SUBCHAPTER 02L - GROUNDWATER CLASSIFICATION AND STANDARDS

SECTION .0100 - GENERAL CONSIDERATIONS

15A NCAC 02L .0101 PURPOSE

(a) N.C. General Statute 143-214.1 directs that the Commission develop and adopt, after proper study, a series of classifications and standards which will be appropriate for the purpose of classifying each of the waters of the State in such a way as to promote the policy and purposes of the act. Pursuant to this statute, the rules in Sections .0200 and .0300 of this Subchapter establish a series of classifications and water quality standards applicable to the groundwaters of the State.

(b) The rules in Section .0100 of this Subchapter shall apply to all permitted and unpermitted activities or actions, intentional or accidental, that contribute to the degradation of groundwater quality, regardless of any permit issued by a governmental agency authorizing such action or activity. An innocent landowner who is a bona fide purchaser of property which contains a source of groundwater contamination, who purchased such property without knowledge or a reasonable basis for knowing that groundwater contamination had occurred, or a person whose interest or ownership in the property is based or derived from a security interest in the property, shall not be considered a responsible party.

History Note: *Authority G.S. 143-214.1; 143-214.2; 143-215.3(a)(1); 143B-282;*
Eff. June 10, 1979;
Amended Eff. August 1, 1989; July 1, 1988; September 1, 1984; December 30, 1983;
Readopted Eff. June 1, 2022.

15A NCAC 02L .0102 DEFINITIONS

The definition of any word or phrase used in the Rules in this Subchapter shall be the same as given in G.S. 143-212 and G.S. 143-213 except that the following words and phrases shall have the following meanings:

(1) "Active remediation" means corrective action that includes active physical, biological, or chemical manipulation of groundwater or of the rock or soil media for the purpose of reducing the amount of contamination or minimizing the spread of contamination.

(2) "Anthropogenic" means of, relating to, or resulting from the influence of human beings on nature.

(3) "Background threshold values" mean statistically derived values of the concentrations of substances in environmental media not affected by site conditions, actions, or activities for use as a basis for compliance with the rules in this Subchapter.

(4) "Bedrock" means any consolidated rock encountered in the place in which it was formed or deposited and which cannot be readily excavated without the use of explosives or power equipment.

(5) "Chief administrative officer" shall be, for the purposes of this Rule, the mayor, chairman of the county commissioners, the county manager, or the city manager who is responsible for environmental issues in their jurisdiction.

(6) "Compliance boundary" means a boundary around the waste disposal area of a disposal system at and beyond which standards may not be exceeded and applies to facilities which have received an individual permit issued under the authority of G.S. 143-215.1, Article 9 of G.S. 130A, or Article 11 of G.S. 130A.

(7) "Compliance zone" means the area encompassed within the compliance boundary.

(8) "Constituent of interest" means any substance that is manmade or naturally occurring that is associated with or influenced by site activities or actions and that is of interest to the protection of public health or the environment.

(9) "Contaminant" means any substance that occurs in groundwater as a result of anthropogenic sources or activities in concentrations which exceed the standards.

(10) "Control" means the ability to physically, mechanically, or chemically influence sources of contamination and contaminant distribution.

(11) "Corrective action plan" means a plan for controlling or eliminating sources of groundwater contamination or for restoring groundwater quality.

(12) "Director" means Director of the Division of Water Resources or Waste Management or their delegate.

(13) "Division" means the Division of Water Resources or Waste Management.

(14) "Exposure pathway" means a course taken by a contaminant by way of a transport medium after its release to the environment.
(15) "Free product" means a non-aqueous phase liquid which may be present within the saturated zone or in surface water.
(16) "Fresh waters" means those groundwaters having a chloride concentration equal to or less than 250 milligrams per liter.
(17) "Groundwaters" means waters occurring in the subsurface under saturated conditions.
(18) "Hazardous substance" means any substance as defined by 42 U.S.C. 9601(14).
(19) "Licensed geologist" means a person who has been licensed as a geologist in accordance with the requirements of G.S. 89E.
(20) "Licensed soil scientist" means a person who has been licensed as a soil scientist in accordance with the requirements of G.S. 89F.
(21) "Natural attenuation" means those natural processes acting to restore groundwater quality, including dilution, filtration, sorption, ion-exchange, chemical transformation, and biodegradation.
(22) "Natural conditions or naturally occurring" means the physical, biological, chemical, and radiological conditions which occur naturally and are not a result of anthropogenic sources or activities.
(23) "Person" shall be as defined in G.S. 130A-290(22).
(24) "Potable waters" means those waters suitable for drinking by humans.
(25) "Practical Quantitation Limit" means the lowest concentration of a given material that can be reliably achieved by a particular analytical technique operated within specified parameters of a given analytical method during routine laboratory analysis while following all applicable state or federal quality assurance and quality control requirements.
(26) "Professional Engineer" means a person who has been registered and licensed as a professional engineer in accordance with the requirements of G.S. 89C.
(27) "Receptor" is as defined in G.S. 130A-309.201 and, for the purposes of this Rule, shall also include waters of the State as defined in G.S. 143-212(6).
(28) "Review boundary" means a boundary around a permitted waste disposal area midway between a waste boundary and a compliance boundary at which groundwater monitoring may be required.
(29) "Saturated zone" means that part of the subsurface below the water table in which all the interconnected voids are filled with water under pressure at or greater than atmospheric. It does not include the capillary fringe.
(30) "Secretary" means the Secretary of the Department of Environmental Quality or his or her delegate.
(31) "Standard" or "standards" means groundwater quality standards as specified in Rule .0202 of this Subchapter and any interim maximum allowable concentrations established by the Director per Rule .0202(c) of this Subchapter.
(32) "Suitable for drinking" means a quality of water that does not contain substances in concentrations which, either singularly or in combination, if ingested into the human body, may cause death, disease, behavioral abnormalities, congenital defects, genetic mutations, or result in an incremental lifetime cancer risk in excess of 1x10-6, or result in adverse effects to the consumer due to aesthetic qualities, including taste, odor, or appearance.
(33) "Waste boundary" means the perimeter of the permitted waste disposal area.
(34) "Waste disposal area" means that portion of a disposal system permitted under authority of G.S 143-215.1, Article 9 of G.S. 130A, or Article 11 of G.S. 130A whose purpose is the temporary or permanent disposal of waste.
(35) "Water table" means the surface of the saturated zone below which all interconnected voids are filled with water and at which the pressure is atmospheric.

History Note: *Authority G.S. 143-214.1; 143-215; 143B-282;*
Eff. June 10, 1979.
Amended Eff. October 1, 1993; August 1, 1989; July 1, 1988; March 1, 1985;
Readopted Eff. June 1, 2022.

15A NCAC 02L .0103 POLICY

(a) The rules established in this Subchapter are intended to maintain and preserve the quality of the groundwaters, prevent and abate pollution and contamination of the waters of the State, protect public health, and permit management of the groundwaters for their best usage. It is the policy of the Commission that the best usage of the groundwaters of the State is as a source of drinking water. These groundwaters generally are a potable source of drinking water without the necessity of significant treatment. It is the intent of these Rules to protect the overall high quality of North Carolina's groundwaters to the level established by the standards and to enhance and restore the quality of degraded groundwaters where feasible and necessary to protect human health and the environment, or to ensure their suitability as a future source of drinking water.
(b) The Commission shall not approve any disposal system subject to the provisions of G.S. 143-215.1 which would result in any of the following:

(1) The significant degradation of groundwaters which have existing quality that is better than the assigned standard, unless such degradation is found to be in the best interests of the public based upon the projected economic benefits of the facility and that public health will be protected.
(2) A violation of a standard beyond a designated compliance boundary as a result of the permitted activities.
(3) The impairment of existing groundwater uses or increased risk to public health due to the operation of a disposal system.

(c) Violations of the standards resulting from groundwater withdrawals which are in compliance with water use permits issued pursuant to G.S. 143-215.15, shall not be subject to the corrective action requirements of Rule .0106 of this Section.
(d) No person shall conduct or cause to be conducted, any activity which causes the concentration of any substance to exceed the standards, except as authorized by the rules of this Subchapter.
(e) Work that is within the scope of the practice of geology and engineering, performed pursuant to the requirements of this Subchapter, that involves site assessment, the interpretation of geologic conditions, preparation of corrective action plans, or any work requiring detailed technical knowledge of site conditions which is submitted to the Director, shall be performed by persons, firms, or professional corporations who are licensed to offer geological or engineering services by the appropriate occupational licensing board or are exempted from such licensing by G.S. 89E-6. Work which involves design of remedial systems or specialized construction techniques shall be performed by persons, firms, or professional corporations who are licensed to offer engineering services. Corporations that are authorized by law to perform engineering or geological services and are exempt from the Professional Corporation Act, G.S. 55B, may perform these services.

History Note: *Authority G.S. 143-214.1; 143-214.2; 143-215.3(a)(1); 143B-282;*
Eff. June 10, 1979;
Amended Eff. August 1, 1989; July 1, 1988; September 1, 1984; December 30, 1983;
RRC Objection Eff. September 17, 1993, due to lack of necessity for Paragraph (e);
Amended Eff. November 4, 1993;
Readopted Eff. June 1, 2022.

15A NCAC 02L .0104 RESTRICTED DESIGNATION

(a) The restricted designation (RS) means that groundwater may not be suitable for use as a drinking water supply without treatment.
(b) Upon application by a responsible party, the Director is authorized to apply the RS to GA or GSA groundwaters, as defined under Rule .0201 of this Subchapter, under any of the following circumstances:

(1) For sites undergoing risk-based remediation per Rule .0106(i) of this Section.
(2) Areas of remaining contamination where the Secretary has approved the termination of an approved corrective action per Rule .0106(j) of this Section.
(3) Where a variance has been granted by the Commission as provided in Rule .0113 of this Section.

(c) Groundwaters occurring within an area defined by a compliance boundary in a waste disposal permit are deemed RS.
(d) The boundary of the RS area shall be located 250 feet or greater from the boundary of the contaminant plume and shall include any areas into which the contamination is predicted through modeling or expected through professional judgment to migrate.
(e) Where the RS area crosses, intercepts, or adjoins surface waters, the RS shall not give the right to cause or contribute to an exceedance of the surface water standards established under 15A NCAC 02B .0200.

(f) Application for RS. The person requesting a RS shall provide to the Director a plan that includes the following:

(1) The person's name, address, and phone number.

(2) The physical location of the of facility or site where the contamination originated.

(3) If applicable, a copy of the Secretary's approval for termination of corrective action or a variance granted by the Commission as provided in Rule .0113 of this Section.

(4) A summary of the site assessment and corrective actions including the results of any predictive modeling that estimates the time to return compliance for the RS area.

(5) Maps showing the current horizontal and vertical extent of any contamination and the areas where the contamination is predicted or expected to migrate including the current and predicted quantities of any contaminants and all current and potential future receptors within 1,500 feet of contamination.

(6) A map showing the proposed RS area including the county title number, county tax identification number, or the property tax book and page identifiers of the properties included within the proposed RS area.

(7) A plan for monitoring the groundwater quality within the RS area that includes the current or proposed wells to be monitored, the frequency of the monitoring, and the constituents of interest to be monitored.

(8) If the proposed RS area extends beyond the source property's boundary, a signed statement from each property owner agreeing to the proposed RS area on their property if required by statute.

(9) If the proposed RS area crosses, intercepts, or adjoins surface waters, a plan to ensure the surface water standards established under 15A NCAC 02B .0200 are not violated.

(g) The Director shall review whether the proposed plan is protective of public health and the environment for receptors within the RS area and otherwise complies with requirements of this Rule. The Director may require a person who proposes a plan to supply any additional information not provided that is necessary to satisfy the requirements of Paragraph (f) of this Rule.

(h) Prior to approving the proposed plan in Paragraph (f) of this Rule, the Division shall provide public notice of the intent to designate any groundwater with RS as follows:

(1) Provide notice at least 30 days prior to any proposed final action to all property owners with signed statements per Subparagraph (f)(8) of this Rule, to the local County Health Director, and the chief administrative officer of the jurisdiction(s) in which the contamination occurs.

(2) The notice shall contain the following information:

(A) Name, address, and phone number of the agency issuing the public notice;

(B) A copy of the plan in Paragraph (f) of this Rule or where the plan can be obtained.

(C) Conditions applicable to removal of the RS designation; and

(D) Address and phone number of a Division contact from whom interested parties may obtain further information.

(3) The Director shall consider all requests for a public hearing, and if he or she determine that there is significant public interest, he or she shall issue public notice and hold a public hearing in accordance with G.S 143-215.4(b) and Rule .0113(e)(2) of this Section.

(4) The requirements of this Paragraph shall not apply to groundwaters defined in Paragraph (c) of this Rule.

(i) The Director shall approve the plan if the proposal complies with Paragraph (g) of this Rule. Upon making a determination, the Director shall provide specific findings to support their decision to approve or disapprove a proposed plan.

(j) The process for recordation, application, and removal of an approved RS shall be in accordance with G.S. 143B-279.10 or G.S. 143B-279.11. The land use restriction shall be that groundwater within the RS area may not be suitable for drinking without treatment.

(k) The RS shall also be removed if the groundwater within the RS is reclassified by the Commission per G.S. 143-214.1.

History Note: *Authority G.S. 143-214.1; 143-215.3(a)(1); 143B-282(a)(2); 143B-279.9; 143B-279.10; 143B-279.11;*
Eff. June 10, 1979;
Amended Eff. October 1, 1993; December 1, 1989; August 1, 1989; December 30, 1983;
Readopted Eff. June 1, 2022.

15A NCAC 02L .0105 ADOPTION BY REFERENCE

History Note: *Authority G.S. 143-214.1;*
Eff. December 30, 1983;
Repealed Eff. August 1, 1989.

15A NCAC 02L .0106 INITIAL RESPONSE, SITE ASSESSMENT, AND CORRECTIVE ACTION

(a) Where groundwater quality has been degraded, the required corrective action shall be restoration to the level of the standards, or as closely thereto as is economically and technologically feasible in accordance with this Rule. The corrective action strategies addressed in this Rule can be through either active remediation in Paragraph (g), natural attenuation in Paragraph (h), or risk-based remediation in Paragraph (i). In all cases involving requests to the Secretary for approval of corrective action plans or termination of corrective action, the responsibility for providing all information required by this Rule lies with the person(s) making the request.

(b) Any person conducting or controlling an activity, permitted or unpermitted, that results in the discharge of a waste or hazardous substance or oil to the ground surface, vadose zone, or groundwaters of the State shall take action upon discovery to terminate and control the discharge, mitigate any hazards resulting from exposure to the contaminants, and follow the requirements in Paragraphs (c), (d), or (e) of this Rule.

(c) Any person conducting or controlling an activity that has not been permitted by the Department pursuant to G.S. 143-215.1, Article 9 of G.S. 130A, or Article 11 of G.S. 130A that results in an increase in the concentration of a substance in excess of the standard, other than agricultural operations defined under G.S. 106-581.1, shall take the following steps:

(1) Within 24 hours of discovery of the violation, notify the Department of the activity that has resulted in the increase and the contaminant concentration levels, if known.
(2) Respond in accordance with Paragraph (f) of this Rule.
(3) Implement a monitoring program in accordance with Rule .0110 of this Section.
(4) Submit a site assessment report to the Director in accordance with Rule .0111 of this Section.
(5) Submit a notification in accordance with the requirements of Rule .0114(a) of this Section.
(6) If required, submit a corrective action plan to the Director in accordance with Rule .0111 of this Section or pursue risk-based remediation per Paragraph (i) of this Rule. If a corrective action plan is submitted for active remediation or natural attenuation, then:
    (A) Submit a notification in accordance with the requirements of Rule .0114(b) of this Section.
    (B) Implement the corrective action plan upon its approval by the Secretary.
    (C) Submit a notification in accordance with the requirements of Rule .0114(c) of this Section.

(d) For any person conducting or controlling an activity that is conducted under the authority of a permit issued by the Department pursuant to G.S. 143-215.1, Article 9 of G.S. 130A, or Article 11 of G.S. 130A that results in an increase in concentration of a substance in excess of the standards at or beyond the review boundary:

(1) The Director may require, based on information including data trends, geologic and hydrogeologic conditions, and spacing between the review and compliance boundaries, that the person shall demonstrate, through predictive calculations or modeling, that one or more of the following will prevent a violation of standards at the compliance boundary:
    (A) geologic or hydrogeologic conditions;
    (B) facility design; or
    (C) operational controls.
(2) If an exceedance of the standards is expected through professional judgment or predicted through modeling at or beyond the compliance boundary, the person may submit a plan for alteration of existing site conditions, facility design, or operational controls that will prevent a violation at the compliance boundary, and implement that plan upon its approval by the Director. In approving the plan, the Director shall consider geologic and hydrogeologic conditions, the nature and extent of the contamination, technical and economic feasibility, and public health impacts on all potential receptors should the contaminated plume reach them.

(e) For any person conducting or controlling an activity that is conducted under the authority of a permit issued by the Department pursuant to G.S. 143-215.1, Article 9 of G.S. 130A, or Article 11 of G.S. 130A that results in an increase in concentration of a substance in excess of the standards beyond the compliance boundary or within the compliance zone as specified by Rule .0107(p) of this Section, the person shall take the following steps:

(1) Within 24 hours of discovery of the initial violation, notify the Department of the activity that has resulted in the increase, the contaminants that are in exceedance, and the contaminant concentration levels.
(2) Respond in accordance with Paragraph (f) of this Rule.
(3) Implement a monitoring program in accordance with Rule .0110 of this Section.
(4) Submit a site assessment report to the Director in accordance with Rule .0111 of this Section.
(5) Submit a notification in accordance with the requirements of Rule .0114(a) of this Section.
(6) If required, submit a corrective action plan to the Director in accordance with Rule .0111 of this Section or pursue risk-based remediation per Paragraph (i) of this Rule. The corrective action plan may include alteration of existing site conditions, facility design, or operational controls that will prevent a violation at the compliance boundary. If a corrective action plan is submitted for active remediation or natural attenuation, then:
(A) Submit a notification in accordance with the requirements of Rule .0114(b) of this Section.
(B) Implement the corrective action plan upon its approval by the Secretary.
(C) Submit a notification in accordance with the requirements of Rule .0114(c) of this Section.

(f) Initial response actions required to be conducted prior to or concurrent with the site assessment required in Paragraphs (c) and (e) of this Rule shall include:
(1) Prevention of fire, explosion, or the spread of noxious fumes.
(2) Abatement, containment, or control of the migration of contaminants.
(3) Removal, treatment, or control of any primary pollution source such as buried waste, waste stockpiles, or surficial accumulations of free products.
(4) Removal, treatment, or control of secondary pollution sources that would be potential continuing sources of pollutants to the groundwaters, such as contaminated soils and non-aqueous phase liquids. Contaminated soils that threaten the quality of groundwaters shall be treated, contained, or disposed of in accordance with rules in this Subchapter and in 15A NCAC 13 applicable to such activities. The treatment or disposal of contaminated soils shall be conducted in a manner that will not result in a violation of the standards or 15A NCAC 13 Rules.

The initial response actions shall be documented in the site assessment report required under Rule .0111(b) of this Section. The Director may request written documentation of the response actions in advance of the site assessment report if the Director determines that there is an immediate threat to human health based on information including the nature and extent of the release, the potential exposure pathways, and proximity to human receptors.

(g) Corrective action using active remediation. A corrective action plan prepared pursuant to Paragraphs (c) or (e) of this Rule shall be implemented using a remedial technology demonstrated to the Director to provide the most effective means, taking into consideration geological and hydrogeological conditions at the contaminated site, for restoration of groundwater quality to the level of the standards. Corrective action plans for active remediation shall include the information in Rule .0111(c) of this Section.

(h) Corrective action using natural attenuation. Any person required to implement an approved corrective action plan for a site subject to Paragraphs (c) or (e) of this Rule may request that the Secretary approve such a plan based upon natural processes of degradation and attenuation of contaminants. Corrective action plans for natural attenuation shall make the demonstration and include the information in Rule .0111(d) of this Section.

(i) Corrective action using risk-based remediation. A person choosing to use risk-based remediation shall comply with the requirements in G.S. 130A Article 9 Part 8.

(j) Termination of active remediation prior to achieving the standards. Any person required to implement an approved corrective action plan for a site subject to Paragraph (g) of this Rule may request that the Secretary approve termination of the active remediation prior to achieving the standards. The owner and operator of an active remediation system shall demonstrate, by terminating the active remediation and then implementing an approved natural attenuation corrective action under Paragraph (h) of this Rule, that all potential receptors will be protected. A request submitted to the Secretary under this Paragraph shall include:
(1) A discussion of the duration of the corrective action, the total project cost, projected annual cost for continuance, and evaluation of the success of the corrective action.
(2) An evaluation of alternate treatment technologies that could potentially result in further reduction of contaminant levels, projected capital, and annual operating costs for each technology.

(3) The effects, including public health impacts, on groundwater users if contaminant levels remain at levels existing at the time corrective action is terminated.

(4) The proposed contaminant concentrations to actively remediate to prior to reaching the standards in the source area and all predictive calculations and model runs demonstrating that the standards will be met at all existing or potential receptors, based on travel time and the natural attenuation capacity of subsurface materials or on a barrier to groundwater migration that exists or will be installed by the person making the request.

(5) A demonstration that continuation of active remediation would not result in a significant reduction in the concentration of contaminants. This demonstration shall show the duration and degree of success of existing remedial efforts to attain the standards. For the purpose of this Rule, a "significant reduction" is demonstrated by showing that the asymptotic slope of the contaminant concentrations over time is less than a ratio of 1:40 over a term of one year based on four consecutive quarters with sampling events spaced at least three months apart.

(6) A natural attenuation corrective action plan for the remaining contamination in accordance with Paragraph (h) of this Rule.

(k) The Secretary shall not authorize termination of active remediation for any area that, at the time the request is made, has been identified by a State or local groundwater use planning process for resource development.

(l) The Secretary may authorize the termination of active remediation, or amend the corrective action plan after considering all the information in the request. In making the authorization, the Secretary shall consider geologic and hydrogeologic conditions, the nature and extent of the contamination, technical and economic feasibility, and public health impacts on all potential receptors should the contaminated plume reach them. The Secretary will review the request for completeness and may request any additional information necessary to make their authorization.

(m) In the evaluation of active remediation or natural attenuation corrective action plans, the Secretary shall consider the extent of any violations, the extent of any threat to human health, the extent of damage or potential adverse impact to the environment, technology available to accomplish restoration, the potential for degradation of the contaminants in the environment, geologic and hydrogeologic conditions, the time estimated to achieve groundwater quality restoration, technical and economic feasibility, and the public and economic benefits to be derived from groundwater quality restoration.

(n) Where continued corrective action would result in no significant reduction in contaminant concentrations as determined in Subparagraph (j)(5) of this Rule, the person may request that the Secretary designate the area of degraded groundwater RS. The Commission may also consider a request for reclassification of the groundwater to a GC classification as outlined in Rule .0319 of this Subchapter.

(o) If at any time the Secretary determines that a new technology is available that would remediate the contaminated groundwater to the standards specified in Rule .0202 of this Subchapter, the Secretary may require the person to evaluate the economic and technological feasibility of implementing the new technology in an active remediation corrective action plan. The Secretary's determination to utilize new technology at any site or for any particular contaminant or constituent of interest shall include a consideration of the factors in Rule .0111(c) of this Section.

(p) Where the standards are exceeded as a result of the application of pesticides or other agricultural chemicals, the Secretary shall request the Pesticide Board or the Department of Agriculture and Consumer Services to assist the Department in determining the cause of the violation. If the violation is determined to have resulted from the use of pesticides, the Secretary shall request the Pesticide Board to take appropriate regulatory action to control the use of the chemical or chemicals responsible for, or contributing to, such violations, or to discontinue their use.

(q) If a discharge or release is not governed by the rules in Section .0400 of this Subchapter and the increase in the concentration of a substance in excess of the standard resulted in whole or in part from a release from a commercial or noncommercial underground storage tank as defined in G.S. 143-215.94A, any person required to implement an approved corrective action plan pursuant to this Rule and seeking reimbursement for the Commercial or Noncommercial Leaking Petroleum Underground Storage Tank Cleanup Funds shall implement a corrective action plan meeting the requirements of Paragraph (g) or (h) of this Rule unless the person demonstrates to the Secretary that:

(1) contamination resulting from the discharge cannot qualify for approval of a plan based on the requirements of the Paragraphs (g) or (h) of this Rule; or

(2) the cost of making such a demonstration would exceed the cost of implementing a corrective action plan submitted pursuant to Rule .0111(c) of this Section.

(r) If a discharge or release is not governed by the rules in Section .0400 of this Subchapter and the increase in the concentration of a substance in excess of the standard resulted in whole or in part from a release from a commercial

or noncommercial underground storage tank as defined in G.S. 143-215.94A, the Secretary may require any person implementing or operating a previously approved corrective action plan pursuant to this Rule to:

(1) develop and implement a corrective action plan meeting the requirements of Paragraphs (g) and (h) of this Rule; or

(2) seek discontinuance of corrective action pursuant to Paragraph (j) of this Rule.

(s) Pursuant to this Rule, the approval of any corrective action plan, modification, or termination thereof, that permits the migration of a contaminant onto adjacent property, shall not affect any private right of action by any party that may be affected by that contaminant.

History Note: *Authority G.S. 143-215.1; 143-215.3; 143-215.94T; 143-215.94V; 143B-282;*
Eff. August 1, 1989;
Amended Eff. October 1, 1993; September 1, 1992;
Temporary Amendment Eff. January 2, 1998; January 2, 1996;
Amended Eff. July 1, 2016; October 29, 1998;
Readopted Eff. June 1, 2022.

15A NCAC 02L .0107 COMPLIANCE BOUNDARY

(a) For disposal systems individually permitted prior to December 30, 1983, the compliance boundary shall be established at a horizontal distance of 500 feet from the waste boundary or at the property boundary, whichever is closer to the source.

(b) For disposal systems individually permitted on or after December 30, 1983, a compliance boundary shall be established at a horizontal distance of 250 feet from the waste boundary, or 50 feet within the property boundary, whichever point is closer to the source.

(c) The compliance boundary shall be established at the time of permit issuance and shall remain in place for the duration of the permit.

(d) The compliance boundary and zone shall extend vertically from the surface through the water table to the maximum depth of saturation.

(e) The permitted activity shall not cause or contribute to an exceedance of the surface water standards established under 15A NCAC 02B .0200.

(f) Multiple contiguous properties under common ownership and permitted for use as a waste disposal area shall be treated as a single property with regard to determination of a compliance zone and setbacks to property lines as per Paragraphs (a) or (b) of this Rule.

(g) Where compliance zones for separately permitted waste disposal areas under the same ownership on the same property intersect, the Director shall combine the compliance zones into one single compliance zone with a single compliance boundary.

(h) The permittee shall establish a monitoring program within the compliance zone per the requirements in Rule .0110 of this Section.

(i) Except as provided in Paragraph (m) of this Rule, no new water supply wells shall be constructed within the compliance zone of a disposal system individually permitted after January 1, 1993.

(j) Except as provided in Paragraph (m) of this Rule, if the land within an established compliance zone of a disposal system permitted after January 1, 1993 is transferred and that land is serviced by a community water system as regulated under 15A NCAC 18C, the source of which is located outside the compliance boundary, the deed shall contain notice of the permit, including the permit number, a description of the type of permit, and the name, address and telephone number of the permitting agency.

(k) Except as provided in Paragraph (m) of this Rule, if at the time a permit is issued after January 1, 1993, the permittee is not the owner of the land within the compliance zone, it shall be a condition of the permit issued or renewed that the landowner of the land within the compliance zone, if other than the permittee, execute and file in the Register of Deeds in the county in which the land is located, an easement running with the land that contains either a notice of the permit, including the permit number, a description of the type of permit, and the name, address and telephone number of the permitting agency; or a reference to a notice of the permit with book and page number of its recordation if such notice is required to be filed by statute. The Director shall, upon request by the landowner, file a document terminating the easement with the appropriate Register of Deeds once the following conditions have been met:

(1) all required groundwater remediation has been completed;

(2) groundwater monitoring is no longer required per Rule .0110(f) of this Section; and

(3) monitoring wells have been abandoned in accordance with 15A NCAC 02C .0113.

(l) Any sale or transfer of property which affects a compliance boundary shall be reported to the Director within seven days of the final sale or transfer. For disposal systems which are not governed by Paragraphs (j) or (k) of this Rule, the compliance boundary affected by the sale or transfer of property shall be reestablished consistent with this Rule.
(m) For ground adsorption sewage treatment and disposal systems serving four or fewer single family dwellings or multiunit dwellings of four or fewer units regulated under 15A NCAC 02T .0600, the requirements of Paragraphs (i). (j), and (k) of this Rule shall not be applicable.
(n) For ground absorption sewage treatment and disposal systems which are regulated under 15A NCAC 02T .0600, the compliance boundary shall be established at the property boundary.
(o) Penalties authorized pursuant to G.S. 143-215.6A(a)(1) shall not be assessed for violations of the standards within a compliance zone unless the violations are of permit conditions or negligence in the management of the facility.
(p) The Director shall require that exceedances of the standards resulting from activities conducted by the permitted facility within the compliance zone be remedied through clean-up, recovery, containment, facility design, or operational control if any of the following occur:

(1) A violation of the standards occurs or is expected through professional judgment or predicted through modeling to occur in groundwater at or beyond the compliance boundary as a result of the permitted activities.
(2) A violation of the surface water standards established under 15A NCAC 02B .0200 occurs or is expected through professional judgment or predicted through modeling to occur as a result of the permitted activities.
(3) An imminent hazard as defined in G.S. 130A-2 exists.
(4) An exceedance of the standards occurs in bedrock within the compliance zone as a result of the permitted activities, unless it can be demonstrated that the violation will not adversely affect any receptor.

History Note: *Authority G.S. 143-215.1; 143-215.3(a)(1); 143B-282;*
Eff. August 1, 1989;
Amended Eff. October 1, 1993; November 2, 1992;
Readopted Eff. June 1, 2022.

15A NCAC 02L .0108 REVIEW BOUNDARY
A review boundary is established around any waste disposal area half way between the compliance boundary and the waste boundary. When the concentration of any substance equals or exceeds the standard at the review boundary as determined by monitoring, the permittee shall be required to take action in accordance with the provisions of Rule .0106(d) of this Section.

History Note: *Authority G.S. 143-215.1(b); 143-215.3(a)(1); 143B-282;*
Eff. August 1, 1989;
Readopted Eff. June 1, 2022.

15A NCAC 02L .0109 DELEGATION
(a) The Director is delegated the authority to enter into consent special orders under G.S. 143-215.2 for violations of the standards except when a public meeting is required as provided in 15A NCAC 02H .1203.
(b) The Director is delegated the authority to prepare a proposed special order to be issued by the Commission without the consent of the person affected and to notify the affected person of that proposed order and of the procedure set out in G.S. 150B-23 to contest the proposed special order.
(c) The Director shall give public notice of proposed consent special orders as specified in 15A NCAC 02H .1203.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.3(a)(4);*
Eff. August 1, 1989;
Amended Eff. October 1, 1993; October 1, 1990;
Readopted Eff. June 1, 2022.

15A NCAC 02L .0110 MONITORING

(a) Except where exempted by statute or this Subchapter, the Director may require any person who causes, permits, or has control over any discharge of waste or cleanup program, to implement a monitoring program in such detail as required to evaluate the effects of the discharge upon the environment or waters of the State, including the effect of any actions taken to restore groundwater quality, as well as the efficiency of any treatment facility. The Director shall consider information including the geologic and hydrogeologic conditions, potential receptors, and risks to public health and the environment in determining the nature and extent of any required monitoring program. The monitoring program plan shall be prepared under the charge of a professional engineer or licensed geologist and bear the seal of the same if required under G.S. 89C or G.S. 89E.
(b) Monitoring systems within the monitoring program shall be constructed and operated in a manner that will not result in the contamination of waters of the State.
(c) The Director may require modification of a monitoring program or system or require additional monitoring of a contaminant or constituent of interest if new information indicates such modification or additional monitoring is necessary to protect public health or the environment.
(d) Monitoring systems within the monitoring program shall be able to:

(1) Track the migration, degradation, and attenuation of contaminants and contaminant by-products from the source area through a point of compliance such as a compliance boundary (if applicable), within a contaminant plume, and in areas where the contaminant plume is expected through professional judgment or predicted through modeling to migrate.
(2) Be used to determine the background groundwater quality that is not affected by site conditions, actions, or activities.
(3) Detect contaminants and contaminant by-products prior to their reaching any potential receptor.
(4) Detect if a groundwater contaminant plume is causing or contributing to exceedances of the surface water standards established under 15A NCAC 02B .0200.

(e) Monitoring shall be conducted and results reported in a manner and at a frequency specified by the Director based on information including the geologic and hydrogeologic conditions, potential receptors, and risks to public health and the environment.
(f) Monitoring programs shall remain in effect until it is demonstrated that the contaminant concentrations resulting from site activities or actions have been reduced to a level at or below the standards for a minimum of four consecutive quarters with monitoring events spaced at least three months apart. The Director may require an extension of monitoring if the Director determines that concentrations are fluctuating at or near the standards or the data trends suggest that concentrations are increasing. Once the Director is satisfied that the concentrations are at or below standards or that corrective action is no longer necessary to ensure compliance with the Rules of this Subchapter, the Director shall furnish a letter stating that no further action is required. The Director shall also require a plan be submitted for maintaining or abandoning the monitoring wells in accordance with 15A NCAC 02C .0100.

History Note: *Authority G.S. 143-215.1(b); 143-215.3(a)(1); 143-215.65; 143-215.66; 143B-282;*
Eff. August 1, 1989;
Amended Eff. October 1, 1993;
Readopted Eff. June 1, 2022.

15A NCAC 02L .0111 REPORTS

(a) Any person subject to the requirements in Rule .0106 of this Section shall submit to the Director, plans or reports including those associated with initial response, site assessment, and corrective action. Reports shall be submitted in accordance with a schedule established by the Director. In establishing a schedule, the Director shall consider a proposal by the person submitting the plan or report.
(b) A site assessment conducted pursuant to the requirements of Paragraphs (c) or (e) in Rule .0106 of this Section shall include:

(1) a description of the site including current and historical operations at the facility and all current and historical waste streams;
(2) the source and cause of contamination;
(3) any imminent hazards to public health and any actions taken to mitigate them;
(4) a description of the initial response actions taken in accordance with Rule .0106(f) of this Section;
(5) all potential receptors and expected exposure pathways;
(6) the horizontal and vertical extent of soil and groundwater contamination and all significant factors affecting contaminant transport;

(7) background threshold values for affected media;
(8) geological and hydrogeological features influencing the movement, chemical, and physical character of the contaminants;
(9) the nature and extent of any surface water or sediment contamination resulting from interactions with contaminated soil or groundwater;
(10) a description of the sampling procedures followed, and methods of chemical analyses used;
(11) all technical data utilized in support of any interpretations, conclusions, determinations, or evaluations made; and
(12) the results of predictive calculations or modeling, including a copy of the calculations or model runs and all supporting technical data.

(c) Corrective action plans submitted pursuant to Paragraphs (c) or (e) in Rule .0106 of this Section for active remediation shall include:

(1) a summary of the results of the site assessment submitted in accordance with Paragraph (b) of this Rule;
(2) the technical basis for the requested corrective action;
(3) an evaluation of risk to receptors within the contaminant plume and in areas where the plume is expected through professional judgment or predicted through modeling to migrate;
(4) an evaluation of projected groundwater use within 1,500 feet of the predicted impacted area based on current State or local government planning efforts;
(5) a summary of the available technology that could feasibly be used as a potential remedial strategy based on the specific site conditions and nature and extent of the contamination that includes the predicted time to return to compliance with the standards and the estimated costs to implement each potential strategy;
(6) the proposed remedial technology that the person proposes to implement that includes:
    (A) the rationale for selecting the proposed technology;
    (B) plans and specifications, including engineering details;
    (C) a schedule for implementation and operation of the technology;
    (D) the predicted time to return to compliance with the standards;
    (E) the estimated costs to implement and operate the technology;
    (F) a monitoring plan to evaluate the effectiveness of the technology; and
    (G) the results of any modeling or predictive calculations that shows the projected movement of the contaminant plume until the predicted time to return to compliance with the standards;
(7) all technical data utilized in support of any interpretations, conclusions, determinations, or evaluations made;
(8) a copy of the calculations or model runs and all supporting technical data; and
(9) a demonstration that:
    (A) all necessary access agreements needed to monitor groundwater quality have been or can be obtained; and
    (B) the proposed corrective action plan would be consistent with all other environmental laws.

(d) Corrective action plans submitted pursuant to Paragraphs (c) or (e) in Rule .0106 of this Section for natural attenuation shall include:

(1) a summary of the results of the site assessment submitted in accordance with Paragraph (b) of this Rule;
(2) the technical basis for the requested corrective action;
(3) an evaluation of risk to receptors within the contaminant plume and in areas where the plume is expected through professional judgment or predicted through modeling to migrate;
(4) an evaluation of projected groundwater use within 1,500 feet of the predicted impacted area based on current State or local government planning efforts;
(5) the predicted time to return to compliance with the standards;
(6) the results of any modeling or predictive calculations that show the projected movement of the contaminant plume until the predicted time to return to compliance with the standards;
(7) all technical data utilized in support of any interpretations, conclusions, determinations, or evaluations made;
(8) a copy of the calculations or model runs and all supporting technical data;

(9) a monitoring plan to evaluate the effectiveness of the natural attenuation; and
(10) a demonstration that:
(A) all sources of contamination and free product have been removed or controlled pursuant to Rule .0106(f) of this Section;
(B) the contaminant has the capacity to degrade or attenuate under the site-specific conditions;
(C) the time and direction of contaminant travel can be predicted based on subsurface conditions and the contaminant's physical and chemical properties;
(D) contaminant migration will not result in any violation of applicable standards at any existing or potential receptor;
(E) contaminants have not and will not migrate onto adjacent properties, or that:
(i) such properties are served by an existing public water supply system dependent on surface waters or hydraulically isolated groundwater; or
(ii) the owners of such properties have consented in writing to the request;
(F) if the contaminant plume is expected through professional judgment or predicted through modeling to intercept surface waters, the groundwater discharge will not possess contaminant concentrations that would result in violations of the surface water standards established under 15A NCAC 02B .0200;
(G) all necessary access agreements needed to monitor groundwater quality have been or can be obtained;
(H) public notice of the request has been provided in accordance with Rule .0114(b) and (c) of this Section; and
(I) the proposed corrective action plan would be consistent with all other environmental laws.

(e) All reports and plans shall be prepared under the charge of a professional engineer, licensed soil scientist, or licensed geologist if required under G.S. 89C, G.S. 89E, or G.S. 89F.

History Note: *Authority G.S. 143-215.1(b); 143-215.3(a)(1); 143-215.65; 143B-282;*
Eff. August 1, 1989;
Amended Eff. October 1, 1993;
Readopted Eff. June 1, 2022.

15A NCAC 02L .0112 ANALYTICAL PROCEDURES

Tests or analytical procedures to determine compliance or noncompliance with the standards established in Rule .0202 of this Subchapter shall be in accordance with 15A NCAC 02H .0805(a)(1).

History Note: *Authority G.S. 143-215.3(a)(1); 143B-282;*
Eff. August 1, 1989;
Amended Eff. October 1, 1993;
Readopted Eff. June 1, 2022.

15A NCAC 02L .0113 VARIANCE

(a) The Commission, on its own initiative or pursuant to a request under G.S. 143-215.3(e), may grant variances to the rules of this Subchapter.
(b) Requests for variances are submitted by the applicant to the Commission. The application shall be submitted in writing to the chairman of the Commission in care of the Director.
(c) The application shall contain the following information:
(1) Applications filed by counties or municipalities shall include a resolution of the County Board of Commissioners or the governing board of the municipality requesting the variance.
(2) A description of the past, existing, or proposed activities or operations that have or would result in a discharge of contaminants to the groundwaters.
(3) Description of the proposed area for which a variance is requested. A location map showing the orientation of the facility, potential for groundwater contaminant migration, as well as the area covered by the variance request, with reference to at least two geographic references including numbered roads, named streams/rivers, etc. shall be included.

(4) Supporting information to establish that the variance will not endanger the public health, including health and environmental effects from exposure to groundwater contaminants. Location of wells and other water supply sources including details of well construction, if known, within 1/2 mile of site shall be shown on a map.

(5) Supporting information to establish that requirements of this Rule cannot be achieved by providing the best available technology economically reasonable. This information shall identify specific technology considered, the costs of implementing the technology, and the impact of the costs on the applicant.

(6) Supporting information to establish that compliance would produce serious financial hardship on the applicant.

(7) Supporting information that compliance would produce serious financial hardship without equal or greater public benefit.

(8) A copy of any Special Order that was issued in connection with contaminants in the proposed area and supporting information that applicant has complied with the Special Order.

(9) A list of the names and addresses of any property owners within the proposed area of the variance, as well as property owners adjacent to the site covered by the variance.

(d) Upon receipt of the application, the Director shall review it for completeness and request additional information if incomplete. When the application is complete, the Director shall give public notice of the application and schedule the matter for a public hearing in accordance with G.S. 143-215.4(b) and the procedures set out in Paragraph (e) of this Rule.

(e) Notice of Public Hearing:

(1) Notice of public hearing on any variance application shall be circulated in the geographical areas of the proposed variance. At least 20 days prior to the date of the hearing, the Director shall:

(A) publish the notice one time in a newspaper having general circulation in said county;

(B) submit the notice to the North Carolina Department of Health and Human Services, Environmental Health Section and appropriate local health director;

(C) submit the notice to any other federal, state or local agency upon request;

(D) submit the notice to the local governmental unit or units having jurisdiction over the geographic area covered by the variance;

(E) submit the notice to any property owner within the proposed area of the variance, as well as any property owners adjacent to the site covered by the variance;

(F) submit the notice to any person or group upon request; and

(G) post the notice on the Department website.

(2) The contents of public notice of any hearing shall include the following:

(A) name, address, and phone number of agency holding the public hearing;

(B) name and address of each applicant whose application will be considered at the meeting;

(C) a brief summary of the variance request;

(D) a geographic description of a proposed area for which a variance is requested;

(E) a brief description of activities or operations which have or will result in the discharge of contaminants to the waters of the State described in the variance application;

(F) a brief reference to the public notice issued for each variance application;

(G) information regarding the time and location for the hearing;

(H) the purpose of the hearing;

(I) the address and phone number of premises at which interested persons may obtain further information, request a copy of each application, and inspect and copy forms and related documents; and

(J) a brief description of the nature of the hearing including the rules and procedures to be followed. The notice shall also state that additional information is on file with the Director and may be inspected at any time during normal working hours. Copies of the information on file will be made available upon request and payment of cost or reproduction.

(f) All comments received within 30 days following the date of publication in the newspaper in Part (e)(1)(A) of this Rule shall be made part of the application file and shall be considered by the Commission prior to taking final action on the application.

(g) In determining whether to grant a variance, the Commission shall consider whether the applicant has complied with any Special Order or Special Order by Consent issued under G.S. 143-215.2.

(h) The applicant may file a petition for a contested case in accordance with Chapter 150B of the General Statutes. If the petition is not filed within 60 days, the decision on the variance shall be final and binding.
(i) A variance shall not operate as a defense to an action at law based upon a public or private nuisance theory or any other cause of action.

History Note: *Authority G.S. 143-215.3(a)(1); 143-215.3(a)(3); 143-215.3(a)(4); 143-215.3(e); 143-215.4;*
Eff. August 1, 1989;
Amended Eff. October 1, 1993;
Readopted Eff. June 1, 2022.

15A NCAC 02L .0114 NOTIFICATION REQUIREMENTS

(a) Any person subject to the requirements of Rule .0106(c) or (e) of this Section shall submit to the local health director and the chief administrative officer of the jurisdictions in which the groundwater contamination has occurred, a copy of the site assessment report as required by Rule .0111(b) of this Section.
(b) Any person who submits a request under Rule .0106(g) or (h) of this Section shall notify the local health director and the chief administrative officer of the jurisdictions in which the contaminant plume occurs, and all property owners and occupants within or contiguous to the area underlain by the contaminant plume, and under the areas where it is predicted through modeling or expected through professional judgment to migrate, a summary of the request and reasons supporting it. Notification shall be made by certified mail concurrent with the submittal of the request to the Director. Individuals interested in the request may submit written comments to the Director within 30 days of the receipt of the notification. The Director shall issue a final decision after considering the written comments.
(c) Any person whose request under Rule .0106(g) or (h) of this Section is granted by the Director shall notify parties specified in Paragraph (b) of this Rule of the Director's decision and a summary of the actions to be taken. Notification shall be made by certified mail within 30 days of receipt of the Director's decision.

History Note: *Authority G.S. 143-214.1; 143-215.3(a)(1); 143B-282(a)(2)(c);*
Eff. October 1, 1993;
Readopted Eff. June 1, 2022.

15A NCAC 02L .0115 RISK-BASED ASSESSMENT AND CORRECTIVE ACTION FOR PETROLEUM UNDERGROUND STORAGE TANKS

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Temporary Adoption Eff. January 2, 1998;
Eff. October 29, 1998;
Recodified to 15A NCAC 02L .0400 Eff. December 1, 2005.

SECTION .0200 - CLASSIFICATIONS AND GROUNDWATER QUALITY STANDARDS

15A NCAC 02L .0201 GROUNDWATER CLASSIFICATIONS

The classifications which may be assigned to the groundwaters will be those specified in the following series of classifications:

(1) Class GA groundwaters; usage and occurrence:
  (a) Best Usage. Existing or potential source of drinking water supply for humans.
  (b) Conditions Related to Best Usage. This class is intended for those groundwaters in which chloride concentrations are equal to or less than 250 mg/l, and which are considered suitable for drinking in their natural state, but which may require treatment to improve quality related to natural conditions.
  (c) Occurrence. In the saturated zone.
(2) Class GSA groundwaters; usage and occurrence:
  (a) Best Usage. Existing or potential source of water supply for potable mineral water and conversion to fresh waters.
  (b) Conditions Related to Best Usage. This class is intended for those groundwaters in which the chloride concentrations due to natural conditions is in excess of 250 mg/l, but which

otherwise may be considered suitable for use as potable water after treatment to reduce concentrations of naturally occurring substances.

(c) Occurrence. In the saturated zone.

(3) Class GC groundwaters: usage and occurrence:

(a) Best Usage. The best usage of GC groundwaters is as a source of water supply for purposes other than drinking, including other domestic uses by humans.

(b) Conditions Related to Best Usage. This class includes those groundwaters that do not meet the quality criteria for GA or GSA groundwaters and for which efforts to improve groundwater quality would not be technologically feasible, or not in the best interest of the public. Continued consumption of waters of this class by humans could result in adverse health affects.

(c) Occurrence. Groundwaters of this class may be defined by the Commission pursuant to Section .0300 of this Subchapter on a case by case basis.

History Note: *Authority G.S. 143-214.1; 143B-282(2);*
Eff. June 10, 1979;
Amended Eff. October 1, 1993; August 1, 1989; September 1, 1984; December 30, 1983;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 02L .0202 GROUNDWATER QUALITY STANDARDS

(a) The groundwater quality standards for the protection of the groundwaters of the State are those specified in this Rule. They are the maximum allowable concentrations resulting from any discharge of contaminants to the land or waters of the State, which may be tolerated without creating a threat to human health or which would otherwise render the groundwater unsuitable for its intended best usage.

(b) The groundwater quality standards for contaminants specified in Paragraphs (h) and (i) of this Rule are as listed, except that:

(1) Where the standard for a substance is less than the practical quantitation limit, the detection of that substance at or above the practical quantitation limit constitutes a violation of the standard. The practical quantitation limit, defined in Rule .0102 of this Subchapter, is a scientific standard pursuant to G.S. 150B-2(8a)(h).

(2) Where two or more substances exist in combination, the Director shall consider the effects of chemical interactions after consulting with the Division of Public Health and may establish maximum concentrations at values less than those established in accordance with Paragraphs (c), (h), or (i) of this Rule, based on additive toxic effects. In the absence of information to the contrary, in accordance with Paragraph (d) of this Rule, the carcinogenic risks associated with carcinogens present shall be considered additive and the toxic effects associated with non-carcinogens present shall also be considered additive.

(3) Where naturally occurring substances exceed the established standard, the standard shall be the naturally occurring concentration as established by the Director based upon site-specific conditions.

(4) Where the groundwater standard for a substance is greater than the Maximum Contaminant Level (MCL), the Director shall apply the MCL as the groundwater standard at any private drinking water well or public water system well that may be impacted.

(c) Except for tracers, the use of which has been permitted by the Division in 15A NCAC 02C .0200, substances that are not naturally occurring and for which no standard is specified in Paragraphs (h) or (i) of this Rule shall not be permitted in concentrations at or above the practical quantitation limit in Class GA or Class GSA groundwaters. Any person may request the Director of the Division of Water Resources modify this requirement by establishing an Interim Maximum Allowable Concentration (IMAC) in accordance with the specific guidelines listed in Subparagraphs (1)-(9) of this Paragraph. In addition, any person may request the Director of the Division of Water Resources to update or remove an existing IMAC in accordance with the specific guidelines listed in Subparagraphs (1)-(9) of this Paragraph. The requestor shall submit relevant toxicological and epidemiological data, study results, and calculations in accordance with Paragraphs (d) and (e) of this Rule. The specific guidelines are as follows:

(1) The Division shall review the request to determine whether the information submitted is in accordance with Paragraphs (d) and (e) of this Rule.

(2) If the information submitted is not in accordance with Paragraphs (d) and (e) of this Rule, the Director of the Division of Water Resources shall request additional information from the requester. If the requester does not provide the additional information necessary to be in accordance with Paragraphs (d) and (e) of this Rule, the Director of the Division of Water Resources shall return the request.

(3) If the information submitted is in accordance with Paragraphs (d) and (e) of this Rule, at least 30 days prior to establishing, updating, or removing an IMAC for any substance, the Division of Water Resources shall provide public notice and opportunity for comment that an IMAC has been requested to be established, updated, or removed. The public notice shall include:

(A) the request for the establishment, update, or removal of the IMAC for a substance,

(B) the level of the proposed IMAC, which is calculated by the Division of Water Resources in accordance with Paragraphs (d) and (e) of this Rule,

(C) if applicable the level of the existing IMAC, and

(D) the basis upon which the Division of Water Resources has relied in development of the proposed IMAC establishment, update, or removal.

This notice shall be emailed to interested parties and posted on the Division of Water Resources' website: https://deq.nc.gov/about/divisions/water-resources/water-planning/classification-standards/groundwater-imacs.

(4) If the Director of the Division of Water Resources finds the establishment, update or removal will not degrade the quality of the groundwaters, will not likely cause or contribute to pollution of the waters of the state, and will be protective of public health, then the Director shall establish, update or remove the IMAC. If the request does not meet the requirements listed in this Subparagraph, the Director of the Division of Water Resources shall return the request. The Director shall establish, update, or remove the IMAC or return the request within 180 calendar days of receipt of a request submitted in accordance with Paragraphs (d) and (e) of this Rule unless the requester agrees, in writing, to a longer period. Failure by the Director to establish, update or remove an IMAC or return the request within 180 days of receipt of a request submitted in accordance with Paragraphs (d) and (e) of this Rule shall be considered a return of the request.

(5) If the Director of the Division of Water Resources establishes or updates an IMAC, the IMAC shall be posted on the Division of Water Resource's website and the Commission shall be notified in writing within 30 calendar days and at the next regularly scheduled Commission meeting that a new IMAC has been established or an existing IMAC has been updated or removed.

(6) (A) Within 12 months of establishing an IMAC pursuant to this Paragraph, the Director of the Division of Water Resources shall make a recommendation to the Commission whether:

(i) a new groundwater standard in place of the IMAC should be established pursuant to this Rule; or

(ii) the IMAC should expire.

(B) After a recommendation is presented by the Director under Part (A) of this Subparagraph, the Commission shall decide whether rulemaking shall be initiated to adopt a new groundwater standard in place of the IMAC.

(C) If the Commission initiates rulemaking to adopt a new groundwater standard in place of the IMAC, then the IMAC shall remain in effect unless it expires under Subparagraph (7) of this Paragraph.

(7) An IMAC shall expire upon the earliest of:

(A) the date the Commission declines to initiate rulemaking to adopt a new groundwater standard in place of the IMAC under Part (B) of Subparagraph (c)(6);

(B) the effective date of a Rule adopted by the Commission establishing a new groundwater standard in place of the IMAC; or

(C) after initiating rulemaking pursuant to Part (C) of Subparagraph (c)(6), the date the Commission declines to adopt a new groundwater standard in place of the IMAC.

(8) For any IMAC that expires prior to the adoption by the Commission of a new groundwater standard in place of the IMAC, any person may request an IMAC be established again under this Paragraph based on new information in accordance with Paragraphs (d) and (e) of this Rule that was not included in the original IMAC request to the Director or new site information that was not included in the original IMAC request to the Director.

(9) The Director of the Division of Water Resources shall provide an annual update to the Commission on the status of pending IMAC requests and any IMACs that have been established, updated or removed during the previous calendar year.

(d) Except as provided in Paragraph (f) of this Rule, groundwater quality standards for substances in Class GA and Class GSA groundwaters are established as the least of:

(1) Systemic threshold concentration calculated as follows: [Reference Dose (mg/kg/day) x 70 kg (adult body weight) x Relative Source Contribution (0.10 for inorganics; 0.20 for organics)] / [2 liters/day (avg. water consumption)];
(2) Concentration that corresponds to an incremental lifetime cancer risk of 1x10-6;
(3) Taste threshold limit value;
(4) Odor threshold limit value;
(5) Maximum contaminant level; or
(6) National secondary drinking water standard.

(e) The following references, in order of preference, shall be used in establishing concentrations of substances which correspond to levels described in Paragraph (d) of this Rule:

(1) Integrated Risk Information System (U.S. EPA);
(2) Health Advisories (U.S. EPA Office of Drinking Water);
(3) Other health risk assessment data published by the U.S. EPA; or
(4) Other relevant, published health risk assessment data, and scientifically valid peer-reviewed published toxicological data.

(f) The Commission may establish groundwater standards less stringent than existing maximum contaminant levels or national secondary drinking water standards if it finds, after public notice and opportunity for hearing in accordance with G.S. 150B, that:

(1) more recent data published in the EPA health references listed in Paragraph (e) of this Rule results in a standard that is protective of public health, taste threshold, or odor threshold;
(2) the standard will not endanger the public health and safety, including health and environmental effects from exposure to groundwater contaminants; and
(3) compliance with a standard based on the maximum contaminant level or national secondary drinking water standard would produce substantial hardship without equal or greater public benefit.

(g) Groundwater quality standards specified in Paragraphs (h) and (i) of this Rule shall be reviewed by the Division of Water Resources on a triennial basis to consider whether to recommend to the Commission that new or revised groundwater quality standards be adopted in accordance with Paragraphs (d) and (e) of this Rule.

(h) Class GA Standards. Unless otherwise indicated, the standard refers to the total concentration in micrograms per liter (µg/L) of any constituent in a dissolved, colloidal, or particulate form that is mobile in groundwater. These standards do not apply to sediment or other particulate matter that is preserved in a groundwater sample as a result of well construction or sampling procedures. The Class GA standards are:

Substance	Chemical Abstracts Service (CAS) Registry Number	Standard (µg/L)
Acenaphthene	83-32-9	80
Acenaphthylene	208-96-8	200
Acetic acid	64-19-7	5,000
Acetochlor	34256-82-1	100
Acetochlor ESA	187022-11-3	500
Acetochlor OXA	184992-44-4	500
Acetone	67-64-1	6,000
Acetophenone	98-86-2	700
Acrolein	107-02-8	4
Acrylamide	79-06-1	0.008
Alachlor	15972-60-8	2
Aldrin	309-00-2	0.002
Anthracene	120-12-7	2,000
Antimony	7440-36-0	1

Arsenic	7440-38-2	10
Atrazine and chlorotriazine metabolites	1912-24-9	3
Barium	7440-39-3	700
Benzene	71-43-2	1
Benzo(a)anthracene	56-55-3	0.05
Benzo(a)pyrene	50-32-8	0.005
Benzo(b)fluoranthene	205-99-2	0.05
Benzo(g,h,i)perylene	191-24-2	200
Benzo(k)fluoranthene	207-08-9	0.5
Benzoic acid	65-85-0	30,000
Benzyl alcohol	100-51-6	700
Beryllium	7440-41-7	4
Bis(chloroethyl)ether	111-44-4	0.03
Bis(2-ethylhexyl) phthalate	117-81-7	3
Boron	7440-42-8	700
Bromodichloromethane	75-27-4	0.6
Bromoform	75-25-2	4
Bromomethane	74-83-9	10
n-Butanol	71-36-3	590
sec-Butanol	78-92-2	10,000
n-Butylbenzene	104-51-8	70
sec-Butylbenzene	135-98-8	70
tert-Butylbenzene	98-06-6	70
Butylbenzyl phthalate	85-68-7	1,000
Cadmium	7440-43-9	2
Caprolactam	105-60-2	4,000
Carbofuran	1563-66-2	40
Carbon disulfide	75-15-0	700
Carbon tetrachloride	56-23-5	0.3
Chlordane	12789-03-6	0.1
Chloride	16887-00-6	250,000
Chlorobenzene	108-90-7	50
Chloroethane	75-00-3	3,000
Chloroform	67-66-3	70
Chloromethane	74-87-3	3
2-Chlorophenol	95-57-8	0.4
2-Chlorotoluene	95-49-8	100
4-Chlorotoluene	106-43-4	24
Chromium	7440-47-3	10
Chrysene	218-01-9	5
Cobalt	7440-48-4	1
Coliform organisms (total)	No CAS Registry Number	1 per 100 mL
Color	No CAS Registry Number	15 color units
Copper	7440-50-8	1,000
Cyanide (free cyanide)	57-12-5	70
2,4-D (2,4-dichlorophenoxy acetic acid)	94-75-7	70
Dalapon	75-99-0	200
DDD	72-54-8	0.1
DDE	72-55-9	0.1
DDT	50-29-3	0.1
Dibenz(a,h)anthracene	53-70-3	0.005
1,4-Dibromobenzene	106-37-6	70

Dibromochloromethane	124-48-1	0.4
1,2-Dibromo-3-chloropropane	96-12-8	0.04
Dibutyl phthalate	84-74-2	700
Dichloroacetic acid	79-43-6	0.7
1,2-Dichlorobenzene	95-50-1	20
1,3-Dichlorobenzene	541-73-1	200
1,4-Dichlorobenzene	106-46-7	6
Dichlorodifluoromethane	75-71-8	1,000
1,1-Dichloroethane	75-34-3	6
1,2-Dichloroethane	107-06-2	0.4
1,2-Dichloroethene (cis)	156-59-2	70
1,2-Dichloroethene (trans)	156-60-5	100
1,1-Dichloroethylene	75-35-4	350
2,4-Dichlorophenol	120-83-2	0.98
1,2-Dichloropropane	78-87-5	0.6
1,3-Dichloropropene (cis and trans isomers)	542-75-6	0.4
Dieldrin	60-57-1	0.002
Diethylphthalate	84-66-2	6,000
2,4-Dimethylphenol	105-67-9	100
2,4-Dinitrotoluene	121-14-2	0.05
2,6-Dinitrotoluene	606-20-2	0.05
Di-n-octyl phthalate	117-84-0	100
Dinoseb	88-85-7	7
1,4-Dioxane	123-91-1	3
Dioxin (2,3,7,8-TCDD)	1746-01-6	0.0002 ng/L
1,1-Diphenyl	92-52-4	400
Diphenyl ether	101-84-8	180
Diquat	85-00-7	20
Dissolved solids (total)	No CAS Registry Number	500,000
Disulfoton	298-04-4	0.3
Diundecyl phthalate (Santicizer 711)	3648-20-2	100
Endosulfan	115-29-7	40
Endosulfan sulfate	1031-07-8	40
Endothall	145-73-3	100
Endrin, total (includes endrin, endrin aldehyde, and endrin ketone)	72-20-8	2
Epichlorohydrin	106-89-8	4
Ethyl acetate	141-78-6	3,000
Ethylbenzene	100-41-4	600
Ethylene dibromide	106-93-4	0.02
Ethylene glycol	107-21-1	10,000
Fluoranthene	206-44-0	300
Fluorene	86-73-7	300
Fluoride	16984-48-8	2,000
Foaming agents	No CAS Registry Number	500
Formaldehyde	50-00-0	600
Gross alpha (adjusted) particle activity (excludes radium-226 and uranium)	12587-46-1	15 pCi/L
Heptachlor	76-44-8	0.008
Heptachlor epoxide	1024-57-3	0.004
Heptane	142-82-5	400
Hexachlorobenzene	118-74-1	0.02
Hexachlorobutadiene	87-68-3	0.4

Hexachlorocyclohexane isomers (technical grade)	608-73-1	0.02
alpha-Hexachlorocyclohexane	319-84-6	0.006
beta-Hexachlorocyclohexane	319-85-7	0.02
gamma-Hexachlorocyclohexane (Lindane)	58-89-9	0.03
n-Hexane	110-54-3	400
Indeno(1,2,3-cd)pyrene	193-39-5	0.05
Iron	7439-89-6	300
Isophorone	78-59-1	40
Isopropyl ether	108-20-3	70
Isopropylbenzene	98-82-8	70
4-Isopropyltoluene	99-87-6	25
Lead	7439-92-1	15
Manganese	7439-96-5	50
Mercury	7439-97-6	1
Methanol	67-56-1	4,000
Methoxychlor	72-43-5	40
Methylene chloride	75-09-2	5
Methyl butyl ketone	591-78-6	40
Methyl ethyl ketone	78-93-3	4,000
Methyl isobutyl ketone	108-10-1	100
Methyl methacrylate	80-62-6	25
1-Methylnapthalene	90-12-0	1
2-Methylnaphthalene	91-57-6	30
2-Methylphenol	95-48-7	400
3-Methylphenol	108-39-4	400
4-Methylphenol	106-44-5	40
Methyl tert-butyl ether (MTBE)	1634-04-4	20
Naphthalene	91-20-3	6
Nickel	7440-02-0	100
Nitrate (as N)	14797-55-8	10,000
Nitrite (as N)	14797-65-0	1,000
N-nitrosodimethylamine	62-75-9	0.0007
Oxamyl	23135-22-0	200
Pentachlorophenol	87-86-5	0.3
Petroleum aliphatic carbon fraction class (C5 – C8)	No CAS Registry Number	400
Petroleum aliphatic carbon fraction class (C9 – C18)	No CAS Registry Number	700
Petroleum aliphatic carbon fraction class (C19 – C36)	No CAS Registry Number	10,000
Petroleum aromatics carbon fraction class (C9 – C22)	No CAS Registry Number	200
pH	No CAS Registry Number	6.5 - 8.5 (no unit)
Phenanthrene	85-01-8	200
Phenol	108-95-2	30
Phorate	298-02-2	1
n-Propylbenzene	103-65-1	70
Propylene glycol	57-55-6	100,000
Pyrene	129-00-0	200
Selenium	7782-49-2	20
Silver	7440-22-4	20
Simazine	122-34-9	4
Strontium	7440-24-6	2,000
Styrene	100-42-5	70
Sulfate	14808-79-8	250,000
1,2,4,5-Tetrachlorobenzene	95-94-3	2

1,1,2,2-Tetrachloroethane	79-34-5	0.2
1,1,1,2-Tetrachloroethane	630-20-6	1
Tetrachloroethylene (PCE)	127-18-4	0.7
2,3,4,6-Tetrachlorophenol	58-90-2	200
Thallium	7440-28-0	2
Tin (inorganic forms)	7440-31-5	2,000
Toluene	108-88-3	600
Toxaphene	8001-35-2	0.03
2,4,5-TP (Silvex)	93-72-1	50
1,2,4-Trichlorobenzene	120-82-1	70
1,1,1-Trichloroethane	71-55-6	200
1,1,2-Trichloroethane	79-00-5	0.6
Trichloroethylene (TCE)	79-01-6	3
Trichlorofluoromethane	75-69-4	2,000
2,4,5-Trichlorophenol	95-95-4	63
2,4,6-Trichlorophenol	88-06-2	4
1,2,3-Trichloropropane	96-18-4	0.005
1,2,4-Trimethylbenzene	95-63-6	400
1,3,5-Trimethylbenzene	108-67-8	400
Vanadium	7440-62-2	7
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	200,000
Vinyl chloride	75-01-4	0.03
Xylenes	1330-20-7	500
Zinc	7440-66-6	1,000

(i) Class GSA Standards. The standards for this class are the same as those for Class GA except as follows:
- (1) chloride: allowable increase not to exceed 100 percent of the natural quality concentration; and
- (2) dissolved solids (total): 1,000,000 µg/L.

(j) Class GC Standards.
- (1) The concentrations of substances that, at the time of classification, exceed the standards applicable to Class GA or GSA groundwaters shall not be caused to increase, nor shall the concentrations of other substances be caused to exceed the GA or GSA standards as a result of further disposal of contaminants to or beneath the surface of the land within the boundary of the area classified GC.
- (2) The concentrations of substances that, at the time of classification, exceed the standards applicable to GA or GSA groundwaters shall not be caused to migrate as a result of activities within the boundary of the GC classification, so as to violate the groundwater or surface water quality standards in adjoining waters of a different class.
- (3) Concentrations of specific substances, that exceed the established standard at the time of classification, are listed in Section .0300 of this Subchapter.

History Note: *Authority G.S. 143-214.1; 143-214.2; 143-215.3(a)(1); 143-215.3(a)(4); 143B-282(a)(2); 150B-2(8a)(h); 150B-19(6);*
Eff. June 10, 1979;
Amended Eff. November 1, 1994; October 1, 1993; September 1, 1992; August 1, 1989;
Temporary Amendment Eff. June 30, 2002;
Amended Eff. August 1, 2002;
Temporary Amendment Expired February 9, 2003;
Amended Eff. April 1, 2013; January 1, 2010; April 1, 2005;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018;
Amended Eff. April 1, 2022.

SECTION .0300 - ASSIGNMENT OF UNDERGROUND WATER CLASSIFICATIONS

15A NCAC 02L .0301 CLASSIFICATIONS: GENERAL

(a) Schedule of Classifications. The classifications are based on the quality, occurrence and existing or contemplated best usage of the groundwaters as established in Section .0200 of this Subchapter and are assigned statewide except where supplemented or supplanted by specific classification assignments by major river basins.

(b) Classifications and Water Quality Standards. The classifications and standards assigned to the groundwaters are denoted by the letters GA, GSA, or GC. These classifications refer to the classifications and standards established by Rule .0201 of this Subchapter.

History Note: *Authority G.S. 143-214.1; 143B-282(2);*
Eff. December 30, 1983;
Amended Eff. August 1, 1989;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 02L .0302 STATEWIDE

The classifications assigned to the groundwaters located within the boundaries or under the extraterritorial jurisdiction of the State of North Carolina are:

(1) Class GA Waters. Those groundwaters in the state naturally containing 250 mg/l or less of chloride are classified GA.

(2) Class GSA Waters. Those groundwaters in the state naturally containing greater than 250 mg/l chloride are classified GSA.

(3) Class GC Waters. Those groundwaters assigned the classification GC in Rules .0303 - .0318 of this Section.

History Note: *Authority G.S. 143-214.1; 143B-282(2);*
Eff. December 30, 1983;
Amended Eff. August 1, 1989;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 02L .0303 BROAD RIVER BASIN

No classification assignments other than those specified in Rule .0302 are made for the river basin.

History Note: *Authority G.S. 143-214.1;*
Eff. December 30, 1983;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 02L .0304 CAPE FEAR RIVER BASIN

No classification assignments other than those specified in Rule .0302 are made for the river basin.

History Note: *Authority G.S. 143-214.1;*
Eff. December 30, 1983;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 02L .0305 CATAWBA RIVER BASIN

No classification assignments other than those specified in Rule .0302 are made for the river basin.

History Note: *Authority G.S. 143-214.1;*
Eff. December 30, 1983;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 02L .0306 CHOWAN RIVER BASIN

No classification assignments other than those specified in Rule .0302 are made for the river basin.

History Note: *Authority G.S. 143-214.1;*
Eff. December 30, 1983;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 02L .0307 FRENCH BROAD RIVER BASIN
No classification assignments other than those specified in Rule .0302 are made for the river basin.

History Note: *Authority G.S. 143-214.1;*
Eff. December 30, 1983;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 02L .0308 HIWASSEE RIVER BASIN
No classification assignments other than those specified in Rule .0302 are made for the river basin.

History Note: *Authority G.S. 143-214.1;*
Eff. December 30, 1983;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 02L .0309 LITTLE TENNESSEE RIVER BASIN
No classification assignments other than those specified in Rule .0302 are made for the river basin.

History Note: *Authority G.S. 143-214.1;*
Eff. December 30, 1983;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 02L .0310 SAVANNAH RIVER BASIN
No classification assignments other than those specified in Rule .0302 are made for the river basin.

History Note: *Authority G.S. 143-214.1;*
Eff. December 30, 1983;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 02L .0311 LUMBER RIVER BASIN
No classification assignments other than those specified in Rule .0302 are made for the river basin.

History Note: *Authority G.S. 143-214.1;*
Eff. December 30, 1983;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 02L .0312 NEUSE RIVER BASIN
No classification assignments other than those specified in Rule .0302 are made for the river basin.

History Note: *Authority G.S. 143-214.1;*
Eff. December 30, 1983;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 02L .0313 NEW-WATAUGA RIVER BASIN
No classification assignments other than those specified in Rule .0302 are made for the river basin.

History Note: *Authority G.S. 143-214.1;*
Eff. December 30, 1983;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 02L .0314 PASQUOTANK RIVER BASIN
No classification assignments other than those specified in Rule .0302 are made for the river basin.

History Note: *Authority G.S. 143-214.1;*
Eff. December 30, 1983;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 02L .0315 ROANOKE RIVER BASIN
No classification assignments other than those specified in Rule .0302 are made for the river basin.

History Note: *Authority G.S. 143-214.1;*
Eff. December 30, 1983;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 02L .0316 TAR PAMLICO RIVER BASIN
No classification assignments other than those specified in Rule .0302 are made for the river basin.

History Note: *Authority G.S. 143-214.1;*
Eff. December 30, 1983;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 02L .0317 WHITE OAK RIVER BASIN
No classification assignments other than those specified in Rule .0302 are made for the river basin.

History Note: *Authority G.S. 143-214.1;*
Eff. December 30, 1983;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 02L .0318 YADKIN-PEE DEE RIVER BASIN
No classification assignments other than those specified in Rule .0302 are made for the river basin.

History Note: *Authority G.S. 143-214.1;*
Eff. December 30, 1983;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

15A NCAC 02L .0319 RECLASSIFICATION
The groundwater classifications as assigned may be revised by the Commission following public notice and subsequent public hearing. Changes may be to a higher or lower classification. Reclassification requests may be submitted to the Director.

History Note: *Authority G.S. 143-214.1; 143-215.3(e); 143B-282(2);*
Eff. December 30, 1983;
Amended Eff. August 1, 1989;
Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018.

SECTION .0400 - RISK-BASED ASSESSMENT AND CORRECTIVE ACTION FOR PETROLEUM UNDERGROUND STORAGE TANKS

15A NCAC 02L .0401 PURPOSE

(a) The purpose of this Section is to establish procedures for risk-based assessment and corrective action sufficient to:

(1) protect human health and the environment;
(2) abate and control contamination of the waters of the State as deemed necessary to protect human health and the environment;
(3) permit management of the State's groundwaters to protect their designated current usage and potential future uses;
(4) provide for anticipated future uses of the State's groundwater;
(5) recognize the diversity of contaminants, the State's geology and the characteristics of each individual site; and
(6) accomplish these goals in a cost-efficient manner to assure the best use of the limited resources available to address groundwater pollution within the State.

(b) Section .0100 of this Subchapter shall apply to this Section unless specifically excluded.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(a);
Amended Eff. December 1, 2005;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0402 DEFINITIONS

The definitions as set out in Rule .0102 of this Subchapter shall apply to this Section.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Eff. December 1, 2005;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0403 RULE APPLICATION

This Section shall apply to any discharge or release from a "commercial underground storage tank" or a "noncommercial underground storage tank," as those terms are defined in G.S. 143-215.94A, that is reported on or after January 2, 1998. The requirements of this Section shall apply to the owner and operator of the underground storage tank from which the discharge or release occurred, a landowner seeking reimbursement from the Commercial Leaking Underground Storage Tank Fund or the Noncommercial Leaking Underground Storage Tank Fund under G.S. 143-215.94E, and any other person responsible for the assessment or cleanup of a discharge or release from an underground storage tank, including any person who has conducted or controlled an activity that results in the discharge or release of petroleum or petroleum products as defined in G.S. 143-215.94A(10) to the groundwaters of the State or in proximity thereto; these persons shall be collectively referred to for purposes of this Section as the "responsible party." This Section shall be applied in a manner consistent with the rules found in 15A NCAC 02N in order to assure that the State's requirements regarding assessment and cleanup from underground storage tanks are no less stringent than Federal requirements.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(b);
Amended Eff. December 1, 2005;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0404 REQUIRED INITIAL ABATEMENT ACTIONS BY RESPONSIBLE PARTY

(a) Upon a discharge or release of petroleum from a commercial underground storage tank the responsible party shall:

(1) take action to prevent all further discharge or release of petroleum from the underground storage tank; identify and mitigate all fire, explosion, and vapor hazards; remove any free product; and comply with the requirements of 15A NCAC 02N .0601 through .0604, .0701 through .0703, and .0705 within 24 hours of discovery;

(2) incorporate the requirements of 15A NCAC 02N .0704 into the submittal required under Subparagraph (3) of this Paragraph or the limited site assessment report required under Rule .0405 of this Section, whichever is applicable. The submittals shall constitute compliance with the reporting requirements of 15A NCAC 02N .0704(b); and

(3) submit within 90 days of the discovery of the discharge or release a soil contamination report containing information sufficient to show that remaining unsaturated soil in the side walls and at the base of the excavation does not contain contaminant levels that exceed either the "soil-to-groundwater" or the residential maximum soil contaminant concentrations established by the Department pursuant to Rule .0411 of this Section, whichever is lower. If the showing is made, the discharge or release shall be classified as low risk by the Department as defined in Rules .0406 and .0407 of this Section.

(b) Upon a discharge or release of petroleum from a noncommercial underground storage tank the responsible party shall:

(1) take necessary actions to protect public health, safety, and welfare and the environment, including actions to prevent all further discharge or release of petroleum from the noncommercial underground storage tank; identify and mitigate all fire, explosion, and vapor hazards; and report the release within 24 hours of discovery, in compliance with G.S. 143-215.83(a), G.S. 143-215.84(a), G.S. 143-215.85(b), and G.S. 143-215.94E; and

(2) provide or otherwise make available any information required by the Department to determine the site risk as described in Rules .0405, .0406, and .0407 of this Section.

(c) The Department shall notify the responsible party for a discharge or release of petroleum from a noncommercial underground storage tank that no cleanup, no further cleanup, or no further action shall be required without additional soil remediation pursuant to Rule .0408 of this Section if the site is determined by the Department to be low risk. This classification is based on information provided to the Department that:

(1) describes the source and type of the petroleum release, site-specific risk factors, and risk factors present in the surrounding area as defined in Rules .0406 and .0407 of this Section;

(2) demonstrates that no remaining risk factors are present that are likely to be affected per G.S. 143-215.94V(b); or

(3) documents that soils remaining onsite do not contain contaminant levels that exceed either the "soil-to-groundwater" or the residential maximum soil contaminant concentrations established by the Department pursuant to Rule .0411 of this Section, whichever is lower.

The Department shall reclassify the site as high risk, as defined in Rule .0406(1) of this Section, upon receipt of new information related to site conditions indicating that the discharge or release from a noncommercial underground storage tank poses an unacceptable risk or a potentially unacceptable risk to human health or the environment, as described in Rule .0407 of this Section.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(c)(1)-(3);
Amended Eff. December 1, 2005;
Temporary Amendment Eff. September 29, 2017;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0405 REQUIREMENTS FOR LIMITED SITE ASSESSMENT

(a) If the required showing for a commercial underground storage tank cannot be made or if the Department determines that a release from a noncommercial underground storage tank represents an unacceptable risk under Rule .0404 of this Section, the responsible party shall submit within 120 days of the discovery of the discharge or release, a report containing information needed by the Department to classify the level of risk to human health and the environment posed by a discharge or release under Rule .0406 of this Section.

(b) The responsible party may submit a written request for an extension to the 120 day deadline set forth in Paragraph (a) of this Rule to the Department for the Department's consideration prior to the deadline. The request for deadline extension by the responsible party shall demonstrate that the extension, if granted by the Department,

would not increase the risk posed by the release. When considering a request from a responsible party for additional time to submit the report, the Department shall consider the following:

(1) the extent to which the request for additional time is due to factors outside of the control of the responsible party;

(2) the previous history of the person submitting the report in complying with deadlines established under the Commission's rules;

(3) the technical complications associated with assessing the extent of contamination at the site or identifying potential receptors; and

(4) the necessity for action to eliminate an imminent threat to public health or the environment.

(c) The report shall include:

(1) a location map, based on a USGS topographic map, showing the radius of 1500 feet from the source area of a confirmed release or discharge and depicting all water supply wells, surface waters, and designated wellhead protection areas as defined in 42 U.S.C. 300h-7(e) within the 1500-foot radius. 42 U.S.C. 300h-7(e), is incorporated by reference including subsequent amendments and editions. Copies may be obtained at no cost from the U.S. Government Bookstore's website at http://www.gpo.gov/fdsys/pkg/USCODE-2010-title42/html/USCODE-2010-title42-chap6A-subchapXII-partC-sec300h-7.htm. The material is available for inspection at the Department of Environmental Quality, UST Section, 217 West Jones Street, Raleigh, NC 27603. For purposes of this Section, "source area" means the point of release or discharge from the underground storage tank system;

(2) a determination of whether the source area of the discharge or release is within a designated wellhead protection area as defined in 42 U.S.C. 300h-7(e);

(3) if the discharge or release is in the Coastal Plain physiographic region as designated on a map entitled "Geology of North Carolina" published by the Department in 1985, incorporated by reference including subsequent amendments or editions and may be obtained electronically free of charge from the Department's website at https://deq.nc.gov/about/divisions/energy-mineral-land-resources/north-carolina-geological-survey/ncgs-maps/1985-geologic-map-of-nc, a determination of whether the source area of the discharge or release is located in an area in which there is recharge to an unconfined or semi-confined deeper aquifer that is being used or may be used as a source of drinking water;

(4) a determination of whether vapors from the discharge or release pose a threat of explosion due to the accumulation of vapors in a confined space or pose any other serious threat to public health, public safety, or the environment;

(5) scaled site maps showing the location of the following that are on or adjacent to the property where the source is located:

(A) site boundaries;

(B) roads;

(C) buildings;

(D) basements;

(E) floor and storm drains;

(F) subsurface utilities;

(G) septic tanks and leach fields;

(H) underground and aboveground storage tank systems;

(I) monitoring wells;

(J) water supply wells;

(K) surface water bodies and other drainage features;

(L) borings; and

(M) the sampling points;

(6) the results from a limited site assessment that shall include:

(A) the analytical results from soil samples collected during the construction of a monitoring well installed in the source area of each confirmed discharge or release from a noncommercial or commercial underground storage tank and either the analytical results of a groundwater sample collected from the well or, if free product is present in the well, the amount of free product in the well. The soil samples shall be collected every five feet in the unsaturated zone unless a water table is encountered at or greater than a depth of 25 feet from land surface in which case soil samples shall be collected every 10 feet in the

unsaturated zone. The soil samples shall be collected from suspected worst-case locations exhibiting visible contamination or elevated levels of volatile organic compounds in the borehole;

(B) if any constituent in the groundwater sample from the source area monitoring well installed in accordance with Part (A) of this Subparagraph, for a site meeting the high risk classification in Rule .0406(1) of this Section, exceeds the standards or interim standards established in Rule .0202 of this Subchapter by a factor of 10 and is a discharge or release from a commercial underground storage tank, the analytical results from a groundwater sample collected from each of three additional monitoring wells or, if free product is present in any of the wells, the amount of free product in such well. The three additional monitoring wells shall be installed as follows: one upgradient of the source of contamination and two downgradient of the source of contamination. The monitoring wells installed upgradient and downgradient of the source of contamination shall be located such that groundwater flow direction can be determined; and

(C) potentiometric data from all required wells;

(7) the availability of public water supplies and the identification of properties served by the public water supplies within 1500 feet of the source area of a confirmed discharge or release;

(8) the land use, including zoning if applicable, within 1500 feet of the source area of a confirmed discharge or release;

(9) a discussion of site-specific conditions or possible actions that could result in lowering the risk classification assigned to the release. The discussion shall be based on information known or required to be obtained under this Paragraph; and

(10) names and current addresses of all owners and operators of the underground storage tank systems for which a discharge or release is confirmed, the owners of the land upon which such systems are located, and all potentially affected real property owners.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(c)(4);
Amended Eff. December 1, 2005;
Temporary Amendment Eff. September 29, 2017;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0406 DISCHARGE OR RELEASE CLASSIFICATIONS

The Department shall classify the risk of each known discharge or release as high, intermediate, or low risk unless the discharge or release has been classified under Rule .0404(a)(3) or (c) of this Section. For purposes of this Section:

(1) "High risk" means that:

(a) a water supply well, including one used for non-drinking purposes, has been contaminated by a release or discharge;

(b) a water supply well used for drinking water is located within 1000 feet of the source area of a confirmed discharge or release from a commercial underground storage tank or a noncommercial underground storage tank of 1100 gallons or less in capacity used for storing motor fuel for noncommercial purposes;

(c) a water supply well not used for drinking water is located within 250 feet of the source area of a confirmed discharge or release from a commercial underground storage tank or a noncommercial underground storage tank of 1100 gallons or less in capacity used for storing motor fuel for noncommercial purposes;

(d) the groundwater within 500 feet of the source area of a confirmed discharge or release from a commercial underground storage tank or a noncommercial underground storage tank of 1100 gallons or less in capacity used for storing motor fuel for noncommercial purposes has the potential for future use in that there is no source of water supply other than the groundwater;

(e) a water supply well, including one used for non-drinking purposes, is located within 150 feet of the source area of a confirmed discharge or release from a noncommercial underground storage tank storing heating oil for consumptive use on the premises;

(f) the vapors from a discharge or release pose a serious threat of explosion due to accumulation of the vapors in a confined space; or

(g) a discharge or release poses an imminent danger to public health, public safety, or the environment.

(2) "Intermediate risk" means that:

(a) surface water is located within 500 feet of the source area of a confirmed discharge or release from a commercial underground storage tank and the maximum groundwater contaminant concentration exceeds the applicable surface water quality standards and criteria found in 15A NCAC 02B .0200 by a factor of 10;

(b) in the Coastal Plain physiographic region as designated on a map entitled "Geology of North Carolina" published by the Department in 1985, the source area of a confirmed discharge or release from a commercial underground storage tank is located in an area in which there is recharge to an unconfined or semi-confined deeper aquifer that the Department determines is being used or may be used as a source of drinking water;

(c) the source area of a confirmed discharge or release from a commercial underground storage tank is within a designated wellhead protection area, as defined in 42 U.S.C. 300h-7(e);

(d) the levels of groundwater contamination associated with a confirmed discharge or release from a commercial underground storage tank for any contaminant except ethylene dibromide, benzene, and alkane and aromatic carbon fraction classes exceed 50 percent of the solubility of the contaminant at 25 degrees Celsius or 1,000 times the groundwater standard or interim standard established in Rule .0202 of this Subchapter, whichever is lower; or

(e) the levels of groundwater contamination associated with a confirmed discharge or release from a commercial underground storage tank for ethylene dibromide and benzene exceed 1,000 times the federal drinking water standard set out in 40 CFR 141. 40 CFR 141 is incorporated by reference including subsequent amendments and editions. Copies may be obtained at no cost from the U.S. Government Bookstore's website at https://www.gpo.gov/fdsys/pkg/CFR-2015-title40-vol23/pdf/CFR-2015-title40-vol23-part141.pdf. The material is available for inspection at the Department of Environmental Quality, UST Section, 217 West Jones Street, Raleigh, NC 27603.

(3) "Low risk" means that:

(a) the risk posed does not fall within the high risk category for any underground storage tank, or within the intermediate risk category for a commercial underground storage tank; or

(b) based on review of site-specific information, limited assessment, or interim corrective actions, the discharge or release poses no significant risk to human health or the environment.

If the criteria for more than one risk category applies, the discharge or release shall be classified at the highest risk level identified in Rule .0407 of this Section.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(d);
Amended Eff. December 1, 2005;
Temporary Amendment Eff. September 29, 2017;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0407 RECLASSIFICATION OF RISK LEVELS

(a) Each responsible party shall have the continuing obligation to notify the Department of any changes that may affect the level of risk assigned to a discharge or release by the Department if the change is known or should be known by the responsible party, including changes in zoning of real property, use of real property, or the use of groundwater that has been contaminated or is expected to be contaminated by the discharge or release.

(b) The Department shall reclassify the risk posed by a release if warranted by further information concerning the potential exposure of receptors to the discharge or release or upon receipt of new information concerning changed conditions at the site. After initial classification of the discharge or release, the Department may require limited

assessment, interim corrective action, or other actions that the Department believes will result in a lower risk classification.

(c) If the risk posed by a discharge or release is determined by the Department to be high risk, the responsible party shall comply with the assessment and cleanup requirements of Rule .0106(c), (g), and (h) of this Subchapter and 15A NCAC 02N .0706 and .0707. The goal of a required corrective action for groundwater contamination shall be restoration to the level of the groundwater standards set forth in Rule .0202 of this Subchapter, or as closely thereto as is economically and technologically feasible. In a corrective action plan submitted pursuant to this Paragraph, natural attenuation shall be used to the maximum extent possible, when the benefits of its use do not increase the risk to the environment and human health. If the responsible party demonstrates that natural attenuation prevents the further migration of the plume, the Department may approve a groundwater monitoring plan.

(d) If the risk posed by a discharge or release is determined by the Department to be an intermediate risk, the responsible party shall comply with the assessment requirements of Rule .0106(c) and (g) of this Subchapter and 15A NCAC 02N .0706. As part of the comprehensive site assessment, the responsible party shall evaluate, based on site-specific conditions, whether the release poses a significant risk to human health or the environment. If the Department determines, based on the site-specific conditions, that the discharge or release does not pose a significant threat to human health or the environment, the site shall be reclassified as a low risk site. If the site is not reclassified, the responsible party shall, at the direction of the Department, submit a groundwater monitoring plan or a corrective action plan, or a combination thereof, meeting the cleanup standards of this Paragraph and containing the information required in Rule .0106(h) of this Subchapter and 15A NCAC 02N .0707. Discharges or releases that are classified as intermediate risk shall be remediated, at a minimum, to a cleanup level of 50 percent of the solubility of the contaminant at 25 degrees Celsius or 1,000 times the groundwater standard or interim standard established in Rule .0202 of this Subchapter, whichever is lower, for any groundwater contaminant except ethylene dibromide, benzene and alkane and aromatic carbon fraction classes. Ethylene dibromide and benzene shall be remediated to a cleanup level of 1,000 times the federal drinking water standard as referenced in 15A NCAC 18C .1518 incorporated by reference including subsequent amendments and editions, and available free of charge at http://reports.oah.state.nc.us/ncac/title 15a - environmental quality/chapter 18 - environmental health/subchapter c/15a ncac 18c .1518.pdf. Additionally, if a corrective action plan or groundwater monitoring plan is required under this Paragraph, the responsible party shall demonstrate that the groundwater cleanup levels are sufficient to prevent a violation of:

(1) the rules contained in 15A NCAC 02B;
(2) the standards contained in Rule .0202 of this Subchapter in a deep aquifer as described in Rule .0406(2)(b) of this Section; and
(3) the standards contained in Rule .0202 of this Subchapter at a location no closer than one year time of travel upgradient of a well within a designated wellhead protection area, based on travel time and the natural attenuation capacity of the subsurface materials or on a physical barrier to groundwater migration that exists or will be installed by the person making the request.

In any corrective action plan submitted pursuant to this Paragraph, natural attenuation shall be used to the maximum extent possible, if the benefits of its use do not increase the risk to the environment and human health.

(e) If the risk posed by a discharge or release is determined to be a low risk, the Department shall notify the responsible party that no cleanup, no further cleanup, or no further action is required by the Department unless the Department later determines that the discharge or release poses an unacceptable risk or a potentially unacceptable risk to human health or the environment. No notification shall be issued pursuant to this Paragraph, however, until the responsible party has:

(1) completed soil remediation pursuant to Rule .0408 of this Section or as closely thereto as economically or technologically feasible;
(2) submitted proof of public notification, if required pursuant to Rule .0409(b) of this Section; and
(3) recorded all required land-use restrictions pursuant to G.S. 143B-279.9 and 143B-279.11.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(e)-(h);
Amended Eff. December 1, 2005;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0408 ASSESSMENT AND REMEDIATION PROCEDURES

Assessment and remediation of soil contamination shall be addressed as follows:

(1) At the time that the Department determines the risk posed by the discharge or release, the Department shall also determine, based on site-specific information, whether the site is "residential" or "industrial/commercial." For the purposes of this Section, a site is presumed residential, but may be classified as industrial/commercial if the Department determines based on site-specific information that exposure to the soil contamination is limited in time due to the use of the site and does not involve exposure to children. For the purposes of this Paragraph, "site" means both the property upon which the discharge or release occurred and any property upon which soil has been affected by the discharge or release.

(2) For a discharge or release from a commercial underground storage tank, or for a discharge or release from a noncommercial underground storage tank classified by the Department as high risk, the responsible party shall submit a report to the Department assessing the vertical and horizontal extent of soil contamination in excess of the lower of:
   (a) the residential or industrial/commercial maximum soil contaminant concentration, whichever is applicable, that has been established by the Department pursuant to Rule .0411 of this Section; or
   (b) the "soil-to-groundwater" maximum soil contaminant concentration that has been established by the Department pursuant to Rule .0411 of this Section.

(3) For a discharge or release from a commercial underground storage tank classified by the Department as low risk, the responsible party shall submit a report demonstrating that soil contamination has been remediated to either the residential or industrial/commercial maximum soil contaminant concentration established by the Department pursuant to Rule .0411 of this Section, whichever is applicable.

(4) For a discharge or release classified by the Department as high or intermediate risk, the responsible party shall submit a report demonstrating that soil contamination has been remediated to the lower of:
   (a) the residential or industrial/commercial maximum soil contaminant concentration, whichever is applicable, that has been established by the Department pursuant to Rule .0411 of this Section; or
   (b) the "soil-to-groundwater" maximum soil contaminant concentration that has been established by the Department pursuant to Rule .0411 of this Section.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(i);
Amended Eff. December 1, 2005;
Temporary Amendment Eff. September 29, 2017;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0409 NOTIFICATION REQUIREMENTS

(a) A responsible party who submits a corrective action plan that proposes natural attenuation, to cleanup groundwater contamination to a standard other than a standard as set forth in Rule .0202 of this Subchapter, or to cleanup soil other than to the standard for residential use or soil-to-groundwater contaminant concentration established pursuant to this Section, whichever is lowest, shall give notice to:

(1) the local Health Director and the chief administrative officer of each political jurisdiction in which the contamination occurs;

(2) all property owners and occupants within or contiguous to the area containing the contamination; and

(3) all property owners and occupants within or contiguous to the area where the contamination is expected to migrate.

The notice shall describe the nature of the plan and the reasons supporting it. Notification shall be made by certified mail concurrent with the submittal of the corrective action plan. Approval of the corrective action plan by the Department shall be postponed for a period of 60 days following receipt of the request so that the Department may receive and consider comments. The responsible party shall, within 30 days, provide the Department with a copy of the notice and proof of receipt of each required notice or of refusal by the addressee to accept delivery of a required notice. If notice by certified mail to occupants under this Paragraph is impractical, the responsible party shall give notice as provided in G.S. 1A-1, Rule 4(j) or 4(j1). If notice is made to occupants by posting, the responsible party

shall provide the Department with a copy of the posted notice and a description of the manner in which such posted notice was given.

(b) A responsible party who receives a notice from the Department pursuant to Rule .0404(c) or .0407(e) of this Section for a discharge or release that has not been remediated to the groundwater standards or interim standards established in Rule .0202 of this Subchapter or to the lower of the residential or soil-to-groundwater contaminant concentrations established under Rule .0411 of this Section, shall, within 30 days of the receipt of such notice, provide a copy of the notice to:

(1) the local Health Director and the chief administrative officer of each political jurisdiction in which the contamination occurs;

(2) all property owners and occupants within or contiguous to the area containing the contamination; and

(3) all property owners and occupants within or contiguous to the area where the contamination is expected to migrate.

Notification shall be made by certified mail. The responsible party shall, within 60 days of receipt of the original notice from the Department, provide the Department with proof of receipt of the copy of the notice or of refusal by the addressee to accept delivery of the copy of the notice. If notice by certified mail to occupants under this Paragraph is impractical, the responsible party shall give notice as provided in G.S. 1A-1, Rule 4(j) or 4(j1). If notice is made to occupants by posting, the responsible party shall provide the Department with a description of the manner in which the posted notice was given.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(j) and (k);
Amended Eff. December 1, 2005;
Temporary Amendment Eff. September 29, 2017;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0410 DEPARTMENTAL LISTING OF DISCHARGES OR RELEASES

The Department shall maintain in each of the Department's regional offices a list of all petroleum underground storage tank discharges or releases discovered and reported to the Department within the region on or after the effective date of this Section and all petroleum underground storage tank discharges or releases for which notification was issued under Rule .0407(e) of this Section by the Department on or after the effective date of this Section.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(l);
Amended Eff. December 1, 2005;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0411 ESTABLISHING MAXIMUM SOIL CONTAMINATION CONCENTRATIONS

The Department shall publish on the Department website and annually revise maximum soil contaminant concentrations to be used as soil cleanup levels for contamination from petroleum underground storage tank systems. The Department shall establish maximum soil contaminant concentrations for residential, industrial/commercial, and soil-to-groundwater exposures as follows:

(1) The following equations and references shall be used in establishing residential maximum soil contaminant concentrations. Equation 1 shall be used for each contaminant with an EPA carcinogenic classification of A, B1, B2, C, D or E. Equation 2 shall be used for each contaminant with an EPA carcinogenic classification of A, B1, B2 or C. The maximum soil contaminant concentration shall be the lower of the concentrations derived from Equations 1 and 2.

(a) Equation 1: Non-cancer Risk-based Residential Ingestion Concentration
Soil mg/kg =[0.2 x oral chronic reference dose x body weight, age 1 to 6 x averaging time noncarcinogens] / [exposure frequency x exposure duration, age 1 to 6 x (soil ingestion rate, age 1 to 6 / 10^6 mg/kg)].

(b) Equation 2: Cancer Risk-based Residential Ingestion Concentration

Soil mg/kg =[target cancer risk of 10^{-6} x averaging time carcinogens] / [exposure frequency x (soil ingestion factor, age adjusted / 10^{6}mg/kg) x oral cancer slope factor]. The age adjusted soil ingestion factor shall be calculated by: [(exposure duration, age 1 to 6 x soil ingestion rate, age 1 to 6) /(body weight, age 1 to 6)] + [((exposure duration, total - exposure duration, age 1 to 6) x soil ingestion, adult) / (body weight, adult)].

(c) The exposure factors selected in calculating the residential maximum soil contaminant concentrations shall be within the recommended ranges specified in the following references or the most recent version of these references:

(i) EPA, 2011. Exposure Factors Handbook, incorporated by reference including subsequent amendments or editions and may be obtained electronically free of charge from the United States Environmental Protection Agency website at https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=236252;

(ii) EPA, 1991. Risk Assessment Guidance for Superfund: Volume I Human Health Evaluation Manual (Part B, Development of Risk Based Preliminary Remediation Goals), incorporated by reference including subsequent amendments or editions and may be obtained electronically free of charge from the United States Environmental Protection Agency website at https://www.epa.gov/risk/risk-assessment-guidance-superfund-rags-part-b;

(iii) EPA. Regional Screening Level Generic Tables (RSL) and User's Guide, incorporated by reference including subsequent amendments or editions and may be obtained electronically free of charge from the United States Environmental Protection Agency website at https://www.epa.gov/risk/regional-screening-levels-rsls; and

(iv) EPA, 2018. Region 4 Human Health Risk Assessment Supplemental Guidance, incorporated by reference including subsequent amendments or editions and may be obtained electronically free of charge from the United States Environmental Protection Agency website at https://www.epa.gov/sites/production/files/2018-03/documents/hhra_regional_supplemental_guidance_report-march-2018_update.pdf.

(d) The following references or the most recent version of these references, in order of preference, shall be used to obtain oral chronic reference doses and oral cancer slope factors:

(i) EPA. Integrated Risk Information System (IRIS) Computer Database, incorporated by reference including subsequent amendments or editions and may be obtained electronically free of charge from the United States Environmental Protection Agency website at https://www.epa.gov/iris;

(ii) EPA. Health Effects Assessment Summary Tables (HEAST), incorporated by reference including subsequent amendments or editions and may be obtained electronically free of charge from the United States Environmental Protection Agency website at https://epa-heast.ornl.gov;

(iii) EPA. Regional Screening Level Generic Tables (RSL) and User's Guide;

(iv) EPA, 2018. Region 4 Human Health Risk Assessment Supplemental Guidance; and

(v) Other scientifically valid peer-reviewed published health risk assessment data, and scientifically valid peer-reviewed published toxicological data.

(2) The following equations and references shall be used in establishing industrial/commercial maximum soil contaminant concentrations. Equation 1 shall be used for each contaminant with an EPA carcinogenic classification of A, B1, B2, C, D or E. Equation 2 shall be used for each contaminant with an EPA carcinogenic classification of A, B1, B2 or C. The maximum soil contaminant concentration shall be the lower of the concentrations derived from Equations 1 and 2.

(a) Equation 1: Non-cancer Risk-based Industrial/Commercial Ingestion Concentration
Soil mg/kg =[0.2 x oral chronic reference dose x body weight, adult x averaging time noncarcinogens] / [exposure frequency x exposure duration, adult x (soil ingestion rate, adult / 10^{6} mg/kg) x fraction of contaminated soil ingested].

(b) Equation 2: Cancer Risk-based Industrial/Commercial Ingestion Concentration
Soil mg/kg =[target cancer risk of 10^{-6} x body weight, adult x averaging time carcinogens] / [exposure frequency x exposure duration, adult x (soil ingestion rate, adult / 10^{6} mg/kg) x fraction of contaminated soil ingested x oral cancer slope factor].

(c) The exposure factors selected in calculating the industrial/commercial maximum soil contaminant concentrations shall be within the recommended ranges specified in the following references or the most recent version of these references:
(i) EPA, 2011. Exposure Factors Handbook;
(ii) EPA, 1991. Risk Assessment Guidance for Superfund: Volume I Human Health Evaluation Manual (Part B, Development of Risk Based Preliminary Remediation Goals);
(iii) EPA. Regional Screening Level Generic Tables (RSL) and User's Guide; and
(iv) EPA, 2018. Region 4 Human Health Risk Assessment Supplemental Guidance.

(d) The following references or the most recent version of these references, in order of preference, shall be used to obtain oral chronic reference doses and oral cancer slope factors:
(i) EPA. Integrated Risk Information System (IRIS) Computer Database;
(ii) EPA. Health Effects Assessment Summary Tables (HEAST);
(iii) EPA. Regional Screening Level Generic Tables (RSL) and User's Guide;
(iv) EPA, 2018. Region 4 Human Health Risk Assessment Supplemental Guidance; and
(v) Other scientifically valid peer-reviewed published health risk assessment data, and scientifically valid peer-reviewed published toxicological data.

(3) The following equations and references shall be used in establishing the soil-to-groundwater maximum contaminant concentrations:

(a) Organic Constituents:
Soil mg/kg = groundwater standard or interim standard x [(.02 x soil organic carbon-water partition coefficient) + 4 + (1.733 x 41 x Henry's Law Constant (atm.-m3/mole))].
(i) If no groundwater standard or interim standard has been established under Rule .0202 of this Subchapter, the practical quantitation limit shall be used in lieu of a standard to calculate the soil-to-groundwater maximum contaminant concentrations.
(ii) The following references or the most recent version of these references, in order of preference, shall be used to obtain soil organic carbon-water partition coefficients and Henry's Law Constants:
(A) EPA. Superfund Chemical Data Matrix (SCDM), incorporated by reference including subsequent amendments or editions and may be obtained electronically free of charge from the United States Environmental Protection Agency website at https://www.epa.gov/superfund/superfund-chemical-data-matrix-scdm;
(B) EPA, 1991. Risk Assessment Guidance for Superfund: Volume I Human Health Evaluation Manual (Part A), incorporated by reference including subsequent amendments or editions and may be obtained electronically free of charge from the United States Environmental Protection Agency website at https://www.epa.gov/risk/risk-assessment-guidance-superfund-rags-part/; it is Volume I of the three-volume set called Risk Assessment Guidance for Superfund;
(C) Agency for Toxic Substances and Disease Registry, "Toxicological Profile for [individual chemical]," incorporated by reference including subsequent amendments or editions and may be obtained electronically free of charge from the United States Agency for Toxic substances and Disease Registry website at https://www.atsdr.cdc.gov/substances/index.asp;
(D) Montgomery, J.H., 2007. Groundwater Chemicals Desk Reference. CRC Press. This document is incorporated by reference including subsequent amendments and editions, and may be obtained for a charge

of two hundred ninety six dollars ($296.00) at https://www.crcpress.com/Groundwater-Chemicals-Desk-Reference/Montgomery/p/book/9780849392764/ or a copy may be reviewed at the Division of Waste Management, Underground Storage Tank Section office at 217 West Jones Street, Raleigh, N.C. 27603; and

(E) Other scientifically valid peer-reviewed published data.

(b) Inorganic Constituents:

Soil mg/kg = groundwater standard or interim standard x [(20 x soil-water partition coefficient for pH of 5.5) + 4 + (1.733 x 41 x Henry's Law Constant (atm.-m3/mole))].

(i) If no groundwater standard or interim standard has been established under Rule .0202 of this Subchapter, the practical quantitation limit shall be used in lieu of a standard to calculate the soil-to-groundwater maximum contaminant concentrations.

(ii) The following references or the most recent version of these references, in order of preference, shall be used to obtain soil-water partition coefficients and Henry's Law Constants:

(A) EPA. Superfund Chemical Data Matrix (SCDM);

(B) Baes, C.F., III, R.D. Sharp, A.L. Sjoreen, and R.W. Shor, 1984. A Review and Analysis of Parameters for Assessing Transport of Environmentally Released Radionuclides Through Agriculture. Oak Ridge National Laboratory, incorporated by reference including subsequent amendments or editions and may be obtained electronically free of charge from the United States Nuclear Regulatory Commission website at https://www.nrc.gov;

(C) Agency for Toxic Substances and Disease Registry, "Toxicological Profile for [individual chemical];" and

(D) Other scientifically valid peer-reviewed published data.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(m);
Amended Eff. December 1, 2005;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0412 ANALYTICAL PROCEDURES FOR SOIL SAMPLES

(a) Analytical procedures for soil samples required under this Section shall be methods accepted by the US EPA as suitable for determining the presence and concentration of petroleum hydrocarbons for the type of petroleum released.

(b) Soil samples collected, including the most contaminated sample, shall be analyzed as follows in order to determine the risks of the constituents of contamination:

(1) soil samples collected from a discharge or release of low boiling point fuels, including gasoline, aviation gasoline, and gasohol, shall be analyzed for volatile organic compounds and additives, including isopropyl ether and methyl tertiary butyl ether, using EPA Method 8260;

(2) soil samples collected from a discharge or release of high boiling point fuels, including kerosene, diesel, varsol, mineral spirits, naphtha, jet fuels, and fuel oil no. 2, shall be analyzed for volatile organic compounds using EPA Method 8260 and semivolatile organic compounds using EPA Method 8270;

(3) soil samples collected from a discharge or release of heavy fuels shall be analyzed for semivolatile organic compounds using EPA Method 8270;

(4) soil samples collected from a discharge or release of used and waste oil shall be analyzed for volatile organic compounds using EPA Method 8260, semivolatile organic compounds using EPA Method 8270, polychlorinated biphenyls using EPA Method 8080, and chromium and lead using procedures specified in Subparagraph (6) of this Paragraph;

(5) soil samples collected from a discharge or release subject to this Section shall be analyzed for alkane and aromatic carbon fraction classes using methods approved by the Director under 15A NCAC 02H .0805(a)(1);

(6) analytical methods specified in Subparagraphs (1), (2), (3), and (4) of this Paragraph shall be performed as specified in the following references or the most recent version of these references: Test Methods for Evaluating Solid Wastes:Physical/Chemical Methods, November 1990, U.S. Environmental Protection Agency publication number SW-846, is incorporated by reference and may be purchased for a cost of three hundred sixty seven dollars ($367.00) from the Superintendent of Documents, U.S. Government Printing Office (GPO), Washington, DC 20402; or in accordance with other methods or procedures approved by the Director under 15A NCAC 02H .0805(a)(1);

(7) other EPA-approved analytical methods may be used if the methods include the same constituents as the analytical methods specified in Subparagraphs (1), (2), (3), and (4) of this Paragraph and meet the detection limits of the analytical methods specified in Subparagraphs (1), (2), (3), and (4) of this Paragraph; and

(8) metals and acid extractable organic compounds shall be eliminated from analyses of soil samples collected pursuant to this Section if these compounds are not detected in soil samples collected during the construction of the source area monitoring well required under Rule .0405 of this Section.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(n);
Amended Eff. December 1, 2005;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0413 ANALYTICAL PROCEDURES FOR GROUNDWATER SAMPLES

(a) Analytical procedures for groundwater samples required under this Section shall be methods accepted by the US EPA as suitable for determining the presence and concentration of petroleum hydrocarbons for the type of petroleum released.

(b) Groundwater samples, including the most contaminated sample, shall be analyzed as follows in order to determine the risks of the constituents of contamination:

(1) groundwater samples collected from a discharge or release of low boiling point fuels, including gasoline, aviation gasoline, and gasohol, shall be analyzed for volatile organic compounds, including xylenes, isopropyl ether, and methyl tertiary butyl ether, using Standard Method 6200B or EPA Methods 601 and 602. Samples shall also be analyzed for ethylene dibromide using EPA Method 504.1 and lead using Standard Method 3030C preparation. 3030C metals preparation, using a 0.45 micron filter, shall be completed within 72 hours of sample collection;

(2) groundwater samples collected from a discharge or release of high boiling point fuels, including kerosene, diesel, varsol, mineral spirits, naphtha, jet fuels, and fuel oil no. 2, shall be analyzed for volatile organic compounds using EPA Method 602 and semivolatile organic compounds plus the 10 largest non-target peaks identified using EPA Method 625;

(3) groundwater samples collected from a discharge or release of heavy fuels shall be analyzed for semivolatile organic compounds plus the 10 largest non-target peaks identified using EPA Method 625;

(4) groundwater samples collected from a discharge or release of used or waste oil shall be analyzed for volatile organic compounds using Standard Method 6200B, semivolatile organic compounds plus the 10 largest non-target peaks identified using EPA Method 625, and chromium and lead using Standard Method 3030C preparation. 3030C metals preparation, using a 0.45 micron filter, shall be completed within 72 hours of sample collection;

(5) groundwater samples collected from a discharge or release subject to this Section shall be analyzed for alkane and aromatic carbon fraction classes using methods approved by the Director under 15A NCAC 02H .0805(a)(1);

(6) analytical methods specified in Subparagraphs (1), (2), (3) and (4) of this Paragraph shall be performed as specified in the following references or the most recent version of these references:

(A) Guidelines Establishing Test Procedures for the Analysis of Pollutants under the Clean Water Act, 40 CFR Part 136, is incorporated by reference and may be obtained electronically free of charge from the United States Environmental Protection Agency website at https://www.epa.gov/cwa-methods;

(B) Standard Methods for the Examination of Water and Wastewater, published jointly by American Public Health Association, American Water Works Association and Water Pollution Control Federation, is incorporated by reference and is available for purchase from the American Water Works Association (AWWA), 6666 West Quincy Avenue, Denver, CO 80235 for a charge of one hundred sixty dollars ($160.00) for the 18th Edition, one hundred eighty dollars ($180.00) for the 19th Edition, and two hundred dollars ($200.00) for the 20th Edition; or

(C) in accordance with methods or procedures approved by the Director under 15A NCAC 02H .0805(a)(1);

(7) other EPA-approved analytical methods may be used if the methods include the same constituents as the analytical methods specified in Subparagraphs (1), (2), (3), and (4) of this Paragraph and meet the detection limits of the analytical methods specified in Subparagraphs (1), (2), (3), and (4) of this Paragraph; and

(8) metals and acid extractable organic compounds shall be eliminated from analyses of groundwater samples collected pursuant to this Section if these compounds are not detected in the groundwater sample collected from the source area monitoring well installed pursuant to Rule .0405 of this Section.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(o);
Amended Eff. December 1, 2005;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0414 REQUIRED LABORATORY CERTIFICATION

In accordance with 15A NCAC 02H .0804, laboratories shall obtain North Carolina Division of Water Resources laboratory certification for parameters that are required to be reported to the State in compliance with the State's surface water, groundwater, and pretreatment rules.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(p);
Amended Eff. December 1, 2005;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0415 DISCHARGES OR RELEASES FROM OTHER SOURCES

This Section shall not relieve any person responsible for assessment or cleanup of contamination from a source other than a commercial or noncommercial underground storage tank from its obligation to assess and clean up contamination resulting from the discharge or releases.

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(q);
Amended Eff. December 1, 2005;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0416 ELIGIBILITY OF SITES TO CONTINUE REMEDIATION UNDER RULES EXISTING BEFORE THE EFFECTIVE DATE OF 15A NCAC 02L .0115

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(r);
Amended Eff. December 1, 2005;
Expired Eff. April 1, 2018 pursuant to G.S. 150B-21.3A.

15A NCAC 02L .0417 ESTABLISHING CLEANUP REQUIREMENTS FOR SITES ELIGIBLE TO CONTINUE REMEDIATION UNDER RULES EXISTING BEFORE THE EFFECTIVE DATE OF 15A NCAC 02L .0115

History Note: *Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94E; 143-215.94T; 143-215.94V; 143B-282; 1995 (Reg. Sess. 1996) c. 648,s. 1;*
Recodified from 15A NCAC 02L .0115(s);
Amended Eff. December 1, 2005;
Expired Eff. April 1, 2018 pursuant to G.S. 150B-21.3A.

SECTION .0500 – RISK-BASED ASSESSMENT AND CORRECTIVE ACTION FOR PETROLEUM RELEASES FROM ABOVEGROUND STORAGE TANKS AND SOURCES

15A NCAC 02L .0501 PURPOSE

(a) The purpose of this Section is to establish procedures for risk-based assessment and corrective action sufficient to:

(1) protect human health and the environment;
(2) abate and control contamination of the waters of the State as deemed necessary to protect human health and the environment;
(3) permit management of the State's groundwaters to protect their designated current usage and potential future uses;
(4) provide for anticipated future uses of the State's groundwater;
(5) recognize the diversity of contaminants, the State's geology, and the characteristics of each individual site; and
(6) accomplish these goals in a cost-efficient manner to assure the best use of the limited resources available to address groundwater pollution within the State.

(b) Section .0100 of this Subchapter shall apply to this Section unless specifically excluded.

History Note: *Authority G.S. 143-215.3(a)(1); 143-215.84; 143-215.104AA; 143B-282;*
Eff. March 1, 2016;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0502 DEFINITIONS

The definitions as set out in Rule .0102 of this Subchapter and the following definitions shall apply throughout this Section:

(1) "Aboveground storage tank" or "AST" means any one or a combination of tanks, including pipes connected thereto, that is used to contain an accumulation of petroleum.
(2) "AST system" means an aboveground storage tank, connected piping, ancillary equipment, and containment system, if any.
(3) "Discharge" includes any emission, spillage, leakage, pumping, pouring, emptying, or dumping of oil into groundwater or surface water or upon land in such proximity to such water that it is likely to reach the water and any discharge upon land which is intentional, knowing, or willful.
(4) "Non-UST means as defined in G.S. 143-215.104AA(g) and excludes underground storage tank releases governed by G.S. 143-215.94V.
(5) "Operator" means any person in control of or having responsibility for the daily operation of the AST system.
(6) "Owner" means any person who owns a petroleum aboveground storage tank or other non-UST petroleum tank, stationary or mobile, used for storage, use, dispensing, or transport.
(7) "Person" means an individual, trust, firm, joint stock company, Federal agency, corporation, state, municipality, commission, political subdivision of a state, or any interstate body. "Person" also includes a consortium, a joint venture, a commercial entity, and the United States Government.
(8) "Petroleum" or "petroleum products" means as defined in G.S. 143-215.94A(10).
(9) "Release" means any spilling, leaking, emitting, discharging, escaping, leaching, or disposing into groundwater, surface water, or surface or subsurface soils.
(10) "Tank" means a device used to contain an accumulation of petroleum and constructed of non-earthen materials, such as concrete, steel, or plastic, that provides structural support.

History Note: *Authority G.S. 143-212(4); 143-215.3(a)(1); 143-215.77; 143-215.84; 143-215.104AA; 143B-282; Eff. March 1, 2016; Readopted Eff. June 1, 2019.*

15A NCAC 02L .0503 RULE APPLICATION

The requirements of this Section shall apply to the owner and operator of a petroleum aboveground storage tank or other non-UST petroleum tank, stationary or mobile, from which a discharge or release occurred and to any person determined to be responsible for assessment and cleanup of a discharge or release from a non-UST petroleum source, including any person who has conducted or controlled an activity that results in the discharge or release of petroleum or petroleum products (as defined in G.S. 143-215.94A(10)) to the groundwaters of the State or in proximity thereto. These persons shall be collectively referred to as the "responsible party" for purposes of this Section.

History Note: *Authority G.S. 143-215.3(a)(1); 143-215.84; 143-215.104AA; 143B-282; Eff. March 1, 2016; Readopted Eff. June 1, 2019.*

15A NCAC 02L .0504 REQUIRED INITIAL RESPONSE AND ABATEMENT ACTIONS BY RESPONSIBLE PARTY

Upon a discharge or release of petroleum from a non-UST petroleum source the responsible party shall:

(1) take actions to prevent all further discharge or release of petroleum from the non-UST petroleum source; identify and mitigate all fire, explosion, or vapor hazard; and report the release within 24 hours of discovery, in compliance with G.S. 143-215.83(a), 84(a), and 85(b);

(2) perform initial abatement actions to measure for the presence of a release where contamination is most likely to be present; confirm the source of the release; investigate to determine the possible presence of free product; begin free product removal; and to continue to monitor and mitigate all additional fire, explosion, or vapor hazards posed by vapors or by free product; and submit a report to the Department of Environmental Quality, UST Section, Regional Office Supervisor in accordance with 15A NCAC 02B .0309 and .0311, within 20 days after release confirmation summarizing these initial abatement actions;

(3) remove contaminated soil that would act as a continuing source of contamination to groundwater. For a new release, no further action shall be necessary if:

  (a) initial abatement actions involving control and removal of contaminated materials are initiated within 48 hours from discovery and before contaminated materials begin to impact groundwater; and

  (b) analysis, in accordance with the approved methods in Rule .0412 of this Subchapter, of representative samples of remaining soils shows concentrations:

    (i) at or below the more stringent of the soil-to-groundwater concentration value and the residential maximum soil contamination concentration value; or

    (ii) using other EPA-approved analytical methods in accordance with Rule .0412(b)(7) of this Subchapter, concentration values below the more stringent of the soil-to-groundwater concentration alkane and aromatic carbon fraction class values and the residential maximum soil contamination concentration alkane and aromatic carbon fraction class values;

  For new releases, if the abatement actions cannot be initiated within 48 hours of discovery or if soil concentrations remain above the values in this Paragraph, the responsible party shall conduct all activities under Items (1) through (5) of this Rule;

(4) conduct initial site assessment, assembling information about the site and the nature of the release, including the following:

  (a) a site history and site characterization, including data on nature and estimated quantity of release and data from available sources and site investigations concerning surrounding populations, water quality, use, and approximate locations of wells, surface water bodies, and subsurface structures potentially affected by the release, subsurface soil conditions, locations of subsurface utilities, climatological conditions, and land use;

(b) the results of free product investigations and free product removal, if applicable;
(c) the results of groundwater and surface water investigations, if applicable;
(d) a summary of initial response and abatement actions; and

(5) submit as required in Item (2) of this Rule, within 90 days of the discovery of the discharge or release:
(a) an initial assessment and abatement report as required in Item (4) of this Rule;
(b) soil assessment information sufficient to show that remaining unsaturated soil in the side walls and at the base of the excavation does not contain contaminant levels that exceed either the soil-to-groundwater or the residential maximum soil contaminant concentrations established by the Department pursuant to Rule .0511 of this Section, whichever is lower; and
(c) documentation to show that neither bedrock nor groundwater was encountered in the excavation or, if groundwater was encountered, that contaminant concentrations in groundwater were equal to or less than the groundwater quality standards established in Rule .0202 of this Subchapter. If such showing is made, the discharge or release shall be classified as low risk by the Department.

History Note: *Authority G.S. 143-215.3(a)(1); 143-215.84; 143-215.104AA; 143B-282;*
Eff. March 1, 2016;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0505 REQUIREMENTS FOR LIMITED SITE ASSESSMENT

(a) If the required showing cannot be made by the responsible party under Rule .0504 of this Section, the responsible party shall submit within 120 days of the discovery of the discharge or release, a report as required in Rule .0504 of this Section, containing information needed by the Department to classify the level of risk to human health and the environment posed by a discharge or release under Rule .0506 of this Section.

(b) The responsible party may submit a written request an extension to the 120 day deadline set forth in Paragraph (a) of this Rule to the Department for the Department's consideration prior to the deadline. The request for deadline extension by the responsible party shall demonstrate that the extension, if granted by the Department, would not increase the risk posed by the release. When considering a request from a responsible party for additional time to submit the report, the Department shall consider the following:

(1) the extent to which the request for additional time is due to factors outside of the control of the responsible party;
(2) the previous history of the person submitting the report in complying with deadlines established under the Commission's rules;
(3) the technical complications associated with assessing the extent of contamination at the site or identifying potential receptors; and
(4) the necessity for action to eliminate an imminent threat to public health or the environment.

(c) The report shall include:

(1) a location map, based on a USGS topographic map, showing the radius of 1500 feet from the source area of a confirmed release or discharge and depicting all water supply wells, surface waters, and designated "wellhead protection areas" as defined in 42 U.S.C. 300h-7(e) within the 1500-foot radius. 42 U.S.C. 300h-7(e), is incorporated by reference including subsequent amendments and editions. Copies may be obtained at no cost from the U.S. Government Bookstore's website at http://www.gpo.gov/fdsys/pkg/USCODE-2010-title42/html/USCODE-2010-title42-chap6A-subchapXII-partC-sec300h-7.htm. The material is available for inspection at the Department of Environmental Quality, UST Section, 217 West Jones Street, Raleigh, NC 27603. For purposes of this Section, "source area" means point of release or discharge from the non-UST petroleum source, or if the point of release cannot be determined precisely, "source area" means the area of highest contaminant concentrations;
(2) a determination of whether the source area of the discharge or release is within a designated "wellhead protection area" as defined in 42 U.S.C. 300h-7(e);
(3) if the discharge or release is in the Coastal Plain physiographic region as designated on a map entitled "Geology of North Carolina" published by the Department in 1985, incorporated by reference including subsequent amendments or editions and may be obtained electronically free of charge from the Department's website at https://deq.nc.gov/about/divisions/energy-mineral-land-

resources/north-carolina-geological-survey/ncgs-maps/1985-geologic-map-of-nc, a determination of whether the source area of the discharge or release is located in an area in which there is recharge to an unconfined or semi-confined deeper aquifer that is being used or may be used as a source of drinking water;

(4) a determination of whether vapors from the discharge or release pose a threat of explosion due to the accumulation of vapors in a confined space; pose a risk to public health from exposure; or pose any other threat to public health, public safety, or the environment;

(5) scaled site maps showing the location of the following that are on or adjacent to the property where the source is located:
- (A) site boundaries;
- (B) roads;
- (C) buildings;
- (D) basements;
- (E) floor and storm drains;
- (F) subsurface utilities;
- (G) septic tanks and leach fields;
- (H) underground and aboveground storage tank systems;
- (I) monitoring wells;
- (J) water supply wells;
- (K) surface water bodies and other drainage features;
- (L) borings; and
- (M) the sampling points;

(6) the results from a limited site assessment that shall include the following actions:
- (A) determine the presence, the lateral and vertical extent, and the maximum concentration levels of soil and, if possible, groundwater contamination and free product accumulations;
- (B) install monitoring wells constructed in accordance with 15A NCAC 02C .0108 within the area of maximum soil or groundwater contamination to determine the groundwater flow direction and maximum concentrations of dissolved groundwater contaminants or accumulations of free product. During well construction, the responsible party shall collect and analyze soil samples that represent the suspected highest contaminant-level locations by exhibiting visible contamination or elevated levels of volatile organic compounds from successive locations at five-foot depth intervals in the boreholes of each monitoring well within the unsaturated zone; collect potentiometric data from each monitoring well; and collect and analyze groundwater or measure the amount of free product, if present, in each monitoring well;

(7) the availability of public water supplies and the identification of properties served by the public water supplies within 1500 feet of the source area of a confirmed discharge or release;

(8) the land use, including zoning if applicable, within 1500 feet of the source area of a confirmed discharge or release;

(9) a discussion of site-specific conditions or possible actions that may result in lowering the risk classification assigned to the release. Such discussion shall be based on information known or required to be obtained under this Item; and

(10) names and current addresses of all responsible parties for all petroleum sources for which a discharge or release is confirmed, the owners of the land upon which such petroleum sources are located, and all potentially affected real property owners. Documentation of ownership of ASTs or other sources and of the property upon which a source is located shall be provided.

History Note: *Authority G.S. 143-215.3(a)(1); 143-215.84; 143-215.104AA; 143B-282;*
Eff. March 1, 2016;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0506 DISCHARGE OR RELEASE CLASSIFICATIONS

The Department shall classify the risk of each known discharge or release as high, intermediate, or low risk, unless the discharge or release has been classified under Rule .0504 of this Section. For purposes of this Section:

(1) "High risk" means that:

(a) a water supply well, including one used for non-drinking purposes, has been contaminated by a release or discharge;
(b) a water supply well used for drinking water is located within 1000 feet of the source area of a confirmed discharge or release;
(c) a water supply well not used for drinking water is located within 250 feet of the source area of a confirmed discharge or release;
(d) the groundwater within 500 feet of the source area of a confirmed discharge or release has the potential for future use in that there is no source of water supply other than the groundwater;
(e) the vapors from a discharge or release pose a serious threat of explosion due to accumulation of the vapors in a confined space or pose a risk to public health from exposure; or
(f) a discharge or release poses an imminent danger to public health, public safety, or the environment.

(2) "Intermediate risk" means that:
(a) surface water is located within 500 feet of the source area of a confirmed discharge or release and the maximum groundwater contaminant concentration exceeds the applicable surface water quality standards and criteria found in 15A NCAC 02B .0200 by a factor of 10;
(b) in the Coastal Plain physiographic region as designated on a map entitled "Geology of North Carolina" published by the Department in 1985, the source area of a confirmed discharge or release is located in an area in which there is recharge to an unconfined or semi-confined deeper aquifer that the Department determines is being used or may be used as a source of drinking water;
(c) the source area of a confirmed discharge or release is within a designated wellhead protection area, as defined in 42 U.S.C. 300h-7(e);
(d) the levels of groundwater contamination for any contaminant except ethylene dibromide, benzene, and alkane and aromatic carbon fraction classes exceed 50 percent of the solubility of the contaminant at 25 degrees Celsius or 1,000 times the groundwater standard or interim standard established in Rule .0202 of this Subchapter, whichever is lower; or
(e) the levels of groundwater contamination for ethylene dibromide and benzene exceed 1,000 times the federal drinking water standard as referenced in 15A NCAC 18C .1518, incorporated by reference including subsequent amendments and editions and is available free of charge at http://reports.oah.state.nc.us/ncac/title 15a - environmental quality/chapter 18 - environmental health/subchapter c/15a ncac 18c .1518.pdf.

(3) "Low risk" means that:
(a) the risk posed does not fall within the high or intermediate risk categories; or
(b) based on review of site-specific information, limited assessment, or interim corrective actions, the discharge or release poses no significant risk to human health or the environment.

If the criteria for more than one risk category applies, the discharge or release shall be classified at the highest risk level identified in Rule .0507 of this Section.

History Note: *Authority G.S. 143-215.3(a)(1); 143-215.84; 143-215.104AA; 143B-282;*
Eff. March 1, 2016;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0507 RECLASSIFICATION OF RISK LEVELS

(a) Each responsible party shall have the continuing obligation to notify the Department of any changes that may affect the level of risk assigned to a discharge or release by the Department if the change is known or should be known by the responsible party, including changes in zoning of real property, use of real property, or the use of groundwater that has been contaminated or is expected to be contaminated by the discharge or release.

(b) The Department shall reclassify the risk posed by a release if warranted by further information concerning the potential exposure of receptors to the discharge or release or upon receipt of new information concerning changed conditions at the site. After initial classification of the discharge or release, the Department may require limited

assessment, interim corrective action, or other actions that the Department believes will result in a lower risk classification.

(c) Remediation of sites with off-site migration shall be subject to the provisions of G.S. 143-215.104AA.

(d) If the risk posed by a discharge or release is determined by the Department to be high risk, the responsible party shall comply with the assessment and cleanup requirements of Rule .0106(c), (g), and (h) of this Subchapter. The goal of a required corrective action for groundwater contamination shall be restoration to the level of the groundwater standards set forth in Rule .0202 of this Subchapter, or as closely thereto as is economically and technologically feasible. In a corrective action plan submitted pursuant to this Paragraph, natural attenuation may be used when the benefits of its use do not increase the risk to the environment and human health. If the responsible party demonstrates that natural attenuation prevents the further migration of the plume, the Department may approve a groundwater monitoring plan.

(e) If the risk posed by a discharge or release is determined by the Department to be an intermediate risk, the responsible party shall comply with the assessment requirements of Rule .0106(c) and (g) of this Subchapter. As part of the comprehensive site assessment, the responsible party shall evaluate, based on site specific conditions, whether the release poses a significant risk to human health or the environment. If the Department determines, based on the site-specific conditions, that the discharge or release does not pose a significant threat to human health or the environment, the site shall be reclassified as a low risk site. If the site is not reclassified, the responsible party shall, at the direction of the Department, submit a groundwater monitoring plan or a corrective action plan, or a combination thereof, meeting the cleanup standards of this Paragraph and containing the information required in Rule .0106(h) of this Subchapter. Discharges or releases that are classified as intermediate risk shall be remediated, at a minimum, to a cleanup level of 50 percent of the solubility of the contaminant at 25 degrees Celsius or 1,000 times the groundwater standard or interim standard established in Rule .0202 of this Subchapter, whichever is lower, for any groundwater contaminant except ethylene dibromide, benzene, and alkane and aromatic carbon fraction classes. Ethylene dibromide and benzene shall be remediated to a cleanup level of 1,000 times the federal drinking water standard as referenced in 15A NCAC 18C .1518, incorporated by reference including subsequent amendments and editions and available free of charge at http://reports.oah.state.nc.us/ncac/title 15a - environmental quality/chapter 18 - environmental health/subchapter c/15a ncac 18c .1518.pdf. Additionally, if a corrective action plan or groundwater monitoring plan is required under this Paragraph, the responsible party shall demonstrate that the groundwater cleanup levels are sufficient to prevent a violation of:

(1) the rules contained in 15A NCAC 02B;
(2) the standards contained in Rule .0202 of this Subchapter in a deep aquifer as described in Rule .0506(2)(b) of this Section; and
(3) the standards contained in Rule .0202 of this Subchapter at a location no closer than one year time of travel upgradient of a well within a designated wellhead protection area, based on travel time and the natural attenuation capacity of the subsurface materials or on a physical barrier to groundwater migration that exists or will be installed by the person making the request.

In any corrective action plan submitted pursuant to this Paragraph, natural attenuation may be used if the benefits of its use does not increase the risk to the environment and human health and shall not increase the costs of the corrective action.

(f) If the risk posed by a discharge or release is determined to be a low risk, the Department shall notify the responsible party that no cleanup, no further cleanup, or no further action is required by the Department, unless the Department later determines that the discharge or release poses an unacceptable risk or a potentially unacceptable risk to human health or the environment. No notification shall be issued pursuant to this Paragraph, however, until the responsible party has:

(1) completed soil remediation pursuant to Rule .0508 of this Section or as closely thereto as economically or technologically feasible;
(2) submitted proof of public notification, if required pursuant to Rule .0409(b) of this Section;
(3) recorded all required land-use restrictions pursuant to G.S. 143B-279.9 and 143B-279.11; and
(4) paid any applicable statutorily authorized fees.

History Note: *Authority G.S. 143-215.3(a)(1); 143-215.84; 143-215.104AA; 143B-282;*
Eff. March 1, 2016;
Amended Eff. March 1, 2017;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0508 ASSESSMENT AND REMEDIATION PROCEDURES

Assessment and remediation of soil contamination shall be addressed as follows:

(1) At the time that the Department determines the risk posed by the discharge or release, the Department shall also determine, based on site-specific information, whether the site is "residential" or "industrial/commercial." For the purposes of this Section, a site is presumed residential, but may be classified as industrial/commercial if the Department determines based on site-specific information that exposure to the soil contamination is limited in time due to the use of the site and does not involve exposure to children. For the purposes of this Item, "site" means both the property upon which the discharge or release occurred and any property upon that soil has been affected by the discharge or release.

(2) For a discharge or release the responsible party shall submit a report to the Department assessing the vertical and horizontal extent of soil contamination.

(3) For a discharge or release classified by the Department as low risk, the responsible party shall submit a report demonstrating that soil contamination has been remediated to either the residential or industrial/commercial maximum soil contaminant concentration established by the Department pursuant to Rule .0511 of this Section, whichever is applicable.

(4) For a discharge or release classified by the Department as high or intermediate risk, the responsible party shall submit a report demonstrating that soil contamination has been remediated to the lower of:

(a) the residential or industrial/commercial maximum soil contaminant concentration, whichever is applicable, that has been established by the Department pursuant to Rule .0511 of this Section; or

(b) the "soil-to-groundwater" maximum soil contaminant concentration that has been established by the Department pursuant to Rule .0511 of this Section.

History Note: *Authority G.S. 143-215.3(a)(1); 143-215.84; 143-215.104AA; 143B-282;*
Eff. March 1, 2016;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0509 NOTIFICATION REQUIREMENTS

(a) A responsible party who submits a corrective action plan that proposes natural attenuation, to cleanup groundwater contamination to a standard other than a standard as set forth in Rule .0202 of this Subchapter, or to cleanup soil other than to the standard for residential use or soil-to-groundwater contaminant concentration established pursuant to this Section, whichever is lowest, shall give notice to:

(1) the local Health Director and the chief administrative officer of each political jurisdiction in which the contamination occurs;

(2) all property owners and occupants within or contiguous to the area containing the contamination; and

(3) all property owners and occupants within or contiguous to the area where the contamination is expected to migrate.

The notice shall describe the nature of the plan and the reasons supporting it. Notification shall be made by certified mail concurrent with the submittal of the corrective action plan. Approval of the corrective action plan by the Department shall be postponed for a period of 30 days following receipt of the request so that the Department may receive and consider comments. The responsible party shall, within 60 days, provide the Department with a copy of the notice and proof of receipt of each required notice or of refusal by the addressee to accept delivery of a required notice. If notice by certified mail to occupants under this Paragraph is impractical, the responsible party shall give notice as provided in G.S. 1A-1, Rule 4(j) or 4(j1). If notice is made to occupants by posting, the responsible party shall provide the Department with a copy of the posted notice and a description of the manner in which such posted notice was given.

(b) A responsible party who receives a notice pursuant to Rule .0507(f) of this Section for a discharge or release that has not been remediated to the groundwater standards or interim standards established in Rule .0202 of this Subchapter or to the lower of the residential or soil-to-groundwater contaminant concentrations established under Rule .0511 of this Section, shall, within 30 days of the receipt of such notice, provide a copy of the notice to:

(1) the local Health Director and the chief administrative officer of each political jurisdiction in which the contamination occurs;

(2) all property owners and occupants within or contiguous to the area containing contamination; and

(3) all property owners and occupants within or contiguous to the area where the contamination is expected to migrate.

Notification shall be made by certified mail. The responsible party shall, within 60 days, provide the Department with proof of receipt of the copy of the notice or of refusal by the addressee to accept delivery of the copy of the notice. If notice by certified mail to occupants under this Paragraph is impractical, the responsible party shall give notice as provided in G.S. 1A-1, Rule 4(j) or 4(j1). If notice is made to occupants by posting, the responsible party shall provide the Department with a description of the manner in which such posted notice was given.

History Note: *Authority G.S. 143-215.3(a)(1); 143-215.104AA; 143B-282;*
Eff. March 1, 2016;
Readopted Eff. June 1, 2019;
Amended Eff. April 1, 2023.

15A NCAC 02L .0510 DEPARTMENTAL LISTING OF DISCHARGES OR RELEASES

The Department shall maintain in each of the Department's regional offices a list of all non-UST petroleum discharges or releases discovered and reported to the Department within the region.

History Note: *Authority G.S. 143-215.3(a)(1); 143B-282;*
Eff. March 1, 2016;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0511 ESTABLISHING MAXIMUM SOIL CONTAMINATION CONCENTRATIONS

For the purposes of risk-based assessment and remediation for non-UST petroleum releases, establishment of maximum soil contamination concentrations shall be in accordance with Rule .0411 of this Subchapter.

History Note: *Authority G.S. 143-215.3(a)(1); 143-215.84; 143-215.104AA; 143B-282;*
Eff. March 1, 2016;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0512 ANALYTICAL PROCEDURES FOR SOIL SAMPLES

For the purposes of risk-based assessment and remediation for non-UST petroleum releases, analytical procedures for soil samples shall be in accordance with Rule .0412 of this Subchapter.

History Note: *Authority G.S. 143-215.3(a)(1); 143-215.84; 143-215.104AA; 143B-282;*
Eff. March 1, 2016;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0513 ANALYTICAL PROCEDURES FOR GROUNDWATER SAMPLES

For the purposes of risk-based assessment and remediation for non-UST petroleum releases, analytical procedures for groundwater samples shall be in accordance with Rule .0413 of this Subchapter.

History Note: *Authority G.S. 143-215.3(a)(1); 143-215.84; 143-215.104AA; 143B-282;*
Eff. March 1, 2016;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0514 REQUIRED LABORATORY CERTIFICATION

In accordance with 15A NCAC 02H .0804, laboratories shall obtain North Carolina Division of Water Resources laboratory certification for parameters that are required to be reported to the State in compliance with the State's surface water, groundwater, and pretreatment rules.

History Note: *Authority G.S. 143-215.3(a)(1); 143-215.84; 143-215.104AA; 143B-282;*
Eff. March 1, 2016;
Readopted Eff. June 1, 2019.

15A NCAC 02L .0515 DISCHARGES OR RELEASES FROM OTHER SOURCES

This Section shall not relieve any person responsible for assessment or cleanup of contamination from a source other than a non-UST petroleum release from its obligation to assess and clean up contamination resulting from the discharge or releases.

History Note: *Authority G.S. 143-215.3(a)(1); 143-215.84; 143-215.104AA; 143B-282;*
Eff. March 1, 2016;
Readopted Eff. June 1, 2019.