawings and revised reports and plans have been reviewed for technical adequacy and regulatory compliance and appear to meet the requirements for sanitary landfills in §9 VAC 20-81-100 through 260, and the Part B Permit in §9 VAC 20-81-470.

In accordance with 9 VAC 20-81-600.F.2.c. of the Virginia Solid Waste Management Regulations (VSWMR, 9 VAC 20-81 *et seq.*), incorporation of these plans into SWP610 is a minor modification requiring director approval. Attached is a complete copy of SWP610 and Permit Documents associated with Modification 4. In order to document this modification, please incorporate a copy of this letter, its attachments into each copy of SWP610 and the facility's Operations Manual as appropriate.

- SWP610 (complete permit)
- SWP610 Phase III Partial Closure Design Drawings
- Groundwater Monitoring Plan
- Underdrain Monitoring Plan
- Attachment 12 Operations Manual –Tire Processing and Storage Operations

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have 30 days from the date of service of this decision to initiate an appeal of this decision, by filing notice with:

David K. Paylor, Director
Virginia Department of Environmental Quality
ATTN: Division of Land Protection & Revitalization
P.O. Box 1105
Richmond, Virginia 23218

In the event that this decision is served to you by mail, three days are added to that period. Please refer to Part Two of the rules of the Supreme Court of Virginia, which describes the required content of the Notice of Appeal, including specification of the Circuit Court to which an appeal is taken, and additional requirements governing appeals from decisions of administrative agencies.

In accordance with 9 VAC 20-81-600.F.2.d., the permittee is required to notify the local governing body of this modification within 90 days of this letter. Mr. Frank Roger, County Administrator of Campbell County, is copied on this letter to satisfy this requirement.

Please note that it is the responsibility of Region 2000 Services Authority to obtain any other permits or authorizations that may be necessary. If there are any questions, please contact Jenny Poland in the Blue Ridge Regional office at (540) 562-6890 or jenny.poland@deq.virginia.gov or Michael Sexton, Groundwater Remediation Specialist, at (540) 598-2754 or michael.sexton@deq.virginia.gov.

Sincerely,



R. Nelson Dail
Deputy Regional Director

Attachments: SWP610 – Modification 4
Permit Documents: SWP610 Phase III Partial Closure Design Drawings
Groundwater Monitoring Plan
Underdrain Monitoring Plan
Operating Record: Operations Manual – Tire Processing and Storage Operations

cc: Robert Arthur, Region 2000 (rarthur@region2000.org)
Frank Rogers, Campbell County (administration@campbellcountyva.gov)
Lynn Klappich, Draper Aden Associates (lklappich@daa.com)
William G. Hase, P.E., Draper Aden (bhase@daa.com)
Billy Newcomb, Draper Aden (bnewcomb@daa.com)
Ky-Tran Vo, Draper Aden (kvo@daa.com)
Nichole Herschler, DEQ-BRRO (nichole.herschler@deq.virginia.gov)
Michael Sexton, P.E., DEQ-BRRO, (michael.sexton@deq.virginia.gov)
Nicole Tilley, DEQ-BRRO, (nicole.tilley@deq.virginia.gov)



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David K. Paylor
Director

Robert J. Weld
Regional Director

SOLID WASTE FACILITY PERMIT SWP610

Facility Name: Region 2000 Regional Landfill - Livestock Road Facility

Facility Type: Sanitary Landfill

Latitude: N 37° 16 ' 48"

Site Location: Campbell County

Longitude: W 79° 09' 42"

Location Description: The facility is located at 361 Livestock Road in Rustburg, Virginia in Campbell County. The facility is accessed via Livestock Road from Route 29 (Wards Road) to Route 685 (Calhoun Road).

Background: The facility is a sanitary landfill serving the following Region 2000 members: the City of Lynchburg, Campbell County, Nelson County, and Appomattox County. The wastes accepted include those wastes identified in Module II.

The site is comprised of approximately 107 acres. Approved on February 1, 1991, the Part A delineates a 57.4 acres waste management unit boundary and disposal boundary of 55.4 acres. The facility consists of Phases III, IV, and V. Phase III consists of 7 cells and is approximately 28.4 acres with an estimated capacity of 2,687,000 cubic yards. Filling began in Phase III in February 1995. Phase IV is approximately 17.9 acres with an estimated capacity of 1,836,000 cubic yards. Phase IV filling began in April 2017. Phase V is 9.1 acres and has an estimated capacity of 1,448,000 cubic yards. The total capacity of the Region 2000 Regional Landfill – Livestock Road Facility, as provided in the Design Report is approximately 5,971,000 cubic yards of waste and intermediate/daily cover soils (fill volume).

Permit Modification: This permit modification incorporates changes to the stormwater drainage controls on the landfill closure cap and the Groundwater Monitoring Plan for extension of MW-9A which was necessary to accommodate the stormwater drainage modifications, and incorporation of an Underdrain Monitoring Plan.. This modification also increases the tire storage capacity from 1,000 tires to 3,000 tires total and outlines tire processing and storage protocols to be utilized by the facility. All previous permit modifications are outlined in detail in Module I, Section I.G.

THIS IS TO CERTIFY THAT:

Region 2000 Services Authority
361 Livestock Road
Rustburg, VA 24588

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, 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: March 19, 2012
Modification 1 (Minor): November 21, 2013
Modification 2 (Major): October 26, 2015
Modification 3 (Minor): June 20, 2016

APPROVED:



R. Nelson Dail
Deputy Regional Director

DATE: September 25, 2020
Permit Modification 4

PERMIT MODULES REFERENCE LIST

PERMIT MODULE I – GENERAL PERMIT CONDITIONS (MODIFICATION 4)
PERMIT ATTACHMENT I-1, PREVIOUS PERMIT APPROVAL LETTERS

PERMIT MODULE II – CONDITIONS OF OPERATION (MODIFICATION 4)

PERMIT MODULE III – SANITARY LANDFILL DESIGN (MODIFICATION 4)

PERMIT MODULE X – DETECTION MONITORING (MODIFICATION 2)

PERMIT MODULE XI – ASSESSMENT MONITORING (MODIFICATION 2)

PERMIT MODULE XII – CLOSURE (MODIFICATION 2)

PERMIT MODULE XIII – POST CLOSURE CARE (MODIFICATION 4)

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

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 cover sheet 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. It is understood that pages within the documents may have different dates depending on the date of final preparation.

1. *Design Plans, Region 2000 Regional Landfill Livestock Road Facility, DEQ SWP 610*, prepared by Draper Aden Associates, dated September 22, 2014, and last revised April 28, 2015.
2. *Closure Plan*, prepared by Draper Aden Associates, dated September 22, 2014, and last revised March 6, 2015.
3. *Post Closure Plan*, prepared by Draper Aden Associates, dated September 22, 2014, and last revised March 6, 2015.
4. *Design Report*, prepared by Draper Aden Associates, dated September 22, 2014, and last revised October 23, 2015.
5. *Construction Quality Assurance Plan and Technical Specifications*, prepared by Draper Aden Associates, dated September 22, 2014, and last revised March 6, 2015.
6. *Leachate Management Plan*, prepared by Draper Aden Associates, dated September 22, 2014, and last revised March 6, 2015.
7. *Landfill Gas Management Plan*, prepared by Draper Aden Associates, dated September 22, 2014, and last revised by SCS Engineers on May 26, 2016.
8. *Groundwater Monitoring Plan*, prepared by Draper Aden Associates, dated September 16, 2014, and last revised September 11, 2020.
9. *Odor Management and Control Plan, Region 2000 Regional Landfill - Livestock Road Facility*, prepared by SCS Engineers, dated November 10, 2011, and last revised June 17, 2016.
10. *DEQ SWP610 Phase III Partial Closure Design Plans*, prepared by Draper Aden Associates, dated December 14, 2018, and last revised April 2, 2019.
11. *Underdrain Monitoring Plan*, prepared by Draper Aden Associates, dated September 14, 2020.

The following documents have been submitted to satisfy permit or regulatory requirements; however, they are considered reference documents and are not incorporated into Permit No. 610. This list may not be all-inclusive.

1. *Campbell County Sanitary Landfill, SWP 285, Part A Permit Application, Phases III & IV*, prepared by Hurt & Proffit, Inc., dated November 9, 1989.
2. *Exhibit IV, Revisions to Part A Permit Application for the Proposed Phases III & IV*, prepared by Bain, Palmer, and Assoc., Inc., for Joyce Engineering, Inc., dated September 28, 1990.
3. *Construction Quality Assurance Report, Cells 6 and 7, Permit #285*, prepared by Draper Aden Associates, dated January 31, 2012.
4. *VWP Individual Permit 14-1361, Region 2000 Campbell County Lateral Expansion, Rustburg, VA*, effective February 19, 2015, expired February 18, 2020.

5. *Construction Documentation and Engineering Certification Report for Phase III Partial Closure Construction*, prepared by Draper Aden Associates, dated March 2020.

End of Permit Documents

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 monitoring, 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 Campbell County Utilities and Service Authority (CCUSA) to discharge the increased volume of leachate and wastewater to the sewerage system.
 - 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 TO THE DIRECTOR

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

Director, Blue Ridge Regional Office
Virginia Department of Environmental Quality
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 Permit No. 610 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 February 1, 1991, and the conditions listed in the Part A Addenda approval letter dated May 25, 1994.
- I.F.3. By December 31 of 2021 and each calendar year thereafter, the permittee shall perform a topographic survey of the facility; this survey shall be certified by a professional engineer or certified land surveyor licensed in the Commonwealth of Virginia. The permittee shall submit a report to the DEQ Blue Ridge Regional Office Waste Program by April 1 of the year following with a determination of areas of the landfill that have attained final elevations and grades. The report shall also assess the capacity used during the year, the remaining permitted capacity, and the projected remaining site life. The remaining permitted capacity shall be calculated by the comparison of the existing grade and the permitted final cover grade and presented in a cut/fill drawing. 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 7 Final Closure Grade revised March 6, 2015.

I.G. PERMIT MODIFICATIONS

- I.G.1. The first minor modification on November 21, 2013, approved the use of Posi-Shell as alternate daily cover at the facility.
- I.G.2. Approved on October 26, 2015, the second modification was a major modification which involved inclusion of the area between previously permitted Phases III and IV to the disposal area resulting in a new facility phasing plan which includes Phases III, IV and V.

- I.G.3. The third minor permit modification occurred on June 20, 2016, approved construction and implementation of an active gas extraction system at the facility to help control odors and landfill gas fugitive emissions.

- I.G.4. Minor permit modification 4 incorporates changes to the stormwater drainage controls on the landfill closure cap and the Groundwater Monitoring Plan for extension of MW-9A which was necessary to accommodate the stormwater drainage modifications. It incorporates an Underdrain Monitoring Plan and current underdrain permit language. This modification also increases the tire storage capacity from 1,000 tires to 3,000 tires total and outlines tire processing and storage protocols to be utilized by the facility.

End of Module

PERMIT MODULE II CONDITIONS OF OPERATION

II.A. HOURS OF OPERATION

II.A.1. The normal operating hours for waste delivery acceptance by residential and non-commercial users shall be:

- Monday through Saturday: 7:00 a.m. to 4:00 p.m.
- Sundays and Holidays: Landfill is closed on Sundays and the following holidays: New Year's Day, Fourth of July, Thanksgiving Day, and Christmas Day.

Operational hours vary only for the landfill office. All other operations have the same hours of operation as the landfill. Operational hours may be altered by the facility upon notification to the Department.

II.A.2. Emergency conditions or unusual circumstances that require accepting waste outside of the normal operating hours shall be reported orally to the DEQ Blue Ridge Regional Office at (540) 562-6700 within 24 hours followed by a formal written submission within 5 days.

II.B. WASTES ACCEPTED

The Region 2000 Regional Landfill – Livestock Road Facility may receive the following wastes, as defined by 9VAC20-81-10, or described below:

II.B.1 Agricultural waste.

II.B.2. Animal carcasses. Small carcasses (e.g. dogs and cats) may be handled with incoming waste. Large animals and small volumes of animal carcasses (<20 cubic yards) may be received by the facility, but must be placed in a separate area within the disposal unit and provided with a cover of compacted soil or other suitable material.

II.B.3. Asbestos, non-friable. Asbestos containing waste materials shall be disposed according to the requirements of 40 CFR 61, Subpart M, as amended, and incorporated under 9 VAC 20-81-620.

II.B.4. Ashes and air pollution control residues that are not classified as hazardous waste. Incinerator and air pollution and control residues should be incorporated into the working face and covered at such intervals as necessary to keep them from becoming airborne.

II.B.5. Commercial Waste.

II.B.6. Construction, demolition and debris waste.

II.B.7. Contaminated Soil – Petroleum contaminated soil with total BTEX less than 10 mg/kg (PPM) and total petroleum hydrocarbon (TPH) less than 3000 mg/kg (PPM).

II.B.8. Fossil Fuel Combustion Products

- II.B.9. Industrial Waste
- II.B.10. Institutional Waste
- II.B.11. Municipal solid wastes, including garbage, household waste, refuse, residential waste, rubbish and trash.
- II.B.12. Non-regulated hazardous wastes and treated wastes rendered nonhazardous, upon approval from the Department.
- II.B.13. Scrap metal.
- II.B.14. Sludge, industrial and/or POTW. Municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, and air pollution control facility sludges that have been dewatered.

Sludges shall be disposed of by mixing with other solid wastes, placed, and compacted at the working face in a manner to prevent localized pockets of sludge or conditions which might result in future instability of the waste mass.
- II.B.15. Vegetative and yard waste, including stumps that are less than 12 inches in diameter.
- II.B.16. Waste Tires. Tires shall be stored at the waste tire storage area in an appropriate manner in accordance with 9 VAC 20-81-640 and Attachment 12 to the Operations Manual – Tire Processing and Storage Operations. Tires may also be split, cut, or shredded and then beneficially used or dispersed in the workface with other solid wastes for disposal. The facility can maintain the equivalent of 3,000 tires whole or processed (chipped or shredded) at the facility.
- II.B.17. White goods provided that all appliances are free of chlorofluorocarbons, hydrochlorofluorocarbons, and PCBs prior to placement on the working face. White goods may be accumulated at the facility in accordance with 9VAC20-81-650.
- II.B.18. UNAUTHORIZED WASTE – The Region 2000 Regional Landfill – Livestock Road Facility may not receive any unauthorized wastes identified in 9 VAC 20-81-140.B.4. or any of the following: waste oil that has not been adequately absorbed through site cleanup; radioactive wastes; lead acid batteries; pressurized tanks or pressurized containers; automobile gas tanks; friable and some non-friable asbestos-containing waste materials as defined by 9VAC20-81-620; regulated medical waste; explosives or other dangerous materials; and junked automobiles.
- II.B.19. SPECIAL WASTES – the facility may accept special wastes as approved by the Director.

II.C. PERMIT LIMITS

The landfill is limited to a daily disposal limit of 2,580 tons/day, based on the Design Report.

II.D. COMPACTION & COVER

- II.D.1. Daily cover consisting of six inches of compacted soil or other approved material shall be placed upon and maintained on all exposed solid waste prior to the end of each operating day, or at more frequent intervals if necessary, to control disease vectors, fires, odors, blowing litter, and scavenging. Approved alternate daily cover materials include:
- II.D.1.a. Posi-Shell
- II.D.1.b. The use of an ADC material shall cease if the material is not effective at achieving the purposes of daily cover set forth in 9 VAC 20-81-140.B.1.c., if the use results in nuisances, or if the material is erodible and results in waste being exposed.
- II.D.2. Intermediate cover shall be applied when another lift of waste will not be placed for more than 30 days or to areas which exhibit erosion, cracking, or settlement.
- II.D.3. Before placement of new waste in areas with low permeability daily cover soil or alternate daily covers, or in areas with intermediate cover, cover materials shall be removed or penetrated such that leachate can flow downward unimpeded to the leachate collection system.
- II.D.4. Final cover construction as outlined in Permit Module XII shall be initiated when the requirements of 9 VAC 20-81-140.B.1.e. are met.

II.E. HOUSEKEEPING

- II.E.1. The facility shall control odors in accordance with 9VAC20-81-200.D, the Odor Management Plan, and/or as necessary to protect human health and the environment. An active gas extraction system, a perimeter odor neutralizing system installed along the western and southern perimeter of Phase III, and a portable odor cannon are used to mitigate odor migration offsite.
- II.E.2. The facility shall use fencing or other suitable control means to control litter migration. All litter blown from the operations shall be collected on a weekly basis.
- II.E.3. Fugitive dust and mud deposits on main offsite roads and access roads shall be limited at all time to limit nuisances. Dust shall be controlled to meet the requirements of 9VAC20-81-140.A.12.
- II.E.4. Salvaging may only be performed in areas of the facility designated for salvaging or recycling. Salvaging operations must not interfere with the operations of the landfill or create hazards or nuisances.
- II.E.5. Open burning at active landfills shall comply with the requirements of 9VAC20-81-140.A.4. Open burning is prohibited at areas where waste has been disposed or is being used for active disposal.

II.F. SAFETY PROGRAM

Safety hazards to operating personnel shall be controlled through an active safety program consistent with the requirements of 29 CFR Part 1910. Safety training shall be performed annually, at a minimum.

II.G. SELF-INSPECTION PROGRAM

The landfill shall implement an inspection routine including a schedule for inspecting all applicable major aspects of facility operations necessary to ensure compliance with the requirements of this chapter. Records of these inspections must be maintained in the operating record and available for review. At a minimum, the following aspects of the facility shall be inspected on a monthly basis: erosion and sediment controls, storm water conveyance system, leachate collection system, safety and emergency equipment, internal roads, and operating equipment.

II.H. OPERATIONS MANUAL REQUIREMENTS

II.H.1. The facility shall be operated in accordance with 9 VAC 20-81-140, Module II, and an operations manual which has been certified by a responsible official and placed in the facility's operating record.

II.H.2. The operations manual shall include the following items as required by 9 VAC 20-81-485:

- A certification page;
- Operations Plan;
- Inspection Plan;
- Health and Safety Plan;
- Unauthorized Waste Control Plan;
- Emergency Contingency Plan; and
- Landscaping Plan.

II.H.3. The operations manual shall be reviewed and recertified annually to ensure consistency with the current operations and regulatory requirements.

II.I. LEACHATE MANAGEMENT

Leachate shall be managed in accordance with 9 VAC 20-81-210, Module III, and the facility's Leachate Management Plan. If a leachate seep(s) occurs, the owner or operator shall repair the seep(s) and follow the procedures outlined in 9 VAC20-81-210.F.

II.J. UNDERDRAIN MONITORING AND MAINTENANCE

The facility's underdrain system shall be monitored and maintained in accordance with Module III and the facility's Underdrain Monitoring Plan incorporated into the this permit. The underdrain system shall be inspected at a rate consistent with the system's monitoring frequency. Repairs should be made to any damage that prevents the underdrain system from functioning as designed.

II.K. LANDFILL GAS MANAGEMENT

Landfill gas shall be monitored in accordance with 9VAC20-81-200, Module III, and the facility's Landfill Gas Management Plan. The gas management system shall be inspected at a rate consistent with the system's monitoring frequency.

II.L. GROUNDWATER MONITORING

Groundwater shall be monitored in accordance with 9VAC20-81-250 and 9 VAC 20-81-260; Modules X, XI, and XIV; and the respective groundwater permit documents, as applicable. The groundwater monitoring system shall be inspected at a rate consistent with the system's monitoring frequency.

End of Module

PERMIT MODULE III SANITARY LANDFILL DESIGN

III.A. LINER DESIGN

Phase III of the landfill consists of seven cells. Cells 1 and 2, approximately 4 and 3 acres respectively, began operation on February 2, 1995. Cells 3, approximately 5 acres began operation in February 7, 1997. Approximately 4 acres in size, Cell 4 was issued a certificate to operate (CTO) on May 22, 2000. Cell 5, approximately 4 acres, began operation in March 25, 2004. The final cells in Phase III, Cells 6 and 7 which are approximately 9 acres total, received a CTO on April 5, 2012. All cells in Phase III are underlain by the composite liner system described below (top to bottom):

- 18-inches No. 57 stone as drainage layer;
- 16 oz. per square yard non-woven geotextile;
- 60-mil textured HDPE geomembrane; and
- 24-inches of clay with a maximum permeability of 1×10^{-7} cm/s.

Phases IV of the landfill, approximately 17 acres, received a CTO on April 18, 2017. This phase of the landfill is underlain by the composite liner system described below (top to bottom):

- 18-inches or greater of VDOT No. 57 aggregate as drainage layer;
- 16 oz. per square yard non-woven geotextile cushion layer;
- 60-mil textured HDPE geomembrane;
- 24-inches of compacted soil with a maximum permeability of 1×10^{-7} cm/sec.; and
- prepared subgrade.

Phase V of the landfill shall be underlain by the liner systems described below (top to bottom):

Subtitle D Liner

- 18-inches or greater of VDOT No. 57 aggregate as drainage layer;
- 16 oz. per square yard non-woven geotextile cushion layer;
- 60-mil textured HDPE geomembrane;
- 24-inches of compacted soil with a maximum permeability of 1×10^{-7} cm/sec.; and
- prepared subgrade.

Or

Alternate Liner

- 18-inches or greater of VDOT No. 57 aggregate as drainage layer;
- 16 oz. per square yard non-woven geotextile cushion layer;
- 60-mil textured HDPE geomembrane;
- Geosynthetic clay liner (GCL) with a permeability no greater than 5×10^{-9} cm/sec.; and
- prepared subgrade.

III.B. LINER CONSTRUCTION & CERTIFICATION

The landfill base liner for Phases IV and V shall be constructed in accordance with the approved Design Plans, Technical Specifications, and Construction Quality Assurance Plan.

Prior to expansion into each new Phase, 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 Phase 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 Phase.

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 (LEL) 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. Perimeter Gas Monitoring Network

III.C.3.a. The facility shall install and maintain perimeter gas monitoring probes at the locations specified in the Landfill Gas Management Plan and Design Report on Drawing 8, respectively. The current perimeter gas monitoring network for Phase III consists of a series of nineteen landfill gas monitoring probes [BP-1 through BP-15, and BP-316 through BP-319] located along the facility property boundaries.

III.C.3.b. Upon construction of Phase IV, probes BP-01 through BP-04 will be removed from the network and the perimeter gas monitoring network will be expanded with the installation of new gas monitoring wells BP-38 through BP-45. 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. Active Landfill Gas Management

The planned gas management system at the landfill consists of the following main elements:

III.C.4.a. A series of vertical gas extraction wells installed to a depth of 15 feet from the top of the drainage layer associated with the bottom liner system. The maximum depth of the wells is anticipated to be approximately 100 feet. The vertical wells will be spaced between approximately 150 and 300 feet from each other. The extraction well network for Phase III will consist of thirteen perimeter extraction wells [EW-1 to EW-9, EW-15, EW-17, EW-19, and EW-20] installed within the existing Phase III. Phase IV will consist of ten extraction wells [EW-10 to EW-14, EW-16, EW-18, and EW-21 to EW-23]. Phase V will consist of twelve extraction wells [EW-32 to EW-43]. Additionally, vertical caissons will be installed, at

approximately 250-foot on-center intervals when waste reaches depths of approximately 30 to 50 feet. They will be drilled to a depth of 15 feet from the top of the drainage layer associated with the bottom liner system, and connected to the horizontal collectors. Phase IV will consist of eleven vertical caissons [VC-1 to VC-11]. Phase V will consist of six vertical caissons [VC-12 to VC-17].

III.C.4.b. Several horizontal collectors will be incorporated to augment gas collection via the vertical extraction well, located within the waste limits, and will be buried in the intermediate cover soil or the waste. The LFG active gas collection system will connect to select leachate cleanout pipes around the perimeter of Phases III, IV, and V. Eight existing leachate cleanout pipes in Phase III are currently connected to an interim LFG active gas collection system and will be connected to the permanent LFG active gas collection system. The network of header and lateral piping, installed to connect the vertical extraction wells and horizontal collectors, will direct the collected gas to the flare station.

III.C.4.c. A condensate control system consisting of self-draining condensate traps located at low points in the piping network. There will be three condensate sumps (C-1, C-2, and C-3). C-1 is located at the blower/flare station. C-2 will be located near the leachate pump house. C-3 will be located on the southern side slope of Phase IV. Condensate collected at the skid-mounted condensate knockout tank at the full-scale blower/flare station will drain into an 18-inch condensate pump (CS-1) which will discharge into a force main installed with the main LFG header pipe. Condensate will ultimately discharge into the leachate management system or the sanitary sewer line; and

III.C.4.d. A blower/flare station to manage the treated (compressed, cooled, and filtered) gas collected via the active gas collection system. These components are subject to the conditions of the facility's Title V Operating Permit.

III.C.5. Landfill Gas Remediation

III.C.5.a. Should the results of perimeter landfill gas monitoring indicate concentrations of methane in excess of the methane action level (4% methane or 80% of the LEL), the Operator shall take immediate steps to protect public health and safety and provide written notification to DEQ within 5 working days and include what they plan to do to resolve the issue. This 5-day written notification is required for every occurrence where the LEL exceeds an action level but is below the compliance level.

III.C.5.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), the Operator shall take steps to protect public health and safety and provide oral notification within 24 hours and written notification within 5 working days for every occurrence when they exceed the compliance level. Additionally, the facility shall implement a remediation plan within 60 days and submit the plan to DEQ for approval.

- III.C.5.c. The facility shall implement monthly gas monitoring at the noncompliant well(s) and/or occupied structures and those wells/structures immediately adjacent. Monthly monitoring shall continue until 3 consecutive monthly readings yield methane concentrations below 80% LEL. At that time, the facility can return to quarterly monitoring.

III.D. LEACHATE MANAGEMENT

III.D.1. Leachate Storage

Leachate generated within each cell flows by gravity to the leachate holding tank, which has a capacity of 246,000 gallons or to the pump station. Appropriate valving will be installed to allow for control of the delivery and to assure that there is sufficient redundancy in the system to protect against a release. If the Permit Holder chooses to modify the leachate collection system through the addition of valves or control structures, the Permit Holder will notify the VDEQ and provide appropriate design information. After installation, the Permit Holder will provide VDEQ with asbuilt information. Valve operations and maintenance will be included in the facility's operation manual.

III.D.2. Leachate Disposal

The leachate is pumped into a force main which discharges off-site into the Campbell County Utilities and Service Authority (CCUSA) system. These flows are then directed to the Lynchburg Regional Wastewater Treatment Plant. The leachate pump-and-haul system remains as a backup to the force main system.

III.E UNDERDRAIN SYSTEM (PIPED STORMWATER)

III.E.1. Underdrain System Description

The underdrain system includes locations P1-A and P1-B as a piped stream/stormwater system that carries stormwater from the perimeter ditch and Sedimentation Basin #4 under the landfill to discharge into Sediment Basin #2. Sediment Basin #4 receives runoff from the borrow area to the south of the landfill and various stormwater conveyance channels on the perimeter of the landfill and access road.

The underdrain system consists of two manhole structures, P1-A inlet and P1-B inlet, with grate drop inlet tops draining the perimeter ditch, both connected below-grade by a single 42-inch diameter pipe. A single 36-inch diameter pipe draining Sedimentation Basin #4 is connected to the P1-B inlet below grade. Each manhole structure discharges into a separate 42-inch HDPE pipe. The two 42-inch pipes run in parallel under the landfill around the intersection of Phase III and Phase IV and convey stormwater under the landfill to Sediment Basin #2. At the discharge to Sediment Basin #2, a concrete end wall is provided with appropriate outlet protection.

Stormwater discharge from Sediment Basin #2 flows to a perennial stream and is sampled at Outfall 002 in accordance with the landfill VPDES industrial stormwater general permit, VAR051994.

III.E.2. The landfill, including any discharge of water transported 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, 4, 5}
P1-A Inlet	P1-A Outlet	Quarterly
P1-B Inlet	P1-B Outlet	Quarterly
	Sediment Basin #2	Quarterly
	Outfall 002	Quarterly

Notes:

1. Four (4) independent inlet samples will be collected during each monitoring event if flow is observed, two (2) from the P1-A inlet and two (2) from the P1-B inlet.
2. Due to the underdrain system design, samples shall be collected at pipe discharge of P1-A outlet and P1-B outlet in a manner to minimize the escape of VOCs.
3. Samples will generally be collected during quarterly groundwater sampling events. Since the underdrains are not guaranteed to be flowing at the time of the groundwater sampling events, the facility will coordinate at least two (2) of the underdrain monitoring events during time of rainfall when flow is likely to occur.
4. Upgradient and downgradient sampling should take place within the same day. Because the flow (volume) of surface water entering the system can be significant and variable, at a minimum, four independent upstream samples should be obtained during each end-of-pipe sampling event. The time separating each upstream sample collection (e.g., 15 mins) should be appropriate for the surface water flow rate on the day of the sampling to ensure sample independence.
5. Sampling of inflow and outflow volumes shall also take place at the time of sampling to look for unaccounted additional flow, which might be recognized at the end-of-pipe.

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 or C and Permit Modules X or XI.

III.E.3.c The collected water shall be analyzed for the VOC's listed on Table 3.1 Column A under 9 VAC 20-81-250.B.

III.E.3.d The results of the underdrain sampling and analysis completed during the calendar year shall be reported to the DEQ Blue Ridge 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 any VOC is found at quantifiable levels (equal to or above the LOQ), in the underdrain sample, the owner/operator must notify the Director within 14 days of completion of the laboratory analysis.

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

- a plan to obtain a single verification sample within 15-days of the notification,
- 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
- a statement that the underdrain discharge containing landfill constituents will be managed in a manner consistent with the requirements of 9 VAC 20-81-210.D within 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.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

PERMIT MODULE X

DETECTION GROUNDWATER MONITORING REQUIREMENTS

The purpose of Detection monitoring is to ensure the earliest possible recognition of a landfill impact to the uppermost aquifer at levels which exceed background.

X.A. GROUNDWATER COMPLIANCE POINT

X.A.1. Uppermost Aquifer

The groundwater monitoring compliance point is the uppermost aquifer [250.A.2.a] which encompasses the entire thickness between the first encounter with groundwater (not to include any perched water) and the first encounter with a confining unit forming the lower boundary of the uppermost aquifer [A.3.f.(1).(b/c)].

X.A.2. Monitoring Well Locations

All wells in the monitoring network, including those at the disposal unit boundary, or at an alternate compliance point [250.A.3.a.(3)], shall be installed within the permitted facility boundary and be screened within the uppermost aquifer unless a variance [250.A.3.a.(2)] meeting the requirements of 740.B has been granted.

X.A.3. Location Restrictions

No monitoring well serving the function defined under 250.A.3.a.(2) can be:

X.A.3.a. located at a distance more than 500 feet away from the disposal unit boundary or

X.A.3.b. outside of the facility boundary [740.A].

X.B. MONITORING NETWORK REQUIREMENTS

X.B.1. The following Performance Standards shall be met:

X.B.1.a. Network requirements of 250.A.2.a and A.3.a, b, f.

X.B.1.b. Wells requiring replacement due to non-performance shall be reported to the Department within 30 days of recognizing the non-performance. The notification shall include a site plan depicting the proposed location for the replacement well(s) for Department review [530.C.1].

X.B.1.c. Wells that require replacement must be replaced prior to the next regularly scheduled groundwater sampling event unless the Director has granted an extension to meeting the monitoring system compliance requirements under 250.A.3.a.

X.B.1.d. Any wells that require abandonment shall be sealed and abandoned in

accordance with existing EPA Resource Conservation and Recovery Act (RCRA) guidance as well as any applicable state or local requirements.

X.B.2. Installation, Operations and Maintenance

All wells shall be installed, operated and maintained during the life of the monitoring program in accordance with requirements of 250.A.3.c-e.

X.B.3. Well Designations

The following wells shall be included in the groundwater monitoring network:

Upgradient Well(s)	Downgradient Wells	Piezometers ¹
MW-7	MW-5B	MW-13
MW-12 ²	MW-8	MW-19 ²
	MW-9A	MW-22 ²
	MW-10 ³	

Notes:

1. These wells are voluntarily used for static groundwater elevations only.
2. These proposed wells are to be installed prior to Phase IV accepting waste.
3. This well is to be abandoned during the construction of Phase IV.

X.C. AQUIFER INFORMATION

X.C.1. Aquifer Data Acquisition - Requirements

X.C.1.a. Static groundwater elevations [250.A.4.c] shall be:

- X.C.1.a.(1). measured in all monitoring wells.
- X.C.1.a.(2). measured to an accuracy of 0.01 foot.
- X.C.1.a.(3). measured each time groundwater is sampled on site.
- X.C.1.a.(4). obtained from all wells in the network within a single 24 hour period to avoid temporal variations/fluctuations in the groundwater table.

X.C.1.b Groundwater flow rate and direction [250.A.4.c] shall be:

- X.C.1.b.(1). determined each time groundwater is sampled on site,
- X.C.1.b.(2). calculated using technical methods accepted for use in EPA RCRA groundwater programs.

X.C.2. Aquifer Data Acquisition - Response

X.C.2.a. The Permittee shall evaluate the function of each monitoring network well

each time groundwater is sampled. If the evaluation shows that one or more of the well(s) no longer functions in a manner that meets the requirements of 250.A.3.e, the Permittee shall:

X.C.2.a.(1). Within 30 days of recognizing the non-performance, notify the Department of the need to modify the number, location, or depth of the monitoring wells, and provide for Department review, proposed locations for new (replacement) monitoring wells keyed to a site plan.

X.C.2.a.(2). Complete additions or modifications to the network, prior to the next regularly scheduled groundwater sampling event, unless an extension has been granted by the Director for meeting the monitoring system compliance requirements under 250.A.3.a.

X.D. SAMPLING ACTIONS

The Permittee shall:

X.D.1. Meet the field sampling and laboratory procedures of 250.A.4.a.

X.D.2. Use the analytical methods of EPA SW-846 as amended [250.A.4.b].

X.D.3. Not filter groundwater samples prior to analysis [250.A.4.b].

X.D.4. Sample all Detection constituents referenced under Table 3.1 Column A [250.B.2.a].

X.E. SAMPLING FREQUENCY

X.E.1. The Permittee shall, during the active life and post-closure care periods, sample groundwater and analyze for the required Table 3.1 constituents in all monitoring wells on at least a semi-annual basis [250.B.2.a.(2)] unless the quarterly wetlands provisions apply to an active sanitary landfill [250.B.1.e.].

X.E.2. The length of the semi-annual sampling period shall not conflict with the requirements of 9 VAC 20-81-10.

X.F. DETERMINATION OF BACKGROUND

X.F.1. The Permittee shall establish site background values [250.A.4.d –f] for all Detection monitoring constituents within the timeframes of 250.B.2.a.(1).

X.G. STATISTICAL PROCEDURES

When evaluating the groundwater sampling event results, the Permittee shall:

X.G.1 within 30 days of completion of the laboratory analysis for each sampling event [250.A.4.h.(2)], determine whether or not there is a statistically significant increase over site background for each monitoring constituent using a method meeting the requirements of 250.A.4.h.(1) and A.4.g and D.

X.G.2. For the purpose of this Permit, laboratory analysis is considered complete upon issuance of the final analytical report under laboratory signature.

X.H. BACKGROUND EXCEEDANCE ACTIONS

If the statistical comparisons required under the monitoring program show no exceedances, the Permittee shall continue monitoring groundwater within the current program.

When a Permittee has determined there has been a SSI exceedance over site background for one or more of the Detection monitoring constituents, the Permittee shall upon the end of the 30-day SSI determination period allowed by 250.A.4.h.(2), notify the Director within the timeframes of 250.B.2.b.(1)(a). The notification must indicate which groundwater monitoring constituents have shown statistically significant increases over background and describe whether the Permittee shall:

X.H.1. initiate Assessment monitoring described under 250.B.3 within the timeframes of 250.B.3.a., or

X.H.2. submit an Alternate Source Demonstration meeting the content requirements and timeframes of 250.A.5.a., b. Unless Director approval of the demonstration is obtained, the Permittee shall follow the sampling requirements and timeframes required of Assessment monitoring.

X.I. RECORD-KEEPING REQUIREMENTS

The Permittee shall retain all records identified under 250.E.1 as well as 530.B.1 and B.2 throughout the facility active life (including closure) and post-closure care period. The records shall be retained at the facility or another location approved by the Director.

X.J. REPORTING REQUIREMENTS

X.J.1. Annual groundwater reports containing, at a minimum, content under 250.E.2.a.(2), shall be submitted to the Director within the timeframes of 250.E.2.a.(1).

X.J.2. Semi-annual groundwater reports containing at a minimum, groundwater flow rate and direction determinations [250.A.4.c], statistical comparison results [250.B.2] and content defined under 250.E.2.b.(1), shall be submitted to the Department within the timeframes of 250.E.2.b.(1) unless qualifying facilities have received a variance from this requirement.

X.J.3. Within 44 days of well completion, the Permittee shall supply the Director a Well Installation Report containing the well number, surveyed elevation, boring log [250.A.3.d], casing length, total depth, and a completion diagram [250.E.1.c] for each monitoring well, along with a certification [250.A.3.g] from a qualified groundwater scientist that the monitoring wells have been installed in accordance with the submitted plans.

X.J.4. Within 44 days of well abandonment, the Permittee shall supply the Director a Well Abandonment Report containing information including field methods utilized, and a certification from a qualified groundwater scientist verifying the well abandonment

activities met all applicable requirements [250.E.1.c].

X.K. NOTIFICATION REQUIREMENTS

X.K.1. Background SSI Notifications shall be submitted to the Director within the timeframes noted under 250.B.2.b.(1)(a).

X.K.2. Well Non-Performance Notifications shall be submitted to the Director within 30 days of recognizing the non-performance issue in order to meet 530.C.1 - 3.

X.L. MISCELLANEOUS ALLOWANCES

X.L.1. Use of Alternate Site Background. The Permittee may request the Director allow site background to be developed using wells that are not hydrologically upgradient of the disposal unit as long as the request addresses the technical criteria contained under 250.A.4.e and is certified by a qualified groundwater scientist. Until such time as Director approval is obtained, background shall be determined by sampling wells which are upgradient of the disposal unit and meet the requirements of 250.A.3.f.(2).

X.L.2. Use of Alternate Statistical Method. The Permittee may request the Director allow the use of an Alternate Statistical Method as long as the Permittee can demonstrate the alternate method can meet the technical criteria defined under 250.D.2. Until such time as Director approval is obtained, the statistical test(s) applied to site groundwater data shall be from 250.D.1. Whichever method is approved for use at the site, the method should be listed in the facility Groundwater Monitoring Plan as required under 250.A.4.g.

X.L.3. Verification Sampling. The Permittee, at any time within the 30 day statistical determination period defined under 250.A.4.h.(2), may obtain verification samples. Undertaking verification sampling shall not alter the timeframes associated with determining or reporting a statistically significant increase as otherwise defined under 250.A.4.i.

X.L.4. Data Validation. The owner or operator may at any time within the 30 day statistical determination period defined under 250.A.4.h.(2) undertake third-party data validation of the analytical data received from the laboratory. Undertaking such validation efforts shall not alter the timeframes associated with determining or reporting a statistically significant increase as otherwise defined under 250.A.4.j.

X.L.5. When the Permittee recognizes a failure to submit any relevant facts or has submitted incorrect information in any groundwater monitoring report to the Director, he shall, within 7 days, submit such omitted facts or the correct information with a full explanation [530.E].

X.M. MISCELLANEOUS DEMONSTRATIONS

X.M.1. To address an exceedance which is the result of something other than a release of solid waste constituents, the Permittee may submit a report entitled Alternate Source Demonstration, certified by a qualified groundwater scientist, for review by the Director within 90 days of providing the SSI notification unless the submission and approval timeframe has been extended by the Director for good cause [250.A.5.b].

- X.M.1.a. If a successful demonstration of an alternate source for the noted increase is made by the Permittee and approved by the Director within the 90 day timeframe, the Permittee may continue in the applicable monitoring program as defined in this Permit Module.
- X.M.1.b. If a successful demonstration of an alternate source for the noted increase is not made by the Permittee within the 90 day timeframe, the Permittee shall take actions required under 250.A.5.c.(3) within Regulatory timeframes unless an extension has been granted by the Director.
- X.M.2. The Permittee may submit to the Director a Multi-unit Groundwater Monitoring System Demonstration containing the content defined under A.3.b and certified by a qualified groundwater scientist, when he feels that the implementation of such a monitoring system will be as protective of human health and the environment as individual systems would be.
 - X.M.2.a. If a successful demonstration is made and approved by the Director, the Permittee may discontinue use of individual monitoring systems and institute the monitoring of a multi-unit system.
 - X.M.2.b. If a successful demonstration is not made, the Permittee shall initiate (or continue) to monitor individual networks under the applicable monitoring program.
- X.M.3. The Permittee may request the Director suspend groundwater monitoring requirements by submitting a No-Potential-Migration Demonstration, certified by a qualified groundwater scientist, meeting the technical requirements of 250.A.1.c.
 - X.M.3.a. If a successful demonstration is made and approved by the Director, the Permittee may suspend groundwater monitoring actions.
 - X.M.3.b. If a successful demonstration is not made, the Permittee shall continue monitoring as required under B.2.

X.N. PERMIT DOCUMENTS

As required under 470.A.1, the Permittee must have Design Plans that include detailed instructions concerning groundwater monitoring [470.A.1.g]. These detailed groundwater monitoring instructions must at a minimum cover the items listed under 250.A.4.a and applicable information under 250 and 260. The document containing these instructions, called the Groundwater Monitoring Plan, shall be placed in the file record.

It shall be the responsibility of the Permittee to update this monitoring plan as needed [250.B.3.e], which may include actions otherwise defined under 600.A – F, if changes to the monitoring program have taken place since original Plan development.

X.O. LIMITATIONS/AUTHORITIES

X.O.1. Solid waste shall not be deposited in or permitted to enter any surface waters or groundwater [240.C.10].

- X.O.2. Should information contained in any Permittee authored document referenced in this Module conflict with any requirement or condition of this Module, or requirements found within 9 VAC 20-81-10 et seq., as amended, the Module condition and/or Regulatory requirement shall prevail over the language in the Permittee supplied document [35.D and 490.E] unless it can be demonstrated that a Variance from that regulatory requirement has been granted by the Director following the procedures under 700 et seq.
- X.O.3. The groundwater monitoring and reporting requirements set forth here are minimum requirements. The Director may require, by amending the Permit, any owner or operator to install, operate, and maintain a groundwater monitoring system and program that contains requirements more stringent than those of the Regulations whenever it is determined that such requirements are necessary to prevent significant adverse effects on public health or the environment [250.A.2.c].

PERMIT MODULE XI

ASSESSMENT GROUNDWATER MONITORING REQUIREMENTS

The purpose of Assessment monitoring is to ensure the earliest possible recognition of a landfill impact to the uppermost aquifer at levels which exceed groundwater protection standards and therefore may trigger potential groundwater remediation.

XI.A. GROUNDWATER COMPLIANCE POINT

XI.A.1. Uppermost Aquifer

The groundwater monitoring compliance point is the uppermost aquifer [250.A.2.a] which encompasses the entire thickness between the first encounter with groundwater (not to include any perched water) and the first encounter with a confining unit forming the lower boundary of the uppermost aquifer [A.3.f.(1).(b/c)].

XI.A.2. Monitoring Well Locations

All wells in the monitoring network, including those at the disposal unit boundary, or at an alternate compliance point [250.A.3.a.(3)], shall be installed within the permitted facility boundary and be screened within the uppermost aquifer unless a variance [250.A.3.a.(2)] meeting the requirements of 740.B has been granted.

XI.A.3. Location Restrictions

No monitoring well serving the function defined under 250.A.3.a.(2) can be:

XI.A.3.a. located at a distance more than 500 feet away from the disposal unit boundary or

XI.A.3.b. outside of the facility boundary [740.A].

XI.B. MONITORING NETWORK REQUIREMENTS

XI.B.1. The following Performance Standards shall be met:

XI.B.1.a. Network requirements of 250.A.2.a and A.3.a, b, f.

XI.B.1.b. Wells requiring replacement due to non-performance shall be reported to the Department within 30 days of recognizing the non-performance. The notification shall include a site plan depicting the proposed location for the replacement well(s) for Department review [530.C.1].

XI.B.1.c. Wells that require replacement must be replaced prior to the next regularly scheduled groundwater sampling event unless the Director has granted an extension to meeting the monitoring system compliance requirements under 250.A.3.a.

XI.B.1.d. Any wells that require abandonment shall be sealed and abandoned in accordance with existing EPA Resource Conservation and Recovery Act (RCRA) guidance as well as any applicable state or local requirements.

XI.B.2. Installation, Operations and Maintenance

All wells shall be installed, operated and maintained during the life of the monitoring program in accordance with requirements of 250.A.3.c-e.

XI.B.3. Well Designations

The following wells shall be included in the groundwater monitoring network:

Upgradient Well(s)	Downgradient Wells	Piezometers ¹
MW-7	MW-5B	MW-13
MW-12 ²	MW-8	MW-19 ²
	MW-9A	MW-22 ²
	MW-10 ³	

Notes:

1. These wells are voluntarily used for static groundwater elevations only.
2. These proposed wells are to be installed prior to Phase IV accepting waste.
3. This well is to be abandoned during the construction of Phase IV.

XI.C. AQUIFER INFORMATION

XI.C.1. Aquifer Data Acquisition - Requirements

XI.C.1.a. Static groundwater elevations [250.A.4.c] shall be:

- XI.C.1.a.(1). measured in all monitoring wells.
- XI.C.1.a.(2). measured to an accuracy of 0.01 foot.
- XI.C.1.a.(3). measured each time groundwater is sampled on site.
- XI.C.1.a.(4) obtained from all wells in the network within a single 24 hour period to avoid temporal variations/fluctuations in the groundwater table.

XI.C.1.b Groundwater flow rate and direction [250.A.4.c] shall be:

- XI.C.1.b.(1). determined each time groundwater is sampled on site,
- XI.C.1.b.(2). calculated using technical methods accepted for use in EPA RCRA groundwater programs.

XI.C.2. Aquifer Data Acquisition - Response

XI.C.2.a. The Permittee shall evaluate the function of each monitoring network well each time groundwater is sampled. If the evaluation shows that one or more of the well(s) no longer functions in a manner that meets the requirements of 250.A.3.e, the Permittee shall:

XI.C.2.a.(1). Within 30 days of recognizing the non-performance, notify the Department of the need to modify the number, location, or depth of the monitoring wells, and provide for Department review, proposed locations for new (replacement) monitoring wells keyed to a site plan.

XI.C.2.a.(2). Complete additions or modifications to the network, prior to the next regularly scheduled groundwater sampling event, unless an extension has been granted by the Director for meeting the monitoring system compliance requirements under 250.A.3.a.

XI.D. SAMPLING ACTIONS

The Permittee shall:

XI.D.1. Meet the field sampling and laboratory procedures of 250.A.4.a.

XI.D.2. Use the analytical methods of EPA SW-846 as amended [250.A.4.b].

XI.D.3. Not filter groundwater samples prior to analysis [250.A.4.b].

XI.D.4. Sample all Assessment constituents referenced under Table 3.1 Column B [250.B.3.a] during annual sampling events and all Detection constituents referenced under Table 3.1 Column A as well as those constituents in Column B that were previously detected [250.B.3.c.(2)] during semiannual sampling events.

XI.E. SAMPLING FREQUENCY

XI.E.1. The Permittee shall, during the active life and post-closure care periods, sample groundwater and analyze for the required Table 3.1 constituents in all monitoring wells on at least a semi-annual basis [250.B.3.c.(2)] unless the quarterly wetlands provisions apply to an active sanitary landfill.

XI.E.2. The length of the semi-annual sampling period shall not conflict with the requirements of 9 VAC 20-81-10.

XI.E.3. Upon triggering the need for Assessment monitoring, the initial Assessment sampling event shall be completed in a timeframe meeting the requirements of 250.B.3.a.

XI.F. DETERMINATION OF BACKGROUND & GPS

XI.F.1. The Permittee shall establish site-specific Assessment background values [250.A.4.d. – f.] for all detected constituents within the timeframes of 250.B.3.c.(3)

XI.F.2. Groundwater Protection Standards (GPS) established using the process defined under

250.A.6.b, for each detected Assessment monitoring constituent shall be:

X.F.1.a. proposed within timelines of 250.B.3.d., and

XI.F.3. Groundwater Protection Standards shall be updated as follows:

XI.F.3.a. Federal Maximum Contaminant Level-based GPS or department approved background by following the process under 250.A.6.d.

XI.F.3.b. Alternate Concentration Limit-based GPS by following the process under 250.A.6.e.

XI.G. STATISTICAL PROCEDURES

When evaluating the groundwater sampling event results, the Permittee shall:

XI.G.1 within 30 days of completion of the laboratory analysis for each sampling event [250.A.4.h.(2)], determine whether or not there is a statistically significant increase over site background and GPS for each monitoring constituent using a method meeting the requirements of 250.A.4.h.(1) and A.4.g and D.

XI.G.1.a. For GPS based on Federal Maximum Contaminant Level or ACLs, the comparison of analytical results from the downgradient wells shall be based on either a point to point comparison to the GPS, or a statistical comparison using 95% Lower Confidence Limit derived from at a minimum four independent sampling events completed during the compliance period.

XI.G.1.b. For GPS based on statistically calculated site background, the comparison of analytical results from the downgradient wells shall be based on a point to point comparison to the GPS.

XI.G.2. For the purpose of this Permit, laboratory analysis is considered complete upon issuance of the final analytical report under laboratory signature.

XI.H. GPS EXCEEDANCE ACTIONS

If the statistical comparisons required under the monitoring program show no exceedances, the Permittee shall continue monitoring groundwater within the current program.

When a Permittee has determined there has been a SSI exceedance over GPS for one or more of the Assessment monitoring constituents, the Permittee shall notify the Director within the timeframe of 250.B.3.f.(3)(a). The notification must indicate which groundwater monitoring constituents have shown statistically significant increases over GPS and describe whether the Permittee shall:

XI.H.1. initiate Corrective Actions described under 260.C within the timeframes of 260.C.1 including defining the horizontal and lateral extent of the GPS exceeding release [260.C.1.a], as well as the actions described under 260.C.1.b-e. or

XI.H.2. submit an Alternate Source Demonstration meeting the content requirements and timeframes of 250.A.5.a., b. Unless Director approval for the demonstration is

obtained, the Permittee shall follow the sampling requirements and timeframes required of Corrective Action Program [260.C.] in response to a GPS exceedance.

XI.I. RECORD-KEEPING REQUIREMENTS

The Permittee shall retain all records identified under 250.E.1 as well as 530.B.1 and B.2 throughout the facility active life (including closure) and post-closure care period. The records shall be retained at the facility or another location approved by the Director.

XI.J. REPORTING REQUIREMENTS

XI.J.1. Annual groundwater reports containing, at a minimum, content under 250.E.2.a.(2), shall be submitted to the Director within the timeframes of 250.E.2.a.(1).

XI.J.2. Semi-annual groundwater reports containing at a minimum, groundwater flow rate and direction determinations [250.A.4.c], statistical comparison results [250.B.3] and content defined under 250.E.2.b.(1), shall be submitted to the Department within the timeframes of 250.E.2.b.(1) unless qualifying facilities have received a variance from this requirement.

XI.J.3. Within 30 days of establishing facility background, or re-establishing background due to the installation of new monitoring wells, or a change in sampling technique, the Permittee shall report the background values and statistical computations forming the basis for those values in a report entitled Facility Background Determination Report.

XI.J.4. Within 44 days of well completion, the Permittee shall supply the Director a Well Installation Report containing the well number, surveyed elevation, boring log [250.A.3.d], casing length, total depth, and a completion diagram [250.E.1.c] for each monitoring well, along with a certification [250.A.3.g] from a qualified groundwater scientist that the monitoring wells have been installed in accordance with the submitted plans.

XI.J.5. Within 44 days of well abandonment, the Permittee shall supply the Director a Well Abandonment Report containing information including field methods utilized, and a certification from a qualified groundwater scientist verifying the well abandonment activities met all applicable requirements [250.E.1.c].

XI.J.6. Upon issuance of GPS, the Permittee shall place the GPS listing in the operating record [250.A.6.c] and update that record as needed upon any changes in GPS.

XI.K. NOTIFICATION REQUIREMENTS

XI.K.1. GPS SSI Notifications shall be submitted to the Director within the timeframes noted under 250.B.3.f.(3)(a).

XI.K.2. Well Non-Performance Notifications shall be submitted to the Director within 30 days of recognizing the non-performance issue in order to meet 530.C.1 - 3.

XI.K.3. Off-site Plume Notifications shall be submitted to the affected landowner [260.C.1.b] and copied to the Director within 15 days of identifying the impacts.

XI.K.4. Table 3.1 Column B Detect Notifications shall be submitted to the Director within the timeframes noted under B.3.c.(1).

XI.K.5. Return to Detection Monitoring Notification shall be submitted to the Director [B.3.f.(1)] no less than 30-days prior to re-instating Detection monitoring.

XI.L. MISCELLANEOUS ALLOWANCES

XI.L.1. Use of Alternate Site Background. The Permittee may request the Director allow site background to be developed using wells that are not hydrologically upgradient of the disposal unit as long as the request addresses the technical criteria contained under 250.A.4.e and is certified by a qualified groundwater scientist. Until such time as Director approval is obtained, background shall be determined by sampling wells which are upgradient of the disposal unit and meet the requirements of 250.A.3.f.(2).

XI.L.2. Use of Alternate Statistical Method. The Permittee may request the Director allow the use of an Alternate Statistical Method as long as the Permittee can demonstrate the alternate method can meet the technical criteria defined under 250.D.2. Until such time as Director approval is obtained, the statistical test(s) applied to site groundwater data shall be from 250.D.1. Whichever method is approved for use at the site, the method should be listed in the facility Groundwater Monitoring Plan as required under 250.A.4.g.

XI.L.3. Verification Sampling. The Permittee, at any time within the 30 day statistical determination period defined under 250.A.4.h.(2), may obtain verification samples. Undertaking verification sampling shall not alter the timeframes associated with determining or reporting a statistically significant increase as otherwise defined under 250.A.4.i.

XI.L.4. Data Validation. The owner or operator may at any time within the 30 day statistical determination period defined under 250.A.4.h.(2) undertake third-party data validation of the analytical data received from the laboratory. Undertaking such validation efforts shall not alter the timeframes associated with determining or reporting a statistically significant increase as otherwise defined under 250.A.4.j.

XI.L.5. When the Permittee recognizes a failure to submit any relevant facts or has submitted incorrect information in any groundwater monitoring report to the Director, he shall, within 7 days, submit such omitted facts or the correct information with a full explanation [530.E].

XI.L.6. The Permittee may request the Director allow an alternate frequency for the repeated sampling of the full Table 3.1 Column B constituent list as long as the request addresses the technical items contained under 250.B.3.b.(3), and is certified by a qualified groundwater scientist. Until such time as Director Approval is obtained, sampling for the full Table 3.1 Column B shall continue on an annual basis consistent with 250.B.3.a.

XI.L.7. In an effort to reduce sampling costs, the Permittee may request the Director:

XI.L.7.a. allow a subset of wells to be sampled for the annual full Table 3.1 Column B constituent list [250.B.3.b.(1)] as long as the request contains information showing that wells not included in the subset are 1] devoid of any Table 3.1

column B detects, 2] the well shows no exceedances over background for any Table 3.1 Column A constituents, and 3] the request is certified by a qualified groundwater scientist. Until such time as Director Approval is obtained, all site wells shall be sampled annually for the Table 3.1 Column B constituent list consistent with 250.B.3.a, and/or

- XI.L.7.b. allow for the deletion of certain Table 3.1 Column B constituents from the sampling list [250.B.3.b(2)] as long as the request contains information showing that the constituents are not reasonably expected to be in or derived from the waste mass, and the request is certified by a qualified groundwater scientist. Until such time as Director Approval is obtained, all site wells shall be sampled annually for the full Table 3.1 Column B constituent list consistent with 250.B.3.a.

XI.M. MISCELLANEOUS DEMONSTRATIONS

XI.M.1. To address an exceedance which is the result of something other than a release of solid waste constituents, the Permittee may submit a report entitled Alternate Source Demonstration, certified by a qualified groundwater scientist, for review by the Director within 90 days of providing the SSI notification unless the submission and approval timeframe has been extended by the Director for good cause [250.A.5.b].

XI.M.1.a. If a successful demonstration of an alternate source for the noted increase is made by the Permittee and approved by the Director within the 90 day timeframe, the Permittee may continue in the applicable monitoring program as defined in this Permit Module.

XI.M.1.b. If a successful demonstration of an alternate source for the noted increase is not made by the Permittee within the 90 day timeframe, the Permittee shall take actions required under 250.A.5.c.(3) within Regulatory timeframes unless an extension has been granted by the Director.

XI.M.2. The Permittee may submit to the Director a Multi-unit Groundwater Monitoring System Demonstration containing the content defined under A.3.b and certified by a qualified groundwater scientist, when he feels that the implementation of such a monitoring system will be as protective of human health and the environment as individual systems would be.

XI.M.2.a. If a successful demonstration is made and approved by the Director, the Permittee may discontinue use of individual monitoring systems and institute the monitoring of a multi-unit system.

XI.M.2.b. If a successful demonstration is not made, the Permittee shall initiate (or continue) to monitor individual networks under the applicable monitoring program.

XI.M.3. The Permittee may request the Director suspend groundwater monitoring requirements by submitting a No-Potential-Migration Demonstration, certified by a qualified groundwater scientist, meeting the technical requirements of 250.A.1.c.

XI.M.3.a. If a successful demonstration is made and approved by the Director, the

Permittee may suspend groundwater monitoring actions.

XI.M.3.b. If a successful demonstration is not made, the Permittee shall continue monitoring as required under B.3.

XI.N. PERMIT DOCUMENTS

As required under 470.A.1, the Permittee must have Design Plans that include detailed instructions concerning groundwater monitoring [470.A.1.g]. These detailed groundwater monitoring instructions must at a minimum cover the items listed under 250.A.4.a and applicable information under 250 and 260. The document containing these instructions, called the Groundwater Monitoring Plan, shall be placed in the file record.

It shall be the responsibility of the Permittee to update this monitoring plan as needed [250.B.3.e], which may include actions otherwise defined under 600.A – F, if changes to the monitoring program have taken place since original Plan development.

XI.O. LIMITATIONS/AUTHORITIES

XI.O.1. Solid waste shall not be deposited in or permitted to enter any surface waters or groundwater [240.C.10].

XI.O.2. Should information contained in any Permittee authored document referenced in this Module conflict with any requirement or condition of this Module, or requirements found within 9 VAC 20-81-10 et seq., as amended, the Module condition and/or Regulatory requirement shall prevail over the language in the Permittee supplied document [35.D and 490.E] unless it can be demonstrated that a Variance from that regulatory requirement has been granted by the Director following the procedures under 700 et seq.

XI.O.3. The groundwater monitoring and reporting requirements set forth here are minimum requirements. The Director may require, by amending the Permit, any owner or operator to install, operate, and maintain a groundwater monitoring system and program that contains requirements more stringent than those of the Regulations whenever it is determined that such requirements are necessary to prevent significant adverse effects on public health or the environment [250.A.2.c].

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 for Phases III, IV, and V are as follows (top to bottom):

Standard Final Cover Option

- 6-inch minimum vegetative support layer;
- 18-inch erosion control/protective cover layer;
- Geotextile/geonet/geotextile composite material nonwoven geotextile;
- 40-mil LLDPE geomembrane;
- 18-inches of soil with hydraulic conductivity no greater than 1×10^{-5} cm/sec; and
- 12-inches of intermediate cover.

Or

Pre-Approved Alternate Final Cover Option

- 6-inch minimum vegetative support layer;
- 18-inch erosion control/protective cover layer;
- Geotextile/geonet/geotextile composite material nonwoven geotextile;;
- 40-mil LLDPE geomembrane;
- Geocomposite Clay Liner (GCL) with permeability no greater than 5×10^{-9} cm/sec;
- 6-inch minimum cap bedding layer; and
- 12-inches of 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.

PERMIT MODULE XIII POST-CLOSURE CARE

XIII.A. POST-CLOSURE CARE REQUIREMENTS

XIII.A.1. The facility shall conduct post-closure care of the landfill in accordance with its approved Post-closure Care Plan.

XIII.A.1.a. Leachate shall be managed in accordance with 9 VAC 20-81-210 and the facility's Leachate Management Plan. If a leachate seep(s) occurs, the owner or operator shall repair the seep(s) and follow the procedures outlined in 9 VAC20-81-210.F.

XIII.A.1.b. Landfill gas shall be monitored in accordance with 9VAC20-81-200 and the facility's Landfill Gas Management Plan. The gas management system shall be inspected at a rate consistent with the system's monitoring frequency.

XIII.A.1.c. Groundwater shall be monitored in accordance with 9VAC20-81-250, Module X, and Module XI and the respective groundwater permit documents as applicable. The groundwater monitoring system shall be inspected at a rate consistent with the system's monitoring frequency.

XIII.A.1.d. Underdrains shall be monitored and maintained in accordance with Module III and the facility's Underdrain Monitoring Plan.

XIII.A.2. Amended Post-closure Care Plans shall be submitted to the department for review and approval by the director.

XIII.B. POST-CLOSURE PERIOD

XIII.B.1. Post-closure care shall be conducted for 30 years.

XIII.B.2. The length of the post-closure care period may be decreased by the director if the owner or operator demonstrates that the reduced period is equally protective of human health and the environment and the demonstration is approved by the director. This demonstration shall contain:

XIII.B.2.a. Certification, signed by the owner or operator and a professional engineer licensed in the Commonwealth, verifying that decreasing the post-closure care period will be equally protective of human health and the environment; and

XIII.B.2.b. An evaluation prepared by a professional engineer or professional geologist licensed in the Commonwealth, which assesses and evaluates the landfill's potential for harm to human health and the environment in the event that post-closure monitoring and maintenance are discontinued.

- XIII.B.3. The facility shall continue post-closure care and monitoring until such time that the department approves termination or the post-closure care and/or monitoring activity.

XIII.C. CERTIFICATION OF COMPLETION OF POST-CLOSURE CARE

Not less than 180 days prior to the completion of the post-closure monitoring and maintenance period as prescribed by the Board's regulations or by the Director, the owner or operator shall submit to the Director:

- XIII.C.1. Certification, signed by the owner or operator and a professional engineer licensed in the Commonwealth, verifying that post-closure monitoring and maintenance have been completed in accordance with the facility's Post-closure Care Plan; and
- XIII.C.2. An evaluation prepared by a professional engineer or professional geologist licensed in the Commonwealth, which assesses and evaluates the landfill's potential for harm to human health and the environment in the event that post-closure monitoring and maintenance are discontinued.

If the Director determines that continued post-closure monitoring or maintenance is necessary to prevent harm to human health or the environment, he shall extend the post-closure period for such additional time as the Director deems necessary to protect human health and the environment and shall direct the owner or operator to submit a revised post-closure plan and to continue post-closure monitoring and maintenance in accordance therewith. Requirements for financial assurance shall apply throughout such extended post-closure period.

End of Module