

**TITLE 18. ENVIRONMENTAL QUALITY**  
**CHAPTER 9. WATER POLLUTION CONTROL**  
**ARTICLE 3. AQUIFER PROTECTION PERMITS - GENERAL PERMITS**  
**PART A. GENERAL PROVISIONS**

**E. Vertical separation distances.**

1. Minimum vertical separation to the seasonal high water table for a disposal works described in R18-9-E302 receiving septic tank effluent. For a disposal works described in R18-9-E302 receiving septic tank effluent, the minimum vertical separation distance between the lowest point in the disposal works and the seasonal high water table is dependent on the soil absorption rate and is determined as follows:

<b>Soil Absorption Rate (gallons per day per square foot)</b>			<b>Minimum Vertical Separation Between The Bottom Of The Disposal Works And The Seasonal High Water Table (feet)</b>	
Trench and Chamber	Bed	Seepage Pit	Trench, Chamber, and Bed	Seepage Pit
1.20+	0.93+	1.20+	Not allowed for septic tank effluent	Not Allowed
0.63+ to 1.20	0.42 to 0.93	0.63+ to 1.20	10	60
0.20 to 0.63	0.13 to 0.42	0.36 to 0.63	5	60
Less than 0.20	Less than 0.13	Less than 0.36	Not allowed for septic tank effluent	Not Allowed

2. Minimum vertical separation to the seasonal high water table for treatment and disposal works described in R18-9-E303 through R18-9-E322. If the minimum vertical separation distance to the seasonal high water table for a disposal works receiving septic tank effluent specified in subsection (E)(1) is not met, the applicant shall comply with the following:
  - a. Employ one or more technologies described in R18-9-E303 through R18-9-E322 to achieve a reduced concentration of harmful microorganisms, expressed as total coliform in colony forming units per 100 milliliters (cfu/100 ml) delivered to native soil at the bottom of the disposal works. The applicant shall use the following table to select works that achieve a reduced total coliform concentration corresponding to the available vertical separation distance between the bottom of the disposal works and the seasonal high water table:

<b>Available Vertical Separation Distance Between the Bottom Of The Disposal Works and the Seasonal High Water Table (feet)</b>		<b>Maximum Allowable Total Coliform Concentration, 95th Percentile, Delivered to Natural Soil by the Disposal Works (Log<sub>10</sub> of coliform concentration in cfu per 100 milliliters)</b>
<b>For SAR*, 0.20 to 0.63</b>	<b>For SAR*, 0.63+ to 1.20</b>	
5	10	8**
4	8	7
3.5	7	6
3	6	5
2.5	5	4
2	4	3
1.5	3	2
1	2	1
0	0	0***

- \* Soil absorption rate from percolation testing or soil characterization, in gallons per square foot per day.
- \*\* Nominal value for a standard septic tank and disposal field (10<sup>8</sup> colony forming units per 100 ml).
- \*\*\* Nominally free of coliform bacteria.

- b. Include a hydraulic analysis with the Notice Of Intent To Discharge, based on the dimensions of the absorption surfaces specified in R18-9-A312(B)(4)(b), showing that the soil is sufficiently permeable to conduct wastewater downward and laterally without surfacing for the site conditions at the disposal works.
3. Vertical separation from a subsurface limiting condition described in R18-9-A310(D)(2)(d) that may cause or contribute to surfacing of wastewater. If a subsurface limiting condition described in R18-9-A310(D)(2)(d) exists at the location of the disposal works, the applicant shall ensure that the design for the on-site wastewater treatment facility meets one of the following:
- a. A zone of acceptable native soil with the following characteristics exists between the bottom of the disposal works and the top of the subsurface limiting condition:
    - i. The zone of soil is at least 4 feet thick, and
    - ii. The zone of soil is sufficiently permeable to conduct wastewater released from the disposal works vertically downward and laterally without causing surfacing of the wastewater as documented by a hydraulic analysis submitted with the Notice of Intent to Discharge that is based on the dimensions of the absorption surfaces specified in R18-9-A312(B)(4)(b);
  - b. The subsurface limiting condition is thin enough to allow placement of a disposal works into acceptable native soil beneath the subsurface limiting condition if the following criteria are met:
    - i. The bottom of the subsurface limiting condition is not deeper than 10 feet below the land surface, and
    - ii. The vertical separation distance from the bottom of the disposal works to the seasonal high water table complies with subsection (E)(1) or (2), as applicable; or
  - c. If the disposal works is placed above the subsurface limiting condition and the depth to the subsurface limiting condition is less than 4 feet below the bottom of the disposal works, the design for the on-site wastewater treatment facility shall comply with all of the following:
    - i. Employ one or more technologies described in R18-9-E303 through R18-9-E322 to achieve a reduced concentration of harmful microorganisms, expressed as total coliform in colony forming units per 100 milliliters (cfu/100 ml), delivered to acceptable native soil at the bottom of the disposal works, as follows:

<b>Available Vertical Separation Distance from the Bottom of the Disposal Works to the Subsurface Limiting Condition (feet)</b>	<b>Maximum Allowable Total Coliform Concentration, 95th Percentile, Delivered to Acceptable Native Soil by the Disposal Works (Log<sub>10</sub> of coliform concentration in cfu per 100 milliliters)</b>
3.5	7
3	6
2.5	5
2	4
1.5	0*
1	0*
0.5	0*
0	0*

\* Nominally free of coliform bacteria.

- ii. If the SAR of the native soil into which the disposal works is placed is not more than 0.63 gallons per day per square foot, include a hydraulic analysis with the Notice of Intent to Discharge, based on the location and dimensions of the absorption surfaces specified in R18-9-A312(B)(4)(b), showing that the soil is sufficiently permeable to conduct wastewater vertically downward and laterally without surfacing for the site conditions at the disposal works; and
  - iii. If a disinfection device under R18-9-E320 is proposed but is not used with surface disposal of wastewater under R18-9-E321 or “Category A” drip irrigation disposal under R18-9-E322, provide a justification with the Notice of Intent to Discharge stating why the selected type of disposal works is favored over disposal under R18-9-E321 or R18-9-E322.
4. Vertical separation from a subsurface limiting condition described in R18-9-A310(D)(2)(e) that promotes accelerated downward movement of insufficiently treated wastewater. If a subsurface limiting condition described in R18-9-A310(D)(2)(e) exists at the

location of the proposed disposal works, the applicant shall ensure that the design for the on-site wastewater treatment facility meets one of the following:

- a. A zone of naturally occurring soil with the following characteristics exists between the bottom of the disposal works and the top of the subsurface limiting condition:
  - i. The zone of soil is at least 2 feet thick, and
  - ii. The SAR of the soil is not less than 0.20 gallons per day per square foot nor more than 1.20 gallons per day per square foot; or
- b. The on-site wastewater treatment facility employs one or more technologies described in R18-9-E303 through R18-9-E322 that produces treated wastewater that meets a total coliform concentration of 1,000,000 ( $\text{Log}_{10}6$ ) colony forming units per 100 milliliters, 95th percentile.