

Eligibility Requirements and Procedures for Risk-Based Remediation of Industrial Sites Pursuant to N.C.G.S. 130A-310.65 to 310.77

**North Carolina Department of Environment and Natural Resources
Division of Waste Management
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Procedures for Establishing Site Eligibility:

The remedial investigation must be completed before an application for risk-based remediation can be made. It is not until then that the applicant will know the extent of the contamination for purposes of calculating the application fee or for evaluating potential exposure routes at the site.

The applicant must provide a demonstration of eligibility package which addresses each of the items in the following section.

An applicant's eligibility package should be sent to the program with regulatory authority over the remedial action.

Once eligible, certain technical requirements must be met. These requirements are outlined in a subsequent section entitled "Supplemental Technical Requirements for Eligible Sites."

Site Eligibility Criteria:

The following criteria must be met to be eligible for Risk-Based Remediation for Industrial Sites under N.C.G.S. 130A-310.65 to 310.77.

(1) ***Groundwater is contaminated.*** A party does not need to apply for Risk-Based Remediation of Industrial Sites under N.C.G.S. 130A-310.65 to 310.77 if soils only are contaminated. While such sites are not excluded from the legislation, a party does not need to go through these processes to obtain risk-based levels for soil contamination. Since there are not chemical specific promulgated standards for soils, alternate cleanup levels are otherwise available if appropriate for the site and approved by the Division. In such cases, all other soil cleanup criteria (e.g. protection of groundwater criteria, levels to protect ecological environments if present, levels to prevent structural vapor intrusion) must be met and land use restrictions must be recorded. The Department's authorities for land use restrictions are found under G.S. 143B-279-279.9, 130A-310.3(f), and 143-215.84(f).

(2) ***Remediation of the contamination is governed by one of the following programs:***

- (a) The Inactive Hazardous Sites Response Act of 1987 under Part 3 of Article 9 of Chapter 130A of the General Statutes, including voluntary actions under G.S. 130A-310.9 of that act, and rules promulgated pursuant to those statutes.
- (b) The hazardous waste management program administered by the State pursuant to the federal Resource Conservation and Recovery Act of 1976, Public Law 94-580, 90 Stat.

2795, 42 U.S.C. § 6901, et seq., as amended, and Article 9 of Chapter 130A of the General Statutes.

(c) The solid waste management program administered pursuant to Article 9 of Chapter 130A of the General Statutes.

(d) The federal Superfund program administered in part by the State pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, Public Law 96-510, 94 Stat. 2767, 42 U.S.C. § 9601, et seq., as amended, the Superfund Amendments and Reauthorization Act of 1986, Public Law 99-499, 100 Stat. 1613, as amended, and under Part 4 of Article 9 of Chapter 130A of the General Statutes.

(e) The groundwater protection corrective action requirements adopted by the Commission pursuant to Article 21 of Chapter 143 of the General Statutes.

(f) Oil Pollution and Hazardous Substances Control Act (excluding petroleum underground storage tank releases).

Certain sites/programs are specifically excluded because they have existing mechanisms for establishing alternate standards for groundwater. These include:

(a) The Leaking Petroleum Underground Storage Tank Cleanup program under Part 2A of Article 21A of Chapter 143 of the General Statutes and rules promulgated pursuant to that statute.

(b) The Dry-Cleaning Solvent Cleanup program under Part 6 of Article 21A of Chapter 143 of the General Statutes and rules promulgated pursuant to that statute.

(c) The pre-1983 landfill assessment and remediation program established under G.S. 130A-310.6(c) through (g).

(3) *The property is or has been used primarily for manufacturing or other industrial activities for the production of a commercial product. This includes a property used primarily for the generation of electricity.* The property does not need to currently be in industrial use.

(4) *No contaminant associated with activities at the property is located off the property at the time the remedial action plan is submitted.* If a remediating party is able to conduct sufficient cleanup to remove contamination above unrestricted use levels in off property areas, they would meet this criteria and may be able to convert to a risk-based cleanup if the other eligibility criteria are met.

(5) *No contaminant associated with activities at the property will migrate to any adjacent properties above unrestricted use standards for the contaminant.* The remediating party must demonstrate through contaminant fate and transport modeling, employing actual site data, that contamination will not migrate off the property above unrestricted use standards. Thus, the 15A NCAC 2L standard cannot be exceeded off the property anytime in the future. If there is no standard, an IMAC should be calculated. Contamination must attenuate to such levels before passing the property boundary. If a subsequent change in use of groundwater in the area later alters predictions, the site may lose eligibility and the case reopened pursuant to G.S. 130A-310.73(c).

(6) *G.S.130A-310.69(b)(1) requires that no uncontaminated medium on property can be allowed to be contaminated above unrestricted use levels in the future.* For example, if groundwater is uncontaminated, soils cannot be allowed to leach above the 15A NCAC 2L

standards. If groundwater is already contaminated, then soils would only have to meet levels that do not cause an exceedance of the risk-based remediation standard for groundwater.

(7) The discharge, spill or release of the contamination was reported to the Department prior to 1 March 2011.

(8) The remedial investigation, the remediation standards, the remedial action plan and the public notice meet the requirements specified in G.S.130A-310.68 through 310.77. See the section entitled “Supplemental Technical Requirements for Eligible Sites” for list of requirements.

(9) The applicant must pay the fee set out in G.S.130A-310.68. The amount of the fee is based on the lateral extent of contamination. Thus, the remedial investigation must be complete before a party can apply for risk-based cleanup. The fee must be paid at the time of application. The fee is set at \$4500 per acre of contamination. This includes all contamination, regardless of media, which exceeds unrestricted use cleanup levels. Partial acres are counted as a whole acre. The total fee shall not exceed \$125,000. The fee will be deposited in a special sub-fund of the Inactive Hazardous Sites Cleanup Fund.

(10) Financial Assurance. The applicant shall establish financial assurance that will ensure that sufficient funds are available to implement and maintain the actions or controls specified in the remedial action plan for the site. The person conducting remediation of a site may establish financial assurance through one of the following mechanisms, or any combination of the following mechanisms, in a form specified or approved by the Department: insurance products issued from entities having no corporate or ownership association with the person conducting the remediation; funded trusts; surety bonds; certificates of deposit; letters of credit; corporate financial tests; local government financial tests; corporate guarantees; local government guarantees; capital reserve funds; or any other financial mechanism authorized for the demonstration of financial assurance under (i) 40 Code of Federal Regulations Part 264, Subpart H (July 1, 2010 Edition) and (ii) Section .1600 of Subchapter B of Chapter 13 of Title 15A of the North Carolina Administrative Code. Proof of financial assurance shall be provided in the remedial action plan and annually thereafter on the anniversary date of the approval of the plan. A reasonable estimate of the probable cost of the remedial action must be provided in the plan to support the financial assurance proposal.

Supplemental Technical Requirements For Eligible Sites:

Remedial Investigation

The remedial investigation shall assess all contaminated areas of the site, including types and levels of contamination, and the risk that the contamination poses to public health, safety, and welfare and to the environment.

The remedial investigation report must contain the following items at a minimum. Other program-specific technical requirements may apply. Refer to appropriate program-specific guidance.

- a legal description of the location of the site

- a map showing the location of the site
- a description of the contaminants involved and their concentration in the media of the site
- a narrative description of the methodology used in the investigation
- a description of all on-site releases of contamination
- a site map, drawn to scale, showing benchmarks, directional arrow, location of property boundaries, buildings, structures, all perennial and nonperennial surface water features, drainage ditches, dense vegetation, contaminant spill or disposal areas, underground utilities, storage vessels, and existing on-site wells
- identification of adjacent property owners and adjacent land uses
- a description of local geologic and hydrologic conditions
- an evaluation of the site and adjacent properties for the existence of environmentally sensitive areas
- a description of groundwater monitoring well design and installation procedures
- a map, drawn to scale, that shows all groundwater sample locations
- a description of field and laboratory quality control and quality assurance procedures followed during the remedial investigation
- a description of methods used to manage investigation-derived wastes;
- tabulation of analytical results for all sampling
- copies of all laboratory reports
- a description of procedures and the results of any special assessments
- any other information required by the Department or considered relevant by the applicant

Risk-Based Remediation Standards

Site-specific remediation standards shall be developed for each medium shall be developed in accordance with all of the following:

- Remediation methods and technologies that result in emissions of air pollutants shall comply with applicable air quality standards adopted by the Environmental Management Commission (Commission)
- The site-specific remediation standard for surface waters shall be the water quality standards adopted by the Commission
- The current and probable future use of groundwater shall be identified and protected. Site-specific sources of contaminants and potential receptors shall be identified. Potential receptors must be protected, controlled, or eliminated whether the receptors are located on or off the site where the source of contamination is located. Natural environmental conditions affecting the fate and transport of contaminants, such as natural attenuation, shall be determined by appropriate scientific methods
- Permits for facilities located at sites covered by any of the programs or requirements set out in G.S. 130A-310.67(a) shall contain conditions to avoid exceedances of applicable groundwater standards adopted by the Commission pursuant to Article 21 of Chapter 143 of the General Statutes due to operation of the facility (e.g. permitted facilities shall not be designed to cause exceedances of the North Carolina groundwater or surface water standards)

- Soil shall be remediated to levels that no longer constitute a continuing source of groundwater contamination in excess of the site-specific groundwater remediation standards approved for the site
- Soil shall be remediated to unrestricted use standards on residential property with the following exceptions:
 - For mixed-use developments where the ground level uses are nonresidential and where all potential exposure to contaminated soil has been eliminated, the Department may allow soil to remain on the site in excess of unrestricted use standards
 - If soil remediation is impracticable because of the presence of preexisting structures or impracticability of removal, all areas of the real property at which a person may come into contact with soil shall be remediated to unrestricted use standards, and, on all other areas of the real property, engineering and institutional controls that are sufficient to protect public health, safety, and welfare and the environment shall be implemented and maintained
- The potential for human inhalation of contaminants from the outdoor air and other site-specific indoor air exposure pathways shall be considered, if applicable
- The site-specific remediation standard shall protect against human exposure to contamination through the consumption of contaminated fish or wildlife and through the ingestion of contaminants in surface water or groundwater supplies
- For known or suspected carcinogens, site-specific remediation standards shall be established at exposures that represent an excess lifetime cancer risk of one in 1,000,000. The site-specific remediation standard may depart from the one-in-1,000,000 risk level based on the criteria set out in 40 Code of Federal Regulations § 300.430(e)(9) (July 1, 2003 Edition). The cumulative excess lifetime cancer risk to an exposed individual shall not be greater than one in 10,000 based on the sum of carcinogenic risk posed by each contaminant present
- For systemic toxicants, site-specific remediation standards shall represent levels to which the human population, including sensitive subgroups, may be exposed without any adverse health effect during a lifetime or part of a lifetime. Site-specific remediation standards for systemic toxicants shall incorporate an adequate margin of safety and shall take into account cases where two or more systemic toxicants affect the same organ or organ system
- The site-specific remediation standards for each medium shall be adequate to avoid foreseeable adverse effects to other media or the environment that are inconsistent with the risk-based approach set out in this program.

Public Notice

All the public notice requirements under the respective remediation program must be met. In addition to complying with the public participation requirements of the individual remediation programs, the person who proposes to remediate a site under N.C.G.S. 130A-310.65 to 310.77 shall send a notice of intent to remediate to all local governments having taxing or land-use jurisdiction over the site, and to all adjoining landowners. The notice shall include all of the information required in the remedial investigation listed above and include a statement of intent to clean up the site to site-specific remediation standards. The person shall submit to the Department a copy of the notice of intent provided to local governments and adjoining

landowners, a certification that the notice of intent to remediate was so provided to those parties, and all information and comments that the person received in response to the notice. In addition, the person shall, when appropriate, describe how the remedial action plan was modified to address comments received in response to the notice.

Remedial Action Plan

The person who proposes to conduct remediation pursuant to N.C.G.S. 130A-310.65 to 310.77 shall develop and submit a proposed remedial action plan to the relevant remediation program in the Department. A remedial action plan shall provide for the protection of public health, safety, and welfare and the environment. The development of a remedial action plan may require supplemental submissions and revisions based on Department review, remedial action pilot studies, and public comment from local government and citizens. A remedial action plan shall do all of the following:

- Identify actions required to remove, treat, or otherwise appropriately mitigate or isolate the source of contamination to ensure that the source will not cause unrestricted use standards to be exceeded in any medium. This provision means that uncontaminated areas cannot be allowed to become contaminated and that the sources causing a spread of the contamination must be addressed so as to prevent such spread
- Address contamination that moves from one medium to another in order to prevent a violation of the remediation standards established under G.S. 130A-310.68. A more stringent remediation standard may be required for a particular medium to control impact on other media. For example, contaminated soil cannot leach contaminants to contaminated groundwater in excess of the site-specific remediation standards for groundwater. However, contaminated soil is not allowed to contaminate previously uncontaminated areas of groundwater.
- Identify the current and anticipated future uses of property comprising the contaminated site and address any concerns raised in public comment on the proposed remedial action plan as to the proposed future uses of the property
- Identify the current and anticipated future uses of groundwater in the contaminated site and address any concerns raised in public comment on the proposed remedial action plan as to the future uses of groundwater
- Determine the appropriate method of remediation to achieve the site-specific remediation standards
- Specify any measures that may be necessary to prevent adverse effects to the environment that may occur at levels of contamination that are lower than the standard necessary to protect human health
- Specify any measures that may be necessary to prevent any discharge into surface waters during implementation of the remedial action plan that violates applicable surface water quality standards adopted by the Commission
- Specify any measures that may be necessary to prevent any air emission during implementation of the remedial action plan that violates applicable air quality standards adopted by the Commission
- Provide for attainment and maintenance of the remediation standards established under G.S. 130A-310.68
- Provide for methods and procedures to verify that the quantity, concentration, range, or other measure of each contaminant remaining at the contaminated site at the conclusion

of the contaminant-reduction phase of remediation meets the remediation standards established for the site, that an acceptable level of risk has been achieved, and that no further remediation is required

- Provide for the imposition and recordation of land-use restrictions if the remedial action plan allows contamination in excess of the greater of unrestricted use standards or background standards to remain on any real property or in groundwater that underlies any real property. For sites under the Inactive Hazardous Sites Program, the requirements of G.S. 130A-310.3(f) and 130A-310.8 apply. For oil and petroleum related sites, the requirements of G.S. 143-215.84(f), and 143-215.85A apply. For all other eligible sites, the requirements of G.S. 143B-279.9, 143B-279.10 apply. Note that “background standard” is defined as the naturally occurring background concentration.
- Provide for submission of an annual certification to the Department by the property owner that land use at the site is in compliance with land-use restrictions recorded pursuant to this Part and that the land-use restrictions are still properly recorded in the chain of title for the property
- Provide a detailed description of the proposed remedial action to be taken; the results of any treatability studies and additional site characterization needed to support the proposed remedial action; plans for post-remedial and confirmatory sampling; a project schedule; a schedule for progress reports to the Department; and any other information required by the Department or considered relevant by the person who submits the proposed remedial action plan
- Provide a description of measures that will be employed to ensure that the safety and health of persons on properties in the vicinity of the site and persons visiting or doing business on the site will not be adversely affected by any remediation activity
- Provide a reasonable estimate of the probable cost of the remedial action sufficient for the Department to determine an acceptable level of financial assurance
- Provide proof of financial assurance. Must be provided in the remedial action plan and annually thereafter on the anniversary date of the approval of the plan
- Provide an analysis of each of the following factors:
 - Long-term risks and effectiveness of the proposed remediation, including an evaluation of all of the following:
 - The magnitude of risks remaining after completion of the remediation.
 - The type, degree, frequency, and duration of any post-remediation activity that may be required, including, but not limited to, operation and maintenance, monitoring, inspection, reports, and other activities necessary to protect public health, safety, and welfare and the environment.
 - Potential for exposure of human and environmental receptors to contaminants remaining at the site.
 - Long-term reliability of any engineering and voluntary institutional controls, including repair, maintenance, or replacement of components.
 - Time required to achieve remediation standards.
 - Toxicity, mobility, and volume of contaminants, including the amount of contaminants that will be removed, contained, treated, or destroyed; the degree of expected reduction in toxicity, mobility, and volume; and the type, quantity,

toxicity, and mobility of contaminants that will remain after implementation of the remedial action plan.

- Short-term risks and effectiveness of the remediation, including the short-term risks that may be posed to the community, workers, or the environment during implementation of the remedial action plan, and the effectiveness and reliability of protective measures to address short-term risks.
- The ease or difficulty of implementing the remedial action plan, including commercially available remedial measures; expected operational reliability; available capacity and location of needed treatment, storage, and disposal services for wastes; time to initiate remediation; and approvals necessary to implement the remediation.

When the remedial action plan has been fully implemented, the person conducting the remediation shall submit a final report to the Department, with notice to all local governments with taxing and land-use jurisdiction over the site, that demonstrates that the remedial action plan has been fully implemented, that any land-use restrictions have been certified on an annual basis, and that the remediation standards have been attained.