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Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Travis A. Voyles
Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director

SOLID WASTE FACILITY PERMIT
PERMIT NUMBER 544

Facility Name: Disposal and Recycling Services of Lunenburg

Facility Type: Sanitary Landfill **Latitude:** N 36° 55' 29"

Site Location: Lunenburg County **Longitude:** W 78° 14' 40"

Location Description: The facility is located on Route 659 (Old Mansion Road), approximately four and a half miles south of the Town of Victoria and approximately seven miles southwest of the Town of Kenbridge.

Background: The facility is a privately owned sanitary landfill that serves Virginia, North Carolina, New York, the District of Columbia, Maryland, Delaware, New Jersey, Pennsylvania, and Meridian Waste and Container First Services (or their affiliates) facilities. The wastes accepted include those wastes identified in Module II, which is based on the information provided on DEQ Form SW PTB, dated May 22, 2023.

The unlined eastern portion of the landfill ceased accepting waste at the end of 2018. The west, north, and east slopes of the unlined hill, 10.3 acres of approximately 21 acres, were certified partially closed on July 30, 2020, with an estimated capacity of approximately 555,277 cubic yards (cy) of waste. The vertical expansion, to 672 feet above mean sea level (MSL) adds approximately 800,000 cubic yards. The total estimated capacity of the following cells, as provided in the Design Report, Part B Attachment III, is as follows:

Cell	Size (acres)	Estimated Capacity (cy)	Projected Life (years)
1	9.01	455,000	N/A
2	10.26	980,000	1.42
3A	3.27	295,000	0.43
3B	3.85	700,000	1.01
4A	5.53	385,000	0.56
4B	3.49	1,800,000	2.61
Total	**35.41**	**4,615,000**	**6.03**

These values are based on an average incoming waste stream of 1,700 tons per day with an average waste compaction of 1350 pounds/cubic yard and 15% allowance for cover soils. The estimated site life for the lateral piggyback expansion is 6.03 years. CTOs were issued for the following cells - Cell 1 (December 21, 2018); Cell 2 (February 7, 2020); Cells 3A and 3B (March 23., 2022), and Cell 4A and 4B (December 21, 2023).

Lunenburg County was issued Permit Number 544 on November 20, 1992. This permit incorporates Permit Number 227, which was issued on July 1, 1977. The site is comprised of approximately 199 acres owned by RWG5, LLC. Although a HB 1205 disposal area, which necessitated ceasing waste acceptance December 31, 2012, the facility was granted four extensions for the unlined hill area, which has been certified partially closed on July 30, 2020.

The western portion of the landfill consists of approximately nine acres. Solid waste was disposed in this area in the 1980's through the early 1990's. The southern part of the western portion was capped with two feet of compacted soil cover prior to 1988. The northern part of the western portion was capped in the early 1990's with a two-foot-thick compacted soil cover.

The eastern portion of the landfill consists of approximately 21 acres. Initially, the trench method of landfill was used. The trenches were oriented on a north-south axis. Trenches were generally 80 feet in width. Once the trenches reached ground elevation, landfilling continued in the eastern portion using the area fill method. The northeastern corner of the eastern portion (one acre) was used in the 1980's for disposal of button dust and debris from the Kenbridge button factory. This area was capped with a compacted soil cover prior to 1988. A partial closure of the eastern portion was certified on August 3, 2020.

Permit Modification*:* This modification involves an increase in the daily disposal limit from 1,500 tons per day to 2,000 tons per day. All previous permit modifications are outlined in detail in Module I, Section I.G.

THIS IS TO CERTIFY THAT:

RWG5, LLC
333-B Industrial Drive
Petersburg, VA 23803

is hereby granted a permit to construct, operate, and maintain the facility as described in the attached Permit Modules I, II, III, 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

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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.

Issued: November 20, 1992 (Initial Issuance)
Modification No. 1: January 23, 1998 (Minor)
Modification No. 2: October 25, 2006 (Major)
Modification No. 3: May 20, 2008 (Minor)
Modification No. 4: July 26, 2011 (Major)
Modification No. 5: September 20, 2013 (Minor)
Modification No. 6: November 12, 2013 (Major)
Modification No. 7: July 3, 2018 (Major)
Modification No. 8: September 28, 2018 (Minor)
Modification No. 9: December 21, 2018 (Minor)
Modification No. 10: October 10, 2019 (Minor)
Modification No. 11: May 29, 2020 (Minor)
Modification No. 12: August 10, 2020 (Major)
Modification No. 13: November 24, 2020 (Major)
Modification No. 14: January 28, 2021 (Minor)
Modification No. 15: September 10, 2021 (Minor)
Modification No. 16: May 19, 2023 (Minor)
Modification No. 17: April 12, 2024 (Minor)
Modification No. 18: September 10, 2024 (Major)

APPROVED: **_____ DRAFT _____**
Jaime B. Robb
Deputy Regional Manager

DATE: **_____ DRAFT _____**
Modification No. 19

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PERMIT MODULES
REFERENCE LIST

PERMIT MODULE I – GENERAL PERMIT CONDITIONS (MODIFICATION NO. 19)*
PERMIT ATTACHMENT I-1, PREVIOUS PERMIT APPROVAL LETTERS

PERMIT MODULE II – CONDITIONS OF OPERATION (MODIFICATION NO. 19)

PERMIT MODULE III – SANITARY LANDFILL DESIGN (MODIFICATION NO. 18)

PERMIT MODULE X – DETECTION MONITORING (MODIFICATION NO. 14)

PERMIT MODULE XI – ASSESSMENT MONITORING (MODIFICATION NO. 14)

PERMIT MODULE XII – CLOSURE (MODIFICATION NO. 18)

PERMIT MODULE XIII – POST CLOSURE CARE (MODIFICATION NO. 18)

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

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PERMIT DOCUMENTS

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

1. *Design Plans, Major Permit Amendment for Vertical Expansion, Disposal and Recycling Services of Lunenburg, Solid Waste Permit No. 544*, prepared by Hodges, Harbin, Newberry & Tribble, Inc. (HHNT), last revised November 10, 2023 (Attachment III).
2. *Closure Plan, Major Permit Amendment for Tonnage Expansion, Disposal and Recycling Services of Lunenburg, Permit No. 544*, prepared by HHNT, last revised March 2024 (Attachment IV).
3. *Post Closure Plan, Major Permit Amendment for Lateral Expansion, Disposal and Recycling Services of Lunenburg, Permit No. 544*, prepared by HHNT, dated July 31, 2020 (Attachment V).
4. *Design Report, Major Permit Amendment for Tonnage Expansion, Disposal and Recycling Services of Lunenburg, Permit No. 544*, prepared by HHNT, last revised March 2024 (Attachment VI).
5. *Construction Quality Assurance Plan and Technical Specifications, Major Permit Amendment for Lateral Expansion, Disposal and Recycling Services of Lunenburg, Permit No. 544*, prepared by HHNT, last revised May 22, 2023 (Attachment VII).
6. *Leachate Management Plan, Major Permit Amendment for Lateral Expansion, Disposal and Recycling Services of Lunenburg, Permit No. 544*, prepared by HHNT, last revised November 10, 2023 (Attachment VIII).
7. *Landfill Gas Management Plan, Meridian Waste Acquisitions, LLC, Disposal and Recycling Services of Lunenburg,* prepared by Cornerstone Environmental Group, LLC, last revised October 13, 2023; *Landfill Gas Remediation Plan*, prepared by HHNT, last revised November 10, 2023 (Attachment IX).
8. *Groundwater Monitoring Plan, Disposal and Recycling Services of Lunenburg*, prepared by Jett Environmental, last revised November 2, 2020 (Attachment X).

The following documents have been submitted to satisfy permit or regulatory requirements; however, are considered reference documents and are not incorporated into Permit No. 544. This list may not be all-inclusive.

1. *Part A Permit Application, Lunenburg County Proposed Solid Waste Management Facility*, prepared by Draper Aden Associates, dated April 16, 1990.
2. *Part A Permit Application for Lateral Expansion, Disposal & Recycling Services of Lunenburg,* prepared by Joyce Engineering, dated April 13, 2017.

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3. *Part A Permit Application for Lateral Expansion, Disposal & Recycling Services of Lunenburg,* prepared by Joyce Engineering, dated February 9l 2021.
4. *Construction Quality Assurance Report, Volume 1 of 3, Construction of Cell No.1, Lunenburg County Sanitary Landfill,* prepared for Meridian Waste Solutions, Inc. c/o HHNT by Bunnell Lammons Engineering (BLE), revised December 7, 2018.
5. *Construction Quality Assurance Report, Volume 2 of 3, Construction of Cell No.1, Lunenburg County Sanitary Landfill,* prepared for Meridian Waste Solutions, Inc. c/o HHNT by BLE, dated November 26, 2018.
6. *Construction Quality Assurance Report, Volume 3 of 3, Construction of Cell No.1, Lunenburg County Sanitary Landfill,* prepared for Meridian Waste Solutions, Inc. c/o HHNT by BLE, dated November 30, 2018.
7. *Construction Quality Assurance Report, Volumes 1 of 3, Construction of Cell 2, Lunenburg County Sanitary Landfill,* prepared for HHNT by BLE, dated December 3, 2019.
8. *Construction Quality Assurance Report, Volumes 2 of 3, Construction of Cell 2, Lunenburg County Sanitary Landfill,* prepared for HHNT by BLE, dated December 5, 2019.
9. *Construction Quality Assurance Report, Volume 3 of 3, Construction of Cell 2, Lunenburg County Sanitary Landfill,* prepared for HHNT by BLE, last revised December 23, 2019.
10. *Construction Quality Assurance Report, Construction of Phase I Partial Closure, Facility Permit Number 544, prepared by HHNT, dated May 14, 2020.*
11. *Construction Quality Assurance Report, Volumes 1 and 2 of 3, Construction of Cell 3, Lunenburg County Sanitary Landfill,* prepared for HHNT by BLE, dated January 26, 2022.
12. *Construction Quality Assurance Report, Volume 3 of 3, Construction of Cell 2, Lunenburg County Sanitary Landfill,* prepared for HHNT by BLE, dated February 2, 2022.
13. *Construction Quality Assurance Report, Volumes 1 through 3, Construction of Cell 4A and 4B, Lunenburg County Sanitary Landfill,* prepared for HHNT by BLE, dated November 10, 2023.

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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.

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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.

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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. <u>DOCUMENTS TO BE MAINTAINED AT THE FACILITY</u>

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

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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, and groundwater 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 Town of Victoria East Sewage Treatment Plant to discharge the increased volume of leachate and wastewater to the sewerage system and treatment works.

I.D.1.b. Report and supporting documents resulting from quality control/quality assurance activities performed during construction and installation of the

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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:

Virginia Department of Environmental Quality
Division of Land Protection & Revitalization
Piedmont Regional Office
4949-A Cox Road
Glen Allen, Virginia 23060

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. 544 have been evaluated for

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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 July 23, 1990, and the Part A modification approval letter dated December 9, 2021.

I.F.3. The permittee shall perform a topographic survey of all active portions of the landfill units on an annual basis (at least every 12 months unless otherwise requested by the Director. The survey shall be certified by a professional engineer or certified land surveyor licensed in the Commonwealth of Virginia, unless exempt pursuant to § 54.1-402. The survey results shall be compared to the landfill permit's final site topography plan. Within 90 days of the survey, the permittee shall submit to the DEQ Piedmont Regional Office Waste Program a drawing comparing surveyed elevations, permitted final elevations, and the disposal unit boundary. The drawing shall note areas that have reached final elevation or lateral extent, and any areas of overfill (waste outside the constructed disposal unit boundary or above the vertical design capacity) including an estimate of total area and volume of overfill. The remaining capacity and estimated life within the permitted disposal unit boundary shall also be included as part of the submittal. Areas that have attained final elevations and slopes must be stabilized in accordance with the permit until final cover is applied within the timeframe specified in the Closure Plan. Except as may be separately permitted or approved in writing by DEQ for exigent or emergency situations, no waste shall be placed outside of the disposal unit boundary and in areas where the elevation exceeds the vertical design capacity that can be derived from Drawing No. 12, Final Cover System Grading Plan, dated May 22, 2023.

I.G. PERMIT MODIFICATIONS

I.G.1. The permit was modified by a minor modification on January 23, 1998, approving construction of gas monitoring probes, and relocation of the gas monitoring probes.

I.G.2. The permit was modified by a major modification on October 25, 2006, which approved a new Groundwater Monitoring Plan, added Sedimentation Basin #2, updated the Operations Manual to include white goods storage practices, and included a Closure Plan for unlined areas (former Permit Number 227).

I.G.3. The permit was modified by a minor modification May 20, 2008, approving the Gas Remediation Plan for GP-6 and GP-7.

I.G.4. The permit was modified by a major modification on July 26, 2011, approving the design reconfiguration of Cells 1-3 in the expansion area, in addition to redesigning the leachate collection system, changing the base grades, and modifying the groundwater and gas monitoring networks, respectively.

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I.G.5. The permit was modified by a minor modification on September 13, 2013, which changed the ownership of Lunenburg County Sanitary Landfill from the County to RWG5, LLC and the name to Disposal & Recycling Services of Lunenburg Sanitary Landfill.

I.G.6. The permit was modified by a major modification on November 12, 2013, approving raising the daily disposal limit to 1000 tons per day, in addition to changing the design configuration of the cells to be constructed in the permitted expansion area.

I.G.7. The permit was modified by a major modification on July 3, 2018, approving lowered base grades in Cells 1 and 2, and the replacement of the leachate holding pond with a leachate tank. This modification also approved the use of a polypropylene tarp as alternate daily cover (ADC).

I.G.8. The permit was modified by a minor modification, on September 28, 2018, approving a revised Gas Management Plan and Gas Remediation Plan, in addition to adding Technical Specification 13900.

I.G.9. The permit was modified by a minor modification, on December 21, 2018, which approved changes to the leachate collection system, reflected in a revised Design Plans, Design Report, CQA Plan/Technical Specifications, and Leachate Management Plan. The Gas Management Plan was also revised to reflect the installation of gas probes for Cell 1 construction. A revised Groundwater Monitoring Plan was also approved.

I.G.10. This permit was modified by a minor modification on October 10, 2019, which approved revised Design Plans, Design Report, CQA Plan, Technical Specifications, Leachate Management Plan, Gas Management Plan, Gas Remediation Plan, in addition to approving a revised Closure Plan and Post Closure Plan for the unlined area. The revised Design Plans, Design Report, CQA Plan, Technical Specification, and Leachate Management Plan addresses changes to the permeability of the granular drainage material in the leachate collection layer in the liner system of Cell 2 by using various stones and geotextiles to achieve a minimum hydraulic conductivity of 1×10^{-3} cm/sec. The revision to the Closure Plan addresses adding toe berms and tack-on stormwater berms to the final cap of the unlined area. The revision to the Post-Closure plan addressed the inspection of the toe drain system after closure. The revision to the Gas Remediation Plan addresses extended timeframes for design and installation of Phase 2 and Phase 3 remedial activities. The revision to the Gas Management Plan addresses gas monitoring at the leachate pump station for the unlined area.

I.G.11. The permit was modified by a minor modification on May 29, 2020, which involved changing the cap design to the pre-approved alternate cap design, revising leachate flow estimates in post closure care, and adding a stormwater pipe.

I.G.12. The permit was modified by a major modification on August 10, 2020, which

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increased the daily disposal limit from 1000 tons per day to 1500 tons per day.

I.G.13. The permit was modified by a major modification on November 24, 200, which involved piggybacking from the unlined area to Cells 1 and 2, adding Cells 3A, 3B, 4A, and 4B, and adding approximately 2,380,00 cubic yards of capacity.

I.G.14. The permit was modified by a minor modification on January 28, 2021, which involved modifying the Groundwater Monitoring Plan and replacing a landfill gas compliance well.

I.G.15. The permit was modified by a minor modification on September 10, 2021, which involved revising the protective cover options in the leachate collection system and modifying stormwater basins.

I.G.16. The permit was modified by a minor modification on May 19, 2023, which involved replacing the geonet drainage media (GDM) component of the liner with a GDM with lower transmissivity.

I.G.17. The permit was modified by a minor modification on April 12, 2024, for the use of auto shredder fluff and soil in a 1:1 ratio as alternate daily cover.

I.G.18. This major permit modification, approved on September 10, 2024, involves a vertical expansion to 672 MSL, and adding approximately 800,000 cubic yards.

I.G.19. This modification involves an increase in the daily disposal limit from 1,500 tons per day to 2,000 tons per day.

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PERMIT MODULE II
CONDITIONS OF OPERATION

II.A. HOURS OF OPERATION

II.A.1. The normal operating hours are:

- Monday through Friday: 6:00 a.m. to 6:00 p.m.
- Saturday: 6:00 a.m. to 6:00 p.m.
- Sundays and Holidays: Landfill is typically closed, but hours for Sundays, Monday holidays and select holidays may vary.

During other times, only trucks authorized by RWG5 LLC shall be admitted to the solid waste management facility for tipping only. The landfill personnel will be available as long as necessary following primary disposal hours and other times when tipping occurs to allow for the necessary daily shut-down tasks (such as compaction, application of daily cover, etc.). Should this require working past dusk, all available vehicle and portable lighting will be used to light the work area.

Operational hours vary for the citizen convenience center, yard waste drop-off and mulching area, and the landfill office. 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 Piedmont Regional Office at (804) 527-5020 within 24 hours followed by a formal written submission within 5 days.

II.B. WASTES ACCEPTED

The Disposal & Recycling Services of Lunenburg Sanitary Landfill 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. Disposal of large volumes of animal carcasses must be approved by the Department prior to disposal.

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.

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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 TPH< 3000 and soils contaminated with PCB's per 9 VAC 20-81-630 per the Special Waste Acceptance Plan.

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 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. Tires may also be split, cut, or shredded and then beneficially used or dispersed in the workface with other solid wastes for disposal.

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-

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II.B.18. UNAUTHORIZED WASTE – The Disposal & Recycling Services of Lunenburg Sanitary Landfill may not receive any unauthorized wastes identified in 9 VAC 20-81-140.C.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.C. PERMIT LIMITS

The facility has a disposal limit of 2,000 tons per day as specified in 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. Polypropylene tarp

II.D.1.b. Auto shredder fluff/soil 1:1 ratio

II.D.1.c. 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. Interim cover systems shall be applied when waste will not be placed for more than a year and final cover will not be installed. Prior to installation of an interim cover system not covered under the permit, the facility shall submit a minor permit modification request for DEQ review and approval. Interim cover systems shall be applied and maintained as outlined below:

II.D.3.a. Soil interim cover systems shall be designed, installed, and maintained to provide positive drainage and control stormwater run-on and run-off.

II.D.3.b. Geosynthetic interim cover systems shall be designed, installed, and maintained per manufacturer's instructions, and to provide positive

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drainage and control stormwater run-on and run-off.

II.D.3.c. Geosynthetic interim covers systems shall be installed on a minimum 12-inch compacted soil subgrade which is graded to provide positive drainage for the life of the interim cover system, accounting for future settlement.

II.D.3.d. Geosynthetic interim cover systems shall be properly secured and/or anchored to prevent lift and wind damage.

II.D.3.e. All interim cover systems shall be inspected at least monthly, and repairs made in a timely manner, as necessary, to maintain the integrity and effectiveness, correct the effects of damage, settlement, and landfill gas, and remove ponded water.

II.D.3.f. At least 30 days prior to installing any new interim cover system, notify the Department in writing, providing the expected installation date, description of cover, location(s), acreage, and expected duration of use.

II.D.3.g. Information regarding installation, maintenance, and removal of all interim cover systems shall be documented in the facility's Operations Manual prior to installation.

II.D.4. Before placement of new waste in areas with low permeability daily cover soil, alternate daily covers, intermediate cover, or interim cover systems, cover materials shall be removed such that leachate can flow downward unimpeded to the leachate collection system. At least 30 days prior to removing an interim cover system, notify the Department in writing, providing the location(s) and acreage to be reopened and a plan for removal and management of the interim cover.

II.D.5. Final cover construction as outlined in Permit Module XII shall be initiated when the requirements of 9 VAC 20-81-140.C.1.e. are met.

II.E. HOUSEKEEPING

II.E.1. The facility shall control odors in accordance with 9VAC20-81-200.D. and/or as necessary to protect human health and the environment.

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.B.12.

II.E.4. Salvaging may only be performed in areas of the facility designated for salvaging

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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.B.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 Part III of the VSWMR (9 VAC 20-81-100 through 9 VAC 20-81-260). 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

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shall repair the seep(s) and follow the procedures outlined in 9 VAC20-81-210.F.

II.J. 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.K. GROUNDWATER MONITORING

Groundwater shall be monitored in accordance with 9VAC20-81-250 and 9 VAC 20-81-260; Modules X and 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.

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PERMIT MODULE III
SANITARY LANDFILL DESIGN

III.A. LINER DESIGN

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

- 18-inches granular drainage material with a minimum permeability of 0.1 cm/second.;
- 10-oz. nonwoven polypropylene geotextile;
- 60-mil High Density Polyethylene (HDPE) textured geomembrane;
- 24-inch soil/bentonite layer with maximum permeability of $1x10^{-7}$ cm/second; and
- Prepared subgrade; or

- 18-inches granular drainage material with a minimum permeability of 0.1 cm/second.;
- 24-oz. nonwoven polypropylene geotextile;
- 60-mil HDPE textured geomembrane;
- Geosynthetic Clay Liner (GCL) with maximum permeability of $1x10^{-9}$ cm/second;
- 12-inch controlled subgrade; and
- Prepared subgrade.

Cell 2 of the landfill shall be underlain by the composite liner system described below (top to bottom):

- 18-inches granular drainage material as follows:
    - Original Design - Gravel with a minimum permeability of 0.1 cm/second underlain by a 24 oz/yd^2 polypropylene geotextile; or
    - Option 1 - 18-inches granular drainage material with a minimum permeability of 3 x 10^{-2} cm/sec underlain by a 16 oz/yd^2 nonwoven polypropylene geotextile; or
    - Option 2 - granular drainage material with a minimum permeability of 3 x 10^{-2} cm/sec. underlain by a geocomposite drainage medium (GDM) consisting of an HDPE geonet heat bonded to an 8 oz/yd^2 nonwoven polypropylene geotextile on each side (double sided GDM); or
    - Option 3 - granular drainage medium with a minimum permeability of 1 x 10^{-3} cm/sec. underlain by a double sided GDM.
- 60-mil HDPE textured geomembrane;
- 24-inch soil/bentonite layer with maximum permeability of $1x10^{-7}$ cm/second; and
- Prepared subgrade; or

- 18-inches granular drainage material as follows:
    - Original Design - Gravel with a minimum permeability of 0.1 cm/second underlain by a 24 oz/yd^2 polypropylene geotextile; or

  - Option 1 - 18-inches granular drainage material with a minimum permeability of 3 x 10^{-2} cm/sec underlain by a 16 oz/yd^2 nonwoven polypropylene geotextile; or
  - Option 2 - granular drainage material with a minimum permeability of 3 x 10^{-2} cm/sec. underlain by a double sided GDM; or
  - Option 3 - granular drainage medium with a minimum permeability of 1 x 10^{-3} cm/sec. underlain by a double sided GDM.
- 60-mil HDPE textured geomembrane;
- GCL with maximum permeability of 1x10^{-9} cm/second;
- 12-inch controlled subgrade; and
- Prepared subgrade.

Cells 3A and 3B of the landfill shall be underlain by the composite liner system described below (top to bottom):

- 18-inches granular drainage material as follows:
  - Original Design - Gravel with a minimum permeability of 0.1 cm/second underlain by a 24 oz/yd^2 polypropylene geotextile; or
  - Option 1 - 18-inches granular drainage material with a minimum permeability of 3 x 10^{-2} cm/sec underlain by a 16 oz/yd^2 nonwoven polypropylene geotextile; or
  - Option 2 - granular drainage material with a minimum permeability of 3 x 10^{-2} cm/sec. underlain by a double sided GDM; or
  - Option 3 - granular drainage medium with a minimum permeability of 1 x 10^{-4} cm/sec. underlain by a double sided GDM.
- 60-mil HDPE textured geomembrane;
- GCL with maximum permeability of 1x10^{-9} cm/second;
- 12-inch controlled subgrade; and
- Prepared subgrade.

Cells 4A and 4B of the landfill shall be underlain by the liner system described below (top to bottom):

- 18-inches granular drainage material as follows:
  - Original Design - Gravel with a minimum permeability of 0.1 cm/second underlain by a 24 oz/yd^2 polypropylene geotextile; or
  - Option 1 - 18-inches granular drainage material with a minimum permeability of 3 x 10^{-2} cm/sec underlain by a 16 oz/yd^2 nonwoven polypropylene geotextile; or
  - Option 2 - granular drainage material with a minimum permeability of 3 x 10^{-2} cm/sec. underlain by a double sided GDM; or
  - Option 3 - granular drainage medium with a minimum permeability of 1 x 10^{-4} cm/sec. underlain by a double sided GDM.
- 60-mil HDPE textured geomembrane;
- GCL with maximum permeability of 1x10^{-9} cm/second;
- 12-inch controlled subgrade;

- Geogrid - two perpendicular layers of Tensar UX1500HS or one layer of Tensar UX1800HS;
- 12-inch intermediate cover layer; and
- Existing waste.

The capped western portion of the landfill, approximately nine acres, is unlined. The capped active eastern portion of the landfill, approximately 21 acres, is also unlined.

III.B. LINER CONSTRUCTION & CERTIFICATION

The landfill base liner for Cells 3A, 3B, 4A, and 4B shall be constructed in accordance with the approved Design Plans, Technical Specifications, and Construction Quality Assurance Plan.

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

III.C. LANDFILL GAS MANAGEMENT SYSTEM

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

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

III.C.1.b. The concentration of methane gas shall 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 network and facility structures in accordance with 9 VAC 20-81-200.B.4.

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

III.C.4. Perimeter Gas Monitoring Network

III.C.4.a. The facility shall install and maintain perimeter gas monitoring probes at the locations specified in the Landfill Gas Management Plan on Drawing 1 in Appendix IV. The current perimeter gas monitoring network consists of a series of 24 landfill gas monitoring probes designated GP-1, GP-2, GP-3RR, GP-4, GP-5R, GP-6, GP-7, GP-8R, GP-9 to GP-16, GP-19, GP-20R, GP-21R, and GP-22 to GP-26. GP-1, GP-2, and GP-22 thought GP-26 are located along the western property boundary; GP-3RR through GP-7 are located along the northern property boundary; GP-8R through GP-15 are located on the eastern side of the facility; and GP-16 through GP-22 are located south of Cells 1 and 2. In areas where gas probe spacing exceeds 250 feet, additional perimeter gas monitoring probes shall be added to the network if onsite or offsite property development encroaches within 1000 feet of the waste management boundary along that property boundary.

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

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

III.C.5. Landfill Gas Control Components
The existing gas control system at the landfill consists of the following main elements:

III.C.5.a A gas interception trench was installed north of the unlined landfill, to address gas exceedances at gas probe GP-6. The trench is approximately 300 feet in length, varies in depth from approximately 10 to 14 feet, and maintains a separation of approximately two feet above groundwater. In the trench, a total of 13 deep soil vents were installed at 25 foot spacing, and No. 4 stone was used to backfill the trenches. Four-inch riser pipe with four rows of ½-inch diameter holes spaced three inches apart vent the landfill gas. Soil backfill was placed and compacted to ground surface elevation. A blower can be connected to the vent trench.

III.C.5.b. A series of vertical gas extraction wells installed no more than approximately 80% of the waste depth with a minimum of 15 feet of separation from the bottom of the landfill, spaced at approximately

150-foot to 250-foot intervals.

III.C.5.c. A series of horizontal collectors installed on the landfill to augment gas collection via the vertical extraction wells.

III.C.5.d. A network of header and lateral piping installed to connect the vertical extraction wells and horizontal collectors, and to direct the collected gas to the blower/flare facility; and

III.C.5.e. A condensate control system consisting of self-draining condensate traps located at low points in the piping network. Condensate collected in drains will be discharged through force mains to leachate collection and storage locations, to be addressed in the final design of the active gas extraction system.

III.C.5.f. A Utility Flare to manage the treated (compressed, cooled, and filtered) gas collected via the active gas collection system.

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

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

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

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

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

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

III.C.6.b. Should the results of landfill gas monitoring indicate concentrations of methane in excess of the methane compliance level (5% methane or 100% of the LEL at the facility boundary or 1.25% methane or

25% LEL in facility structures), the Operator shall:

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

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

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

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

v. Implement the next phase of the approved remediation plan within 60 days or implement a revised remediation plan and submit the plan to DEQ for approval; and

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

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

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

ii. Monthly monitoring shall continue until three (3) consecutive monthly readings yield methane concentrations below 80% LEL at the facility boundary or 25% LEL in facility structures. At that time, the facility can return to quarterly monitoring.

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

accompanying graph to clearly document trends in data over time to justify the change in monitoring frequency.

III.D. LEACHATE MANAGEMENT

III.D.1. Leachate Storage

All leachate collected in the leachate collection system is currently stored in the existing 188,000-gallon leachate storage tank, including the volume within the upper 12-inches for freeboard. The facility is permitted for 2-188,000-gallon leachate storage tanks. Should the actual leachate generation rates for two (2) consecutive quarters indicate additional storage is required, the second leachate storage tank will be purchased within six months and installed within six months of the tank being manufactured.

III.D.2. Leachate Disposal

Collected leachate will pumped and hauled to the Town of Victoria East Sewage Treatment Plant for disposal.

PERMIT MODULE – X
DETECTION
GROUNDWATER MONITORING REQUIREMENTS
9 VAC 20-81-250

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

A GROUNDWATER COMPLIANCE POINT

A.1 Uppermost Aquifer

The compliance point for groundwater monitoring 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)]**.

A.2 Monitoring Well Locations

All downgradient 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 screened within the uppermost aquifer unless a variance **[250.A.3.a.(2)]** meeting the requirements of **740.B** has been granted.

A.3 Location Restrictions

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

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

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

B MONITORING NETWORK REQUIREMENTS

B.1 Mandatory Performance Standards to be met

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

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]**.

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**.

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

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.e, c, d**.

B.3 Well Designations

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

Upgradient Well(s)	Downgradient Wells	Piezometers[1]
MW-1	MW-2, MW-3, MW-3N, MW-7R, MW-8R, MW-9, MW-10R, MW-11R, NES-1	MW-12D, MW-13D, MW-14R

Notes[1]:

1. Wells MW-12D, MW-13D, and MW-14R will be sampled quarterly for the VSWMR Table 3.1 Column A list for 10 events to establish a representative background data set. Upon completion of 10 events, statistical evaluations will be conducted in accordance with the facility's Groundwater Statistical Analysis Plan included in the Groundwater Monitoring Plan.

C AQUIFER INFORMATION

C.1 Aquifer Data Acquisition - Requirements

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

C.1.a.(1) measured in all monitoring wells.

C.1.a.(2) measured to an accuracy of 0.01 foot.

C.1.a.(3) measured each time groundwater is sampled on site.

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

C.1.b.(1) determined each time groundwater is sampled on site,

C.1.b.(2) calculated using technical methods accepted for use in EPA RCRA groundwater programs.

C.2 Aquifer Data Acquisition - Response

C.2.a The Permittee shall evaluate the function of each of the wells included in the monitoring network 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:

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.

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**.

D SAMPLING ACTIONS

The Permittee shall:

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

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

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

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

E SAMPLING FREQUENCY

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 **[B.1.e]**.

E.2 The length of the semi-annual sampling period shall meet the requirements of **9 VAC 20-81-10**.

F DETERMINATION OF BACKGROUND

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)**.

G STATISTICAL PROCEDURES

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

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**. For the purpose of this Permit, laboratory analysis is considered complete upon issuance of the analytical report under laboratory signature.

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

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:

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

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.

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 active life (including closure) and post-closure care period. The records shall be retained at the facility or another location approved by the Director.

J REPORTING REQUIREMENTS

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)**.

J.2 ***Semi-annual or quarterly 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)**.

J.3. Within 30 days of establishing facility background in the First Determination program **250.C.2.b.(2)**, 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*****.** While in Phase 2

program, the background determination results shall be submitted in the timeframe defined under **250.C.3.b.(2).**

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.

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 **[300.E.1.c]**.

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.

K NOTIFICATION REQUIREMENTS

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

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**.

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.

L MISCELLANEOUS ALLOWANCES

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).**

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 one 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**.

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**.

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**.

L.5 Sanitary Landfill Participation. Sanitary landfills which meet the criteria of **250.C.1.a** may monitor groundwater under the provisions of **250.C.2** or **3** designed for CDD and Industrial landfills.

L.6 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, promptly submitted such omitted facts or the correct information with a full explanation **[530.E]**.

M MISCELLANEOUS DEMONSTRATIONS

M.1 To address an exceedance which is the result of something other than a release of solid waste constituents from the SWDU, 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]**.

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.

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.

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.

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.

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.

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**.

M.3.a If a successful demonstration is made and approved by the Director, the Permittee may suspend groundwater monitoring actions.

M.3.b If a successful demonstration is not made, the Permittee shall continue monitoring as required under **B.2.**

N PERMIT DOCUMENTS

As required under **470.A.1**, the Permittee must have Design Plans that includes detailed instructions concerning groundwater monitoring **[470.A.1.g]**. These detailed groundwater monitoring instructions must at a minimum cover the items listed under **300.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, which may include a Permit modification action as defined under **600.A – F**, if changes to the monitoring program have taken place since original Plan development.

O LIMITATIONS/AUTHORITIES

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

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**.

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
9 VAC 20-81-250

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

A GROUNDWATER COMPLIANCE POINT

A.1 Uppermost Aquifer

The compliance point for groundwater monitoring 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)]**.

A.2 Monitoring Well Locations

All downgradient 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 screened within the uppermost aquifer unless a variance **[250.A.3.a.(2)]** meeting the requirements of **740.B** has been granted.

A.3 Location Restrictions

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

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

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

B MONITORING NETWORK REQUIREMENTS

B.1 Mandatory Performance Standards to be met

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

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]**.

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**.

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

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.e, c, d**.

B.3 Well Designations

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

Upgradient Well(s)	Downgradient Wells	Piezometers[1]
MW-1	MW-2, MW-3, MW-3N, MW-7R, MW-8R, MW-9, MW-10R, MW-11R, NES-1	MW-12D, MW-13D, MW-14R

Notes[1]:

1. Wells MW-12D, MW-13D, and MW-14R will be sampled quarterly for the VSWMR Table 3.1 Column A list for 10 events to establish a representative background data set. Upon completion of 10 events, statistical evaluations will be conducted in accordance with the facility's Groundwater Statistical Analysis Plan included in the Groundwater Monitoring Plan.

C AQUIFER INFORMATION

C.1 Aquifer Data Acquisition - Requirements

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

C.1.a.(1) measured in all monitoring wells.

C.1.a.(2) measured to an accuracy of 0.01 foot.

C.1.a.(3) measured each time groundwater is sampled on site.

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

C.1.b.(1) determined each time groundwater is sampled on site,

C.1.b.(2) calculated using technical methods accepted for use in EPA RCRA groundwater programs.

C.2 Aquifer Data Acquisition - Response

C.2.a The Permittee shall evaluate the function of each of the wells included in

the monitoring network 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:

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.

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**.

D SAMPLING ACTIONS

The Permittee shall:

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

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

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

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.

E SAMPLING FREQUENCY

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 **[B.1.e]**.

E.2 The length of the semi-annual sampling period shall meet the requirements of **9 VAC 20-81-10**.

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

F DETERMINATION OF BACKGROUND & GPS

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)**.

F.2 Groundwater Protection Standards (GPS) established using the process defined under **250.A.6.b**, for each detected Assessment monitoring constituent shall be:

F.2.a proposed within timelines of C.3.c, and

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

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

F.3.b For Alternate Concentration Limit-based GPS, following the process under **250.A.6.e**.

G STATISTICAL PROCEDURES

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

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**.

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.

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

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

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:

H.1. initiate groundwater 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

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

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 active life (including closure) and post-closure care period. The records shall be retained at the facility or another location approved by the Director.

J REPORTING REQUIREMENTS

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)**.

J.2 ***Semi-annual or quarterly 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)**.

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.

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 **[300.E.1.c]**.

J.5 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.

K NOTIFICATION REQUIREMENTS

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

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**.

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.

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

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.

L MISCELLANEOUS ALLOWANCES

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).**

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 one 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**.

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**.

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**.

L.5 Sanitary Landfill Participation. Sanitary landfills which meet the criteria of **250.C.1.a** may monitor groundwater under the provisions of **250.C.2** or **3** designed for CDD and Industrial landfills.

L.6 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, promptly submitted such omitted facts or the correct information with a full explanation **[530.E]**.

L.7 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.**

L.8 In an effort to reduce sampling costs, the Permittee may request the Director:

L.8.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

L.8.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.**

M MISCELLANEOUS DEMONSTRATIONS

M.1 To address an exceedance which is the result of something other than a release of solid waste constituents from the SWDU, 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]**.

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.

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.

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.

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.

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.

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**.

M.3.a If a successful demonstration is made and approved by the Director, the Permittee may suspend groundwater monitoring actions.

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

N PERMIT DOCUMENTS

As required under **470.A.1**, the Permittee must have Design Plans that includes detailed instructions concerning groundwater monitoring **[470.A.1.g]**. These detailed groundwater monitoring instructions must at a minimum cover the items listed under **300.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 a Permit modification action as defined under **600.A – F**, if changes to the monitoring program have taken place since original Plan development.

O LIMITATIONS/AUTHORITIES

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

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**.

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.C.1.e. and 9 VAC 20-81-160.

XII.C. FINAL COVER SYSTEM

The configuration of the final cover system for Cells 1, 2, 3A, 3B, 4A, and 4B is as follows (from top to bottom):

- 6-inch vegetative support layer;
- 18-inch protective cover layer;
- Geocomposite geonet drainage layer;
- 40-mil LLDPE geomembrane ;
- 18-inch infiltration layer of compacted soil with a maximum permeability of 1×10^{-5} cm/sec.; and
- 12-inches of intermediate cover.

The configuration of the final cover system for the unlined hill is as follows (from top to bottom):

- 18-inch erosion/vegetative support layer;
- 18-inch compacted soil cap with a maximum permeability of 1×10^{-5} cm/sec.; and
- 12-inches of intermediate cover.

The capped western portion of the landfill consists of nine acres. The southern part of the western portion was capped with two feet of compacted soil cover prior to 1988. The northern part of the western portion was capped in the early 1990's with a two-foot thick compacted soil cover.

The closed, partially capped eastern portion of the landfill consists of approximately 21 acres. The northeastern corner of the eastern portion (one acre) was used in the 1980's for disposal of button dust and debris from the Kenbridge button factory. This area was capped with a compacted soil cover prior to 1988.

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.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.