Minnesota Pollution Control Agency

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January 3, 2014

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Re: In The Matter of the Proposed Rules of the Minnesota Pollution Control Agency Governing Compost Facilties; Revisor's ID Number 04110

Dear Librarian:

The Minnesota Pollution Control Agency (MPCA) intends to adopt rules governing compost facilities. We plan to publish a Dual Notice in the January 6, 2014 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 an electronic copy of the Statement of Need and Reasonableness at the same time we are mailing our Dual Notice.

If you have questions, please feel free to contact me at 651-757-2527.

Sincerely,

Y. Letnes

Yolanda Letnes
Rule Coordinator
Environment and Energy Section
Resource Management & Assistance Division

YL:jlr

Enclosure: Statement of Need and Reasonableness

AR563

Minnesota Pollution Control Agency

STATEMENT OF NEED AND REASONABLENESS

Proposed Amendments to Rules Relating to Compost Facilities,
Minnesota Rules Chapters 7001 and 7035

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List of abbreviations and acronyms used in this document:

1. Agency – Minnesota Pollution Control Agency
2. ASTM – American Society for Testing Materials
3. ALJ – Administrative Law Judge
4. EPA – United States Environmental Protection Agency
5. Hg – mercury
6. LGU – local government unit
7. MMB – Minnesota Management and Budget
8. MMSW – mixed municipal solid waste
9. MN – Minnesota
10. Mn/DOT Minnesota Department of Transportation
11. MPCA – Minnesota Pollution Control Agency
12. Minn. Stat. § – Minnesota Statutes section
13. NPDES – National Pollutant Discharge Elimination System
14. OAH – Office of Administrative Hearings
15. PCB – Polychlorinated Biphenyl
16. PFRP – Process to Further Reduce Pathogens
17. RAM/SWANA – Recycling Association of Minnesota/Solid Waste Association of North America
18. RMAD – Resource Management and Assistance Division
19. subd. – subdivision
20. subp. – subpart
21. SONAR – Statement of Need and Reasonableness
22. SSOM – source-separated organic material
23. SW – solid waste
24. TMECC – Test Methods for the Examination of Composting and Compost
25. USDA – United States Department of Agriculture

I. INTRODUCTION

The Minnesota Pollution Control Agency (MPCA) is proposing amendments to rules relating to solid waste management; specifically, composting of source separated organic material (SSOM).

The MPCA has regulated solid waste management facilities since 1970. Compost facilities are a component of the solid waste management system of the state and are currently regulated by the Solid Waste Management Rules. The rules relating to permits are located in chapter 7001. The rules relating to design, construction and operation are located in chapter 7035.

The composting industry, including local government unit (LGU) compost facility operators, approached the MPCA with concerns that the current composting rules were overly restrictive for the composting of source-separated organic material (SSOM), thereby inhibiting the expansion of composting. Current compost rules are designed for facilities composting mixed municipal solid waste (MMSW). MMSW can generally be described as a mixture of organic and inorganic wastes. SSOM differs from MMSW because it is collected separately of the general waste stream and generally includes only a specific portion of the organic waste stream. The compost industry indicated that SSOM composting should be regulated using different standards due to lower environmental and health risks.

Composting is a preferred option in the solid waste management hierarchy. LGUs and industry suggested that the MPCA amend current regulations to streamline requirements and support efforts to increase composting. On review of its existing regulations and the practices in other states, the MPCA agrees that some regulatory changes are appropriate.

The MPCA in the discharge of its duties must balance all of the environmental goals of the state. In the case of the proposed rule, these goals include reducing the cost of complying with the composting rules to expand recycling of solid waste through composting SSOM, prevent the degradation of or improve the quality of waters of the state and reduce emissions of greenhouse gases from waste management by reducing the quantity of organic material disposed in landfills.

Therefore, the MPCA proposes amendments that provide different standards for the construction, design, location and operation requirements for SSOM than MMSW composting facilities, while still protecting the environment and health of Minnesotans. The proposed SSOM compost facility would currently be regulated under a full permit under chapters 7001 and 7035. Under the proposed rules, an SSOM compost facility will have specific applicable requirements. Some of these requirements are carried forward or modified, as appropriate.

The proposed rule amendments also make changes to the exemption and requirements for small composting sites, moving beyond the idea of a simple “backyard compost site” to provide further flexibility for small compost operations, commensurate with this more environmentally benign type of composting. The MPCA also proposes to expand the current extended permit process utilized by transfer facilities to SSOM compost facilities. This process allows the extension of an operating permit without reapplication, and was suggested by one of the interested and affected parties at an initial meeting. Changes to other rule language are proposed to clarify requirements and update language.

This Statement of Need and Reasonableness (SONAR) will generally not address requirements for which need and reasonableness have been previously established, if the requirements remain unchanged or are carried forward and still applicable.

II. BACKGROUND

The MPCA was created in 1967. In 1969, the MPCA's statutory authority was expanded to include the regulation of solid waste. The table below outlines some of the statutory and rule history.

TABLE 1: STATUTORY AND RULE HISTORY

General Description	Rule
Laws 1969, chapter 1046, sections 5 to 7 establish MPCA authority to regulate solid waste	MN Administrative Rules and Regulations, SW 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11, dated January 13, 1970
Agency initiated changes	MN Administrative Rules and Regulations: SW 1, 6 and 12, dated September 26, 1973
Laws 1980, Chapter 615, Section 57 directs compiling of all Agency rules into one location	All rules in effect on September 15, 1982 (list below only extract of SW rules): SW 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 6 MCAR S 4.6011, SW 12
Published in State Register on February 13, 1984 and became effective on March 1984	Recodification of all rules to the current numbering system
Agency initiated changes to revise and reorganize rules by moving permitting requirements into chapter 7001 and moving design and operation requirements to chapter 7035. These rules will generally be referenced to the February 23, 1988, SONAR.	Chapters 7001 and 7035 changes adopted in the November 7, 1988, State Register
Agency initiated changes to yard waste and solid waste compost. These are generally referenced to the Amended Compost SONAR signed July 26, 1996.	Chapters 7001 and 7035 changes published in the September 3, 1996, State Register

As discussed in section I of this SONAR, the intent of the proposed revisions is to streamline the process by establishing more appropriate construction, design, location and operation requirements for SSOM facilities. Various housekeeping changes and other requirements are proposed for further flexibility.

III. PROCEDURAL HISTORY

The MPCA took the following steps to develop the rule revision and to notify interested parties about the rule revision and to get their input on draft rule language:

1. On July 26, 2010, the MPCA published a Request for Comments in the *State Register* regarding its plans for amending the rule. The MPCA also launched the following webpage to keep interested and affected parties apprised of the status of the process: http://www.pca.state.mn.us/jsri8b0.

2. On November 19, 2010, MPCA staff met with stakeholders to obtain feedback on a concept proposal. The meeting was webcast and archived for viewing.

3. On October 12, 2011, MPCA staff met with stakeholders to obtain feedback on its preliminary draft rule at the Recycling Association of Minnesota/Solid Waste Association of North America (RAM/SWANA) Conference. This segment of the meeting was free and open to the public.

4. On October 17, 2011, the MPCA published a Request for Comments in the *State Register* regarding its plans for amending the rule and posted the information on its rule specific webpage.

5. On February 10, 2012, MPCA staff met with stakeholders for further clarification on key issues.

6. On October 19, 2012, the MPCA released Preliminary Draft #2 and provided a 28 day informal comment period. Comments were carefully considered and appropriate changes were made.

IV. ALTERNATIVE FORMAT

Upon request, this SONAR can be made available in an alternative format, such as large print, Braille, or audio. To make a request, contact:

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TTY: 651-282-5332 or 800-657-3864

V. MPCA'S STATUTORY AUTHORITY

The MPCA's current statutory authority to adopt and implement these rules is set forth in Minn. Stat. § 116.07, subd. 4, which provides:

> *"…the Pollution Control Agency may adopt, amend, and rescind rules and standards having the force of law relating to any purpose within the provisions of Laws 1969, chapter 1046, for the collection, transportation, storage, processing, and disposal of solid waste and the prevention, abatement, or control of water, air, and land pollution which may be related thereto, and the deposit in or on land of any other material that may tend to cause pollution.."*

Under this statute, the MPCA has the necessary statutory authority to adopt the proposed rule amendments. All statutory authority was adopted and effective before January 1, 1996.*

The proposed rule will be enforced in accordance with the authority provided to the MPCA under Minn. Stat. § 115.071 and § 116.072. Additionally, the rule will be enforced in accordance with any other applicable statute, rule, or permit condition. If approved, this rule would be enforceable by the MPCA.

*(*Minnesota Rules, part 1400.2070, subpart 1, item D, requires that if an agency's statutory authority was granted after January 1, 1996, the agency must include in its SONAR the effective date of the agency's statutory authority to adopt the rule).*

VI. STATEMENT OF NEED

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 in proposing rules. 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 and that there is a rational basis for the MPCA's proposed action. The need for the rule is described below.

There is a need to amend the existing rules to make the standards more appropriate to the type of materials that are being composted (i.e. SSOM not MMSW). Industry and the public sector requested the change to the compost rule due to the high cost associated with constructing solid waste compost facilities. The high cost prevents composting facilities from being competitive with the land disposal industry (lower in the preferred waste management hierarchy), and functions to suppress the growth of the composting industry.

There is also a need to update requirements so they reflect current practices. Stakeholders have asked the Agency to incorporate the extended permit concept, currently utilized for SW transfer facilities, to allow them more flexibility, while still being protective of human health and the environment. There is a need to modify those requirements to allow regulated parties and the Agency to spend fewer resources submitting permit applications or processing them when no major changes are occurring at the site.

VII. STATEMENT OF REASONABLENESS

Minn. Stat. ch. 14 requires the MPCA to explain the facts establishing the reasonableness of the proposed rule amendments. "Reasonableness" means that the solution proposed by the MPCA is appropriate and that there is a rational basis for the MPCA's proposed action. The reasonableness of the proposed rule is explained in this section. This section is broken into two main parts: A. Reasonableness as a whole; and B. Reasonableness of the individual rule parts.

A. Reasonableness of the Proposed Rule Amendments as a Whole

As discussed in section I of the SONAR, the composting industry, including LGU compost facility operators and others, believes the current composting rules are overly restrictive for the composting of SSOM. LGUs and industry believe the MPCA should amend current regulations to streamline requirements to reduce costs and support their current efforts to increase composting. The MPCA agrees that some regulatory relief is appropriate, and proposes amendments that provide regulatory relief in the design, location, construction and operation requirements for SSOM compost facilities, while still protecting the environment and health of Minnesotans. Further flexibility is built into the amendments through the "small compost site" category that replaces the backyard compost site and the extended permit process, which should reduce permit related costs. Changes to other language are proposed to clarify requirements and update language.

B. Reasonableness of the Amendments to Individual Sections of Rule

This section addresses the reasonableness of each rule part and attempts to answer questions about what each rule requirement is intended to do, why it is needed and why it is reasonable. Some rule parts are more clearly necessary and reasonable and, therefore, are only explained briefly, while others are explained in more detail for future rule interpretation.

1. **Part 7001.3075 SOLID WASTE MANAGEMENT FACILITY PERMIT APPLICATION.** This part establishes requirements that are relevant to solid waste management facility permit applications.

   Subps. 1, 2 and 3 are existing requirements. No changes were proposed to these subparts.

   Subp. 4 has been added to allow a SSOM compost facility to operate under an extended permit under certain conditions. The extended permit is an option that currently exists for transfer facilities. During the initial stages of rule development, an interested and affected party requested that this option be considered for SSOM compost facilities. After careful review, the MPCA agrees that the extended permit process can be applied to SSOM compost facilities. It is reasonable to allow a SSOM compost facility that meets the conditions to continue to operate under its existing permit because, unlike disposal facilities, once the SSOM compost facility is constructed and operating, its permit conditions generally do not change, making the repermitting process unnecessary. It is reasonable to allow the extended operation after the first five years of successful operation without major operational or unresolved issue(s).

   The Agency has proposed conditions for extended permit operations that will ensure that owners and operators are required to follow permitting procedures when repermitting might result in a change in the permit or revocation of the permit.

   The extended permit process is meant to address solid waste management permits that contain only SSOM compost and/or transfer station facility requirements. By creating this exception to the permit requirement, the Agency does not intend to make other facility permits non-expiring just because they contain conditions related to the composting of SSOM (i.e., adjoining MMSW compost facility or landfill). Because multiple operations increase the potential for environmental impacts, it is reasonable to require these facilities to go through the required permit reissuance cycle. MPCA staff has determined both transfer station and SSOM composting activities qualify for the extended permit process. It is reasonable for the MPCA to allow facilities with one or both of these activities only to pursue the extended permit process.

   Item A requires the facility to have been operated under an existing permit before being eligible to extend the permit without reissuing the permit. As used in this proposed part, “operated” means to have accepted compostable materials at levels constituting normal expected volumes for the facility for a minimum of one year. This limit is reasonable because the MPCA wants facilities with operation issues to continue to apply for and receive permits as a means to correct documented deficiencies. The only way for the MPCA to be assured that issues involving the facility have been identified is if the facility is actually operated at levels reasonably consistent with its intended operation. The requirement to operate a minimum of one year allows the MPCA to determine a compliance history for the facility. If the

facility is continually experiencing compliance problems, the permit may require modification and should not be extended until the modification is in place. One year of operation is a reasonable time period for operation in which to identify whether there are problems with the current operation. One year gives the public adequate chance to identify issues related to the facility and bring those issues to the attention of regulators, and it gives the facility a chance to get through "start-up" and resolve issues if possible.

Similar to the transfer facility rule, the MPCA believes that owners and operators need flexibility with how the MPCA interprets "operating" and with the length of time that a facility needs to operate before it can technically demonstrate compliance. The proposed definition reflects the idea that "operating" means to have accepted waste at levels constituting "normal" expected volumes for facilities for a minimum of one year, regardless of "design" capacity. It is reasonable to establish this definition because it allows for more flexibility in defining what operating means. Operating is not intended to mean 100 percent of design capacity. However, facilities that accept only a small amount of waste during the year (i.e. operate for a day) cannot be considered to be operating and do not qualify for extended permit status. The only way for the MPCA to be assured that issues involving the facility have been identified is if the facility is actually operating at levels reasonably consistent with its intended operation. One year is considered to be an adequate and reasonable compliance history period because it encompasses operation during all seasons and weather and should allow neighbors in the area an opportunity to raise noncompliance concerns to the Agency for resolution. During the transfer facility rulemaking, a meeting participant expressed concern with the proposed language "…constituting normal expected volumes for facilities for a minimum of one year…" and cited the possibility of inconsistent interpretation by Agency staff. While the Agency understands the concern, modifying the language to tie it into a set capacity for consistency will result in less flexibility for facilities. The intent of the language is to make a determination such that the Agency can reasonably conclude that the facility is operating in compliance with applicable rules and the permit conditions. It is reasonable to add this clarification to provide some guidance to users of the rule.

The proposed rule also provides authority for the MPCA to require the facility to go through repermitting as a result of unresolved noncompliance or other compliance issues as set out in part 7001.3410, subp. 3. It is reasonable to require a permittee to reapply for a permit if there are compliance issues so that those compliance issues can be addressed during repermitting, and also to give the public an opportunity to comment on the permit prior to issuance of the permit.

The second condition governing extended permit operation concerns major modifications. A facility that is undergoing major modifications cannot continue under its old permit, and must seek a reissued permit that addresses the changes. This is reasonable because changes to the operation may create problems or concerns for the public and because the existing permit may not be adequate in light of the new operations. The proposed rule identifies what constitutes a "major modification." For the purposes of this rule, a major modification means a change in the type of waste managed at the facility, an increase beyond the originally permitted capacity, or changes that would significantly affect compliance with the

design standards applicable to the facility. These items are reasonable because any of these changes in operation may cause the potential for environmental impacts that are not addressed by the current facility permit or public concern. For example, if a facility was originally designed and permitted to place compost windrows in one area of the facility, other areas of the facility may not be constructed to handle windrows. The MPCA must review the proposed re-design to ensure human health and the environment is sufficiently protected. Moving compost windrows to a geomembrane lined area of the facility with an adequate contact water collection system is more protective than compost windrows on a soil pad. Such changes are viewed as minor modifications, and it is reasonable to require the facility to update the information. On the contrary, moving the compost windrows onto a soil pad from a geomembrane lined pad has the potential to increase risk to human and the environment and would be considered a major modification requiring MPCA approval. If a facility seeks to increase the amount of SSOM managed at the facility, the MPCA may wish to evaluate the facility's structure to ensure that the projected SSOM volumes can successfully be managed. Decreases in the SSOM volume or changes to more inert waste types are not anticipated to cause compliance problems because the facility is designed to handle larger volumes or less inert waste types. (Such decreases or changes are viewed as minor modifications, and it is reasonable to require the facility to update information as required in proposed part 7001.3410, subp. 1.) Other changes that affect design standards should also be reviewed to ensure that issues will not result. For example, instituting a change at the facility that would significantly affect compliance with the design standards applicable to the facility, such as removing tanks and routing drainage directly to storm sewers without treatment, should undergo review. It is reasonable for the MPCA to establish a process for clarifying what planned facility changes may constitute a modification because it may not always be clear whether or not a design standard is affected.

Item B establishes that an owner or operator may make minor modifications to the facility, as long as the changes are submitted to the Agency as part of the annual report and summarized with the notification. It is reasonable for the Agency to allow minor modifications without repermitting because minor modifications, by definition, are those changes that have a very low potential to affect the environment. It is also reasonable, however, for the Agency to require minor modifications to be submitted in the annual report/notification because Agency inspectors need to know the changes that have been made at a facility prior to inspection, and to ensure that the Agency has the opportunity to identify any issues with changes made as minor modifications.

This part also establishes that an owner or operator must follow the procedures in part 7001.0190, subp. 2 before transferring ownership of the facility. It is reasonable to require these procedures be followed because the facility is still operating under a permit and the permit, a legal document, must reflect changes in ownership or control.

2. Part 7001.3375 FINAL INFORMATION REQUIREMENTS FOR COMPOST FACILITIES.

This part establishes final information requirements that are relevant to compost facilities.

Items A to C are existing requirements and remain unchanged.

Item D has been modified to delete the word "residue's" and replace it with "rejects and residuals". This change is made to address comments that pointed out there are two types of residue at a compost facility: 1) rejects, materials that are not compostable and must be landfilled; and 2) residuals, compostable materials that did not breakdown during the initial process time period (these are usually large branches or other large carbon dense materials such as wood chips that take longer to decompose than the food waste or leaves and grass.) The Department of Revenue requires that the MPCA determine whether SSOM compost facilities recycle a minimum of 85 percent of the materials delivered to the facility (or less than 15 percent is landfilled) in order to be eligible for the exemption from the solid waste tax. To do this a distinction needs to be made between the material going to the landfill, rejects, and those that are reintroduced into the composting process, residuals. This change would facilitate that calculation.

Item E has been modified to be consistent with the change made in Item D above.

Items F, G and H are existing requirements and remain unchanged.

Items I and J. Items I and J have been modified to accommodate the renumbering necessary for the new item K.

Item K establishes that a work plan for the proposed site investigation must be submitted to the Agency for review and approval prior to undertaking the work. A report summarizing field activities used for the site characterization must be submitted to the Agency for review and approval prior to issuance of the permit. A workplan submitted to and approved by the MPCA is required prior to undertaking the site characterization work to ensure that the work will completely and adequately characterize the site and to reduce the chance that something was overlooked in the workplan.

A site investigation report submitted to the MPCA for review and approval prior to permit issuance is required so the site is subsequently constructed with consideration to any geotechnical constraints, and access is not hindered in the event that additional work is needed.

Proposed item L requires that the applicant prove that municipality approval for the facility has been obtained as part of the permit application to the MPCA. The rationale for this approach is that the most significant issues affecting compost facilities, such as noise, odor and traffic, are often best addressed through the zoning authority. If these issues are not resolved through the local process, the issues often are brought forward during state permitting. Unfortunately, the MPCA is not well-situated to resolve these issues, which is frustrating for all parties involved. As a result, it is reasonable for the permitting of composting facilities to require the person seeking the MPCA permit to address local requirements first. If no local municipality approvals are required, the proposed rule allows

the facility owner or operator to submit a statement indicating that no such requirements for local approval(s) exists. This requirement is reasonable because not all compost facilities will be subject to zoning or other local approvals. By requiring the applicant to submit this statement, the MPCA ensures that the requirement has not been ignored. This item also establishes that municipalities are not required to approve their own SSOM facility applications. This is to avoid conflict of interest as it would not be reasonable for a permittee (i.e. municipality) to approve its own application.

3. Part 7001.3410 EXTENDED PERMIT NOTIFICATION AND TERMINATION PROCEDURES FOR COMPOST FACILITIES.

This part establishes the requirements and the contents of a notice that facilities operating under an extended permit must submit to the Agency. It is reasonable for the Agency to require this notice because it ensures that, although the facility is not being repermitted, the MPCA's files contain current information about the facility.

Subp. 1 establishes that a permitted facility seeking to operate under an extended permit must submit a notification on the anniversary of the expiration date of a permit and every five years thereafter (permit issued January 1, 2000, notification due January 1, 2005, January 1, 2010, January 1, 2015, etc.). It is reasonable for the Agency to establish applicable timelines and communicate those to regulated parties for clarity. The Agency has established a five year notification submittal interval based on the current five year permit application interval required. Five years is viewed as an adequate period to require a facility submit updated notification information to determine whether any significant changes have occurred at the facility. The existing phrase "or five years after November 30, 2005, whichever is sooner," is deleted because it is obsolete.

Item A establishes the provision that the facility name, address, mailing address, facility contact name and facility contact number of the SSOM compost facility must be provided in the notification. It is reasonable for the MPCA to request this information to establish what facility is submitting the information, where they are located, where it can be contacted by mail, who the appropriate contact person is and a phone number for the facility contact person should there be questions regarding the submittal.

Item B establishes the provision that the permit number of the facility must be provided in the notification. It is reasonable for the MPCA to request this information as proof of the facility holding a valid permit and to identify which facility permit applies.

Item C establishes the provision that the owner or operator must provide a listing of any minor modifications that have been made at the facility since issuance of the last permit or notification. It is reasonable for the MPCA to request this information to ensure changes requiring permitting have not been made and to obtain current facility information.

Item D establishes the provision that any minor changes that have been made to the listed plans and schedules of submittals must be included in the notification, if they have not yet been submitted. It is reasonable for the MPCA to request this information to verify no changes have been made to these plans and schedules that may have a negative impact on the environment.

Item E clarifies that a signed certification must be provided with the notification submittal. This provision establishes who may certify the contents of the notification. Certification of submittal content is a standard requirement to ensure those individuals signing the notification can be held accountable for the information submitted.

Subp. 2 establishes the provision that plans and schedules of submittals must be submitted every time they are updated. It is necessary for the MPCA to establish this requirement so that the MPCA will have accurate information before conducting a site inspection or conducting an audit of facility information. This provision also establishes that the MPCA may identify deficiencies to the plans and request they be addressed. It is reasonable for the MPCA to establish this provision to ensure that deficiencies identified at the site are corrected. In addition, this subpart establishes that amendments to plans and schedules of submittals are effective on receipt by the MPCA. It is reasonable to communicate this information so that the effective date of those documents is understood.

Subp. 3 establishes a process under which the MPCA can terminate operation in extended permit status. It is necessary to establish these requirements to clarify under what grounds the MPCA shall terminate operation under an extended permit for a SSOM compost facility and to establish a process for administering termination of operation under an extended permit. It is important to recognize that termination of an extended permit does not mean that the facility will be immediately required to shut down. If a facility is operating under an extended permit, the facility may be able to continue operating under a renewed permit reissued following standard permit issuance procedures in chapter 7001. It is reasonable for the MPCA to establish these provisions to inform regulated parties of the conditions and process under which operation under an extended permit can be terminated.

Item A establishes that a facility that has unresolved noncompliance or that has not been operated substantially in accordance with applicable standards can be required to obtain a new permit. This is reasonable because the public will likely have concerns about a facility that has been notified that it is not in compliance with its permit and has not resolved that noncompliance, or a facility that is substantially out of compliance. It is reasonable to use the word “substantially” because the MPCA does not intend to require repermitting for minor or technical violations. It is only when a facility has “substantially” failed to adhere to its permit (i.e., multiple enforcement actions even if resolved) that repermitting may be appropriate. For isolated or minor or technical violations, the MPCA would expect the facility to make corrections and return to compliance and would not expect to request that the facility become repermitted.

Item B allows the MPCA to require a facility that has made major modifications be repermitted. This is reasonable because major modifications to the operation should be reviewed by the MPCA and the public to ensure that current permit conditions are adequately protective. Criteria for operating under an extended permit prohibit SSOM facility owners or operators from making any changes that are considered major modifications without repermitting.

Item C allows the MPCA to require repermitting if the facility fails to submit any updates to the industrial waste management plan, contingency action plan, emergency response plan,

operation and maintenance plan, inspection schedule, storm water pollution prevention plan and closure plan. Item C also requires repermitting when there is a failure to address material deficiencies in submitted reports once identified by the MPCA. These conditions are reasonable because if the facility is not regularly repermitted, it must take responsibility for ensuring that the MPCA has updated information.

Item D establishes that failure to submit a notification or annual report as required under part 7035.2585 is also criteria for termination of operation under an extended permit. Notifications and annual reports are the means by which the MPCA will determine if the facility is operating consistent with its permit, and has not modified its operation. Without the notification or annual report, the MPCA lacks basic compliance information. In addition, a failure to submit an annual report or notification suggests that the facility is not adequately addressing its regulatory duties. As a result, it is reasonable for the MPCA to condition the privilege of operating under an extended permit with the duty to submit notices and annual reports to the MPCA.

This section also establishes the MPCA procedures for administering termination of operation under an extended permit. It is necessary for the MPCA to establish this process so that regulated parties are aware of the process and their opportunity to respond before a final MPCA determination is made.

The first part of the process involves notice and an opportunity to respond. This is reasonable because the MPCA may not have all facts necessary to understand the situation. The second step in the process is notice of the MPCA's decision, and an opportunity to either continue the operation subject to a reissued permit, or terminate the operation. The MPCA does not anticipate that this decision (whether the facility should be repermitted) will be subject to judicial review. Judicial review is anticipated if the Agency ultimately decides not to reissue the permit, or if the owner/operator and the Agency cannot agree on permit conditions, following the procedures in chapter 7001. This is reasonable because the termination of the extended permit is not intended to be the equivalent to revocation of the permit, but is instead only an administrative decision as to what document controls operation. If the owner or operator decides not to accept a new permit, it is the owner or operator's choice to close the facility in lieu of accepting new conditions in the permit. The proposed rule provides that a person seeking to continue operation have 30 days to submit a permit application following notice. This time period is reasonable because, as a facility holding an existing permit, the repermitting application should be less complicated than an original application. The proposed rule provides that the application, once filed, will be handled by the MPCA using the normal procedures in chapter 7001. These procedures include public notice, the possibility of a public meeting or contested case hearing and the possibility that the MPCA, after receipt of public comment, might decide to deny the permit. If the owner elects not to continue operating the facility, the proposed rule provides that the owner must notify the MPCA of that decision within 30 days. This is a reasonable time for the owner to consider the options available. It is reasonable to require notice of this decision so the MPCA can terminate its file and ensure that closure has in fact occurred in accordance with the permit.

4. Part 7035.0300 DEFINITIONS.

This part establishes definitions relevant to all solid waste management facilities.

Subps. 1 to 6 are existing definitions and remain unchanged.

Subp.7. Backyard compost site. This subpart is being repealed to accommodate the creation of the new "small compost site" definition. The new definition provides added operating flexibility for smaller sites while still being protective of human health and the environment. It is reasonable to repeal the definition with the creation of the new expanded "small compost site" definition.

Subps. 7a to 20 are existing definitions and remain unchanged.

Subp. 20a. Contact water. This subpart establishes a definition for water that comes in contact with SSOM in the tipping, mixing and active compost area. Contact water also includes water that comes in contact with rejects and residuals. It is necessary to establish this definition to ensure that water generated on site is appropriately treated as contact water or storm water. Requirements that apply to each vary significantly and one would not treat them the same.

Subps. 21 to 92 are existing definitions and remain unchanged.

Subp. 92a. Rejects. The proposed revisions establish a definition for rejects. This term is used to describe unacceptable materials that may be delivered to a site. This term is also used to calculate whether a facility is exempt from the solid waste tax and it is important to apply the term consistently so that regulated parties are treated fairly.

Item A establishes that inorganic materials that cannot be rendered into a humus-like material are considered rejects. For example, a metal spoon, plastic bag and rock, would fit this definition and would need to be removed and disposed of in accordance with applicable solid waste rules. Failing to remove rejects would lead to inaccurate information about a facility's exempt status from the solid waste tax.

Item B. Permits may specify special conditions due to site-specific circumstances. Item B establishes that rejects would be considered materials that are unacceptable due to those permit conditions. For example, a facility may have restrictions on the acceptable waste types based on previous enforcement action. It is reasonable to establish this condition to ensure that the proposed rule does not inadvertently exclude necessary site-specific special conditions that could lead to harming human health or the environment.

Item C establishes that fats, oils, grease, meat, dairy, animal manure, diapers, or sanitary products are considered rejects. The reasonableness for excluding these materials is discussed under subp. 99a.

Item D establishes that unacceptable materials also include materials that are unacceptable according to subp. 105a, items B and C. The reasonableness for these requirements is discussed under subp. 105a.

Subps. 93 and 93a are existing definitions and remain unchanged.

Subp. 93b. Residuals. Residuals are compostable materials that require further decomposition due to their large size. An example of a residual is a large tree branch. In the past, confusion has existed because regulated parties and the Agency use the term differently. Establishing the definition will bring consistency to the term for SSOM purposes.

Subps. 94 to 99 are existing definitions and remain unchanged.

Subp. 99a. Small compost site. The small compost site definition is being added to allow for the exemption of backyard composting by homeowners, businesses, schools, community gardens and urban farms. Under existing regulations these businesses would be required to design and comply with MMSW requirements to compost the listed materials, if they were unable to meet the backyard compost site exemption. It is reasonable to add this definition because of the limited types of materials allowed to be composted at these sites and the limited volumes. Limits to acceptable materials and acceptable volumes ensure that neither problematic materials nor excessive materials handling poses a risk to human health and the environment. Requiring these small compost sites to obtain permits from the Agency would be unreasonable and prohibitively expensive given the type of materials being composted. These are small sites that should require little oversight and supervision on the part of the Agency.

Item A establishes requirements regarding the type of material that can be composted at a small compost site. The composting process relies on several key mix characteristics including a moisture content between 40 percent and 60 percent, a porosity of at least 60 percent, bulk density between 700 pounds per cubic yard and 1100 pounds per cubic yard and a carbon to nitrogen ratio (C:N) of 25-30:1. If the C:N is too high, decomposition slows down due to excess carbon. If the C:N is too low, decomposition speeds up and results in odor issues due to excess nitrogen. The mix of materials must be managed to maintain optimum decomposition conditions. The materials listed in subitem (1) to (5) aid in maintaining optimum decomposition conditions at the site.

Subitem (1). Allowing food scraps to be composted at these sites promotes the expansion of organics recycling and diversion from landfills. Composting of food waste has been done in other states and countries without known negative impacts to human health or the environment. The types of food scraps composted at these facilities focus on vegetative food scraps with only incidental fats, oils, grease, meat and dairy resulting in the preparation of the food or post-consumer food scraps. An example of an incidental material would be food scraps with oil (french fries cooked in oil or oily pizza boxes in the feedstock). A container of leftover oil that was used to cook the french fries would not be considered incidental.

Subitem (2). The current rule allows yard waste, defined as garden wastes, leaves, lawn cuttings, weeds, shrub and tree waste and prunings, to be composted. The proposed rule retains this requirement. These materials have not been problematic and are necessary to the composting process.

Subitem (3). The proposed rule allows poultry litter generated on site only if the compost produced is used on site. The recent trend of LGUs allowing for the husbandry of poultry within city limits has created the need for the disposal of poultry litter. While poultry litter is currently not allowed, the Agency believes it is acceptable provided the poultry litter is generated on site, is being composted on site, and the resulting compost is being used on site. No public health or environmental issues have been documented by this practice where allowed in other states such as California and Maine. If poultry litter is being composted on site and the resulting compost is used on site, there would be little or no environmental harm anticipated from this operation. Few sites are expected to take advantage of this option and do not warrant regulation at the state level. If there are problems, the site may be controlled using current solid waste rules.

Subitem (4). Nonrecyclable paper is an excellent carbon source for composting. The addition of nonrecyclable paper with food scraps and yard waste helps to achieve the optimum C:N ratio. In addition, it allows for the diversion of more materials from the landfill in a manner that preserves public health and the environment.

Subitem (5). Recent advances in plastic made from vegetative sources have resulted in a wide variety of products that may safely be composted at small compost sites. Plant based plastics that meet the ASTM D6400 or ASTM D6868, as amended, are suitable for composting at small compost sites.

Item B. Due to the odor, vector, or sanitary issues associated with accepting large quantities of fats, oils, grease, meat, dairy, animal manures, diapers, or sanitary products, these materials are prohibited. Small, incidental quantities of fats, oils, grease, meats, or dairy associated with the preparation of food are acceptable as described in Subitem (1). Animal manures, diapers, or sanitary products are problematic at these types of sites because of the potential for disease vectors, nuisance conditions, odors, concentrated runoff and the spreading of pathogens.

Item C. Requests for on-site composting at schools, universities and urban farms have been steadily rising. The Agency has allowed this kind of composting under the backyard exemption. This revised category continues to allow that activity, up to a certain size limit, as well as setting other conditions to ensure human health and the environment are protected. Siting this type of facility under the proposed SSOM compost facility regulations would be prohibitively expensive and prevent these kinds of projects from happening. Given that fewer risks are posed by SSOM versus MMSW, the Agency believes that the proposed limits are appropriate. Finally, the amount of Agency staff time required to permit this type of compost facility would detract from the ability to permit the larger composting facilities.

Item D establishes a requirement for small compost sites to manage materials to minimize odor, the creation of nuisance conditions and public health risks. The management of materials at a small compost site is critical to minimizing nuisances and risks to the public. Therefore, it is reasonable to establish this condition.

Subps. 100 to 105 are existing definitions and remain unchanged.

Subp. 105a. Source-separated organic material. This subpart establishes a definition for what is and what is not considered source-separated organic material (SSOM).

Item A establishes what is considered a SSOM.

Subitem (1) establishes that source-separated compostable materials, with the exception of sanitary products and diapers, are considered SSOM. Sanitary products and diapers are excluded because of issues with pathogens and other human contamination which may show up in the finished product or affect the quality of the finished product. Yard waste is also included as a SSOM because of the added carbon benefit to the composting process. SSOM by itself will not compost well without the addition of carbon. The Agency is establishing this definition to remove confusion about whether source-separated compostable materials are considered SSOM as that question has been brought up by stakeholders.

Subitem (2) establishes that vegetative wastes generated from industrial or manufacturing processes that prepare food for human consumption are considered SSOM. Projects permitted under the Demonstration Research Rules have included this type of waste and have not impacted human health or the environment. An example would be cucumber waste from the manufacturing of pickles or potatoes from the manufacturing process that separates potatoes for sale to consumers. Those types of food wastes are suitable for composting at SSOM compost facilities based on demonstration project experience. Additional, specific operational procedures may be required for industrial organic waste types.

Subitem (3) establishes that compostable plastic materials that meet the two specified ASTM standards, incorporated by reference, are considered SSOM. Recent advances in plastic made from vegetative sources have resulted in a wide variety of products that may safely be composted at small compost sites.

Item B establishes a list of materials that are not considered SSOM, unless listed as a special condition in the relevant permit by the commissioner. Subitems (1), (2), (3), (4) and (5) present higher risks for odor generation or bacterial risk and require careful handling to reduce or eliminate those risks. Projects proposing to include these items may need to meet stricter standards in siting, designing and operating the facility. For these reasons, this item gives the Commissioner the ability to approve these items on a case-by-case basis.

Item C establishes a list of additional materials that are excluded from the SSOM definition. Subitems (1) and (2) establish that SSOM does not include septage or sewage sludge. The rationale for excluding these subitems is discussed below.

SSOM is defined as solid waste under part 7035.0300 subp. 100. Sewage Sludge (biosolids) and septage are excluded in this definition; therefore these subitems are not subject to regulation under solid waste rules.

Composting of SSOM is proposed to be permitted under SW permitting rule, chapter 7001. The composting of sewage sludge (biosolids), and septage is subject to a permit and the technical requirements of chapter 7041, Sewage Sludge Management Rules. Chapter 7041 is

implemented through the National Pollutant Discharge Elimination System (NPDES) permitting program. The NPDES program is administered by the Water Quality Division at the State and Federal level.

When a person composts or treats sewage sludge (biosolids) or septage by other methods, that person is defined as a "Person who prepares sewage sludge". This person can be the generator of sewage sludge or a person who derives a material from sewage sludge. "Material derived from sewage sludge" (part 7041.0100, subp. 29) means sewage sludge received from a treatment works whose quality is changed either through treatment or mixing with a nonhazardous material prior to being applied to the land. The important phrase here is "quality is changed". When sewage sludge is changed it must go through an appropriate treatment process described in chapter 7041. It also means that any amount of sewage sludge combined with other nonhazardous material creates a mixture that is now defined as sewage sludge. The amount of sewage sludge added is not a factor (40 CFR 503 and chapter 7041).

For these reasons it is appropriate and reasonable to exclude sewage sludge (biosolids) and septage from the definition of SSOM.

Subp. 105b. Source-separated organic material compost facility. This subpart establishes a definition for a SSOM compost facility. It is reasonable to establish a definition so that regulated parties and the Agency consistently apply the term when deciding to operate such a facility or determine compliance with applicable standards.

Item A establishes that an SSOM compost facility means that the site is used to compost SSOM.

Item B establishes that all structures or processing equipment used to compost SSOM are considered the SSOM compost facility.

Item C establishes that structures or equipment used to control drainage, manage contact water, manage storm water, manage incoming material, manage the finished product, or manage rejects and residuals resulting from the composting process are considered part of a SSOM compost facility.

5. Part 7035.0605 AVAILABILITY OF REFERENCES.

This part establishes a list of references that are cited in the existing rule and proposed amendments.

Items A to H are existing items that have simply been numbered for ease of reading.

Item I is a new requirement that describes how ASTM methods, listed under 7035.0300, subp. 105A may be obtained. It is reasonable to provide this information to ensure that individuals needing to utilize the methods are aware of how to obtain them. These methods typically do not undergo frequent change, but there may be future amendments and it is reasonable to propose that amended versions of these methods are utilized.

6. Part 7035.2525 SOLID WASTE MANAGEMENT FACILITIES GOVERNED.

This part establishes general requirements that apply to owners and operators of all facilities that treat, transfer, store, process, or dispose of solid waste.

Subp. 1 is an existing requirement and remains unchanged.

Subp. 2 establishes that parts 7035.2525 to 7035.2915 do not apply to items A to K.

Item A has been modified to reflect the repeal of the backyard exemption and subsequent replacement with the small compost site category. This change requires an ensuing language change. Small compost sites do not handle a large throughput and, for the reasons described under 7035.0300, subp. 99a, establishing this type of site is considered reasonable. The Agency requires small compost facilities to comply with 7035.2535, subp. 1, items A to E (General Solid Waste Management Facility Requirements--unacceptable wastes), 7035.2555 (Location Standards) and 7035.2565 (Ground water Quality, Surface Water Quality and Air Quality and Soil Protection).

Items B to K are existing provisions and remain unchanged.

7. Part 7035.2585 ANNUAL REPORT.

This part establishes requirements specific to annual reporting requirements applicable to all solid waste management facilities and has been amended to clarify requirements specific to SSOM compost facilities. It is reasonable for the MPCA to amend this section to ensure clarity.

Items A to H are existing provisions and remain unchanged.

Item I is an existing provision that has been modified to also apply to SSOM compost facilities. This item specifies additional rule references that apply to annual reporting for different types of solid waste facilities. Subpart 11 of the new SSOM rules include annual reporting requirements specific to SSOM sites. It is reasonable for the MPCA to include the additional rule reference to ensure SSOM facilities are aware of all applicable annual reporting requirements. Item I was also modified to correct inaccurate rule citations in the current rule. Item I of the existing rule incorrectly referenced 7035.2836, subpart 3, item D and subpart 6, items J and K. The correct references are 7035.2836, subpart 3, item G and subpart 5, items J and K. It is reasonable for the MPCA to make corrections when simple errors are found. The original rationales for these requirements are still applicable.

Items J and K are existing provisions that remain unchanged.

Item L is an existing provision that has been modified to also apply to SSOM compost facilities. This item applies to SSOM compost facilities because, like transfer facilities, any minor modifications or updates made to the required plans and schedules must be submitted with the annual report. It is reasonable for the MPCA to establish these requirements to ensure that current information is provided to the MPCA regarding any minor modifications and changes to the plans and schedules at the facility. A facility may

undertake several minor modifications within the five year term of the notification and it is necessary for the Agency to have complete information as to what those changes are and when they were completed to ensure the facility is not skirting permitting requirements by spreading out a major modification into numerous minor modifications. It is also reasonable for the MPCA to require updates to the plans and schedules to be included with the annual report so that facility information remains current without the reporting being overly burdensome. The Agency will have gone through the process of approving the reporting schedules and plans with the issuance of the most recent permit. Changes to the plans and schedules will likely be minor and deficiencies discovered during the annual report review can be communicated to the facility for correction. It is reasonable for the MPCA to establish these requirements to ensure updated information is available during review of the facility file and site inspections.

As with transfer facilities, the MPCA proposes to remove requirements in the existing rule that are not appropriate for SSOM compost facilities and other facilities that do not involve the disposal of waste. These facilities need not include information on items D (remaining disposal/storage capacity), H (ground water monitoring) and I (annual surveys) in the annual report. It is reasonable for the MPCA to remove these provisions to make annual reports for non-disposal facilities reflect their actual operation.

8. Part 7035.2836 COMPOST FACILITIES.

This part establishes requirements specific to the following three types of compost facilities:

- yard waste
- SSOM
- MMSW

Subp. 1 contains existing requirements for yard waste and solid waste compost facilities that have been carried forward unchanged. The need and reasonableness has been previously established in the February 23, 1988 SONAR and the amended SONAR signed July 26, 1996. Language pertinent to yard waste has been relocated within this subpart for ease of reading. This subpart has been modified to include new requirements for SSOM compost facilities.

Subps. 2, 3, 4, 5, 6 and 7 are existing requirements and remain unchanged.

Subp. 8 is a new subpart specifying areas where SSOM compost facilities may not be established or constructed.

Item A establishes that SSOM compost facilities remain subject to part 7035.2555, under the proposed revisions. The need and reasonableness of part 7035.2555 has been previously established on page 154 of the February 23, 1988, SONAR. The arguments made for the solid waste management facility apply to SSOM compost facilities. Essentially, construction and operation of SSOM facilities is prohibited in 100-year floodplains, shoreland areas, wetland areas and areas where emissions of air pollutants would violate ambient air quality standards. Locating a solid waste management facility in a 100-year floodplain increases the potential for waste processed, stored, or disposed of at a facility to be washed away through a flood event from the facility into surrounding areas. Prohibiting the location of the solid

waste management facilities in 100-year floodplains avoids an increased risk of harm to human health and the environment. Shoreland areas are intended to act as buffer zones for protection of surface water bodies from impacts associated with development. Wetland areas are protected because of their importance in maintaining an ecological balance between plants and animals that function either entirely on land or in the water. Wetlands also act as a filter for surface water. Wetland areas and shoreland areas are environmentally sensitive due to the fragile balance maintained between the habitat provided for animals and plants in the potential destruction of the habitat by excess moisture, erosion, etc. Prohibiting the location of facilities in these areas reduces the risk of adverse impacts on water quality.

Item B prohibits the establishment or construction of a SSOM compost facility on a site with karst features including sinkholes, disappearing streams and caves. Sinkholes, disappearing streams, etc., are indicators of subsurface conditions where water is acting on soluble bedrock. If a SSOM compost facility is located in an area characterized by these conditions, the additional loads placed on the weakened bedrock may cause a collapse, resulting in the SSOM impacting subsurface conditions (including ground water). Equipment may be damaged or lost and facility personnel could also be injured. Ground water flow in karst areas typically is complex due to anisotropy resulting from fractures and solution channels. As such ground water monitoring is much more difficult. In addition, there is potential for degradation of environmentally sensitive areas such as calcareous fens.

Item C prohibits the siting of SSOM compost facilities within five vertical feet of the water table. The water table is defined in part 7060.0300, subp. 8. as follows: “Water table is the surface of the ground water at which the pressure is atmospheric. Generally, this is the top of the saturated zone.” It was suggested by one stakeholder that the use of the term “zone of continuous saturation” should be used, but the Agency determined that for consistency it was more appropriate to use the already established definition of water table. The Agency also believes that there will be areas in the state where ground water is “perched” and may be used as a source of drinking water, which would fall outside the stakeholder’s previously suggested term. The use of water table as “generally” the top of ground water would allow the Agency to protect these possible sources of drinking water and the underlying aquifers. The effects of composting on ground water have yet to be fully ascertained. By keeping a separation of five vertical feet between the SSOM compost facility and the water table, some degree of natural attenuation of the compost contact water will occur before it reaches the ground water. Facility operations may be susceptible to problems when conducted in soils with high water tables because of compaction, loss of structure, rutting and erosion of the soil. Five vertical feet of separation between SSOM and the water keeps the ground water and operations separated. It should be noted that five feet of separation to the water table is required for permit-by-rule demolition facilities (Part 7035.2825, Subpart 2) and industrial waste facilities (Part 7035.1700, Item B.

A separation of greater than five vertical feet was considered when drafting the proposed requirement. Increasing the separation would eliminate from consideration many potential sites. The significantly lower construction costs at a site that can comply with the five vertical feet of separation to the water table, soil types (required under proposed part 7035.2836, subpart 9, item B, subitem 8) and the hard-packed, all-weather surface (required under proposed part 7035.2836, subpart 9, item B, subitem 6) will most likely increase the

quantity of SSOM recycled through composting. Composting is a preferred option in the solid waste management hierarchy. It is anticipated that a compost facility constructed in this manner will be smaller in scope and that the owners would probably move toward installation of concrete or asphalt pads for operational regions as the facility grows.

Item D. Due to potential nuisance conditions that are specific to SSOM compost facilities, the Agency determined a minimum buffer zone of 500 feet would be required around the SSOM compost facility. The 500 foot buffer is a reasonable distance to allow the owner or operator to safely mitigate operational issues such as litter, odor, etc. The buffer zone serves to reduce potential impacts from compost activities on the surrounding area, including the nearest residence, place of business or public area, such as parks, wildlife areas and public building. Based on air quality testing performed at a demonstration site, 500-feet is a reasonable distance to allow for odor, dust and particulate dispersion. This item also establishes a method for measuring distance to ensure consistency. Without a standard means of measuring it would be impossible for the Agency to accurately measure distance to determine compliance. Because circumstances at each site are different, the Agency has proposed two exceptions to the 500 foot horizontal distance:

Subitem (1) allows the commissioner to reduce the 500 foot horizontal separation distance based on operational modifications, geographic features or other natural or man-made physical characteristics that have the potential to reduce nuisance conditions such as noise, litter and odor. A site may have geographic features such as bluffs or trees that provide protection and screening. The facility may also construct a structure or feature that could serve the purpose of the 500 foot buffer.

Subitem (2) excludes the adjacent commercial activities operated by the facility owner from the 500 foot horizontal separation requirement for the owner's residence or place of business. As long as the owner or the operator owns the adjacent property or commercial activity, it is reasonable to give the exemption to the owner/operator because they are not likely to have issues with the composting facility they are operating.

Proposed subp. 9 is a new subpart that addresses changes in the composting industry.

Item A. There are four basic steps involved in most compost operations. These steps include feedstock preparation, decomposition, curing and finishing. The processes and equipment used to accomplish these steps may vary from facility to facility. The Agency believes that no one set of design criteria can be developed for all compost operations to provide sufficient flexibility in facility construction and operation to handle waste-specific and climatic conditions. To accomplish such a task, the facility owners or operators would all be required to construct identical facilities, thus removing their ability to do a risk analysis on a specific technology and incorporate the technology in the facility's design and operation. The Agency believes this to be unreasonable and, in fact, wishes to encourage new technologies capable of producing compost in an increasingly environmentally safe manner. The Agency believes that design standards are necessary to ensure a minimum level of protection is provided at all SSOM compost facilities. In general, however, the design standards required under this subpart are performance oriented to allow for maximum flexibility in designing these facilities. Performance-oriented standards are reasonable for compost facilities because the operations are above ground and can be monitored. Modifications to the

system are more easily accomplished than in below ground systems. The specific design standards are further discussed below.

Given the recycling goals and solid waste tax incentive, industry and LGUs have become more interested and active in composting SSOM. This increased interest and activity have led to the proposed revisions. SSOM presents a greater risk to health and the environment than composting of yard waste and a lesser risk than the composting of MMSW. The proposed amendments set standards for SSOM composting and strike the appropriate balance of reducing costs associated with composting SSOM and the risks to public health and the environment.

Proposed Item B establishes design requirements with which an engineering report must comply.

Proposed Subitem (1) requires the facility owner or operator to include the specifications for site preparation in the engineering design report for the site. Site preparation must include clearing and grubbing for the compost and storage areas, berm construction, drainage control structures, storm water management systems, contact water collection systems, access roads, screening, fencing and other special design features. This information must be included in the engineering design report because it provides the Agency with an understanding of how the total site functions in the compost operation. All the facility components mentioned are critical in analyzing the final facility design and its ability to meet the overall performance standards for the facility. By reviewing the site preparation specifications with other design specifications, the Agency can recommend possible changes for the project to be acceptable. Complete review in one document avoids the chance of key components receiving less scrutiny than deserved. The information listed above must be known by the facility owner or operator to adequately schedule construction activities. This item establishes the form in which the Agency wants the facility design information to be submitted.

The above requirements generally follow existing part 7035.2836, subp. 4, item A, with one exception. Specifically, “leachate”, a term used to describe water that has come in contact with waste, has been replaced with the term “contact water”. Stakeholders commented that precipitation that falls on the curing and finished composting areas presents similar risk as precipitation falling on soils; therefore, it should be treated simply as storm water. Contact water is water that comes in contact with SSOM in the tipping, mixing and active compost area. Contact water also includes water that comes in contact with rejects and residuals. Contact water that comes in contact with SSOM in the active compost area presents a greater risk to the environment than storm water and should be held to a higher standard.

Subitem (2) requires the facility to be controlled by a perimeter fence, gate, enclosure structure or other physical barrier. These are existing requirements that have been modified to include “other physical barriers” to give flexibility to the permittee to propose other methods for controlling access to the composting site. Facility integrity is critical to prevention of environmental harm or human health problems. Facilities are designed and operated to meet a specific set of standards. The entry of unauthorized persons could disturb this integrity and create not only environmental problems but a danger to humans

entering the facility unaware of the type of disturbance that may have occurred. Because of the need to protect the facility's integrity and the liability associated with personal injuries and environmental damage, it is reasonable to require security at the facility.

Subitem (3) requires that the design of the storm water drainage control system divert all storm water away from the compost site. The storm water drainage control system must comply with part 7035.2855, subp. 3, item C, D and E. This subitem requires that the facility design incorporate measures to divert storm water drainage around and away from the operating area (controlling run-on and run-off.)

The purpose of the "run-on" control system is to minimize the amount of surface water entering the facility. Run-on controls prevent erosion, the surface discharge of waste and the downward percolation of water through the soils. If the operating area is inundated with storm water, the facility may fail to operate properly. Storm water may saturate the compost piles, causing the system to go anaerobic or stop functioning. Anaerobic decomposition is slower than aerobic, creating additional storage needs because the facility is designed to be aerobic. Anaerobic decomposition occurs at lower temperatures, so another process must be used to reduce pathogens, e.g., lime stabilization or long curing. Methane gas, which may be a safety hazard, is a by-product of anaerobic decomposition. Under these circumstances, ventilation is needed for safe facility operations.

The washout of compost areas is also of concern. Flooding the working area of a compost facility can spread unfinished compost over the facility or off the facility property. Unfinished compost may then get into storm water or onto surface soils, causing further pollutant migration. Washouts can be prevented if there are adequate storm water drainage control structures and through facility design, e.g., windrow piles direction parallel to drainage flow direction.

If the compost area and the storage area are damaged by storm water, the facility owner or operator may be unable to fulfill the performance standards of this part of the rule. The facility may need to shut down for repairs. Such occurrences are time consuming and expensive. While the facility is shut down, the potential for negative impacts on the environment increases. If the waste is not being adequately composted and stabilized, the final product may be unusable. Collection of the waste at the facility without processing raises human health concerns and environmental concerns associated with the movement of excess moisture out of the waste into subsurface soils and surface waters.

The facility owner or operator has much to lose in terms of repair costs and management problems so the control of storm water needs to be integral to the facility design. The Agency includes this standard to ensure that storm water drainage control is considered for all compost facilities; it provides a base level of protection.

Subitem (3) also sets a standard that delineates when materials in the active composting area have reached a point in the composting process that allows them to be moved to the curing area. The Solvita Maturity index is an approved method to determine if material can be moved off the active compost pad. MPCA determined a minimum Solvita Index of five with an ammonia reading of four or more indicates the material is no longer considered actively composting and is in the curing stage. After material has completed a process to

further reduce pathogens (PRFP) and is in the curing stage, the material can be handled without significant risks from pathogens. Finally, because new maturity tests may develop, the Commissioner is given the flexibility to accept equivalent methods to test maturity.

Subitem (4) requires that water in contact with SSOM, immature compost, rejects or residuals must be diverted to the contact water treatment system. The contact water system must comply with part 7035.2815, subp. 9. Immature compost is defined as not having reached the curing stage described in subitem (3) above. Contact water is water that comes in contact with SSOM in the tipping, mixing and active compost area. Contact water also includes water that comes in contact with rejects and residuals. Any decomposition process generates water as a by-product. The water contains dissolved organic compounds and sediment that can adversely impact surface waters areas. Of most importance are the decrease in sunlight due to the turbidity of the water, the increase in oxygen demand needed to break down these compounds decreasing the oxygen available for aquatic organisms and the pH imbalance the compounds may impose on the water body. It is reasonable to require contact water control systems to protect waters of the state.

Subitem (5) requires the facility design to include the collection of rejects and residuals and provide for their transportation and proper final disposal. Not all waste received at a compost facility will decompose at the same rate as the main organic components, if at all. Therefore, as the waste is processed, or during finishing, these non-compostable and slowly compostable materials will be sorted out of the compost. A defined process must be identified and utilized to handle these components. SSOM management requires more than just processing the incoming waste dedicated to the specific facility. SSOM management also involves reviewing incoming waste, understanding facility operation and making decisions on the ability of the facility to handle wastes for processing, disposal or collection prior to application of these management options. The facility design must be able to control the storage, handling and disposal of these wastes. Facility owners and operators dislike disruption of normal operations because of a particular waste's incompatibility with the facility. Designing a facility involves understanding what wastes are expected, how the waste will be managed and the potential problems that might arise. Once accepted at a facility, the proper management of wastes becomes the responsibility of the facility owner or operator.

The Agency must understand how the entire State is managing its waste. This understanding is gained from reviewing all of the annual operating reports and all of the facility plans and specifications. Requiring facility owners and operators address rejects waste collection and disposal and residual collection and management in the facility design provides the Agency the knowledge ahead of time to coordinate the entire State management options. The intended disposal site may not be suitable for the specific reject waste. The intended management site may not be suitable for the specific residual. Through the facility design reviews, the Agency will be able to inform the facility owner or operator of this matter.

Subitem (6) requires that all areas of the composting facility must be constructed in a manner that attempts to prevent the transportation of materials and contact water into the subsurface soil, ground water and surface water. The facility owner or operator must design the facility in a manner that permits easy control of any excess moisture generated. At a minimum, the design must include working on a hard-packed, all-weather surface to

minimize migration of materials and contact water into soils, surface water and ground water. A paved area could also be considered a hard-packed, all-weather surface. For facilities that meet the soil types and separation to ground water requirements in subitem (8), this hard-packed, all-weather surface is the primary ground water protection mechanism. Therefore, if a soil surface is used as the hard-packed all-weather surface, the permittee would need to demonstrate that the surface soils minimize infiltration of contact water into the subsurface soils. An example of a soil surface that minimizes infiltration would be 12 inches thick and have a 100% by weight passing through a 1" sieve and a minimum of 15% by weight passing through #200 sieve[1]. The soils should be compacted within 5% of the optimum moisture content and reach an in-place unit weight of 140 pounds per cubic foot.

Further, the surface should be gently sloped to discourage ponding and to direct the flow pattern. Windrows should run with the slope rather than across the slope so they do not dam excessive moisture. By addressing these issues in the design of the facility, owners and operators will minimize the amount of corrective actions needed to control drainage and prevent operational difficulties. Planning ahead for potential problems is cost effective in construction projects as it eliminates the remobilization efforts needed for corrective actions. The Agency estimates this facility design to be the lowest cost of the designs set forth in these proposed rules. The proposed requirements establish the appropriate balance level of protection of waters of the state and the state's SSOM recycling goals.

Subitem (7) requires that the working surface of a source-separated organic material compost facility have a minimum of five feet of soil separation to the water table. This separation distance is required so as to establish a five foot zone within the soil profile, exclusive of the constructed working surface, where biologic and inorganic reactions promote attenuation of constituents of concern in the infiltrating contact water. Attenuative mechanisms in soils and aquifers include physical processes (advection, diffusion, dilution by recharge and volatilization), chemical processes (sorption/desorption, ion exchange, complexation and abiotic transformations) and biological processes (biodegradation).

Subitem (8) requires a minimum of five feet of sandy clay loam, sandy clay, clay loam, silty clay loam, silty clay or clay in place between composting operations and the water table. Sites unable to meet this requirement are required to install a pad under subitem (9). Requiring these finer-grained soils is designed to retard infiltration, and further promote attenuation. Prescribing five feet of finer-textured soils is intended to reduce the potential for ground water contamination, to address the non-degradation policy established in Chapter 7060 (preventing pollution of underground waters of the state). Under the non-degradation policy, solid waste management facilities must not "pollute" beyond specified limits; those limits may change over time. The soils requirement in subitem (8) prohibits facilities from being located in areas that have highly permeable soils unless an impervious pad is constructed. Highly permeable soils would provide little or no natural attenuation of the contact water. Finer-grained soils increase the degree of natural attenuation during

[1] This means that:

A. The soil surface would be twelve inches thick.
B. During a soil size analysis using a sieve as a filter:
   (1) 100% of the soil (by weight) passes through a 1" sieve.
   (2) 15% of the soil (by weight) passes through a # 200 sieve.

infiltration. Initially, the Agency proposed establishing a soil permeability of 1.4 x10^{-4}cm/s. Some stakeholders responded by requesting more flexibility and a less complex system. Other stakeholders responded by saying that standards should be held to the same level as landfill facilities. MPCA used the data compiled in the table below to determine what soil types, along with the hard-packed, all-weather surface required in subitem (6), would be appropriately protective. The soil types allowed in the rule are based on their documented average permeability. Loam, silt loam and silt were initially considered and then removed due to their highly permeable nature. The Agency believes the proposed language provides additional flexibility desired by stakeholders, while attempting to meet the non-degradation policy of Chapter 7060.

A separation of greater than five vertical feet was considered when drafting the proposed requirements. Increasing the separation would eliminate from consideration many potential sites. The significantly lower construction costs at a site that can comply with the five vertical feet of separation to the water table (required under proposed part 7035.2836, subpart 9, item B, subitem (7), the soil types established under this subitem and the hard-packed, all-weather surface (required under proposed part 7035.2836, subpart 9, item B, subitem (6) will most likely increase the quantity of SSOM recycled through composting. Composting is a preferred option in the solid waste management hierarchy.

TABLE 2: SOIL PERMEABILITY CHART

Non-compacted, in situ soil types	Thickness	Permeability					Travel time	
		Min	Max	Min	Max	Description	Max	Min
	ft	*in/hr*	*in/hr*	*cm/sec*	*cm/sec*		*Days*	*days*
Loam	5	0.6	2	4.23E-04	1.41E-03	moderate	4.17	1.25
Silt loam	5	0.6	2	4.23E-04	1.41E-03	moderate	4.17	1.25
Silt	5	0.6	2	4.23E-04	1.41E-03	moderate	4.17	1.25
Clay loam	5	0.2	0.6	1.41E-04	4.23E-04	moderately slow	12.50	4.17
Sandy clay	5	0.2	0.6	1.41E-04	4.23E-04	moderately slow	12.50	4.17
Sandy clay loam	5	0.2	0.6	1.41E-04	4.23E-04	moderately slow	12.50	4.17
Silty clay loam	5	0.2	0.6	1.41E-04	4.23E-04	moderately slow	12.50	4.17
Silty clay	5	0.06	0.2	4.23E-05	1.41E-04	slow	41.67	12.50
Clay	5	0.0015	0.06	1.06E-06	4.23E-05	very slow	1664.05	41.67

The volume and chemical characteristics of compost contact water have not been fully quantified, and compost contact water chemistry varies depending on the (seasonally varying) material with which it comes in contact. If a proposed site should have less than five feet of separation to the water table the Agency initially considered that ground water monitoring would be necessary and a contingency action plan would need to be developed.

Requiring both five feet of separation to the water table and five feet of less permeable soils may provide additional attenuation to remove contact water contaminants, to attempt to meet the non-degradation requirements of Chapter 7060.

The proposed rule allows soil surveys published by the Natural Resources Conservation Service to be used as a screening tool in the site selection process. In a broad sense soil surveys identify the depth to the water table based on physical characteristics such as redoximorphic features. This information may not reflect site-specific conditions, and may also reflect relic or epi-saturated conditions and not the elevation of the current water table. Therefore a site investigation is necessary to determine soil types and depth of the modern day water table, to establish the minimum five foot treatment zone. Interpretations contained within the soil survey for the site need to be verified by the use of soil borings, piezometers and/or test pits as certified by a soil scientist, engineer or geologist licensed by the state of Minnesota, with expertise in soils characterization as defined by education and experience. The proposed rule allows for alternative methods as discussed under unit (b). Additionally, an alternative separation distance may be allowed under unit (a). Alternative separation distances and alternative site characterization methods are both areas of flexibility that stakeholders have asked the MPCA to consider with respect to determining soil profile characterization and water table separation distances. Given that site characterization methodology may evolve, and changes in precipitation patterns result in changes in the elevation of the water table, it is reasonable for the Agency to provide alternatives to owners and operators if they can demonstrate the methods are substantially equivalent and that changes in the elevation of the water table will not be detrimental to site operations, and human health and the environment.

The proposed rule requires that sites unable to meet the soil criteria must install a pad or liner under all activity areas except curing and storage areas of finished compost. The reasonableness of this requirement is discussed under proposed subitem (9).

Proposed unit (a) establishes conditions under which an owner or operator can use an alternative separation distance.

The water table may be defined as the surface where the water pressure head is equal to atmospheric pressure. Practically speaking the water table is the top of the saturated part of an unconfined aquifer.

An owner or operator may request a separation distance other than a minimum of five feet between the compost activities and the water table to account for abnormal fluctuations in the water table. This may become an important consideration at sites where the water table is closer to ground surface.

Proposed unit (a) allows the owner or operator to propose an alternative separation distance that may be approved by the commissioner as equivalent to that listed in subitem (a) if two conditions are met. The first condition (i) relates to if during the past five years, the site has experienced abnormally wet or abnormally dry weather. Abnormal precipitation amounts during dry or wet years may impact the position of the water table to the extent that in less complex settings the elevation of the water table may be estimated based on

precipitation data alone[2,3,4]. The water table may fluctuate from other non-weather factors including changes in surface water, from human withdrawals, or from other (documented) reasons, and this may provide additional justification for proposing an alternative separation distance.

The second condition (ii) addresses the need for documenting an actual change in the water table over a minimum five year time period. This may be accomplished by evaluating precipitation data, existing historical static water level elevation data, a clear delineation of more recent redoximporphic features in the soils, or other information or methods as approved by the commissioner. A minimum five year time frame is to allow sites with a water table that varies, but normally have a five foot separation distance.

Proposed unit (b) allows the owner or operator to use alternative site characterization methods (for example possibly using Geoprobes), if approved by the commissioner. The owner or operator must demonstrate that the alternate methods provide soil profile characterization that is substantially equivalent to the characterization by soil borings, piezometers, or test pits. This provision is to facilitate functionally equivalent site characterization methods if or when they are developed.

Proposed Subitem (9) establishes that sites unable to meet soil requirements under subitem (8) must install a pad in all areas where SSOM will be managed and composted prior to curing. Attachment A of this document includes a figure delineating the determination process. The purpose of this requirement is preventing contact water from contaminating ground water. If excess water exists in the system, it will move through the pile and dissolve pollutants like solids and metals. If this polluted water is allowed to migrate into subsurface soils, ground water or surface waters, it results in risks to human health and the environment**.** The facility surface must minimize the release of contact water into the ground water or onto surrounding land surfaces. Units (a) to (b) establish standards for two specific types of compost pads, while unit (c) allows for alternative types with Commissioner approval. This provision is established to address the non-degradation standards of Chapter 7060, which are intended to preserve and protect the underground waters of the state by preventing any new pollution.

Proposed unit (a) establishes the standard for a compost pad constructed of a geomembrane. If a geomembrane is used, the liner system must be designed and built according to the applicable criteria in part 7035.2815, subp.7. The surface must also comply with 7035.2855 subp. 3, item A. The reasonableness of this pad and liner design have been established in the solid waste SONAR dated February 23, 1988.

[2] Fairbairn, D. January 2011. Minnesota Water Sustainability Framework, Minnesota Water Supply and Availability. University of Minnesota Water Resources Center. P. 10.

[3] Morgan, Charles P. and M. H. Stolt. March 2009. Using Hydrologic Patterns and Precipitation Data to Construct an Empirical Model for Understanding Cumulative Saturation. Soil Science Society of America Journal. 2007.0358*Vol. 73 No. 2, p. 598-604*

[4] Park, Eungyu and J.C. Parker. A simple model for water table fluctuations in response to precipitation. Journal of Hydrology. Volume 356, Issues 3–4, 15 July 2008, Pages 344–349.

Proposed unit (b) establishes requirements when a concrete pad or asphalt pad is used. Such pads must meet the Mn/DOT Road Design Manual (2012 and as subsequently amended). As stated above, the basic function of the pad is to control downward migration of liquid and pollutants; the ability of concrete and asphalt to do so has been well documented. However, over time the concrete and asphalt can deteriorate, lessening the effectiveness of the pad. For that reason, this unit also requires regular inspections of the pad. All cracks, crumbling and failures must be immediately repaired. Results of all inspections and repairs must be included in the Annual report.

Proposed unit (c) allows for alternative liner system designs. Site-specific conditions or advances in technology may result in different liner systems that are able to control contact water migration, meet performance standards, and be protective of human health and the environment. This unit gives the owner or operator the ability to propose alternative systems that meet the requirements and allows the Commissioner the ability to approve those systems. It is reasonable to build such flexibility into the rule.

Proposed subitem (10) establishes that an owner or operator must design the site to minimize liquids, odors, disease vectors and nuisance conditions. Examples of disease vectors are flies and rodents. Examples of nuisance conditions are litter, noise, ponding water and erosion. Improperly managed storm water can lead to erosion of the facility's work surface, uncontrolled run-off, or ponding of contact water.

Odors are an expected result of compost operations. Odors are generated from a number of sources, including the waste material, the stage of decomposition, the type of decomposition, and weather conditions. If not properly controlled, the odors generated at the facility may present environmental and human health risks in addition to the secondary problem of aesthetics. It is reasonable that the design for the facility reflect the potential for odors of solid waste compost facilities because odors can indicate problems with the compost operation. If the facility design is not adequate to process incoming waste and precipitation, then litter, vectors and odors may cause nuisance conditions and adverse impacts on human health and the environment. The considerable traffic volumes may produce noise and dust problems and it is reasonable for the design to consider all aspects of the facility operations. For example, if the proposed design would result in noise and dust, physical or visual barriers could be required as a permit condition.

Proposed subp. 10 contain SSOM construction related requirements. This subpart contains modified requirements from parts 7035.2815 and 7035.2855, subp. 5 that are listed in items A to G. Existing solid waste rules require facility owners and operators to certify construction on the facility before operations begin or any component of the facility is placed into operation. Part 7035.2610 of the existing solid waste rules discusses the construction certification procedures applicable to all solid waste facilities. The construction requirements proposed in this subpart address not only the elements needed to ensure compliance with design and construction requirements contained elsewhere in the proposed rules, but also address those elements used on a continuing basis to ensure quality construction is completed and maintained. Addressing these elements in rule provides facility owners and operators certainty about the Agency's basic acceptance criteria; this is reasonable to provide as no facility or facility component may be put into operation without the Agency's approval of the completed construction work.

Proposed item A requires facility owners or operators to notify the Commissioner at least ten days before the day construction on design features is expected to begin. The Agency must determine that the construction completed at a facility complies with approved permits and plans. This conclusion is reached by Agency staff reviewing the construction certification and by completing on-site inspections during actual construction. In order for Agency staff to be at the site during construction, notification is needed in advance of construction. Notification by the facility owners or operators does not overly burden them as they must schedule work efforts to coordinate material arrivals and allows for smooth transition from one construction phase to another. Agency staff will attempt to coordinate visits to the site during construction, so that delays are minimized. Ten days provides a reasonable time within which facility owners and operators and Agency staff may coordinate inspection needs.

Proposed item B. The construction firm's inspector is required to maintain a record of all procedures completed during construction. The record must document that all design features were constructed in accordance with the proposed solid waste rule and approved design plans. The record must include pictures, field notes and all test results. The key in evaluating the quality of construction is the inspection process used. The Agency, unfortunately, is unable to be present at a site at all times or watch all construction activities while on-site. The same is true for facility owners and operators, but they can delegate the work to the construction firm inspector. Therefore, the construction firm must be relied upon to complete activities as approved unless found to be infeasible during actual construction. In order for the Agency and facility owners and operators to approve the work completed in their absence, a record of the activities must be kept. Although the documentation does not guarantee final construction and performance, it does improve confidence that work was completed as authorized. The written documentation, along with inspections made by Agency staff, is used to authorize facility operation. The better the documentation, the more confidence in the work completed; thus, the rule sets forth requirements for the record.

A record maintained by the construction firm's inspector provides information as to the quality of construction achieved. The construction record also adds consistency to the manner in which the need for corrections will be determined on a continual basis. The construction firm demonstrates to the facility owner or operator the quality of work done in order to receive proper payment. This provision, in effect, only requires the construction firm to duplicate the report provided the facility owner or operator, and submit it to the Agency with the construction certification. This provision does not increase the burden on a construction firm, yet it provides very necessary data regarding the construction practices followed at a facility.

Proposed item C requires a permanent benchmark is required to be placed on-site at every facility and that the location of the benchmark be shown on the as-built plans submitted with the construction certification. Surveying will be needed during construction and during facility operations. In order to compare the results of these activities with approved plans or work completed by other parties, a reference point is required for each facility. To expect a traverse line to be drawn from an off-site benchmark at each surveying event is unreasonable. It is preferable to establish a benchmark early during facility construction for

use during the remainder of the operating life. Facility owners and operators are allowed to choose the location of the benchmark based on site conditions.

Proposed item D establishes that soil tests must be completed by facility owners and operators during construction of the compost facility. At a minimum, compaction, grain size distribution and field moisture-density tests must be completed on the materials during construction of the compost facility pad. A portion of the field-molded and field-compacted samples of the compost pad must be retained until the construction certification is complete. Since not all performance standards can be evaluated for compliance based on visual inspections, some supporting analysis must be used. Because particular analyses were used to determine the suitability of soil for use in the compost pad, these same tests should be used in evaluating the construction results. The tests perform the same function in determining construction quality as they did in determining soil suitability. The combination of field and laboratory testing in verifying construction quality provides a quick analysis of the construction process (field tests) and greater accuracy on the results achieved (laboratory tests). Field tests are used because they are quick and permit work to continue while the more detailed analytical lab tests are completed. The results obtained in the field during construction are compared to the results obtained during the suitability evaluation. The field inspector can determine if corrective actions are needed to ensure the quality of work. Since the quality of construction relates directly to the overall facility performance, it is both needed and reasonable to require analytical verification of construction in the field and in the laboratory. The retention of samples during the period of analytical verification is standard procedure. By retaining samples, the analytical results may be validated by reanalyzing a particular sample.

Proposed item E requires flexible membranes to be installed only under dry weather conditions. Wet weather can impact the quality of seams achieved during installation because the heat is conducted away from the joint area and the moisture may interfere with the adhesives used to join the membrane panels. Moisture under the flexible membrane may raise the membrane, creating conditions that may stretch the membrane, cause buckling of the membrane as the moisture moves away, or make the membrane more susceptible to puncture or tearing. Secure seams in flexible membranes are needed to contain contact water generated in the active compost area.

The seams joining membrane panels must be inspected as construction proceeds, and air testing of seams and field seam tensile testing must be completed. As part of the construction quality assurance program, seam testing is critical to the performance of a flexible membrane. Quality control mechanisms are followed at the factory in manufacturing the membrane and in forming some seams before shipment to the facility. As the membrane is placed in the field, membranes are inspected to ensure seaming and placement activity minimizes the probability of flaws in the seams.

Nondestructive testing of seams is conducted to determine continuity; this testing indicates the seam was made but does not indicate strength. Air testing is the most frequently used nondestructive method to determine seam continuity. Destructive testing is required to determine seam integrity. Destructive testing must be used only in a systematic sampling scheme because of the damage placed on the liner when taking the sample and repairing the work. In most situations, the sample is taken to a laboratory for strength analyses, but

some field testing must be conducted also to indicate the quality of work performed. The tensile test is a destructive strength test suitable for use in the field. Field testing of flexible membrane seams for quality of installation is standard practice. This provision merely indicates the nondestructive and destructive test methods that must be completed as part of the quality construction check. Since the field seaming of membrane panels is perhaps the weakest point in the construction, it is important that the construction technique used during installation results in high quality seams. This provision provides a set of minimum criteria by which the quality of installation will be evaluated.

All flexible membranes must be protected after placement. After placement, the quality of flexible membranes can be impaired by exposure to various weather conditions, equipment and vandalism. Thus it is important to protect the membrane after placement. The protective cover is usually soil that is free of rocks, sticks and other items that could damage the membrane. In some cases, a geotextile membrane is used to protect the synthetic liner before placement of the protective layer and to add drainage capabilities to the collection system. The cost and work effort required to install synthetic membranes dictates protection of the integrity of the membrane after installation. This provision ensures the protection of the membrane but allows the facility owner or operator to consider the options available and utilize a protective means suitable to the specific site.

The natural layer above and below the synthetic membrane must be free of roots, sharp objects, rocks or other items that might puncture the liner. As discussed earlier, the integrity of the membrane is susceptible to breakdown due to punctures or tears from sharp objects or vegetative growth. The natural layers serve as both the foundation and protective covering to maintain the quality of a flexible membrane, ensuring adequate performance during facility operations. Facility owners and operators must maintain quality control on these layers to minimize the risk to the liner integrity. The level of quality control required under this provision is reasonable considering the cost and work associated with installing a flexible membrane and the consequences if failure occurs.

Proposed item F establishes that facility owners and operators must submit quality control/quality assurance programs for all construction projects to be completed at the compost facility. The programs must include tests during construction that analyze the quality of work being completed. The program must also establish the frequency of inspection and testing, the accuracy and precision of tests, procedures to be followed during inspections and sample collection, and the method of documentation for all field notes including testing, pictures and observations.

Construction quality control consists of inspections necessary to evaluate the quality of the constructed or installed components of the facility. These activities are independent of quality assurance measures but are a necessary first step in managing construction quality. The quality control measures for flexible membrane and pipe fabrication are completed at the manufacturing facility. The facility owner's or operator's inspector should obtain a copy of the manufacturer's quality control programs. Review of this program should include plant visits and discussions with the manufacturer regarding areas of concern. The quality of the complete product should be confirmed by field personnel regarding thickness, tensile properties, destruction resistance, density, percent swell, percent carbon black, flexibility and all other characteristics necessary to ensure the membrane meets the performance

qualifications. Testing these characteristics must be done to verify the manufacturer's data and the results must be included in the construction certification. For natural soil liners and cover materials, quality control measures include testing of soil sources to ensure the requirements regarding soil types and characteristics are met. The materials used to construct the facility components are as critical to the ultimate performance of the facility as are the construction techniques and efforts. Requiring facility owners and operators to establish construction quality control programs ensures the use of quality products in the construction of a facility.

The construction quality assurance program includes inspections, verifications, audits and evaluations of material necessary to determine and document the quality of the constructed facility. This program includes a detailed description of all quality assurance activities. The program documents the facility owner's or operator's approach and is tailored to the specific facility to be constructed. Although the overall content of the quality assurance program will depend on site-specific conditions, several key elements are needed in each program. These elements include identification of the responsibility and authority of key organizations and personnel, qualifications of inspection personnel, inspection activities, sampling strategies and documentation. Regardless of the relationships of the organizations involved in permitting, designing and constructing the facility, good communications must be established to facilitate an effective decision making process during construction. It is also important that the parties responsible for conducting the quality assurance checks operate independently of the organization responsible for construction. By establishing in the quality assurance plan the responsibilities of the people involved, maximum efficiency will be provided in completing the construction in an approved manner. Including this information in the plan requires little, if any, additional work on the part of the facility owner or operator.

The overall responsibility of the personnel involved in the construction quality assurance program is to perform the activities specified in the quality assurance/quality control plan. The plan should describe the responsibility of these individuals and their qualifications for reviewing design plans, conducting a sampling program, interpreting data and verifying the construction contractor's quality control plan. The inspection personnel must implement the quality assurance activities in a manner that ensures the proper evaluation of work performed. The plan should address the qualifications of these individuals in order that the reliability of inspections completed can be verified.

The inspection program contained in the construction quality assurance plan describes the activities, observations and testing that will be performed. The inspection program consists of preconstruction, construction and post construction activities unique to each component of the facility. Specific test methods necessary to verify construction activities must be addressed separately with the discussion relating to specific components.

Preconstruction activities involve the review of design plans, site-specific conditions and incoming construction materials. Construction activities involve the detailed inspection of materials and components after placement, including field and laboratory analysis. This portion of the inspection program is the most rigorous and time consuming as it involves the on-site checking, rechecking and correcting of construction activities. Detailed reports and notes must be maintained as to visual inspection results, sampling locations, test results,

construction techniques, weather conditions, etc. The precision and diligence with which these activities are conducted will have a direct impact on the assurance given regarding the quality of work completed. Post-construction activities involve collecting test results, notes, pictures etc. and writing a report on the quality of work completed at the facility. As a third party, the quality assurance inspector will be relied upon by all the responsible organizations to provide a detailed and accurate accounting of the construction activities.

Performance of the facility will be based heavily on the documentation submitted by the quality assurance inspector. Establishing an inspection program prior to actual construction will give the facility owners and operators time to confer with the Agency to understand the Agency's needs and requirements regarding the approval of the plan and the approval of construction activities. Inspections form the foundation for approval of the construction and are the information source for responsible organization.

The proposed standards in this item address the minimum elements in the inspections program without providing specific requirements regarding the number of samples to be collected and analyzed. The Agency believes that the sampling and analytical program is best established on a facility-specific basis due to the variation in designs and construction materials. An inspection program, including sampling and analytical details, must be tailored to the facility design and construction techniques. When facility owners and operators develop their own sampling and analysis program in a more flexible process, more attention is paid to the details of facility components. A single rule could not address all provisions that must be evaluated in each of the possible facility designs. As a result, the Agency plans to write a guidance manual to provide facility owners and operators some insight on how to develop a comprehensive inspection program that includes a systematic sampling program with sufficient analytical rigor. By providing a basic list of key elements to be addressed in the inspection program, the Agency provides a reasonable approach to obtain quality assurance plans with detail sufficient to ensure proper construction of the facility. This information requirement gives facility owners and operators the flexibility to evaluate their needs and site-specific conditions and incorporate these factors into the program.

Proposed item G establishes that if a geomembrane is used, the surface must comply with part 7035.2855, subp. 5. It is important to highlight specific inspection concerns associated with the installation of a liner system under a storage area. Requiring a construction inspection on the liners installed under the required area, as defined by part 7035.2836, subpart 9, item B, subitem (9), allows the performance standards to be met.

Proposed subp. 11 contain operation requirements relevant to SSOM compost facilities.

Item A establishes the requirement to submit an operation and maintenance manual or plan to the commissioner for approval with the facility permit application. Operational details are a critical factor in the overall performance of the facility. The Operations Plan will set out the performance practices that are designed to maximize the composting process, yet avoid operations issues such as odors, litter vermin, noise, dust and other nuisance conditions. Components of an Operations Plan would include procedures to be followed in handling organic materials arriving in the tipping area, the recipes used to get the proper C:N ratios in the windrows, methods to adjust moisture, procedures to determine if PFRP has been met, test methods to be used to determine the maturity of the compost and

identify the appropriate time for moving materials from the active composting area to the curing area, procedures or tests used to determine if the compost in the curing area has reached maturity and sampling and testing plan that meets the requirements in 7035.2836, Subp. 5 J and 7035.2836, Subp. 6.

A maintenance plan or manual must include management methods for maintaining on-site contact water and storm water treatment facilities to avoid any environmental contamination risks. Water not managed properly may lead to excessive run-off or ponding. Excessive run-off can lead to migration of sediment and waste off-site and ponding water may become odorous or advance contaminant migration to ground water. The plan would establish inspection and maintenance schedules and procedures for water management systems and structures. It is reasonable for the MPCA to review a site's water management methods to ensure they are effective.

Equipment failure on site can result in accidental releases of fluids and contaminants. Lack of properly maintained and operating equipment can also impede the composting operations. For example, aerobic decomposition needs oxygen, which requires frequent turning of windrows. Without the proper equipment available, windrows may become anaerobic and create odors. It is reasonable for the MPCA to review plans to ensure the facility will operate with acceptable and protective operational and safety guidelines.

A training plan is also required so that employees are trained in the proper operation and maintenance procedures, understand the composting process and accurately collect samples of feed stocks and finished compost for testing purposes. Proper training ensures that employees operate equipment knowledgeably, preventing damage to the equipment and harm to themselves. It is reasonable for the MPCA to require that all personnel be knowledgeable regarding their role in operating the facility in a manner protective of human health and the environment.

Finally, the Agency believes that use of best management practices is critical in the production of top quality finished compost. One example of a best management practice implemented at compost sites is turning windrows only when the wind speeds in the area are at low levels, to minimize the migration of litter and odors. A facility failing to incorporate the appropriate best management practices will develop nuisance conditions. It is reasonable for the MPCA to review a facility's operational best management practices to ensure all necessary measures are taken to minimize nuisance conditions.

Item B establishes minimum operations requirements that must be met at a SSOM compost facility.

Subitem (1) establishes that all access points must be secured when the facility is not open for business or when no authorized personnel are on site. The means to secure an access point is left to the discretion of the owner or operator with MPCA approval. Examples of previously approved security measures include fencing, bluffs, bolder placement and structures. Allowing flexibility in the rule as to what means are used by the owner or operator to secure access points addresses the need for the owner or operator to design their facility relative to the existing conditions. It is reasonable to require access points to the facility be secured to prevent damage to the facility and equipment. Just as importantly,

it reduces the possibility that individuals or wildlife may wander into an unsecured site and suffer unintended injuries, thus reducing owner or operator liability.

Subitem (2) requires that all SSOM be delivered to the facility, be confined to a designated delivery area, and that the materials be processed or removed by the end of the day on which the SSOM was delivered. This requirement is meant to prevent the creation of nuisances such as odors, vector intrusion and aesthetic degradation which are a potential with unprocessed SSOM.

Subitem (3). Proper site management at the compost site is critical in preventing nuisance conditions. This provision specifies that all salvageable and recyclable materials be placed in containers or stored and removed in a manner that prevents odors, vector intrusion, litter and other nuisance conditions. These materials have been in contact with SSOM and may generate odors even though they are not subject to decomposition and the generation of odors like SSOM. Safe storage and timely removal is considered a best management practice for these types of materials.

Subitem (4). Proper housekeeping at a compost site is critical in preventing nuisance conditions. Therefore, as in Item C above, all rejects (materials that will not compost) must be stored to prevent nuisance conditions such as odors, litter, or vector intrusion. Similarly, residuals (compostable materials that need additional time to decompose in the composting process) must be stored to prevent nuisance conditions and reincorporated back into the composting process in a timely manner or disposed of to prevent odors, litter, or vector intrusion. Since the rejects and residuals are not a finished compost product, all water that has come into contact with rejects and residuals and the defined storage areas must be managed as contact water. This contact water must be controlled and diverted to the facility's contact water collection and treatment system.

Proposed subitem (5) requires that all liquid that has come in contact with SSOM, immature compost, rejects and residuals must be diverted to a collection and treatment system. Contact water may contain nutrients, biological oxygen demand, total suspended solids or other materials in higher concentrations than storm water and therefore, must be managed separately from storm water. Therefore, it is reasonable to establish this condition to ensure protection of human health and the environment.

Proposed subitem (6). Contact water is not "clean water" because it has come into contact with SSOM and residuals and needs to be managed accordingly. Storm water is clean water generated in the curing area and the finished compost area that must be managed to ensure that it does not cause unintended problems such as flooding of unprocessed compost areas, erosion, waste migration, etc. The composting process requires significant quantities of water to efficiently compost the SSOM. Therefore, the contact water and storm water are resources that may be utilized by the owner or operator instead of potable water resources in the composting process. To assure that the contact water and storm water do not re-inoculate the finished compost with pathogens, the contact water and storm water must be incorporated into the composting process prior to the PFRP, described in subitem (10) below.

Proposed subitem (7) requires that the owner or operator of the site to manage the facility to divert storm water around and away from the operating area. Diverting storm water minimizes the generation of contact water by removing the possibility that the storm water will make contact with unprocessed SSOM, immature compost, rejects or residuals. For these reasons, it is reasonable to divert storm water from the operational areas.

Proposed subitem (8) requires that the owner or operator must cover or manage all materials on site to control wind dispersion of any particulate matter. Nuisance conditions such as litter can clog off site drainage systems and cause flooding for adjacent property owners. Dusty conditions that may be created by strong winds may irritate neighbors with allergies or other respiratory conditions and must be controlled. Requiring that materials be covered or otherwise managed minimizes the creation of those nuisance conditions.

Proposed subitem (9) establishes the requirement that an owner or operator must develop a SSOM management plan. Units (a) to (c) specify minimum requirements. As discussed in Section II of the SONAR, the Agency has been regulating solid waste since receiving authority to do so in 1969. Since then, the Agency has revised its rules to reflect changes in the industry. Research conducted since that time by government organizations, universities and non-profits has increased the knowledge about composting organic materials. This knowledge has led to operational changes and the development of best management practices that have reduced nuisance issues. Research is expected to continue as the composting industry grows, leading to the refinement of existing and the development of new best management practices. The Agency believes it should provide as much flexibility as possible, while being protective of human health and the environment. Therefore, the following requirements are proposed:

Proposed unit (a) requires a waste management plan that characterizes the organic materials accepted at a SSOM compost facility. Recently, a facility in Minnesota accepted an organic material that was contaminated with high levels of Polychlorinated Biphenyls (PCBs). The contamination was not discovered until the final compost product was tested. Adding the requirement to test new organic materials prior to acceptance at the facility would discover contaminants before the material is processed and greatly reduce the risk of contaminating the finished compost. It is critical to the facility operations and to the generating of quality compost that the material characteristics be understood by both facility and Agency personnel. The facility owner or operator will need the information on material characteristics to properly control temperature, oxygen and moisture conditions during the composting process.

Proposed unit (b) requires the owner or operator to identify the area of the compost facility that will be receiving the SSOM. This particular area of the compost facility is called out in the operational plan because SSOM delivered to the facility frequently contains a great deal of liquid; consequently there is a greater potential for contamination of surface water. Providing the Agency with the information as part of the plan ensures that any identified issues are addressed before construction.

Proposed unit (c) reflects the need for flexibility in the rule to allow compost operations to adopt the most current best management practices. As described above, there have been significant changes in the compost industry since the Agency adopted the original compost

rules in 1988. One example of significant change was research done by the United States Department of Agriculture (USDA) identifying the PRFP. Another is the research done by the US Composting Council and the State of Minnesota to develop and establish "Test Methods for the Examination of Composting and Compost" (TMECC), used to characterize the finished compost. Prior to the development of the TMECC, test methods for characterizing soil were used, which did not adequately characterize the finished compost. Research was also conducted to optimize the composting of organic materials. That research led to the establishment of optimum moisture content for windrows, optimum carbon to nitrogen ratios, the optimum porosity within a windrow to reduce the anaerobic conditions (reducing the possibility of odors), and methods to reduce vectors (such as applying unfinished compost to the top of the windrow). Finally, there has been a significant amount of research conducted which shows that compost can be used to filter and remove contaminants from storm water. As a result some new methods for managing storm water have been developed that could be used at compost facilities.

Research in the area of best practices for composting is constant and improvements continue. It is reasonable for the Agency to provide flexibility in the use of newer best management practices to ensure that owners and operators are able to utilize those practices effectively.

Subitem (10). The PFRP is a critical step in the process to manufacture compost. Organic materials may contain pathogens when delivered to the compost facility. The PFRP process is designed to reduce, to the greatest extent feasible, the pathogens that may be present, using time and temperature. When organic materials decompose, chemical bonds are broken releasing heat. The heat is retained in the windrows and managed in a manner that allows the heat to remain at or above 55° Celsius for a specific time period based on the type of composting method allowed. The units (a) to (c) below describe the composting method that will be allowed at source-separated organic compost facilities and the time and temperature required for those methods in order to achieve the highest pathogen kill. Because a specific time and temperature is needed to assure that the maximum amount of pathogens has been destroyed, the operator is required to record daily temperatures to show that the time and temperature requirements have been met.

The February 23, 1988, SONAR describes the reasonableness of units (a) to (c) on pages 626-629. Because these are existing requirements that are essentially carried forward, the Agency limits the discussion below to modifications that have been made with these amendments.

Unit (a) describes the PFRP process for the static windrow method. There are three changes in this section of the rule. The first change is that the word "windrow" has been substituted for "pile". Past experience with compost sites in Minnesota have determined large piles do not actively compost well, tend to become anaerobic and odorous, and have a greater potential for fire. Therefore, it is reasonable to remove that compost method from the rules. The second change is that the maximum height of the windrow has been set at 12 feet. As the height of the compost windrow increases the material is compacted; compaction has resulted in anaerobic conditions and odors. Limiting the height and using windrows instead of piles will reduce compaction and resulting odor conditions.

The third change was made as a result of adopting the USDA standard for achieving pathogen destruction for composting bio-solids. That standard requires that a temperature of 55°Celsius be maintained for a minimum of 15 consecutive days and that materials must be turned every three to five days to maintain aerobic conditions. USDA also requires moving the material from the outside of the windrow to the inside of the windrow, ensuring that all material is exposed to the 55°Celsius temperature. This change reduces the number of days from 21 days, in the old rule, to 15 days. When the current composting rules were written in 1988, the industry standard was to maintain high temperatures for three weeks. Data collected since then indicates a period of 14 days of aerobic decomposition in turned windrows is sufficient to achieve the desired pathogen reduction throughout the composting materials. To reduce the level of pathogens the decomposing material must be maintained at temperatures that are known to kill common pathogens. Frequent turning ensures all of the material reaches the temperatures required, not just the materials on the inside of the windrow. It is reasonable for the MPCA to modify technical requirements based on scientific data collected and current industry standards.

Unit (b) describes the PFRP process for a static aerated windrow method. This is a system that uses a mechanical aeration system to prevent anaerobic conditions from forming within the windrow. A temperature of 55° Celsius must be maintained for a minimum of seven consecutive days. The new provision in this section of the rule is to set a maximum height of the windrow at 12 feet. As the height of the compost windrow increases, the material is compacted, squeezing out the air and causing anaerobic conditions that result in odors. Limiting the height and using windrows instead of piles will reduce compaction and the resulting odor conditions. Conversely, a sufficient amount of material is required to maintain the aerobic decomposition of organic materials. A small quantity of material will not provide an adequate food source for the bacteria, therefore limiting the amount of degradation occurring and slowing the composting process. This will also limit the temperature of the pile impacting the pathogen reduction. Therefore it is reasonable for the MPCA to establish a height requirement to ensure adequate conditions for ideal aerobic degradation and composting. No minimum height requirement is deemed necessary because most owners/operators are likely to construct compost piles of a sufficient height to ensure the composting process works efficiently and utilizes the available space at the facility. These considerations ensure that operating with a small pile would increase the cost of handling the material for the facility.

Unit (c) describes the PFRP process necessary to kill pathogens in an enclosed vessel method. This system uses a vessel in which the SSOM is placed and then sealed. To prevent odors, air is forced through the vessel using either positive or negative pressure. This system requires the SSOM initially be kept at 55° Celsius for a minimum of 24 hours. Next, the SSOM must undergo a stabilization period of a minimum of seven days. The temperature must be maintained at least at 55° Celsius for a minimum of three days. This is an existing requirement that has been carried forward unchanged. The need and reasonableness of this requirement was previously established in the February 23, 1988, SONAR.

Proposed subitem (11) allows for owners or operators to request a variance from the mercury (Hg) and PCB testing of finished compost. The Agency has been receiving test data from finished compost for over 20 years and to date mercury has not been detected in any of the finished compost that has been tested. However PCBs were detected once when a

compost facility accepted mash from an ethanol plant that had capacitors leaking PCB-containing oil. Because mercury has never been found in the finished compost and PCBs have been found in only one instance, the Agency believes that the testing for mercury and PCBs could be waived once a track record of testing for five years shows these constituents are not present. Further, the Agency has required the pre-testing of any new feed stocks proposed to be composted at a facility to avoid accepting feed stocks that may be contaminated with these, or any other, constituents.

Subitem (12) requires the development of an odor management plan. Over the 25 years that composting has been occurring in Minnesota, odor issues have been the most persistent. This is true of all types of composting facilities in the State and the Agency believes it will be true of SSOM compost facilities. Since the lack of porous materials to create space for oxygen within a windrow is the most common reason for the creation of odors, this subitem specifically requires that the owner or operator address how the BMPs will address porosity within the windrow and the resulting oxygen levels. In addition, should the facility have persistent odor complaints, this provision requires that facility go beyond detailing the normal operating practices and discuss how the facility will manage those persistent odor complaints. Since it is likely that all facilities will have occasional odor complaints, an odor management plan would likely address those situations. However, should the complaints be persistent, operational changes and a revised odor management plan may be required to address the odor issues. An odor management plan must address the occasional odor complaint, as well as provide guidance to facility staff if those odor complaints become persistent. The Agency believes that this provision will be critical in the success of the composting industry.

Subitem (13) requires owners or operators to develop a personnel training program that meets part 7035.2545, subparts 3 and 4, and 7035.2836 6 to 10. The reasonableness of parts 7035.2545, subparts 3 and 4 and parts 7035.2836, subparts 6 and 7 have been previously established in the February 23, 1988, SONAR and essentially remain the same. The reasonableness of parts 8 to 10 are discussed in section VII.B.8 of this SONAR. The development of a site-specific training program will ensure that staff involved in the day-to-day operations of the facility has the proper training to ensure that the facility is functioning at optimum conditions. Should unexpected events occur, the personnel will be trained to properly address any issues. For example, if a load of MMSW mixed with SSOM is delivered, trained personnel will recognize that such materials must be turned away. If the materials inadvertently make the delivery area surface, the personnel will recognize that they must be properly disposed of. The Agency believes that training is a critically important function if operational issues are to be avoided.

Proposed unit (a) establishes a new training schedule, requiring an initial training session for 24 contact hours within 12 months of employment. Proper training is critical to running a facility that generates few nuisance or compliance issues. While it is optimal to require training on hiring, it does not give the owner or operator sufficient time to locate a class and obtain the training. It also puts potential hires at a disadvantage if they are new to the industry and possess no adequate training. The Agency believes that requiring the training within 12 months of employment provides for a sufficient amount of time to schedule and obtain the training. In addition, Minnesota Rule 7035.2545 requires all solid waste facilities, including SSOM composting sites, to develop and maintain on-the-job training.

Proposed unit (b) establishes the provision that compost facility staff must obtain five contact hours of training on an annual basis. The composting industry is always trying to improve the composting process. Requiring five contact hours on an annual basis enables SSOM owners or operators to keep their workers up to date on changes that improve their processes. This unit also establishes that the definition of a contact hour is 50 minutes of pertinent instruction or training, which is consistent with the MPCA's training curriculum. It is reasonable for the Agency to establish this definition to ensure that individuals wishing to provide or take training have an expectation of what it entails. As established in this unit, the commissioner will provide an approved list of courses based on the course content. Course content includes topics such as the compost process, composting methods, facility operations, odor control, SSOM management, or other topics related to the BMPs of operating a SSOM compost facility. Knowledge on these topics will provide SSOM compost facility personnel with the ability to address issues that may come up at their sites and should minimize the creation of nuisances or harm to human health and the environment.

Subitem (14) establishes the requirement that an annual report must be submitted in accordance with part 7035.2836, subp. 5, item K. This is an existing requirement that is carried forward and its reasonableness is established in page 159 of the February 23, 1988, SONAR and subsequently on page 6 of the Amended SONAR signed on July 26, 1996. In addition to the already existing conditions, additional requirements are established to gather the information needed to determine if a facility should be awarded an exemption from the Solid Waste Tax. In addition, the county of origin and the volume of SSOM received is needed to track whether the state's recycling goals are being met.

Subitem (15) requires the facility owner or operator to notify the Commissioner within 48 hours if, for any reason, the facility becomes inoperable. This provision remains unchanged and the reasonableness is discussed on page 625 of the February 23, 1988 SONAR.

Subitem (16) requires the owner or operator to comply with part 7035.2855, subpart 4, if a geomembrane is used at the site. The need and reasonableness of the requirements are discussed on pages 648 to 651 of the February 23, 1988 SONAR and remain relevant as SSOM compost facilities that opt to use geomembranes as pads (i.e., liners) need to ensure they are inspected and maintained to protect human health and the environment.

VIII. REGULATORY ANALYSIS

Minn. Stat. § 14.131 sets out eight factors for a regulatory analysis that must be included in the Agency's SONAR. Paragraphs (1) through (8) below quote these factors and then provide MPCA's response. Paragraph (9) addresses additional requirements listed in Minn. Stat. § 14.131.

In general, the MPCA has chosen to pursue this rule to streamline the regulatory process and to update applicable standards for SSOM compost facilities.

Composting is a preferred option in the solid waste management hierarchy. LGUs and industry suggested that the MPCA amend current regulations to streamline requirements and support efforts to

increase composting. On review of its existing regulations and the practices in other states, the MPCA agrees that some regulatory changes are appropriate.

Therefore, the MPCA proposes amendments that provide different standards for the construction, design, location and operation requirements for SSOM than MMSW composting facilities, while still protecting the environment and health of Minnesotans. The proposed SSOM compost facility would currently be regulated under a full permit under chapters 7001 and 7035. Under the proposed rules, an SSOM compost facility will have specific applicable requirements. Some of these requirements are carried forward or modified, as appropriate.

The proposed rule amendments also make changes to the exemption and requirements for small composting sites, moving beyond the idea of a simple "backyard compost site" to provide further flexibility for small compost operations, commensurate with this more environmentally benign type of composting.

The rule establishes an "extended permit" status that works in conjunction with the existing permit process. A permitted operating facility planning no major modifications, as defined in the proposed rule, may qualify to operate without going through repermittting, if it meets applicable requirements and provides regular updates ("notification") to the MPCA of any minor changes at the facility. The advantage of operating under an extended permit is the reduced need for administrative resources for both the Agency and regulated party. SSOM compost facilities are appropriate for this reduced regulatory oversight because, once permitted, the facility itself does not change, unlike a disposal facility which must constantly submit plans for new disposal cells, expansion areas and various cover and design issues. Under the rule as proposed, an existing SSOM facility seeking to expand beyond the originally permitted capacity, or making other major modifications as described in the proposed rule, and new facilities would still be required to undergo the permitting process. In addition, a facility generally would not qualify to operate under an extended permit until it has accepted SSOM for a minimum of one year.

By streamlining its regulatory process, the MPCA hopes to free up staff resources for technical assistance and compliance related activities and to decrease the administrative burden for the regulated parties while maintaining protection of the environment. By updating its standards, the MPCA seeks to provide the regulated community with a minimum set of state standards that reflect current operating practices, as the existing standards are more appropriate to the composting of MMSW. Additionally, by modifying requirements relevant to a "backyard compost site," now called a "small compost site" the Agency is providing additional flexibility to smaller sites.

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:

(1) Residential and commercial generators of food waste, yard waste or non-recyclable paper
(2) Persons who prepare, distribute or land apply compost in Minnesota (i.e., small and large municipalities or political subdivisions and private persons)
(3) Minnesota citizens
(4) The MPCA

In essence, the proposed amendments create a regulatory process that will allow SSOM compost facilities to be permitted with different standards than composting facilities accepting MMSW, biosolids or other materials not defined as SSOM. These different standards are expected to be protective of human health and the environment. The more appropriate SSOM compost facility standards are expected to facilitate composting (a preferred solid waste management method) by decreasing the costs of construction and design, depending on where the SSOM compost facility is located.

In general, the MPCA believes that the proposed rule, with its resulting permitting changes, will benefit the Agency and regulated parties. The rule has significant potential to reduce the costs to the public or persons who compost SSOM, while still ensuring appropriate environmental protection. The proposed requirements establish the appropriate balance level of protection of waters of the state and the state's SSOM recycling goals. This rule will benefit the Agency by decreasing the amount of staff resources spent in the administration of the reissuance of permits, where SSOM facilities are not making major modifications. This may allow staff resources to be shifted to higher priority permitting projects, and to enforcement of existing permits and rules. This rule will benefit regulated parties because it removes the need for a regulated party to go through the permit reissuance process, unless major changes are planned.

For persons currently operating a "backyard compost site," the proposed rule would allow those persons to continue (or possibly expand) existing operations without permitting, so long as volume restrictions are met, certain items are not accepted, and the site is managed to avoid odor and the creation of nuisances. These sites would be regulated under a new category called the "small compost site," which provides more flexibility than existing rules.

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."*

This rule is intended to streamline the process of regulating SSOM compost facilities. Streamlining the regulatory process will help the MPCA to regulate SSOM compost facilities more effectively given existing resources while at the same time establishing the appropriate balance level of protection of waters of the state and the state's SSOM recycling goals. Decreasing the amount of resources spent administering permits for facilities means that more MPCA resources are available to provide technical assistance, perform onsite inspections and conduct more comprehensive compliance determinations.

The rules should not have a significant impact on state revenue because there are no new fees being created or repealed, and municipalities and the MPCA already administer the processes that are being incorporated into this rule.

Since the MPCA already has compost rules in place and these rule amendments will not increase the workload, there are no anticipated significant changes in costs associated with the proposed new rule amendments.

3. *"A determination of whether there are less costly methods or less intrusive methods for achieving the purpose of the proposed rule."*

The proposed rule has two primary purposes. First is to decrease administrative costs associated with permitting for both the MPCA and the regulated community. Second is to create more appropriate

technical standards for SSOM compost facilities and to expand the definition of a "backyard compost site" to provide more flexibility.

A. Permitting.
One alternative to the permitting amendments in the proposed rules is to continue the current system, under which all individual SSOM composting facilities go through the existing compost facility permit process. Although this method avoids the cost of adopting this rule, it does not represent any major savings for the regulated community or the MPCA, and would appear to involve increased costs over the proposed rule. Since the impetus for providing the extended permit process came from interested and affected parties early in the stakeholder process and no concerns were voiced against it throughout the stakeholder process, the Agency concluded that stakeholders did not view the change as being intrusive.

B. Technical and operation standards.
Currently, options for achieving updated technical and operations standards at SSOM facilities are: (1) include those standards in permits as special conditions; (2) operate a facility under a demonstration project permit; or (3) convince facility owners to comply on a voluntary basis. Placing special conditions in a permit would avoid the costs of this rulemaking, but would shift that cost to permitting as the MPCA would need to negotiate each condition with each permittee. Voluntary standards, while inexpensive to promulgate, are not enforceable and would not likely be fully adopted by all affected facility owners.

An additional option for permitting is operating under a demonstration project permit. Demonstration projects are generally 3-year projects (with a possible short-term extension) designed to allow an owner or operator to operate a specific type of facility for a short period of time to obtain information relevant to future design or operating conditions for that specific type of facility. Oftentimes, limited information is available about setting conditions for that specific type of facility. Demonstration projects provide a vehicle for gathering data necessary to establish conditions or the viability of a specific project. The Agency has issued demonstration project permits to SSOM compost facilities and does not believe it is appropriate to continue issuing or extending them because the purpose of the demonstration project, to gather data, has been met.

One alternative to changing the definition and requirements for a "backyard compost site," would be to require those facilities to seek a full permit. A full permit is costly and not appropriate since the amount of composting at such a site is small, certain items are not accepted and the environmental risk is minimal. Some stakeholders asked for more flexibility and others for more stringent requirements. The proposed rule seeks to balance the need for increased flexibility for composting SSOM at small compost sites with the need to protect human health and the environment.

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 alternatives set out above were considered by the MPCA, and rejected for the reasons previously stated. Based on the MPCA's analysis, the system in the proposed rule of extended permits and the

revisions to the standards and "backyard compost site" appeared to best meet the needs of the MPCA and regulated community.

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 government units, businesses, or individuals."***

TABLE 3: OVERVIEW OF RULES - EXISTING VS. PROPOSED

Scenario Under Existing Rules	Scenario Under Proposed Amendments
A. Backyard compost site exemption – food scraps and yard waste allowed	A. Small compost site exemption (80 cubic yards) – expands the types of compostable materials allowed
B. To compost SSOM, obtain a Solid Waste Compost facility permit (essentially design and operate to MMSW standards)	B. To compost SSOM, a new class is formed the SSOM permit (design and operate to SSOM standards)
C. To compost SSOM, conduct a Demonstration project — 3 year limit	C. Demonstration project still available — 3 year limit
D. Obtain initial permit and repermit every 5 years	D. Obtain initial permit, then extended permit

Currently, an owner or operator planning to compost SSOM, in any quantity, would be required to meet the design and operation requirements for a Solid Waste Compost facility. This essentially means the facility would need to meet MMSW standards. The costs associated with a Solid Waste Compost facility vary and are determined by the quantity of material to be processed at the facility, the design, operation, location, size, etc. It is impossible to outline every site design scenario. The following discussion will focus on the scenarios listed in the table above to present probable costs of complying for identifiable categories of affected parties. The portion of the rule that creates a new regulatory category of compost facility that accepts greater than 80 cubic yards of SSOM on an annual basis is discussed in detail.

Scenario A (Backyard compost site exemption ⇢ Small compost site exemption)
Backyard compost site exemption

A backyard compost site can be operated without a permit under the existing backyard compost site exemption, but is limited to food scraps, garden wastes, weeds, lawn cuttings, leaves and prunings from a single family or household, apartment building, or a single commercial office, a member of which is the owner, occupant, or lessee of the property. The current language is more restrictive than the proposed language. The following separate classes were identified as impacted by the proposed rule and estimated costs for each are described:

(1) Residential and commercial generators of food waste, yard waste or non-recyclable paper: The current requirements do not allow certain types of composting operations to accept SSOM without a Solid Waste Compost Permit. Small operations (i.e., community gardens, urban farms, K – 12 schools and university compost operations composting less than 80 cubic yards) are excluded and would need to incur the expense of applying for a permit to commence composting operations. The proposed small compost site exemption would be available to this class under the proposed revisions and is more fully described under the small compost site exemption discussion below.

(2) Persons who prepare, distribute or land apply compost in Minnesota (i.e., small and large municipalities or political subdivisions and private persons): Currently, persons in this class are limited in the specific materials that can be composted and where those materials come from. This class must incur the costs of a permit to commence composting operations. The proposed small compost site exemption would be available to this class under the proposed revisions and is more fully described under the small compost site exemption discussion below. Compost created in a backyard compost operation is created from materials generated on site and the compost is used on site, so no added costs are expected, and, in the case of the examples given above some classes may actually experience minor cost reductions.
(3) Minnesota citizens: Currently, Minnesota citizens face the same restrictions discussed in (1) and (2) above. Minnesota citizen compost operations not included in the current exemption would incur the additional expense of going through the permit process. The proposed small compost site exemption would be available to this class under the proposed revisions and is more fully described under the small compost site exemption discussion below. Citizens defined in the current exemption would not incur any additional expenses.
(4) MPCA: Currently, the backyard compost site exemption allows the MPCA to regulate backyard compost sites under a process that requires less administrative requirements. The current language adds to the MPCA's staff expense and time to process permits for community gardens, urban farm operations, K-12 schools and universities for compost facilities less than 80 cubic yards. The proposed small compost site exemption for other classes would minimize the administrative requirements with regulating exempt sites. The small compost site exemption is discussed immediately below.

Small Compost Site Exemption

The new category of "small compost site" cannot currently operate under the backyard compost site exemption. Examples of the types of compost facilities that would be exempt under this new category would be community garden sites, urban farm operations, K-12 schools and universities. The proposed changes also expand the types of acceptable materials to include not only food scraps and yard waste, but also poultry litter generated on site only if the compost produced is used on site, non-recyclable paper, or compostable materials meetings American Society of Testing and Materials (ASTM) D6400 or ASTM D6868. A small compost site is prohibited from accepting fats, oils, grease, meat, dairy, animal manure, diapers, or sanitary products. A small compost site cannot exceed 80 cubic yards on site at any one time, including collected raw materials and compost being processed, but excluding finished compost. Small compost sites must manage materials to minimize odors, the creation of nuisances and public health risks.

In amending the existing rule, MPCA estimates that the proposed amendments generally decrease costs because a permit is not required and the amendments allow more flexibility in terms of materials that can be accepted (i.e. poultry litter, non-recyclable paper and certain compostable materials). While allowing flexibility, the revisions remain protective of human health and the environment by clearly listing prohibited items that may lead to odors, nuisances and public health risks and establishing a limit on the size. The following separate classes were identified as impacted by the proposed rule and estimated costs for each are described:

(1) Residential and commercial generators of food waste, yard waste or non-recyclable paper: In addition to the types of compost operations included in the current backyard exemption, the types of facilities that would fall into the proposed small compost site category would be expanded to include community gardens, urban farms, K-12 schools and universities composting 80 cubic yards or less. One community gardening group estimated that it spent

$1,200.00 to obtain a permit. These are not costs associated with fees to the Agency, rather they are the costs associated with developing and submitting a complete application to the Agency. Under the proposed revisions, these costs would be avoided. While small compost facility requirements are more flexible, they are required to minimize odors, nuisances and protect public health. Greater flexibility with materials that can be processed at a small compost site means those materials need not be disposed of at a landfill. This could result in cost saving to the residential or commercial generator, as they may be able to "down size" their trash container or decrease the frequency of collection. While residents have operated under the existing exemption, commercial generators have not been able to do so. As long as they comply with small compost site requirements, commercial generators could take advantage of the proposed small compost site category and avoid the costs of obtaining a permit.

(2) Persons who prepare, distribute or land apply compost in Minnesota (i.e., small and large municipalities or political subdivisions and private persons): For the same reasons described in (1) above, no added costs are expected. For those classes of compost facilities added to the exemption, there would be cost reductions.
(3) Minnesota citizens: As described in (1) above, the proposed revisions are not expected to add costs and may actually result in a decrease in costs.
(4) MPCA: The MPCA currently permits or would need to permit community gardens, urban farm operations, K-12 schools and universities, incurring staff expenses and reducing the time available to permit facilities greater than 80 cubic yards. The proposed change would reduce MPCA costs or allow reallocation of staff resources as the small compost facilities would not require permitting.

Scenario B (*Existing* **SW compost permit to compost SSOM** → *Proposed* **SW compost permit SSOM)**
design to MMSW standards *design to SSOM appropriate standards*

Existing SW compost permit to compost SSOM

Currently, an owner or operator planning to accept SSOM must obtain a solid waste (SW) compost permit. The applicable design and operation requirements for such a facility would require that it be designed and operated to the standards of a compost facility that accepts MMSW. Under the proposed rule revisions, the MPCA is establishing location, design and operation requirements that are more appropriate to the SSOM (not MMSW) that would be accepted at the proposed SSOM compost facility.

Proposed SW compost permit to compost SSOM

Currently, all composting facilities, not exempt under the backyard compost facility definition and accepting SSOM, regardless of the volume, require a solid waste compost permit (i.e., must design and operate to MMSW standards) to comply with the current rule. The single most expensive MMSW design requirement is ensuring that the pad on which the active composting occurs meets an impermeable standard of 1×10^{-7}cm/sec. Based on 2008 closed landfill project cost estimates, it would cost about $350,500 to install a clay barrier layer and 60-mil high density polyethylene geomembrane over a two (2) acre area. Recently, a solid waste compost facility upgraded its compost pad to eight (8) inch thick concrete because the wear and tear to the existing aggregate pad was causing significant operational issues. According to the MPCA Final Grant Report, the cost of the upgrade was $209,458 for the construction of a 1.4 acre concrete compost pad.

The proposed rule changes the requirements for the compost pad and allows for the later stages of composting (curing and storage) to take place off the pad. For SSOM compost sites that meet the soil

types and separation to ground water distance in subitem (8), only a hard-packed, all-weather surface is required instead of an impermeable surface. The MPCA estimates the site evaluation and soil characterization costs are approximately $10,000 per site. If the surface soils on site are adequate, no additional surface aggregate would be needed. Compaction of on-site soils for a two (2) acre site would cost about $10,000, based on landfill closure construction cost estimates.

If the soil types and separation distance meet the requirement but the surface soils are not adequate for the hard-packed, all-weather surface, additional aggregate would need to be brought in and compacted. One such compost facility was recently constructed under a Demonstration/Project Agreement electing to use a six inch layer of compacted gravel over a compacted layer of clay soil. The cost to construct the two (2) acre pad at that facility was approximately $39,000. This is a significant savings for the permittee when compared to the cost of a MMSW designed pad. At worst case, if a facility was required to install a geomembrane, the costs of installing such a liner on the whole site versus only the tipping, mixing, active composting areas, as proposed in this rule, would still be less than requiring it on the whole site.

For SSOM compost sites that cannot meet the siting requirements in subitem (8), an impermeable compost pad would be required for only the tipping, mixing, active composting and rejects and residuals storage areas. The proposed rule simply requires the hard-packed, all-weather surface under the curing and finished compost storage areas. Needing an impermeable compost pad under only portions of the facility is a significant cost savings for facilities that do not meet the siting criteria. Along with the savings expected with the extended permit process and the less costly proposed pad requirements site costs are still expected to decrease for all SSOM compost sites.

TABLE 4: ESTIMATED COSTS FOR A 2 ACRE PAD

Possible pad construction designs	MMSW designed pad required under existing rule (clay barrier layer and 60mil HDPE)	Adequate Soil Types and 5' to water table: Propose a hard-packed all-weather surface with needed compaction	Adequate Soil Types and 5' to water table, but surface soils inadequate: Propose bringing in additional aggregate and compacting it. (i.e., 6" layer compacted gravel) **	Inadequate soil types or 5' to water table. Impermeable pad must be constructed a minimum of 5' above the water table. Concrete and asphalt meeting MNDOT specifications are sufficient options.
Cost for 2 acres	$350,500	$10,000	$39,000	$299,226*--concrete $330,000 --asphalt
Site evaluation and soil characterization costs	$10,000	$10,000	$10,000	$10,000

*Extrapolated from the 209,458 estimate above
**Site already had clay in-situ

The proposed amendments are expected to result in cost reductions for owners and operators who are able to select a site that meet the siting criteria. The expected cost impacts for the identified classes are discussed below.

(1) Residential and commercial generators of food waste, yard waste or non-recyclable paper: Based on the cost given above, the potential for a significant decrease in cost in the

construction of the compost facility is expected to result in a decrease in cost to residential and commercial generators choosing to participate in SSOM programs.

(2) Persons who prepare, distribute or land apply compost in Minnesota (i.e., small and large municipalities or political subdivisions and private persons): As discussed in section I of the SONAR, various counties approached the Agency to amend the existing rules so that they reflect requirements that reflect risks associated with SSOM and not MMSW. The counties argued that such changes are appropriate and believe the resulting changes will result in less financially burdensome requirements and support their efforts increase composting.

(3) Minnesota citizens: For those facilities able to meet the siting requirements, the proposed revisions may actually result in a decrease in costs. This would reduce the construction expense for the facility. For that reason, Minnesota citizens utilizing such a facility would likely see reduced costs such as tipping fees for organic waste delivered to the facility.

(4) MPCA: The MPCA does not expect any increased costs as a result of the proposed revisions. The MPCA currently administers the solid waste program, which regulates compost sites that do not qualify under the current backyard compost site exemption. The Agency expects that there may actually be small decreases in costs for the reasons described under Scenario D.

Scenario C (Demonstration Project – SSOM ⇢ Demonstration Project – SSOM)

Currently, any facility can request to undertake a demonstration project utilizing SSOM. Demonstration projects are generally 3-year projects (with a possible short-term extension) that are designed to allow an owner or operator to operate a specific type of facility for a short period of time to obtain information relevant to future design or operating conditions for that specific type of facility. Neither the existing rule nor the proposed rule would remove this option and so there are no expected increased costs for (1) through (3) below.

(1) Residential and commercial generators of food waste, yard waste or non-recyclable paper

(2) Persons who prepare, distribute or land apply compost in Minnesota (i.e., small and large municipalities or political subdivisions and private persons)

(3) Minnesota citizens

There will be less of a need to issue Demonstration Project permits since the proposed rule revisions create SSOM specific permitting requirements. The MPCA may experience fewer Demonstration Project requests because they will come through as SSOM permit projects requests. Where the MPCA and regulated parties may see some savings in this aspect is described under Scenario D.

Scenario D (Permit and repermit ⇢ Permit and then extended permit)

(4) Currently, there are no Agency fees assessed to an owner or operator for processing a solid waste compost facility application or operating under a backyard compost site. The proposed revisions for a small compost site or SSOM compost facility do not change that.

While the Agency does not assess fees under the existing or proposed rule revisions, owners or operators of sites composting SSOM may currently incur costs associated with permit consultants. Costs are incurred for designing and building, and those costs remain. A consultant is recommended to prepare all permit and permit re-issuance applications. However a consultant may not be required for submitting the Permit Extension Notification Form. The impacts of the proposed revisions on these costs are described below:

Backyard compost site:
Under existing rules, the backyard compost sites do not currently incur permitting costs and that will not change under the proposed small compost site category, which is expected to absorb this category. Costs associated with small compost sites are discussed immediately below.

Small compost site:
The Agency currently operates a solid waste management program. Under current rules a small compost facility would be required to obtain a permit if it could not meet the backyard compost site exemption. The cost for the Agency to process the initial permit is approximately $3,200.00. This estimate is based on the following: engineer – 40 hours x $36.00; hydrogeologist – 40 hours x $36.00; supervisor – 4 hours x $40.00; and support staff – 10 hours x $22.00. Under the proposed revisions a small compost site would not be required to obtain a permit if it could operate under the small compost site exemption. By allowing a small facility to operate without a permit, there will be cost savings for both the Agency and the permittee. The cost impacts for each of the separate classes are discussed below:

(1) Compost facilities that accept residential and commercial food waste, yard waste or non-recyclable paper: The proposed revision would not require facilities with less than 80 cubic yards of material to submit permit applications if they meet the exemption requirements. Therefore, a small compost site would not need a consultant to prepare the application documents every five years. This would result in cost savings to the facility and therefore a potential for cost reductions to generators utilizing small compost sites.
(2) Persons who prepare, distribute or land apply compost in Minnesota (i.e., small and large municipalities or political subdivisions and private persons): For the same reasons described in (1) above, there is potential for cost reductions.
(3) Minnesota citizens: The proposed revisions are not expected to add costs and may actually result in a decrease in cost because they allow operation without the need to obtain a permit as long as all of the exemption requirements are met.
(4) MPCA: The proposed revision would eliminate MPCA technical review of facilities with less than 80 cubic yards of material. This will reduce MPCA permitting costs for small compost sites.

SSOM compost facility:
Owners or operators of a compost facility will incur both design and operational costs. The proposed rule revisions include design and operational standards that more appropriately address the environmental risks of compost facilities accepting only SSOM. These standards result in lower costs to design and operate a facility. Under current rules a compost facility accepting only SSOM that does not meet the backyard site exemption must obtain a permit. The proposed requirements would not change the requirement to obtain an initial permit. However, the owner or operator could operate under an extended permit, if it met the proposed criteria. Allowing SSOM composting facilities to submit an Extended Permit Notification Form would significantly decrease permit re-issuance application costs for the facility.

(1) Compost facilities that accept residential and commercial generators of food waste, yard waste or non-recyclable paper: The proposed revision would require facilities to submit permit applications for the initial permit and major modifications throughout the life of the SSOM compost facility. Therefore, a facility would not need a consultant to prepare the application documents every five years. This would result in cost savings to the facility and therefore a potential for cost reductions to generators utilizing compost sites.

(2) Persons who prepare, distribute or land apply compost in Minnesota (i.e., small and large municipalities or political subdivisions and private persons): For the same reasons described in (1) above, there is potential for cost reductions.
(3) Minnesota citizens: The proposed revisions are not expected to add costs and may actually result in a decrease in cost.
(4) MPCA: The proposed revision requires a permit application for the initial permit and major modification of a facility. If no changes are proposed to a facility at the time of permit reissuance, only a notification form is required. This will decrease the amount of facility and MPCA staff resources dedicated to permit reissuance for compost sites that are not making changes. This will reduce MPCA costs throughout the life of the compost facility.

Existing facilities greater than 80 cubic yards that currently compost SSOM under a solid waste management permit (with MMSW conditions) could opt to continue operating under that permit; or amend the permit when it expires. These facilities may operate under an expired permit, if they meet the established criteria and submit the appropriate paperwork as defined in part 7001.0160. There currently are five facilities operating with MMSW composting permits that only accept SSOM.

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."***

The cost for not adopting the proposed rule is addressed as the current costs in Section X, Consideration of Economic Factors, of this document. Essentially, the Agency and regulated parties would spend more money and resources during the permitting process if the changes are not made. By streamlining the process, everyone involved will realize actual time and cost savings. The more appropriate standards for SSOM facilities and small compost facilities should also result in cost savings and promote increased SSOM composting.

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 rules do not address composting at SSOM compost facilities. Federal regulations do govern storm water leaving the SSOM compost site. The Agency is the implementing entity for storm water management rules and all compost facilities will be required to meet those standards under the proposed revisions as they have under the existing rules.

8. ***"An assessment of the cumulative effect of the rule with other federal and state regulations related to the specific purpose of the rule…"cumulative effect" means the impact that results from incremental impact of the proposed rule in addition to other rules, regardless of what state or federal agency has adopted the other rules."***

The purpose of this rule amendment is to establish an extended permit process and to add a new category of composting facility, the source-separated organics materials compost facility. The rule amendment sets technical and operation standards more appropriate to the composting of SSOM and not MMSW. Additionally, the amendment redefines "backyard compost sites" to "small compost sites" to reflect requirements appropriate to composting in backyards, community gardens and urban farms.

As discussed previously, there are no federal requirements or standards for SSOM compost facilities. However, Minn. Stat. § 115A.02(b) establishes Minnesota's waste management hierarchy. Based on this hierarchy, SSOM composting is a preferred waste management activity. The proposed revisions support and directly implement the statutory preference for SSOM composing by encouraging composting of SSOM in backyards, community gardens, urban farms and therefore, do not create cumulative impacts.

The Agency has established an informal hierarchy for food waste diversion from land disposal (reduce, reuse, recycle and compost). This hierarchy reflects the overall waste management hierarchy of source reduction and reuse, recycling, energy recovery and treatment and disposal including landfilling. In 2008, this informal food waste diversion policy was reinforced by the Minnesota Climate Change Advisory Group's report which formulated a policy (AFW-7) recommending that the food waste hierarchy be incorporated into overall waste management practices in Minnesota.

To further promote composting the Agency undertook efforts to identify barriers that needed to be removed. As a result of these efforts the Food Waste Diversion Team and the Integrated Solid Waste Management Stakeholder Process were formed. Each was composed of stakeholders involved in the management of organic materials. These efforts resulted in the development of a compost rule that set appropriate standards for facilities that composted food scraps, non-recyclable paper and yard wastes.

Based on these activities, composting in backyards, community gardens, urban farms and source – separated composting facilities are a preferred re-use activity. The proposed rules complement existing state policies.

9. "Describe how the agency, in developing the rules, considered and implemented the legislative policy supporting performance-based regulatory systems set forth in section 14.002." Minn. Stat. § section 14.002 states:

> "*…the legislature finds that some regulatory rules and programs have become over 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 regulatory party and the agency in meeting those goals…"*

Through extensive consultation with the regulated industry, the rule as proposed is largely performance-based. In most instances, the technical standards require the owner or operator to design the SSOM facility in consideration of the types of soils, and establish a five-foot separation distance to the water table. Additionally, the option to operate under an extended permit, if all criteria are met, offer permitted facilities and the Agency the opportunity to decrease permit consultation fees and Agency staff administration costs, where applicable, while protecting human health and the environment.

IX. ADDITIONAL NOTIFICATION

Minn. Stat. § 14.131 requires that an Agency include in its SONAR a description of its efforts to provide additional notification to persons or classes of persons who may be affected by the proposed rule or must explain why these efforts were not made.

On July 26, 2010 and October 17, 2011, the MPCA published notices requesting comments on planned rule amendments to Minnesota Rules Chapter 7035. Each time, the same notice was also placed on the MPCA's Public Notice webpage.

MPCA Plans for Notice:

A. The MPCA intends to send an electronic notice with a hyperlink to electronic copies of the Notice, SONAR and the proposed rule amendments to all parties who have registered with the MPCA for the purpose of receiving notice of rule proceedings, as required by Minn. Stat. § 14.14, subd. 1a, on the date the Notice is published in the *State Register*.
B. The MPCA intends to send a cover letter with a hyperlink to electronic copies of the Notice, SONAR and the proposed rule amendments to the chairs and ranking minority party members of the legislative policy and budget committees with jurisdiction over the subject matter of the proposed rule amendments as required by Minn. Stat § 14.116. The timing of this notice will occur at least 33 days before the end of the comment period as it will be delivered via United States Mail. This statute also states that 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 must make reasonable efforts to send a copy of the notice and SONAR to all sitting house and senate legislators who were chief authors of the bill granting the rulemaking. This does not apply because no bill was authored within the past two years granting rulemaking authority.
C. Individuals and representatives of associations the MPCA has on file as interested and affected parties that do not wish to receive an electronic notice shall also be mailed a copy of the Notice and the draft rule language via United States Mail.
D. The MPCA plans to issue an electronic notice to MPCA staff on the date the rule appears in the *State Register*.

In addition, a copy of the Notice, proposed rule amendments and SONAR will be posted on the MPCA's Public Notice webpage: http://www.pca.state.mn.us/yrwc6a9.

Pursuant to Minn. Stat. § 14.14, subd. 1a, the MPCA believes its regular means of notice, including publication in the *State Register* and on the MPCA's Public Notice webpage will adequately provide notice of this rulemaking to persons interested in or regulated by these rules.

X. CONSIDERATION OF ECONOMIC FACTORS

In exercising its powers, the MPCA is required by identical provisions in Minn. Stat. § 116.07, subd. 6 and Minn. Stat. § 115.43, subd. 1, to 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 there from, and shall take or provide for such action as may be reasonable, feasible, and practical under the circumstances…"*

The proposed rule should positively affect the SSOM composting industry. The proposed rule revisions will provide benefits to composting businesses by reducing or eliminating state regulatory barriers,

administrative costs and consulting or engineering costs associated with the permitting process as described above.

The proposed rule allows owners and operators more flexibility in terms of a suitable site. Under existing rules, MMSW design and operation requirements made the possibility of composting SSOM in a densely populated area (where most SSOM is generated because of the population) challenging. With the proposed revisions composting SSOM can now be done closer to the generation of SSOM. This release should: lower transportation costs; allow for an expansion of the industry; reduce traffic impacts; and support business, commerce and trade.

The most notable economic impact will be in savings to the Agency through a streamlined notification process. The current process requires that the agency issue a permit every five years to all permitted compost facilities. Under the proposed rules only new facilities and those making a major modification will be required to submit a permit application. Facilities that meet all requirements and are not proposing changes would simply submit an Extended Permit Notification Form prior to permit expiration.

There are currently 11 permitted compost facilities that compost SSOM and/or MMSW waste. It is estimated that a compost permit requires a total of 100 hours of staff time to issue. The middle range pay scale for a permit engineer and hydrogeologist working at the MPCA is $31.00 per hour. By adding 25 percent of hourly wage as fringe benefits and expenses the Agency's total hourly cost is $38.75 per hour. Under the current rule the MPCA issues approximately five permits per year totaling approximately 500 hours of staff time per year, at a cost of $19,375. The permit extension notification proposal would reduce the number of new applications to approximately two new permits per year totaling 200 hours of staff time, at a cost of $7,750. Staff estimates approximately five permit extension notifications will be processed each year. Estimating each notification process will require five hours of staff time for a total of 25 hours per year and an annual cost of $968.75. The MPCA would see savings of $12,593.75 per year.

In summary the rule revisions will replace the current permitting process with a more streamlined notification process for SSOM compost facilities. This new process will reduce staff time spent on the permitting process and save resources for both the MPCA and regulated parties.

XI. IMPACT ON FARMING OPERATIONS

Minn. Stat. § 14.111 requires an agency to provide a copy of the proposed rule changes to the Commissioner of Agriculture no later than thirty days before publication of the proposed rule in the *State Register,* if the rule has an impact on agricultural land.

This rule is not expected to impact agricultural land or farming operations, however, the Commissioner of Agriculture will be notified.

XII. IMPACT ON CHICANO/LATINO PEOPLE

Minn. Stat. § 3.9223, subd. 4 requires agencies to give notice to the State Council on Affairs of Chicano/Latino People for review and recommendation at least five days before initial publication in the *State Register*, if the proposed rules have their primary effect on Chicano/Latino people.

This rule is not expected to have a primary effect on Chicano/Latino people, thus, the State Council on Affairs of Chicano/Latino People will not be notified.

XIII. NOTIFICATION OF THE COMMISSIONER OF TRANSPORTATION

Minn. Stat. § 174.05, requires the MPCA to inform the Commissioner of Transportation of all rulemakings that concern transportation, and requires the Commissioner of Transportation to prepare a written review of the rules.

This rule is not expected to impact or concern transportation, however, the Commissioner of Transportation will be notified.

XIV. CONSULT WITH MINNESOTA MANAGEMENT AND BUDGET ON LOCAL GOVERNMENT IMPACT

As required by Minnesota Statutes, section 14.131, the MPCA will consult with Minnesota Management and Budget (MMB). We will do this by sending MMB copies of the documents that we send to the Governor's office for review and approval on the same day we send them to the Governor's office. We will do this before publishing the Notice of Intent to Adopt. The documents will include: the Governor's Office Proposed Rule and SONAR Form; the proposed rules; and the SONAR. The MPCA will submit a copy of the cover correspondence and any response received from Minnesota Management and Budget to the Office of Administrative Hearing (OAH) at the hearing or with the documents it submits for Administrative Law Judge (ALJ) review.

XV. MINNESOTA STATUTE § 14.128, SUBDIVISION 1 – DETERMINATION IF LOCAL GOVERNMENT WILL BE REQUIRED TO ADOPT OR AMEND AN ORDINANCE OR OTHER REGULATION TO COMPLY WITH PROPOSED AGENCY RULE

Minn. Stat. § 14.128 requires an agency to make a determination whether a proposed rule would require a local government to adopt or amend its ordinances to comply with the rule. This statute is intended to address situations where an agency requires local governments to change their ordinances to, for example, be consistent with agency requirements.

The proposed amendments to the compost rules do not require local governments to amend their ordinances to comply with MPCA rules. Local governments who are owners or operators of a compost facility must comply with the requirements in Minn. R. ch. 7035, just as they have been required to comply with these rules in the past. No changes to local ordinances are required or anticipated in order to comply with these rules.

XVI. MINNESOTA STATUTE § 14.127, SUBDIVISION 1 – COST THRESHOLDS

Minn. Stat. § 14.127 requires the MPCA to assess the potential economic impact to small businesses of complying with this proposed rule amendment. The statutory provision is as follows:

> *"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."

It is anticipated that the proposed rule amendment would eliminate the costs of permitting some classes of small compost facilities, and reduce the permitting and construction costs of SSOM compost facilities. Under existing rules, owners or operators planning to compost SSOM are required to design and operate to MMSW standards. Under the proposed revisions, costs are expected to decrease largely due to the pad requirements. The costs are outlined in Table 4 on page 50. As discussed, a concrete pad costs an estimated $210,000 as compared to compacting on site soils, if suitable, for approximately $20,000. The proposed rule represents a significant cost savings to owners or operators as costs under all of the proposed scenarios in Table 4 demonstrate the proposed amendments will reduce costs when compared to existing pad requirements. The Agency also expects that while some costs may decrease (i.e., removal of Hg and PCB testing requirements, if specified criteria are met) others will increase (required training), but the overall effect will be that these costs offset each other and have minimal impacts when looking at overall cost savings. Therefore, the Agency does not expect costs under the proposed rule to exceed the $25,000 threshold. Since businesses are not required to recycle SSOM, any cost to a business of any size or a statutory or home rule charter city would be strictly based on voluntary actions taken by those entities.

XVII. MINNESOTA STATUTE § 116.07, SUBDIVISION 2 – MPCA SONAR REQUIREMENTS

Minn. Stat. § 116.07 subd. 2 requires that for proposed rules adopting air quality, solid waste, hazardous waste, or water quality standards, the SONAR must include an assessment of any differences between the proposed rule and existing federal standards adopted under the Clean Air Act, title 42, section 7412(b)(2); Clean Water Act, United States Code, title 33, sections 1312(a) and 1313(c)(4); and the Resource Conservation and Recovery Act, United States Code, title 42, section 6921(b)(1); similar standards in states bordering Minnesota; and similar standards in states within the US Environmental Protection Agency (EPA) Region 5; and a specific analysis of the need and reasonableness of each difference.

This rule revision does not affect air quality, solid or hazardous waste or water quality standards promulgated by the federal government. However, as required, a review was conducted of compost regulations from EPA Region 5 states and the states surrounding Minnesota. The states reviewed were: Wisconsin, Illinois, Indiana, Michigan, Ohio, Iowa, North Dakota and South Dakota. Areas of specific interest were exemptions for small compost facilities allowed by other states, the depth to ground water and the type of pad needed to compost SSOM. The Agency found that only two states had updated their compost rule in the past two years. The remaining states had not updated their compost rule since the early 1990s. While there are variations amongst states, the following characteristics generally hold true.

Small compost facility exemptions:
Most states have an exemption for backyard composting facilities. Other states exempt compost operations that compost only materials generated on the site, do not accept any materials for off-site generators, or limit the amount and type of materials a compost site can accept from off-site generators.

Generally backyard composting is done by homeowners and businesses that compost the materials generated on site. They are small in size and take very limited types of materials, mainly grass, leaves and food wastes that have no meat, dairy, or animal waste. This scale of composting limits nuisance problems such as odor and litter. These are small sites that should require little oversight and supervision on the part of the Agency. In general, this proposed rule aligns with other state rules.

Depth to Ground Water requirements:

- Wisconsin's rule requires a five foot separation from the seasonal high water table, with exceptions allowed if circumstances warrant.
- Ohio has adopted a performance-based standard. It does not have a specific standard, but allows the standard to be set by the geologic conditions of the site and the design of the facility.
- Iowa has no depth to water table in its compost rule, but like Ohio, uses performance-based standards.
- Illinois requires a five foot separation to the water table.
- Michigan's current compost rule requires a five foot separation to the water table, but the proposed rule reduces that separation to four feet.
- Indiana's compost regulations specify a five foot separation to the water table with an exception allowed based on the type of composting surface proposed.
- South Dakota has a 10 foot depth to water table distance requirement, but may consider site-specific conditions.
- North Dakota has no specific depth, but rather requires all facilities to install ground water monitoring systems. North Dakota regulations allow for an exemption if it can be demonstrated that "there is no potential for migration of solid waste constituents to the uppermost aquifer".

Of the eight states listed above, only Wisconsin and Ohio updated their compost rules in the past two years. These eight states took different approaches to the depth to ground water issue. These differences are in part due to available information on the environmental effects of composting operations, regulatory directives, and each state's staff's best professional judgments. In the case of Wisconsin, their existing rule had the five foot separation from the seasonal high water table and they elected not to change that standard. Based on discussions with their staff, Wisconsin established their five foot standard to ensure protections of the ground water based on professional judgment due to the lack of information available at the time.

Ohio adopted a performance based rule which allows the state to look at each site individually to determine the appropriate depth to ground water distance.

Three of the remaining six states, Illinois, Indiana and Michigan have a five foot to the water table requirement which was also most likely established based on professional judgment to protect ground water. Michigan is currently pursuing reducing their five foot requirement to the water table requirement to four feet. This change is based on professional judgment.

Existing Minnesota solid waste rules have already established a five foot separation distance between the water table and waste. It is reasonable for the MPCA to apply current standards to new facility types. It is unreasonable to follow other states requirements because of geologic and climatologic

differences. By applying the five foot separation distance, MPCA is consistent with the requirements set by some states, such as Wisconsin, and precedents set with existing solid waste sites in Minnesota.

Compost Pad requirements:

- Wisconsin's regulations, adopted in 2012, have a number of exemptions, but for those compost facilities that do not qualify for the exemption, the regulations require any material with a carbon to nitrogen (C:N) ratio greater than 30:1 to be stored or composted on a "low-permeable pad of asphalt, concrete, recompacted clay or other materials approved by the department." The non-exempt facilities would closely emulate the source-separated organics compost facility proposed in this rule.
- Ohio's compost regulations only require that the compost surface have a slope of greater than one percent, less than six percent and allow for facility operations during inclement weather. No other specifications are included.
- Illinois's "Landscape Waste" compost facilities regulations requirements described impermeable soils as the standard for the pad. Compost facilities composting materials other than landscape waste are permitted on a case-by-case basis and pad requirements will vary according to the site and the materials proposed to be composted.
- Michigan's current regulations do not require a permit for yard or food waste composting facilities. They are in the process of amending their regulations and the proposed regulations do not include a compost pad standard, but move to a performance based standard.
- Indiana compost regulations include two scenarios: 1) landscape waste with less than 10 percent food waste must be done on an all-weather impermeable soil surface, and 2) landscape waste with greater than 10 percent food waste must be a on one foot thickness of relatively impermeable soils with a permeability of 1×10^{-5} cm/sec.
- Iowa regulations do not require permits for yard waste facilities, agricultural waste composting, or facilities accepting less than two tons per week of food waste. Composting facilities comparable to that proposed in this rule amendment are required to have "all-weather surfaces of compacted soils, compacted granular aggregates, asphalt, concrete or similar relatively impermeable material that will permit accessibility during periods of inclement weather…"
- North Dakota exempts backyard composting of yard wastes and a permit-by-rule is required for composting of yard waste that services for 10,000 people or less. All other organic material "…must be underlain by concrete, asphalt, clay, or an artificial liner. The liner must be of sufficient thickness and strength to withstand stresses imposed by waste handling equipment and the pile."
- South Dakota contains no specific standards for the pad or operating surface at a compost facility. The most significant would be the 10 foot distance to the water table.

Requirements for composting facilities to construct an impervious pad vary greatly from state to state. It was not realistic for MPCA to be consistent with other states when there was so much variation. Initially, the Agency considered requiring two feet of impermeable soils with a permeability of 1.4×10^{-4} cm/sec or less. There was substantial resistance from stakeholders regarding this requirement. MPCA technical staff used information available and professional experience to develop the requirements in this proposed rule for SSOM composting facilities in Minnesota. Based on experience with compost and other solid waste facilities in Minnesota, an impervious surface is required if on-site soils do not provide adequate protection of ground water. It is reasonable for the MPCA to require an impervious pad to protect human health and the environment when site conditions alone do not do so.

XVIII. LIST OF AUTHORS, WITNESSES AND EXHIBITS

A. Authors

- Lisa Mojsiej, Permitting Engineer, Resource Management and Assistance Division (RMAD), Minnesota Pollution Control Agency (MPCA).
- Tony Bello, Permitting Engineer, RMAD, MPCA.
- Neal Wilson, Hydrologist, RMAD, MPCA.
- Ginny Black, Organics Recycling Specialist, RMAD, MPCA. (Now Retired)
- Tim Farnan, Organics & Recycling Specialist, RMAD, MPCA.

B. Witnesses

The MPCA anticipate that the proposed amendments will be non-controversial, and that no public hearing will be necessary. If these rules go to a public hearing, the MPCA anticipate having the following witnesses testify in support of the need for and reasonableness of the rules:

1. Ms. Lisa Mojsiej, Permitting Engineer, RMAD. Ms. Mojsiej is the primary author of the SONAR and will testify on the general need and reasonableness of the proposed rules.
2. Mr. Tony Bello, Permitting Engineer, RMAD. Mr. Bello is a secondary author of the SONAR and will testify on the general need for and reasonableness of the proposed rules.
3. Mr. Neal Wilson, RMAD. Mr. Wilson is a secondary author of the SONAR and will testify on the general need and reasonableness of the proposed rules.
4. Mr. Tim Farnan, Organics & Recycling Specialist, RMAD. Mr. Farnan will also testify on the general need for and reasonableness of the proposed rules.

XIV. CONCLUSION

Based on the foregoing, the proposed rules are both needed and reasonable.

11/8/2013
Date

John Linc Stine
Minnesota Pollution Control Agency

List of Attachments:

A. Attachment A. Flow Diagram: Interpreting part 7035.2836, subp. 9, items G, H and I.

Attachment A. Flow diagram: interpreting part 7035.2836, subp. 9, items G, H and I.