

1.1 Pollution Control Agency
1.2 Proposed Permanent Rules Relating to Individual Subsurface
1.3 Sewage Treatment Systems
1.4 CHAPTER 7080

1.5 MINNESOTA POLLUTION CONTROL AGENCY
1.6 DESIGN STANDARDS FOR INDIVIDUAL SUBSURFACE
1.7 SEWAGE TREATMENT SYSTEMS

1.8 7080.1050 PURPOSE AND INTENT.

1.9 The proper location, design, installation, use, and
1.10 maintenance of an individual subsurface sewage treatment system
1.11 (ISTS) protects the public health, safety, and general welfare
1.12 by preventing the discharge of adequately treated sewage to the
1.13 groundwater. In accordance with the authority granted in
1.14 Minnesota Statutes, chapters 103F, 103G, 115, and 116, the
1.15 Pollution Control Agency provides minimum environmental
1.16 protection standards for ISTS as defined in this chapter. These
1.17 environmental protection standards shall be adopted countywide
1.18 and administered and enforced by local units of government as
1.19 directed by chapter 7082, as published in the State Register,
1.20 volume ..., page ..., and as subsequently adopted, and Minnesota
1.21 Statutes, section 115.55.

1.22 This chapter regulates all ISTS as defined in this
1.23 chapter. This chapter does not regulate systems that do not
1.24 receive sewage as defined in this chapter. If systems receive
1.25 both sewage and nonsewage, the requirements of this chapter
1.26 apply, plus any additional requirements governing the nonsewage
1.27 portion of the wastewater. Systems serving two or more
1.28 dwelling and systems receiving nonsewage are also regulated
2.1 under Code of Federal Regulations, title 40, parts 144 and 146.

2.2 This chapter does not regulate systems that discharge to
2.3 the ground surface or surface waters. Those systems require a
2.4 national pollution discharge elimination system permit.

2.5 In addition, this chapter provides prescriptive design,
2.6 construction, and operational standards to reasonably protect
2.7 surface water and groundwater and promote public health, safety,
2.8 and general welfare. This chapter also provides public health
2.9 and environmental outcomes as a basis for a custom-designed
2.10 system. Technology and products employed in system design shall
2.11 adequately protect the public health and the environment as
2.12 determined by this chapter and be approved for use by the local
2.13 unit of government.

2.14 In conjunction with these standards, the agency encourages
2.15 the use of advanced treatment methods and waste reduction to
2.16 further reduce the discharge of contaminants.

2.17 Companion to this chapter are standards for mid-sized ISTS,
2.18 chapter 7081, as published in the State Register, volume ...,
2.19 page ..., and as subsequently adopted; administrative
2.20 requirements for local ordinances, permit, and inspection
2.21 programs, chapter 7082, as published in the State Register,
2.22 volume ..., page ..., and as subsequently adopted; and
2.23 certification and licensing requirements for those who design,
2.24 install, inspect, manage, or maintain ISTS, chapter 7083, as
2.25 published in the State Register, volume ..., page ..., and as

2.26 subsequently adopted.

2.27 7080.1100 DEFINITIONS.

3.1 Subpart 1. **Certain terms.** In addition to the definitions
3.2 in chapters 7081, 7082, and 7083, as published in the State
3.3 Register, volume ..., page ..., and as subsequently adopted,
3.4 which are incorporated in this part, and Minnesota Statutes,
3.5 section 115.55, the following terms have the meanings given
3.6 them. For the purposes of this chapter, if a term used in this
3.7 chapter is defined in chapter 7081, 7082, or 7083, as published
3.8 in the State Register, volume ..., page ..., and as subsequently
3.9 adopted, it shall apply to other SSTS if referenced in later
3.10 chapters. For the purposes of these standards, certain terms or
3.11 words used are interpreted as follows: the words "shall" and
3.12 "must" are mandatory and the words "should" and "may" are
3.13 permissive. All distances specified in this chapter are
3.14 horizontal distances unless otherwise specified.

3.15 Subp. 2. **Absorption area.** "Absorption area" means the
3.16 area on original soil below a mound system that is designed to
3.17 absorb sewage tank effluent. The absorption area for trenches,
3.18 seepage beds, and at-grade systems is the soil area in contact
3.19 with the part of the distribution medium that is designed and
3.20 loaded to allow absorption of sewage tank effluent. This
3.21 includes both bottom and sidewall soil contact areas.

3.22 Subp. 3. **Agency.** "Agency" means the Pollution Control
3.23 Agency.

3.24 Subp. 4. **Alarm device.** "Alarm device" means a device that
3.25 uses visual and audible methods to alert the system owner or
3.26 operator of malfunction to prevent sewage overflows.

3.27 Subp. 5. **Applicable requirements.** "Applicable
4.1 requirements" means:

4.2 A. local ISTS ordinances that comply with parts
4.3 7080.2150, subpart 2, and 7081.0080, subparts 1 to 5, as
4.4 published in the State Register, volume ..., page ..., and as
4.5 subsequently adopted; chapter 7082, as published in the State
4.6 Register, volume ..., page ..., and as subsequently adopted; and
4.7 Minnesota Statutes, section 115.55; or

4.8 B. in areas without complying ordinances to regulate
4.9 ISTS, the requirements of this chapter.

4.10 Subp. 6. **ASTM.** "ASTM" means the American Society for
4.11 Testing and Materials.

4.12 Subp. 7. **At-grade system.** "At-grade system" means a
4.13 pressurized soil treatment and dispersal system where sewage
4.14 tank effluent is dosed to an absorption bed that is constructed
4.15 directly on original soil at the ground surface and covered by
4.16 loamy soil materials.

4.17 Subp. 8. **Baffle.** "Baffle" means a device installed in a
4.18 septic tank to retain solids and includes, but is not limited
4.19 to, vented sanitary tees with submerged pipes and effluent
4.20 screens.

4.21 Subp. 9. **Bedrock.** "Bedrock" means geologic layers, of
4.22 which greater than 50 percent by volume consist of unweathered
4.23 in-place consolidated rock or rock fragments. Bedrock also
4.24 means weathered in-place rock which cannot be hand augered or
4.25 penetrated with a knife blade in a soil pit.

4.26 Subp. 10. **Bedroom.** "Bedroom" means a room or unfinished
4.27 area within a dwelling that might reasonably be used as a
5.1 sleeping room as determined by the local unit of government.
5.2 Subp. 11. **Biochemical oxygen demand or BOD.** "Biochemical
5.3 oxygen demand" or "BOD" means the measure of the quantity of
5.4 oxygen used by microorganisms in the aerobic oxidation of
5.5 organic matter and reduced chemicals.
5.6 Subp. 12. **Building.** "Building" means all potentially
5.7 occupied structures and any structure's foundation that could be
5.8 damaged or the structural integrity of which could be
5.9 jeopardized by the seepage of sewage or sewage tank effluent.
5.10 Subp. 13. **Carbonaceous biochemical oxygen demand or**
5.11 **CBOD₅.** "Carbonaceous biochemical oxygen demand" or "CBOD₅"
5.12 means the measure of the quantity of oxygen used by
5.13 microorganisms in the aerobic oxidation of organic matter and
5.14 other compounds containing carbon.
5.15 Subp. 14. **Certificate of compliance.** "Certificate of
5.16 compliance" means a document, written after a compliance
5.17 inspection, certifying that a system is in compliance with
5.18 applicable requirements at the time of the inspection.
5.19 Subp. 15. **Certified statement.** "Certified statement"
5.20 means a statement signed by a certified individual, apprentice,
5.21 or qualified employee under chapter 7083, as published in the
5.22 State Register, volume ..., page ..., and as subsequently
5.23 adopted, certifying that the licensed business or qualified
5.24 employee completed work in accordance with applicable
5.25 requirements.
5.26 Subp. 16. **Cesspool.** "Cesspool" means an underground pit,
5.27 receptacle, or seepage tank that receives sewage directly from a
6.1 building sewer and leaches sewage into the surrounding soil,
6.2 bedrock, or other soil materials. Cesspools include sewage
6.3 tanks that were designed to be watertight, but subsequently leak
6.4 below the designed operating depth.
6.5 Subp. 17. **Clean sand.** "Clean sand" means a soil fill
6.6 material required to be used in mounds. The standards for clean
6.7 sand are outlined in part 7080.2220, subpart 3, item C.
6.8 Subp. 18. **Commissioner.** "Commissioner" means the
6.9 commissioner of the Pollution Control Agency.
6.10 Subp. 19. **Compliance inspection.** "Compliance inspection"
6.11 means an evaluation, investigation, inspection, or other such
6.12 process for the purpose of issuing a certificate of compliance
6.13 or notice of noncompliance.
6.14 Subp. 20. **Disinfection.** "Disinfection" means the process
6.15 of destroying pathogenic microorganisms in sewage through the
6.16 application of ultraviolet light, chlorination, or ozonation.
6.17 Subp. 21. **Distinct.** "Distinct" means a soil color that is
6.18 not faint.
6.19 Subp. 22. **Distribution box.** "Distribution box" means a
6.20 device designed to distribute sewage tank effluent concurrently
6.21 and equally by gravity to multiple segments of a soil treatment
6.22 and dispersal system.
6.23 Subp. 23. **Distribution device.** "Distribution device"
6.24 means a device used to receive and transfer effluent from supply
6.25 pipes to distribution pipes or downslope supply pipes, or both.

6.26 These devices include, but are not limited to, drop boxes, valve
6.27 boxes, distribution boxes, or manifolds.

7.1 Subp. 24. **Distribution medium.** "Distribution medium"
7.2 means the material used to store and distribute sewage tank
7.3 effluent within a soil treatment and dispersal system.

7.4 Subp. 25. **Distribution pipes.** "Distribution pipes" means
7.5 perforated pipes that distribute effluent within a distribution
7.6 medium.

7.7 Subp. 26. **Dosing chamber.** "Dosing chamber" means a tank
7.8 or separate compartment following the sewage tank that serves as
7.9 a reservoir for a pump. Dosing chambers in a separate tank are
7.10 considered a septic system tank under Minnesota Statutes,
7.11 section 115.55, subdivision 1, paragraph (o).

7.12 Subp. 27. **Drip dispersal system.** "Drip dispersal system"
7.13 means a small diameter pressurized wastewater distribution
7.14 system that can deliver small, precise doses of effluent to the
7.15 soil surrounding the drip distribution piping.

7.16 Subp. 28. **Drop box.** "Drop box" means a distribution
7.17 device used for the serial gravity application of sewage tank
7.18 effluent to a soil treatment system.

7.19 Subp. 29. **Dwelling.** "Dwelling" means any building or
7.20 place used or intended to be used by human occupants as a
7.21 single-family, multifamily, or seasonal residence with plumbing.
7.22 Each family unit in a multifamily residence is considered one
7.23 dwelling.

7.24 Subp. 30. **Effluent screen.** "Effluent screen" means a
7.25 device that filters solid materials from sewage tanks as
7.26 effectively as an outlet baffle before discharge to a soil
7.27 treatment system.

8.1 Subp. 31. **EPA.** "EPA" means the United States
8.2 Environmental Protection Agency.

8.3 Subp. 32. **Existing systems.** "Existing systems" means
8.4 systems that have been previously inspected and approved by the
8.5 local unit of government during installation. In addition, all
8.6 operating systems installed before the adoption of a local
8.7 permitting and inspection program are considered existing
8.8 systems.

8.9 Subp. 33. **Faint.** "Faint" means a soil color:
8.10 A. with the same hue as another soil color but that
8.11 varies from the other color by two or less units of value and
8.12 not more than one unit of chroma;
8.13 B. that differs from another soil color by one hue
8.14 and by one or less units of value and not more than one unit of
8.15 chroma; or
8.16 C. that differs from another soil color by two units
8.17 of hue with the same value and chroma.

8.18 Subp. 34. **Fecal coliform or FC.** "Fecal coliform" or "FC"
8.19 means bacteria common to the digestive systems of warm-blooded
8.20 animals that are cultured in standard tests. Counts of these
8.21 organisms are typically used to indicate potential contamination
8.22 from sewage or to describe a level of disinfection, generally
8.23 expressed in colonies per 100 mL.

8.24 Subp. 35. **Fine sand.** "Fine sand" means a sand soil
8.25 texture, as described in the Field Book for Describing and

8.26 Sampling Soils, which is incorporated by reference in subpart
8.27 40, where more than 50 percent of the sand has a particle size
9.1 range of 0.05 millimeters, sieve size 270, to 0.25 millimeters,
9.2 sieve size 60.

9.3 Subp. 36. **Flood fringe.** "Flood fringe" means that portion
9.4 of the floodplain outside the floodway. Flood fringe is
9.5 synonymous with the term "floodway fringe" used in flood
9.6 insurance studies.

9.7 Subp. 37. **Floodplain.** "Floodplain" means the area covered
9.8 by a 100-year flood event along lakes, rivers, and streams as
9.9 published in technical studies by local, state, and federal
9.10 agencies, or in the absence of these studies, estimates of the
9.11 100-year flood boundaries and elevations as developed according
9.12 to a local unit of government's floodplain or related land use
9.13 regulations.

9.14 Subp. 38. **Floodway.** "Floodway" means the bed of a wetland
9.15 or lake, the channel of a watercourse, and those portions of the
9.16 adjoining floodplain that are reasonably required to carry the
9.17 regional flood discharge.

9.18 Subp. 39. **Flow measurement.** "Flow measurement" means any
9.19 method to accurately measure water or sewage flow, including,
9.20 but not limited to, water meters, event counters, running time
9.21 clocks, or electronically controlled dosing.

9.22 Subp. 40. **Geomorphic description.** "Geomorphic description"
9.23 means the identification of the landscape, landform, and surface
9.24 morphometry of the proposed area of the soil treatment and
9.25 dispersal system as described in the Field Book for Describing
9.26 and Sampling Soils: Version 2.0 (2002), developed by the
9.27 National Soil Survey Center and Natural Resources Conservation
10.1 Service of the United States Department of Agriculture. The
10.2 field book is incorporated by reference, is subject to frequent
10.3 change, and is available through the Minitex interlibrary loan
10.4 system.

10.5 Subp. 41. **Greywater.** "Greywater" means sewage that does
10.6 not contain toilet wastes.

10.7 Subp. 42. **Greywater system.** "Greywater system" means a
10.8 system that receives, treats, and disperses only greywater or
10.9 other similar system as designated by the commissioner.

10.10 Subp. 43. **Hazardous waste.** "Hazardous waste" means any
10.11 substance that, when discarded, meets the definition of
10.12 hazardous waste in Minnesota Statutes, section 116.06,
10.13 subdivision 11.

10.14 Subp. 44. **Holding tank.** "Holding tank" means a tank for
10.15 storage of sewage until it can be transported to a point of
10.16 treatment and dispersal. Holding tanks are considered a septic
10.17 system tank under Minnesota Statutes, section 115.55,
10.18 subdivision 1, paragraph (o).

10.19 Subp. 45. **Individual subsurface sewage treatment system or**
10.20 **ISTS.** "Individual subsurface sewage treatment system" or "ISTS"
10.21 means a sewage treatment and dispersal system or part that
10.22 consists of sewage tanks or other treatment devices with final
10.23 discharge into the soil below the natural soil elevation or
10.24 elevated final grade that are designed to receive sewage from
10.25 three or fewer dwellings or other establishments with an average

10.26 daily flow of 2,500 gallons per day or less. ISTS includes the
10.27 holding tanks and privies that serve these same facilities.
11.1 ISTS does not include building sewers or other components
11.2 regulated under chapter 4715.
11.3 Subp. 46. **Inner wellhead management zone.** "Inner wellhead
11.4 management zone" means the drinking water supply management area
11.5 for a public water supply well that does not have a delineated
11.6 wellhead protection area approved by the Department of Health
11.7 under part 4720.5330.
11.8 Subp. 47. **Invert.** "Invert" means the lowest point of a
11.9 channel inside a pipe.
11.10 Subp. 48. **Liquid capacity.** "Liquid capacity" means the
11.11 liquid volume of a sewage tank below the invert of the outlet
11.12 pipe or, for holding tanks and dosing chambers, the liquid
11.13 volume below the invert of the inlet.
11.14 Subp. 49. **Lot.** "Lot" means a parcel of land in a plat
11.15 recorded in the office of the county recorder or registrar of
11.16 titles or a parcel of land created and conveyed, using a
11.17 specific legal description, for a building site to be served by
11.18 an ISTS.
11.19 Subp. 50. **Management plan.** "Management plan" means a plan
11.20 that requires the periodic examination, adjustment, testing, and
11.21 other operational requirements to maintain system performance
11.22 expectations, including a planned course of action in the event
11.23 a system does not meet performance expectations.
11.24 Subp. 51. **Matrix.** "Matrix" means the majority of the
11.25 color in a soil horizon, as described in the Field Book for
11.26 Describing and Sampling Soils, which is incorporated by
11.27 reference in subpart 40.
12.1 Subp. 52. **Medium sand.** "Medium sand" means a sand soil
12.2 texture, as described in the Field Book for Describing and
12.3 Sampling Soils, which is incorporated by reference in subpart
12.4 40, that ranges in size between 0.25 millimeters, sieve size 60,
12.5 and 0.5 millimeters, sieve size 35.
12.6 Subp. 53. **Mottles.** "Mottles" means the minority of the
12.7 variegated colors in a soil horizon, as described in the Field
12.8 Book for Describing and Sampling Soils, which is incorporated by
12.9 reference in subpart 40.
12.10 Subp. 54. **Mound system.** "Mound system" means a soil
12.11 treatment and dispersal system with an absorption bed elevated
12.12 above the original soil with clean sand to overcome soil
12.13 limitations.
12.14 Subp. 55. **New construction.** "New construction" means
12.15 installing or constructing a new ISTS or altering, extending, or
12.16 adding capacity to a system that has been issued an initial
12.17 certificate of compliance.
12.18 Subp. 56. **Notice of noncompliance.** "Notice of
12.19 noncompliance" means a document written and signed by a
12.20 certified inspector after a compliance inspection that gives
12.21 notice that an ISTS is not in compliance as specified under part
12.22 7080.1500.
12.23 Subp. 57. **O&G.** "O&G" means oil and grease, a component of
12.24 sewage typically originating from foodstuffs such as animal fats
12.25 or vegetable oils or consisting of compounds of alcohol or

12.26 glycerol with fatty acids such as soaps and lotions, typically
12.27 expressed in mg/L.

13.1 Subp. 58. **Ordinary high water level.** "Ordinary high water
13.2 level" of surface water has the meaning given in Minnesota
13.3 Statutes, section 103G.005, subdivision 14.

13.4 Subp. 59. **Original soil.** "Original soil" means naturally
13.5 occurring soil that has not been cut, filled, moved, smeared,
13.6 compacted, altered, or manipulated to the degree that a
13.7 different soil sizing factor is needed from natural soil
13.8 conditions.

13.9 Subp. 60. **Other pit.** "Other pit" means any pit or other
13.10 device designed to leach sewage effluent that is greater than 30
13.11 inches in height or has a bottom area loading rate of sewage
13.12 greater than two gallons per square feet per day.

13.13 Subp. 61. **Owner.** "Owner" means any person having
13.14 possession of, control over, or title to property with an ISTS.

13.15 Subp. 62. **Parent material.** "Parent material" means the
13.16 geologic material from which the soil was formed and is commonly
13.17 differentiated from soil by the absence of soil structure and
13.18 high color values.

13.19 Subp. 63. **Percolation rate.** "Percolation rate" means the
13.20 rate of a drop of water infiltrating into a test hole as
13.21 specified in part 7080.1720, subpart 6.

13.22 Subp. 64. **Plastic limit.** "Plastic limit" means a soil
13.23 moisture content below which the soil may be manipulated for
13.24 purposes of installing a soil treatment and dispersal system and
13.25 above which manipulation will cause compaction or smearing. The
13.26 soil moisture content at the plastic limit can be measured by
13.27 American Society for Testing and Materials, Standard Test
14.1 Methods for Liquid Limit, Plastic Limit, and Plasticity Index of
14.2 Soils, ASTM D4318 (2005). The standard is incorporated by
14.3 reference, is available through the Minitex interlibrary loan
14.4 system, and is not subject to frequent change.

14.5 Subp. 65. **Pressure distribution.** "Pressure distribution"
14.6 means a network of distribution pipes in which effluent is
14.7 forced through orifices under pressure.

14.8 Subp. 66. **Privy.** "Privy" means an aboveground structure
14.9 with an underground cavity meeting the requirements of part
14.10 7080.2280 that is used for the storage or treatment and
14.11 dispersal of toilet wastes, excluding water for flushing and
14.12 greywater.

14.13 Subp. 67. **Proprietary product.** "Proprietary product"
14.14 means a sewage treatment or distribution technology, method, or
14.15 material subject to a patent or trademark.

14.16 Subp. 68. **Public domain technology.** "Public domain
14.17 technology" means a sewage treatment or distribution technology,
14.18 method, or material not subject to a patent or trademark.

14.19 Subp. 69. **Public waters.** "Public waters" means any public
14.20 waters or wetlands defined in Minnesota Statutes, section
14.21 103G.005, subdivision 15, or identified as public waters or
14.22 wetlands by the inventory prepared according to Minnesota
14.23 Statutes, section 103G.201.

14.24 Subp. 70. **Redoximorphic features.** "Redoximorphic
14.25 features" means:

14.26 A. a color pattern in soil, formed by oxidation or
14.27 reduction of iron or manganese in saturated soil coupled with
15.1 their removal, translocation, or accrual, which results in the
15.2 loss (depletion) or gain (concentration) of mineral compounds
15.3 compared to the matrix color; or
15.4 B. a soil matrix color controlled by the presence of
15.5 ferrous iron.
15.6 Redoximorphic features are described in part 7080.1720, subpart
15.7 5, item E.
15.8 Subp. 71. **Replacement.** "Replacement" means the removal or
15.9 discontinued use of any major portion of an ISTS and
15.10 reinstallation of that portion of the system, such as
15.11 reinstallation of a new sewage tank, holding tank, dosing
15.12 chamber, privy, or soil treatment and dispersal system.
15.13 Subp. 72. **Seasonally saturated soil.** "Seasonally
15.14 saturated soil" means the highest elevation in the soil that is
15.15 in a reduced chemical state due to soil pores filled with water
15.16 causing anaerobic conditions. Seasonally saturated soil is
15.17 determined by the presence of redoximorphic features in
15.18 conjunction with other established indicators as specified in
15.19 part 7080.1720, subpart 5, items E and F, or determined by other
15.20 scientifically established technical methods or empirical field
15.21 measurements acceptable to the permitting authority in
15.22 consultation with the commissioner.
15.23 Subp. 73. **Seepage bed.** "Seepage bed" means a soil
15.24 treatment and dispersal system, the absorption width of which is
15.25 greater than three feet but no greater than 25 feet and that has
15.26 more than one distribution pipe.
15.27 Subp. 74. **Seepage pit.** "Seepage pit" means an underground
16.1 pit that receives sewage tank effluent and from which the liquid
16.2 seeps into the surrounding soil and that meets the design
16.3 requirements in part 7080.2550.
16.4 Subp. 75. **Septage.** "Septage" means solids and liquids
16.5 removed from an SSTS. Septage includes solids and liquids from
16.6 cesspools, seepage pits, other pits, or similar systems or
16.7 devices that receive sewage. Septage also includes solids and
16.8 liquids that are removed from portable, incinerating,
16.9 composting, holding, or other toilets. Waste from Type III
16.10 marine sanitation devices, as defined in Code of Federal
16.11 Regulations, title 33, section 159.3, and material that has come
16.12 into contact with untreated sewage within the past 12 months is
16.13 also considered septage.
16.14 Subp. 76. **Septic tank.** "Septic tank" means any
16.15 watertight, covered receptacle that is designed and constructed
16.16 to receive the discharge of sewage from a building sewer or
16.17 preceding tank, stores liquids through a period of detention,
16.18 separates solids from liquid, digests organic matter, and allows
16.19 the effluent to discharge to a succeeding tank, treatment
16.20 device, or soil treatment and dispersal system.
16.21 Subp. 77. **Serial distribution.** "Serial distribution"
16.22 means distribution of sewage tank effluent by gravity flow that
16.23 progressively loads one section of a soil treatment and
16.24 dispersal system to a predetermined level before overflowing to
16.25 the succeeding section and does not place a dynamic head on the

16.26 lower section of the soil treatment and dispersal system. The
16.27 distribution medium may function as a conveyance medium to the
17.1 next section.
17.2 Subp. 78. **Setback.** "Setback" means a separation distance
17.3 measured horizontally.
17.4 Subp. 79. **Sewage.** "Sewage" means waste produced by
17.5 toilets, bathing, laundry, or culinary operations or the floor
17.6 drains associated with these sources, and includes household
17.7 cleaners, medications, and other constituents in sewage
17.8 restricted to amounts normally used for domestic purposes.
17.9 Subp. 80. **Sewage tank.** "Sewage tank" means a receptacle
17.10 used in the containment or treatment of sewage and includes, but
17.11 is not limited to, septic tanks, aerobic tanks, lift stations,
17.12 dosing chambers, and holding tanks. Requirements for sewage
17.13 tanks are described in parts 7080.1900 to 7080.2030. Sewage
17.14 tanks are considered a septic system tank in Minnesota Statutes,
17.15 section 115.55, subdivision 1, paragraph (o).
17.16 Subp. 81. **Sewage tank effluent.** "Sewage tank effluent"
17.17 means the liquid that flows from a septic tank or other
17.18 treatment device.
17.19 Subp. 82. **Site.** "Site" means the area required for the
17.20 proper location of the ISTS.
17.21 Subp. 83. **Slope.** "Slope" means the vertical rise or fall
17.22 divided by the horizontal distance, expressed as a percentage.
17.23 Subp. 84. **Soil texture.** "Soil texture" means the soil
17.24 particle size classification and particle size distribution as
17.25 specified in the Field Book for Describing and Sampling Soils,
17.26 incorporated by reference in subpart 40.
17.27 Subp. 85. **Soil treatment area.** "Soil treatment area"
18.1 means the area required for the soil treatment and dispersal
18.2 system, including spacing between individual units or zones.
18.3 Subp. 86. **Soil treatment and dispersal system.** "Soil
18.4 treatment and dispersal system" means a system where sewage
18.5 effluent is treated and dispersed into the soil by percolation
18.6 and filtration and includes, but is not limited to, trenches,
18.7 seepage beds, at-grade systems, mound systems, and drip
18.8 dispersal systems.
18.9 Subp. 87. **Subsoil.** "Subsoil" means a soil layer that has
18.10 a moist color value of 3.5 or greater and has undergone
18.11 weathering and soil formation processes.
18.12 Subp. 88. **Subsurface sewage treatment system or**
18.13 **SSTS.** "Subsurface sewage treatment system" or "SSTS" is either
18.14 an individual subsurface sewage treatment system as defined in
18.15 subpart 45 or a midsized subsurface sewage treatment system as
18.16 defined in part 7081.0020, subpart 3, as published in the State
18.17 Register, volume ..., page ..., and as subsequently adopted, as
18.18 applicable.
18.19 Subp. 89. **Supply pipe.** "Supply pipe" means a
18.20 nonperforated pipe, the purpose of which is to transport sewage
18.21 tank effluent.
18.22 Subp. 90. **Systems in shoreland areas or wellhead**
18.23 **protection areas or systems serving food, beverage, or lodging**
18.24 **establishments or SWF.** "Systems in shoreland areas or wellhead
18.25 protection areas or systems serving food, beverage, or lodging

18.26 establishments" or "SWF" means the following three categories of
18.27 systems:

19.1 A. SSTS constructed in shoreland areas where land
19.2 adjacent to public waters has been designated and delineated as
19.3 shoreland by local ordinance as approved by the Department of
19.4 Natural Resources;

19.5 B. SSTS constructed in wellhead protection areas
19.6 regulated under Minnesota Statutes, chapter 103I; and

19.7 C. SSTS serving food, beverage, and lodging
19.8 establishments that are required to obtain a license under
19.9 Minnesota Statutes, section 157.16, subdivision 1, including
19.10 manufactured home parks and recreational camping areas licensed
19.11 according to Minnesota Statutes, chapter 327.

19.12 Subp. 91. Toilet waste. "Toilet waste" means waste
19.13 commonly disposed of in toilets, including fecal matter, urine,
19.14 toilet paper, and water used for flushing.

19.15 Subp. 92. Toilet waste treatment devices. "Toilet waste
19.16 treatment devices" means other toilet waste apparatuses
19.17 including incinerating, composting, biological, chemical,
19.18 recirculating, or holding toilets or portable restrooms.

19.19 Subp. 93. Topsoil. "Topsoil" means the natural, in-place
19.20 organically enriched soil layer with a color value of less than
19.21 3.5.

19.22 Subp. 94. Topsoil borrow. "Topsoil borrow" means a loamy
19.23 soil material having:

19.24 A. less than five percent material larger than two
19.25 millimeters, No. 10 sieve;

19.26 B. no material larger than 2.5 centimeters;
19.27 C. a moist color value of 3.5 or less; and

20.1 D. adequate nutrients and pH to sustain healthy plant
20.2 growth.

20.3 Subp. 95. TN. "TN" means total nitrogen, typically
20.4 expressed in mg/L.

20.5 Subp. 96. Total suspended solids or TSS. "Total suspended
20.6 solids" or "TSS" means solids that are in suspension in water
20.7 and that are removable by laboratory filtering.

20.8 Subp. 97. TP. "TP" means total phosphorus, typically
20.9 expressed in mg/L.

20.10 Subp. 98. Trench. "Trench" means a soil treatment and
20.11 dispersal system, the absorption width of which is 36 inches or
20.12 less.

20.13 Subp. 99. Valve box. "Valve box" means a watertight
20.14 structure designed for alternate distribution of sewage tank
20.15 effluent to segments of a soil treatment system.

20.16 Subp. 100. Vertical separation. "Vertical separation"
20.17 means the vertical measurement of unsaturated soil or sand
20.18 between the bottom of the distribution medium and the seasonal
20.19 saturated soil level or bedrock.

20.20 Subp. 101. Watertight. "Watertight" means constructed so
20.21 that no liquid can get into or out of a device except through
20.22 designed inlets and outlets.

20.23 Subp. 102. Wellhead protection area. "Wellhead protection
20.24 area" means the surface and subsurface area surrounding a well
20.25 or well field that supplies a public water system, through which

20.26 contaminants are likely to move toward and reach the well or
20.27 well field as regulated under chapter 4720. For the purposes of
21.1 this chapter, wellhead protection area is that area bounded by
21.2 the drinking water supply management area as regulated under
21.3 chapter 4720.
21.4 7080.1150 ADVISORY COMMITTEE.
21.5 Subpart 1. **Establishment.** An advisory committee on
21.6 subsurface sewage treatment systems is established.
21.7 Subp. 2. **Duties.** The committee shall, subject to the
21.8 approval of the commissioner, review and advise the agency on:
21.9 A. revisions to chapters 7080 to 7083, as published
21.10 in the State Register, volume ..., page ..., and as subsequently
21.11 adopted, and legislation relating to SSTS;
21.12 B. technical data relating to SSTS;
21.13 C. a technical manual on SSTS;
21.14 D. educational materials and programs for SSTS;
21.15 E. the administration of standards and ordinances
21.16 pertaining to SSTS at the state and local level;
21.17 F. the product registration and renewal process;
21.18 G. development of any product registration advisory
21.19 panels that may be created; and
21.20 H. other SSTS activities considered appropriate by
21.21 the committee.
21.22 Subp. 3. **Membership.** The committee consists of the
21.23 following voting members of whom:
21.24 A. one must be a citizen of Minnesota, representative
21.25 of the public;
21.26 B. one must be from the Minnesota Extension Service
21.27 of the University of Minnesota;
22.1 C. six must be county administrators, such as zoning
22.2 administrators, sanitarians, and environmental health
22.3 specialists, each of whom administers an SSTS permitting or
22.4 inspection program. The six administrators must be
22.5 geographically distributed throughout the state;
22.6 D. one must be a municipal inspector who administers
22.7 an SSTS permitting and inspection program;
22.8 E. one must be a township inspector who administers
22.9 an SSTS permitting and inspection program;
22.10 F. six must be SSTS designated certified individuals
22.11 as defined in part 7083.0020, as published in the State
22.12 Register, volume ..., page ..., and as subsequently adopted, who
22.13 have geographic distribution throughout the state, with each
22.14 certification category represented on the committee;
22.15 G. two must be elected public officials with members
22.16 having geographic distribution throughout the state;
22.17 H. one must be from the Department of Natural
22.18 Resources;
22.19 I. one must be from the Department of Labor and
22.20 Industry; and
22.21 J. one must be a water well contractor.
22.22 Subp. 4. **Nonvoting members.** The following agencies and
22.23 associations shall each have at least one nonvoting member to
22.24 assist the advisory committee and to be advised, in turn, on
22.25 matters relating to chapters 7080 to 7083, as published in the

22.26 State Register, volume ..., page ..., and as subsequently
22.27 adopted: the agency, the United States Department of
23.1 Agriculture Natural Resource Conservation Service, the Minnesota
23.2 Association of Professional Soil Scientists, the Metropolitan
23.3 Council, the Association of Minnesota Counties, the Minnesota
23.4 Association of Townships, the League of Minnesota Cities, the
23.5 Minnesota Society of Engineers, the Association of Small Cities,
23.6 the Minnesota Association of Realtors, the Minnesota
23.7 Environmental Health Association, SSTS suppliers, the Minnesota
23.8 On-Site Wastewater Association, the American Society of Home
23.9 Inspectors, the Minnesota Small Business Association,
23.10 Hospitality Minnesota, and Minnesota Waters.

23.11 Subp. 5. **Appointment; terms.** All members must be
23.12 appointed by the commissioner from recommendations by the named
23.13 entities or organizations. All members serve four-year terms,
23.14 with terms staggered to maintain continuity. Voting members may
23.15 serve a maximum of two consecutive terms, except by virtue of
23.16 their office. If the voting member's attendance falls below 50
23.17 percent during the term, the appointed member loses membership
23.18 status for the remaining term. The commissioner shall then
23.19 appoint a replacement member for the remainder of the term from
23.20 the recommendation offered by the affected entity or
23.21 organization. In the case of a vacancy, the commissioner shall
23.22 appoint a replacement member for the unexpired balance of the
23.23 term. Administrators, inspectors, elected officials, and
23.24 contractors must be bona fide residents of this state for at
23.25 least three years before being appointed and must have at least
23.26 three years' experience in their respective businesses or
23.27 offices.

24.1 Subp. 6. **Procedural rules.** Robert's Rules of Order Newly
24.2 Revised, Henry M. Robert (2000), must prevail at all meetings of
24.3 the advisory committee. Robert's Rules of Order is incorporated
24.4 by reference, is available through the Minitex interlibrary loan
24.5 system, and is not subject to frequent change.

24.6 Subp. 7. **Quorum.** A quorum consists of nine voting members.
24.7 7080.1200 ADMINISTRATION OF DESIGN STANDARDS.

24.8 Subpart 1. **Administrative scope.** ISTS must be designed,
24.9 constructed, and operated according to this chapter, except as
24.10 modified through a local ordinance in compliance with chapter
24.11 7082, as published in the State Register, volume ..., page ...,
24.12 and as subsequently adopted, and Minnesota Statutes, section
24.13 115.55. ISTS must be designed, installed, inspected, pumped,
24.14 serviced, and operated by licensed businesses meeting the
24.15 qualifications in chapter 7083, as published in the State
24.16 Register, volume ..., page ..., and as subsequently adopted.
24.17 ISTS must conform to all applicable state laws and rules.

24.18 Subp. 2. **Federal regulation.** SSTS that are designed to
24.19 receive sewage or nonsewage from a two-family dwelling or
24.20 greater or receive sewage or nonsewage from another
24.21 establishment that serves more than 20 persons per day, are
24.22 regulated under Code of Federal Regulations, title 40, parts 144
24.23 and 146.

24.24 Subp. 3. **Variance procedures.** The standards in this
24.25 chapter are provided to be incorporated into a local ordinance

24.26 according to chapter 7082, as published in the State Register,
24.27 volume ..., page ..., and as subsequently adopted, and Minnesota
25.1 Statutes, section 115.55. Variance requests to the standards
25.2 made by an owner or owner's agent must be issued or denied by
25.3 the local unit of government. Variances may not be issued by
25.4 the local unit of government for part 7080.2150, subpart 2,
25.5 items A to F.
25.6 7080.1500 COMPLIANCE CRITERIA.
25.7 Subpart 1. **Treatment required.** Sewage discharged from a
25.8 dwelling that is not served by a system issued a permit
25.9 containing effluent and discharge limits or specific monitoring
25.10 requirements by the agency must be treated according to
25.11 applicable requirements.
25.12 Subp. 2. **Primitive dwellings.** Greywater from dwellings
25.13 without plumbing that originated from hand-carried water must
25.14 not be discharged directly to surface waters, drainageways, or
25.15 poorly drained soils; in a manner or volume harmful to the
25.16 environment or public health; or in a manner that creates a
25.17 public health nuisance as determined by the local unit of
25.18 government.
25.19 Subp. 3. **Compliance criteria for new construction.** An
25.20 ISTS regulated under a current construction permit is considered
25.21 compliant if it meets the requirements of parts 7080.2150 to
25.22 7080.2400.
25.23 Subp. 4. **Compliance criteria for existing systems.** To be
25.24 in compliance, an existing ISTS must meet the provisions of this
25.25 subpart.
25.26 A. The ISTS must be protective of public health and
25.27 safety. A system that is not protective is considered an
26.1 imminent threat to public health or safety. At a minimum, a
26.2 system that is an imminent threat to public health or safety is
26.3 a system with a discharge of sewage or sewage effluent to the
26.4 ground surface, drainage systems, ditches, or storm water drains
26.5 or directly to surface water; systems that cause a sewage backup
26.6 into a dwelling; systems with electrical hazards; or sewage
26.7 tanks with unsecured or weak maintenance hole covers or weak
26.8 lids. A determination of protectiveness for other conditions
26.9 may be made by a qualified employee inspector or licensed
26.10 inspection business.
26.11 B. The ISTS must be protective of groundwater. A
26.12 system that is not protective is considered a system failing to
26.13 protect groundwater. At a minimum, a system that is failing to
26.14 protect groundwater is a system that is a seepage pit, cesspool,
26.15 drywell, leaching pit, or other pit; a system with less than the
26.16 required vertical separation distance described in items D and
26.17 E; and a system not abandoned in accordance with part 7080.2500.
26.18 A determination of protectiveness for other conditions may be
26.19 made by a qualified employee or licensed inspection business.
26.20 C. The ISTS must be operated, meet performance
26.21 standards, and be managed according to its management plan,
26.22 operating permit, monitoring and mitigation plan, or local
26.23 ordinance requirements.
26.24 D. ISTS built after March 31, 1996, or in an SWF area
26.25 shall have a three-foot vertical separation or a vertical

26.26 separation based on applicable requirements. The local
26.27 ordinance may allow no more than a 15 percent reduction in the
27.1 vertical separation distance to account for settling of sand or
27.2 soil, normal variation of measurements, and interpretations of
27.3 the limiting layer conditions.

27.4 E. ISTS built before April 1, 1996, in non-SWF areas
27.5 must have at least two feet of vertical separation.

27.6 F. The vertical separation measurement for items D
27.7 and E shall be measured outside the area of system influence in
27.8 an area of similar soil.

27.9 **Subp. 5. Compliance criteria for systems receiving**
27.10 **replacement components.** Components of an existing system that
27.11 result in the system being in noncompliance must be repaired or
27.12 replaced according to part 7082.0100, subpart 1, as published in
27.13 the State Register, volume ..., page ..., and as subsequently
27.14 adopted. The repaired or replacement components must meet
27.15 technical standards and criteria for new construction according
27.16 to local ordinance. The remaining components of the existing
27.17 system must result in the system being in compliance with
27.18 subpart 4.

27.19 **7080.1550 ACCEPTABLE AND PROHIBITED DISCHARGES.**

27.20 **Subpart 1. Sewage.** This chapter provides design standards
27.21 for ISTS that exclusively receive sewage. If ISTS receive both
27.22 sewage and nonsewage, the requirements of this chapter and
27.23 requirements governing the nonsewage portion of the waste apply.

27.24 **Subp. 2. System influent.** Footing or roof drainage and
27.25 chemically treated hot tub and pool water must not be discharged
27.26 into any part of a system. Products containing hazardous
27.27 chemicals and hazardous waste must not be discharged to a system
28.1 other than in normal amounts of household products and cleaners
28.2 designed for household use. Substances not intended for use in
28.3 household cleaning, including but not limited to solvents,
28.4 pesticides, flammables, photo finishing chemicals, paint, and
28.5 dry-cleaning chemicals must not be discharged to the system.
28.6 Other unused products or substances, or unused medicines, must
28.7 not be discharged to the system solely as a method of disposal.
28.8 Floor drains from garages serving dwellings must not be
28.9 connected to the system.

28.10 **7080.1600 PRODUCT REVIEW AND REGISTRATION PROCESS.**

28.11 **Subpart 1. General.**

28.12 **A.** The commissioner shall develop a product review
28.13 and registration process and maintain a list of registered
28.14 sewage treatment and distribution products for SSTs.

28.15 **B.** The commissioner shall develop recommended
28.16 standards and guidance to assist local units of government in
28.17 permitting different types of sewage treatment technologies and
28.18 sewage distribution technologies, including the following four
28.19 categories:

28.20 (1) public domain treatment technologies, such as
28.21 sand filters;

28.22 (2) proprietary treatment technologies, such as
28.23 manufactured aerobic treatment systems;

28.24 (3) public domain distribution technologies, such
28.25 as drainfield rock or generic drainfield rock substitutes; and

28.26 (4) proprietary distribution technologies, such
28.27 as gravelless distribution products and drip dispersal products.

29.1 C. Sewage technologies shall have standards described
29.2 in this chapter or agency recommended standards and guidance
29.3 before local units of government may permit them. Recommended
29.4 standards and guidance must include information and detail, such
29.5 as application, design, installation, operation, monitoring and
29.6 maintenance, and performance expectations, and sources of the
29.7 information.

29.8 **Subp. 2. Proprietary treatment products; certification and**
29.9 **registration.**

29.10 A. Manufacturers shall register their proprietary
29.11 products with the commissioner before the local unit of
29.12 government may permit their use.

29.13 B. To qualify for product registration, manufacturers
29.14 desiring to sell or distribute proprietary treatment products
29.15 shall:

29.16 (1) verify product performance through testing
29.17 using the testing protocol established in Table I in part
29.18 7080.1610 and register their product with the commissioner using
29.19 the process described in parts 7080.1600 to 7080.1660;

29.20 (2) report test results of influent and effluent
29.21 sampling obtained throughout the testing period, including
29.22 normal and stress loading phases, for evaluation of constituent
29.23 reduction according to Table II in part 7080.1615;

29.24 (3) demonstrate product performance according to
29.25 Table III in part 7080.1620. All 30-day averages and geometric
29.26 means obtained throughout the test period must meet the
29.27 identified threshold values to qualify for registration at that
30.1 threshold level; and

30.2 (4) verify bacteriological reduction according to
30.3 part 7080.1635, for registration at Levels A and B in Table III
30.4 in part 7080.1620.

30.5 C. Manufacturers verifying product performance
30.6 through testing according to the following standards or
30.7 protocols shall have product testing conducted by a qualified,
30.8 third-party testing facility. Product performance testing shall
30.9 be consistent with the following:

30.10 (1) National Sanitation Foundation (NSF)
30.11 International, Residential Wastewater Treatment Systems,
30.12 Standard 40 (July 2000). The standard is incorporated by
30.13 reference, is available through the Minitex interlibrary loan
30.14 system, and is not subject to frequent change;

30.15 (2) Environmental Protection Agency (EPA) and
30.16 National Sanitation Foundation (NSF), Protocol for the
30.17 Verification of Wastewater Treatment Technologies (April 2001).
30.18 The protocol is incorporated by reference, is available through
30.19 the Minitex interlibrary loan system, and is not subject to
30.20 frequent change;

30.21 (3) Environmental Protection Agency (EPA)
30.22 Environmental Technology Verification (ETV) Program, Protocol
30.23 for the Verification of Residential Wastewater Treatment
30.24 Technologies for Nutrient Reduction (November 2000). The
30.25 protocol is incorporated by reference, is available through the

30.26 Minitex interlibrary loan system, and is not subject to frequent
 30.27 change;
 31.1 (4) European Committee for Standardization (CEN),
 31.2 Small Wastewater Treatment Systems for up to 50 PT - Part 3:
 31.3 Packaged and/or Site Assembled Domestic Wastewater Treatment
 31.4 Plants, EN 12566-3 (October 2003). The standard is incorporated
 31.5 by reference, is available through the Minitex interlibrary loan
 31.6 system, and is not subject to frequent change;
 31.7 (5) other equivalent protocols and standards
 31.8 consistent with the above-referenced standards and protocol to
 31.9 verify product performance as approved by the commissioner; and
 31.10 (6) protocol for bacteriological reduction
 31.11 described in part 7080.1635.
 31.12 D. Treatment levels used in part 7080.1620 are not
 31.13 intended to be applied as field compliance standards. Their
 31.14 intended use is to establish treatment product performance in a
 31.15 product testing setting under established protocols by qualified
 31.16 testing entities.
 31.17 7080.1610 TESTING REQUIREMENTS FOR PROPRIETARY TREATMENT
 31.18 PRODUCTS.
 31.19 The testing protocols in this part are incorporated by
 31.20 reference under part 7080.1600, subpart 2, item C.

31.21 TABLE I

<u>Treatment component/ sequence category</u>	<u>Required testing protocol</u>
<u>Category A: Designed to treat sewage with strength typical of a residential source when septic tank effluent is anticipated to be equal to or less than treatment Level C (Table III, part 7080.1620)</u>	<u>NSF Residential Wastewater Treatment Systems, Standard 40, or CEN European Standard, EN-12566-3</u>
<u>Category B: Designed to treat high-strength sewage when septic tank effluent is anticipated to be greater than treatment Level C (Table III, part 7080.1620), including restaurants, grocery stores, mini-marts, group homes, medical clinics, residences, etc.</u>	<u>EPA/NSF Protocol for the Verification of Wastewater Treatment Technologies, EPA/ETV Protocol for the Verification of Residential Wastewater Treatment Technologies for Nutrient Reduction, or equivalent</u>
<u>Total nitrogen and phosphorus reduction in Categories A and B</u>	<u>EPA Environmental Technology Verification, Protocol for the Verification of Residential Wastewater Treatment Technologies for Nutrient Reduction, or equivalent</u>

32.19 7080.1615 TEST RESULTS REPORTING REQUIREMENTS FOR PROPRIETARY
 32.20 TREATMENT PRODUCTS.

32.21	<u>TABLE II</u>	
32.22	<u>Treatment component/</u>	<u>Testing results reported</u>
32.23	<u>sequence category</u>	
32.24	-----	
32.25	<u>Category A: Designed to treat</u>	<u>Report test results for</u>
32.26	<u>sewage with strength typical</u>	<u>influent and effluent sampling</u>
32.27	<u>of a residential source</u>	<u>obtained throughout the</u>
32.28	<u>when septic tank effluent</u>	<u>testing period for evaluation</u>
32.29	<u>is anticipated to be equal</u>	<u>of consistent reduction for</u>
32.30	<u>to or less than treatment</u>	<u>the parameters CBOD₅ and TSS:</u>
32.31	<u>Level C (Table III,</u>	- <u>Average</u>
32.32	<u>part 7080.1620)</u>	
32.33		- <u>Minimum</u>
32.34		- <u>Median</u>
32.35		- <u>30-day average (each month)</u>
32.36		- <u>Standard deviation</u>
32.37		- <u>Maximum</u>
32.38		- <u>Interquartile range.</u>
32.40		<u>For bacteriological reduction</u>
32.41		<u>performance, report fecal</u>
32.42		<u>coliform test results of</u>
32.43		<u>influent and effluent sampling</u>
32.44		<u>by geometric mean from</u>
32.45		<u>samples drawn within 30-day or</u>
32.46		<u>monthly calendar periods,</u>
32.47		<u>obtained from a minimum of</u>
32.48		<u>three samples per week</u>
32.49		<u>throughout the testing period.</u>
32.50		<u>See part 7080.1635.</u>
33.1		<u>Test report must also include</u>
33.2		<u>the individual results of all</u>
33.3		<u>samples drawn throughout the</u>
33.4		<u>test period.</u>
33.6	<u>Category B: Designed to treat</u>	<u>Report all individual test</u>
33.7	<u>high-strength sewage when</u>	<u>results and full test average</u>
33.8	<u>septic tank effluent is</u>	<u>values of influent and effluent</u>
33.9	<u>anticipated to be greater than</u>	<u>sampling obtained throughout</u>
33.10	<u>treatment Level C (Table III,</u>	<u>the testing period for</u>
33.11	<u>part 7080.1620), including</u>	<u>CBOD₅, TSS, and oil</u>
33.12	<u>restaurants, grocery stores,</u>	<u>and grease.</u>
33.13	<u>mini-marts, group homes,</u>	<u>Report the treatment capacity</u>
33.14	<u>medical clinics,</u>	<u>of the product tested in</u>
33.15	<u>residences, etc.</u>	<u>pounds per day for CBOD₅.</u>
33.16	-----	
33.17	<u>Total nitrogen and</u>	<u>Report test results on all</u>
33.18	<u>phosphorus reduction in</u>	<u>required performance criteria</u>
33.19	<u>Categories A and B</u>	<u>according to the format</u>
33.20		<u>prescribed in the test protocol</u>
33.21		<u>described in Table I,</u>
33.22		<u>part 7080.1610.</u>
33.24	<u>7080.1620 PRODUCT PERFORMANCE REQUIREMENTS FOR PROPRIETARY</u>	

33.25 TREATMENT PRODUCTS.

33.26

TABLE III

33.27 Treatment

33.28 component/

33.29 sequence category Product performance requirements

33.30 -----

33.31 Category A: Treatment system performance testing levels

33.32 Designed to treat

33.33 sewage with

33.34 strength typical

33.35 of a residential

33.36 source when septic

33.37 tank effluent is

33.38 anticipated to be

33.39 equal to or less

33.40 than treatment

33.41 Level C.

Level	Parameters					Nutrient (mg/L)
	CBOD ₅ (mg/L)	TSS (mg/L)	O&G (mg/L)	FC (#/100ml)		
A	15	15	--	1,000	--	
B	25	30	--	10,000	--	
C	125	80	20	--	--	
TN	--	--	--	--	20	
TP	--	--	--	--	2	

33.43

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Values for Levels A and B are 30-day values (averages for CBOD₅, TSS, and geometric mean for FC). All 30-day averages throughout the test period must meet these values in order to be registered at these levels. Values for Levels C, TN, and TP are derived from full test averages.

34.2 Category B:

34.3 Designed to treat

34.4 high-strength

34.5 sewage when septic

34.6 tank effluent is

34.7 anticipated to be

34.8 greater than treat-

34.9 ment Level C,

34.10 including

34.11 restaurants,

34.12 grocery stores,

34.13 mini-marts, group

34.14 homes, medical

34.15 clinics,

34.16 residences, etc.

34.17 -----

34.18 Total nitrogen and

34.19 phosphorus

34.20 reduction in

34.21 Categories A and B

Test results must establish product performance effluent quality meeting Levels TN and TP, when presented as the full test average.

34.23 7080.1625 PROPRIETARY TREATMENT PRODUCTS REGISTRATION; PROCESS

34.24 AND REQUIREMENTS.

34.25 A. Manufacturers shall register their proprietary

34.26 treatment products with the commissioner by submitting a

34.27 complete application in the format prescribed by the

34.28 commissioner, including:

34.29 (1) the manufacturer's name, mailing address,
34.30 street address, and telephone number;
34.31 (2) the contact individual's name, title, mailing
34.32 address, street address, and telephone number. The contact
34.33 individual must be a company official with the authority to
34.34 represent the manufacturer in this capacity;
34.35 (3) the name, including specific brand and model,
34.36 of the proprietary treatment product;
34.37 (4) a description of the function of the
34.38 proprietary treatment product along with any known limitation of
35.1 the use of the product;
35.2 (5) product description and technical
35.3 information, including process flow drawings and schematics,
35.4 materials and characteristics, component design specifications,
35.5 design capacity, volumes and flow assumptions and calculations,
35.6 components, dimensioned drawings, and photos;
35.7 (6) for treatment systems in Category B, daily
35.8 capacity of the model or models provided in pounds per day of
35.9 CBOD₅;
35.10 (7) siting and installation requirements;
35.11 (8) a detailed description, procedure, and
35.12 schedule of routine service and system maintenance events;
35.13 (9) estimated operational costs for the first
35.14 five years of the treatment component's life including estimated
35.15 annual electricity usage and routine maintenance costs,
35.16 including replacement of parts;
35.17 (10) identification of information requested to
35.18 be protected from disclosure of trade secrets or confidential
35.19 business information;
35.20 (11) copies of product brochures and manuals,
35.21 such as sales, promotional, design, installation, operation, and
35.22 maintenance materials and homeowner instructions;
35.23 (12) the most recently available product test
35.24 protocol and results report;
35.25 (13) all available product testing results,
35.26 including a listing of state approvals and denials;
35.27 (14) a signed and dated certification by the
36.1 manufacturer's authorized senior executive or authorized agent
36.2 specifically including the following statement: "I certify that
36.3 I represent (INSERT MANUFACTURING COMPANY HERE) and I am
36.4 authorized to prepare or direct the preparation of this
36.5 application for registration. I attest, under penalty of law,
36.6 that this document and all attachments are true, accurate, and
36.7 complete. I understand and accept that the product testing
36.8 results reported in this application for registration are the
36.9 parameters and values to be used for determining conformance
36.10 with treatment system performance testing levels established in
36.11 Minnesota Rules, part 7080.1620.";
36.12 (15) a signed and dated certification from the
36.13 testing entity including the statement: "I certify that I
36.14 represent (INSERT TESTING ENTITY NAME) and I am authorized to
36.15 report the testing results for this proprietary product. I
36.16 attest, under penalty of law, that the report about the test
36.17 protocol and results is true, accurate, and complete."; and

36.18 (16) a technology review fee if allowed by law.
36.19 B. Manufacturers shall submit each proprietary
36.20 product for registration to the commissioner. Products within a
36.21 single series or model line, sharing distinct similarities in
36.22 design, materials, and capabilities, may be registered under a
36.23 single application, consistent with their test protocols for the
36.24 certification of other products within a product series.
36.25 Products outside of the series or model line must be registered
36.26 under separate applications.
36.27 C. Upon receipt of the application, the commissioner
37.1 shall, within 60 days:
37.2 (1) review the application and verify the
37.3 application for compliance with item A;
37.4 (2) if the application is not in compliance with
37.5 item A, return the application for resubmittal with the
37.6 requested information for full compliance with item A; and
37.7 (3) if the application is complete and the
37.8 commissioner determines that the product meets or exceeds all
37.9 applicable protocols, the commissioner shall place the product
37.10 on the list of registered treatment devices.
37.11 D. Registrations are valid for up to three years,
37.12 expiring on December 31 of the third year of registration,
37.13 unless the product is recalled for any reason, found to be
37.14 defective, or no longer available.
37.15 E. To renew technology registration, a manufacturer
37.16 shall:
37.17 (1) submit a request for renewal of product
37.18 registration at least 30 days before the current registration
37.19 expires, using the form or in the format prescribed by the
37.20 commissioner;
37.21 (2) submit the results of retesting if the
37.22 product has completed retesting according to the protocol
37.23 required for registration and a report from the testing entity
37.24 has been issued since initial registration or previous renewal.
37.25 Renewal must be based on the most recent test results; and
37.26 (3) provide an affidavit to the commissioner
37.27 verifying whether the product has changed over the previous
38.1 three years. If the product has changed, the affidavit must
38.2 include a full description of the changes. If the product has
38.3 changed in a way that affects performance, the product may not
38.4 be renewed and must fulfill the requirements for initial
38.5 registration.
38.6 F. As part of the product registration renewal, the
38.7 commissioner shall:
38.8 (1) request field assessment comments from local
38.9 units of government no later than October 31 for product
38.10 renewal. The comments may include concerns about a variety of
38.11 field assessment issues, including product function, product
38.12 reliability, product performance, and problems arising from
38.13 operation and maintenance;
38.14 (2) discuss with the Technical Advisory Panel of
38.15 the ISTS Advisory Committee established under part 7080.1150 any
38.16 field assessment information that may impact product
38.17 registration renewal;

38.18 (3) notify the manufacturer of any product to be
38.19 discussed with the Technical Advisory Panel, prior to discussion
38.20 with the Technical Advisory Panel, regarding the nature of
38.21 comments received; and

38.22 (4) renew the product registration, unless the
38.23 manufacturer does not apply for renewal or the commissioner,
38.24 after deliberation with the Technical Advisory Panel, concludes
38.25 product registration renewal should not be given or should be
38.26 delayed until the manufacturer submits information that
38.27 satisfactorily answers concerns and questions.

39.1 G. The commissioner shall maintain a list of
39.2 proprietary treatment products meeting the registration
39.3 requirements established in this chapter. The product
39.4 registration is a condition of approval for use.

39.5 H. Manufacturers shall have readily accessible
39.6 information for designers, regulators, systems owners, and other
39.7 interested parties about their product, including but not
39.8 limited to:

39.9 (1) product manuals;
39.10 (2) design instructions;
39.11 (3) installation instructions;
39.12 (4) information regarding operation and
39.13 maintenance;

39.14 (5) homeowner instructions; and

39.15 (6) a list of representatives and
39.16 manufacturer-certified service providers, if any.

39.17 7080.1630 TRANSITION FROM PREVIOUS REQUIREMENTS FOR AEROBIC TANK
39.18 TREATMENT SYSTEMS AND OTHER TREATMENT SYSTEMS TO NEW REGISTERED
39.19 LIST.

39.20 A. The use of aerobic tank treatment systems as
39.21 specified in Minnesota Rules 2005, chapter 7080, and other
39.22 advanced treatment technologies may be used for 18 months after
39.23 the effective date of this chapter.

39.24 B. After 18 months after the effective date of this
39.25 chapter, only those products registered under this chapter may
39.26 be used as directed in registration guidance documents.

39.27 C. To be registered, manufacturers of aerobic tank
40.1 treatment systems shall apply for product registration. Aerobic
40.2 tank treatment systems must meet all other requirements
40.3 established in this chapter for registration.

40.4 D. Manufacturers of aerobic tank treatment system
40.5 products shall meet all other requirements established in this
40.6 chapter for product registration.

40.7 7080.1635 BACTERIOLOGICAL REDUCTION.

40.8 Subpart 1. Scope. This part establishes the requirements
40.9 for registering bacteriological reduction processes.

40.10 Subp. 2. Verification. Manufacturers shall, for the
40.11 purpose of product registration as described in parts 7080.1605
40.12 to 7080.1625 for meeting treatment Level A or B, verify
40.13 bacteriological reduction performance by sampling and testing
40.14 for fecal coliform.

40.15 Subp. 3. Testing process. All test data submitted for
40.16 product registration must be produced by a qualified,
40.17 third-party testing organization. Bacteriological reduction

40.18 performance requirements must be determined while the treatment
40.19 product or sequence is tested according to the NSF Standard 40
40.20 testing protocol, or other equivalent commissioner-approved
40.21 testing protocol. The tester must:
40.22 A. collect samples from both the influent and
40.23 effluent streams and identify the treatment performance achieved
40.24 by the full treatment process, component, or sequence;
40.25 B. obtain influent characteristics within the range
40.26 of 10^5 - 10^8 fecal coliform/100 mL calculated as 30-day
40.27 geometric means during the test;
41.1 C. test the influent to any disinfection unit and
41.2 report flow rate, pH, temperature, and turbidity at each
41.3 occasion of sampling performed in item D;
41.4 D. obtain samples for fecal coliform analysis during
41.5 both design loading and stress loading periods, as follows:
41.6 (1) grab samples shall be collected and analyzed
41.7 from both the influent and effluent on three separate days of
41.8 the week; and
41.9 (2) each set of influent and effluent grab
41.10 samples must be taken from a different dosing time frame
41.11 (morning, afternoon, or evening) so that samples have been taken
41.12 from each dosing time frame by the end of the week;
41.13 E. conduct analyses for fecal coliform according to
41.14 Standard Methods for the Examination of Water and Wastewater,
41.15 prepared and published jointly by the American Public Health
41.16 Association, American Water Works Association, and Water
41.17 Environment Federation (1998). The standard methods are
41.18 incorporated by reference, are available through the Minitex
41.19 interlibrary loan system, and are subject to frequent change;
41.20 F. report the geometric mean of fecal coliform test
41.21 results from all samples taken within 30-day or monthly calendar
41.22 periods;
41.23 G. report the individual results of all samples taken
41.24 throughout the test period for design loading and stress
41.25 loading; and
41.26 H. report all maintenance and servicing conducted
41.27 during the testing period, such as instances of cleaning an
42.1 ultraviolet lamp or replenishment of chlorine chemicals.
42.2 Subp. 4. **Disinfection.** Manufacturers may register
42.3 products that use disinfection in treatment Levels A and B or
42.4 products that use disinfection may be registered by
42.5 manufacturers as a component of the process in treatment Level A
42.6 or B.
42.7 7080.1640 DISTRIBUTION MEDIUM; CERTIFICATION AND REGISTRATION.
42.8 A. If drainfield rock is to be used as the
42.9 distribution medium, it must:
42.10 (1) be insoluble, durable rock;
42.11 (2) be between three-fourths inch and 2-1/2
42.12 inches in size;
42.13 (3) have no more than five percent by weight able
42.14 to pass through a three-fourths inch sieve;
42.15 (4) have no more than one percent by weight able
42.16 to pass through a No. 200 sieve; and
42.17 (5) have no more than five percent by weight of

42.18 materials greater than 2-1/2 inches in size.

42.19 B. For nonrock distribution media, manufacturers

42.20 shall register the distribution media, including gravelless

42.21 distribution media and subsurface drip dispersal products, with

42.22 the commissioner before the local unit of government may permit

42.23 their use.

42.24 C. Manufacturers desiring to sell distribution media

42.25 shall certify that the media meet the standards established in

42.26 this part and register the media with the commissioner using the

42.27 process in part 7080.1645.

43.1 D. Distribution media must:

43.2 (1) be constructed or manufactured from materials

43.3 that are nondecaying and nondeteriorating and do not leach

43.4 chemicals when exposed to sewage and the subsurface soil

43.5 environment;

43.6 (2) provide liquid storage volume at least equal

43.7 to the storage volume provided within the 30 percent void space

43.8 in a 12-inch layer of drainfield rock in a

43.9 drainfield-rock-filled distribution system. The storage volume

43.10 must be established by the distribution medium, system design,

43.11 and installation and must be maintained for the life of the

43.12 system. This requirement may be met on a lineal foot basis or

43.13 on an overall system design basis;

43.14 (3) provide suitable effluent distribution and

43.15 infiltration rate to the absorption area at the soil interface;

43.16 and

43.17 (4) maintain the integrity of the trench or bed.

43.18 The material used, by its nature and manufacturer-prescribed

43.19 installation procedure, must withstand the physical forces of

43.20 the soil sidewalls, soil backfill, and weight of equipment used

43.21 in the backfilling.

43.22 E. Subsurface drip dispersal products must:

43.23 (1) be warrantied by the manufacturer for use

43.24 with sewage and for resistance to root intrusion;

43.25 (2) incorporate emitters with a maximum nominal

43.26 rated discharge of 1.3 gallons per hour. Emitter discharge rate

43.27 may be controlled by use of pressure-compensating emitters or

44.1 with a pressure regulator; and

44.2 (3) be color-coded purple to identify that the

44.3 pipe contains nonpotable water from a sewage source.

44.4 7080.1645 PROPRIETARY DISTRIBUTION PRODUCTS; PROCESS AND

44.5 REQUIREMENTS.

44.6 **Subpart 1. Proprietary media.** Manufacturers shall obtain

44.7 registration of their proprietary media with the commissioner by

44.8 submitting a complete application in the format prescribed by

44.9 the commissioner, including:

44.10 A. the manufacturer's name, mailing address, street

44.11 address, and telephone number;

44.12 B. the contact individual's name, title, mailing

44.13 address, street address, and telephone number. The contact

44.14 individual must be vested with the authority to represent the

44.15 manufacturer in this capacity;

44.16 C. the name, including specific brand and model, of

44.17 the proprietary distribution product;

44.18 D. a description of the function of the distribution
44.19 medium along with any known limitations on its use;
44.20 E. a description of the medium and technical
44.21 information, including schematics; materials and
44.22 characteristics; component design specifications; design
44.23 capacity; volumes and flow assumptions and calculations;
44.24 components; and dimensioned drawings, photos, application, and
44.25 use;
44.26 F. siting and installation requirements;
44.27 G. a detailed description, procedure, and schedule of
45.1 routine service and system maintenance events;
45.2 H. identification of information requested to be
45.3 protected from disclosure of trade secrets;
45.4 I. copies of product brochures and manuals, such as
45.5 sales, promotional, design, installation, operation, and
45.6 maintenance materials and homeowner instructions;
45.7 J. a quantitative description of the actual exposed
45.8 trench-bottom and sidewall absorption area or sizing criteria
45.9 for drip dispersal systems for each model seeking registration;
45.10 K. all available product testing results, including a
45.11 listing of state approvals and denials;
45.12 L. a statement from a licensed professional engineer
45.13 that certifies the technology meets the standards established in
45.14 part 7080.1640;
45.15 M. a signed and dated certification by the
45.16 manufacturer's senior executive or agent, specifically including
45.17 the following statement: "I certify that I represent (INSERT
45.18 MANUFACTURING COMPANY HERE) and I am authorized to prepare or
45.19 direct the preparation of this application for registration. I
45.20 attest, under penalty of law, that this document and all
45.21 attachments are true, accurate, and complete.";
45.22 N. a signed and dated certification from the licensed
45.23 professional engineer including the statement: "I certify that
45.24 I represent (INSERT PROFESSIONAL ENGINEERING FIRM NAME) and that
45.25 I am authorized to certify the performance for the proprietary
45.26 distribution product presented in this application. I attest,
45.27 under penalty of law, that the technology report is true,
46.1 accurate, and complete."; and
46.2 O. a technology review fee if allowed by law.
46.3 **Subp. 2. Proprietary media products.** Manufacturers shall
46.4 submit proprietary media products for registration to the
46.5 commissioner. Products within a single series or model line
46.6 sharing distinct similarities in design, materials, and
46.7 capabilities may be registered under a single application.
46.8 Products outside of the series or model line must be registered
46.9 under separate applications.
46.10 **Subp. 3. Commissioner review.** Upon receipt of the
46.11 application, the commissioner shall:
46.12 A. review the application and verify the application
46.13 for compliance with subpart 1;
46.14 B. if the application is not in compliance with
46.15 subpart 1, return the application for resubmittal with the
46.16 requested information for full compliance with subpart 1; or
46.17 C. if the application is complete and the

46.18 commissioner determines that the product meets or exceeds all
46.19 applicable protocols, the commissioner shall place the product
46.20 on the list of distribution products.

46.21 Subp. 4. Duration of registration. Registrations are
46.22 valid for up to three years, expiring on December 31 of the
46.23 third year of registration, unless the product is recalled for
46.24 any reason, found to be defective, or no longer available.

46.25 Subp. 5. Renewal. To renew a proprietary distribution
46.26 product registration, a manufacturer shall:

46.27 A. submit a request for renewal of product
47.1 registration at least 30 days before the current registration
47.2 expires, using the form or in the format prescribed by the
47.3 commissioner; and

47.4 B. provide an affidavit to the commissioner verifying
47.5 whether the product has changed over the previous three years.
47.6 If the product has changed, the affidavit must include a full
47.7 description of the changes. If the product has changed in a way
47.8 that affects performance, the product may not be renewed and
47.9 must fulfill the requirements for initial registration.

47.10 Subp. 6. Commissioner review. As part of the product
47.11 registration renewal, the commissioner shall:

47.12 A. request field assessment comments from local units
47.13 of government no later than October 31 for product renewal. The
47.14 comments may include concerns about a variety of field
47.15 assessment issues, including product function, product
47.16 reliability, and problems arising from operation and
47.17 maintenance;

47.18 B. discuss with the Technical Advisory Panel of the
47.19 ISTS Advisory Committee established under part 7080.1150 any
47.20 field assessment information that may impact product
47.21 registration renewal;

47.22 C. notify the manufacturer of any product to be
47.23 discussed with the Technical Advisory Panel, prior to discussion
47.24 with the panel, regarding the nature of comments received; and

47.25 D. renew, modify, or deny the product registration
47.26 based on information received during the renewal process. If
47.27 the manufacturer does not apply for renewal or the commissioner,
48.1 after deliberation with the Technical Advisory Panel, concludes
48.2 product registration renewal should not be given or should be
48.3 delayed until the manufacturer submits information that
48.4 satisfactorily answers concerns and questions, product
48.5 registration shall be denied.

48.6 Subp. 7. List. The commissioner shall maintain a list of
48.7 proprietary distribution products meeting the registration
48.8 requirements established in this part. The product registration
48.9 is a condition of approval for use.

48.10 Subp. 8. Manufacturer information. Manufacturers shall
48.11 have readily accessible information for designers, regulators,
48.12 system owners, and other interested parties about their product,
48.13 including but not limited to:

48.14 A. product manuals;

48.15 B. design instructions;

48.16 C. installation instructions;

48.17 D. information regarding operation and maintenance;

48.18 E. system owner instructions; and
48.19 F. a list of representatives and
48.20 manufacturer-certified service providers, if any.
48.21 7080.1650 TRANSITION FROM PREVIOUS REQUIREMENTS FOR DISTRIBUTION
48.22 PRODUCTS TO NEW REGISTERED LIST.
48.23 A. The distribution products specified in Minnesota
48.24 Rules 2005, chapter 7080, may be used 18 months after the
48.25 effective date of this chapter.
48.26 B. After 18 months after the effective date of this
48.27 chapter, only those products registered under this chapter may
49.1 be used as directed in registration guidance documents.
49.2 C. To be registered, manufacturers of proprietary
49.3 distribution products shall apply for product registration.
49.4 D. Distribution products shall meet all other
49.5 requirements for registration established in this chapter.
49.6 7080.1655 PRODUCT DEVELOPMENT PERMITS.
49.7 Subpart 1. Local government may issue. A local unit of
49.8 government may issue a product development permit (PDP) for any
49.9 proprietary treatment component or sequence. To protect public
49.10 health during the development period, a PDP may be applied to a
49.11 Type I, Type II, or Type III system, as described under parts
49.12 7080.2200 to 7080.2300. A PDP may also be applied to a Type IV
49.13 system, as described under part 7080.2350, if treatment levels
49.14 of the technologies meet or exceed requirements in the operating
49.15 permit. The product under development may then be added to the
49.16 treatment system allowing the product developer to gather data
49.17 about the product's performance in the field. The PDP allows
49.18 product developers to explore and develop new technologies prior
49.19 to product testing and registration under parts 7080.1605 to
49.20 7080.1625. The PDP is not an alternative to testing and
49.21 registration.
49.22 Subp. 2. Application contents. An application for a PDP
49.23 must include:
49.24 A. proof of an existing conforming system in
49.25 compliance with all local requirements or a permit for a
49.26 conforming system. The conforming system must be installed in
49.27 its entirety before the PDP becomes valid;
50.1 B. a description of the product under development,
50.2 including performance goals and a description of how the system
50.3 will be used to treat sewage;
50.4 C. documentation of financial assurance that will
50.5 cover the correction of any potential public health threats or
50.6 environmental damage resulting from the use of the product under
50.7 development. Instruments of financial assurance include: an
50.8 irrevocable letter of credit in the amount required by the local
50.9 unit of government issued by an entity authorized to issue
50.10 letters of credit in Minnesota; cash or a security deposit
50.11 payable to the local unit of government in the amount required
50.12 by the local unit of government; or any other financial
50.13 assurance that satisfies the local unit of government;
50.14 D. documentation signed by the owner of the proposed
50.15 product development site allowing access to the local unit of
50.16 government and the agency and its employees or agents for
50.17 inspection of the site;

50.18 E. an agreement to obtain all other required permits;
50.19 F. a declaration that the applicant meets all state
50.20 requirements; and
50.21 G. other information required by the local unit of
50.22 government.
50.23 **Subp. 3. Additional requirements.**
50.24 A. The local unit of government may stipulate
50.25 additional requirements for a PDP necessary to ensure the
50.26 performance of the conforming system, including, but not limited
50.27 to, providing performance data to the local unit of government.
51.1 B. The system owner shall consent in writing to allow
51.2 the manufacturer access to the system for the duration of the
51.3 permit.
51.4 C. The product tester shall agree in writing to
51.5 contact utility companies before excavation.
51.6 D. The manufacturer and product tester shall agree in
51.7 writing to hold harmless, indemnify, and defend the agency and
51.8 local unit of government from any conduct by the manufacturer or
51.9 product tester that causes harm or injury to the site owner's
51.10 property and indemnifies the agency and local unit of government
51.11 from such claims.
51.12 **Subp. 4. PDP required for each site.** A PDP is a
51.13 site-specific permit. Product development at multiple sites
51.14 requires a PDP for each site.
51.15 **Subp. 5. Product developer has control.** During the term
51.16 of the PDP, product development, testing, and sampling are under
51.17 the full control of the product developer and all data collected
51.18 is considered proprietary information.
51.19 **Subp. 6. PDP duration.** A PDP is valid for one year and
51.20 may be renewed by the local unit of government.
51.21 **Subp. 7. End of PDP period.** The product development
51.22 period is over when the original PDP or any subsequently renewed
51.23 permits have expired. At that time, the product developer
51.24 shall, at the direction of the local unit of government, remove
51.25 the product under development from the site, restore the real
51.26 property to its original condition, and reestablish all
51.27 appropriate plumbing and power connections for the conforming
52.1 system. The developer may also subject the product to
52.2 performance testing described in parts 7080.1600, subpart 2, and
52.3 7080.1645, subpart 1, to allow the product to be eligible for
52.4 product registration with the agency.
52.5 **Subp. 8. Revocation or amendment of PDP.** The local unit
52.6 of government may revoke or amend a PDP:
52.7 A. if the continued operation or presence of the
52.8 product under development presents a risk to the public health
52.9 or the environment, causes adverse effects on the proper
52.10 function of the conforming system on the site, or leaks or
52.11 discharges sewage on the surface of the ground;
52.12 B. if the product developer fails to comply with any
52.13 requirement stipulated on the permit by the local unit of
52.14 government; or
52.15 C. upon request of the site owner.
52.16 **Subp. 9. Fees.** The local unit of government may charge
52.17 fees adequate to administer the PDP program.

52.18 7080.1660 PRODUCT REGISTRATION CONTESTED CASE HEARING.
52.19 A person is afforded an opportunity for a contested case
52.20 hearing under Minnesota Statutes, chapter 14, for an approval,
52.21 denial, or other action in relation to product registration or
52.22 renewal, within 30 days of the action.
52.23 7080.1670 PROFESSIONAL REQUIREMENTS.
52.24 Systems must be designed, installed, inspected, operated,
52.25 and maintained by appropriately licensed businesses and
52.26 certified professionals according to part 7083.0700, as
53.1 published in the State Register, volume ..., page ..., and as
53.2 subsequently adopted, and any other applicable state
53.3 requirements.
53.4 7080.1700 DESIGN PHASE I; SITE EVALUATION.
53.5 Site evaluations consisting of preliminary and field
53.6 evaluations according to parts 7080.1710 and 7080.1720 must be
53.7 conducted for all proposed sites for ISTS. The site evaluation
53.8 is considered the first phase of an ISTS design.
53.9 7080.1710 PRELIMINARY EVALUATION.
53.10 A preliminary evaluation shall consist of the
53.11 determination, location, or existence of the following items:
53.12 A. flow amounts for the dwelling or dwellings;
53.13 B. proposed or existing:
53.14 (1) water supply wells within 100 feet of the
53.15 proposed ISTS;
53.16 (2) noncommunity transient public water supply
53.17 wells within 200 feet of the proposed ISTS if alternative local
53.18 standards are in effect;
53.19 (3) a community or noncommunity nontransient
53.20 water supply in a drinking water supply management area if
53.21 alternative local standards are in effect;
53.22 (4) existing and proposed buildings or
53.23 improvements on the lot; and
53.24 (5) buried water supply pipes within 50 feet of
53.25 the proposed system;
53.26 C. easements on the lot;
54.1 D. the ordinary high water level of public waters;
54.2 E. floodplain designation and flooding elevation from
54.3 published data or data that is acceptable to and approved by the
54.4 local unit of government or the Department of Natural Resources;
54.5 F. property lines;
54.6 G. all required setbacks from the system;
54.7 H. determination of the soil characteristics at the
54.8 proposed soil treatment and dispersal areas as obtained from the
54.9 soil survey report, if available;
54.10 I. a legal description and lot dimensions;
54.11 J. names of property owners;
54.12 K. the inner wellhead management zone or wellhead
54.13 protection area of a public water supply; and
54.14 L. a determination of whether a wetland delineation
54.15 has been conducted or whether a regulatory body will require a
54.16 wetland delineation to be conducted on the lot.
54.17 7080.1720 FIELD EVALUATION.
54.18 Subpart 1. **Scope.** A field evaluation consists of the
54.19 items described in subparts 2 to 7.

54.20 Subp. 2. Lot lines. Lot lines shall be established to the
54.21 satisfaction of the property owner or the property owner's
54.22 agent. Lot improvements, required setbacks, and easements must
54.23 be identified.

54.24 Subp. 3. Surface features. The following surface features
54.25 must be described:

54.26 A. the percent and direction of the slope at the
54.27 proposed system location;

55.1 B. vegetation types;

55.2 C. any evidence of cut or filled areas or disturbed
55.3 or compacted soil;

55.4 D. the flooding or run-on potential; and

55.5 E. a geomorphic description.

55.6 Subp. 4. Soil observations. Multiple soil observations
55.7 are required for the initial and replacement soil treatment area
55.8 and at least one soil observation must be performed in the area
55.9 anticipated to have the most limiting conditions. The total
55.10 number of soil observations required is based on the judgment of
55.11 the certified individual or the local unit of government. Soil
55.12 observations must comply with the following requirements:

55.13 A. the soil observations must be conducted within or
55.14 on the borders of the proposed site;

55.15 B. the soil observations must be performed in an
55.16 exposed pit or by hand augering or probing;

55.17 C. the soil observation method must allow observation
55.18 of the different soil horizons that constitute the soil profile
55.19 and must allow the observation of undisturbed soil structure;

55.20 D. underground utilities must be located before soil
55.21 observations are undertaken;

55.22 E. required safety precautions must be taken before
55.23 entering soil pits;

55.24 F. soil observations must be conducted prior to any
55.25 required percolation tests to determine whether the soils are
55.26 suitable to warrant percolation tests and, if suitable, at what
55.27 depth percolation tests shall be conducted; and

56.1 G. the minimum depth of the soil observations must be
56.2 to the seasonally saturated layer, to the bedrock, or three feet
56.3 below the proposed depth of the system, whichever is less.

56.4 Subp. 5. Soil descriptions. Each soil profile observed at
56.5 the proposed soil treatment area must be evaluated under
56.6 adequate light conditions with the soil in a moist state for the
56.7 characteristics in items A to H:

56.8 A. the depth of each soil horizon measured from the
56.9 ground surface. Soil horizons are differentiated by changes in
56.10 texture, color, redoximorphic features, bedrock, structure,
56.11 consistence, and any other characteristic that may affect water
56.12 movement or treatment of effluent;

56.13 B. a description of all soil colors for each horizon
56.14 according to the Munsell Soil Color Charts, Revised Edition,
56.15 Munsell Color Corporation (1992), or equivalent. The color
56.16 charts are incorporated by reference, are available through the
56.17 Minitex interlibrary loan system, and are not subject to
56.18 frequent change;

56.19 C. a description of the soil texture, structure, and

56.20 consistence using the United States Department of Agriculture
56.21 (USDA) soil classification system as specified in the Field Book
56.22 for Describing and Sampling Soils, which is incorporated by
56.23 reference under part 7080.1100, subpart 40;
56.24 D. depth to the bedrock;
56.25 E. depth to the seasonally saturated soil for new
56.26 construction or replacement as determined by redoximorphic
56.27 features and other indicators, as determined in subitems (1) to
57.1 (3):
57.2 (1) in subsoil and parent material, redoximorphic
57.3 features include:
57.4 (a) distinct redoximorphic iron
57.5 accumulations or distinct redoximorphic iron depletions;
57.6 (b) a gleyed or depleted soil matrix or
57.7 redoximorphic mottles having a color chroma of two or less or a
57.8 depleted matrix or redoximorphic mottles having a color hue of
57.9 5Y and a chroma of three or less; or
57.10 (c) faint redoximorphic concentrations or
57.11 faint redoximorphic depletions in subsoil or parent material
57.12 with a hue of 7.5YR or redder;
57.13 (2) in lower topsoil layers that are deeper than
57.14 12 inches from the surface and are immediately followed in depth
57.15 by a seasonally saturated horizon, redoximorphic features
57.16 include:
57.17 (a) soil colors with a redoximorphic chroma
57.18 of two or less; or
57.19 (b) redoximorphic accumulations or
57.20 depletions;
57.21 (3) in the upper 12 inches of the topsoil layer
57.22 immediately followed by a seasonally saturated horizon, the
57.23 depth of seasonal saturation may be determined by indicators in
57.24 units (a) to (e):
57.25 (a) soil colors with a chroma of zero;
57.26 (b) organic soil textures or mineral soil
57.27 textures with an organic modifier;
58.1 (c) dominance of hydrophilic vegetation;
58.2 (d) the soil treatment area at or near the
58.3 elevation of the ordinary high water level of a surface water or
58.4 the soil treatment area in a depressional landscape position; or
58.5 (e) the soil expressing indicators of
58.6 seasonal saturation as determined in Field Indicators of Hydric
58.7 Soils in the United States: Guide for Identifying and
58.8 Delineating Hydric Soils, USDA Natural Resource Conservation
58.9 Service (2003). The field indicators are incorporated by
58.10 reference, are available through the Minitex interlibrary loan
58.11 system, and are subject to frequent change;
58.12 F. depth to the seasonally saturated soil for all
58.13 existing systems, determined by redoximorphic features in item
58.14 E, except subitems (2), unit (a), and (3), units (a), (c), and
58.15 (d), as measured outside the area of system influence in an area
58.16 of similar soil;
58.17 G. depth of standing water in the soil observation
58.18 excavation, measured from the soil surface, if observed; and
58.19 H. any other soil characteristic that may need to be

58.20 described to properly design a system, such as hardpans or
58.21 restrictive layers. These other characteristics must be
58.22 classified according to the Field Book for Describing and
58.23 Sampling Soils, which is incorporated by reference under part
58.24 7080.1100, subpart 40.

58.25 Subp. 6. Percolation tests. Percolation tests, when
58.26 desired or required to supplement the soil texture, structure,
58.27 and consistence determination, must be made as described in
59.1 items A to H.

59.2 A. Each test hole must be six to eight inches in
59.3 diameter, have vertical sides, and be located in the soil
59.4 treatment. For mounds and at-grade systems, the bottom of each
59.5 test hole must be in the upper 12 inches of the original soil.
59.6 For trenches and seepage beds, the bottom of each test hole
59.7 shall be at the depth of the absorption area.

59.8 B. Soil texture descriptions for percolation test
59.9 holes must note the depths from the ground surface where texture
59.10 changes occur.

59.11 C. The bottom and sides of the hole must be carefully
59.12 scratched to remove any smearing and to provide a natural soil
59.13 surface into which water may penetrate. The scarification must
59.14 not result in the hole having a diameter of greater than eight
59.15 inches.

59.16 D. All loose material must be removed from the bottom
59.17 of the test hole and two inches of one-fourth to three-fourths
59.18 inch gravel or clean sand must be added to protect the bottom
59.19 from scouring.

59.20 E. The hole must be carefully filled with clear water
59.21 to a minimum depth of 12 inches from the bottom of the test hole
59.22 and maintained for no less than four hours for saturation to
59.23 occur. The soil must then be allowed to swell for at least 16,
59.24 but no more than 30, hours. In sandy soils, the saturation and
59.25 swelling procedure is not required and the test may proceed if
59.26 the initial filling of the hole with 12 inches of water seeps
59.27 away in less than ten minutes.

60.1 F. In sandy soils, water depth must be adjusted to
60.2 eight inches over the soil at the bottom of the test hole. From
60.3 a fixed reference point, the drop in water level must be
60.4 measured in inches to the nearest 1/16 inch at approximately
60.5 ten-minute intervals. A measurement may also be made by
60.6 determining the time it takes for the water level to drop one
60.7 inch from an eight-inch reference point. If eight inches of
60.8 water seeps away in less than ten minutes, a shorter interval
60.9 between measurements must be used, but water depth must not
60.10 exceed eight inches. The test must continue until three
60.11 consecutive percolation rate measurements do not vary by more
60.12 than ten percent. In other soils, the water depth must be
60.13 adjusted to eight inches over the soil at the bottom of the test
60.14 hole. From a fixed reference point, the drop in water level
60.15 must be measured in inches to the nearest 1/16 inch at
60.16 approximately 30-minute intervals and refilled between
60.17 measurements to maintain an eight-inch starting head. If water
60.18 seeps away in less than 30 minutes, a shorter time interval
60.19 between measurements must be used, but water depth must not

60.20 exceed eight inches. The test must continue until three
60.21 consecutive percolation rate measurements do not vary by more
60.22 than ten percent. The percolation rate may also be determined
60.23 by observing the time it takes the water level to drop one inch
60.24 from an eight-inch reference point if a constant water depth of
60.25 at least eight inches has been maintained for at least four
60.26 hours prior to the measurement.

60.27 G. The time interval must be divided in minutes by
61.1 the drop in water level in inches to obtain the percolation rate
61.2 in minutes per inch. The percolation rates that are within the
61.3 ten percent provision determined for each test hole must be
61.4 averaged to determine the final percolation rate for that hole.
61.5 The slowest final percolation rate for all holes within the soil
61.6 treatment and dispersal area must be used for design.

61.7 H. A percolation test must not be run where frost
61.8 exists within 12 inches of the bottom of the percolation test
61.9 hole.

61.10 Subp. 7. Site protection. The proposed soil treatment and
61.11 dispersal area site shall be protected from disturbance,
61.12 compaction, or other damage by staking, fencing, posting, or
61.13 other effective method.

61.14 7080.1730 PHASE I; SITE EVALUATION REPORTING.

61.15 A written report on the site evaluation must be prepared
61.16 and include the following:

61.17 A. preliminary and field evaluation results from
61.18 parts 7080.1710 and 7080.1720;

61.19 B. dates of preliminary and field evaluations;

61.20 C. a map drawn to scale or dimension with a north
61.21 arrow, and including:

61.22 (1) horizontal and vertical reference points of
61.23 the proposed soil treatment and dispersal areas, soil
61.24 observations, percolation tests, and distance from the proposed
61.25 ISTS to all required setbacks, lot improvements, easements,
61.26 ordinary high water mark of public waters, property lines, and
61.27 direction and percent slope;

62.1 (2) the location of any unsuitable, disturbed, or
62.2 compacted areas; and

62.3 (3) the access route for system maintenance;

62.4 D. the estimated depth of seasonally saturated soil
62.5 layer, bedrock, or flood elevation, if appropriate;

62.6 E. the proposed elevation of the bottom of the soil
62.7 treatment and dispersal system;

62.8 F. the final soil sizing factor. If there is a
62.9 discrepancy between the soil texture, structure, and consistence
62.10 determination and any percolation rates measured in Table IX in
62.11 part 7080.2150, subpart 3, item F, the larger soil sizing factor
62.12 must be used or a justification for a smaller sizing must be
62.13 submitted in the design report. Soil sizing determined using
62.14 soil texture, structure, and consistence must be based on an
62.15 undisturbed soil sample from which an evaluation of the soil
62.16 structure and consistence can be made;

62.17 G. anticipated construction-related issues;

62.18 H. the name, address, telephone number, and certified
62.19 statement of the individual conducting the site evaluation;

62.20 I. an assessment of how known or reasonably
 62.21 foreseeable land use changes may affect system performance,
 62.22 including, but not limited to, changes in drainage patterns,
 62.23 increased impervious surfaces, and proximity of new water supply
 62.24 wells;
 62.25 J. a narrative explaining any difficulties
 62.26 encountered during the site evaluation, including but not
 62.27 limited to identifying and interpreting soil and landform
 63.1 features and how the difficulties were resolved; and
 63.2 K. an explanation of any differences between observed
 63.3 soil characteristics and those identified in the soil survey
 63.4 report.

63.5 7080.1750 DESIGN PHASE II.

63.6 Subpart 1. System design. Completion of tasks outlined in
 63.7 parts 7080.1850 to 7080.2430 is considered the second phase of
 63.8 ISTS design.

63.9 Subp. 2. Compliance. Designs for new construction or
 63.10 replacement ISTS must comply with applicable requirements and
 63.11 any other applicable codes, rules, and laws.

63.12 7080.1850 SEWAGE FLOW DETERMINATION FOR DWELLINGS.

63.13 Subpart 1. System sizing. If construction of additional
 63.14 dwelling or bedrooms, the installation of water-using devices,
 63.15 or other factors likely to affect the operation of the ISTS can
 63.16 be reasonably anticipated, the system must be designed to
 63.17 accommodate these factors.

63.18 Subp. 2. Design flow. Average daily flow must be used to
 63.19 size soil treatment and dispersal systems. The estimated
 63.20 average daily flow for any dwelling must provide for at least
 63.21 two bedrooms. For multiple or multifamily dwellings, the
 63.22 average design flow consists of the sum of the average daily
 63.23 flows for each individual unit.

63.24 7080.1860 AVERAGE DAILY FLOW (GALLONS PER DAY).

63.25 TABLE IV

63.26	<u>Number of</u> <u>bedrooms</u>	<u>Classification of dwelling</u>			
64.1		<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>
64.4		<u>Gallons per day</u>			
64.6	<u>2 or less</u>	<u>300</u>	<u>225</u>	<u>180</u>	<u>*</u>
64.7	<u>3</u>	<u>450</u>	<u>300</u>	<u>218</u>	<u>*</u>
64.8	<u>4</u>	<u>600</u>	<u>375</u>	<u>256</u>	<u>*</u>
64.9	<u>5</u>	<u>750</u>	<u>450</u>	<u>294</u>	<u>*</u>
64.10	<u>6</u>	<u>900</u>	<u>525</u>	<u>332</u>	<u>*</u>

64.12 * Flows for Classification IV dwellings are 60 percent of the
 64.13 values as determined for Classification I, II, or III systems.
 64.14 For more than six bedrooms, the average daily flow is determined
 64.15 by the following formulas:

64.16 Classification I: Classification I dwellings are those
 64.17 with more than 800 square feet per bedroom, when the dwelling's
 64.18 total finished floor area is divided by the number of bedrooms,
 64.19 or where more than two of the following water-use appliances are
 64.20 installed or anticipated: clothes washing machine, dishwasher,

64.21 water conditioning unit, bathtub greater than 40 gallons,
64.22 garbage disposal, or self-cleaning humidifier in furnace. The
64.23 average daily flow for Classification I dwellings is determined
64.24 by multiplying 150 gallons by the number of bedrooms.
64.25 Classification II: Classification II dwellings are those
64.26 with 500 to 800 square feet per bedroom, when the dwelling's
64.27 total finished floor area is divided by the number of bedrooms,
64.28 and where no more than two of the water-use appliances listed in
64.29 Classification I are installed or anticipated. The average
64.30 daily flow for Classification II dwellings is determined by
64.31 adding one to the number of bedrooms and multiplying this result
64.32 by 75 gallons.
64.33 Classification III: Classification III dwellings are those
65.1 with less than 500 square feet per bedroom, when the dwelling's
65.2 total finished floor area is divided by the number of bedrooms,
65.3 and where no more than two of the water-use appliances listed in
65.4 Classification I are installed or anticipated. The average
65.5 daily flow for Classification III dwellings is determined by
65.6 adding one to the number of bedrooms, multiplying this result by
65.7 38 gallons, then adding 66 gallons.
65.8 Classification IV: Classification IV dwellings are
65.9 dwellings designed under part 7080.2240.
65.10 7080.1880 SEWAGE FLOW DETERMINATION FOR OTHER ESTABLISHMENTS.
65.11 Average daily sewage flow and waste concentration levels
65.12 for other establishments with a flow of 2,500 gallons per day or
65.13 less shall be determined by part 7081.0130, as published in the
65.14 State Register, volume ..., page ..., and as subsequently
65.15 adopted.
65.16 7080.1900 SEWAGE TANKS; GENERAL.
65.17 Sewage tanks serving ISTS must meet or exceed the
65.18 applicable requirements of parts 7080.1910 to 7080.2030 unless
65.19 otherwise approved by a licensed professional engineer and
65.20 approved by the local unit of government.
65.21 7080.1910 TANK STRENGTH.
65.22 Subpart 1. Requirements. Tanks, fittings, risers, and
65.23 apertures must:
65.24 A. be capable of supporting long-term vertical loads
65.25 for the conditions in which the tank will be placed. These
65.26 loads include, but are not limited to, saturated soil load,
66.1 based on 130 pounds per cubic foot, and concentrated wheel load
66.2 of 1,800 pounds;
66.3 B. be capable of withstanding a lateral load for the
66.4 conditions the tank will be placed, with a minimum lateral load
66.5 of 62.4 pounds per cubic foot;
66.6 C. be capable of withstanding any other loads or
66.7 stresses placed upon the tank;
66.8 D. not be subject to excessive corrosion and
66.9 degradation from sewage or sewage gases, including risers and
66.10 maintenance hole covers; and
66.11 E. be structurally capable of withstanding exposure
66.12 and stresses from freezing conditions.
66.13 Subp. 2. Poured-in-place concrete tanks. Poured-in-place
66.14 concrete tanks must be designed to meet each requirement of
66.15 subpart 1 and be designed by a Minnesota licensed professional

66.16 engineer.
 66.17 7080.1920 SEPTIC TANK DESIGN.
 66.18 Septic tanks must:
 66.19 A. have a liquid depth of at least 30 inches. Any
 66.20 liquid depth that is greater than 78 inches must not be used
 66.21 when calculating the septic tank liquid capacity;
 66.22 B. have a minimum of six feet between the inlet and
 66.23 outlet of the tank, rather than between compartments, or have a
 66.24 minimum of six feet from the inlet of the first tank to the
 66.25 outlet of the last tank in series;
 66.26 C. if site conditions warrant, the inlet and outlet
 66.27 may be located on walls that are not opposite each other along
 67.1 the axis of maximum dimension; however, the requirements of item
 67.2 B must be met;
 67.3 D. have an inlet invert at least two inches above the
 67.4 outlet invert; and
 67.5 E. have a reserve or storage space between the liquid
 67.6 surface and the top of the inlet and outlet baffles of not less
 67.7 than eight inches or 100 gallons, whichever is greater.
 67.8 7080.1930 SEPTIC TANK CAPACITY.

67.9 Subpart 1. Dwellings. The liquid capacity of septic tanks
 67.10 must be at least as large as the liquid capacities given in
 67.11 Table V.

67.12	<u>Number of bedrooms</u>	<u>TABLE V</u> <u>Septic tank liquid minimum</u> <u>capacities (gallons)</u>
67.16	<u>3 or less</u>	<u>1,000</u>
67.17	<u>4 or 5</u>	<u>1,500</u>
67.18	<u>6 or 7</u>	<u>2,000</u>
67.19	<u>8 or 9</u>	<u>2,500</u>

67.21 Where more than nine bedrooms are present, the septic tank
 67.22 capacity must be calculated by the following formula: $2,500 +$
 67.23 $(\# \text{ of bedrooms} - 9 \times 250)$.

67.24 Subp. 2. Garbage disposals. If a garbage disposal unit is
 67.25 anticipated or installed in a dwelling, the septic tank capacity
 67.26 must be at least 50 percent greater than that required in
 67.27 subpart 1 and must include either multiple compartments or
 67.28 multiple tanks. In addition, an effluent screen with an alarm
 67.29 must be employed.

67.30 Subp. 3. Sewage pumping. If sewage is pumped from a
 67.31 sewage ejector or grinder pump from a dwelling to a septic tank,
 68.1 the septic tank capacity must be at least 50 percent greater
 68.2 than that required in subpart 1 and must include either multiple
 68.3 compartments or multiple tanks. In addition, an effluent screen
 68.4 with an alarm must be employed.

68.5 Subp. 4. Sewage pumping and garbage disposals. If
 68.6 conditions in both subparts 2 and 3 apply to a dwelling, the
 68.7 mitigative requirements of either subpart 2 or 3 apply; the
 68.8 requirements of both subparts 2 and 3 need not be additive.

68.9 Subp. 5. Systems serving multiple dwellings. For systems
 68.10 serving multiple dwellings with a common septic tank, the liquid
 68.11 capacity must be determined by adding the capacities for each

68.12 dwelling as determined in this part.

68.13 Subp. 6. Prior to other treatment devices. Septic tank
68.14 liquid capacity prior to other treatment devices must accord
68.15 with manufacturer's requirements or accepted engineering
68.16 principles.

68.17 7080.1940 MULTIPLE TANKS.

68.18 A. If more than one septic tank is used to obtain the
68.19 required liquid capacity as determined in part 7080.1930, septic
68.20 tanks may be connected in series or employ multiple collection
68.21 systems or employ effective flow splitting to operate multiple
68.22 tanks in parallel if approved by the local unit of government.

68.23 B. If tanks are connected in series, no tank or
68.24 compartment may be less than 25 percent of the required total
68.25 liquid capacity. For new construction, the first tank must be
68.26 equal to or larger than any subsequent tank in the series.

69.1 7080.1950 COMPARTMENTALIZATION OF SINGLE TANKS.

69.2 If septic tanks are compartmentalized, items A to E apply.

69.3 A. When septic tanks are divided into compartments,
69.4 the volume of the first compartment must be equal to or larger
69.5 than any succeeding compartments. No compartment may be less
69.6 than 25 percent of the total required liquid capacity. No
69.7 compartment may have an inside horizontal dimension less than 24
69.8 inches.

69.9 B. Flow between compartments can be achieved by an
69.10 unbaffled transfer hole with a minimum size of 50 square inches
69.11 located in the clarified liquid zone or a transfer hole located
69.12 above the clarified liquid zone that is baffled according to
69.13 part 7080.1960. The final compartment of a tank that employs a
69.14 transfer hole in the clarified zone shall not be used as a
69.15 dosing chamber.

69.16 C. Septic tanks must have at least a two-inch drop
69.17 between the invert of the inlet to the invert of the outlet. No
69.18 liquid level drop is required between the compartments.

69.19 D. Adequate venting must be provided between
69.20 compartments by baffles or by an opening of at least 12 square
69.21 inches near the top of the compartment wall.

69.22 E. All compartmental walls must be strong enough to
69.23 bear the weight of the effluent against an empty compartment.

69.24 7080.1960 SEPTIC TANK BAFFLES.

69.25 All septic tanks must be baffled according to items A to G.
69.26 Effluent screens may be substituted for outlet baffles.

69.27 A. Baffles must be installed at each inlet and outlet
70.1 of septic tanks. Outlet baffles are required on compartment
70.2 walls if the transfer hole is at the liquid level.

70.3 B. Baffles must be constructed of acid-resistant
70.4 concrete, acid-resistant fiberglass, or plastic resistant to
70.5 corrosion or decay. Inlet baffles must not restrict the
70.6 movement of solids.

70.7 C. Baffles must be integrally cast with the tank or
70.8 affixed at the top and bottom with connectors that are not
70.9 subject to corrosion or decay. Baffles for
70.10 fiberglass-reinforced polyester tanks may be resin bonded or
70.11 secured with suitable structural adhesive. Sanitary tees used
70.12 as baffles must be affixed to the inlet or outlet pipes with a

70.13 permanent waterproof adhesive.

70.14 D. The inlet baffle must extend at least six inches,
70.15 but not more than 20 percent of the total liquid depth, below
70.16 the liquid surface and at least six inches above the liquid
70.17 surface.

70.18 E. The outlet baffle and any baffles between
70.19 compartments must extend below the liquid surface a distance
70.20 equal to 40 percent of the liquid depth, except that the
70.21 penetration of the indicated baffles or sanitary tees for
70.22 horizontal cylindrical tanks must be 35 percent of the total
70.23 liquid depth. They must also extend above the liquid surface as
70.24 required in item D. In no case may these baffles extend less
70.25 than six inches above the liquid surface.

70.26 F. There must be at least one inch between the
70.27 underside of the top of the tank and the highest point of the
71.1 inlet and outlet baffles.

71.2 G. The nearest point on the inlet baffles other than
71.3 sanitary tees must be no less than six inches and no more than
71.4 12 inches from the end of the inlet pipe. The nearest point on
71.5 the outlet baffle, other than sanitary tees, may be no closer
71.6 than six inches and no more than 12 inches from the beginning of
71.7 the outlet pipe to the baffle. Sanitary tees used as inlet or
71.8 outlet baffles must be at least four inches in diameter.

71.9 7080.1970 SEPTIC TANK ACCESS.

71.10 A. There must be a maintenance hole with a minimum
71.11 diameter of 20 inches (least dimension) over all baffles,
71.12 screens, pumps, or other devices that may need inspection,
71.13 maintenance, or repair. Enough maintenance holes must be
71.14 provided so access can be gained within six feet of all walls
71.15 for solids removal of each compartment.

71.16 B. All maintenance hole risers must extend through
71.17 the tank cover to or above finished grade.

71.18 C. Covers for maintenance holes must:

71.19 (1) be secured by having sufficient weight or
71.20 bolted, locked, or secured by other methods approved by the
71.21 local unit of government; be leak resistant; and be designed so
71.22 the cover cannot be slid or flipped, which could allow
71.23 unauthorized access to the tank;

71.24 (2) have a written and graphic label warning of
71.25 the hazardous conditions inside the tank;

71.26 (3) be capable of withstanding a load that the
71.27 cover is anticipated to receive. The cover must maintain the
72.1 load rating and not be subject to loss of integrity or strength
72.2 over time or changes in climatic temperature; and

72.3 (4) be made of a material suitable for outdoor
72.4 use and resistant to ultraviolet degradation.

72.5 7080.1980 TANK CONSTRUCTION.

72.6 A. All precast reinforced concrete sewage tanks
72.7 should be constructed according to the National Precast Concrete
72.8 Association's best practices manual, Precast Concrete On-site
72.9 Wastewater Tanks (2005). The manual is incorporated by
72.10 reference, is available through the Minitex interlibrary loan
72.11 system, and is not subject to frequent change. If a conflict
72.12 exists between the manual and this chapter, this chapter applies.

72.13 B. Fiberglass-reinforced polyester and polyethylene
72.14 tanks should meet the construction standards in International
72.15 Association of Plumbing and Mechanical Officials (IAPMO),
72.16 Material and Property Standard for Prefabricated Septic Tanks,
72.17 Standard PS 1-2006 (2006). The standard is incorporated by
72.18 reference, is available through the Minitex interlibrary loan
72.19 system, and is not subject to frequent change. If conflicts
72.20 exist between the standard and this chapter, this chapter
72.21 applies.
72.22 7080.1990 TANK STORAGE, TRANSPORT, AND USE.
72.23 Subpart 1. **Precast reinforced concrete tanks.** Precast
72.24 reinforced concrete tanks must:
72.25 A. have inserts embedded in the concrete to lift the
72.26 tank that are designed for an ultimate load that is four times
73.1 the working load;
73.2 B. undergo proper curing to achieve a compressive
73.3 strength of 4,000 pounds per square inch before transport,
73.4 placement, or use; and
73.5 C. have no pipe penetration points or openings in the
73.6 exterior walls or tank bottom below the tank liquid level.
73.7 Subp. 2. **Other tanks.** Fiberglass-reinforced polyester or
73.8 polyethylene tanks must be protected against deterioration
73.9 during storage.
73.10 7080.2000 LOCATION AND INSTALLATION OF TANKS.
73.11 A. Sewage tanks must not be placed in areas with
73.12 obstructions that prohibit the removal of solids and liquids
73.13 from the tank according to this part.
73.14 B. Sewage tanks must not be placed in areas where
73.15 vertical or horizontal distances prohibit the ability of pump
73.16 trucks to remove the solids and liquids according to this part.
73.17 C. Sewage tanks must be set back as specified in
73.18 Table VII in part 7080.2150, subpart 2, item F.
73.19 D. The top of sewage tanks should not be buried
73.20 deeper than four feet and must not be buried deeper than seven
73.21 feet from final grade for new dwellings. Tanks shall not be
73.22 buried deeper than the tanks' maximum designed depth. The
73.23 minimum depth of soil cover over the insulation on the top of
73.24 the tank is six inches.
73.25 E. Sewage tanks must not be placed in floodways,
73.26 drainageways, or swales. Upslope drainage must be diverted away
73.27 from the location of all tanks. A tank's final cover must be
74.1 crowned or sloped to shed surface water.
74.2 F. Sewage tanks must not be placed in areas subject
74.3 to vehicular traffic unless engineered for the anticipated load.
74.4 G. Sewage tanks must be placed on firm and evenly
74.5 compacted soil and with the soil level in all directions. The
74.6 bottom shall be excavated in a manner so the vertical load is
74.7 borne by the tank walls and not the tank bottom. If the bottom
74.8 of the tank excavation contains rocks, bedding material must be
74.9 used according to manufacturer's instructions. The soil beneath
74.10 the tank must be capable of bearing the weight of the tank and
74.11 its contents.
74.12 H. Backfilling around sewage tanks must be made in
74.13 lifts no greater than 12 inches in loose thickness and placed

74.14 nearly equally around the tank. Backfill material must be free
74.15 of large stones, frozen soil material, or other debris.
74.16 Backfill material must be brought to near natural density in a
74.17 manner that avoids undue strain on the tank. For
74.18 fiberglass-reinforced polyester or polyethylene tanks, the
74.19 height of the backfill material must not exceed the height of
74.20 water in the tank.

74.21 I. Sewage tanks and risers must be installed
74.22 according to manufacturer's requirements and in a structurally
74.23 sound and watertight fashion.

74.24 J. If the top of a sewage tank is to be less than two
74.25 feet from final grade, the lid of the tank must be insulated to
74.26 an R-value of ten. Maintenance hole covers must be insulated to
74.27 an R-value of ten. Maintenance hole risers may be insulated to
75.1 an R-value of ten. All insulating materials must be resistant
75.2 to water absorption.

75.3 K. Sewage tanks placed below the level of the
75.4 seasonally saturated soil must be anchored or have sufficient
75.5 weight to protect against flotation under high-water table
75.6 conditions when the tank is empty.

75.7 L. Connections between the concrete tank and the
75.8 building sewer or supply pipe must meet the requirements of
75.9 American Society for Testing and Materials, Standard
75.10 Specification for Resilient Connectors Between Reinforced
75.11 Concrete Manhole Structures, Pipes, and Laterals, ASTM C923
75.12 (2002), or equivalent. The standard is incorporated by
75.13 reference, is available through the Minitex interlibrary loan
75.14 system, and is not subject to frequent change.

75.15 M. Joints of concrete tanks and concrete tank lids
75.16 must be sealed using a bonding compound that meets American
75.17 Society for Testing and Materials, Standard Specification for
75.18 Joints for Concrete Pipe, Manholes, and Precast Box Sections
75.19 Using Preformed Flexible Joint Sealants, ASTM C990 (2003). The
75.20 standard is incorporated by reference, is available through the
75.21 Minitex interlibrary loan system, and is not subject to frequent
75.22 change.

75.23 7080.2010 TANK TESTING.

75.24 Subpart 1. General.

75.25 A. All sewage tanks must be watertight, including at
75.26 all tank and riser joints, riser connections, and pipe
75.27 connections.

76.1 B. Testing of all models of sewage tanks to be used
76.2 must be conducted to determine:

76.3 (1) the structural integrity of the tank design;

76.4 and

76.5 (2) the adequacy of the manufacturing process of
76.6 watertightness.

76.7 C. Sewage tanks, including riser joints, riser
76.8 connections, and pipe connections must be designed,
76.9 manufactured, and installed to be watertight for 25 years under
76.10 normal use.

76.11 Subp. 2. Structural integrity of design test. The
76.12 structural integrity of each model of tank produced must be
76.13 verified to determine the horizontal and vertical loads that the

76.14 tank can withstand when empty. Tanks must be reverified for
76.15 structural integrity if the design, materials, or construction
76.16 methods are modified. A licensed professional engineer shall
76.17 certify in writing if different models are similar enough so
76.18 that the structural integrity information for one model is valid
76.19 for other models. Verifications must be submitted to the
76.20 commissioner. The commissioner shall maintain and make
76.21 available the verifications upon request. All poured-in-place
76.22 tanks must be verified.

76.23 Subp. 3. Watertightness test.

76.24 A. Of all sewage tanks manufactured, every 25th tank
76.25 produced must be tested for watertightness. At least one tank
76.26 per year, per model must be tested for watertightness. All
76.27 poured-in-place tanks shall be tested for watertightness.

77.1 Records of testing must be maintained by the manufacturer for
77.2 three years and must be available to the commissioner and local
77.3 unit of government if requested. Tanks must be tested and meet
77.4 or exceed the requirements of subitems (1) to (3):

77.5 (1) when empty, a tank must maintain a vacuum of
77.6 at least two inches of mercury for five minutes, without loss of
77.7 pressure;

77.8 (2) concrete tanks must hold water for one hour,
77.9 without loss, after the tank has been filled with water to the
77.10 top of the tank, let stand for 24 hours, and then refilled to
77.11 the same level; and

77.12 (3) fiberglass-reinforced polyester or
77.13 polyethylene sewage tanks must hold water without loss for one
77.14 hour after being filled.

77.15 B. Sewage tanks that do not pass the tests listed in
77.16 item A, subitems (1) to (3), must not be used until repaired and
77.17 retested. The repair and retest procedure must be repeated
77.18 until the tank passes the test or the tank must not be used.

77.19 7080.2020 TANK IDENTIFICATION.

77.20 A. Sewage tanks must be marked near the outlet with:

77.21 (1) the manufacturer's name;

77.22 (2) model number;

77.23 (3) liquid capacity;

77.24 (4) date of manufacture; and

77.25 (5) maximum depth of burial.

77.26 B. The tank inlet or outlet must be clearly marked.

77.27 C. The installer shall submit the information in item

78.1 A with the as-built drawing.

78.2 7080.2030 EFFECTIVE DATE.

78.3 Sewage tanks must meet the requirements of parts 7080.1910
78.4 to 7080.2020 within three years of the effective date of this
78.5 chapter. Tanks produced and installed within this three-year
78.6 period must meet the requirements of Minnesota Rules 2005, part
78.7 7080.0130.

78.8 7080.2050 DISTRIBUTION OF EFFLUENT.

78.9 Subpart 1. General. Distribution of effluent for ISTS
78.10 must meet or exceed the requirements of this part.

78.11 Subp. 2. Supply pipes.

78.12 A. The supply pipe extending from the septic tank to
78.13 the undisturbed soil beyond the tank excavation must meet the

78.14 strength requirements of American Society for Testing and
78.15 Materials (ASTM), Schedule 40 Pipe, contained in Standard
78.16 Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe,
78.17 Schedules 40, 80, and 120, ASTM D1785 (2006). The schedule is
78.18 incorporated by reference, is available through the Minitex
78.19 interlibrary loan system, and is not subject to frequent change.

78.20 B. Supply pipes must:

78.21 (1) be made from materials resistant to breakdown
78.22 from sewage and soil;

78.23 (2) be watertight, including all joints;

78.24 (3) be durable for a 25-year design life;

78.25 (4) not deflect, buckle, crush, or longitudinally
78.26 bend;

79.1 (5) be resistant to pressures, fatigue, and

79.2 strain for the application;

79.3 (6) be installed according to American Society of

79.4 Testing and Materials, Standard Practice for Underground

79.5 Installation of Thermoplastic Pipe for Sewers and Other

79.6 Gravity-Flow Applications, ASTM D2321 (2005). The standard is

79.7 incorporated by reference, is available through the Minitex

79.8 interlibrary loan system, and is not subject to frequent change;

79.9 (7) be designed, installed, and protected so that
79.10 effluent will not freeze in the pipe;

79.11 (8) not be closer than six inches from final

79.12 grade. Pipes susceptible to freezing shall be insulated; and

79.13 (9) be set back from water supply wells and water

79.14 service pipes according to chapter 4715.

79.15 C. The minimum slope for gravity supply pipes is one

79.16 percent (1/8 inch per linear foot). There is no maximum slope.

79.17 Pipe restraints must be used for slopes greater than 20 percent

79.18 or where fluid velocities in the pipe exceed 15 feet per

79.19 second. For pressure systems, the slope shall be sufficient to

79.20 allow quick drainback to the dosing chamber.

79.21 D. Access to each supply pipe must be provided for

79.22 cleanout. The cleanout point must be accessible from final

79.23 grade.

79.24 Subp. 3. Gravity distribution.

79.25 A. Serial distribution must be used to distribute

79.26 effluent to individual trenches in a soil treatment and

79.27 dispersal system. If the necessary elevation differences

80.1 between trenches for serial distribution cannot be achieved by

80.2 natural topography or by varying the excavation depths, parallel

80.3 distribution may be used. Serial distribution must not create a

80.4 pressure head on trenches at lower elevations.

80.5 B. If drop boxes are used for serial distribution,

80.6 subitems (1) to (6) apply.

80.7 (1) The drop box must be watertight and

80.8 constructed of durable materials not subject to corrosion or

80.9 decay.

80.10 (2) The invert of the inlet supply pipe must be

80.11 at least one inch higher than the invert of the outlet supply

80.12 pipe to the next drop box.

80.13 (3) The invert of the outlet supply pipe to the

80.14 next drop box may be no greater than two inches higher than the

80.15 crown of the distribution pipe serving the trench in which the
80.16 box is located.

80.17 (4) When sewage tank effluent is delivered to the
80.18 drop box by a pump, the pump discharge must be directed against
80.19 a wall or side of the box on which there is no outlet or
80.20 directed against a deflection wall, baffle, or other energy
80.21 dissipater. The pump must discharge at a rate at least ten
80.22 percent greater than the water supply flow rate but no faster
80.23 than the rate at which effluent will flow out of the
80.24 distribution device. The supply pipe must drain after the pump
80.25 shuts off.

80.26 (5) The drop box must be covered by a minimum of
80.27 six inches of soil. If the top of the box is deeper than six
81.1 inches, access must be provided above, at, or within six inches
81.2 of finished grade.

81.3 (6) The drop box must be placed on firm and
81.4 settled soil.

81.5 C. If valve boxes are used, all requirements of item
81.6 B apply to valve boxes.

81.7 D. Distribution boxes must meet the standards in
81.8 subitems (1) to (6).

81.9 (1) The box must be watertight and constructed of
81.10 durable materials not subject to corrosion or decay.

81.11 (2) The distribution box must be covered by a
81.12 minimum of six inches of soil. If the top of the box is deeper
81.13 than six inches, access must be provided above, at, or within
81.14 six inches of the finished grade.

81.15 (3) The inverts of all outlets must be set and
81.16 maintained at the same elevation.

81.17 (4) The inlet invert must be either at least one
81.18 inch above the outlet invert or sloped such that an equivalent
81.19 elevation above the outlet invert is obtained within the last
81.20 eight feet of the inlet pipe.

81.21 (5) Each trench line must be connected separately
81.22 to the distribution box and must not be subdivided.
81.23 Distribution boxes must not be connected to one another if each
81.24 box has distribution pipes.

81.25 (6) When sewage tank effluent is delivered by
81.26 pump, a baffle wall must be installed in the distribution box or
81.27 the pump discharge must be directed against a wall, baffle, side
82.1 of the box on which there is no outlet, or directed against a
82.2 deflection wall, baffle, or other energy dissipater. The baffle
82.3 must be secured to the box and extend at least one inch above
82.4 the crown of the inlet pipe. Pressure must not build up in the
82.5 box during pump discharge.

82.6 E. Nonpressurized distribution pipes must meet the
82.7 requirements of subitems (1) to (4) and subpart 2, item B,
82.8 subitems (1) and (3) to (5).

82.9 (1) Distribution pipes used for gravity
82.10 distribution must be at least four inches in diameter.

82.11 (2) Distribution pipes used for gravity
82.12 distribution must have at least one row of holes of no less than
82.13 one-half inch in diameter spaced no more than 40 inches apart.

82.14 (3) Distribution pipes for gravity distribution

82.15 must be laid level or on a uniform slope oriented away from the
82.16 distribution device of no more than four inches per 100 feet.
82.17 (4) Distribution pipes for gravity distribution
82.18 in seepage beds must be uniformly spaced no more than five feet
82.19 apart and not more than 30 inches from the side walls of the
82.20 seepage bed.
82.21 Subp. 4. Pressure distribution.
82.22 A. Pressure distribution must pressurize the entire
82.23 distribution system and must be used for:
82.24 (1) mound systems;
82.25 (2) at-grade systems;
82.26 (3) all seepage beds placed in soils with a
82.27 sizing classification of 1 or 2 in Table IX in part 7080.2150,
83.1 subpart 3, item F;
83.2 (4) all seepage beds with a width greater than 12
83.3 feet;
83.4 (5) all trench systems if the trenches are at the
83.5 same elevation and placed in soils with a sizing classification
83.6 of 1 or 2 in Table IX in part 7080.2150, subpart 3, item F;
83.7 (6) systems receiving an organic load of less
83.8 than 25 percent of values in part 7081.0270, subpart 6, as
83.9 published in the State Register, volume ..., page..., and as
83.10 subsequently adopted; and
83.11 (7) all systems where the distribution network is
83.12 installed above the original grade.
83.13 B. Pressurized distribution pipes must conform to the
83.14 requirements of subpart 2, item B, subitems (1) and (3) to (5).
83.15 C. Pressure distribution pipes and associated
83.16 fittings must be properly joined together. The pipe and
83.17 connections must be able to withstand a pressure of at least 40
83.18 pounds per square inch.
83.19 D. The distribution network must be designed so there
83.20 is less than a ten percent variance in flow for all perforations.
83.21 E. Perforations must be no smaller than one-eighth
83.22 inch diameter and no larger than one-quarter inch diameter. The
83.23 number of perforations, perforation spacing, and pipe size for
83.24 pressure distribution must be in accordance with Table VI. The
83.25 friction loss in any individual perforated lateral must not
83.26 exceed 20 percent of the average pressure head on the
83.27 perforations.

84.1 TABLE VI
84.2 MAXIMUM NUMBER OF PERFORATIONS PER LATERAL
84.3 1/4 inch holes
84.4 Pipe diameter in inches
84.5 1 1.25 1.5 2 3
84.6 Perforation
84.7 spacing in feet

84.9	<u>2</u>	<u>10</u>	<u>13</u>	<u>18</u>	<u>30</u>	<u>60</u>
84.10	<u>2.5</u>	<u>8</u>	<u>12</u>	<u>16</u>	<u>28</u>	<u>54</u>
84.11	<u>3</u>	<u>8</u>	<u>12</u>	<u>16</u>	<u>25</u>	<u>52</u>
84.13			<u>3/16 inch holes</u>			
84.14			<u>Pipe diameter in inches</u>			

84.15		<u>1</u>	<u>1.25</u>	<u>1.5</u>	<u>2</u>	<u>3</u>
84.16	<u>Perforation</u>					
84.17	<u>spacing in feet</u>					
84.19	<u>2</u>	<u>12</u>	<u>18</u>	<u>26</u>	<u>46</u>	<u>87</u>
84.20	<u>2.5</u>	<u>12</u>	<u>17</u>	<u>24</u>	<u>40</u>	<u>80</u>
84.21	<u>3</u>	<u>12</u>	<u>16</u>	<u>22</u>	<u>37</u>	<u>75</u>
84.23		<u>1/8 inch holes</u>				
84.24		<u>Pipe diameter in inches</u>				
84.25		<u>1</u>	<u>1.25</u>	<u>1.5</u>	<u>2</u>	<u>3</u>
84.26	<u>Perforation</u>					
84.27	<u>spacing in feet</u>					
84.29	<u>2</u>	<u>21</u>	<u>33</u>	<u>44</u>	<u>74</u>	<u>149</u>
84.30	<u>2.5</u>	<u>20</u>	<u>30</u>	<u>41</u>	<u>69</u>	<u>135</u>
84.31	<u>3</u>	<u>20</u>	<u>29</u>	<u>38</u>	<u>64</u>	<u>128</u>

84.33 F. Perforation holes must be drilled straight into
84.34 the pipe and not at an angle. Pressurized distribution laterals
84.35 must be installed level. Perforation holes must be free of
84.36 burrs. Holes may be spaced no more than three feet apart. A
84.37 method to introduce air into the pipe after dosing must be
84.38 provided. The pipes must completely drain after the pump turns
84.39 off.

85.1 G. Pressure distribution laterals must be spaced no
85.2 further than 36 inches apart in seepage beds and mound
85.3 absorption beds, and no further than 24 inches from the outside
85.4 edge of the bed.

85.5 H. Pressure distribution laterals must be connected
85.6 to a header or manifold pipe that is of a diameter such that the
85.7 friction loss in the header or manifold will be no greater than
85.8 five percent of the average head at the perforations. The
85.9 header or manifold pipe must be connected to the supply pipe
85.10 from the pump.

85.11 I. Perforated laterals must not be installed closer
85.12 than 12 inches from the edges of the absorption bed and
85.13 perforations must not be installed closer than 12 inches from
85.14 the ends of the absorption bed.

85.15 J. Pressure distribution pipe cleanouts must be
85.16 provided to check the system for proper operation and cleaning
85.17 of plugged perforations. Cleanouts must be accessible from
85.18 final grade.

85.19 7080.2100 DOSING OF EFFLUENT.

85.20 Subpart 1. General. When dosing is necessary, it must
85.21 comply with this part.

85.22 Subp. 2. Dosing chambers.

85.23 A. Dosing chambers shall meet or exceed the
85.24 requirements of parts 7080.1910, 7080.1970, and 7080.1980 to
85.25 7080.2020. All dosing chambers must be vented.

85.26 B. The pump, pump controls, and pump discharge line
85.27 must be installed to allow access for servicing or replacement
86.1 without entering the dosing chamber.

86.2 C. The dosing chamber must either include an

86.3 alternating two-pump system or have a minimum total capacity of
86.4 500 gallons for average daily flow valves of 600 gallons per day
86.5 or less or 100 percent of the average daily flow for average
86.6 daily flow valves of greater than 600 gallons per day.

86.7 D. An ISTS with a pump must employ an alarm device to
86.8 warn of failure.

86.9 E. The inlet of pumps must be elevated at least four
86.10 inches from the bottom of the dosing chamber or protected in
86.11 some other manner to prevent the pump from drawing excessive
86.12 settled solids.

86.13 F. Electrical installations must comply with
86.14 applicable laws and ordinances including the most current codes,
86.15 rules, and regulations of public authorities having jurisdiction
86.16 and with part 1315.0200, which incorporates the National
86.17 Electrical Code.

86.18 Subp. 3. Pumps for gravity distribution. If a pump is
86.19 used to lift effluent into a gravity distribution system, items
86.20 A to C apply.

86.21 A. The pump must discharge at least ten gallons per
86.22 minute but no more than 45 gallons per minute.

86.23 B. The pump must be constructed and fitted with
86.24 sound, durable, and corrosion-resistant materials.

86.25 C. The pump must have sufficient dynamic head for
86.26 both the elevation difference and friction loss.

86.27 Subp. 4. Pumps for pressure distribution. Pumps for
87.1 pressure distribution must meet the requirements in items A to D.

87.2 A. Pumps must be constructed and fitted with sound,
87.3 durable, and corrosion-resistant materials.

87.4 B. The pump discharge capacity must be based on the
87.5 perforation discharges for a minimum average head of 1.0 foot.
87.6 Perforation discharge is determined by the following formula:

87.7
$$Q = 19.65 cd^2h^{1/2}$$

87.8 where: Q = discharge in gallons per minute

87.9 c = 0.60 = coefficient of discharge

87.10 d = perforation diameter in inches

87.11 h = head in feet.

87.12 C. The pump discharge head must be at least five feet
87.13 greater than the head required to overcome pipe friction losses
87.14 and the elevation difference between the pump and the
87.15 distribution device.

87.16 D. The quantity of effluent delivered for each pump
87.17 cycle must be no greater than 25 percent of the average daily
87.18 flow.

87.19 7080.2150 TREATMENT AND DISPERSAL.

87.20 Subpart 1. General. Treatment and dispersal of all sewage
87.21 for new construction or replacement ISTS must be in compliance
87.22 with this part and parts 7080.2200 to 7080.2400 as adopted into
87.23 local ordinances.

87.24 Subp. 2. General technical requirements for all
87.25 systems. All new construction or replacement ISTS must be
87.26 designed to meet or exceed the provisions in items A to G.

87.27 A. All treatment and dispersal methods must be
88.1 designed to conform to all applicable federal, state, and local
88.2 regulations.

- 88.3 B. Treatment and dispersal processes must prevent
 88.4 sewage or sewage effluent contact with humans, insects, or
 88.5 vermin.
 88.6 C. Treatment and dispersal of sewage or sewage
 88.7 effluent must be in a safe manner that adequately protects from
 88.8 physical injury or harm.
 88.9 D. An unsaturated zone in the soil must be maintained
 88.10 between the bottom of the soil treatment and dispersal system
 88.11 and the seasonally saturated soil or bedrock during loading of
 88.12 effluent.
 88.13 E. Local units of government may also require
 88.14 additional standards for local resource protection, such as
 88.15 limits for nitrogen and phosphorus compounds.
 88.16 F. Soil treatment and dispersal systems must not be
 88.17 designed in floodways. Soil treatment and dispersal systems
 88.18 installed in flood fringes must meet the requirements in part
 88.19 7080.2270. Soil treatment and dispersal systems should not be
 88.20 placed in areas subject to excessive run-on. All soil treatment
 88.21 systems located in areas subject to excessive run-on must have a
 88.22 diversion constructed upslope from the system.
 88.23 G. ISTS components must be set back as specified in
 88.24 Table VII. This chapter does not require a setback to a
 88.25 wetland, but a local setback may exist.

88.26 TABLE VII

88.27 MINIMUM SETBACK DISTANCES (FEET)

89.1 <u>Feature</u>	89.2 <u>Sewage tank,</u>	89.3 <u>Absorption</u>	89.4 <u>Building</u>
	89.2 <u>holding</u>	89.3 <u>area or</u>	89.4 <u>sewer or</u>
	89.3 <u>tank, or</u>	89.3 <u>unsealed</u>	89.4 <u>supply</u>
	89.4 <u>sealed privy</u>	89.3 <u>privy</u>	89.4 <u>pipes</u>
89.6 <u>Water supply wells</u>	89.6 *	89.6 *	89.6 *
89.7 <u>Buried water lines</u>	89.7 *	89.7 *	89.7 *
89.8 <u>Buildings**</u>	89.8 <u>10</u>	89.8 <u>20</u>	89.8 <u>-</u>
89.9 <u>Property lines***</u>	89.9 <u>10</u>	89.9 <u>10</u>	
89.10 <u>Ordinary high water</u>			
89.11 <u>level of public waters</u>	89.11 <u>****</u>	89.11 <u>****</u>	

- 89.13 * Setbacks from buried water lines and water supply wells are
 89.14 governed by chapters 4715 and 4725, respectively.
 89.15 ** For structures other than buildings, these setbacks may be
 89.16 reduced if necessary due to site conditions, but no component of
 89.17 an ISTS may be located under or within the structure or other
 89.18 impermeable surface.
 89.19 *** Infringement on property line setbacks must be made through
 89.20 accepted local procedures.
 89.21 **** Setbacks from lakes, rivers, and streams are governed by
 89.22 chapters 6105 and 6120.
 89.23 **Subp. 3. Other technical requirements for**
 89.24 **systems.** Requirements in items A to K will be required for
 89.25 specific designs as determined in parts 7080.2200 to 7080.2400.
 89.26 A. Employ components registered under part 7080.1600
 89.27 that are installed, used, and operated according to conditions
 89.28 placed on registration.
 89.29 B. Employ structural components and joint sealants

89.30 that meet or exceed a 25-year design life.
 89.31 C. Systems must not be designed, installed, or
 89.32 operated to exceed the loadings in part 7081.0270, subpart 6, as
 89.33 published in the State Register, volume ..., page ..., and as
 90.1 subsequently adopted.
 90.2 D. For acceptable treatment of septic tank effluent
 90.3 by soil, the soil treatment and dispersal systems must meet the
 90.4 requirements of subitems (1) and (2).
 90.5 (1) A minimum three-foot vertical soil treatment
 90.6 and dispersal zone shall be designed below the distribution
 90.7 media that meets the criteria in units (a) to (c):
 90.8 (a) the zone must be above the seasonally
 90.9 saturated soil and bedrock. The zone must be continuous and not
 90.10 be interrupted by seasonal zones of saturation;
 90.11 (b) any soil layers with a sizing
 90.12 classification of 1 in Table IX in item F must not be credited
 90.13 as part of the necessary three-foot zone; and
 90.14 (c) the entire treatment zone depth must be
 90.15 within seven feet from final grade.
 90.16 (2) The distribution system must not place a
 90.17 hydraulic head greater than 30 inches over the treatment zone.
 90.18 E. The system's absorption area must be original soil.
 90.19 F. The system's absorption area must be sized
 90.20 according to Table IX.

90.21 TABLE IX

90.22 SOIL SIZING FACTORS FOR DETERMINING BOTTOM AREA FOR
 90.23 TRENCHES AND SEEPAGE BEDS USING DETAILED SOIL
 90.24 DESCRIPTIONS OR PERCOLATION TEST AND ABSORPTION RATIOS FOR
 90.25 DETERMINING MOUND ABSORPTION AREAS USING DETAILED SOIL
 90.26 DESCRIPTIONS

	<u>Sizing</u>	<u>Soil</u>	<u>Soil</u>	<u>Percolation</u>	<u>Soil sizing</u>	<u>Absorption</u>
	<u>classi-</u>	<u>texture</u>	<u>structure*</u>	<u>rate</u>	<u>factor</u>	<u>ratio for</u>
	<u>fication</u>			<u>(minutes</u>	<u>(square feet</u>	<u>mounds</u>
				<u>per inch)</u>	<u>of trench or</u>	
					<u>seepage bed</u>	
					<u>bottom per</u>	
					<u>gallon of</u>	
					<u>average</u>	
					<u>design flow</u>	
					<u>per day)</u>	
91.6	<u>1</u>	<u>Coarse</u>	<u>Single</u>	<u>faster than</u>	<u>.83</u>	<u>1.0</u>
91.7		<u>sand</u>	<u>grain</u>	<u>0.1</u>		
91.9	<u>2</u>	<u>Medium</u>	<u>Single</u>	<u>0.1 to 5</u>	<u>.83</u>	<u>1.0</u>
91.10		<u>sand,</u>	<u>grain</u>			
91.11		<u>loamy</u>				
91.12		<u>sand*</u>				
91.14	<u>3</u>	<u>Fine</u>	<u>Single</u>	<u>0.1 to 5</u>	<u>1.67</u>	<u>1.0</u>
91.15		<u>sand,</u>	<u>grain</u>			
91.16		<u>loamy</u>				
91.17		<u>fine</u>				
91.18		<u>sand</u>				

91.20	<u>4</u>	<u>Sandy</u>	<u>Weak to</u> <u>strong</u>	<u>6 to 15</u>	<u>1.27</u>	<u>1.5</u>
91.21		<u>loam</u>				
91.23	<u>5</u>	<u>Sandy</u>	<u>Massive</u> <u>or platy</u>	<u>16 to 30</u>	<u>1.67</u>	<u>2.0</u>
91.24		<u>loam</u>				
91.26	<u>6</u>	<u>Loam</u>	<u>Moderate</u> <u>to strong</u>	<u>16 to 30</u>	<u>1.67</u>	<u>2.0</u>
91.27						
91.29	<u>7</u>	<u>Loam</u>	<u>Weak or</u> <u>platy</u>	<u>31 to 45</u>	<u>2.0</u>	<u>2.4</u>
91.30						
91.32	<u>8</u>	<u>Loam</u>	<u>Massive</u>	<u>46 to 60</u>	<u>2.2</u>	<u>3.0</u>
91.34	<u>9</u>	<u>Silt</u>	<u>Moderate</u> <u>to strong</u>	<u>31 to 45</u>	<u>2.0</u>	<u>2.4</u>
91.35		<u>loam</u>				
91.37	<u>10</u>	<u>Silt</u>	<u>Weak or</u> <u>platy</u>	<u>46 to 60</u>	<u>2.2</u>	<u>3.0</u>
91.38		<u>loam</u>				
91.40	<u>11</u>	<u>Silt</u>	<u>Massive</u>	<u>61 to 85</u>	<u>3.0</u>	<u>3.6</u>
91.41		<u>loam</u>				
91.43	<u>12</u>	<u>Sandy</u>	<u>Moderate</u> <u>to strong</u>	<u>46 to 60</u>	<u>2.2</u>	<u>2.6</u>
91.44		<u>clay</u>				
91.45		<u>loam,</u>				
91.46		<u>clay</u>				
91.47		<u>loam,</u>				
91.48		<u>silty</u>				
91.49		<u>clay</u>				
91.50		<u>loam</u>				
91.52	<u>13</u>	<u>Sandy</u>	<u>Weak or</u> <u>platy</u>	<u>61 to 85</u>	<u>3.0</u>	<u>3.8</u>
91.53		<u>clay</u>				
91.54		<u>loam,</u>				
92.1		<u>clay</u>				
92.2		<u>loam,</u>				
92.3		<u>silty</u>				
92.4		<u>clay</u>				
92.5		<u>loam</u>				
92.7	<u>14</u>	<u>Sandy</u>	<u>Massive</u>	<u>121 or</u> <u>slower</u>	<u>-</u>	<u>-</u>
92.8		<u>clay</u>				
92.9		<u>loam,</u>				
92.10		<u>clay</u>				
92.11		<u>loam,</u>				
92.12		<u>silty</u>				
92.13		<u>clay</u>				
92.14		<u>loam</u>				
92.16	<u>15</u>	<u>Sandy</u>	<u>Strong</u>	<u>86 to 120</u>	<u>4.2</u>	<u>5.0</u>
92.17		<u>clay,</u>				
92.18		<u>clay,</u>				

92.19 silty
 92.20 clay

92.22 16 Sandy Weak to 121 or - -
 92.23 clay, moderate, slower
 92.24 clay, massive,
 92.25 silty or platy
 92.26 clay

92.28 * The soil structure must have a moist consistency of loose,
 92.29 very friable, friable, or firm as determined by the Field Book
 92.30 for Describing and Sampling Soils, which is incorporated by
 92.31 reference under part 7080.1100, subpart 40.

92.32 G. If drainfield rock medium is employed, a durable,
 92.33 nonwoven geotextile fabric must be used to cover the
 92.34 distribution rock medium. The fabric must be of sufficient
 92.35 strength to undergo installation without rupture. The fabric
 92.36 must permit passage of water without passage of overlying soil
 92.37 material into the rock medium.

92.38 H. All excavation into the absorption area, or
 92.39 surface preparation of the upper 12 inches of absorption area,
 92.40 must be in a manner to expose the original soil structure in an
 92.41 unsmearred and uncompacted condition. Excavation is only allowed
 93.1 when the soil moisture content is at or less than the plastic
 93.2 limit and is not frozen or freezing.

93.3 I. Excavation equipment or other vehicles must not be
 93.4 driven on the excavated or prepared absorption area. Foot
 93.5 traffic on these areas must be minimized and not cause undue
 93.6 compaction. The exposed areas must be immediately covered with
 93.7 media or the designed coverage materials. If the areas are
 93.8 exposed to direct rainfall, they must be allowed to dry and must
 93.9 be re-prepared according to item H.

93.10 J. A minimum of six inches of topsoil borrow shall be
 93.11 placed over the system.

93.12 K. A close-growing, vigorous vegetative cover must be
 93.13 established over the soil treatment and dispersal system and
 93.14 other vegetatively disturbed areas. The sodding, seeding, or
 93.15 other vegetation establishment shall begin immediately after the
 93.16 placement of the topsoil borrow. The soil treatment and
 93.17 dispersal system must be protected from erosion and excessive
 93.18 frost until a vegetative cover is established. The vegetative
 93.19 cover established must not interfere with the hydraulic
 93.20 performance of the system and shall provide adequate frost and
 93.21 erosion protection. Trees, shrubs, deep-rooted plants, or
 93.22 hydrophilic plants should not be planted on the system.

93.23 7080.2200 TYPE I SYSTEMS.

93.24 Systems designed according to parts 7080.2200 to 7080.2240
 93.25 are considered Type I systems.

93.26 7080.2210 TRENCHES AND SEEPAGE BEDS.

94.1 Subpart 1. Characteristics. To qualify as a trench or
 94.2 seepage bed system, the system must meet or exceed the
 94.3 requirements of items A to E:

- 94.4 A. employ flow values in part 7080.1850;
- 94.5 B. meet or exceed applicable technical requirements

94.6 of parts 7080.1900 to 7080.2030, 7080.2050, and 7080.2100;

94.7 C. provide flow measurement if a pump is to be

94.8 employed;

94.9 D. meet or exceed the requirements of part 7080.2150,

94.10 subparts 2 and 3; and

94.11 E. meet the requirements of subparts 2 to 4.

94.12 Subp. 2. Seepage bed construction. Seepage bed

94.13 construction must be limited to areas having natural slopes of

94.14 less than six percent. Seepage beds and trenches must not be

94.15 placed in soils with a sizing classification of 13 to 16 on

94.16 Table IX in part 7080.2150, subpart 3, item F. Seepage beds

94.17 must not be located in floodplains.

94.18 Subp. 3. Sizing of trenches and seepage beds.

94.19 A. The system's proposed absorption area must meet

94.20 sizing classifications 2 to 10 or 12 on Table IX in part

94.21 7080.2150, subpart 3, item F. The trench bottom area is

94.22 calculated by multiplying the average daily flow by the

94.23 appropriate soil sizing factor in Table IX in part 7080.2150,

94.24 subpart 3, item F. If gravity distribution is used in seepage

94.25 beds, the seepage bed absorption area is calculated by

94.26 multiplying the average daily flow by the soil sizing factor in

94.27 Table IX in part 7080.2150, subpart 3, item F, multiplied by

95.1 1.5. If pressure distribution is used in seepage beds, the

95.2 seepage bed absorption area is determined by multiplying the

95.3 soil sizing factor in Table IX in part 7080.2150, subpart 3,

95.4 item F, by the average daily flow.

95.5 B. The minimum sidewall absorption shall be six

95.6 inches. The bottom absorption area may be reduced, for trenches

95.7 only, by 20 percent for loading 12 inches of sidewall absorption

95.8 below the distribution pipe, 34 percent for 18 inches, and 40

95.9 percent for 24 inches. Reductions may be interpolated for other

95.10 depths of sidewall absorption.

95.11 Subp. 4. Design and construction of trenches and seepage

95.12 beds.

95.13 A. Trenches must be no more than 36 inches wide. Any

95.14 excavation wider than 36 inches shall be considered a seepage

95.15 bed. No seepage bed may be wider than 12 feet if gravity

95.16 distribution is used and 25 feet if pressure distribution is

95.17 used. Natural, undisturbed soil must exist between multiple

95.18 trenches. Multiple seepage beds must be spaced at one-half the

95.19 bed width. Multiple units may need to be designed based on

95.20 linear loading rates as described in part 7080.2220, subpart 3,

95.21 item B.

95.22 B. A vertical inspection pipe at least 1-1/2 inches

95.23 in diameter must be installed and secured in the distribution

95.24 medium of every trench or seepage bed. The inspection pipe must

95.25 be located at an end opposite from where the sewage tank

95.26 effluent enters the medium. The inspection pipe must have

95.27 three-eighths inch or larger perforations spaced vertically no

96.1 more than six inches apart. At least two perforations must be

96.2 located in the distribution medium. No perforations may be

96.3 located above the geotextile cover or wrap. The inspection pipe

96.4 must extend to the bottom of the distribution medium, be

96.5 secured, and be capped flush with or above finished grade.

96.6 C. The top and bottom of the distribution medium must
96.7 be level in all directions. Sidewalls must be as vertical as
96.8 practical and not intentionally sloped.

96.9 D. The minimum depth of soil cover, including topsoil
96.10 borrow, over the distribution medium is 12 inches.

96.11 E. Trenches or seepage beds must be backfilled and
96.12 crowned above finished grade to allow for settling. The top six
96.13 inches of the backfill must have the same texture as the
96.14 adjacent soil.

96.15 7080.2220 MOUNDS.

96.16 Subpart 1. Mound system requirements. To qualify as a
96.17 mound system, the system must meet or exceed the following
96.18 requirements:

96.19 A. employ flow values in part 7080.1850;

96.20 B. meet or exceed applicable technical requirements
96.21 of parts 7080.1900 to 7080.2030, 7080.2050, and 7080.2100;

96.22 C. meet or exceed the requirements of part 7080.2150,
96.23 subparts 2 and 3;

96.24 D. employ flow measurement; and

96.25 E. meet the requirements of subparts 2 and 3.

96.26 Subp. 2. Location of mounds.

96.27 A. The upper 12 inches of the original soil
97.1 absorption area must be in soil sizing categories 1 to 13 or 15
97.2 in Table IX in part 7080.2150, subpart 3, item F. The upper 12
97.3 inches of the absorption area must also be above the seasonally
97.4 saturated soil or bedrock.

97.5 B. Setbacks must be according to Table VII in part
97.6 7080.2150, subpart 2, item G. Setbacks must be measured from
97.7 the original soil absorption area.

97.8 C. On slopes of one percent or greater and where the
97.9 original soil absorption area sizing classification is 11, 13,
97.10 or 15 in Table IX in part 7080.2150, subpart 3, item F, mounds
97.11 must not be located where the ground surface contour lines that
97.12 lie directly below the long axis of the rock bed represent a
97.13 swale or draw, unless the contour lines have a radius of
97.14 curvature greater than 100 feet. Mounds must never be located
97.15 in swales or draws where the radius of curvature of the contour
97.16 lines is less than 50 feet.

97.17 Subp. 3. Mound design and construction.

97.18 A. The mound bed absorption area consists of bottom
97.19 area only and must be calculated by multiplying the average
97.20 daily flow by 0.83 square feet per gallon per day.

97.21 B. The mound bed absorption area must be as long and
97.22 narrow as practical. Mound absorption beds must be no wider
97.23 than ten feet. Mound bed absorption widths must be determined
97.24 by relationship between the vertical and horizontal water
97.25 movement based on the following soil conditions:

97.26 (1) the permeability difference between the
97.27 original soil absorption area and slower permeability horizons
98.1 below the original soil absorption area;

98.2 (2) the depth between the original soil
98.3 absorption area and the change in permeability described in
98.4 subitem (1); and

98.5 (3) the land slope.

98.6 C. Clean sand must be used to elevate the mound bed
98.7 absorption area and must consist of sound, durable material that
98.8 conforms to the following requirements:

98.9 Sieve Size Percent Passing

98.11	<u>No. 4</u>	<u>95-100</u>
98.12	<u>No. 8</u>	<u>80-100</u>
98.13	<u>No. 10</u>	<u>0-100</u>
98.14	<u>No. 40</u>	<u>0-100</u>
98.15	<u>No. 60</u>	<u>0-40</u>
98.16	<u>No. 200</u>	<u>0-5</u>

98.18 Clean sand must also contain less than three percent
98.19 deleterious substances and be free of organic impurities.

98.20 D. The original soil absorption area is determined by
98.21 multiplying the original soil absorption length by the original
98.22 soil absorption width. The original soil absorption width is
98.23 calculated by multiplying the mound bed absorption width by the
98.24 absorption ratio. The absorption ratio of the upper 12 inches
98.25 of soil in the proposed absorption area shall be determined
98.26 according to Table IX in part 7080.2150, subpart 3, item F.

98.27 E. The required original soil absorption width for
98.28 mounds constructed on slopes from zero to one percent must be
98.29 centered under the mound bed absorption width. The required
98.30 original soil absorption width for mounds constructed on slopes
98.31 greater than one percent must be measured downslope from the
98.32 upslope edge of the mound bed absorption width and measured in
99.1 the direction of the original land slope and perpendicular to
99.2 the original contours.

99.3 F. The side slopes on the mound must not be steeper
99.4 than three horizontal units to one vertical unit and shall
99.5 extend beyond the required original soil absorption area, if
99.6 necessary.

99.7 G. Distribution of effluent over the mound absorption
99.8 bed must be by level perforated pipe under pressure according to
99.9 parts 7080.2050 and 7080.2100.

99.10 H. The supply pipe from the pump to the original soil
99.11 absorption area must be installed before surface preparation of
99.12 the original soil absorption area. The trench excavated for the
99.13 supply pipe must be carefully backfilled and compacted to
99.14 prevent seepage of effluent.

99.15 I. Vegetation in excess of two inches in length and
99.16 dead organic debris including leaf mats must be removed from the
99.17 original soil absorption area. Trees must be cut nearly flush
99.18 with the ground and stumps must not be removed.

99.19 J. The original soil absorption area must be
99.20 roughened by backhoe teeth, moldboard, or chisel plow. The soil
99.21 must be roughened to a depth of eight inches. Discing is
99.22 allowed if the upper eight inches of soil has a texture of sandy
99.23 loam or coarser. If plowed, furrows must be thrown uphill and
99.24 there must not be a dead furrow in the original soil absorption
99.25 area. A rubber-tired tractor may be used for plowing or
99.26 discing. Rototilling or pulverizing the soil is not allowed.
99.27 The original soil must not be excavated or moved more than one

100.1 foot from its original location during soil surface preparation.
100.2 K. Prior to placement of six inches of clean sand, no
100.3 vehicle may be driven on the original soil absorption area
100.4 before or after the surface preparation is completed. The clean
100.5 sand must immediately be placed on the prepared surface.
100.6 L. The clean sand must be placed by using a
100.7 construction technique that minimizes compaction. If the clean
100.8 sand is driven on for construction, a crawler or track-type
100.9 tractor must be used. At least six inches of sand must be kept
100.10 beneath equipment to minimize compaction of the prepared surface.
100.11 M. A minimum of 12 inches of clean sand must be
100.12 placed in contact with the bottom area of the mound bed
100.13 absorption area and must be uniformly tapered to cover the
100.14 entire original soil absorption area. Other sandy materials may
100.15 be used outside of this area to complete construction of the
100.16 mound.
100.17 N. The top of the clean sand layer upon which the
100.18 mound bed absorption area is placed must be level in all
100.19 directions.
100.20 O. A vertical inspection pipe at least 1-1/2 inches
100.21 in diameter must be installed and secured at the distribution
100.22 medium and sand interface. The inspection pipe must have
100.23 three-eighths inch or larger perforations spaced vertically no
100.24 more than six inches apart. At least two perforations must be
100.25 located in the distribution medium. No perforation may be
100.26 located above the permeable synthetic fabric, if used. The
100.27 inspection pipe must extend to the bottom of the distribution
101.1 medium, be secured, and be capped, flush with or above finished
101.2 grade.
101.3 P. On slopes of one percent or greater, the upslope
101.4 edge of the mound absorption bed must be placed on the contour.
101.5 Q. The mound absorption bed must completely encase
101.6 the top and sides of the distribution pipes to a depth of at
101.7 least one inch above the pipe. The mound absorption bed must
101.8 extend six inches below the pipe. The sidewalls of the mound
101.9 absorption bed must be as vertical as practical and not
101.10 intentionally sloped.
101.11 R. The top of the mound absorption bed must be level
101.12 in all directions.
101.13 S. A minimum of six inches of sandy to loamy soil
101.14 material must be placed on the top of the mound absorption bed
101.15 and sloped upwards toward the center of the mound a minimum of
101.16 ten horizontal units to one vertical unit.
101.17 T. Construction vehicles must not be allowed on the
101.18 distribution media until backfill is placed as described in item
101.19 S.
101.20 U. A minimum of six inches of topsoil borrow must be
101.21 placed over the entire mound.
101.22 7080.2230 AT-GRADE SYSTEMS.
101.23 Subpart 1. **At-grade system.** To qualify as an at-grade
101.24 system, the system must meet or exceed the following
101.25 requirements:
101.26 A. employ flow values in part 7080.1850;
101.27 B. meet or exceed applicable technical requirements

102.1 of parts 7080.1900 to 7080.2030, 7080.2050, and 7080.2100;
102.2 C. meet or exceed the requirements of part 7080.2150,
102.3 subparts 2 and 3;
102.4 D. employ flow measurement; and
102.5 E. meet the requirements of subparts 2 and 3.
102.6 **Subp. 2. Location of at-grade systems.**
102.7 A. The upper 12 inches of the absorption area must be
102.8 original soil with a sizing classification of 2 to 10 or 12 as
102.9 shown in Table IX in part 7080.2150, subpart 3, item F.
102.10 B. At-grade systems must not be installed in areas
102.11 with slopes greater than 25 percent.
102.12 C. Setbacks must be according to part 7080.2150,
102.13 subpart 2, item G. Setbacks must be measured from the
102.14 absorption area.
102.15 **Subp. 3. Design and construction of at-grade systems.**
102.16 A. The at-grade bed absorption width must be
102.17 determined according to part 7080.2220, subpart 3, item B, and
102.18 must not exceed a width of 15 feet. The at-grade bed absorption
102.19 width for slopes of one percent or greater does not include any
102.20 width of the media necessary to support the upslope side of the
102.21 pipe.
102.22 B. The at-grade absorption length must be calculated
102.23 by multiplying the soil sizing factor found in Table IX in part
102.24 7080.2150, subpart 3, item F, for the upper 12 inches of soil by
102.25 the average daily flow and dividing by the absorption bed width.
102.26 C. At-grade systems must employ pressurized
102.27 distribution by meeting or exceeding the applicable requirements
103.1 of parts 7080.2050 and 7080.2100. At-grade systems located on
103.2 slopes of one percent or greater require only one distribution
103.3 pipe located on the upslope edge of the distribution media, with
103.4 the absorption bed width being measured from the distribution
103.5 pipe to the downslope edge of the media. Multiple distribution
103.6 pipes may be used to provide even distribution, if necessary,
103.7 based on site conditions.
103.8 D. The upslope edge of an at-grade absorption bed
103.9 must be installed along the natural contour.
103.10 E. The absorption bed must completely encase the top
103.11 and sides of the distribution pipe to a depth of at least two
103.12 inches above the pipe. There must be at least six inches from
103.13 the bottom of the pipe to the absorption area.
103.14 F. At-grade materials must be placed by using
103.15 construction techniques that minimize compaction.
103.16 G. Six inches of loamy or sandy cover material must
103.17 be installed over the distribution media. Cover must extend at
103.18 least five feet from the ends of the rock bed and be sloped to
103.19 divert surface water. Side slopes must not be steeper than four
103.20 horizontal units to one vertical unit. Six inches of topsoil
103.21 borrow must be placed on the cover material.
103.22 H. Three vertical inspection pipes of at least 1.5
103.23 inches in diameter must be installed and evenly spaced along the
103.24 downslope portion of the absorption bed. The inspection pipes
103.25 must have three-eighths inch or larger perforations spaced
103.26 vertically no more than six inches apart. No perforations may
103.27 exist above the distribution medium. The inspection pipes must

104.1 extend to the absorption bed/soil interface and must be secured
104.2 and capped flush with or above finished grade.

104.3 7080.2240 GREYWATER SYSTEMS.

104.4 Subpart 1. General. To qualify as a greywater system, the
104.5 system must meet or exceed the following requirements:

104.6 A. employ 60 percent of the flow values in part
104.7 7080.1850;

104.8 B. meet or exceed applicable technical requirements
104.9 of parts 7080.1900 to 7080.2030, 7080.2050, and 7080.2100,
104.10 except as modified in this part;

104.11 C. provide flow measurement if a pump is to be
104.12 employed;

104.13 D. meet or exceed the requirements of parts 7080.2210
104.14 to 7080.2230;

104.15 E. meet or exceed applicable requirements of part
104.16 7080.2150, subparts 2 and 3; and

104.17 F. meet the requirements of subparts 2 and 3.

104.18 Subp. 2. Toilet waste. No toilet waste may enter a
104.19 greywater system.

104.20 Subp. 3. Sewage tank. Greywater septic tanks must meet
104.21 the requirements of part 7080.1900, except that the liquid
104.22 capacity of a greywater septic tank serving a dwelling must be
104.23 based on the number of bedrooms existing and anticipated in the
104.24 dwelling served and shall be at least as large as the capacities
104.25 given in Table X.

104.26 TABLE X

104.27 Number of bedrooms Tank liquid capacity
105.1 (gallons)

1		
105.3	<u>3 or less</u>	<u>750</u>
105.4	<u>4 or 5</u>	<u>1,000</u>
105.5	<u>6 or 7</u>	<u>1,250</u>
105.6	<u>8 or 9</u>	<u>1,500</u>

1
105.8 For ten or more bedrooms, the greywater septic tank shall be
105.9 sized as: (1,500 + ((# or bedrooms - 9) x 150)).

105.10 7080.2250 TYPE II SYSTEMS.

105.11 Systems designed according to parts 7080.2260 to 7080.2290
105.12 are considered Type II systems.

105.13 7080.2260 RAPIDLY PERMEABLE SOILS.

105.14 Subpart 1. General. A system must be designed under this
105.15 part if the soil in the proposed absorption area, or within
105.16 three vertical feet of the absorption area, has a system sizing
105.17 factor of 1 to 3 in Table IX in part 7080.2150, subpart 3, item
105.18 F. The system must meet or exceed the following requirements:

105.19 A. employ the design flow values in part 7080.1850;

105.20 B. meet or exceed applicable technical requirements
105.21 of parts 7080.1900 to 7080.2030, 7080.2050, and 7080.2100,
105.22 except as modified in this part;

105.23 C. provide flow measurement if a pump is to be
105.24 employed;

105.25 D. meet or exceed the requirements of parts 7080.2210
105.26 to 7080.2230;

105.27 E. meet or exceed applicable requirements of part

105.28 7080.2150, subparts 2 and 3, except as modified in this part;
105.29 and
105.30 F. meet the requirements of subparts 2 and 3.
106.1 Subp. 2. Contact with soil. The distribution media must
106.2 not be in contact with soils with a sizing classification of 1
106.3 as listed in Table IX in part 7080.2150, subpart 3, item F.
106.4 Subp. 3. Treatment techniques. If the distribution media
106.5 is in contact with soil with a sizing classification of 2 or 3
106.6 in Table IX in part 7080.2150, subpart 3, item F, one of the
106.7 following treatment techniques must be used:
106.8 A. employ pressure distribution as specified in part
106.9 7080.2050, subpart 4; or
106.10 B. divide the total soil treatment and dispersal
106.11 system into at least four parts with no part larger than 25
106.12 percent of the area required by part 7080.2210, subpart 3, item
106.13 A, with the parts constructed for serial distribution.
106.14 7080.2270 FLOODPLAIN AREAS.
106.15 Subpart 1. General. ISTS must be designed under this part
106.16 if the system is proposed to be located in a floodplain. A
106.17 system located in a floodplain must meet or exceed the following
106.18 requirements:
106.19 A. employ flow values in part 7080.1850;
106.20 B. meet or exceed applicable technical requirements
106.21 of parts 7080.1900 to 7080.2030, 7080.2050, and 7080.2100,
106.22 except as modified in this part;
106.23 C. provide flow measurement if a pump is to be
106.24 employed;
106.25 D. meet or exceed the requirements of parts 7080.2210
106.26 to 7080.2230;
106.27 E. meet or exceed applicable requirements of part
107.1 7080.2150, subparts 2 and 3, except as modified in this subpart;
107.2 and
107.3 F. meet the requirements of subparts 2 to 11.
107.4 Subp. 2. State and local requirements. The allowed use of
107.5 systems in floodplains must be according to state and local
107.6 floodplain requirements.
107.7 Subp. 3. Location of system. An ISTS must not be located
107.8 in a floodway and, whenever possible, placement within any part
107.9 of the floodplain should be avoided. If no alternative exists,
107.10 a system may be placed within the flood fringe if the
107.11 requirements in subparts 4 to 9 are met.
107.12 Subp. 4. Openings. There must be no inspection pipe or
107.13 other installed opening from the distribution media to the soil
107.14 surface.
107.15 Subp. 5. Highest ground. An ISTS must be located on the
107.16 highest feasible area of the lot and must have location
107.17 preference over all other improvements except the water supply
107.18 well. If the ten-year flood data are available, the bottom of
107.19 the distribution media must be at least as high as the elevation
107.20 of the ten-year flood.
107.21 Subp. 6. Pump. If a pump is used to distribute effluent
107.22 to the soil treatment and dispersal system, provisions shall be
107.23 made to prevent the pump from operating when inundated with
107.24 floodwaters.

107.25 Subp. 7. Raising elevation. When it is necessary to raise
107.26 the elevation of the soil treatment system to meet the vertical
107.27 separation distance requirements, a mound system as specified in
108.1 part 7080.2220 may be used with the following additional
108.2 requirements:

108.3 A. the elevation of the bottom of the mound bed
108.4 absorption area must be at least one-half foot above the
108.5 ten-year flood elevation if ten-year flood data are available;

108.6 B. inspection pipes must not be installed unless the
108.7 top of the mound is above the 100-year flood elevation; and

108.8 C. the placement of clean sand and other fill must be
108.9 done according to any community-adopted floodplain management
108.10 ordinance.

108.11 Subp. 8. Inundation of top. When the top of a sewage tank
108.12 is inundated, the dwelling must cease discharging sewage into it.

108.13 Subp. 9. Backflow. Backflow prevention of liquid into the
108.14 building when the system is inundated must be provided. If a
108.15 holding tank is used, the system must be designed to permit
108.16 rapid diversion of sewage into the holding tank when the system
108.17 is inundated.

108.18 Subp. 10. Holding tank. If a holding tank is used to
108.19 serve a dwelling, the holding tank's liquid capacity must equal
108.20 100 gallons times the number of bedrooms times the number of
108.21 days between the ten-year stage on the rising limb of the
108.22 100-year flood hydrograph and the ten-year stage on the falling
108.23 limb of the hydrograph, or 1,000 gallons, whichever is greater.
108.24 The holding tank must be accessible for removal of tank contents
108.25 under flooded conditions.

108.26 Subp. 11. Water level above top. Whenever the water level
108.27 has risen above the top of a sewage tank, the tank must be
109.1 pumped to remove all solids and liquids after the flood has
109.2 receded and before use of the system is resumed.

109.3 7080.2280 PRIVIES.

109.4 A. To qualify as a privy, the system must:

109.5 (1) meet or exceed the requirements of part
109.6 7080.2150, subpart 2;

109.7 (2) have soil beneath the bottom of the pit that
109.8 meets or exceeds the requirements of part 7080.2150, subpart 3,
109.9 item D, or employ a watertight tank meeting applicable
109.10 requirements of parts 7080.1900 to 7080.2030; and

109.11 (3) meet the requirements of items B to E.

109.12 B. Pits or vaults must have sufficient capacity for
109.13 the dwelling they serve, but must have at least 25 cubic feet of
109.14 capacity.

109.15 C. The sides of the pit must be curbed to prevent
109.16 cave-in.

109.17 D. The privy must be easily maintained and insect
109.18 proof. The door and seat must be self-closing. All exterior
109.19 openings, including vent openings, shall be screened.

109.20 E. Privies must be adequately vented.

109.21 7080.2290 HOLDING TANKS.

109.22 A. To qualify as a holding tank, the system must:

109.23 (1) meet or exceed applicable requirements of

109.24 parts 7080.1900 to 7080.2030;

109.25 (2) meet or exceed the applicable requirements of
109.26 part 7080.2150, subpart 2;
110.1 (3) meet or exceed the requirements of part
110.2 7080.2150, subpart 3, item B; and
110.3 (4) meet the requirements of items B to F.
110.4 B. All tanks used as holding tanks must be tested for
110.5 watertightness as specified in part 7080.2010, subpart 3.
110.6 C. A cleanout pipe of at least six inches in diameter
110.7 must extend to the ground surface and be provided with seals to
110.8 prevent odor emissions and exclude insects and vermin. A
110.9 maintenance hole of at least 20 inches in least dimension must
110.10 extend through the cover to a point within 12 inches, but no
110.11 closer than six inches, below finished grade. If the
110.12 maintenance hole is covered with less than six inches of soil,
110.13 the cover must be secured according to part 7080.1970.
110.14 D. For a dwelling, the minimum size is 1,000 gallons
110.15 or 400 gallons times the number of bedrooms, whichever is
110.16 greater. For other establishments, the minimum capacity shall
110.17 be at least five times the average daily flow. Tank sizing for
110.18 floodplain areas must be calculated according to part 7080.2270,
110.19 subpart 10.
110.20 E. Holding tanks must be located in an area readily
110.21 accessible to the pump truck under all weather conditions and
110.22 where accidental spillage during pumping will not create a
110.23 nuisance and must meet the setback requirements as specified in
110.24 Table VII in part 7080.2150, subpart 2, item G.
110.25 F. Holding tanks must have an alarm device to
110.26 minimize the chance of accidental sewage overflows unless
110.27 regularly scheduled pumping is used. An alarm device shall
111.1 identify when the holding tank is at 75 percent capacity.
111.2 7080.2300 TYPE III SYSTEMS.
111.3 A system designed according to this part is considered a
111.4 Type III system. The system must:
111.5 A. employ design flow values in part 7080.1850;
111.6 B. meet or exceed applicable technical requirements
111.7 of part 7080.2050, subpart 4, item A;
111.8 C. provide flow measurement;
111.9 D. meet or exceed the requirements of part 7080.2150,
111.10 subpart 2; and
111.11 E. meet or exceed the requirements of part 7080.2150,
111.12 subpart 3, items A, B, D, and K.
111.13 If the site cannot accommodate a soil treatment and
111.14 dispersal system sized in accordance with Table IX in part
111.15 7080.2150, subpart 3, item F, a smaller soil treatment and
111.16 dispersal system may be constructed that employs flow
111.17 restriction devices that do not allow loadings in excess of
111.18 those in Table IX of part 7080.2150, subpart 3, item F.
111.19 7080.2350 TYPE IV SYSTEMS.
111.20 Subpart 1. General. A system designed according to this
111.21 part is considered a Type IV system. The system must:
111.22 A. employ design flow values in part 7080.1850;
111.23 B. meet or exceed applicable technical requirements
111.24 of parts 7080.1900 to 7080.2030, 7080.2050, and 7080.2100;
111.25 C. meet or exceed the requirements of part 7080.2150,

111.26 subpart 2;
 112.1 D. meet or exceed the requirements of part 7080.2150,
 112.2 subpart 3, item A; and
 112.3 E. meet or exceed the requirements of Tables XI and
 112.4 XII in subparts 2 and 3.
 112.5 Subp. 2. **Table XI.**

112.6 **TABLE XI**
 112.7 **TREATMENT COMPONENT PERFORMANCE LEVELS AND**
 112.8 **METHOD OF DISTRIBUTION BY SOIL GROUP¹**

112.9 Vertical 112.10 separation 112.11 (inches)	112.9 Soil group		
	112.11 <u>1,2</u>	112.11 <u>3-6</u>	112.11 <u>7,8</u>
112.12 -----			
112.13 <u>12 \AF \a18</u>	<u>Treatment</u>	<u>Treatment</u>	<u>Treatment</u>
112.14	<u>Level A</u>	<u>Level B</u>	<u>Level B</u>
112.15	<u>Pressure</u>	<u>Pressure</u>	<u>Pressure</u>
112.16	<u>Distribution</u>	<u>Distribution</u>	<u>Distribution</u>
112.17	<u>Timed Dosing</u>	<u>Timed Dosing</u>	<u>Timed Dosing</u>
1			
112.19 <u>\Ac\ a 18 \AF \a24</u>	<u>Treatment</u>	<u>Treatment</u>	<u>Treatment</u>
112.20	<u>Level B</u>	<u>Level B</u>	<u>Level B</u>
112.21	<u>Pressure</u>	<u>Pressure</u>	<u>Pressure</u>
112.22	<u>Distribution</u>	<u>Distribution</u>	<u>Distribution</u>
112.23	<u>Timed Dosing</u>	<u>Timed Dosing</u>	
1			
112.25 <u>\Ac\ a 24 \AF \a36</u>	<u>Treatment</u>	<u>Treatment</u>	<u>Treatment</u>
112.26	<u>Level B</u>	<u>Level C</u>	<u>Level C</u>
112.27	<u>Pressure</u>	<u>Pressure</u>	<u>Pressure</u>
112.28	<u>Distribution</u>	<u>Distribution</u>	<u>Distribution</u>
112.29	<u>Timed Dosing</u>		
1			

112.31 ¹ The treatment component performance levels correspond with
 112.32 those established for treatment components under the product testing
 112.33 requirements in Table III in part 7080.1620.

112.34 Subp. 3. **Table XII.**

112.35 **TABLE XII**
 112.36 **SOIL GROUPING DESCRIPTIONS AND MAXIMUM HYDRAULIC**
 112.37 **LOADING RATE TO THE ABSORPTION AREA**

112.38 Soil 112.39 group	112.38 Soil 112.39 texture	112.38 Soil 112.39 structure (type)	112.38 Soil 112.39 structure (grade)	112.38 Minimum 112.39 soil sizing 112.40 factor (ft ² / 112.41 gal./day)	
112.42	112.42 <u>1</u>	112.42 <u>Coarse sands,</u>	112.42 <u>Single grain</u>	112.42 <u>Structureless</u>	112.42 <u>0.63</u>
112.43		112.43 <u>medium sands,</u>			
112.44		112.44 <u>loamy coarse</u>			
112.45		112.45 <u>sands, loamy</u>			
112.46		112.46 <u>medium sands</u>			
1					
112.47	112.47 <u>2</u>	112.47 <u>Fine sands,</u>	112.47 <u>Single grain</u>	112.47 <u>Structureless</u>	112.47 <u>1.0</u>
112.48		112.48 <u>very fine</u>			
112.49		112.49 <u>sands, loamy</u>			
112.50		112.50 <u>fine sands,</u>			
112.51		112.51 <u>loamy very</u>			

113.13		<u>fine sands</u>			
1					
113.15	<u>3</u>	<u>Coarse sandy</u>	<u>Massive</u>	<u>Structureless</u>	<u>1.67</u>
113.16		<u>loam, sandy</u>			
113.17		<u>loam</u>	<u>Platy</u>	<u>Weak,</u>	
113.18				<u>moderate, strong</u>	<u>2.0</u>
1					
113.20			<u>Prismatic,</u>	<u>Weak</u>	<u>1.42</u>
113.21			<u>blocky,</u>		
113.22			<u>granular</u>	<u>Moderate, strong</u>	<u>1.0</u>
1					
113.24	<u>4</u>	<u>Fine sandy</u>	<u>Massive</u>	<u>Structureless</u>	<u>2.0</u>
113.25		<u>loam, very</u>			
113.26		<u>fine sandy</u>	<u>Platy</u>	<u>Weak,</u>	
113.27		<u>loam</u>		<u>moderate, strong</u>	<u>---</u>
1					
113.29			<u>Prismatic,</u>	<u>Weak</u>	<u>1.67</u>
113.30			<u>blocky,</u>		
113.31			<u>granular</u>	<u>Moderate, strong</u>	<u>1.25</u>
1					
113.33	<u>5</u>	<u>Loams</u>	<u>Massive</u>	<u>Structureless</u>	<u>2.0</u>
1					
113.35			<u>Platy</u>	<u>Weak,</u>	
113.36				<u>moderate, strong</u>	<u>---</u>
1					
113.38			<u>Prismatic,</u>	<u>Weak</u>	<u>1.67</u>
113.39			<u>blocky,</u>		
113.40			<u>granular</u>	<u>Moderate, strong</u>	<u>1.25</u>
1					
113.42	<u>6</u>	<u>Silt loams</u>	<u>Massive</u>	<u>Structureless</u>	<u>5.0</u>
1					
113.44			<u>Platy</u>	<u>Weak,</u>	
113.45				<u>moderate, strong</u>	<u>---</u>
1					
113.47			<u>Prismatic,</u>	<u>Weak</u>	<u>1.67</u>
113.48			<u>blocky,</u>		
113.49			<u>granular</u>	<u>Moderate, strong</u>	<u>1.25</u>
1					
113.51	<u>7</u>	<u>Sandy clay</u>	<u>Massive</u>	<u>Structureless</u>	<u>---</u>
113.52		<u>loams, clay</u>			
113.53		<u>loams, silty</u>	<u>Platy</u>	<u>Weak,</u>	
113.54		<u>clay loams</u>		<u>moderate, strong</u>	<u>---</u>
1					
114.2			<u>Prismatic,</u>	<u>Weak</u>	<u>3.33</u>
114.3			<u>blocky,</u>		
114.4			<u>granular</u>	<u>Moderate, strong</u>	<u>1.67</u>
1					
114.6	<u>8</u>	<u>Sandy clay,</u>	<u>Massive</u>	<u>Structureless</u>	<u>---</u>
114.7		<u>clay,</u>			
114.8		<u>silty clays</u>	<u>Platy</u>	<u>Weak,</u>	
114.9				<u>moderate, strong</u>	<u>---</u>
1					
114.11			<u>Prismatic,</u>	<u>Weak</u>	<u>---</u>
114.12			<u>blocky,</u>		

114.13 granular Moderate, strong 3.33
1
114.15 7080.2400 TYPE V SYSTEMS.
114.16 A system designed according to this part is considered a
114.17 Type V system. The system must:
114.18 A. employ design flow values in part 7080.1850;
114.19 B. meet or exceed the requirements of part 7080.2150,
114.20 subpart 2; and
114.21 C. be designed with a vertical separation that
114.22 ensures adequate sewage treatment and dispersal. Design factors
114.23 to consider include, but are not limited to, effluent quality,
114.24 loading rates, loading methods, and soil conditions.
114.25 ISTS must not contaminate underground waters or zones of
114.26 seasonal saturation with viable fecal organisms.
114.27 7080.2430 REPORTING.
114.28 Phase II design reports must include drawings, design
114.29 flows, system component sizing and calculations, hydraulic and
114.30 organic loading rates, setbacks, construction considerations,
114.31 and management plans as described in part 7082.0600, subpart 1,
114.32 as published in the State Register, volume ..., page ..., and as
114.33 subsequently adopted, and a certified statement.
115.1 7080.2450 MAINTENANCE.
115.2 Subpart 1. **General.** All ISTS must be operated under the
115.3 regulatory requirements of part 7082.0600, as published in the
115.4 State Register, volume ..., page ..., and as subsequently
115.5 adopted. ISTS and all components must be maintained in
115.6 compliance with this chapter and manufacturer requirements.
115.7 Subparts 2, item A, and 6 are intended to apply to ISTS and
115.8 systems that do not qualify as an ISTS, but receives sewage such
115.9 as cesspools, drywells, leaching pits, or other pits.
115.10 Subp. 2. **Frequency of assessment.** The owner of an ISTS or
115.11 the owner's agent shall regularly, but in no case less
115.12 frequently than every three years:
115.13 A. assess whether sewage tanks leak below the
115.14 designed operating depth and whether sewage tank tops, riser
115.15 joints, and riser connections leak through visual evidence of
115.16 major defects; and
115.17 B. measure or remove the accumulations of scum,
115.18 grease, and other floating materials at the top of each septic
115.19 tank and compartment, along with the sludge, which consists of
115.20 the solids denser than water.
115.21 Subp. 3. **Removal of material.**
115.22 A. All solids and liquids must be removed by pumping
115.23 from all tanks or compartments in which the top of the sludge
115.24 layer is less than 12 inches from the bottom of the outlet
115.25 baffle or transfer hole or whenever the bottom of the scum layer
115.26 is less than three inches above the bottom of the outlet baffle
115.27 or transfer hole.
116.1 B. Removal of accumulated sludge, scum, and liquids
116.2 from septic tanks and dosing chambers must be through the
116.3 maintenance hole, except for holding tanks that can be pumped
116.4 through the cleanout pipe.
116.5 C. If no maintenance hole exists on a sewage tank
116.6 that is perceived to be watertight below the designed operating

116.7 depth, the owner or the owner's agent shall install one or more
116.8 maintenance holes in sewage tanks according to part 7080.1970 to
116.9 allow for maintenance to take place through the maintenance
116.10 hole. The removal of solids from any location other than the
116.11 maintenance hole is not a compliant method of solids removal
116.12 from a sewage tank, and this method does not fulfill the solids
116.13 removal requirement of this part or a management plan.

116.14 D. After removal of solids and liquids, the system
116.15 shall be brought into compliance with part 7080.1970, items B
116.16 and C. Covers secured by screws shall be refastened in all
116.17 screw openings.

116.18 E. Dosing chambers must be maintained according to
116.19 this part. Sludge must be removed if within one inch of the
116.20 pump intake.

116.21 Subp. 4. Toilet waste treatment devices and privies.

116.22 A. For primitive dwellings using toilet waste
116.23 treatment devices in low dwelling density areas, septage
116.24 disposal from these devices by the owner must be in accordance
116.25 with local ordinances. If no ordinance exists, the septage must
116.26 not be discharged to surface waters, drainageways, steeply
116.27 sloping areas, or wet areas in a manner or volume that is
117.1 harmful to the environment or public health or that creates a
117.2 nuisance. The material must be buried or covered with soil.
117.3 For site conditions not met in this subpart, the solids disposal
117.4 from toilet waste treatment devices shall be according to
117.5 subpart 6 by a licensed maintenance business.

117.6 B. When the privy is filled to one-half of its
117.7 capacity, the solids must be removed. Abandoned pits must have
117.8 the sewage solids and contaminated soil removed and must be
117.9 filled with clean earth and slightly mounded to allow for
117.10 settling. Removed solids shall be disposed of according to
117.11 subpart 6.

117.12 Subp. 5. Additives. ISTS additives, which are products
117.13 added to the sewage or to the system with the intent to lower
117.14 the accumulated solids in sewage, must not be used as a means to
117.15 reduce the frequency of proper maintenance and removal of sewage
117.16 solids from the sewage tanks as specified in this part. The use
117.17 of additives does not fulfill the solids removal requirement of
117.18 this part or a management plan. ISTS additives that contain
117.19 hazardous materials must not be used in an ISTS.

117.20 Subp. 6. Septage disposal. Septage or any waste mixed
117.21 with septage must be disposed of in accordance with state,
117.22 federal, or local requirements for septage and other wastes. If
117.23 septage is disposed of into a municipal sewage treatment
117.24 facility, a written agreement must be provided between the
117.25 accepting facility and the maintenance business.

117.26 Subp. 7. Use of soil treatment site. Activities on the
117.27 current soil treatment and dispersal system or the reserve soil
118.1 treatment and dispersal area as specified in part 7082.0100,
118.2 subpart 3, item B, subitem (5), as published in the State
118.3 Register, volume ..., page ..., and as subsequently adopted,
118.4 that may impair the current or future treatment abilities or
118.5 hydraulic performance of the soil treatment and dispersal system
118.6 are prohibited. This includes, but is not limited to, covering

118.7 all or part of the soil treatment system with an impermeable
118.8 surface as determined by the local unit of government.
118.9 Subp. 8. **System remediation.** Any maintenance activity
118.10 used to increase the acceptance of effluent to a soil treatment
118.11 system must:
118.12 A. not be used on a system failing to protect
118.13 groundwater unless the activities meet the requirements of parts
118.14 7080.2350 and 7080.2400;
118.15 B. not cause preferential flow from the soil
118.16 treatment and dispersal system bottom to the seasonally
118.17 saturated soil or bedrock; and
118.18 C. be conducted by an appropriately certified
118.19 qualified employee or an appropriately licensed business as
118.20 specified in chapter 7083, as published in the State Register,
118.21 volume ..., page ..., and as subsequently adopted.
118.22 Any substance added with the intent to increase the
118.23 infiltration rate of the soil treatment and dispersal system
118.24 must not contain hazardous substances.
118.25 7080.2500 SYSTEM ABANDONMENT.
118.26 Subpart 1. **Tank abandonment.** All systems with no future
118.27 intent for use must be abandoned according to this part. Tank
119.1 abandonment procedures for sewage tanks, cesspools, leaching
119.2 pits, drywells, seepage pits, vault privies, pit privies, and
119.3 distribution devices must meet the requirements in items A to C.
119.4 A. All solids and liquids must be removed and
119.5 disposed of according to part 7080.2450, subpart 6, by a
119.6 licensed maintenance business.
119.7 B. All electrical devices and devices containing
119.8 mercury must be removed and disposed of according to applicable
119.9 regulations.
119.10 C. Abandoned tanks or any other underground cavities
119.11 must be removed or remain in place and crushed with the
119.12 remaining cavity filled with soil or rock material.
119.13 Subp. 2. **Future discharge.** Access for future discharge to
119.14 the system must be permanently denied.
119.15 Subp. 3. **Removal of system.** If soil treatment and
119.16 dispersal systems are removed, contaminated materials shall be
119.17 properly handled to prevent human contact. Contaminated
119.18 materials include distribution media, soil or sand within three
119.19 feet of the system bottom, distribution pipes, tanks, and
119.20 contaminated soil around leaky tanks. Contaminated material
119.21 also includes any soil that received sewage from a surface
119.22 failure. Contaminated materials must be disposed of according
119.23 to items A to D.
119.24 A. Contaminated materials disposed of off-site must
119.25 be disposed of according to part 7080.2450, subpart 6.
119.26 B. If contaminated material is to be spread or used
119.27 on-site within one year of contact with sewage, the material
120.1 must be placed in an area meeting the soil requirements
120.2 described in part 7080.2150, subpart 3, item D, and the material
120.3 must be covered with a minimum of six inches of uncontaminated
120.4 soil and protected from erosion. After one year following
120.5 contact with sewage, the material may be spread in any location,
120.6 covered with a minimum of six inches of uncontaminated soil, and

120.7 protected from erosion. After one year following contact with
120.8 sewage, the material may be used to fill in the abandoned
120.9 in-place sewage tanks.

120.10 C. Contaminated pipe, geotextile fabric, or other
120.11 material must be dried and disposed of in a mixed municipal
120.12 solid waste landfill.

120.13 D. The person or business abandoning the system must
120.14 complete and sign a record of abandonment that states the system
120.15 was abandoned according to this part. The record must be sent
120.16 to the local unit of government within 90 days of abandonment.
120.17 7080.2550 SEEPAGE PITS, DRYWELLS, AND LEACHING PITS.

120.18 Subpart 1. Intended use of this part. This part must be
120.19 used when conducting existing system compliance inspections.
120.20 This part defines what constitutes seepage pit, drywell, or
120.21 leaching pit systems. Seepage pit, drywell, or leaching pit
120.22 systems are not considered compliant systems as determined in
120.23 part 7080.1500, subpart 4, item B, but these existing systems
120.24 may be allowed continued use under Minnesota Statutes, section
120.25 115.55, subdivision 5a, paragraph (f), by local units of
120.26 government that have adopted alternative local standards for
120.27 these systems under part 7082.0040, as published in the State
121.1 Register, volume ..., page ..., and as subsequently adopted.

121.2 Subp. 2. Requirements for seepage pits, drywells, and
121.3 leaching pits. A seepage pit, drywell, or leaching pit is a
121.4 system that:

121.5 A. has a sewage tank that does not obviously leak
121.6 below the designed liquid capacity preceding the pit;

121.7 B. has a pit that is not located in a geologic
121.8 formation that is used as a source of drinking water;

121.9 C. has at least three feet of vertical separation
121.10 from the bottom of the pit to the seasonally saturated soil or
121.11 bedrock;

121.12 D. has an absorption area that has been determined by
121.13 multiplying the average daily flow under Table IV in part
121.14 7080.1860 by the soil sizing factor under Table IX in part
121.15 7080.2150, subpart 3, item F, based on the weighted average of
121.16 each vertical stratum penetrated by the seepage pit, drywell, or
121.17 leaching pit;

121.18 E. has a pit that has not been placed in a soil
121.19 stratum with a sizing classification of 1 in Table IX in part
121.20 7080.2150, subpart 3, item F;

121.21 F. has a pit with a minimum inside diameter of five
121.22 feet; and

121.23 G. meets all setback requirements.

121.24 **REPEALER.** Minnesota Rules, parts 7080.0010, 7080.0020,
121.25 7080.0025, 7080.0030, 7080.0060, 7080.0065, 7080.0110,
121.26 7080.0115, 7080.0120, 7080.0125, 7080.0130, 7080.0150,
121.27 7080.0160, 7080.0170, 7080.0172, 7080.0175, 7080.0176,
122.1 7080.0178, 7080.0179, 7080.0305, 7080.0310, 7080.0315,
122.2 7080.0600, 7080.0700, 7080.0705, 7080.0710, 7080.0715,
122.3 7080.0720, 7080.0800, 7080.0805, 7080.0810, 7080.0815,
122.4 7080.0820, 7080.0830, 7080.0850, 7080.0855, 7080.0860,
122.5 7080.0900, 7080.0920, and 7080.0950, are repealed.