

## **Section 8 – Minimum Horizontal and Vertical Setback Distances**

### **1. Horizontal Distances**

- a. Horizontal distances from the various components of a system to pertinent terrain features, including streams, lakes, water courses, springs, wetlands, wells, subsurface drains, cisterns, water lines, suction lines, dry gulches, cut banks, dwellings, other occupied buildings and property lines, must be in accordance with Table 8-1.
- b. The setback requirements are applicable for minimum system performance and treatment levels with specific modifications allowed for higher treatment levels as provided in Table 8-2.
- c. All distance setback modifications must be analyzed and approved by the Clear Creek County Board of Health and be in complete compliance with the variance procedures of this regulation and those of the local board of health.
- d. Acceptable methods of analyzing horizontal separation distances with higher treatment levels include but are not limited to:
  - i. Analyzing the intended uses of impacted surface and/or ground waters;
  - ii. Contacting adjacent property owners for potential conflicts with property line encroachments; and
  - iii. Analyzing potential impacts that system locations may have on building foundations and other potentially affected features.
- e. Reductions in separation distances with higher level treatment must include provisions for operation and maintenance for the life of the system, as described in Section 16.

### **2. Dry Gulches, Cut Banks and Fill Areas**

- a. Separation distances to dry gulches, cut banks and fill areas in Table 8-1 must apply unless the design engineer determines by observation of the exposed slope of the dry gulch or cut bank or by soil profile test pit excavations that a limiting layer is present that will direct or allow the effluent from the soil treatment area to move laterally and surface. In this instance, a greater distance may be required.
- b. A lesser distance may be used if it can be demonstrated by a professional engineer or professional geologist that the use of a barrier, such as a minimum 30 mil PVC liner placed between the soil treatment area and the slope of the dry gulch, cut bank or fill area will prevent effluent surfacing laterally.
- c. The separation distance between a component and the crest of a dry gulch or cut bank will be evaluated for potential erosion or slope instability if the component and the slope are too close together. If there is potential for erosion or instability, the separation distance must be increased until the risk is minimized.

### 3. Design Considerations

- a. Components of an OWTS listed in Table 8-1 shall be installed or located in accordance with the minimum distance requirements provided in the table.
- b. Table 8-2 provides the required site evaluation, design, and treatment level considerations necessary to evaluate the site and to design and locate the soil treatment area component of an OWTS.
  - i. Items 1, 2 and 3 in Table 8-2 address the allowable horizontal setback distance between the soil treatment area and the following physical features:
    - ii. Setback distance from soil treatment area to on-site well;
    - iii. Setback distance from soil treatment area to water features; and
    - iv. Setback distance from soil treatment area to a dry gulch or cut bank.
- c. Item 4 in Table 8-2 addresses the required vertical separation distance between the infiltrative surface of the soil treatment area and the limiting layer or the required depth of soil comprising the soil treatment area.
- d. The designer may select the level of treatment from Table 8-2 to be applied to the soil treatment area that is necessary in order to accommodate the site conditions.

**Table 8-1 Minimum Horizontal Distances in Feet Between Components of an On-Site Wastewater Treatment System Installed After November 15, 1973 and Water, Physical and Health Impact Features**

	Spring, Well, <sup>1</sup> Suction Line, Potable Water Supply Cistern <sup>4</sup>	Potable Water Supply Line <sup>2</sup>	Structure w/basement, crawl space or footing drains	Structure without basement, crawl space or footing drains	Property Lines, Piped or Lined Irrigation Ditch, upslope curtain drain	Subsurface Drain, Intermittent Irrigation Lateral, Drywell, Stormwater Structure	Lake, Water Course, Irrigation Ditch, Stream, Wetland	Dry Gulch, Cut Bank, Fill Area (from Crest)	Septic Tank, Higher level treatment Unit, Dosing Tank, Vault or Privy
Septic Tank, Higher Level Treatment Unit, Dosing Tank, Vault or Vault Privy	50 <sup>2</sup>	10 <sup>2</sup>	5	5	10	10	50	10	--
Building Sewer or Effluent Lines	50 <sup>2</sup>	5 <sup>6</sup>	0	0	10 <sup>2</sup>	10 <sup>2</sup>	50 <sup>2</sup>	10 <sup>2</sup>	--
STA Trench, STA Bed, Unlined Sand Filter, Sub-surface Dispersal System, Seepage Pit	200 (100 <sup>3,7,8)</sup> )	25 <sup>2</sup>	20	10	10	25	50 <sup>3</sup>	25	5

Lined Sand Filter	60	$10^2$	15	10	10	10	25	10	5
Lined Evapo- transpiration Field or Outside of Berm of Lined Wastewater Pond	60	$10^2$	15	15	10	10	25	10	5
Unlined Sand Filter in Soil With a Percolation Rate Slower than 60 Minutes per Inch, Unlined or Partially Lined Evapotrans- piration System, Outside of Berm of Unlined Wastewater Pond, or System Not Relying on STA for Treatment Other than Aerosol	100	$25^2$	15	15	10	25	25	15	10
System Not Relying on STA for Dispersal	$100^3$	$10^2$	125	$125^5$	10	0	$25^3$	10	10

NOTE: The minimum distances shown above must be maintained between the OWTS components and the features described. Where soil, geological or other conditions warrant, greater distances may be required by the local board of health or by the Water Quality Control Commission pursuant to section 25-8-206, C.R.S. and applicable regulations. For repair or upgrading of existing OWTS where the size of lot precludes adherence to these distances, a repaired OWTS must not be closer to setback features than the existing OWTS, as reviewed and approved by the local public health agency. Components that are not watertight should not extend into areas of the root system of nearby trees.

- 1 Includes potable wells, irrigation wells and monitoring wells set within a potable aquifer and infiltration galleries permitted as wells by the Division of Water Resources.
- 2 Crossings or encroachments may be permitted at the points as noted above provided that the water or wastewater conveyance pipe is encased for the minimum setback distance on each side of the crossing. A length of pipe with a minimum Schedule 40 rating of sufficient diameter to easily slide over and completely encase the conveyance must be used. Rigid end caps of at least Schedule 40 rating must be glued or secured in a watertight fashion to the ends of the encasement pipe. A hole of sufficient size to accommodate the pipe must be drilled in the lowest section of the rigid cap so that the conveyance pipe rests on the bottom of the encasement pipe. The area in which the pipe passes through the end caps must be sealed with an approved underground sealant compatible with the piping used. Other methods of encasement that provide equal protection are allowed. These methods must be reviewed and approved by the local public health agency.
- 3 Add eight feet additional distance for each 100 gallons per day of design flows between 1,000 and 2,000 gallons per day, unless it can be demonstrated by a professional engineer or geologist by a hydrologic analysis or the use of a barrier, consisting of a minimum 30 mil PVC liner or equivalent, that contamination will be minimized. If effluent meets Treatment Level 3N and the local public health agency has a maintenance oversight program in accordance with section 14.D. of this regulation, the distance addition is not required. Flows greater than 2,000 gallons per day must be hydrologically analyzed for flow, velocity, hydraulic head, and other pertinent characteristics as means of estimating distances required to minimize contamination as part of the Division site application and permitting process.
- 4 All horizontal setbacks to a potable water supply cistern must be met unless a variance by the Board of Examiners of Water Well Construction and Pump Installation Contractors is granted per section 18.2 of the Water Well Construction Rules, 2 CCR 402-2. Setback requirements which may necessitate a variance are found within section.10.2 or 11.4 of the Water Well Construction Rules, as applicable. The minimum horizontal setback that may be granted through a variance is to 25 feet.
- 5 If the structure is not used as a habitable unit, the isolation may be reduced by the local board of health to no less than 50 feet.
- 6 Building sewer installations shall meet the design requirements of the Colorado Plumbing Code.
- 7 Minimum setback of 100 feet permitted for systems receiving TL2N, 3 or TL3N treatment level effluent.
- 8 See Appendix A for well deep grouting setback reduction requirements.

**Table 8-2 On-site Wastewater Treatment System Design Consideration and Treatment Requirements – Separation Distances from Soil Treatment Area**

			<b>PRESSURE DOSING REQUIRED</b>	<b>PRESSURE DOSING REQUIRED</b>	<b>PRESSURE DOSING REQUIRED</b>
<b>ITEM</b>	<b>OWTS DESIGN CONSIDERATION</b>	Treatment Levels 1 & 2	Treatment Level 2N	Treatment Level 3	Treatment Level 3N
	<b><u>Horizontal Separation Distances</u></b>				
1	Distance from soil treatment area to on-site well	Greater than or equal to 200 feet	Greater than or equal to 100 feet <sup>1</sup>	Greater than or equal to 100 feet <sup>1</sup>	Greater than or equal to 100 feet <sup>1</sup>
2	Distance from soil treatment area to pond, creek, lake, or other surface water feature	Greater than or equal to 50 feet	Greater than or equal to 25 feet	Greater than or equal to 25 feet	Greater than or equal to 25 feet
3	Distance from soil treatment area to dry gulch or cut bank	Greater than or equal to 25 feet	Greater than or equal to 10 feet	Greater than or equal to 10 feet	Greater than or equal to 10 feet
	<b><u>Vertical Separation Distances</u></b>				
4	Treatment depth in feet from infiltrative surface to a limiting layer	4 feet <sup>2</sup> (3 feet with pressure dosing)	Greater than or equal to 2.5 feet	Greater than or equal to 2.5 feet	Greater than or equal to 2 feet

NOTE: Treatment levels are defined in Table 7-3.

1 All setback distance reductions to the 100 foot requirement for wells and soil treatment areas must be in full compliance with the minimum standards and variance requirements of the State of Colorado Division of Water Resources: Rules and Regulations for Water Well Construction, Pump Installation, Cistern Installation, and Monitoring and Observation Hole/Well Construction. For TL 3N effluent, a reduction to 75 feet is allowed if a variance from the Water Well Construction Regulations is obtained.

2 Reductions in the vertical separation requirements for the use of higher level treatment systems with seepage pits are not allowed. The bottom of the excavation of a seepage pit must be a minimum of four feet above a limiting layer.