

1.1 Pollution Control Agency  
1.2 Proposed Permanent Rules Relating to Subsurface Sewage Treatment  
1.3 Systems  
1.4 CHAPTER 7081  
1.5 POLLUTION CONTROL AGENCY  
1.6 MIDSIZED SUBSURFACE SEWAGE TREATMENT SYSTEMS  
1.7 7081.0010 PURPOSE AND INTENT.  
1.8 The proper location, design, installation, use, and  
1.9 maintenance of mid-sized subsurface sewage treatment systems  
1.10 (MSTS) protects the public health, safety, and general welfare  
1.11 by the discharge of adequately treated sewage to the  
1.12 groundwater. In accordance with the authority granted in  
1.13 Minnesota Statutes, chapters 103F, 103G, 115, and 116, the  
1.14 Pollution Control Agency, hereinafter referred to as the agency,  
1.15 provides minimum environmental protection standards for MSTS as  
1.16 defined in this chapter.  
1.17 These standards shall be adopted countywide and  
1.18 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 does not regulate subsurface treatment systems  
1.23 that do not receive sewage as defined in this chapter. If  
1.24 systems regulated under this chapter receive both sewage and  
1.25 nonsewage, the requirements of this chapter apply, plus any  
1.26 additional requirements governing the nonsewage portion of the  
1.27 wastewater.  
2.1 This chapter does not contain design standards for sewage  
2.2 treatment systems that discharge to the ground surface or  
2.3 surface waters. Those systems require a National Pollution  
2.4 Discharge Elimination Systems permit.  
2.5 Primarily, this chapter provides measurable performance  
2.6 outcomes for MSTS, but this chapter also includes limited  
2.7 design, construction, inspection, and operational standards that  
2.8 are believed to reasonably protect surface water, groundwater,  
2.9 public health, safety, general welfare, and the environment.  
2.10 In conjunction with these standards, the agency encourages  
2.11 the use of advanced treatment methods and waste reduction to  
2.12 further reduce the discharge of contaminants.  
2.13 Other chapters that have a bearing on MSTS are standards  
2.14 for individual subsurface sewage treatment systems in chapter  
2.15 7080, administrative requirements for subsurface sewage  
2.16 treatment systems local permit and inspection programs in  
2.17 chapter 7082, as published in the State Register, volume ...,  
2.18 page ..., and as subsequently adopted, and certification and  
2.19 licensing requirements for those who design, install, inspect,  
2.20 maintain, or operate subsurface sewage treatment systems in  
2.21 chapter 7083, as published in the State Register, volume ...,  
2.22 page ....., and as subsequently adopted.  
2.23 7081.0020 DEFINITIONS.  
2.24 Subpart 1. **Certain terms.** In addition to the definitions  
2.25 in chapters 7080, 7082, and 7083, as published in the State  
2.26 Register, volume ..., page ..., and as subsequently adopted, and

2.27 Minnesota Statutes, section 115.55, which are incorporated by  
3.1 reference, the terms used in this chapter have the meanings  
3.2 given them. For the purposes of this chapter, if a term used in  
3.3 this chapter is defined in chapter 7080, 7082, or 7083, as  
3.4 published in the State Register, volume ..., page ..., and as  
3.5 subsequently adopted, it shall apply to MSTs and other SSTs if  
3.6 referenced in later chapters. Certain terms or words used in  
3.7 this chapter must be interpreted as follows: the words "shall"  
3.8 and "must" are mandatory and the words "should" and "may" are  
3.9 permissive. All distances specified in this chapter are  
3.10 horizontal distances unless otherwise specified.

3.11 **Subp. 2. Capillary fringe.** "Capillary fringe" means the  
3.12 soil layer directly above a saturated layer in which the pore  
3.13 spaces are nearly filled with water as water is drawn upward due  
3.14 to adhesive and cohesive forces.

3.15 **Subp. 3. Groundwater mound.** "Groundwater mound" means the  
3.16 rise in height of the seasonally saturated soil or regional  
3.17 water table caused by the addition of sewage effluent from a  
3.18 subsurface sewage treatment into the soil.

3.19 **Subp. 4. Midsized subsurface sewage treatment systems or**  
3.20 **MSTs.** "Midsized subsurface sewage treatment systems" or "MSTs"  
3.21 means a sewage treatment and dispersal system, or part thereof,  
3.22 that employs sewage tanks or other treatment devices with final  
3.23 discharge into the soil below the natural soil elevation or  
3.24 elevated final grade. MSTs are systems designed to receive  
3.25 sewage from:

3.26 A. four or more dwellings with an average daily  
3.27 sewage flow from all dwellings not to exceed 10,000 gallons per  
4.1 day;

4.2 B. other establishments with an average daily sewage  
4.3 flow of greater than 2,500 gallons per day and less than or  
4.4 equal to 10,000 gallons per day; or

4.5 C. a combination of other establishments and  
4.6 dwellings with an average daily sewage flow of greater than  
4.7 2,500 gallons per day and less than or equal to 10,000 gallons  
4.8 per day.

4.9 Average daily sewage flows must be determined by part  
4.10 7081.0110. MSTs also includes on-lot septic tanks discharging  
4.11 to a sewage collection system and holding tanks and privies that  
4.12 serve these same facilities. MSTs does not include those  
4.13 components defined as plumbing under chapter 4715 or sewage  
4.14 collection systems.

4.15 **Subp. 5. NPDES permit.** "NPDES permit" means a national  
4.16 pollutant discharge elimination system permit issued by the  
4.17 agency.

4.18 **Subp. 6. Other establishment.** "Other establishment" means  
4.19 any public or private structure other than a dwelling that  
4.20 generates sewage that discharges to an MSTs.

4.21 **Subp. 7. Sewage collection system.** "Sewage collection  
4.22 system" means the piping, lift stations, and other means,  
4.23 devices, or components that receives and conveys sewage to the  
4.24 inlet of a common sewage tank. Sewage collection system does  
4.25 not include the piping, or other means, devices, or components  
4.26 that are regulated under chapter 4715.

4.27 Subp. 8. SDS permit. "SDS permit" means a state disposal  
5.1 system permit issued by the agency.  
5.2 Subp. 9. Well capture zone. "Well capture zone" means the  
5.3 surface and subsurface area that supplies water to a water  
5.4 supply well.  
5.5 7081.0040 STATE REGULATION.  
5.6 Subpart 1. Agency regulation.  
5.7 A. All MSTs must be designed and operated according  
5.8 to this chapter, except as modified through an ordinance in  
5.9 compliance with chapter 7082, as published in the State  
5.10 Register, volume ..., page ..., and as subsequently adopted, and  
5.11 Minnesota Statutes, section 115.55. All MSTs must be designed,  
5.12 installed, inspected, pumped, and operated by licensed  
5.13 businesses meeting the qualifications in chapter 7083, as  
5.14 published in the State Register, volume ..., page ..., and as  
5.15 subsequently adopted. All MSTs must conform to applicable state  
5.16 statutes and rules.  
5.17 B. When a single SSTS, or group of SSTS under single  
5.18 ownership within one-half mile of each other, are designed to  
5.19 treat an average daily flow greater than 10,000 gallons per day,  
5.20 the owner or owners shall make application for and obtain an SDS  
5.21 permit from the agency in accordance with chapter 7001.  
5.22 C. An SDS permit may be required for any subsurface  
5.23 sewage treatment system or group of subsurface sewage treatment  
5.24 systems that the commissioner has determined may cause adverse  
5.25 public health or environmental impacts if not regulated under a  
5.26 state permit. Conditions for these discretionary permits  
5.27 include, but are not limited to, systems in environmentally  
6.1 sensitive areas, unsubstantiated or unexpected flow volumes, and  
6.2 systems requiring exceptional operation, monitoring, and  
6.3 management.  
6.4 D. Flow amounts to calculate whether an SDS permit is  
6.5 required must be determined according to part 7081.0110. The  
6.6 highest calculated value of the various methods in Table I under  
6.7 part 7081.0130, subpart 1, must be used to make this  
6.8 determination, with no reduction allowed.  
6.9 Subp. 2. Other state regulations.  
6.10 A. MSTs must conform to all applicable state statutes  
6.11 and rules.  
6.12 B. MSTs serving establishments licensed or regulated  
6.13 by the state of Minnesota, or MSTs owned by the state of  
6.14 Minnesota, must conform to this chapter.  
6.15 7081.0050 FEDERAL REGULATION.  
6.16 A. All subsurface sewage treatment systems serving  
6.17 two-family dwellings or larger and systems serving other sewage  
6.18 generating establishments that serve more than 20 people are  
6.19 regulated by the United States Environmental Protection Agency  
6.20 as Class V injection wells under Code of Federal Regulations,  
6.21 title 40, parts 144 and 146. Systems designed under this  
6.22 chapter may require additional design requirements under Code of  
6.23 Federal Regulations, title 40, parts 144 and 146. In addition,  
6.24 single-family dwellings systems that receive nonsewage  
6.25 wastewater are regulated by these federal regulations. All  
6.26 systems that receive hazardous wastes are regulated by the

6.27 United States Environmental Protection Agency as Class IV  
7.1 injection wells. Disposal of hazardous waste must be according  
7.2 to state and federal regulations.  
7.3 B. The owner or owner's agent of a system classified  
7.4 as a Class V injection well shall submit to the commissioner of  
7.5 the Pollution Control Agency and the United States Environmental  
7.6 Protection Agency the inventory information specified in Code of  
7.7 Federal Regulations, title 40, section 144.26.  
7.8 C. All septage generated from MSTs must be treated  
7.9 and dispersed according to applicable standards for septage in  
7.10 Code of Federal Regulations, title 40, part 503, and any local  
7.11 requirements.  
7.12 7081.0060 LOCAL REGULATION.  
7.13 MSTs must be regulated under local ordinances in compliance  
7.14 with this chapter as described in Minnesota Statutes, section  
7.15 115.55. Local administrative requirements for design review,  
7.16 construction permit issuance, construction inspections, variance  
7.17 procedures, enforcement, operational requirements, and other  
7.18 administrative processes must be according to chapter 7082, as  
7.19 published in the State Register, volume ..., page ..., and as  
7.20 subsequently adopted.  
7.21 7081.0070 VARIANCE PROCEDURES.  
7.22 Parts 7081.0080 to 7081.0310 are provided to be  
7.23 incorporated into a local ordinance according to chapter 7082,  
7.24 as published in the State Register, volume ..., page ..., and as  
7.25 subsequently adopted, and Minnesota Statutes, section 115.55.  
7.26 Variance requests to these design standards as adopted into  
8.1 local ordinances made by an owner or owner's agent must be  
8.2 issued or denied by the local unit of government. Variances may  
8.3 not be issued by the local unit of government for the minimal  
8.4 environmental protection outcomes in part 7081.0080, subparts 2  
8.5 to 5. Variances may be granted to part 7081.0080, subpart 4,  
8.6 item D, subitem (1), for replacement MSTs serving existing  
8.7 dwelling or other establishments.  
8.8 7081.0080 PERFORMANCE AND COMPLIANCE CRITERIA.  
8.9 Subpart 1. **General.** New construction, replacement, or  
8.10 existing MSTs designed under this chapter or existing MSTs  
8.11 constructed before the effective date of this chapter are  
8.12 considered conforming if they meet the requirements of this part.  
8.13 Subp. 2. **Treatment required.** All sewage discharged from a  
8.14 dwelling or other establishment not served by a system issued a  
8.15 permit containing effluent and discharge limits or specific  
8.16 monitoring requirements by the agency must be treated according  
8.17 to local ordinances that comply with this chapter, chapter 7082,  
8.18 as published in the State Register, volume ..., page ..., and as  
8.19 subsequently adopted, and Minnesota Statutes, section 115.55.  
8.20 Subp. 3. **Public health and safety; imminent threat.**  
8.21 A. To be in compliance, all MSTs must:  
8.22 (1) have treatment processes and devices that do  
8.23 not allow sewage or sewage effluent contact with humans,  
8.24 insects, or vermin;  
8.25 (2) disperse sewage effluent into soil or sand  
8.26 below final grade, with the effluent remaining below final  
8.27 grade;

9.1 (3) not discharge to drainage tile, the ground  
9.2 surface, or surface water or back up sewage into dwellings or  
9.3 other establishments;  
9.4 (4) treat and disperse sewage effluent in a safe  
9.5 manner, including protection from physical injury and harm; and  
9.6 (5) not have received hazardous material.  
9.7 B. MSTS may be deemed an imminent threat to public  
9.8 health or safety for noncompliance with item A and any other  
9.9 condition that poses an imminent threat as determined by a  
9.10 qualified employee inspector or licensed inspection business.  
9.11 Subp. 4. Groundwater protection. To be in compliance, all  
9.12 MSTS must:  
9.13 A. maintain a zone of unsaturated soil between the  
9.14 bottom of the soil treatment and dispersal system and the  
9.15 seasonally saturated soil or bedrock during loading of effluent,  
9.16 as described in part 7081.0270, subpart 7;  
9.17 B. not be seepage pits, cesspools, drywells, leaching  
9.18 pits, sewage tanks, and treatment vessels that observably leak  
9.19 below the designated operating depth;  
9.20 C. not allow viable fecal organisms to contaminate  
9.21 underground waters or zones of seasonal saturation;  
9.22 D. employ nitrogen reduction processes that reduce  
9.23 nitrogen contribution to groundwater as determined in subitem  
9.24 (1) or (2):  
9.25 (1) if the discharge from an MSTS will impact  
9.26 water quality of an aquifer, as defined in part 4725.0100,  
9.27 subpart 21, the effluent from an MSTS, in combination with the  
10.1 effective recharge to the groundwater, must not exceed a  
10.2 concentration of total nitrogen greater than 10 mg/l at the  
10.3 property boundary or nearest receptor, whichever is closest; and  
10.4 (2) if the discharge from an MSTS will not impact  
10.5 water quality of an aquifer, as defined in part 4725.0100,  
10.6 subpart 21, best management practices developed by the  
10.7 commissioner to mitigate water quality impacts to groundwater  
10.8 must be employed; and  
10.9 E. not exceed a groundwater discharge of phosphorus  
10.10 to a surface water that exceeds the phosphorus standard to the  
10.11 receiving water.  
10.12 Subp. 5. Other conformance. To be in compliance, MSTS  
10.13 must meet the requirements of items A and B.  
10.14 A. All methods and devices used to treat and disperse  
10.15 sewage must be designed to conform to all applicable federal,  
10.16 state, and local regulations.  
10.17 B. Systems no longer in use must be abandoned  
10.18 according to part 7080.2500, as published in the State Register,  
10.19 volume ..., page ..., and as subsequently adopted.  
10.20 Subp. 6. System operation. To be in compliance, an MSTS  
10.21 must meet performance standards and be operated and managed  
10.22 according to its operating permit, as described in part  
10.23 7081.0290. To be in compliance, an MSTS designed before the  
10.24 effective date of this part must be operated according to  
10.25 applicable requirements of part 7080.2450, as published in the  
10.26 State Register, volume ..., page ..., and as subsequently  
10.27 adopted.

11.1 Subp. 7. Compliance criteria for systems receiving  
11.2 replacement components. Components of existing MSTs that cause  
11.3 noncompliance must be repaired or replaced. The repaired or  
11.4 replacement components must meet technical standards and  
11.5 criteria in parts 7081.0110 to 7081.0280. The remaining  
11.6 components of the existing system must comply with subparts 2 to  
11.7 5.

11.8 Subp. 8. Upgrade requirements.

11.9 A. MSTs in compliance with this part shall be issued  
11.10 a certificate of compliance. Systems found not in compliance  
11.11 shall be issued a notice of noncompliance.

11.12 B. MSTs issued a notice of noncompliance based on  
11.13 criteria in subpart 3 shall be repaired or replaced within ten  
11.14 months or as directed by Minnesota Statutes, chapter 145A,  
11.15 whichever is most restrictive.

11.16 C. MSTs issued a notice of noncompliance based on  
11.17 criteria in subpart 4 or 5 shall be repaired or replaced  
11.18 according to local ordinance requirements.

11.19 D. Systems issued a notice of noncompliance based on  
11.20 criteria in subpart 6 must immediately be maintained, monitored,  
11.21 or managed according to the operating permit.

11.22 7081.0100 PROFESSIONAL REQUIREMENTS.

11.23 Systems must be designed, installed, inspected, operated,  
11.24 and maintained by appropriately licensed businesses and  
11.25 certified individuals according to chapter 7083, as published in  
11.26 the State Register, volume ..., page ..., and as subsequently  
11.27 adopted, and other applicable requirements.

12.1 7081.0110 SEWAGE FLOW DETERMINATION.

12.2 The average daily flow is the combined values determined in  
12.3 parts 7081.0120, 7081.0130, and 7081.0140.

12.4 7081.0120 AVERAGE DAILY FLOW DETERMINATION FOR DWELLINGS.

12.5 Subpart 1. Sum of average daily flow for four to ten  
12.6 existing dwellings. The average daily flow for MSTs serving  
12.7 four to ten existing dwellings is the sum of the average daily  
12.8 flows for all individual dwellings as determined in part  
12.9 7080.1850, as published in the State Register, volume ..., page  
12.10 ..., and as subsequently adopted.

12.11 Subp. 2. Sum of average daily flow for 11 existing  
12.12 dwellings to 10,000 gallons per day. The average daily flow for  
12.13 MSTs serving 11 existing dwellings to flow from existing  
12.14 dwellings not exceeding 10,000 gallons per day is determined in  
12.15 part 7080.1850, as published in the State Register, volume ...,  
12.16 page ..., and as subsequently adopted. Classification I  
12.17 dwellings may be considered Classification II dwellings.

12.18 Subp. 3. New housing developments. For new housing  
12.19 developments, the developer shall determine and restrict the  
12.20 total number of bedrooms for the development and determine the  
12.21 average daily flow by multiplying the total number of bedrooms  
12.22 by 150 gallons for MSTs serving four to ten proposed dwellings  
12.23 and by 110 gallons per bedroom for MSTs serving 11 or more  
12.24 proposed dwellings. If the ultimate development of phased or  
12.25 segmented growth meets or exceeds the thresholds in subpart 2,  
12.26 the initial system or systems require a state disposal system  
13.1 permit.

13.2 Subp. 4. Additional capacity. If construction of  
 13.3 additional dwellings or bedrooms, installation of additional  
 13.4 water-using devices, or other factors likely to increase the  
 13.5 flow volumes can be reasonably anticipated, the MSTs must be  
 13.6 designed to accommodate the additional capacity as determined by  
 13.7 the local unit of government.

13.8 7081.0130 FLOW AND WASTE CONCENTRATION DETERMINATION FOR OTHER  
 13.9 ESTABLISHMENTS.

13.10 Subpart 1. Method. Average daily flows for other  
 13.11 establishments are determined by methods in item A or B.

13.12 A. The average daily flow of sewage for MSTs serving  
 13.13 other establishments is estimated using Table I.

13.14 TABLE I  
 13.15 ESTIMATED SEWAGE FLOW FROM  
 13.16 OTHER ESTABLISHMENTS

13.18	<u>Dwelling units</u>	<u>Unit</u>	<u>Average</u>
13.19	<u>(also see outdoor</u>		<u>daily</u>
13.20	<u>recreation)</u>		<u>flow</u>
13.22	<u>Hotel or luxury</u>		
13.23	<u>hotel</u>	<u>guest</u>	<u>55</u>
13.25		<u>square foot</u>	<u>0.28</u>
13.27	<u>Motel</u>	<u>guest</u>	<u>38</u>
13.29		<u>square foot</u>	<u>0.33</u>
13.31	<u>Rooming house</u>	<u>resident</u>	<u>45</u>
13.33		<u>add for each nonresident</u>	<u>3.3</u>
13.34		<u>meal</u>	
13.36	<u>Daycare (no meals)</u>	<u>child</u>	<u>19</u>
13.38	<u>Daycare (with meals)</u>	<u>child</u>	<u>23</u>
14.2	<u>Dormitory</u>	<u>person</u>	<u>43</u>
14.4	<u>Labor camp</u>	<u>person</u>	<u>18</u>
14.6	<u>Labor camp,</u>	<u>employee</u>	<u>50</u>
14.7	<u>semipermanent</u>		
14.9	<u>Commercial/Industrial</u>		
14.11	<u>Retail store</u>	<u>square foot</u>	<u>0.13</u>
14.13		<u>customer</u>	<u>3.8</u>
14.15		<u>toilet</u>	<u>590</u>
14.17	<u>Shopping center</u>	<u>employee</u>	<u>11.5</u>

14.19		<u>square foot</u>	<u>0.15</u>
14.21		<u>parking space</u>	<u>2.5</u>
14.23	<u>Office</u>	<u>employee/8-hour shift</u>	<u>18</u>
14.25		<u>square foot</u>	<u>0.18</u>
14.27	<u>Medical office*</u>	<u>square foot</u>	<u>1.1</u>
14.29		<u>practitioner</u>	<u>275</u>
14.31		<u>patient</u>	<u>8</u>
14.33	<u>Industrial building*</u>	<u>employee/8-hour shift</u>	<u>17.5</u>
14.35		<u>employee/8-hour shift</u>	<u>25</u>
14.36		<u>with showers</u>	
14.38	<u>Laundromat</u>	<u>machine</u>	<u>635</u>
14.40		<u>load</u>	<u>52.5</u>
14.42		<u>square foot</u>	<u>2.6</u>
14.44	<u>Barber shop*</u>	<u>chair</u>	<u>68</u>
14.46	<u>Beauty salon*</u>	<u>station</u>	<u>285</u>
14.48	<u>Flea market</u>	<u>nonfood vendor/space</u>	<u>15</u>
14.50		<u>limited food vendor/space</u>	<u>25</u>
14.52		<u>with food vendor/space</u>	<u>50</u>
14.54	<u>Eating and drinking</u>		
15.1	<u>establishments</u>		
15.3	<u>Restaurant (does</u>	<u>meal without</u>	<u>3.5</u>
15.4	<u>not include bar</u>	<u>alcoholic drinks</u>	
15.5	<u>or lounge)</u>		
15.7		<u>meal with</u>	<u>8</u>
15.8		<u>alcoholic drinks</u>	
15.10		<u>seat (open 16</u>	<u>30</u>
15.11		<u>hours or less)</u>	
15.13		<u>seat (open more</u>	<u>50</u>
15.14		<u>than 16 hours)</u>	
15.16		<u>seat (open 16</u>	<u>20</u>
15.17		<u>hours or less,</u>	

15.18		<u>single service</u>	
15.19		<u>articles)</u>	
15.21		<u>seat (open more</u>	<u>35</u>
15.22		<u>than 16 hours,</u>	
15.23		<u>single service</u>	
15.24		<u>articles)</u>	
15.26	<u>Restaurant (short</u>	<u>customer</u>	<u>7</u>
15.27	<u>order)</u>		
15.29	<u>Restaurant (drive-</u>	<u>car space</u>	<u>30</u>
15.30	<u>in)</u>		
15.32	<u>Restaurant (carry</u>	<u>square foot</u>	<u>0.5</u>
15.33	<u>out, including</u>		
15.34	<u>caterers)</u>		
15.36	<u>Institutional meals</u>	<u>meal</u>	<u>5.0</u>
15.38	<u>Food outlet</u>	<u>square foot</u>	<u>0.2</u>
15.40	<u>Dining hall</u>	<u>meal</u>	<u>8.5</u>
15.42	<u>Coffee shop</u>	<u>customer</u>	<u>7</u>
15.44	<u>Cafeteria</u>	<u>customer</u>	<u>2.5</u>
15.46	<u>Bar or lounge</u>	<u>customer</u>	<u>4.5</u>
15.47	<u>(no meals)</u>		
15.48		<u>seat</u>	<u>36</u>
15.50	<u>Entertainment establishments</u>		
15.52	<u>Drive-in theater</u>	<u>car stall</u>	<u>5</u>
15.54	<u>Theater/</u>	<u>seat</u>	<u>4.5</u>
16.1	<u>auditorium</u>		
16.3	<u>Bowling alley</u>	<u>alley</u>	<u>185</u>
16.5	<u>Country club</u>	<u>member (no meals)</u>	<u>22</u>
16.7		<u>member (with meals</u>	<u>118</u>
16.8		<u>and showers)</u>	
16.10		<u>member (resident)</u>	<u>86</u>
16.12	<u>Fairground and</u>	<u>visitor</u>	<u>1.5</u>
16.13	<u>other similar</u>		
16.14	<u>gatherings</u>		
16.16	<u>Stadium</u>	<u>seat</u>	<u>5</u>

16.18	<u>Dance hall</u>	<u>person</u>	<u>6</u>
16.20	<u>Health club/gym</u>	<u>member</u>	<u>35</u>
16.22	<u>Outdoor recreation and</u>		
16.23	<u>related lodging facilities</u>		
16.25	<u>Campground</u>	<u>person with hook-up</u>	<u>36</u>
16.27		<u>site with hook-up</u>	<u>100</u>
16.29		<u>site without hook-up,</u>	<u>62</u>
16.30		<u>with central bath</u>	
16.32		<u>site to be served</u>	<u>14.5</u>
16.33		<u>by dump station</u>	
16.35	<u>Permanent mobile</u>	<u>mobile home</u>	<u>225</u>
16.36	<u>home</u>		
16.38	<u>Camp, day</u>	<u>person</u>	<u>20</u>
16.39	<u>without meals</u>		
16.41	<u>Camp, day with meals</u>	<u>person</u>	<u>25</u>
16.43	<u>Camp, day and</u>	<u>person</u>	<u>45</u>
16.44	<u>night with meals</u>		
16.46	<u>Resort/lodge hotel</u>	<u>person</u>	<u>62</u>
16.48	<u>Cabin, resort</u>	<u>person</u>	<u>50</u>
16.50	<u>Retail resort store</u>	<u>customer</u>	<u>4</u>
16.52	<u>Park or</u>	<u>guest</u>	<u>10</u>
16.53	<u>swimming pool</u>		
17.1	<u>Visitor center</u>	<u>visitor</u>	<u>13</u>
17.3	<u>Transportation</u>		
17.5	<u>Gas station/</u>	<u>customer</u>	<u>3.5</u>
17.6	<u>convenience store</u>		
17.8	<u>Service station*</u>	<u>customer</u>	<u>11</u>
17.10		<u>service bay</u>	<u>50</u>
17.12		<u>toilet</u>	<u>250</u>
17.14		<u>square foot</u>	<u>0.25</u>
17.16	<u>Car wash* (does</u>	<u>square foot</u>	<u>5</u>
17.17	<u>not include car</u>		

17.18	<u>wash water)</u>		
17.20	<u>Airport, bus</u>	<u>passenger</u>	<u>5</u>
17.21	<u>station, rail</u>		
17.22	<u>depot</u>	<u>square foot</u>	<u>5</u>
17.24		<u>restroom</u>	<u>565</u>
17.26	<u>Institutional</u>		
17.28	<u>Hospital*</u>	<u>bed</u>	<u>220</u>
17.30	<u>Mental health</u>	<u>bed</u>	<u>147</u>
17.31	<u>hospital*</u>		
17.33	<u>Prison or jail</u>	<u>inmate</u>	<u>140</u>
17.35	<u>Nursing home,</u>	<u>resident</u>	<u>125</u>
17.36	<u>other adult</u>		
17.37	<u>congregate living</u>		
17.39	<u>Other public</u>	<u>person</u>	<u>105</u>
17.40	<u>institution</u>		
17.42	<u>School (no gym, no</u>	<u>student</u>	<u>14</u>
17.43	<u>cafeteria, and no</u>		
17.44	<u>showers)</u>		
17.46	<u>School (with</u>	<u>student</u>	<u>18</u>
17.47	<u>cafeteria, no gym</u>		
17.48	<u>and no showers)</u>		
17.50	<u>School (with</u>	<u>student</u>	<u>27.5</u>
17.51	<u>cafeteria, gym,</u>		
17.52	<u>and showers)</u>		
17.54	<u>School (boarding)</u>	<u>student</u>	<u>95</u>
18.2	<u>Church</u>	<u>seat</u>	<u>4</u>
18.4		<u>add for each meal prepared</u>	<u>5</u>
18.6	<u>Assembly hall</u>	<u>seat</u>	<u>4</u>
18.8	<u>Miscellaneous</u>		
18.10	<u>Public lavatory</u>	<u>user</u>	<u>5</u>
18.12	<u>Public shower</u>	<u>shower taken</u>	<u>11</u>
18.14	<u>* Waste other than sewage may only be discharged into the system</u>		
18.15	<u>if the waste is suitable to be discharged to a subsurface soil</u>		
18.16	<u>treatment and dispersal system.</u>		
18.17	<u>Unless otherwise noted in Table I, the flow values do not</u>		

18.18 include flows generated by employees. A flow value of 15  
18.19 gallons per employee per eight-hour shift must be added to the  
18.20 flow amount. Average daily flow determination for  
18.21 establishments not listed in Table I shall be determined by the  
18.22 best available information and approved by the local unit of  
18.23 government.

18.24 B. The measured average daily flow of sewage for MSTs  
18.25 servicing other establishments is determined by averaging the  
18.26 measured daily flows for a consecutive seven-day period in which  
18.27 the establishment is at maximum capacity or use.

18.28 Subp. 2. Waste concentration. If concentrations of  
18.29 biochemical oxygen demands, total suspended solids, and oil and  
18.30 grease from the sewage are expected to be higher than 175 mg/l,  
18.31 65 mg/l, or 25 mg/l respectively, an estimated or measured  
18.32 average concentration must be determined and be acceptable to  
18.33 the local unit of government. System design must account for  
18.34 concentrations of these constituents so as not to cause internal  
19.1 system malfunction, such as, but not limited to, clogging of  
19.2 pipes, orifices, treatment devices, or media. Waste strength  
19.3 loading to soil treatment and dispersal systems must not exceed  
19.4 the concentration for these constituents in excess of the values  
19.5 in Table III in part 7081.0270, subpart 6.

19.6 7081.0140 INFILTRATION.

19.7 The average daily flow must also include 200 gallons of  
19.8 infiltration and inflow per inch of collection pipe diameter per  
19.9 mile per day with a minimum pipe diameter of two inches to be  
19.10 used for the calculation. Flow values may be further increased  
19.11 if the system employs treatment devices that are exposed to  
19.12 atmospheric conditions that will infiltrate precipitation.

19.13 7081.0150 NECESSITY OF SOIL AND SITE EVALUATIONS.

19.14 Soil and site evaluations must be conducted for MSTs  
19.15 design. The evaluations must be conducted according to parts  
19.16 7081.0160 and 7081.0170. Evaluations must identify and  
19.17 delineate an initial and replacement soil treatment and  
19.18 dispersal area with appropriate system site boundaries.

19.19 7081.0160 PRELIMINARY EVALUATION.

19.20 A preliminary evaluation consists of determining:

19.21 A. the average daily flow and anticipated effluent  
19.22 concentrations of biochemical oxygen demand, total suspended  
19.23 solids, and fats, oils, and grease;

19.24 B. whether water supply wells may impact the location  
19.25 of the system due to the setback constraints;

19.26 C. whether buildings or improvements will be within  
20.1 50 feet of the proposed soil treatment area;

20.2 D. whether buried water supply pipes will be within  
20.3 50 feet of the proposed system;

20.4 E. whether easements will be within 50 feet of the  
20.5 proposed system;

20.6 F. whether the ordinary high water level of public  
20.7 waters will be within 500 feet of the proposed soil treatment  
20.8 and dispersal area and if so, a preliminary assessment of  
20.9 phosphorus impacts to the surface water;

20.10 G. whether the system will be located in a floodplain  
20.11 and the system location in relation to the 100-year flooding

20.12 elevation from published data if available or data that is  
20.13 acceptable to the local unit of government;  
20.14 H. whether designated wetlands will be within 50 feet  
20.15 of the proposed soil treatment area or whether a wetland  
20.16 delineation has been conducted or is required to be conducted on  
20.17 the property;  
20.18 I. the required setbacks from the proposed soil  
20.19 treatment and dispersal system;  
20.20 J. the soil survey information on the proposed soil  
20.21 dispersal area, including the soil map, map units, landscape  
20.22 position, flooding potential, slope range, seasonally saturated  
20.23 soil level, depth to bedrock, texture of soil horizons, and  
20.24 permeability of soil horizons;  
20.25 K. the legal description, dimensions, and size of the  
20.26 proposed soil treatment area;  
20.27 L. the names of property owners; and  
21.1 M. the location of the system on a United States  
21.2 Geological Survey quadrangle map of the proposed soil treatment  
21.3 and dispersal area and the area within one mile.  
21.4 7081.0170 FIELD EVALUATION.  
21.5 Subpart 1. **Generally.** Before conducting a field  
21.6 evaluation, the designer shall confer with the local unit of  
21.7 government to determine the requirements and scope of the  
21.8 evaluation, dependent upon system size, soil conditions, and  
21.9 other applicable factors. At a minimum, the requirements in  
21.10 this part must be met.  
21.11 Subp. 2. **Property marks.** Property lines must be  
21.12 identified as acceptable to the owner. Lot improvements,  
21.13 required setbacks, and easements must be identified, located,  
21.14 and marked.  
21.15 Subp. 3. **Site area.** A general evaluation and description  
21.16 of the proposed soil treatment and dispersal area, including a  
21.17 general geomorphic description, current land use, and past land  
21.18 use, if known, must be provided.  
21.19 Subp. 4. **Surface features.** The following surface features  
21.20 must be identified and described:  
21.21 A. the dominant vegetation;  
21.22 B. evidence of disturbed or compacted soil or  
21.23 flooding or run-on potential; and  
21.24 C. landscape position, including landform, slope  
21.25 gradient, slope direction, and surface morphometry as described  
21.26 in the Field Book for Describing and Sampling Soils Version 2.0,  
21.27 September 2002, developed by the National Soil Survey Center and  
22.1 Natural Resources Conservation Service of the United States  
22.2 Department of Agriculture. The field book is incorporated by  
22.3 reference, is subject to frequent change, and is available  
22.4 through the Minitex interlibrary loan system.  
22.5 Subp. 5. **Soil pits.**  
22.6 A. The required number of soil pits must be  
22.7 determined by the professional judgment of the designer as based  
22.8 on the size of the area, consistency of the soil, and approved  
22.9 by the local unit of government.  
22.10 B. Soil borings may be substituted for soil pits if  
22.11 conditions exist where soil pits are not warranted as determined

22.12 by the local unit of government.

22.13 C. The qualifying soil pits or borings to be used for

22.14 the MSTs design must be located within or on the borders of the

22.15 proposed soil treatment and dispersal area. Soil pits or soil

22.16 borings must be dug outside the soil dispersal area if

22.17 possible. The soil must be observed and described to a depth of

22.18 at least three feet below the proposed depth of the system.

22.19 Other soil observations may be made to supplement the required

22.20 soil pit information.

22.21 D. Underground utilities must be located before soil

22.22 observations are undertaken. Required safety precautions must

22.23 be taken before entering soil pits.

22.24 Subp. 6. Soil description.

22.25 A. The soil properties and features in subitems (1)

22.26 to (13) must be described according to Field Book for Describing

22.27 and Sampling Soil, version 2, Natural Resources Conservation

23.1 Service, United States Department of Agriculture (September

23.2 2002), for each soil horizon at each qualifying soil pit or

23.3 boring. The field book is incorporated by reference under

23.4 subpart 4.

23.5 (1) Matrix soil color.

23.6 (2) Soil features that have different colors from

23.7 the matrix color, including but not limited to clay films,

23.8 organic stains, silt coats, nodules, and concretions.

23.9 (3) Abundance, size, and contrast of

23.10 redoximorphic features.

23.11 (4) Soil texture, with modifiers.

23.12 (5) Grade, size, and shape of soil structure.

23.13 (6) Moist soil consistence.

23.14 (7) Abundance and size of rock fragments.

23.15 (8) Abundance and size of roots.

23.16 (9) Horizon boundary conditions.

23.17 (10) Parent materials.

23.18 (11) Pores, quantity and size.

23.19 (12) Quantity of boulders and tree stumps

23.20 affecting construction.

23.21 (13) Any other characteristic or feature that may

23.22 affect permeability of the soil or treatment of sewage effluent.

23.23 B. The depth of bedrock, if encountered, must be

23.24 determined by requirements of part 7080.0020, subpart 6.

23.25 C. The elevation of standing water evident in any

23.26 soil pit or boring must be identified.

23.27 D. The soil must not be described when frozen, at an

24.1 improper moisture content, or under poor light conditions.

24.2 Subp. 7. Method. A method for determining the soil's

24.3 infiltration capacity in the absorption area and internal water

24.4 movement of the soil beneath the system must be employed. Both

24.5 hydraulic conductivity testing, or other equivalent physical

24.6 measurement of water movement, along with a soil morphological

24.7 determination of the soil's texture, structure, and consistence,

24.8 must be employed. Soil sizing factors in part 7080.2150,

24.9 subpart 3, item G, as published in the State Register, volume

24.10 ..., page ..., and as subsequently adopted, are recommended if

24.11 the degree of groundwater mounding is found to be acceptable.

24.12 The frequency of the observations and measurements must be  
24.13 determined by the professional judgment of the designer,  
24.14 dependent on the variation in soil conditions and the system  
24.15 size, with the frequency of the observations and measurements  
24.16 approved by the local unit of government.  
24.17 Subp. 8. Comparison with soil survey. All field soil  
24.18 information gathered must be compared and evaluated against soil  
24.19 survey information. Any discrepancies shall be identified and  
24.20 justification shall be provided for the information that was  
24.21 chosen for system design.  
24.22 7081.0180 SOIL INTERPRETATION FOR SYSTEM DESIGN.  
24.23 Subpart 1. Site and soil information. Site and soil  
24.24 information gathered in parts 7081.0160 and 7081.0170 must be  
24.25 interpreted for suitability for MSTs siting, design, and  
24.26 construction, with consideration of the following:  
24.27 A. surface features impacts from precipitation,  
25.1 run-on, and interflow;  
25.2 B. cultural features impacts, including, but not  
25.3 limited to, setbacks and easements;  
25.4 C. site conditions affecting system layout,  
25.5 distribution system requirements, and constructability;  
25.6 D. layers of coarse soil textures that affect  
25.7 treatment;  
25.8 E. disturbed, compacted, cut-filled, or other  
25.9 unnatural condition, if present;  
25.10 F. the uniformity of the soil over the site;  
25.11 G. future surrounding land use changes;  
25.12 H. soil sizing factor or loading rate; and  
25.13 I. an approximation of the rise in groundwater from  
25.14 system operation as determined by groundwater mounding  
25.15 calculations. A narrative evaluation of the accuracy of the  
25.16 approximation must be provided. The approximation must be  
25.17 related to the requirements in part 7081.0270, subpart 3, item B.  
25.18 Subp. 2. Flood fringes. Systems proposed to be located in  
25.19 flood fringes must determine feasibility of relocating the  
25.20 system outside the floodplain.  
25.21 Subp. 3. Depth. The limiting layer in the soil shall be  
25.22 determined based on the depth of bedrock or seasonally saturated  
25.23 soil if encountered. The depth to the seasonally saturated soil  
25.24 shall be determined according to part 7080.1720, subpart 5, item  
25.25 E, as published in the State Register, volume ..., page ..., and  
25.26 as subsequently adopted, and the depth of bedrock shall be as  
25.27 defined under part 7080.1100, subpart 10, as published in the  
26.1 State Register, volume ..., page ..., and as subsequently  
26.2 adopted.  
26.3 7081.0190 SITE PROTECTION.  
26.4 The proposed soil treatment and dispersal area must be  
26.5 protected from disturbance, compaction, or other damage by  
26.6 staking, fencing, posting, or other effective method.  
26.7 7081.0200 SOIL AND SITE REPORT.  
26.8 All information required in parts 7081.0150 to 7081.0180  
26.9 must be submitted for review and approval by the local unit of  
26.10 government prior to final design. The submittal must also  
26.11 contain:

26.12 A. a map of the proposed soil treatment and dispersal  
26.13 area, drawn to scale, showing:  
26.14 (1) features with a setback within 150 feet of  
26.15 the system;  
26.16 (2) easements within 50 feet of the system;  
26.17 (3) floodplains, wetlands, and surface waters,  
26.18 within 100 feet of the system;  
26.19 (4) location and elevation of all soil pits,  
26.20 borings, and hydraulic tests; and  
26.21 (5) two-foot contour lines, unless use of the  
26.22 contours are not warranted as determined by the local unit of  
26.23 government;  
26.24 B. dates and weather conditions during the field  
26.25 evaluation;  
26.26 C. elevations of the seasonally saturated soil or  
27.1 bedrock;  
27.2 D. proposed depths of the system bottom;  
27.3 E. proposed soil sizing factor or loading rate;  
27.4 F. system site boundaries;  
27.5 G. anticipated construction-related issues;  
27.6 H. name, address, telephone number, and certified  
27.7 statement of the certified individual conducting the site  
27.8 evaluation; and  
27.9 I. a narrative explaining any difficulties  
27.10 encountered during the site evaluation, such as, but not limited  
27.11 to, identifying and interpreting soil and landform features, and  
27.12 how the difficulties were resolved.  
27.13 7081.0210 GROUNDWATER INVESTIGATION.  
27.14 Subpart 1. **Necessity of investigation.** A preliminary  
27.15 groundwater evaluation must be conducted for all proposed MSTs  
27.16 according to this part.  
27.17 Subp. 2. **Preliminary investigation.** The following  
27.18 information must be ascertained from the best available  
27.19 information:  
27.20 A. the size of the soil treatment and dispersal  
27.21 system, proposed loading rate, and system geometry;  
27.22 B. the legal description of the parcel where the  
27.23 proposed soil treatment and dispersal area is to be located;  
27.24 C. any anticipated discharges from nondomestic  
27.25 sources to the proposed MSTs;  
27.26 D. the location of the MSTs on a 7.5 minute United  
27.27 States Geological Survey quadrangle topographic map, including  
28.1 the area within a one-mile radius of the proposed soil treatment  
28.2 system;  
28.3 E. a determination of the general geology, shallow  
28.4 groundwater setting, regional groundwater setting, and aquifers  
28.5 used for water supply and a description of the general site  
28.6 hydrology characteristics, including, but not limited to,  
28.7 identification and estimated depth measurements to geologic  
28.8 units and aquifers, and identification of groundwater confining  
28.9 strata;  
28.10 F. a determination whether the proposed system is in  
28.11 a drinking water supply management area, inner wellhead  
28.12 management zone, source water protection area, or groundwater

28.13 sensitive area;

28.14 G. an assessment of all water supply wells within a  
28.15 300-foot radius of the proposed soil treatment area with a  
28.16 minimum assessment of well locations and casing depths from well  
28.17 construction log records. If no records exist, the well  
28.18 locations and casing depths must be estimated;

28.19 H. a determination or estimation of groundwater flow  
28.20 direction; and

28.21 I. an assessment of nitrogen impacts from the system.

28.22 **Subp. 3. Field or further investigation.** The designer  
28.23 must consult with the local unit of government to determine  
28.24 whether the local unit of government will require a field or  
28.25 further groundwater investigation and, if so, the extent of the  
28.26 investigation. The field or further investigation must be  
28.27 conducted if information gained in subpart 2 indicates that a  
29.1 proposed system is a potential contaminant threat to a regional  
29.2 water table, an aquifer, or water supply well(s). The threats  
29.3 of concern include, but are not limited to, fecal organism  
29.4 contamination, nitrate contamination, or phosphorus impacts to  
29.5 surface waters.

29.6 **Subp. 4. Monitoring.** The designer must consult with the  
29.7 local unit of government to determine if the local unit of  
29.8 government will require effluent or groundwater monitoring and,  
29.9 if so, the extent of the monitoring. Monitoring should be  
29.10 conducted if information gained in subpart 2 or 3 indicates that  
29.11 a proposed system is a potential contaminant threat to a  
29.12 regional water table, an aquifer, or a water supply well or  
29.13 impacts surface waters. The potential groundwater mound must be  
29.14 monitored under all MSTs during operation.

29.15 **Subp. 5. Hydrological interpretations.** The information  
29.16 gathered in this part must be used to estimate or measure if the  
29.17 system adequately protects the groundwater and surface water as  
29.18 prescribed in part 7081.0080, subpart 4. The interpretation  
29.19 must include a determination of whether contaminant plumes may  
29.20 intersect water supply well capture zones.

29.21 **Subp. 6. Groundwater report.** All information required in  
29.22 this part must be submitted for review and approval of the local  
29.23 unit of government prior to final design, including all  
29.24 applicable information delineated on a map.

29.25 7081.0230 DESIGN STANDARDS.

29.26 **A.** The design standards for new construction or  
29.27 replacement MSTs in parts 7081.0240 to 7081.0270 are provided to  
30.1 meet many of the public health and environmental outcomes in  
30.2 part 7081.0080. In some cases, specific engineered methods must  
30.3 be employed in addition to the standards provided in parts  
30.4 7081.0240 to 7081.0270.

30.5 **B.** MSTs must not receive storm water or other sources  
30.6 of clean water.

30.7 **C.** All structural components of the system and  
30.8 sealants must be designed to meet or exceed a 25-year design  
30.9 life.

30.10 **D.** A flow measure device must be employed on all MSTs.

30.11 **E.** The system must be designed with sufficient access  
30.12 and ports to monitor the system as applicable.

30.13 F. MSTs must employ components registered under part  
30.14 7080.1600, as published in the State Register, volume ..., page  
30.15 ..., and as subsequently adopted, or have sufficient regulatory  
30.16 oversight in the operating permit.

30.17 7081.0240 SEWAGE TANKS.

30.18 Subpart 1. General. All holding or treatment tanks or  
30.19 vessels, including lined vessels and grease interceptors serving  
30.20 MSTs, must conform to the applicable requirements of parts  
30.21 7080.1910 to 7080.2020, as published in the State Register,  
30.22 volume ..., page ..., and as subsequently adopted, except as  
30.23 modified in this part or as designed by a professional engineer  
30.24 and approved by the local unit of government.

30.25 Subp. 2. Tank capacity.

30.26 A. Total septic tank capacity must be in accordance  
30.27 with this item.

31.1 (1) Total septic tank liquid capacity for a  
31.2 common tank serving multiple dwellings under gravity flow to the  
31.3 common tank are determined by multiplying the average daily flow  
31.4 by 3.0.

31.5 (2) Total septic tank liquid capacity for a  
31.6 common tank serving multiple dwellings under pressure flow to  
31.7 the common tank is determined by multiplying the average daily  
31.8 flow by 4.0.

31.9 (3) Common multiple septic tanks may be connected  
31.10 in series or multiple tanks may operate in parallel if it can be  
31.11 demonstrated that each tank will be loaded within its design  
31.12 capacity. No tank connected in series or any compartment may  
31.13 have a capacity of less than one-fourth of the required total  
31.14 liquid capacity.

31.15 B. For MSTs that have individual septic tanks at each  
31.16 dwelling, the individual tanks must meet all the requirements of  
31.17 parts 7080.1910 to 7080.2020, as published in the State  
31.18 Register, volume ..., page ..., and as subsequently adopted.  
31.19 Stilling tanks should be installed between the individual tanks  
31.20 and the next system component as necessary.

31.21 C. Total septic tank liquid capacity for other  
31.22 establishments is determined by multiplying the average daily  
31.23 flow by 3.0 if receiving sewage under gravity flow or  
31.24 multiplying the average daily flow by 4.0 if receiving sewage  
31.25 under pressure flow.

31.26 D. Total septic tank liquid capacity prior to other  
31.27 treatment devices shall be according to manufacturer's  
32.1 requirements or accepted standards.

32.2 E. Holding tanks serving other establishments must  
32.3 provide storage of at least five times the average daily flow.

32.4 Subp. 3. Lint filters, effluent screens, and pressure  
32.5 filters. Effluent screens must be used as the outlet baffle on  
32.6 the final septic tank or pressure filters must be used in the  
32.7 dosing chamber if common tanks are employed in series. Alarms  
32.8 must be employed on tanks equipped with effluent screens. Lint  
32.9 filters should be used if the sewage contains laundry waste.

32.10 Subp. 4. Tank geometry.

32.11 A. For common septic tanks, the maximum liquid depth  
32.12 of septic tanks to determine liquid capacity must be no greater

32.13 than 84 inches. Septic tanks should have a minimum  
32.14 length-to-width ratio of two to one and a minimum  
32.15 length-to-depth ratio of 3.5 to one. Tanks not meeting these  
32.16 dimensions should be monitored for biological oxygen demand and  
32.17 total suspended solids concentrations for a period of time as  
32.18 determined by the local unit of government.

32.19 B. For common septic tanks, the space in the tank  
32.20 between the liquid surface and the top of the inlet and outlet  
32.21 baffles must not be less than 20 percent of the total required  
32.22 liquid capacity.

32.23 Subp. 5. Tank testing. All tanks used for MSTs must be  
32.24 tested for watertightness according to part 7080.2010, subpart  
32.25 3, as published in the State Register, volume ..., page ..., and  
32.26 as subsequently adopted. The test shall be conducted to include  
32.27 the watertightness of all connections and risers.

33.1 Subp. 6. Liners. Liners used as watertight barriers for  
33.2 treatment devices must be designed and constructed according to  
33.3 liner requirements developed by the commissioner of the  
33.4 Pollution Control Agency. If conflicts exist between this  
33.5 chapter and those requirements, this chapter applies. Compacted  
33.6 soil liners must not be used as watertight barriers for  
33.7 treatment devices. Liners must be tested and must hold water  
33.8 without loss for 24 hours after being filled to the top of the  
33.9 liner.

33.10 Subp. 7. External grease interceptors. A commercial or  
33.11 institutional food preparation facility such as, but not limited  
33.12 to, a restaurant, cafeteria, or institutional kitchen, served by  
33.13 a system regulated under this chapter, the system design for  
33.14 which was submitted to the local unit of government after the  
33.15 effective date of this part, shall install an external grease  
33.16 interceptor unless other grease control measures are taken. All  
33.17 existing facilities described in this subpart should install and  
33.18 maintain an external grease interceptor or other grease control  
33.19 measures. The requirements for external grease interceptors are  
33.20 in chapter 4715.

33.21 7081.0250 DISTRIBUTION OF EFFLUENT.

33.22 Distribution of effluent into a soil treatment and  
33.23 dispersal system must comply with part 7080.2050, as published  
33.24 in the State Register, volume ..., page ..., and as subsequently  
33.25 adopted, or be designed by a registered professional engineer  
33.26 and approved by the local unit of government. MSTs should  
33.27 employ pressure distribution.

34.1 7081.0260 DOSING OF EFFLUENT.

34.2 A. Dosing of effluent into a soil treatment and  
34.3 dispersal system must comply with part 7080.2100, as published  
34.4 in the State Register, volume ..., page ..., and as subsequently  
34.5 adopted, except as modified in this part.

34.6 B. The dosing system must either include an  
34.7 alternating two-pump system or have a minimum total capacity of  
34.8 100 percent of the average daily flow.

34.9 C. The pump discharge capacity must be based on the  
34.10 perforations discharge, with a minimum average head of two feet.

34.11 7081.0270 FINAL TREATMENT AND DISPERSAL.

34.12 Subpart 1. General. Final treatment and dispersal should



36.1 to that increase, a 50 percent replacement soil treatment and  
 36.2 dispersal land area must be identified and protected for future  
 36.3 use if necessary. Replacement MSTs proposed on sites that  
 36.4 cannot meet this requirement may be exempted by the local unit  
 36.5 of government.  
 36.6 Subp. 4. Minimal soil and site conditions. The site  
 36.7 proposed to support the soil treatment and dispersal system must:  
 36.8 A. have the upper 12 inches of the absorption area:  
 36.9 (1) be original soil;  
 36.10 (2) have a size classification of one to 13 as  
 36.11 listed in Table IX, in part 7080.2150, subpart 3, item G, as  
 36.12 published in the State Register, volume ..., page ..., and as  
 36.13 subsequently adopted; and  
 36.14 (3) be above the seasonally saturated soil or  
 36.15 bedrock;  
 36.16 B. meet the area size requirements in subpart 3 and  
 36.17 setbacks in subpart 2 and all easements;  
 36.18 C. not be a wetland or floodway;  
 36.19 D. not be in an area in which surface runoff of  
 36.20 precipitations will concentrate (swale); and  
 36.21 E. allow the system to be placed on contour.  
 36.22 Subp. 5. Inspection pipes. Inspection pipes must be  
 36.23 located to adequately assess the hydraulic performance of the  
 36.24 entire soil treatment and dispersal system.  
 36.25 Subp. 6. Soil loading requirements. Loadings of sewage  
 36.26 solids per square foot of bottom and side wall absorption area  
 36.27 must not be in excess of the most limiting constituent as  
 37.1 determined in Table III.

37.2 Table III

37.4 Waste Strength Loading Rates

37.6	<u>Soil Texture</u>	<u>lbs of BOD/100</u>	<u>lbs of TSS/100</u>	<u>lbs of oil</u>
37.7	<u>Group**</u>	<u>ft<sup>2</sup>/day of</u>	<u>ft<sup>2</sup>/day of</u>	<u>and grease/100</u>
37.8		<u>total</u>	<u>total</u>	<u>ft<sup>2</sup>/day of</u>
37.9		<u>absorption</u>	<u>absorption</u>	<u>total</u>
37.10		<u>area*</u>	<u>area*</u>	<u>absorption</u>
37.11				<u>area*</u>
37.13	<u>1 and 2</u>	<u>0.13</u>	<u>0.049</u>	<u>0.019</u>
37.14	<u>4</u>	<u>0.086</u>	<u>0.032</u>	<u>0.012</u>
37.15	<u>3, 5, and 6</u>	<u>0.066</u>	<u>0.024</u>	<u>0.009</u>
37.16	<u>7 and 9</u>	<u>0.055</u>	<u>0.020</u>	<u>0.008</u>
37.17	<u>8, 10, and 12</u>	<u>0.050</u>	<u>0.018</u>	<u>0.007</u>
37.18	<u>11 and 13</u>	<u>0.036</u>	<u>0.014</u>	<u>0.005</u>
37.19	<u>15</u>	<u>0.026</u>	<u>0.010</u>	<u>0.004</u>

37.21 \*To determine the loading to the soil treatment system, the  
 37.22 following calculation must be used:  
 37.23 Waste strength loading rate (lbs/ft<sup>2</sup>/day) = constituent  
 37.24 concentration (ppm) x .0000834 x hydraulic loading rate of  
 37.25 total absorption area/day (gal/ft<sup>2</sup>/day). The constituent  
 37.26 concentration for soil treatment and dispersal system design  
 37.27 must be the concentration from the pretreatment device according

37.28 to the device's product registration designation. Constituent  
37.29 concentration loading rate is based on bottom and sidewall  
37.30 absorption area.

37.31 \*\*Soil textural groups can be found in Table IX, part 7080.2150,  
37.32 subpart 3, item F, as published in the State Register, volume  
37.33 ..., page ..., and as subsequently adopted.

37.34 Subp. 7. **Vertical separation distance.** An unsaturated  
37.35 zone must be maintained between the bottom of the soil treatment  
37.36 and dispersal system and the seasonally saturated soil or  
37.37 bedrock during loading of effluent. This operating vertical  
38.1 separation distance must meet the groundwater protection  
38.2 objectives in part 7081.0080, subpart 4, item C. The designed  
38.3 vertical separation distance shall take into consideration:

38.4 A. soil texture in the treatment zone;  
38.5 B. effluent loading rate to the soil;  
38.6 C. effluent dosing frequency;  
38.7 D. system width and depth as it affects oxygen  
38.8 transfer from the atmosphere;

38.9 E. the height of the capillary fringe in the  
38.10 unsaturated zone;

38.11 F. groundwater mounding;  
38.12 G. concentrations of contaminants in the effluent;  
38.13 H. hydraulic head over bottom absorption area; and  
38.14 I. factor of safety.

38.15 An observation well to measure the height of the seasonally  
38.16 saturated soil beneath the operating system must be installed  
38.17 and monitored according to the operating permit.

38.18 Subp. 8. **Nitrogen reduction.** Systems must employ nitrogen  
38.19 mitigation methods to achieve compliance with part 7081.0080,  
38.20 subpart 4, item D.

38.21 Subp. 9. **Phosphorus reduction.** Phosphorus mitigation  
38.22 methods must be employed to achieve compliance with part  
38.23 7081.0080, subpart 4, item D, if natural processes are found  
38.24 inadequate.

38.25 Subp. 10. **Design report.** All information required in this  
38.26 part shall be submitted for review and approval by the local  
38.27 unit of government prior to system construction, including all  
39.1 applicable information delineated on a map.

39.2 7081.0280 CONSTRUCTION REQUIREMENTS.

39.3 A. MSTS construction must be according to applicable  
39.4 construction requirements of chapter 7080.

39.5 B. The MSTS designer must observe critical periods of  
39.6 system construction. The designer shall prepare a report of  
39.7 observed construction activities and submit the report to the  
39.8 local unit of government prior to final inspection.

39.9 7081.0290 OPERATION AND MAINTENANCE.

39.10 A. System maintenance must be according to part  
39.11 7080.2450, as published in the State Register, volume ..., page  
39.12 ..., and as subsequently adopted, except as modified in this  
39.13 part.

39.14 B. All external grease interceptors must be routinely  
39.15 inspected to determine the volume present. All external grease  
39.16 interceptors must be cleaned when the volume of external grease  
39.17 equals no more than 50 percent of the liquid capacity of the

39.18 tank.

39.19 C. The designer must complete an operation and  
39.20 maintenance manual and the manual must be approved by the local  
39.21 unit of government before system operation. The manual shall  
39.22 include a copy of the plans and specifications, as-built  
39.23 drawings of the system, and information to properly operate the  
39.24 system.

39.25 D. Systems shall be operated under a local operating  
39.26 permit submitted and approved with the design.

40.1 E. Any operational noncompliance must be immediately  
40.2 corrected and reported by the owner or service provider to the  
40.3 local unit of government.

40.4 7081.0300 SYSTEM ABANDONMENT.

40.5 MSTS no longer in use must be abandoned according to part  
40.6 7080.2500, as published in the State Register, volume ..., page  
40.7 ..., and as subsequently adopted.

40.8 7081.0310 SYSTEM OWNERSHIP AND RESPONSIBILITY.

40.9 Subpart 1. Ownership. MSTs may be owned by a sole  
40.10 individual, a group of individuals, or a private management  
40.11 entity or publicly held. The owner or owners are responsible  
40.12 for operation, maintenance, repairs, replacement, and compliance  
40.13 as required by this part.

40.14 Subp. 2. Regulation. MSTs serving multiple dwellings must  
40.15 be owned by a legal and responsible entity. The entity must  
40.16 have the ability to perform and must perform the following  
40.17 functions:

40.18 A. apply for and obtain construction and operating  
40.19 permits;

40.20 B. ensure submittal of required reporting and  
40.21 compliance status to the local unit of government;

40.22 C. negotiate contracts as necessary;

40.23 D. develop administrative processes;

40.24 E. impose fees for operation, management, and  
40.25 replacement of the system;

40.26 F. obtain financing;

41.1 G. provide annual education to users on suitable  
41.2 discharges; and

41.3 H. monitor compliance with local ordinance  
41.4 requirements.

41.5 Subp. 3. Certification. The owner or owners of MSTs  
41.6 serving multiple dwellings must submit to the local unit of  
41.7 government a certification of financial viability. The  
41.8 certification shall include:

41.9 A. a copy of the title to all MSTs physical assets;  
41.10 and

41.11 B. the method by which the system operation,  
41.12 maintenance, repairs, and replacement will be financed.

41.13 Subp. 4. Sale. The owner or owners of MSTs serving  
41.14 multiple dwellings must not sell, assign, or divest the system  
41.15 without notification to the local unit of government. The  
41.16 system shall be free of any liens, judgments, or encumbrances.

41.17 Subp. 5. Continuation. The owner of MSTs serving multiple  
41.18 dwellings shall provide a financial instrument or mechanism in  
41.19 an amount sufficient to continue the operation, maintenance,

- 41.20 management, and repairs of the system for a period of one year
- 41.21 if the owner fails to fulfill the owner's or operator's
- 41.22 financial support of the system.