

# STATE OF COLORADO

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## **Clarification Regarding Section 43.10(H) of Regulation 43**

During our review of local OWTS regulations, there have been several inquiries as to the intent and Water Quality Control Division's interpretation of section 43.10(H) of Regulation 43. This section states:

*"Soil replacement must be permitted to bring the soil within the requirements of suitable soil. Added soil must meet the specifications of sand filter media, as specified in section 43.11.C.2.a.(1). All added soil must be completely settled prior to installation of components as specified and approved by the design engineer. The loading rate for sand filters must be used. Pressure distribution must be used".*

To understand this section, it needs to be broken down into its individual parts. The first sentence states: *"Soil replacement must be permitted to bring the soil within the requirements of suitable soil."* The reference to "soil replacement" means that soil has been removed. That removal and replacement of the soil "must be permitted." However, when replacing with the same soil, it must meet the definition of "suitable soil."

The definition of "suitable soil" states:

*"Suitable soil" means a soil which will effectively treat and filter effluent by removal of organisms and suspended solids before the effluent reaches any highly permeable earth such as joints in bedrock, gravels, or very coarse soils and which meets percolation test or soil test pit excavation requirements for determining long-term acceptance rate and has a vertical thickness of at least four feet below the bottom of the soil treatment area unless the treatment goal is met by other performance criteria". [emphasis added]*

From the requirements of suitable soil stated above, soils that are removed from within a soil treatment area, then disturbed and acted upon such as screening, can be replaced into the excavation as long as the manipulated existing soils will: a) effectively treat and filter the effluent, b) meet percolation test or soil test pit excavation requirements (i.e., soil types 1 through 3 in Table 10-1), and c) have a vertical thickness of at least four feet.

If during this process it is found that additional material needs to be imported to provide for the proper elevation of the OWTS, then the other requirements noted in section 43.10(H) apply. Specifically, all additional material must meet the specifications of sand filter media as specified in section 43.11(C)(2)(a)(1) of Regulation 43 and the design must use pressure distribution.

Therefore, soil can be removed and re-installed from within a proposed soil treatment area as long as the above noted requirements for suitable soil are met. Further, any added soil must meet sand filter media specifications as stated in Regulation 43. If removing and replacing the same soil is proposed, the Division's expectation is that the following procedures will be followed to ensure that the replaced soil complies with the definition of "suitable soil" and generally accepted OWTS design practice.

1. The replaced soil may not fall under the criteria of "Soil Type 0" noted in Table 10-1 of Regulation 43 as being Soil Type 1 with more than 35% rock (>2mm) or being "Soil Types 2 - 5" with more than 50% rock (>2mm).
2. Replaced soil must be of uniform composition throughout the soil treatment area and settled into place without intentional compaction.
3. After placement of the soil into the excavation, percolation testing must then be conducted per the requirements of Regulation 43 to ensure that the replaced soil meets the specification of a Soil Type 1 through 3. It is recommended that wetting of the soil approaching 2% optimal moisture content should be conducted to assist in ensuring that the media is settled and stable prior to performing any percolation tests. In most cases, machine tamping is not recommended.
4. If additional sand is necessary to obtain the required elevation of the infiltrative surface, the sand must be added after percolation testing has been conducted (see item 3 above).
5. Certification of items 1 through 4 above from the design engineer must be included in the submittal package for final system approval.

Note that because the system is required to be "pressure dosed," the minimum vertical separation requirement is reduced to three (3) feet as defined in Table 7-2 (Item 4) of Regulation 43.

Further, please note that local regulations may be more stringent than Regulation 43. Therefore, a local board of health may adopt a requirement that all unsuitable soil that is removed from an excavation must be exchanged with material meeting the sand media specification.

For additional information contact:

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