

**15A NCAC 02T .0505 DESIGN CRITERIA**

- (a) The requirements in this Rule shall apply to all new and expanding facilities.
- (b) New and expanding systems:
  - (1) that are municipal, domestic, or commercial facilities, except systems subject to Subparagraph (b)(2) of this Rule, shall meet a monthly average of each of the following:
    - (A) five-day biochemical oxygen demand (BOD<sub>5</sub>) ≤ 30 mg/L;
    - (B) total suspended solids (TSS) ≤ 30 mg/L;
    - (C) ammonia (NH<sub>3</sub>-N) ≤ 15 mg/L; and
    - (D) fecal coliforms ≤ 200 colonies/100 mL;
  - (2) with lagoon treatment systems, except those permitted as new under Subparagraph (b)(1) of this Rule, shall meet a monthly average of each of the following:
    - (A) five-day biochemical oxygen demand (BOD<sub>5</sub>) ≤ 30 mg/L;
    - (B) total suspended solids (TSS) ≤ 90 mg/L; and
    - (C) fecal coliforms ≤ 200 colonies/100 mL; or
  - (3) that are not described in Subparagraphs (b)(1) and (b)(2) of this Rule shall meet treatment standards that assure that surface water or groundwater standards will not be exceeded.
- (c) All wastes shall be applied at agronomic rates unless predictive calculations are provided that demonstrate State groundwater standards will be protected.
- (d) All open-atmosphere treatment lagoons and ponds and open-atmosphere storage units shall have at least two feet of freeboard.
- (e) Waste, including treated waste, shall not be placed directly into, or in contact with, GA classified groundwater unless such placement will not result in a contravention of GA groundwater standards, as demonstrated by predictive calculations or modeling.
- (f) Treatment works and disposal systems using earthen basins, lagoons, ponds, or trenches, excluding holding ponds containing non-industrial treated effluent prior to irrigation, for treatment, storage, or disposal, shall have either a liner of natural material at least one foot in thickness and having a hydraulic conductivity of no greater than  $1 \times 10^{-6}$  centimeters per second when compacted, or a synthetic liner of sufficient thickness to exhibit structural integrity and an effective hydraulic conductivity no greater than that of the natural material liner.
- (g) The bottoms of earthen impoundments, trenches, or other similar excavations shall be at least four feet above the bedrock surface, except that the bottom of excavations that are less than four feet above bedrock shall have a liner with a hydraulic conductivity no greater than  $1 \times 10^{-7}$  centimeters per second. Liner thickness shall be that thickness necessary to achieve a leakage rate consistent with the sensitivity of classified groundwaters. Liner requirements may be reduced if the applicant demonstrates through predictive calculations or modeling that construction and use of these treatment and disposal units will not result in contravention of surface water or groundwater standards.
- (h) Impoundments, trenches, or other excavations made for the purpose of storing or treating waste shall not be excavated into bedrock unless the placement of waste into such excavations will not result in a contravention of surface water or groundwater standards, as demonstrated by predictive calculations or modeling.
- (i) Each facility, except for those using septic tanks or lagoon treatment, shall provide flow equalization with either a capacity based upon a representative diurnal hydrograph or a capacity of 25 percent of the daily system design flow.
- (j) By-pass and overflow lines shall be prohibited.
- (k) Multiple pumps shall be provided wherever pumps are used.
- (l) Power reliability shall be provided, consisting of:
  - (1) automatically activated standby power supply, located onsite, and capable of powering all essential treatment units under design conditions; or
  - (2) approval by the Director that the facility:
    - (A) serves a private water distribution system that has automatic shut-off at power failure and no elevated water storage tanks;
    - (B) has sufficient storage capacity that no potential for overflow exists; and
    - (C) can tolerate septic wastewater during prolonged detention.
- (m) A water-tight seal on all treatment and storage units or two feet of protection from the 100-year flood elevation shall be provided.
- (n) Irrigation system design shall not exceed the recommended precipitation rates established in the soils report prepared pursuant to Rule .0504 of this Section.
- (o) 30 days of residual storage shall be provided.

- (p) Disposal areas shall be designed to maintain a one-foot vertical separation between the seasonal high water table and the ground surface.
- (q) The public shall be prohibited access to the treatment, storage, and irrigation facilities.
- (r) Influent pump stations shall meet the sewer design criteria set forth in Section .0300 of this Subchapter.
- (s) Septic tanks shall adhere to the standards established in 15A NCAC 18A .1900.
- (t) Facilities shall be provided with a flow meter to measure the volume of treated wastewater applied to each field.
- (u) Coastal waste treatment facilities, defined in 15A NCAC 02H .0403, shall be equipped with noise and odor control devices that shall be enclosed.
- (v) For coastal waste treatment facilities, defined in 15A NCAC 02H .0403, all essential treatment and disposal units shall be provided in duplicate.
- (w) Facilities serving residential communities shall provide five days of effluent storage unless additional storage is determined to be necessary pursuant to the water balance requirements in Rule .0504(k) of this Section,
- (x) Automatically activated irrigation systems shall be connected to a rain or moisture sensor to prevent irrigation during precipitation events or wet conditions that would cause runoff.

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