

§ 130A-309.214. Closure of coal combustion residuals surface impoundments.

(a) An owner of a coal combustion residuals surface impoundment shall submit a proposed Coal Combustion Residuals Surface Impoundment Closure Plan for the Department's approval. If corrective action to restore groundwater has not been completed pursuant to the requirements of G.S. 130A-309.211(b), the proposed closure plan shall include provisions for completion of activities to restore groundwater in conformance with the requirements of Subchapter L of Chapter 2 of Title 15A of the North Carolina Administrative Code. In addition, the following requirements, at a minimum, shall apply to such plans:

(1) High-risk impoundments shall be closed as soon as practicable, but no later than December 31, 2019. A proposed closure plan for such impoundments must be submitted as soon as practicable, but no later than December 31, 2016. At a minimum, (i) impoundments located in whole above the seasonal high groundwater table shall be dewatered; (ii) impoundments located in whole or in part beneath the seasonal high groundwater table shall be dewatered to the maximum extent practicable; and (iii) the owner of an impoundment shall either:

a. Convert the coal combustion residuals impoundment to an industrial landfill by removing all coal combustion residuals and contaminated soil from the impoundment temporarily, safely storing the residuals on-site, and complying with the requirements for such landfills established by this Article and rules adopted thereunder. At a minimum, the landfills shall have a design with a leachate collection system, a closure cap system, and a composite liner system consisting of two components: the upper component shall consist of a minimum 30-ml flexible membrane (FML), and the lower components shall consist of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} centimeters per second. FML components consisting of high density polyethylene (HDPE) shall be at least 60 ml thick. The landfill shall otherwise comply with the construction requirements established by Section .1624 of Subchapter B of Chapter 13 of Title 15A of the North Carolina Administrative Code, and the siting and design requirements for disposal sites established by Section .0503 of Subchapter B of Chapter 13 of Title 15A of the North Carolina Administrative Code, except with respect to those requirements that pertain to buffers. In lieu of the buffer requirement established by Section .0503(f)(2)(iii) of Subchapter B of Chapter 13 of Title 15A of the North Carolina Administrative Code, the owner of the impoundment shall establish and maintain a 300-foot buffer between surface waters and disposal areas. After the temporarily displaced coal combustion residuals have been returned for disposal in the industrial landfill constructed pursuant to the requirements of this sub-subdivision, the owner of the landfill shall comply with the closure and post-closure requirements established by Section .1627 of Subchapter B of Chapter 13 of Title 15A of the North Carolina Administrative Code. A landfill constructed pursuant to this sub-subdivision shall otherwise be subject to all applicable requirements of this Chapter and rules adopted thereunder. Prior to closure, the Department may allow the disposal of coal combustion residuals, in addition to those originally contained in the

- impoundment, to the landfill constructed pursuant to this sub-subdivision, if the Department determines that the site is suitable for additional capacity and that disposal of additional coal combustion residuals will not pose an unacceptable risk to public health, safety, welfare; the environment; and natural resources.
- b. Remove all coal combustion residuals from the impoundment, return the former impoundment to a nonerosive and stable condition and (i) transfer the coal combustion residuals for disposal in a coal combustion residuals landfill, industrial landfill, or municipal solid waste landfill or (ii) use the coal combustion products in a structural fill or other beneficial use as allowed by law. The use of coal combustion products (i) as structural fill shall be conducted in accordance with the requirements of Subpart 3 of this Part and (ii) for other beneficial uses shall be conducted in accordance with the requirements of Section .1700 of Subchapter B of Chapter 13 of Title 15A of the North Carolina Administrative Code (Requirements for Beneficial Use of Coal Combustion By-Products) and Section .1205 of Subchapter T of Chapter 2 of Title 15A of the North Carolina Administrative Code (Coal Combustion Products Management).
- (2) Intermediate-risk impoundments shall be closed as soon as practicable, but no later than December 31, 2024. A proposed closure plan for such impoundments must be submitted as soon as practicable, but no later than December 31, 2019. At a minimum, such impoundments shall be dewatered, and the owner of an impoundment shall close the impoundment in any manner allowed pursuant to subdivision (1) of this subsection, or, if applicable, as provided in G.S. 130A-309.216.
- (3) Low-risk impoundments shall be closed as soon as practicable, but no later than December 31, 2029. A proposed closure plan for such impoundments must be submitted as soon as practicable, but no later than December 31, 2019. At a minimum, (i) impoundments located in whole above the seasonal high groundwater table shall be dewatered; (ii) impoundments located in whole or in part beneath the seasonal high groundwater table shall be dewatered to the maximum extent practicable; and (iii) at the election of the Department, the owner of an impoundment shall either:
- a. Close in any manner allowed pursuant to subdivision (1) of this subsection;
- b. Comply with the closure and post-closure requirements established by Section .1627 of Subchapter B of Chapter 13 of Title 15A of the North Carolina Administrative Code, except that such impoundments shall not be required to install and maintain a leachate collection system. Specifically, the owner of an impoundment shall install and maintain a cap system that is designed to minimize infiltration and erosion in conformance with the requirements of Section .1624 of Subchapter B of Chapter 13 of Title 15A of the North Carolina Administrative Code, and, at a minimum, shall be designed and constructed to (i) have a permeability no greater than 1×10^{-5} centimeters per second; (ii) minimize infiltration by the use of a low-permeability barrier that contains a minimum 18 inches of earthen material; and (iii) minimize erosion of the cap system and protect the low-permeability barrier from root penetration by use of

an erosion layer that contains a minimum of six inches of earthen material that is capable of sustaining native plant growth. In addition, the owner of an impoundment shall (i) install and maintain a groundwater monitoring system; (ii) establish financial assurance that will ensure that sufficient funds are available for closure pursuant to this subdivision, post-closure maintenance and monitoring, any corrective action that the Department may require, and satisfy any potential liability for sudden and nonsudden accidental occurrences arising from the impoundment and subsequent costs incurred by the Department in response to an incident, even if the owner becomes insolvent or ceases to reside, be incorporated, do business, or maintain assets in the State; and (iii) conduct post-closure care for a period of 30 years, which period may be increased by the Department upon a determination that a longer period is necessary to protect public health, safety, welfare; the environment; and natural resources, or decreased upon a determination that a shorter period is sufficient to protect public health, safety, welfare; the environment; and natural resources. The Department may require implementation of any other measure it deems necessary to protect public health, safety, and welfare; the environment; and natural resources, including imposition of institutional controls that are sufficient to protect public health, safety, and welfare; the environment; and natural resources. The Department may not approve closure for an impoundment pursuant to sub-subdivision b. of subdivision (3) of this subsection unless the Department finds that the proposed closure plan includes design measures to prevent, upon the plan's full implementation, post-closure exceedances of groundwater quality standards beyond the compliance boundary that are attributable to constituents associated with the presence of the impoundment; or

- c. Comply with the closure requirements established by the United States Environmental Protection Agency as provided in 40 CFR Parts 257 and 261, "Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities."

(4) Closure Plans for all impoundments shall include all of the following:

- a. Facility and coal combustion residuals surface impoundment description. – A description of the operation of the site that shall include, at a minimum, all of the following:
 1. Site history and history of site operations, including details on the manner in which coal combustion residuals have been stored and disposed of historically.
 2. Estimated volume of material contained in the impoundment.
 3. Analysis of the structural integrity of dikes or dams associated with impoundment.
 4. All sources of discharge into the impoundment, including volume and characteristics of each discharge.
 5. Whether the impoundment is lined, and, if so, the composition thereof.

6. A summary of all information available concerning the impoundment as a result of inspections and monitoring conducted pursuant to this Part and otherwise available.
- b. Site maps, which, at a minimum, illustrate all of the following:
1. All structures associated with the operation of any coal combustion residuals surface impoundment located on the site. For purposes of this sub-subdivision, the term "site" means the land or waters within the property boundary of the applicable electric generating station.
 2. All current and former coal combustion residuals disposal and storage areas on the site, including details concerning coal combustion residuals produced historically by the electric generating station and disposed of through transfer to structural fills.
 3. The property boundary for the applicable site, including established compliance boundaries within the site.
 4. All potential receptors within 2,640 feet from established compliance boundaries.
 5. Topographic contour intervals of the site shall be selected to enable an accurate representation of site features and terrain and in most cases should be less than 20-foot intervals.
 6. Locations of all sanitary landfills permitted pursuant to this Article on the site that are actively receiving waste or are closed, as well as the established compliance boundaries and components of associated groundwater and surface water monitoring systems.
 7. All existing and proposed groundwater monitoring wells associated with any coal combustion residuals surface impoundment on the site.
 8. All existing and proposed surface water sample collection locations associated with any coal combustion residuals surface impoundment on the site.
- c. The results of a hydrogeologic, geologic, and geotechnical investigation of the site, including, at a minimum, all of the following:
1. A description of the hydrogeology and geology of the site.
 2. A description of the stratigraphy of the geologic units underlying each coal combustion residuals surface impoundment located on the site.
 3. The saturated hydraulic conductivity for (i) the coal combustion residuals within any coal combustion residuals surface impoundment located on the site and (ii) the saturated hydraulic conductivity of any existing liner installed at an impoundment, if any.
 4. The geotechnical properties for (i) the coal combustion residuals within any coal combustion residuals surface impoundment located on the site, (ii) the geotechnical properties of any existing liner installed at an impoundment, if any, and (iii) the uppermost identified stratigraphic unit underlying the impoundment, including the soil classification

- based upon the Unified Soil Classification System, in-place moisture content, particle size distribution, Atterberg limits, specific gravity, effective friction angle, maximum dry density, optimum moisture content, and permeability.
5. A chemical analysis of the coal combustion residuals surface impoundment, including water, coal combustion residuals, and coal combustion residuals-affected soil.
 6. Identification of all substances with concentrations determined to be in excess of the groundwater quality standards for the substance established by Subchapter L of Chapter 2 of Title 15A of the North Carolina Administrative Code, including all laboratory results for these analyses.
 7. Summary tables of historical records of groundwater sampling results.
 8. A map that illustrates the potentiometric contours and flow directions for all identified aquifers underlying impoundments (shallow, intermediate, and deep) and the horizontal extent of areas where groundwater quality standards established by Subchapter L of Chapter 2 of Title 15A of the North Carolina Administrative Code for a substance are exceeded.
 9. Cross-sections that illustrate the following: the vertical and horizontal extent of the coal combustion residuals within an impoundment; stratigraphy of the geologic units underlying an impoundment; and the vertical extent of areas where groundwater quality standards established by Subchapter L of Chapter 2 of Title 15A of the North Carolina Administrative Code for a substance are exceeded.
- d. The results of groundwater modeling of the site that shall include, at a minimum, all of the following:
1. An account of the design of the proposed Closure Plan that is based on the site hydrogeologic conceptual model developed and includes (i) predictions on post-closure groundwater elevations and groundwater flow directions and velocities, including the effects on and from the potential receptors and (ii) predictions at the compliance boundary for substances with concentrations determined to be in excess of the groundwater quality standards for the substance established by Subchapter L of Chapter 2 of Title 15A of the North Carolina Administrative Code.
 2. Predictions that include the effects on the groundwater chemistry and should describe migration, concentration, mobilization, and fate for substances with concentrations determined to be in excess of the groundwater quality standards for the substance established by Subchapter L of Chapter 2 of Title 15A of the North Carolina Administrative Code pre- and post-closure, including the effects on and from potential receptors.
 3. A description of the groundwater trend analysis methods used to demonstrate compliance with groundwater quality

standards for the substance established by Subchapter L of Chapter 2 of Title 15A of the North Carolina Administrative Code and requirements for corrective action of groundwater contamination established by Subchapter L of Chapter 2 of Title 15A of the North Carolina Administrative Code.

- e. A description of any plans for beneficial use of the coal combustion residuals in compliance with the requirements of Section .1700 of Subchapter B of Chapter 13 of Title 15A of the North Carolina Administrative Code (Requirements for Beneficial Use of Coal Combustion By-Products) and Section .1205 of Subchapter T of Chapter 2 of Title 15A of the North Carolina Administrative Code (Coal Combustion Products Management).
- f. All engineering drawings, schematics, and specifications for the proposed Closure Plan. If required by Chapter 89C of the General Statutes, engineering design documents should be prepared, signed, and sealed by a professional engineer.
- g. A description of the construction quality assurance and quality control program to be implemented in conjunction with the Closure Plan, including the responsibilities and authorities for monitoring and testing activities, sampling strategies, and reporting requirements.
- h. A description of the provisions for disposal of wastewater and management of stormwater and the plan for obtaining all required permits.
- i. A description of the provisions for the final disposition of the coal combustion residuals. If the coal combustion residuals are to be removed, the owner must identify (i) the location and permit number for the coal combustion residuals landfills, industrial landfills, or municipal solid waste landfills in which the coal combustion residuals will be disposed and (ii) in the case where the coal combustion residuals are planned for beneficial use, the location and manner in which the residuals will be temporarily stored. If the coal combustion residuals are to be left in the impoundment, the owner must (i) in the case of closure pursuant to sub-subdivision (a)(1)a. of this section, provide a description of how the ash will be stabilized prior to completion of closure in accordance with closure and post-closure requirements established by Section .1627 of Subchapter B of Chapter 13 of Title 15A of the North Carolina Administrative Code and (ii) in the case of closure pursuant to sub-subdivision (a)(1)b. of this section, provide a description of how the ash will be stabilized pre- and post-closure. If the coal combustion residuals are to be left in the impoundment, the owner must provide an estimate of the volume of coal combustion residuals remaining.
- j. A list of all permits that will need to be acquired or modified to complete closure activities.
- k. A description of the plan for post-closure monitoring and care for an impoundment for a minimum of 30 years. The length of the post-closure care period may be (i) proposed to be decreased or the frequency and parameter list modified if the owner demonstrates that the reduced period or modifications are sufficient to protect public

health, safety, and welfare; the environment; and natural resources and (ii) increased by the Department at the end of the post-closure monitoring and care period if there are statistically significant increasing groundwater quality trends or if contaminant concentrations have not decreased to a level protective of public health, safety, and welfare; the environment; and natural resources. If the owner determines that the post-closure care monitoring and care period is no longer needed and the Department agrees, the owner shall provide a certification, signed and sealed by a professional engineer, verifying that post-closure monitoring and care has been completed in accordance with the post-closure plan. If required by Chapter 89C of the General Statutes, the proposed plan for post-closure monitoring and care should be signed and sealed by a professional engineer. The plan shall include, at a minimum, all of the following:

1. A demonstration of the long-term control of all leachate, affected groundwater, and stormwater.
 2. A description of a groundwater monitoring program that includes (i) post-closure groundwater monitoring, including parameters to be sampled and sampling schedules; (ii) any additional monitoring well installations, including a map with the proposed locations and well construction details; and (iii) the actions proposed to mitigate statistically significant increasing groundwater quality trends.
- l. An estimate of the milestone dates for all activities related to closure and post-closure.
 - m. Projected costs of assessment, corrective action, closure, and post-closure care for each coal combustion residuals surface impoundment.
 - n. A description of the anticipated future use of the site and the necessity for the implementation of institutional controls following closure, including property use restrictions, and requirements for recordation of notices documenting the presence of contamination, if applicable, or historical site use.

(b) The Department shall review a proposed Coal Combustion Residuals Surface Impoundment Closure Plan for consistency with the minimum requirements set forth in subsection (a) of this section and whether the proposed Closure Plan is protective of public health, safety, and welfare; the environment; and natural resources and otherwise complies with the requirements of this Part. Prior to issuing a decision on a proposed Closure Plan, the Department shall provide for public participation on the proposed Closure Plan as follows:

- (1) The Department shall make copies of the proposed Closure Plan available for inspection as follows:
 - a. A copy of the proposed Closure Plan shall be provided to the local health director.
 - b. A copy of the proposed Closure Plan shall be provided to the public library located in closest proximity to the site in the county or counties in which the site is located.
 - c. The Department shall post a copy of the proposed Closure Plan on the Department's Web site.

- d. The Department shall place copies of the declaration in other locations so as to assure the reasonable availability thereof to the public.
- (2) Before approving a proposed Closure Plan, the Department shall give notice as follows:
- a. A notice and summary of the proposed Closure Plan shall be published weekly for a period of three consecutive weeks in a newspaper having general circulation in the county or counties where the site is located.
 - b. Notice that a proposed Closure Plan has been developed shall be given by first-class mail to persons who have requested such notice. Such notice shall include a summary of the proposed Closure Plan and state the locations where a copy of the proposed Closure Plan is available for inspection. The Department shall maintain a mailing list of persons who request notice pursuant to this section.
 - c. Notice that a proposed Closure Plan has been developed shall be given by electronic mail to persons who have requested such notice. Such notice shall include a summary of the proposed Closure Plan and state the locations where a copy of the proposed Closure Plan is available for inspection. The Department shall maintain a mailing list of persons who request notice pursuant to this section.
- (3) No later than 60 days after receipt of a proposed Closure Plan, the Department shall conduct a public meeting in the county or counties in which the site is located to explain the proposed Closure Plan and alternatives to the public. The Department shall give notice of the hearing at least 30 days prior to the date thereof by all of the following methods:
- a. Publication as provided in subdivision (1) of this subsection, with first publication to occur not less than 30 days prior to the scheduled date of the hearing.
 - b. First-class mail to persons who have requested notice as provided in subdivision (2) of this subsection.
 - c. Electronic mail to persons who have requested notice as provided in subdivision (2) of this subsection.
- (4) At least 30 days from the latest date on which notice is provided pursuant to subdivision (2) of this subsection shall be allowed for the receipt of written comment on the proposed Closure Plan prior to its approval. At least 20 days will be allowed for receipt of written comment following a hearing conducted pursuant to subdivision (3) of this subsection prior to the approval of the proposed Closure Plan.

(c) The Department shall disapprove a proposed Coal Combustion Residuals Surface Impoundment Closure Plan unless the Department finds that the Closure Plan is protective of public health, safety, and welfare; the environment; and natural resources and otherwise complies with the requirements of this Part. The Department shall provide specific findings to support its decision to approve or disapprove a proposed Closure Plan. If the Department disapproves a proposed Closure Plan, the person who submitted the Closure Plan may seek review as provided in Article 3 of Chapter 150B of the General Statutes. If the Department fails to approve or disapprove a proposed Closure Plan within 120 days after a complete Closure Plan has been submitted, the person who submitted the proposed Closure Plan may treat the Closure Plan as having been disapproved at the end of that time period. The Department may

require a person who proposes a Closure Plan to supply any additional information necessary for the Department to approve or disapprove the Closure Plan.

(d) Repealed by Session Laws 2016-95, s. 1, effective July 14, 2016.

(e) As soon as practicable, but no later than 60 days after a Coal Combustion Residuals Surface Impoundment Closure Plan has been approved by the Department, the owner of the coal combustion residuals impoundment shall begin implementation of the approved plan. Modifications to an approved Closure Plan may only be allowed in conformance with the requirements of this Part, upon written request of an owner of an impoundment, with the written approval of the Department, and after public notice of the change in accordance with the requirements of subdivision (2) of subsection (b) of this section. Provided, however, minor technical modifications may be made in accordance with standard Department procedures for such minor modifications and may be made without written approval of the Department or public notice of the change.

(f) Nothing in this section shall be construed to obviate the need for sampling, remediation, and monitoring activities at the site as required by G.S. 130A-309.211 and G.S. 130A-309.310 [G.S. 130A-309.212]. (2014-122, s. 3(a); 2016-95, s. 1.)