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June 18, 2010

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RE: In The Matter of the Proposed Rules of the Minnesota Pollution Control Agency Governing Subsurface Sewage Treatment Systems - Governor's Tracking #AR 450

Dear Librarian:

The Minnesota Pollution Control Agency (MPCA) intends to amend the rules governing Subsurface Sewage Treatment Systems (SSTS). We plan to publish a Dual Notice of Hearing in the June 21, 2010 *State Register*.

The MPCA has prepared a Statement of Need and Reasonableness. As required by Minnesota Statutes, sections 14.131 and 14.23, the MPCA is sending the Library a disc containing an electronic copy of the Statement of Need and Reasonableness at the same time we are mailing our Notice of Intent to Adopt Rules.

If you have questions, please contact me at 651-757-2597.

Sincerely,

Carol Nankivel

Carol Nankivel
Rule Coordinator
Policy, Local Government Assistance and Solid Waste Section
Municipal Division

CN:wgp

Enclosure: Dual Notice of Hearing
Disc containing Statement of Need and Reasonableness and proposed rules

Minnesota Pollution Control Agency

Municipal Division

STATEMENT OF NEED AND REASONABLENESS

Proposed Amendment of Rules Governing Subsurface Sewage Treatment Systems
Minnesota Rules Chapters 7080, 7081, 7082, and 7083

Notice Regarding the Excerpted Language in this SONAR

The Minnesota Pollution Control Agency (MPCA) has excerpted language from the draft rules and included those excerpts in this Statement of Need and Reasonableness (SONAR) at the point that the reasonableness of each provision of the rules is discussed. This was done to assist the reader in connecting the rule language with its justification. However, there may be slight discrepancies between the excerpted language and the rule amendments as they are proposed. The MPCA intends that the rule language that is published in the *State Register* at the time the rules are formally proposed is the rule language that is justified in this SONAR.

LIST OF ACRONYMS

BOD_5	Biochemical Oxygen Demand
$CBOD_5$	Carbonaceous Biochemical Oxygen Demand
FC	Fecal Coliform
gpd	gallons per day
ISTS	Individual Subsurface Sewage Treatment System
LGU	Local Governmental Unit
Mn/DOT	Minnesota Department of Transportation
MOWA	Minnesota On-site Wastewater Association
MPCA	Minnesota Pollution Control Agency
mpi	minutes per inch
MSTS	Midsized Subsurface Sewage Treatment System
NSF	National Sanitation Foundation
O&G	Oil and Grease
OSTP	Onsite Sewage Treatment Program
SONAR	Statement of Need and Reasonableness
SSTS	Subsurface Sewage Treatment System
TN	Total Nitrogen
TP	Total Phosphorus
TSS	Total Suspended Solids
USDA	United States Department of Agriculture

I. Introduction and Background

The subject of this Statement of Need and Reasonableness (SONAR) is the amendment of the rules of the Minnesota Pollution Control Agency (MPCA or Agency) that govern the Subsurface Sewage Treatment Systems (SSTS) program. The purpose of these rules is to prevent the improper location, design, installation, use, maintenance, and abandonment of SSTS which could adversely affect water quality and the public health, safety, and general welfare by the discharge of inadequately treated sewage to surface and groundwaters of the state of Minnesota (State).

The existing requirements found in Minn. R. ch. 7080 provide standards and criteria for the location, design, installation, use, maintenance, and closure of Individual Subsurface Sewage Treatment Systems (ISTS). Minn. R. ch. 7081 contains specifications for systems serving multiple dwellings, called "Midsized Subsurface Sewage Treatment Systems" (MSTS). Minn. R. ch. 7082 contains ordinance and administrative requirements for local units of government that administer SSTS programs. Minn. R. ch.7083 contains a licensing program for SSTS professionals and a technology review program. The amendments that are the subject of this rulemaking are making what the MPCA believes are reasonable modifications to the existing framework of SSTS regulation found in each of these chapters. The amendments do not significantly change the requirements relating to the location, installation, use, closure or maintenance of SSTS, technology review or the licensing of SSTS professionals.

This SONAR contains the MPCA's affirmative presentation of facts on the need for and reasonableness of the proposed rules and amendments. Section II describes the procedural history of this rulemaking process and also addresses the additional notice efforts conducted by the MPCA. Section III sets forth the MPCA's statutory authority to adopt the proposed rules and amendments. Section IV discusses the general need for the amendments. Section V establishes the general and specific reasonableness of each part of the rules. Section VI addresses statutory considerations established in Minnesota statutes, including a discussion of economic factors. Section VII is a listing of authors, witnesses, and exhibits, and Section VIII is the conclusion.

This SONAR can be made available in other formats, including Braille, large print, and audio tape. To make a request, contact Carol Nankivel at the Minnesota Pollution Control Agency, 520 Lafayette Road North, St. Paul, MN, 55155-4194; telephone: 651-757-2597; Fax: 651-297-8676; e-mail: carol.nankivel@state.mn.us. TTY users may call the MPCA at 651-282-5332 or 1-800-657-3864, TDD: 651-282-5332.

II. Procedural History

The rule amendments were developed by MPCA staff in close cooperation with many interested and affected parties. Several methods were employed to seek internal and external input on the proposed rule amendments. The MPCA took the following actions to seek input and comments prior to publishing proposed amendments in the *State Register*.

A. The MPCA received comments from SSTS professionals, the public, other government

entities and institutions since promulgation of the current rule in 2008. Input was gained from public meetings, telephone calls, e-mails, site visits, training venues, and through the outcome of enforcement actions.

B. A Request for Comments was published in the *State Register* on October 6, 2008, requesting comments on the areas of the rule that were proposed to be revised. (Exhibit 1)

C. The MPCA sought input from various organizations associated with the SSTS industry. These included local zoning and planning staff, the University of Minnesota On-site Sewage Treatment Program (OSTP) staff, the Minnesota On-Site Wastewater Association (MOWA), which is an organization that represents the SSTS industry, the MPCA's SSTS Advisory Committee, as established by Minnesota Statutes, and with various industry representatives. A list of some of the meetings and specific topics discussed at those meetings is provided in Exhibit 2. This list is not complete and does not include the many e-mails, phone conversations and informal discussions that took place between MPCA staff and individuals working in the SSTS industry throughout the process of developing the amendments.

The MPCA believes it has employed a reasonable public input process. Many of the changes being proposed are the result of comment and suggestion by the regulated community. These comments were a consequence of the very extensive rulemaking that resulted in rules that became effective in February, 2008. As the regulated community and the regulators began the process of implementing those rules, they notified the MPCA of some of the errors and inconsistencies that are now being addressed in these amendments. The MPCA feels that the regulated community and SSTS regulators have had adequate advance notice of the MPCA's interest in amending the rules and that the MPCA has provided a number of opportunities for interested parties to provide comment to the MPCA regarding their interests and concerns.

III. Statutory Authority

The MPCA's general statutory authority to adopt the proposed amendments is set forth in Minn. Stat. § 115.03, subd. 1(e), which provides:

> *115.03 Powers and duties.*
>
> *Subdivision 1.* ***Generally****. The agency is hereby given and charged with the following powers and duties:*
>
> (e) *To adopt, issue, reissue, modify, deny, or revoke, enter into or enforce reasonable orders, permits, variances, standards, rules, schedules of compliance, and stipulation agreements, under such conditions as it may prescribe, in order to prevent, control or abate water pollution, or for the installation or operation of disposal systems or parts thereof, or for other equipment and facilities;*

Under this statute, the MPCA has the necessary statutory authority to adopt the proposed amendments to the existing rules.

In addition to the MPCA's general statutory authority to adopt rules and standards to prevent, control, or abate water pollution, the MPCA is specifically charged with the regulation of SSTS under Minn. Stat. § 115.55, subd. 3. In 1994 the Minnesota Legislature enacted the enabling authority that allowed the MPCA to write standards for SSTS. Subsequent revisions to Minn. Stat. § 115.55 have occurred and the standards that they required have been incorporated into Minnesota Rules, but did not impact the underlying rulemaking authority provided under Minn. Stat. § 115.55. subd. 3, as follows:

> *Subd. 3.* ***Rules.***
>
> *(a) The agency shall adopt rules containing minimum standards and criteria for the design, location, installation, use, maintenance, and closure of subsurface sewage treatment systems. The rules must include:*
>
> *(1) how the agency will ensure compliance under subdivision 2;*
>
> *(2) how local units of government shall enforce ordinances under subdivision 2, including requirements for permits and inspection programs;*
>
> *(3) how the advisory committee will participate in review and implementation of the rules;*
>
> *(4) provisions for nonstandard systems and performance-based systems;*
>
> *(5) provisions for handling and disposal of effluent;*
>
> *(6) provisions for system abandonment; and*
>
> *(7) procedures for variances, including the consideration of variances based on cost and variances that take into account proximity of a system to other systems.*
>
> *(b) The agency shall consult with the advisory committee before adopting rules under this subdivision.*
>
> *(c) The rules required in paragraph (a) must also address the following:*
>
> *(1) a definition of redoximorphic features and other criteria that can be used by system designers and inspectors;*
>
> *(2) direction on the interpretation of observed soil features that may be redoximorphic and their relation to zones of periodic saturation; and*
>
> *(3) procedures on how to resolve professional disagreements on periodically saturated soils.*

Two changes were made during the 2009 legislative session which resulted in specific amendments to the rules.

1. The statutory provision in Minn. Stat. 115.55, subd. 5b, previously allowed an extra five years for upgrading failing systems at the time of a bedroom addition. This time extension was deleted in the 2009 legislative session. The original statutory allowance had been incorporated in the 2008 amendments to the rule at 7082.0100 subp. 1, item C. The changes in this rulemaking bring the rule into line with the changes that deleted this time extension from the statute.

   Minnesota Statutes 2009, section 115.55, subdivision 5b, is amended to read:

   Subd. 5b. ***Compliance notice.*** *~~(a)~~ If a system inspected under subdivision 5 is required to be upgraded, replaced, or its use discontinued under subdivision 5a, the certified inspector ~~or site evaluator or designer~~ must issue a notice of noncompliance to the property owner and must provide a copy of the notice to the unit of government with jurisdiction. The notice of noncompliance must specify why the system must be upgraded, replaced, or its use discontinued. A local unit of government must specify the upgrade time period in its ordinance.*
   ~~(b) Except as provided in subdivision 5a, paragraphs (b) to (d), if a system installed between May 27, 1989, and January 23, 1996, does not comply with applicable requirements, the property owner has five years from the date of the bedroom building permit to bring the system into compliance.~~

2. A provision was added to Minn. Stat. § 115.56, subd. 2, item (e) that addressed the issuance of a surety bond to address both plumbing work and SSTS work.

   115.56 Mandatory Licensing Program.

   *Subd. 2.****License required.***

   (e) Licenses may be issued only upon submission of general liability insurance, a corporate surety bond in the amount of at least $10,000, and the name of the individual who will be the designated certified individual for that business. The bond may be for both plumbing work and subsurface sewage treatment work if the bond complies with the requirements of this section and section 326B.46, subdivision 2.

The MPCA is addressing this legislative permission to develop a joint bond form by proposing the amendment to Minn. R. 7083.1000, subp. 1, the reasonableness of which is discussed at that part of this SONAR.

IV. Need for the Amendments

Minn. Stat. ch. 14 requires the MPCA to make an affirmative presentation of facts establishing the need for and reasonableness of the rules as proposed. In general terms, this means that the MPCA must not be arbitrary or capricious. However, to the extent that need and reasonableness are separate, "need" has come to mean that a problem exists that requires administrative attention, and "reasonableness" means that the solution proposed by the MPCA is appropriate. The need for the amendments is described below.

The current Minn. R. chs. 7080 to 7083 have worked well in serving the needs of system owners, regulators and the SSTS industry. However, the MPCA has a need to amend Minn. R. chs. 7080, 7081, 7082 and 7083 in order to correct specific problems that have been identified since these chapters were last amended in 2008. The MPCA is specifically revising these chapters in order to:

A. Address legislative changes that affect the rules (surety bond and the repeal of the five-year period for resolving noncompliant systems)
B. Expand or clarify aspects of the existing rules in response to concerns identified since they were last amended (e.g. definition of "building", maintenance hole requirements, compliance inspections)
C. Add or amend standards that have been problematic or where there has been an identified need (high strength wastes, excess capacity for dishwasher use)
D. Correct errors (tank reserve capacity, Type III systems)
F. Simplify the language (revisions to tables, use of cross references in place of duplicative language)

In general, the need for these amendments is to ensure that the standards that are applied to SSTS are accurate and reflect the MPCA's regulatory intent, that they reflect the most current technology and research and that they are responsive to the specific needs of the regulated community and the local units of government that implement the standards.

The MPCA is aware that there are concerns among the regulated community and local units of government about further amendment of the SSTS rules. These entities are concerned that the process of amendment will be disruptive of their businesses and will cause additional burden to local units of government by creating a need for further ordinance revisions. The MPCA has considered these comments and has worked to minimize the number of the amendments and the extent of their effect. However, the MPCA believes that the process of amending the rules is inevitable as legislation and research into soil and waste treatment technologies change. In addition, the SSTS rulemaking that occurred in 2008 was very extensive and involved significant revisions during the course of the comment period. As a result, the adopted rules contained errors and omissions that the MPCA believes are necessary to correct at this time.

The MPCA has worked with local units of government to notify them that the rules will be amended so that they can plan their ordinance revision process accordingly. Local units of

government will be encouraged to adopt the SSTS by reference in order to incorporate future revisions, or where this is not possible, to address the revisions in advance of their final adoption.

V. Reasonableness of the Amendments

A. Reasonableness of the proposed rule amendments as a whole

The reasonableness portion of the SONAR provides the discussion and background on why and how certain provisions of the proposed rules were established. Part A discusses the reasonableness of the proposed amendments as a whole. The reasonableness of each specific requirement is discussed under part B.

The MPCA believes that the proposed amendments to Minn. R. chs. 7080, 7081, 7082, and 7083 are reasonable because they will continue a process of refining and improving rules that establish standards to protect public health, safety, and the environment from the hazards of improper sewage handling or improper SSTS design. The standards contained in Minn. R. chs. 7080, 7081, 7082 and 7083 are extremely technical and very complex, and it is not surprising that as the rules are implemented, errors and inconsistencies would be identified and also that the technology and understanding of these systems will change to the point that it is reasonable to make changes.

The MPCA has identified many clarifications and modifications that it considered making to the SSTS rules, but the MCPA was concerned about the burden that too many changes would have on the regulated community and on the local units of government that are charged with implementing the rules. The MPCA deliberately limited the extent of the amendments being proposed in order to minimize the effect of too extensive revision so soon after the major amendments made in 2008. For this reason, the amendments being proposed in this rulemaking are only those that the MCPA considers to be essential to the correct design and operation of SSTS and the clear application and implementation of the SSTS rules. Some minor clarifications and corrections are being made, but only in those cases where that part was already being amended to address an issue that the MPCA believed was necessary to address.

Treatment of sewage through SSTS is very common in Minnesota. An estimated 500,000 Minnesota households rely on SSTS for sewage treatment and disposal. All 87 of Minnesota's counties, and many other local units of government are involved in the implementation of the SSTS rules. Additionally, more than 3,000 individuals hold SSTS Certifications through the MPCA's programs. This is a very large regulated community and the rules are the primary means of ensuring consistency throughout the State and the effectiveness of the SSTS program in Minnesota. The MPCA believes it is reasonable to amend the rules as necessary to keep them current and accurate.

The MPCA believes that the benefit derived from properly treating sewage is worth the cost and has justified this cost in previous rulemakings which established the existing framework of SSTS regulation. In this rulemaking the MPCA is making what it considers to be minor adjustments to the comprehensive, existing standards that currently apply to SSTS. Where

those adjustments affect the cost of the rule, either as a savings or as an expense, those economic impacts will be discussed in Part VI of this SONAR.

Most of the changes being made in this rulemaking are a result of comments the MPCA has received concerning common problems faced by SSTS owners, regulators or the industry as they implemented the 2008 amendments to the SSTS rules. In some cases, the amendments being proposed were suggested by the interested and affected parties. MPCA staff met many times with organizations and individual interested parties to decide on appropriate rule revisions. The MPCA feels that the discussions and collaboration that has occurred has resulted in amendments that are reasonable, cost effective, and can be readily implemented.

B. Specific Reasonableness of the Proposed Amendments

This section addresses the reasonableness of each rule part and answers questions about the MPCA's intent for each rule requirement.

The changes will be presented for each new rule chapter, starting with Minn. R. ch. 7080. The rule language appears in *italics*. New language is underlined and deleted language is shown by ~~strikeout~~. The justification for each proposed rule change appears immediately below the rule language.

1. Proposed Change - Minn. R. 7080.1100 Definitions, subp. 11

*Subp. 11. **Building.** "Building" means any ~~structure used or intended for supporting or sheltering any use or occupancy~~ lot improvement with a foundation.*

Justification

The current rule identifies three different types of lot improvements – dwellings, Other Establishments and structures. These three types of lot improvements have been addressed in the SSTS rules since 1996. There are many reasons why these three structures are identified in the rules, one of the reasons being the presence of setback restrictions between these types of lot improvements and SSTS components.

The MPCA has found that the current definition of "building," along with the lack of a definition of "structure," caused confusion regarding the required setbacks, as found in Minn. R. 7080.2150 Table VII. The MPCA's intent was to require a setback from SSTS components for all inhabited lot improvements (i.e., dwellings and Other Establishments) and also those improvements with foundations (i.e., buildings). The definition of "structure" is intended to indicate that there were no setbacks from these types of improvements. These "structures" can include such things as pet shelters, sheds, etc. The changes to the definition of "building" and the amended definition of "structure" in Minn. R. 7080.1100 subp. 80a, are intended to make clear which improvements require a setback. No change in the application of the setback requirements is intended.

2. Proposed Change – Minn. R. 7080.1100 Definitions, subp. 18a .

*Subp. 18a. **Contour Loading Rate**. "Contour loading rate" means the amount of effluent loaded to the soil per the length of the dispersal unit or units along the*

single hillslope along the contour. The contour loading rate is determined on the relationship between the vertical and horizontal water movement in the soil and is based on the permeability difference between the absorption area and any deeper horizons, the depth between the absorption area and the change in permeability, and the land slope.

Justification

The existing rule describes contour loading rate in Minn. R. 7080.2220 subp. 3, item B. However, since contour loading rate applies to most system types, this description is being moved in this rulemaking to the definitions section, along with minor language changes for clarity. This new definition of "contour loading rate" is being added to the rules to describe the term, which is used to design dispersal systems (see Minn. R. 7080.2150 subp. 3 item M). The MPCA's technical justification for the use of contour loading rates in SSTS system design was established in the 2008 amendments to this chapter and is not being discussed in this rulemaking. The addition of this definition in this rulemaking does not change the application or effect of the current contour loading rate requirements.

3. Proposed Change – Minn. R. 7080.1100 Definitions, subp. 41.

Subp. 41. ***Individual subsurface sewage treatment system or ISTS.****"Individual subsurface sewage treatment system" or "ISTS" means ~~an individual~~ a subsurface sewage treatment system or part thereof, as set forth in Minnesota Statutes, sections 115.03 and 115.55, that employs sewage tanks or other treatment devices with final discharge into the soil below the natural soil elevation or elevated final grade that are designed to receive a sewage design flow of 5,000 gallons per day or less.*

ISTS also includes ~~the~~ holding tanks~~, and privies,~~ that ~~serve these same facilities~~ are designed to receive a sewage design flow of 5,000 gallons per day or less; sewage collection systems that discharge into SSTS treatment and dispersal components; and privies. ISTS does not include ~~building sewers or other components regulated~~ those components defined as plumbing under chapter 4715 ~~or collection systems~~.

Justification

The definition of ISTS is being amended in several ways. The first amendment is to change the term "individual" to "subsurface." This is necessary due to changes in the terminology in Minn. Stat. § 115.56.

The amendments to the second paragraph make a couple of minor clarifications, and also a change in the scope of what is considered to be an ISTS. The minor clarifications are the establishment of the flow rate and the separation of holding tanks from privies. Only holding tanks receive a sewage design flow, so they are the only component addressed in that first sentence. Privies, which are not designed to receive a flow, are addressed in a separate sentence. These are clarifications of the terms and neither of these changes affects the scope of what is considered to be an ISTS.

However, in this rulemaking the MPCA is adding "collection systems" to the definition to now include those components which collect the raw sewage or septic tank effluent from multiple dwellings and/or Other Establishments. The collection system components that are being included are piping, tanks, pumps, manholes, and any other device whose purpose is to convey sewage or effluent to a common treatment component. Collection system components were previously excluded from regulation as part of an ISTS. However, because they are not clearly regulated as plumbing under Minn. R. ch. 4715 there was confusion about their relation to the definition of an ISTS. The MPCA believes that it is reasonable to clearly include collection systems in the definition of what is considered to be an ISTS. The collection system is an integral component of the ISTS and should be regulated as part of the system. The collection system can impact the ability of the treatment components to meet regulatory conditions. In this rulemaking the MPCA is also adding a new rule part to address the design of collection systems. The reasonableness of Minn. R. 7080.2440 is discussed at that part of this SONAR.

The MPCA recognizes that SSTS licensed designers have been routinely designing collection components which discharge to a SSTS prior to this proposed change. However, in the past there were no rules, standards or guidance available for SSTS designers to aid them in the development of these designs. To address this problem the MPCA has developed guidance for collection systems that can be found in the MPCA's document: Prescriptive Designs and Design Guidance for Advanced Designers. This guidance is part of the training requirement for being certified as an SSTS Advanced Designer. Prospective Advanced Designers are required to attend training and pass an examination that will include collection system design as established in the guidance.

The proposal to include collection systems in the definition of ISTS has been discussed with the SSTS industry and the staff of the University of Minnesota's On-Site Sewage Treatment Program and the MPCA believes that it is supported as a necessary and reasonable amendment.

4. Proposed Change – Minn. R. 7080.1100 Definitions, subp. 48.

> ~~*Subp. 48.* ***Medium sand.*** *"Medium sand" means a sand soil texture, as described in the Field Book for Describing and Sampling Soils, which is incorporated by reference in subpart 36, that ranges in size between 0.25 millimeters, sieve size 60, and 0.5 millimeters, sieve size 35.*~~

Justification

The definition of "medium sand" is being deleted and its use throughout the rule is being replaced by the term "sand." The term "sand" is the correct term used for United States Department of Agriculture (USDA) soil textural classifications. Changing this term will cause a slight deviation in the central concept of the current term "medium sand". However, this cannot be avoided when using native soils for SSTS purposes, as natural soils commonly contain a heterogeneous mixture of sand sizes. It is unrealistic, in a natural world, to specify that the sand sizes must be 100 percent medium sand size. The USDA term "sand" that will be substituted for the term "medium sand" is the closest category to reflect the concept of a medium sand. The USDA "sand" term has a range of particle sizes and limitations of the percentages of those sizes. The USDA "sand" textural category allows 15 percent clay and silt size particles and requires

25 percent or more of very coarse, coarse and medium sand, and requires < 50 percent fine or very fine sand. (Exhibit 3)

5. Proposed Change – Minn. R. 7080.1100 Definitions, subp. 64.

> *Subp. 64.* ***Pump tank****. "Pump tank" means a sewage tank or separate compartment ~~following the~~ within a sewage tank, which receives sewage tank effluent, that serves as a reservoir for a pump. A separate tank used as a pump tank is considered a septic system tank under Minnesota Statutes, section 115.55, subdivision 1, paragraph (~~o~~ p).*

Justification

The definition of "pump tank" is amended in several ways. The first amendment is to indicate that the pump tank is considered a sewage tank. This is necessary so the requirements that are applicable to sewage tanks apply (e.g. strength requirements). The second amendment is to recognize the common practice that a second compartment of a septic/pump combination tank is considered as a pump tank. The practice of combining the septic tank and pump tank into one tank divided by a compartment wall is acceptable. However, some designers conclude that the capacity of the pump tank can then be counted as part of the required septic tank capacity. This conclusion is not true. Only the liquid capacity of the septic (settling) portion of a combination tank can be credited as septic tank capacity. The reverse is also not true, as the septic tank capacity cannot be used as part of the pump tank capacity. The third change is to delete the phrase "following the" in reference to the sewage tank and replacing it with "which receives sewage tank effluent." This deletion is reasonable in order to draw a distinction between a grinder or ejector sump/tank and a SSTS effluent pump tank. A grinder or ejector sump/tank receives, stores, and pumps raw effluent and is regulated by the plumbing code, not by this chapter. Pump tanks covered under this chapter receive, store and pump effluent discharge from sewage tanks.

The definition is also amended to make a correction to an incorrect cross reference. The correct paragraph in the cited Minnesota Statute which refers to septic system tanks is "p" instead of "o" and is reasonably corrected in this rulemaking.

6. Proposed Change – Minn. R. 7080.1100 Definitions, subp. 66a.

> *Subpart 66a.* ***Rock fragments.*** *"Rock fragments" means pieces of rock two millimeters in diameter or larger that are strongly cemented and resistant to rupture. Rock fragments are commonly known as gravel, stones, cobbles, and boulders.*

Justification

A definition of "rock fragments" is being added to specify what is intended when this phrase is used at several points in this chapter. A "rock fragment" is the term used by the Natural Resource Conservation Service (NRCS) to describe the soil/geologic particles which have a diameter of greater than 2 mm. The 2 mm particle size is the largest particle size that has been tested to determine the effectiveness of sewage treatment. Soils can have a highly variable particle size ratio, with some particles that can exceed the size of known treatment abilities

(2 mm). The MPCA believes it is necessary to describe these particles to distinguish soils which may not adequately treat the sewage. Therefore the term "rock fragments" is used throughout the rules to describe these larger particles, which is in concert with the term used by the NRCS. For more information on the critical percentage of these particles which affects system design, refer to the discussion for Minn. R. 7080.2150 subp. 3 item C and Exhibit 3a.

7. Proposed Change – Minn. R. 7080.1100 Definitions, subp. 66b.

> *Subp. 66b.* ***Sand.*** *"Sand" means a sand soil texture, as described in the Field Book for Describing and Sampling Soils, which is incorporated by reference in subpart 36.*

Justification
The addition of a new definition for the term "sand" is necessary due to the removal of the term "medium sand" in Minn. R. 7080.1100 subp. 48. The justification for these changes is discussed in that part of this SONAR.

8. Proposed Change – Minn. R. 7080.1100 Definitions, subp. 74

> *Minn. R. 7080.1100, subpart 74.* ***Sewage tank.*** *"Sewage tank" means a receptacle used in the containment or treatment of sewage and includes, but is not limited to, septic tanks, aerobic tanks, pump tanks, and holding tanks. Requirements of sewage tanks are described in parts 7080.1900 to 7080.2030. Sewage tanks are considered a septic system tank in Minnesota Statutes, section 115.55, subdivision 1, paragraph (~~o~~ p).*

Justification
The definition of sewage tank is amended to make a correction to an incorrect cross reference. The correct paragraph in the cited Minnesota Statute which refers to septic system tanks is "p" instead of "o" and is reasonably corrected in this rulemaking.

9. Proposed Change – Minn. R. 7080.1100 Definitions, subp. 80a

> *Subpart 80a.* ***Structure.*** *"Structure" means a lot improvement that does not have a foundation but the location of which will interfere with the dispersal, treatment, operation or maintenance of an SSTS. Structure includes, but is not limited to, animal shelters, decks, paved areas, and sheds.*

Justification
A new definition of "structure" is being added in this rulemaking as part of the clarification of the difference between the terms, "building" and "structure." As previously discussed regarding the amendment to "building" in Minn. R. 7080.1100 subp. 11, the existing rules confused the application of the terms "building" and "structure." In this rulemaking the MPCA is clarifying that the two terms are mutually exclusive. A building is a lot improvement that has a foundation; a structure is a lot improvement that does not have a foundation. The MPCA believes that it is

reasonable to provide clear definitions of each of these terms to avoid confusion by the regulated community and conflict with the application of these rules in conjunction with local ordinances.

The MPCA has written the definition of structure so that it is based on the effect of the structure on the SSTS. Many things that are considered lot improvements will not affect any aspect of SSTS use and maintenance and need not be considered to be a structure for purposes of this rule. The definition provides examples, though not a complete listing, of what is considered to be a structure and not a building. The MPCA believes it is reasonable to define structure in this way because the many and varied lot improvements and uses are too exhaustive to list in rule and local units of government need flexibility to determine which types of structures or practices would actually affect the SSTS and would therefore require regulation. Further discussion of these terms is provided in the justification for the amendments to Minn. R. 7080.1100 subp. 11.

10. Proposed Change Minn. R. 7080.1100 Definitions, subp. 89a

> *Subp. 89a.* ***Uniform distribution.*** *"Uniform distribution" means a method that, upon activation of the SSTS, reliably distributes effluent evenly over the entire absorption area.*

Justification

A definition of "uniform distribution" is being added in this rulemaking to address the changes that are being made to the rules in regard to the distribution of effluent, specifically in Minn. R. 7080.2350, Table XI. In this table the MPCA is classifying specific performance levels and methods of distribution based on texture groups.

Uniform distribution of effluent over the entire soil dispersal system is critically important because the soil cannot adequately treat the contaminants in the effluent if the loading rate is too high. Gravity or pressure distribution can provide uniform distribution, either through pumping or through the formation of a clogging mat at the absorptive surface. The disadvantage of pressure distribution is the cost (approximately $1,000 for the pump and the pump tank), and the disadvantage of gravity is that the clogging does not immediately form, so in the interim overloading of the soil with effluent occurs. Additional technologies can provide uniform distribution of effluent over the soil dispersal system similar to a pump but without the cost of a pump. These devices include siphons and the Flout ™ system. The amendments to the definition of uniform distribution are meant to include such devices as siphons, Flouts™ and other similar technologies.

The MPCA believes this definition of "uniform distribution" is reasonable in order to establish a more comprehensive term that covers all the options available for achieving the distribution of effluent.

11. Proposed Change – Minn. R. 7080.1500 Compliance Criteria, subp. 1.

> *Subpart 1.****Treatment required.*** *Sewage discharged from a dwelling, group of dwellings, or other establishment that is not served by a system issued a permit ~~containing~~ by the agency that contains effluent and discharge limits or specific*

monitoring requirements ~~by the agency~~ must be treated according to applicable requirements.

Justification

The most significant change to this subpart is the addition of "group of dwellings or other establishment" to the first sentence. In this rulemaking the MPCA is making structural changes to how Minn. R. ch. 7081 applies its requirements. Under the existing rules, most of the requirements that apply to groups of dwellings or other establishments are specified in Minn. R. ch. 7081. In this rulemaking the MPCA is transitioning some of the requirements that are duplicated in both Minn. R. chs. 7080 and 7081 so that the requirements established in chapter 7080 are only cross referenced in chapter 7081. The amendment to add "group of dwellings or other establishments" does not change the regulatory requirements that apply to those establishments. It is only an accommodation to reflect the fact that the requirements that apply to MSTS may also be applicable to systems regulated under Minn. R. ch. 7080.

In addition, the MPCA always intended that the requirements of chapter 7080 apply to SSTS that discharge a specific volume of wastewater. During the early stages of the last rulemaking, the criteria that applied to multiple dwellings and other establishments was transferred from chapter 7080 to chapter 7081 but the MPCA inadvertently omitted to specify that chapter 7080 contains criteria for multiple dwellings and other establishments with a flow of 2,500 gallons per day or less. It was never the MPCA's intention to limit the applicability of chapter 7080 to specific types of discharges, such as discharges only from dwellings. The addition of "dwellings and other establishment" reflects the MPCA's intention regarding this rule and its current, common application.

This part is also amended to make minor sentence structure changes to clarify the intent of the requirement. The phrase "by the agency" is moved so that it more clearly modifies the subject, which is the permit that has been issued. These changes do not impact the effect of this subpart and are a reasonable improvement in the understandability of this subpart.

12. Proposed Change – Minn. R. 7080.1500 Compliance Criteria, subp. 2.

*Subp. 2. **~~Primitive~~ ~~structures~~ Hand-carried graywater.** Graywater ~~from structures without plumbing~~ that originated from hand-carried water must not be discharged directly to surface waters, drainageways, or poorly drained soils; in a manner or volume harmful to the environment or public health; or in a manner that creates a public health nuisance as determined by the local unit of government.*

Justification

In the amendments to subpart 2, the MPCA is deleting the qualifying statement of the origin of the hand-carried graywater. This is being done for two reasons. First, this use of the existing term "structure" is not compatible with the amendment being made in Minn. R. 7080.1100 subp. 80a to the definition of structure.

Secondly, the origin of the graywater is not important to the application of the requirement. The issue being addressed in subpart 2 is that domestic use of water has occurred and therefore a

wastewater has been generated. It is not important to specify the type of the shelter in which that use took place. The intent of this requirement is mainly aimed at regulating the discharge of water used inside primitive dwellings without interior "running water."

13. Proposed Change – Minn. R. 7080.1500 Compliance Criteria, subp. 4, item D.

> *D. ISTS built after March 31, 1996, or in an SWF area as defined under part 7080.1100, subpart 84, ~~shall~~ must have at least a three-foot vertical separation or a vertical separation ~~based on applicable requirement~~s in compliance with 7080.2350 subpart 2 Table XI. The local ordinance ~~must not~~ is allowed to provide for a reduced vertical separation in the following cases:*
>
> *1) Type I, II and III systems; and*
>
> *2) Types IV or V systems that are designed with at least a three-foot vertical separation distance.*
>
> *The local ordinance must not allow more than a 15 percent reduction in the vertical separation distance. A 15 percent reduction is only allowed to account for settling of sand or soil, normal variation of measurements and interpretations of the limiting layer conditions.*

Justification
Item D is amended to clarify a number of points.

The first change is to correct a possible misperception in the three-foot separation distance requirement. The way the current requirement is phrased implies that the separation distance needs to be exactly three feet, no more and no less. The proposed amendment clarifies the MPCA's intention, which was that the separation distance not be less than three feet, but could be greater. The MPCA does not believe that this clarification will have any effect on the regulated community, which generally understood the MPCA's intent for this requirement.

The second change is to clarify that the vertical separation can be reduced if it meets certain technical requirements. The language originally referred to a separation "based on applicable requirements." This phrase was too vague to be useful in directing the reader to the MPCA's intention that the applicable requirements were specified in Minn. R. 7080.2350, subp. 2, Table XI. In the MPCA's SONAR for the previous rulemaking (Exhibit 10), the discussion of the amendments to this part stated "*The first change from the former rule is to allow less than a three foot vertical separation distance for systems in SWF areas if the system was designed for less under provisions of Minn. R. 7080.2350 (Type IV systems) or Minn. R.7080.2400 (Type V system). This part allows the use of non-soil treatment components so a three-foot separation distance is not needed."* In that February 1, 2007 SONAR discussion the MPCA clearly intended that the "applicable requirements" being referred to were those established in Minn. R. 7080.2350 and 7080.2400 for Type IV and V systems. In this rulemaking, the MPCA is clarifying that Table XI in Minn. R. 7080.2350 contains the "applicable requirements" for Type

IV systems. No similar table exists for Type V systems because Type V systems are designed on performance outcomes, therefore no corresponding cross reference is provided to that rule.

The third change addresses the extent to which a local unit of government, through its ordinance, may reduce the amount of vertical separation. The current rule allows local ordinances to make a 15 percent reduction in the minimum vertical separation for all types of systems to account for slight differences in soil observations and interpretations between the original designer and the compliance inspector and to anticipate a certain amount of settling of sand for mound systems. Because different types of systems may have different requirements for separation distances, the MPCA feels it is necessary to make a clarifying distinction in the rule language. Type I, II and III systems are always required to have a minimum 3-foot separation distance, so they are identified in subitem (1) as a type of system that may qualify for a 15 percent reduction. Type IV and V systems may or may not have a required 3-foot separation distance and are therefore reasonably addressed in a separate subitem. For those types of Type IV and V systems that have a minimum three-foot separation distance, the MPCA would allow a local ordinance to provide up to a 15 percent reduction. However, for those Type IV and V systems that do not have a minimum three-foot separation distance, no further reduction may be allowed. For example, some Type IV and V systems are already allowed a reduced vertical separation distance because the design includes a pre-soil treatment process. The MPCA believes that allowing an additional 15 percent reduction for those systems that already have less than a 3-foot vertical separation is not reasonable.

The MPCA believes that the new Type IV and V systems will be designed by advanced designers who will conduct soil verification during the permit or inspection process. These newly designed systems will be held to the designed separation distance.

Finally the word "shall" is changed to "must" to conform to Minnesota rule drafting convention. The change does not have any effect on the application of this item.

14. Proposed Change – Minn. R. 7080.1500 Compliance Criteria, subp. 4, item F.

F. the vertical separation measurement for items D and E ~~shall~~ must be measured outside the area of system influence in an area of similar soil.

Justification

In item F, the word "shall" is changed to "must" to conform to Minnesota rule drafting convention. The change does not have any effect on the application of this item.

15. Proposed Change – Minn. R. 7080.1500 Compliance Criteria, subp. 5.

Subp. 5. ***Compliance criteria for systems with a flow of greater than 2,500 gallons per day****. In addition to the requirements under subpart 4, systems designed under part 7080.2150, subpart 4, ~~item A or B,~~ must demonstrate that the additional nutrient reduction component required under those items is in place and functioning.*

Justification

In the process of drafting the existing rule, the MPCA had proposed two options for nitrogen removal that were listed as items A and B in subpart 4. However, during the rulemaking process, one method was removed so that subpart 4 provided only one option. Subpart 5 of part 7080.1500 was not modified at that time to reflect this change and continued to indicate that there were still two choices. This change corrects that error without changing the effect of the existing rule.

16. Proposed Change - Minn. R. 7080.1550 Acceptable and Prohibited Discharges, subp. 2, item A.

Subp. 2 ***System influent.***

A. Footing or roof drainage and chemically treated hot tub and pool water must not be discharged into any part of the system. Products containing hazardous chemicals and hazardous waste must not be discharged to a system other than in normal amounts of household products and cleaners designed for household use. Substances not intended for use in household cleaning, including but not limited to solvents, pesticides, flammables, photo finishing chemicals, paint, and dry-cleaning chemicals must not be discharged to the system. Other unused products or substances, or unused medicines must not be discharged to the system solely as a method of disposal. Floor drains from garages serving dwellings must not be connected to the system.

Justification

The existing language of subpart 2 is amended to make it "item A" of two items. There is no change to the requirements of this item and the change is only in the format.

17. Proposed Change – Minn. R. 7080.1550 Acceptable and Prohibited Discharges, subp. 2, item B.

B. An ISTS must be designed to provide additional treatment if:

1. raw sewage exceeds 300 mg/l BOD, 200 mg/l TSS, or 50 mg/l oil and grease; or

2. sewage tank effluent applied to the soil from the sewage tank or other secondary treatment device is greater than the concentrations in part 7080.2150 subpart 3, item K.

Additional treatment must be designed by a Minnesota licensed professional engineer, or according to the recommendations in the Prescriptive Designs and Design Guidance for Advanced Designers, which is incorporated by reference in item C, or must use a product registered under chapter 7083.

Justification

Item B is added to address the need for special measures for the treatment of high strength wastes. Subitems 1 and 2 identify two types of high strength wastes. Subitem 1 addresses raw

sewage that contains high-strength levels of the raw sewage being discharged into the first SSTS component. These limits are critical because the prescriptive designs for the first treatment component found in Minn. R. 7080.1900 are only applicable to domestic strength waste. The concentrations identified in subitem 1 are derived from the Consortium of Institutes for Decentralized Wastewater Treatment manual (Exhibit 3b).

Subitem 2 identifies the concentrations found in effluent that would cause a waste to be considered "high strength" if discharged into the soil dispersal system, assuming that the soil dispersal system was designed in accordance with the prescriptive standards as found in this chapter. If effluent that is higher strength than the identified limits is discharged into a soil dispersal system that is sized in conformance with this chapter, the soil dispersal system would prematurely clog the soil, impeding the infiltration capacity. These concentrations are derived from the Consortium of Institutes for Decentralized Wastewater Treatment manual. (Exhibit 3b) These concentrations are typical for domestic septic tank effluent.

The MPCA believes that it is reasonable to require additional treatment for high strength waste. However, because the nature of high strength wastes can vary a great deal, in both composition and type, the MPCA is not able to specify in this rule how the additional treatment must be provided. The MPCA is providing three options in the rule for addressing the need for special design. The MPCA believes that it is reasonable to accommodate different situations and options for addressing unique situations. The first option is to have a licensed professional engineer design the system to address the high strength wastes. The second option for addressing special design is the use of the MPCA's design guidance as the source of information about how systems must be designed to address this concern. The MPCA's Prescriptive Design and Design Guidance for Advanced Designers will address the design of systems that will receive high strength waste and will be the guidance to follow. The reasonableness of using the Design Guidance is discussed in section 17 of this SONAR. The third option is to use a product that is included in the list of MPCA registered products to specifically address the treatment of high strength wastes.

Waste strength requirements are not new to the SSTS rules. Waste strength requirements first appeared in the 1999 SSTS rules. Those requirements applied to all sized systems under 10,000 gpd. In the 2008 amendments to the SSTS rules, the waste strength requirements were included in Minn. R. ch. 7081, but were inadvertently omitted from chapter 7080. The amendments to item B are reasonable to adequately match the waste strength with the proper system design.

18. Proposed Change – Minn. R. 7080.1550 Acceptable and Prohibited Discharges, subp. 2, item C.

> *C. Prescriptive Designs and Design Guidance for Advanced Designers, Minnesota Pollution Control Agency (September, 2009 and as subsequently amended), is incorporated by reference, is subject to frequent change, and is available at www.pca.state.mn.us/programs/ists/technical.html.*

Justification

Item C is added to provide an incorporation by reference for the MPCA's design guidance which provides technical background for design of SSTS. The Prescriptive Design Guidance is a recently developed document for designers who are working on complex systems or larger SSTS serving multiple dwellings or establishments that must collect sewage before treatment. The Minnesota State Legislature, in Minnesota Laws (2009) Chapter 109 section 11 (codified at Minn. Stat. § 115.56, subd. 2 (c)) directed the MPCA to provide design guidance to SSTS certified professionals.

> *Minn. Stat.§ 115.56, subd. 2 (c) The commissioner, in conjunction with the University of Minnesota Extension Service or another higher education institution, shall ensure adequate training and design guidance exists for subsurface sewage treatment system certified professionals.*

The MPCA believes that it would not be possible to develop rules to address all the design aspects relating to the wide variety of collection systems (gravity, pressure, septic tank effluent pressure, septic tank effluent gravity) that are used in SSTS and that this sort of complex, technical detail is more reasonably addressed in a design guidance document. The MPCA's SSTS design guidance document was recently completed in 2009 through a process of public input and in this rulemaking is being incorporated by reference in this item.

This document is available through the MPCA or on its Web page athttp://www.pca.state.mn.us/programs/ists/technical.html,. The MPCA believes that this document is the best available source to provide the most current information regarding the details of SSTS system design. The Prescriptive Design and Design Guidance for Advanced Designers is a reasonable reference material to cite in the rules to provide direction to the SSTS regulated community regarding specific details of SSTS design.

19. Proposed Change – Minn. R. 7080.1710 Preliminary Evaluation, item A.

> *A preliminary evaluation ~~shall consist~~ of a proposed site for an ISTS consists of ~~the determination, location or existence of~~ determining the following items:*
>
> *A. design flow ~~for~~, anticipated effluent concentrations of biochemical oxygen demand, total suspended solids, and oil and grease, and anticipated presence of non-domestic waste from the dwelling, dwellings, or other establishments;*

Justification

The introductory sentence of this part is amended to make minor grammatical changes that do not change the effect of these provisions. The introductory sentence deletes the reference to "location or existence" because they are not necessary to the meaning of the sentence. The phrase "of a proposed site for an ISTS" is added to clarify what the preliminary evaluation must address. Neither of these changes affects the meaning of this part.

Item A is amended to add additional factors that must be addressed in the preliminary evaluation. The rule formerly required that information regarding the design flow be provided for buildings being served by the ISTS. The amendment requires that the information about the design flow also include information about the composition of the flow because that information is also relevant to the design of the system. With the addition of the amendments to Minn. R. 7080.1550, subp. 2, item B; which incorporate high strength standards, which are already similarly addressed in chapter 7081, the MPCA is requiring different design for SSTS receiving high strength wastes. In order to evaluate the expected effectiveness of systems that are receiving some sort of non-domestic wastes or high strength wastes, it is reasonable that the preliminary evaluation include information characterizing the nature of the waste to be treated.

The requirements applicable to high strength wastes are further discussed in the amendments to Minn. R. 7080.2150, subp. 3, item K.

20. Proposed Change – Minn. R. 7080.1720 Field Evaluation, subp. 4, item C.

> *C. the soil observation method must allow observation of the different soil horizons that constitute the soil profile and, if determining the loading rate by part 7080.2150, subpart 3, item E, Table IX, an undisturbed sample must be observed ~~by a soil pit~~;*

Justification

The SSTS rules that were in effect in 2002 stipulated that the soil loading rate based on soil texture and structure must be calculated by examining an undisturbed soil sample. In the 2008 amendments, this requirement was amended to require that this undisturbed sample must be obtained from a soil pit. The inclusion of a soil pit requirement was requested by members of the SSTS industry who work in northeastern Minnesota. This area of the State has soils that can be very difficult to characterize and the use of a soil pit is often the only mechanism available. However, upon promulgation of this rule, strong objection came from the SSTS industry members who work in other parts of the State. They objected that soil pits are not necessary to make a determination of soil structure and consistence. The MPCA agrees with their objection and is returning to the previous standard. Item C is amended to delete the requirement for a soil pit and more generally require that the soil observation be made on an undisturbed sample, without specifying how that sample is obtained. The loading rates in Minn. R. 7080.2150, subp. 3, Table IX are based on determination of soil structure. Because it is not possible to make an accurate determination of soil structure and consistence if the soil sample has been disturbed it is reasonable to require observation of an undisturbed sample.

21. Proposed Change – Minn. R.7080.1720 Field Evaluation, subp. 5

> *Subp. 5.* ***Soil descriptions for determination of limiting layer.*** *Each soil profile observed at the proposed soil treatment area must be evaluated under adequate light conditions with the soil in a moist unfrozen state for the characteristics in items A to H:*

E. depth to the periodically saturated soil for new construction or replacement as determined by redoximorphic features and other indicators, as determined in subitems (1) to (3):

(3) in the upper 12 inches of the topsoil layer, if it is immediately followed by a periodically saturated horizon, the depth of seasonal saturation is determined by one or more of the indicators in units (a) to ~~(e)~~(f):

(e) redoximorphic accumulation or depletions;or

(f) the soil expressing indicators of seasonal saturation as determined in Field Indicators of Hydric Soils in the United States: A guide for Identifying and Delineating Hydric Soils, USDA Natural Resource Conservation Service (2006). The field indicators are incorporated by reference, are available through the Minitex inter-library loan system, and are subject to frequent change.

Justification

The internal soil characteristics need to be evaluated for two conditions relevant to SSTS design: (1) the limiting layer where no treatment occurs (i.e. periodically saturated soil, bedrock or gravelly sand) and (2) for water transmission abilities (for purposes of system sizing). Each of these evaluations involves different requirements and investigative methods. Minn. R. 7080.1720, subp. 5 addresses the determination of the limiting layer and describes the requirements for that determination. The MPCA has received comments from people working in the SSTS industry who were confused about whether the requirements in subpart 5 are dealing with the limiting layer determination or are related to system sizing. Therefore, the MPCA is adding the phrase "for determination of the limiting layer" for clarity. No change in the regulatory requirements is intended.

The MPCA is making amendments to item E, subitem (3) for clarity. The MPCA has always intended, and believes that the regulated community has interpreted, this introductory paragraph to mean that a soil must be evaluated by using however many of the identified indicators are necessary to determine seasonal saturation. For example, if a soil does not exhibit any of the qualities identified in subunit (a), then the indicator in subunit (b) must be considered and if that process does not reveal seasonal saturation, then the indicators in subunit (d) or (e) might need to be considered next. Once an indicator identifies the presence of seasonal saturation, then no further evaluation is required. However, the MPCA expects that an evaluation consider all of the options (not necessarily in the order they appear in the rule) until it has been determined that the limiting layer is not seasonally saturated. The MPCA believes this is a clarification of the requirements and does not intend any change in the existing protocol for making this determination.

The addition of "redoximorphic accumulation or depletions" to item E, subitem(3) (e) is reasonable because this requirement was inadvertently omitted from the rule in the process of amending the rules in 2008. The requirement to consider "redoximorphic accumulation or depletions" was part of the rule that was in effect prior to the 2008 amendments (Minn. R. 7080.0110 subp. 4 item E subitem (5) (b) (ii) – 2002) and should have been included when that rule was amended. The use of redoximorphic features to determine periodically saturated soil

conditions in topsoil is equally as valid as their use for subsoil, which is required in Minn. R. 7080.1720 subp. 5 item E, subitem (1). The option for determining redoximorphic features is being added as subunit (e) and the existing subunit (e), which identifies the USDA soil criteria, is being moved to a new subunit (f). The MCPA believes this is a reasonable re-ordering because the MPCA expects that the application of the USDA soil criteria will be very seldom necessary and that any of the options identified in subunits (a) to (e) will more commonly provide the identification being sought.

22. Proposed Change – Minn. R. 7080.1720 Field Evaluation, subp. 6.

> *Subp. 6.* ***Determination of loading rate and absorption area size.*** *The effluent loading and absorption area size must be determined by ~~either~~ item A or B, or both, as required by the local unit of government:*
>
> *A. the loading rate based on an examination of soil texture, undisturbed soil structure, and soil consistence ~~in soil pits~~ at the most limiting layer, within 12 inches below the proposed absorption area using the United States Department of Agriculture (USDA) soil classification system as specified in the Field Book for Describing and Sampling Soils, which is incorporated by reference under part 7080.1100, subpart 36; or*
>
> *B the loading rate based on the percolation procedure described in subitems (1) to (8) or other equivalent procedure as approved by the local unit of government:*
>
> *(1) each test hole must be six to eight inches in diameter, have vertical sides, and be located ~~in the~~ at the depth of the proposed soil absorption area. For mounds and at-grade systems, the bottom of each test hole must be in the upper 12 inches of the original soil. For trenches and seepage beds, the bottom of each test hole ~~shall~~ must be at the depth of the absorption area;*

Justification

The changes made to Minn. R. 7080.1720, subp. 6 clarify certain aspects of the process for the determination of the loading rate and the size of the absorption area. The amendments to item A clarify that the examination of soil structure should be in undisturbed soil, which is reasonable, because the loading rates provided in part Minn. R.7080.2150, subp. 3 are based on specific, undisturbed soil structure, which can be significantly altered by the method used to sample the soil. The reasonableness of this requirement is further discussed in the justification for the amendment to Minn. R. 7080.1720 subp. 4 item C.

The requirement being added; that the soil texture, structure and consistence must be determined at the most limiting layer within 12 inches below the absorption area, is a clarification of the MPCA's original intention regarding this determination, which was derived from a recommendation from the University of Minnesota. The MPCA intended that this aspect of site characterization only apply to the most limiting layer within 12 inches of the depth of the proposed system, and did not intend that this information be obtained for every soil layer for an

indefinite depth. The addition of this clarification will assist SSTS designers by narrowing the area of focus for their assessment. It is reasonable to obtain this information for the most limiting layer within 12 inches below the absorption area, because the presence of limiting soil conditions below the absorption area will determine whether or not the system will function adequately.

A clarification is also being made to subitem (1) of item B. The MPCA has received comments that the phrase "and be located in the soil absorption area" was not clear enough so the MPCA is reasonably changing the language "at the depth of the proposed soil absorption area." No change in the requirements is intended.

23. Proposed Change – Minn. R. 7080.1850 Sewage Flow Determination, subp 2.

Subp. 2. ***Design flow.***
The estimated design flow for any dwelling must provide for at least two bedrooms. For multiple or multifamily dwellings, the design flow ~~consists of the sum of the design flows for each individual unit~~ must be calculated according to part 7081.0120, subp.1

Justification
This part is amended by deleting the existing requirement that design flow be calculated by adding the flows of each unit and by adding a reference to Minn. R. 7081.0120, subp. 1, which establishes the requirements for determining design flows for mid-sized SSTS serving multiple dwellings. The current requirement being deleted, which only required that the determination be made by adding the flow from each dwelling, was inconsistent with the method established for multi-family dwellings in chapter 7081. This inconsistency arose during the drafting of the existing rule, with earlier drafts separating ISTS and MSTS at a flow of 2,500 gpd versus the final separation at 5,000 gpd. Therefore, due to the increased flow that is allowed for ISTS, the MPCA believes that it is reasonable to establish one system for the calculation of flows from multiple or multi-family dwellings and that the method of calculation already existing in Minn. R. 7081.0120, subp.1 is the correct method to use.

24. Proposed Change – Minn. R. 7080.1920 Septic Tank Design, item E.

Septic tanks must:

E. have a ~~reserve or storage~~ space between the liquid surface and the top of the inlet and outlet baffles of not be less than ~~eight~~ six inches or 100 gallons, whichever is greater, for all liquid depths with an effluent screen and alarm or for liquid depths of less than 39 inches without an effluent screen and alarm. The space between the liquid surface and the top of the inlet and outlet baffles must not be less than eight inches for liquid depths of 39 inches or more without an effluent screen and alarm. In addition, there must be at least one inch between the underside of the top of the tank and the highest point of the inlet and outlet baffles.

Justification

The existing rule requires that septic tanks have 8 inches or 100 gallons of reserve space, whichever was greater. The MPCA was advised that this requirement was confusing and seemed to conflict with the requirements for septic tank baffles found in Minn. R. 7080.1960, items D to F. The MPCA agrees that a discrepancy exists and that it is reasonable to amend both Minn. R. parts 7080.1920 and 7080.1960 to clarify the requirements.

The minimum baffle length which is required to extend above the liquid surface of the septic tank is conflicting in two different parts of the rule. Minn. R. part 7080.1920 item E states that the reserve capacity in the tank above the liquid level to the top of the baffle must be a minimum of eight inches. Minn. R. part 7080.1960, items D and E require a minimum of six inches of baffle height above the liquid surface. The discrepancy is a result of modifications made during the drafting of the 2008 amendments. Prior rules required a minimum of 20 percent of the liquid depth as the needed baffle height above the liquid surface with a minimum height of six inches.

In the 2008 amendments, the MPCA intended to replace the 20 percent reserve capacity with an eight-inch maximum baffle height above the liquid surface, with a minimum reserve capacity of 100 gallons to ensure adequate reserve capacity for small tanks. However, the MPCA found that in some cases, a six-inch baffle height would be sufficient to provide the 100 gallon capacity. Although the six-inch minimum is still a valid provision, the 2008 amendments did not make this clear. These amendments will re-establish the previous provision that a six-inch baffle is acceptable as long as it meets a minimum reserve capacity of 100 gallons.

An additional, third option is being provided for tank configurations that are too deep to meet the six-inch reserve capacity limit, but for whatever reason cannot meet the eight-inch reserve capacity limit. For these types of tanks, the third option allows the use of a tank that is deeper than 39 inches but that has only six inches of reserve capacity, if there is an effluent screen and alarm installed. The MPCA's concern with establishing a minimum reserve capacity is to prevent tanks from backing up into the home or spilling into and ruining drainfields. This concern can be addressed by either providing adequate reserve capacity or by providing an alarm to the system user that the capacity has been reached. The MPCA recognizes that tank designs can be highly variable and believes that providing three options to meet the need for a reserve capacity is a reasonable accommodation to the needs of tank manufacturers and the SSTS regulated community.

25. Proposed Change – Minn. R. 7080.1930 Septic Tank Capacity, subp. 2.

Subp. 2. ***Garbage disposals****.*

If a garbage disposal unit ~~or other appliance with garbage grinding capability~~ is anticipated or installed in a dwelling, the septic tank capacity must be at least 50 percent greater than that required in subpart 1 and must include either multiple compartments or multiple tanks. In addition, either an effluent screen with an alarm, or a pressure filter, must be employed.

Justification

This subpart formerly required that the use of any appliance with a garbage grinding capability would require a 50 percent increase in septic tank capacity. The increased capacity was based on the assumption that food waste would significantly increase the need for septic tank retention space. The MPCA believes that this is true for garbage disposals that are designed and used to process significant amounts of food waste. Other than under-the-sink garbage disposals, a dishwasher is the most common other type of appliance with garbage grinding capacity. The MPCA believes that in most cases, a dishwasher does not receive the same amount of food waste as an under-the-sink garbage disposal. Dishwashers generally are not used as a primary food waste disposal mechanism. The MPCA believes that the amount of food waste from a dishwasher is minimal and that it is reasonable to delete the requirement to increase the septic tank capacity to accommodate this small additional amount of waste. This amendment is supported by the SSTS Advisory Committee.

This subpart is also amended by the addition of the option to have a pressure filter instead of an effluent screen with an alarm for ISTS employing a pump filter. These two options were provided in the existing rules in the corresponding provision in part 7081.0240, subpart 3, but in the 2008 amendments, the option to use a pressure filter was inadvertently omitted from the chapter 7080 requirements. The MPCA believes it is reasonable to add pressure filters as an alternative to the existing requirement for an effluent screen with an alarm.

26. Proposed Change – Minn. R. 7080.1930 Septic Tank Capacity, subp. 3.

Subp. 3. **Sewage pumping.**

If sewage is pumped from a sewage ejector or grinder pump from a dwelling to a septic tank, the septic tank capacity must be at least 50 percent greater than that required in subpart 1 and must include either multiple compartments or multiple tanks. In addition, either an effluent screen with an alarm, or a pressure filter, must be employed.

Justification

This subpart is amended by the addition of the option to have a pressure system instead of an effluent screen with an alarm for these types of ISTS. These two options were provided in the existing rules in the corresponding provision in Minnesota R. 7081.0240. subp. 3, but in the 2008 amendments, the option to use a pressure filter was inadvertently omitted from the chapter 7080 requirements. The MPCA believes it is reasonable to add pressure filters as an alternative to the existing requirement for an effluent screen with an alarm.

27. Proposed Change – Minn. R. 7080.1930 Septic Tank Capacity, subp. 5.

*Subp. 5. ~~Systems Serving~~ **Septic tank capacity for multiple dwellings.***

A. For systems serving ~~multiple~~ 10 or fewer dwellings with a common septic tank, the liquid capacity must be determined by adding the capacities for each dwelling as determined in this part or according to subpart 6.

B. For systems serving more than 10 dwellings with a common septic tank, the requirements of subitem 1 or 2 apply.

1) Total septic tank liquid capacity for common tanks serving multiple dwellings under gravity flow to common tanks is determined by multiplying the design flow by 3.0 or according to subpart 6; or

2) Total septic tank liquid capacity for common tanks serving multiple dwellings under pressure flow to common tanks is determined by multiplying the design flow by 4.0 or according to subpart 6.

C. Total septic tank liquid capacity for systems employing individual tanks at each dwelling discharging into a collection system must be determined :

1) by a Minnesota licensed professional engineer; or

2) according to the recommendations of the Prescriptive Designs and Design Guidance for Advanced Designers, incorporated by reference under part 7080.1550, subpart 2.

Justification

Minn. R. 7080.1930, subp. 5 is being amended to address several concerns.

The heading for this subpart is being changed to clarify that it specifically applies to septic tank capacity and not to the entire system.

The addition of new requirements for larger systems has required that the existing requirement be re-formatted as item A and limited to only applying to systems that serve ten (10) or fewer dwellings. This existing requirement is being amended to remove the reference to systems serving "multiple" dwellings and more specifically identify it as applying only to systems serving "10 or fewer." The MPCA believes it is reasonable to remove the ambiguous "multiple" and clearly distinguish between the types of systems that are being addressed. The existing requirements now identified in item A only apply to systems serving ten (10) or fewer dwellings.

A new item B is being added to address requirements necessary to be consistent with septic tank capacity requirements in chapter 7081. During the 2008 rulemaking to amend the rules, early drafts of chapter 7080 were written for a maximum flow of 2,500 gallons per day. When the flow limits allowed in chapter 7080 were increased to 5,000 gallons per day, no corresponding change was made to reflect the tank capacity needed for these larger flows. The amendments to item B will reasonably correct that omission. The requirements of subitems (1) and (2) correspond to the requirements formerly found in Minn. R. 7081.0240, subp. 2; which are being deleted in this rulemaking.

The MPCA is also, in this rulemaking, adding a phrase clarifying that the provisions of the current subpart 6, which addresses advanced treatment devices, is also an option. The addition of this phrase is a clarification that subpart 6 is applicable to those systems that employ advanced

treatment devices. This is reasonable because the proper tank capacity is first and foremost determined by the requirements of any advanced treatment device.

Item C addresses the total septic tank liquid capacity for systems employing individual tanks at each dwelling that discharge into a central collection system. The MPCA recognizes that there are a number of factors to be considered and that the design considerations for these types of tanks can vary to the extent that it is not possible to prescribe a method in the rules to address all contingencies. For this reason the MPCA believes it is reasonable to provide options for addressing this issue. The amendment allows the use of either a licensed professional engineer or reference to the MPCA's Prescriptive Design and Design Guidance for Advanced Designers. Either of these options will adequately address the determination of tank capacity.

28. Proposed Change – Minn. R. 7080.1930 Septic Tank Capacity, subp. 7.

Subp. 7. ***Septic tank capacity for other establishments.***

~~*Septic tank liquid capacity for other establishments shall be determined by part 7081.0240, subpart 2.*~~ *Total septic tank liquid capacity for other establishments with domestic strength waste as described in 7080.1550 subpart 2 item B, subitem (1), is determined by multiplying the design flow by 3.0 if receiving sewage under gravity flow, by multiplying the design flow by 4.0 if receiving sewage under pressure flow, or according to subpart 6. Additional design considerations, such as equalization tanks, additional capacity or secondary treatment, are required for influent concentrations that exceed the levels identified in 7080.1550, subpart. 2, item B, subitem (1).*

Justification

The amendments to this part simply take the provisions that are already in Minn. R. 7081.0240 and move them to this part. The MPCA believes that it is reasonable to locate baseline requirements in chapter 7080 and only address the additional requirements needed for larger systems in chapter 7081. During the 2008 rulemaking to amend these rules, early drafts of chapter 7080 were written only for dwellings and did not address requirements for Other Establishments with a flow of 2,500 gallons per day or less. However, during that rulemaking, a change was made to chapter 7080 to include regulations for Other Establishments with flow of less than 5,000 gallons per day. When this change was made, no corresponding accommodation was made to chapter 7080 to also address high strength waste conditions. The MPCA believes that this amendment is a clarification and that no change in the regulatory requirements is intended.

29. Proposed Change – Minn. R. 7080.1930 Septic Tank Capacity, subp. 8.

Subp. 8. ***Oil and grease interceptor****. An exterior oil and grease interceptor must be employed if oil and grease exceeds the amounts identified in 7080.1550, subpart 2, item B, subitem (1)*

Justification

Subpart 8 is being added in this rulemaking to require the use of an oil and grease interceptor, exterior to the establishment, when the amount of oil or grease exceeds the amounts identified in Minn. R. 7080.1550, subp.2, item B, subitem (1). The amendment to this subpart corresponds to an existing requirement, which is currently located in Minn. R. 7081.0240, subp. 7 and no change in the regulatory requirements is intended.

30. Proposed Change – Minn. R. 7080.1940 Multiple Tanks, item B.

7080.1940 Multiple Septic Tanks

B. ~~If~~ When tanks are connected in series, each tank or compartment must contain at least 25 percent of the required total liquid capacity. ~~For new construction the first tank must be equal to or larger than of any subsequent tank in the series.~~

Justification

The heading of this part is amended to insert the word "septic" to clarify that this part regulates septic tank and not other types of tanks such as pump tanks or holding tanks. Because there are different standards that apply to different types of tanks, it is important that the rule title clearly identify the scope of what is being regulated.

The requirement that the largest tank must be placed first in a series of tanks is being deleted. A comment to the MPCA indicated that if the first clause is adequate (that no tank or compartment can be less than 25 percent of the required total capacity), then the second clause is not necessary. For example, if 10,000 gallons of total septic tank is needed the smallest tank or compartment would be 2,500 gallons. If more septic tank capacity is elected to be used as a safety factor and one of the tanks will now be 3,500 gallons, it should be allowed to go anywhere in the series, as the 2,500 gallon tank was allowed to be first without the additional capacity. The MPCA still recommends that the largest tank be placed first, but with this amendment it is no longer a requirement.

31. Proposed Change – Minn. R. 7080.1960 Septic Tank Baffles, items D and E.

D. The inlet baffle must extend at least six inches, but not more than 20 percent of the total liquid depth below the liquid surface and at least ~~six inches above the liquid surface~~ one inch above the crown of the inlet sewer.

E. The outlet baffle and any baffles between compartments must extend below the liquid surface a distance equal to 40 percent of the liquid depth, except that the penetration of the indicated baffles or sanitary tees for horizontal cylindrical tanks must be 35 percent of the total liquid depth. They must also extend above the liquid surface as ~~required in item D~~ determined in part 7080.1920, item E. ~~These baffles must extend at least six inches above the liquid surface.~~

Justification
Item D is amended to change the reference to "six inches above the liquid surface" to "one inch above the crown of the inlet sewer" in order to eliminate a requirement that is already being addressed in Minn. R. 7080.1929 and to address a concern that tanks must have a minimum of one inch above the crown of the inlet sewer. This one inch of clearance is necessary because the floatable scum layer could then plug the inlet sewer. This requirement has been part of the SSTS rules since 1978 and was inadvertently omitted in the 2008 amendments.

Item E is also amended to refer to Minn. R. 7080.1920, item E, which is being amended in this rulemaking to address the requirements for tank reserve capacity (which relates to baffle height). The discussion of the reasonableness of that change is discussed at that part of this SONAR.

32. Proposed Change – Minn. R. 7080.1970 Septic Tank Access, item A.

> *A. Septic tanks ~~shall~~ must have a minimum of two maintenance holes with a minimum diameter of 20 inches (least dimension). ~~One~~ Maintenance ~~hole~~ holes must be placed over the inlet baffle and the outlet device (baffle or screen). ~~Another maintenance hole must be near the center of the tank, to facilitate pumping without interference. For a compartmented tank, this hole must be centered over the first compartment. The tank must also have an inspection pipe with a minimum diameter of six inches over the inlet baffle.~~ The maintenance holes must be large enough to allow pumping without interference. Enough maintenance holes must be provided so access can be gained within six feet of all walls for solids removal of each compartment. Inspection pipes of no less than six inches must be provided over any baffles that are not otherwise accessible through a maintenance hole.*

Justification
The amendments to this part were prompted in part by comments from the regulated community. The MPCA was advised that the requirement to have a maintenance hole near the center of the tank was unsafe and unreasonable because, for certain designs, it could weaken the structure of the tank. The MPCA agrees with this concern and has revised the rule so that adequate access must be provided, but not necessarily through a hole placed at the center of the tank. At a minimum, access must be provided at the points of the inlet and outlet devices. The MPCA's intent for this part is to ensure that adequate access is available in order to conduct necessary solids maintenance and repairs.

The existing requirement regarding the inspection pipe has been deleted and rephrased at the end of the paragraph so that the inspection pipe is only required when inspection cannot be done through the maintenance hole.

The first sentence of this item is also amended to change "shall" to the more correct "must." This is a style change to reflect the rule drafting convention and does not change the effect of this requirement.

33. Proposed Change – Minn. R. 7080.2050 Distribution of Effluent, subpart 4, item A

A. ~~Pressure distribution must pressurize the entire distribution system and must be used for:~~
~~(1) mound systems;~~
~~(2) at-grade systems;~~
~~(3) all seepage beds placed in soils with a texture group of 1 through 5 in Table IX in part 7080.2150, subpart 3, item E;~~
~~(4) all seepage beds with a width greater than 12 feet;~~
~~(5) all trench systems if the trenches are at the same elevation and placed in soils with a texture group of 1 through 5 in Table IX in part 7080.2150, subpart 3, item E;~~
~~(6) systems receiving treatment level A or B effluent, as determined in part 7083.4030, Table III; and~~
~~(7) all systems where the distribution network is installed above the original grade.~~

All systems must be pressurized as required in parts 7080.2200 to 7080.2400.

Justification
Subpart 4, item A is amended by deleting all the existing system-specific requirements and adding a simple phrase that directs the reader to the rule parts in which system-specific distribution requirements are identified. The MPCA believes that it is more appropriate to address the issue of whether or not a system requires pressure distribution in the rule that specifically regulates each type of system. The MPCA believes that the change to delete subitems (1) to (7) and replace them with a broad reference to a range of applicable rules is not in itself a significant change and is reasonable simply as a rule drafting clarification. However, in other parts of this rulemaking the MPCA is also making changes to some of those specified rules regarding the conditions under which pressure distribution will be required. Those changes will be discussed in this SONAR as they occur in those rule parts.

34. Proposed Change – Minn. R. 7080.2100 Dosing of Effluent, subp. 4, item B

B. The pump discharge capacity must be based on the perforation discharges for a minimum average head of 1.0 foot for 1/4 inch and 3/16 inch perforations and 2.0 feet for 1/8 inch perforations for dwellings. The minimum average head must be 2.0 feet for ~~all~~ other establishments with 3/16 to ¼ inch perforations and 5.0 feet of head for 1/8 inch perforations. Perforation discharge is determined by the following formula:

Justification
This amendment makes this requirement consistent with corresponding requirement in Minn. R. 7081.0260 item C. The perforation and head requirements relating to “other establishments” were inadvertently omitted in a previous rulemaking and are reasonably corrected in his rulemaking. Allowing 1/8” (small holes) can result in the potential for higher strength waste from a non-dwelling establishment to plug these smaller holes with sewage solids. To offset this plugging problem, more head pressure is required to scour the holes free of solids.

35. Proposed Change – Minn. R. 7080.2100 Dosing of Effluent, subp. 4, item D

D. The quantity of effluent delivered for each pump cycle must be no greater than 25 percent of the design flow and at least ~~five~~ four times the volume of the ~~supply and~~ distribution pipes plus the volume of the supply pipe.

Justification

The amendment to item D reduces the volume that is required for each pump cycle. The rule previously required that the quantity per dose not be less than five (5) times the volume of the supply and distribution pipes. This was placed in the rule to ensure that most of the effluent gets distributed under pressure, which only occurs when the pipe is full. In contrast to that requirement, the existing rule also required no less than four (4) doses per day to optimize soil treatment with small doses of effluent into the soil. The requirement for frequent doses meant that there would be a lower volume of effluent in the pipe and consequently, less pressure in the pipes. Therefore, the MPCA needed to amend the rule to achieve a balance between these opposing requirements. In order to meet both the pressure and dosing requirements with the standard pipe sizes available to the industry, the existing multiplication factor of five times the pipe volume capacity needed to be reduced. Exhibit 4 shows that by using four times the pipe volume, four doses per day with 1.25 inch pipe, all trench and bed designs can meet this requirement. Discussions with engineering staff indicate that three to five times the pipe volume will be sufficient to provide equal distribution.

Lastly, the rule is modified to correct a mistake in the existing rule which requires that the multiplied pipe volume also includes the volume of the supply pipe. This is incorrect. For equal distribution to occur, only the pipe volume of the distribution pipes needs to be multiplied by four, not the volume of the supply pipe. Only one volume of the supply pipe is needed to be added in order to pressurize the system.

36. Proposed Change – Minn. R. 7080.2150 Treatment and Dispersal, subp. 3

*Subp. 3.**Other technical requirements for systems**. Items A to ~~I~~ M are required for specific designs as determined in parts 7080.2200 to 7080.2400.*

C. For acceptable treatment of septic tank effluent by soil, the soil treatment and dispersal systems must meet the requirements of subitems (1) and (2).

(1) A minimum three-foot vertical soil treatment and dispersal zone ~~shall~~ must be designed below the distribution media that meets the criteria in units (a) to (c):

(b) any soil layers ~~with a texture group of 1 or 4 in Table IX in item E~~ that are sand or loamy sand texture with 35 to 50 percent rock fragments must ~~not~~ be credited at only one-half their thickness as part of the necessary ~~three-foot~~ treatment zone. Soil layers, regardless of soil texture, with greater than 50 percent rock

fragments must not be credited as part of the necessary treatment zone; and

Justification

This subitem has been amended by changes to (b) that modify and clarify the existing restrictions on coarse texture soils. The existing rule had identified certain soil textural groups as being too coarse to provide any treatment of effluent. The amendment to this part deletes the previous references to "soil textural groups", because this manner of classifying soil is being removed in the changes to Table IX in Minn. R. 7080.2150. The amendment instead identifies two soil textures (sand or loamy sand), that when they contain 35 to 50 percent rock fragments, are only credited with a 50 percent treatment capacity. Unlike the existing rule, which did not acknowledge any treatment capacity in the coarse soils, the amendments recognize that some treatment does occur as effluent moves through these types of soil. Sands and loamy sands that have less than 35 percent rock fragments are allowed full credit for calculation of the treatment zone. Sands that have from 35 to 50 percent rock fragments, and loamy sands that have from 35 to 50 percent rock fragments, can be credited with half their thickness in the calculations required to achieve the necessary treatment zone as determined in Minn. R. 7080.2150 subp. 3 item C or 7080.2350 subp. 2 Table XI. Any type of soil that has more than 50 percent rock fragments, including sands and loamy sands, is not considered to provide any treatment and cannot be counted in the determination of treatment zone. The MPCA believes that it is reasonable to amend (b) to clarify the effect of rock fragments on the treatment effectiveness of soils. The amendments make the rules slightly less stringent in the case of soils that have 35 to 50 percent rock fragments and clarify the existing conditions which specified that certain soils received no credit as part of the treatment zone.

This provision ensures that adequate soil conditions exist to properly remove fecal organisms in the soil. Since the rules were revised in 1996, Minn. R. ch. 7080 has defined bedrock as a layer with greater than 50 percent rock. Bedrock is considered as a limiting layer, which does not qualify as a treatment medium (i.e., no fecal organism removal). The term "bedrock" has been further refined as any coarse earthen material with a size of greater than 2 mm. This size was chosen because soil treatment experiments are mainly conducted with material smaller than 2 mm. Therefore the treatment ability of material larger than 2 mm is largely unknown.

The 50 percent maximum concentration limit for rock fragments will apply to all soil textures. However, since sand soils have less treatment ability than heavier textured soils, it is reasonable to set a different treatment standard when the sand soils contain considerable rock fragments. The state of Wisconsin recognizes this problem and requires more separation distance for sandy soils with 35 percent or more rock fragments (Exhibit 5, Table 83). The rules are amended to count any sandy soil layer with 35 to 50 percent rock fragments as counting only 1/2 of its thickness as a treatment medium. This is due to the fact that there is less surface area that is in contact with the effluent and the shorter residence time in the soil to attenuate the fecal organisms for natural or accelerated die-off or predation by indigenous soil fauna.

Discussions during the process of drafting the 2008 amendments suggested that soil layers containing appreciable amounts of coarse sand should also be counted only as 1/2 the treatment credit thickness. After review of the state of Wisconsin's rules, which considers coarse sand as a

viable treatment zone, the MPCA decided to amend the rule to allow coarse sand as a treatment media.

37. Proposed Change – Minn. R. 7080.2150 Treatment and Dispersal, subp. 3, item E

> *E. The system's absorption area and mound absorption ratio must be sized according to Table IX or IXa.*

Justification
Item E is amended to add a reference to "mound absorption ratio" and Table IXa because this information was moved from current tables IXa, XII and XII to be consolidated into one table. The addition of this information does not change the effect of the rule but clarifies that both Table IX and IXa contain information relevant to the mound absorption ratio.

The MPCA always intended that both methods addressed by Table IX and IXa be considered in the sizing of absorption area because some local ordinances may still require a percolation test (which is covered under Table IXa) to size a soil dispersal system.

38. Proposed Change – Minn. R. 7080.2150 Treatment and Dispersal, subp. 3, item E – Table IX

TABLE IX

LOADING RATES FOR DETERMINING BOTTOM ABSORPTION AREA ~~FOR TRENCHES AND SEEPAGE BEDS FOR EFFLUENT TREATMENT LEVEL C~~ AND ABSORPTION RATIOS ~~FOR DETERMINING MOUND ABSORPTION AREAS~~ USING DETAILED SOIL DESCRIPTIONS

~~Texture~~	~~Texture group~~	~~Structure~~	~~Grade~~	~~Consistence~~	~~Soil loading rate (gpd/ft^2)~~	~~Mound absorption ratio~~
~~Course sand*~~	~~1~~	~~single grain~~		~~loose~~	~~0.00~~	~~1~~
		~~single grain~~		~~weakly cemented-friable~~	~~0.00~~	~~2~~
		~~single grain~~		~~cemented-firm~~	~~0.00~~	~~0~~
~~Medium sand*~~	~~2~~	~~single grain~~		~~loose~~	~~1.20~~	~~1~~
		~~single grain~~		~~weakly cemented-friable~~	~~0.60~~	~~2~~

		single grain		*cemented-firm*	*0.00*	*0*
Fine sand	*3*	*single grain*		*loose*	*0.60*	*2*
		single grain		*weakly cemented-friable*	*0.24*	*5*
		single grain		*cemented-firm*	*0.00*	*0*
*Coarse and medium loamy sand**	*4*	*single grain*		*loose*	*1.20*	*1*
		single grain		*weakly cemented-friable*	*0.60*	*2*
		single grain		*cemented-firm*	*0.00*	*0*
Fine and very fine loamy sand	*5*	*single grain*		*loose*	*0.60*	*2*
		single grain		*weakly cemented-friable*	*0.24*	*5.0*
		single grain		*cemented-firm*	*0.00*	*0*
Coarse and medium sandy loam	*6*	*pris, blk, gr*	*weak*	*v. friable, friable*	*0.45*	*2.6*
		pris, blk, gr	*weak*	*firm*	*0.24*	*5.0*
		pris, blk, gr	*mod or strong*	*v. friable, friable*	*0.78*	*1.3*
		pris, blk, gr	*mod or strong*	*firm*	*0.45*	*2.6*
		platy	*weak*	*v. friable, friable*	*0.45*	*2.6*
		platy	*weak*	*firm*	*0.24*	*5.0*
		platy	*mod or strong*	*v. friable, friable*	*0.45*	*2.6*

		platy	*mod or strong*	*firm*	*0.00*	*0.0*
		massive		*v. friable, friable*	*0.24*	*5.0*
		massive		*firm*	*0.00*	*0.0*
Fine and v. fine sandy loam	*7*	*pris, blk, gr*	*weak*	*v. friable, friable*	*0.24*	*5.0*
		pris, blk, gr	*weak*	*firm*	*0.24*	*5.0*
		pris, blk, gr	*mod or strong*	*v. friable, friable*	*0.60*	*2.0*
		pris, blk, gr	*mod or strong*	*firm*	*0.24*	*5.0*
		platy	*weak*	*v. friable, friable*	*0.24*	*5.0*
		platy	*weak*	*firm*	*0.00*	*0.0*
		platy	*mod or strong*	*v. friable, friable*	*0.00*	*0.0*
		platy	*mod or strong*	*firm*	*0.00*	*0.0*
		massive		*v. friable, friable*	*0.24*	*5.0*
		massive		*firm*	*0.00*	*0.0*
Loam	*8*	*pris, blk, gr*	*weak*	*v. friable, friable*	*0.45*	*2.6*
		pris, blk, gr	*weak*	*firm*	*0.24*	*5.0*
		pris, blk, gr	*mod or strong*	*v. friable, friable*	*0.60*	*2.0*
		pris, blk, gr	*mod or strong*	*firm*	*0.24*	*5.0*
		platy	*weak*	*v. friable, friable*	*0.24*	*5.0*
		platy	*weak*	*firm*	*0.00*	*0.0*
		platy	*mod or strong*	*v. friable, friable*	*0.00*	*0.0*

		platy	*mod or strong*	*firm*	*0.00*	*0.0*
		massive		*v. friable, friable*	*0.24*	*5.0*
		massive		*firm*	*0.00*	*0.0*
Silt loam	*9*	*pris, blk, gr*	*weak*	*v. friable, friable*	*0.45*	*2.6*
		pris, blk, gr	*weak*	*firm*	*0.24*	*5.0*
		pris, blk, gr	*mod or strong*	*v. friable, friable*	*0.50*	*2.4*
		pris, blk, gr	*mod or strong*	*firm*	*0.24*	*5.0*
		platy	*weak*	*v. friable, friable*	*0.24*	*5.0*
		platy	*weak*	*firm*	*0.00*	*0.0*
		platy	*mod or strong*	*v. friable, friable*	*0.00*	*0.0*
		platy	*mod or strong*	*firm*	*0.00*	*0.0*
		massive		*v. friable, friable*	*0.24*	*5.0*
		massive		*firm*	*0.00*	*0.0*
Clay loam, silty clay loam, sandy clay loam	*10*	*pris, blk, gr*	*weak*	*v. friable or friable*	*0.24*	*5.0*
		pris, blk, gr	*weak*	*firm*	*0.00*	*0.00*
		pris, blk, gr	*mod or strong*	*v. friable or friable*	*0.45*	*2.6*
		pris, blk, gr	*mod or strong*	*firm*	*0.24*	*5.0*
		platy	*weak*	*v. friable or friable*	*0.00*	*0.00*
		platy	*weak*	*firm*	*0.00*	*0.00*
		platy	*mod or*	*v. friable or*	*0.00*	*0.00*

				~~*strong*~~	~~*friable*~~		
			~~*platy*~~	~~*mod or strong*~~	~~*firm*~~	~~*0.00*~~	~~*0.00*~~
			~~*massive*~~		~~*v. friable or friable*~~	~~*0.00*~~	~~*0.00*~~
			~~*massive*~~		~~*firm*~~	~~*0.00*~~	~~*0.00*~~
~~*Clay, silty clay, sandy clay*~~	~~*11*~~		~~*pris, blk, gr*~~	~~*weak*~~	~~*v. friable, friable*~~	~~*0.00*~~	~~*0.00*~~
			~~*pris, blk, gr*~~	~~*weak*~~	~~*firm*~~	~~*0.00*~~	~~*0.00*~~
			~~*pris, blk, gr*~~	~~*mod or strong*~~	~~*v. friable, or friable*~~	~~*0.24*~~	~~*5.0*~~
			~~*pris, blk, gr*~~	~~*mod or strong*~~	~~*firm*~~	~~*0.00*~~	~~*0.00*~~
			~~*platy*~~	~~*weak*~~	~~*v. friable, friable*~~	~~*0.00*~~	~~*0.00*~~
			~~*platy*~~	~~*weak*~~	~~*firm*~~	~~*0.00*~~	~~*0.00*~~
			~~*platy*~~	~~*mod or strong*~~	~~*v. friable, friable*~~	~~*0.00*~~	~~*0.00*~~
			~~*platy*~~	~~*mod or strong*~~	~~*firm*~~	~~*0.00*~~	~~*0.00*~~
			~~*massive*~~		~~*v. friable, friable*~~	~~*0.00*~~	~~*0.00*~~
			~~*massive*~~		~~*firm*~~	~~*0.00*~~	~~*0.00*~~

~~*All very firm consistence has a loading rate of 0.0.*~~

Major soil texture grouping (with less than 50% rock fragments or as otherwise noted)	***Structure Shape***	***Structure Grade***	***Moist Consistence***	***Treatment Level C absorption area loading rate (gpd/ft^2)***	***Treatment Level C mound absorption ratio*****	***Treatment Levels A, A-2, B, and B-2 absorption area loading rate (gpd/ft^2)***	***Treatment Levels A, A-2, B, and B-2 mound absorption ratio*****
All sands with 35%	*Single*	*N/A*	*Loose*	-	*1*	-	*1*

to 50% rock fragments	*grain*						
Coarse sand or sand with <35% rock fragments	*Single grain*	*N/A*	*Loose*	*1.2*	*1*	*1.6*	*1*
Fine sand and loamy fine sand with <35% rock fragments	*All, except massive*	*N/A*	*Loose, very friable, or friable*	*0.6*	*2*	*1*	*1.6*
Sandy loam	*All and massive*	*Weak to strong**	*Very friable or friable*	*0.78*	*1.5*	*1*	*1.6*
Loam	*All and massive*	*Weak to strong**	*Very friable or friable*	*0.6*	*2*	*0.78*	*2*
Silt loam	*All, except platy and massive*	*Weak to strong*	*Very friable or friable*	*0.5*	*2.4*	*0.78*	*2*
Clay loam	*All, except platy and massive*	*Moderate to strong*	*Very friable or friable*	*0.45*	*2.6*	*0.6*	*2.6*
Clay	*All, except platy and massive*	*Strong*	*Very friable or friable*	*-*	*5*	*0.3*	*5.3*
Other clays	*N/A*	*N/A*	*N/A*	*-*	*-*	*-*	*-*

**Excludes moderate and strong platy structure*

***Mound media bed absorption area loading rate of 1.6 gpd/ft^2*

Justification

Table IX is being significantly revised in this rulemaking. The existing Table IX is deleted and is replaced with a new Table IX. The table is being revised because MPCA has received comments from the industry about two major problems with the existing Table IX.

The first problem is that the table is too long and complicated. Field practitioners do not need to refine their assessment to that level of detail in order to correctly size the soil dispersal system. The MPCA agrees with those who commented about the length and complexity of the table as it relates to practical application. The amended table combines similar soil textures into larger groupings. For example, the soil textures sandy clay loam, clay loam and silty clay loam are being combined into the term "clay loams" indicating that all three clay loam textures are found in that category. This is also true for the sandy textures; coarse sand, sand, coarse and medium loamy sand are combined into the "sands and loamy sands" category. The MPCA believes that it is more reasonable to use these larger categories for the rule requirements and, if necessary, training materials can be developed to aid in the understanding of how the soil texture groupings have been combined. The MPCA does not believe that the simplification and restructuring of the groupings of soils in the table will result in significant changes to the actual requirements as they apply to soil assessment and system design.

The second problem identified by commentors is that the current table too greatly decreases the loading rate (i.e., greatly increases the required size of the soil dispersal system) depending on changes in the soil structure and consistence. The MPCA agrees that the current table is too conservative. The amended Table IX was prepared by a process of examining past versions of Minn. R. ch. 7080, the state of Wisconsin's code for sizing soil treatment areas, (Exhibit 5, Tables 83.44 -1 and 83.44-2) and also a proposal by the North Carolina State University as it relates to changes in sizing due to changes in structure (Exhibit 7). The MPCA has developed numerical sizing values based on soil structures and consistence for most of the common soil conditions found in Minnesota. For extreme soil conditions (such as clay textures with massive structure) that are not commonly used for SSTS and for unusual conditions where the MPCA has had little field experience with sizing, the MPCA believes that a percolation test should be conducted to determine the infiltration capacity of these extreme conditions. The existing Table IX did not address this option and simply indicated that these conditions were not suitable for a Type I system. However, the MPCA believes that if the results of the percolation test or similar test indicate adequate infiltration capabilities (as determined in Table IXa), then a Type I soil dispersal system can be constructed at such a site.

Table IX has also been amended to eliminate the use of soil grouping numbers. The MPCA believes that it is clearer and more convenient simply list the individual soil textures as they occur in the rule.

The title of this table has also been amended to make it clearer. This change does not alter the application or effect of the table.

39. Proposed Change – Minn. R. 7080.2150 Treatment and Dispersal, subp. 3, item E – Table IXa

TABLE IXa
LOADING RATES FOR DETERMINING BOTTOM ABSORPTION AREA ~~FOR TRENCHES AND SEEPAGE BEDS FOR EFFLUENT TREATMENT LEVEL C~~ AND ABSORPTION RATIOS ~~FOR DETERMINING MOUND ABSORPTION AREAS~~ USING PERCOLATION TESTS

~~Percolation rate (minutes per inch)~~	~~Gallons per day per square foot of trench bottom~~	~~Mound absorption ratio~~
~~Faster than 0.1*~~	~~0.0~~	~~1~~
~~0.1 to 5*~~	~~1.20~~	~~1~~
~~0.1 to 5~~	~~0.6~~	~~2~~
~~6 to 15~~	~~0.78~~	~~1.3~~ 1.5
~~16 to 30~~	~~0.6~~	~~2~~
~~31 to 45~~	~~0.5~~	~~2.4~~
~~46 to 60~~	~~0.45~~	~~2.6~~
~~61 to 120~~	~~0.24~~	~~5.0~~
~~Slower than 120~~	~~0.0~~	~~-~~

~~*See part 7080.2260 for requirements for these soils.~~

Percolation rate (mpi)	***Treatment level C absorption area loading rate (gpd/ft^2)***	***Treatment level C mound absorption ratio***	***Treatment levels A, A-2, B, and B-2 absorption area loading rate (gpd/ft^2)***	***Treatment levels A, A-2, B, and B-2 mound absorption ratio***
<0.1	-	*1.0*	-	*1.0*
0.1 to 5	*1.2*	*1.0*	*1.6*	*1.0*
0.1 to 5 (fine sand and loamy fine sand)	*0.6*	*2*	*1*	*1.6*
6 to 15	*0.78*	*1.5*	*1*	*1.6*

16 to 30	*0.6*	*2*	*0.78*	*2*
31 to 45	*0.5*	*2.4*	*0.78*	*2*
46 to 60	*0.45*	*2.6*	*0.6*	*2.6*
61 to 120	-	*5.0*	*0.3*	*5.3*
>120	-	-	-	-

Justification

Table IXa is amended to add several new columns of loading rate information to include loading rates and mound absorption ratios for Type IV systems. The table formerly only provided information relating the percolation rate to the gallons per day per square foot of trench bottom and a column identifying the mound absorption ratio for Type I systems. The information in these two columns has been expanded and revised to provide loading rates and mound absorption ratios for each specific level of treatment (A, A-2, B, B2 and C). The MPCA believes that it is reasonable because the current table that contains this information (Table XIIa) can be eliminated. In addition to providing more specific information, Table IXa has also been revised in regard to certain of the loading rates. In existing Table IXa, the mound absorption ratio for the six (6) to 15 minute per inch percolation rate is in error and is being changed in this rulemaking. The absorption ratio should be 1.5 instead of 1.3 (which is the result of 1.2 gpd/ft2 divided by 0.78 gpd/ft2).

The existing listing of a loading rate for 61 to 120 minute per inch percolation rate (0.24 gallons per day per square foot) is also in error. Systems designed to operate in those slow percolation rate soils are not considered Type I, but Type III systems. This has been a requirement of the SSTS rules since the inception of Minn. R. ch. 7080 in 1978 (7080.0170 – Table III, 1978). The error occurred in the 2008 amendments to these rules and is reasonably corrected at this time. The correct loading rate is 0.3 gallons per day per square foot, as shown in the column for treatment levels A, A-2, B and B2 in the revised Table IX.

The title of this table has also been amended to make it clearer. This change does not alter the effect of the table. Although the table heading had not previously specified that it could be applied to at-grade beds, this was an error in the existing rules and is reasonably addressed by eliminating all references to the specific types of systems to which this table can be applied.

40. Proposed Change – Minn. R. 7080.2150 Treatment and Dispersal, subp. 3, items I and J

I. A minimum of six inches of topsoil borrow ~~shall~~ must be placed over the systems.

J. A close-growing, vigorous vegetative cover must be established over the soil treatment and dispersal system and other vegetatively disturbed areas. The sodding, seeding, or other vegetation establishment ~~shall~~ must begin immediately after the placement of the topsoil borrow. The soil treatment and dispersal system must be protected from erosion and excessive frost until a vegetative cover is established. The vegetative cover established must not interfere with the hydraulic performance of the system and ~~shall~~ must provide adequate frost and erosion protection. Trees, shrubs, deep-rooted plants, or hydrophytic plants must not be planted in the system.

Justification
"Shall" is being changed to "must" to conform to rule drafting convention. This amendment does not alter the effect of this requirement.

41. Proposed Change – Minn. R. 7080.2150 Treatment and Dispersal, subp. 3, item K.

K. Sewage tank effluent concentrations to the soil dispersal system must not exceed a BOD concentration of 170 mg/l, a $CBOD_5$ concentration of 125 mg/l, a TSS concentration of 60 mg/l or an oil and grease concentration of 25 mg/l.

Justification
When Minn. R. ch. 7080 was amended in 2008, the need for establishing maximum concentrations for influent to the soil dispersal system was overlooked (although maximum concentrations for influent were included for chapter 7081 in the 2008 amendments). Establishing maximum influent concentrations is just as important for smaller SSTS as well as larger SSTS because the soil loading rates and clogging dynamic are the same. Therefore, the MPCA is reasonably adding maximum influent concentrations to Minn. R. 7080.2150, subp. 3 to correct this omission. The maximum influent concentrations are slightly modified from those that are currently found in Minn. R. 7081.0130 subp. 2.

In this rulemaking, the maximum value currently found in part Minn. R. 7081.0130, subp. 2 for BOD has been lowered from 175 to 170 and the maximum value for TSS has been lowered 65 to 60. These changes are being made so that the State rules will correspond to new national recommended concentrations for these constituents (Exhibit 3b). A value for $CBOD_5$ is also being added because BOD values can be expressed by different analytical methods. The two concentrations established for BOD and $CBOD_5$ allow the use of either method. The corresponding changes to Minn. R. 7081.0130, subp. 2 are also discussed in this SONAR and also the discussion of the amendments to Minn. R. 7080.1710 item A relate to these influent values. The MPCA believes it is reasonable that the State standards for these constituents reflect the best and most current information available. The MPCA does not anticipate that the slight reduction of these values will have a significant effect on the design or operation of SSTS.

42. Proposed Change – Minn. R. 7080.2150 Treatment and Dispersal, subp. 3, item L.

L. The distribution media must not be in contact with soils with any sand soil texture with 35 percent or more rock fragments or any soils that have a percolation rate of less than 0.1 minute per inch.

Justification

This is an existing requirement that is being moved from Minn. R. 7080.2260 subp. 2, where it applied only to rapidly permeable systems. The amendment to move this requirement to this part will make it applicable to all types of SSTS. Further discussion of the reasonableness of moving this requirement is provided at that part of this SONAR.

The current provision in Minn. R. 7080.2260 subp. 2, bases the prohibition on references to soil textural group 1 in current Table IX. Soil textural group 1 consisted of coarse sand. This designation first occurred in the 2008 amendments to chapter 7080. Upon investigation, the MPCA believes that this designation may have been too conservative. In past rules this requirement was always expressed as a percolation rate (less than 0.1 minutes per inch (mpi)). However, when sizing a system based on the soil morphology method in lieu of the percolation test, this provision needed to be expressed as a soil texture. This conversion was first attempted in the 2008 amendments, with the conclusion that soils with 50 percent or greater coarse sand equated to the less than 0.1 mpi percolation rate. However, commentors have suggested that the adopted conversion was incorrect. The MPCA did further investigation and determined that the presence of rock fragments were the cause of a percolation rate of less than 0.1 mpi instead of the influence of the coarse sand fraction. Therefore, the existing coarse sand limitation is being replaced by extending this prohibition to any soil with a sand texture (coarse, medium or fine sand) which has 35 percent or more rock fragments.

The MPCA's decision to set the limit at 35 percent rock fragment concentration is reasonable because 35 percent is between few or no rock fragments and 50 percent rock fragments (for which no treatment credit is given). The presence of 35 percent rock fragments is also a concentration boundary used by the Natural Resource Conservation Service (Exhibit 3) soil survey program, information that can be helpful in determining if the soil in question may have 35 percent or greater rock fragments. The limit of 35 percent rock fragments is also used by the state of Wisconsin (Exhibit 5).

43. Proposed Change – Minn. R. 7080.2150 Treatment and Dispersal, subp. 3, item M

M. The contour loading rate for soil dispersal systems must be between 1 and 12 gallons per lineal foot per day.

Justification

The existing rule regulating mound systems (Minn. R. 7080.2220 subp. 3, item B) stipulates that contour loading rates must be used to determine the system length. However, the existing rule does not provide numerical limits. In this rulemaking, the requirements regarding contour loading are being deleted from Minn. R. 7080.2220, subp. 3 and are being addressed by adding item M to part 7080.2150, subp. 3 in order to also apply to at-grade systems The way that the rules address the contour loading requirement is also being changed to move the detailed

description of contour loading rate from where it is currently found in Minn. R. 7080.2220, subp. 3 to a new definition in Minn. R. 7080.1100, subp. 18a.

Item M provides specific limits for the contour loading rate. The maximum contour loading rate allowed of 12 gallons per day per linear foot was chosen based on the MPCA's experience over many years of observing successful hydraulic performance at mound systems with a linear loading rate of 12 gallons per day per linear foot. The MPCA recognizes that certain national experts recommend a maximum contour loading rate of eight (8) gallons per day per linear foot (Exhibit 8). However many years of experience in Minnesota clearly indicates to the MPCA that a maximum contour loading rate of 12 gallons per day per linear foot can be used with a very high rate of success. Using the eight (8) gallon per linear foot national standard would result in longer and narrower mounds, which may be hard to fit on some lots. Also, long and narrow mounds increase the amount of sand needed, which is very costly. The MPCA notes that 12 gallons per day per lineal foot is a maximum rate and that in many circumstances, it will be reasonable to reduce that rate, as is allowed in the amendments.

44. Proposed Change – Minn. R. 7080.2210 Trenches and Seepage Beds, subp. 1 items B and D

Subp. 1. ***Characteristics.***

To qualify as a trench or seepage bed system, the system must meet ~~or exceed~~ the requirements of items A to E:
B. meet ~~or exceed~~ applicable technical requirements of parts 7080.1900 to 7080.2030, 7080.2050, and 7080.1885;
D.meet ~~or exceed~~ the requirements of part 7080.2150, subparts 2 and 3 except subpart 3, item M;

Justification
The amendment to item D is necessary because in this rulemaking the contour loading rate provision has been moved to Minn. R. 7080.2150 subp. 3 item M. Trench and bed systems were not previously subject to the contour loading rate restriction and it is reasonable to continue to clearly exclude them from the requirements. Therefore, this additional language does not change the existing requirements for trenches and beds in regard to the application of the contour loading rates.

The introductory sentence, and also items B and D, are amended to remove the phrase "or exceed". The MPCA believes that this phrase is unnecessary where it occurs throughout the SSTS rules. The common understanding of the rules is that they are minimum standards and that SSTS can, at any time, be designed to exceed the standards set in these rules. In Minn. R. 7080.1050, Purpose and Intent, the MPCA has stated that *"the Pollution Control Agency provides minimum environmental protection standards for ISTS as defined in this chapter."* The MPCA originally adopted the phrase "or exceed" at a number of places in the rules to address the concern that local units of government might feel that a standard could only be exactly met, neither more nor less than specified in the State rules. This was never the MPCA's intent, and if a system could be designed to achieve better treatment than the minimum, the MPCA always intended that it be allowed by the local unit of government implementing the rules. The MPCA

believes that at this time there is a better level of understanding among the local units of government regarding the application of minimum standards so that the phrase “or exceed” is no longer necessary and can reasonably be deleted.

45. Proposed Change – Minn. R. 7080.2210 Trenches and Seepage Beds, subp. 2

*Subp. 2.**~~Seepage beds.~~ General***

Seepage bed placement must be limited to areas having natural slopes of less than six percent. Absorption areas for seepage beds and trenches must not be placed in soils with a ~~texture group of 10 and 11 on~~ loading rate of less than 0.45 gallons per day per square foot or as shown in Tables IX or IXa in part 7080.2150, subpart 3, item E. Seepage beds must not be located in floodplains.

Justification

The first change to this subpart is to change the title from “Seepage Beds” to “General” since this part is not limited to seepage beds but applies to both seepage beds and trenches. The second change is to add “Absorption areas” to the second sentence to clarify that the soil conditions at the absorptive (infiltrative) surface is the critical component being addressed. The second sentence is changed to remove references to the soil textural classifications in Table IX and replace them with the actual loading rate that is applicable to those soils that were previously referenced. The second sentence also adds a reference to Table IXa, which is being amended in this rulemaking to also include loading rates based on percolation rates. The discussion provided in this SONAR for the amendments to Minn. R. 7080.2150 subp. 3 item E more completely addresses the changes being made to Table IX and IXa. The MPCA does not believe that the amendments will result in any actual change to the application of this subpart.

46. Proposed Change – Minn. R. 7080.2210 Trenches and Seepage Beds, subp. 3, item B

B. The minimum sidewall absorption is six inches. The bottom absorption area is allowed to be reduced, for trenches only, by the following:

Sidewall absorption - inches	*Bottom area reduction*
12 to 17	*20%*
18 to 23	*34%*
24	*40%*

A 40% reduction is not allowed with a loading rate of 1.2 gallons per day per square foot.

Justification

Subpart 3 allows a designer to reduce the bottom absorption area by a certain percent depending on the amount of absorption that will occur in the sidewalls of the trench. This has been a longstanding provision in Minn. R. ch. 7080. The reduction in bottom area results in an increase in the bottom area loading rate. The amendment to this item adds a prohibition to the maximum reduction for trenches that will receive a specific loading rate to limit the increase in the loading

rate to the bottom area. The MPCA believes that this is a reasonable prohibition because allowing a 40 percent reduction in bottom area absorption in sandy soil conditions will result in a bottom area loading rate of 2.7 gallons per day per square foot. This loading is greater than 2.0 gallons per square foot per day which is the limit at which research has shown will result in adequate virus removal within the three-foot treatment zone. (Exhibit 9)

47. Proposed Change – Minn. R. 7080.2210 Trenches and Seepage Beds, subp. 4 item A

Subpart 4. ***Design and construction of trenches and seepage beds.***

A. Trenches must be no more than 36 inches wide. Any excavation wider than 36 inches ~~shall be considered~~ is a seepage bed. A seepage bed must not be wider than 12 feet if gravity distribution is used and 25 feet if pressure distribution is used. Natural, undisturbed soil must exist between multiple trenches and seepage beds. Multiple seepage beds must be spaced at one-half the bed width~~. ~~Multiple units must be designed based on contour loading rates as described in part 7080.2220, subpart 3, item B.~~

Justification

Subpart 4, item A is amended to make a minor grammatical change to the first sentence. This sentence is amended to more affirmatively state what constitutes a seepage bed and to eliminate the use of "shall", which is inconsistent with Minnesota rulemaking convention. This item also is amended to delete the last sentence, which provided a cross reference to a subpart which is being deleted in this rulemaking. Minn. R. 7080.2220, subp. 3, item B addressed the determination of contour loading rates but is being deleted in this rulemaking. The reasonableness of that change is discussed at that part of this SONAR.

48. Proposed Change – Minn. R. 7080.2210 Trenches and Seepage Beds, subp. 4, item F

F. Trenches and seepage beds in which the distribution media is in contact with soils that are sand, loamy sand, fine sand or loamy fine sand or soils with a percolation rate of 0.1 to 5 minutes per inch must employ one or more of the following measures:

1) Employ pressure distribution according to 7080.2050 subp. 4;
2) Divide the total dispersal area into multiple units that employ serial distribution, with each dispersal unit having no greater than 15% of the required bottom absorption area; or
3) Have a vertical separation distance of at least five feet.

Justification

When the rules were amended in 2008, the SONAR explained the MPCA's concerns about poor distribution of effluent with gravity distribution systems and also the concern that overloading the soil with effluent results in inadequate treatment of contaminants before reaching a zone of saturation or bedrock, especially in sandy soils. (Exhibits 10 and 10a) In the 2008 rulemaking, the MPCA attempted to correct this problem by requiring pressure distribution of effluent in sandy soil conditions. However, the rule language that was adopted in Minn. R. 7080.2050,

subp. 4, item A, subitem (5) to require pressure distribution contained an error. Prior to the 2008 amendments, part 7080.0170 required that systems in sand be divided into four equal parts. In the 2008 amendments, the MPCA intended to require all systems in sand to be pressurized. However, because of an error that used "and" instead of "or" in Minn. R. 7808.2050 subp. 4, item A (5), pressurizing was not required except for systems that have trenches at the same elevation and are in sand.

The MPCA, in discussions with the SSTS industry about how to correct this problem, found strong objections to any proposal to broadly require pressure distribution. The industry's objections centered on the extra costs associated with pressure distribution, denial that poor distribution actually resulted in poor treatment, and issues associated with determining the compliance status of existing, non-pressurized systems in sandy soils. The MPCA responded to these concerns by conducting more investigation into the matter. The result of the MPCA's investigation indicated that additional methods other than pressurization could be employed to provide more even distribution and adequate treatment. The investigation examined how the State rules had previously regulated sandy soil conditions (Exhibit 11) and research relating to fecal organism removal in sandy soils (Exhibit 12). Additional research regarding the effect of soil treatment is provided in Exhibit 14.

The results of the MPCA's investigation resulted in the three methods addressed in this rulemaking for providing treatment in sandy soil conditions. Those methods are: (1) pressure distribution, (2) dividing the system into short lengths (15 percent or less of the total length), or (3) requiring at least five feet of separation distance to the limiting layer.

1. Pressure Distribution – Pressure distribution will provide even distribution using a pump with perforations spaced no greater than three feet apart.

2. Each trench length cannot exceed 15 percent of the total required system length. This requirement is a return to how previous versions of chapter 7080 dealt with this problem. The rule that was in effect prior to the 2008 amendments required system segments to be no greater than 25 percent of the total system length. However, it appears from evidence from the University of Minnesota that this method may not be as effective as other methods for achieving uniform distribution. Conceptually, shorter segments should provide better distribution so the MPCA is allowing this option. But in these amendments the MPCA is also shortening the allowed length from 25 percent of total length per segment to 15 percent. The MPCA believes it is reasonable to allow this as an option, but will continue seeking input from the industry and will continue to investigate this type of design to determine if these shorter segments do indeed provide better distribution. The shorter lengths can be constructed by use of a centrally located drop box with staggered outlet holes, or by leaving some natural soil between the shorter lengths on the same contour. (Exhibit 15)

3. The loading rate can be safely increased (an increased loading rate occurs when effluent is not uniformly distributed) if more vertical separation distance to the limiting layer is employed. The MPCA's review of research (Exhibits 16 and 16a) indicates that approximately five feet of vertical separation distance is sufficient to treat the waste at

an anticipated loading rate of 2.5 gallons per square foot. This is with the understanding that the soil treatment zone must be within seven (7) feet of final grade for adequate oxygen transfer (7080.2150, subpart 3, item C (1) (c)). The MPCA believes that a vertical separation distance of five (5) feet or more is reasonable to accommodate additional loading that might result from uneven distribution of effluent through the distribution media.

49. Proposed Change – Minn. R. 7080.2220 Mounds, subp. 2, item C

C. On slopes of one percent or greater and where the original soil mound absorption ratio is 5.0 or greater in Table IX or IXa in part 7080.2150, subpart 3, item E, mounds must not be located where the ground surface contour lines that lie directly below the long axis of the distribution media bed represent a swale or draw, unless the contour lines have a radius of curvature greater than 100 feet. Mounds must never be located in swales or draws where the radius of curvature of the contour lines is less than 50 feet.

Justification
Item C is amended to make a minor change to correct an omission in the existing language by adding "ratio" to complete the term "soil mound absorption ratio." This is a reasonable addition to make sense of the term as it is used in the referenced table.

50. Proposed Change – Minn. R. 7080.2220 Mounds, subp. 3 item B.

B.~~The mound distribution media bed area must be as long and narrow as practical.~~ Mound distribution media beds must be determined by 7080.2150, subpart 3, item M and must be no wider than ten feet.~~ Mound distribution bed widths must be determined by the contour loading rate, which is the relationship between the vertical and horizontal water movement based on the following soil conditions:~~

~~(1) the permeability difference between the original soil mound absorption area and slower permeability horizons below the original soil mound absorption area;~~

~~(2) the depth between the original soil mound absorption area and the change in permeability described in subitem (1); and~~

~~(3) the land slope.~~

Justification
Item B is amended by deleting all of the requirements relating to contour loading (leaving only one sentence that relates to distribution media bed sizing). In the amendments to Minn. R. 7080.1250, subp. 3, the MPCA is adding a new item M which addresses contour loading in a way that is applicable to all types of systems, not only mound systems. The contour loading requirements in item B are reasonably deleted because they are being replaced by the new

language in Minn. R. 7080.2150, subp. 3, item M, which is discussed in detail at that part of this SONAR.

51. Proposed Change – Minn. R. 7080.2230 At-grade Systems, subp. 3 item A

> *A. The at-grade bed absorption width must be determined according to part ~~7080.2220, subpart 3, item B~~ 7080.2150, subp. 3, item M and must not exceed a width of 15 feet. The at-grade bed absorption width for slopes of one percent or greater does not include any width of the media necessary to support the upslope side of the pipe.*

Justification
The language in this item that refers to the contour loading rates for mound systems is being deleted because in this rulemaking it is being replaced by new language in Minn. R. 7080.2150, subp. 3, item M which is discussed in detail at that part of this SONAR.

52. Proposed Change – Minn. R. 7080.2230 At-grade Systems, subp. 3 item F.

> *F. Six inches of loamy or sandy cover material must be installed over the distribution media. Cover must extend at least five feet from the ends of the ~~rock~~ media bed and be sloped to divert surface water. Side slopes must not be steeper than four horizontal units to one vertical unit. Six inches of topsoil borrow must be placed on the cover material.*

Justification
The 2008 revisions to chapter 7080 replaced the term “rock” bed with the term “media” bed wherever it occurred throughout the rules. However, the reference in Minn. R. 7080.2230, subp. 3, item F to “rock” bed was overlooked and is reasonably changed to correspond to similar references in the rule.

53. Proposed Change – Minn. R. 7080.2250 Type II systems

> *Systems designed according to parts ~~7080.2260~~ 7080.2270 to 7080.2290 are considered Type II systems.*

Justification
This reference change is reasonable because in this rulemaking, Minn. R. 7080.2260, which addresses systems in rapidly permeable soils, is being deleted and the appropriate range of references now starts at Minn. R.7080.2270.

54. Proposed change – Minn. R. 7080.2260 Rapidly Permeable Soils

~~***7080.2260 RAPIDLY PERMEABLE SOILS.***~~

> ~~*Subpart 1.**General.** A system must be designed under this part if the soil in the proposed absorption area, or within three vertical feet of the absorption area, has*~~

~~*a soil texture group of 1 through 3in Table IX in part 7080.2150, subpart 3, item E. The system must meet or exceed the following requirements:*~~

~~*A. employ the design flow values in part 7080.1850;*~~

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

~~*C. meet or exceed the requirements of parts 7080.2210 to 7080.2230;*~~

~~*D. meet or exceed requirements of part 7080.2150, subparts 2 and 3, except as modified in this part; and*~~

~~*E. meet the requirements of subparts 2 and 3.*~~

~~*Subp. 2. **Contact with soil.** The distribution media must not be in contact with soils with a texture group of 1 as listed in Table IX in part 7080.2150, subpart 3, item E.*~~

~~*Subp. 3.**Treatment techniques.** If the distribution media is in contact with soil with soil texture groups 2 or 3in Table IX in part 7080.2150, subpart 3, item E, pressure distribution must be used as specified in part 7080.2050, subpart 4.*~~

Justification

Although this part is being deleted, the effect of these requirements will remain because they are being moved into different rule parts as applicable for that component (i.e., trenches, beds, mounds, etc.). There are two reasons for this change. The first reason is to make it easier to locate the requirements as they relate to each component. The second reason is that rapidly permeable soil systems were classified as Type II systems. In past versions of chapter 7080, rapidly permeable soil systems were considered as a Type I (i.e., Standard System). However, this was not the case in the rules as they were amended in 2008. The MPCA believes that moving the requirements that apply to rapidly permeable soils into the different sections will result in a better understanding that a system placed in rapidly permeable soils should be classified as a Type I system.

The MPCA does not believe that systems placed in rapidly permeable soils pose a level of uncertainty of performance that would warrant their classification as a Type II system. The mitigation used to overcome sandy soil limitations is not necessarily complex at the level that is required for a Type II through V system. In addition, the operating and maintenance requirements for systems in sandy soils are negligible.

Some of the existing requirements formerly found in this part have been modified as well as moved to a new rule part. Justification for changes to Minn. R. 7080.2150 subp. 3, new item L and 7080.2210 subp. 4 item new item F, are provided in this SONAR at those parts.

55. Proposed change – Minn. R. 7080.2300 Type III systems, subp. 1.

Subpart 1. ***Requirements***

A system ~~designed according to this part is considered~~ that deviates from the requirements in parts 7080.2210 to 7080.2240 is a Type III system. ~~The~~ Deviations from the standards in parts 7080.2210 to 7080.2240 must be submitted to the local unit of government for approval or denial. However, no deviation is allowed from the following standards and at a minimum a Type III system must:

A. employ design flow values in parts 7080.1850 to 7080.1885;

B. meet ~~or exceed applicable~~ technical requirements of part 7080.2050~~, subpart 4, item A~~;

C. meet the requirements of parts 7080.1900 to 7080.2030;

D.meet the requirements of parts 7080.2100 with mound and at-grade systems required to have pressure distribution;

~~C~~E. provide flow measurement;

~~D~~F. meet ~~or exceed~~ the requirements of part 7080.2150, ~~subpart~~ subparts 2 and 4; ~~and~~

~~E~~G. meet ~~or exceed~~ the requirements of part 7080.2150, subpart 3, items A, B, C, ~~G~~, F, I, ~~and~~ J~~.~~, and L; and

H. *follow the absorption area loading rates in 7080.2150, subpart 3, item E, Tables IX, and IXa. If the site cannot accommodate a soil treatment and dispersal system sized in accordance with Table IX or IXa in part 7080.2150, subpart 3, item E, a smaller soil treatment and dispersal system is allowed to be constructed if it employs flow restriction devices that do not allow loadings in excess of those in Table IX or IXa of part 7080.2150, subpart 3, item E. In those cases where a loading rate or mound absorption ratio is not listed in Table IX and IXa in part 7080.2150, subpart 3, item E, an alternative loading rate or absorption ratio must be proposed.*

Justification

Minn. R. 7080.2300 is being extensively revised to address concerns that have been identified since this part was amended in 2008. Under the existing rules, a Type III system was any system that met the requirements established in five items, A through E. These existing requirements were that the system had to employ design flow values, provide flow measurement, have pressure distribution under certain conditions, meet basic health and safety requirements and meet a number of basic technical requirements with an emphasis on providing three feet of vertical separation as the primary treatment mechanism. The MPCA's reason for developing the Type III classification was to provide an SSTS option for sites with soil conditions that could pose hydraulic problems. The MPCA believes that it is reasonable to

amend this part to address two concerns. First, the MPCA had has found that there is confusion about what constitutes a Type III system. Secondly, the MPCA has found that certain additional standards, which the MPCA believed were implicit, are not being applied and need to be specified as basic requirements for these types of systems.

The MPCA is addressing the first issue, the problem of a confused scope by amending the introductory paragraph. The existing language was not clear that a Type III system would need to be designed to consider all the design components for any type of ISTS, although certain of those requirements could be modified to suit specific limitations and considerations. The amendments clarify that a Type III system is a system that is designed to address all of the components of other types of systems, (eg. trench, mound, etc) but which may deviate from some of them if approved by the local unit of government. The MPCA's intention for this rule governing Type III systems is that certain standards would be required, but that variations from other aspects of system design and operation would be left to the discretion of the local unit of government. The MPCA believes that it is reasonable for the MPCA to establish a baseline for every type of system, as required by Minn. Stat. § 115.55, but that it is also reasonable to allow flexibility for local concerns and site specific variability. However, as discussed below, there are certain minimum requirements that, if deviated from, should cause the system to be classified as a Type V system, which would require professional engineering.

The following changes are being made to Minn. R. 7080.2030 and constitute the list of the minimum requirements that may not be deviated from in the design of Type III ISTS.

Item A is not being amended.

Item B is amended to remove the phrase "or exceed". The reasonableness of that amendment is discussed with the justification of the amendments to part 7080.2210, subp. 1. Item B is also amended to remove the specific reference to subpart 4, item A and instead require that all of Minn. R. 7080.2050 be applied to Type III systems. Subpart 4, item A formerly referred to specific requirements for pressure distribution for some designs but is being deleted in this rulemaking. Subpart 1 of Minn. R. 7080.2050 is a general statement of scope, subpart 2 establishes minimum standards for supply pipes, subpart 3 establishes requirements applicable to gravity distribution systems, and subpart 4, as it is revised in the this rulemaking, establishes requirements applicable to pressure distribution of effluent. The MPCA believes it is reasonable to require that all of these parts of 7080.2050 be applied to Type III systems, as they are applicable, to ensure proper design of these essential system components. Designing a system that deviates from these standards could be considered the purview of a professional engineer. Note: The MPCA recognizes that the requirements of subparts 3 and 4 of Minn. R. 7080.2050 are exclusive to certain types of systems (gravity and pressure systems) and does not intend that both sets of requirements be applied to the same system. Only the requirements that are appropriate to the type of system (either gravity or pressure) will be required. For example, pressure distribution is still required for mound and at-grade systems.

Item C is added to establish a range of applicable requirements addressing minimum design requirements for tanks. The MPCA believes that the tank standards in Minn. R. 7080.1900 to

7080.2030 are minimum standards for the design and installation of tanks and that no deviation from these standards is reasonable in the case of a Type III system.

Item D is added to require the application of all of the requirements established in Minn. R. 7080.2100 regarding dosing of effluent. The MPCA believes that the correct dosing of effluent is essential to the operation of an ISTS and should not be subject to local decisions regarding deviations. Minn. R.7080.2100 establishes different options for different types of system design and the MPCA believes that they are reasonable to apply to all types of systems, including Type III systems.

Item E is an existing requirement that has been re-numbered because of the changes to the previous requirements. The requirement that a Type III system provide for flow measurement has been in the rules since the 2008 amendments and is a reasonable requirement to retain.

Item F is an existing requirement that is being renumbered and expanded in this rulemaking. The requirement to meet the general technical requirements of Minn. R. 7080.2150, subp. 2 was a requirement of the existing rules. In this rulemaking, an additional requirement is added to also require compliance with the requirements of subpart 4, which specifically apply to systems that have a design flow of more than 2,500 gallons per day. These types of large ISTS systems present a specific threat to groundwater quality and the MPCA believes that it is reasonable to require that large Type III systems also employ a Best Management Practice to reduce nitrogen loading to the environment.

Item G is an existing requirement that is amended to delete an existing item and add additional items. The existing rule requires that Type III systems may not deviate from the requirements of Minn. R. 7080.2150, subp. 3, items A, B, C, G, I and J. In this rulemaking the MPCA is deleting the requirement for compliance with item G and adding a requirement that no deviations may be made from items F and L.

The existing requirement that Type III systems cannot deviate from the requirements of Minn. R. 7080.2150, subp. 3, item G was an error in the previous rulemaking that is reasonably corrected at this time. Item G relates to the need to maintain site soils in a natural state during excavation. However, the reality of site preparation is that sometimes soil structure does become damaged through the use of heavy equipment. The MPCA believes that in some cases it may be reasonable for the local unit of government to approve the system as a Type III, but it will be necessary to make a deviation from the requirements of part 7080.2150, subp. 3 item G. Such deviations, if they are carefully considered by the local unit of government, are a reasonable accommodation for those cases where site damage has occurred.

Minn. R. 7080.2150, subp. 3, item F relates to the use of a covering fabric over drainfield rock. The MPCA did not previously identify this as an essential design element of a Type III system. However, the MPCA believes that this was an error in the previous rule and that the use of covering fabric is an essential element of proper drainfield design. The MPCA believes that it is reasonable to clearly identify this as a requirement that cannot be deviated from for a Type III system.

Minn. R. 7080.2150, subp. 3, item L is an existing item that is moved in this rulemaking. The reasonableness of this requirement is discussed at that part in this SONAR. The MPCA believes that this requirement, which relates to the location of distribution media on highly permeable or highly impermeable soils, is essential to the design of any type of functional system, including Type III systems. The MPCA believes that no alternative technology or design standards exist that properly treat effluent if the permeability of the soil immediately below the distribution media is not within the ranges identified in item L. It is reasonable that such an important component of system design not be deviated from in the design of Type III systems (systems with any deviations being considered as a Type V system.)

Minn. R. 7080.2300, item H is former item E, which is being amended in two ways. The first change to this existing requirement is the addition of a phrase that requires all Type III systems to follow the absorption loading rates and ratios identified in the tables found in Minn. R. 7080.2150, subpart 3, item E. The area loading rates and absorption ratios established in these tables are amended in this rulemaking and are discussed in more detail at that part of this SONAR. The MPCA believes that those rates are the basis for the proper design and operation of any system and therefore, believes that they cannot be deviated from for Type III systems. If a designer intends to deviate from these established rates and ratios, the system is more appropriately classified as a Type V system, not a Type III. The MPCA believes that requiring design in accordance with the established flow rates and ratios is a reasonable condition for allowing a system to be classified as a Type III system.

Item H is additionally amended by the addition of a provision to address those situations where the identified tables do not provide a loading rate or absorptive ratio. The MPCA believes that it is reasonable to recognize that those situations, although rare, may occur. When a site has a soil condition that is not addressed in the tables, the MPCA believes it is reasonable to allow the designer to propose to the local unit of government an alternative that they believe will ensure the safe operation of the system and provide adequate treatment of effluent. The MPCA anticipates that in most situations, a percolation test will be conducted to give some indication of the soil's hydraulic conductivity.

56. Proposed change – Minn. R. 7080.2350 subp. 1, items D and E.

> *D. meet ~~or exceed~~ the requirements of part 7080.2150, subpart 3, items A and B; ~~and~~*
>
> *E. meet ~~or exceed~~ the requirements of Table XI in subpart 2 ~~and Table XII or XIIa in subpart 3.~~ <u>;and</u>*

<u>Justification</u>
Item E is amended to delete references to Tables XII and XIIa in subpart 3. These tables are being removed in this rulemaking and it is reasonable to delete references to them. A discussion of the reasonableness of removing these tables is provided in that part of this SONAR.
The phrase "or exceed" is also being deleted in items D and E for the reasons discussed for the amendment to Minn. R. 7080.2210, subp. 1 of this SONAR.

57. Proposed change – Minn. R. 7080.2350 subp. 1, item F.

> *F. meet soil dispersal requirement of parts 7080.2210, 7080.2220, and 7080.2230, except that the reductions in part 7080.2210, subpart 3, item B, are not applicable.*

Justification

The existing rule does not describe the basic requirements of a Type IV system. For example, does a mound system designed under Type IV requirements need to use clean sand as described for Type I systems? The change to include item F requirements will eliminate this ambiguity. It is the MPCA's intent that Type IV systems meet all the requirements of a Type I system, except for the differing specifications as described in Minn. R. 7080.2350 subps. 2 and 3. By not providing these basic requirements, the current rule leaves local regulators with little ability to ensure the proper design of Type IV soil dispersal components. The MPCA believes that local regulators and the SSTS industry generally understood this to be true, but it was never officially codified in rule.

The exception to Item F states that downsizing of Type IV soil dispersal systems, based solely on increased sidewall depth, will not be allowed. Type IV systems can be designed at slightly higher loading rates, using Tables IX and IXa, based on the premise that less biological clogging will occur in the soil's infiltrative surface. Type IV systems are also designed to uniformly distribute treated effluent, meeting Treatment Levels A, A-2, B, and B-2, over the soil's infiltrative surface. If a Type IV soil dispersal system "ponds" or holds effluent in the trench for an extended period of time, that would indicate the system may be malfunctioning in some fashion (i.e., the treatment product is not properly functioning; too much water is entering the system, etc.). Additional sidewall for the adsorption of effluent is not applicable when little or no biological clogging occurs, as would be the case for Type IV systems.

58. Proposed change – Minn. R. 7080.2350 Type IV Systems subp.2 - Table XI.

TABLE XI
TREATMENT COMPONENT PERFORMANCE LEVELS AND METHOD OF DISTRIBUTION BY TEXTURE GROUP[1]

~~*Vertical separation (inches)*~~	~~*Soil group found in Table XII*~~		
	~~*1-5*~~	~~*6- 9*~~	~~*10 -11*~~
~~*12 to 17*~~	~~*Treatment Level A Pressure Distribution Timed Dosing*~~	~~*Treatment Level Pressure Distribution Timed Dosing*~~	~~*Treatment Level A Pressure Distribution Timed Dosing*~~
~~*18 to 23*~~	~~*Treatment Level B Pressure Distribution Timed Dosing*~~	~~*Treatment Level B Pressure Distribution Timed Dosing*~~	~~*Treatment Level B Pressure Distribution*~~
~~*24 to 36*~~	~~*Treatment Level B Pressure Distribution*~~	~~*Treatment Level B Pressure Distribution*~~	~~*Treatment Level B Pressure Distribution*~~

	~~*Timed Dosing*~~		

Vertical separation (inches)	*Texture Group [2]*		
	All sands and loamy sands	*Sandy loan, loam, silt loam*	*Clay loams, clay*
12 to 17[3]	*Treatment level A Uniform distribution Timed dosing*	*Treatment level A Uniform distribution Timed dosing*	*Treatment level A Uniform distribution Timed dosing*
18 to 35[3]	*Treatment level B Uniform distribution Timed dosing*	*Treatment level B Uniform distribution Timed dosing*	*Treatment level B Uniform distribution*
36+[3]	*Treatment levels A-2 or B-2 Uniform distribution; Treatment level C*	*Treatment levels A-2 or B-2 Uniform distribution; Treatment level C*	*Treatment levels A-2 or B-2 Uniform distribution; Treatment level C*

[1] The treatment component performance levels correspond with those established for treatment components under the product testing requirements in Table III in part 7083.4030.

[2]with less than 50 percent rock fragments

[3]additional vertical separation distance is required as determined by 7080.2150, subpart 3, item C.

Justification

The MPCA is making six changes to Table XI.

1. The first change is to list the actual soil textures in the table headings instead of referencing soil group numbers as were used in the previous table. This change is for clarity and does not result in any change in the requirements.

2. The second change is to add references to two new treatment levels being added to Minn. R. 7083.4030. These new treatment levels, A-2 and B-2, are discussed in that section of this SONAR.

3. The third change is to change the phrase “pressure distribution” to “uniform distribution”. This change is meant to recognize that other distribution methods, if available, will also provide effective and reliable distribution of effluent over the entire absorption area from the first day the system is in operation.

4. The fourth change is to combine the current groupings, 18 to 23 inches and 24 to 36 inches into one grouping – 18 to 35 inches. This is reasonable because the two groupings are very similar and can be combined without negative consequences.

5. The fifth change is to add a new grouping of 36+ inches. This group is necessary to accommodate the design niche created by the new Treatment Levels A-2 and B-2 and to provide clarity on the separation distance requirements for Treatment Level C. Treatment levels A-2, B-2 and C all require three feet of vertical separation in the soil since these products do not have a specified limit for fecal coliform bacteria (i.e. pathogenic organisms) in the effluent.

6. The MPCA is adding two new footnotes to the table to clarify the application of this table. The superscript number 2 at the heading establishes that the entire table is based on the assumption that the soils identified do not contain more than 50 percent rock fragments. This limit is consistent with the limitation established in Table IX, and in Minn. R. 7080.2150, subp. 3 item, C(b) which also only provides for soil treatment in soils that contain less than 50 percent rock fragments.

The superscript number 3 directs the reader to the requirements in Minn. R. part 7080.2150, subpart 3 item, C(b) that establishes that soils with between 35 and 50 percent rock fragments are only credited with half their thickness as a treatment zone.

59. Proposed change – Minn. R. 7080.2350 Type IV Systems subp.3 - Table XII

Subp. 3. ***~~Tables XII and~~ XIIa Soil loading rates.*** *The ~~system's~~ absorption area and mound absorption ratio must be sized according to Table ~~XII or Table XIIa~~ IX or IXa.*

~~TABLE XII~~

~~LOADING RATES FOR DETERMINING BOTTOM ABSORPTION AREA FOR TRENCHES AND SEEPAGE BEDS FOR EFFLUENT MEETING TREATMENT LEVELS A AND B AND ABSORPTION RATIOS FOR DETERMINING MOUND ABSORPTION AREAS USING DETAILED SOIL DESCRIPTIONS~~

~~Texture~~	***~~Texture group~~***	***~~Structure~~***	***~~Grade~~***	***~~Consistence~~***	***~~Soil loading rate (gpd/ft^2)~~***	***~~Mound absorption ratio~~***
~~Coarse sand*~~	***~~1~~***	***~~single grain~~***		***~~loose~~***	***~~0.00~~***	***~~1~~***
		~~single grain~~		***~~weakly cemented-friable~~***	***~~0.00~~***	***~~2~~***
		~~single grain~~		***~~cemented-firm~~***	***~~0.00~~***	***~~0~~***
~~Medium sand*~~	***~~2~~***	***~~single grain~~***		***~~loose~~***	***~~1.6~~***	***~~1~~***
		~~single~~		***~~weakly~~***	***~~0.78~~***	***~~2~~***

		~~*grain*~~		~~*cemented-friable*~~		
		~~*single grain*~~		~~*cemented-firm*~~	~~*0.00*~~	~~*0*~~
~~*Fine sand*~~	~~*3*~~	~~*single grain*~~		~~*loose*~~	~~*1.0*~~	~~*2*~~
		~~*single grain*~~		~~*weakly cemented-friable*~~	~~*0.45*~~	~~*2*~~
		~~*single grain*~~		~~*cemented-firm*~~	~~*0.00*~~	~~*0*~~
~~*Coarse and medium loamy sand**~~	~~*4*~~	~~*single grain*~~		~~*loose*~~	~~*1.6*~~	~~*1*~~
		~~*single grain*~~		~~*weakly cemented-friable*~~	~~*0.78*~~	~~*2*~~
		~~*single grain*~~		~~*cemented-firm*~~	~~*0.00*~~	~~*0*~~
~~*Fine and very fine loamy sand*~~	~~*5*~~	~~*single grain*~~		~~*loose*~~	~~*1.0*~~	~~*2*~~
		~~*single grain*~~		~~*weakly cemented-friable*~~	~~*0.45*~~	~~*5.0*~~
		~~*single grain*~~		~~*cemented-firm*~~	~~*0.00*~~	~~*0*~~
~~*Coarse and medium sandy loam*~~	~~*6*~~	~~*pris, blk, gr*~~	~~*weak*~~	~~*v. friable, friable*~~	~~*0.6*~~	~~*2.6*~~
		~~*pris, blk, gr*~~	~~*weak*~~	~~*firm*~~	~~*0.45*~~	~~*5.0*~~
		~~*pris, blk, gr*~~	~~*mod or strong*~~	~~*v. friable, friable*~~	~~*1.0*~~	~~*1.3*~~
		~~*pris, blk, gr*~~	~~*mod or strong*~~	~~*firm*~~	~~*0.6*~~	~~*2.6*~~
		~~*platy*~~	~~*weak*~~	~~*v. friable, friable*~~	~~*0.6*~~	~~*2.6*~~
		~~*platy*~~	~~*weak*~~	~~*firm*~~	~~*0.45*~~	~~*5.0*~~

		~~*platy*~~	~~*mod or strong*~~	~~*v. friable, friable*~~	~~*0.6*~~	~~*2.6*~~
		~~*platy*~~	~~*mod or strong*~~	~~*firm*~~	~~*0.00*~~	~~*0.0*~~
		~~*massive*~~		~~*v. friable, friable*~~	~~*0.45*~~	~~*5.0*~~
		~~*massive*~~		~~*firm*~~	~~*0.00*~~	~~*0.0*~~
~~*Fine and v. fine sandy loam*~~	~~*7*~~	~~*pris, blk, gr*~~	~~*weak*~~	~~*v. friable, friable*~~	~~*0.45*~~	~~*5.0*~~
		~~*pris, blk, gr*~~	~~*weak*~~	~~*firm*~~	~~*0.45*~~	~~*5.0*~~
		~~*pris, blk, gr*~~	~~*mod or strong*~~	~~*v. friable, friable*~~	~~*0.78*~~	~~*2.0*~~
		~~*pris, blk, gr*~~	~~*mod or strong*~~	~~*firm*~~	~~*0.45*~~	~~*5.0*~~
		~~*platy*~~	~~*weak*~~	~~*v. friable, friable*~~	~~*0.45*~~	~~*5.0*~~
		~~*platy*~~	~~*weak*~~	~~*firm*~~	~~*0.00*~~	~~*0.0*~~
		~~*platy*~~	~~*mod or strong*~~	~~*v. friable, friable*~~	~~*0.24*~~	~~*0.0*~~
		~~*platy*~~	~~*mod or strong*~~	~~*firm*~~	~~*0.00*~~	~~*0.0*~~
		~~*massive*~~		~~*v. friable, friable*~~	~~*0.45*~~	~~*5.0*~~
		~~*massive*~~		~~*firm*~~	~~*0.00*~~	~~*0.0*~~
~~*Loam*~~	~~*8*~~	~~*pris, blk, gr*~~	~~*weak*~~	~~*v. friable, friable*~~	~~*0.6*~~	~~*2.6*~~
		~~*pris, blk, gr*~~	~~*weak*~~	~~*firm*~~	~~*0.45*~~	~~*5.0*~~
		~~*pris, blk, gr*~~	~~*mod or strong*~~	~~*v. friable, friable*~~	~~*0.78*~~	~~*2.0*~~
		~~*pris, blk, gr*~~	~~*mod or strong*~~	~~*firm*~~	~~*0.45*~~	~~*5.0*~~
		~~*platy*~~	~~*weak*~~	~~*v. friable, friable*~~	~~*0.45*~~	~~*5.0*~~
		~~*platy*~~	~~*weak*~~	~~*firm*~~	~~*0.00*~~	~~*0.0*~~

		platy	*mod or strong*	*v. friable, friable*	*0.24*	*0.0*
		platy	*mod or strong*	*firm*	*0.00*	*0.0*
		massive		*v. friable, friable*	*0.45*	*5.0*
		massive		*firm*	*0.00*	*0.0*
Silt loam	*9*	*pris, blk, gr*	*weak*	*v. friable, friable*	*0.6*	*2.6*
		pris, blk, gr	*weak*	*firm*	*0.45*	*5.0*
		pris, blk, gr	*mod or strong*	*v. friable, friable*	*0.78*	*2.4*
		pris, blk, gr	*mod or strong*	*firm*	*0.45*	*5.0*
		platy	*weak*	*v. friable, friable*	*0.45*	*5.0*
		platy	*weak*	*firm*	*0.00*	*0.0*
		platy	*mod or strong*	*v. friable, friable*	*0.00*	*0.0*
		platy	*mod or strong*	*firm*	*0.00*	*0.0*
		massive		*v. friable, friable*	*0.3*	*5.0*
		massive		*firm*	*0.00*	*0.0*
Clay loam, silty clay loam, sandy clay loam	*10*	*pris, blk, gr*	*weak*	*v. friable or friable*	*0.3*	*5.0*
		pris, blk, gr	*weak*	*firm*	*0.00*	*0.00*
		pris, blk, gr	*mod or strong*	*v. friable or friable*	*0.6*	*2.6*
		pris, blk, gr	*mod or strong*	*firm*	*0.3*	*5.0*
		platy	*weak*	*v. friable or friable*	*0.00*	*0.00*

		platy	*weak*	*firm*	*0.00*	*0.00*
		platy	*mod or strong*	*v. friable or friable*	*0.00*	*0.00*
		platy	*mod or strong*	*firm*	*0.00*	*0.00*
		massive		*v. friable or friable*	*0.00*	*0.00*
		massive		*firm*	*0.00*	*0.00*
Clay, silty clay, sandy clay	*11*	*pris, blk, gr*	*weak*	*v. friable, friable*	*0.00*	*0.00*
		pris, blk, gr	*weak*	*firm*	*0.00*	*0.00*
		pris, blk, gr	*mod or strong*	*v. friable, or friable*	*0.3*	*5.0*
		pris, blk, gr	*mod or strong*	*firm*	*0.00*	*0.00*
		platy	*weak*	*v. friable, friable*	*0.00*	*0.00*
		platy	*weak*	*firm*	*0.00*	*0.00*
		platy	*mod or strong*	*v. friable, friable*	*0.00*	*0.00*
		platy	*mod or strong*	*firm*	*0.00*	*0.00*
		massive		*v. friable, friable*	*0.00*	*0.00*
		massive		*firm*	*0.00*	*0.00*

All very firm consistence has a loading rate of 0.0.

Justification

The MPCA's justification for deleting Table XII is discussed in the justification in this SONAR for the amendments to Minn. R. 7080.2150 subp. 3 item E – Table IX.

60. Proposed change – Minn. R. 7080.2350 Type IV Systems subp.3 - Table XIIa

TABLE XIIa

LOADING RATES FOR DETERMINING BOTTOM ABSORPTION AREA FOR TRENCHES AND SEEPAGE BEDS FOR EFFLUENT TREATMENT LEVELS A AND B AND ABSORPTION RATIOS FOR DETERMINING MOUND ABSORPTION AREAS USING PERCOLATION TESTS

~~*Percolation rate (minutes per inch)*~~	~~*Gallons per day per square foot of trench bottom*~~	~~*Mound absorption ratio*~~
~~*Faster than 0.1**~~	~~*0.0*~~	~~*1*~~
~~*0.1 to 5**~~	~~*1.6*~~	~~*1*~~
~~*0.1 to 5 (soil texture group 3)*~~	~~*1.0*~~	~~*2*~~
~~*6 to 15*~~	~~*1.0*~~	~~*1.3*~~
~~*16 to 30*~~	~~*0.78*~~	~~*2*~~
~~*31 to 45*~~	~~*0.78*~~	~~*2.4*~~
~~*46 to 60*~~	~~*0.6*~~	~~*2.6*~~
~~*61 to 120*~~	~~*0.3*~~	~~*5.0*~~
~~*Slower than 120*~~	~~-~~	~~-~~

~~**See part 7080.2260 for requirements for these soils.*~~

Justification

The MPCA's justification for deleting Table XIIa is discussed in the justification in this SONAR for the amendments to Minn. R. 7080.2150 subp. 3 item E – Table IXa.

61. Proposed change – Minn. R. 7080.2400 Type V Systems, items B and C

B. meet ~~or exceed~~ the requirements of part 7080.2150, subpart 2; and

C. be designed with a vertical separation that ensures adequate sewage dispersal and treatment. Design factors to consider include, but are not limited to, effluent quality, loading rates, groundwater mounding if loading rates are in excess of those in part ~~7080.2350 subpart 2, Table XII or XIIa~~ 7080.2150, subpart 3, item E, Tables IX or IXa, loading methods, and soil conditions.

Justification

The cross reference in item C to Minn. R. 7080.2350, subp. 2, Tables XII and XIIa, is being deleted because that reference is no longer accurate because those tables are being deleted in this rulemaking. The correct citation is to Minn. R. 7080.2150, subp. 3, item E, Tables IX or IXa which is reasonably added to this part.

The phrase "or exceed" is also being deleted from item B for the reasons discussed for the amendment to Minn. R. 7080.2210, subp. 1 of this SONAR.

62. Proposed change – Minn. R. 7080.2440 Collection Systems

Collection of greater than 2,500 gallons per day of sewage from multiple buildings or multiple other establishments discharging into an ISTS must be:

A. according to the Prescriptive Designs and Design Guidance for Advanced Designers, incorporated by reference under part 7080.1550, subpart 2; or

B. designed by a Minnesota licensed professional engineer.

Justification

This new part requires that all collection systems must be designed and installed either under the design requirements provided by the commissioner and incorporated into the rules by reference, or alternatively, designed by a professional engineer. This is reasonable because this gives a choice of alternative options for the design of a collection system. The Prescriptive Design requirements provided by the commissioner were developed by MPCA engineers in a cookbook format to ensure that a non-engineer could develop an acceptable design. The alternative, the use of a licensed professional engineer, ensures that the designer has training and experience in the design of collection systems.

63. Proposed change – Minn. R. 7080.2450 Maintenance, subp. 3 item C

C. After removal of solids and liquids from a system installed after the adoption of a local ordinance adopted after February 4, 2008, the ~~system shall~~ maintenance hole cover must be ~~brought into compliance with~~ secured as described in part 7080.1970, item C. Covers secured by screws ~~shall~~ must be refastened in all screw openings. ~~If the maintenance hole does not extend to finish grade, it must be brought into compliance with part 7080.1970, item C, or secured by covering with a minimum of 12 inches of soil.~~

Justification

The changes to item C apply to SSTS that have been installed after the changes made to the rules in 2008 had been incorporated into the local ordinance. The language being deleted in item C applied to the management of covers at both new and existing systems and was confusing. The MPCA believes it is reasonable to amend subpart 3 to provide clear requirements for maintenance at both new and existing SSTS.

More stringent requirements are applied to new systems than are applied to SSTS that were installed prior to the 2008 rule amendments. The MPCA believes it is reasonable to require that after maintenance, covers of new SSTS continue to meet all of the requirements in Minn. R. 7080.1970, item C. These requirements, that all maintenance hole covers must be secured, have a warning label, capable of withstanding loads and made of suitable material, are already in effect for new SSTS and no change in requirements is intended.

The parts of item C that are being deleted that related to the requirements for existing SSTS are being addressed in more detail in item D and discussed at that part of this SONAR.

The MPCA is also in this amendment clarifying that the requirements apply to SSTS that were installed after the adoption of an ordinance adopted after the effective date of the 2008 amendments. This is a reasonable clarification of the fact that the requirements of these rules did not go into effect immediately upon adoption in the State rules. Minn. R. 7082.0050, subp. 1,

requires that local units of government adopt the requirements of these rules, but also provides a 24-month period to adopt them. The MPCA believes it is reasonable to base the distinction between the requirements for new and existing SSTS on when the requirements actually went into effect for a particular system.

64. Proposed change – Minn. R. 7080.2450 Maintenance, subp.3 items D and E

> *D. After removal of solids and liquids from a system installed before the adoption of a local ordinance adopted after February 4, 2008, maintenance hole covers must be sound, durable, and of adequate strength as specified in part 7080.1970, item C, subitem (3), and:*
>
> *(1) be buried with a minimum of 12 inches of soil cover or, if the cover is currently at or above the ground surface or within 12 inches from final grade, be secured by a method that was deemed secure by the local ordinance that was in effect before February 4, 2008; or*
>
> *(2) meet the requirements of part 7080.1970, item C, if the cover is to be raised to be at or above the ground surface or within 12 inches from final grade.*
>
> ~~*D*~~ *E. Pump tanks must be maintained according to this part. Sludge must be removed if within one inch of the pump intake.*

Justification

Item D is a new item that applies to the maintenance of older systems installed before the 2008 rule changes were adopted into ordinances.

The introductory language to this item requires that all maintenance hole covers, in existing systems, meet the same requirements for durability and strength as new covers. This is established through a reference to the requirements of Minn. R. 7080.1970, item C, subitem 3. This subitem specifically addresses safety aspects of cover strength and durability and is reasonable to apply to all SSTS, regardless of when they were installed.

Subitems (1) and (2) provide two options for how sturdy, durable maintenance hole covers can be managed in regard to their relation to the ground surface. Subitem (1) applies to SSTS where the maintenance hole is or is not buried under 12 inches of soil. This subitem allows two options for existing covers. If the cover, is buried under at least 12 inches of soil, that is still acceptable and the cover can be re-buried after maintenance. If the cover is not buried under at least 12 inches of soil, then the cover must be secured in a manner that has been determined to acceptable under the local ordinance. The MPCA does not recommend that covers be buried with less than 12 inches of soil, but the MPCA recognizes that in some cases, a local ordinance may have allowed for the use of an alternative security method for existing SSTS. The MPCA's preference is that all systems meet the safety standards required for new systems, but the MPCA recognizes the economic and practical limitations of imposing new standards on all existing systems. In those cases where a local ordinance has approved an alternative method for securing tank access for pre-existing SSTS, the rules will allow that method to be continued to be used.

Subitem (2) addresses those circumstances where, in the process of servicing an SSTS, the maintenance hole is re-constructed to be within 12 inches of the final grade. This situation happens frequently when a maintenance service comes to pump an SSTS and while they are there, they will modify the old system to be at-grade. The rules require that such modifications must then meet the requirements for a new system. The MPCA believes that it is reasonable to make accommodation for the continued use of existing systems that met local ordinance requirements, but, if the SSTS is being modified, the MPCA believes that it must be modified to meet the new standards.

Item E is being re-numbered to identify it as a separate requirement distinct from the new requirements being added to item D.

65. Proposed change – Minn. R. 7080.2450 Maintenance, subp.7

> *Subp. 7.* ***Use of soil treatment site.*** *Activities on the current soil dispersal and treatment system or the reserve soil dispersal and treatment area as specified in part 7082.0100, subpart 3, item F, that impair the current or future treatment abilities or hydraulic performance of the soil treatment and dispersal system are prohibited. This includes, but is not limited to, covering all or part of the soil treatment system with an impermeable surface as determined by the local unit of government*.

Justification
When the rules were amended in 2008, the correct reference to the rule addressing reserve soil dispersal and treatment areas was omitted from the text. The MPCA is correcting this error and is adding the correct citation at this time.

66. Proposed change – Minn. R. 7080.2500 System Abandonment, subp. 1

> *Subpart 1.****Tank abandonment.*** *All systems with no future intent for use must be abandoned according to this part. Tank abandonment procedures for sewage tanks, cesspools, leaching pits, drywells, seepage pits, vault privies and pit privies, ~~and distribution devices~~ must meet the requirements in items A to C.*

Justification
The MPCA is eliminating the existing requirement that distribution devices must be abandoned the same way as other SSTS system components. The abandonment procedure for tanks is in the rules for safety reasons. At the time it was adopted, the MPCA felt that if an abandoned tank lid deteriorated to the point of collapse, injury could result. A sewage tank has a fairly large underground cavity. The rule included "distribution devices" in the requirements for an abandonment procedure. The MPCA's SSTS advisory committee recommended that the rule be changed to not include distribution devices in the tank abandonment procedure because they felt that the safety concern with a shallow cavity (approximately 12 to 14 inches for most chambers) is minimal. The MPCA agrees with this recommendation and is amending the rules to eliminate the requirement to meet the abandonment procedures in items A to C. However, the MPCA cautions that even though the amendment recognizes that collection systems do not generally

represent the same level of risk, system owners must still exercise reasonable caution in abandoning them.

67. Proposed change – Minn. R. 7080.2550 Seepage Pits, Drywells, and Leaching Pits, subp.2, item E.

E. has a pit that has not been placed in a soil stratum ~~with a texture group of 1 or 4 in Table IX in part 7080.2150, subpart 3, item E~~ of sand, loamy sand, fine sand, or loamy fine sand texture when any of those soils contain 35 percent or more rock fragments;

Justification

The changes to this item that identify the soil texture instead of identifying the texture group are necessary because the soil texture groups are being removed from the soil sizing tables found in this chapter. The change in the way the soil textures are identified is consistent with changes also being made to Minn. R. 7080.2150, subp. 3, item C, subitem (1) (b) and 7080.2150 subp. 3 item L. The amendments to Minn. R. 7080.2150, subp. 3, item C, subitem (1)(b) establish that 1/2 treatment credit is provided for these soil conditions. However, these soils that also contain a high amount (more than 35 percent) of rock fragments may not provide adequate treatment for fecal organism removal, even at the 1/2 treatment credit. Therefore, the MPCA is reasonably modifying item E to prohibit use of these soil conditions as part of the soil treatment zone.

68. Proposed Change – Minn. R. 7081.0020 Definitions, subp. 4

Subp. 4. ***Midsized subsurface sewage treatment system or MSTS.***

"Midsized subsurface sewage treatment system" or "MSTS" means ~~an individual~~ a subsurface sewage treatment system, or part thereof, as set forth in Minnesota Statutes, sections 115.03 and 115.55, that employs sewage tanks or other treatment devices with final discharge into the soil below the natural soil elevation or elevated final grade and that is designed to receive sewage ~~from dwellings or other establishments with a~~ design flow of greater than 5,000 gallons per day to 10,000 gallons per day.

~~Design flows must be determined by part 7081.0110.~~ MSTS also includes ~~on-lot septic tanks~~, holding tanks~~, and privies~~ that ~~serve these same facilitiesbut does not include any pump tanks used in a sewage collection system.~~ are designed to receive a sewage design flow of greater than 5,000 gallons per day to 10,000 gallons per day. MSTS also includes on-lot sewage tanks discharging into a sewage collection system which discharges into MSTS treatment and /or dispersal components. MSTS also includes the sewage collection system that discharges into MSTS treatment and/or dispersal components. MSTS does not include those components defined as plumbing under chapter 4715 ~~or sewage collection systems~~.

Justification
The changes to this definition are the same as those made to the definition of ISTS in chapter 7080 and the justification provided in this SONAR for those changes is also applicable to these changes to subpart 4.

69. Proposed Change – Minn. R. 7081.0040 State Regulation, subp. 1, item A

> *A. All MSTS must be designed and operated according to this chapter, except as modified through an ordinance in compliance with chapter 7082 and Minnesota Statutes, section 115.55. All MSTS must be designed, installed, inspected, pumped, and operated by a qualified employee under part 7083.1010 or a licensed ~~businesses meeting the qualifications in chapter 7083~~business under part 7083.0710. All MSTS must conform to applicable state statutes and rules.*

Justification
Item A is amended by adding a phrase to clarify that MSTS design must be done by either a qualified employee or a licensed business and adding the citations to the applicable rule parts. The MPCA does not believe that this is a change to the current application of this rule; it is only a clarification and is reasonable to specify exactly who is being addressed by this requirement. The other changes to delete "the qualifications in" are only grammatical and do not change the effect of the rule.

70. Proposed Change – Minn. R. 7081.0040 State Regulation, subp. 1, item B

> *B. ~~When~~ The owner or owners of a single SSTS, or a group of SSTS under ~~single~~ common ownership ~~within one-half mile of each other , are designed to treat a design flow greater than 10,000 gallons per day, the owner or owners shall make application for and~~ must obtain an SDS permit from the agency ~~in accordance with~~ according to chapter 7001. ~~If the measured daily flows for a consecutive seven-day period exceed 10,000~~ when all or part of proposed or existing soil dispersal components are within one-half mile of each other and the combined flow from all proposed and existing SSTS is greater than 10,000 gallons per day~~, an SDS permit is required~~. For proposed SSTS, the flow must be determined according to item D. For existing SSTS, the flow is determined by the greater of:*
>
> 1) *The average maximum seven- day measured flow; or*
> 2) *The flow determined according to item D*

Justification
This item is being amended to rephrase the existing requirements to address two needs. First, the rule is being rephrased to improve confusing sentence structure and clarify the existing language. The MPCA is adding references to item D, which addresses how to calculate flows. This item was not previously referenced but has always been applicable and is reasonably identified in this item. The phrase "shall make application for" in regard to a permit is unnecessary and is being eliminated and the amendment will only require that the owner

"obtain" a permit. It is implicit that in order to obtain the permit, the owner must make application for it. The MPCA is also specifying the requirements that relate to proposed and existing SSTS, which was not a clear distinction in the existing language, although it was intended. Finally, the MPCA is changing a reference to "single" ownership to "common" ownership. This change was suggested to address those situations where a group of SSTS would be owned by some entity other than a single owner. The use of "common" will include a broader universe of possible owners and eliminate a possible source of confusion about the application of this requirement. The MPCA does not believe that these are significant changes that change the effect of this item.

The second change to this item, which is more significant, is the addition of the phrase "soil dispersal components". The existing rule established a one-half mile restriction on all components of the SSTS. By not specifying any system components, the restriction in the existing language applied to all components of an SSTS, including tanks and collection systems as well as the various components of soil dispersal systems. The MPCA does not believe that the same environmental concerns that are associated with soil dispersal systems also apply to tanks and collection systems. The MPCA's concern in establishing the half-mile restriction is because effluent inputs to groundwater are the main environmental concern. In this amendment, the MPCA is specifying that the one-half mile restriction only applies to the components of the soil dispersal system. The MPCA is clarifying that any part of the soil dispersal system that is within one-half mile of any other part of another soil dispersal system requires a permit. Other elements of an SSTS, such as the total flow of sewage to the tanks or total flow of sewage carried by the collection systems, may be within the one-half mile radius and not trigger the need for a permit.

Since the existing rule became effective in 2008, the lack of clarity in this provision has been problematic and the topic of considerable dispute and it is reasonable that MPCA make the necessary changes to be able to fairly and effectively enforce this restriction.

71. Proposed Change - Minn. R. 7081.0080 Performance and Compliance Criteria, subp. 4, item A

> *A.* ~~*Maintain a zone of unsaturated soil between the bottom of the soil treatment and dispersal system and the periodically saturated soil or bedrock during loading of effluent, as described in part 7081.0270, subpart 8*~~ *meet the requirements of part 7080.1500, subpart 4, item D.*

Justification

This change makes clear that for MSTS, some specific outcomes are parallel to those for ISTS. By deleting the language in this part and only citing to the rule part in Minn. R. ch. 7080 that contains the common provisions that apply to both ISTS and MSTS, the MPCA simplifies the rule and helps designers and local officials to understand what is required. No additional requirements are imposed on the regulated community or local governments by this change.

72. Proposed Change – Minn. R. 7081.0120 Design Flow Determination for Dwellings,

subp. 2

Subp. 2. ***New housing developments.*** *For new housing developments to be served by a common SSTS, the developer ~~shall~~ must determine and restrict the total number of bedrooms for the development ~~and determine the design flow by multiplying the total number of bedrooms by 110 gallons per bedroom~~. Proposed dwellings are determined to be Classification I dwellings for flow determination purposes unless different classifications are approved by the local unit of government. If the ultimate development of phased or segmented growth meets or exceeds the thresholds in part 7081.0040, subpart 1, item B, the initial system or systems and all subsequent systems require a state disposal system permit.*

Justification

Subpart 2 of Minn. R. 7081.0120 is being amended to describe how to determine flow amounts per dwelling. The first change is to make clear that this provision is only for common SSTS in a development that will be served by one or more systems designed to serve multiple dwellings. This is a clarification and does not change the effect of this subpart.

The second change is to change the formula used to assign flow for each dwelling. The formula for new developments has been frequently confused with the requirements used to determine flow for existing developments. The formula in subpart 2, which is being deleted in this rulemaking, used a simple value of 110 gallons per bedroom. This formula was based on the assumption that the classification of the dwelling, which determines flow volumes, could not be determined for proposed dwellings in a new development. However upon investigation and consideration, the MPCA is deleting this method for the following reasons.

1. Most new dwellings will be a Classification I dwelling with more than two water using devices. The MPCA believes it can be reasonably assumed that the common system should be sized on Classification I flow amounts. However, a provision is included to allow other classification of dwellings in the event the development will somehow be different in regard to water use.

2. The flow value of 110 gallons per bedroom resulted in a different flow value than what would be determined by the classification method. This inconsistency was noted by the industry and was thought to be inequitable. The MPCA's SSTS Advisory committee supports the change. Exhibit 17 is a spreadsheet comparing the difference in flow values between 110 gallons per bedroom and using the flow values for a classification I dwelling.

The MPCA believes that the change to eliminate the standard flow rate and base it on the housing classification provides a reasonable mechanism for making more accurate calculations of the flow value.

73. Proposed Change – Minn. R. 7081.0130 Flow and Waste Concentration Determination for Other Establishments, subp. 1, Table I

TABLE I

Estimated Design Sewage Flow from Other Establishments

(1) Dwelling units (also see outdoor recreation)	**Unit**	**Design flow (gal/day/unit)**
(a) Hotel or luxury hotel	*guest*	*55*
	square foot	*0.28*
(b) Motel	*guest*	*38*
	square foot	*0.33*
(c) Rooming house	*resident*	*45*
	add for each nonresident meal	*3.3*
(d) Daycare (no meals)	*child*	*19*
(e) Daycare (with meals)	*child*	*23*
(f) Dormitory	*person*	*43*
(g) Labor camp	*person*	*18*
(h) Labor camp, semi permanent	*employee*	*50*
(2) Commercial/Industrial	**Unit**	**Design flow (gal/day/unit)**
(a) Retail store	*square foot*	*0.13*
	customer	*3.8*
	toilet	*590*
(b) Shopping center	*employee*	*11.5*
	square foot	*0.15*
	parking space	*2.5*

(c) Office	*employee/8-hour shift*	*18*
	square foot	*0.18*
*(d) Medical office**	*square foot*	*1.1*
	practitioner	*275*
	patient	*8*
*(e) Industrial building**	*employee/8-hour shift*	*17.5*
	employee/8-hour shift with showers	*25*
(f) Laundromat	*machine*	*635*
	load	*52.5*
	square foot	*2.6*
*(g) Barber shop**	*chair*	*68*
*(h) Beauty salon**	*station*	*285*
(i) Flea market	*nonfood vendor/space*	*15*
	limited food vendor/space	*25*
	with food vendor/space	*50*
(3) Eating and Drinking Establishments	**Unit**	**Design flow (gal/day/unit)**
(a) Restaurant (does not include bar or lounge)	*meal without alcoholic drinks*	*3.5*
	meal with alcoholic drinks	*8*
	seat (open 16 hours or less)	*30*
	seat (open more than 16	*50*

	hours)	
	seat (open 16 hours or less, single service articles)	*20*
	seat (open more than 16 hours, single service articles)	*35*
(b) Restaurant (short order)	*customer*	*7*
(c) Restaurant (drive-in)	*car space*	*30*
(d) Restaurant (carry out including caterers)	*square foot*	*0.5*
(e) Institutional meals	*meal*	*5.0*
(f) Food outlet	*square foot*	*0.2*
(g) Dining hall	*meal*	*8.5*
(h) Coffee shop	*customer*	*7*
(i) Cafeteria	*customer*	*2.5*
(j) Bar or lounge (no meals)	*customer*	*4.5*
	seat	*36*
(4) Entertainment Establishments	**Unit**	**Design flow (gal/day/unit)**
(a) Drive-in theater	*car stall*	*5*
(b) Theater/auditorium	*seat*	*4.5*
(c) Bowling alley	*alley*	*185*
(d) Country club	*member (no meals)*	*22*
	member (with meals and showers)	*118*

	member (resident)	*86*
(e) Fairground and other similar gatherings	*visitor*	*1.5*
(f) Stadium	*seat*	*5*
(g) Dance hall	*person*	*6*
(h) Health club/gym	*member*	*35*
Outdoor recreation and related lodging facilities	**Unit**	**Design flow (gal/day/unit)**
(a) Campground	*~~person~~ campsite with sewer hook-up (per person)*	*~~36~~ 32*
	~~site~~ campsite with sewer hook-up (per site/space)	*100*
	~~site~~ campsite without sewer hook-up, with central ~~bath~~ toilet or shower facility (per site)	*~~62~~ 50*
	~~site to be served by~~ campsite without sewer hook-up, with central toilet or shower facility, served by central dump station (per site)	*~~14.5~~ 63*
(b) Permanent mobile home	*mobile home*	*225*
(c) Camp, day without meals	*person*	*20*
(d) Camp, day with meals	*person*	*25*
(e) Camp, day and night with meals	*person*	*45*
(f) Resort/lodge hotel	*person*	*62*
(g) Cabin, resort	*person*	*50*

(h) Retail resort store	*customer*	*4*
(i) Park or swimming pool	*guest*	*10*
(j) Visitor center	*visitor*	*13*
(6) Transportation	**Unit**	**Design flow (gal/day/unit)**
(a) Gas station/convenience store	*customer*	*3.5*
*(b) Service station**	*customer*	*11*
	service bay	*50*
	toilet	*250*
	square foot	*0.25*
(c) Car wash (does not include car wash water)*	*square foot*	*5*
(d) Airport, bus station, rail depot	*passenger*	*5*
	square foot	*5*
	restroom	*565*
(7) Institutional	**Unit**	**Design flow (gal/day/unit)**
*(a) Hospital**	*bed*	*220*
*(b) Mental health hospital**	*bed*	*147*
(c) Prison or jail	*inmate*	*140*
(d) Nursing home, other adult congregate living	*resident*	*125*
(e) Other public institution	*person*	*105*

(f) School (no gym, no cafeteria, and no showers)	*student*	*14*
(g) School (with cafeteria, no gym and no showers)	*student*	*18*
(h) School (with cafeteria, gym, and showers)	*student*	*27.5*
(i) School (boarding)	*student*	*95*
(j) Church	*seat*	*4*
	add for each meal prepared	*5*
(k) Assembly hall	*seat*	*4*
(8) Miscellaneous	**Unit**	
(a) Public lavatory	*user*	*5*
(b) Public shower	*shower taken*	*11*

** Waste other than sewage is only allowed to be discharged into the system if the waste is suitable to be discharged to groundwater.*

Unless otherwise noted in Table I, the flow values do not include flows generated by employees. A flow value of 15 gallons per employee per eight-hour shift must be added to the flow amount. Design flow determination for establishments not listed in Table I shall be determined by the best available information and approved by the local unit of government.

Justification

Table I is being amended to provide subitem and unit numbers to the various categories of waste generating facilities. These format changes are for the convenience of citation and do not change the effect of this table or the rules.

The MPCA is making several changes to the language for estimating flows for campgrounds. These changes are for clarification purposes and also to clarify a past modification of flow data. The way that the campground flows have been presented in this table has been a source of confusion for users of the rule. To explain the changes, the different options for disposal of sewage in a campground setting must first be explained.

The first method applies to campsites which have a system in which the Recreational Vehicles (RV's) will connect to a central sewer collection system via discharge ports at each site (aka

"hook-ups'). In this setting, campers generate all their waste in the RV which then directly discharges into the SSTS. With this method, the rules will specify that each site with a hookup will be charged 100 gpd, or, if persons are used in lieu of sites, each person is charged with 32 gpd. Which method (sites or persons) to be used depends on what seems most appropriate for the campground. However, for purposes of determining whether an SDS permit is required, or for determining whether the system should be classified as ISTS or MSTS, the higher of the two values must be used. If a determination of the number of persons that will use the site is not reliable, then 100 gallons per site must be used.

The second method applies to sites that do not use a hook-up system. In these cases, the rules anticipate that RV's will generate some waste in the RV, but that most of the water generated will be from the central bath/shower facility. Although there will be a small amount of waste generated in the RV unit, the RV's holding tank capacity is limited and must be periodically removed. The removal is typically by a simple physical method of transporting the waste to a central dump station. Therefore, RV units without hookup will be charged with 63 gallons of waste generated each day (which assumes 50 gpd per person for the use of the central bath/shower facility + 13 gpd from the holding tank of each individual RV). Tent campers are categorized as sites without hook-ups which will exclusively use the central facilities and be charged 50 gpd/site.

The third method would be campgrounds with multiple methods of waste disposal, such as campgrounds with some RV hookup and other sites without hookups. In that case, the designer would calculate the waste collected as appropriate for each site and add those values together. The following chart format clarifies the flow quantities established in the rule.

	Campground		
	Hook-up	w/o hook-up	Served by Dump Station
Site	100	50	13
Person	32	N/A	N/A

In this rulemaking the MPCA is also reverting some of the flow values in the table to values that have been previously used in the University of Minnesota Onsite Sewage Treatment Manual. The values used in the existing rule were the result of averaging the maximum and average flow values from the University of Minnesota Onsite Sewage Treatment Manual.

74. Proposed Change – Minn. R. 7081.0130 Flow and Waste Concentration Determinations for Other Establishments, subp. 2

> *Subp. 2* ***Waste concentration.*** *If concentrations ~~of biochemical oxygen demands, total suspended solids, and oil and grease~~ from the sewage tank to the soil dispersal system are expected to be higher than ~~175~~ 170 mg/1 BOD (or 125 mg/L of CBOD5), ~~65~~ 60 mg/1 TSS, or 25 mg/1 ~~respectively~~ of oil and grease, an estimated or measured average concentration must be determined and be acceptable to the local unit of government. System design must account for concentrations of these constituents so as not to cause internal system*

malfunction, such as, but not limited to, clogging of pipes, orifices, treatment devices, or media.

Justification

There are three changes being made to this subpart. The first change is grammatical and being made for clarity. The MPCA is rearranging the sentence to place the constituent name directly behind the concentration value instead of listing the constituent name and concentrations separately and using the word "respectively". This change does not result in any change in the requirements of this subpart.

The second change is to change the concentrations for biochemical oxygen demand from 175 mg/l to 170 mg/l and the concentration of total suspended solids from 65 mg/l to 60 mg/l. These are proposed to be changed to match the values provided by the Consortium of Institutes for Decentralized Wastewater Treatment. (Exhibit 3b) These are small changes in concentration and the MPCA does not expect that they will change how systems are designed for domestic dwellings.

The third change is to add a companion value to the existing value for biochemical oxygen demand. Additional methods of waste strength testing have been developed and now include values for carbonaceous oxygen demand ($CBOD_5$) in addition to biochemical oxygen demand. Therefore, for these situations the rule will give a maximum compliance concentration regardless of the analytical method chosen. (Exhibit 18)

75. Proposed Change – Minn. 7081.0160 Preliminary Evaluation, item A

A preliminary evaluation consists of determining:

A. the design flow ~~and~~, anticipated effluent concentrations of biochemical oxygen demand, total suspended solids, ~~fats,~~ ~~oils,~~ oil and grease, and anticipated presence of non-domestic waste from the dwelling, dwellings or other establishments;

Justification

In item A the MPCA is adding a requirement that the preliminary evaluation include information regarding the presence of non-domestic wastes in the effluent. The MPCA is concerned about the possibility that an SSTS would be designed for domestic waste purposes but in reality receive wastes from home businesses or commercial activities that are significantly different than the waste from domestic activities. Non-domestic wastes can be a major cause of system failure and groundwater contamination and it is important that such flows be identified when making the preliminary determination of system suitability.

76. Proposed Change – Minn. R. 7081.0170 Field Evaluation, subp. 5, item A

A. Soil pits are required to investigate the soil for MSTS design. The required number of soil pits to adequately define the limiting layer and soil dispersal system sizing must be determined by ~~the~~ professional judgment ~~of the designer~~

~~as~~ based on the size of the area~~,~~ and consistency of the soil~~,~~ and must be approved by the local unit of government.

Justification

Item A is amended to add detail and clarification to the requirement for soil pits. The previous requirement provided information about how to determine "the required number of soil pits" but did not affirmatively specify that soil pits are required and why they are required. This was an unintended omission in the 2008 rule revisions. The addition of the new introductory sentence is a reasonable clarification of the MPCA's expectation that soil pits must be used to investigate the soil at the MSTS site and justification for the use of soil pits was provided in the previous SONAR (Exhibit 10, page 27). The phrase added to the second sentence reasonably clarifies what the MPCA intends to be determined by the use of soil pits.

Item A is also amended by deleting the specific reference to "the designer" in regard to the determination of the number of soil pits. The MPCA is deleting the reference to the professional qualifications that can do each type of work in Minn. R. ch. 7081 because this level of detail is not specified in other portions of the rule. For example, Minn. R. ch. 7081 does not specify that septic tanks may only be installed by a licensed installation business. The professional qualifications to do each area of work are found in Minn. R. ch. 7083. The MPCA is deleting the reference to "the designer" in this item because it is redundant; the necessary information is already provided in Minn. R. ch. 7083.

77. Proposed Change – Minn. R. 7081.0240 Sewage Tanks, subp. 2

*~~Subp. 2. **Tank capacity.~~*

~~Total septic tank capacity must be in accordance with this item.~~

~~(1) Total septic tank liquid capacity for a common tank serving multiple dwellings under gravity flow to the common tank are determined by multiplying the design flow by 3.0.~~

~~(2) Total septic tank liquid capacity for a common tank serving multiple dwellings under pressure flow to the common tank is determined by multiplying the design flow by 4.0.~~

~~(3) Common multiple septic tanks must be connected in series. Individual tanks connected in series or any compartment of a tank must have a capacity of more than one-fourth of the required total liquid capacity.~~

Justification

This subpart is deleted because these provisions are being moved into Minn. R. 7080.1930. Subpart 1 of Minn. R.7081.0240 directs the user to the Minn. R. ch. 7080 tank requirements (except as modified in the remaining subparts of Minn. R. 7081.0240). The MPCA believes it is reasonable to direct the user to Minn. R.7080.1930 for the septic tank capacity requirements that apply to both ISTS and MSTS.

78. Proposed Change – Minn. R. 7081.0240 Sewage Tanks, subp. 3

Subpart 3. ***Lint Filters, effluent screens, and pressure filters.***

~~*Effluent screens must be used as the outlet baffle on the final septic tank or pressure filters must be used in the pump tank if common tanks are employed in series. Alarms must be employed on tanks equipped with effluent screens.*~~ *An effluent screen or pressure filter must be used on all systems. If multiple septic tanks are used, the effluent screen must be placed in the last tank in the series and provided with an alarm. Lint filters are recommended if the sewage contains laundry waste.*

Justification

This subpart is being amended to more clearly state the requirements that apply to the use of effluent screens and pressure filters. The MPCA does not believe that the amendments will have any effect on the design of tanks and are in the nature of a clarification. The first sentence, which is being deleted, provided more detail than was necessary regarding the location of screens and filters. The MPCA believes that the important requirements are that (1) all MSTS systems must have a screen or filter and (2) effluent screens must have an alarm. Pressure filters are always placed at the pump tank and there is therefore no need to specify where they must be placed. Additionally, pressure filters are always associated with a pump which is required to have an alarm, so there is no need to repeat the requirement that such filters have an alarm. However, the MPCA believes it is reasonable to clearly identify that effluent screens must be placed at the outlet of the last septic tank in the series to ensure that effluent is adequately screened before being discharged to a downstream component. The MPCA also believes that it is appropriate to continue to require that effluent screens be provided with an alarm. This is an existing requirement that is only being rephrased in this amendment.

79. Proposed Change – Minn. R. 7081.0240 Sewage Tanks, subp. 4, item B

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

Justification

Item B is being deleted because the requirements relative to the reserve capacity are being addressed in Minn. R. part 7080.1960, which is referenced in Minn. R. part 7081.0240, subp. 1.

80. Proposed Change – Minn. R. 7081.0240 Sewage Tanks, subp. 7

~~*Subp. 7.* ***External grease interceptors.***~~

~~*A commercial or institutional food preparation facility such as, but not limited to, a restaurant, cafeteria, or institutional kitchen, served by a system regulated under this chapter, the system design for which was submitted to the local unit of government after February 4, 2008, shall install an external grease interceptor unless other grease control measures are taken and approved by the local unit of government. This grease interceptor will be considered part of the SSTS system.*~~

Justification
This subpart is being deleted because these provisions are being addressed in Minn. R. 7080.1930 subp. 8. Subpart 1 of Minn. R. 7081.0240 directs the user to the Minn. R. ch 7080 tank requirements except as provided in Minn. R. 7081.0240. Minn. R. 7080.1930 establishes the requirement to have an external grease trap.

The change to address grease trap interceptors will also include a wording change in Minn. R. 7080.1930 to be more specific about when a grease interceptor must be employed. The new language in 7080.1930 subpart 8 includes a reference to the rule that establishes influent quality concentrations which, if exceeded, will require the use of a grease interceptor.

81. Proposed Change – Minn. R. 7081.0270 Final Treatment and Dispersal, subp. 5. Item A, subitem (2)

(2) part ~~7080.2350, subpart 3,~~ ~~Table XII or XIIa~~ 7080.2150, item E, table IX or IXa if the absorption area receives effluent meeting treatment levels A or B in part 7083.4030; or

Justification
Subitem 2 is amended to delete a reference to Tables XII and XIIa and add a reference to the newly applicable Tables IX and IXa. Tables XII and XIIa have been deleted from rules in this rulemaking. The reasonableness of tables IX and IXa in Minn. R. part 7080.2150, item E are discussed at that part of this SONAR.

82. Proposed Change – Minn. R. 7081.0270 Final Treatment and Dispersal, subp. 8, item A

A. For soil treatment and dispersal systems that receive treatment level A-2, B-2 or C effluent as described in part 7083.4030, the soil treatment zone requirements must meet ~~or exceed the requirements of~~ part 7080.2150, subpart 3, item C. The required three-foot vertical separation must be maintained during operation after accounting for groundwater mounding.

Justification
Item A is amended to include a reference to treatment levels A-2 and B-2. These are new treatment levels being added in this rulemaking to Table III in Minn. R. 7083.4030. The justification for the establishment of treatment levels A-2 and B-2 is provided in the discussion of the amendments to part 7083.4030 in this SONAR. It is reasonable to provide the necessary cross reference in item A to reflect the addition of these new treatment levels.

Item A is also amended to eliminate an unnecessary phrase. The reasonableness of deleting this phrase is discussed in this SONAR in the justification for the amendments to Minn. R. 7080.2210, subp. 1.

83. Proposed Change – Minn. R. 7081.0270 Final Treatment and Dispersal, subp. 8, item B

B. For soil treatment and dispersal systems that receive treatment level A or B effluent as described in part 7083.4030, the soil treatment zone requirements must meet ~~or exceed the requirements of subitems (1) to (4):~~ part 7080.2150, subpart 3, item C unless it is modified in Table XI of part 7080.2350 subpart 2, with a minimum vertical separation of two feet. The required vertical separation must be maintained during the operation after accounting for groundwater mounding.

~~(1) a minimum vertical depth of the soil treatment and dispersal zone below the distribution media shall be determined according to part 7080.2350, subpart 2, Table XI, with a minimum vertical separation of two feet. This zone shall meet criteria in units (a) to (c):~~

~~a. the zone must be above the periodically saturated soil and bedrock. The zone must be continuous and not be interrupted by seasonal zones of saturation;~~

~~b. any soil layers with a sizing texture group of 1 or 4 in Table IX in part 7080.2150, subpart 3, item E, must not be credited as part of the necessary treatment zone; and~~

~~c. the entire treatment zone depth must be within seven feet from final grade;~~

~~(2) the distribution system or media must not place a hydraulic head greater than 30 inches above the bottom of the absorption area;~~

~~(3) the system's absorption area must be original soil; and~~

~~(4) the system's absorption area must be sized according to subpart 6.~~

Justification

Item B is amended by deleting the existing requirements in subitems (1) to (4) and providing a reference to where those requirements, as they are amended in this rulemaking, can be found in Minn. R. 7080.2150, subpart 3, item C. Those requirements are justified at that part of this SONAR. The MPCA believes it is reasonable to delete duplicative requirements where possible and instead provide a cross reference to the applicable requirements.

84. Proposed Change – Minn. R. 7081.0275 Collection Systems

The collection system for collection of sewage from multiple buildings or multiple other establishments discharging into an MSTS must be designed:

A. according to the Prescriptive Designs and Design Guidance for Advanced Designers, incorporated by reference under part 7080.1550, subpart 2; or

B. by a Minnesota licensed professional engineer.

Justification

This new part requires that all collection systems must be designed and installed either under design requirements provided by the commissioner and incorporated into the rules by reference

or alternatively, designed by a professional engineer. Providing two options is reasonable because this gives a choice of alternative options for the design of a collection system. The Prescriptive Design requirements provided by the commissioner were developed by MPCA engineers in a cookbook format to ensure that a non-engineer could develop an acceptable design. The alternative, the use of a Board licensed professional engineer, ensures that the designer has training and experience in the design of collection systems.

85. Proposed Change – Minn. R. 7082.0040 Regulatory Administration Responsibility, subp.5

> *Subp. 5.* ***Reporting requirements*** *for all local programs.*
> *Local units of government that administer SSTS programs must provide an annual report to the commissioner. The report must be submitted to the commissioner no later than ~~February 1~~ January 10 for the previous calendar year. The ~~reports~~ report must include:*
>
> *~~A. a copy of the standard construction permit, operating permit, and inspection forms, if different from previous year's;~~*
> *Items B. to H. renumbered.*

Justification
The MPCA is making two changes to this part. In the introductory paragraph, the MPCA is changing the due date for the required report to January 10 instead of February 1. The annual reporting requirement has been part of the rules since 1996. The MPCA has found that the requirement for a February 1 submittal of the report is too late for the MPCA to adequately process the data to report it to the Minnesota Legislature in a timely manner. The MPCA has found that the Legislature frequently requests data and information about the SSTS program and that, because of the short term of the legislative session, the information needs to be available as early as possible to be considered in policy decisions. By moving the deadline for submittal up by three weeks, the MPCA can provide better information to the Legislature closer to the start of the session, a critical time in development of legislation and budgets.

The MPCA does not believe that changing this deadline imposes an added burden on local governments. Some of the information requested in the annual report consists of program structure information that is relatively static. In fact, for most years, the same answers will apply from year to year. Other data that is being requested are statistics relating to that year's SSTS permitting and construction activity. The construction season in Minnesota is generally closed by mid-November, meaning that this type of data could be compiled by mid-December. Any remaining work that occurs would just be a simple update. By setting the due date at January 10, the MPCA allows the Local Governmental Units (LGU) time to compile the information, add in any year-end work, and then submit the information in a timely manner.

The second change to this part is to delete the requirement in item A that local units of government send copies of their permit and inspection forms if they have changed. The MPCA has found that it is not necessary for the operation of the MCPA's program to have this information and it is reasonable to discontinue this requirement to reduce the regulatory paperwork burden on local governments.

Because item A is deleted, the subsequent items have been reasonably renumbered. The MPCA is also removing an "s" from "report" to make it consistent with the other uses of the singular "report" in that paragraph. These amendments do not change the effect of this rule.

86. Proposed Change – Minn. R. 7082.0100 Requirements for local ordinances, subp. 1, item C

*Subp. 1.**Requirement.** All SSTS ordinances must contain the provisions in items A to ~~D~~C.*

~~C. A provision requiring that the owner has five years from the date of the bedroom addition permit issuance to upgrade, replace, repair, or discontinue use of the system. This upgrade criterion applies only if:~~

~~(1) the local unit of government issues a permit to add a bedroom;~~

~~(2) the system inspection is triggered by a bedroom addition permit request;~~

~~(3) the system was installed between May 27, 1989, and January23, 1996;~~

~~(4) the system does not comply with part 7080.1500, subpart 4; and~~

~~(5) the system is not an imminent threat to public health or safety as described in part 7080.1500, subpart 4, item A.~~

Item D renumbered.

Justification

Amendments to Minnesota Statutes Chapter 115.55, subdivision 5b deleted these requirements in 2009; these rule changes bring the rule in line with the law.

Because item C is deleted, the subsequent item has been reasonably renumbered.

87. Proposed Change – Minn. R. 7082.0100 Requirements for local ordinances, subp. 3, item J

J. A provision requiring that a management plan be ~~developed, reviewed, and approved~~ submitted by the designer to the local unit of government before issuance of a construction permit for all new or replacement ISTS as described in part 7080.1100, subparts 51 and 66.

Justification

Subpart 3 requires that local ordinances contain specific requirements. Item J in subpart 3 is amended by deleting the requirement that ordinances must contain a requirement that management plans be "developed, reviewed and approved" before a construction permit may be issued. Although the MPCA expects that in most cases, the local unit of government will review the plan before issuing a construction permit, the MPCA understands that this is not always the case and that the processes used by local units of government vary. It is sufficient for the MPCA's purposes to know that the ordinance requires that the local unit of government must receive the management plan as part of the system design. How the local unit of government exercises its discretion regarding the approval of management plans is not the subject of this rule.

88. Proposed Change – Minn. R. 7082.0300 Local Program Administration, subp. 2, item B

B. Programs adopted under part 7082.0100, subpart 3, must not issue variances from provisions in part 7080.2150, subpart 2, items A to D, or 7081.0080, subparts 2 to 5.

Justification

Item B in subpart 2 is amended to clarify that only items A to D in Minn. R. 7080.2150, subp. 2 are excluded from being the subject of a variance. Minn. R. 7080.2150, subp. 2 contains six general requirements for all SSTS. Item A requires that the system must meet all federal, state and local regulations. Item B requires that the system must prevent sewage contact with humans, insects or vermin. Item C requires that sewage treatment must be done in a safe manner. Item D requires that an unsaturated zone must be maintained between the bottom of the soil treatment and dispersal zone and periodically saturated soil or bedrock. These items are essential to ensure sound environmental performance and protection of public health and the rules do not allow local governmental units to issue variances from these requirements. However, there are two more items in subpart 2 that under the current rules are not allowed to be considered for a variance but which the MPCA believes can reasonably be considered variable by local governmental units. Item E prohibits the location of an ISTS in a floodway and Item F establishes specific setback limits.

Prior to the 2008 amendments, the rules did not prohibit variances addressing these two aspects of SSTS location. However, when the rules were revised in 2008, local units of government were not allowed to issue variances to setback and floodway restrictions. This was an error and it was not the MPCA's intention to change this aspect of local authority. Minn. R. 7080.0305, subd. 3, item B, in the 2006 version of the rules, provides LGUs with the option of granting variances to items E and F, which address setbacks and floodplains. The MPCA believes it is reasonable to amend the rule to correct the error and once again provide an exception in item B to allow local units of government discretion regarding the issuance of variances for locating ISTS in floodways and within established setbacks. The MPCA notes that entities other than the MPCA also have regulations regarding setbacks and floodways. This amendment only addresses the MPCA's relationship with LGUs regarding their authority and does not supersede any other state or federal regulations and authorities.

89. Proposed Change – Minn. R. 7082.0500 Permit Program for SSTS, subp. 2

Subp. 2. ***SSTS permit application requirements****.*

~~A.~~ SSTS permit applications must require the submittal of exhibits necessary for issuing a permit as described in this chapter, along with general requirements for identifying the property and owners, a site evaluation report, a design report, a management plan, and any other information requested by the local unit of government pertinent to this process. Exhibits for site evaluation, design, and applicable construction information must be complete and include a certified statement from the certified person who conducted or oversaw the work. An approval process must be developed to address changes in the approved design that served as the basis for issuing a permit.

~~B. Local units of government must require, review, and approve the technical basis for Type II to Type V systems as listed in parts 7080.2250 to 7080.2400.~~

Justification
Item B is amended to remove the requirement that local units of government must take action regarding the technical basis for Types II, III, IV and V systems. This requirement is reasonably deleted to reduce the regulatory burden on local units of government. The MPCA expects that they will use due diligence in review of permit applications for all types of systems with or without this provision, removing this provision clarifies that it is not a separate, additional step in the process. Because there is no longer an item B, item A is amended to remove the item number because it is unnecessary.

90. Proposed Change – Minn. R. 7082.0500 Permit Program for SSTS, subp. 3, item B

> *B. The local unit of government must review and either approve or deny the permit application ~~and management plan~~ before issuing a construction permit. Construction must not be initiated until a construction permit is granted. Final approval of the system must be evidenced by issuance of a certificate of compliance.*

Justification
Item B of subpart 3 is amended to eliminate the requirement that the local unit of government review and then approve or deny the management plan as well as the permit application. The requirement that the local unit of government review, approve, or deny the management plan is being deleted for the same reason that the MPCA is, in this rulemaking, deleting the requirement that the local unit of government review and approve management plans discussed in Minn. R. 7082.0100, subp. 3, item J of this SONAR.

The word "either" is added to the first sentence for grammatical purposes and does not change the effect of this rule. The change is intended to highlight the fact that the review step is separate from the decision of whether or not to approve or deny the application.

91. Proposed Change – Minn. R. 7082.0600 System Management, subp. 1, item A

> *A. Local units of government ~~shall~~ must require management plans for all new or replacement SSTS as described in parts 7080.2210 to ~~7080.2300~~ 7080.2400. These plans must be submitted to the local government before issuance of a construction permit.*

Justification
Item A of subpart 1 is amended to correct an error in the range of applicable rules so that the requirement to have management plans extends beyond Minn. R. 7080.2300 to also include Minn. R. 7080.2400. This corrects an error in the existing rules. As this subpart was originally proposed in 2007, the proposed language stated that "*Local units of government shall require management plans for **all** new or replacement ISTS…"* The originally proposed rule language did not specify the rule parts that would identify *"all new or replacement ISTS"*. However, when the proposed rules were revised as a result of comments received, the range of applicable rule parts was specified, but through an apparent error, did not include a reference to the rule

part that addressed Type V systems. Minn. R.7080.2400 regulates Type V SSTS and was originally included in the range of types of systems that are required to have management plans for their operation.

The MPCA believes that a management plan is an important component of the correct design and operation of a system and did not intend to exclude Type V systems from this requirement. The MPCA believes that it is reasonable to correct this error in this rulemaking and to require management plans for all types of SSTS.

92. Proposed Change – Minn. R. 7082.0700 Inspection Program for Subsurface Sewage Treatment Systems, subp. 1.

Subp. 1. ***Inspection requirements.***
Local units of government must ~~have an~~ adopt and implement a construction inspection program for new construction and replacement SSTS to enforce requirements under this chapter. The construction inspection program must specify the frequency and times of inspections, specify the requirements of an inspection, establish an inspection protocol, provide for when an inspection cannot be completed in a timely manner, and, at a minimum, include the requirements for a compliance inspection under subparts 2 and 3, except for subpart 3, item E.

Justification
Subpart 1 is amended in two ways. The first amendment is a clarification of the responsibility of the local unit of government regarding their inspection program. The existing rule simply states that a local unit of government must "have" an inspection program. The MPCA is concerned that local units of government must take the necessary steps to legally institute an inspection program, and then follow up with a realistic and tangible program to implement its program. The MPCA believes that by specifying in the rules that the program must be formally adopted and implemented, it is clarifying the level of action that is expected of the local unit of government and that this is a reasonable expectation for the operation of the SSTS program at the local level. The amendment does not change any requirements for a local unit of government; it only clarifies the current expectation.

The second amendment to this subpart is the addition of language to clarify that the inspection program discussed in subparts 1 and 2 applies to the construction phase of SSTS activities and that both new and replacement construction activities are subject to inspections. The MPCA believes it is reasonable to add these phrases to clarify that this part requires that local units of government need to have an inspection program for new and replacement construction, not for existing systems. The existing language seemed to imply that the requirement for a local inspection program also applied to existing systems, which is not the MPCA's intent.

93. Proposed Change – Minn. R. 7082.0700 Inspection Program for Subsurface Sewage Treatment Systems, subp. 2, item A

Subpart 2. ***Compliance Inspection****:* ***new construction or replacement***

A. A compliance inspection <u>for all new construction or replacement</u> must be conducted:
(1) to ensure compliance with applicable requirements;
(2) to ensure compliance before issuance of a permit for the addition of a bedroom on property served by an SSTS, if the local unit of government issues permits for the addition of a bedroom, unless the requirements under part 7082.0500, subpart 3, item C, are met;
~~(3) for all new construction or replacement;~~
(~~4~~<u>3</u>) by a qualified employee or licensed inspection business, authorized by the local unit of government, who is independent of the owner and the installer; and
(~~5~~<u>4</u>) for an evaluation, investigation, inspection, recommendation, or other process used to prepare a disclosure if conducted by a party who is not the system owner. This disclosure action constitutes a compliance inspection and must be conducted according to this chapter.

<u>Justification</u>
The amendments to the introductory sentence of this item, as well as to the title of the item and the deletion of existing subitem 3, are intended to clarify that the whole item only applies to compliance inspections for new SSTS construction and replacement. The amendments only re-position the statement regarding "new construction and replacement" to clarify the requirements of this item and do not alter the effect of this item.

94. Proposed Change – Minn. R. 7082.0700 Inspection Program for Subsurface Sewage Treatment Systems, subp. 2, items C to E

<u>C</u>. A licensed inspection business working on behalf of a local unit of government must not design or install a <u>new or replacement</u> system if there is a likelihood that the inspector or business will be responsible for permitting or inspecting <u>the new or replacement</u> system or system site.

<u>D. A licensed inspection business may inspect an existing system that they designed or installed once it has been independently inspected.</u>

<u>E.</u> A person working for or on behalf of a local unit of government is not allowed to use the person's position to solicit for private business gain.

<u>Justification</u>
Item C is amended to make the same type of changes that are being made throughout subparts 1 and 2. The phrase "new or replacement" is added to clarify the application of the requirements.

Item D is a new item added to address questions that have been raised regarding the relationship of inspector to designer/installer in those situations where one person may potentially fill all these roles. In many areas of the State, the local unit of government does not maintain SSTS staff, and inspection duties are contracted to private individuals and businesses that also design and install systems. It has happened that a contracted inspector has been asked to inspect their own design or installation work. The MPCA recognizes that this is a conflict and an

inappropriate application of the inspection program. By adding item D, the MPCA is ensuring that all new systems are independently inspected in the absence of a conflict of interest. Since the first mandatory statewide ISTS program began in 1996, the MPCA has required an independent inspection to verify that a new system was designed and installed to meet the code. The concept is that there are always at least two sets of eyes that look at the system so that one checks the work of the other.

The installation of a new SSTS requires two work products – the soil evaluation/design and the installation. Each one of these work products need to be checked by someone independent of the person doing the work and who is authorized by the LGU. The check for the soil evaluation/design phase is the issuance of the construction permit and the check for the installation phase is the inspection.

Example: A designer does a site evaluation and submits design to the LGU. The LGU verifies the soil and reviews the design, then issues the permit. An installer, who might also be the designer, then installs according to the design. The construction inspection follows and leads to the issuance of a Certificate of Compliance.

If the person or business representing the LGU is not also the designer, this is an acceptable scenario because there are two separate sets of eyes looking at soils and developing/reviewing design. The designer could also be the installer, or could be the person who does the construction inspection if they are contracted to the LGU to do inspections. However, the designer cannot be the person who verifies the soils or issues the permit for the design, and the installer cannot be the person who issues the Certificate of Compliance.

The MPCA believes that it is reasonable to allow an inspector to eventually inspect a system that they have previously designed or installed, but that there must be at least one independent inspection between their design/installation and the inspection. Although the MPCA feels that it is reasonable to prohibit a person from inspecting their own work, the MPCA does not feel that it is necessary to prohibit them from ever inspecting the system once its initial design and installation has been approved. There are many aspects of proper ongoing SSTS operation that an inspector can verify without concern that it will be a reflection on their initial design or installation work.

The existing requirements being newly identified as item E are not changed with this amendment but are only being addressed as a new item for clarity.

95. Proposed Change – Minn. R. 7082.0700 Inspection Program for Subsurface Sewage Treatment Systems, subp. 3, items C to F

Subp.3. ***Certificate of compliance; notice of noncompliance~~; new construction or replacement~~.***

C. Local units of government ~~shall~~ must develop a certificate of compliance document or use a certificate of compliance developed by the agency for new construction and replacement. The certificate of compliance for new construction

and replacement must include the vertical separation distance report described in subpart 4, item B, subitem (2), and the management plan developed under part 7082.0600, subpart 1. All certificates of compliance and notices of noncompliance for new construction and replacement must include property and property owner identification, date of inspection, system components, system location (dimensioned or drawn to scale), well setback distance, field check of soil conditions, SWF, as defined under part 7080.1100, subpart 84, designations as applicable, and Class V designation as applicable.

D. A certificate of compliance or notice of noncompliance for new construction or replacement must be signed by a licensed inspection business or by a qualified employee certified as an inspector who is authorized by the local unit of government. The certificate of compliance or notice of noncompliance for new construction and replacement must be submitted to the local unit of government no later than 15 ~~business~~ days after any compliance inspection. The certificate of compliance or notice of noncompliance for new construction and replacement must be submitted to the owner or owner's agent within 15 ~~business~~ days.

F. If a compliance inspection for new construction and replacement indicates that the system is not in compliance with applicable requirements, the notice must contain a statement to this effect and specify ~~what must be done to achieve compliance~~ the reason for noncompliance.

Justification

Items C, D and F in subpart 3 are amended to make three types of changes. The first type of change involves the addition at a number of places of the phrase “for new construction and replacement”. These clarifications are necessary to make a distinction between the compliance inspection activities that are limited to new construction or replacement and those activities that will apply to compliance inspections for existing SSTS.

The second change is to remove “business” from the number of days allowed for submittal of a certificate of compliance or notice of noncompliance (certificate/notice) following an inspection. The rule formerly allowed an inspector 15 business days to submit the certificate/notice. The MPCA has found that in many cases, 15 business days, which is equal to three weeks, allows too much time to elapse between the inspection and the filing of the certificate/notice, especially if the notice is of noncompliance and can involve an issue of public safety. The MPCA believes that a total of 15 days, which is equivalent to two weeks, is a more reasonable time period for the filing of the certificate/notice and that there is no apparent reason why a period of three weeks after the inspection is necessary to send the certificate/notice to the local unit of government. The MPCA is shortening the time period allowed for the filing of the certificate/notice by removing the word “business” from the rule and leaving the phrase “15 days” which is subject to the statutory interpretation of what constitutes a day. Under Minn. Stat. § 645.45 (which applies to rules by operation of section 645.001) day means *"the time from midnight to the next midnight,"* and would therefore include weekends and holidays. But in those cases where the 15th day falls on a holiday or weekend, Minn. Stat. § 645.15 would also apply. That statute states that weekends and holidays are excluded when they fall on the last day of a prescribed period.

The third change is to rephrase the final sentence which formerly required that a notice of noncompliance must specify what must be done to achieve compliance. This requirement is rephrased so that the notice must only identify the reasons for noncompliance and not require identification of what must be done to achieve compliance. The MPCA believes that it is not reasonable to require the inspector to make a determination of what must be done to remedy a noncompliant situation. In many cases, the resolution of a system failure is a complicated and expensive matter that may involve assessment of a number of options. The inspector is not the appropriate person to be expected to make that kind of assessment and decision. The MPCA believes that it is appropriate to ask the inspector to specify the reasons why the system has been determined to be noncompliant but not to require identification of the solutions to that problem.

96. Proposed Change – Minn. R. 7082.0700 Inspection Program for Subsurface Sewage Treatment Systems, subp. 4, item A

Subp. 4. ***~~Certificate of~~ Compliance; ~~notice of noncompliance~~ inspection; existing systems.***

A. ~~The agency's existing SSTS inspection report forms shall be used for existing system compliance inspections. A local unit of government is authorized to require the use of additional, local existing system inspection forms.~~ A compliance inspection of an existing system must first determine whether the soil dispersal system, sewage tanks, or other conditions pose an imminent threat to public health and safety as defined in part 7080.1500, subpart 4, item A. A determination must then be made as to whether the sewage tanks and soil dispersal area are failing to protect ground water as defined in part 7080.1500, subpart 4, item B. The inspection must also verify compliance with part 7080.1500, subpart 4, item C.

Justification

The MPCA is making a number of amendments to subpart 4. Each of the specific changes to each item and subitem will be discussed separately below. However, the MPCA's statement of the general reasonableness of all of the changes to subpart 4 is that this subpart is essential to the SSTS compliance program for existing systems. Local units of government are not required to have an inspection program for existing systems. However, because some local units of government do it is necessary to address the requirements for such inspections.

The first change to item A deletes the reference to the MPCA's inspection report form. This requirement has been slightly re-phrased and moved to the revised introductory paragraph of item B and is discussed at that part of this SONAR.

The language being added to this subpart addresses the two steps that are necessary in a compliance inspection. The MPCA has found that there is significant confusion among the affected entities regarding the steps necessary in an inspection. The MPCA has found that the way the rule is currently phrased does not reflect the MPCA's position, interpretation by legal counsel, or legislative intent for the inspection process. If an inspector stops a compliance inspection upon finding the first noncompliant component, neither the inspector, homeowner, nor

the local unit of government has a full accounting of all the noncompliant components in the system. In the past, when incomplete compliance inspections have occurred, an inspector has stopped the inspection at the first noncompliant component and not continued to inspect other system components, leaving the determination of any remaining noncompliant components up to the SSTS designer hired to design a replacement system.

The revisions to this subpart make it clear that the first step is to make the determination of imminent threat, but that the second step is to follow that with an additional determination of whether the system is failing to protect groundwater. The final step of the inspection is to verify that the system is being operated in accordance with its operating permit (for those types of systems that are required to have an operating permit). This clarification of the necessary elements of a compliance inspection is reasonable for several reasons. First, it provides clear direction to the inspector regarding the scope of the inspection. Second, it ensures that each inspection is complete and that significant violations of either imminent threat or failure to protect will be reported. Finally, the amendments ensure that an inspection provides a full evaluation of the system. An inspection is an expense to the system owner, the local unit of government or a potential buyer. Requiring that it be complete will minimize the additional cost of further inspection and evaluation of a system.

97. Proposed Change – Minn. R. 7082.0700 Inspection Program for Subsurface Sewage Treatment Systems, subp. 4, item B

B. ~~An inspection~~ The agency's inspection report form for existing SSTS, ~~must verify the conditions~~, supplemented with any necessary or locally required supporting documentation, must be used for the existing system compliance inspections in subitems (1) to (3). Allowable supporting documentation includes tank integrity assessments made within the past three years and prior soil separation assessments.

Justification

The requirements in the first sentence of this item are essentially the same as were previously required in Item A. The requirements are slightly rephrased for clarity but there is no substantial change to the existing requirement that the MPCA's inspection report form must be used and that it may be supplemented with additional local inspection forms. A new sentence is being added that clarifies that existing tank integrity assessments are valid for three years and that soil separation assessments are always valid and do not expire. The MPCA believes that it is reasonable to limit the time during which a tank integrity assessment can be used, because tank integrity can change as the tank ages. The MPCA believes that a three-year period is a reasonable length of time in which to assume that an integrity assessment is still valid and coincides with the three-year check of sludge and scum levels which is currently required.

98. Proposed Change – Minn. R. 7082.0700 Inspection Program for Subsurface Sewage Treatment Systems, subp. 4, item B, subitem (1)

(1) ~~Sewage tanks must be assessed for leakage below the operating depth. A leakage report~~ A tank integrity and safety compliance assessment must be completed ~~that~~

~~includes the method or methods used to make the assessment. The assessment must be made~~ by ~~either~~ a licensed SSTS inspection, maintenance, installation or service provider business, ~~except a design business,~~ or a qualified employee ~~with an SSTS certification, except as a designer~~ inspector with jurisdiction. ~~A passing report~~ An existing compliant tank integrity and safety compliance assessment is valid for three years unless ~~the certified individual has reason to believe that a new inspection is to be conducted and the tank is found to not be watertight~~ a new evaluation is requested by the owner or owner's agent or is required according to local regulations.

Justification

The changes to this part delete a number of existing phrases and add new concepts.

The main phrases being deleted are:

- Tanks must be assessed for leakage below the operating depth
- A leakage report must be completed that includes the method or methods used to make the assessment
- A passing report is valid for three years unless the certified individual has reason to believe that a new inspection is to be conducted and the tank is found to not be watertight.

These phrases are being deleted because they are not relevant to subitem (1) as it is being revised to more clearly focus on the requirements for a tank safety and compliance assessment. The rule does not need to specify that a tank must be assessed for leakage below the operating depth because this is a fundamental aspect of the inspection and is already addressed in the tank assessment form. For the same reason, the rule does not need to require that the report specify the method or methods used. Finally, the MPCA believes that the existing language regarding the validity of the passing report is obsolete and does not reflect the reality of how re-inspections are requested. The determination of whether or not the report should remain valid should not be a determination made by the original "certified individual"; it should be made by either the owner of the tank or the local unit of government. The additional qualification that the re-inspection depends on finding that the tank is not watertight is an error made in the 2008 amendments, which the MPCA believes should be corrected in this rulemaking. The MPCA believes that all of these phrases are reasonably deleted from this subitem.

The amended language for this subitem, without the strike-outs of the existing language, says:

A tank integrity and safety compliance assessment must be completed by a licensed SSTS inspection, maintenance, installation, or service provider business, or a qualified employee inspector with jurisdiction. An existing compliant tank integrity and safety compliance assessment is valid for three years unless a new evaluation is requested by the owner or owner's agent or is required according to local regulations.

The amended language is reasonable because, first of all, the new language clearly names the report to be filed (the tank integrity and safety compliance assessment). This will reduce confusion because inspectors use a multipart inspection form.

The amended language also clearly identifies who can conduct the compliance inspection. The existing language contained a confusing clause that excluded design businesses and designers. The amendment does not make a change to who is qualified to conduct the tank assessment; it only re-phrases the existing requirements to more clearly identify who may conduct the assessment, instead of identifying who may not.

Finally, the new language continues the existing provision that a tank integrity assessment is valid for three years, but changes the conditions under which a new assessment may be requested. Both of the conditions are based on the practical application of the rule and reflect the way that re-inspections are actually handled. An owner may always request a compliance assessment and a local unit of government has always been allowed to require inspections more frequently than every three years. Specifying these conditions in this subitem only clarifies the fact that they have always been available.

99. Proposed Change – Minn. R. 7082.0700 Inspection Program for Subsurface Sewage Treatment Systems, subp. 4, item B, subitem (2)

(2) ~~The vertical separation distance from the bottom of the soil treatment and dispersal system and the periodically saturated soil or bedrock must be verified. This verification must be achieved by~~ A soil separation compliance assessment must be completed by a licensed inspection business or a qualified employee inspector with jurisdiction. Compliance must be determined either by conducting new soil borings or by prior ~~verifications~~ soil separation documentation made by two independent parties. The soil borings used for system design or previous inspections ~~qualify as a verification A vertical separation distance report must be completed that includes the method or methods used to make the assessment and includes any previous soil borings. The assessment must be made by either a licensed inspection business or a qualified employee inspector with jurisdiction~~ are allowed to be used. If the ~~verification~~ soil separation ~~report consists of verifications~~ has been determined by two independent parties, a subsequent ~~verification~~ determination is not required unless ~~the inspector has reason to believe a noncompliant condition exists~~ requested by the owner or owner's agent or required according to local regulations.

Justification

This subitem addresses the requirements necessary to verify the separation between the treatment zone and the saturated zone or bedrock. Similar to changes in subitem 1, the changes to this subitem name the report as a soil separation assessment to clarify its use in the multipart inspection form and makes parallel changes by specifying which discipline may complete the form and clarifying the conditions under which the form may be replaced by a new inspection.

The amended language for this subitem, without the strike-outs of the existing language, says:

A soil separation compliance assessment must be completed by a licensed inspection business or a qualified employee inspector with jurisdiction. Compliance must be determined either by conducting new soil borings or by prior soil separation documentation made by two independent parties. The soil borings used for system design or previous inspections are allowed to be used. If the soil separation has been determined by two independent parties, a subsequent determination is not required unless requested by the owner or owner's agent or required according to local regulations.

100. Proposed Change – Minn. R. 7082.0700 Inspection Program for Subsurface Sewage Treatment systems, subp. 4, item B, subitem (3)

(3)~~Sewage backup, surface seeping, or surface discharge from the system must be determined. A~~ Determination of hydraulic ~~function report~~ performance and other compliance in part 7080.1500, subpart 4, item A, must be completed ~~that includes the method or methods used to make the assessment. The assessment must be made~~ by either a licensed inspection business or a qualified employee ~~with an~~ inspector ~~certification~~ with jurisdiction. ~~A passing report is valid until a new inspection is requested or if the hydraulic performance is believed to have changed.~~

Justification

This subitem is amended by the deletion of redundant language and the rephrasing of existing requirements. The first phrase deleted relates to conditions that would present an imminent threat. The requirements for inspection for an imminent threat are already addressed in subpart 4, item A so the same requirements in this subitem are reasonably deleted.

The second sentence relates to determination of hydraulic performance and is being rephrased to clarify the existing requirement that the inspection for the hydraulic condition of the system must be conducted by a licensed inspector. The requirements for the hydraulic inspection and the methods that must be used are addressed through the inspection report form, which is referenced in item B.

This subitem is also amended to address the validity of the hydraulic assessment. The rule formerly allowed the hydraulic assessment to remain valid until someone requested a new report or if there was reason to believe it was no longer valid. The MPCA does not believe this is a reasonable standard for the hydraulic function. The hydraulic function of a system is very subject to change and it is not reasonable to assume that it is operating correctly indefinitely. By deleting this sentence, the MPCA is in this rulemaking requiring that the hydraulic function of an SSTS be evaluated at every inspection.

The phrase "qualified employee with an inspector certification" is being rephrased to eliminate a redundancy and to address a concern about the authority of inspectors. In order to be "qualified" an employee is required to be certified so there is no need for the rule to repeat the certification requirement. The MPCA is adding a requirement that was not formerly addressed, which is that the employee must have jurisdiction to conduct the inspections. This requirement exists in other

parts of the rule and is reasonable to ensure that employees exercise their authority within the limits of their jurisdiction.

The amended language for this subitem, without the strike-outs of the existing language, says:

> *Determination of hydraulic performance and other compliance in part 7080.1500, subpart 4, item A, must be completed by either a licensed inspection business or a qualified employee inspector with jurisdiction.*

101. Proposed Change – Minn. R. 7082.0700 Inspection Program for Subsurface Sewage Treatment Systems, subp. 4, item C.

> *C. A certificate of compliance ~~shall~~ for an existing system must be based on the results of the verifications in item B. The certificate of compliance for an existing system must be signed by a licensed inspection business or a qualified employee inspector with jurisdiction. The certificate or notice for an existing system must be submitted to the local unit of government with jurisdiction and the property owner or owner's agent no later than 15 days after a compliance inspection. The completed form must also be submitted to the owner or owner's agent. The certificate of compliance for an existing system is valid for three years from the date of issuance, ~~even if one of the supporting reports expires before the three-year period,~~ unless ~~an inspector finds evidence of noncompliance~~ a new inspection is requested by the owner or owner's agent or is required according to local regulations.*

Justification

These changes are the other necessary element of the changes that draw the distinction between inspections of existing systems and construction inspections. Minn. Stat. § 115.55, subp. 5 and 5a separately describe and set requirements for these two types of inspections. These changes further clarify and reflect these differences.

The MPCA is deleting the provision that the certificate of compliance is still valid even if one of the assessments used to determine compliance expires before the expiration date of the certificate of compliance. This phrase is being deleted because it is already addressed in the first sentence of this item which states that "A certificate of compliance for an existing system must be based on the results of the verifications in item B." No change in the regulatory requirements is intended and the effect of this statement remains in effect: the certificate of compliance will remain valid even if one of the assessments expires.

The rule is being amended to qualify that the certificate of compliance can become invalid if the owner requests a new inspection or a new inspection is required by the local ordinance. This is reasonable because the owner of the system should have the right to a new inspection if desired. Also, a local unit of government can establish conditions for inspections to the extent allowed in Minn. Stat. § 115.55 *"(c) A certificate of compliance for an existing system is valid for three years from the date of issuance unless the local unit of government finds evidence of an imminent threat to public health or safety*

requiring removal and abatement under section 145A.04, subdivision 8." The MPCA believes it is reasonable to recognize these two conditions that would prompt the need for a new assessment.

102. Proposed Change – Minn. 7082.0700 Inspection Program for Subsurface Sewage Treatment Systems, subp. 4, item D.

D. If a compliance inspection for an existing system indicates that the system is noncompliant, the notice must be signed by a licensed inspection business or qualified employee inspector with jurisdiction ~~and~~, contain a statement ~~to that effect~~ of noncompliance, and specify ~~what must be done to achieve compliance~~ the reasons for noncompliance of each component specified in item B.

Justification
As with the preceding changes, this language clarifies that these requirements apply to existing systems, not construction inspections. Similarly, the requirement is altered from having the inspector make projections as to what is needed to achieve compliance to requiring the inspector to only list the reasons for noncompliance. This change allows inspectors to stay within their area of expertise and not speculate about future design considerations. These changes are reasonable and consistent with other changes in this rule. It is necessary for MPCA to amend the rule in this way to clarify the different requirements between existing systems and new construction and to more fully differentiate between the work of inspectors and designers.

103. Proposed Change – Minn. R. 7083.0750 Inspection License, subp. 1

*Subpart 1. **Authorization.***
A. A licensed basic inspection business is authorized to conduct compliance inspections and issue written certificates of compliance and notices of noncompliance for an existing ISTS described in part 7083.0740, subpart 1, item A. An inspection business is allowed to install a new system for a property in which the business has conducted an existing ISTS compliance inspection, provided the business holds the appropriate licenses. A local unit of government is allowed to authorize a licensed inspection business to review and approve site evaluations and designs, inspect new construction and replacement systems, verify the submittal of management plans, and issue written certificates of compliance and notices of noncompliance for systems described in part 7083.0740, subpart 1, ~~items~~ item A ~~and B~~.

Justification
Item A is amended by the deletion of "and B" from a cross reference to Minn. R. 7083.0740. This is a reasonable amendment to correct an error. This item addresses the type of systems that a basic inspection business may inspect. The reference that is being amended formerly cited items A and B of Minn. R. 7083.0740, subp. 1. However, in that subpart, only item A relates to the type of systems that a basic inspector is allowed to inspect. Item B relates to advanced systems that require advanced inspection certification and is therefore reasonably deleted.

104. Proposed Change – Minn. R. 7083.0750 Inspection License, subp. 2

Subp. 2. ***Responsibilities.***
Basic and advanced inspection ~~and MSTS inspection~~ licensees must submit a completed version of the agency's existing inspection form to the local unit of government and the property owner within ~~30~~ 15 days after any existing system compliance inspection.

Justification
Subpart 2 is amended in two ways. The first change is to clarify that these responsibilities apply to both types of inspection licensees. The rule originally referred to "Inspection and MSTS" licensees. That language was intended to include the types of inspectors who were certified for both single ISTS and MSTS, but was not clear about what was intended. The MPCA believes that the amendment much more clearly identifies the types of licensees who are the subject of this subpart. The MPCA considers this to be a clarification of the existing rule.

The second change reduces the time period for submitting a completed inspection form from 30 days to 15 days. This change will make that submittal period consistent with a similar existing requirement in Minn. R. 7082.0700, subp. 4, item C. The MPCA believes this is a reasonable reduction in the time because the submittal of the application form is a minor step in the inspection process. Scheduling and conducting an inspection may take significant time, but once the inspection is conducted and if the form is completed at the same time as that inspection, there is no need for additional work on the completed form. The MPCA believes that even if the form is hand delivered (though it may also be mailed, faxed or electronically transmitted) 15 days is an adequate time period.

Note: the rule language requires that the completed form be "submitted". In the case of mailed forms, the MPCA considers the postmarked date to be the date of submittal.

105. Proposed Change – Minn. R. 7083.1000 Bonding and Insurance for SSTS Licensed Businesses; Liability, subp. 1, item E

E. The corporate surety bond must be submitted to the commissioner on the bond form provided in ~~part 7083.2030~~ this chapter or on an alternate bond form provided by the commissioner, and must name the applicant as the principal.

Justification
The staff of the MPCA's SSTS program are working with the Department of Labor and Industry to develop bond requirements that are consistent with the requirements of Minn. Stat. § 115.56, subd. 2, item (e) and current industry practices. The bond form that is currently provided in the rules may be revised in the future as part of these discussions. The amendment to item E allows the use of either the form that is currently established in the rules and also provides an option for using the cooperatively developed bond form when it is available. The MPCA believes that it is reasonable to provide the regulated community with the best available options for the bond form and expects that when the newly developed form is available, it will be preferable to some installers.

106. Proposed Change – Minn. R. 7083.1050 Experience, subp. 3, item A

A. Experience gained under an experience plan must be gained under the supervision of an unrestricted certified individual who has a specialty area certification that is the same as the specialty area sought by the individual acquiring the experience or under the supervision of an inspector who is authorized to design and inspect the system. After December 31, 2010, an individual providing experience oversight must be a mentor as described in part 7083.2000. If an apprentice loses the apprentice's mentor before completing the approved experience plan, the apprentice must notify the agency. The apprentice must not perform any more work until a new mentor is secured and the revised experience plan is approved by the agency.

Justification

Subpart 3 is amended to add a condition regarding the experience requirement for a mentor. The added language addresses those situations where an apprentice is not able to complete the requirements for working under the supervision of a mentor. The existing rule did not address this sort of situation and is not clear about how to resolve the loss of a mentor. The MPCA believes that it is reasonable to add language to recognize this situation and to require that certain steps be taken to resolve the change in mentorship. The MPCA also believes that it is reasonable to require that the MPCA be notified of the change in the experience plan and to prohibit the apprentice from continuing to do SSTS work without the oversight of a mentor. The process of training and certifying SSTS professionals is based on meeting specific training and experience standards. It would be misleading to the people who are hiring SSTS professionals and a disservice to the apprentices who are seeking professional status to allow a person to continue to work on SSTS if that process is not being followed.

107. Proposed Change – Minn. R. 7083.1050 Experience, subp. 5, item C

C. An applicant for certification as a basic inspector must have:

1) co-completed, with a mentor, a minimum of 15 inspections of Type I, II, or III systems, as defined under parts 7080.2200 and 7080.2300, with a flow of 2,500 gallons per day or less. The inspections must include a minimum of one aboveground system inspection and one belowground system inspection; and

2) observe, with or without a mentor,

a) five soil evaluations, system designs and management plans being developed;

b) five system installations; and

c) five service or operational instances

No additional experience is required to qualify for the advanced inspector certification.

Justification

Item C is amended to add additional requirements for an applicant for an inspector certification. The inspector classification requires the most advanced understanding of SSTS systems and is

the highest classification in the SSTS certification program. An inspector will approve the work of designers, installers, maintainers and service providers so an inspector must have extensive exposure to and understanding of all of those areas of SSTS work. In the 2008 rulemaking, the experience requirements of each classification was expanded to require that applicants for different categories must observe both above ground and underground work and also that applicants must observe five areas of SSTS work outside of their area of expertise (e.g. installers must observe five maintenance visits). However, in that rulemaking the MPCA failed to make the corresponding changes for inspectors. In this rulemaking the MPCA is correcting this oversight.

The additional requirements being added for applicants for inspection certification are reasonable to ensure that inspectors have a broad exposure to all the aspects of SSTS activities they will be inspecting. The MPCA believes that it is essential that the core work of an inspector, conducting inspections, be done in cooperation with a mentor and that this is a reasonable, existing requirement for those seeking certification as inspectors. However, the MPCA recognizes the practical difficulty of obtaining a mentor to observe the additional 15 crossover training activities. For those activities, the amendments allow the applicant meet the observation requirement with or without the presence of a mentor. The MPCA believes that it is reasonable to assume that the person conducting the other activities (evaluations, installations, service) will be able to instruct and inform the applicant in lieu of a mentor.

These changes were recommended by the SSTS Advisory Committee at their September 10, 2009 meeting, based on the work of the Mentoring Subcommittee of the SSTS Advisory Committee. The Mentoring Subcommittee was convened to determine what is and is not working about the mentoring aspects of SSTS certification. This subcommittee worked with University of Minnesota student Nicholas Haig to survey 1,100 SSTS professionals about their experiences working with the training and certification process. The preliminary results of this survey were reported to the SSTS Advisory Committee at their June 11, 2009, meeting. Mr. Haig and the Mentoring Sub-committee made a presentation to the SSTS Advisory Committee at their September 10th meeting which resulted in the recommendation that this rulemaking include these additional experience requirements for inspectors. The survey results are in Exhibit 19 and can be found at http://septic.umn.edu/prod/groups/cfans/@pub/@cfans/@ostp/documents/asset/cfans_asset_127243.pdf (pages 6-21). The workgroup recommendations are in Exhibit 20 and can be found at: http://septic.umn.edu/prod/groups/cfans/@pub/@cfans/@ostp/documents/asset/cfans_asset_132548.pdf, identified as “Mentoring Group Recommendations”.

An additional sentence is being added to item C to make it consistent with the requirements established in item A for a basic designer certification. The MPCA had found that the lack of this statement has caused confusion regarding the experience requirements and believes that it is a reasonable clarification that does not change the current application of the rule.

108. Proposed Change – Minn. R. 7083.2040 Transitioning Existing Registration and Licenses, subp. 1 and 2

Subp. 1. ***Designers.*** *A business licensed, and an individual registered, as a designer I or designer II on February 4, 2008 are reclassified as basic designers. A business reclassified as a basic designer under this chapter is authorized to design all types and sizes of SSTS until February 4, ~~2011~~ 2012. After that time, a business designing systems described under part 7083.0740, subpart 1, item B, must meet the requirements of this chapter.*

Subp. 2. ***Inspectors.*** *A business licensed, and an individual registered, as a designer I or inspector on February 4, 2008 are reclassified as basic inspectors. A business or individual reclassified as an inspector under this chapter is authorized to inspect all types of SSTS until February 4,~~2011~~ 2012. After that time, the business or government employee inspecting systems described under part 7083.0740, subpart 1, item B, must meet the requirements of this chapter.*

Justification

Minn. R. 7083.2040 is amended to change two of the dates specified in both subparts 1 and 2. The existing rule requires that a basic designer and a basic inspector may continue to design and inspect with their existing certifications for a period of three years from the effective date of the last set of rule amendments (February 4, 2008). The existing requirement would require advanced designers and inspectors to be trained and obtain the new certifications required by the 2008 amendments by February 4, 2011. The MPCA has found that, because some persons have not begun the process of becoming advanced designers or inspectors, there is a concern that there may not be enough certified personnel to meet the needs of SSTS owners and local programs. The MPCA believes that it is necessary to further examine the extent of the problem and negotiate a resolution. For this reason, the MPCA believes it is reasonable to allow designers and inspectors to continue to operate with their existing certification status for an additional year. In this rulemaking the MPCA is reasonably extending the existing certification process for designers and inspectors for an additional year, with the understanding that it may be revisited in the future.

109. Proposed Change – Minn. R. 7083.4000 Product Review and Registration Process, subp. 2, item B

B. Manufacturers verifying product performance through testing according to the following standards or protocols ~~shall~~ must have product testing conducted by a qualified, third-party testing facility. Product performance testing ~~shall~~ must be consistent with the following:

~~(6) other equivalent protocols and standards consistent with the above referenced standards and protocol to verify product performance as approved by the commissioner.~~

(6) protocol for bacteriological reduction described in part 7083.4060~~.~~; and

(7) other equivalent protocols and standards consistent with the standards and protocols in subitems (1) to (6) to verify product performance as approved by the commissioner.

Justification

The existing requirements of subitem 6 are being moved to the end of the list of subitems to improve the reading flow of item B. The MPCA believes that the other subitems in this list are logically grouped together, but that subitem 6 is a "catch-all" type of provision that is more appropriate to follow the other, more specific protocols. This re-arrangement does not change the effect of this requirement and is reasonable as a simple clarification to the rules.

Additionally, the use of the word "shall" is being changed to "must" to conform to current rule drafting convention. These changes do not alter the effect of the rule and are reasonable for consistency.

110. Proposed Change – Minn. R. 7083.4030 Product Performance Requirements for Proprietary Treatment Products, Table III

TABLE III.

Treatment Component/ Sequence category — *Product performance requirements*

Category A: — *Treatment system performance testing levels*

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.

Level	***Parameters***				
	$CBOD_5$ (mg/L)	***TSS (mg/L)***	***O&G (mg/L)***	***FC (#/100ml)***	***Nutrient (mg/L)***
A	*15*	*15*	--	*1,000*	--
A-2	*15*	*15*	--	--	--
B	*25*	*30*	--	*10,000*	--
B-2	*25*	*30*	--	--	--
C	*125**	*~~80~~60*	*~~20~~25*	--	--
TN	--	--	--	--	*< 20, or actual*

TP	--	--	--	--	*value ~~2~~< 5, or actual value*

** BOD 5 = 170 mg/L*

Values for Levels A, A-2, B, and B-2 are 30-day values (averages for $CBOD_5$, 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.

Justification

Table III is amended in several ways. First, the MPCA is adding two new treatment levels to Table III. The new treatment levels, A-2 and B-2, apply to wastewater products that meet (or exceed) concentrations of 15 mg/L $CBOD_5$ and 15 mg/L TSS (for treatment level A-2), and 25 mg/L $CBOD_5$ and 30 mg/L TSS, (for treatment level B-2), but neither have a numerical limit for fecal coliform bacteria. The only difference between treatment level A and A-2 is the limit for fecal coliform bacteria; the only difference between treatment level B and B-2 is the limit for fecal coliform bacteria. Treatment products that meet the new treatment levels, A-2 and B-2, would be allowed to be used on sites with suitable soils (i.e.: vertical separation of three feet), but the treated effluent can be applied at higher hydraulic loading rates. This would allow smaller soil dispersal systems, as compared to using septic tank effluent.

The limits established for these two new treatment levels are needed to allow for slightly higher hydraulic loadings to suitable soils. Because the effluent contains fairly low concentrations of organic matter (BOD) and total suspended solids (TSS), there is less potential for development of a biological mat (aka. biomat) at the soil's infiltrative surface that restricts flow. Therefore, higher hydraulic loading rates and smaller soil dispersal systems would be allowed using treatment products that meet treatment levels A-2 and B-2 (see Exhibit 21). The MPCA believes these are reasonable treatment levels that reflect current research and will provide acceptable environmental protection.

The MPCA is amending the existing limits established for treatment level C for total suspended solids (TSS) and oil and grease (O&G). The MPCA believes that the previous concentrations of 80 mg/L TSS and 20 mg/L O&G should be modified to be more consistent with those concentrations identified in a recent national document on high strength wastewater developed by the Consortium of Institutes for Decentralized Wastewater Treatment. (Exhibit 3b) The MPCA believes that these are reasonable changes that reflect the current best understanding of wastewater constituents and that they will provide acceptable environmental protection.

The MPCA is also, as part of this revision to the limits for treatment level C, providing limits for both BOD_5 and $CBOD_5$. Raw wastewater is typically measured using BOD_5 while treated wastewater is measured using $CBOD_5$ when treatment products are tested using Standard 40 by the National Sanitation Foundation. Furthermore, based on measured effluents in a study (Exhibit18), the ratio of $CBOD_5$ to BOD_5 averaged 0.75 (and ranged from 0.69 to 0.85). This part of the rule, with the addition of the following concentration: * BOD_5 = 170 mg/L, is simply trying to clarify the numerical relationship between $CBOD_5$ and BOD_5. Using a $CBOD_5$ of 125

mg/L and proposed BOD_5 of 170 mg/L in the rule, the ratio of $CBOD_5$:BOD_5 is 0.74. So, both $CBOD_5$ and BOD_5 are relevant parameters for testing treatment products and for designing treatment systems. The MPCA believes that for treatment level C, where data regarding $CBOD_5$ cannot be obtained, the BOD_5 is a reasonable concentration to apply, and vice versa. The use of BOD_5 is identified with treatment level C because this may be an issue with effluents that had undergone primary treatment (i.e.: settling in a septic tank) and not secondary treatment (i.e.: aeration).

Two clarifying changes are being made to the treatment levels established for Total Nitrogen (TN) and Total Phosphorus (TP). The rules had established 20 mg/L and 2 mg/L, respectively, as the limits for these two nutrients. In this rulemaking, the MPCA is making two modifications. The limits for TN and TP are being modified to allow products to be registered at the concentration to which it met when tested. For example, if a treatment product was tested for total nitrogen and it met a total nitrogen concentration of 9 mg/L TN, the product would be registered at achieving a total nitrogen concentration of 9 mg/L. If a second treatment product was tested, and it met a total nitrogen concentration of 17 mg/L TN, the product would be registered at achieving a total nitrogen concentration of 17 mg/L TN.

For phosphorus, the treatment level is being modified from 2 mg/L TP to 5 mg/L TP, to potentially allow for more innovation in phosphorus removal technologies. Septic tank effluent typically contains 12 to 20 mg/L TP, although phosphorus in wastewater can be quite variable (Exhibit 22). The new treatment level of 5 mg/L TP would allow treatment products to be registered at 5 mg/L TP, or at the specific numerical concentration if less than 5 mg/L TP. For example, if a treatment product was tested and it met a total phosphorus concentration of 1 mg/L TP, the product would be registered at a total phosphorus concentration of 1 mg/L. If a second treatment product was tested, and it met a total phosphorus concentration of 4 mg/L TP, the product would be registered at achieving a total phosphorus concentration of 4 mg/L TP.

111. Proposed Change – Minn. R. 7083.4060 Bacterial Reduction, subp. 4, items A to C

Subp. 4. ***Disinfection.***

Manufacturers are allowed to register products that ~~either~~:

~~A.~~ ~~use~~ meet the bacteriological testing requirements alone, without the need for a separate disinfection ~~in~~ device to meet treatment ~~Levels~~ level A ~~and~~ or B; ~~or~~

B. ~~use~~ meet the bacteriological testing requirements when tested with a compatible secondary disinfection device as a component of the process ~~in~~ to meet treatment Level A or B~~.~~; or

C. meet the bacteriological testing requirements when coupled with a compatible secondary disinfection device that meets bacteriological requirements of this part as a component of the process to meet treatment level A or B.

Justification

In the amendments to subpart 4, the MPCA is expanding on how the rules address products that use various combinations of disinfection devices as part of treatment processes. The changes clarify the actual application of this part and also expand the categories of disinfection products that are addressed.

Item A applies to products that simply use disinfection to meet treatment levels, and Item B applies to products that use disinfection as a component of a more complicated process. In the existing rule these distinctions were too simple, did not reflect the current range of products seeking registration and were not useful in relation to how the product registration process is actually implemented. The MPCA believes it is reasonable to establish more sophisticated categories to identify how disinfection products are designed to operate.

The first category, identified in the amendments to item A, are those products that are able to meet bacterial testing requirements without the use of a separate disinfection device. This category would include products such as certain peat filters that are able to treat small discharges of household waste to a level that meets the fecal coliform values established in Minn. R 7083.7030, for treatment levels A or B. In order to be registered, these products must be able to meet the disinfection standards without additional system components or testing.

The second category of product are those that need to include a disinfection device as part of a treatment process to ensure that they are meeting treatment levels A or B. These are more complex combinations of disinfection device and treatment process and would include many aerobic treatment units and fixed film media filters. When products are tested by the National Sanitation Foundation (NSF), the manufacturer couples the treatment device with a specific disinfection device for testing. When NSF certifies that the device meets specific treatment levels, the specific disinfection device used to help achieve those levels is listed, too. When such products are submitted for registration in Minnesota, the treatment and disinfection devices are registered together and not as separate components.

The third category is for those products that can be used in conjunction with treatment devices that achieve the new levels, A-2 and B-2, so they can achieve the required fecal coliform bacteria limits. Here, the treatment devices and the disinfection devices would be listed separately. MPCA intends that the manufacturer will specify which listed disinfection devices are to be used in conjunction with their treatment device, since there may be some factors which make one type of device not as effective with a specific treatment device than another. At this time, there is only one disinfection device registered in Minnesota. By listing *disinfection* devices separately from *treatment* devices, the MPCA will provide flexibility to the treatment device manufacturers by not tying their device to only one disinfection device. Advanced Designers will also have more flexibility in their designs since they will be able to choose from a suite of device combinations that meet the required levels of treatment. This flexibility is tempered to a reasonable level by the requirement that the manufacturer specify the disinfection devices that work with their unit.

The amendments do not change the current product registration process except by adding additional categories, but the MPCA believes that the amendments provide product

manufacturers with a more complete understanding of how the process is applied to disinfecting devices.

112. Proposed Change – Minn. R. 7083.4120 Product Registration Contested Case Hearing

> *A person ~~is afforded an opportunity~~ whose application for product registration under part 7083.4040, item A, has been denied in whole or in part may petition the agency to hold a contested case hearing under Minnesota Statutes, chapter 14~~, for an approval denial, or other final agency action in relation to product registration or renewal~~,. To be considered by the agency, the petition must be submitted within 30 days after the person receives written notice of the commissioner's proposed action and must comply with part 7000.1800. The commissioner must grant the petition for a contested case hearing if the commissioner finds that the criteria in part 7000.1900 have been met. Final agency decisions following contested case hearings must be made as provided in parts 7000.2000 through 7000.2200.*

Justification

Minn. R. 7083.4120 was intended to provide guidance to anyone who was aggrieved by an MPCA decision regarding product registration. However, the existing rule language was not sufficiently specific regarding the applicability of the contested case hearing process. It was not clear about who could request a hearing and it did not define the criteria that would apply to a request for a hearing. The amendments make a number of clarifications.

First, a condition is being added to clarify the scope of who can request a hearing. This specific rule part is not intended to provide the option of requesting a hearing to every person who might have been interested in the status of the MPCA's decision regarding a particular product's registration. The amendments to this part limit the right to a hearing to only those persons whose application for product registration has been denied (in whole or in part). The MPCA is concerned that the existing language could have been interpreted to allow a business competitor to request a contested case hearing for an approval of a competitor's product in order to gain a marketing advantage. The MPCA believes it is reasonable to limit the option of a contested case hearing to only those persons who have been denied approval through the registration process. This amendment does not limit the access to a contested case hearing in other circumstances that may be otherwise addressed in Minn. R. ch. 7000.

Second, the amendments clarify the starting point for the 30-day request period. The rule formerly stated that the request could be made within 30 days of the action. However, the MPCA believes that it is more reasonable to allow the regulated community 30 days from the point that they are notified of the denial instead of the time of the action. In the practical application of the registration program, there may be a delay between the MPCA's action and the notification of the decision. The amendment will possibly extend the time period allowed for requesting contested case hearing, but the MPCA believes it is a reasonable accommodation for the convenience of the regulated community.

Finally, the rule is amended to include specific references to the rule parts that govern the conduct of contested case hearings. The addition of these references does not change any aspect of the application of the rule; they are added as a reasonable cross reference for the information of the aggrieved parties who may be seeking a hearing.

VI Statutory Considerations and Economic Analysis

In the recent past (2007-2008) the MPCA conducted a major rulemaking to significantly revise the SSTS rules to address many aspects of SSTS regulation. As part of that rulemaking, the MPCA addressed the statutory considerations and economic analysis of the proposed SSTS rules as they related to fundamental issues regarding the management of sewage, the roles of local units of government and the effect of SSTS regulation on affected parties. In this rulemaking, the MPCA will not repeat those discussions of how these amendments relate to statutory considerations or how the amendments affect the economics of basic waste treatment. The issues of economics and statutory considerations have been adequately addressed for the fundamental aspects of SSTS regulation and in this SONAR the MPCA will only address the specific, limited effects of the amendments being proposed. The Statement of Need and Reasonableness for the 2008 amendments to the SSTS rules is provided as Exhibit 10 to this rulemaking.

This section is divided into three parts. The first two parts will discuss the specific and general statutory requirements that apply to the proposed rules. The third part will provide specific details of the MPCA's economic assessment of the proposed rules.

A. Statutory Requirements Specific to the MPCA

Three Minnesota laws specifically identify MPCA rulemaking responsibilities. Two of these laws: Minn. Stat. § 115.43, subd. 1, and Minn. Stat. § 116.07, subd. 6, are very similar and require that the MPCA consider economic factors in the development of all MPCA rules.

Minn. Stat. § 115.43, subd. 1 (Powers)

> *"In addition to the other powers prescribed by law, the agency shall have the powers and duties prescribed in this section. In exercising all such powers the agency shall give due consideration to the establishment, maintenance, operation and expansion of business, commerce, trade, industry, traffic and other economic factors and other material matters affecting the feasibility and practicability of any proposed action, including, but not limited to, the burden on a municipality of any tax which may result therefrom and shall take or provide for such action as may be reasonable, feasible and practical under the circumstances."*

Minn. Stat. § 116.07, subd. 6 (Exercise of Powers)

> *"In exercising all its powers the pollution control agency shall give due consideration to the establishment, maintenance, operation and expansion of business, commerce, trade, industry, traffic, and other economic factors and other material matters affecting the feasibility and practicability of any proposed action, including, but not limited to, the burden on a municipality of any tax*

which may result therefrom, and shall take or provide for such action as may be reasonable, feasible, and practical under the circumstances."

These two statutes establish essentially identical requirements for the MPCA to give due consideration to economic factors in developing rules. The MPCA's consideration of economic factors is reflected in this SONAR by the discussion presented in the following Section C. The MPCA finds, after consideration of the economic factors, that the proposed amendments to the rules do not unreasonably cause any adverse effect on any business or impose a burden on municipalities.

An additional statutory requirement specifically applies to MPCA rulemakings that may affect the Minnesota Department of Transportation (Mn/DOT).

Minn. Stat. § 174.05 (Notification of Mn/DOT)

"The commissioner of the Pollution Control Agency shall inform the commissioner of transportation of all activities of the Pollution Control Agency which relate to the adoption, revision or repeal of any standard or rule concerning transportation established pursuant to section 116.0"

Mn/DOT is responsible for the design and operation of many SSTS at rest areas and truck stations (maintenance areas) throughout Minnesota. The MPCA estimates that there are about 50 SSTS at rest areas and a small number of restroom-waste only SSTS at truck stations managed by Mn/DOT. Although the rules will not specifically affect Minnesota's transportation system, the rules will affect Mn/DOT through their SSTS responsibilities. The MPCA will notify the Commissioner of Mn/DOT that these rules are being developed. The MPCA does not expect that the rules will significantly change how Mn/DOT will manage the SSTS systems associated with their facilities.

B. General Statutory Requirements

The following additional statutory requirements apply to all Minnesota agencies conducting rulemaking.

1. Minn. Stat. § 14.131 (Statement of Need and Reasonableness)

   a. Economic Factors

   "By the date of the section 14.14, subdivision 1a, notice, the agency must prepare, review, and make available for public review a statement of the need for and reasonableness of the rule. The statement of need and reasonableness must be prepared under rules adopted by the chief administrative law judge and must include the following to the extent the agency, through reasonable effort, can ascertain this information:

(1) a description of the classes of persons who probably will be affected by the proposed rule, including classes that will bear the costs of the proposed rule and classes that will benefit from the proposed rule;

(2) the probable costs to the agency and to any other agency of the implementation and enforcement of the proposed rule and any anticipated effect on state revenues;

(*3) a determination of whether there are less costly methods or less intrusive methods f*or achieving *the purpose of the proposed rule;*

(4) a description of any alternative methods for achieving the purpose of the proposed rule that were seriously considered by the agency and the reasons why they were rejected in favor of the proposed rule;

(5) the probable costs of complying with the proposed rule, including the portion of the total costs that will be borne by identifiable categories of affected parties, such as separate classes of governmental units, businesses, or individuals;

(6) the probable costs or consequences of not adopting the proposed rule, including those costs or consequences borne by identifiable categories of affected parties, such as separate classes of government units, businesses, or individuals; and

(7) an assessment of any differences between the proposed rule and existing federal regulations and a specific analysis of the need for and reasonableness of each difference."

In the following sections the MPCA has provided a complete discussion of each of these points as they relate to the amendments.

b. Performance Based Systems

Minn. Stat. § 14.131 requires an agency to include in its SONAR a discussion of how the agency, in developing the rules, considered and implemented the legislative policy supporting performance based regulatory systems set forth in Minn. Stat. § 14.002. Minn. Stat. § 14.002, states that:

"The legislature recognizes the important and sensitive role for administrative rules in implementing policies and programs created by the legislature. However, the legislature finds that some regulatory rules and programs have become overly prescriptive and inflexible, thereby increasing costs to the state, local governments, and the regulated community and decreasing the effectiveness of the regulatory program. Therefore, whenever feasible, state agencies must develop rules and regulatory programs that emphasize superior achievement in meeting the agency's regulatory objectives

and maximum flexibility for the regulated party and the agency in meeting those goals."

When the SSTS rules were revised in 1996, they addressed the need for regulatory flexibility by allowing local permitting authorities to adopt environmental performance ordinances that used standards other than the established state standards to achieve specific environmental outcomes. This rule (Minn. R. 7080.0179) placed no hindrance on the technologies or designs that could be used to meet these outcomes. As of the date of the preparation of this SONAR, no counties have adopted any performance based ordinances.

Currently, only about one percent of the systems in Minnesota are classified as performance based systems, now called Type V systems. The MPCA believes that this disinterest in the use of performance based designs is due to the fact that these types of systems are more expensive, require more maintenance and have unknown reliability for wastewater treatment and performance. They also require an assessment of local conditions to evaluate environmental sensitivity. The MPCA's belief that these types of performance based decisions can be made by the local unit of government as well as by the MPCA resulted in rule amendments, adopted in 2008, that gave local units of government the authority to determine site specific sensitivities. The MPCA believes that it is very appropriate to continue to provide the option of regulatory flexibility for specific regional and administrative reasons and is not altering this aspect of the existing rules in this rulemaking.

Although the local authority to implement the performance based outcomes continues to be an element of the SSTS rules, few of the amendments being proposed in this rulemaking lend themselves to the establishment of performance based outcomes. Most of the amendments in this rulemaking are corrections or additions to existing requirements which were previously considered but found to be inappropriate for the application of performance based standards. The exceptions to this are three amendments that identify alternatives for meeting the requirement. The amendments to Minn. R. 7080.1550, subp. 2 (high strength waste), 7080.1930, subp. 5 (septic tank capacity) and 7080.2440 (collection systems) are drafted so that the regulated party is provided with options but do not identify specific, prescriptive design requirements. The MPCA believes that this is an appropriate mechanism for addressing the unique circumstances that must be addressed in the design of these components of an SSTS.

c. Additional Notification

Minn. Stat. § 14.131 requires that an agency either include in its SONAR a description of its efforts to provide additional notification to persons or classes or persons who may be affected by the proposed rule, or explain why these efforts were not made. A discussion of the MPCA's efforts to provide notification to interested persons during the rule drafting process is provided in Section II of this SONAR. Additional notification will be provided at the time the proposed rules are published for public comment through a mailed notice to a list of persons identified as being specifically interested in these rules. A list of the persons receiving the additional notice will be provided to the Office of Administrative Hearings as part of the rulemaking record. The MPCA will also post the notice of the comment period on the MPCA's Web site, along with this SONAR and the proposed amendments to the rules.

d. Commissioner of Finance Review

Minn. Stat. § 14.131 requires state agencies to consult with the Commissioner of Finance to help evaluate the fiscal impact and fiscal benefits of proposed rules on local units of government. The MPCA will send the required information to the staff person designated as the review contact at the Department of Finance at the time the rules are proposed for public comment.

e. Notification of Legislative Reference Library

The MPCA will send the required information to the Legislative Reference Library at the time the rules are proposed for public comment.

2. Minn Stat. § 14.127, section 1 (Legislative Review)

"Cost thresholds. An agency must determine if the cost of complying with a proposed rule in the first year after the rule takes effect will exceed $25,000 for: (1) any one business that has less than 50 full-time employees; or (2) any one statutory or home rule charter city that has less than ten full-time employees. For purposes of this section, "business" means a business entity organized for profit or as a nonprofit, and includes an individual, partnership, corporation, joint venture, association, or cooperative."

Most of the amendments will not involve any costs and in some cases, the amendments will create a savings by extending the operating life of SSTS. The amendments that the MPCA believes will increase the cost of compliance with the SSTS rule are:

- Adding the requirement for additional diligence in assessing waste characteristics at the time of system design (Minn. R.7080.1710)
- Requiring special design considerations for certain tank capacity determinations (Minn. R.7081.1930)
- Requiring pressurizing or other measures to ensure even flow to the soil absorption area in sandy soils (Minn. R.7080.2210)
- Requiring that inspections are thorough and that all system components are evaluated for compliance (Minn. R.7082.0700)

None of these costs to businesses exceed the $25,000 threshold established in this statute.

Similarly, the MPCA has estimated the extent to which these rules will affect cities (either statutory or home rule charter cities). The MPCA believes that approximately 100 cities administer a program to regulate SSTS to some extent. The amendments to Chapter 7082 will affect how the program is implemented in all of these cities, but the MPCA does not believe that any of the amendments will cause an increase in the cost of implementing the local SSTS ordinance. In fact, the MPCA believes that in many cases, the amendments will simplify the responsibilities of the local unit of government and will therefore represent a decrease in the cost of implementing the SSTS program.

Note: Cities are not required to administer SSTS programs and may either decline to adopt an ordinance at all, or if the state rules are felt to be too burdensome to incorporate into an existing ordinance, a city could allow the responsibility for SSTS regulation to revert to the county. This has already happened in several cases in Minnesota.

3. Minn. Stat. § 14.111 (Impact on Agriculture)

> *Before an agency adopts or repeals rules that affect farming operations, the agency must provide a copy of the proposed rule change to the commissioner of agriculture, no later than 30 days prior to publication of the proposed rule in the State Register.*

Minn. Stat. 14.111 requires an agency to provide a copy of the proposed rule changes to the Commissioner of Agriculture no later than 30 days prior to publication of the proposed rule if the proposed rule has an impact on agricultural land. The MPCA does not believe the subject of these amendments will have any impact on agricultural land or farming operations.

4. Minn. Stat. § 14.116 (Legislative Notification)

> *When an agency mails notice of intent to adopt rules under section 14.14 or 14.22, the agency must send a copy of the same notice and a copy of the statement of need and reasonableness to the chairs and ranking minority party members of the legislative policy and budget committees with jurisdiction over the subject matter of the proposed rules.*
>
> *In addition, if the mailing of the notice is within two years of the effective date of the law granting the agency authority to adopt the proposed rules, the agency shall make reasonable efforts to send a copy of the notice and the statement to all sitting legislators who were chief house and senate authors of the bill granting the rulemaking authority. If the bill was amended to include this rulemaking authority, the agency shall make reasonable efforts to send the notice and the statement to the chief house and senate authors of the amendment granting rulemaking authority, rather than to the chief authors of the bill.*

The MPCA plans to send a copy of the notice, proposed rules and this SONAR to the chairs and ranking Republican members of the Senate Environmental and Natural Resources Committee, Senate Environment, Agriculture and Economic Budget Division, and to the chairs and DFL Leads of the House Environment and Natural Resources Policy Committee and House Environment and Natural Resources Finance Committee.

The remaining requirements of Minn. Stat. § 14.116 are inapplicable because the MPCA's statutory authority to adopt the rules is found in Minn. Stat. §§ 115.55 and 115.56 and are not new grants of rulemaking authority as described in Minn. Stat. § 14.116.

5. Minn. Stat. § 14.128 Effective Date for Rules Requiring Local Implementation

Subdivision 1. ***Determination.***

An agency must determine if a local government will be required to adopt or amend an ordinance or other regulation to comply with a proposed agency rule. An agency must make this determination before the close of the hearing record or before the agency submits the record to the administrative law judge if there is no hearing. The administrative law judge must review and approve or disapprove the agency's determination. "Local government" means a town, county, or home rule charter or statutory city.

Subd. 2. ***Effective dates.***

If the agency determines that the proposed rule requires adoption or amendment of an ordinance or other regulation, or if the administrative law judge disapproves the agency's determination that the rule does not have this effect, the rule may not become effective until:

(1) the next July 1 or January 1 after notice of final adoption is published in the State Register; or

(2) a later date provided by law or specified in the proposed rule.

Subd. 3. ***Exceptions.***

Subdivision 2 does not apply:

(1) to a rule adopted under section 14.388, 14.389, or 14.3895, or under another law specifying that the rulemaking procedures of this chapter do not apply;

(2) if the agency has been directed by law to adopt the rule or to commence the rulemaking process;

(3) if the administrative law judge approves an agency's determination that the rule has been proposed pursuant to a specific federal statutory or regulatory mandate that requires the rule to take effect before the date specified in subdivision 1; or

(4) if the governor waives application of subdivision 2.

Minn. Stat. § 14.128 requires that an agency, as part of the rulemaking process, make a determination of whether a local government (town, county, or home rule charter or statutory city) will be required to adopt or amend an ordinance or other regulation to comply with the agency's proposed rules. The determination must be made before the close of the hearing (if there is a hearing) or before the agency submits the record to the Administrative Law Judge for review (if there is no hearing). The Administrative Law Judge must review the agency's determination. If the agency determines that an ordinance must be adopted, the statute requires the agency to extend the effective date of the rule. There are certain exceptions in the statute.

The SSTS rules, including these amendments, are required by Minn. Stat. § 115.55 to be implemented through local governments. Minn. Stat. § 155.55 subd. 2 states:

*Subd. 2.****Local ordinances.***

(a) All counties must adopt ordinances that comply with revisions to the subsurface sewage treatment system rules within two years of the final adoption by the agency.

County ordinances must apply to all areas of the county other than cities or towns that have adopted ordinances that comply with this section and are as strict as the applicable county ordinances.
(b) A copy of each ordinance adopted under this subdivision must be submitted to the commissioner upon adoption.
(c) A local unit of government must make available to the public upon request a written list of any differences between its ordinances and rules adopted under this section.

Under Minn. Stat. § 155.55, the effect of which is incorporated in Minn. R. 7082.0050, every county is required to incorporate the requirements of the State SSTS rules, except where the statute authorizes the adoption of alternative local standards. Minn. R. 7082.0050, subp. 1, item B already provides a 24-month period for county ordinances to be updated following the adoption of amendments to the rules and an additional 12 months from that date for the adoption of the amendments into any city or township ordinances. The MPCA believes that these additional 24 or 36 month time periods to allow for local response to amendments, exceed the requirements of Minn. Stat. § 14.128, subd. 2, and that no further action is necessary to meet the intent of this statute.

C. Consideration of Economic Impact

Minn. Stat. § 14.131 requires that an agency's Statement of Need and Reasonableness include a discussion of the economic factors associated with the proposed rule. In this SONAR, the MPCA will provide a point by point discussion of the factors that are required to be addressed under Minn. Stat. § 14.131.

1. Summary of the General Economic Impact of This Rulemaking

It is important to recognize that this rulemaking does not impose new requirements to treat sewage, conduct county programs, license SSTS professionals or establish water quality protection standards. The foundation of these major components of environmental protection is already established in State rule and statute and has been previously justified. In this SONAR the MPCA will not address the economic effects of requiring that SSTS adequately treat sewage because the State rules that require sewage treatment have been in effect since 1978. Some elements of these rules will add to the cost of installing and maintaining an SSTS system; but all of the cost of installing and maintaining an SSTS cannot be attributed to these rules. Neither can all the benefits of proper waste treatment. The MPCA believes that the proposed rules will provide specific benefits, such as extended system life and effectiveness of waste treatment, but does not attribute the entire benefit of a well designed, well functioning SSTS to these amendments.

The MPCA believes that, in general, the economic impact of this rulemaking will be favorable to SSTS owners and to all current and future users of Minnesota's groundwater. Although these benefits can be assigned an economic value and evaluated as part of the economic impact of the rules, in this SONAR, the MPCA will not attempt to assess the value of these benefits in economic terms. A formal cost-benefit analysis is not possible

for this rulemaking because of the difficulties in estimating environmental benefits and the benefits that are associated with extending the operating life of an SSTS.

2. Summary of the Economic Impact of the Amendments

The MPCA believes that it is most important and of greatest interest to the regulated community to identify and evaluate the expected costs of each of the rules. Although there is some discussion provided regarding the benefits of the rules, the following discussion of the economic impact will focus on the costs associated with those specific amendments that the MPCA believes will have an economic effect.

Minn. R. 7080.1710 Preliminary evaluation:

The amendment requires that system designers evaluate the anticipated effluent concentrations of biochemical oxygen demand, total suspended solids, oil and grease, and the presence of non-domestic waste as part of their initial look at what will be required for a system. The MPCA had assumed that this would be a standard practice and that designers would address it as an essential part of their work. However, MPCA is now adding this requirement to the rule to ensure that this essential evaluation occurs. It is difficult to predict how much this will add to the cost of a new system, because the MPCA believes that most designers are already doing this work. For purposes of this rulemaking, the MPCA estimates that this provision will add no more than $50 to the cost of each system design – this reflects the additional time needed for a designer to diligently make this evaluation.

Minn. R. 7080.1930 Septic tank capacity:

The amendment to subpart 2 clarifies a provision relating to required extra tank capacity when garbage disposals or other appliances with garbage grinding capability are included in a home's plumbing. Some have interpreted the current rule language to extend to all dishwashers, since most of these include a grinding capability. MPCA is removing the phrase, "or other appliance with garbage grinding capability" from the rule to clarify that the added tank capacity is needed only if garbage disposals are present. This will result in a savings to owners of new systems in that they will not need to obtain such large tanks. MPCA staff estimate that each homeowner who has a dishwasher but not a garbage disposal will save approximately $500 on a new system.

Minn. R. 7080.2150 Final treatment and dispersal:

Changes are being made to the soil loading rates in Tables IX and Table XII (with Table XII now to be incorporated into Table IX). These changes result in changes in site evaluation costs, making systems smaller, or allowing the use of a less costly system type. There are 79 different soil conditions identified in current Tables IX and XII and the revised Table IX will drastically condense those into nine groupings for simplicity. This condensing will result in the use of a more average soil loading rate, with the averaging typically resulting in the design of smaller systems and a capital cost

savings. However in some instances this averaging resulted in no loading rate to be provided, which will create the need to conduct a percolation test to determine the sizing which will add cost to the design process.

It is very difficult to identify a difference in cost due to the unknown number of systems that will be installed in each soil condition, and the depth of the limiting layer which also determines the system type (in-ground, at-grade or mound system). However, some general costs can be estimated as follows:

- Of the 79 current soil groupings for soils suitable for Type I in-ground systems, there are 43 soil categories which have no change on how systems are sized. There will be 18 soil categories that will now require a percolation test to determine sizing at an estimated additional cost to the site evaluation procedure of $200. There will be 18 soil categories which will have a direct reduction in system size with an average cost reduction for systems in those 18 categories of approximately $2,500 per system.

- Of the 79 current soil groupings for soils suitable for Type I mound systems; there are 45 soil categories which have no change. There will be 17 soil categories that will now require a percolation test to determine sizing at an estimated additional cost to the site evaluation procedure of $200. There will be 14 soil categories which will have a direct reduction in mound absorption area with an average for systems in those 14 categories of approximately 50 percent. Three soil groupings which will no longer require a mound (due to soil texture problems), with a savings of approximately $5,500 per system in these three categories.

- Similar results would be expected for changes made in sizing for Type IV systems.

Minn. R. 7080.2210 Trenches and seepage beds:

The even distribution of effluent is a larger concern with newly-constructed systems where no biomat has yet formed. For this reason the amendment to subpart 4, item F requires new systems in sand soils to employ some method to ensure that this occurs. Three options for ensuring good environmental outcomes are provided in this part of the rule – pressurizing; dividing the soil absorption area into smaller parts, no part larger than 15 percent of the total required area; or siting the system in an area where a vertical separation distance of at least five feet is provided. There are, of course, costs associated with each of these options. MPCA staff estimates that pressurizing a system will add approximately $3,000 to the cost and that dividing the system into smaller parts will cost about $1,000. Providing five feet of separation can only be done when natural conditions allow, and would not add to the cost in the cases where this option is available.

Minn. R. 7080.2500 System abandonment:

This amendment removes the words “and distribution devices” from the list of system components that are required to be removed when a system is being closed after its final use. By allowing distribution devices to remain in the ground at closure, MPCA staff estimates that a homeowner who is closing their system will save approximately $200 in additional labor and disposal costs.

Minn. R. 7082.0700 Inspection program:

This amendment to subpart 4 increases the amount of work that an inspector is required to perform during the inspection of an existing system. In the existing rule, inspectors may end their inspection when they find a component that fails one or more compliance criteria. This could result in a situation where a homeowner would find out that their drainfield did not meet the required vertical separation standard, but they would not necessarily also find out that their tank was also leaking and needed to be replaced. The MPCA is changing the rule to make it clear that it is the inspector’s job to assess compliance and report on all system components for each inspection. The MPCA believes that in those cases where there is more than one problem with a system, having a complete inspection done at one time will represent a savings in time and expense for the homeowner. However, having a more complete inspection may also add time and cost to inspections. MPCA anticipates that inspectors will raise their fees to cover the added cost, passing this cost on to the homeowners. Market forces will mitigate this in some cases. The requirement for complete inspections could add as much as $500 to the cost of an inspection (the additional cost would apply if, for example, the inspector required the tanks to be pumped prior to evaluation), but is it difficult to say how this change to the requirements will result in actual costs or eventual savings to the homeowner.

Minn. R. 7083.2040, Design licenses:

The amendments to subparts 1 and 2 give designers and inspectors one additional year to obtain the certifications and licenses they will need if they choose to do advanced design or inspections. It neither adds nor removes cost, but does allow persons to defer costs for an additional year.

3. Statutory assessment of economic impact:

Minn. Stat. § 14.131 sets out seven factors relating to the economic impact of rules that must be addressed in this SONAR. The MPCA’s discussion of these factors, based on information that may be obtained by reasonable effort, is presented below.

It is important to note that this rulemaking makes a number of changes to all four chapters of the SSTS rules. For purposes of this SONAR, the discussion of the seven factors to consider for economic impacts will only address the most significant of these changes. Although the MPCA does not intend to address each of the seven factors for every change that is being made to the rules, the MPCA believes that by addressing the

most significant amendments in detail, this discussion will address the statutory intent that the MPCA provide an assessment of the overall economic effect of the rules.

(1) "a description of the classes of persons who probably will be affected by the proposed rule, including classes that will bear the costs of the proposed rule and classes that will benefit from the proposed rule."

The classes of persons who will potentially be affected by the proposed rule changes are:

(a) SSTS owners and future owners (residential and commercial)
(b) Local units of government with ordinances that regulate sewage treatment (counties, townships, and cities)
(c) SSTS licensed businesses
(d) The University of Minnesota Onsite Sewage Treatment Program
(e) Manufacturers of SSTS components
(f) MPCA
(g) All persons who use Minnesota's water resources

All of the groups listed above derive certain benefits from the existing SSTS rules and also incur costs as a result of the existing rules. Certain parties may incur an immediate cost or benefit and in other situations, the costs or benefits may be felt by the future owners of SSTS systems or by the taxpayers who will support the SSTS licensing and inspection programs of local units of governments.

(a) The existing rules affect a total of 500,000 system owners a year, but the MPCA does not believe that the amendments addressed in this rulemaking will cause an overall increase in the total cost of owning and operating an SSTS. The MPCA estimates that there are approximately 11,000 MSTS currently in use in Minnesota and that an additional 180 will be installed each year, either for new establishments or as replacement systems. The amendments to the standards in Chapter 7081 will not represent a significant change in MSTS regulation or affect communities using MSTS.

(b) In Minnesota, all 87 counties currently operate a program to approve and inspect SSTS systems. In addition, there are about 100 municipalities and townships that administer an SSTS program. For municipalities and townships, operating an SSTS program is a discretionary activity. If a city or township does not choose to have an SSTS program, the county must administer the SSTS program in that area as described in Minn. Stat. § 115.55, subd. 2.

(c) The MPCA estimates that in Minnesota there are 1,800 companies that install and maintain SSTS systems. As a result of the amendment to Minn. R. 7083.2040, subp. 1 and 2, these companies will be able to defer extra costs for another year if they desire to achieve an advanced level of certification and licensure. SSTS businesses will also benefit from the amendment to Minn. R. 7083.1000 that

provides the option of obtaining a joint bond that covers both plumbing and SSTS work.

(d) The University of Minnesota On-Site Sewage Treatment Program (OSTP) provides the outreach and education programs to instruct SSTS installers and maintenance services. The changes to the rules will require the OSTP to modify and update their training materials. The MPCA has provided the OSTP with a significant grant to assist them in developing these materials. Costs of the training program are recovered through fees.

(e) When the existing rules were adopted, the economic effect was significant for some manufacturers of SSTS products and was identified in the SONAR supporting those rules. Since the rules went into effect in 2008, more than ten manufacturers requested registration of their products from the MPCA. At this time, eight manufacturers now have products registered for use in Minnesota. Manufacturers seek registration because they believe that this will be a benefit for their future sales in Minnesota and elsewhere in the country where product registration is not required but guidance is still sought on the ability of products to achieve certain levels of treatment. Amendments included in this rulemaking do not add cost for manufactures but do provide additional flexibility in categories and registration levels.

(f) The effect of the rules on the MPCA is discussed in detail in item (2) below.

(g) The MPCA expects that the increased cost that may result from the amendments for the citizens of Minnesota will be slight, relative to the value of their home or business. However, the environmental improvements that will result from the better designs and more thorough inspections will be substantial and include cleaner groundwater, less risk to public health from surfacing sewage and reduced discharge of nutrients to Minnesota's waters.

(2) "The probable costs to the MPCA and to any other agency of the implementation and enforcement of the proposed rule and any anticipated effect on state revenues."

The MPCA does not anticipate any increased cost to the MPCA as a result of the amendments. Other state agencies that may be affected by the rules are Mn/DOT and the Department of Natural Resources. These agencies own and operate SSTS at parks, rest stops and maintenance facilities. The changes being made as a result of the amendments may need to be taken into account by these agencies as they plan activities for the coming year, but should not result in significant staff or cost increases.

(3) "A determination of whether there are less costly methods or less intrusive methods for achieving the purpose of the proposed rule."

The MPCA believes that the amendments are only minor adjustments to the existing framework of SSTS regulation. The amendments generally only correct and clarify the existing rules that have been in effect for many years in Minnesota, beginning with the voluntary standards laid out in Water Pollution Control 40 in 1974. In some cases, the amendments are adding new requirements or significantly changing an existing requirement. However, the MPCA considered that the most reasonable and least intrusive way to continue to regulate SSTS was to expand on and improve the existing administrative system and to not make a radical change to how SSTS systems would be regulated. The MPCA believes that these amendments are the least costly and least intrusive means of correcting and refining the existing requirements.

(4) "A description of any alternative methods for achieving the purpose of the proposed rule that were seriously considered by the agency and the reasons why they were rejected in favor of the proposed rule."

The decision regarding the regulation of SSTS was determined by the Minnesota Legislature when it mandated in Minn. Stat. § 115.55, subd. 3 that the MPCA must write rules concerning SSTS. The framework for SSTS regulation was established through that legislation and therefore, no legal alternative, besides rules, exists to regulate SSTS in Minnesota. The amendments are not intended to affect the scope of this established program or to propose an alternative method of regulation.

For this rulemaking, the MPCA is interested in providing the least intrusive method of correcting and clarifying certain parts of the existing rules. The MPCA did not consider any alternative methods for achieving the purpose of the proposed rule and no commentor or interested party has suggested an alternative method of regulating the SSTS program in Minnesota.

(5) "The probable costs of complying with the proposed rule, including the portion of the total costs that will be borne by identifiable categories of affected parties, such as separate classes of governmental units, businesses, or individuals."

The cost for complying with the rule may increase costs for certain SSTS users and certain sectors of the SSTS manufacturing and construction industry. However, the MPCA expects that these increased costs reduce overall costs of onsite wastewater treatment. The cost for each sector will be explored individually.

- <u>ISTS Future Owners</u>
  As discussed above, homeowners who will be installing SSTS in the future may have increased costs due to the amendments that require additional diligence in system design and for the need to ensure even distribution in the soil absorption area for systems in sand soils. These could add up to as much as $3,100 per system. However, this increase will not be felt by all SSTS owners and that expense for some SSTS owners may be offset by the amendment that clarifies that additional tank capacity is not needed for homes with only dishwashers and not garbage

disposals; this will save about $500 or more per system, depending on tank configuration.

- Current ISTS Owners
  If the homeowner needs to have their system inspected, as might be necessary at the time of property transfer, homeowners may face additional costs if their inspector has raised his rates to account for the additional requirements being added for inspections. These added inspection requirements could add $500 to the cost. The amendments that eliminate the need to remove distribution systems at closure may allow a current homeowner to save money when they close their system.

- Current MSTS Owners
  Like current ISTS owners, current MSTS owners benefit from the changes to the abandonment requirements. The added costs for inspection noted above for current ISTS owners do not apply to current MSTS owners.

- Local Units of Government with an SSTS Ordinance
  No additional costs were identified for this class of individuals.

- University of Minnesota
  The University's OSTP will need to change their instructional materials to reflect the new rule language. Their documents are maintained electronically and printed as needed, so although there will be an expense related to the need for staff time to make the changes; the MPCA expects that printing costs will remain unchanged.

- Manufacturers of SSTS Components
  There is no added cost to manufacturers from this rule.

(6) "the probable costs or consequences of not adopting the proposed rule, including those costs or consequences borne by identifiable categories of affected parties, such as separate classes of government units, businesses, or individuals."

Another way of addressing this question is to ask, "What are the benefits of this rulemaking?" Identification of the probable costs of not adopting the amendments and continuing with the current system of SSTS management should be the same as a discussion of the benefits of adopting them. The MPCA has not conducted an economic assessment of the benefits associated with these rules. A comprehensive benefit analysis would identify pollutant releases and assess the damage caused by releases based on an assessment of the value of environmental factors. In addition, there should also be an economic assessment of the cost of redesign and replacement of failing SSTS and the property value benefit of effective waste treatment. The MPCA has not conducted a benefit assessment at that level and is instead providing a general discussion of the economic benefits that are expected to result from the adoption of the rules.

The MPCA believes that the overall benefit of the amendments will exceed the cost of adopting them. The benefits, as they relate to specific affected classes of persons are as follows:

- Current and future SSTS owners:
  Owners of SSTS will directly benefit from the cost reducing aspects of some of the amendments, such as the elimination of the requirement to increase tank size to account for dishwasher use and the elimination of the requirement to remove distribution system components at closure. Owners will benefit indirectly from the amendments that result in better treatment and longer system life, such as the requirements that ensure even effluent distribution and that require more thorough inspections.

- Local Units of Government with an SSTS Ordinance
  These amendments include several measures that reduce the regulatory burden on local units of government and will therefore represent a benefit. Among other things, the amendments will clarify the requirements for inspections (Minn. R. 7083.0700) and eliminate certain submittal requirements for the local unit of government (Minn. R. 7082.0040 and 7082.0500).

- Current and Future SSTS Licensed Businesses.
  SSTS licensed businesses will benefit from the amendment to Minn. R. 7083.2040 that provides an additional year before they are required to obtain advanced certifications for larger and/or more complex systems. They will also benefit from the option to obtain a joint bond, which will save them from purchasing both a plumbing bond and an SSTS bond.

- Manufacturers of SSTS Components
  The rule changes to Minn. R.7083.4030 will benefit some manufacturers by providing additional opportunities for product registration without the addition of a disinfection device.

(7) "an assessment of any differences between the proposed rule and existing federal regulations and a specific analysis of the need for and reasonableness of each difference."

Federal regulations do not address the design, installation or operation of SSTS, nor do they address local SSTS ordinances or programs, nor do they address the licensing of SSTS businesses. Federal regulations do apply for any SSTS serving more than a single family unit or any SSTS serving an establishment which serves 20 or more persons a day. However, none of the amendments result in a difference between these rules and the federal regulations.

VII. List of Witnesses and Exhibits

A. Witnesses

In the event of a hearing, the following witnesses will represent the MPCA.

Mark Wespetal, PSS, Minnesota Pollution Control Agency
Carol Nankivel, Minnesota Pollution Control Agency
Gretchen Sabel, Minnesota Pollution Control Agency
Barbara McCarthy, Minnesota Pollution Control Agency
Bill Priebe, Minnesota Pollution Control Agency
Mary West, Minnesota Pollution Control Agency
Larry Pry, Minnesota Office of the Attorney General

B. Exhibits.

The following exhibits are referenced in this SONAR as support to the MPCA's statements.

Exhibit 1. Request for Comments dated October 6, 2008

Exhibit 2. List of meetings at which MPCA staff discussed proposed SSTS amendments.

Exhibit 3. Field Book for Describing and Sampling Soils, Version 2.0, National Soil Survey Center, Natural Resources Conservation Service, U.S. Department of Agriculture, September 2002.

Exhibit 3a Soil Survey Manual, Chapter 3, Web site http:// soils.usda.gov/technical/manual/contents/chapter3e.html

Exhibit 3b Analyzing Wastewater Treatment Systems Serving Residential and Commercial Facilities for High Strength and Hydraulic Loading, Consortium of Institutes for Decentralized Wastewater Treatment, 2008, Texas AgriLife Extension Service.

Exhibit 4 Spreadsheet of flow calculations prepared by MPCA staff, September 9, 2009.

Exhibit 5. Rules of the State of Wisconsin, Department of Commerce Chapter 83, September 2008; Private Onsite Wastewater Treatment Systems.

Exhibit 6. Rules of the State of Wisconsin. Department of Commerce Chapter 83, September 2008, specifically Tables 83.44-1 and 83.44-2, code for sizing soil treatment areas

Exhibit 7. Applying Soil Morphology to Long Term Acceptance Rate Determination, D. Lindbo, J. Lynn, K. Neal, G. Young, A. Amoozegar, published by the American Society of Agricultural and Biological Engineers, October 2007, http://asae.frymulti.com/abstract.asp?aid=24028&t=2

Exhibit 8. Designing with Soil: Development and Use of a Wastewater Hydraulic Linear and Infiltration Loading Rate Table, Jerry Tyler and Laura Kuns, Proceedings of the 9th Annual Confernce, National On-site Wastewater Recycling Association, Northbrook, Il. 2002

Exhibit 9. On-Site Wastewater Treatment, S. Van Cuyk, R. Siegrist, Andy Logan, Proceedings of the Ninth National Symposium on Individual and Small Community Sewage Systems, March 11-14, 2001.

Exhibit 10. Minnesota Pollution Control Agency, Statement of Need and Reasonableness for the Proposed Amendment of Rules Governing Subsurface Sewage Treatment Systems, Minn. R. ch. 7080 and the Addition of Minn. R. chs. 7081, 7082 and 7083, dated 2/1/07.

Exhibit 11. Minnesota R. 7080.0170, as effective April 3, 2006 to February 4, 2008.

Exhibit 12. Summary of Trench Data/Gravity Distribution in Sands, Barb McCarthy, Northeast Regional Correctional Center Research Site, April 20, 2009.

Exhibit 14. Development of a Standard for Graveless Trench Products - Results of a Pilot Protocol Series, G. Heufelder, K Mroczka, S. Pradhan, M. Hoover, T. Stevens; presented at the Eleventh Individual and Small Community Sewage Systems Conference, October 20-24, 2007.

Exhibit 15. Field Comparison of Rock-Filled and Chambered Trench Systems, University of Minnesota Onsite Sewage Treatment Program, Proceedings of the NOWRA Conference in Baltimore, Maryland, March 12-14, 2007

Exhibit 16. MPCA Powerpoint demonstrating research on treatment in sandy soils. December 16, 2009.

Exhibit 17. Spreadsheet of comparison of flows (per bedroom vs Type I dwelling)

Exhibit 18. Is CBOD Test Viable for Raw and Settled Wastewater? - O. Albertson, Journal of Environmental Engineering, July 1995.

Exhibit 19. Mentoring Program Questionnaire Preliminary Results, Water Resources Center, University of Minnesota, Summer, 2009.

Exhibit 20. MPCA Powerpoint identifying recommendations to the SSTS Advisory Committee, presented on June 11, 2009.

Exhibit 21. Soil Acceptance of Onsite Wastewater as Affected by Soil Morphology and Wastewater Quality, E. Tyler, J. Converse, Proceedings of the Seventh International Symposium on Individual and Small Community Sewage Systems, December 11-13, 1994.

Exhibit 22. Small and Decentralized Wastewater Management Systems, Crites and Tchobanoglous, McGraw-Hill Series in Water Resource and Environmental Engineering, 1998

VIII. Conclusion

Based on the foregoing, the proposed rules are both needed and reasonable.

Dated: 3/31/10

Paul Eger
Commissioner