

**15A NCAC 02T .0504 APPLICATION SUBMITTAL**

(a) The requirements in this Rule shall apply to all new and expanding facilities.

(b) Soils report. A soil evaluation of the disposal site shall be provided to the Division by the applicant in a report that includes the following. If required by G.S. 89F, a soil scientist shall prepare this evaluation:

- (1) a field description of the soil profile, based on examinations of excavation pits or auger borings, within seven feet of land surface or to bedrock, describing the following parameters by individual diagnostic horizons:
  - (A) the thickness of the horizon;
  - (B) the texture;
  - (C) the color and other diagnostic features;
  - (D) the structure;
  - (E) the internal drainage;
  - (F) the depth, thickness, and type of restrictive horizon; and
  - (G) the presence or absence and depth of evidence of any seasonal high water table.Applicants shall dig pits when necessary for evaluation of the soils at the site;
- (2) recommendations concerning loading rates of liquids, solids, other wastewater constituents, and amendments. Annual hydraulic loading rates shall be based on in-situ measurement of saturated hydraulic conductivity in the most restrictive horizon for each soil mapping unit. Maximum irrigation precipitation rates shall be provided for each soil mapping unit;
- (3) a field-delineated soil map delineating soil mapping units within each land application site and showing all physical features, location of pits and auger borings, legends, scale, and a north arrow. The legends shall also include dominant soil series name and family or higher taxonomic class for each soil mapping unit; and
- (4) a Standard Soil Fertility Analysis conducted on each land application site. The Standard Soil Fertility Analysis shall include the following parameters:
  - (A) acidity;
  - (B) base saturation (by calculation);
  - (C) calcium;
  - (D) cation exchange capacity;
  - (E) copper;
  - (F) exchangeable sodium percentage (by calculation);
  - (G) magnesium;
  - (H) manganese;
  - (I) percent humic matter;
  - (J) pH;
  - (K) phosphorus;
  - (L) potassium;
  - (M) sodium; and
  - (N) zinc.

[Note: The North Carolina Board for Licensing of Soil Scientists has determined, via letter dated December 1, 2005, that preparation of soils reports pursuant to this Paragraph constitutes practicing soil science pursuant to G.S. 89F.]

(c) Engineering design documents. If required by G.S. 89C, a professional engineer shall prepare these documents. The following documents shall be provided to the Division by the applicant:

- (1) engineering plans for the entire system, including treatment, storage, application, and disposal facilities and equipment except those previously permitted unless those previously permitted are directly tied into the new units or are necessary to understanding the complete process;
- (2) specifications describing materials to be used, methods of construction, and means for ensuring quality and integrity of the finished product, including leakage testing; and
- (3) engineering calculations, including hydraulic and pollutant loading for each treatment unit, treatment unit sizing criteria, hydraulic profile of the treatment system, total dynamic head, and system curve analysis for each pump, buoyancy calculations, and irrigation design.

[Note: The North Carolina Board of Examiners for Engineers and Surveyors has determined, via letter dated December 1, 2005, that preparation of engineering design documents pursuant to this Paragraph constitutes practicing engineering pursuant to G.S. 89C.]

(d) Site plans. If required by G.S. 89C, a professional land surveyor shall provide location information on boundaries and physical features not under the purview of other licensed professions. Site plans or maps shall be

provided to the Division by the applicant depicting the location, orientation, and relationship of facility components including:

- (1) a scaled map of the site, with topographic contour intervals not exceeding 10 feet or 25 percent of total site relief, showing:
  - (A) all facility-related structures and fences within the treatment, storage, and disposal areas; and
  - (B) soil mapping units on all disposal sites;
- (2) the location of each of the following that are located within 500 feet of a waste treatment, storage, or disposal site, including a delineation of their review and compliance boundaries:
  - (A) wells, including usage and construction details if available;
  - (B) ephemeral, intermittent, and perennial streams;
  - (C) springs;
  - (D) lakes;
  - (E) ponds; and
  - (F) other surface drainage features;
- (3) setbacks as required by Rule .0506 of this Section; and
- (4) site property boundaries within 500 feet of all waste treatment, storage, and disposal sites.

[Note: The North Carolina Board of Examiners for Engineers and Surveyors has determined, via letter dated December 1, 2005, that locating boundaries and physical features, not under the purview of other licensed professions, on maps pursuant to this Paragraph constitutes practicing surveying pursuant to G.S. 89C.]

(e) Hydrogeologic report. A hydrogeologic description prepared by a Licensed Geologist, Licensed Soil Scientist, or Professional Engineer if required by Chapters 89E, 89F, or 89C, respectively, shall be provided to the Division by the applicant for systems treating industrial waste and any system with a design flow over 25,000 gallons per day. Industrial facilities with a design flow less than 25,000 gallons per day of wastewater that demonstrate that the effluent will be of quality similar to domestic wastewater, including effluent requirements established in 15A NCAC 02T .0505(b)(1), shall, upon request, be exempted from this requirement. The hydrogeologic evaluation shall be of the subsurface to a depth of 20 feet or bedrock, whichever is less deep. An investigation to a depth greater than 20 feet shall be required if the respective depth is used in predictive calculations. This evaluation shall be based on sufficient numbers, locations, and depths of borings to define the components of the hydrogeologic evaluation. In addition to borings, other techniques may be used to investigate the subsurface conditions at the site, including geophysical well logs, surface geophysical surveys, and tracer studies. This evaluation shall be presented in a report that includes the following components:

- (1) a description of the regional and local geology and hydrogeology;
- (2) a description, based on field observations of the site, of the site topographic setting, streams, springs and other groundwater discharge features, drainage features, existing and abandoned wells, rock outcrops, and other features that may affect the movement of the contaminant plume and treated wastewater;
- (3) changes in the lithology underlying the site;
- (4) the depth to bedrock and the occurrence of any rock outcrops;
- (5) the hydraulic conductivity and transmissivity of the affected aquifer as determined by in-situ field testing, such as slug tests or pumping tests, in the intended area of irrigation;
- (6) the depth to the seasonal high water table;
- (7) a discussion of the relationship between the affected aquifers of the site to local and regional geologic and hydrogeologic features;
- (8) a discussion of the groundwater flow regime of the site prior to the operation of the proposed facility and the post operation of the proposed facility, focusing on the relationship of the system to groundwater receptors, groundwater discharge features, and groundwater flow media; and
- (9) if the seasonal high water table is within six feet of the surface, a mounding analysis to predict the level of the seasonal high water table after wastewater application.

[Note: The North Carolina Board for Licensing of Geologists, via letter dated April 6, 2006, North Carolina Board for Licensing of Soil Scientists, via letter dated December 1, 2005, and North Carolina Board of Examiners for Engineers and Surveyors, via letter dated December 1, 2005, have determined that preparation of hydrogeologic description documents pursuant to this Paragraph constitutes practicing geology pursuant to G.S. 89E, soil science pursuant to G.S. 89F, or engineering pursuant to G.S. 89C.]

(f) Property Ownership Documentation shall be provided to the Division by the applicant consisting of:

- (1) legal documentation of ownership, such as a contract, deed, or article of incorporation;

- (2) an agreement of an intent to purchase the property that is written, notarized, and signed by both parties, accompanied by a plat or survey map; or
  - (3) an agreement to lease the property that is written, notarized, and signed by both parties, indicating the intended use of the property, accompanied by a plat or survey map. Lease agreements shall adhere to the requirements of 15A NCAC 02L .0107.
- (g) Public utilities shall submit to the Division a Certificate of Public Convenience and Necessity or a letter from the NC Utilities Commission stating that it has received a franchise application.
- (h) A chemical analysis of the typical wastewater to be irrigated shall be provided to the Division by the applicant for industrial waste, which shall include:
- (1) total organic carbon;
  - (2) 5-day biochemical oxygen demand (BOD<sub>5</sub>);
  - (3) chemical oxygen demand (COD);
  - (4) nitrate nitrogen (NO<sub>3</sub>-N);
  - (5) ammonia nitrogen (NH<sub>3</sub>-N);
  - (6) total kjeldahl nitrogen (TKN);
  - (7) pH;
  - (8) chloride;
  - (9) total phosphorus;
  - (10) phenol;
  - (11) total volatile organic compounds;
  - (12) fecal coliform;
  - (13) calcium;
  - (14) sodium;
  - (15) magnesium;
  - (16) sodium adsorption ratio (SAR);
  - (17) total trihalomethanes; and
  - (18) total dissolved solids.
- (i) A project evaluation and a receiver site agronomic management plan (if applicable) and recommendations concerning cover crops and their ability to accept the proposed application rates of liquid, solids, minerals, and other constituents of the wastewater shall be provided to the Division by the applicant.
- (j) A Residuals Management Plan as required by Rule .0508(a) of this Section shall be provided to the Division by the applicant.
- (k) The applicant shall provide to the Division a water balance that determines the required effluent storage based on the most limiting factor from the following:
- (1) hydraulic loading based on the most restrictive horizon;
  - (2) hydraulic loading based on the groundwater mounding analysis;
  - (3) nutrient management based on agronomic rates for the specified cover crop; or
  - (4) nutrient management based on crop management.

*History Note: Authority G.S. 143-215.1; 143-215.3(a);  
Eff. September 1, 2006;  
Readopted Eff. September 1, 2018.*