



Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

TIDEWATER REGIONAL OFFICE
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**SOLID WASTE FACILITY PERMIT
PERMIT NUMBER 461**

Facility Name: Accomack County Northern Sanitary Landfill

Facility Type: Sanitary Landfill

Latitude: N 37° 54' 20"

Site Location: Accomack County

Longitude: W 75° 31' 45"

Location Description: The facility is located in Temperanceville on an approximate 215.7-acre parcel of land owned by Accomack County east of U.S. Route 13, on State Route 703. The facility boundary is approximately 142.3 acres and the waste management unit boundary is approximately 60.5 acres.

Background: The facility is a publicly owned and operated sanitary landfill that primarily serves Accomack County with some small quantities periodically received from nearby Northampton County pursuant to the County's Solid Waste Master Plan. The wastes accepted include those wastes identified in the Design Report, Permit Attachment VI, and Permit Module II, Operations.

The solid waste permit for the facility was issued on February 22, 1985 for Cell 1. The permit was amended May 8, 1996 for the 10.38-acre Cell 2 expansion. A 2.5 acre piggyback liner over the east slope of Cell 1 was incorporated into the Cell 2 design with an amendment issued December 17, 2002. Currently an approximate 22.41-acre footprint comprising Cells 1, 2, and 6A exists at the site. The original Cell 1 comprises approximately 7.85 acres of disposal footprint and is provided with a non-Subtitle D compliant 30-mil PVC liner and a leachate collection and removal system. Cell 1 is completely closed. Cell 2 directly abuts the east side of Cell 1 and overlays the non-Subtitle D conforming Cell 1 area via a "piggyback" liner system. Installation of the Cell 2 liner over the Cell 1 piggyback liner system completed the final closure of Cell 1. The Cell 2 liner system comprises approximately 10.38 acres with a Subtitle D compliant liner and leachate collection system. Part of Cell 2 was closed using a patented three component system including a structured geomembrane covered by engineered turf with a specialized sand infill known as

“Closure Turf.” Cell 6A comprises approximately 4.18 acres of disposal footprint with Subtitle D compliant liner system and is currently active.

Leachate pre-treatment and disposal is via existing on-site biological/aerated lagoons in combination with spray-back irrigation system. These lagoons are located along the east property boundary within the waste management unit boundary and operate under a DEQ Virginia Pollution Abatement Permit (VPA01079). The limits of the spray-back irrigation system are located outside of the waste management unit boundary. This system combined with pump and haul for off-site disposal provide for all of the facility’s leachate disposal requirements.

Permit Modification: This permit modification incorporates the proposed Westward Expansion consisting of a 66.8-acre parcel of land abutting the existing landfill to the west, which was just recently purchased by Accomack County. The Part A Approval for this new property was granted on July 26, 2019. The remaining permitted capacity proposed for Cells 3 through 6B will be transferred from the existing facility to this new parcel. This re-configuration of the existing capacity will prolong the useful life of associated facility infrastructure used for waste management and recycling. The previous southern expansion consisted of Cells 3 through 6 which included approximately 30.3-acres of disposal footprint (21.1-acres of base liner plus 9.2-acres of piggyback liner over Cells 1 and 2.). The estimated volume of this expansion was 2,122,226 cubic yards. To date only Cell 6A, (which consists of 4.18-acres of base liner and 5.38-acres of piggyback liner over Cell 1) of the southern expansion has been constructed and is currently in operation.

The proposed westward expansion consists of Cells 7-11, and provides 23.4-acres of disposal footprint (20.88-acres of base liner plus 2.52-acres of piggyback liner over Cell 1) with an estimated volume of 2,304,111 cubic yards. Cells 3-6B, which constitute the remaining southern expansion are hereby withdrawn from the permit until such time the Accomack County can demonstrate the existing capacity is less than 20 years. At that time, the County shall provide a revised “demonstration of need,” and modified Part A and B applications to allow an expansion to bring Cells 3 through 6B back into the permit. At that time, the existing Part B for Cells 3 through 6B will be re-evaluated to determine if there are changes to the Virginia Solid Waste Management Regulations (VSWMR, 9 VAC 20-81-10, *et seq.*) that are applicable and if changes to the plans and documents that have previously been submitted are required.

This permit modification also includes changes to the groundwater monitoring well network to improve the network’s ability to detect a release from the landfill, revises the groundwater monitoring network to monitor the existing landfill and the western expansion area, and incorporates an updated Groundwater Monitoring Plan. All previous permit modifications are outlined in detail in Module I, Section I.G.

Permit Limits: The total capacity of the expansion area is approximately 2,304,111 cubic yards with an estimate operating life span of approximately 36.3 years, as provided in Table 1 of the Design Report, Part B Attachment VI. This landfill life is based on the daily disposal (average waste acceptance rate) of 124 tons/day, operating 312 days/year with an estimated in-place waste density of 0.62 tons/cubic yard. A maximum daily disposal limit of 250 tons can be accommodated based on the design, infrastructure, equipment, and staffing maintained by this facility.

THIS IS TO CERTIFY THAT:

**Accomack County
P.O. Box 388
Accomack, VA 23301**

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

The herein described activity is to be established, modified, constructed, installed, operated, used, maintained, and closed in accordance with the terms and conditions of this permit and the plans, specifications, and reports submitted and cited in the permit. The facility shall comply with all regulations of the Virginia Waste Management Board. In accordance with Chapter 14, § 10.1 - 1408.1(D) of the Code of Virginia, prior to issuing this permit, any comments by the local government and general public have been investigated and evaluated and it has been determined that the proposed expansion 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: February 22, 1985 (Cell 1)

First Amendment: May 8, 1996 (Cell 2 Expansion)

Second Amendment: December 21, 2001 () (Groundwater Minor Mod)

Third Amendment: December 17, 2002 (Cell 2/1 Piggyback)

Fourth Amendment: June 30, 2006 (Groundwater Protection Standards)

Fifth Amendment: June 17, 2009 (Groundwater Minor)

Sixth Amendment: January 27, 2017 (Southern Expansion)

APPROVED:

Regional Director

DATE:

Modification # 7

**PERMIT MODULES
REFERENCE LIST**

PERMIT MODULE I – GENERAL PERMIT CONDITIONS

PERMIT ATTACHMENT I-1, PREVIOUS PERMIT MODIFICATION APPROVAL LETTERS

PERMIT MODULE II – CONDITIONS OF OPERATION

PERMIT MODULE III – SANITARY LANDFILL DESIGN

PERMIT MODULE X – DETECTION MONITORING

PERMIT MODULE XI – ASSESSMENT MONITORING

PERMIT MODULE XII – CLOSURE

PERMIT MODULE XIII – POST CLOSURE CARE

PERMIT DOCUMENTS

The documents listed below are hereby incorporated into this permit and the permittee is subject to all conditions contained therein. It is the responsibility of the permittee to properly maintain and update these documents. Any version with a 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. Part B Application:
 - a. Design Plans (Accomack County Northern Landfill Western Expansion), prepared by CHA and dated October 1, 2019 and last revised March 11, 2020 (Attachment III).
 - b. Closure Plan, prepared by CHA, dated/last revised October 1, 2019 (Attachment IV).
 - c. Post-Closure Plan, prepared by ARCADIS and amended by CHA, dated October 2019 and last revised April 2020 (Attachment V).
 - d. Design Report, prepared by CHA, dated/last revised October 2019 (Attachment VI).
 - e. Construction Quality Assurance Plan and Technical Specifications, prepared by CHA, dated/last revised October 2019 (Attachment VII).
 - f. Leachate Management Plan, prepared by CHA, dated October 2019 and last revised April 2020 (Attachment VIII).
 - g. Landfill Gas Management Plan, prepared by CHA, dated October 2019 and last revised April 2020 (Attachment IX).
 - h. Groundwater Monitoring Plan, prepared by CHA, last revised July, 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. 461. This list may not be all-inclusive.

1. Document Titled “Part A Application for Accomack County Northern Landfill, prepared by SCS Engineers, and dated April 8, 1994.
2. Document titled, "Accomack County Northern Sanitary Landfill Westward Expansion, Part A Application, "dated August 30, 2018, and as revised April 29, 2019, prepared by CHA.
3. Construction Quality Assurance Report, Certification Report for construction of Cell 6A of the Accomack County Northern Landfill Expansion prepared on your behalf by CHA design/construction solutions dated December 2016.
4. Construction Quality Assurance Report, Cell 2 Expansion, prepared by SCS Engineers, dated July 21, 1997.

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. The facility will be designed, constructed, maintained, closed, and maintained in post-closure care per the Part B Attachments I through XVII. In addition to these requirements, the following additional conditions are invoked per 9VAC20-81-430, and shall be complied with:

- I.B.1. Noncompliance may be authorized by a schedule of compliance [9VAC20-81-490.D. and 9VAC20-81-490.H.]. Any other permit noncompliance constitutes a violation of Virginia Waste Management Act and is grounds for enforcement action, or for permit revocation, revocation and reissuance, or modification [9VAC20-81-570 and 9VAC20-81-600].

- I.B.2 The permittee shall comply with the requirements of this permit and any provisions of RCRA Subtitle D (Title 40, Code of Federal Regulations, Section 258) requirements as they become applicable upon their effective date. This permit may not act as a shield against compliance with any part of RCRA or any other applicable federal regulation, state regulation or state law.
- I.B.3. In an enforcement action, it shall not be a defense for the permittee that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- I.B.4. In the event of noncompliance with this permit, the permittee shall take all reasonable steps to minimize releases of solid wastes or waste constituents to the environment and shall carry out measures to prevent substantial adverse impacts on human health or the environment.
- I.B.5. The permittee shall at all times properly operate and maintain all units (and related appurtenances) which are installed or used by the permittee to achieve compliance with the operations manual and the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing, and training, and adequate laboratory and process controls, including appropriate quality assurance/quality control procedures. This provision requires the operation of back-up or auxiliary equipment only when necessary to achieve compliance with the conditions of this permit.
- I.B.6. The permittee shall furnish to the Director, within a reasonable time, any relevant information that the Director may request to determine compliance with this permit, regulations or the Act. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit by the date specified in the request.
- I.B.7. The permittee shall allow the Director, or an authorized representative, at a reasonable time, upon the presentation of appropriate credentials, to:
- I.B.7.a. Enter the permitted facility where a regulated unit or activity is located or conducted, or where records must be kept under the conditions of this permit;
 - I.B.7.b. Have access to and copy any records that must be kept under the conditions of this permit;
 - I.B.7.c. Inspect any unit, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and,

- I.B.7.d. Sample or monitor, for the purposes of assuring permit compliance or as otherwise authorized by Virginia Waste Management Act, any substances or parameters at any location within his control.
- I.B.8. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample to be analyzed must be the appropriate method from the latest edition of Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, EPA Publication SW-846, if available.
- Laboratory samples shall be analyzed in accordance with 1 VAC 30-45, Certification for Noncommercial Environmental Laboratories, or 1 VAC 30-46, Accreditation for Commercial Environmental Laboratories.
- I.B.9. This permit is not transferable to any person, unless approved by the Director. The Director may require modification or revocation and reissuance of the permit pursuant to 9VAC20-81-490.G. Before transferring ownership or operation of the facility during its operational life, the permittee shall notify the new owner or operator in writing of the requirements of Parts III and V, of the Virginia Solid Waste Management Regulations, the Financial Assurance Regulations, 9VAC20-70, and this permit.
- I.B.10. In accordance with § 10.1-1408.2, all facilities must have a Certified Operator as required by the Board of Waste Management Facility Operators-Licensing Regulations, 18 VAC 155-20.
- I.B.11. Specifications for all drainage media should specify that the material shall contain no greater than 15% calcium carbonate equivalent. Department literature regarding research on leachate collection media indicates that weight loss greater than 15% results in an unacceptable loss of performance. If a greater percentage is specified or allowed, a demonstration that performance is not adversely affected must be provided to the Department for review and approval.
- I.B.12. Recirculation of collected leachate shall not be allowed, in accordance with 9VAC20-81-210.D.3., except when the area to be irrigated is underlain by a composite liner system. Furthermore, in accordance with 9VAC20-81-200.C.3.c., decomposition gas condensate may be recirculated into the landfill provided the facility complies with the composite liner requirement and the leachate control system requirements of Part III of VSWMR. A composite liner system is a system designed to meet the requirements of 9VAC20-81-130.J.1

- I.B.13. The closure cost estimate must reflect the maximum cost of closure at all times. The owner has the responsibility to maintain the closure and post closure cost estimate and associated financial assurance funding as conditions change.
- I.B.14. Land-clearing, excavation, and construction activities that involve the disturbance of wetlands or streams shall not commence without authorization from the Virginia Water Protection (VWP) Program and/or Army Corps of Engineers.
- I.C. DOCUMENTS TO BE MAINTAINED AT THE FACILITY
- The permittee shall maintain the following documents (Part B Attachments) at the facility, or another location approved by the director, until post-closure is complete and certified by a professional engineer, and shall maintain amendments, revisions, and modification to these documents:
- I.C.1. Design Plans
 - I.C.2. Operations Manual with annual certification by Responsible Official
 - I.C.3. Gas Management Plan
 - I.C.4. Groundwater Monitoring Plan
 - I.C.5. Leachate Management Plan
 - I.C.6. Closure and Post-Closure Plan
 - I.C.7. Detailed, written estimate, in current dollars, of the cost of closing the facility, post-closure care and corrective action measures
 - I.C.8. All other documents/records required and applicable from the following:
 - I.C.8.a. Monitoring records from leachate, gas, and groundwater monitoring.
 - I.C.8.b. Inspection records as required from construction/installation, operational, closure, post-closure inspection requirements.
 - I.C.8.c. Personnel training records

I.C.8.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.8.e. Construction quality assurance reports, record drawings and engineers certifications for all new liner and/or final cover construction

I.C.9. An approved copy of the complete Part A permit

I.C.10. Documentation of the authorization to discharge leachate into the publicly owned treatment works, leachate volumes sent to the POTW, and periodic leachate sampling analytical results

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 Accomack County owned treatment works to discharge the increased volume of leachate and wastewater to the sewerage system and treatment works.

I.D.1.b. Report and supporting documents resulting from quality control/quality assurance activities performed during construction and installation of the liner/drainage systems, including the installation contractor's written acceptance of the surfaces to be lined, synthetic liner manufacturer and installer warranties, laboratory test results of the permeability of the clay liner and the drainage media overlying the liner, and representative copies (sufficient to demonstrate responsible control) of the accumulated inspection schedules resulting from the professional engineer's oversight of the construction.

I.D.2. In accordance with 9VAC20-81-490.A., certification from a design engineer, who must be a professional engineer licensed to practice in the Commonwealth, that the construction of the facility has been completed in accordance with the permit, approved plans and specifications and is ready to begin operation. A certification will be required for each lined phase of development.

- I.D.3. Certification (separate from I.D.2, above) from the Construction Quality Assurance (CQA) officer that the approved CQA plan has been successfully carried out and that the constructed unit meets all requirements of the permitted CQA plan, in accordance with 9VAC20-81-130.Q. A certification will be required for each lined phase of development. The CQA officer must be a professional engineer licensed to practice in Virginia.
- I.D.4. The as-built plans of all new groundwater and gas monitoring wells shall be submitted as these wells are installed. Information to be included on the as-built plans shall include, but is not limited to, the total depth of the well, the surveyed elevations of the top of casing and ground surface (or apron), and the length and location of the screened interval and annular space seal. All dimensions are to be shown on well construction schematics.
- I.D.5. 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).
- I.D.5.a. The certification shall include verification 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.
- I.D.6. 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 a certificate, signed by a professional engineer licensed in the Commonwealth, that post-closure monitoring and maintenance have been completed in accordance with the facility's Post-Closure Care Plan, Part B Attachment IV.
- I.D.6.a. The certificate submitted under I.D.6, shall be accompanied by an evaluation prepared by a professional engineer licensed in the Commonwealth, and signed by the owner or operator, 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.

I.D.6.b. 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.

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
Tidewater Regional Office
5636 Southern Boulevard
Virginia Beach, Virginia 23462

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. 461 have been evaluated for administrative and technical adequacy and have been approved as proposed. Therefore, any references to a design, construction, operation, monitoring or closure criteria are considered to be approved as proposed.
- I.F.2. The facility is subject to the conditions listed in the Part A approval letters dated July 15, 1994 and July 26, 2019.
- I.F.3. The leachate collection lines and headers must be cleaned out at least annually.

I.G. PERMIT MODIFICATIONS

- I.G.1. The permit was modified by a major permit modification on 05/08/1996 to incorporate the 10.38 acre Cell 2 expansion.
- I.G.2. The permit was modified by a minor modification on 12/21/2001 to remove 5 deep wells from the groundwater monitoring compliance network.
- I.G.3. The permit was modified by a major modification on 12/17/2002 to incorporate a 2.5-acre piggyback liner from Cell 2 over the east slope of Cell 1.
- I.G.4. The permit was modified by a major modification on 06/30/2006, approving Groundwater Protection Standards (GPS) for the assessment monitoring plan detailed in Module XI.
- I.G.5. The permit was modified by a minor modification on 06/17/2009 to revise low flow sampling protocol in the facility groundwater monitoring plan.
- I.G.6. The permit was modified by a major modification on January 27, 2017 to incorporate four new Cells designated as Cells 3 through 6. The total footprint of the proposed expansion consisted of approximately 25 acres. This modification also included changes to the groundwater monitoring well network to improve the network's ability to detect a release from the landfill, extend the groundwater monitoring network to monitor the expansion area, and incorporated an updated Groundwater Monitoring Plan.

PERMIT MODULE II CONDITIONS OF OPERATION

II.A. HOURS OF OPERATION

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

- Monday through Saturday: 8:30 a.m. to 4:00 p.m.
- Sundays and Holidays: The landfill is typically closed on Sundays, Thanksgiving Day and Christmas Day.

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 Tidewater Regional Office at (757) 518-2000 within 24 hours followed by a formal written submission within 5 days.

II.B. WASTES ACCEPTED

The Accomack County Northern 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.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.4. Commercial Waste.

II.B.5. Construction, demolition and debris waste.

II.B.6. Contaminated Soil. (Petroleum contaminated soil up to 1500 PPM total petroleum hydrocarbon (TPH)

- II.B.7. Fossil Fuel Combustion Products.
- II.B.8. Industrial Waste
- II.B.9. Institutional Waste
- II.B.10. Municipal solid wastes, including garbage, household waste, refuse, residential waste, rubbish and trash.
- II.B.11. Non-regulated hazardous wastes and treated wastes rendered nonhazardous, upon approval from the Department.
- II.B.12. Scrap metal.
- II.B.13. Stabilized Sludge, industrial and/or POTW. Municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, and air pollution control facility sludges that have been dewatered.

Sludges shall be disposed of by mixing with other solid wastes, placed, and compacted at the working face in a manner to prevent localized pockets of sludge or conditions which might result in future instability of the waste mass.
- II.B.14. Vegetative and yard waste, including stumps that are less than 12 inches in diameter.
- II.B.15. 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.16. White goods, provided that all appliances are free of chlorofluorocarbons, hydrochlorofluorocarbons, and PCBs prior to placement on the working face. White goods may be accumulated at the facility in accordance with 9VAC20-81-650.
- II.B.17. UNAUTHORIZED WASTE – The Accomack North Sanitary Landfill may not receive any unauthorized wastes identified in 9 VAC 20-81-140.B.4. or any of the following: waste oil that has not been adequately absorbed through site cleanup; radioactive wastes; lead acid batteries; pressurized tanks or pressurized containers; automobile gas tanks; friable and some non-friable asbestos-containing waste materials as defined by 9VAC20-81-620; regulated medical waste; explosives or other dangerous materials; and junked automobiles.

II.C. PERMIT LIMITS

The facility has a maximum disposal limit of 250 tons per day.

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.

Synthetic tarps are an approved alternate daily cover material. The use of an ADC material shall cease if the material is not effective at achieving the purposes of daily cover set forth in 9 VAC 20-81-140.B.1.c., if the use results in nuisances, or if the material is erodible and results in waste being exposed.

II.D.2. Intermediate cover shall be applied when another lift of waste will not be placed for more than 30 days or to areas which exhibit erosion, cracking, or settlement.

II.D.3. Before placement of new waste in areas with low permeability daily cover soil or alternate daily covers, or in areas with intermediate cover, cover materials shall be removed or penetrated such that leachate can flow downward unimpeded to the leachate collection system.

II.D.4. Final cover construction as outlined in Permit Module XII shall be initiated when the requirements of 9 VAC 20-81-140.B.1.e. are met.

II.E. HOUSEKEEPING

II.E.1. The facility shall control odors in accordance with 9VAC20-81-200.D. 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.A.12.

II.E.4. Salvaging may only be performed in areas of the facility designated for salvaging or recycling. Salvaging operations must not interfere with the operations of the landfill or create hazards or nuisances.

II.E.5. Open burning at active landfills shall comply with the requirements of 9VAC20-

81-140.A.4. Open burning is prohibited at areas where waste has been disposed or is being used for active disposal.

II.F. SAFETY PROGRAM

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

II.G. SELF-INSPECTION PROGRAM

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

II.H. OPERATIONS MANUAL REQUIREMENTS

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

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

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

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

II.I. LEACHATE MANAGEMENT

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

II.J. LANDFILL GAS MANAGEMENT

Landfill gas shall be monitored in accordance with 9VAC20-81-200, Module III, and the facility's Landfill Gas Management Plan, Attachment IX. 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, XI, the facility groundwater monitoring plan, Permit Attachment X, 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.

PERMIT MODULE III SANITARY LANDFILL DESIGN

III.A. LINER DESIGN

The proposed westward expansion consists of Cells 7-11, and provides 23.4-acres of disposal footprint (20.88-acres of base liner plus 2.52-acres of piggyback liner over Cell 1) with an estimated volume of 2,304,111 cubic yards. Cells 3-6B, which constitute the remaining southern expansion are hereby withdrawn from the permit until such time the Accomack County can demonstrate the existing capacity is less than 20 years. The expansion area shall be underlain by the composite liner system described below:

Proposed Cell 7-11 Base Liner (from top to bottom):

- a leachate collection layer consisting of 18-inches of granular (non-plastic) sand with a specified minimum hydraulic conductivity of 5×10^{-4} cm/sec;
- a geocomposite drainage net;
- a 60-mil High Density Polyethylene (HDPE) textured geomembrane;
- a geosynthetic clay liner (GCL); and
- a 6-inch thick compacted subbase.

Proposed Cell 7 over Cell 1 piggyback liner: (from top to bottom)

- an 18-inch drainage layer;
- a geocomposite drainage net;
- a 60-mil textured HDPE geomembrane;
- a geosynthetic clay liner (GCL); and
- a 12-inch subgrade layer with a reinforcing geogrid (installed at the mid-point of the subgrade layer).

Existing Cell 2 liner consists of the following components (from top to bottom):

- a 6-inch protective cover (1×10^{-3} cm/sec);
- a 12-inch drainage layer (1×10^{-3} cm/sec);
- a primary 60-mil HDPE geomembrane;
- a geosynthetic clay liner (GCL);
- a secondary 60-mil HDPE geomembrane; and,
- a 12-inch low permeability soil liner with permeability not exceeding 1×10^{-6} cm/sec.

Existing Cell 2 over Cell 1 piggyback liner consists of the following components (from top to bottom):

- an 18-inch cover soil layer;
- a geocomposite drainage net;

- a 60-mil textured HDPE geomembrane;
- a geosynthetic clay liner (GCL);
- a gas transmission geocomposite drainage net;
- a reinforcing geogrid; and,
- 12-inches of intermediate cover.

Cell 1, which is now closed, was constructed with a single 30-mil PVC liner and leachate collection and removal system which pre-dates and does not conform to current VSWMR and/or EPA Subtitle D requirements.

(note: piggyback overlay acreage is not included in calculating the overall waste disposal footprint.)

III.B. LINER CONSTRUCTION & CERTIFICATION

The landfill base liner for the landfill expansion (Cells 7 through 11) 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. This documentation shall include an overall updated site “as-built” drawing. Once this documentation has been submitted and approved by the Department, and a site inspection of the new Cell has been conducted, a Certificate to Operate (CTO) must be issued by the Regional Office prior to the facility accepting waste in the newly constructed Cell.

III.C. LANDFILL GAS MANAGEMENT SYSTEM

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

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

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

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

III.C.3. Perimeter Gas Monitoring Network

III.C.3.a. The facility shall install and maintain perimeter gas monitoring probes at the locations specified on Drawing GT-501 Gas Probe Plan in the Design Plans, Attachment III.

III.C.3.b. As the perimeter gas monitoring network is expanded with the installation of new or replacement gas monitoring wells, the facility shall submit copies of the well boring logs for inclusion in the Landfill Gas Management Plan, along with the associated minor permit modification request within 30 days following construction completion.

III.C.4. Active Landfill Gas Management

As of the issuance of this permit modification for lateral expansion beyond Cell 2 there is no active gas management system at the Accomack North Landfill.

III.C.5. Landfill Gas Remediation

As of the issuance of this permit modification for lateral expansion beyond Cell 2 there is no landfill gas remediation required at the Accomack North Landfill.

III.D. LEACHATE MANAGEMENT

III.D.1. Leachate Collection

Currently, leachate from existing Cells 1 and 2 is collected in piping installed directly on top of the liners and flows via gravity to two leachate header pipes that run parallel to the toe of the landfill slopes on the north and south sides of the landfill. Leachate in both of these header pipes continues to flow by gravity to the east end of Cell 2 where they discharge into the existing pump station designated as PS-1. See drawing GT-003 of the permit drawings in Attachment III.

The previous lateral expansion of the landfill required some significant modifications to the leachate sumps and existing leachate header on the southern perimeter of Cells 1 and 2 that were constructed during the development of Cell 6A. As part of the permit approval and construction of Cell 6A, plans were designed and implemented to retain sump LS-2 as part of the leachate collection system for Accomack County's Northern Landfill. However, the Department had indicated that if sufficient information could be collected to demonstrate that the sump is no longer serving a function in leachate collection, it may be possible to abandon in place. In January of 2019 it was determined the sump could be abandoned with no adverse effect on the collection of leachate from the landfill.

An 8-inch SDR 17 HDPE leachate gravity sewer will be installed along the northern boundary of Cells 7-9 and will convey flows from these cells to a new leachate pump station (PR PS-1). A 4-inch SDR17 HDPE force main will transport flows from PR PS-1 to existing leachate manhole (LMH-3) located at the northwest corner of Cell 1. Leachate will then flow by gravity to the existing PS-1. Additionally, an 8-inch SDR 17 HDPE leachate gravity sewer will be installed along the southern boundary of Cells 10-11 and will convey flows from these cells to another new leachate pump station (PR PS-2). A 4-inch SDR17 HDPE force main will transport flows from PR PS-2 to existing leachate manhole (LMH-5) located at the southwest corner of Cell 6A. Leachate will then flow by gravity to existing PS-1. Refer to the Design Drawings (Attachment III) for additional details regarding the proposed pump stations.

III.D.2. Leachate Treatment:

From the existing pump station (PS-2) leachate is pumped through a force main to the south emptying into a lined leachate storage pond located along the east property boundary, but within the approved waste management boundary. This pre-treatment system is permitted under a VPDES Permit. Leachate is continually circulated and aerated and then pumped to a second smaller polishing pond located immediately to the east.

III.D.3. Leachate Disposal

Collected leachate will be either pumped to one of two leachate spray fields, or to the on-site truck load out station. Leachate can be sprayed at a maximum application rate of 0.25 in/hr. or 0.5 in/day, or 1 in/week. Typically once the temperatures drop in the fall, leachate is then pumped to a truck load out station and trucked off-site to an off-site waste water treatment plant. This continues until early spring.

PERMIT MODULE X

DETECTION GROUNDWATER MONITORING REQUIREMENTS

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

X.A. GROUNDWATER COMPLIANCE POINT

X.A.1. Uppermost Aquifer

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

X.A.2. Monitoring Well Locations

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

X.A.3. Location Restrictions

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

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

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

X.B. MONITORING NETWORK REQUIREMENTS

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

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

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

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

requirements under 250.A.3.a.

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

X.B.2. Installation, Operations and Maintenance

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

X.B.3. Well Designations

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

Upgradient Well	Downgradient	Wells
MW-22D	MW-01D	MW-16D
	MW-03D	MW-18
	MW-13D	MW-21
	MW-14D	MW-24D ¹

Note:

1. MW-24D shall be incorporated into the monitoring program prior to waste disposal in Cell 10

X.C. AQUIFER INFORMATION

X.C.1. Aquifer Data Acquisition - Requirements

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

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

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

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

X.C.1.a.(4) obtained from all wells in the network within a single 24 hour period to avoid temporal variations/fluctuations in the groundwater table.

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

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

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

X.C.2. Aquifer Data Acquisition - Response

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

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

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

X.D. SAMPLING ACTIONS

The Permittee shall:

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

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

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

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

X.E. SAMPLING FREQUENCY

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

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

X.F. DETERMINATION OF BACKGROUND

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

X.G. STATISTICAL PROCEDURES

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

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

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

X.H. BACKGROUND EXCEEDANCE ACTIONS

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

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

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

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

X.I. RECORD-KEEPING REQUIREMENTS

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

X.J. REPORTING REQUIREMENTS

- X.J.1. Annual groundwater reports containing, at a minimum, content under 250.E.2.a.(2), shall be submitted to the Director within the timeframes of 250.E.2.a.(1).
- X.J.2. Semi-annual / 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) unless qualifying facilities have received a variance from this requirement.
- X.J.3. Within 44 days of well completion, the Permittee shall supply the Director a Well Installation Report containing the well number, surveyed elevation, boring log [250.A.3.d], casing length, total depth, and a completion diagram [250.E.1.c] for each monitoring well, along with a certification [250.A.3.g] from a qualified groundwater scientist that the monitoring wells have been installed in accordance with the submitted plans.
- X.J.4. Within 44 days of well abandonment, the Permittee shall supply the Director a Well Abandonment Report containing information including field methods utilized, and a certification from a qualified groundwater scientist verifying the well abandonment activities met all applicable requirements [250.E.1.c].

X.K. NOTIFICATION REQUIREMENTS

- X.K.1. Background SSI Notifications shall be submitted to the Director within the timeframes noted under 250.B.2.b.(1)(a).
- X.K.2. Well Non-Performance Notifications shall be submitted to the Director within 30 days of recognizing the non-performance issue in order to meet 530.C.1 - 3.

X.L. MISCELLANEOUS ALLOWANCES

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

groundwater data shall be from 250.D.1. Whichever method is approved for use at the site, the method should be listed in the facility Groundwater Monitoring Plan as required under 250.A.4.g.

- X.L.3. Verification Sampling. The Permittee, at any time within the 30 day statistical determination period defined under 250.A.4.h.(2), may obtain verification samples. Undertaking verification sampling shall not alter the timeframes associated with determining or reporting a statistically significant increase as otherwise defined under 250.A.4.i.
- X.L.4. Data Validation. The owner or operator may at any time within the 30 day statistical determination period defined under 250.A.4.h.(2) undertake third-party data validation of the analytical data received from the laboratory. Undertaking such validation efforts shall not alter the timeframes associated with determining or reporting a statistically significant increase as otherwise defined under 250.A.4.j.
- X.L.5. When the Permittee recognizes a failure to submit any relevant facts or has submitted incorrect information in any groundwater monitoring report to the Director, he shall, within 7 days, submit such omitted facts or the correct information with a full explanation [530.E].

X.M. MISCELLANEOUS DEMONSTRATIONS

- X.M.1. To address an exceedance which is the result of something other than a release of solid waste constituents, the Permittee may submit a report entitled Alternate Source Demonstration, certified by a qualified groundwater scientist, for review by the Director within 90 days of providing the SSI notification unless the submission and approval timeframe has been extended by the Director for good cause [250.A.5.b].
- X.M.1.a. If a successful demonstration of an alternate source for the noted increase is made by the Permittee and approved by the Director within the 90 day timeframe, the Permittee may continue in the applicable monitoring program as defined in this Permit Module.
- X.M.1.b. If a successful demonstration of an alternate source for the noted increase is not made by the Permittee within the 90 day timeframe, the Permittee shall take actions required under 250.A.5.c.(3) within Regulatory timeframes unless an extension has been granted by the Director.
- X.M.2. The Permittee may submit to the Director a Multi-unit Groundwater Monitoring System Demonstration containing the content defined under A.3.b and certified by a qualified groundwater scientist, when he feels that the implementation of such a monitoring system will be as protective of human health and the environment as

individual systems would be.

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

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

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

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

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

X.N. PERMIT DOCUMENTS

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

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

X.O. LIMITATIONS/AUTHORITIES

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

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

X.O.3. The groundwater monitoring and reporting requirements set forth here are

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

PERMIT MODULE XI

ASSESSMENT GROUNDWATER MONITORING REQUIREMENTS

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

XI.A. GROUNDWATER COMPLIANCE POINT

XI.A.1. Uppermost Aquifer

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

XI.A.2. Monitoring Well Locations

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

XI.A.3. Location Restrictions

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

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

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

XI.B. MONITORING NETWORK REQUIREMENTS

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

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

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

XI.B.1.c. Wells that require replacement must be replaced prior to the next regularly scheduled groundwater sampling event unless the Director has

granted an extension to meeting the monitoring system compliance requirements under 250.A.3.a.

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

XI.B.2. Installation, Operations and Maintenance

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

XI.B.3. Well Designations

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

Upgradient Well	Downgradient	Wells
MW-22D	MW-01D	MW-16D
	MW-03D	MW-18
	MW-13D	MW-21
	MW-14D	MW-24D ¹

Note:

1. MW-24D shall be incorporated into the monitoring program prior to waste disposal in Cell 10

XI.C. AQUIFER INFORMATION

XI.C.1. Aquifer Data Acquisition - Requirements

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

XI.C.1.a.(1). Measured in all monitoring wells.

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

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

XI.C.1.a.(4) Obtained from all wells in the network within a single 24 hour period to avoid temporal variations/fluctuations in the groundwater table.

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

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

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

XI.C.2. Aquifer Data Acquisition - Response

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

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

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

XI.D. SAMPLING ACTIONS

The Permittee shall:

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

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

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

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

XI.E. SAMPLING FREQUENCY

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

- XI.E.2. The length of the semi-annual sampling period shall not conflict with the requirements of 9 VAC 20-81-10.
- XI.E.3. Upon triggering the need for Assessment monitoring, the initial Assessment sampling event shall be completed in a timeframe meeting the requirements of 250.B.3.a.

XI.F. DETERMINATION OF BACKGROUND & GPS

- XI.F.1. The Permittee shall establish site-specific Assessment background values [250.A.4.d. – f.] for all detected constituents within the timeframes of 250.B.3.c.(3)
- XI.F.2. Groundwater Protection Standards (GPS) established using the process defined under 250.A.6.b, for each detected Assessment monitoring constituent shall be:
 - X.F.1.a. Proposed within timelines of 250.B.3.d., and
- XI.F.3. Groundwater Protection Standards shall be updated as follows:
 - XI.F.3.a. Federal Maximum Contaminant Level-based GPS or department approved background by following the process under 250.A.6.d.
 - XI.F.3.b. Alternate Concentration Limit-based GPS by following the process under 250.A.6.e.

XI.G. STATISTICAL PROCEDURES

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

- XI.G.1 Within 30 days of completion of the laboratory analysis for each sampling event [250.A.4.h.(2)], determine whether or not there is a statistically significant increase over site background and GPS for each monitoring constituent using a method meeting the requirements of 250.A.4.h.(1) and A.4.g and D.
 - XI.G.1.a. For GPS based on Federal Maximum Contaminant Level or ACLs, the comparison of analytical results from the downgradient wells shall be based on either a point to point comparison to the GPS, or a statistical comparison using 95% Lower Confidence Limit derived from at a minimum four independent sampling events completed during the compliance period.
 - XI.G.1.b. For GPS based on statistically calculated site background, the comparison of analytical results from the downgradient wells shall be based on a point to point comparison to the GPS.

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

XI.H. GPS EXCEEDANCE ACTIONS

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

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

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

XI.H.2. Submit an Alternate Source Demonstration meeting the content requirements and timeframes of 250.A.5.a., b. Unless Director approval for the demonstration is obtained, the Permittee shall follow the sampling requirements and timeframes required of Corrective Action Program [260.C.] in response to a GPS exceedance.

XI.I. RECORD-KEEPING REQUIREMENTS

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

XI.J. REPORTING REQUIREMENTS

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

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

X.J.3. Within 30 days of establishing facility background, or re-establishing background due to the installation of new monitoring wells, or a change in sampling technique, the Permittee shall report the background values and statistical computations

forming the basis for those values in a report entitled Facility Background Determination Report.

- XI.J.4. Within 44 days of well completion, the Permittee shall supply the Director a Well Installation Report containing the well number, surveyed elevation, boring log [250.A.3.d], casing length, total depth, and a completion diagram [250.E.1.c] for each monitoring well, along with a certification [250.A.3.g] from a qualified groundwater scientist that the monitoring wells have been installed in accordance with the submitted plans.
- XI.J.5. Within 44 days of well abandonment, the Permittee shall supply the Director a Well Abandonment Report containing information including field methods utilized, and a certification from a qualified groundwater scientist verifying the well abandonment activities met all applicable requirements [250.E.1.c].
- XI.J.6. Upon issuance of GPS, the Permittee shall place the GPS listing in the operating record [250.A.6.c] and update that record as needed upon any changes in GPS.

XI.K. NOTIFICATION REQUIREMENTS

- XI.K.1. GPS SSI Notifications shall be submitted to the Director within the timeframes noted under 250.B.3.f.(3)(a).
- XI.K.2. Well Non-Performance Notifications shall be submitted to the Director within 30 days of recognizing the non-performance issue in order to meet 530.C.1 - 3.
- XI.K.3. Off-site Plume Notifications shall be submitted to the affected landowner [260.C.1.b] and copied to the Director within 15 days of identifying the impacts.
- XI.K.4. Table 3.1 Column B Detect Notifications shall be submitted to the Director within the timeframes noted under B.3.c.(1).
- XI.K.5. Return to Detection Monitoring Notification shall be submitted to the Director [B.3.f.(1)] no less than 30-days prior to re-instating Detection monitoring.

XI.L. MISCELLANEOUS ALLOWANCES

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

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

- XI.L.3. Verification Sampling. The Permittee, at any time within the 30 day statistical determination period defined under 250.A.4.h.(2), may obtain verification samples. Undertaking verification sampling shall not alter the timeframes associated with determining or reporting a statistically significant increase as otherwise defined under 250.A.4.i.
- XI.L.4. Data Validation. The owner or operator may at any time within the 30 day statistical determination period defined under 250.A.4.h.(2) undertake third-party data validation of the analytical data received from the laboratory. Undertaking such validation efforts shall not alter the timeframes associated with determining or reporting a statistically significant increase as otherwise defined under 250.A.4.j.
- XI.L.5. When the Permittee recognizes a failure to submit any relevant facts or has submitted incorrect information in any groundwater monitoring report to the Director, he shall, within 7 days, submit such omitted facts or the correct information with a full explanation [530.E].
- XI.L.6. The Permittee may request the Director allow an alternate frequency for the repeated sampling of the full Table 3.1 Column B constituent list as long as the request addresses the technical items contained under 250.B.3.b.(3), and is certified by a qualified groundwater scientist. Until such time as Director Approval is obtained, sampling for the full Table 3.1 Column B shall continue on an annual basis consistent with 250.B.3.a.
- XI.L.7. In an effort to reduce sampling costs, the Permittee may request the Director:
- XI.L.7.a. Allow a subset of wells to be sampled for the annual full Table 3.1 Column B constituent list [250.B.3.b.(1)] as long as the request contains information showing that wells not included in the subset are 1] devoid of any Table 3.1 column B detects, 2] the well shows no exceedances over background for any Table 3.1 Column A constituents, and 3] the request is certified by a qualified groundwater scientist. Until such time as Director Approval is obtained, all site wells shall be sampled annually for the Table 3.1 Column B constituent list consistent with 250.B.3.a, and/or
- XI.L.7.b. Allow for the deletion of certain Table 3.1 Column B constituents from the sampling list [250.B.3.b(2)] as long as the request contains

information showing that the constituents are not reasonably expected to be in or derived from the waste mass, and the request is certified by a qualified groundwater scientist. Until such time as Director Approval is obtained, all site wells shall be sampled annually for the full Table 3.1 Column B constituent list consistent with 250.B.3.a.

XI.M. MISCELLANEOUS DEMONSTRATIONS

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

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

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

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

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

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

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

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

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

XI.N. PERMIT DOCUMENTS

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

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

XI.O. LIMITATIONS/AUTHORITIES

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

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

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

PERMIT MODULE XII CLOSURE

XII.A. CLOSURE PLAN MODIFICATION

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

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

XII.B. TIME ALLOWED FOR CLOSURE

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

- Cell 1 exterior sideslopes are closed pursuant to the previously approved closure plan.
- Cell 2 was partially closed in 2017 using the ClosureTurf® system. Specifically, the north face, east face and a portion of the south face were permanently closed. The remaining portion of the south face of Cell 2 has been covered with a 40 mil membrane and wind ballast in anticipation of a future piggyback.
- Cell progression is planned in multiple phases beginning with construction of Cell 7 which will piggyback over Cell 1 and a portion of Cell 6A. Site development will be phased in a westerly direction from Cells 7 to include Cells 8 and 9. Cell 10 will be constructed to piggyback of the remaining portion of Cell 6A and will abut Cell 7. Cell 11 will abut Cell 10 to the west. Interim grading plans illustrating the phasing of the Western Expansion are included in Attachment III (Design Plans). Facility closure will proceed in a progressive manner based upon the phasing of construction described above and in general accordance with the schedule summarized in Table 1, “Anticipated Schedule for Cell Closure,” of the Closure Plan, Permit Attachment IV.

XII.C. FINAL COVER SYSTEM

The landfill final cover design profile for Cell 2 and the landfill expansion (Cells 7 through 11) from top to bottom is as follows:

- ½-inch sand infill ;
- Synthetic engineered turf;
- 40 mil HDPE structured geomembrane;
- Composite drainage net;
- 12-inch compacted soil subgrade; and
- Intermediate Cover Soil.

The landfill final cover design profile that was used to close Cell 1 from top to bottom is as follows:

- 6-inches of topsoil
- 18-inch vegetative support layer
- Double-sided Geocomposite Drainage Net
- 40-mil LLDPE Geomembrane
- Double-sided Geocomposite Drainage Net

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.