

15A NCAC 18E .1204 ADVANCED PRETREATMENT DRIP DISPERSAL SYSTEMS

(a) This Rule provides for the permitting of drip dispersal systems receiving advanced pretreatment effluent with a DDF less than or equal to 3,000 gpd. Drip dispersal systems shall comply with the provisions of this Rule and Section .1600 of this Subchapter.

(b) Drip dispersal systems with a DDF less than or equal to 1,500 gpd shall utilize the siting and sizing criteria in this Paragraph when used with advanced pretreatment.

(1) The soil and site characteristics shall meet the following criteria based on effluent standards:

(A) NSF/ANSI 40 Systems

- (i) a minimum of 18 inches of naturally occurring suitable soil above a LC and 13 inches of naturally occurring suitable soil above a SWC, and the minimum vertical separation to any LC shall be 12 inches;
- (ii) for new fill, the requirements of Rules .0909(b) and (c) of this Subchapter shall be met; or
- (iii) for existing fill, the requirements of Rules .0909(d) and (e) of this Subchapter shall be met, except that the minimum vertical separation to any LC shall be 18 inches;

(B) TS-I Systems

- (i) a minimum of 15 inches of naturally occurring suitable soil above a LC and a minimum of 13 inches of naturally occurring suitable soil above a SWC, and the minimum vertical separation to any LC shall be nine inches;
- (ii) for new fill, the requirements of Rules .0909(b) and (c) of this Subchapter shall be met, except there shall be a minimum of 12 inches of naturally occurring suitable soil above a LC, a minimum of nine inches vertical separation to a SWC, and a minimum of 12 inches vertical separation to a LC; or
- (iii) for existing fill, the requirements of Rules .0909(d) and (e) of this Subchapter shall be met, except that the minimum vertical separation to any LC shall be 12 inches; or

(C) TS-II Systems

- (i) a minimum of 13 inches of naturally occurring suitable soil above a LC and the minimum vertical separation to any LC shall be six inches;
- (ii) for new fill, the requirements of Subpart (B)(ii) of this Paragraph shall be met, except there shall be a minimum of nine inches of vertical separation to a LC, and a minimum of six inches of vertical separation to a SWC; or
- (iii) for existing fill, the requirements of Subpart (B)(iii) of this Paragraph shall be met, except there shall be a minimum vertical separation of nine inches to a SWC.

(2) Site modifications for advanced pretreatment drip dispersal systems shall meet the following criteria based on effluent standards:

(A) NSF/ANSI 40 Systems may utilize a groundwater lowering system to comply with the vertical separation requirements to a SWC only when Group I or II soils with suitable structure are present within 36 inches of the naturally occurring soil surface. The minimum vertical separation to the projected, or drained, SWC shall be 12 inches. The addition of fill material shall not be used to comply with this requirement; and

(B) TS-I and TS-II Systems may utilize a groundwater lowering system to comply with the vertical separation requirements to a SWC. The minimum vertical separation to the projected, or drained, SWC shall be 12 inches. The groundwater lowering system may be used with the following: Group III soils are present at any depth above the invert elevation of the highest point of the artificial drainage system or within 36 inches of the naturally occurring soil surface, whichever is deeper; or on new fill sites.

(3) Table XXIX shall be used to determine the LTAR for advanced pretreatment drip dispersal systems based on Soil Group. Limitations in adjustment allowances for NSF/ANSI 40, TS-I, and TS-II systems are listed in Parts (E), (F), and (G) of this Subparagraph.

TABLE XXIX. LTAR for advanced pretreatment drip dispersal systems based on Soil Group

Soil Group	USDA Soil Textural Class	LTAR in gpd/ft ²
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			NSF/ANSI 40	TS-I	TS-II
I	Sands	Sand	0.6 – 1.0	0.8 – 1.2	0.8 – 1.5
		Loamy Sand			
II	Coarse Loams	Sandy Loam	0.4 – 0.6	0.5 – 0.8	0.6 – 1.0
		Loam			
III	Fine Loams	Sandy Clay Loam	0.15 – 0.4	0.2 – 0.6	0.2 – 0.8
		Silt Loam			
		Clay Loam			
		Silty Clay Loam			
		Silt			
IV	Clays	Sandy Clay	0.05 – 0.2	0.05 – 0.2	0.05 – 0.2
		Silty Clay			
		Clay			

- (A) The LTAR shall be based on the most limiting, naturally occurring soil horizon within 18 inches of the naturally occurring soil surface or to a depth of 12 inches below the infiltrative surface.
- (B) The DDF shall be divided by the LTAR, determined from Table XXIX or XXX, to calculate the minimum dispersal field area required. The minimum dripline length shall be calculated by dividing the required area by the maximum line spacing of two feet. The following equations shall be used to calculate the minimum dispersal field area and dripline length required:
- $$\begin{aligned} \text{MA} &= \text{DDF} / \text{LTAR} \\ \text{DL} &= \text{MA} / \text{LS} \end{aligned}$$
- Where
- $$\begin{aligned} \text{MA} &= \text{minimum dispersal field area, in ft}^2 \\ \text{DDF} &= \text{design daily flow, in gpd} \\ \text{LTAR} &= \text{in gpd/ft}^2 \\ \text{DL} &= \text{dripline length, in feet} \\ \text{LS} &= \text{two-foot line spacing} \end{aligned}$$
- (C) The minimum dripline length calculated in Part (B) of this Subparagraph shall not be less than 0.5 x DDF for Group I soils, 0.83 x DDF for Group II soils, 1.25 x DDF for Group III soils, or 3.33 x DDF for Group IV soils. The dripline spacing may be adjusted in accordance with Rule .1602(e)(3) of this Subchapter and the PIA Approval so that the minimum required dispersal field area calculated in Part (B) of this Subparagraph does not need to be increased.
- (D) Sections of blank tubing without emitters required to comply with site-specific conditions shall not count towards the minimum length of dripline needed when laying out the system or when calculating the linear footage of dripline needed.
- (E) LTAR adjustment limitations for NSF/ANSI 40 Systems
- the LTAR for new fill shall not exceed 0.6 gpd/ft² for Group I soils, 0.4 gpd/ft² for Group II soils, 0.15 gpd/ft² for Group III soils, or 0.05 gpd/ft² for Group IV soils; and
 - the LTAR for existing fill shall not exceed 0.8 gpd/ft².
- (F) LTAR adjustment limitations for TS-I Systems
- the LTAR for new fill shall not exceed 1.0 gpd/ft² for Group I soils, 0.6 gpd/ft² for Group II soils, 0.4 gpd/ft² for Group III soils, or 0.1 gpd/ft² for Group IV soils;
 - the LTAR for existing fill shall not exceed 1.0 gpd/ft²; and
 - the LTAR for sites with less than 18 inches of naturally occurring soil to any unsuitable LC shall not exceed the lowest LTAR for Soil Groups I, II, and III, and 0.1 gpd/ft² for Group IV soils.
- (G) LTAR adjustment limitations for TS-II Systems

- (i) the LTAR for new fill shall not exceed 1.2 gpd/ft² for Group I soils, 0.8 gpd/ft² for Group II soils, 0.5 gpd/ft² for Group III soils, or 0.12 gpd/ft² for Group IV soils;
 - (ii) the LTAR for existing fill shall not exceed 1.0 gpd/ft²; and
 - (iii) the LTAR for sites with less than 18 inches of naturally occurring soil to any unsuitable LC shall not exceed the lowest LTAR for Soil Groups I, II, and III, and 0.12 gpd/ft² for Group IV soils.
- (4) Table XXX shall be used in determining the LTAR for advanced pretreatment drip dispersal systems installed in saprolite. The LTAR shall be based on the most limiting, naturally occurring saprolite to a depth of 24 inches below the infiltrative surface.

TABLE XXX. LTAR for advanced pretreatment drip dispersal systems based on Saprolite Group

Saprolite Group	Saprolite Textural Class	LTAR, area basis, in gpd/ft ²		
		NSF/ANSI 40	TS-I	TS-II
I	Sand	0.4 – 0.5	0.4 – 0.6	0.4 – 0.8
	Loamy sand	0.3 – 0.4	0.3 – 0.5	0.3 – 0.6
II	Sandy loam	0.25 – 0.35	0.25 – 0.4	0.25 – 0.5
	Loam	0.2 – 0.25	0.2 – 0.3	0.2 – 0.4
	Silt loam	0.05 – 0.1	0.05 – 0.15	0.05 – 0.2
	Sandy clay loam	0.05 – 0.1	0.05 – 0.12	0.05 – 0.15

- (5) A special site evaluation shall be required in accordance with Rule .0510 of this Subchapter, as applicable.
- (6) Setbacks allowed in Table XXVIII of Rule .1202(d) of this Section may be used with advanced pretreatment drip dispersal systems when no reduction in the depth to a LC or vertical separation reduction is proposed compared to the requirements for DSE in Table XXVI or Table XXVII of Rule .1202(b) of this Section. A minimum of 18 inches of naturally occurring soil to an unsuitable LC shall be required to take setback reductions. The following LTAR limitations shall be applicable:
 - (A) for NSF/ANSI 40 systems, with the exception of the setback reductions to artificial drainage systems, when reductions are taken in setbacks, the LTAR shall not exceed the lowest LTAR for Soil Groups I, II, and III, and 0.1 gpd/ft² for Group IV soil;
 - (B) for TS-I Systems, with the exception of setback reductions to artificial drainage systems, when reductions are taken in setbacks, the LTAR shall not exceed the mid-range LTAR for Soil Groups I, II, and III, and 0.1 gpd/ft² for Group IV soils;
 - (C) for NSF/ANSI 40 and TS-I Systems, Table XXIX may be used to determine the LTAR when no other setback reductions are taken aside of those to artificial drainage systems; and
 - (D) for TS-II Systems, Table XXIX shall be used to determine the LTAR. The LTAR from Table XXIX and reduced setbacks for TS-II Systems from Table XXVIII of Rule .1202(d) of this Section may be taken concurrently.
- (c) Drip dispersal systems with a DDF greater than 1,500 gpd and less than or equal to 3,000 gpd used with advanced pretreatment may propose an adjusted LTAR if the following criteria are met:
 - (1) no reduction in the depth to a LC, vertical separation, or setback reduction is proposed;
 - (2) proposed LTAR is supported by a special site evaluation in accordance with Rule .0510 of this Subchapter; and
 - (3) 25-foot setback shall be maintained to all property lines, unless one of the following criteria is met:
 - (A) site-specific nitrogen migration analysis for a TS-I system indicates that the nitrate-nitrogen concentration at the property line will not exceed 10 mg/L; or
 - (B) TS-II system is used.
- (d) Drip dispersal installation shall be in accordance with Rule .0908(f) of this Subchapter.

History Note: Authority G.S. 130A-334; 130A-335; 130A-342; 130A-343; Eff. January 1, 2024.