

15A NCAC 02S .0507 REMEDIAL ACTION PLAN

(a) If the level of contamination of any chemical of concern exceeds risk-based screening levels or site-specific target levels, a remedial action plan shall be developed and implemented at the site.

(b) A remedial action plan shall be sufficient to meet the risk-based screening levels or site-specific target levels established for the site and shall include, if applicable:

- (1) a summary of the results of all assessment and interim remedial activities conducted at the site;
- (2) justification for the remediation method selected based on an analysis of each of the following factors:
 - (A) results from any pilot studies or bench tests;
 - (B) the remediation methods considered and why other alternatives were rejected;
 - (C) practical considerations in implementing the remediation, including ease of construction, site access, and required permits;
 - (D) operation and maintenance requirements;
 - (E) the risks and effectiveness of the proposed remediation including an evaluation of the type, degree, frequency, and duration of any post-remediation activity that may be required, including operation and maintenance, monitoring, inspection, reporting, and other activities necessary to protect public health or the environment;
 - (F) long-term reliability and feasibility of engineering and institutional controls;
 - (G) technical feasibility of the proposed method to reduce the concentrations of chemicals of concern at the site;
 - (H) estimated time required to achieve risk-based screening levels or site-specific target levels;
 - (I) cost-effectiveness of installation, operation and maintenance, when compared to other remediation alternatives; and
 - (J) community acceptance;
- (3) an evaluation of the expected breakdown chemicals or by-products resulting from natural processes;
- (4) a discussion of the proposed treatment or disposition of contaminated media that may be produced by the remediation system;
- (5) an operation and maintenance plan and schedule for the remediation system;
- (6) design drawings of the proposed remediation system;
- (7) a groundwater monitoring plan to monitor plume stability and effectiveness of the remediation;
- (8) a plan to evaluate the effectiveness of the remedial efforts and the achievement of risk-based screening levels or site-specific target levels;
- (9) a plan that addresses the health and safety of nearby residential and business communities;
- (10) a discussion of how the remedial action plan will protect ecological receptors;
- (11) all required land-use restrictions and notices prepared in accordance with G.S. 143-215.104M and 15A NCAC 02S. 0508; and
- (12) measures necessary to protect plant and animal receptors and habitats.

(c) Monitored natural attenuation of chemicals of concern may be approved as an acceptable remediation method, provided:

- (1) all free product has been removed or controlled to the maximum extent practicable;
- (2) contaminated soil is not present in the unsaturated zone above risk-based screening levels or site-specific target levels for the soil-to-groundwater pathway for the site unless it is demonstrated that the soil does not constitute a continuing source of contamination to groundwater at concentrations that pose a threat to human health, safety or the environment, and it is demonstrated that the rate of natural attenuation of chemicals of concern in groundwater exceeds the rate at which the chemicals of concern are leaching from the soil;
- (3) the physical, chemical and biological characteristics of each chemical of concern and its by-products are conducive to degradation or attenuation under the site-specific conditions;
- (4) the travel time and direction of migration of chemicals of concern can be predicted with reasonable certainty;
- (5) available data shows an apparent or potential decrease in concentrations of chemicals of concern;
- (6) the chemicals of concern will not migrate onto adjacent properties that are not served by an existing public water supply system, unless the owners have consented to the migration of chemicals of concern onto their property;

- (7) if any of the chemicals of concern are expected to intercept surface waters, the groundwater discharge will not exceed the standards for surface water contained in 15A NCAC 02B .0200;
- (8) all necessary access agreements needed to monitor groundwater quality have been or can be obtained; and
- (9) a monitoring program, sufficient to track the degradation and attenuation of chemicals of concern and by-products within and down-gradient of the plume and detect chemicals of concern and by-products at least one year's travel time prior to their reaching any existing or foreseeable receptor, is developed and implemented. Analytical data collected during monitored natural attenuation shall be evaluated on an annual basis to determine if the annual rate of expected progress is being achieved.

(d) If the Division determines that it is technically impracticable to achieve a risk-based screening level or site-specific target level for a specific chemical of concern due to geological conditions, remediation technology limitations, site conditions, physical limitations, or other factors, the Division shall approve or modify the remedial action plan to provide for the use of institutional controls, engineering controls, and long-term monitoring until the risk-based screening levels or site-specific target levels are met. Methods that may be used to demonstrate that remediation is technically impracticable include the following:

- (1) a full-scale field demonstration consisting of an operating remediation system;
- (2) a pilot study applying a remediation technology on a small portion of the contaminated site;
- (3) predictive analyses or modeling that shows the potential for the migration and remediation of chemicals of concern to occur at the site;
- (4) comparison of specific conditions at the subject site to those of similar sites in case studies or peer-reviewed and published research papers;
- (5) a combination of the above methods; or
- (6) other equivalent methods that demonstrate that remediation is technically impracticable.

*History Note: Authority G.S. 143-215.104D;
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Readopted Eff. September 1, 2018.*