

ENVIRONMENTAL MANAGEMENT COMMISSION

REGULATORY IMPACT ANALYSIS FOR PROPOSED RULES FOR COAL COMBUSTION RESIDUAL AND COAL COMBUSTION PRODUCT MANAGEMENT

Proposed Citation: 15A NCAC 13B Section .2000 (Rules .2001 - .2018)

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Impact Summary: State government: Yes
Local government: Yes
Private impact: Yes
Substantial impact: No

Rule Topic: Permits for Coal Combustion Residual Disposal Landfills, Closure Criteria for Coal Combustion Residual Impoundments, Dust Control and Transportation Plans for Coal Combustion Product Recycling Facilities

Authority: In accordance with requirements outlined in General Statutes 130A-294 and 130A-309.207, the Environmental Management Commission shall adopt rules as necessary to implement the Coal Ash Management Act (G.S. 130A-309.200 through G.S. 130A-309.231). General Statute 130A-309.207 allows that such rules shall be exempt from the requirements of G.S. 150B-19.3 thus may be a more restrictive standard, limitation or requirement than those imposed by federal law or rule. The Department is proposing 15A NCAC 13B .2001 – .2018 as new rules.

Appendices: A – Proposed Rule-Making Timeline
B – Proposed Rule Text

Reason for Rule Development

It is the responsibility of the Department of Environmental Quality's Division of Waste Management (Division) Solid Waste Section (Section) to regulate how solid waste is managed within the state under the statutory authority of G.S. Chapter 130A-294. The [Coal Ash Management Act](#) (CAMA), G.S. 130A-309.200 through G.S. 130A-309.226, specifically allows the department to write rules on coal combustion residuals (CCR), often referred to simply as coal ash. The Division is proposing new rules for CCR landfills, coal combustion product (CCP) recycling facilities and the closure of ash impoundments. The rules are codified to meet North Carolina's specific needs. North Carolina has unique considerations pertaining to coal ash, including the historical disposal of coal combustion residuals into impoundments and landfills, locations of power plants and disposal facilities, quantities and types of waste found in the ash impoundments as well as the excavation of the impoundments themselves.

The proposed rule's purpose is to streamline and clarify the State of North Carolina's regulatory requirements for CCR landfills, impoundment closure, and dust control and transportation plans for CCP recycling facilities. This clarity will provide benefit to the public, regulated community and regulators. It will make the CCR rules easier to understand and encourage transparency during the regulatory process; it will provide guidance and clarity to owners and consultants on what the permitting requirements are; and it will allow the public to clearly identify the various requirements of the permitted facilities. The expansion of the required constituent monitoring list makes these rules more protective of human health and the environment by identifying additional elements or constituent that can come from coal ash and are not warranted at increased levels in the aquifer or public drinking water.

Despite currently regulating industrial sanitary landfills under 15A NCAC 13B .0500, there is no ruleset specific to CCR landfills in North Carolina. The proposed ruleset will not significantly change the requirements for construction, operation and monitoring of industrial sanitary landfills; rather, it adds language and requirements specific to the unique conditions found at these landfills and outlines the specific requirements for preparing a permit application, specifies requirements for the agency review of permit applications and establishes a permit process for the impoundment closure.

The proposed rule provides clarity to allow for expedient and cost-effective permitting for both regulators and the regulated parties. Current rules at the state and federal level are relatively generic and performance-oriented. Rulemaking requirements in North Carolina mandate that specificity be included as to remove any and all ambiguity in regulatory requirements. The proposed rules include specifics from the standard state of practice to give certainty and guidance to both the regulated community and regulator, while still providing needed flexibility for the design engineer.

It is necessary to regulate the construction and operation of CCR landfills, CCP recycling facilities and ash impoundments to prevent potential harm to human health and the environment. The existing baseline provides general guidelines for the regulation of these facilities. Wet coal ash is defined as a solid waste by CAMA. The Division previously regulated dry ash and its disposal in landfills. Wet ash comes from impoundments, and the Division had no mechanism for dealing with the impoundments. This rule establishes the permit process for closure of said impoundments.

The Division is proposing a set of rules for landfills that are similar to the design and operation criteria of Municipal Solid Waste Landfills, at least as protective as the current Environmental Protection Agency's rule for CCR landfills and closure, and consistent with CAMA. It is a Division priority to maintain a consistently protective rule in North Carolina regardless of how the EPA rule may change in the future.

As a result of clearly outlining the permitting and regulatory requirement, resource needs of the owners or consultants as well as the agency will be reduced, increasing overall productivity. Permit preparation times can be shortened and review time is compressed with clear direction provided by the detailed rulesets. The regulated community will incur an opportunity cost because, to ensure proper implementation, the rule limits potential flexibilities they have with respect to the design and construction of basin closure activities in the absence of clear standards.

History of State and Federal Rules

The Division of Waste Management, Solid Waste Section has regulated the siting, permitting, construction, operation and monitoring of CCR landfills since 1987. Regulation has been in accordance with the North Carolina Administrative Code for sanitary landfills (15A NCAC 13B .0503, .0504 and .0505), best engineering practices, policy and guidance. During this time, decisions regarding the siting, permitting, construction, operation and monitoring of CCR landfills in North Carolina have been accomplished with cooperation between the Section and regulated community. For the past decade, this was accomplished via permit conditions, ensuring that CCR landfills were designed, constructed and operated to MSW standards, which greatly exceed the Sanitary Landfill Rules they are presently permitted under. When dealing with CCR landfills, the Division used the state's Municipal Solid Waste Landfill (MSWLF) Rules as a basis for best engineering practice to adequately protect public health and the environment.

In 1993, the Division codified the MSWLF rules to be based on the EPA MSWLF Rules (40 CFR 258). Due to the adoption of MSWLF rules, the Division requested and was granted Program Approval by the EPA to implement the MSWLF Program.

In August of 2014, the North Carolina General Assembly adopted legislation that provided a broad program to address existing and future CCR management. The law, which is referred to as CAMA, gave mandates to require:

- DEQ to establish a schedule and process for closure and remediation of all CCR surface impoundments;
- closure and remediation of certain CCR surface impoundments no later than August 2019;
- an assessment of the risks to public health, safety and welfare; the environment; and natural resources of CCR impoundments located beneath CCR landfills to determine the advisability of continued operation;
- the assessment of groundwater;
- a survey of drinking water supply wells and replacement of contaminated water supplies;
- electric generating facilities to convert to generation of dry fly ash;
- prohibition of disposal of stormwater to CCR surface impoundments; and
- the Department of Transportation to develop technical specifications for use of CCP.

The EPA Administrator signed the “Final Rule: Disposal of Coal Combustion Residuals (CCR) for Electric Utilities” on December 19, 2014. The North Carolina CCR requirements are similar to the federal program with respect to the landfill elements of the EPA rule. In a few aspects, North Carolina has some requirements that are more stringent than the federal CCR rules. In a few places, North Carolina CCR requirements may be less stringent. Regardless, impacted units and facilities are required to comply with both the state and federal programs, thus the overall impact of adopting the proposed rule is expected to be minor.

On April 17, 2015, the EPA published rules regarding CCR landfills and impoundments (40 CFR 257 and 40 CFR 261). The EPA modelled its CCR rules on the existing EPA MSWLF rules. According to the CCR rule, MSW landfills meet the criteria and can be used for CCR disposal. Currently, no MSW landfills in North Carolina are known to receive significant quantities of CCR. This trend is not anticipated to change in the foreseeable future. The regulated community currently has permitted landfills for the disposal of CCR at its own power plants; the list of which is provided below.

On July 26, 2016, the EPA Administrator signed a direct final rule and a companion proposal to extend (for certain inactive CCR surface impoundments) the compliance deadlines established by the regulations for the disposal of CCR under subtitle D of the [Resource Conservation and Recovery Act \(RCRA\)](#). The comment period for the direct final rule ended on Aug. 22, 2016. Because no adverse comments were received, the rule became effective on Oct. 4, 2016.

On Dec. 16, 2016, President Barack Obama signed the “Water Infrastructure Improvements for the Nations” (WIIN) Act. Section 2301 of that Act, “Approval of State Programs for Control of Coal Combustion Residuals,” sets forth procedures to enable states to assume parts or the entirety of the federal CCR program. The Act stipulates that “Each State may submit to the Administrator, in such form as the Administrator may establish, evidence of a permit program or other system of prior approval and conditions under State law for regulation by the State of coal combustion residuals units that are located in the State that, after approval by the Administrator, will operate in lieu of regulation of coal combustion residuals units in the State.” The program does not have to be identical to the current CCR rule but must be “at least as protective as” the federal CCR rule.

Significance of chronicling this history is to illustrate how the Division’s coal combustion residual programs and the EPA’s related CCR program similar in requirements and effect.

In 2017, the Division began development of a set of CCR landfill rules for the State of North Carolina. These rules are based on the above historical facts and is a combination of the state’s approved, and EPA-accepted, MSWLF rules and standards as well as a portion of the EPA CCR rule that are not currently addressed in the state’s current ruleset.

Overview

The proposed rules for landfills, recycling facilities and closure of ash impoundments will consolidate and clarify existing North Carolina regulations and existing state law, making them as protective as the EPA *The Disposal of Coal Combustion Residuals (CCR) from Electric Utilities* final rule effective on Oct. 4, 2016 – otherwise known as the federal CCR rule. The proposed rules are no less protective than the existing MSWLF rules.

The rules proposed by the Division include criteria for siting, construction, operation, closure, long-term care and monitoring of landfills and recycling facilities. Requirements for transportation plans at CCP recycling facilities, permit applications, financial assurance, dust control and recordkeeping are also included in the proposed rules. The proposed rule will establish the solid waste permit process for impoundment closure. This regulatory impact analysis has been developed to clarify and show the regulatory and fiscal impact of the additional requirements.

Baseline

The baseline is the current method for managing CCR facilities absent this rule. The baseline considers existing state and federal regulations for presently managing CCR as well as in the future.

For more than a decade, industrial sanitary landfills in North Carolina have been regulated under [15A NCAC 13B .0503](#), *Siting and Design Requirements for Disposal Sites*; [15A NCAC 13B .0504](#), *Application Requirements for Sanitary Landfills*; and [15A NCAC 13B .0505](#), *Operational Requirements for Sanitary Landfills*. More recently, the EPA's Code of Federal Regulations – 40 CFR Parts [257](#) and [261](#), *The Disposal of Coal Combustion Residuals (CCR) from Electric Utilities* – has been included in the regulatory ruleset. The existing state industrial sanitary landfill rules and best management practices in the form of permit conditions have effectively been used to regulate the nine open CCR landfills, two closed landfills onsite at power plants and one inactive landfill operated by Halifax County for the Roanoke Valley Energy Plant to standards at/or superior to the new federal CCR Rule. The regulated community that currently abides by these two rulesets and therefore is considered the baseline are (x indicates landfill is closed):

Allen Steam Station – Gaston County (current coal fired plant)

3612-INDUS-2008: Retired Ash Basin Landfill (open, double-lined, landfill constructed on top of retired ash basin, monitoring by leak detection system)

Belews Creek Steam Station – Stokes County (current coal fired plant)

8503-INDUS-1984: Pine Hall Road Landfill (closed, unlined)
 8504-INDUS: Craig Road Landfill (open, lined)
 8505-INDUS: Flue Gas Desulfurization (FGD) Landfill (open, lined). Duke has been mining gypsum from landfill to meet wallboard production needs since June 2015.

Dan River Steam Station – Rockingham County (retired coal fired, converted to combined cycle turbine)

7906-INDUS-2016 (open, double-lined),
 The CAMA requires basin ash removal by 2019. Prior to on-site landfill operation, basin ash was trucked to a Waste Management landfill in Jetersville and to Roanoke Cement in Troutville (both in Virginia) for concrete production.

Mayo Steam Electric Plant – Person County (current coal fired plant)

7305-INDUS-2012 (open, double-lined)

Marshall Steam Station – Catawba County (current coal fired plant)

1804-INDUS-1983: Dry Ash Landfill (closed, unlined)
 1809-INDUS: FGD Landfill (inactive, undergoing closure, lined)

1812-INDUS-2008: Industrial Landfill #1 (open, double-lined, partially constructed on top of retired ash basin. monitoring in leak detection system only)

Rodgers Energy Complex – Rutherford County (current coal fired plant)

8106-INDUS-2009: CCR Landfill (open, lined)
Plant and basin ash to landfill (excavation basin units 1 through 4 completed in June 2017)

Roxboro Steam Electric Plant – Person County (current coal fired plant)

7302-INDUS-1988: CCR Landfill (open, lined, constructed partially on top of closed unlined CCR landfill and retired ash basin)

Sutton Steam Electric Plant – New Hanover County (retired coal fired, converted to combined cycle turbine)

6512-INDUS-2016 (open, double-lined)
CAMA requires basin ash removal by 2019. Prior to on-site landfill operation, basin ash was railed to the Brickhaven (1910-STRUCT-2015) structural fill facility in Chatham County.

Halifax County Industrial Landfill – Halifax County

4204-INDUS-1994 (open but inactive, lined) Westmoreland Partners Roanoke Valley Energy Plant (intermittently active coal-fired plant). Halifax County is coordinating with Westmoreland on closure of the landfill.

Differences Between Baseline and Proposed Rule

The proposed ruleset contains differences from the combination of current rules used to regulate industrial sanitary landfills 15A NCAC 13B .0500 and the EPA's *The Disposal of Coal Combustion Residuals (CCR) from Electric Utilities*. These differences between the baseline and proposed rule are intended to clarify and streamline the ruleset, and include the following:

1. The proposed rule set codifies and clarifies certain best management practices that have been previously handled as permit conditions or with the cooperation of the regulated community. These include parameters agreed upon as the minimum standards under which a CCR landfill should be sited, designed, constructed, operated and monitored. The codification of these practices serves to clarify, streamline and make transparent the way in which CCR landfills are managed. All existing North Carolina CCR landfills are compliant with the conditions set forth by this rule. This will have a positive impact on the regulated community, state government and the public as it will improve the efficiency, consistency and transparency with which CCR landfills are managed and regulated.
2. The proposed ruleset includes added constituents to the Detection Monitoring Plan. Detection monitoring is a twice yearly sampling of groundwater, surface water, and leachate during the active and post-closure period of the landfill. The list of constituents, which are required to be analyzed at North Carolina landfills, has changed throughout the last several decades. There are six constituents in the proposed ruleset that are not currently analyzed during semi-annual detection monitoring events. These constituents – antimony, beryllium, calcium, cobalt, thallium and vanadium – were part of the Division of Water Resources constituent list for the

Comprehensive Site Assessments Duke conducted per CAMA. These constituents have been shown, through years of testing the waste streams coming from power plants, to be present in coal ash. Science continues to evolve regarding emerging contaminants, and this is one such case where the science leads to additions to the sampling list. For example, boron, considered to be a leading-edge indicator, has a different rate and means of transportation through the soil. It does not adsorb to the soil. This means it will show up sooner than other constituents of concern like lead, which is very heavy and has a high rate of adsorption. It is important to note that the list of detection monitoring constituents includes most federal constituents which are not required to be tested for until a facility is in assessment monitoring. Detection of these constituents in groundwater can be indicative of a release to groundwater. The following table outlines the list of constituents required to be analyzed during detection monitoring.

Proposed .2014 Detection Monitoring List	Baseline	Federal Rule
Antimony		
Arsenic	X	
Barium	X	
Beryllium		
Boron	X	X
Cadmium	X	
Calcium		X
Chloride	X	
Chromium	X	
Cobalt		
Copper	X	
Fluoride	X	X
Iron	X	
Lead	X	
Manganese	X	
Mercury	X	
Nickel	X	
Nitrate	X	
pH	X	X
Selenium	X	
Silver	X	
Sulfate	X	X
Thallium		
Total Dissolved Solids	X	X
Vanadium		
Zinc	X	

Note: X denotes the constituent is included in current state or EPA detection monitoring rules. Red text indicates added constituents under detection monitoring.

A comprehensive list of potential contaminants reassures the public that the Department of Environmental Quality is affording the maximum protection. The addition of these constituents to the required monitoring list provides additional indicators of a potential release to groundwater. The addition of cobalt, required by EPA as a constituent to be included in Appendix IV to Part 257 Assessment Monitoring, was recommended during the stakeholder process to be included in the detection monitoring list of constituents.

The Division of Waste Management's analysis of the detection monitoring constituents reveals if there an exceedance above the 15A NCAC 2L Standards or Interim Maximum Allowable Concentration (IMAC) indicating a possible release, the facility is required to establish assessment monitoring. The facility may have to start assessment sooner due to the detections of the new six constituents. In other words, the occurrence would not be more often but would occur sooner in time. This will incur assessment costs (see #4 below) but may also divert future remedy costs by fixing the cause of the release (such as a leaking leachate line or a tear in a liner) before it becomes a larger release.

The addition of these detection monitoring constituents could result in an approximate \$900 to \$22,000 per year increase in analytical costs to the regulated parties, both private and local government. The estimated \$22,000 annual increase is for all of the privately owned Duke landfills. Duke samples a total of 144 water quality monitoring locations (104 groundwater monitoring wells, 19 surface water monitoring locations and 21 leachate monitoring ports) twice a year (semi-annually), resulting in 288 yearly samples. Two independent environmental laboratories provided quotes for costs per sample, with \$75 being the average cost. This cost (\$75) multiplied by 288 annual samples equals \$21,600, which was rounded up to account for fluctuation and incidental costs. The estimated \$900 annual increase is for the one local government owned landfill, Halifax County Industrial CCR Landfill. The cost breakdown for Halifax County would be \$75 per event multiplied by two (semiannual sampling) multiplied by six (number of wells), which equals \$900 per year. The cost increase will vary between environmental laboratories. Exact costs associated with the addition of constituents to the detection monitoring list are extremely difficult to assess. Multiple analytical methods are required to capture every constituent on the list, and costs vary greatly between analytical methods and environmental laboratories.

Costs independent of laboratory costs including, but not limited to, field staff time (collection of the samples), scientist review of results and report writing will not change as a result of analyzing for the six additional constituents because no additional samples or separate trips to the facility will be needed. The laboratory uses water from the same sampling bottles to perform the tests on different equipment.

3. The proposed ruleset requires gas monitoring and a waste acceptability program. Gas monitoring is currently included as a permit condition in CCR landfill permits. Waste acceptability programs are required of the regulated facilities to be included in operations plans. The proposed ruleset results in the potential additional cost of a one-time purchase of a gas monitoring system capable of detecting hydrogen sulfide. At a cost of \$10,000 to \$12,000 per gas monitoring system, the total potential one-time cost for the six Duke facilities that dispose of flue gas desulfurization material would be \$60,000 to \$72,000.

4. Prior to and within this ruleset, assessment monitoring is triggered when an exceedance of the 15A NCAC 2L standards (2L) or Interim Maximum Allowable Concentration (IMAC) occurs within any detection monitoring well. The purpose of assessment monitoring is to determine the nature and extent of the contamination, information that must be known to properly assess any remedy. In the federal CCR rule, this process or movement from detection to assessment monitoring occurs incrementally. The federal detection monitoring program starts with a short list, (7) of indicator parameters, which when they statistically exceed a background value, trigger assessment monitoring. The larger set of assessment parameters would be monitored until an exceedance of the groundwater standard occurred. In the federal CCR case the standard is the MCL, or maximum contaminant level. In the proposed rule the standard is set at the state 2L or IMAC standard, which is lower (more protective) than the MCL. It is important to note that the list of North Carolina's detection monitoring constituents includes all of the federal assessment constituents, except for Lithium, Molybdenum and Radium 226 and 228. Although the federal rule requires a statistical analysis to trigger the assessment process, it is not necessary to do statistics, within the proposed state rule, to determine if a facility should enter assessment monitoring, they are essentially in it, as compared to the federal rule, from day one.

The proposed ruleset adds three additional constituents from the federal CCR rule to the assessment monitoring list of constituents: lithium, molybdenum, and radium 226/228. The addition of the constituents provides additional information used to determine the correct remedy or cleanup methodology. For example, radium contamination may require a different cleanup method than lead, which moves slow and easily absorbs to clay soil. The following table outlines the list of constituents required to be analyzed during assessment monitoring.

Proposed .2015 Assessment Monitoring List	Baseline	Federal Rule
Antimony		X
Arsenic	X	X
Barium	X	X
Beryllium		X
Boron	X	
Cadmium	X	X
Chromium	X	X
Cobalt		X
Fluoride	X	X
Lead	X	X
Lithium		X
Mercury	X	X
Molybdenum		X
Radium 226 and 228		X
Selenium	X	X
Thallium		X
Vanadium		

Note: Green text indicates added constituents under assessment monitoring. Red text indicates added constituents under detection monitoring. X denotes the constituent is included in current state or EPA assessment monitoring rules.

The establishment of background concentrations for the new assessment constituents takes into consideration the naturally-occurring constituents in soil and groundwater. The intrinsic likelihood of a detection at the review boundary is not affected by this rule. Additional costs might be necessary to establish defensible background levels, but no additional costs are anticipated when entering assessment monitoring when compared to current compliance rules. The addition of the three aforementioned constituents will result in additional sampling costs, approximately \$48,000 for the initial assessment monitoring sampling event for all of Duke's North Carolina CCR landfills. Duke samples a total of 144 water quality monitoring locations (104 groundwater monitoring wells, 19 surface water monitoring locations and 21 leachate monitoring ports) twice a year (semi-annually), resulting in 288 yearly samples. Two independent environmental laboratories provided quotes for costs per sample with \$165 being the average cost. This cost (\$165) multiplied by 288 annual samples equals \$47,520, which was rounded up to account for fluctuation and incidental costs. This cost may decrease depending on which constituents are detected during the initial sampling event.

While increasing the number of detection monitoring constituents (see #1) may increase the timing of entering assessment monitoring, it does not increase the intrinsic risk of a release. Costs for corrective action, if warranted by the assessment monitoring, remain unchanged. There are many corrective action remedies a facility may select with a wide range of costs. Estimated costs of potential corrective action remedies are shown in the table below. These costs were provided in the recently approved Assessment of Corrective Measures Report for the unlined Francis Farm municipal solid waste landfill in Haywood County.¹

¹ The report can be found online within the Division's Laserfiche Document Center (<https://edocs.deq.nc.gov/WasteManagement/>) by searching [DIN27533](#).

Remedy	Initial Cost	Annual Cost	Total (30 years)
Phytoremediation	\$70,000 - \$90,000	\$4,000 - \$8,000	\$190,000 - \$330,000
Monitored Natural Attenuation	\$25,000 - \$35,000	\$25,000 - \$45,000	\$775,000 - \$1,385,000
Permeable Reaction Barrier	\$800,000 - \$1,350,000	\$10,000 - \$15,000	\$1,100,000 - \$1,800,000
Pump and Treat	\$750,000 - \$1,500,000	\$45,000 - \$85,000	\$2,100,000 - \$4,050,000
Source Removal	\$30 - \$40 million	NA	\$30 to \$40 million

Note: Initial cost refers to the initial setup cost of the remedy. Annual cost refers to the annual maintenance, monitoring and reporting costs.

5. The proposed rule allows for the establishment of Groundwater Protection Standards. Currently, if a constituent does not have an established 2L or IMAC standard, any detection of that constituent at the review boundary is considered an exceedance and the site must enter assessment monitoring. Establishing Groundwater Protection Standards may reduce the likelihood of a site entering assessment monitoring because it takes into consideration naturally occurring constituents at a given site. A regulated party cannot be held accountable for exceedances above standards that are naturally occurring. By extension, the public is not harmed because even though the background may be naturally above a standard, there was no contribution from a regulated practice. The establishment of Groundwater Protection Standards also clarifies and streamlines the process for protecting groundwater at CCR facilities. It does not increase the likelihood of a release at a facility; rather, it establishes the mechanism by which one can be reliably confirmed. The establishment of Groundwater Protection Standards may avoid costs for the regulated community as it may decrease the likelihood of a site entering assessment monitoring or it sets a reliable target for cleanup which is the same as the naturally occurring conditions. If establishing a Groundwater Protection Standard is necessary, the regulated community would incur testing and analysis costs to establish the background standard, and the state environmental agency would incur staff time costs for reviewing the data and issuing the determination. The establishment of the background standard does not change the risk to the public if a “new” standard shows that the risk is naturally present.

In the case of existing landfills at power plants, the background standards have already been established under CAMA. The Halifax County coal ash landfill will not have to establish background standards.

Calcium, Molybdenum and Lithium are the three constituents which do not have a 2L or an IMAC established according to 2L. For these constituents, there is no additional impact of this rule at the Duke facilities because there has already been a background established per CAMA.

At the Halifax County landfill, there has not been a background established. The possibility of future assessment or corrective action being necessary is a negligible probability considering that detection monitoring does not show exceedances of any kind. The landfill is in the process of closure, which will provide a capping system that will essentially cut off infiltration of precipitation to the waste. The reduction of leachate will make the probability of contamination movement negligible. No contamination movement means no possibility of exceedances during detection monitoring or assessment monitoring.

The establishment of Groundwater Protection Standards would only apply to future landfills whether onsite at power plants in areas not previously established per CAMA or offsite locations.

6. The proposed ruleset allows for alternative closure options, as does CAMA and the federal CCR rule. The design must meet the same performance standards as the existing ruleset, but less resource-intensive alternatives can be considered. Additional state agency staff time may be required to review alternative designs. This rule may reduce costs for the regulated community as less expensive alternatives may be approved.
7. The proposed ruleset adds a permitting process, permit and state oversight to basin closure activities, but does not change the performance standards set forth by the federal rules and CAMA.

The proposed rule codifies the industry-recognized standard for closure of ash basins – actions required by CAMA and federal rules.

This rule will not change the way in which the regulated community or regulators manage basin closure activities. The proposed rule's benefit would be realized if changes were made to the federal CCR rule, as it ensures that a consistently protective rule in North Carolina is in place. This rule bolsters the state regulatory authority over basin closure activities, as it codifies activities that have been previously accomplished through a cooperative agreement between regulators and regulated community. To date, no violations of the agreement have occurred; however, adding to the state's regulatory authority protects the state against future violations or disagreements. Furthermore, this rule gives the state the authority to issue a permit for basin closure activities. The regulated community will, in turn, benefit from this rule as they will receive the permit needed to close the basins.

Although both the compliance costs and the public and environmental health benefits of codifying these best practices are expected to be minor, the State of North Carolina benefits from this rule because it gives explicit rules for state regulators to follow, ensuring proper implementation of existing requirements. It also provides the regulated community with clear expectations and streamlines the process for basin closure.

8. Financial Assurance requirements are added to the proposed ruleset. NCGS 130A-294(b2) requires that permit applicants and permit holders of solid waste management facilities that are not hazardous waste management facilities under Article 9 of the Solid Waste Management Act establish financial responsibility in accordance with NCGS 130A-295.2. NCGS 130A-295.2(f) states that an applicant or permit holder for a solid waste management facility shall establish financial assurance for closure, post-closure maintenance and monitoring, any corrective action, and any post-closure amount of time that the Department may require, and may do so by the mechanisms referred to in the statute, and described further in 40 CFR 258.74. While a specific reference to financial assurance requirements is not in the existing 15A NCAC 13B Section .0500 rules for industrial landfills, the requirement and the methods to meet the requirement are in existing statute for all solid waste management facilities.
9. The proposed rules for CCR recycling projects establish dust control and transportation plan requirements. The establishment of transportation and dust control plans, which include best management practices for the prevention of spills and other nuisances, should reduce community impacts and cleanups. The proper transportation of ash along the nation's public roads and railways includes not creating a dust hazard. Dust is a significant public concern expressed to the agency. The inclusion of a requirement to prepare a plan and describe dust control measures provides the public with a level of comfort while possibly changing the behavior of recycling facilities and transporters of coal ash. The impact of this ruleset is to increase positive behavior of the regulated community, give assurance to the public that environmental plans are in place, and show that regulators are providing oversight. The regulated community may incur an opportunity cost for the change in behavior. The impacts cannot be quantified but are expected to be minor relative to current levels of compliance.

The following table illustrates the differences between the baseline and the proposed ruleset as explained in the text above.

Proposed NCAC 13B .2000	Baseline	Change from Baseline
Location Restrictions		
Floodplains (cannot restrict flow of 100-year flood) <i>Rule .2006(c)(4)</i>	NCAC 13B .0500 Federal CCR Rule	
Wetlands <i>Rule .2006(c)(5)</i>	Federal CCR Rule	
Fault Zones <i>Rule .2006(c)(6)</i>	Federal CCR Rule	
Seismic Impacts <i>Rule .2006(c)(7)</i>	Federal CCR Rule	
Unstable Areas <i>Rule .2006(c)(8)</i>	Federal CCR Rule	
Cultural Resources Location <i>Rule .2006(c)(9)</i>	NCAC 13B .0500	
State Nature and Historic Preserve <i>Rule .2006(c)(10)</i>	NCAC 13B .0500	
Water Supply Watersheds Locations <i>Rule .2006(c)(11)</i>		Clarity
Endangered Species <i>Rule.2006(c)(12)</i>	NCAC 13B .0500	
Design/Construction Requirements		
Base Liner Systems (several options) <i>Rule .2010(b)(1)</i>		NCAC 13B .0500 - 2-ft compacted clay over 30-mils flexible membrane synthetic liner Federal CCR Rule - 2-ft compacted clay over 60-mils HDPE synthetic liner
Leachate Collection System <i>Rule .2010(b)(2)</i>	NCAC 13B .0500 Federal CCR Rule	
Horizontal Separation <i>Rule .2010(b)(3)</i>		Clarity and protection
<i>Buffer to property line = 300'</i>	NCAC 13B .0500 Buffer = 50'	Buffer increased increasing protection.
<i>Buffer to residence or well = 500'</i>	NCAC 13B .0500 Buffer = 500'	
<i>Buffer to surface waters = 100'</i>	NCAC 13B .0500 Buffer = 50'	Buffer increased increasing protection.
<i>Monitoring zone between new and existing landfill unit</i>		Provides greater protection of human health and the environment
Separation to Groundwater (5' to seasonal high groundwater table) <i>Rule .2010(b)(4)</i>	Federal CCR Rule	NCAC 13B .0500 – 4 feet to seasonal high groundwater table Federal CCR Rule – 5 feet to post-settlement bottom of waste

		Separation of groundwater from waste is increased increasing protection.
Construction Quality Assurance Report <i>Rule .2010(b)(16)</i>		Codifies for the first time the requirement that the design and construction criteria were followed. Clarity to the public and regulators.
Operating Requirements		
Operation Plan <i>Rule .2012(b)</i>	NCAC 13B .0500	
Waste Acceptance & Disposal <i>Rule .2012(c)</i>	NCAC 13B .0500	
Cover Material <i>Rule .2012(d)</i>	NCAC 13B .0500	
Spreading & Compacting <i>Rule .2012(e)</i>	NCAC 13B .0500	
Disease Vector Control <i>Rule .2012(f)</i>	NCAC 13B .0500	
Air Criteria (Fugitive Dust Control) <i>Rule .2012(g)</i>	NCAC 13B .0500 only fences and dikes to prevent windblown litter.	Increased protection for dust control at recycling facilities and during transportation. In past, the landfills only needed plans per the state
Erosion & Sedimentation Control <i>Rule .2012(h)</i>	NCAC 13B .0500	
Drainage Control & Water Protection <i>Rule .2012(i)</i>	NCAC 13B .0500 Federal CCR Rule	
Stormwater Discharges <i>Rule .2012(j)</i>	Federal CCR Rule	
Weekly Inspections by Facility to Verify Potential Disruptive Safety and Operation Conditions <i>Rule .2012(l)</i>	Federal CCR Rule	
Annual Inspections by Qualified Professional Engineer to Verify Engineering and Operating Standard <i>Rule .2012(m)</i>	Federal CCR Rule	
Certified Landfill Operator On-Site while in Active Operation <i>Rule .2012(g)(6)</i>	NCGS 130A-309.25	
Groundwater, Surface Water and Gas Monitoring Requirements		
Meet 2L at Compliance Boundary <i>Rule .2014(c)(12)</i>	NCAC 13B .0500	

Groundwater Detection Monitoring Plan <i>Rule .2014(c)</i>	NCAC 13B .0500 Federal CCR Rule	
Defined Detection Monitoring Constituent List <i>Rule .2014(c)(1)(D)</i>	Federal CCR Rule	May result in additional sampling cost, \$22,000 per year for Duke owned coal ash facilities and \$900 per year for local government owned coal ash facilities. Notably protection during detection monitoring is greater than CCR rule because many parameters not required by feds until assessment are initiated during detection monitoring in NC.
Surface Water Monitoring <i>Rule .2014(d)</i>	NCAC 13B .0500	
Gas Monitoring - Quarterly <i>Rule .2014(e)</i>		Increased frequency compared to baseline and clarity to public the level of gas onsite, if any. Cost of gas monitoring system \$60,000 - \$72,000 for the six Duke landfills taking FGD waste
<i>Concentration of gas cannot exceed 25% of lower explosive limit in on-site structures</i>	NCAC 13B .0500	
<i>Concentration of gas cannot exceed the lower explosive limit at property boundary</i>	NCAC 13B .0500	
<i>Gas concentration at any level is not allowed in offsite structures</i>	NCAC 13B .0500	
Assessment Monitoring and Corrective Action Requirements		
Groundwater Assessment Program (required if any constituent detected above 2L, IMAC) <i>Rule .2015(b)</i>	Federal CCR Rule	Does not retain the federal CCR rule requirement to enter assessment monitoring if there is a statistically significant evidence of contamination above background levels but below the groundwater standard. North Carolina monitors for an increased set of parameters during detection monitoring. If assessment is triggered an additional three constituents are added for purposes of delineating

		the nature and extent of the contamination.
Establishing Groundwater Protection Standards <i>Rule .2015(c)(3)</i>	2L	The rule allows for establishing groundwater protection standards in the absence of a 2L or IMAC standard or in cases where the naturally occurring background level is above the groundwater standard. It ensures that detections are actually releases and conserves resources by not triggering remediation of sites that are not impacted by the regulated activity.
Assessment Monitoring Work Plan <i>Rule .2015(c)</i>	Federal CCR Rule	
Assessment of Corrective Measures (analysis of potential corrective actions) <i>Rule .2015(e)</i>	Federal CCR Rule	
Selection of Remedy <i>Rule .2015(f)</i>	Federal CCR Rule	
Corrective Action Evaluation Report (submitted every 5 years) <i>Rule .2015(i)</i>		Clarity to the state regulators as well as the public
Closure and post-closure		
Criteria for Conducting Closure of CCR Landfills and Impoundments – Written Closure Plan <i>Rule .2013(c)(1)</i>	Federal CCR Rule	
Closure by Removal of CCR <i>Rule .2013(c)(2)</i>	Federal CCR Rule	
Closure Performance When Leaving CCR in Place <i>Rule .2013(c)(3)</i> <ul style="list-style-type: none"> • minimize/eliminate post-closure infiltration of liquids • prevent future impoundment of water or sediment • provide major slope stability • minimize need for further maintenance • complete in shortest amount of time using accepted good engineering practices 	Federal CCR Rule (impoundments and landfills) CAMA (impoundments)	Design criteria are specified for use by owner/operator of landfills and impoundments by regulation for the first time.
Final Cover System <i>Rule .2013(c)(3)(C)</i>	Federal CCR Rule	

<ul style="list-style-type: none"> permeability $\leq 1 \times 10^{-5}$ cm/sec infiltration layer = 18" min of soil final erosion layer = 6" min of soil settling and subsistence minimized 		
Initiation of Closure Activities <i>Rule .2013(c)(4)</i>	Federal CCR Rule	
Post-Closure Care <i>Rule .2013(d)</i>	Federal CCR Rule	
Financial Assurance Requirements		
Financial Assurance for Closure <i>Rule .2016(c)(2)</i>	NCGS 130A-294(b2)	
Financial Assurance for Post-Closure <i>Rule .2016(c)(4)</i>	NCGS 130A-294(b2)	
Financial Assurance for Corrective Action <i>Rule .2016(c)(6)</i>	NCGS 130A-294(b2)	
Public Participation and Information		
Fact Sheet of Draft Permits <i>Rule .2003(c)(2)</i>		Clarity to the state regulators as well as the public
45-day Public Notice of Permit Actions and Public Hearings <i>Rule .2003(c)(4)</i>		Clarity to the state regulators as well as the public
Public Comments <i>Rule .2003(c)(5)</i>		Clarity to the state regulators as well as the public
Local Government Approval and Zoning Letter <i>Rule .2006(c)(13)</i>	NCAC 13B .0500	
Deed Notifications (recordation of CCR landfill) <i>Rule .2013(c)(8)</i>		Clarity to the state regulators as well as the public
Reporting to DEQ and Public Disclosure <i>Rule .2017(a) and (b)</i>		Clarity to the state regulators as well as the public
CCR Rule Compliance Data and Information Public Accessible Website <i>Rule .2017(c)</i>	Federal CCR Rule	
Beneficiation of Coal Combustion Products (CCP)		
Dust Control Plan <i>Rule .2018(d)</i>		Reassures the public that these protections are in place
CCP Treatment and Processing Plan (prevent uncontrolled exposure) <i>Rule .2018(e)</i>		Reassures the public that these protections are in place
Transportation Plan <i>Rule .2018(f)</i>		Reassures the public that these protections are in place
Incident Reporting Within 24 hours <i>Rule .2018(f)(2)</i>		Clarity to the state regulators as well as the public

Annual Reporting (origin and quantity of CCR, name and location of recycling facility) <i>Rule .2018(f)(3)</i>		Clarity to the state regulators as well as the public
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Uncertainties Analysis

New rules for CCR landfills, CCP recycling facilities and the closure of ash impoundments have been crafted to meet North Carolina's specific needs. The proposed rules are similar to the design and operation criteria of MSWLF, at least as protective as the EPA's current rule for CCR landfills and closure, and consistent with CAMA. It appears to the Division that there are very few uncertainties associated with this Regulatory Impact Analysis if the proposal for the Environmental Management Commission to adopt the new rule is successful.

The federal and state programs have been in full operation for several years. The small changes in the state's criteria to make them "as protective as" those of the federal rules are not expected to change the operation of either program. The outcome of the rule change is straightforward and the "Impact Analysis" is predictable.

There is a benefit to maintaining the current level of protection, should the EPA relax federal rules in the future. The proposed ruleset freezes North Carolina's protections; although, if new federal ruleset were more protective North Carolina is obligated by federal law to regulate to the most stringent level, whether state or federal.

Municipal solid waste landfills are allowed by federal rule, as well as state rules, to take CCR waste. In fact, waste which has been cleaned out of impoundments at both the Asheville and the Dan River Plants was sent to MSW landfills in Georgia and Virginia before the construction of on-site landfills was completed. Coal combustion residual waste, often cleanup from old towns' power plants, also goes into MSW landfills though in small amounts relative to the amounts generated at present day utilities.

It is uncertain whether MSW landfills may in the future be used by the power industry as a less expensive means to dispose of the ash without the added protections which are afforded by the proposed rules. Analysis of this possibility leads to the conclusion that the design of the MSW landfills is comparable to the proposed rules' design criteria and the monitoring system, but the list of constituents being tested are not comparable. The following constituents are not part of the Appendix I inorganics, which MSW landfills are required to monitor: boron, calcium, chloride, fluoride, iron, manganese, nitrate, sulfate and total dissolved solids. It should be noted the missing constituents are not primary health pollutants. Under the MSW landfill rules, 15A NCAC 13B .1600, DEQ has the authority to request additional constituents be added to the detection monitoring list based on specific knowledge of the characteristics of a waste stream.

In spite of the predictability of the "Analysis" of the rule adoption, there is a possibility that DEQ could seek, and eventually achieve, delegation of the federal program's implementation. This outcome could have an impact on the costs and benefits to the state and federal governments as well as the regulated community and affected environments. The expected outcomes, benefits and costs of a federal program delegation are described below:

State Government:

If the state were to seek and achieve federal program delegation, there would not be additional uncertainty added to this analysis because of potential changes in the state's role. The state presently takes an active role in the overall implementation of the CCR landfill program. The state's oversight role would not change if it were to seek and achieve federal program delegation. The rules as proposed would provide additional reporting to the state, but this has been previously noted.

Federal Government:

If the state were to seek and achieve federal program delegation, there may be some reduction in the resources that are required from the federal government. Although from the federal government's perspective, the CCR program is "self-implementing," meaning that enforcement of these requirements will be by citizen suits (filed either by private citizens or by states), it appears that considerable resources are applied by the EPA to maintain the program. However, because the EPA does rely on the program implementing itself, delegation to a state may not provide the federal agency savings that would normally be associated with traditional, EPA program delegations.

Regulated Community:

Program delegation to the state would have an impact on the regulated utilities and would modify the outcome of this Analysis. Having to deal with the program requirements of only one regulatory agency would seem to provide a reduction in duplication of some requirements and a related cost reduction to the affected utility. Similarly, communications with an agency that is closer geographically is usually a benefit for a regulated entity. In the absence of delegation, the regulated community would be subject to both state and federal rules on landfill, closure of landfills and impoundments, recycling facilities and enforcement actions through both citizen suit processes and state regulatory oversight.

Environment and Public Safety:

Presently, there is a self-implementing federal program and separate state rules and laws addressing the disposal and recycling issues relating to coal combustion residuals. Incorporating the federal requirements into state rules would provide enhanced opportunities to ensure compliance. If the state agency were to be delegated federal responsibilities, state enforcement of the rules would supersede federal enforcement that relies on citizen suits in federal court. Regulatory oversight would proceed through the state agency. Having one principal CCR program implementation agency will result in a more efficient program delivery, a reduction in taxpayer resources applied to the coal combustion residual program, and more thorough and consistent enforcement.

Impact Summary and Conclusions*Local Government:*

Halifax County Industrial Landfill is owned and operated by Halifax County. Halifax will see an increase in costs due to the addition of six constituents to the detection monitoring list. That cost would be \$75 per event multiplied by two (semiannual sampling) multiplied by six (number of wells), which equals \$900 per year. The Halifax County Industrial Landfill is currently undergoing closure activities and no longer receives CCR materials, so it will not be assuming additional costs due to assessment monitoring (see #4). No other costs will be realized by the county as a result of the proposed rule.

There will not be a behavioral impact to Local Governments because the permitting process and compliance oversight, monitoring and reporting should not change as a result of these rule changes. Duke

Energy is not required to obtain a franchise agreement prior to constructing a landfill. It is and has been required to obtain zoning approval from the local government. Therefore, the proposed rules create only a fiscal impact to Halifax (the only local government) of the Detection Monitoring and analytical costs estimated to be a \$900 per year increase.

State Government:

There will be savings to the regulated community and regulatory agency due to the specificity supplied by the rules and required by the North Carolina rule writing requirements.

Additional requirements for impoundment closure permits, recycling facilities, and increased notification and record keeping requirements will result in increased permitting activities, oversight and monitoring by DEQ staff. Therefore, DEQ will have a need for additional full-time equivalent (FTE) staff. The department currently allocates 4.5 FTE to the seven-member Coal Ash team. The increased duties due to these new rules will require an additional three FTE (an Engineer III, a Hydrogeologist and an Environmental Program Consultant), which results in a \$327,916 increase in salary allocation. See table below.

Staff	Salary	Social Security	Retirement	Medical	Total Cost to State
Engineer III GN16	\$92,309	\$7,061	\$17,409	\$6,104	\$122,884
Advanced Hydrogeologist GN14	\$79,140	\$6,054	\$14,925	\$6,104	\$106,224
Environmental Program Consultant GN13	\$73,278	\$5,605	\$13,820	\$6,104	\$98,808

Assumptions: Salary = End of 3rd Quartile Rate OSHR [Schedule GN](#); Social Security = Salary x .0765; Retirement = Salary x 0.189; Medical = \$6,104.

Public and the Environment:

The proposed rules clarify, streamline and codify requirements for CCR landfills, CCP recycling facilities and closure of ash impoundments with a goal of protecting public health and the environment. They provide clarity to the public as to CCR rules and requirements, particularly for dust control and transportation. They include specific rules for landfill design and operation, including specifics for liner construction, separation from groundwater and dust control. The same specifics for design are applicable to permits for closure of impoundments. The list of constituents being monitored during detection monitoring has been increased by six with the goal of adding protection to new and emerging target constituents. These impacts are minor.

The impact of this ruleset by inclusion of dust control plans and transportation plans in route to and at recycling facilities, as well as at landfills, is to increase positive behavior of the regulated community and give assurance to the public that environmental plans are in place and regulators are providing oversight. Although impoundment closure criteria are CAMA requirements, these design criteria are included in the regulations to assure the public that the regulated entity has clearly defined closure designs.

A comprehensive list of potential contaminants reassures the public that maximum protection is being afforded them by the state environmental agency. The addition of these constituents to the required detection monitoring list provides additional indicators of a potential release to groundwater earlier in the monitoring process by including constituents which are fast moving through the groundwater. These rules'

impact is that the public is afforded reassurances that groundwater impacts are detected and possibly detected earlier.

Regulated Community:

Current permit conditions, policy and best management practices codified in the proposed ruleset and landfills for the disposal of CCR will have improved efficiency, consistency and transparency between the regulated community and DEQ. Specific standards allow the owner and his/her consultant to more accurately plan for permitting costs as well as for the owner to more accurately be able to judge bids by his/her consultants. They give direction to the agency as to the requirements for a permit which saves permit review time, back-and-forth time and provides certainty to the process. This benefit is intangible in terms of money, but valued by the public non-the-less. The regulated community will incur an opportunity cost because, to ensure proper implementation, the rule limits potential flexibilities they have with respect to the design and construction of basin closure activities in the absence of clear standards.

Landfills for the disposal of CCR according to this ruleset will now have to test for antimony, beryllium, calcium, cobalt, thallium, and vanadium during detection monitoring. This will result in increased costs totaling \$22,000 per year to the 12 open and closed landfills in North Carolina, which are owned and operated by Duke Energy.

Landfills will now have to test for lithium, molybdenum and radium 226/228 as well as the detection constituents during assessment monitoring. If required, the additional costs would be \$48,000 per year, if all facilities were in assessment at the same time, plus \$22,000 for the six detection monitoring constituents.

The six new constituents in the assessment monitoring rules provide the owner of the landfill additional data, which can be used in the selection of a remedy specific to the contaminant found. The facility may have to start assessment sooner due to the detections of the new six constituents. This will incur some assessment costs but may also divert future remedy costs by fixing the cause of the release (such as a leaking leachate line or a tear in a liner) before the release grows in size.

An increased frequency of gas monitoring is added to regulatory requirements with a potential one-time cost of \$60,000 to \$72,000.

Waste acceptability plans are added to the regulatory requirements with no fiscal impact.

A facility may obtain a determination from the Division that an alternative Groundwater Protection Standard is established. In the case of existing landfills at power plants, the background standards have already been established under CAMA. The Halifax County coal ash landfill will not have to establish background standards. Future landfills would need to establish a Groundwater Protection Standard, resulting in additional analysis costs but reduced remediation costs.

A permit is now required of a facility engaged in the closure of an impoundment with no fiscal impact.

Establishing financial assurance is now codified in the proposed ruleset but has been required under the North Carolina General Statutes, therefore no regulatory or fiscal impact.

Dust control plans and transportation plans for CCP, in addition to CCR, are now codified in the proposed ruleset. The regulated community may incur an opportunity cost for increased compliance. That impact cannot be quantified but is expected to be minor relative to current levels of compliance.

Appendix A – Proposed Rule Making Timeline

March 2018 – Stakeholder meetings held

May 9, 2018 – GWWM Committee

July 12, 2018 - EMC Meeting

August 15, 2018 - NC Register publication

TBD - Public Hearing

October 15, 2018 - Comment period ends

November 8, 2018 - Approve Hearing Officer's Report, Adopt Rules / EMC

December 13, 2018 - Approval of Rule / RRC

January 1, 2019 - Proposed effective date

Appendix B – Proposed Rule Text

SECTION .2000 COAL COMBUSTION RESIDUALS MANAGEMENT

15A NCAC 13B .2001	PURPOSE, SCOPE, AND APPLICABILITY FOR CCR FACILITIES AND UNITS, AND CCR TO CCP TREATMENT AND PROCESSING FACILITIES
15A NCAC 13B .2002	DEFINITIONS
15A NCAC 13B .2003	GENERAL APPLICATION AND PROCESSING REQUIREMENTS FOR CCR FACILITIES AND UNITS
15A NCAC 13B .2004	GENERAL REQUIREMENTS FOR CCR FACILITIES AND UNITS
15A NCAC 13B .2005	APPLICATION REQUIREMENTS FOR CCR FACILITIES AND UNITS
15A NCAC 13B .2006	SITE STUDY REQUIREMENTS FOR CCR FACILITIES AND UNITS
15A NCAC 13B .2007	FACILITY REQUIREMENTS FOR CCR FACILITIES AND UNITS
15A NCAC 13B .2008	GEOLOGIC AND HYDROGEOLOGIC INVESTIGATIONS REQUIRED FOR CCR FACILITIES AND UNITS
15A NCAC 13B .2009	ENGINEERING REQUIREMENTS FOR CCR FACILITIES AND UNITS
15A NCAC 13B .2010	CONSTRUCTION REQUIREMENTS FOR CCR FACILITIES AND UNITS
15A NCAC 13B .2011	CONSTRUCTION QUALITY ASSURANCE REQUIREMENTS FOR CCR FACILITIES AND UNITS
15A NCAC 13B .2012	OPERATING REQUIREMENTS FOR CCR FACILITIES AND UNITS
15A NCAC 13B .2013	CLOSURE AND POST-CLOSURE REQUIREMENTS FOR CCR FACILITIES AND UNITS
15A NCAC 13B .2014	DETECTION MONITORING REQUIREMENTS FOR CCR FACILITIES AND UNITS
15A NCAC 13B .2015	ASSESSMENT AND CORRECTIVE ACTION REQUIREMENTS FOR CCR FACILITIES AND UNITS
15A NCAC 13B .2016	FINANCIAL ASSURANCE REQUIREMENTS FOR CCR FACILITIES AND UNITS
15A NCAC 13B .2017	RECORDKEEPING, NOTIFICATION AND PUBLICLY ACCESSIBLE INTERNET SITE REQUIREMENTS
15A NCAC 13B .2018	CCR TO CCP TREATMENT AND PROCESSING FACILITIES AND TRANSPORTATION REQUIREMENTS

Notes for Definitions in Rule .2002 – this page and note references will not be published in NC Register

*1 EPA CCR Rule

*2 15A NCAC 02L

*3 15A NCAC 02C

*4 15A NCAC 02K

*5 NCGS 130A Solid Waste Statute

1 15A NCAC 13B .2001 is proposed for adoption as follows:

2

3 **15A NCAC 13B .2001 PURPOSE, SCOPE, AND APPLICABILITY FOR CCR FACILITIES AND UNITS,**
4 **AND CCR TO CCP TREATMENT AND PROCESSING FACILITIES**

5 (a) Purpose. The purpose of Rules .2001 through .2017 of this Section is to regulate the permitting siting, design,
6 construction, operation, closure and post-closure of all Coal Combustion Residual (CCR) disposal facilities and
7 units. Rule .2018 of this Section describes the performance standards for Coal Combustion Products (CCP) reuse
8 facilities.

9 (b) Scope. Rules .2001 through .2017 of this Section describe the performance standards, application requirements,
10 and permitting procedures for new and existing CCR disposal facilities and unit(s). Rule .2018 of this Section
11 describes the performance standards for CCR to CCP treatment and processing facilities. Rules of this Section are
12 intended to:

13 (1) establish the State standards for CCR disposal facilities and units and CCR to CCP treatment and
14 processing facilities to provide for effective practices to protect the public health and environment;
15 and

16 (2) coordinate other State Rules applicable to disposal or reuse.

17 (c) Applicability. Owners and operators of CCR disposal facilities and units and CCR to CCP treatment and
18 processing facilities shall conform to the requirements of Rules .2001 through .2018 of this Section.

19 (d) Owners and operators of CCR disposal facilities and unit(s) or CCR to CCP treatment and processing facilities
20 shall comply with any other applicable Federal, State and Local laws, rules, regulations, or other requirements.

21

22 History Note: Authority G.S. 130-294; G.S. 130A-309.207;

23 Eff. January 1, 2019.

1 15A NCAC 13B .2002 is proposed for adoption as follows:

2
3 **15A NCAC 13B .2002 DEFINITIONS**

4 This Rule contains definitions for terms that appear throughout the Rules pertaining to CCR units, Rules .2001
5 through .2018 of this Section; additional definitions appear in the specific Rules to which they apply.

- 6 (1) “100-year flood” means a flood that has a one-percent or greater chance of recurring in any given
7 year or a flood of a magnitude equaled or exceeded once in 100 years on average over a
8 significantly long period.*5
- 9 (2) “Active life” or “in operation” means the period of operation beginning with the initial placement
10 of CCR in the CCR unit and ending at completion of closure activities in accordance with Rule
11 .2013 of this Section.*1
- 12 (3) “Aquifer” means a geological formation, group of formations, or portion of a formation capable of
13 yielding groundwater.*1
- 14 (4) “Areas susceptible to mass movement” means those areas of influence (i.e., areas characterized as
15 having an active or substantial possibility of mass movement) where the movement of earth
16 material at, beneath, or adjacent to the CCR unit(s), because of natural or man-induced events,
17 results in the downslope transport of soil and rock material by means of gravitational influence.
18 Areas of mass movement include, but are not limited to, landslides, avalanches, debris slides and
19 flows, soil fluction, block sliding, and rock fall.*1
- 20 (5) “Base liner system” means the liner system installed on the CCR unit's foundation to control the
21 flow of leachate.
- 22 (6) “Beneficial” and “benefit” means promoting public health and environmental protection, offering
23 equivalent success relative to other alternatives, and preserving natural resources.
- 24 (7) “Boiler slag” means the molten bottom ash collected at the base of slag tap and cyclone type
25 furnaces that is quenched with water. It is made up of hard, black, angular particles that have a
26 smooth, glassy appearance.
- 27 (8) “Bottom ash” means the agglomerated, angular ash particles formed in pulverized coal furnaces
28 that are too large to be carried in the flue gases and collect on the furnace walls or fall through
29 open grates to an ash hopper at the bottom of the furnace.
- 30 (9) “Cap system” means a liner system installed over the CCR unit(s) to minimize infiltration of
31 precipitation and contain the wastes.*3 15A NCAC 02C .0102
- 32 (10) “CCR fugitive dust” means solid airborne particulate matter that contains or is derived from CCR,
33 emitted from any source other than a stack or chimney.*1
- 34 (11) “CCR landfill” or “landfill” means an area of land or an excavation that receives CCR and which
35 is not a surface impoundment, an underground injection well, a salt dome formation, a salt bed
36 formation, an underground or surface coal mine, or a cave. For purposes of this subpart, a CCR
37 landfill also includes sand and gravel pits and quarries that receive CCR, CCR piles, and any

1 practice that does not meet the definition of a beneficial use of CCR. *1

2 (12) “CCR Leachate” or “leachate” means any liquid, including any CCR suspended components in
3 liquid, that has percolated through or drained from CCR.

4 (13) “CCR pile” or “pile” means any non-containerized accumulation of solid, non-flowing CCR that is
5 placed on the land. CCR that is beneficially used offsite is not a CCR pile. *1

6 (14) “CCR unit” means any CCR landfill, CCR surface impoundment, or lateral expansion of a CCR
7 landfill, or a combination of more than one of these units, based on the context of the paragraph(s)
8 in which it is used. This term includes both new and existing units, unless otherwise specified. *1

9 (15) “Cell” means a subdivision of a phase, which describes modular or partial construction, for
10 purposes of leachate and stormwater management a cell may be subdivided into subcells.

11 (16) “Closed” means placement of CCR in a CCR unit has ceased, and the owner or operator has
12 completed closure of the CCR unit in accordance with Rule .2013 of this Section and has initiated
13 post-closure care in accordance with Rule .2013 of this Section.

14 (17) “Coal combustion products (CCP)” means fly ash, bottom ash, boiler slag, or flue gas
15 desulfurization materials that are beneficially used, including use for structural fill, as defined in
16 NCGS 130A-309.201(4).

17 (18) “Coal combustion residuals (CCR)” means residuals, including fly ash, bottom ash, boiler slag,
18 mill rejects, and flue gas desulfurization residue produced by a coal-fired generating unit destined
19 for disposal, as defined in NCGS 130A-290(2b).

20 (19) “Coal combustion residuals surface impoundment” means a topographic depression, excavation,
21 or diked area that is: (i) primarily formed from earthen materials; (ii) without a base liner approved
22 for use by Article 9 of Chapter 130A of the General Statutes or rules adopted thereunder for a
23 combustion products landfill or coal combustion residuals landfill, industrial landfill, or municipal
24 solid waste landfill; and (iii) designed to hold accumulated coal combustion residuals in the form
25 of liquid wastes, wastes containing free liquids, or sludges, and that is not backfilled or otherwise
26 covered during periods of deposition. “Coal combustion residuals surface impoundment” shall
27 only include impoundments owned by a public utility, as defined in NCGS 62-3. “Coal
28 combustion residuals surface impoundment” includes all of the following:

29 (a) An impoundment that is dry due to the deposited liquid having evaporated, volatilized, or
30 leached.

31 (b) An impoundment that is wet with exposed liquid.

32 (c) Lagoons, ponds, aeration pits, settling ponds, tailings ponds, and sludge pits, when these
33 structures are designed to hold accumulated coal combustion residuals.

34 (d) A coal combustion residuals surface impoundment that has been covered with soil or
35 other material after the final deposition of coal combustion residuals at the impoundment.

36 (20) “Compliance boundary” means a boundary around a disposal system at and beyond which
37 groundwater quality standards may not be exceeded and only applies to facilities which have

1 received a permit issued under the authority of G.S. 143-215.1 or G.S. 130A. *2

- 2 (21) "Contaminate" or "Contamination" means the introduction of foreign materials of such nature,
3 quality, and quantity into the groundwaters as to exceed the groundwater quality standards
4 specified in 15A NCAC 02L (Classifications and Water Quality Standards Applicable to the
5 Groundwaters of North Carolina). [Note: 15A NCAC 02L .0202(b)(3) addresses where naturally
6 occurring substances exceed the established standard.] *3
- 7 (22) "Dike" means an embankment, berm, or ridge of either natural or man-made materials used to
8 prevent the movement of liquids, sludges, solids, or other materials. *1
- 9 (23) "Displacement" means the relative movement of any two sides of a fault measured in any
10 direction. *1
- 11 (24) "Disposal" means the discharge, deposit, injection, dumping, spilling, leaking, or placing of any
12 solid waste as defined in Section 1004(27) of the Resource Conservation and Recovery Act into or
13 on any land or water so that such solid waste, or constituent thereof, may enter the environment or
14 be emitted into the air or discharged into any waters, including groundwaters. For purposes of this
15 subpart, disposal does not include the storage or the beneficial use of CCR. *1
- 16 (25) "Encapsulated beneficial use" means a beneficial use of CCR that binds the CCR into a solid
17 matrix that minimizes its mobilization into the surrounding environment. *1
- 18 (26) "New CCR landfill" means a CCR landfill or lateral expansion of a CCR landfill that first receives
19 CCR or commences construction after October 19, 2015. A new CCR landfill has commenced
20 construction if the owner or operator has obtained the federal, state, and local approvals or permits
21 necessary to begin physical construction and a continuous on-site, physical construction program
22 had begun after October 19, 2015. Overfills are also considered new CCR landfills. *1 except called
23 'existing'.
- 24 (27) "Facility" means all contiguous land, and structures, other appurtenances, and improvements on
25 the land, used for treating, storing, disposing, or otherwise conducting solid waste management of
26 CCR. A facility may consist of several treatments, storage, or disposal operational units (e.g., one
27 or more landfills, surface impoundments, or combinations of them). *1
- 28 (28) "Factor of safety" means the ratio of the forces or moments resisting mass movement to the forces
29 or moments tending to produce mass movement. *4
- 30 (29) "Fault" means a fracture or fracture zone along which there has been displacement of the two sides
31 relative to one another parallel to the fracture.
- 32 (30) "Floodplain" means the lowland and relatively flat areas adjoining inland and coastal waters,
33 including flood-prone areas of offshore islands, that are inundated by the 100-year flood. *5
- 34 (31) "Flue gas desulfurization material (FGD)" means the material produced through a process used to
35 reduce sulfur dioxide emissions from the exhaust gas system of a coal-fired boiler. The physical
36 nature of these materials varies from a wet sludge to a dry powdered material, depending on the
37 process, and their composition comprises either sulfites, sulfates, or a mixture thereof.

- 1 (32) “Fly ash” means the very fine, powdery material, composed mostly of silica with nearly all
2 particles spherical in shape, which is a product of burning finely ground coal in a boiler to produce
3 electricity and is removed from the plant exhaust gases by air emission control devices.
- 4 (33) “Free liquids” means liquids that readily separate from the solid portion of a waste under ambient
5 temperature and pressure. *1
- 6 (34) “Groundwater” means those waters occurring in the subsurface under saturated conditions. *2
- 7 (35) “Holocene” means the most recent epoch of the Quaternary period, extending from the end of the
8 Pleistocene Epoch to the present.
- 9 (36) “Hydraulic conductivity” means the rate at which water can move through a permeable medium
10 (i.e., the coefficient of permeability).
- 11 (37) “In operation” means the same as active life.
- 12 (38) “Industrial solid waste” means solid waste generated by manufacturing or industrial processes that
13 is not a hazardous waste regulated under Subtitle C of RCRA. Such waste may include, but is not
14 limited to, waste resulting from the following manufacturing processes: electric power generation;
15 fertilizer/agricultural chemicals; food and related products/by-products; inorganic chemicals; iron
16 and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries;
17 organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and
18 miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing;
19 transportation equipment; and water treatment. This term does not include mining waste.
- 20 (39) “Karst terranes” means areas where karst topography, with its characteristic surface and
21 subterranean features, is developed as the result of dissolution of limestone, dolomite, or other
22 soluble rock. *1
- 23 (40) “Landfill facility” means all contiguous land and structures, waste management unit(s), other
24 appurtenances, and improvements on the land within the legal description of the site included in or
25 proposed for the Solid Waste Permit.
- 26 (41) “Landfill unit” means a discrete area of land or an excavation that receives a particular type of
27 waste such as industrial or municipal solid waste, and is not a land application unit, surface
28 impoundment, injection well, or waste pile, as defined under 40 CFR Part 257.
- 29 (42) “Lateral expansion” means a horizontal expansion of the waste boundaries of an existing CCR
30 unit(s). *1
- 31 (43) “Leachate” means any liquid, including any suspended components in liquid, that has percolated
32 through or drained from solid waste. *5
- 33 (44) “Licensed Geologist” means an individual who is licensed to practice geology in accordance with
34 NCGS 89E. *2
- 35 (45) “Liner system” means an engineered environmental control system which can incorporate filters,
36 drainage layers, compacted soil liners, geomembrane liners, piping systems, and connected
37 structures.

- 1 (46) “Liquefaction factor of safety” means the factor of safety (safety factor) determined using analysis
2 under liquefaction conditions.*1
- 3 (47) “Liquid waste” means any waste material that is determined to contain "free liquids" as defined by
4 Method 9095 (Paint Filter Liquids Test), S.W. 846.
- 5 (48) “Lithified earth material” means all rock, including all naturally occurring and naturally formed
6 aggregates or masses of minerals or small particles of older rock that formed by crystallization of
7 magma or by induration of loose sediments. This term does not include man-made materials, such
8 as fill, concrete, and asphalt, or unconsolidated earth materials, soil, or regolith lying at or near the
9 earth surface.
- 10 (49) “Maximum horizontal acceleration in lithified earth material” means the maximum expected
11 horizontal acceleration at the ground surface as depicted on a seismic hazard map, with a 98% or
12 greater probability that the acceleration will not be exceeded in 50 years, or the maximum
13 expected horizontal acceleration based on a site specific seismic risk assessment.*1
- 14 (50) “Minerals” means soil, clay, coal, phosphate, metallic ore, and any other solid material or
15 substance of commercial value found in natural deposits on or in the earth". Monitoring well"
16 means any well constructed for the primary purpose of obtaining samples of groundwater or other
17 liquids for examination or testing, or for the observation or measurement of groundwater levels.
18 This definition excludes lysimeters, tensiometers, and other devices used to investigate the
19 characteristics of the unsaturated zone but includes piezometers, a type of monitoring well
20 constructed solely for the purpose of determining groundwater levels.*3
- 21 (51) "One hundred-year flood" means a flood that has a one percent or less chance of recurring in any
22 year or a flood of a magnitude equaled or exceeded once in 100 years on the average over a
23 significantly long period. “Open pit mine” means an excavation made at the surface of the ground
24 for the purpose of extracting minerals, inorganic and organic, from their natural deposits, which
25 excavation is open to the surface.
- 26 (52) “Operator” means the person(s) responsible for the overall operation of a CCR unit.*1
- 27 (53) “Overfill” means a CCR landfill constructed over a closed CCR surface impoundment.
- 28 (54) “Owner” means the person(s) who owns a CCR unit or part of a CCR unit.
- 29 (55) "Phase" means an area constructed that provides five years of operating capacity.
- 30 (56) “Poor foundation conditions” mean those areas where features exist which indicate that a natural
31 or human induced event may result in inadequate foundation support for the structural components
32 of an existing or new CCR unit. For example, failure to maintain static and seismic factors of
33 safety would cause a poor foundation condition.*1
- 34 (57) “Professional Engineer” means a person who has been duly registered and licensed as a
35 professional engineer in accordance with the requirements of G.S. 89C.*2
- 36 (58) “Project engineer” means the official representative of the permittee who is licensed to practice
37 engineering in the State of North Carolina, who is responsible for observing, documenting, and

1 certifying that activities related to the quality assurance of the construction of the solid waste
2 management unit conforms to the Division approved plan, the permit to construct and the rules
3 specified in this Section. All certifications shall bear the seal and signature of the professional
4 engineer and the date of certification.

5 (59) “Qualified person” means a person or persons trained to recognize specific appearances of
6 structural weakness and other conditions which are disrupting or have the potential to disrupt the
7 operation or safety of the CCR unit by visual observation and, if applicable, to monitor
8 instrumentation.^{*1}

9 (60) “Quality control” means that combination of testing, observation, and monitoring provided during
10 construction to confirm that requirements stated or depicted in the plans and specifications are
11 being achieved.^{*4}

12 (61) “Receptor” means any human, plant, animal, or structure which is, or has the potential to be,
13 affected by the release or migration of contaminants. Any well constructed for the purpose of
14 monitoring groundwater and contaminant concentrations shall not be considered a receptor.

15 (62) “Review boundary” means a boundary around a permitted disposal facility, midway between a
16 waste boundary and a compliance boundary at which groundwater monitoring is required.^{*2}

17 (63) “Registered Land Surveyor” means an individual who is licensed to practice surveying in
18 accordance with NCGS 89C.

19 (64) “Run-off” “Runoff” means the portion of precipitation that drains from an area as surface flow.^{*5}

20 (65) “Sand and gravel pit or quarry” means an excavation for the extraction of aggregate, minerals or
21 metals. The term sand and gravel pit and/or quarry does not include subsurface or surface coal
22 mines.^{*1}

23 (66) “Seasonal High Groundwater Table” means the highest level of the saturated zone in the soil
24 during a year with normal rainfall. Seasonal high groundwater table may be determined in the field
25 through identification of redoximorphic features in the soil profile, monitoring of the water table
26 elevation, or modeling of predicted groundwater elevations.

27 (67) “Seismic factor of safety” means the factor of safety (safety factor) determined using analysis
28 under earthquake conditions using the peak ground acceleration for a seismic event with a 2%
29 probability of exceedance in 50 years, equivalent to a return period of approximately 2,500 years,
30 based on the U.S. Geological Survey (USGS) seismic hazard maps for seismic events with this
31 return period for the region where the CCR surface impoundment is located.^{*1}

32 (68) “Seismic impact zone” means an area having a 2% or greater probability that the maximum
33 expected horizontal acceleration, expressed as a percentage of the earth’s gravitational pull (g),
34 will exceed 0.10 g in 50 years.^{*1}

35 (69) “Solid waste management” or “management” means the systematic administration of the activities
36 which provide for the collection, source separation, storage, transportation, processing, treatment,
37 or disposal of solid waste.^{*1}

- 1 (70) “Standards” means groundwater quality standards as specified in Rule NCAC 15A 02L .0202. *2
- 2 (71) “Static factor of safety” means the factor of safety (safety factor) determined using analysis under
3 the long-term, maximum storage pool loading condition, the maximum surcharge pool loading
4 condition, and under the end-of construction loading condition.
- 5 (72) “Structural components” mean liners, leachate collection and removal systems, final covers, run-
6 on and run-off systems, inflow design flood control systems, and any other component used in the
7 construction and operation of the CCR unit that is necessary to ensure the integrity of the unit and
8 that the contents of the unit are not released into the environment. *1
- 9 (73) “Structural fill” means an engineered fill with a projected beneficial end use constructed using
10 coal combustion products that are properly placed and compacted. For purposes of this Part, the
11 term includes fill used to reclaim open pit mines and for embankments, greenscapes, foundations,
12 construction foundations, and for bases or sub-bases under a structure or a footprint of a paved
13 road, parking lot, sidewalk, walkway, or similar structure.
- 14 (74) “Unstable area” means a location that is susceptible to natural or human induced events or forces
15 capable of impairing the integrity, including structural components of some or all of the CCR unit
16 that are responsible for preventing releases from such unit. Unstable areas can include poor
17 foundation conditions, areas susceptible to mass movements, and karst terrains. *1
- 18 (75) “Use” or “reuse” of coal combustion products means the procedure whereby coal combustion
19 products are directly used as either an ingredient in an industrial process to make a product, unless
20 distinct components of the coal combustion products are recovered as separate end products or
21 in as an effective substitute for a commercial product or natural resource”.
- 22 (76) “Water table” means the upper limit of the portion of the ground wholly saturated with water. *5
- 23 (78) “Washout” means the carrying away of solid waste by waters of the base flood. “Waste boundary”
24 means the perimeter of the permitted waste disposal area. *2

25
26 History Note: Authority G.S. 130-294; G.S. 130A-309.207;
27 Eff. January 1, 2019.

1 15A NCAC 13B .2003 is proposed for adoption as follows:

2
3 **15A NCAC 13B .2003 GENERAL APPLICATION AND PROCESSING REQUIREMENTS FOR CCR**
4 **FACILITIES AND UNITS**

5 (a) Applicability. Owners or operators of a proposed or existing CCR facilities shall submit an application
6 document as detailed in Rule .2005 of this Section in accordance with the criteria and scheduling requirements set
7 forth as follows:

8 (1) New facility. Owners or operators proposing to establish a CCR facility or unit in accordance with
9 the following criteria shall submit a Site Study and subsequently an application for a permit to
10 construct as set forth in Paragraph (a) of Rule .2005 of this Section. This rule does not apply to
11 new CCR surface impoundments which are prohibited by GS 130A-309.210(a). A new facility
12 permit application is required when:

13 (A) The owner or operator proposes to establish a new CCR facility not previously permitted
14 by the Division.

15 (B) The owner or operator proposes to expand a CCR facility in order to expand the CCR
16 unit(s) boundary approved in accordance with Subparagraph (a)(1) of Rule .2006 of this
17 Section.

18 (2) Amendment to the permit. For any subsequent phase of landfill development the owner or
19 operator shall prepare an application to amend the permit to construct in accordance with
20 Paragraph (b) of Rule .2005 of this Section.

21 (3) Substantial amendment to the permit. A permit issued in accordance with Paragraph (c) of this
22 Rule approves a facility plan for the life of the CCR facility and a set of plans for the initial phase
23 of landfill development. The owner or operator shall prepare an application in accordance with
24 Paragraph (c) of Rule .2005 of this Section and submit the application when there is:

25 (A) an increase in waste tonnage per year of greater than 10% occurs; or

26 (B) the facility waste boundaries expand from the property in the site suitability approval; or

27 (C) a proposed transfer of ownership of the CCR facility.

28 (4) Modifications to the permit. An owner or operator proposing changes to the plans approved in the
29 permit shall request prior approval from the Division in accordance with Paragraph (d) of Rule
30 .2005 of this Section.

31 (5) Permit for Closure and Post-Closure of a CCR surface impoundment. An existing CCR surface
32 impoundment that closes in accordance with 130A-309.214(a)(3)(c) shall prepare an application in
33 accordance with Paragraph (e) of Rule .2005 of this Section.

34 (b) Application format guidelines. All applications and plans required by Rules .2001 through .2018 of this Section
35 shall be prepared in accordance with the following guidelines:

36 (1) The initial application shall:

- 1 (A) contain a cover sheet stating the project title and location, permit number, the applicant's
 2 name and address, and the engineer's name, address, signature, date of signature and seal;
 3 and
 4 (B) contain a statement defining the purpose of the submittal signed and dated by the
 5 applicant.

6 (2) The text of the application shall:

- 7 (A) contain a table of contents or index outlining the body of the application and the
 8 appendices;
 9 (B) be paginated consecutively; and
 10 (C) identify revised text by noting the date of revision on the page.

11 (3) Drawings. The engineering drawings for all CCR facilities and units shall be submitted using the
 12 following format:

- 13 (A) The sheet size with title blocks shall be scalable such that if printed 1 inch equals 100
 14 foot increments on a plan sized sheet (22 inches by 34 inches).
 15 (B) The cover sheet shall include the project title, permit number, applicant's name, sheet
 16 index, legend of symbols, and the engineer's name, address, signature, date of signature,
 17 and seal.
 18 (C) Where the requirements do not explicitly specify a minimum scale, maps and drawings
 19 shall be prepared at a scale that adequately illustrates the subject requirement(s).

20 (4) Number of copies. An applicant shall submit at a minimum a copy in pdf format or a format
 21 acceptable to the Division. The Division shall request additional copies as necessary. The Division
 22 shall require submittal of documents in electronic format.

23 (c) Permitting and Public Information Procedures.

24 (1) Purpose and Applicability.

- 25 (A) Purpose. During the permitting process, the Division shall provide for public review of
 26 and comment permit documents containing the applicable design and operating
 27 conditions. The Division shall provide for consideration of comments received and
 28 notification to the public of the permit design.
 29 (B) Applicability. Applications for a Permit to Construct for a new facility, for a substantial
 30 amendment to the permit for an existing facility, or for a modification to the permit
 31 involving corrective remedy selection required by Paragraphs (e) through (i) of Rule
 32 .2015 of this Section shall be subject to the requirements of Subparagraphs (c)(2) through
 33 (9) of this Rule. Applications submitted in accordance with Subparagraphs (a)(2) and (4)
 34 of this Rule are not subject to the requirements of this Paragraph.

35 (2) Draft Permits.

- 36 (A) Once an application is complete, the Division shall decide whether the permit should be
 37 issued or denied.

1 (B) If the Division decides to deny the permit, the Division shall send a notice to deny to the
2 applicant. Reasons for permit denial shall be in accordance with Rule .0203(e) of this
3 Subchapter.

4 (C) If the Division decides the permit should be issued, the Division shall prepare a draft
5 permit.

6 (D) A draft permit shall contain (either expressly or by reference) all applicable terms and
7 conditions for the permit.

8 (E) All draft permits shall be subject to the procedures of Subparagraphs (3) through (9) of
9 this Paragraph, unless otherwise specified in those Subparagraphs.

10 (3) Fact Sheet.

11 (A) The Division shall prepare a fact sheet for every draft permit.

12 (B) The fact sheet shall include a brief description of the type of facility, unit or activity
13 which is the subject of the draft permit. It shall also include a description of the area to
14 be served and of the volume and characteristics of the waste stream, and a projection of
15 the useful life of the unit(s). The fact sheet shall contain a brief summary of the basis for
16 the draft permit conditions, including references to applicable statutory or regulatory
17 provisions and appropriate supporting references to the permit application. The fact sheet
18 shall describe the procedures for reaching a decision on the draft permit. It shall include
19 the beginning and ending dates of the comment period under Subparagraph (4) of this
20 Paragraph, the address where comments will be received, the procedures for requesting a
21 public hearing and any other procedures by which the public may participate in the
22 decision. The fact sheet shall contain the name and telephone number of a person to
23 contact for additional information.

24 (C) The Division make it available to the public for review or copying on the Division
25 website.

26 (4) Public Notice of Permit Actions and Public Hearings.

27 (A) The Division shall give public notice of each of the following: a draft or substantial
28 amendment permit has been prepared; a public hearing has been scheduled under
29 Subparagraph (6) of this Paragraph; or a notice of intent to deny a permit has been
30 prepared under Part (2)(B) of this Paragraph.

31 (B) The Division shall give written notice of denial to the applicant.

32 (C) Public notices may describe more than one permit or permit action.

33 (D) Public notice of the preparation of a draft permit or a notice of intent to deny a permit
34 shall allow at least 45 days for public comment.

35 (E) The Division shall give public notice of a public hearing at least 15 days before the
36 hearing. Public notice of the hearing may be given at the same time as public notice of
37 the draft permit and the two notices may be combined.

1 (F) Public notice of activities described in Part (A) of this Subparagraph shall be given by
2 publication on the Division website, and by any other method deemed necessary or
3 appropriate by the Division to give actual notice of the activities to persons potentially
4 affected.

5 (G) General Public Notices. All public notices issued under this Part shall at minimum
6 contain the following: 1) name, address and phone number of the office processing the
7 permit action for which notice is being given; 2) name and address of the owner and
8 operator applying for the permit; 3) a brief description of the business conducted at the
9 facility or activity described in the permit application including the size and location of
10 the facility and type of waste accepted; 4) a brief description of the comment procedures
11 required by Subparagraphs (5) and (6) of this Paragraph, including a statement of
12 procedures to request a public hearing, unless a hearing has already been scheduled, and
13 other procedures by which the public may participate in the permit decision; 5) name,
14 address, and telephone number of a Division staff from whom interested persons may
15 obtain further information; 6) a description of the time frame and procedure for making
16 an approval or disapproval decision of the application; and 7) any additional information
17 considered necessary or proper as required by the Division.

18 (H) Public Notices for Public Hearing. In addition to the general public notice described in
19 Part (4)(A) of this Paragraph, the public notice of a public hearing shall contain the date,
20 time, and place of the public hearing; a brief description of the nature and purpose of the
21 public hearing, including the applicable rules and procedures; and a concise statement of
22 the issues raised by the persons requesting the hearing.

23 (5) Public Comments and Requests for Public Hearings. During the public comment period any
24 interested person may submit written comments on the draft permit and may request a public
25 hearing if no hearing has already been scheduled. A request for a public hearing shall be in writing
26 and shall state the nature of the issues proposed to be raised in the hearing. The Division shall
27 consider all comments in making a final permit decision. The Division shall respond to all
28 comments as provided in Subparagraph (9) of this Paragraph.

29 (6) Public Hearings.

30 (A) The Division shall hold a public hearing on a draft permit(s) when a hearing is requested.
31 The Division may also hold a public hearing at its discretion whenever such a hearing
32 might clarify one or more issues involved in the permit decision. Public hearings held
33 pursuant to this Rule shall be at a location convenient to the nearest population center to
34 the subject facility. Public notice of the hearing shall be given as specified in
35 Subparagraph (4) of this Paragraph.

36 (B) Any person may submit oral or written statements and data concerning the draft permit.
37 The public comment period under Subparagraph (4) of this Paragraph is extended to the

1 close of any public hearing conducted under this Subparagraph. The hearing officer may
2 also extend the public comment period by so stating at the hearing, when information is
3 presented at the hearing which indicates the importance of extending the period to receive
4 additional comments, to allow potential commenters to gather more information, to allow
5 time for submission of written versions of oral comments made at the hearing, or to allow
6 time for rebuttals of comments made during the hearing.

7 (C) The Division shall make available to the public a recording or written transcript of the
8 hearing for review or copying at the Division of Waste Management - Solid Waste
9 Section website.

10 (7) Reopening of the Public Comment Period.

11 (A) If any data, information, or arguments submitted during the public comment period
12 appear to raise substantial new questions concerning a permit action, the Division may
13 prepare a new draft permit, appropriately modified, under Subparagraph (2) of this
14 Paragraph; prepare a fact sheet or revised fact sheet under Subparagraph (3) of this
15 Paragraph and reopen the comment period under Subparagraph (4) of this Paragraph; or
16 reopen or extend the comment period under Subparagraph (4) of this Paragraph to give
17 interested persons an opportunity to comment on the information or arguments submitted.

18 (B) Comments filed during the reopened comment period shall be limited to the substantial
19 new questions that caused its reopening. The public notice under Subparagraph (4) of this
20 Paragraph shall define the scope of the reopening.

21 (C) Public notice of any of the actions of this Subparagraph shall be issued in accordance
22 with Subparagraph (4) of this Paragraph.

23 (8) Permit Decision.

24 (A) After the close of the public comment period under Subparagraph (4) of this Paragraph
25 on a draft permit or a notice of intent to deny a permit, the Division shall issue a permit
26 decision. The Division shall notify the applicant and each person who has submitted a
27 written request for notice of the permit decision. For the purposes of this Subparagraph, a
28 permit decision means a decision to issue, deny or modify a permit.

29 (B) A permit decision shall become effective upon the date of the notification of the decision
30 unless a later date is specified in the decision.

31 (9) Response to Comments.

32 (A) At the time that a permit decision is issued under Subparagraph (8) of this Paragraph, the
33 Division shall issue a written response to comments. This response shall specify which
34 provisions, if any, of the draft permit have been changed in the permit decision, and the
35 reasons for the change. The response shall also describe and respond to comments on the
36 draft permit raised during the public comment period, or during any public hearing.

1 (B) The Division shall make the response to comments available to the public for review or
2 copying at the Division of Waste Management – Solid Waste Section webpage.

3 (d) Permit approval or denial. The Division shall review all permit applications in accordance with Rule .0203.

4

5 History Note: Authority G.S. 130-294; G.S. 130A-309.207;

6 Eff. January 1, 2019.

1 15A NCAC 13B .2004 is proposed for adoption as follows:

2
3 **15A NCAC 13B .2004 GENERAL REQUIREMENTS FOR CCR FACILITIES AND UNITS**

4 (a) Applicability. Permits issued by the Division for CCR facilities and units shall be subject to the general
5 requirements set forth in this Rule.

6 (b) Terms of the Permit. The Solid Waste Management Permit shall incorporate requirements necessary to comply
7 with this Subchapter and the North Carolina Solid Waste Management Act including the provisions of this
8 Paragraph.

9 (1) Division Approved Plan. Permits shall incorporate a Division approved plan.

10 (2) Permit provisions. All CCR facilities and units shall conform to the specific conditions set forth in
11 the permit and the following general provisions:

12 (A) Duty to Comply. The permittee shall comply with all conditions of the permit, unless
13 otherwise authorized by the Division. Any permit noncompliance, except as otherwise
14 authorized by the Division, constitutes a violation of the Act and is grounds for
15 enforcement action or for permit revocation, modification or suspension.

16 (B) Duty to Mitigate. In the event of noncompliance with the permit, the permittee shall take
17 all reasonable steps to minimize releases to the environment, and shall carry out such
18 measures as are reasonable to prevent adverse impacts on human health or the
19 environment.

20 (C) Duty to Provide Information. The permittee shall furnish to the Division any information
21 that the Division may request to determine whether cause exists for modifying, revoking
22 or suspending the permit, or to determine compliance with the permit. The permittee shall
23 also furnish to the Division, upon request, copies of records required to be kept under the
24 conditions of the permit.

25 (D) Recordation Procedures. The permittee shall comply with the requirements of Rule .0204
26 of this Subchapter "Recordation of Land Disposal Permits" in order for a new permit to
27 be effective.

28 (E) Need to Halt or Reduce Activity. It shall not be a defense for a permittee in an
29 enforcement action to claim that it would have been necessary to halt or reduce the
30 permitted activity in order to maintain compliance with the conditions of the permit.

31 (F) Permit Actions. The permit may be modified, reissued, revoked, suspended or terminated
32 in accordance with NCGS 130A-23. The filing of a request by the permittee for a permit
33 modification, or a notification of planned changes or anticipated noncompliance, does not
34 stay any existing permit condition.

35 (G) Not Transferable. The permit is not transferable.

36 (H) Construction. If construction is not commenced within 18 months from the issuance date
37 of the permit to construct, or an amendment or substantial amendment to the permit, then

1 the permit shall expire. The applicant may re-apply for the permit, which shall be subject
2 to statutes and rules in effect on the date of the re-application.

3 (I) Proper Operation and Maintenance. The permittee shall at all times properly operate and
4 maintain all facilities and systems of treatment and control (and related appurtenances)
5 which are installed or used by the permittee to achieve compliance with the conditions of
6 the permit. Proper operation and maintenance includes effective performance, adequate
7 funding, adequate operator staffing and training, and adequate laboratory and process
8 controls, including appropriate quality assurance procedures. This provision requires the
9 operation of back-up or auxiliary facilities or similar systems only when necessary to
10 achieve compliance with the conditions of the permit.

11 (J) Inspection and Entry. The permittee shall allow the Division or an authorized
12 representative to enter the permittee's premises where a regulated unit(s) or activity is
13 located or conducted, or where records are kept under the conditions of the permit. The
14 Division or its authorized representative shall have access in order to copy any records
15 required to be kept under the conditions of the permit. The permittee shall allow the
16 Division or its authorized representative to inspect any facilities, equipment (including
17 monitoring and control equipment), practices or operations regulated by the Division.
18 For the purposes of assuring permit compliance or as otherwise authorized by the Act, the
19 permittee shall allow the Division or its authorized representative to sample or monitor, at
20 any location under the operation or control of the permittee, the following: any materials,
21 substances, parameters, soil, groundwater, surface water, gases or ambient air. The
22 permittee shall allow the Division or its authorized representative to take photographs for
23 the purpose of documenting items of compliance or noncompliance at permitted facilities,
24 or where appropriate to protect legitimate proprietary interests, require the permittee to
25 take such photographs for the Division.

26 (K) Waste Exclusions. Waste to be excluded from disposal in a CCR landfill is listed in Rule
27 .2012 of this Section. Permit conditions may include additional exclusions as they
28 become necessary in order to protect the public health and the environment or to ensure
29 proper landfill operation.

30 (L) Additional Solid Waste Management Activities. Construction and operation of additional
31 solid waste management activities at the facility shall not impede operation or monitoring
32 of the CCR unit(s). Any proposed additional activities shall be submitted to the Division
33 for review, approval, and permitting, as applicable, before construction and operation.

34
35 History Note: Authority G.S. 130-294; G.S. 130A-309.207;

36 Eff. January 1, 2019.

1 15A NCAC 13B .2005 is proposed for adoption as follows:

2
3 **15A NCAC 13B .2005 APPLICATION REQUIREMENTS FOR CCR FACILITIES AND UNITS**

4 (a) Permit for a new CCR facility or unit. The owner and operator of a new CCR facility or unit shall meet the
5 requirements of Rule .2006 of this Section prior to submitting an application for a permit to construct.

6 (1) Permit to Construct. The owner and operator of a new facility or unit shall provide a complete
7 application for a permit to construct which shall contain the following:

8 (A) a facility plan that describes the comprehensive development of the CCR facility for the
9 life of the site prepared in accordance with Rule .2007 of this Section;

10 (B) an engineering plan for the initial phase of landfill development prepared in accordance
11 with Rule .2009 of this Section;

12 (C) a construction quality assurance plan prepared in accordance with Rule .2011 of this
13 Section;

14 (D) an operation plan prepared in accordance with Rule .2012 of this Section;

15 (E) a closure and post-closure plan prepared in accordance with Rule .2013 of this Section;
16 and

17 (F) monitoring plans prepared in accordance with Paragraph (a) of Rule .2014 of this
18 Section.

19 (2) Permit to Operate. The owner and operator shall meet the pre-operative requirements of the permit
20 to construct in order to qualify the constructed CCR unit for a permit to operate. Construction
21 quality assurance documentation shall be submitted in a timely and organized manner in order to
22 facilitate the Division's review.

23 (b) Amendment to the permit. A complete application for an amendment to the permit shall contain:

24 (1) an updated engineering plan prepared in accordance with Rule .2009 of this Section;

25 (2) an updated construction quality assurance plan prepared in accordance with Rule .2011 of this
26 Section;

27 (3) an updated operation plan prepared in accordance with Rule .2012 of this Section;

28 (4) an updated closure and post-closure plan prepared in accordance with Rule .2013 of this Section;
29 and

30 (5) an updated monitoring plan prepared in accordance with Rule .2014 of this Section.

31 (c) Substantial amendment to the permit. A complete application for a substantial amendment to the permit shall
32 contain:

33 (1) a facility plan that describes the comprehensive development of the CCR facility prepared in
34 accordance with Rule .2007 of this Section; and

35 (2) local government approval in accordance with Subparagraph (d) of Rule .2006 of this Section.

36 (d) Modifications to the permit. The owner or operator may propose to modify plans that were prepared and
37 approved in accordance with the requirements set forth in this Section. A complete application shall identify the

1 requirement(s) proposed for modification and provide sufficient information in order to demonstrate compliance
2 with the applicable requirements of this Section.

3 (e) A permit for closure and post-closure of a CCR surface impoundment. A complete application for a permit for
4 closure and post-closure of a CCR surface impoundment shall contain:

5 (1) an engineering plan prepared in accordance with Rule .2009 of this Section;

6 (2) a construction quality assurance plan prepared in accordance with Rule .2011 of this Section;

7 (3) an operation plan prepared in accordance with Rule .2012 of this Section and;

8 (4) a closure and post-closure care plan prepared in accordance with Rule .2013 of this Section.

9

10 History Note: Authority G.S. 130-294; G.S. 130A-309.207;

11 Eff. January 1, 2019.

1 15A NCAC 13B .2006 is proposed for adoption as follows:

2
3 **15A NCAC 13B .2006 SITE STUDY REQUIREMENTS FOR CCR FACILITIES AND UNITS**

4 (a) Purpose. As required under Rule .2005 of this Section, the owner or operator shall prepare a site study which
5 meets the requirements of this Rule. The Division shall review the site study for a proposed new facility prior to
6 consideration of an application for a permit to construct. Following review of the site study, the Division shall notify
7 the applicant that either:

8 (1) the site is deemed suitable and the applicant is authorized to prepare an application for a permit to
9 construct in accordance with Rule .2005 of this Section; or

10 (2) the site is deemed unsuitable for establishing a CCR unit(s) and shall specify the reasons that
11 would prevent the CCR unit(s) from being operated in accordance with NCGS 130A Article 9, or
12 this Subchapter, and any applicable federal laws and regulations.

13 (b) Scope. The site is the land which is proposed for the landfill facility. The site study presents a characterization
14 of the land, incorporating various investigations and requirements pertinent to suitability of a CCR facility. The
15 scope of the site study includes criteria associated with the public health and welfare, and the environment. The
16 economic feasibility of a proposed site is not within the scope of this study. The information in the site study shall
17 accurately represent site characteristics and shall be prepared by qualified environmental professionals as set forth in
18 Subparagraph (58) of Rule .2002 of this Subchapter. New CCR unit(s) and lateral expansions shall comply with the
19 siting criteria set forth in Paragraph (c) of this Rule, Subparagraphs (4) through (10). In order to demonstrate
20 compliance with specific criteria for each of the respective location restrictions, documentation or approval by
21 agencies other than the Division of Waste Management, Solid Waste Section may be required. The scope of
22 demonstrations including design and construction performance shall be addressed in the site study.

23 (c) The site study prepared for a CCR facility shall include the information required by this Paragraph.

24 (1) Characterization study. The site characterization study area includes the CCR facility and a 2000-
25 foot perimeter measured from the proposed boundary of the CCR facility. The study shall include
26 an aerial photograph taken within one year of the original submittal date, a report, and a local map.
27 The map and photograph shall be at a scale of at least one inch equals 400 feet. The study shall
28 identify the following:

29 (A) the entire property proposed for the disposal site and any on-site easements;

30 (B) existing land use and zoning;

31 (C) the location of residential structures and schools;

32 (D) the location of commercial and industrial buildings, and other potential sources of
33 contamination;

34 (E) the location of potable wells and public water supplies;

35 (F) historic sites;

36 (G) state nature and historic preserves;

- 1 (H) the existing topography and features of the disposal site including: general surface water
2 drainage patterns and watersheds, 100-year floodplains, perennial and intermittent
3 streams, rivers, and lakes; and
- 4 (I) the classification of the surface water drainage from landfill site in accordance with 15A
5 NCAC 02B .0300.
- 6 (2) Proposed Facility Plan. A conceptual plan for the development of the facility including drawings
7 and a report shall be prepared which includes the drawings and reports described in Subparagraphs
8 (d)(1), (e)(1), (e)(2), and (e)(3) of Rule .2007 of this Section.
- 9 (3) Site Hydrogeologic Report. The study shall be prepared in accordance with the requirements set
10 forth in Paragraph (a) of Rule .2008 of this Section.
- 11 (4) Floodplain Location Restrictions. CCR unit(s) or constructed embankments used to construct a
12 CCR unit shall not be located in floodplains unless the owners or operators demonstrate that the
13 unit will not restrict the flow of the flood, reduce the temporary water storage capacity of the
14 floodplain, or result in washout of solid waste so as to pose a hazard to human health and the
15 environment.
- 16 (5) Wetlands Location Restriction. New CCR unit(s) and lateral expansions shall not be located in
17 wetlands, unless the owner or operator can make the following demonstrations to the Division:
- 18 (A) Where applicable under Sections 401 and 404 of the Clean Water Act, the presumption
19 that a practicable alternative to the proposed landfill facility is available which does not
20 involve wetlands is clearly rebutted.
- 21 (B) The construction and operation of the CCR unit(s) will not cause or contribute to
22 violations of any applicable State water quality standards and will not violate any
23 applicable toxic effluent standard or prohibition under Section 307 of the Clean Water
24 Act.
- 25 (C) The construction and operation of the CCR unit(s) will not jeopardize the continued
26 existence of endangered or threatened species or result in the destruction or adverse
27 modification of a critical habitat, protected under the Federal Endangered Species Act of
28 1973. The construction and operation of the CCR unit(s) will not violate any requirement
29 under the Marine Protection, Research, and Sanctuaries Act of 1972 for the protection of
30 a marine sanctuary.
- 31 (D) The construction and operation of the CCR unit(s) will not cause or contribute to
32 significant degradation of wetlands.
- 33 (E) The owner or operator shall demonstrate the integrity of the CCR unit(s) and its ability to
34 protect ecological resources by addressing the following factors: (1) erosion, stability,
35 and migration potential of native wetland soils, muds and deposits used to support the
36 CCR unit; (2) erosion, stability, and migration potential of dredged and fill materials used
37 to support the CCR unit; the volume and chemical nature of the waste managed in the

- 1 CCR unit; (3) impacts on fish, wildlife, and other aquatic resources and their habitat from
2 release of the solid waste; (4) the potential effects of catastrophic release of waste to the
3 wetland and the resulting impacts on the environment; and (5) any additional factors, as
4 necessary, to demonstrate that ecological resources in the wetland are sufficiently
5 protected to the extent required under Sections 401 and 404 of the Clean Water Act.
- 6 (F) The owner or operator shall demonstrate that steps have been taken to attempt to achieve
7 no net loss of wetlands (as defined by acreage and function) by first avoiding impacts to
8 wetlands to the maximum extent practicable in accordance with Part (c)(5)(A) - (D) of
9 this Rule, then minimizing unavoidable impacts to the maximum extent practicable, and
10 finally offsetting remaining unavoidable wetland impacts through all appropriate and
11 practicable compensatory mitigation actions (e.g., restoration of existing degraded
12 wetlands or creation of man-made wetlands).
- 13 (G) The owner or operator shall also demonstrate that sufficient information is available to
14 make a reasonable determination with respect to each of the demonstrations required by
15 this Rule.
- 16 (H) For purposes of this Rule, wetlands means those areas that are defined in 40 CFR
17 232.2(r).
- 18 (6) Fault Areas. New CCR unit(s) and lateral expansions shall not be located within 200 feet (60
19 meters) of a fault that has had displacement in Holocene time unless the owner or operator
20 demonstrates to the Division that an alternative setback distance of less than 200 feet (60 meters)
21 will prevent damage to the structural integrity of the CCR unit and will be protective of human
22 health and the environment.
- 23 (7) Seismic Impact Zones. New CCR unit(s) and lateral expansions shall not be located in seismic
24 impact zones, unless the owner or operator demonstrates to the Division that all containment
25 structures, including liners, leachate collection systems, and surface water control systems, are
26 designed to resist the maximum horizontal acceleration in lithified earth material for the site.
- 27 (8) Unstable Area Location Restrictions. New CCR unit(s) and lateral expansions shall not be located
28 in an unstable area unless the owners and operators of new CCR unit(s) and lateral expansions
29 proposed for location in an unstable area demonstrate that engineering measures have been
30 incorporated in the CCR unit's design to ensure that the integrity of any structural components of
31 the CCR unit will not be disrupted. The owner and operator shall consider the following factors,
32 at a minimum, when determining whether an area is unstable:
- 33 (A) On-site or local soil conditions that may result in significant differential settling;
34 (B) On-site or local geologic or geomorphologic features; and
35 (C) On-site or local human-made features or events (both surface and subsurface).
- 36 (9) Cultural Resources Location Restrictions. New CCR unit(s) and lateral expansions shall not
37 damage or destroy a property of archaeological or historical significance which has been listed or

1 determined eligible for a listing in the National Register of Historic Places. To aid in making a
 2 determination as to whether the property is of archeological or historical significance, the State's
 3 Historic Preservation Office in the Department of Cultural Resources may request the owner and
 4 operator to perform a site-specific survey which shall be included in the Site Study.

5 (10) State Nature and Historic Preserve Location Restrictions. New CCR unit(s) and lateral expansions
 6 shall not have an adverse impact, considering the purposes for designation of the Preserve lands
 7 and the location, access, size and operation of the landfill, on any lands included in the State
 8 Nature and Historic Preserve.

9 (11) Water Supply Watersheds Location Restrictions:

10 (A) New CCR unit(s) and lateral expansions shall not be located in the critical area of a water
 11 supply watershed, or in the watershed for a stream segment classified as WS-I, or in
 12 watersheds of other water bodies which indicate that no new landfills are allowed in
 13 accordance with the rules codified at 15A NCAC 02B Section .0200 entitled
 14 "Classifications and Water Quality Standards Applicable to Surface Waters of North
 15 Carolina."

16 (B) New CCR unit(s) and lateral expansions which proposes to discharge leachate to surface
 17 waters and shall obtain a National Pollution Discharge Elimination System (NPDES)
 18 Permit from the Division of Environmental Management pursuant to Section 402 of the
 19 United States Clean Water Act, shall not be located within watersheds classified as WS-II
 20 or WS-III, or in watersheds of other water bodies which indicate that no new discharging
 21 landfills are allowed, in accordance with the rules codified at 15A NCAC 02B Section
 22 .0200.

23 (12) Endangered and Threatened Species Location Restrictions. New CCR unit(s) and lateral
 24 expansions shall not jeopardize the continued existence of endangered or threatened species or
 25 result in the destruction or adverse modification of a critical habitat, protected under the Federal
 26 Endangered Species Act of 1973.

27 (13) Local government approvals and zoning letter for CCR unit(s).

28 (14) Title VI Impacts. The cumulative impact of the proposed facility, when considered in relation to
 29 other similar impacts of facilities located or proposed in the community, would have a
 30 disproportionate adverse impact on a minority or low-income community protected by Title VI of
 31 the federal Civil Rights Act of 1964.

32 (d) Notwithstanding (1) through (5) below, no local government approval or franchise shall be required for a CCR
 33 unit used only to dispose of waste generated by a coal-fired generating unit, or generated at its facility or generated
 34 at a facility located in North Carolina that is owned by the investor-owned utility, that is owned or operated by an
 35 investor-owned utility subject to the requirements of NCGS 143-215.107D.

36 (1) If the permit applicant is a unit of local government in which jurisdiction the proposed CCR
 37 facility is located, the approval of the governing board shall be required. Approval may be in the

1 form of either a resolution or a vote on a motion. A copy of the resolution or the minutes of the
2 meeting where the vote was taken shall be submitted to the Division as part of the site study.

3 (2) A permit applicant other than the unit of local government with jurisdiction over the proposed
4 landfill site shall obtain a franchise in accordance with NCGS 130A-294(b1)(3) from each unit of
5 local government in whose jurisdiction the site is located. A copy of the franchise shall be
6 submitted to the Division as part of the site study.

7 (3) Prior to issuance of approval or a franchise, the jurisdictional local government(s) where the
8 landfill is to be located shall hold at least one public meeting to inform the community of the
9 proposed waste management activities as described in the proposed facility plan prepared in
10 accordance with Subparagraph (2) of this Paragraph. The local government where the landfill is to
11 be located shall provide a public notice of the meeting at least 30 days prior to the meeting. For
12 purposes of this Part, public notice shall include a legal advertisement placed in a newspaper or
13 newspapers serving the county and provision of a news release to at least one newspaper serving
14 the county. Public notice shall include time, place, and purpose of the meetings required by this
15 Part. The application for a franchise or other documentation as required by the appropriate local
16 government(s), shall be placed at a location that is accessible by the public. This location shall be
17 noted in the public notice. The permit applicant shall notify the property owners of all property
18 that shares a common border with the proposed facility by means of a U.S. Postal Service
19 registered letter, return receipt requested. The notice shall give the date, time and place of the
20 public meeting, and shall describe the facility plan for the landfill, including the areal location and
21 final elevation of all waste disposal units, the type and amount of waste to be disposed at the
22 landfill, any other waste management activities to be conducted at the facility, and the proposed
23 location of the entrance to the facility. Mailings shall be postmarked a minimum of 30 days prior
24 to the public meeting which is being noticed. The applicant shall provide documentation of the
25 content and mailing of the notices in the site study.

26 (4) Public notice of the meeting shall be documented in the site study. A tape recording or a written
27 transcript of the meeting, all written material submitted representing community concerns, and all
28 other written material distributed or used at the meeting shall be submitted as part of the site study.

29 (5) A letter from the unit of local government(s) having zoning jurisdiction over the site which states
30 that the proposal meets all the requirements of the local zoning ordinance, or that the site is not
31 zoned, shall be submitted to the Division as part of the site study.

32 (e) The owner or operator of the CCR unit shall comply with the recordkeeping, notification and the Internet
33 requirements specified in Rule .2017(d) of this Section.

34
35 History Note: Authority G.S. 130-294; G.S. 130A-309.207;

36 Eff. January 1, 2019.

1 15A NCAC 13B .2007 is proposed for adoption as follows:

2
3 **15A NCAC 13B .2007 FACILITY REQUIREMENTS FOR CCR LANDFILLS AND UNITS**

4 (a) Purpose. As required under Rule .2005 of this Section, a permit applicant shall prepare a facility plan which
5 meets the requirements of this Rule.

6 (b) Scope.

7 (1) The facility plan shall define the comprehensive development of the property proposed for a
8 permit or described in the permit of an existing facility. The plan shall include a set of drawings
9 and a report which present the long-term, general design concepts related to construction,
10 operation, and closure of the CCR unit(s). The scope of the plan shall span the active life of the
11 unit(s). Additional solid waste management activities located at the CCR facility shall be
12 identified in the plan and shall meet the requirements of this Subchapter. The facility plan shall
13 define the waste stream proposed for management at the CCR facility. If different types of landfill
14 units or non-disposal activities are included in the facility design, the plan shall describe general
15 waste acceptance procedures.

16 (2) The areal limits of the CCR unit(s), total capacity of the CCR unit(s), and the proposed waste
17 stream shall be consistent with the Division's approval set forth in accordance with Rule .2006
18 (a)(1) of this Section for a new facility.

19 (c) Use of Terms. The terminology used in describing areas of the CCR unit(s) shall be defined as follows and shall
20 be used consistently throughout a permit application.

21 (1) A "phase" is an area constructed that provides approximately five years of operating capacity.

22 (2) A "cell" is a subdivision of a phase, which describes modular or partial construction.

23 (3) A "subcell" is a subdivision of a cell, which describes leachate and stormwater management, if
24 required, for active or inactive areas of the constructed CCR unit(s).

25 (d) Facility Drawings. The facility plan shall include the following drawings:

26 (1) Site Development. The drawings which plot site development shall be prepared on topographic
27 maps representative of existing site conditions; the maps shall locate or delineate the following:

28 (A) Delineate the areal limits of all landfill units, and incorporate the buffer requirements set
29 forth in Item (3) of Rule .2010 of this Section;

30 (B) Locate all solid waste management facilities and facility infrastructure, including landfill
31 units;

32 (C) Delineate the areal limits of grading, including borrow and stockpile areas;

33 (D) Define phases of development for the life of the site. The minimum design time for a
34 phase shall be approximately five-years of capacity.

35 (E) Delineate proposed final contours for the CCR unit(s) and facility features for closure;
36 and

1 (F) Delineate physical features including floodplains, wetlands, unstable areas, and cultural
2 resource areas as defined in Rule .2006 of this Section.

3 (2) Landfill Operation. The following information related to the long-term operation of the CCR
4 unit(s) shall be included in facility drawings:

5 (A) proposed transitional contours for each phase of development including operational
6 grades for existing phase(s) and construction grading for the new phase; and

7 (B) stormwater segregation features and details for inactive landfill subcells, if included in
8 the design or required.

9 (3) Survey. A survey locating all property boundaries for the proposed landfill facility certified by an
10 individual licensed to practice land surveying in the State of North Carolina.

11 (e) Facility Report. The facility plan shall include the following information:

12 (1) Waste stream. A discussion of the characteristics of the wastes received at the facility and facility
13 specific management plans shall incorporate:

14 (A) the types of waste specified for disposal;

15 (B) average yearly disposal rates in tons and a representative daily rate that is consistent with
16 the local government approval, if required, in accordance with Rule .2006 of this Section;

17 (C) the area served by the facility;

18 (D) procedures for segregated management at different on-site facilities; and

19 (E) equipment requirements for operation of the CCR unit(s).

20 (2) CCR unit(s) Capacity. An analysis of landfill capacity and soil resources shall be performed.

21 (A) The data and assumptions used in the analysis shall be included with the facility drawings
22 and disposal rates specified in the facility plan and representative of operational
23 requirements and conditions.

24 (B) The conclusions shall provide estimates of gross capacity of the CCR unit; gross capacity
25 for each phase of development of the CCR unit; the estimated operating life of all CCR
26 unit(s) in years; and required quantities of soil for landfill construction, operation, and
27 closure; and available soil resources from on-site. Gross capacity is defined as the
28 volume of the landfill calculated from the elevation of the initial waste placement through
29 the top of the final cover, including any periodic cover.

30 (3) Special engineering features.

31 (A) Leachate management systems. The performance of and design concepts for the leachate
32 collection system within active areas of the CCR unit(s), chimney drains, and any storm
33 water segregation included in the engineering design shall be described. Normal
34 operating conditions shall be defined. A contingency plan shall be prepared for storm
35 surges or other considerations exceeding design parameters for the storage or treatment
36 facilities.

1 (B) Containment and environmental control systems. A general description of the systems
2 designed for proper landfill operation, system components, and corresponding functions
3 shall be provided.

4 (C) Other device, components, and structures, if proposed by the applicant, shall be
5 described.

6
7 History Note: Authority G.S. 130-294; G.S. 130A-309.207;
8 Eff. January 1, 2019.

1 15A NCAC 13B .2008 is proposed for adoption as follows:

2
3 **15A NCAC 13B .2008 GEOLOGIC AND HYDROGEOLOGIC INVESTIGATION REQUIREMENTS**
4 **FOR CCR FACILITIES AND UNITS**

5 (a) Site Hydrogeologic Report. A permit applicant shall conduct a hydrogeologic investigation and prepare a report.
6 An investigation is required to assess the geologic and hydrogeologic characteristics of the proposed site to
7 determine the suitability of the site for solid waste management activities, which areas of the site are most suitable
8 for CCR unit(s), and the general groundwater flow paths and rates for the seasonal high groundwater table. The
9 report shall provide an understanding of the relationship of the site groundwater flow regime to local and regional
10 hydrogeologic features with special emphasis on the relationship of CCR unit(s) to groundwater receptors
11 (especially drinking water wells) and to groundwater discharge features. Additionally, the scope of the investigation
12 shall include the general geologic information necessary to address compliance with the pertinent location
13 restrictions described in Rule .2006 of this Section. The Site Hydrogeologic Report shall provide, at a minimum, the
14 following information:

- 15 (1) A report on local and regional geology and hydrogeology based on research of available literature
16 for the area. This information is to be used in planning the field investigation. For sites located in
17 piedmont or mountain regions, this report shall include an evaluation of structurally controlled
18 features identified on a topographic map of the area.
- 19 (2) A report on field observations of the site that includes information on the following:
- 20 (A) topographic setting, springs, streams, drainage features, existing or abandoned wells, rock
21 outcrops, (including trends in strike and dip), and other features that may affect site
22 suitability or the ability to effectively monitor the site; and groundwater discharge
23 features;
- 24 (B) for a proposed site where the owner or operator does not control the property from any
25 landfill unit boundary to the controlling, downgradient, groundwater discharge feature(s),
26 additional borings, geophysics or other hydrogeological investigations may be required to
27 characterize the nature and extent of groundwater flow; and
- 28 (C) the hydrogeological properties of the bedrock, if the uppermost groundwater flow is
29 predominantly in the bedrock. Bedrock for the purpose of this rule is defined as material
30 below auger refusal.
- 31 (3) Borings for which the numbers, locations, and depths are sufficient to provide an adequate
32 understanding of the subsurface conditions and groundwater flow regime of the uppermost aquifer
33 at the site. The number and depths of borings required will depend on the hydrogeologic
34 characteristics of the site. At a minimum, there shall be an average of one boring for each 10 acres
35 of the proposed landfill area unless otherwise authorized by the Division. All borings intersecting
36 the water table shall be converted to piezometers or monitoring wells in accordance with 15A
37 NCAC 02C .0108.

- 1 (4) A testing program for the borings which describes the frequency, distribution, and type of samples
2 taken and the methods of analysis (ASTM Standards or test methods approved by the Division)
3 used to obtain, at a minimum, the following information:
4 (A) standard penetration - resistance (ASTM D 1586);
5 (B) particle size analysis (ASTM D 422);
6 (C) soil classification: Unified Soil Classification System (USCS) (ASTM D 2487);
7 (D) formation descriptions; and
8 (E) saturated hydraulic conductivity, porosity, effective porosity, and dispersive
9 characteristics for each lithologic unit of the uppermost aquifer including the vadose
10 zone.
- 11 (5) In addition to borings, other techniques may be used to investigate the subsurface conditions at the
12 site, including but not limited to: geophysical well logs, surface geophysical surveys, and tracer
13 studies.
- 14 (6) Stratigraphic cross-sections identifying hydrogeologic and lithologic units, and stabilized water
15 table elevations.
- 16 (7) Water table information, including:
17 (A) tabulations of water table elevations measured at the time of boring, 24 hours, and
18 stabilized readings for all borings (measured within a period of time short enough to
19 avoid temporal variations in groundwater flow which could preclude accurate
20 determination of groundwater flow direction and rate);
21 (B) tabulations of stabilized water table elevations over time in order to develop an
22 understanding of seasonal fluctuations in the water table;
23 (C) an estimation of the long-term seasonal high groundwater table based on stabilized water
24 table readings, hydrographs of wells in the area, precipitation and other meteorological
25 data, and streamflow measurements from the site frequent enough to demonstrate
26 infiltration and runoff characteristics, and any other information available; and
27 (D) a discussion of any natural or man-made activities that have the potential for causing
28 water table fluctuations, including but not limited to, tidal variations, river stage changes,
29 flood pool changes of reservoirs, high volume production wells, and injection wells.
- 30 (8) The horizontal and vertical dimensions of groundwater flow including flow directions, rates, and
31 gradients.
- 32 (9) Groundwater contour map(s) to show the occurrence and direction of groundwater flow in the
33 uppermost aquifer and any other aquifers identified in the hydrogeologic investigation. The
34 groundwater contours shall be superimposed on a topographic map. The location of all borings
35 and rock cores and the water table elevations or potentiometric data at each location used to
36 generate the groundwater contours shall be shown on the groundwater contour map(s).

- 1 (10) A topographic map of the site locating soil borings with accurate horizontal and vertical control,
 2 which are tied to a permanent onsite benchmark.
- 3 (11) Information for wells and water intakes within the site characterization study area, in accordance
 4 with Rule .2006(c) of this Section including:
- 5 (A) boring logs, construction records, field logs and notes, for all onsite borings, piezometers
 6 and wells;
- 7 (B) construction records, number and location served by wells, and production rates, for
 8 public water wells; and
- 9 (C) available information for all surface water intakes, including use and production rate.
- 10 (12) Identification of other geologic and hydrologic considerations including but not limited to: slopes,
 11 streams, springs, gullies, trenches, solution features, karst terranes, sinkholes, dikes, sills, faults,
 12 mines, groundwater discharge features, and groundwater recharge/discharge areas.
- 13 (13) A report summarizing the geological and hydrogeological evaluation of the site that includes the
 14 following:
- 15 (A) a description of the relationship between the uppermost aquifer of the site to local and
 16 regional geologic and hydrogeologic features.
- 17 (B) a discussion of the groundwater flow regime of the site focusing on the relationship of
 18 CCR unit(s) to groundwater receptors and to groundwater discharge features.
- 19 (C) a discussion of the overall suitability of the proposed site for solid waste management
 20 activities and which areas of the site are most suitable for CCR unit(s), and
- 21 (D) a discussion of the groundwater flow regime of the uppermost aquifer at the site and the
 22 ability to effectively monitor the CCR unit(s) in order to ensure early detection of any
 23 release of constituents to the uppermost aquifer.

24 (b) Design Hydrogeologic Report

- 25 (1) A geological and hydrogeological report shall be submitted in the application for the Permit to
 26 Construct. This report shall contain the information required by Subparagraph (2) of this
 27 Paragraph. The number and depths of borings required shall be based on the geologic and
 28 hydrogeologic characteristics of the landfill facility. At a minimum, there shall be an average of
 29 one boring per acre of the investigative area. The area of investigation shall, at a minimum, be the
 30 area within the landfill footprint and landfill compliance boundary, unless otherwise authorized by
 31 the Division. The scope and purpose of the investigation is as follows:
- 32 (A) The investigation shall provide adequate information to demonstrate compliance with the
 33 vertical separation and foundation standards set forth in Rule .2010(b)(4) of this Section.
- 34 (B) The report shall include an investigation of the hydrogeologic characteristics of the
 35 uppermost aquifer for the proposed phase of CCR development and any leachate
 36 management unit(s). The purpose of this investigation is to provide more detailed and

1 localized data on the hydrogeologic regime for this area in order to design an effective
2 water quality monitoring system.

3 (2) The Design Hydrogeologic Report shall provide, at a minimum, the following information:

4 (A) the information required in Subparagraphs (a)(4) through (a)(12) of this Rule;

5 (B) the technical information necessary to determine the design of the monitoring system as
6 required by Paragraph (c) of Rule .2014 of this Section;

7 (C) the technical information necessary to determine the relevant point of compliance as
8 required by Part (c)(1)(B) of Rule .2014 of this Section;

9 (D) rock cores (for sites located in the piedmont or mountain regions) for which the numbers,
10 locations, and depths are adequate to provide an understanding of the fractured bedrock
11 conditions and groundwater flow characteristics of at least the upper 10 feet of the
12 bedrock. Testing of the corings shall provide, at a minimum, rock types, recovery values,
13 rock quality designation (RQD) values, saturated hydraulic conductivity and secondary
14 porosity values, and rock descriptions, including fracturing and jointing patterns, etc.;

15 (E) a groundwater contour map based on the estimated long-term seasonal high water table
16 that is superimposed on a topographic map and includes the location of all borings and
17 rock cores and the water table elevations or potentiometric data at each location used to
18 generate the groundwater contours;

19 (F) a bedrock contour map (for sites located in piedmont or mountain regions) illustrating the
20 contours of the upper surface of the bedrock that is superimposed on a topographic map
21 and includes the location of all borings and rock cores and the top of rock elevations used
22 to generate the upper surface of bedrock contours;

23 (G) a three-dimensional groundwater flow net or several hydrogeologic cross-sections that
24 characterize the vertical groundwater flow regime for this area;

25 (H) a report on the groundwater flow regime for the area including groundwater flow paths
26 for both horizontal and vertical components of groundwater flow, horizontal and vertical
27 gradients, flow rates, groundwater recharge areas and discharge areas;

28 (I) a report on the soils in the four feet immediately underlying the waste with relationship to
29 properties of the soil. Soil testing cited in Subparagraph (a)(4) of this Rule shall be used
30 as a basis for this discussion; and

31 (J) a certification by a Licensed Geologist that all borings which intersect the water table at
32 the site have been constructed and maintained as permanent monitoring wells in
33 accordance with 15A NCAC 02C .0108, or that the borings will be properly abandoned in
34 accordance with the procedures for permanent abandonment of wells as delineated in
35 15A NCAC 02C .0113. All piezometers within the footprint area shall be overdrilled to
36 the full depth of the boring, prior to cement or bentonite grout placement, and the level of

1 the grout within the boring shall not exceed in height the elevation of the proposed
2 basegrade.

3 (3) This Rule shall not apply to a permit for closure/post-closure prepared in accordance with Rule
4 .2005(e).

5
6 History Note: Authority G.S. 130-294; G.S. 130A-309.207;
7 Eff. January 1, 2019.

1 15A NCAC 13B .2009 is proposed for adoption as follows:

2
3 **15A NCAC 13B .2009 ENGINEERING REQUIREMENTS FOR CCR FACILITIES AND UNITS**

4 (a) Purpose. The engineering plan shall incorporate the detailed plans and specifications relative to the design and
5 performance of the CCR unit(s) containment and environmental control systems. This plan shall set forth the
6 design parameters and construction requirements for the components of the CCR unit(s) and shall establish the
7 responsibilities of the design engineer. The engineered components shall be described in Rule .2010 of this
8 Section. As required under Rule .2005 of this Section, the owner or operator shall submit an engineering plan,
9 which meets the requirements of this Rule.

10 (b) Responsibilities of the design engineer. The engineering plan shall be prepared by a Professional Engineer
11 licensed to practice engineering in accordance with NCGS 89C and shall meet the requirements of this Rule.
12 The design engineer shall incorporate a statement certifying this fact and bearing his or her seal of registration.

13 (c) Scope. An engineering plan shall be prepared for a minimum phase of development that is approximately five
14 years of operating capacity up to a maximum of the life-of-the site consistent with the development phases and
15 design criteria defined in the facility plan. The engineering plan shall contain a report and a set of drawings
16 which consistently represent the engineering design.

17 (d) An engineering report shall contain:

18 (1) A summary of the facility design that includes:

19 (A) a discussion of the analytical methods used to evaluate the design;

20 (B) definition of the critical conditions evaluated and assumptions made;

21 (C) a list of technical references used in the evaluation; and

22 (D) completion of any applicable location restriction demonstrations in accordance with Rule
23 .2006 of this Section.

24 (2) A description of the materials and construction practices that conforms to the requirements set
25 forth in Rule .2010 of this Section.

26 (3) A copy of the Design Hydrogeologic Report prepared in accordance with Paragraph (b) of Rule
27 .2008 of this Section.

28 (e) Engineering drawings shall illustrate:

29 (1) existing conditions: site topography, features, existing disposal areas, roads, and buildings;

30 (2) grading plans: proposed limits of excavation, subgrade elevations, intermediate grading for partial
31 construction;

32 (3) stormwater segregation system, if required: location and detail of features;

33 (4) cap system: base and top elevations, landfill gas devices, infiltration barrier, surface water
34 removal, protective and vegetative cover, and details;

35 (5) temporary and permanent sedimentation and erosion control plans;

36 (6) vertical separation requirement estimates including;

1 (A) Cross-sections, showing borings, which indicate existing ground surface elevations, base
2 grades, seasonal high groundwater level, estimated long-term seasonal high groundwater
3 level in accordance with Part (b)(2)(E) of Rule .2008 of this Section, and bedrock level in
4 accordance with Part (b)(2)(F) of Rule .2008 of this Section; and

5 (B) A map showing the existing ground surface elevation and base grades. The map shall
6 include labeled boring locations which indicate seasonal high groundwater level,
7 estimated long term high groundwater level in accordance with Part (b)(2)(E) of Rule
8 .2008 of this Section, and bedrock level in accordance with Part (b)(2)(F) of Rule .2008
9 of this Section.

10 (f) The engineering plan shall also describe and illustrate additional engineering features and details, if proposed by
11 the applicant.

12
13 History Note: Authority G.S. 130-294; G.S. 130A-309.207;

14 Eff. January 1, 2019.

1 15A NCAC 13B .2010 is proposed for adoption as follows:

2
3 **15A NCAC 13B .2010 CONSTRUCTION REQUIREMENTS FOR CCR FACILITIES AND UNITS**

4 (a) This Rule establishes the performance standards and minimum criteria for designing and constructing CCR
5 unit(s). Additional standards for the cap system are described in Rule .2013 of this Section.

6 (b) New CCR unit(s) and lateral expansions shall comply with the following design and construction criteria.

7 (1) Base liner system description. The base liner system is constructed on the landfill subgrade and
8 shall be designed to efficiently contain, collect and remove leachate generated by the CCR unit. At
9 a minimum, the components of the liner system shall consist of one of the following designs:

10 (A) A composite liner utilizing a compacted clay liner (CCL). The composite liner is one liner
11 that consists of two components: a geomembrane liner installed above and in direct and
12 uniform contact with a compacted clay liner with a minimum thickness of 24 inches (0.61
13 m) and a permeability of no more than 1.0×10^{-7} cm/sec. The composite liner shall be
14 designed and constructed in accordance with Subparagraphs (8) and (10) of this Rule.

15 (B) A composite liner utilizing a geosynthetic clay liner (GCL). The composite liner is one
16 liner that consists of three components: a geomembrane liner installed above and in
17 uniform contact with a GCL overlying a compacted clay liner with a minimum thickness
18 of 18 inches (0.46 m) and a permeability of no more than 1.0×10^{-5} cm/sec. The
19 composite liner shall be designed and constructed in accordance with Subparagraphs (8),
20 (9), and (10) of this Rule.

21 (C) A composite liner utilizing two geomembrane liners. The composite liner consists of
22 three components: two geomembrane liners each with an overlying leachate drainage
23 system designed to reduce the maximum predicted head acting on the lower membrane
24 liner to less than one inch. The lower membrane liner shall overlie a compacted clay liner
25 with a minimum thickness of 12 inches (0.31m) and a permeability of no more than $1.0 \times$
26 10^{-5} cm/sec. The composite liner system shall be designed and constructed in accordance
27 with Subparagraphs (8) and (10) of this Rule.

28 (D) A composite liner for a combustion products landfill to be constructed partially or
29 entirely within areas that have been formerly used for the storage or disposal of
30 combustion products will be constructed in accordance with NCGS 130A-295.4 (b).

31 (E) A composite liner for a converted CCR impoundment to a CCR landfill will be
32 constructed in accordance with NCGS 130A-309.214(a)(1) a.

33 (2) Leachate collection system (LCS) design and operation.

34 (A) The LCS, including all contributing appurtenances such as chimney drains or side slope
35 drains if specified, shall be hydraulically designed to remove leachate from the CCR
36 unit(s) and ensure that the leachate head on the composite liner does not exceed one foot
37 under normal operating conditions. A means of quantitatively assessing the performance

1 of the leachate collection system shall be provided in the engineering plan. The
2 performance analysis shall evaluate the flow capacities of the drainage network necessary
3 to convey leachate to the storage facility or off-site transport location. The engineering
4 evaluation shall incorporate the following criteria:

5 (i) At a minimum, the geometry of the CCR unit(s) and the LCS shall be designed
6 to control and contain the volume of leachate generated by the 24-hour, 25-year
7 storm.

8 (ii) The performance analysis shall evaluate the leachate collection system for the
9 flow capacities during conditions when the maximum impingement rate occurs
10 on the LCS. The LCS flow capacity shall be designed to reduce the head on the
11 liner system generated by the 24-hour, 25-year storm falling on an empty cell to
12 less than one foot within 72 hours after the storm event.

13 (B) The LCS shall be designed to provide a zone of protection at least 24 inches separating
14 the composite liner from activities performed on it, or shall be subject to approval from
15 the division upon a demonstration of equivalent protection for the liner system.

16 (C) The LCS shall be designed to resist clogging and promote leachate collection and
17 removal from the CCR unit(s).

18 (D) The LCS shall be operated to remove leachate from the CCR unit(s) in such a way as to
19 ensure that the leachate head on the composite liner does not exceed one foot under
20 normal operating conditions.

21 (E) Leachate management plan. The owner or operator of a CCR unit(s) designed with a LCS
22 shall establish and maintain a leachate management plan which includes the following:
23 periodic maintenance of the LCS; maintaining records for the amounts of leachate
24 generated; semi-annual leachate quality sampling; approval for final leachate disposal;
25 and a contingency plan for extreme operational conditions.

26 (F) All leachate collection lines shall be designed and constructed to permanently allow
27 cleaning and remote camera inspection. Remote camera inspections of the leachate
28 collection lines shall occur upon completion of the construction and at least once every
29 five years. Cleaning of leachate collection lines found necessary for proper functioning
30 and to address buildup of leachate over the liner shall occur in accordance with §130A-
31 295.6(h)(3).

32 (G) Any pipes used to transmit leachate shall provide dual containment at road and stream
33 crossings.

34 (H) The bottom liner of a sanitary landfill shall be constructed without pipe penetrations in
35 accordance with §130A-295.6(h)(4).

36 (I) Leachate storage shall be designed and constructed in accordance with the requirements
37 of 15A NCAC 13B .1680.

- 1 (J) The following criteria shall be met for all leachate pumping stations:
- 2 (i) Pump stations shall be designed with multiple pumps such that peak flow can be
- 3 pumped with the largest pump out of service.
- 4 (ii) A standby power source or pump is required at pump stations. Controls shall be
- 5 provided to automatically activate the standby source and signal an alarm
- 6 condition.
- 7 (iii) As an alternative to Part (ii) for pump stations with an average daily design flow
- 8 of less than 15,000 gallons per day, a portable power source or pumping
- 9 capability may be utilized. It shall be demonstrated to the Division that the
- 10 portable source is owned or contracted by the permittee and is compatible with
- 11 the station. If the portable power source or pump is dedicated to multiple pump
- 12 stations, an evaluation of all the pump stations storage capacities and the
- 13 rotation schedule of the portable power source or pump, including travel
- 14 timeframes, shall be provided in the case of a multiple station power outage.
- 15 (iv) Pump stations shall have a telemetry system to provide remote notification of a
- 16 problem condition to include power failure and high water alarm, and visual
- 17 alarm.
- 18 (3) Horizontal separation requirements.
- 19 (A) Property line buffer. New CCR unit(s) at a new facility or lateral expansions of an
- 20 existing unit shall establish a minimum 300-foot buffer between the CCR unit and all
- 21 property lines for monitoring purposes.
- 22 (B) Offsite residential structures and wells. All CCR unit(s) at a new facility shall establish a
- 23 minimum 500-foot buffer between the CCR unit and existing residential structures and
- 24 wells.
- 25 (C) Surface waters. All CCR unit(s) at new facilities and lateral expansions shall establish a
- 26 minimum 100-foot buffer between the CCR unit(s) and any stream, river, lake, pond or
- 27 other waters of the state as defined in NCGS 143-212.
- 28 (D) Existing landfill units. A monitoring zone shall be established between a new CCR unit
- 29 and any existing units such as MSW, Industrial, CCR, or Land Clearing and Inert Debris
- 30 (LCID), in order to establish a groundwater monitoring system as set forth in Rule .2014
- 31 of this Section.
- 32 (4) Vertical separation requirements. CCR unit(s) shall be constructed so that the post-settlement
- 33 bottom elevation of waste is a minimum of five feet above the seasonal high groundwater table
- 34 and the bedrock datum plane contours established in the Design Hydrogeological Report prepared
- 35 in accordance with Rule .2008(b) of this Section.
- 36 (5) Survey control. One permanent benchmark of known elevation measured from a U.S. Geological
- 37 Survey benchmark shall be established and maintained for each 50 acres of developed landfill, or

1 part thereof, at the landfill facility. This benchmark shall be the reference point for establishing
2 vertical elevation control. Any survey performed pursuant to this Sub-Item shall be performed by
3 a Registered Land Surveyor. Latitude and Longitude, expressed in decimal degrees, shall be
4 indicated at the approximate center of the facility.

5 (6) Location coordinates. The North Carolina State Plane (NCSP) coordinates shall be established and
6 one of its points shall be the benchmark of known NCSP coordinates.

7 (7) CCR unit(s) subgrade. The subgrade is the in-situ or modified soil layer(s), constructed
8 embankments, and select fill providing the foundation for construction of the unit. The subgrade
9 shall be graded in accordance to the plans and specifications prepared in accordance to Rule .2009
10 of this Section, which are incorporated into the permit to construct in accordance with Rule
11 .2004(b) of this Section as follows:

12 (A) The owner or operator of the CCR unit(s) shall have the subgrade inspected by a
13 qualified geologist or engineer when excavation is completed.

14 (B) The owner or operator of the CCR unit(s) shall notify the Division's hydrogeologist at
15 least 24 hours before subgrade inspection.

16 (C) Compliance with the requirements of (b)(4) of this Rule and shall be in accordance with
17 Rule .2008(b) of this Section or by placement of soil in accordance with this Sub-Item
18 and verified in accordance with Rule .2011 of this Section.

19 (8) Compacted clay liners. Compacted clay liners are low permeability barriers designed to control
20 fluid migration in a cap liner system or base liner system.

21 (A) Materials required. The soil materials used in constructing a compacted clay liner may
22 consist of on-site or off-site sources, or a combination of sources; sources may possess
23 adequate native properties or may require bentonite conditioning to meet the permeability
24 requirement. The soil material shall be free of particles greater than three inches in any
25 dimension.

26 (B) Construction requirements. Construction methods for the compacted clay liner shall be
27 based upon the type and quality of the borrow source and shall be verified in the field by
28 constructing test pad(s). The project engineer shall ensure that the compacted clay liner
29 installation conforms with the Division approved plans including the following minimum
30 requirements:

31 (i) A test pad shall be constructed prior to beginning installation of the compacted
32 clay liner and whenever there is a significant change in soil material properties.
33 The area and equipment, liner thickness, and subgrade slope and conditions shall
34 be representative of full scale construction. Acceptance and rejection criteria
35 shall be verified for each lift, a minimum of three test locations shall be
36 established for testing moisture content, density, and a composite sample for
37 recompacted lab permeability. At least one shelby tube sample for lab

1 permeability testing, or another in-situ test that is approved by the Division as
2 equivalent for permeability determination shall be obtained per lift.

3 (ii) Soil conditioning, placement, and compaction shall be maintained within the
4 range identified in the moisture-density-permeability relation developed in
5 accordance with Subparagraph (A) of this Paragraph.

6 (iii) The final compacted thickness of each lift shall be a maximum of six inches.

7 (iv) Prior to placement of successive lifts, the surface of the lift in place shall be
8 scarified or otherwise conditioned to eliminate lift interfaces.

9 (v) The final lift shall be protected from environmental degradation.

10 (C) Certification requirements. The project engineer shall include in the construction quality
11 assurance report a discussion of all quality assurance and quality control testing required
12 in this Subparagraph. The testing procedures and protocols shall be submitted in
13 accordance with Rule .2011 of this Section and approved by the Division. The results of
14 all testing shall be included in the construction quality assurance report including
15 documentation of any failed test results, descriptions of the procedures used to correct the
16 improperly installed material, and statements of all retesting performed in accordance
17 with the Division approved plans including the following requirements:

18 (i) At a minimum, the quality control testing for accepting materials prior to and
19 during construction of a compacted clay liner shall include: particle size
20 distribution analysis, Atterberg limits, triaxial cell laboratory permeability,
21 moisture content, percent bentonite admixed with soil, and the moisture-density-
22 permeability relation. The project engineer shall certify that the materials used in
23 construction were tested according to the Division approved plans.

24 (ii) At a minimum, the quality assurance testing for evaluating each lift of the
25 compacted clay liner shall include: moisture content and density, and
26 permeability testing. For each location, the moisture content and density shall be
27 compared to the appropriate moisture-density-permeability relation. The project
28 engineer shall certify that the liner was constructed using the methods and
29 acceptance criteria consistent with test pad construction and tested in accordance
30 with the plans incorporated into the permit to construct in accordance with Rule
31 .2004(b) of this Section.

32 (iii) Any tests resulting in the penetration of the compacted clay liner shall be
33 repaired using bentonite or as approved by the Division.

34 (9) Geosynthetic Clay liners. Geosynthetic clay liners are geosynthetic hydraulic barriers
35 manufactured in sheets and installed by field seaming techniques.

36 (A) Materials required. Geosynthetic clay liners shall consist of natural sodium bentonite
37 clay or equivalent, encapsulated between two geotextiles or adhered to a geomembrane.

1 The liner material and any seaming materials shall have chemical and physical resistance
2 not adversely affected by environmental exposure, waste placement, leachate generation
3 and subgrade moisture composition. Accessory bentonite, used for seaming, repairs and
4 penetration seaming shall be made from the same sodium bentonite as used in the
5 geosynthetic clay liner or as recommended by the manufacturer. The type of geosynthetic
6 clay liner shall be approved by the Division according to the criteria set forth in this Part.

7 (i) Reinforced geosynthetic clay liners shall be used on all slopes greater than
8 10H:1V.

9 (ii) The geosynthetic clay liner material shall have a demonstrated hydraulic
10 conductivity of not more than 5×10^{-9} cm/sec under the anticipated confining
11 pressure.

12 (B) Design and construction requirements. The design engineer shall ensure that the design
13 of the geosynthetic clay liner installation conforms to the requirements of the
14 manufacturer's recommendations and the Division approved plans. The Division
15 approved plans shall provide for and include the following provisions:

16 (i) The surface of the supporting soil upon which the geosynthetic clay liner will be
17 installed shall be reasonably free of stones, organic matter, protrusions, loose
18 soil, and any abrupt changes in grade that could damage the geosynthetic clay
19 liner;

20 (ii) Materials placed on top of the GCL shall be placed in accordance with the plans
21 incorporated into the permit to construct in accordance with Rule .2004(b) of
22 this Section. Equipment used to install additional geosynthetics shall be
23 specified by the design engineer and as recommended by the manufacturer. A
24 minimum of 12 inches of separation between the application equipment and the
25 geosynthetic clay liner shall be provided when applying soil materials;

26 (iii) Materials that become prematurely hydrated shall be removed, repaired, or
27 replaced, as specified by the project engineer and in accordance with the plans
28 incorporated into the permit to construct prepared in accordance with Rule
29 .2004(b) of this Section;

30 (iv) Field seaming preparation and methods, general orientation criteria, and
31 restrictive weather conditions;

32 (v) Anchor trench design;

33 (vi) Critical tensile forces and slope stability, including seismic design;

34 (vii) Protection from environmental damage; and

35 (viii) Physical protection from the materials installed directly above the geosynthetic
36 clay liner.

37 (C) Certification requirements.

- 1 (i) Before beginning installation of the geosynthetic clay liner, the project engineer
2 shall visually inspect the exposed surface to evaluate the suitability of the
3 subgrade and document that the surface is properly prepared and that the
4 elevations are consistent with the approved engineering plans incorporated into
5 the permit to construct in accordance with Rule .2004(b) of this Section.
- 6 (ii) The project engineer shall ensure that the geosynthetic clay installation
7 conforms to the requirements of the manufacturer's recommendations and the
8 plans incorporated into the permit to construct in accordance with Rule .2004(b)
9 of this Section.
- 10 (iii) The project engineer shall include in the construction quality assurance report, a
11 discussion of quality assurance, and quality control testing to document that
12 material is placed in accordance with plans incorporated into the permit to
13 construct in accordance with Rule .2004(b) of this Section.
- 14 (iv) The project engineer shall include in the construction quality assurance report a
15 discussion of the approved data resulting from the quality assurance and quality
16 control testing required in this Subparagraph.
- 17 (v) The testing procedures and protocols for field installation shall be submitted in
18 accordance with Rule .2011 of this Section and approved by the Division.
- 19 (vi) The results of all testing shall be included in the construction quality assurance
20 report, including documentation of any failed test results, descriptions of the
21 procedures used to correct the improperly installed material, and performance
22 documentation of all retesting, in accordance with the plans incorporated into
23 the permit to construct in accordance with Rule .2004(b) of this Section,
24 including the following:
- 25 (a) Quality control testing of the raw materials and manufactured product;
26 (b) Field and independent laboratory destructive testing of geosynthetic
27 clay liner samples;
- 28 (c) Documentation prepared by the project engineer in accordance with
29 Subpart (b)(9)(C)(i) of this Rule.
- 30 (10) Geomembrane liners. Geomembrane liners are geosynthetic hydraulic barriers manufactured in
31 sheets and installed by field seaming techniques.
- 32 (A) Materials required. The liner material and any seaming materials shall have chemical and
33 physical resistance not adversely affected by environmental exposure, waste placement
34 and leachate generation. The type of geomembrane shall be approved by the Division
35 according to the criteria set forth in this Part.
- 36 (i) High density polyethylene geomembrane liners shall have a minimum thickness
37 of 60 mils.

- 1 (i) The leachate collection piping shall have a minimum nominal diameter of six
 2 inches. All leachate collection lines shall be designed and constructed to
 3 permanently allow cleaning and remote camera inspection.
 4 (ii) The chemical properties of the pipe and any materials used in installation shall
 5 not be adversely affected by waste placement or leachate generated by the
 6 landfill.
 7 (iii) The physical properties of the pipe shall provide adequate structural strength to
 8 support the maximum static and dynamic loads and stresses imposed by the
 9 overlying materials and any equipment used in construction and operation of the
 10 landfill. Specifications for the pipe shall be submitted in the engineering report.

11 (B) Construction requirements.

- 12 (i) Leachate collection piping shall be installed according to the plans incorporated
 13 into the permit to construct in accordance with Rule .2004(b) of this Section.
 14 (ii) The location and grade of the piping network shall provide access for periodic
 15 cleaning.
 16 (iii) The bedding material for the leachate collection pipe shall consist of a coarse
 17 aggregate installed in direct contact with the pipe. The aggregate shall be
 18 chemically compatible with the leachate generated and shall be placed to
 19 provide adequate support to the pipe. The bedding material for main collector
 20 lines shall be extended to and in direct contact with the waste layer or a graded
 21 soil or granular filter.

22 (C) Certification requirements. The project engineer shall include in the construction quality
 23 assurance report a discussion of the quality assurance and quality control testing to ensure
 24 that the material is placed according to the approved plans. The testing procedures and
 25 protocols for field installation shall be submitted in accordance with Rule .2011 of this
 26 Section and approved by the Division. The results of all testing shall be included in the
 27 construction quality assurance report including documentation of any failed test results,
 28 descriptions of the procedures used to correct the improperly installed material, and
 29 statements of all retesting performed in accordance with plans incorporated into the
 30 permit to construct in accordance with Rule .2004(b) of this Section, including;

- 31 (i) all leachate piping installed to transmit leachate shall provide dual containment
 32 outside of the disposal unit and
 33 (ii) bottom liner of a CCR landfill shall be constructed without pipe penetrations.

34 (12) Drainage layers. Any soil, granular, or geosynthetic drainage nets used in the leachate collection
 35 system shall conform to the following requirements:

36 (A) Materials Required.

- 37 (i) The chemical properties of the drainage layer materials shall not be adversely

1 affected by waste placement or leachate generated by the CCR unit.

2 (ii) The physical and hydraulic properties of the drainage layer materials shall
3 promote lateral drainage of leachate through a zone of relatively high
4 permeability or transmissivity under the predicted loads imposed by overlying
5 materials.

6 (B) Construction Requirements.

7 (i) The drainage layer materials shall be placed in accordance with the approved
8 plans prepared in accordance with Rule .2004(b) of this Section and in a manner
9 that prevents equipment from working directly on the geomembrane.

10 (ii) The drainage layer materials shall be stable on the slopes specified on the
11 engineering drawings.

12 (C) Certification requirements. The project engineer shall include in the construction quality
13 assurance report a discussion of the quality assurance and quality control testing to ensure
14 that the drainage layer material is placed according to the approved plans. The testing
15 procedures and protocols for field installation shall be submitted in accordance with of
16 Rule .2011 of this Section and approved by the Division. The results of all testing shall be
17 included in the construction quality assurance report including documentation of any
18 failed test results, descriptions of the procedures used to correct the improperly installed
19 material, and statements of all retesting performed in accordance with the approved plans
20 prepared in accordance with Rule .2004(b) of this Section.

21 (13) Filter layer criteria. All filter collection layers used in the leachate collection system shall be
22 designed to prevent the migration of fine soil particles into a courser grained material, and permit
23 water or gases to freely enter a drainage medium (pipe or drainage layer) without clogging.

24 (A) Materials required.

25 (i) Graded cohesionless soil filters. The granular soil material used as a filter shall
26 have no more than five percent by weight passing the No. 200 sieve and no soil
27 particles larger than three inches in any dimension.

28 (ii) Geosynthetic filters. Geosynthetic filter materials shall demonstrate adequate
29 permeability and soil particle retention, and chemical and physical resistance
30 which is not adversely affected by waste placement, any overlying material or
31 leachate generated by the landfill.

32 (B) Construction requirements. All filter layers shall be installed in accordance with the
33 engineering plan and specifications incorporated into the permit to construct prepared in
34 accordance with Rule .2004(b) of this Section. Geosynthetic filter materials shall not be
35 wrapped directly around leachate collection piping.

36 (C) Certification requirements. The project engineer shall include in the construction quality
37 assurance report a discussion of the quality assurance and quality control testing to ensure

1 that the filter layer material is placed according to the approved plans. The testing
2 procedures and protocols for field installation shall be submitted in accordance with Rule
3 .2011 of this Section and approved by the Division. The results of all testing shall be
4 included in the construction quality assurance report including documentation of any
5 failed test results, descriptions of the procedures used to correct the improperly installed
6 material, and statements of all retesting performed in accordance with the approved plans
7 prepared in accordance with Rule .2004(b) of this Section.

8 (14) Special engineering structures. Engineering structures, including cap systems or chimney drains,
9 incorporated in the design and necessary to comply with the requirements of this Section shall be
10 specified in the engineering plan. Material, construction, and certification requirements necessary
11 to ensure that the structure is constructed in accordance with the design and acceptable
12 engineering practices shall be included in the plans prepared in accordance with Rule .2009 of this
13 Section.

14 (15) Sedimentation and erosion control. Adequate structures and measures shall be designed and
15 maintained to manage the run-on and run-off generated by the 24-hour, 25-year storm event, and
16 conform to the requirements of the Sedimentation Pollution Control Law 15A NCAC 04 and any
17 required NPDES permits.

18 (16) Construction quality assurance (CQA) report. A CQA report shall be submitted in accordance
19 with Rule .2011 of this Section.

20
21 *History Note: Authority G.S. 130-294; G.S. 130A-309.207;*
22 *Eff. January 1, 2019.*

1 15A NCAC 13B .2011 is proposed for adoption as follows:

2
3 **15A NCAC 13B .2011 CONSTRUCTION QUALITY ASSURANCE REQUIREMENTS FOR CCR**
4 **FACILITIES AND UNITS**

5 (a) Purpose of the construction quality control and quality assurance (CQA) plan. The CQA plan shall describe the
6 observations and tests that will be used before, during, and upon completion of construction to ensure that the
7 construction and materials meet the design specifications and the construction and certification requirements set
8 forth in Rule .2010 of this Section. The CQA plan shall also describe the procedures to ensure that the integrity of
9 the landfill systems will be maintained prior to waste placement.

10 (b) For construction of each cell, the CQA plan shall include at a minimum:

11 (1) Responsibilities and authorities. The plan shall establish responsibilities and authorities for the
12 construction management organization. A pre-construction meeting shall be conducted prior to
13 beginning construction of the initial cell, or as required by the permit. The meeting shall include a
14 discussion of the construction management organization, respective duties during construction,
15 and periodic reporting requirements for test results and construction activities;

16 (2) Inspection activities. A description of all field observations, tests and equipment that will be used
17 to ensure that the construction meets or exceeds all design criteria established in accordance with
18 Rules .2009, .2010 and Rule .2013 Paragraph (d) of this Section;

19 (3) Sampling strategies. A description of all sampling protocols, sample size and frequency of
20 sampling shall be presented in the CQA plan;

21 (4) Documentation. A description of reporting requirements for CQA activities; and

22 (5) Progress and troubleshooting meetings. A plan for holding daily and monthly troubleshooting
23 meetings. The proceedings of the meetings shall be documented.

24 (c) Purpose of the CQA report. The CQA report shall contain the results of all the construction quality assurance
25 and construction quality control testing including documentation of any failed test results, descriptions of procedures
26 used to correct the improperly installed material, and results of all retesting performed. The CQA report shall
27 contain as-built drawings noting any deviation from the approved engineering plans and shall also contain a
28 comprehensive narrative including, but not limited to, daily reports from the project engineer, a series of color
29 photographs of major project features, and documentation of proceedings of all progress and troubleshooting
30 meetings.

31 (d) For construction of each cell, the CQA report shall be submitted:

32 (1) after completion of construction in order to qualify the constructed CCR unit(s) for a permit to
33 operate;

34 (2) after completion of construction of the cap system in accordance with the requirements of Rule
35 .2013 of this Section; and

36 (3) in accordance with the reporting schedule developed in accordance with Paragraph (b) of this
37 Rule.

1 (4) The CQA report shall bear the seal of the project engineer and a certification that construction was
2 completed in accordance with:

3 (A) the CQA plan,

4 (B) the conditions of the permit to construct,

5 (C) the requirements of this Rule, and

6 (D) acceptable engineering practices.

7 (e) The Division shall review the CQA report within 30 days of a complete submittal to ensure that the report meets
8 the requirements of this Rule.

9

10 History Note: Authority G.S. 130-294; G.S. 130A-309.207;

11 Eff. January 1, 2019.

1 15A NCAC 13B .2012 is proposed for adoption as follows:

2
3 **15A NCAC 13B .2012 OPERATING REQUIREMENTS FOR CCR FACILITIES AND UNITS**

4 (a) The owner or operator of a CCR unit(s) shall maintain and operate the facility in accordance with the operation
5 plan prepared in accordance with this Rule. The operation plan shall be submitted in accordance with Rule .2005 of
6 this Section. Each phase of operation shall be defined by an area which contains approximately five years of
7 disposal capacity.

8 (b) Operation Plan. The owner or operator of a CCR unit(s) shall prepare an operation plan for each phase of
9 landfill development. The plan shall include drawings and a report defining the information as identified in this
10 Rule.

11 (1) Operation drawings. Drawings shall be prepared for each phase of landfill development. The
12 drawings shall be consistent with the engineering plan and prepared in a format which is useable
13 for the landfill operator. The operation drawings shall illustrate the following:

14 (A) existing conditions including the known limits of existing disposal areas;

15 (B) progression of construction cells for incremental or modular construction;

16 (C) progression of operation including initial waste placement, daily operations, yearly
17 contour transitions, and final contours;

18 (D) Leachate and stormwater controls for active and inactive subcells, if required;

19 (E) special waste handling areas, such as asbestos disposal area, within the CCR unit(s);

20 (F) buffer zones, noting restricted use;

21 (G) stockpile and borrow operations; and

22 (H) other solid waste activities, such as tire disposal or storage, yard waste storage, white
23 goods storage, recycling pads, etc.

24 (2) Operation Plan Description. The owner and operator of any CCR unit(s) shall maintain and
25 operate the unit in accordance with the operation plan as described in Paragraphs (c) through (j) of
26 this Rule.

27 (3) The operation plan shall include:

28 (A) The requirements of Rules .2012(c), .2012(d), .2012(e), .2012(f), .2012(g), .2012(h),
29 .2012(i), and .2018(e);

30 (B) A Sedimentation and Erosion Control plan which incorporates adequate measures to
31 control surface water run-off and run-on generated from the 24-hour, 25-year storm
32 event;

33 (C) Operation drawings that illustrate annual phases of development which are consistent
34 with the minimum and maximum slope requirements set forth in Rule .2012 (b).

35 (c) Waste Acceptance and Disposal Requirements.

36 (1) CCR unit(s) shall accept only those solid wastes it is permitted to receive. The unit shall not
37 accept any CCR that has not been properly dewatered. The landfill owner or operator shall notify

1 the Division within 24 hours of attempted disposal of any waste the CCR landfill is not permitted
2 to receive, including waste from outside the area the landfill is permitted to serve.

3 (2) Asbestos waste shall be managed in accordance with 40 CFR 61, which is hereby incorporated by
4 reference including any subsequent amendments and additions. The regulated asbestos waste shall
5 be covered immediately with soil in a manner that will not cause airborne conditions and shall be
6 disposed of separate and apart from other solid wastes, as shown on Operation drawings:

7 (A) in a defined isolated area within the footprint of the landfill, or

8 (B) in an area not contiguous with other disposal areas. Separate areas shall be designated so
9 that asbestos is not exposed by future land-disturbing activities.

10 (d) Cover material requirements.

11 (1) Except as provided in Subparagraph (3) of this Paragraph, the owners and operators of all CCR
12 unit(s) shall cover the solid waste with six inches of earthen material at a frequency needed to
13 prevent dusting or migration of CCR. Cover shall be placed at more frequent intervals if
14 necessary to control disease vectors, fires, odors, blowing litter, and scavenging. A notation of the
15 date and time of the cover placement shall be recorded in the operating record as specified in
16 Paragraph (n) of this Rule.

17 (2) Except as provided in Subparagraph (3) of this Paragraph, areas which will not have additional
18 wastes placed on them for three months or more, but where final termination of disposal
19 operations has not occurred, shall be covered and stabilized with vegetative ground cover or other
20 stabilizing material.

21 (3) Alternative materials or an alternative thickness of cover may be approved by the Division if the
22 owner or operator demonstrates that the alternative material or thickness controls disease vectors,
23 fires, odors, blowing litter, scavenging, and dusting or migration of CCR without presenting a
24 threat to human health and the environment. A CCR unit(s) owner or operator may apply for
25 approval of an alternative cover material. If approval is given by the Division, approval would
26 extend to all CCR unit(s) at one specific facility.

27 (e) Spreading and Compacting requirements.

28 (1) CCR unit(s) shall restrict solid waste into the smallest area feasible.

29 (2) CCR shall be compacted as densely as practical into cells or as specified by the design engineer.

30 (3) Appropriate methods such as fencing and diking shall be provided within the area to confine solid
31 waste which is subject to be blown by the wind. At the conclusion of each operating day, all
32 windblown material resulting from the operation shall be collected and disposed of by the owner
33 and operator.

34 (f) Disease vector control. Owners and operators of all CCR unit(s) shall prevent or control on-site populations of
35 disease vectors using techniques appropriate for the protection of human health and the environment. For purposes
36 of this item, "disease vectors" means any rodents, flies, mosquitoes, or other animals or insects, capable of
37 transmitting disease to humans.

1 (g) Air Criteria.

- 2 (1) The owner or operator of a CCR unit(s) shall adopt measures that will effectively minimize CCR
3 from becoming airborne at the facility, including CCR fugitive dust originating from CCR unit(s),
4 roads, and other CCR management and material handling activities.
- 5 (2) CCR fugitive dust control plan. The owner or operator of the CCR unit(s) shall prepare and
6 operate in accordance with a CCR fugitive dust control plan as specified in Paragraphs (2)(A)
7 through (D) of this Section. This requirement applies in addition to, not in place of, any applicable
8 standards under the Occupational Safety and Health Act.
- 9 (A) The CCR fugitive dust control plan shall identify and describe the CCR fugitive dust
10 control measures the owner or operator will use to minimize CCR from becoming
11 airborne at the facility. The owner or operator shall select, and include in the CCR
12 fugitive dust control plan, the CCR fugitive dust control measures that are most
13 appropriate for site conditions, along with an explanation of how the measures selected
14 are applicable and appropriate for site conditions. Examples of control measures that may
15 be appropriate include: Locating CCR inside an enclosure or partial enclosure; operating
16 a water spray or fogging system; reducing fall distances at material drop points; using
17 wind barriers, compaction, or vegetative covers; establishing and enforcing reduced
18 vehicle speed limits; paving and sweeping roads; covering trucks transporting CCR;
19 reducing or halting operations during high wind events; or applying a daily cover.
- 20 (B) If the owner or operator operates a CCR landfill or any lateral expansion of a CCR
21 landfill, the CCR fugitive dust control plan shall include procedures to emplace CCR as
22 conditioned CCR. Conditioned CCR means wetting CCR with water to a moisture
23 content that will prevent wind dispersal, but will not result in free liquids. In lieu of
24 water, CCR conditioning may be accomplished with an appropriate chemical dust
25 suppression agent.
- 26 (C) The CCR fugitive dust control plan shall include procedures to log citizen complaints
27 received by the owner or operator involving CCR fugitive dust events at the facility.
- 28 (D) The CCR fugitive dust control plan shall include a description of the procedures the
29 owner or operator will follow to periodically assess the effectiveness of the control plan.
- 30 (3) Annual CCR fugitive dust control report. The owner or operator of a CCR unit(s) shall prepare an
31 annual CCR fugitive dust control report that includes a description of the actions taken by the
32 owner or operator to control CCR fugitive dust, a record of all citizen complaints, and a summary
33 of any corrective measures taken. The fugitive dust control plan will be for the state fiscal year,
34 which is July 1 through June 30, and shall be placed in the facility's operating record by August 1
35 of each year.
- 36 (4) The owner or operator of the CCR unit(s) shall comply with the recordkeeping, notification and
37 the Internet requirements specified in Rule .2017(f) of this Section.

1 (5) The CCR landfill shall be adequately secured by means of gates, chains, berms, fences and other
2 security measures approved by the Division to prevent unauthorized entry.

3 (6) In accordance with NCGS 130A-309.25, an individual trained in landfill operations shall be on
4 duty at the site while the facility is open for public use and at all times during active waste
5 management operations to ensure compliance with operational requirements.

6 (7) The access road to the site and access roads to monitoring locations shall be of all-weather
7 construction and maintained in good condition.

8 (8) Signs providing information on disposal procedures the permit number and other pertinent
9 information specified in the permit conditions shall be posted at the site entrance.

10 (9) Traffic signs or markers shall be provided as necessary to promote an orderly traffic pattern to and
11 from the discharge area and to maintain efficient operating conditions.

12 (h) Erosion and sedimentation control requirements. All sedimentation and erosion control activities shall be
13 conducted in accordance with the Sedimentation Control Act NCGS 113A-50, et seq., and rules promulgated under
14 15A NCAC 4. All required sedimentation and erosion control measures shall be installed and operable to mitigate
15 excessive on-site erosion and to prevent silt from leaving the area of the landfill unit during the service life of the
16 facility.

17 (i) Drainage control and water protection requirements.

18 (1) Surface water shall be diverted from the operational area.

19 (2) Surface water shall not be impounded over or in waste.

20 (3) Solid waste shall not be disposed of in water.

21 (4) Leachate management plan. The owner or operator of a CCR unit(s) designed with a leachate
22 collection system shall establish and maintain a leachate management plan in accordance with
23 15A NCAC 13B .2010(b)(2)(E).

24 (5) CCR unit(s) shall not:

25 (A) Cause a discharge of pollutants into waters of the United States, including wetlands, that
26 violates any requirements of the Clean Water Act, including the National Pollutant
27 Discharge Elimination System (NPDES) requirements, pursuant to Section 402.

28 (B) Cause the discharge of a nonpoint source of pollution to waters of the United States,
29 including wetlands, that violates any requirement of an area-wide or State-wide water
30 quality management plan that has been approved under Section 208 or 319 of the Clean
31 Water Act, as amended.

32 (j) Stormwater Discharges. All owners or operators of stormwater point source discharges associated with activities
33 categorized as landfills which are permitted by the North Carolina Division of Waste Management under the
34 provisions and requirements of NCGS 130A-294, shall conduct all stormwater discharges in compliance with the
35 provisions of NCGS 143-215.1, other lawful standards and regulations promulgated and adopted by the North
36 Carolina Environmental Management Commission and the Federal Water Pollution Control Act.

1 (k) Survey for Compliance. Within 60 days of the permittee's receipt of the Division's written request, the permittee
 2 shall cause to be conducted a survey of active or closed portions of unit(s) at the facility in order to determine
 3 whether operations are being conducted in accordance with the approved design and operational plans. The
 4 permittee shall report the results of such survey, including a map produced by the survey, to the Division within 90
 5 days of receipt of the Division's request.

6 (1) A survey shall be required by the Division:

7 (A) If there is reason to believe that operations are being conducted in a manner that deviates
 8 from the plan listed in the effective permit, or

9 (B) As a verification that operations are being conducted in accordance with the plan listed in
 10 the effective permit.

11 (2) Any survey performed pursuant to this Paragraph shall be performed by a registered land surveyor
 12 duly authorized under North Carolina law to conduct such activities.

13 (l) All CCR unit(s) shall be examined by a qualified person as follows at intervals not exceeding seven days, inspect
 14 for any appearances of actual or potential structural weakness and other conditions which are disrupting or have the
 15 potential to disrupt the operation or safety of the CCR unit; and

16 (m) Existing and new CCR unit(s) shall be inspected on an annual basis by a qualified professional engineer to
 17 ensure that the design, construction, operation, and maintenance of the CCR unit(s) is consistent with recognized
 18 and generally accepted good engineering standards. The owner or operator of the CCR unit(s) shall complete the
 19 initial inspection for existing CCR unit(s) no later than 90 days after the effective date of this rule and for a new unit
 20 no later than 12 months following the date of initial receipt of CCR in the CCR unit(s). The inspection shall, at a
 21 minimum, include:

22 (1) A review of available information regarding the status and condition of the CCR unit, including,
 23 but not limited to, files available in the operating record (e.g., the results of inspections by a
 24 qualified person, and results of previous annual inspections); and

25 (2) A visual inspection of the CCR unit(s) to identify signs of distress or malfunction of the CCR
 26 unit(s).

27 (3) The qualified professional engineer shall prepare a report following each inspection that addresses
 28 changes in geometry of the structure since the previous annual inspection; the approximate volume
 29 of CCR contained in the unit at the time of the inspection; any appearances of an actual or
 30 potential structural weakness of the CCR unit(s), in addition to any existing conditions that are
 31 disrupting or have the potential to disrupt the operation and safety of the CCR unit(s); and other
 32 change(s) which may have affected the stability or operation of the CCR unit(s) since the previous
 33 annual inspection.

34 (n) If a deficiency or release is identified during an inspection, the owner or operator shall remedy the deficiency or
 35 release as soon as feasible and prepare documentation detailing the corrective measures taken.

36 (o) The owner or operator of the CCR unit(s) shall comply with the recordkeeping, notification and the Internet
 37 requirements specified in Rule .2017(f) of this Section.

1

2 History Note: Authority G.S. 130-294; G.S. 130A-309.207;

3 Eff. January 1, 2019.

1 15A NCAC 13B .2013 is proposed for adoption as follows:

2
3 **15A NCAC 13B .2013 CLOSURE AND POST-CLOSURE REQUIREMENTS FOR CCR FACILITIES**
4 **AND UNITS**

5 (a) Purpose. This Rule establishes criteria for the closure of all CCR unit(s) and subsequent requirements for post-
6 closure compliance. The owner and operator shall develop specific plans for the closure and post-closure of the CCR
7 unit(s) that comply with these rules, and submit them to the Division for review and approval.

8 (b) Scope.

9 (1) Closure. Standards shall be established for the scheduling and documenting of closure of all CCR
10 unit(s) and design of the cap system. Construction requirements for the cap system shall
11 incorporate requirements from Rules .2010 and .2011 of this Section.

12 (2) Post-closure. Standards are shall be established for the monitoring and maintenance of the CCR
13 unit(s) following closure.

14 (c) Criteria for conducting the closure of CCR unit(s).

15 (1) Written closure plan

16 (A) General content of the plan. The owner or operator of a CCR unit(s) shall prepare a
17 written closure plan that describes the steps necessary to close the CCR unit(s) at any
18 point during the active life of the CCR unit(s), consistent with recognized and generally
19 accepted good engineering practices. The written closure plan shall include, at a
20 minimum, the information specified in Rule .2013(c)(1)(A)(i) through (vi) of this
21 Section.

22 (i) A narrative description of how the CCR unit(s) will be closed in accordance
23 with this Section.

24 (ii) If closure of the CCR unit(s) will be accomplished through removal of CCR
25 from the CCR unit(s), a description of the procedures to remove the CCR and
26 decontaminate the CCR unit(s) in accordance with Paragraph (2) of this Section.

27 (iii) If closure of the CCR unit(s) will be accomplished by leaving CCR in place, a
28 description of the final cover system, designed in accordance with Paragraph (3)
29 of this Section, and the methods and procedures to be used to install the final
30 cover. The closure plan shall also discuss how the final cover system will
31 achieve the performance standards specified in Paragraph (3) of this Section.

32 (iv) An estimate of the maximum inventory of CCR ever on-site over the active life
33 of the CCR unit(s).

34 (v) An estimate of the largest area of the CCR unit's ever requiring a final cover as
35 required by Paragraph (3) of this Section at any time during the CCR unit's
36 active life.

37 (vi) A schedule for completing all activities necessary to satisfy the closure criteria

1 in this Section, including an estimate of the year in which all closure activities
 2 for the CCR unit(s) will be completed. The schedule should provide sufficient
 3 information to describe the sequential steps that will be taken to close the CCR
 4 unit(s), including identification of major milestones such as coordinating with
 5 and obtaining necessary approvals and permits from other agencies, the
 6 dewatering and stabilization phases of CCR surface impoundment closure, or
 7 installation of the final cover system, and the estimated timeframes to complete
 8 each step or phase of CCR unit(s) closure. When preparing the written closure
 9 plan, if the owner of a CCR unit(s) estimates that the time required to complete
 10 closure will exceed the timeframes specified in Paragraph .2013(c)(5)(A) of this
 11 Section, the written closure plan shall include the site-specific information,
 12 factors and considerations that would support any time extension sought under
 13 Paragraph .2013(c)(5)(B) of this Section.

14 (B) Timeframes for preparing the initial written closure plan

15 (i) New CCR landfills, existing surface impoundments and any lateral expansion of
 16 a CCR unit(s). No later than the date of the initial receipt of CCR in the CCR
 17 unit(s), the owner shall prepare an initial written closure plan consistent with the
 18 requirements specified in Paragraph .2013(c)(1)(A) of this Section.

19 (ii) The owner has completed the written closure plan when the plan, including the
 20 certification required by Paragraph .2013(c)(1)(D) of this Section, has been
 21 placed in the facility's operating record as required by Rule .2017(h)(4) of this
 22 Section.

23 (C) Amendment of a written closure plan.

24 (i) The owner may amend the initial or any subsequent written closure plan
 25 developed pursuant to Paragraph .2013(c)(1)(A) of this Section at any time.

26 (ii) The owner shall amend the written closure plan whenever:

27 (a) There is a change in the operation of the CCR unit(s) that would
 28 substantially affect the written closure plan in effect; or

29 (b) Before or after closure activities have commenced, unanticipated events
 30 necessitate a revision of the written closure plan.

31 (iii) The owner shall amend the closure plan at least 60 days prior to a planned
 32 change in the operation of the facility or CCR unit(s), or no later than 60 days
 33 after an unanticipated event requires the need to revise an existing written
 34 closure plan. If a written closure plan is revised after closure activities have
 35 commenced for a CCR unit(s), the owner shall amend the current closure plan
 36 no later than 30 days following the triggering event.

37 (D) The owner of the CCR unit(s) shall obtain a written certification from a qualified

1 professional engineer that the initial and any amendment of the written closure plan
2 meets the requirements of this Section.

3 (2) Closure by removal of CCR. An owner may elect to close a CCR unit(s) by removing and
4 decontaminating all areas affected by releases from the CCR unit(s). CCR removal and
5 decontamination of the CCR unit(s) are complete when constituent concentrations throughout the
6 CCR unit(s) and any areas affected by releases from the CCR unit(s) have been removed and
7 groundwater monitoring concentrations do not exceed the groundwater protection standard
8 established pursuant to .2015(b) assessment monitoring for constituents listed in .2014(c)(1)(D)
9 and .2015(c)(2) and any site-specific groundwater analytes as required by the permit.

10 (3) Closure performance standard when leaving CCR in place

11 (A) The owner of a CCR unit(s) shall ensure that, at a minimum, the CCR unit(s) is closed in
12 a manner that will:

13 (i) Control, minimize or eliminate, to the maximum extent feasible, post-closure
14 infiltration of liquids into the waste and releases of CCR, leachate, or
15 contaminated runoff to the ground or surface waters or to the atmosphere;

16 (ii) Preclude the probability of future impoundment of water, sediment, or slurry;

17 (iii) Include measures that provide for major slope stability to prevent the sloughing
18 or movement of the final cover system during the closure and post-closure care
19 period;

20 (iv) Minimize the need for further maintenance of the CCR unit(s); and

21 (v) Be completed in the shortest amount of time consistent with recognized and
22 generally accepted good engineering practices.

23 (B) Drainage and stabilization of CCR surface impoundments. The owner of a CCR surface
24 impoundment shall meet the requirements of Paragraphs .2013(c)(3)(B)(i) and (ii) of this
25 Section prior to installing the final cover system required under Paragraph .2013(c)(3)(C)
26 of this Section.

27 (i) Free liquids shall be eliminated by removing liquid wastes or solidifying the
28 remaining wastes and waste residues.

29 (ii) Remaining wastes shall be stabilized sufficient to support the final cover system.

30 (C) Final cover system. If a CCR unit(s) is closed by leaving CCR in place, the owner shall
31 install a final cover system that is designed to minimize infiltration and erosion, and at a
32 minimum, meets the requirements of Paragraph .2013(c)(3)(C)(i) of this Section, or the
33 requirements of the alternative final cover system specified in Paragraph
34 .2013(c)(3)(C)(ii) of this Section.

35 (i) The final cover system shall be designed and constructed to meet the criteria in
36 Paragraphs .2013(c)(3)(C)(i)(a) through (d) of this Section. The design of the
37 final cover system shall be included in the written closure plan required by

Paragraph (1) of this Section.

(a) The permeability of the final cover system shall be less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than 1×10^{-5} cm/sec, whichever is less.

(b) The infiltration of liquids through the closed CCR unit(s) shall be minimized by the use of an infiltration layer that contains a minimum of 18 inches of earthen material.

(c) The erosion of the final cover system shall be minimized by the use of an erosion layer that contains a minimum of six inches of earthen material that is capable of sustaining native plant growth.

(d) The disruption of the integrity of the final cover system shall be minimized through a design that accommodates settling and subsidence.

(ii) The owner may select an alternative final cover system design, provided the alternative final cover system is designed and constructed to meet the criteria in Paragraphs .2013(c)(5)(C)(ii) a. through c. of this Section. The design of the final cover system shall be included in the written closure plan required by Paragraph (1) of this Section.

(a) The design of the final cover system shall include an infiltration layer that achieves an equivalent reduction in infiltration as the infiltration layer specified in Paragraph .2013(c)(3)(C)(i) a. and b. of this Section.

(b) The design of the final cover system shall include an erosion layer that provides equivalent protection from wind or water erosion as the erosion layer specified in Paragraph .2013(c)(3)(C)(i) c. of this Section.

(c) The disruption of the integrity of the final cover system shall be minimized through a design that accommodates settling and subsidence.

(iii) The owner of the CCR unit(s) shall obtain a written certification from a qualified professional engineer that the design of the final cover system meets the requirements of this Section.

(4) Initiation of closure activities. The owner of a CCR unit(s) shall commence closure of the CCR unit(s) no later than the applicable timeframes specified in either Paragraph .2013(c)(4)(A) or .2013(c)(4)(B) of this Section.

(A) The owner shall commence closure of the CCR unit(s) no later than 30 days after the date on which the CCR unit(s) either:

(i) Receives the known final receipt of waste, either CCR or any non-CCR waste stream; or

1 (ii) Removes the known final volume of CCR from the CCR unit(s) for the purpose
2 of beneficial use of CCR.

3 (B) Exceptions for Closure.

4 (i) Except as provided by Paragraph .2013(c)(4)(B)(ii) of this Section, the owner
5 shall commence closure of a CCR unit(s) that has not received CCR or any non-
6 CCR waste stream or is no longer removing CCR for the purpose of beneficial
7 use within two years of the last receipt of waste or within two years of the last
8 removal of CCR material for the purpose of beneficial use.

9 (ii) Notwithstanding Paragraph .2013(c)(4)(i) of this Section, the owner of the CCR
10 unit(s) may secure an additional two years to initiate closure of the idle unit(s)
11 provided the owner provides written documentation that the CCR unit(s) will
12 continue to accept wastes or will start removing CCR for the purpose of
13 beneficial use. The documentation shall be supported by, at a minimum, the
14 information specified in Paragraphs .2013(c)(4)(B)(ii)a. and .2013(c)(4)(B)(ii)b.
15 of this Section. The owner may obtain two- year extensions provided the owner
16 continues to be able to demonstrate that there is reasonable likelihood that the
17 CCR unit(s) will accept wastes in the foreseeable future or will remove CCR
18 from the unit(s) for the purpose of beneficial use. The owner shall place each
19 completed demonstration, if more than one- time extension is sought, in the
20 facility's operating record in accordance with Rule .2017(h)(1) of this Section
21 prior to the end of any two-year period.

22 (a) Information documenting that the CCR unit(s) has remaining storage or
23 disposal capacity or that the CCR unit(s) can have CCR removed for
24 the purpose of beneficial use; and

25 (b) Information demonstrating that that there is a reasonable likelihood that
26 the CCR unit(s) will resume receiving CCR or non-CCR waste streams
27 in the foreseeable future or that CCR can be removed for the purpose of
28 beneficial use. The narrative shall include a best estimate as to when
29 the CCR unit(s) will resume receiving CCR or non-CCR waste streams.
30 The situations listed in Paragraphs .2013(c)(4)(B)(ii)b.1. through
31 .2013(c)(4)(B)(ii)b.4. of this Section are examples of situations that
32 would support a determination that the CCR unit(s) will resume
33 receiving CCR or non-CCR waste streams in the foreseeable future.

34 (1) Normal plant operations include periods during which the
35 CCR unit(s) does not receive CCR or non-CCR waste streams,
36 such as the alternating use of two or more CCR unit(s)s
37 whereby at any point in time one CCR unit(s) is receiving

1 CCR while CCR is being removed from a second CCR unit(s)
 2 after its dewatering.

3 (2) The CCR unit(s) is dedicated to a coal-fired boiler unit(s) that
 4 is temporarily idled (e.g., CCR is not being generated) and
 5 there is a reasonable likelihood that the coal-fired boiler will
 6 resume operations in the future.

7 (3) The CCR unit(s) is dedicated to an operating coal-fired boiler
 8 (i.e., CCR is being generated); however, no CCR are being
 9 placed in the CCR unit(s) because the CCR are being entirely
 10 diverted to beneficial uses, but there is a reasonable likelihood
 11 that the CCR unit(s) will again be used in the foreseeable
 12 future.

13 (4) The CCR unit(s) currently receives only non-CCR waste
 14 streams and those non-CCR waste streams are not generated
 15 for an extended period of time, but there is a reasonable
 16 likelihood that the CCR unit(s) will again receive non-CCR
 17 waste streams in the future.

18 (iii) In order to obtain additional time extension(s) to initiate closure of a CCR
 19 unit(s) beyond the two years provided by Paragraph .2013(c)(4)(B)(i) of this
 20 Section, the owner of the CCR unit(s) shall include with the demonstration
 21 required by Paragraph .2013(c)(4)(B)(ii) of this Section the following statement
 22 signed by the owner or an authorized representative:

23 “I certify under penalty of law that I have personally examined and am
 24 familiar with the information submitted in this demonstration and all
 25 attached documents, and that, based on my inquiry of those individuals
 26 immediately responsible for obtaining the information, I believe that
 27 the submitted information is true, accurate, and complete. I am aware
 28 that there are significant penalties for submitting false information,
 29 including the possibility of fine and imprisonment.”

30 (C) For purposes of this subpart, closure of the CCR unit(s) has commenced if the owner has
 31 ceased placing waste and completes any of the following actions or activities:

32 (i) Taken any steps necessary to implement the written closure plan
 33 required by Paragraph (c) of this Section;

34 (ii) Submitted a completed application for any required state or agency
 35 permit or permit modification; or

36 (iii) Taken any steps necessary to comply with any state or other agency
 37 standards that are a prerequisite, or are otherwise applicable, to

1 initiating or completing the closure of a CCR unit(s).

2 (5) Completion of closure activities.

3 (A) The owner shall complete closure of the CCR unit(s):

4 (i) For all CCR unit(s), within six months of commencing closure
5 activities.

6 (ii) For existing CCR surface impoundments.

7 (iii) The owner or operator shall substantiate the factual circumstances
8 demonstrating the need for extension.

9 (B) Extensions of closure timeframes. In order to obtain additional time extension(s) to
10 complete closure of a CCR unit(s) beyond the times provided by Paragraph
11 .2013(c)(5)(A) of this Section, the owner of the CCR unit(s) shall include with the
12 demonstration required by Paragraph .2013(c)(5)(A)(iii) of this Section the following
13 statement signed by the owner or an authorized representative:

14 “I certify under penalty of law that I have personally examined and am familiar
15 with the information submitted in this demonstration and all attached
16 documents, and that, based on my inquiry of those individuals immediately
17 responsible for obtaining the information, I believe that the submitted
18 information is true, accurate, and complete. I am aware that there are significant
19 penalties for submitting false information, including the possibility of fine and
20 imprisonment.”

21 (C) Upon completion, the owner of the CCR unit(s) shall obtain a certification from a
22 qualified professional engineer verifying that closure has been completed in accordance
23 with the closure plan specified in Paragraph .2013(c)(1) of this Section and the
24 requirements of this Section.

25 (6) No later than the date the owner initiates closure of a CCR unit(s), the owner shall prepare a
26 notification of intent to close a CCR unit(s). The notification shall include the certification by a
27 qualified professional engineer for the design of the final cover system in accordance with
28 .2013(c)(3)(C)(iii), if applicable. The owner has completed the notification when it has been
29 placed in the facility’s operating record in accordance with Rule .2017(h)(1) of this Section.

30 (7) Within 30 days of completion of closure of the CCR unit(s), the owner shall prepare a notification
31 of closure of a CCR unit(s). The notification shall include the certification by a qualified
32 professional engineer in accordance with Rule .2013(c)(5)(C) of this Section. The owner has
33 completed the notification when it has been placed in the facility’s operating record as required by
34 Rule .2017(h)(3) of this Section.

35 (8) Deed notations.

36 (A) Except as provided by Paragraph .2013(c)(8)(D) of this Section, following closure of a
37 CCR unit(s), the owner shall record a notation on the deed to the property, or some other

1 instrument that is normally examined during title search.

2 (B) The notation on the deed shall in perpetuity notify any potential purchaser of the property
3 that:

4 (i) The land has been used as a CCR unit(s); and

5 (ii) Its use is restricted under the post-closure care requirements as
6 provided by .2013(d)(4)(A)(iii).

7 (C) Within 30 days of recording a notation on the deed to the property, the owner shall
8 prepare a notification stating that the notation has been recorded. The owner has
9 completed the notification when it has been placed in the facility's operating record in
10 accordance with Rule .2017(h)(5) of this Section.

11 (D) An owner that closes a CCR unit(s) in accordance with Paragraph .2013(c)(2) of this
12 Section is not subject to the requirements of Paragraphs .2013(c)(8)(A) through
13 .2013(c)(8)(C) of this Section.

14 (9) The owner of the CCR unit(s) shall comply with the closure recordkeeping, notification and the
15 Internet requirements specified in Rule .2017(h) of this Section.

16 (10) The annual progress reports of closure implementation where the owner or operator shall prepare
17 periodic progress reports summarizing the progress of closure implementation, including a
18 description of the actions completed to date, any problems encountered and a description of the
19 actions taken to resolve the problems, and projected closure activities for the upcoming year.

20 (d) Post-closure care requirements.

21 (1) Applicability.

22 (A) Except as provided by either Paragraph .2013(c)(1)(B) or (C) of this Section, .2013(d)
23 applies to the owners or operators of CCR landfills, CCR surface impoundments, and
24 lateral expansions of CCR landfills that are subject to the closure criteria under .2013(c).

25 (B) An owner or operator of a CCR unit(s) that elects to close a CCR unit(s) by removing
26 CCR as provided by .2013(c)(2) is not subject to the post-closure care criteria under this
27 Section.

28 (2) Post-closure care maintenance requirements. Following closure of the CCR unit(s), the owner or
29 operator shall conduct post-closure care for the CCR unit(s), which shall consist of at least the
30 following:

31 (A) Maintaining the integrity and effectiveness of the final cover system, including making
32 repairs to the final cover as necessary to correct the effects of settlement, subsidence,
33 erosion, or other events, and preventing run-on and run-off from eroding or otherwise
34 damaging the final cover;

35 (B) If the CCR unit(s) is subject to the design criteria under .2010 maintaining the integrity
36 and effectiveness of the leachate collection and removal system and operating the
37 leachate collection and removal system in accordance with the requirements of .2010;

1 and

2 (C) Maintaining the groundwater monitoring system and monitoring the groundwater in
3 accordance with the requirements of .2014.

4 (3) Post-closure care period.

5 (A) Except as provided by Paragraph .2013(d)(3)(B) of this Section, the owner or operator of
6 the CCR unit(s) shall conduct post-closure care for 30 years.

7 (B) If at the end of the post-closure care period the owner or operator of the CCR unit(s) is
8 operating under assessment monitoring in accordance with .2015, the owner or operator
9 shall continue to conduct post-closure care until the owner or operator returns to
10 detection monitoring in accordance with .2014.

11 (C) Every five (5) years of the post-closure period the CCR unit(s) the owner or operator of a
12 closed CCR unit(s) shall submit to the Division a review of all post closure plan
13 requirements for that period, prepared by a qualified professional engineer. The Division
14 shall review the information provided for compliance with the approved written plan,
15 closure permit conditions, applicable statues and rules.

16 (4) Written post-closure plan.

17 (A) Content of the plan. The owner or operator of a CCR unit(s) shall prepare a written post-
18 closure plan that includes, at a minimum, the information specified in Paragraphs
19 .2013(d)(4)(A)(i) through .2013(d)(4)(A)(iii) of this Section.

20 (i) A description of the monitoring and maintenance activities required in
21 Paragraph .2013(d)(2) of this Section for the CCR unit(s), and the frequency at
22 which these activities will be performed;

23 (ii) The name, address, telephone number, and email address of the person or office
24 to contact about the facility during the post-closure care period; and

25 (iii) A description of the planned uses of the property during the post-closure period.
26 Post-closure use of the property shall not disturb the integrity of the final cover,
27 liner(s), or any other component of the containment system, or the function of
28 the monitoring systems unless necessary to comply with the requirements in this
29 subpart. The Division may approve disturbance if the owner or operator of the
30 CCR unit(s) demonstrates that disturbance of the final cover, liner, or other
31 component of the containment system, including any removal of CCR, will not
32 increase the potential threat to human health or the environment. The
33 demonstration shall be certified by a qualified professional engineer, and shall
34 be submitted to the Division for approval. The demonstration and Division
35 approval shall be placed in the facility operating record and on the owners or
36 operator's publicly accessible Internet site.

37 (B) Deadline to prepare the initial written post-closure plan.

- 1 (i) New CCR landfills and any lateral expansion of a CCR landfills. No later than
2 the date of the initial receipt of CCR in the CCR unit(s), the owner or operator
3 shall prepare an initial written post-closure plan consistent with the requirements
4 specified in Paragraph .2013(d)(4)(A) of this Section.
- 5 (ii) The owner or operator has completed the written post-closure plan when the
6 plan, including the certification required by Paragraph .2013(d)(4)(D) of this
7 Section, has been placed in the facility's operating record in accordance with
8 Rule .2017(h)(6) of this Section.
- 9 (C) Amendment of a written post-closure plan.
- 10 (i) The owner or operator may amend the initial or any subsequent written post-
11 closure plan developed pursuant to Paragraph .2013(d)(4)(A) of this Rule at any
12 time.
- 13 (ii) The owner or operator shall amend the written closure plan whenever:
- 14 (a) There is a change in the operation of the CCR unit(s) that would
15 substantially affect the written post-closure plan in effect; or
- 16 (b) After post-closure activities have commenced, unanticipated events
17 necessitate a revision of the written post-closure plan.
- 18 (iii) The owner or operator shall amend the written post-closure plan at least 60 days
19 prior to a planned change in the operation of the facility or CCR unit(s), or no
20 later than 60 days after an unanticipated event requires the need to revise an
21 existing written post-closure plan. If a written post-closure plan is revised after
22 post-closure activities have commenced for a CCR unit(s), the owner or operator
23 shall amend the written post-closure plan no later than 30 days following the
24 triggering event.
- 25 (D) The owner or operator of the CCR unit(s) shall obtain a written certification from a
26 qualified professional engineer that the initial and any amendment of the written post-
27 closure plan meets the requirements of this Section.
- 28 (5) Notification of completion of post-closure care period. No later than 60 days following the
29 completion of the post-closure care period, the owner or operator of the CCR unit(s) shall prepare
30 a notification verifying that post-closure care has been completed. The notification shall include
31 the certification by a qualified professional engineer verifying that post-closure care has been
32 completed in accordance with the closure plan specified in Paragraph (d) of this Section and the
33 requirements of this Section. The owner or operator has completed the notification when it has
34 been placed in the facility's operating record in accordance with Rule .2017(h)(7) of this Section.
- 35 (6) The owner or operator of the CCR unit(s) shall comply with the recordkeeping, notification and
36 the Internet requirements specified in Rule .2017(h) of this Section.
- 37

- 1 History Note: Authority G.S. 130-294; G.S. 130A-309.207;
- 2 Eff. January 1, 2019.

1 15A NCAC 13B .2014 is proposed for adoption as follows:

2
3 **15A NCAC 13B .2014 DETECTION MONITORING REQUIREMENTS FOR CCR FACILITIES AND**
4 **UNITS**

5 (a) Applicability - All CCR unit(s) are subject to the detection monitoring requirements under Rule .2014 of this
6 Section, except that Rule .2014 does not apply to CCR surface impoundments.

- 7 (1) New CCR landfills and lateral expansions of CCR unit(s). Prior to initial receipt of CCR by the
8 CCR unit(s), the owner or operator shall be in compliance with the groundwater monitoring
9 requirements specified in this Rule. In addition, the owner or operator of the CCR unit(s) shall
10 initiate the detection monitoring program to include obtaining a minimum of eight independent
11 samples for each well, (background and downgradient) during the first year of operation with at
12 least the first sample taken prior to waste placement and subsequent samples taken every 30-45
13 days.
- 14 (2) Once a groundwater monitoring system and groundwater monitoring program has been established
15 at the CCR unit(s) as required by this Rule, the owner or operator shall conduct groundwater
16 monitoring and, if necessary, corrective action throughout the active life and post-closure care
17 period of the CCR unit(s).
- 18 (3) In the event of a release from a CCR unit(s), the owner or operator shall immediately take all
19 necessary measures to control the source(s) of releases so as to reduce or eliminate, to the
20 maximum extent feasible, further releases of contaminants into the environment. The owner or
21 operator of the CCR unit(s) shall comply with all applicable requirements in Rule .2015 of this
22 Section if the release impacts groundwater quality.
- 23 (4) Annual groundwater monitoring and corrective action report. For CCR unit(s), the owner or
24 operator shall prepare an annual groundwater monitoring and corrective action report. For new
25 CCR landfills and lateral expansions of CCR unit(s), the owner or operator shall prepare the initial
26 annual groundwater monitoring and corrective action report no later than January 31 of the year
27 following the calendar year a groundwater monitoring system has been established for such CCR
28 unit(s) as required by this Rule, and annually thereafter. For the preceding calendar year, the
29 annual report shall document the status of the groundwater monitoring and corrective action
30 program for the CCR unit(s), summarize key actions completed, describe any problems
31 encountered, discuss actions to resolve the problems, and project key activities for the upcoming
32 year. For purposes of this Section, the owner or operator has prepared the annual report when the
33 report is placed in the facility's operating record in accordance with Rule .2017(g)(1) of this
34 Section. At a minimum, the annual groundwater monitoring and corrective action report shall
35 contain the following information, to the extent available:
- 36 (A) A map, aerial image, or diagram showing the CCR unit(s) and all background (or up-
37 gradient), downgradient monitoring wells, and surface water monitoring locations to

1 include the well and surface water location identification numbers, that are part of the
 2 groundwater monitoring program for the CCR unit(s);

3 (B) A USGS topographic map;

4 (C) A potentiometric surface map from the most recent sampling;

5 (D) Identification of any monitoring wells that were installed or decommissioned during the
 6 preceding year, along with a narrative description of why those actions were taken;

7 (E) In addition to all the monitoring data obtained under Rules .2014 and .2015 of this
 8 Section, a summary including the number of groundwater samples that were collected for
 9 analysis for each background and downgradient well, the dates the samples were
 10 collected, and whether the sample was required by the detection monitoring or
 11 assessment monitoring programs;

12 (F) A narrative discussion of any transition between monitoring programs (e.g., the date and
 13 circumstances for transitioning from detection monitoring to assessment monitoring in
 14 addition to identifying the constituent(s) detected above the current groundwater quality
 15 standards in accordance with 15A NCAC 02L .0202 or Interim Maximum Allowable
 16 Concentration (IMAC), and

17 (G) Other information required to be included in the annual report as specified in Rules .2014
 18 and .2015 of this Section.

19 (b) A Monitoring Plan shall be submitted that contains the following information and shall apply to all CCR unit(s).
 20 The Monitoring Plan shall be prepared in accordance with this Rule.

21 (c) Groundwater monitoring plan. A groundwater monitoring plan, including information on the proposed
 22 groundwater monitoring system(s), sampling and analysis requirements, and detection monitoring requirements that
 23 fulfills the requirements of Part (1)(A) through (E) of this Paragraph, shall be submitted.

24 (1) A groundwater monitoring system that consists of a sufficient number of wells of at least one
 25 background and three downgradient wells, installed at appropriate locations and depths, shall be
 26 installed to yield groundwater samples from the aquifer that:

27 (A) Represent the quality of the background ground water that has not been affected by
 28 leakage from the unit(s). Normally, determination of background water quality will be
 29 based on sampling of a well or wells that are hydraulically upgradient of the waste
 30 management area. However, the determination of background water quality may include
 31 sampling of wells that are not hydraulically upgradient of the waste management area
 32 where hydrogeologic conditions do not allow the owner and operator to determine which
 33 wells are hydraulically upgradient, or hydrogeologic conditions do not allow the owner
 34 and operator to place a well in a hydraulically upgradient location, or sampling at other
 35 wells will provide an indication of background groundwater quality that is as
 36 representative as that provided by the upgradient well(s); and

37 (B) Represent the quality of ground water passing the review boundary and the relevant point

1 of compliance as approved by the Division. A review boundary is established around any
2 disposal system midway between the compliance boundary and the waste boundary as to
3 ensure detection of groundwater contamination in the uppermost aquifer. The relevant
4 point of compliance shall be established no more than 250 feet from a waste boundary, or
5 shall be at least 50 feet within the facility property boundary, whichever point is closer to
6 the waste boundary. In determining the review boundary and the relevant point of
7 compliance, the Division shall consider recommendations made by the owner and
8 operator based upon consideration of at least the hydrogeologic characteristics of the
9 facility and surrounding land; the quantity, quality, and direction of flow of the ground
10 water; the proximity and withdrawal rate of the groundwater users; the existing quality of
11 the ground water, including other sources of contamination and their cumulative impacts
12 on the ground water, and whether the ground water is currently used or reasonably
13 expected to be used for drinking water; public health, safety, and welfare effects; and
14 practicable capability of the owner and operator.

15 (C) The groundwater monitoring plan shall include consistent sampling and analysis
16 procedures that are designed to ensure monitoring results that provide an accurate
17 representation of groundwater quality at the background and downgradient wells. The
18 plan shall include procedures and techniques for sample collection; sample preservation
19 and shipment; chain-of-custody control; and quality assurance and quality control.

20 (D) Detection groundwater monitoring. The monitoring shall include sampling and analytical
21 methods that are appropriate for groundwater sampling and that accurately measure target
22 constituents and other monitoring parameters in groundwater samples. Detection
23 monitoring is required at CCR unit(s) for all groundwater monitoring wells that are part
24 of the detection monitoring system as established in the approved monitoring plan. At a
25 minimum, detection monitoring shall include monitoring for the constituents listed in the
26 approved site-specific Water Quality Monitoring Plan including, but not limited to the
27 following constituents and field parameters:

28 1. Alkalinity

29 2. Antimony

30 3. Arsenic

31 4. Barium

32 5. Beryllium

33 6. Boron

34 7. Cadmium

35 8. Calcium

36 9. Chloride

37 10. Chromium

- 1 11. Cobalt
- 2 12. Copper
- 3 13. Fluoride
- 4 14. Iron
- 5 15. Lead
- 6 16. Manganese
- 7 17. Mercury
- 8 18. Nickel
- 9 19. Nitrate
- 10 20. pH (field)
- 11 21. Selenium
- 12 22. Silver
- 13 23. Specific Conductance (field)
- 14 24. Sulfate
- 15 25. Temperature (field)
- 16 26. Thallium
- 17 27. Turbidity (field)
- 18 28. Total Dissolved Solids (TDS)
- 19 29. Vanadium
- 20 30. Zinc

21 The monitoring frequency for all detection monitoring constituents shall be at least
22 semiannual during the active life of the facility, and during the closure and post-closure
23 periods. A minimum of one sample from each well (background and downgradient) shall
24 be collected and analyzed for the constituents before waste placement in each cell or
25 phase. At least one sample from each well (background and downgradient) shall be
26 collected and analyzed during subsequent semiannual sampling events. The
27 Classifications and Water Quality Standards Applicable to the Groundwaters of North
28 Carolina 15A NCAC 02L are incorporated by reference, including subsequent
29 amendments and editions. Copies of this material may be inspected or obtained at the
30 Department of Environmental Quality or on the Department website.

31 (E) The sampling procedures and frequency shall be protective of human health and the
32 environment.

33 (2) Each time groundwater is sampled elevations shall be measured in each well immediately prior to
34 purging. Groundwater elevations in wells which monitor the same waste management area shall
35 be measured within a 24-hour period to avoid temporal variations in groundwater flow which
36 could preclude accurate determination of groundwater flow rate and direction. To accurately
37 determine groundwater elevations for each monitoring well, the wells shall have been accurately

1 surveyed by a North Carolina Registered Land Surveyor. The survey of the wells shall conform to
2 at least the following levels of accuracy: horizontal location to the nearest 0.1 foot, vertical control
3 for the ground surface elevation to the nearest 0.01 foot, and vertical control for the measuring
4 reference point on the top of the inner well casing to the nearest 0.01 foot. To determine the rate of
5 groundwater flow, the owner or operator shall provide data for hydraulic conductivity and porosity
6 for the formation materials at each of the well locations.

7 (3) The owner or operator shall establish existing conditions of groundwater quality in hydraulically
8 upgradient or background well(s) for each of the monitoring parameters or constituents required in
9 the specific groundwater monitoring program that applies to the CCR unit(s).

10 (4) Should the owner or operator choose to perform statistical analysis of groundwater quality data
11 whether for establishing background concentrations or determining if there is an exceedance of the
12 groundwater protection standard, the owner or operator shall select one of the following statistical
13 methods to be used in evaluating groundwater monitoring data for each constituent of concern.
14 The statistical test chosen shall be conducted separately for each constituent of concern in each
15 well. The statistical analysis shall be prepared and include a narrative description of the statistical
16 method selected under the responsible charge of and bear the seal of a Licensed Geologist or
17 Professional Engineer in accordance with NCGS 89E or 89C, respectively.

18 (A) A parametric analysis of variance (ANOVA) followed by multiple comparisons
19 procedures to identify statistically significant evidence of contamination. The method
20 shall include estimation and testing of the contrasts between each compliance well's mean
21 and the background mean levels for each constituent.

22 (B) A parametric analysis of variance (ANOVA) based on ranks followed by multiple
23 comparisons procedures to identify statistically significant evidence of contamination.
24 The method shall include estimation and testing of the contrasts between each
25 compliance well's median and the background median levels for each constituent.

26 (C) A tolerance or prediction interval procedure in which an interval for each constituent is
27 established from the distribution of the background data, and the level of each constituent
28 in each compliance well is compared to the upper tolerance or prediction limit.

29 (D) A control chart approach that gives control limits for each constituent.

30 (E) Another statistical test method that meets the performance standards of this Rule. The
31 owner or operator shall submit a justification for an alternative test method to the
32 Division for approval. The justification shall demonstrate that the alternative statistical
33 test method meets the performance standards of this Rule. If approved, the owner or
34 operator shall place a copy of the justification for an alternative test method in the
35 operating record.

36 (5) Any statistical method chosen to evaluate groundwater monitoring data shall comply with the
37 following performance standards, as appropriate:

- 1 (A) The statistical method used to evaluate groundwater monitoring data shall be appropriate
2 for the distribution of chemical parameters or constituents of concern. If the distribution
3 of the chemical parameters or constituents of concern is shown by the owner or operator
4 (or the Division) to be inappropriate for a normal theory test, then the data shall be
5 transformed or a distribution-free theory test shall be used. If the distributions for the
6 constituents differ, more than one statistical method shall be considered.
- 7 (B) If an individual well comparison procedure is used to compare an individual compliance
8 well constituent concentration with background constituent concentrations or a
9 groundwater protection standard, the test shall be done at a Type I error level no less than
10 0.01 for each testing period. If a multiple comparisons procedure is used, the Type I
11 experiment wise error rate for each testing period shall be no less than 0.05; however, the
12 Type I error of no less than 0.01 for individual well comparisons shall be maintained.
13 This performance standard does not apply to tolerance intervals, prediction intervals, or
14 control charts.
- 15 (C) If a control chart approach is used to evaluate groundwater monitoring data, the specific
16 type of control chart and its associated parameter values shall be protective of human
17 health and the environment. The parameters shall be determined after considering the
18 number of samples in the background data base, the data distribution, and the range of the
19 concentration values for each constituent of concern.
- 20 (D) If a tolerance interval or a prediction interval is used to evaluate groundwater monitoring
21 data, the levels of confidence and, for tolerance intervals, the percentage of the
22 population that the interval shall contain, shall be protective of human health and the
23 environment. These parameters shall be determined after considering the number of
24 samples in the background data base, the data distribution, and the range of the
25 concentration values for each constituent of concern.
- 26 (E) The statistical method shall account for data below the limit of detection with one or
27 more statistical procedures that are protective of human health and the environment. Any
28 practical quantitation limit (PQL) that is used in the statistical method shall be the lowest
29 concentration level that can be reliably achieved within specified limits of precision and
30 accuracy during routine laboratory operating conditions that are available to the facility.
- 31 (F) If necessary, as provided for in 40 CFR 258, the statistical method shall include
32 procedures to control or correct for seasonal and spatial variability as well as temporal
33 correlation in the data.
- 34 (6) Within 120 days of completing a groundwater sampling event, the owner or operator shall submit
35 to the Division a report in electronic format that includes information from the sampling event;
36 including, but not limited to: field observations relating to the condition of the monitoring wells;
37 field data; summary of the laboratory data; field sampling quality assurance and quality control

1 data; information on groundwater flow direction; groundwater flow rate for each well with
2 constituents that exceed groundwater standards over background levels; and any other pertinent
3 information related to the sampling event.

4 (7) The owner or operator may demonstrate that a source other than the CCR unit(s) or a natural
5 variation in groundwater quality has caused contamination, or an error in sampling or analysis of
6 data has resulted in false reporting of contamination. A report documenting this demonstration
7 shall be certified by a Licensed Geologist or Professional Engineer and shall be submitted to the
8 Division for review. The Division shall date and stamp the demonstration "approved" if the
9 conditions of this Paragraph are met. A copy of the approved report shall also be placed in the
10 operating record. If after 90 days, a successful demonstration is not made, the owner or operator
11 shall initiate an assessment monitoring program as required in 15A NCAC 13B .2015.

12 (8) Monitoring wells shall be designed and constructed in accordance with the applicable North
13 Carolina Well Construction Standards as codified in 15A NCAC 02C.

14 (A) Owners and operators shall obtain approval from the Division for the design, installation,
15 development, and decommission of any monitoring well or piezometer. Documentation
16 shall be placed in the operating record and provided to the Division.

17 (B) The monitoring wells and piezometers shall be operated, maintained, and accessible so
18 that they perform to design specifications throughout the life of the monitoring program.

19 (9) The number, spacing, and depths of monitoring points shall be determined based upon site-
20 specific technical information that shall include investigation of:

21 (A) Aquifer thickness, groundwater flow rate, and groundwater flow direction, including
22 seasonal and temporal fluctuations in groundwater flow; and

23 (B) Unsaturated and saturated geologic units (including fill materials) overlying and
24 comprising the uppermost aquifer, including thickness, stratigraphy, lithology, hydraulic
25 conductivities, porosities and effective porosities.

26 (10) The Division may require or allow the use of alternative monitoring systems in addition to
27 groundwater monitoring wells:

28 (A) at sites where the owner and operator does not control the property from any landfill
29 unit(s) to the groundwater discharge feature(s); or

30 (B) at sites with hydrogeologic conditions favorable to detection monitoring by alternative
31 methods.

32 (11) Owners and operators of CCR unit(s) shall comply with the groundwater monitoring, assessment
33 and corrective action requirements under Rules .2014 and .2015 of this Section according to the
34 following schedule:

35 (A) new CCR unit(s) shall be in compliance with the requirements before waste can be placed
36 in the unit(s); and

37 (B) lateral expansions to existing CCR unit(s) shall be in compliance with the requirements

1 before waste can be placed in the expansion area.

2 (12) Groundwater standards established under 15A NCAC 2L shall not be exceeded in the uppermost
3 aquifer at the compliance boundary. A compliance boundary shall be established 250 feet from
4 the waste boundary or 50 feet within the property boundary, whichever point is closer to the
5 source.

6 (d) Surface water monitoring. The surface water monitoring system shall be as follows:

7 (1) The Division shall require a CCR facility to provide such surface water monitoring capability as
8 the Division determines to be necessary to detect the effects of the facility on surface water in the
9 area. In making such a determination, the Division shall consider the following factors:

10 (A) the design of the facility, the nature of the process it will use, and the type of waste it will
11 handle;

12 (B) liner underdrain systems, commonly known as French drains, discharges;

13 (C) drainage patterns and other hydrological conditions in the area;

14 (D) proximity of surface water to the facility;

15 (E) uses that are being or may be made of any surface water that may be affected by the
16 facility; and

17 (F) any other factors that reasonably relate to the potential for surface water effects from the
18 facility.

19 (3) Detection surface water monitoring. The monitoring shall include sampling and analytical
20 methods that are appropriate for surface water sampling and that accurately measure target
21 constituents and other monitoring parameters in surface water samples. The surface water
22 monitoring plan shall include at least one upstream and one downstream sampling location where
23 the water quality is analyzed for constituents listed in Rule .2014(c)(1)(D). The monitoring
24 frequency shall be at least semiannual during the active life of the facility, and during the closure
25 and post-closure periods.

26 (4) Responsibility for sample collection and analysis shall be defined as a part of the monitoring plan.

27 (5) Any other information that the Division deems pertinent to the development of a surface water
28 monitoring system will be required.

29 (6) Surface water standards established under 15A NCAC 2B .0200 shall not be exceeded. If a 2B
30 standard is not established, the owner or operator shall obtain a determination from the Division
31 on establishing a surface water standard for each constituent detected in the surface water.

32 (7) A site shall not cause a discharge of pollutants into waters of the state that is in violation of the
33 requirements of the National Pollutant Discharge Elimination System (NPDES), under Section
34 402 of the Clean Water Act, as amended, or that is in violation of standards promulgated under
35 G.S. 143-214.1 and G.S. 143-215.

36 (8) A site shall not cause a discharge of dredged material or fill material into waters of the state that is
37 in violation of the requirements under Section 404 of the Clean Water Act, as amended, or that is

1 in violation of any state requirements regulating the discharge of dredged or fill material into
2 waters of the state, including wetlands.

3 (9) A site shall not cause non-point source pollution of waters of the state that violates classification
4 of the water, the appropriate standards, and antidegradation policies to support that classification.

5 (e) Gas Monitoring. Gas Monitoring shall be required unless otherwise approved by the Division.

6 (1) Owners and operators of all CCR unit(s) shall ensure that:

7 (A) the concentration of methane gas or other explosive gases generated by the facility does
8 not exceed 25 percent of the lower explosive limit in on-site facility structures (excluding
9 gas control or recovery system components);

10 (B) the concentration of methane gas or other explosive gases does not exceed the lower
11 explosive limit for methane or other explosive gases at the facility property boundary;
12 and

13 (C) the facility does not release methane gas or other explosive gases in any concentration
14 that can be detected in offsite structures.

15 (2) Owners and operators of all CCR unit(s) shall implement a routine methane monitoring program
16 to ensure that the standards of this Paragraph are met.

17 (A) The type of monitoring shall be determined based on soil conditions, the hydrogeologic
18 conditions under and surrounding the facility, hydraulic conditions on and surrounding
19 the facility, the location of facility structures and property boundaries, and the location of
20 all off-site structures adjacent to property boundaries.

21 (B) The frequency of monitoring shall be quarterly or as approved by the Division.

22 (3) If methane or explosive gas levels exceeding the limits specified in Subparagraph (e)(1) of this
23 Rule are detected, the owner and operator shall:

24 (A) immediately take all steps necessary to ensure protection of human health and notify the
25 Division;

26 (B) within seven days of detection, place in the operating record the methane or explosive gas
27 levels detected and a description of the steps taken to protect human health; and

28 (C) within 60 days of detection, implement a remediation plan for the methane or explosive
29 gas releases, place a copy of the plan in the operating record, and notify the Division that
30 the plan has been implemented. The plan shall describe the nature and extent of the
31 problem and the proposed remedy.

32 (4) Owners or operators shall ensure that

33 (A) The concentration of hydrogen sulfide gas generated by the facility does not exceed 20
34 parts per million in facility structures (excluding gas control or recovery system
35 components); and

36 (B) The concentration of hydrogen sulfide gas does not exceed 50 parts per million at the
37 facility property boundary.

- 1 (5) Owners or operators shall ensure that the concentration of oxygen generated by the facility does
2 not exceed assigned threshold of 19.5% - 23.5% in facility structures (excluding gas control or
3 recovery system components);
- 4 (6) Based on the need for an extension demonstrated by the operator, the Division may establish
5 alternative schedules for demonstrating compliance with Parts (3)(B) and (3)(C) of this Paragraph.
- 6 (7) For purposes of this Item, "lower explosive limit" means the lowest percent by volume of a
7 mixture of explosive gases in air that will propagate a flame at 25° C and atmospheric pressure.
- 8 (f) Leachate Monitoring. The owner or operator of a CCR landfill designed with a leachate collection system shall:
- 9 (1) conduct semi-annual leachate quality sampling from a Division approved sampling point, and
10 (2) detection monitoring shall include monitoring for the constituents listed in the approved site-
11 specific Water Quality Monitoring Plan.
- 12 (g) A waste acceptability program. Owners and operators of all CCR unit(s) shall implement a program at the
13 facility for detecting and preventing the disposal of industrial, hazardous, liquid, municipal solid waste and excluded
14 wastes in accordance with the Operating Plan or the effective permit. This program shall include, at a minimum:
- 15 (1) random inspections of incoming loads or other comparable procedures;
16 (2) records of any inspections;
17 (3) training of facility personnel to recognize industrial, hazardous, liquid, municipal and excluded
18 waste; and
19 (4) development of a contingency plan to properly manage any identified industrial, hazardous, liquid,
20 municipal or excluded waste. The plan shall address identification, removal, storage and final
21 disposition of the waste.
- 22 (h) The Monitoring Plan shall include any other monitoring plan or program which is necessary according to the
23 Operating Plan or the effective permit.
- 24 (i) Monitoring plans shall be prepared under the responsible charge of and bear the seal of a Licensed Geologist or
25 Professional Engineer in accordance with NCGS 89E or 89C, respectively.
- 26 (j) Monitoring plans shall be certified by a Licensed Geologist or Professional Engineer to be effective in providing
27 early detection of any release of hazardous constituents from any point in a disposal cell or leachate surface
28 impoundment to the uppermost aquifer, air, surface waters, or proximal area, so as to be protective of public health
29 and the environment.
- 30 (k) Monitoring plans shall be submitted to the Division for review. The Division shall date and stamp the
31 monitoring plans "approved" if they meet the conditions of this Rule. A copy of the approved monitoring plan shall
32 be placed in the operating record.
- 33 (l) Once established at a CCR facility, all monitoring shall be conducted throughout the active life and post-closure
34 care period for all CCR unit(s).
- 35 (m) The owner or operator of multiple CCR unit(s) may install a multiunit groundwater monitoring system instead
36 of separate groundwater monitoring systems for each CCR unit(s). The multiunit groundwater monitoring system
37 shall be equally as capable of detecting monitored constituents at the relative point of compliance of the CCR unit(s)

1 as the individual groundwater monitoring system specified in Paragraph (b) of this Rule for each CCR unit(s) based
2 on the following factors:

3 (1) Number, spacing, and orientation of each CCR unit(s);

4 (2) Hydrogeologic setting;

5 (3) Site history; and

6 (4) Engineering design of the CCR unit(s).

7 (n) The owner or operator of the CCR unit(s) shall comply with the recordkeeping, notification and the internet
8 requirements specified in Rule .2017(g) of this Section.

9

10 History Note: Authority G.S. 130-294; G.S. 130A-309.207;

11 Eff. January 1, 2019.

1 15A NCAC 13B .2015 is proposed for adoption as follows:

2
3 **15A NCAC 13B .2015 ASSESSMENT AND CORRECTIVE ACTION REQUIREMENTS FOR CCR**
4 **LANDFILLS**

5 (a) Applicability - All CCR unit(s) are subject to the assessment and corrective action requirements under Rule
6 .2015 of this Section except that Rule .2015 does not apply to CCR surface impoundments.

7 (b) Assessment Program. Assessment is required if one or more constituents, as listed in Part (c)(1)(D) of Rule
8 .2014 of this Section are detected above the current groundwater quality standards in accordance with 15A NCAC
9 02L .0202 or Interim Maximum Allowable Concentration (IMAC), in any sampling event. The owner and operator
10 shall notify all persons within 14 days who own land or reside on land that directly overlies any part of the plume of
11 contamination if contaminants have migrated off-site or are thought to have migrated off site;

12 (1) Within 30 days prepare a notification stating that an assessment monitoring program is to be
13 established.

14 (2) Within 90 days of triggering an assessment monitoring program, the owner and operator shall
15 submit an assessment monitoring work plan for Division review. The Division shall date and
16 stamp the assessment monitoring program "approved" if the conditions in Paragraph (b) of this
17 Rule are met. The owner and operator shall place the approved program in the operating record,
18 and notify all appropriate local government officials.

19 (c) Assessment Monitoring Work Plan. The assessment monitoring work plan shall be in accordance with the
20 following:

21 (1) Install at least one additional groundwater monitoring well or methane gas monitoring well at the
22 facility boundary or the compliance boundary, as defined in 15A NCAC 02L .0107, in the
23 direction of contaminant migration. The new sampling point shall be installed at the facility
24 boundary or compliance boundary at the location most likely to show impact based on the known
25 geology and hydrogeology. The additional monitoring wells shall characterize the nature and
26 extent of the release by determining the following factors:

27 (A) Lithology of the aquifer and unsaturated zone;

28 (B) Hydraulic conductivity of the aquifer and unsaturated zone;

29 (C) Groundwater flow rates;

30 (D) Minimum distance of travel;

31 (E) Resource value of the aquifer; and

32 (F) Nature, fate, and transport of any detected constituents.

33 (2) A minimum of one sample from each monitoring well shall be collected and analyzed for the
34 following constituents during the initial sampling event.

35 1. Antimony

36 2. Arsenic

37 3. Barium

1 4. Beryllium

2 5. Boron

3 6. Cadmium

4 7. Total Chromium

5 8. Cobalt

6 9. Fluoride

7 10. Lead

8 11. Lithium

9 12. Mercury

10 13. Molybdenum

11 14. Radium 226 and 228

12 15. Selenium

13 16. Thallium

14 17. Vanadium

15 After the initial sampling event, for any constituent detected in the downgradient wells as the
 16 result of the analysis of constituents listed in Rule .2015(c)(2), a minimum of three additional
 17 independent samples from each well (background and downgradient) shall be collected and
 18 analyzed to establish a baseline for the new detected constituents. After the initial sampling event,
 19 the Division may specify, as provided for in 40 CFR 257, an appropriate subset of wells to be
 20 sampled and analyzed for constituents listed in Rule .2015(c)(2) during assessment monitoring.
 21 After the initial sampling event, the Division may delete, as provided for in 40 CFR 257, any of
 22 the monitoring parameters listed in Rule .2015(c)(2) for a CCR unit(s) if it can be shown that the
 23 removed constituents are not reasonably expected to be in or derived from the waste contained in
 24 the unit(s).

25 (3) If the new constituents do not have an established 15A NCAC 02L .0202 groundwater quality
 26 standard or Interim Maximum Allowable Concentration (IMAC), the owner or operator shall
 27 obtain a determination from the Division on establishing a groundwater protection standard for
 28 each constituent detected in groundwater. The groundwater protection standard shall be the most
 29 protective of the following:

30 (A) For constituents for which a maximum contamination level (MCL) has been promulgated
 31 under the Section 1412 of the Safe Drinking Water Act codified under 40 CFR Part 141,
 32 the MCL for that constituent;

33 (B) For constituents for which a water quality standard has been established under the North
 34 Carolina Rules Governing Public Water Systems, 15A NCAC 18C, the water quality
 35 standard for that constituent;

1 (C) For constituents for which a water quality standard has not been established under the
 2 North Carolina Groundwater Classifications and Standards, 15A NCAC 02L .0202, an
 3 Interim Maximum Allowable Concentration (IMAC) is established;

4 (D) For constituents for which MCLs or water quality standards have not been promulgated,
 5 the background concentration for the constituent established from wells in accordance
 6 with Rule .2014(c)(1)(A) of this Section; or

7 (E) For constituents for which the background level is higher than the MCL or water quality
 8 standard or health based levels identified under Paragraph (4) of this Rule, the
 9 background concentration.

10 (4) The Division may establish a stricter than background alternative groundwater protection standard
 11 for constituents for which neither an MCL or water quality standard has not been established.
 12 These groundwater protection standards shall be appropriate health based levels that satisfy the
 13 following criteria:

14 (A) The level is derived in a manner consistent with EPA guidelines for assessing the health
 15 risks of environmental pollutants;

16 (B) The level is based on scientifically valid studies conducted in accordance with the Toxic
 17 Substances Control Act Good Laboratory Practice Standards (40 CFR Part 792) or
 18 equivalent;

19 (C) For carcinogens, the level represents a concentration associated with an excess lifetime
 20 cancer risk level (due to continuous lifetime exposure) of 1×10^{-6} ;

21 (D) For systemic toxicants, the level represents a concentration to which the human
 22 population (including sensitive subgroups) could be exposed on a daily basis that is likely
 23 to be without appreciable risk of deleterious effects during a lifetime. For the purposes of
 24 this Rule, systemic toxicants include toxic chemicals that cause effects other than cancer
 25 or mutation.

26 (5) In establishing groundwater protection standards under Paragraph (c) of this Rule the Division
 27 may consider the following:

28 (A) Multiple contaminants in the ground water;

29 (B) Exposure threats to sensitive environmental receptors; and

30 (C) Other site-specific exposure or potential exposure to ground water.

31 (d) Assessment Monitoring Report

32 (1) After obtaining the results from the initial and subsequent sampling events, the owner or operator
 33 shall submit an assessment monitoring report to the Division which shall be certified by a
 34 Licensed Geologist or Professional Engineer.

35 (2) Within 14 days, submit a report to the Division and place a notice in the operating record
 36 identifying the constituents listed in Rule .2015(c)(2) that have been detected;

1 (3) The Division may approve an appropriate alternate frequency and/or subset of wells for repeated
 2 sampling and analysis for constituents listed in Rule .2015(c)(2) required during the active life and
 3 post-closure care of the unit(s) considering all the following factors:

- 4 (A) Lithology of the aquifer and unsaturated zone;
 5 (B) Hydraulic conductivity of the aquifer and unsaturated zone;
 6 (C) Groundwater flow rates;
 7 (D) Minimum distance of travel;
 8 (E) Resource value of the aquifer; and
 9 (F) Nature, fate, and transport of any detected constituents.

10 (4) The owner or operator may demonstrate that a source other than a CCR unit(s) caused the
 11 contamination. An alternate source demonstration report shall be prepared by a certified Licensed
 12 Geologist and submitted for approval by the Division. A copy of the approved report shall also be
 13 placed in the operating record. If a successful demonstration is made, the owner or operator may
 14 discontinue assessment monitoring, and may return to detection monitoring if the constituents are
 15 at or below background values and 15A NCAC 02L .0202 or approval is given by the Division
 16 according to Subparagraph (5) of this Paragraph. Until a successful demonstration is made, the
 17 owner or operator shall comply with Paragraph (b) of this Rule.

18 (5) The Division may give approval to the owner or operator to return to detection monitoring if all
 19 the following are met:

- 20 (A) The concentrations of the constituents are shown to be at or below background values and
 21 15A NCAC 02L .0202 for two consecutive sampling events;
 22 (B) The plume is not migrating horizontally or vertically; and
 23 (C) The plume has not exceeded the compliance boundary.

24 (6) Within 90 days of finding any constituent detected above background or 15A NCAC 02L .0202, or
 25 the approved groundwater protection standards, the owner or operator shall initiate Assessment of
 26 Corrective Measures.

27 (e) Assessment of Corrective Measures. Assessment of corrective measures shall be completed within 90. The 90-
 28 day deadline to complete the assessment of corrective measures may be extended for no longer than 60 days. The
 29 assessment of corrective measures shall include an analysis of the effectiveness of potential corrective actions in
 30 meeting all of the requirements and objectives of the remedy as described under this Rule.

31 (1) The assessment of corrective measures document shall address all the following at a minimum:

- 32 (A) the performance, reliability, ease of implementation, and potential impacts of appropriate
 33 potential remedies, including safety impacts, cross-media impacts, and control of
 34 exposure to any residual contamination;
 35 (B) the time required to begin and to complete the remedy;
 36 (C) the costs of remedy implementation; and

1 (D) the institutional requirements such as State and Local permit requirements or other
 2 environmental or public health requirements that may substantially affect implementation
 3 of the remedy(s).

4 (2) The owner and operator shall discuss the results of the assessment of corrective measures, prior to
 5 the selection of the remedy, in a public meeting with interested and affected parties. The owner
 6 and operator shall provide a public notice of the meeting at least 30 days prior to the meeting. The
 7 notice shall include the time, place, date, and purpose of the meeting required by this Paragraph of
 8 this Rule. A copy of the public notice shall be forwarded to the Division at least five days prior to
 9 publication. The owner and operator shall mail a copy of the public notice to those persons
 10 requesting notification. Public notice shall be in accordance with Rule .2003(c)(4) of this Section.

11 (f) Selection of Remedy. Based on the results of the Assessment of Corrective Measures, the owner and operator
 12 shall select a remedy that, at a minimum, meets the standards listed in Subparagraph (2) of this Paragraph as
 13 follows:

14 (1) Within 30 days of selecting a remedy, the permittee shall submit an application to modify the
 15 permit describing the selected remedy to the Division for evaluation and approval. The application
 16 shall be subject to the processing requirements set forth in Rule .2003(c) and (d) of this Section.
 17 The application shall include the demonstrations necessary to comply with the financial assurance
 18 requirements set forth in accordance with Rule .2016 of this Section.

19 (2) Remedies shall:

20 (A) be protective of human health and the environment;

21 (B) attain the approved groundwater protection standards;

22 (C) control the source(s) of releases so as to reduce or eliminate, to the maximum extent
 23 practicable, further releases of constituents into the environment that may pose a threat to
 24 human health or the environment; and

25 (D) comply with standards for management of wastes as specified in Paragraph (1) of this
 26 Rule.

27 (3) In selecting a remedy that meets the standards of Subparagraph (f)(2) of this Rule, the owner and
 28 operator shall consider the following evaluation factors:

29 (A) The long-term and short-term effectiveness and protectiveness of the potential remedy(s),
 30 along with the degree of certainty that the remedy will prove successful based on
 31 consideration of the magnitude of reduction of existing risks; magnitude of residual risks
 32 in terms of likelihood of further releases due to wastes remaining following
 33 implementation of a remedy; the type and degree of long-term management required,
 34 including monitoring, operation, and maintenance; short-term risks that might be posed to
 35 the community, to workers, or to the environment during implementation of such a
 36 remedy, including potential threats to human health and the environment associated with
 37 excavation, transportation, and re-disposal or containment; time until full protection is

1 achieved; potential for exposure of humans and environmental receptors to remaining
2 wastes, considering the potential threat to human health and the environment associated
3 with excavation, transportation, re-disposal, or containment; long-term reliability of the
4 engineering and institutional controls; and potential need for replacement of the remedy.

5 (B) The effectiveness of the remedy in controlling the source to reduce further releases, based
6 on consideration of the extent to which containment practices will reduce further releases,
7 and the extent to which treatment technologies may be used.

8 (C) The ease or difficulty of implementing a potential remedy, based on consideration of the
9 degree of difficulty associated with constructing the technology; the expected operational
10 reliability of the technologies; the need to coordinate with and obtain necessary approvals
11 and permits from other agencies; the availability of necessary equipment and specialists;
12 and available capacity and location of needed treatment, storage, and disposal services.

13 (D) The practicable capability of the owner and operator, including a consideration of the
14 technical and economic capability.

15 (4) The owner and operator shall specify as part of the selected remedy a schedule for initiating and
16 completing remedial activities included in a corrective action plan. This schedule shall be
17 submitted to the Division for review and approval. Such a schedule shall require the initiation of
18 remedial activities within a reasonable period of time, taking into consideration the factors set
19 forth in this Rule. The owner and operator shall consider the following factors in determining the
20 schedule of remedial activities:

21 (A) nature and extent of contamination;

22 (B) practical capabilities of remedial technologies in achieving compliance with the approved
23 groundwater protection standards and other objectives of the remedy;

24 (C) availability of treatment or disposal capacity for wastes managed during implementation
25 of the remedy;

26 (D) desirability of utilizing technologies that are not currently available, but which may offer
27 advantages over already available technologies in terms of effectiveness, reliability,
28 safety, or ability to achieve remedial objectives;

29 (E) potential risks to human health and the environment from exposure to contamination
30 prior to completion of the remedy;

31 (F) resource value of the aquifer, including current and future uses; proximity and withdrawal
32 rate of users; groundwater quantity and quality; the potential damage to wildlife, crops,
33 vegetation, and physical structures caused by exposure to contaminants; the
34 hydrogeologic characteristics of the facility and surrounding land; groundwater removal
35 and treatment costs; the costs and availability of alternative water supplies;

36 (G) practical capability of the owner and operator; and

37 (H) other relevant factors.

1 (g) A determination by the Division pursuant to this Paragraph shall not affect the authority of the State to require
 2 the owner and operator to undertake source control measures or other measures that may be necessary to eliminate
 3 or minimize further releases to the ground water, to prevent exposure to the ground water, or to remediate ground
 4 water to concentrations that are technically practicable and reduce threats to human health or the environment.

5 (h) Implementation of the Corrective Action Program. Based on the approved schedule for initiation, and
 6 completion of remedial activities, in 90 days after approval of the selected remedy or as approved by the Division,
 7 the owner and operator shall:

8 (1) Establish and implement a corrective action groundwater monitoring program that:

9 (A) at a minimum, meets the requirements of an assessment monitoring program under
 10 Paragraphs (b), (c), and (d) of this Rule;

11 (B) demonstrates the effectiveness of the corrective action remedy; and

12 (C) demonstrates compliance with groundwater protection standards or Interim Maximum
 13 Allowable Concentration (IMAC), pursuant to Paragraph (k) of this Rule.

14 (2) Implement the approved corrective action remedy; and

15 (3) Take any interim measures necessary to ensure the protection of human health and the
 16 environment. Interim measures shall be consistent with the objectives of and contribute to the
 17 performance of any remedy that may be required. The following factors shall be considered by an
 18 owner and operator in determining whether interim measures are necessary:

19 (A) time required to develop and implement a final remedy;

20 (B) actual or potential exposure of nearby populations or environmental receptors to
 21 hazardous constituents;

22 (C) actual or potential contamination of drinking water supplies or sensitive ecosystems;

23 (D) further degradation of the ground water that may occur if remedial action is not initiated
 24 expeditiously;

25 (E) weather conditions that may cause constituents to migrate or be released;

26 (F) risks of fire or explosion, or potential for exposure to hazardous constituents as a result of
 27 an accident or failure of a container or handling system; and

28 (G) other situations that may pose threats to human health or the environment.

29 (i) A Corrective Action Evaluation Report (CAER) shall be submitted at least once every five calendar years.

30 (j) The owner or operator or the Division may determine, based on information developed after implementation of
 31 the remedy has begun or other information, that compliance with requirements of Subparagraph (f)(2) of this Rule
 32 are not being achieved through the remedy selected. In such cases, the owner and operator shall implement other
 33 methods or techniques, as approved by the Division that could practicably achieve compliance with the
 34 requirements, unless the owner or operator makes the determination under Paragraph (g) of this Rule.

35 (k) If the owner or operator determines that compliance with requirements of Subparagraph (f)(2) of this Rule
 36 cannot be practically achieved with any currently available methods, the owner and operator shall:

1 (1) obtain certification of a Licensed Geologist or Professional Engineer and approval from the
 2 Division that compliance with the requirements under Subparagraph (f)(2) of this Rule cannot be
 3 practically achieved with any currently available methods;

4 (2) implement alternate measures to control exposure of humans or the environment to residual
 5 contamination, as necessary to protect human health and the environment;

6 (3) implement alternate measures for control of the sources of contamination, or for removal or
 7 decontamination of equipment, units, devices, or structures that are:

8 (A) technically practicable and

9 (B) consistent with the overall objective of the remedy; and

10 (4) submit a report justifying the alternative measures to the Division for review. The Division shall
 11 date and stamp the report "approved" if the conditions of this Paragraph are satisfied. The
 12 approved report shall be placed in the operating record prior to implementing the alternative
 13 measures.

14 (l) All solid wastes that are managed pursuant to a remedy required under Paragraph (f) of this Rule, or an interim
 15 measure required under Paragraph (f) of this Rule, shall be managed in a manner:

16 (1) that is protective of human health and the environment, and

17 (2) that complies with applicable state and federal requirements.

18 (m) Remedies selected pursuant to Paragraph (f) of this Rule shall be considered complete when:

19 (1) the owner and operator complies with the groundwater protection standards at all points within the
 20 plume of contamination that lie beyond the relevant point of compliance;

21 (2) compliance with the groundwater protection standards has been achieved by demonstrating that
 22 concentrations of constituents have not exceeded these standards for a period of three consecutive
 23 years, consistent with performance standards in Subparagraph (f)(2) of this Rule; and

24 (3) all actions required to complete the remedy have been satisfied.

25 (n) Upon completion of the remedy, the owner and operator shall submit a report to the Division documenting that
 26 the remedy has been completed in compliance with Paragraph (n) of this Rule. As required by NCGS 89C or NCGS
 27 89E, a professional engineer or licensed geologist shall prepare and sign these documents. Upon approval by the
 28 Division, this report shall be placed in the operating record.

29 (o) When, upon completion of the certification, the Division determines that the corrective action remedy has been
 30 completed in accordance with Paragraph (n) of this Rule, the owner and operator shall be released from the
 31 requirements for financial assurance for corrective action under Rule .2016 of this Section.

32
 33 History Note: Authority G.S. 130-294; G.S. 130A-309.207;

34 Eff. January 1, 2019.

1 15A NCAC 13B .2016 is proposed for adoption as follows:

2
3 **15A NCAC 13B .2016 FINANCIAL ASSURANCE REQUIREMENTS FOR CCR FACILITIES AND**
4 **UNITS**

5 (a) Owners and operators of CCR facilities and units shall provide proof of financial assurance in accordance with
6 the financial responsibility for landfills adopted pursuant to NCGS 130A-294(b) and 130A-309.27.

7 (b) Owners and operators of CCR facilities and units permitted under these Rules shall provide proof of financial
8 assurance to ensure closure of the site in accordance with these Rules and to cover closure, post-closure, and
9 corrective action of the CCR unit(s). Financial assurance may be demonstrated through financial instruments
10 including but not limited to surety bonds, insurance, letters of credit, a funded trust, local government financial test,
11 or corporate financial test. Documentation of financial assurance shall be kept current, and updated annually as
12 required by changes in these Rules, changes in operation of the site, and inflation.

13 (c) Owners and operators of CCR facilities and unit(s) shall demonstrate the following minimum amounts of
14 financial assurance for closure and post-closure care:

15 (1) Closure Cost Estimate. The owner and operator shall have a written estimate, in current dollars, of
16 the cost of hiring a third party to close the entire area of all CCR unit(s), which have received
17 permits to operate, at any time during the active life in accordance with the closure plan required
18 under Rule .2013 of this Section. A copy of the closure cost estimate shall be placed in the
19 operating record.

20 (A) The cost estimate shall equal the cost of closing the entire area of all CCR unit(s), which
21 have received permits to operate, at any time during the active life when the extent and
22 manner of its operation would make closure the most expensive, as indicated by its
23 closure plan as set forth in Rule .2013 of this Section.

24 (B) During the active life of the CCR unit(s), the owner and operator shall annually adjust the
25 closure cost estimate for inflation within 60 days prior to the anniversary date of the
26 establishment of the financial instrument(s). For owners and operators using the local
27 government financial test, the closure cost estimate shall be updated for inflation within
28 30 days after the close of the local government's fiscal year and before submission of
29 updated information to the Division.

30 (C) The owner and operator shall increase the closure cost estimate and the amount of
31 financial assurance provided under Subparagraph (2) of this Paragraph if changes to the
32 closure plan or CCR unit(s) conditions increase the maximum cost of closure at any time
33 during the remaining active life.

34 (D) The owner or operator may reduce the closure cost estimate and the amount of financial
35 assurance provided under Subparagraph (2) of this Paragraph if the cost estimate exceeds
36 the maximum cost of closure at any time during the remaining life of the CCR unit(s).
37 Prior to any reduction of the closure cost estimate or the amount of financial assurance by

1 the owner or operator, a written justification for the reduction shall be submitted to the
2 Division for review. The Division shall date and stamp the justification "approved" if the
3 conditions of this Paragraph are met. The reduction justification and the Division
4 approval shall be placed in the CCR's operating record. No reduction of the closure cost
5 estimate or the amount of financial assurance shall be allowed without Division approval.

6 (2) Financial Assurance for Closure. The owner and operator of each CCR unit(s) shall establish
7 financial assurance for closure of the CCR unit(s) in compliance with Paragraph (a) of this Rule.
8 The owner and operator shall provide continuous coverage for closure until released from
9 financial assurance requirements by demonstrating compliance with Rule .2013 of this Section for
10 final closure certification.

11 (3) Post-Closure Cost Estimate. The owner and operator shall have a written estimate, in current
12 dollars, of the cost of hiring a third party to conduct post-closure care for the CCR unit(s) in
13 compliance with the post-closure plan developed under Rule .2013 of this Section. The post-
14 closure cost estimate used to demonstrate financial assurance in Subparagraph (2) of this
15 Paragraph shall account for the total costs of conducting post-closure care, including annual and
16 periodic costs as described in the post-closure plan over the entire post-closure care period. The
17 post-closure cost estimate shall be placed in the operating record.

18 (A) The cost estimate for post-closure care shall be based on the most expensive costs of
19 post-closure care during the post-closure care period.

20 (B) During the active life of the CCR unit(s) and during the post-closure care period, the
21 owner and operator shall annually adjust the post-closure cost estimate for inflation
22 within 60 days prior to the anniversary date of the establishment of the financial
23 instrument(s). For owners and operators using the local government financial test, the
24 post-closure cost estimate shall be updated for inflation within 30 days after the close of
25 the local government's fiscal year and before submission of updated information to the
26 Division.

27 (C) The owner and operator shall increase the post-closure care cost estimate and the amount
28 of financial assurance provided under Subparagraph (2) of this Paragraph if changes in
29 the post-closure plan or CCR unit(s) conditions increase the maximum costs of post-
30 closure care.

31 (D) The owner or operator may reduce the post-closure cost estimate and the amount of
32 financial assurance provided under Subparagraph (2) of this Paragraph if the cost
33 estimate exceeds the maximum costs of post-closure care remaining over the post-closure
34 care period. Prior to any reduction of the post-closure cost estimate by the owner or
35 operator, a written justification for the reduction shall be submitted to the Division for
36 review. The Division shall date and stamp the justification "approved" if the conditions of
37 this paragraph are met. The written justification and the Division approval shall be placed

1 in the CCR operating record. No reduction of the post-closure cost estimate shall be
2 allowed without Division approval.

3 (4) Financial Assurance for Post-Closure. The owner and operator of each CCR unit(s) shall establish,
4 in a manner in accordance with Paragraph (a) of this Rule, financial assurance for the costs of
5 post-closure care as required under Rule .2013 of this Section. The owner and operator shall
6 provide continuous coverage for post-closure care until released from financial assurance
7 requirements for post-closure care by demonstrating compliance with Rule .2013 of this Section.
8 Maintenance of financial assurance in the required amounts in Subparagraphs (c)(1) and (c)(2) of
9 this Rule does not in any way limit the responsibility of owners and operators for the full costs of
10 site closure and clean-up, the expenses of any on-site or off-site environmental restoration
11 necessitated by activities at the site, and liability for all damages to third parties or private or
12 public properties caused by the establishment and operation of the site.

13 (5) Corrective Action Cost Estimate. An owner and operator of a CCR unit(s) required to undertake a
14 corrective action program under Rule .2015 of this Section shall have a written estimate, in current
15 dollars, of the cost of hiring a third party to perform the corrective action. The corrective action
16 cost estimate shall account for the total costs of corrective action activities as described in the
17 corrective action program for the entire corrective action period. The corrective action cost
18 estimate shall be placed in the operating record.

19 (A) The owner and operator shall annually adjust the estimate for inflation within 60 days
20 prior to the anniversary date of the establishment of the financial instrument(s) until the
21 corrective action program is completed in accordance with Rule .2015(1) of this Section.
22 For owners and operators using the local government financial test, the corrective action
23 cost estimate shall be updated for inflation within 30 days after the close of the local
24 government's fiscal year and before submission of updated information to the Division.

25 (B) The owner and operator shall increase the corrective action cost estimate and the amount
26 of financial assurance provided under Subparagraph (2) of this Paragraph if changes in
27 the corrective action program or CCR unit(s) conditions increase the maximum costs of
28 corrective action.

29 (C) The owner or operator may reduce the corrective action cost estimate and the amount of
30 financial assurance provided under Subparagraph (2) of this Paragraph if the cost
31 estimate exceeds the maximum remaining costs of corrective action. Prior to any
32 reduction of the corrective action cost estimate by the owner or operator, a written
33 justification for the reduction shall be submitted to the Division for review. The Division
34 shall date and stamp the justification "approved" if the conditions of this Paragraph are
35 met. The reduction justification and the Division approval shall be placed in the CCR's
36 operating record. No reduction of the corrective action cost estimate shall be allowed
37 without Division approval.

1 (6) Financial Assurance for Corrective Action. The owner and operator of each CCR unit(s) required
2 to undertake a corrective action program under Rule .2015 of this Section shall establish, in a
3 manner in accordance with Paragraph (a) of this Rule, financial assurance for the most recent
4 corrective action program. The owner or operator shall provide continuous coverage for corrective
5 action until released from financial assurance requirements for corrective action by demonstrating
6 compliance with Rule .2015(l) of this Section.

7
8 *History Note: Authority G.S. 130-294; G.S. 130A-309.207;*
9 *Eff. January 1, 2019.*

1 15A NCAC 13B .2017 is proposed for adoption as follows:

2
3 **15A NCAC 13B .2017 RECORDKEEPING, NOTIFICATION, AND PUBLICLY ACCESSIBLE**
4 **INTERNET SITE REQUIREMENTS**

5 (a) Record Keeping.

6 (1) Each owner or operator of a CCR unit(s) shall maintain files of all information required by this
7 Rule in a written operating record at their facility.

8 (2) Unless specified otherwise, each file shall be retained for at least five years following the date of
9 each occurrence, measurement, maintenance, corrective action, report, record, or study.

10 (3) An owner or operator of more than one CCR unit(s) may comply with the requirements of this
11 Section in one recordkeeping system provided the system identifies each file by the name of each
12 CCR unit(s). The files may be maintained on microfilm, on a computer, on computer disks, on a
13 storage system accessible by a computer, on magnetic tape disks, or on microfiche.

14 (4) The owner or operator of a CCR unit(s) shall submit to the Division any demonstration or
15 documentation required by this subpart, if requested, when such information is not otherwise
16 available on the owner or operator's publicly accessible Internet site.

17 (b) Notifications

18 (1) The notifications required under Paragraphs (d) through (i) of this Rule shall be sent to the
19 Division before the close of business on the day the notification is required to be completed. For
20 purposes of this Section, before the close of business means the notification shall be postmarked
21 or sent by electronic mail (email). If a notification deadline falls on a weekend or federal holiday,
22 the notification deadline is automatically extended to the next business day.

23 (2) Notifications may be combined as long as the deadline requirement for each notification is met.

24 (3) Unless otherwise required in this Section, the notifications specified in this Section shall be sent to
25 the Division within 30 days of placing in the operating record the information required by this
26 Rule.

27 (c) Public Accessible Internet Site

28 (1) Each owner or operator of a CCR unit(s) shall maintain a publicly accessible Internet site (CCR
29 website) containing the information specified in this Section. The owner or operator's website
30 shall be titled "CCR Rule Compliance Data and Information."

31 (2) An owner or operator of more than one CCR unit(s) may comply with the requirements of this
32 Rule by using the same Internet site for multiple CCR unit(s) provided the CCR website clearly
33 delineates information by the name or identification number of each unit(s).

34 (3) Unless otherwise required in this Rule, the information required to be posted to the CCR website
35 shall be made available to the public for at least five years following the date on which the
36 information was first posted to the CCR website.

1 (4) Unless otherwise required in this Rule, the information shall be posted to the CCR website within
2 30 days of placing the pertinent information required by this Rule in the operating record.

3 (d) Location restrictions. The owner or operator of a CCR unit(s) shall place the demonstrations documenting
4 whether the CCR unit(s) is in compliance with the requirements in Rule .2006 of this Section as it becomes
5 available, in the facility's operating record, on the publicly accessible internet site and submit proper notification.

6 (e) Design criteria. The owner or operator of a CCR unit(s) shall place the following information, as it becomes
7 available, in the facility's operating record, on the publicly accessible internet site and submit proper notification.
8 The design and construction certifications by a professional engineer in accordance with Rule .2013 of this Section.
9 Within 60 days of commencing construction of a new CCR unit(s) or lateral expansion of an existing unit(s),
10 provide notification of the design certification and place the design certification on the CCR website. If the owner or
11 operator of the CCR unit(s) elects to install an alternative composite liner, the owner or operator shall also submit to
12 the Division a copy of the alternative composite liner design.

13 (f) Operating criteria. The owner or operator of a CCR unit(s) shall place the following information, as it becomes
14 available, in the facility's operating record, on the publicly accessible internet site and submit proper notification:

15 (1) The CCR fugitive dust control plan, and any subsequent amendment of the plan in accordance
16 with Rule .2012(g)(2) of this Section except that only the most recent control plan shall be
17 maintained in the facility's operating record.

18 (2) The annual CCR fugitive dust control report in accordance with Rule .2012(g)(3) of this Section.

19 (3) The initial and periodic control system plans in accordance with Rule .2012(h) through (j) of this
20 Section.

21 (4) Documentation recording the results of the weekly inspection in accordance with Rule .2012(l) of
22 this Section.

23 (5) Documentation recording the results of the annual inspection in accordance with Rule .2012(m) of
24 this Section.

25 (g) Groundwater monitoring and corrective action. The owner or operator of a CCR unit(s) shall place the following
26 information, as it becomes available, in the facility's operating record, on the publicly accessible internet site and
27 submit proper notification:

28 (1) The annual groundwater monitoring and corrective action report in accordance with Rule
29 .2014(a)(4) of this Section.

30 (2) Documentation of the design, installation, development, and decommissioning of any monitoring
31 wells, piezometers and other measurement, sampling, and analytical devices in accordance with
32 Rule .2014(c)(8) of this Section.

33 (3) The groundwater monitoring system certification in accordance with Rule .2014(j) of this Section.

34 (4) The selection of a statistical method certification in accordance with Rule .2014(c)(4) of this
35 Section.

1 (5) Within 30 days of establishing an assessment monitoring program, the owner or operator of a CCR
 2 unit(s) shall prepare a notification stating that an assessment monitoring program has been
 3 established in accordance with Rule .2015(b)(2) of this Section.

4 (6) The analytical results of initial sampling and subsequent semi-annual sampling events in
 5 accordance with Rule .2014(c)(1)(D) of this Section.

6 (7) Within 30 days of returning to a detection monitoring program, the notification as required in Rule
 7 .2015(d)(5) of this Section.

8 (8) Within 30 days of detecting one or more constituents, as listed in Rule .2014(c)(1)(D) of this
 9 Section above the current groundwater quality standards in accordance with 15A NCAC 02L
 10 .0202, the notifications in accordance with Rule .2015(b) of this Section.

11 (9) Within 30 days of initiating the assessment of corrective measures requirements, the notification
 12 as required in Rule .2015(e) of this Section.

13 (10) The completed assessment of corrective measures in accordance with Rule .2015(e) of this
 14 Section.

15 (11) Documentation prepared by the owner or operator recording the public meeting for the corrective
 16 measures assessment in accordance with Rule .2015(e)(2) of this Section.

17 (12) The semiannual report describing the progress in selecting and designing the remedy and the
 18 selection of remedy report in accordance with Rule .2015(f) of this Section, except that the
 19 selection of remedy report shall be maintained until the remedy has been completed.

20 (13) Within 30 days of completing the remedy, notification shall be made in accordance with Rule
 21 .2015(n) of this Section.

22 (h) Closure and post-closure care. The owner or operator of a CCR unit(s) shall place the following information, as
 23 it becomes available, in the facility's operating record, on the publicly accessible internet site and submit proper
 24 notification:

25 (1) The notification and certification of intent to initiate closure of the CCR unit(s) in accordance with
 26 Rule .2013(c)(6) of this Section.

27 (2) The annual progress reports of closure implementation of the CCR unit(s) in accordance with Rule
 28 .2013(c)(10) of this Section.

29 (3) The notification and certification of closure completion in accordance with Rule .2013(c)(7) of
 30 this Section.

31 (4) The written closure plan, and any amendment of the plan, in accordance with Rule .2013(c)(1) of
 32 this Section, except that only the most recent closure plan shall be maintained in the facility's
 33 operating record irrespective of the time requirement specified in Paragraph (a)(2) of this Rule.

34 (5) The notification recording a notation on the deed in accordance with Rule .2013(c)(8) of this
 35 Section.

36 (6) The written post-closure plan, and any amendment of the plan, in accordance with Rule
 37 .2013(d)(4) of this Section, except that only the most recent closure plan shall be maintained in the

1 facility's operating record irrespective of the time requirement specified in Paragraph (a)(2) of this
2 Rule.

3 (7) The notification of completion of post-closure care period in accordance with Rule .2013(d)(5) of
4 this Section.

5
6 History Note: Authority G.S. 130-294; G.S. 130A-309.207;
7 Eff. January 1, 2019.

1 15A NCAC 13B .2018 is proposed for adoption as follows:

2
3 **15A NCAC 13B .2018 CCR TO CCP TREATMENT AND PROCESSING FACILITIES AND**
4 **TRANSPORTATION REQUIREMENTS**

5 (a) Applicability. CCR removed from a CCR facility or unit(s) for use as CCP and the transportation of CCR is
6 subject to Rule .2018.

7 (b) A CCR to CCP treatment and processing facility is defined as any facility that by either treatment or processing
8 changes a CCR removed from a CCR facility or unit(s) to a CCP. Each CCR to CCP treatment and processing
9 facility shall be permitted as a treatment and processing facility in accordance with the requirements of 15A NCAC
10 13B .0200 - Permits for Solid Waste Management Facilities and 15A NCAC 13B .0300 - Treatment and Processing
11 Facilities.

12 (c) By definition, CCR does not have a beneficial use. In order for a CCR to be considered a CCP, the CCR shall
13 meet the following criteria:

- 14 (1) The CCR shall provide a functional benefit;
15 (2) The CCR shall substitute for the use of a virgin material, conserving natural resources that would
16 otherwise need to be obtained through practices, such as extraction; the use of the CCR shall meet
17 relevant product specifications, regulatory standards or design standards when available, and when
18 such standards are not available, the CCR is not used in excess quantities; and
19 (3) The user shall demonstrate and keep records, and provide such documentation upon request, that
20 environmental releases to groundwater, surface water, soil and air are comparable to or lower than
21 those from analogous products made without CCR, or that environmental releases to groundwater,
22 surface water, soil and air will be at or below relevant regulatory and health-based benchmarks for
23 human and ecological receptors during use.

24 (d) Each CCR to CCP treatment and processing facility shall implement a dust control plan in accordance with Rule
25 .2012(g).

26 (e) Each CCR to CCP treatment and processing facility shall provide a written plan for management of CCR
27 treatment and processing to CCP. The plan shall provide measures and procedures to prevent uncontrolled exposure
28 from the extended, repeated, or indefinite placement of large amounts of CCR directly on land outside of designated
29 CCR storage sites. The plan shall address designated CCR storage sites, the use of impervious surfaces, leachate
30 collection, and walls or wind barriers.

31 (f) Transportation of CCR.

- 32 (1) Transportation Plan. The owner or operator of a CCR unit from which CCR is to be excavated or
33 CCR removed from a designated CCR storage site, shall provide a written plan ensuring the safe
34 transport of the CCR outside of the CCR unit being excavated or the designated CCR storage site.
35 The plan shall include the transport of CCR outside of the excavated CCR unit or designated CCR
36 site, whether on or off the CCR facility. The plan shall provide a location and description of the
37 CCR unit being excavated or the designated CCR storage site, the excavation process for the CCR

1 unit or designated CCR storage site, the route(s) to be utilized in the transportation of the CCR,
2 transport destination of the CCR, the types of equipment to be utilized in the transportation of the
3 CCR, measures to be implemented in order to prevent loss of the CCR in transit, actions that will
4 be taken should the CCR be lost in transit, a list of emergency contacts, incident reporting
5 requirements, and contingency plan.

6 (2) Incident Reporting Requirement. The loss of CCR during transport outside of the CCR unit being
7 excavated or other designated CCR storage site shall be reported to the Division within 24 hours
8 of the incident and a written report shall be submitted to the Division within 15 working days of
9 the incident. The report shall include the incident location, incident date and time, actions that led
10 to the incident, and the measures taken to remove the CCR from the site of the incident.

11 (3) Annual Reporting. CCR transported to another state, shall be reported to the Division annually.
12 The report shall include the origin of the CCR, quantity of CCR, in either cubic yards or tons, and
13 the name and location of the CCR destination.

14
15 History Note: Authority G.S. 130-294; G.S. 130A-309.226;
16 Eff. January 1, 2019.

From: [Mussler, Ed](#)
To: [Montie, Jessica](#)
Subject: FW: Approval - 15A NCAC 13B .2001 - .2018, Coal Combustion Residuals and Coal Combustion Product Management
Date: Wednesday, July 11, 2018 2:56:59 PM
Attachments: [DEQ_2018-07-11.pdf](#)
[image001.png](#)
[image004.png](#)

Edward F. Mussler, P.E.

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From: Hollis, Carrie
Sent: Wednesday, July 11, 2018 2:55 PM
To: Lorscheider, Ellen <ellen.lorscheider@ncdenr.gov>; Mussler, Ed <ed.mussler@ncdenr.gov>; Scott, Michael <michael.scott@ncdenr.gov>; Holman, Sheila <sheila.holman@ncdenr.gov>; Lane, Bill F <Bill.Lane@ncdenr.gov>
Cc: Masich, Molly <molly.masich@oah.nc.gov>; McGhee, Dana <dana.McGhee@oah.nc.gov>; Grozav, Anca <Anca.Grozav@osbm.nc.gov>; Ward, Danielle J <danielle.ward@osbm.nc.gov>; Rees, John <john.rees@osbm.nc.gov>
Subject: Approval - 15A NCAC 13B .2001 - .2018, Coal Combustion Residuals and Coal Combustion Product Management

OSBM has reviewed the Division of Waste Management's proposed changes to rules 15A NCAC 13B .2001 - .2018 in accordance with G.S. 150B-21.4 and with E.O. 70 from 10/21/2010 as amended by E.O. 48 from 4/9/2014. The fiscal note is approved for publication. Please ensure that the state and local government impacts are included in the Notice of Text and that the NC League of Municipalities and Association of County Commissioners are notified.

The .pdf file of rule impact analysis (attached) will be posted on our website at the following URL (please allow for some time):

https://files.nc.gov/ncosbm/documents/files/DEQ_2018-07-11.pdf

Please post this link on your agency's website to ensure compliance with G.S. 150B-19.1(c)(5).

Please let me know if you have any questions.

-Carrie

Carrie Hollis

Economic Analyst

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PLEASE NOTE: OUR OFFICE WILL BE MOVING FROM THE ADMINISTRATION BUILDING TO THE DOBBS BUILDING THE WEEK OF JUNE 13-15, 2018. THEREFORE, PLEASE UPDATE YOUR RECORDS TO SHOW THE NEW ADDRESS:

430 N. SALISBURY STREET, 4TH FLOOR, RALEIGH, NC 27603.

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