



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

SOUTHWEST REGIONAL OFFICE

355-A Deadmore Street, Abingdon, Virginia 24210

Phone (276) 676-4800 Fax (276) 676-4899

www.deq.virginia.gov

Matthew J. Strickler
Secretary of Natural Resources

David K. Paylor
Director

Jeffrey Hurst
Regional Director

June 29, 2020

Mr. Dennis Slade
Dominion Power
Virginia Electric & Power Company
5000 Dominion Boulevard
Glen Allen, VA 23060

RE: Curley Hollow Solid Waste Management Facility
Amendment 13 (Major)
Wise County, Virginia
Modification of Permit #608

Dear Mr. Slade:

Enclosed is the modification of Permit #608 for the Curley Hollow Solid Waste Management Facility. The public participation period ended on June 15, 2020. No comments requiring changes to the draft permit were received; therefore, only incidental editing of the draft permit occurred.

This Major Modification recognizes the existing captive industrial landfill as an existing CCR landfill and updates SWP608 to include operating criteria, groundwater monitoring, closure and post-closure care, and recordkeeping, notification and internet posting requirements applicable to the facility in accordance with the EPA CCR Rule. This modification also revises the design report to meet CCR EPA final rule liner design requirements for Stage 3A and incorporates technical specifications; an Underdrain Monitoring Plan; drawing updates, revised Closure and Post-closure Care Plans, and updates to the Groundwater Monitoring Plan. Permit Modules I, II, V, XI, XII, and XIII have been updated. All other Stages fall under the definition of existing or ongoing construction. Additionally, this modification includes design revisions to Stage 2A and 3B to resolve issues identified during construction.

In order to document this modification, please incorporate a copy of this letter and its attachments into each copy of Permit No. 608.

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

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

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

The facility shall submit a plan to replace MW-4 within 30 days of permit issuance.

Please note that it is the responsibility of applicant to obtain any other permits or authorizations that may be necessary. If there are any questions, please contact Daniel Scott, SWRO Solid Waste Permits, at (276) 676-4866 or daniel.scott@deq.virginia.gov.

Sincerely,



Jeffrey L. Hurst
Regional Director
DEQ Southwest Regional Office

Enclosures:

Introduction, Modules I, II, V, XI, XII, and XIII

c: Daniel Manweiler - SWRO Land Protection Manager
Geoff Christe - Groundwater Permit Coordinator
Kathryn Perszyk - Solid Waste Permit Coordinator
Daniel Scott – SWRO Solid Waste Permits
John Surber - SWRO Solid Waste GW



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SOLID WASTE FACILITY PERMIT PERMIT NUMBER 608

Facility Name: Curley Hollow Solid Waste Management Facility

Facility Type: CCR Captive Industrial Landfill

Latitude: 36N55'49"

Site Location: Wise County, Virginia

Longitude: 82W20'36"

Location Description: The facility is located on US Alternate Route 58 approximately 1.7 miles west of St. Paul in Wise County.

Background: The facility is a privately owned/operated captive industrial landfill for the disposal of fossil fuel combustion products (FFCP), consisting primarily of coal combustion residuals (CCR) generated at the Virginia City Hybrid Energy Center (VCHC). The wastes accepted are further identified in Module II and are industrial waste as defined under 9 VAC 20-81-10.

The facility encompasses approximately 330 acres, of which about 194 acres are within the Waste Management Unit Boundary. The area of fossil fuel combustion product (FFCP) disposal is about 160 acres. The facility has a capacity of approximately 35 million cubic yards. Anticipated site life is discussed in the CCR Closure Plan.

The Curley Hollow Solid Waste Management Facility and the VCHC are owned and operated by Virginia Electric and Power Company, Inc., a unit of Dominion Resources, Inc. FFCP's will be hauled to the landfill with off-highway trucks on roads built and maintained by Virginia Electric and Power Company, Inc.

The landfill disposal limit is a maximum daily tonnage of 20,000 tons/day. This limit is based on the design, infrastructure, equipment, and staffing maintained by this facility. Normal operation of the facility is 9,500 tons per day, two shifts, 5 days per week but additional shifts and operating hours may occur during peak or seasonal heavy load periods or due to abnormal operating and maintenance conditions. The landfill will be developed in three stages with two cells in each stage.

The landfill is subject to the EPA's final rule "Standards for the Disposal of CCR from Electric Utilities" 80 Fed. Reg. 21302 (April 17, 2015) (as amended) (EPA CCR Rule). The landfill is an existing CCR landfill under the EPA CCR Rule as the landfill received CCR after October 19, 2015.

Modification: This Major Modification recognizes the existing captive industrial landfill as an existing CCR landfill and updates SWP608 to include operating criteria, groundwater monitoring, closure and post-closure care, and recordkeeping, notification and internet posting requirements applicable to the facility in accordance with the EPA CCR Rule. This modification also revises the design report to meet CCR EPA final rule liner design requirements for Stage 3A and incorporates technical specifications; an Underdrain Monitoring Plan; drawing updates, revised Closure and Post-closure Care Plans, and updates to the Groundwater Monitoring Plan. Permit Modules I, II, V, XI, XII, and XIII have been updated. All other Stages fall under the definition of existing or ongoing construction. Additionally, this modification includes design revisions to Stage 2A and 3B to resolve issues identified during construction.

Permit Amendment #1: This minor permit amendment is the first amendment of Permit Number 608. This permit is amended to authorize modifications in the location of several proposed monitoring wells and to abandon additional piezometers in the construction zone.

Permit Amendment #2: This minor permit amendment is the second amendment of Permit Number 608. This permit is amended to authorize the following:

1. Modifications in the number and locations of groundwater monitoring wells, the addition of a second underdrain discharge monitoring point, the addition to the purging method to allow for low permeability wells, and a revision to the number of trip blanks analyzed per sampling event.
2. Modifications to the testing method for the Leachate Collection Layer (LCL)

Permit Amendment #3: This minor permit amendment is the third amendment of Permit Number 608. This permit is amended to authorize minor modifications in Module V – Design and Construction including drawing details, technical specification modifications, and alterations to the CQA Plan.

Permit Amendment #4: This minor permit amendment is the fourth amendment of Permit Number 608. This permit is amended to authorize minor modifications to Permit Attachment XV-1 of Module XV – Leachate Handling including revisions to the description and operations text and the associated drawings.

Permit Amendment #5: This minor permit amendment is the fifth amendment of Permit Number 608. This permit is amended to authorize minor modifications to Permit Module X, Module XI, and associated Attachment X/XI-1. Modifications to Attachment X/XI-1 included minor changes refining the groundwater sampling and recording procedures. Modules X and XI were updated to reflect the current amendment of the Virginia Solid Waste Management Regulations.

Permit Amendment #6: This minor permit amendment is the sixth amendment of Permit Number 608. This permit is amended to authorize minor modifications to Permit Module I. This modification includes the inclusion of DEQ Form SW PTB which adds Coke fuel and associated combustion ash and delineates the previously approved accepted wastes (further described in the September 25, 2012 request and the Operations & Maintenance Manual).

Permit Amendment #7: This minor permit amendment is the seventh amendment of Permit Number 608. This permit is amended to authorize minor modifications to Attachment X/XI-1 updating the procedures and descriptions of the groundwater sampling, testing, and recording procedures.

Permit Amendment #8: This minor permit amendment is to authorize minor clean up modifications to the leachate collection pipe trench, the contact water runoff trench for Stage 1B, alternate channel linings for Channel East Perimeter B, alternate haul road top layer aggregate, and alteration to the final cover toe termination. See I.G for details.

Permit Amendment #9: This minor permit amendment is to authorize multiple modifications including additional Authorized Wastes, additional channel and channel lining options, alternate development sequencing for Stage 2 Development, reconfiguration and modifications to the Final Leachate Pond, expansion of the Sedimentation Pond, and additional access road construction. See I.G for details.

Permit Amendment #10: This minor permit amendment is to authorize revisions to the Final Leachate Pond sub-base and concrete protective cover.

Permit Amendment #11: This minor permit amendment is to authorize additions to the authorized wastes, addition of detail for vertical extension of groundwater wells, relocation of the monitoring point for underdrain UD-1, revisions to abandonment of piezometers, and updates to as-builts for piezometers and groundwater monitoring wells.

Permit Amendment #12: This minor permit amendment is to authorize additions to the authorized wastes, updates to as-builts for vertical extension of groundwater wells, leachate collection piping layout modifications, drainage channel revisions, and clarifications for liner patches and material quality review.

Permit Amendment #14 (issued prior to Amendment #13): This minor permit amendment is to authorize additions to the authorized wastes, including the addition of ground wood rejects, sand bags, and straw bales.

Previous permit amendments along with the current one are detailed in Section I.G PERMIT AMENDMENTS of Permit Module I.

THIS IS TO CERTIFY THAT:

Virginia Electric and Power Company
(dba) Dominion Virginia Power
5000 Dominion Boulevard
Glen Allen, Virginia 23060

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

Permit Issued:	July 1, 2009
Amendment 01:	February 9, 2010 (Minor)
Amendment 02:	October 7, 2010 (Minor)
Amendment 03:	September 8, 2011 (Minor)
Amendment 04:	September 12, 2011 (Minor)
Amendment 05:	October 14, 2011 (Minor)
Amendment 06:	November 7, 2012 (Minor)
Amendment 07:	February 11, 2013 (Minor)
Amendment 08:	February 20, 2013 (Minor)
Amendment 09:	December 11, 2013 (Minor)
Amendment 10:	July 16, 2014 (Minor)
Amendment 11:	January 27, 2015 (Minor)
Amendment 12:	April 11, 2017 (Minor)
Amendment 13:	
Amendment 14:	November 1, 2018 (Minor)

APPROVED:



Jeffrey L. Hurst
Regional Director

DATE:

June 29, 2020
Amendment 13 (Major)

PERMIT MODULES

PERMIT MODULE I - GENERAL PERMIT CONDITIONS

PERMIT MODULE II - CONDITIONS OF OPERATION

PERMIT MODULE V - INDUSTRIAL LANDFILL DESIGN

PERMIT MODULE XI - MODIFIED ASSESSMENT MONITORING

PERMIT MODULE XII - CLOSURE

PERMIT MODULE XIII - POST CLOSURE CARE

Permit Documents and Attachments

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. Attachments are listed as follows:

1. *Curley Hollow Solid Waste Management Facility, Design Plans*, prepared by GAI Consultants, Inc. dated March 2008 and most recent revised date of October 2017, December 2019 and February 2020.
2. *Curley Hollow Solid Waste Management Facility, Closure and Post Closure Care Plans* dated March 2008, prepared by GAI Consultants, Inc.
3. *Curley Hollow Solid Waste Management Facility, CCR Rule Closure Plan*, prepared by GAI Consultants, Inc. dated October 2016, updated April 2020.
4. *Curley Hollow Solid Waste Management Facility, CCR Rule Post-Closure Care Plan*, prepared by GAI Consultants, Inc. dated October 2017, Revised February 2019.
5. *Curley Hollow Solid Waste Management Facility, Design Report*, prepared by GAI Consultants, Inc. dated March 2008 and most recent revised date of October 2017 and December 2019.
6. *Curley Hollow Solid Waste Management Facility, Construction Quality Assurance (CQA) Plan*, prepared by GAI Consultants, Inc. dated March 2008 and most recent revised date of October 2017 and December 2019.
7. *Curley Hollow Solid Waste Management Facility, Leachate Management Plan*, prepared by GAI Consultants, Inc. dated March 2008.
8. *Curley Hollow Solid Waste Management Facility, Groundwater Monitoring Plan*, prepared by Dominion Energy Services, Inc. dated Revised October 3, 2019.
9. *Curley Hollow Solid Waste Management Facility, Specifications*, prepared by GAI Consultants, Inc. dated March 2008 and most recent revised date of October 2017 and December 2019.
10. *Curley Hollow Solid Waste Management Facility, Underdrain Monitoring Plan*, dated Revised March 2020, and prepared by GAI Consultants, Inc.

All required documents, including the Part A Application approval dated March 10, 2009, have been submitted to satisfy permit or regulatory requirements. These documents are considered reference documents and are not incorporated into Permit No. 608.

PERMIT MODULE I GENERAL PERMIT CONDITIONS

I.A. EFFECT OF PERMIT

The permittee is allowed to dispose of 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 257 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 within the landfill shall not be allowed.
- 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 associated with construction of the industrial landfill in accordance with the Erosion and Sediment Control Regulations, 9 VAC 25-840.

I.C. DOCUMENTS TO BE MAINTAINED AT THE FACILITY

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

- I.C.1. Operations Manual, certified annually 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, underdrain monitoring, and groundwater monitoring.
 - I.C.3.b. Inspection records as required from construction/installation, operational, closure, post-closure inspection requirements, including records of weekly and annual inspections required of 40 CFR 257.84(a) and (b).
 - 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. All records in accordance with 40 CFR 257.105 shall be maintained in the operating record for at least five years following the date of each occurrence, measurement, maintenance, corrective action, report, record or study.

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 beginning construction, as defined under 9 VAC 20-81-10, of each Stage of the landfill, the permittee shall submit the following documents:

- I.D.1.a. The required location demonstrations and professional engineer certifications required of 40 CFR 257.60 (a) and (b), 257.61 (a) and (b), 257.62 (a) and (b), 257.63 (a) and (b), and 257.64 (a) and (b) indicating that the landfill is in compliance with the location restrictions for new CCR landfills.
- I.D.1.b. In accordance with 40 CFR 257.70 (e), the required certification from a professional engineer that the design of the composite liner or alternative composite liner and leachate collection and removal system meet the requirements of 40 CFR 257.70.
- I.D.2. Once construction of each Stage is complete but prior to placing waste, the permittee shall submit the following documents:
 - I.D.2.a. Report with supporting documents resulting from quality control/quality assurance activities performed during construction and installation of the liner/leachate collection 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.b. In accordance with 9VAC20-81-490.A. and 40 CFR 257.70 (f), certification from a design engineer, who must be a professional engineer licensed to practice in the Commonwealth, that the construction of the facility (including liner and leachate collection and removal systems) has been completed in accordance with the permit, approved plans and specifications, and requirements of 40 CFR 257.70 and is ready to begin operation.
 - I.D.2.c. Certification (separate from I.D.2.b., 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. The CQA officer must be a professional engineer licensed to practice in Virginia.
- I.D.3. The as-built plans of all new groundwater 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.4. The facility shall submit all other notifications required of 40 CFR 257.106 (e) through (i) to the Director or delegated authority before the close of business on the day the notification is required to be completed.

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 or delegated authority shall be sent to:

Virginia Department of Environmental Quality
Southwest Regional Office
Attention: Division of Land Protection and Revitalization
355-A Deadmore Street
Abingdon, Virginia 24210

These may alternately be submitted by e-mail or other electronic method in addition to direct mail, with prior notice and approval by DEQ.

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. 608 have been evaluated for administrative and technical adequacy and have been approved as proposed. Therefore, any references to a design, construction, operation, monitoring or closure criteria are considered to be approved as proposed.
- I.F.2. The facility is subject to the conditions listed in the Part A approval letter dated March 10, 2009.
- I.F.3. The requirements of 9 VAC 20-81-80 do not apply to the facility so long as the landfill remains captive (i.e., the landfill only receives FFCPs generated by the Virginia City Hybrid Energy Center).
- I.F.4. A Financial Assurance (FA) mechanism for the approved closure and post-closure cost estimate amounts shall be established and approved prior to issuance of a Certificate to Operate (CTO).
- I.F.5. Groundwater monitoring at this facility will continue under the Modified Assessment Groundwater Monitoring Program as detailed in Module XI of this permit. The facility shall not revert to the requirements of VSWMR First

Determination monitoring or 40 CFR 257.94 Detection monitoring until Departmental approval has been granted.

- I.F.6. The facility shall maintain a publicly accessible Internet site (CCR Web site), titled “CCR Rule Compliance Data and Information,” as required by 40 CFR 257.107. The applicable information must be posted to the CCR Web site within 30 days of placing the pertinent information required by 40 CFR 257.105 (Permit Condition I.C.5.) in the operating record. The information must remain on the CCR Web site for at least five years following the date on which the information was first posted.
- I.F.7. The facility is subject to the U.S. Environmental Protection Agency’s Final Rule on the “Disposal of Coal Combustion Residuals from Electric Utilities” (40 CFR Subpart D—Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments). The applicable provisions of this rule are incorporated within and to the extent a conflict may exist or arise between the requirements of EPA’s rule and/or the VSWMR or this permit; the facility shall comply with the more stringent of the two.
- I.F.8. Rain tarps (polyethylene tarps) placed on the protective cover of inactive cells or a newly constructed cell shall be removed prior to waste disposal in that location within the cell.
- I.F.9. By December 31 of 2020 and each calendar year thereafter, the permittee shall perform a topographic survey of the facility; this survey shall be certified by a professional engineer or certified land surveyor licensed in the Commonwealth of Virginia. The permittee shall submit a report to the DEQ Southwest Regional Office Waste Program by April 1 of the year following with a determination of areas of the landfill that have attained final elevations and grades. The report shall also assess the capacity used during the year, the remaining permitted capacity, and the projected remaining site life. The remaining permitted capacity shall be calculated by the comparison of the existing grade and the permitted final cover grade and presented in a cut/fill drawing. Areas that have attained final elevations and slopes must be stabilized in accordance with the permit until final cover is applied within the timeframe specified in the Closure Plan. Except as may be separately approved or permitted in writing by DEQ for exigent or emergency situations, no waste shall be placed in areas where the elevation exceed those shown on Drawing No. 7 – Final Site Topography Plan.
- I.F.10. As outlined in Module XII, the facility must initiate closure activities within thirty (30) days following final receipt of waste (CCR or non-CCR) in accordance with 40 CFR 257.102 (e) and complete closure activities within six (6) months in accordance with 40 CFR 257.102 (f). The facility may request extensions to these time periods following procedures provided at 40 CFR 257.102.

I.G. PERMIT AMENDMENTS

I.G.1 This permit is amended (Amendment 01) per a minor permit amendment request dated February 9, 2010. The minor modifications are as follows:

I.G.1.a. The permittee is allowed to relocate the proposed locations of the groundwater monitoring wells as described in the request

I.G.1.b. The permittee is allowed to abandon the additional piezometers located in the construction zone as described in the request.

I.G.2 This permit is amended (Amendment 02) per a minor permit amendment request dated August 25, 2010. The minor modifications are as follows:

I.G.2.a. The permittee is allowed to modify the number and locations of the groundwater monitoring wells as described in the request.

I.G.2.b. The permittee is allowed to add a second underdrain discharge as a monitoring point.

I.G.2.c. The permittee is allowed to add a new purging method to allow for sampling of low permeability wells.

I.G.2.d. The permittee is allowed to revise the number of trip blanks analyzed per sampling event.

I.G.2.e. The permittee is allowed to revise the testing method for the Leachate Collection Layer (LCL) to adhere to a modified ASTM D2434 as discussed in the August 27, 2010 Request for Minor Amendment.

I.G.3 This permit is amended (Amendment 03) per a minor permit amendment request dated August 23, 2011. The minor modifications are as follows, and are dated “Revised August 2011”:

I.G.3.a. The permittee is allowed to revise Module V-5 Specification Section 1.10 (Pages 1-11 thru 1-12) for clarification, updating of standard test methods, and conformance with the CQA Plan.

I.G.3.b. The permittee is allowed to revise Module V-5 Specification Sections 2.02, 2.04, 2.07, and Tables 2-1, 2-2, 2-3A, and 2-3B (Pages 2-2, 2-3, 2-6 thru 2-10, 2-15, and 2-18 thru 2-20) for clarification, updating of standard test methods, reduction of manufacturer qualifications, requirements for “longitudinal seams”, and conformance with the CQA Plan.

I.G.3.c. The permittee is allowed to revise Module V-5 Specification Sections 3.02, 3.04, 3.07, and Tables 3-1, 3-2A, and 3-3 (Pages 3-2, 3-3, 3-8, 3-9, 3-11, 3-12, 3-21, 3-22, and 3-24) for clarification, updating of standard test methods, reduction of manufacturer qualifications, requirements for “longitudinal seams”, and conformance with the CQA Plan.

I.G.3.d. The permittee is allowed to revise Module V-5 Specification Sections 4.04, 4.07, 4.09, and Table 4-2A (Pages 4-2, 4-3, 4-8, 4-9, 4-12, and 4-14) for clarification, reduction of manufacturer qualifications, and

- conformance with the CQA Plan.
- I.G.3.e. The permittee is allowed to revise Module V-5 Specification Sections 5.03 (Pages 5-2 and 5-3) for clarification and conformance with the CQA Plan.
 - I.G.3.f. The permittee is allowed to revise Module V-5 Specification Sections 6.02, 6.04, 6.06, 6.07, and Table 6-1 (Pages 6-1, 6-2, 6-6, 6-7, and 6-11) for clarification, updating of standard test methods, reduction of manufacturer qualifications, and conformance with the CQA Plan.
 - I.G.3.g. The permittee is allowed to revise V-6 CQA Plan Table II-1 and II-2 (Pages II-4 and II-5), Section 1.5 (Page IV-2), Section 1.5 (Pages V-2 and V-3), and Table IV-1 (Page IV-1).
 - I.G.3.h. The permittee is allowed to revise Drawing 1 - Cover Sheet (Plan set revision), Drawing 21 - Liner System Detail (Detail 2 & Note 3 in clouds), Drawing 22 - Liner System Detail (Details 3 & 10 in clouds), Drawing 23 - Cap and Cover System Details (Detail 4 and miscellaneous in clouds), Drawing 31 - Haul Road Details (Detail 3 in cloud).
- I.G.4 This permit is amended (Amendment 04) per a minor permit amendment request dated August 23, 2011. The minor modifications are as follows, and are dated "Revised August 2011":
- I.G.4.a. The permittee is allowed to revise Module XV Permit Attachment XV-1 - Leachate Handling. These revisions include minor text edits to the leachate transfer system description and operation narrative and to the drawings. No significant changes are shown. Leachate Transfer System (5 pages) and the 6 associated Plan Drawings are replaced in their entirety.
- I.G.5 This permit is amended (Amendment 05) per a minor permit amendment request dated August 23, 2011. The minor modifications are as follows, and are dated "Revised August 2011":
- I.G.5.a. The permittee is allowed to revise Module X & XI and Permit Attachment X/XI - Groundwater Monitoring Plan. These revisions include minor edits to the groundwater sampling and recording procedures. The most significant change is the addition of a Groundwater Monitoring Field Record Data Sheet (Table 4B) to be used in place of a field notebook. Revisions were contained within pages 21, 22, 23, 24, 25, 26, and Table 4B (appendix 4). In addition, Modules X & XI were updated to reflect the current amendment of the Virginia Solid Waste Management Regulations.
- I.G.6 This permit is amended (Amendment 06) per a minor permit amendment request dated September 25, 2012. The minor modifications are as follows:

- I.G.6.a. The permittee is allowed to accept Coke derived solid fuel and its associated combustion ash as described in the request dated September 25, 2012 and enumerated in the DEQ Form SW PTB dated October 29, 2012.
- I.G.7 This permit is amended (Amendment 07) per a minor permit amendment request dated December 20, 2012. The minor modifications are as follows, and are dated “December 2012”:
 - I.G.7.a. The permittee is allowed to revise Permit Attachment X/XI – Groundwater Monitoring Plan (Revised December 2012). These revisions include minor modifications to Attachment X/XI-1 updating the procedures and descriptions of the groundwater sampling, testing, and recording procedures.
- I.G.8 This permit is amended (Amendment 08) per a minor permit amendment request dated January 18, 2013. The minor modifications are as follows, and are dated “January 2013” and are included in greater detail in the Dominion submittal package of January 18, 2013 which includes the GAI submittal package dated January 9, 2013:
 - I.G.8.a. The permittee is allowed to revise the Leachate Collection Piping to include an alternate detail as shown on Drawing 22, entitled Alternative Leachate Collection Cleanout Pipe Trench, and modifications to Details 1 and 2.
 - I.G.8.b. The permittee is allowed to revise the path of temporary contact water runoff control Channel S1A-3B to extend into Stage 1B for control of contact water from Stage 1B, as shown on revised Drawing 10.
 - I.G.8.c. The permittee is allowed the use of alternate lining options for the non-contact Channel East Perimeter B. Currently only articulated concrete block is specified. Additional options to be allowed shall include reinforced concrete and fabric formed concrete channel linings, currently utilized on other channels at the facility, as shown on revised Drawing 24.
 - I.G.8.d. The permittee is allowed the optional use of on-site crushed sandstone for the 14 inch top surface layer of the haul road as it was previously approved for use in the perimeter access roads, as shown on revised Drawing 31.
 - I.G.8.e. The permittee is allowed to revise the Final Cover Toe termination for protection of the liner during construction and enhancement of drainage to the perimeter channel, as shown on revised Drawings 23 and 25. Changes do not alter the anchor trench locations, final site disposal configuration, or total disposal volume.
 - I.G.8.f. The revised package includes revised cover pages and binder spines, hydraulic Channel Design Calculations, and revised Drawings 1, 5, 10,

21, 22, 22A, 23, 24, 25, and 31, dated January 2013 with revision clouds.

I.G.9 This permit is amended (Amendment 09) per a minor permit amendment request dated October 25, 2013. The minor modifications are as follows, and are dated “revised October 2013” and are included in greater detail in the Dominion submittal package of November 5, 2013 which includes the GAI submittal package dated October 25, 2013:

- I.G.9.a. The permittee is allowed to revise the Authorized Wastes to include non-putrescible construction and demolition materials (excluding hydrocarbon contaminated or liquid materials) such as broken concrete, broken fabric form concrete, broken asphalt, limestone/hydrated lime, geosynthetics, and the previously approved (Amendment 06) ‘coke derived solid fuel and associated combustion ash’. Additional non-specified materials meeting the above intentions may be applicable and should be discussed with the DEQ Solid Waste Inspector prior to disposal. These materials shall not be placed within 10 feet of the base limit or the cap and shall be placed to protect the liner and cap.
- I.G.9.b. The permittee is allowed to revise the options for lining of non-contact water channels and to incorporate additional channels as shown on revised drawing. Reinforced concrete channels and fabric formed concrete (USM) channel linings, approved for Stage 1A, may be utilized for all channels previously specified to require ACB lining. Non-contact channels may be considered for shaped bare bedrock in select areas where appropriate. Inform DEQ with sketches regarding extent and location during construction.
- I.G.9.c. The permittee is allowed to revise the Stage Development Sequence to construct Stage 2B prior to Stage 2A.
- I.G.9.d. The permittee is allowed to revise the Final Leachate Pond construction configuration and appurtenances. The alignment and dimensions will change per the revised construction drawings but the location, functional volume, and the intended use will remain unchanged. The gravity pipe discharge will be replaced with a pump vault within the Final Leachate Pond. An underdrain system with side slope riser sump and pump will be added.
- I.G.9.e. The permittee is allowed to revise the Leachate Collection and Conveyance for Stage 2A and 2B. Contact water previously conveyed by open Channel S2-1 will now be conveyed by HDPE closed piping Culvert S2-1. This change results in modifications to the Stage 2A and 2B leachate collection piping, Drop Box 7 and the conversion of Channel S2-1 to Culvert S2-1 per the revised Drawings and Details per the revised construction drawings and details.
- I.G.9.f. The permittee is allowed to revise the Sedimentation Pond to accommodate additional drainage area storm water runoff, while

maintaining the pond capacity to control the 25 year storm event. The configuration is identified as remaining below the threshold for VDCR classification as a dam.

I.G.9.g. The permittee is allowed to add additional access roads to the site. Singapura Road will allow access to the landfill area without the requirement to utilize the existing Coal Loop Road. The second road will allow access to the electrical transmission towers. Neither roads impact the approved design or function of the facility with respect to this permit.

I.G.9.h. The permittee is allowed to revise the Permit Attachments to Permit SWP608 with the following items, dated Revised October 2013:

- Permit Attachment V-1 Design Report – Pages 1-17
- Permit Attachment V-1 Design Report – Section 3, Hydraulic Design, Channel Design Hydraulics
- Permit Attachment V-2 Design Plans – Drawing 1, 4, 5, 5A, 6, 7, 8, 9, 10, 11, 12, 14, 15, 17, 20, 21, 23, 24, 26, 27, 28, 29, 29A, 29B, 29C, and 30.
- Permit Attachment XV-1 Leachate Handling

I.G.10 This permit is amended (Amendment 10) per a minor permit amendment request dated July 11, 2014. The minor modifications are as follows, and are included in greater detail in the Dominion submittal package:

I.G.10.a. Revised Final Leachate Pond Sub-base

Six (6) inch sub-base soil layer shall be deleted. Geotextile, drainage aggregate and geocomposite drainage net shall be constructed as shown on Revised Drawing Sheet 29 and 29C (Final Leachate Pond Details 3), PE stamp dated June, 13 2014 (revised).

I.G.10.b. Final Leachate Pond Protective Cover

Eight (8) inch rebar reinforced concrete shall be replaced with an 8 inch micro-rebar reinforcement over a 3 inch non reinforced flowable grout and shall be constructed as shown on Revised Drawing Sheet 29 and 29C (Final Leachate Pond Details 3), PE stamp dated June 13, 2014 (revised).

I.G.11 This permit is amended (Amendment 11) per a minor permit amendment request dated October 25, 2013. The minor modifications are as follows, and are dated “revised October 2013” and are included in greater detail in the Dominion submittal package of November 5, 2013 which includes the GAI submittal package dated October 25, 2013:

I.G.11.a. The permittee is allowed to revise the Authorized Wastes to include bag house fabric filters and non-hazardous used desiccants to the acceptable wastes

I.G.11.b. The permittee is allowed to add a Construction Detail for the Vertical Extension of Groundwater Monitoring Wells.

- I.G.11.c. The permittee is allowed to relocate the Groundwater Discharge Monitoring Point UD-1. UD-1 monitoring sample remains unchanged. Point of sampling relocated, per Drawing 20, to be outside of planned construction.
 - I.G.11.d. The permittee is allowed to abandon Piezometer 07-021. Piezometer is within the footprint of construction and has been dry since its installation.
 - I.G.11.e. The permittee is allowed to revise the Groundwater Monitoring Plan to remove the list of existing piezometers to be abandoned and to allow existing piezometers to be abandoned as needed during the facility life. Sufficient number and location of piezometers to adequately assist in determining groundwater flow direction must be maintained.
 - I.G.11.f. The permittee is allowed to update the Groundwater Monitoring Plan and Drawing 13 to reflect current well as-built conditions.
- I.G.12 This permit is amended (Amendment 12) per a minor permit amendment request dated March 21, 2017. The minor modifications are as follows, and are dated ‘Revised March 2017’:
- I.G.12.a. The permittee is allowed to add to Authorized Acceptable Wastes – Clarification of the previously approved term “coal” to include coal waste for the power station’s coal pile, incidental coal encountered during construction of the landfill, and coal dust from the power station. Per previous approval, these materials shall not be placed within 10 feet of the facility base line or any portion of the cap.
 - I.G.12.b. The permittee is allowed to update As-Built Detail for the Vertical Extension of Groundwater Monitoring Wells MW3, MW10, and MW11 – Vertical extension through clean fill was previously approved in Amendment No. 011.
 - I.G.12.c. The permittee is allowed to modify the Leachate Collection System – Piping layout for particular fittings and pipe segments updated for constructability and cleanout purposes. The changes are of a level appropriate for ‘as-built’ post construction submittal with no changes in volumes, areas, or methodology.
 - I.G.12.d. Drainage Channel Revisions – Minimum radius and layout modified for constructability, maintenance and hydraulic considerations.
 - I.G.12.e. Liner Seams – Clarification regarding seams intersections requiring repair patches
 - I.G.12.f. Liner Material Quality Review – Provides additional specification note regarding Engineer’s review and acceptance criteria for PVC Geomembrane interface shear strength.
- I.G.13 This permit is amended (Amendment 13) per a major permit amendment request dated October 2017 and amended December 2019 and February 2020. The modifications are as follows, and are dated ‘October 2017 and December 2019 and February 2020 and April 2020’:

- I.G.13.a. The permittee is allowed to update the Permit to meet the requirements of 9VAC20-81-810.A – Permits for CCR Landfills to meet the Federal EPA CCR Rule 40 CFR 257, primarily by inclusion of a Geosynthetic Clay Liner to Stage 3A, updates to the Groundwater Monitoring Plan, the Closure Plan, and the Post Closure Care Plan and addition of an Underdrain Monitoring Plan.
- I.G.13.b. The permittee is allowed to update the Permit to modify the liner material specifications for Stages 2A and 3B to correct for liner/leachate collection system interface issues determined during construction of Stage 2A.
- I.G.13.c. The permittee is allowed to update the following to meet the above requirements:
1. Design Report – Replaced in its entirety, Cover dated December 2019 with February 2020 inserts. Includes additional calculations for Stability, Liner-Cap Equivalency, and Liner Transition Basis.
 2. Design Plans – Drawings 1, 13, 14, 21, 22A & 23.
 3. Technical Specifications – Replaced in its entirety, Cover dated December 2019 with February 2020 inserts.
 4. Construction CQA Plan – Replaced in its entirety, Cover dated December 2019
 5. Groundwater Monitoring Plan - Replaced in its entirety, Cover dated Revised October 2019.
 6. Underdrain Monitoring Plan – New insertion
 7. CCR Rule Closure Plan – New insertion
 8. CCR Rule Post Closure Plan – New insertion
- I.G.13.d. All Modules have been replaced in their entirety to reflect current regulation citations and to incorporate the requirements of 9VAC20-81-810.A and the Federal EPA CCR Rule.
- I.G.14 This permit is amended (Amendment 14) per a minor permit amendment request dated October 19, 2018 (Revised October 31, 2018). The minor modifications are as follows:
- I.G.14.a. The permittee is allowed to add to Authorized Acceptable Wastes, including the addition of ground wood rejects, sand bags, and straw bales.

PERMIT MODULE II CONDITIONS OF OPERATION

II.A. HOURS OF OPERATION

II.A.1. The Curley Hollow Solid Waste Management Facility at the Virginia City Hybrid Energy Center (VCHEC) will be operational 24 hours, seven (7) days per week as needed. The hours of operation of the landfill shall be typically from 7:00 A.M. to 5:00 P.M. 7 days per week, but could vary dependent on site operations, weather conditions, and/or plant operational or maintenance needs.

II.B. WASTES ACCEPTED

The Curley Hollow Solid Waste Management Facility may receive the following wastes, as defined by 9VAC20-81-10, or described below:

- II.B.1 Permitted wastes generated at the VCHEC and other approved Dominion owned and/or operated power stations within the Commonwealth. For purposes of this condition, the term permitted wastes shall include fly ash, bottom ash, gypsum, rock, pyrites, and tramp iron; waste coal and coal fines; waste lime and limestone; cenospheres; bead blast residue; waste solid refractory; and bag house bags (used and containing CCR).
- II.B.2 Stabilized sludge and solids from plant waste water treatment systems and waste treatment facilities, including filter press cake and cloths; vacuum filter cloths; multi-media fill from sand filters and multimedia filters (gravel, sand, anthracite); and desiccant from air dryers.
- II.B.3 Nonputrescible construction and demolition materials (excluding hydrocarbon contaminated or liquid materials) such as broken concrete, broken fabric form concrete, broken asphalt, limestone/hydrated lime, geosynthetics, ground wood rejects, sand bags, and straw bales, and coke derived solid fuel and associated combustion ash. Additional non-specified materials meeting the above intentions may be applicable and should be discussed with the DEQ Solid Waste Inspector prior to disposal. These materials shall not be placed within 10 feet of the bottom liner or the final cover and shall be placed to protect the liner and cap.
- II.B.4 UNAUTHORIZED WASTE – The Curley Hollow Solid Waste Management Facility may not receive any unauthorized wastes identified in 9 VAC 20-81-140.B.4., or any of the following: waste oil that has not been adequately absorbed through site cleanup; radioactive wastes; lead acid batteries; pressurized tanks or pressurized containers; automobile gas tanks; friable and non-friable asbestos-containing waste materials as defined by 9VAC20-81-620; explosives or other dangerous materials; and junked automobiles.

II.C. PERMIT LIMITS

The facility has a disposal limit of 20,000 tons per day.

II.D. COMPACTION & COVER

II.D.1. No waste shall be exposed for more than 30 days without placement of additional waste, soil cover, or approved crusting agent.

II.D.2. Fugitive dust shall be controlled in accordance with the fugitive dust control plan.

II.D.3. Final cover construction as outlined in Permit Module XII shall be initiated when the requirements of 40 CFR 257.102 (e) are met. Intermediate cover consisting of one foot of compacted soil, or alternative materials approved by the DEQ, shall be applied on landfill areas that are inactive for 30 days.

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 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. and 40 CFR 257.80.

II.E.3. 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 permit. 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 at the frequencies identified:

II.G.1. On a weekly basis (at intervals not exceeding seven (7) calendar days), inspect for any appearances of actual or potential structural weakness and other conditions

which are disrupting or have the potential to disrupt the operation or safety of the CCR unit in accordance with 40 CFR 257.84 (a)(i).

II.G.2. On a monthly basis, inspect erosion and sediment control features, storm water conveyance system, leachate collection system, safety and emergency equipment, internal roads, and operating equipment.

II.G.3. Within 14 months of initial CCR acceptance in the landfill, and on an annual basis thereafter, a qualified professional engineer shall inspect the landfill in accordance with 40 CFR 257.84 (b).

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.

The Operations Manual shall also reference the following items as required by 40 CFR 257, Subpart D:

- CCR Fugitive Dust Control Plan (40 CFR 257.80) and
- Run-on and Run-off Control System Plan (40 CFR 257.81).

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 V, and the facility's Leachate Management Plan. If a leachate seep(s) occurs, the owner or operator shall repair the seep(s) and follow the procedures outlined in 9 VAC20-81-210.F.

II.J. LANDFILL GAS MONITORING

Not required based on authorized wastes and historical operations.

II.K. GROUNDWATER MONITORING

Groundwater shall be monitored in accordance with 40 CFR 257.90 through 257.98; Modules 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.

II.L. UNDERDRAIN MONITORING AND MAINTENANCE

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

PERMIT MODULE V INDUSTRIAL LANDFILL DESIGN

V.A. LINER DESIGN

The landfill shall be underlain by the liner system described below:

Stage 1A, 1B & 2B (Existing or under continuous construction prior to the CCR EPA Final Rule) liner systems consist of the following from top to bottom:

Base Liner

- 6" thick protective cover;
- 12" thick drainage layer (Leachate Collection System) composed of sand or other granular material with a hydraulic conductivity of 1×10^{-3} cm/s or greater;
- 16 oz. nonwoven geotextile; and
- 50 mil PVC flexible membrane liner over a controlled subgrade.

Side Slope Liner

- 12" thick protective cover;
- Double sided geocomposite drainage net (GDN);
- 50 mil PVC flexible membrane liner;
- 16 oz. nonwoven geotextile; and
- 6" controlled subbase

Stage 2A & 3B (Existing or under continuous construction prior to the CCR EPA Final Rule) liner systems, modified to address construction issues identified in Stage 2A construction, consist of the following from top to bottom:

Base Liner

- 6" thick protective cover;
- 12" thick drainage layer (Leachate Collection System) composed of sand or other granular material with a hydraulic conductivity of 1×10^{-3} cm/s or greater;
- 16 oz. nonwoven geotextile;
- 60-mil LLDPE flexible membrane liner
- 16 oz. nonwoven geotextile; and
- 6" controlled subbase

Side Slope Liner

- 12" thick protective cover;
- Double sided geocomposite drainage net (GDN);
- 60-mil LLDPE flexible membrane liner
- 16 oz. nonwoven geotextile; and
- 6" controlled subbase

The Stage 3A liner system shall consist of the following from top to bottom:

Base Liner

- 6" thick protective cover;
- 12" thick leachate drainage layer composed of sand or other granular material with a hydraulic conductivity of 1×10^{-3} cm/s or greater;
- Double sided geocomposite drainage net;
- 16 oz/yd² nonwoven geotextile;
- 60-mil LLDPE flexible membrane liner;
- A geosynthetic clay liner (GCL) with a hydraulic conductivity of no more than 1×10^{-7} cm/sec over a controlled subgrade consisting of a minimum 12 inches of soil per unified soil classification system (USCS) with classification of SC, ML, CL, MH, CH, compacted to a minimum of 95% of the standard Proctor maximum dry density; and
- 6" controlled subbase

Side Slope Liner

- 12" thick protective cover;
- Double sided geocomposite drainage net (GDN);
- A geosynthetic clay liner (GCL) with a hydraulic conductivity of no more than 1×10^{-7} cm/sec over a controlled subgrade consisting of a minimum 12 inches of soil per unified soil classification system (USCS) with classification of SC, ML, CL, MH, CH, compacted to a minimum of 95% of the standard Proctor maximum dry density; and
- 6" controlled subbase

This liner option would be considered an alternative composite liner in accordance with 40 CFR 257.70 (c) and must be certified by a qualified professional engineer in accordance with 40 CFR 257.70 (c)(2) and must meet the requirements of 40 CFR 257.70 (b)(1) through (b)(4).

V.B. LINER CONSTRUCTION & CERTIFICATION

The landfill base liner for Stages 1 2, & 3B have been or shall be constructed in accordance with the approved Design Plans, Technical Specifications, and Construction Quality Assurance Plan. The landfill base liner for Stage 3A shall be constructed in accordance with the approved Design Plans, Technical Specifications, Construction Quality Assurance Plan and the design criteria for lateral expansion of a landfill specified under 40 CFR 257.70.

Prior to expansion into each new Stage, the permittee shall submit all required certification documents as indicated in Permit Module I Section I.D.1 – 2 as required by 9 VAC 20-81-490.A and 40 CFR 257.70. Once this documentation has been submitted and approved by the Department, and a site inspection of the new Stage 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 Stage.

V.C. LANDFILL GAS MANAGEMENT SYSTEM

Not currently required based on Approved Wastes and historical operations.

V.D. LEACHATE MANAGEMENT

The leachate collection and removal system must be designed, constructed, operated, and maintained in accordance with the requirements of 40 CFR 257.70 (d).

V.D.1. Leachate Storage

Leachate will be collected in the Final Leachate Pond (FLP).

The FLP was constructed utilizing a 60 mil HDPE geomembrane liner. The base liner was overlain by cushion geotextile and concrete protective layer to facilitate and protect equipment entrance for maintenance and sediment removal. Sediments collected from the FLP are to be disposed of in the active landfill.

The FLP has a 7 day leachate storage capacity plus storage for a 25 year 24 hour storm event. A duplex variable speed automatic pump station services the FLP leachate system. Maximum pond operating elevations are based upon areas authorized to receive waste and corresponding flow volumes.

V.D.2. Leachate Treatment and Disposal

Leachate Treatment and Disposal shall be in accordance with the approved Leachate Management Plan (LMP) and VSWMR. The LMP requires the collected Leachate to be pumped by force main to the Virginia City Hybrid Energy Center (VCHEC) onsite wastewater treatment plant for treatment and then:

- Used for plant reuse after treatment
- Discharged by VCHEC under VPDES permit VA0092746 after treatment

V.E. UNDERDRAIN SYSTEM

V.E.1. Underdrain System Description

This landfill is constructed with an underdrain system which carries flow from *groundwater seeps* and discharges to surface drainage for Meade Creek (UD-1) and Brush Hollow (UD-2), see Sheet 5 of Design Plans. The underdrain system consists of 6" and 12" perforated PVC pipe bedded in AASHTO No. 1 aggregate,

and wrapped in drainage geotextile, as shown and discussed in the Underdrain Monitoring Plan. A blanket area drain is additionally installed in the UD-1 system.

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

V.E.3 Underdrain Performance Sampling

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

Underdrain System (if multiple)	Upgradient Sampling Location*	Downgradient Sampling Location*	Sampling Frequency
	**	UD-1	Semi-annual
		UD-2	Semi-annual

*Samples shall be collected at or before the end of pipe and not in the receiving channel.

** The upgradient/background groundwater monitoring well locations defined under XI.B.3 shall serve as upgradient sampling locations for monitoring of the underdrain system.

Underdrain sampling shall take place concurrent with groundwater sampling events, at a semi-annual sampling frequency as described under XI.E.

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

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

V.E.3.c The collected water shall be analyzed for the list of constituents specified in the sampling list of Permit Module XI, conditions F.1, F.2

and F.3.

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

V.E.4 Underdrain Sample Evaluation

V.E.4.a Within 30 days of completion of the laboratory analysis for each sampling event, determine whether or not there is a statistically significant increase (SSI) for any of the constituents listed in Permit Module XI conditions F.1, F.2 or F.3 compared to results from the site's upgradient groundwater monitoring points. If there is a statistically significant increase (SSI), the owner/operator must notify the Director in writing within 44 days of receipt of the laboratory analysis.

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

- A plan to submit an Alternate Source Demonstration within 90 days of the notification if the identified constituent(s) is (are) proven to be either laboratory or cross contaminants sourced from something other than the solid waste; or
- A statement that the underdrain discharge containing landfill constituents will be handled in a manner consistent with the requirements of 9 VAC 20-81-210.D within 60 days. The notification shall also outline any interim steps the facility is taking to minimize risk to human health or the environment.

V.E.4.c. The Permittee, at any time within 30 days of receipt of the original laboratory results, may obtain verification samples. Undertaking verification sampling shall not alter the timeframes associated with determining or reporting a statistically significant increase. If the Permittee undertakes verification sampling to refute a suspect SSI, verification sampling results shall be submitted to the Director within 14 days of receipt of laboratory analyses.

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

V.E.6 If the proposed remediation or actions related to the collection/disposal of the discharge from the underdrain require modification of the Permit or associated Permit Document, the proposed modification(s) shall be submitted to the Department within 30 days of the notification.

PERMIT MODULE XI

MODIFIED ASSESSMENT MONITORING REQUIREMENTS

The Modified Assessment monitoring program is designed to recognize landfill impacts to the uppermost aquifer at levels which exceed groundwater protection standards and trigger potential groundwater remediation.

Actions undertaken shall be consistent with the requirements of 9 VAC 20-81-250 of the VSWMR and this Permit Module as well as applicable requirements of 40 CFR 257. The Modified Assessment Monitoring Program is designed to meet the detection and assessment monitoring requirements of 40 CFR 257. Where a groundwater requirement is defined in both the applicable provisions of 40 CFR 257 as well as within the VSWMR, the stricter of the referenced requirements shall apply.

XI.A. GROUNDWATER COMPLIANCE POINT

XI.A.1. Uppermost Aquifer

XI.A.1.a Groundwater monitoring shall initiate in the underlying aquifer which meets the definition of 40 CFR 257.53 and 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 prior to initial receipt of CCR by the CCR disposal unit (40 CFR 257.90.(b).(2)).

XI.A.1.b Identification of the uppermost aquifer on site must be determined by completion of a hydrologic investigation meeting the requirements set forth under 40 CFR 257.91.(b).

XI.A.2. Monitoring Well Locations

All wells in the monitoring network must be located at the disposal unit boundary (40 CFR 257.91.(a)(2)) and be screened solely within the zone of saturation of the aquifer, such that at no time during the life of the sampling program are portions of the well screen exposed to the unsaturated zone or capillary fringe zone above the zone of saturation. Monitoring wells shall be screened at depths appropriate to monitor all preferential contaminant migration pathways identified under XI.A.1.b above. Use of nested well pairs screened at different depths below ground surface may be required to monitor all potential contaminant migration pathways identified under XI.A.1.b.

XI.A.3. Location Restrictions

No groundwater point of compliance monitoring well can be located outside of the permitted facility boundary, nor be screened within CCR material.

XI.B. MONITORING NETWORK REQUIREMENTS

XI.B.1. The owner or operator must obtain a certification from a qualified professional engineer (40 CFR 257.91.(f)) stating that the groundwater monitoring system has been designed, constructed, and meets the requirements of 40 CFR 257.91, including:

XI.B.1.a. No fewer than one upgradient, and three downgradient wells (40 CFR 257.91.(c).(1)) with additional downgradient wells, as needed, to assess groundwater quality passing the waste unit boundary.

XI.B.1.b. If applicable, a multi-unit (combo) monitoring well network consistent with the allowance under 40 CFR 257.91.(d).(1) as long as the Permittee demonstrates conformance with the technical criteria under 40 CFR 257.91.(d).(1).(i – iv).

XI.B.2. Installation, Operations and Maintenance

All wells shall be installed, operated and maintained (40 CFR 257.91.(e).(2)) in a manner which allows them to operate as designed during the life of the monitoring program.

XI.B.2.a. 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.

XI.B.2.b. Wells that require replacement must be replaced prior to the next regularly scheduled groundwater sampling event unless the Director has granted an extension.

XI.B.2.c. 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.d. No well onsite shall be abandoned without prior approval from the Director.

XI.B.3. Well Designations

The following wells shall be included in the groundwater monitoring network. Number designations including (d) and (s) shall be used when nested pairs are screened as deep (d) or shallow (s) sampling horizons.

Upgradient/Background Wells	Downgradient Wells
MW-7, MW-12, MW-14H	MW-3, MW-4, MW-5, MW-10, MW-11

XI.C. AQUIFER INFORMATION

XI.C.1. Data Acquisition - Requirements

XI.C.1.a. Static groundwater elevations shall be:

XI.C.1.a.(1). measured in all monitoring wells prior to purging.

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 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. 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 performance requirements of the VSWMR and 40 CFR 257.91, 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.

XI.D. SAMPLING ACTIONS

The Permittee shall:

XI.D.1. Utilize a groundwater monitoring program and sampling actions that meet the requirements of the VSWMR, 40 CFR 257.90-95 and this Module.

XI.D.2. Utilize EPA SW-846 analytical methods (as amended) conducted at a VELAP accredited laboratory.

XI.D.3. Not filter groundwater samples prior to laboratory analysis.

XI.D.4. Provide final results as total metals (40 CFR 257.93.(h).(2).(i)).

XI.D.5. Provide final results showing total Chromium and (speciation of) total hexavalent Chromium.

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 VSWMR and 40 CFR 257.95 required constituents in all monitoring wells on a semi-annual basis unless an alternate sampling frequency has been approved consistent with the requirements of 40 CFR 257.95.(c).

XI.E.2. The length of the semi-annual sampling period shall be an interval corresponding to approximately 180 days. For the purposes of scheduling monitoring activities, sampling within 30 days of the 180-day interval will be considered 'semiannual'.

XI.F. SAMPLING LIST

XI.F.1. All 40 CFR 257 Appendix III constituents

XI.F.2. All 40 CFR 257 Appendix IV constituents

XI.F.3 VSWMR Table 3.1 constituents Copper, Cyanide, Nickel, Silver, Sulfide, Tin, Vanadium, and Zinc.

XI.F.4 The VSWMR Table 3.1 organic compounds.

XI.F.5 Speciation of Chromium (Total Chromium and Hexavalent Chromium)

XI.F.6 The sampling list shall be included in the site Groundwater Monitoring Plan and shall be updated by the owner or operator as directed by the Director.

XI.G. DETERMINATION OF BACKGROUND & GPS

XI.G.1. The Permittee shall establish site-specific background values for the constituents of XI.F in a manner consistent with 40 CFR 257.93.(d) and 94.(b).

XI.G.2. Groundwater Protection Standards (GPS) shall be established using the process defined under 40 CFR 257.95.(h) for the constituents contained under XI.F.2, XI.F.3, XI.F.4 and Boron.

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

XI.G.3.a. Federal Maximum Contaminant Level-based GPS, immediately upon promulgation of a new or revised Federal MCL.

XI.G.3.b. Background-based GPS, every two years such that the eight most recent background well sampling results shall replace the oldest eight background well sampling results.

XI.G.4. Use of risk-based GPS shall not be allowed.

XI.H. STATISTICAL PROCEDURES

A qualified professional engineer must certify (40 CFR 257.93.(f).(6)) the selected statistical method used by the Permittee is appropriate for evaluating the groundwater monitoring data. The certification must include a narrative description of the statistical method selected to evaluate the groundwater monitoring data.

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

- XI.H.1 within 30 days of completion of the laboratory analysis for each sampling event, determine whether or not there is a statistically significant increase over site background and GPS for each monitoring constituent using an appropriate statistical method meeting the requirements of 40 CFR 257.93.
- XI.H.1.a. If no statistical exceedances over background are identified in any downgradient well, monitoring will continue under the modified Assessment Monitoring Program.
- XI.H.1.b. If there is a statistically significant increase (SSI) over Facility-specific GPS for any constituent listed in XI.F.2, XI.F.3, or Boron, the Permittee will proceed with the actions described in 40 CFR 257.95(g). The Facility will also notify the DEQ of the SSI over GPS within 44 days of issuance of the laboratory report, identifying the constituent(s) SSI over Facility-specific GPS.
- XI.H.1.c. If there is a statistically significant increase over Facility-specific GPS for one or more VSWMR Table 3.1 Column B organic constituent, the Permittee will:
- XI.H.1.c.(i) notify the Department of the potential waste-related GPS exceedance(s) within the timeframe noted in H.1.b and either note whether: 1] an Alternate Source Demonstration (ASD) will be submitted within the VSWMR required timeframe, 2] the result(s) will be compared to pre-waste constituent background concentrations in that well, or 3] that the Facility will move toward Corrective Action.
 - XI.H.1.c.(ii). If the exceeding organic constituent result does not exceed its own pre-site operation background value in the subject well, the Permittee will notify the Department, within 7 days of this finding and shall continue with the Modified Assessment Monitoring Program. Initiation of Corrective Actions will not be required.
 - XI.H.1.c.(iii). If an ASD is approved by the Department to address an SSI, the Facility shall continue with the Modified Assessment Monitoring Program.

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

XI.I. RECORD-KEEPING REQUIREMENTS

XI.I.1 The owner or operator shall comply with the recordkeeping and notification requirements of 40 CFR 257.105 and 106, and the public record internet requirements specified in 257.107.

XI.I.2 The Permittee shall retain all records identified under 9 VAC 20-81-250.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 within an Operating Record (40 CFR 257.105.(a)).

XI.I.3 The Director shall be copied on any groundwater report, notification, request, demonstration, certification or documentation submitted under 40 CFR 257 or 9 VAC 20-81-250.

XI.J. REPORTING REQUIREMENTS

The Permittee shall meet all the reporting and notification requirements of 40 CFR 257 and 9 VAC 20-81-250 as well as 530.B.1 and B.2 throughout the facility active life (including closure) and post-closure care period.

XI.J.1. *Groundwater monitoring reports*

XI.J.1.a. The Annual groundwater monitoring report shall be due no later than 120 days from the completion of sampling and analysis conducted for the second semi-annual event and no later than January 31 of the following calendar year. The Annual report shall include at a minimum the content found under 9 VAC 20-81-250.E.2.a and 40 CFR 257.90(e)(1-5) and shall be submitted in a format consistent with existing DEQ Submission Instructions.

XI.J.1.b A Semi-annual report shall be due no later than 120 days from the completion of sampling and analysis conducted for the 1st semi-annual groundwater sampling event. The Semi-annual report shall include at a minimum the content found under 9 VAC 20-81-250.E.2.b and shall be submitted in a format consistent with existing DEQ Submission Instructions.

XI.J.2. Facility Background Determination Report

- XI.J.2.a Within 30 days of initially establishing background, 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 the Modified Assessment program, the background determination results shall be submitted in the timeframe defined under 9 VAC 20-81-250.C.3.b.(2).

XI.J.3. Well Installation Report

- XI.J.3.a. Within 44 days of well completion, the Permittee shall supply the Director a Well Installation Report containing the well number, surveyed elevation, boring log, casing length, total depth, and a completion diagram for each monitoring well, along with a certification from a qualified professional engineer that the monitoring wells have been installed in accordance with the submitted plans.

XI.J.4. Well Abandonment Report

- XI.J.4.a 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 professional engineer verifying the well abandonment activities met all applicable requirements.

XI.J.5. Groundwater Protection Standards

- XI.J.5.a. The Permittee shall place the GPS listing in the operating record and update that record as needed upon any changes in GPS values.

XI.K. NOTIFICATION REQUIREMENTS

- XI.K.1. GPS SSI Notifications, shall be submitted to the Director within 44 days of issuance of the laboratory report and shall indicate which groundwater constituent has shown an SSI over Facility-specific GPS.

- XI.K.2. Well Non-Performance Notifications shall be submitted to the Director within 30 days of recognizing the non-performance issue.

- XI.K.3. Off-site Plume Notifications required by VSWMR and 40 CFR 257.95(g)(2) shall be submitted to the affected landowner and copied to the Director within 15 days

of identifying the impacts.

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 in VSWMR and 40 CFR 257.91(a)(1) and is certified by a qualified professional engineer. Until such time as Director approval is obtained, background shall be determined by sampling wells which are upgradient of the disposal unit.
- 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 9 VAC 20-81-250.D.2 and 40 CFR 257.93. Until such time as Director approval is obtained, the statistical test(s) applied to site groundwater data shall be compliant with 9 VAC 20-81-250.D.1 and 40 CFR 257.93. Whichever method is approved for use at the site, the method should be listed in the facility *Groundwater Monitoring Plan*.
- XI.L.3. Verification Sampling. The Permittee, at any time within 30 days of receipt of the laboratory report for a semi-annual sampling event, may obtain verification samples. Undertaking verification sampling shall not alter the timeframes associated with determining or reporting a statistically significant increase.
- XI.L.4. Data Validation. The owner or operator may at any time within the 30 day statistical determination period 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.
- XI.L.5. Table 3.1 Column B Detect Deletions. With the exception of the constituents listed in Table 3.1 Column A and 40 CFR 257 Appendix III and IV, the Permittee may request the Director allow previously detected Table 3.1 Column B constituents to be dropped from the semi-annual monitoring list as long as the request is certified by a qualified groundwater scientist and verifies that the Table 3.1 constituent(s) in question have not been detected for a period of two years.

XI.M. MISCELLANEOUS DEMONSTRATIONS

- XI.M.1. To address an exceedance which is the result of something other than a release of CCR constituents, the Permittee may submit a report entitled *Alternate Source Demonstration*, certified by a qualified professional engineer, for review by the Director within 90 days of providing the SSI notification (40 CFR 257.95.(g).(3).(ii)).

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 9 VAC 20-81-260 and 40 CFR 257 within the required timeframes.

XI.N. PERMIT DOCUMENTS

The Permittee must have Design Plans that include detailed instructions concerning groundwater monitoring. These detailed groundwater monitoring instructions must at a minimum cover the items listed under 9 VAC 20-81-250.A.4.a and other applicable information under 9 VAC 20-81-250. The document containing these instructions, called the *Groundwater Monitoring Plan*, shall be placed in the operating record.

XI.N.1 It shall be the responsibility of the Permittee to update this monitoring plan as needed, which may include actions otherwise defined under 9 VAC 20-81-600.A – F, if changes to the monitoring program have taken place since original Plan development.

XI.N.2. Should information contained in a Permittee authored *Groundwater Monitoring Plan* conflict with any requirement or condition of this Module, the Module condition shall prevail over the language in the Permittee supplied document.

XI.N.3. 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.

XI.O. LIMITATIONS/AUTHORITIES

XI.O.1. 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.

PERMIT MODULE XII CLOSURE

XII.A. CLOSURE PLAN AND MODIFICATION

- XII.A.1. The owner or operator of the CCR landfill shall have a written closure plan that meets the criteria of 9 VAC 20-81-160.B.1. and 40 CFR 257.102 (b).
- XII.A.2. The closure plan shall be amended whenever there is a change in the operation of the CCR landfill that would substantially affect the written closure plan in effect; or before or after closure activities have commenced, unanticipated events necessitate a revision of the written closure plan. All amended closure plans shall contain a written certification by a professional engineer that the plan amendment meets the requirements of 40 CFR 257.102 (b)(4).
- XII.A.3. 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. If a closure plans is revised following an unanticipated event or after closure activities have commenced, the plan shall be submitted to the Department in accordance with the schedule under 40 CFR 257.102 (b)(3)(iii).

XII.B. TIMEFRAMES ASSOCIATED WITH CLOSURE

- XII.B.1. The facility shall submit a notification of intent to close to the Department at least 180 days prior to beginning closure of each landfill phase. Additionally, the notification must include a certification by a professional engineer and be placed in the facility's operating record in accordance with 40 CFR 257.102 (g).
- XII.B.2. The facility shall close each unit and install a final cover system in accordance with the timeframes specified in 40 CFR 257.102 (e) and (f).

XII.C. FINAL COVER SYSTEM

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

- A minimum 6-inch layer of vegetative support soil that is seeded.
- A minimum 18-inch infiltration layer of compacted soil;
- 250-mil double sided geocomposite drainage net; and
- 60-mil textured high-density polyethylene (HDPE) geomembrane over a compacted subgrade (soil or FFCP).

The closure side slopes are designed for a maximum 3(H):1(V) (Horizontal to Vertical) slope and crown is designed with a minimum five (5) percent slope.

This final cover system would be considered an alternative final cover in accordance with 40 CFR 257.102 (d)(3)(ii).

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, specifications, and 40 CFR 257.102 (f)(3). 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. and 40 CFR 257.102 (h), 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. The deed notation shall be in accordance with 40 CFR 257.102 (i).

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 and 40 CFR 257.104.

XIII.A.1.a. The final cover system shall be maintained in accordance with 40 CFR 257.104 (b)(1).

XIII.A.1.b. The leachate collection and removal system shall be maintained in accordance with 40 CFR 257.104 (b)(2). Collected 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.c. Groundwater shall be monitored in accordance with 40 CFR 257.90 through 257.98, Module XI and the respective groundwater permit documents as applicable. The groundwater monitoring system shall be inspected at a rate consistent with the system's monitoring frequency.

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

XIII.A.2. Post-closure Care Plans and subsequent amendments shall meet the requirements of 9 VAC 20-81-170.A.2. and A.3 and 40 CFR 257.104 (d) and shall be submitted to the department for review and approval by the director. All plans, once approved, shall be maintained in the facility's operating record as required by 40 CFR 257.105 (i)(4).

XIII.B. POST-CLOSURE PERIOD

XIII.B.1. Post-closure care shall be conducted for 30 years. If at the end of the post-closure care period, the CCR landfill is operating under groundwater assessment monitoring in accordance with 40 CFR 257.95, the owner or operator shall continue to conduct post-closure care until the owner or operator returns to detection monitoring.

XIII.B.2. 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.