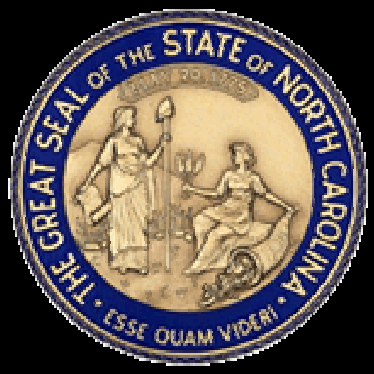
North Carolina Administrative Code

Title 15A
Department of Environment and Natural Resources
Division of Water Quality



Subchapter 2L
Section .0100, .0200, .0300

Classifications and Water Quality Standards Applicable to The Groundwaters of North Carolina

Last Amended on December 7, 2006
Environmental Management Commission
Raleigh, North Carolina

NORTH CAROLINA ADMINISTRATIVE CODE

TITLE 15A
DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES

SUBCHAPTER 2L - GROUNDWATER CLASSIFICATIONS AND STANDARDS

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Note: 15A NCAC 2L .0115 was Amended and Recodified to Section 15A NCAC 2L .0400 effective December 1, 2005. Contact the Division of Waste Management-Underground Storage Tank Section at 919-733-8486 for more information.

SUBCHAPTER 2L - GROUNDWATER CLASSIFICATION AND STANDARDS

SECTION .0100 - GENERAL CONSIDERATIONS

15A NCAC 02L .0101 AUTHORIZATION

(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 this Subchapter establish a series of classifications and water quality standards applicable to the groundwaters of the state.

(b) These rules are applicable to all activities or actions, intentional or accidental, which contribute to the degradation of groundwater quality, regardless of any permit issued by a governmental agency authorizing such action or activity except 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.

15A NCAC 02L .0102 DEFINITIONS

The definition of any word or phrase used in these Rules 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) "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.

(2) "Commission" means the Environmental Management Commission as organized under G.S. 143B.

(3) "Compliance boundary" means a boundary around a disposal system at and beyond which groundwater quality standards may not be exceeded and only applies to facilities which have received a permit issued under the authority of G.S. 143-215.1 or G.S. 130A.

(4) "Contaminant" means any substance occurring in groundwater in concentrations which exceed the groundwater quality standards specified in Rule .0202 of this Subchapter.

(5) "Corrective action plan" means a plan for eliminating sources of groundwater contamination or for achieving groundwater quality restoration or both.

(6) "Director" means Director of the Division of Environmental Management.

(7) "Division" means the Division of Environmental Management.

(8) "Exposure pathway" means a course taken by a contaminant by way of a transport medium after its release to the environment.

(9) "Free product" means a non-aqueous phase liquid which may be present within the saturated zone or in surface water.

(10) "Fresh groundwaters" means those groundwaters having a chloride concentration equal to or less than 250 milligrams per liter.

(11) "Groundwaters" means those waters occurring in the subsurface under saturated conditions.

(12) "Hazardous substance" means any substance as defined by Section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

(13) "Licensed geologist" means a person who has been duly licensed as a geologist in accordance with the requirements of G.S. 89E.

(14) "Natural remediation" means those natural processes acting to restore groundwater quality, including dilution, filtration, sorption, ion-exchange, chemical transformation and biodegradation.

(15) "Practical Quantitation Limit" means the lowest concentration of a given material that can be reliably achieved among laboratories within specified limits of precision and accuracy by a given analytical method during routine laboratory analysis.

(16) "Natural conditions" means the physical, biological, chemical and radiological conditions which occur naturally.

(17) "Potable waters" means those waters suitable for drinking by humans.

(18) "Professional Engineer" means a person who has been duly registered and licensed as a professional engineer in accordance with the requirements of G.S. 89C.

(19) "Receptor" means any human, plant, animal, or structure which is, or has the potential to be, adversely effected by the release or migration of contaminants. Any well constructed for the purpose of monitoring groundwater and contaminant concentrations shall not be considered a receptor.

(20) "Review boundary" means a boundary around a permitted disposal facility, midway between a waste boundary and a compliance boundary at which groundwater monitoring is required.

(21) "Saline groundwaters" means those groundwaters having a chloride concentration of more than 250 mg/l.

(22) "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.

(23) "Standards" means groundwater quality standards as specified in Rule .0202 of this Subchapter.

(24) "Suitable for drinking" means a quality of water which 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 render the water unacceptable due to aesthetic qualities, including taste, odor or appearance.

(25) "Time of travel" means the time required for contaminants in groundwater to move a unit distance.

(26) "Waste boundary" means the perimeter of the permitted waste disposal area.

(27) "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.

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 by the citizens of North Carolina. 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) It is the intention of the Commission to protect all groundwaters to a level of quality at least as high as that required under the standards established in Rule .0202 of this Subchapter. In keeping with the policy of the Commission to protect, maintain, and enhance groundwater quality within the State of North Carolina, the Commission will not approve any disposal system subject to the provisions of G.S. 143-215.1 which would result in:

(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 citizens of North Carolina based upon the projected economic benefits of the facility and a determination that public health will be protected, or

(2) a violation of a groundwater quality standard beyond a designated compliance boundary, or

(3) the impairment of existing groundwater uses or increased risk to the health or safety of the public due to the operation of a waste disposal system.

(c) Violations of 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 Subchapter.

(d) No person shall conduct or cause to be conducted, any activity which causes the concentration of any substance to exceed that specified in Rule .0202 of this Subchapter, 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, which involves site assessment, the interpretation of subsurface geologic conditions, preparation of conceptual 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 duly 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 duly 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; 143-214.1; 143-214.2; 143-215.3(e); 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.

15A NCAC 02L .0104 RESTRICTED DESIGNATION (RS)

(a) The RS designation serves as a warning that groundwater so designated may not be suitable for use as a drinking water supply without treatment. The designation is temporary and will be removed by the Director upon a determination that the quality of the groundwater so designated has been restored to the level of the applicable standards or when the groundwaters have been reclassified by the Commission. The Director is authorized to designate GA or GSA groundwaters as RS under any of the following circumstances:

(1) Where, as a result of man's activities, groundwaters have been contaminated and the Director has approved a corrective action plan, or termination of corrective action, that

will not result in the immediate restoration of such groundwaters to the standards established under this Subchapter.

(2) Where a statutory variance has been granted as provided in Rule .0113 of this Subchapter.

(b) Groundwaters occurring within an area defined by a compliance boundary in a waste disposal permit are deemed to be designated RS.

(c) The boundary of a designated RS area may be approximated in the absence of analytical data sufficient to define the dimension of the area. The boundary shall be located at least 250 feet away from the predicted edge of the contaminant plume, and shall include any areas into which the contamination is expected to migrate.

(d) In areas designated RS, the person responsible for groundwater contamination shall establish and implement a groundwater monitoring system sufficient to detect changes in groundwater quality within the RS designated area. Monitoring shall be quarterly for the first year and may be reduced to semi-annually thereafter until the applicable standards have been achieved. If during the monitoring period, contaminant concentrations increase, additional remedial action or monitoring pursuant to these Rules may be required.

(e) The applicant for an RS designation shall also provide written verification that all property owners within and adjacent to the proposed RS area have been notified of the requested RS designation.

(f) The Division shall provide public notice of the intent to designate any groundwater RS in accordance with the following requirements:

(1) Notice shall be published at least 30 days prior to any proposed final action in accordance with G.S. 143-215.4. In addition, notice shall be provided to all property owners identified pursuant to Paragraph (e) of this Rule and to the local County Health Director and the chief administrative officer of the political 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) the location and extent of the designated area;

(C) the county title number, county tax identification number, or the property tax book and page identifiers;

(D) a brief description of the action or actions which resulted in the degradation of groundwater in the area;

(E) actions or intended actions taken to restore groundwater quality;

(F) the significance of the RS designation;

(G) conditions applicable to removal of the RS designation;

(H) 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 determines that there is significant public interest he shall issue public notice and hold a public hearing in accordance with G.S 143-215.4(b) and Rule .0113(e) of this Section.

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

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

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 CORRECTIVE ACTION

(a) Where groundwater quality has been degraded, the goal of any required corrective action shall be restoration to the level of the standards, or as closely thereto as is economically and technologically feasible. In all cases involving requests to the Director 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 which results in the discharge of a waste or hazardous substance or oil to the groundwaters of the State, or in proximity thereto, shall take immediate action to terminate and control the discharge, mitigate any hazards resulting from exposure to the pollutants and notify the Division of the discharge.

(c) Any person conducting or controlling an activity which has not been permitted by the Division and which results in an increase in the concentration of a substance in excess of the standard, other than agricultural operations, shall:

(1) immediately notify the Division of the activity that has resulted in the increase and the contaminant concentration levels;
(2) take immediate action to eliminate the source or sources of contamination;
(3) submit a report to the Director assessing the cause, significance and extent of the violation; and
(4) implement an approved corrective action plan for restoration of groundwater quality in accordance with a schedule established by the Director, or his designee. In establishing a schedule the Director, or his designee shall consider any reasonable schedule proposed by

the person submitting the plan. A report shall be made to the Health Director of the county or counties in which the contamination occurs in accordance with the requirements of Rule .0114(a) in this Section.

(d) Any person conducting or controlling an activity which is conducted under the authority of a permit issued by the Division and which results in an increase in concentration of a substance in excess of the standards:

(1) at or beyond a review boundary, shall demonstrate, through predictive calculations or modeling, that natural site conditions, facility design and operational controls will prevent a violation of standards at the compliance boundary; or 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, or his designee.

(2) at or beyond a compliance boundary, shall assess the cause, significance and extent of the violation of standards and submit the results of the investigation, and a plan and proposed schedule for corrective action to the Director, or his designee. The permittee shall implement the plan as approved by and in accordance with a schedule established by the Director, or his designee. In establishing a schedule the Director, or his designee shall consider any reasonable schedule proposed by the permittee.

(e) For the purposes of Paragraphs (c) and (d) of this Rule, an activity conducted under the authority of a permit issued by the Division, and subject to Paragraph (d) of this Rule, is one for which:

(1) a permit has been issued pursuant to G.S. 143-215.1;

(2) the permit was originally issued after December 30, 1983;

(3) the substance for which a standard has been exceeded outside the compliance boundary has been released to groundwater as a result of the permitted activity;

(4) all other activities shall for the purpose of this Rule be deemed not permitted by the Division and subject to the provisions of Paragraph (c) of this Rule.

(f) Corrective action required following discovery of the unauthorized release of a contaminant to the surface or subsurface of the land, and prior to or concurrent with the assessment required in Paragraphs (c) and (d) of this Rule, shall include, but is not limited to:

(1) Prevention of fire, explosion or the spread of noxious fumes;

(2) Abatement, containment or control of the migration of contaminants;

(3) Removal, or treatment and 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 which would be potential continuing sources of pollutants to the groundwaters such as contaminated soils and non-aqueous phase liquids. Contaminated soils which threaten the quality of groundwaters must be treated, contained or disposed of in accordance with applicable rules. The treatment or disposal of contaminated soils shall be conducted in a manner that will not result in a violation of standards or North Carolina Hazardous Waste Management rules.

(g) The site assessment conducted pursuant to the requirements of Paragraph (c) of this Rule, shall include:

(1) The source and cause of contamination;
(2) Any imminent hazards to public health and safety and actions taken to mitigate them in accordance with Paragraph (f) of this Rule;
(3) All receptors and significant exposure pathways;
(4) The horizontal and vertical extent of soil and groundwater contamination and all significant factors affecting contaminant transport; and
(5) Geological and hydrogeological features influencing the movement, chemical, and physical character of the contaminants.

Reports of site assessments shall be submitted to the Division as soon as practicable or in accordance with a schedule established by the Director, or his designee. In establishing a schedule the Director, or his designee shall consider any reasonable proposal by the person submitting the report.

(h) Corrective action plans for restoration of groundwater quality, submitted pursuant to Paragraphs (c) and (d) of this Rule shall include:

(1) A description of the proposed corrective action and reasons for its selection.
(2) Specific plans, including engineering details where applicable, for restoring groundwater quality.
(3) A schedule for the implementation and operation of the proposed plan.
(4) A monitoring plan for evaluating the effectiveness of the proposed corrective action and the movement of the contaminant plume.

(i) In the evaluation of corrective action plans, the Director, or his designee shall consider the extent of any violations, the extent of any threat to human health or safety, 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, the time and costs estimated to achieve groundwater quality restoration, and the public and economic benefits to be derived from groundwater quality restoration.

(j) A corrective action plan prepared pursuant to Paragraph (c) or (d) of this Rule must be implemented using the best available technology for restoration of groundwater quality to the level of the standards, except as provided in Paragraphs (k), (l), (m), (r) and (s) of this Rule.

(k) Any person required to implement an approved corrective action plan for a non-permitted site pursuant to this Rule may request that the Director approve such a plan without requiring groundwater remediation to the standards. A request submitted to the Director under this Paragraph shall include a description of site specific conditions, including information on the availability of public water supplies for the affected area; the technical basis for the request; and any other information requested by the Director to thoroughly evaluate the request. In addition, the person making the request must demonstrate to the satisfaction of the Director:

(1) that all sources of contamination and free product have been removed or controlled pursuant to Paragraph (f) of this Rule;

(2) that the time and direction of contaminant travel can be predicted with reasonable certainty;

(3) that contaminants have not and will not migrate onto adjacent properties, or that:

(A) such properties are served by an existing public water supply system dependent on surface waters or hydraulically isolated groundwater, or

(B) the owners of such properties have consented in writing to the request;

(4) that the standards specified in Rule .0202 of this Subchapter will be met at a location no closer than one year time of travel upgradient of an existing or foreseeable receptor, based on travel time and the natural attenuation capacity of subsurface materials or on a physical barrier to groundwater migration that exists or will be installed by the person making the request;

(5) that, if the contaminant plume is expected to intercept surface waters, the groundwater discharge will not possess contaminant concentrations that would result in violations of standards for surface waters contained in 15A NCAC 2B .0200;

(6) that public notice of the request has been provided in accordance with Rule .0114(b) of this Section;

(7) that the proposed corrective action plan would be consistent with all other environmental laws.

(l) Any person required to implement an approved corrective action plan for a non-permitted site pursuant to this Rule may request that the Director approve such a plan based upon natural processes of degradation and attenuation of contaminants. A request submitted to the Director under this Paragraph shall include a description of site specific conditions, including written documentation of projected groundwater use in the contaminated area based on current state or local government planning efforts; the technical basis for the request; and any other information requested by the Director to thoroughly evaluate the request. In addition, the person making the request must demonstrate to the satisfaction of the Director:

(1) that all sources of contamination and free product have been removed or controlled pursuant to Paragraph (f) of this Rule;

(2) that the contaminant has the capacity to degrade or attenuate under the site-specific conditions;

(3) that the time and direction of contaminant travel can be predicted with reasonable certainty;

(4) that contaminant migration will not result in any violation of applicable groundwater standards at any existing or foreseeable receptor;

(5) that contaminants have not and will not migrate onto adjacent properties, or that:

(A) such properties are served by an existing public water supply system dependent on surface waters or hydraulically isolated groundwater, or

(B) the owners of such properties have consented in writing to the request;

(6) that, if the contaminant plume is expected to intercept surface waters, the groundwater discharge will not possess contaminant concentrations that would result in violations of standards for surface waters contained in 15A NCAC 2B .0200;

(7) that the person making the request will put in place a groundwater monitoring program sufficient to track the degradation and attenuation of contaminants and contaminant by-products within and down gradient of the plume and to detect contaminants and contaminant by-products prior to their reaching any existing or foreseeable receptor at least one year's time of travel upgradient of the receptor and no greater than the distance the groundwater at the contaminated site is predicted to travel in five years;

(8) that all necessary access agreements needed to monitor groundwater quality pursuant to Subparagraph (7) of this Paragraph have been or can be obtained;

(9) that public notice of the request has been provided in accordance with Rule .0114(b) of this Section; and

(10) that the proposed corrective action plan would be consistent with all other environmental laws.

(m) The Division or any person required to implement an approved corrective action plan for a non-permitted site pursuant to this Rule may request that the Director approve termination of corrective action.

(1) A request submitted to the Director under this Paragraph shall include:

(A) a discussion of the duration of the corrective action, the total project's cost, projected annual cost for continuance and evaluation of the success of the corrective action;

(B) an evaluation of alternate treatment technologies which could result in further reduction of contaminant levels projected capital and annual operating costs for each technology;

(C) effects, including health and safety impacts, on groundwater users if contaminant levels remain at levels existing at the time corrective action is terminated; and

(D) any other information requested by the Director to thoroughly evaluate the request.

(2) In addition, the person making the request must demonstrate to the satisfaction of the Director:

(A) that continuation of corrective action would not result in a significant reduction in the concentration of contaminants (At a minimum this demonstration must show the duration and degree of success of existing remedial efforts to attain standards and include a showing that the asymptotic slope of the contaminants curve of decontamination is less than a ratio of 1:40 over a term of one year based on quarterly sampling);

(B) that 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;

(C) that, if the contaminant plumes expected to intercept surface waters, the groundwater discharge will not possess contaminant concentrations that would result in violations of standards for surface waters contained in 15A NCAC 2B .0200;

(D) that public notice of the request has been provided in accordance with Rule .0114(b) of this Section; and

(E) that the proposed termination would be consistent with all other environmental laws.

(3) The Director shall not authorize termination of corrective action 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.

(4) The Director may authorize the termination of corrective action, or amend the corrective action plan after considering all the information in the request. Upon termination of corrective action, the Director shall require implementation of a groundwater monitoring program sufficient to track the degradation and attenuation of contaminants at a location of at least one year's predicted time of travel upgradient of any existing or foreseeable receptor. The monitoring program shall remain in effect until there is sufficient evidence that the contaminant concentrations have been reduced to the level of the standards.

(n) Upon a determination by the Director that continued corrective action would result in no significant reduction in contaminant concentrations, and the contaminated groundwaters can be rendered potable by treatment using readily available and economically reasonable technologies, the Director may designate the remaining area of degraded groundwater RS. Where the remaining degraded groundwaters cannot be made potable by such treatment, the Director may consider a request for reclassification of the groundwater to a GC classification as outlined in Rule .0201 of this Subchapter.

(o) If at any time the Director determines that a new technology is available that would remediate the contaminated groundwater to the standards specified in Rule .0202 of this Subchapter, the Director may require the responsible party to evaluate the economic and technological feasibility of implementing the new technology in an active groundwater corrective action plan in accordance with a schedule established by the Director. The Director's determination to utilize new technology at any site or for any particular constituent shall include a consideration of the factors in Paragraph (h) of this Rule.

(p) Where standards are exceeded as a result of the application of pesticides or other agricultural chemicals, the Director shall request the Pesticide Board or the Department of Agriculture to assist the Division of Environmental Management in determining the cause of the violation. If the violation is determined to have resulted from the use of pesticides, the Director 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) The approval pursuant to this Rule of any corrective action plan, or modification or termination thereof, which permits the migration of a contaminant onto adjacent property, shall not affect any private right of action by any party which may be effected by that contamination.

(r) If a discharge or release is not governed by 15A NCAC 2L .0115 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 (k) or (l) of this Rule unless such a person demonstrates to the Director that:

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

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

(s) If a discharge or release is not governed by 15A NCAC 2L .0115 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 Director 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 (k) and (l) of this Rule; or

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

History Note: Authority G.S. 143-215.2; 143-215.3(a)(1); 143-215.94A; 143-215.94T; 143-215.94V; 143B-282;
1995 (Reg. Sess. 1996) c. 648, s. 1;
Eff. August 1, 1989;
Amended Eff. October 1, 1993; September 1, 1992;
Temporary Amendment Eff. January 2, 1998; January 2, 1996;
Amended Eff. October 29, 1998.

15A NCAC 02L .0107 COMPLIANCE BOUNDARY

(a) For disposal systems individually permitted prior to December 30, 1983, the compliance boundary is 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 250 feet from the waste boundary, or 50 feet within the property boundary, whichever point is closer to the source.

(c) The boundary shall be established by the Director, or his designee at the time of permit issuance. Any sale or transfer of property which affects a compliance boundary shall be reported immediately to the Director, or his designee. For disposal systems which are not governed by Paragraphs (e) or (f) of this Rule, the compliance boundary affected by the sale or transfer of property will be re-established consistent with Paragraphs (a) or (b) of this Rule, whichever is applicable.

(d) Except as provided in Paragraph (g) of this Rule, no water supply wells shall be constructed or operated within the compliance boundary of a disposal system individually permitted or repermitted after January 1, 1993.

(e) Except as provided in Paragraph (g) of this Rule, a permittee shall not transfer land within an established compliance boundary of a disposal system permitted or repermitted after January 1, 1993 unless:

(1) the land transferred is serviced by a community water system as defined in 15A NCAC 18C, the source of which is located outside the compliance boundary; and

(2) the deed transferring the property:

(A) contains 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; and

(B) contains a restrictive covenant running with the land and in favor of the permittee and the State, as a third party beneficiary, which prohibits the construction and operation of water supply wells within the compliance boundary; and

(C) contains a restrictive covenant running with the land and in favor of the permittee and the State, as a third party beneficiary, which grants the right to the permittee and the State to enter on such property within the compliance boundary for groundwater monitoring and remediation purposes.

(f) Except as provided in Paragraph (g) of this Rule, if at the time a permit is issued or reissued after January 1, 1993, the permittee is not the owner of the land within the compliance boundary, it shall be a condition of the permit issued or renewed that the landowner of the land within the compliance boundary, 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 which:

(1) contains:

(A) 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

(B) 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;

(2) prohibits the construction and operation of water supply wells within the compliance boundary; and

(3) reserves the right to the permittee and the State to enter on such property within the compliance boundary for groundwater monitoring and remediation purposes. The easement may be terminated by the Director when its purpose has been fulfilled or the

need for the easement no longer exists. Under those conditions the Director shall, upon request by the landowner, file a document terminating the easement with the appropriate Register of Deeds.

(g) The requirements of Paragraphs (d), (e) and (f) of this Rule are not applicable to ground adsorption treatment systems serving four or fewer single family dwellings or multiunit dwellings of four or fewer units.

(h) The boundary shall form a vertical plane extending from the water table to the maximum depth of saturation.

(i) For ground absorption sewage treatment and disposal systems which are permitted under 15A NCAC 18A .1900, the compliance boundary shall be established at the property boundary.

(j) Penalties authorized pursuant to G.S. 143-215.6A(a)(1) will not be assessed for violations of standards within a compliance boundary unless the violations are the result of violations of permit conditions or negligence in the management of the facility.

(k) The Director shall require:

(1) that permits for all activities governed by G.S. 143-215.1 be written to protect the quality of groundwater established by applicable standards, at the compliance boundary;

(2) that necessary groundwater quality monitoring shall be conducted within the compliance boundary; and

(3) that a violation of standards within the compliance boundary resulting from activities conducted by the permitted facility be remedied through clean-up, recovery, containment, or other response when any of the following conditions occur:

(A) a violation of any standard in adjoining classified groundwaters occurs or can be reasonably predicted to occur considering hydrogeologic conditions, modeling, or other available evidence;

(B) an imminent hazard or threat to the public health or safety exists; or

(C) a violation of any standard in groundwater occurring in the bedrock other than limestones found in the Coastal Plain sediments, unless it can be demonstrated that the violation will not adversely affect, or have the potential to adversely affect a water supply well.

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

15A NCAC 02L .0108 REVIEW BOUNDARY

A review boundary is established around any disposal system midway 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 take action in accordance with the provisions of Rule .0106(c)(2)(A) of this Subchapter.

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

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 2H .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, or his designee shall give public notice of proposed consent special orders as specified in 15A NCAC 2H .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.

15A NCAC 02L .0110 MONITORING

(a) Except where exempted by statute or this Subchapter, any person who causes, permits or has control over any discharge of waste, or groundwater cleanup program, shall install and implement a monitoring system, at such locations, and in such detail, as the Director, or his designee may require to evaluate the effects of the discharge upon the 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 monitoring plan shall be prepared under the responsible charge of a Professional Engineer or Licensed Geologist and bear the seal of the same.
(b) Monitoring systems shall be constructed in a manner that will not result in the contamination of adjacent groundwaters of a higher quality.
(c) Monitoring shall be conducted and results reported in a manner and at a frequency specified by the Director, or his designee.

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.

15A NCAC 02L .0111 REPORTS

(a) Any person subject to the requirements for corrective action specified in Rule .0106 of this Section shall submit to the Director, in such detail as the Director may require, a written report that describes:

(1) the results of the investigation specified in Paragraphs (c) and (d) of Rule .0106 of this Section, including but not limited to:
   (A) a description of the sampling procedures followed and methods of chemical analyses used; and
   (B) all technical data utilized in support of any conclusions drawn or determinations made.
(2) the results of the predictive calculations or modeling, including a copy of the calculations or model runs and all supporting technical data, used in the demonstration required in Paragraph (d) of Rule .0106 of this Section; and
(3) the proposed methodology and timetable associated with the corrective action for those situations identified in Paragraphs (c) and (d) of Rule .0106 of this Section.

(b) The report shall be prepared under the responsible charge of a Professional Engineer or Licensed Geologist and bear the seal of the same as specified in Rule .0106(d) of this Section.

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.

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 will be in accordance with:

(1) The most sensitive of the following methods or procedures for substances where the standard is at or above the method detection limit value:
   (a) The most recent version of 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;

(b) Methods for Chemical Analysis of Water and Waste, 1979, U.S. Environmental Protection Agency publication number EPA-600/4-79-020, as revised March 1983;

(c) Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods, 3rd Edition, 1986, U.S. Environmental Protection Agency publication number SW-846;

(d) Test Procedures for the Analysis of Pollutants Under the Clean Water Act, Federal Register Vol. 49, No. 209, 40 CFR Part 136, October 26, 1984;

(e) Methods or procedures approved by letter from the Director upon application by the regulated source; or

(2) A method or procedure approved by the Director for substances where the standard is less than the method detection limit value.

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

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 filed by letter from the applicant to the Environmental Management Commission. The application shall be mailed to the chairman of the Commission in care of the Director, Division of Environmental Management, Post Office Box 29535, Raleigh, N.C. 27626-0535.

(c) The application shall contain the following information:

(1) Applications filed by counties or municipalities must 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 detailed 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 (numbered roads, named streams/rivers, etc.) must be included.

(4) Supporting information to establish that the variance will not endanger the public health and safety, including health and environmental effects from exposure to groundwater contaminants. (Location of wells and other water supply sources including details of well construction within 1/2 mile of site must 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 must identify specific technology considered, and 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 any property owners adjacent to the site covered by the variance.

(d) Upon receipt of the application, the Director will review it for completeness and request additional information if necessary. 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 by the Director at least 30 days prior to the date of the hearing:

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

(B) by mailing to the North Carolina Department of Environment, Health, and Natural Resources, Division of Environmental Health and appropriate local health agency;

(C) by mailing to any other federal, state or local agency upon request;

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

(E) by mailing 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; and

(F) by mailing to any person or group upon request.

(2) The contents of public notice of any hearing shall include at least 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) brief summary of the variance request;

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

(E) brief description of activities or operations which have or will result in the discharge of contaminants to the groundwaters 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) 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 the public hearing 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) If the Commission's final decision is unacceptable, 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.

15A NCAC 02L .0114 NOTIFICATION REQUIREMENTS

(a) Any person subject to the requirements of Rule .0106(c) of this Section shall submit to the local Health Director, and the chief administrative officer of the political jurisdictions in which the groundwater contamination has occurred, a report that describes:

(1) The area extent of the contaminant plume;
(2) The chemical constituents in the groundwater which exceed the standards described in Rule .0202 of this Subchapter;
(3) Actions taken and intended to mitigate threats to human health;
(4) The location of any wells installed for the purpose of monitoring the contaminant plume and the frequency of sampling.

The report described in this Rule shall be submitted no later than five working days after submittal of the completed report assessing the cause, significance and extent of the violation as required by Rule .0106(c).

(b) Any person who submits a request under Rule .0106(k), (l), or (m) of this Section shall notify the local Health Director and the chief administrative officer of the political 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 expected to migrate, of the nature of the request and reasons supporting it. Notification shall be made by certified mail concurrent with the submittal of the request to the Director. A final decision by the Director shall be postponed for a period of 30 days following receipt of the request so that the Director may consider comments submitted by individuals interested in the request.

(c) Any person whose request under Rule .0106(k), (l), or (m) of this Section is granted by the Director shall notify parties specified in Paragraph (b) of this Rule of the Director's decision. 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(2)b;
Eff. October 1, 1993.

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.

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 (g) and (h) of this Rule shall be 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 shall constitute a violation of the standard.

(2) Where two or more substances exist in combination, the Director shall consider the effects of chemical interactions as determined by the Division of Public Health and may establish maximum concentrations at values less than those established in accordance with Paragraphs (c), (g), or (h) of this Rule. 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 determined by the Director.

(c) Except for tracers used in concentrations which have been determined by the Division of Public Health to be protective of human health, and the use of which has been permitted by the Division, substances which are not naturally occurring and for which no standard is specified shall not be permitted in detectable concentrations in Class GA or Class GSA groundwaters. Any person may petition the Director to establish an interim maximum allowable concentration for a substance for which a standard has not been established under this Rule. The petitioner shall submit relevant toxicological and epidemiological data, study results, and calculations necessary to establish a standard in accordance with Paragraph (d) of this Rule. Within three months after the establishment of an interim maximum allowable concentration for a substance by the Director, the Director shall initiate action to consider adoption of a standard for that substance.

(d) 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 (.10 for inorganics; .20 for organics)] / [2 liters/day (avg. water consumption)];

(2) Concentration which 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 U.S. EPA.

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

(f) Groundwater quality standards specified in Paragraphs (g) and (h) of this Rule and interim maximum allowable concentrations established pursuant to Paragraph (c) of this Rule shall be reviewed on a triennial basis. Appropriate modifications to established standards shall be made in accordance with the procedure prescribed in Paragraph (d) of this Rule where modifications are considered appropriate based on data published subsequent to the previous review.

(g) Class GA Standards. Where not otherwise indicated, the standard refers to the total concentration in milligrams per liter of any constituent in a dissolved, colloidal or particulate form which is mobile in groundwater. This does not apply to sediment or other particulate matter which is preserved in a groundwater sample as a result of well construction or sampling procedures.

(1) acetone: 0.7
(2) acenaphthene: 0.08
(3) acenaphthylene: 0.21
(4) acrylamide (propenamide): 0.000008
(5) anthracene: 2.1
(6) arsenic: 0.05
(7) atrazine and chlorotriazine metabolites: 0.0030
(8) barium: 2.0
(9) benzene: 0.001
(10) benzo(a)anthracene (benz(a)anthracene): 0.0000479
(11) benzo(b)fluoranthene: 4.79×10^{-5}
(12) benzo(k)fluoranthene: 4.79×10^{-4}
(13) benzo(g,h,i,)perylene: 0.21
(14) benzo(a)pyrene: 4.79×10^{-6}
(15) boron: 0.315
(16) bromodichloromethane: 0.00056
(17) bromoform (tribromomethane): 0.00443
(18) n-butylbenzene: 0.07
(19) sec-butylbenzene: 0.07
(20) tert-butylbenzene: 0.07
(21) butylbenzyl phthalate: 0.10
(22) cadmium: 0.00175
(23) caprolactam: 3.5
(24) carbofuran: 0.035
(25) carbon disulfide: 0.7
(26) carbon tetrachloride: 0.000269
(27) chlordane: 1.0×10^{-4}
(28) chloride: 250.0
(29) chlorobenzene: 0.05
(30) chloroethane: 2.80
(31) chloroform (trichloromethane): 0.07

(32) chloromethane (methyl chloride): 2.6×10^{-3}
(33) 2-chlorophenol: 0.00036
(34) 2-chlorotoluene: 0.14
(35) chromium: 0.05
(36) chrysene: 0.00479
(37) cis-1,2-dichloroethene: 0.07
(38) coliform organisms (total): 1 per 100 milliliters
(39) color: 15 color units
(40) copper: 1.0
(41) cyanide (free cyanide): 0.07
(42) 2, 4-D (2,4-dichlorophenoxy acetic acid): 0.07
(43) dibenz(a,h)anthracene: 4.7×10^{-6}
(44) 1,2-dibromo-3-chloropropane: 2.5×10^{-5}
(45) dichlorodifluoromethane (Freon-12; Halon): 1.4
(46) p,p'-dichlorodiphenyl dichloroethane (DDD): 1.4×10^{-4}
(47) p,p'-dichlorodiphenyltrichloroethane (DDT): 1.0×10^{-4}
(48) 1,1-dichloroethane: 0.07
(49) 1,2-dichloroethane (ethylene dichloride): 0.00038
(50) 1,1-dichloroethylene (vinylidene chloride): 0.007
(51) 1,2-dichloropropane: 0.00051
(52) 1,3-dichloropropene (cis and trans isomers): 0.00019
(53) dieldrin: 2.2×10^{-6}
(54) di-n-butyl (or dibutyl) phthalate (DBP): 0.7
(55) diethylphthalate (DEP): 5.0
(56) di(2-ethylhexyl) phthalate (DEHP): 0.0025
(57) 2,4-dimethylphenol (m-xylenol): 0.14
(58) di-n-octyl phthalate: 0.14
(59) p-dioxane (1,4-diethylene dioxide): 0.007
(60) dioxin: 2.2×10^{-10}
(61) diphenyl (1,1– diphenyl): 0.35
(62) dissolved solids (total): 500
(63) disulfoton: 2.8×10^{-4}
(64) diundecyl phthalate (Santicizer 711): 0.14
(65) endosulfan II (beta-endosulfan): 0.0420
(66) endrin: 0.002
(67) endrin (total endrin: includes endrin, endrin aldehyde, and endrin ketone): 2.1×10^{-3}
(68) epichlorohydrin (1-chloro-2,3-epoxypropane): 0.00354
(69) ethylbenzene: 0.550
(70) ethylene dibromide (EDB; 1,2-dibromoethane): 4.0×10^{-7}
(71) ethylene glycol: 14.0

(72) fluoranthene: 0.28
(73) fluorene: 0.28
(74) fluoride: 2.0
(75) foaming agents: 0.5
(76) gross alpha (adjusted)particle activity (excluding radium-226 and uranium): 15 pCi/l
(77) heptachlor: 7.8×10^{-6}
(78) heptachlor epoxide: 3.8×10^{-6}
(79) heptane: 0.42
(80) hexachlorobenzene (perchlorobenzene): 0.00002
(81) hexachlorocyclohexane isomers (total hexachlorocyclohexane: includes alpha,beta,delta,gamma, and epsilon isomers): 1.9×10^{-5}
(82) n-hexane: 0.42
(83) indeno(1,2,3-cd)pyrene: 4.79×10^{-5}
(84) iron: 0.3
(85) isophorone: 0.0368
(86) isopropylbenzene: 0.070
(87) isopropyl ether (diisopropyl ether): 0.070
(88) lead: 0.015
(89) lindane: 2.0×10^{-4}
(90) manganese: 0.05
(91) mercury: 0.00105
(92) metadichlorobenzene (1,3-dichlorobenzene): 0.170
(93) methanol: 3.5
(94) methoxychlor: 0.035
(95) methylene chloride (dichloromethane): 0.0046
(96) methyl ethyl ketone (MEK; 2-butanone): 4.20
(97) 2-methylnaphthalene: 0.0140
(98) 3-methylphenol (m-cresol): 0.0350
(99) 4-methylphenol (p-cresol): 3.5×10^{-3}
(100) methyl tert-butyl ether (MTBE): 0.2
(101) naphthalene: 0.021
(102) nickel: 0.1
(103) nitrate: (as N) 10.0
(104) nitrite: (as N) 1.0
(105) N-nitrosodimethylamine: 7.0×10^{-7}
(106) orthodichlorobenzene (1,2-dichlorobenzene): 0.024
(107) oxamyl: 0.175
(108) paradichlorobenzene (1,4-dichlorobenzene): 0.0014
(109) pentachlorophenol: 0.00029
(110) petroleum aliphatic carbon fraction class C5 - C8: 0.42

(111) petroleum aliphatic carbon fraction class C9 - C18: 4.20
(112) petroleum aliphatic carbon fraction class C19 - C36: 42.0
(113) petroleum aromatics carbon fraction class C9 – C22: 0.210
(114) pH: 6.5 - 8.5
(115) phenanthrene: 0.21
(116) phenol: 0.30
(117) phorate: 1.4×10^{-3}
(118) n-propylbenzene: 0.070
(119) pyrene: 0.21
(120) selenium: 0.05
(121) silver: 0.0175
(122) simazine: 0.004
(123) styrene (ethenylbenzene): 0.1
(124) sulfate: 250.0
(125) tetrachloroethylene (perchloroethylene; PCE): 0.0007
(126) 2,3,4,6-tetrachlorophenol: 0.210
(127) toluene (methylbenzene): 1.0
(128) toxaphene: 3.1×10^{-5}
(129) 2, 4, 5,-TP (Silvex): 0.05
(130) trans-1,2-dichloroethene: 0.10
(131) 1,1,1-trichloroethane (methyl chloroform): 0.2
(132) trichloroethylene (TCE): 0.0028
(133) trichlorofluoromethane: 2.1
(134) 1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113): 210.0
(135) 1,2,3- trichloropropane: 5.0×10^{-6}
(136) 1,2,4-trimethylbenzene: 0.350
(137) 1,3,5-trimethylbenzene: 0.350
(138) vinyl chloride (chloroethylene): 1.5×10^{-5}
(139) xylenes (o-, m-, and p-): 0.53
(140) zinc: 1.05

(h) Class GSA Standards. The standards for this class shall be the same as those for Class GA except as follows:

(1) chloride: allowable increase not to exceed 100 percent of the natural quality concentration.
(2) total dissolved solids: 1000 mg/l.

(i) Class GC Waters.

(1) The concentrations of substances which, 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 which, 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, which exceed the established standard at the time of classification, shall be listed in Section .0300 of this Subchapter.

History Note: Authority G.S. 143-214.1; 143B-282(a)(2);
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, 2005.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

APPENDIX # 1

INTERIM MAXIMUM ALLOWABLE CONCENTRATIONS FOR NORTH CAROLINA GROUNDWATERS

APPENDIX # 1

Interim Maximum Allowable Concentrations shown in the table below are those established under 15A NCAC 2L .0202. For more information, contact the Division of Water Quality Planning Section at (919) 733-5083 or the web site at: http://h2o.enr.state.nc.us/csu/index.html.

Interim Concentrations

Substance	Concentrations (mg/L)	Effective Dates
Benzoic Acid	28.0	May 24, 1999
Bis(chloroethyl)ether (BCEE)	3.1 x 10-5	May 24, 1999
Dibenzofuran	0.028	May 24, 1999
Dibromochloromethane	4.1 x 10-4	May 24, 1999
Ethyl Acetate	2.60	May 24, 1999
Hexachlorobutadiene	4.4 x 10-4	May 24, 1999
2-Hexanone	0.28	May 24, 1999
1,1,2,2-Tetrachloroethane	1.7 x 10-4	May 24, 1999
1,2,4-Trichlorobenzene	0.07	May 24, 1999
Perfluorooctanoic Acid (PFOA or C8)	0.002	December 7, 2006