

15A NCAC 13B .1631 GROUND-WATER MONITORING SYSTEMS

(a) A ground-water monitoring system shall be installed that consists of a sufficient number of wells, installed at appropriate locations and depths, to yield ground-water samples from the uppermost aquifer that:

- (1) Represent the quality of the background ground water that has not been affected by leakage from the unit. Normally, determination of background water quality will be based on sampling of a well or wells that are hydraulically upgradient of the waste management area. However, the determination of background water quality may include sampling of wells that are not hydraulically upgradient of the waste management area where:
 - (A) Hydrogeologic conditions do not allow the owner or operator to determine which wells are hydraulically upgradient; or
 - (B) Hydrogeologic conditions do not allow the owner or operator to place a well in a hydraulically upgradient location; or
 - (C) Sampling at other wells will provide an indication of background ground-water quality that is as representative as that provided by the upgradient well(s); and
- (2) Represent the quality of ground water passing the relevant point of compliance as approved by the Division. The downgradient monitoring system shall be installed at the relevant point of compliance so as to ensure detection of ground-water contamination in the uppermost aquifer.
 - (A) The relevant point of compliance shall be established no more than 250 feet from a waste boundary, and shall be at least 50 feet within the facility property boundary.
 - (B) In determining the relevant point of compliance, the Division shall consider recommendations made by the owner or operator based upon consideration of at least the following factors:
 - (i) The hydrogeologic characteristics of the facility and surrounding land;
 - (ii) The volume and physical and chemical characteristics of the leachate;
 - (iii) The quantity, quality, and direction, of flow of ground water;
 - (iv) The proximity and withdrawal rate of the ground-water users;
 - (v) The availability of alternative drinking water supplies;
 - (vi) The existing quality of the ground water, including other sources of contamination and their cumulative impacts on the ground water, and whether the ground water is currently used or reasonably expected to be used for drinking water;
 - (vii) Public health, safety, and welfare effects; and
 - (viii) Practicable capability of the owner or operator.

(b) Monitoring wells shall be designed and constructed in accordance with the applicable North Carolina Well Construction Standards as codified in 15A NCAC 2C.

- (1) Owner or operators shall obtain approval from the Division for the design, installation, development, and decommission of any monitoring well or piezometer. Documentation shall be placed in the operating record and provided to the Division in a timely manner.
- (2) The monitoring wells and piezometers shall be operated and maintained so that they perform to design specifications throughout the life of the monitoring program.

(c) The number, spacing, and depths of monitoring systems shall be determined based upon site-specific technical information that shall include investigation of:

- (1) Aquifer thickness, ground-water flow rate, and ground-water flow direction, including seasonal and temporal fluctuations in ground-water flow; and
- (2) Unsaturated and saturated geologic units (including fill materials) overlying and comprising the uppermost aquifer; including but not limited to: thicknesses, stratigraphy, lithology, hydraulic conductivities, porosities and effective porosities.

(d) The proposed monitoring plan shall be:

- (1) Certified by a Licensed Geologist or Professional Engineer to be effective in providing early detection of any release of hazardous constituents (from any point in a disposal cell or leachate surface impoundment) to the uppermost aquifer, so as to be protective of public health and the environment; and

- (2) Approved by the Division. Upon approval by the Division, a copy of the approved monitoring plan shall be placed in the operating record.
- (e) The Division may require the use of alternative monitoring systems in addition to ground-water monitoring wells at sites:
 - (1) Where the owner or operator does not control the property from any landfill unit to the ground-water discharge feature(s); or
 - (2) Sites with hydrogeologic conditions favorable to detection monitoring by alternative methods.
- (f) The owner or operator shall submit a monitoring system plan for approval by the Division as required by Rules .1603 and .1617 of this Section.

History Note: Authority G.S. 130A-294;
Eff. October 9, 1993.