STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH

Environmental Engineering Program

Summary of Technical Standards January 1, 2009 Significant Revisions

- Disclaimer added: The listing of any proprietary product, technology or system in the Technical Standards should not be considered an endorsement of the product, technology or system, nor does it convey intellectual property rights.

- **Section I Definitions**
  1. Revised definition of stone aggregate to include both No 4 (1 & ¼" Stone) and No. 6 (3/4") stone. The Leaching System Section (Section VIII) has been revised to allow use of smaller stone (3/4") with leaching trenches and proprietary systems. Leaching pits and galleries will require use of the larger stone.

     The table below will be moved to the Leaching System Section (Section VIII A):

	No. 4 Stone Aggregate (A.K.A., 1 & 1/4 " Stone)	No. 6 Stone Aggregate (A.K.A., 3/4" Stone)
SIEVE SIZE	PERCENT PASSING (by weight)	PERCENT PASSING (by weight)
2-inch	100	N/A
1.5-inch	90 – 100	N/A
1-inch	20 – 55	100
3/4-inch	0 – 15	90 - 100
1/2-inch	N/A	20 - 55
3/8-inch	0 – 5	0 - 15
#4	N/A	0 - 5
#40	0 - 3	0 - 3
#200	0 – 1.5	0 – 1.5

- **Section II Location of SSDSs**
  1. Subsection A: Reference piping Tables 2, 2-C, and 2-D only for applications where specified piping qualifies for reduced separating distances. No reference is made to Tables 2-A & 2-B as they apply to public sewer mains/laterals and the separating distances in Table No. 1 are not applicable.
  2. Table No. 1:
     - Item A (Well) – Language modified to reference water supply wells (potable, open loop geothermal, irrigation) rather than wells, and includes open loop geothermal wells but not closed loop geothermal wells. See Item Q for closed loop geothermal wells. Special provision language modified to clarify that doubled separating distances only applies to leaching system not to septic tanks.
     - Item C (Building Served) – Language clarified to indicate that the cited distances (15' and 10' for tanks) only apply to buildings without drains. Reference is made to items G & H for buildings with drains (25' or 50' depending upon drain location).

Phone: 860-509-7296
Telephone Device for the Deaf: (860) 509-7191
410 Capitol Avenue - MS # 51-SEW
P.O. Box 340308 Hartford, CT 06134
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- Item J (Property Line) – Special provisions added for elevated leaching systems (top of leaching system above natural grade): Distance to leaching system shall be increased to 15 feet unless grading rights from affected property owner are secured, or unless retaining walls are utilized. Additional language added to Leaching System Section (Section VIII A for further requirements on retaining walls.
- Item K (Water Line) – Add language that trench excavation backfill within 10-25 ft from leaching system shall be non-free draining material.
- Item Q (New Item: Closed loop Geothermal Systems) – Stipulate that vertical borehole: shall be 75 feet from sewage systems, however add special provision language to allow reduced separating distances if certain construction standards are followed and installation by licensed well driller per DPH EHS Circular Letter #2007-12, dated 4/27/07. Reduced distances: 50' to leaching system & 25' to watertight tanks. Stipulate borehole shall be kept 10' minimum to sewer piping listed in Tables 2, 2-C, and 2-D (Notes added to Tables). Specify 10 feet minimum separation between sewage disposal systems and horizontal loop lines & geothermal piping.

- **Section III Piping**
  1. In verbiage in subsection A and in Tables 2, 2-A, 2-B & 2-D wording clarified about approved sewer piping within sanitary radius of water supply wells. Minimum separating distances (25', 75', 100') between approved sewer piping and water supply wells with various withdrawal rates (<10 gpm, 10 – 50 gpm, >50 gpm) cited. New PE pipe (ASTM 3035, SDR 11) added to Tables 2-A, 2-B and 2-D.

- **Section IV Design Flows**
  1. Subsection B, Table 4
     - Statement added to commercial building category indicated that design flows may be reduced if documentation (building/floor plans, statement of use, etc.) supports reduction. Industrial building design flow (0.1 GPD/SF of gross floor area) added, and factory design flow stipulates that the # of person is based on 1 person per 200 square feet of floor area.
     - Restaurants: Remove reference to Class 3 & 4
     - Residential institutions: Include a 150 GPD/room flow for residential hotels/motels.
     - Miscellaneous category: Make note that the cited motel flows are for transient motels, and expand salon flows to include design flows for pedicures & manicures.
  2. Subsection D, Permits to Discharge
     - Clarify design flow and permitted flow language. Both shall be cited. The permitted flow equals the design flow except for non-compliant repairs with limited leaching systems. The permitted flow for non-compliant repairs shall be determined using the most limited percentage of the required ELA and/or MLSS provided.
  3. Subsection E, Management Programs
     - Note that management ordinances and regulations shall be submitted to DPH for review prior to adoption. Eliminate reference to permit to discharge re-issuance and monthly exception notifications to DPH.

- **Section V Septic Tanks**
  1. Subsection A:
     - Stipulate concrete septic tanks shipped prior to 14 days from date of manufacture shall include supporting documentation that tank reached minimum strength prior to shipping.
     - Stipulate concrete tank pre-casters shall file tank specifications & drawings with DPH, and stipulate tanks are not to be sold in CT until pre-caster has a CT licensed PE submit to DPH certifications that tanks meet cited ASTM tank standard and requirements of section. DPH to maintain list of approved CT septic tank pre-casters.
     - Non-concrete tanks: Stipulate approved tank manufacturers must keep updated specifications and dated installation instructions on file with DPH.
     - Clarify riser retrofits only required over cleanout manhole(s), not over inlet & outlet baffles, unless effluent filter is provided in which case riser over outlet baffle required.
     - Stipulate tanks in paved areas shall have risers extended to grade.
     - Stipulate that riser and manhole extensions to grade shall be designed and constructed to prevent storm water infiltration.
     - Inlet pipe extensions > 15 inches to cleanout manhole: Support pipe or use PVC Schedule 40 approved piping.
     - Add gas-warning language to marking Subsection V A 5.
  2. Subsection B:
     - Revised the single-family home septic tank capacity requirements. See chart below:

Minimum Septic Tank Capacities for Residential Buildings

	Single-family	Multi-family
1-3 bedrooms	1,000 gallon	1,000 gallon
4 bedrooms	1250 gallons	1250 gallons
For each bedroom beyond 4	Add 125 gallons per bedroom	Add 250 gallons per bedroom

- **Section VI Effluent Distribution, Pump Systems etc**
  1. Subsection A:
     - Eliminate requirement that capped sanitary tee access points be extended to grade.
     - Require access points on large (2000 GPD and greater) and non-residential leaching systems be extended to grade in paved areas.
  2. Subsection C:
     - Note that pump systems can utilize pressure transducers, mechanical float switches etc.
     - Note that pump systems can utilize timed-dosed systems or volume-dosed pump systems. Caution that pump systems shall avoid dosing large volumes of effluent into leaching systems with limited internal storage capacities. Recommend that dosed volumes not exceed 20% of the leaching system internal storage capacity. Proprietary leaching system companies shall provide DPH information on internal storage capacities of their products as part of their submittals pursuant to Section VIII G.

- Require combination septic tank/pump chambers eliminate mid-depth compartment opening and use tee baffle piping so that drawdown occurs in second compartment only. Diagram added of 2-compartment tank with mid-depth connection via tee-baffles for use in combination septic tank/pump chamber to allow drawdown in second compartment only.
- Require pump chamber risers have a minimum inside diameter of 24 inches for chambers more than 24 inches below finished grade. This is consistent with Septic Tank requirements, and encourages shallow pump chambers.

- **Section VIII Leaching Systems**
  1. Subsection A General:
     - Clarify reserve areas do not have to meet MLSS
     - Stipulate that subsurface sewage disposal system design plans that include retaining walls shall provide retaining wall information and specifications including type of structure, groundwater control mechanisms (drains, weep holes), footings, and a cross section showing existing and proposed grades. Retaining walls cannot have groundwater drains that violate separating distance provisions in Table #1. Retaining walls within 50 feet down gradient of a leaching system shall not act as a hydraulic barrier to groundwater and wastewater movement in the naturally occurring soil. Retaining walls off the ends of leaching systems shall not be subject to possible seepage through the wall, and the inner edge of the retaining wall shall be at least 10 feet from the leaching system.
     - Add language about leaching systems under vehicular travel areas: Require 1 foot minimum cover over stone trenches, stipulate precast concrete structures shall be H-20 load rated, and stipulate proprietary systems shall only be installed in vehicular travel areas if authorized by the manufacturer, and require proprietary companies to provide DPH dated supporting documentation to be kept on file.
     - Clarify the crediting of leaching system end connections, and U-shaped and L-shaped leaching systems. Stipulate that the length of the main row(s) shall only be measured to the center of the interconnecting segment or extension. Only allow crediting of on the crediting of L-shaped, U-shaped or box-shaped leaching systems for systems using products credited at 7.4 SF/LF or higher if MLSS is non-applicable or the water table is level (essentially 0% slope).
     - Eliminate requirement that filter fabric used in proprietary leaching systems be labeled with the fabric manufacturer's name & ID #. Note: Proprietary leaching system companies shall be required to provide DPH product marking information as part of their submittals to DPH by July 1, 2009. (See Section VIII, Subsection G).
     - Add stone aggregate gradation table (see Section I Definition of Stone Aggregate)
  2. Subsection B Leaching Trenches:
     - Stipulate stone aggregate must meet No. 4 or No. 6 stone aggregate gradation. This allows use of smaller (3/4") stone in trenches.
  3. Subsection C Leaching Pits:
     - Stipulate stone aggregate must meet No. 4 stone aggregate gradation.

4. Subsection D Leaching Galleries:
    - Stipulate stone aggregate must meet No. 4 stone aggregate gradation.
    - Stipulate gallery invert pipe should be raised and placed in stone whenever stone is placed on top of galleries for additional ELA credit.
    - Eliminate language about "L-shaped, U-shaped or box gallery row extensions"
5. Subsection E Proprietary Leaching Systems:
    - ASTM C 33 Sand: Eliminate 3% passing maximum reference. Make note that sand back fill must minimally meet select fill gradation specifications for #100 & #200 sieve.
    - Stipulate that stone utilized in proprietary leaching systems must meet stone aggregate requirements, and No. 4 or No. 6 stone aggregate gradation.
    - Up-date approved proprietary lists. Add Cur-Tech and S-Box systems.
6. Subsection G Leaching System Product Approvals, ELA Ratings, Center to Center Spacing:
    - Add cardboard interfaces to interface factor list. Bottom cardboard interfaces will not be credited. Sidewall filter fabric/cardboard interface is same as sidewall cardboard interface.
    - Filter fabric interfaces reduced by % obstructed.
    - Add definition of product footprint, which is the horizontal area within a rectangular boundary around the outermost perimeter of the leaching system interface.

- **Section XI Non-Discharging Toilet & Sewage Disposal Systems**
    1. Subsection G Holding Tanks:
        - Re-wording to indicate that holding tank proposals shall be submitted through the local director of health to DPH.

- **Form #4 Permit to Discharge**
    - Form modified to list both the permitted flow and the design flow. It is noted that the design flow equals the permitted flow except on non-compliant repairs. Reference to Section IV D for info on permitted flows for non-compliant repairs. Note: For repairs with leaching systems that are undersized or non-compliant for MLSS, the permitted flow must be pro-rated. Example: An existing 3000 GPD non-residential building has a repair completed that provides only 50% of ELA & 60% MLSS. The design flow for the building is listed as 3,000 GPD, however the permitted flow is listed as 1500 GPD based on the more restrictive 50% system size.

- **Appendixes**
    1. Appendix A MLSS
        - Modify the definition of leaching system spread to indicate that in instances where it has been demonstrated the water table is level (essentially 0% hydraulic gradient), the spread shall be deemed to be the length in feet of the perimeter of the leaching system. This makes allowances for radial flow (360 degrees).
    2. Update Appendixes C (Fabrics) & D (Plastic Tanks).