15A NCAC 02T .1104 APPLICATION SUBMITTAL

(a) For new and expanding residuals treatment and storage facilities:

(1) 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:

(A) a scaled map of the site, with topographic contour intervals not exceeding 10 feet or 25 percent of total site relief and showing all facility-related structures and fences within the treatment and storage areas;

(B) the location of each of the following that are located within 500 feet of a waste treatment, or storage site, including a delineation of their review and compliance boundaries:

(i) wells, including usage and construction details if available;

(ii) ephemeral, intermittent, and perennial streams;

(iii) springs;

(iv) lakes;

(v) ponds; and

(vi) other surface drainage features;

(C) setbacks as required by Rule .1108 of this Section; and

(D) site property boundaries within 500 feet of all treatment and storage facilities.

[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.]

(2) 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:

(A) engineering plans for the facilities and equipment except those previously permitted unless they are directly tied into the new units or are necessary to understanding the complete process;

(B) specifications describing materials to be used, methods of construction, and means for ensuring quality and integrity of the finished product, including leakage testing; and

(C) engineering calculations, including hydraulic and pollutant loading for each unit, unit sizing criteria, hydraulic profile of the facilities, total dynamic head and system curve analysis for each pump, and buoyancy calculations.

[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.]

(b) For new and modified sources of residuals:

(1) Site maps shall be provided to the Division by the applicant depicting the location of the source.

(2) An analysis of the residuals shall be provided to the Division by the applicant. The analysis shall include:

(A) all pollutants identified in Rule .1105 of this Section;

(B) nutrients and micronutrients;

(C) hazardous waste characterization tests; and

(D) proof of compliance with Rule .1106 and Rule .1107 of this Section if applicable.

(3) A sampling and monitoring plan that describes how compliance with Rule .1105, Rule .1106, and Rule .1107 of this Section if applicable shall be provided to the Division by the applicant.

(c) For new and expanding non-dedicated land application sites:

(1) Setback maps shall be provided to the Division by the applicant depicting the location, orientation, and relationship of land application site features including:

(A) a scaled map of the land application site, showing all related structures and fences within the land application area;

(B) the location of each of the following that are located within 500 feet of the land application site, including a delineation of its review and compliance boundaries:

(i) wells, including usage and construction details if available;

(ii) ephemeral, intermittent, and perennial streams;

(iii) springs;

(iv) lakes;
(v) ponds; and
(vi) other surface drainage features;

(C) setbacks as required by Rule .1108 of this Section; and

(D) property boundaries within 500 feet of the land application site.

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

(A) confirmation of a county soils map, soil evaluation, and verification of the presence or absence of a seasonal high water table within three feet of land surface or establishment of a soil map through field description of 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: thickness of the horizon; texture; color and other diagnostic features; structure; internal drainage; depth, thickness, and type of restrictive horizon; and presence or absence and depth of evidence of any seasonal high water table; and

(B) a representative soils analysis for standard soil fertility and all pollutants listed in Rule .1105(b) of this Section. The Standard Soil Fertility Analysis shall include the following parameters: acidity; base saturation (by calculation); calcium; cation exchange capacity; copper; exchangeable sodium percentage (by calculation); magnesium; manganese; percent humic matter; pH; phosphorus; potassium; sodium, and 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.]

(3) A project evaluation and a land application site management plan, if applicable, with recommendations concerning cover crops and their ability to accept the proposed application rates of liquid, solids, minerals and other constituents of the residuals shall be provided to the Division.

(4) Unless the land application site is owned by the permittee, property ownership documentation consisting of a notarized landowner agreement shall be provided to the Division.

(d) For new and expanding dedicated land application sites:

(1) 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 land application site features including:

(A) a scaled map of the site, with topographic contour intervals not exceeding 10 feet or 25 percent of total site relief and showing all facility-related structures and fences within the land application area;

(B) the location of each of the following that are located within 500 feet of the land application site, including a delineation of its review and compliance boundaries:

(i) wells, including usage and construction details if available;
(ii) ephemeral, intermittent, and perennial streams;
(iii) springs;
(iv) lakes;
(v) ponds; and
(vi) other surface drainage features;

(C) setbacks as required by Rule .1108 of this Section; and

(D) property boundaries within 500 feet of the land application site.

[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.]

(2) Engineering design documents for land applications sites onto which residuals are applied only through fixed irrigation facilities or irrigation facilities fed through a fixed supply system. 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:

(A) engineering plans for the facilities and equipment except those previously permitted unless they are directly tied into the new units or are necessary to understanding the complete process;

(B) specifications describing materials to be used, methods of construction, and means for ensuring quality and integrity of the finished product, including leakage testing; and

(C) engineering calculations, including hydraulic and pollutant loading, sizing criteria, hydraulic profile, total dynamic head and system curve analysis for each pump, 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.]

(3) Soils report. A soil evaluation of the land application site shall be provided. This evaluation shall be presented 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:

(A) field description of 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: thickness of the horizon; texture; color and other diagnostic features; structure; internal drainage; depth, thickness, and type of restrictive horizon; and presence or absence and depth of evidence of any seasonal high water table. Applicants shall dig pits if necessary for proper evaluation of the soils at the site;

(B) recommendations concerning loading rates of liquids, solids, other residuals constituents, and amendments for land application sites onto which residuals are applied only through fixed irrigation facilities or irrigation facilities fed through a fixed supply system. 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;

(C) a field-delineated soil map delineating soil mapping units within the 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

(D) a representative soils analysis for standard soil fertility and all pollutants listed in Rule .1105(b) of this Section. The Standard Soil Fertility Analysis shall include the following parameters: acidity, base saturation (by calculation), calcium, cation exchange capacity, copper, exchangeable sodium percentage (by calculation), magnesium, manganese, percent humic matter, pH, phosphorus, potassium, sodium, and 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.]

(4) 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. 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:

(A) a description of the regional and local geology and hydrogeology;

(B) a description, based on field observations of the land application site, of the land application 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;

(C) changes in the lithology underlying the site;

(D) depth to the bedrock and the occurrence of any rock outcrops;

(E) 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;
(F) the depth to the seasonal high water table;
(G) a discussion of the relationship between the affected aquifers of the land application site to local and regional geologic and hydrogeologic features;
(H) a discussion of the groundwater flow regime of the site prior to the operation of the proposed site and the post operation of the proposed site, focusing on the relationship of the site to groundwater receptors, groundwater discharge features, and groundwater flow media; and
(I) if residuals are applied through fixed irrigation facilities or irrigation facilities fed through a fixed supply system only and 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 residuals land 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.]

(5) For land application sites onto which residuals are applied through fixed irrigation facilities or irrigation facilities fed through a fixed supply system only, the applicant shall provide to the Division a water balance that determines the required residuals storage based upon the following most limiting factor:
(A) hydraulic loading based on the most restrictive horizon;
(B) hydraulic loading based on the groundwater mounding analysis;
(C) nutrient management based on agronomic rates for the specified cover crop; or
(D) nutrient management based on crop management.

(6) A project evaluation and a receiver site management plan (if applicable) with recommendations concerning cover crops and their ability to accept the proposed application rates of liquid, solids, minerals and other constituents of the residuals shall be provided to the Division by the applicant.

(7) Property Ownership Documentation shall be provided to the Division by the applicant consisting of:
(A) legal documentation of ownership, such as a contract, deed, or article of incorporation;
(B) 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
(C) 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.

(e) For new and expanding surface disposal units:

(1) 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 the surface disposal unit features including:
(A) a scaled map of the surface disposal unit, with topographic contour intervals not exceeding 10 feet or 25 percent of total site relief and showing all surface disposal unit-related structures and fences within the surface disposal unit;
(B) 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:
(i) wells, including usage and construction details if available;
(ii) ephemeral, intermittent, and perennial streams;
(iii) springs;
(iv) lakes;
(v) ponds; and
(vi) other surface drainage features;
(C) setbacks as required by Rule .1108 of this Section; and

(D) site property boundaries within 500 feet of the surface disposal unit.

[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.]

(2) 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:

(A) engineering plans for the surface disposal unit and equipment except those previously permitted unless they are directly tied into the new units or are necessary to understanding the complete process;

(B) specifications describing materials to be used, methods of construction, and means for ensuring quality and integrity of the finished product, including leakage testing; and

(C) engineering calculations, including hydraulic and pollutant loading, sizing criteria, hydraulic profile, and total dynamic head and system curve analysis for each pump.

[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.]

(3) Soils report. A soil evaluation of the surface disposal unit 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:

(A) field description of 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: thickness of the horizon; texture; color and other diagnostic features; structure; internal drainage; depth, thickness, and type of restrictive horizon; and presence or absence and depth of evidence of any seasonal high water table. Applicants may be required to dig pits when necessary for proper evaluation of the soils at the site; and

(B) a field-delineated soil map delineating major soil mapping units within the surface disposal unit 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.

[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.]

(4) 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. 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:

(A) a description of the regional and local geology and hydrogeology;

(B) 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;

(C) changes in the lithology underlying the site;

(D) the depth to bedrock and the occurrence of any rock outcrops;

(E) 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;

(F) the depth to the seasonal high water table;

(G) a discussion of the relationship between the affected aquifers of the site to local and regional geologic and hydrogeologic features; and

(H) a discussion of the groundwater flow regime of the site prior to the operation of the proposed unit and the post operation of the proposed unit, focusing on the relationship of the unit to groundwater receptors, groundwater discharge features, and groundwater flow media.

[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.]

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

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

(B) 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

(C) 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.

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