15A NCAC 13B .0545 ASSESSMENT AND CORRECTIVE ACTION PROGRAM FOR C&DLF FACILITIES AND UNITS

(a) Assessment Program. Assessment is required if one or more constituents, as listed in Part (b)(1)(D) of Rule .0544 of this Section are detected above the current ground-water quality standards in accordance with 15A NCAC 02L .0202, in any sampling event. The owner and operator must also immediately:

(1) Install at least one additional groundwater monitoring well or methane gas monitoring well at the facility boundary or the compliance boundary, as defined in 15A NCAC 02L .0100, in the direction of contaminant migration. The new sampling point must be installed at the facility boundary or compliance boundary at the location most likely to show impact based on the known geology and hydrogeology;

(2) Notify all persons who own land or reside on land that directly overlies any part of the plume of contamination if contaminants have migrated off-site or are thought to have migrated off site;

(3) Within 30 days of triggering an assessment monitoring program, the owner and operator must submit an assessment monitoring work plan for Division review. The Division shall date and stamp the assessment monitoring program "approved" if the conditions in Paragraph (b) of this Rule are met. The owner and operator must place the approved program in the operation record, and notify all appropriate local government officials.

(b) Assessment Monitoring Work Plan. The assessment monitoring work plan must be in accordance with the following:

(1) Install additional monitoring wells to characterize the nature and extent of the release by determining the following:

(A) Lithology of the aquifer and unsaturated zone;

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

(C) Ground-water flow rates;

(D) Minimum distance of travel;

(E) Resource value of the aquifer; and

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

(2) Analyze for additional parameters, which may include constituents on the Appendix II of 40 CFR Part 258 as directed by the Division. For any constituent detected in the downgradient wells as the result of analyzing of additional parameters, a minimum of four independent samples from each well (background and downgradient) must be collected and analyzed to establish background for the new constituents.

(3) If the new constituents do not have an established 15A NCAC 02L .0202 groundwater quality standard, the owner or operator must obtain a determination from the Division on establishing a groundwater protection standard for each constituent detected in groundwater. The groundwater protection standard must be the most protective of the following:

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

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

(C) For constituents for which MCLs or water quality standards have not been promulgated, the background concentration for the constituent established from wells in accordance with Rule .1631(a)(1) of this Section; or

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

(4) The Division may establish an alternative ground-water protection standard for constituents for which neither an MCL or water quality standard has not been established. These ground-water protection standards must be appropriate health based levels that satisfy the following criteria:

(A) The level is derived in a manner consistent with E.P.A. guidelines for assessing the health risks of environmental pollutants;

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

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

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

(5) In establishing ground-water protection standards under Paragraph (b) of this Rule the Division may consider the following:

(A) Multiple contaminants in the ground water;

(B) Exposure threats to sensitive environmental receptors; and

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

(6) The Division may specify an appropriate subset of wells to be sampled and analyzed during assessment monitoring. The Division may delete any of the additional monitoring parameters if it can be shown that the removed constituents are not reasonably expected to be in or derived from the waste contained in the unit.

(7) After obtaining the results from the initial and subsequent sampling events, the owner or operator must submit an assessment monitoring report to the Division which must be certified by a Licensed Geologist.

(8) The owner or operator may demonstrate that a source other than a C&DLF caused the contamination. An alternate source demonstration report must be prepared by a certified Licensed Geologist and submitted for approval by the Division. A copy of the approved report must also be placed in the operating record. If a successful demonstration is made, the owner or operator may discontinue assessment monitoring, and may return to detection monitoring if the constituents are at or below background values and 15A NCAC 02L .0202 or approval is given by the Division according to Subparagraph (9) of this Paragraph. Until a successful demonstration is made, the owner or operator must comply with Paragraph (b) of this Rule.

(9) The Division may give approval to the owner or operator to return to detection monitoring if:

(A) The concentrations of the constituents are shown to be at or below background values and 15A NCAC 02L .0202 for two consecutive sampling events;

(B) The plume is not migrating horizontally or vertically; and

(C) The plume has not exceeded the compliance boundary.

(10) If constituents are consistently detected above background, 15A NCAC 02L .0202, and the approved groundwater protection standards, the owner or operator must initiate Assessment of Corrective Measures.

(c) Assessment of Corrective Measures. Assessment of corrective measures is required upon completion of Paragraphs (a) and (b) of this Rule as determined by the Division. The assessment of corrective measures must include an analysis of the effectiveness of potential corrective actions in meeting all of the requirements and objectives of the remedy as described under this Rule. The assessment of corrective measures document must address the following at a minimum:

(1) the performance, reliability, ease of implementation, and potential impacts of appropriate potential remedies, including safety impacts, cross-media impacts, and control of exposure to any residual contamination;

(2) the time required to begin and to complete the remedy;

(3) the costs of remedy implementation; and

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

(d) The owner and operator must discuss the results of the assessment of corrective measures, prior to the selection of the remedy, in a public meeting with interested and affected parties. The owner and operator must provide a public notice of the meeting at least 30 days prior to the meeting. The notice must include the time, place, date, and purpose of the meeting required by this Paragraph of this Rule. A copy of the public notice must be forwarded to the Division at least five days prior to publication. The owner and operator must mail a copy of the public notice to those persons requesting notification. Public notice must be in accordance with Rule .0533(c)(4) of this Section.

(e) Selection of Remedy. Based on the results of the Assessment of Corrective Actions, the owner and operator must select a remedy that, at a minimum, meets the standards listed in Subparagraph (2) of this Paragraph as follows:

(1) Within 30 days of selecting a remedy, the permittee must submit an application to modify the permit describing the selected remedy to the Division for evaluation and approval. The application must be

subject to the processing requirements set forth in Rule .0533(c) of this Section. The application must include the demonstrations necessary to comply with the financial assurance requirements set forth in accordance with Rule .0546 of this Section.

(2) Remedies must:

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

(B) attain the approved ground-water protection standards;

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

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

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

(A) The long-term and short-term effectiveness and protectiveness of the potential remedy(s), along with the degree of certainty that the remedy will prove successful based on consideration of the magnitude of reduction of existing risks; magnitude of residual risks in terms of likelihood of further releases due to wastes remaining following implementation of a remedy; the type and degree of long-term management required, including monitoring, operation, and maintenance; short-term risks that might be posed to the community, to workers, or to the environment during implementation of such a remedy, including potential threats to human health and the environment associated with excavation, transportation, and redisposal or containment; time until full protection is achieved; potential for exposure of humans and environmental receptors to remaining wastes, considering the potential threat to human health and the environment associated with excavation, transportation, redisposal, or containment; long-term reliability of the engineering and institutional controls; and potential need for replacement of the remedy.

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

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

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

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

(A) nature and extent of contamination;

(B) practical capabilities of remedial technologies in achieving compliance with the approved ground-water protection standards and other objectives of the remedy;

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

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

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

(F) resource value of the aquifer, including current and future uses; proximity and withdrawal rate of users; ground-water quantity and quality; the potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to contaminants; the hydrogeologic

characteristics of the facility and surrounding land; ground-water removal and treatment costs; the costs and availability of alternative water supplies;

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

(H) other relevant factors.

(f) The Division may determine that active remediation of a release of any detected constituent from a C&DLF unit is not necessary if the owner or operator demonstrates to the satisfaction of the Division that:

(1) The ground-water is additionally contaminated by substances that have originated from a source other than a C&DLF unit and those substances are present in concentrations such that active cleanup of the release from the C&DLF unit would provide no significant reduction in risk to actual or potential receptor;

(2) The constituent or constituents are present in ground-water that is not currently or reasonably expected to be a source of drinking water and is not hydraulically connected with water to which the constituents are migrating or are likely to migrate in concentrations that would exceed the approved ground-water protection standards;

(3) Remediation of the release is technically impracticable; or

(4) Remediation results in unacceptable cross-media impacts.

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

(h) Implementation of the Corrective Action Program. Based on the approved schedule for initiation and completion of remedial activities, the owner and operator must submit in a corrective action plan:

(1) Establish and implement a corrective action ground-water monitoring program that:

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

(B) indicates the effectiveness of the corrective action remedy; and

(C) demonstrates compliance with ground-water protection standards pursuant to Paragraph (i) of this Rule.

(2) Implement the approved corrective action remedy; and

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

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

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

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

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

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

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

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

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

(j) If the owner or operator determines that compliance with requirements of Subparagraph (e)(2) of this Rule cannot be practically achieved with any currently available methods, the owner and operator must:

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

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

(3) implement alternate measures for control of the sources of contamination, or for removal or decontamination of equipment, units, devices, or structures that are:
    (A) technically practicable and
    (B) consistent with the overall objective of the remedy; and
(4) submit a report justifying the alternative measures to the Division for review. The Division shall date and stamp the report "approved" if the conditions of this paragraph are satisfied. The approved report must be placed in the operating record prior to implementing the alternative measures.

(k) All solid wastes that are managed pursuant to a remedy required under Paragraph (e) of this Rule, or an interim measure required under Paragraph (e) of this Rule, must be managed in a manner:
(1) that is protective of human health and the environment, and
(2) that complies with applicable state and federal requirements.

(l) Remedies selected pursuant to Paragraph (e) of this Rule shall be considered complete when:
(1) the owner and operator complies with the ground-water protection standards at all points within the plume of contamination that lie beyond the relevant point of compliance;
(2) compliance with the ground-water protection standards has been achieved by demonstrating that concentrations of constituents have not exceeded these standards for a period of three consecutive years, consistent with performance standards in Subparagraph (e)(2) of this Rule; and
(3) all actions required to complete the remedy have been satisfied.

(m) Upon completion of the remedy, the owner and operator must submit a report to the Division documenting that the remedy has been completed in compliance with Paragraph (l) of this Rule. This report must be signed by the owner and by a Licensed Geologist or Professional Engineer. Upon approval by the Division, this report must be placed in the operating record.

(n) When, upon completion of the certification, the Division determines that the corrective action remedy has been completed in accordance with Paragraph (l) of this Rule, the owner and operator shall be released from the requirements for financial assurance for corrective action under Rule .0546 of this Section.

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