

Minnesota Pollution Control Agency
Statement of Need and Reasonableness (SONAR)

Proposed Amendment to Rules Governing Siting of Solid Waste Landfills

Minnesota Rules, Chapters 7001 and 7035



**Minnesota Pollution
Control Agency**

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I. Introduction and Background

The Minnesota Pollution Control Agency (Agency) is amending *Minnesota Rules* (Minn. R.) chapters 7001 and 7035 governing siting of landfills. The Agency is revising existing rules to address two legislative directives, each requiring it to improve siting and financial assurance standards for landfills. The Agency split this into two separate rulemakings; this one addressing siting rules to address a legislative moratorium, and another addressing financial assurance.

The Agency published a *Request for Comments* in July 2008, and has worked with stakeholders since that time. The legislative directives were laid out in a May 2008 Omnibus Supplemental Budget bill, 2008 Minnesota Laws, as amended in May 2010 (pertinent language below, or search entire law at the following link: www.revisor.mn.gov/data/revisor/law/2010/0/2010-361.pdf):

"From 2008 Minnesota Session Laws Chapter 363, Article 5

[...]

*Sec. 33. **SOLID WASTE DISPOSAL RULES REPORT; LEGISLATIVE REVIEW.***

By January 15, 2010, the Pollution Control Agency shall report to the senate and house of representatives environment policy and finance committees and divisions on proposed rules, under Minnesota Statutes, section 116.07, subdivision 4, to prohibit the disposal of solid waste in specific areas due to the sensitivity of the area to groundwater contamination." [...]

*"From LAWS of MINNESOTA for 2010, **CHAPTER 361–S.F.No. 3275***

Sec. 63. Minnesota Statutes 2008, section 116.07, subdivision 4, is amended to read:

[...]

*Subd. 4. **Rules and standards.***

[...]

"(c) The rules for the disposal of solid waste shall include site-specific criteria to prohibit solid waste disposal based on the area's sensitivity to groundwater contamination, including site-specific testing. The rules shall provide criteria for locating landfills based on a site's sensitivity to groundwater contamination. Sensitivity to groundwater contamination is based on the predicted minimum time of travel of groundwater contaminants from the solid waste to the compliance boundary. The rules shall prohibit landfills in areas where karst is likely to develop. The rules shall specify testable or otherwise objective thresholds for these criteria. The [...] siting modifications to the rules specified in this paragraph do not apply to:

(1) solid waste facilities initially permitted before January 1, 2011, including future contiguous expansions and noncontiguous expansions within 600 yards of a permitted boundary;

(2) solid waste disposal facilities that accept only construction and demolition debris and incidental nonrecyclable packaging, and facilities that accept only industrial waste that is limited to wood, concrete, porcelain fixtures, shingles, or window glass resulting from the manufacture of construction materials; and

(3) requirements for permit by rule solid waste disposal facilities.

(d) Until the rules are modified as provided in paragraph (c) to include site-specific criteria to prohibit areas from solid waste disposal due to groundwater contamination sensitivity, as required under this section, the agency shall not issue a permit for a new solid waste disposal facility, except for:

- (1) the reissuance of a permit for a land disposal facility operating as of March 1, 2008;
- (2) a permit to expand a land disposal facility operating as of March 1, 2008, beyond its permitted boundaries, including expansion on land that is not contiguous to, but is located within 600 yards of, the land disposal facility's permitted boundaries;
- (3) a permit to modify the type of waste accepted at a land disposal facility operating as of March 1, 2008;
- (4) a permit to locate a disposal facility that accepts only construction debris as defined in section 115A.03, subdivision 7;
- (5) a permit to locate a disposal facility that:
 - (i) accepts boiler ash from an electric energy power plant that has wet scrubbed units or has units that have been converted from wet scrubbed units to dry scrubbed units as those terms are defined in section 216B.68;
 - (ii) is on land that was owned on May 1, 2008, by the utility operating the electric energy power plant; and
 - (iii) is located within three miles of the existing ash disposal facility for the power plant; or
- (6) a permit to locate a new solid waste disposal facility for ferrous metallic minerals regulated under Minnesota Rules, chapter 6130, or for nonferrous metallic minerals regulated under Minnesota Rules, chapter 6132. [...]."

Rule Development:

Pursuant to the above legislative directives, the Agency published advanced notice of its intent to amend these rules in the *State Register* in July 2008, and began working with stakeholders and interested parties. The 2008 legislative directive required the Agency to report progress on proposed rules to the Legislature by January 15, 2010. The Legislature then clarified its directions and renewed the Agency's authority to make these rules in May 2010. The Agency republished an advanced notice of its intent to amend these rules in the *State Register* on January 3, 2011.

The Agency has registered input and developed lists of interested parties during this process. The Agency originally intended to develop one rule addressing both the siting and the financial assurance aspects of the legislative directive. The Agency later determined that, with different stakeholders and staff involved, and with a moratorium on most new landfills pending the Agency promulgating siting rules that address the legislative directive, it made sense to separate each topic into a separate rulemaking that could proceed on an independent schedule. The Agency anticipates general support for the Legislature's directives to improve siting standards for Minnesota landfills.

Alternative Format:

The Agency can make this document available in alternative formats such as large print, Braille, or cassette tape. To make a request, please contact Nathan Cooley at the Agency, Municipal Division, 520 Lafayette Road North, St. Paul, MN 55155 (phone 651-757-2290). TTY users may call the Agency at 651-282-5332 or 800-657-3864. You may also fax a request to 651-297-8676, or send an e-mail to nathan.cooley@pca.state.mn.us.

II. Statutory Authority

The Agency has the necessary authority to adopt these proposed solid waste rules. Minn. Stat. § 116.07, subd. 2 and subd. 4(b) provide the Agency general authority for solid waste standards. These general authorities were adopted and effective before January 1, 1996, and allow the Agency to amend existing solid waste rules.

In May 2008, and again in May 2010, the Legislature amended Minn. Stat. § 116.07, subd. 4(c) and 4(d), and subd. 4h, providing the Agency with specific authority to improve siting standards for landfills initially permitted after January 1, 2011.

Minn. Stat. § 14.125, part of the Administrative Procedures Act (APA), allows the Agency to subsequently amend these rules without additional legislative authorization. It also requires agencies to propose rules within 18-months of receiving specific legislative authorization. These specific rulemaking authorities require the Agency to propose rules no later than November 17, 2011.

III. General Need for these Amendments

Minn. Stat. ch. 14 requires the Agency 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 Agency must set forth the reasons for its proposal, and the reasons must not be arbitrary and capricious. However, to the extent that need and reasonableness are separate, need has come to mean that a problem exists which requires administrative attention, and reasonableness means that the solution proposed by the Agency is a reasonable approach to addressing the expressed need.

The primary needs driving the Agency to propose these rules are the May 2008 and the May 2010 legislative directives described by the Minnesota Statute extracts shown in Section I (Introduction and Background). The legislative directives charge the Agency with making rules to improve siting rules for certain landfills that receive initial permits after January 1, 2011. The Legislature believed there was a fundamental need to amend siting rules for the regulated landfills in order to be more protective of areas sensitive to groundwater contamination and to assure that taxpayers are not saddled with costs to correct or mitigate failures in operating or closed landfill systems. The Legislature and the Agency share common goals of protecting public health, the environment and the economy.

Minn. Stat. § 116.07, subd. 4(c) requires that rules provide criteria for locating landfills based on a site's sensitivity to groundwater contamination, and to prohibit siting where karst is likely to develop:

“(c) The rules for the disposal of solid waste shall include site-specific criteria to prohibit solid waste disposal based on the area's sensitivity to groundwater contamination, including site-specific testing. The rules shall provide criteria for locating landfills based on a site's sensitivity to groundwater contamination. Sensitivity to groundwater contamination is based on the predicted minimum time of travel of groundwater contaminants from the solid waste to the compliance boundary. The rules shall prohibit

landfills in areas where karst is likely to develop. The rules shall specify testable or otherwise objective thresholds for these criteria. [...]"

Minn. Stat. § 116.07, subd. 4(d) provides a moratorium on permitting specified types of new landfills until the Agency promulgates rules that address the legislative directive:

"(d) Until the rules are modified as provided in paragraph (c) to include site-specific criteria to prohibit areas from solid waste disposal due to groundwater contamination sensitivity, as required under this section, the agency shall not issue a permit for a new solid waste disposal facility, except for:

(1) the reissuance of a permit for a land disposal facility operating as of March 1, 2008;

(2) a permit to expand a land disposal facility operating as of March 1, 2008, beyond its permitted boundaries, including expansion on land that is not contiguous to, but is located within 600 yards of, the land disposal facility's permitted boundaries;

(3) a permit to modify the type of waste accepted at a land disposal facility operating as of March 1, 2008;

(4) a permit to locate a disposal facility that accepts only construction debris as defined in section 115A.03, subdivision 7;

(5) a permit to locate a disposal facility that:

(i) accepts boiler ash from an electric energy power plant that has wet scrubbed units or has units that have been converted from wet scrubbed units to dry scrubbed units as those terms are defined in section 216B.68;

(ii) is on land that was owned on May 1, 2008, by the utility operating the electric energy power plant; and

(iii) is located within three miles of the existing ash disposal facility for the power plant; or

(6) a permit to locate a new solid waste disposal facility for ferrous metallic minerals regulated under Minnesota Rules, chapter 6130, or for nonferrous metallic minerals regulated under Minnesota Rules, chapter 6132. [...]"

The moratorium provides a strong incentive for the Agency and stakeholders to develop the siting criteria meeting the intent of the legislative directive.

IV. General Reasonableness of these Amendments

Minn. Stat. ch. 14 requires the Agency 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 Agency must set forth the reasons for its proposal, and the reasons must not be arbitrary and capricious. However, to the extent that need and reasonableness are separate, need has come to mean that a problem exists which requires administrative attention, and reasonableness means that the solution proposed by the Agency is a reasonable approach to addressing the expressed need. The Agency discusses the general reasonableness of the proposed rules in this section and provides a more detailed discussion in following sections.

The proposed rules include criteria for prohibiting areas from solid waste disposal based on groundwater contamination sensitivity, as required by the legislative directive. They provide minimum times of travel for any contaminant from solid waste to reach a compliance boundary if released. They also provide criteria for prohibiting landfills in areas where karst is likely to develop. The Agency believes the proposed rules provide a reasonable approach to addressing the needs delineated by the legislative directive.

The May 2008 legislative directive had the Agency work on developing appropriate rules and to report progress by January 15, 2010. The Agency worked with stakeholders and formulated a preliminary rule approach to addressing the original legislative directive. The Agency was aware of varied and conflicting stakeholder positions, so in its January 15th report, the Agency asked the Legislature to further clarify its direction.

One example of missing direction was that the original legislative directive was silent on whether the rules should apply to all, existing, expanded or only new landfills. The May 2010 legislative directive clarified that the rule should only apply to specified types of new landfills that receive an initial permit after January 1, 2011.

With the benefit of having the clarifications in the 2010 legislative directive in hand, the Agency revised its approach to these proposed rules, especially by limiting their scope. In addition to limiting the rules to the specified regulated landfills, the Agency determined that it should focus fairly strictly on meeting the legislative directive.

Normally, when the Agency opens a rule for revision, it takes advantage of that opportunity to do some rule "housekeeping" to take care of fixing minor errors or inconsistencies or to improve organization or clarity of existing rules. In this case, the Agency found that in order to comply with the legislative directive in a timely manner, it needed to limit its efforts clearly on that goal. The Agency believes this is a reasonable approach because with many stakeholders, side-issues might make it hard to satisfy the legislative directive in a timely manner.

While the Agency determined it would limit its efforts to addressing only the legislative directives at this time, it also made a future commitment to stakeholders to continue working with them following rulemaking to explore options to improve rules, guidance and practices into the future.

V. Detailed Analyses of Rule Provisions

The Agency has imbedded the detailed analyses of need and reasonableness of key rule provisions for this SONAR within an extract of the proposed rule language. The imbedded discussion immediately follows each substantive rule provision. The rule extract shows new rule language in an underlined format and any deleted rule language as ~~stricken~~. The Agency imbeds its discussion following each substantive rule provision.

Imbedding the analyses within an extract of the proposed rule language clearly ties the rationale to the proposed change. An alternative would be to provide the discussion separate from the rule language and then to refer the reader to the pertinent rule using citations in the discussion. Imbedding the discussion within the rule extract retains “page.line” numbers in the left margin that relate to the official rule. This helps readers to identify and communicate about the specific language of interest. Finally, readers can use an electronic version of this document to quickly search for keywords of interest.

Disclaimer: The Revisor of Minnesota Statutes maintains the only official version of Minnesota Rules (published in printed book form). While the Agency has been diligent in verifying that rule language used in this SONAR is accurate, the Revisor has the only officially certified version. A certified version is published in the *State Register* as part of the public notice.

Background:

In May 2008, the Minnesota Legislature put a moratorium on siting most types of new landfills until the Agency amended its siting rules to “provide criteria for locating landfills based on a site’s sensitivity to groundwater contamination.” The Agency considered stakeholder input and reported its progress to the Legislature on January 15, 2010. Please see the link to updated FASIT law below, in which the Legislature retained its moratorium and further clarified its direction to the Agency in May 2010. Link to updated FASIT law:

www.revisor.mn.gov/data/revisor/law/2010/0/2010-361.pdf.

In this rulemaking, the Agency adheres to the legislative directive, in Section I (Introduction and Background); to increase standards for siting regulated new landfills (described in proposed Minn. R. 7001.3111, subp. 1). These rules do not apply to landfills with existing permits, to renewals of permits for those landfills, or to expansions of those landfills. These rules do not apply to small demolition landfills. These rules prohibit the siting of new landfills in areas deemed sensitive to groundwater contamination or where karst is likely to develop. The Agency does not plan to make unrelated corrections to its existing landfill rules in this rulemaking.

The following are extracts from the proposed new landfill siting rules followed by the Agency’s rationale:

- “1.1 Pollution Control Agency*
- 1.2 Proposed Permanent Rules Relating to Landfill Siting*
- 1.3 7001.3111 ADDITIONAL SITING REQUIREMENTS FOR CERTAIN*
- 1.4 LANDFILLS THAT HAVE NOT RECEIVED A PERMIT BEFORE JANUARY 1,*
- 1.5 2011.*
- 1.6 Subpart 1. Applicability. In addition to the requirements of this chapter and chapter*
- 1.7 7035, after January 1, 2011, an applicant for a solid waste land disposal facility permit*
- 1.8 that is not a contiguous expansion of a permitted facility or a noncontiguous expansion*
- 1.9 within 600 yards of a permitted facility must demonstrate to the commissioner that the*
- 1.10 facility meets the additional requirements of this part, unless that facility will accept only*

- 1.11 demolition and construction debris and incidental packaging or that facility will accept
1.12 only industrial waste that is limited to wood, concrete, porcelain fixtures, shingles, or
1.13 window glass resulting from the manufacture of building materials.”

In Minn. R. 7001.3111 subp. 1, the Agency describes the applicability of these rules using the language provided by the May 2010 legislative directive about when and to what kinds of landfills these rules apply. It is reasonable to include a section that describes the facilities that this rule is applicable to because the new requirements are not applicable to all facilities; the Agency believes it is also reasonable to base the rule language on the language found in the legislative directive. This reduces the chance of changing the intent of the legislative directive.

- “1.14 Subp. 2. **Site evaluation.** The applicant must comply with parts 7001.3175,
1.15 7001.3200, and 7001.3275.”

In order to ensure that new facilities are located in compliance with the siting criteria required by the legislative directive, the Agency determined that it must gather more information about hydrogeologic conditions at a proposed site. In Minn. R. 7001.3111 subp. 2, the Agency requires regulated new landfills to provide the information already required of Mixed Municipal Solid Waste (MMSW) and Municipal Solid Waste (MSW) ash landfills under existing permit rules. These rules require persons proposing regulated landfills to produce information on the hydrological setting of the proposed facility and about the proposed facility itself, including a proposed location for a compliance boundary. Minn. R. 7001.3175 governs the *Contents of Preliminary Application*, 7001.3200 governs a *Preliminary Site Evaluation Report* and 7001.3275 governs a *Detailed Site Evaluation Report*.

It is reasonable to require this site-specific information for regulated landfills because it is necessary to determine whether the site meets the siting criteria in subpart 3 (see below). These proposed rules provide for a phased approach to site evaluation, consistent with Minn. R. 7035.2815, subp. 3; they focus on collecting site-specific data in a timely and cost-effective sequence/manner. The information must be developed, in part, based on testing. This meets the standard in Minn. Stat. § 116.07, subd. 4(c). The Agency believes it is reasonable to broaden the applicability of existing requirements that assure that the applicant will provide the information needed to determine compliance with the new siting standards in subpart 3, and that it is reasonable to reference existing rules with which the regulatory community is familiar.

- “1.16 Subp. 3. **Siting standards.** The applicant must demonstrate to the commissioner
1.17 using testable or otherwise objective data that the proposed landfill site meets the
criteria in
1.18 item A or B and the criteria in items C and D. The applicant must provide a
certification for
1.19 site and groundwater conditions from a professional geologist licensed in
Minnesota and a
1.20 certification for structural conditions from a professional engineer licensed in
Minnesota.”

Following is a pertinent extract of legislative directive that is addressed by subpart 3:

“MS section 116.07, subd. 4(c): The rules for the disposal of solid waste shall include site-specific criteria to prohibit solid waste disposal based on the area’s sensitivity to groundwater contamination, including site-specific testing. The rules shall provide criteria for locating landfills based on a site’s sensitivity to groundwater contamination. Sensitivity to groundwater contamination is based on the predicted minimum time of travel of groundwater contaminants from the solid waste to the compliance boundary. The rules shall prohibit landfills in areas where karst is likely to develop. The rules shall specify testable or otherwise objective thresholds for these criteria. [...]”

The Agency believes that a plain reading of the legislative directive clearly requires that proposed rules specify siting criteria based on testable or otherwise objective thresholds. Subpart 2 required the applicant to generate this data regarding a proposed site. Subpart 3 requires the applicant to use the site-specific data to demonstrate how the proposed site meets the siting standards in items A or B, and in items C and D. It is reasonable to require the applicant to provide adequate and accurate data to demonstrate compliance with siting standards.

As part of the demonstration, subpart 3 goes on to require that qualified professionals certify the conditions found during site evaluation: site and groundwater conditions require certification by a licensed professional geologist, and structural conditions require certification from a licensed professional engineer. The Agency expects the certifying professionals to have directly-applicable experience with the hydrogeologic and structural issues found at a proposed site. The Agency believes it reasonable to expect that a qualified professional geologist oversee the hydrogeologic evaluations necessary to certify the adequacy of the proposed site. Similarly, the Agency believes it reasonable to expect that a qualified professional engineer oversee the structural evaluations necessary to certify the structural adequacy of the proposed site.

Additionally, it is reasonable to require qualified professionals to provide these certifications because the techniques involved in these evaluations are specialized, complex and changing over time. The Agency is not prescribing specific investigative methods in this rule because while current methods should adequately characterize a site (these may include desktop modeling, seepage rates, dye traces, or others), the investigative tools and methods have historically changed and improved rapidly in this field. The Agency believes it is reasonable to not prescribe specific methods in these rules because it believes that investigative methods in this field are likely to improve over time. The Agency expects the applicant to use current investigative methods.

*“1.21 A. The predicted minimum time of travel of groundwater contaminants from
1.22 the proposed landfill’s base grade to an approvable proposed compliance boundary
is at
1.23 least 100 days.
1.24 B. Groundwater flow is known in sufficient detail to allow monitoring for
1.25 potential contaminant releases, and site and groundwater conditions would allow
the
1.26 owner/operator sufficient space and time to implement corrective actions to
prevent
2.1 contaminants released from the landfill from exceeding applicable standards at a
2.2 compliance boundary.”*

The Agency believes that the intent of the legislative directive was that the rules would require the evaluation of site suitability prior to facility construction. The legislative directive requires that:

“The rules shall provide criteria for locating landfills based on a site's sensitivity to groundwater contamination. Sensitivity to groundwater contamination is based on the predicted minimum time of travel of groundwater contaminants from the solid waste to the compliance boundary.”

Items A and B reasonably reflect this intent to prohibit solid waste disposal based on an area's sensitivity to groundwater contamination. Item A requires an applicant to demonstrate that it would take groundwater contaminants released from a proposed landfill's base grade at least 100 days to reach a proposed compliance boundary. Items A and B are both based on demonstrating that a site meets sensitivity criteria for groundwater contamination; predicted contaminant travel time cannot impede the ability to monitor, detect, track and effectively respond to a possible release of contaminants from a landfill.

The Agency was charged with determining criteria to establish when a site was sensitive to groundwater contamination. The first sensitivity criteria determined by the Agency, working with interested parties, was that a contaminant release from a proposed landfill must take at least 100 days to reach the proposed compliance boundary. The Agency based this “speed limit” on current practices at Minnesota landfills. With quarterly environmental monitoring practices, 100 days represents an approximate time between monitoring events. Also, compliance boundaries are normally located about 200 feet from the waste footprint.

Normally, contaminant concentrations would be detected at low enough levels to allow sufficient time to respond before contaminants built to levels that raised health concerns. If a contaminant was to reach a compliance boundary in less than 100 days, the agency had concern that the opportunity to respond to the contaminant release might be reduced. The goal is to ensure that contaminant movement is slow enough to allow detection and remediation before levels of concern would reach the compliance boundary. Following extensive stakeholder input, the Agency selected 100-days as a reasonable threshold for the time of travel of contaminants. It is not the Agency's intent that a permit applicant might try to remedy a site's high groundwater flow velocity by increasing the frequency of monitoring beyond what is currently best management practice established at a quarterly rate per year, or by moving monitoring wells closer to the landfill. The intent of the rules is to reduce the risk of contamination by siting landfills in areas with lower groundwater travel velocities.

During the extensive dialog with stakeholders and interested parties, a citizen interest group requested simple statewide criteria and thresholds needed to demonstrate compliance. On the other hand, counties and businesses that own landfills asserted that they should be allowed the opportunity to use more extensive site-specific fieldwork to demonstrate meeting the goal of ensuring that contaminant movement is slow enough to allow detection and remediation before levels of concern would reach the compliance boundary. The Agency believed it reasonable to allow the applicant to comply with either item A or B.

Item A provides a simple compliance option based on uniform underlying assumptions about distances from waste to compliance boundaries (typically 200 feet), groundwater monitoring frequency (approximately 100 days) and timely responses to detected contaminant releases.

The alternative compliance option offered under item B recognizes that not all landfill site configurations and operations reflect the typical underlying assumptions. Under item B, in lieu of fixed assumptions under item A, the applicant may demonstrate through the collection of site-specific data, that groundwater flow is known in sufficient detail to allow the detection of potential contaminant

releases, and sufficient space and time to implement corrective actions to prevent contaminants from exceeding standards at a compliance boundary.

The Agency would expect applicants using item B to conduct a very rigorous site-specific hydrogeologic evaluation to establish the nature of groundwater flow beneath the site. Such field investigation techniques may include but are not be limited to tracer testing to identify dominant fracture groundwater flow pathways, and both borehole and surface geophysical techniques to help characterize subsurface features not observed at the surface.

The proposed rules allow some additional flexibility in determining time of travel. Few contaminants migrate as fast as the groundwater flow field because contaminants exposed to the hydrogeologic media tend to be attenuated and degraded with time. If a projected contaminant moves faster than groundwater (this is unusual), it must be used to determine time of travel. If no projected contaminant moves faster than water, the applicant can use either the fastest moving projected contaminant or the speed of the groundwater to determine time of travel (this is meant to provide a conservative, lower cost methodology).

The Agency anticipates that most applicants would be able to determine whether the time of travel criteria can be met with groundwater studies alone. This demonstration might preclude a more detailed analysis of the unsaturated zone or of how an individual contaminant reacts chemically with other conditions found at the site.

When the time of travel through the saturated zone is demonstrated to be at least 100 days, the applicant need not also determine travel time through the unsaturated zone; this is reasonable as it is likely to save time and money. Travel time through the unsaturated zone can be added to that found for the saturated zone if needed to meet the 100-day minimum limit. This requires using site-specific data and evaluation using the same phased approach as applied in the saturated zone. The applicant should first consider the shortest travel time through the saturated zone. If this saturated zone transport time meets the 100-day threshold, it is reasonable to presume that the overall transport time also meets the threshold and that further evaluation through the unsaturated zone is not needed.

The predicted minimum travel time must be based on the fastest moving contaminant (or the speed of groundwater flow is allowed if no contaminant is faster) associated with the proposed waste type. The applicant's calculation of time of travel may take into account contaminant transport through both the saturated and unsaturated zones. The applicant may not include the liner system when calculating contaminant transport times to the compliance boundary or when establishing contaminant concentrations entering the unsaturated zone beneath the landfill. Since the applicant is predicting time of travel for a proposed system, if the applicant needs to include travel through the unsaturated zone, the top of this zone would be the landfill's proposed base grade, not the pre-construction surface grade.

A primary purpose of these rules is to prohibit landfills based on a site's sensitivity to groundwater contamination. This is based on a potential contaminant's time of travel from the waste to a compliance boundary, in the event of a containment system failure, through saturated and unsaturated soils. Developing an accurate estimate of contaminant-transport from the base grade of a proposed landfill through the unsaturated zone is a complex undertaking, largely because hydrogeologic properties of soils change as water passes through.

Associated estimates of unsaturated flow require rigorous sampling and analysis to accurately define the hydrogeologic and geochemical characteristics of each geologic unit comprising the unsaturated zone. It further requires complex modeling where the associated flow equations are nonlinear and not subject to easy solutions.

The Agency believes it is consistent with its legislative directive to prohibit siting based on a site's inherent groundwater sensitivity. Also, that it would be improper to model a site's sensitivity based on highly-limited leakage rates through largely-intact liner systems.

- 2.3 C. No karst exists within 200 feet laterally of the proposed waste fill area.*
2.4 D. At sites where carbonate bedrock exists, either of the following conditions
2.5 are met within the area of the compliance boundary:
2.6 (1) more than 50 feet of undisturbed, unconsolidated overburden has been
2.7 maintained prior to construction of the landfill so that karst is not likely to develop;
or
2.8 (2) based on the site evaluation in subpart 2, employing field techniques
2.9 approved by the commissioner, the commissioner finds that karst is not likely to
develop
2.10 and the site will support the proposed landfill structure."

The legislative directive requires the following:

"The rules shall prohibit landfills in areas where karst is likely to develop. The rules shall specify testable or otherwise objective thresholds for these criteria."

Karst development can pose three key concerns: structural stability, reliability of groundwater monitoring, and speed of groundwater flow. Karst development can result in surficial subsidence (sink holes) which could cause the waste containment system to fail and to release contaminants to groundwater. Therefore, it is reasonable to require applicants to demonstrate that the geologic structural features underlying the proposed site will support the containment system and protect groundwater resources. Also, if contaminants reach groundwater in certain karst conditions, these can be very difficult to fully track.

The Agency needed to establish criteria for when a site was likely to develop karst. The timeframe that the Agency would consider for the likelihood of karst development is the life of the landfill starting with facility construction and ending with completion of post-closure duties needed to protect groundwater.

While it is possible that karst could develop at some future date following post closure care, the end of post closure only occurs after the Agency has determined that the waste no longer poses risks to human health or the environment. Also, this determination is made with the benefit of having observed the site through operation and closure cycles wherein any changes in karst development would have been observable.

Items C and D reasonably reflect this intent. Item C requires the applicant to demonstrate that no karst exists within 200 feet laterally from the proposed waste fill area. Item D requires the applicant to demonstrate that either (1) there is more than 50 feet of undisturbed, unconsolidated overburden over carbonaceous bedrock, or (2) based on the site evaluation in subpart 2, karst is not likely to develop and the site will support the proposed structure.

For item C, the Agency had discussions with stakeholders that ranged from requiring no setback to requiring a setback of 1,000 feet. The Agency found general acceptance among interested parties for requiring a 200-foot lateral setback from existing or remnant karst features.

Looking at a map, surficial expressions of karst frequently appear clustered around areas with the highest potential for karst development. That said; hydrogeologic features can vary widely across

relatively short distances or geologic boundaries. Within the vicinity of geologic divides or anomalies, very different geologic features exist within a short distance. For example, there could be a ridge or plateau with shallow carbonaceous bedrock that exhibits many karst features; while these features may be absent in an adjacent valley. Also, varied conditions may occur in areas underlain by carbonate bedrock where glacial systems created geologic divides between cut deep river valleys filled with thick overburden deposits and where nearby carbonate bedrock is covered with thin overburden deposits just beyond the limits of the river valley system.

The applicant needs to evaluate the proposed area for evidence of both current and remnant karst features (e.g., sinkholes that have been filled over time). The applicant should look into historic records and conduct a ground survey of the proposed site's surface features.

Item C prohibits siting regulated landfills where karst exists within 200 feet. There is a direct correlation between the distance to existing karst and the potential for karst development at a site. Karst features statistically occur in clusters or groups. The presence of nearby karst features increases the probability that karst features, detected or undetected, exist currently or will develop at a proposed landfill development site. The Agency believes that 200 feet to existing (or remnant) karst features provides one reasonable criteria for determining whether karst development poses a risk of impacts at a proposed landfill facility.

Item D prohibits siting regulated landfills where karst is likely to develop based on testable or otherwise objective thresholds. In addition to meeting the simple conditions of item C, it is reasonable to further require meeting the additional conditions of item D in a more elaborate phase of site evaluation.

The Agency expects the applicant to use current field investigation techniques to evaluate the geologic and hydrogeologic characteristics of the proposed site. Such techniques might include but not be limited to historic records as well as borehole and surficial geophysical techniques (or equivalent) to help characterize subsurface features. The Agency may also require horizontal drilling techniques (or equivalent) to establish subsurface conditions.

Karst normally develops in conjunction with the carbonaceous bedrock found in southeast Minnesota (mostly in areas south and east of the Twin Cities metropolitan area). To assure that karst is not likely to develop in areas with carbonaceous bedrock, it is reasonable to require additional evaluation. The 50-foot threshold also applies in areas where the St. Peter Sandstone is underlain by carbonate rock (mostly along the Mississippi River valley in southeast Minnesota). In such cases, the Agency believes it is reasonable to require 50 feet of unconsolidated overburden above any sandstone covering the carbonate bedrock.

The applicant must show that there is at least 50 feet of undisturbed, unconsolidated overburden across the site prior to the construction of the landfill, or must conduct more extensive field work to demonstrate that karst is not likely to develop. The "50-foot" threshold is reasonable based on University of Minnesota research that correlates the thickness of undisturbed overburden with the likelihood of karst developing over carbonate bedrock. Where overburden exceeds 50 feet, research suggests that karst is not likely to develop. The Agency believes this research makes it reasonable to require meeting this criterion prior to constructing the landfill.

Based further on karst expert testimony, the Agency agrees that the 50 feet of overburden must have been in place for a long, uninterrupted period of time prior to construction in order to prevent karst and serve as an indicator. The Agency sees intact overburden as a means to verify that karst is unlikely to develop. Disturbed or replaced overburden reduces protection and may hide karst expressions.

The karst expert testimony suggests that decreased thickness of the overburden, whether by natural conditions or by human activity (such as gravel mining), can increase the likelihood of karst features developing. Therefore, to provide more assurance that karst is unlikely to develop, it is important that a required depth of overburden remains substantively undisturbed prior to landfill construction. For example, an applicant may not add unconsolidated fill to a site to enhance the thickness of overburden to meet the 50-foot threshold (e.g., filling in a gravel pit).

It is reasonable to require that the depth of overburden cannot have been modified substantively by recent human-timescale activity within the 50-foot limit. Exceptions might include normal farming activities including having plowed fields and associated homesteading appurtenances (e.g., the Agency might allow a properly-grouted homestead well, cistern or foundation).

Further, when overburden has been adequate prior to construction, the Agency believes that, using due diligence, the final base of the landfill can be closer than 50 feet from bedrock without undue risk of causing karst development. The Agency believes landfills can be constructed to manage water movement/conditions to prevent increases to bedrock dissolution.

In item D, subitem (1) provides a primary compliance criterion that is fairly simple. This 50-foot threshold is based on research conducted by experts associated with the University of Minnesota. The research established that, in areas underlain by carbonaceous bedrock, having had at least 50 feet of unconsolidated overburden provided a simple predictor that karst was unlikely.

Subitem (2) recognizes that the simple fixed threshold test in subitem (1) is not a perfect predictor of the likelihood of karst development. It allows applicants to conduct more extensive field work to more-completely evaluate bedrock and to more definitively determine whether karst is likely to develop and that the site will support the proposed landfill structure. It is reasonable to offer an alternative approach for applicants willing to conduct more elaborate site-specific evaluations to verify site conditions.

The Agency believes it is reasonable to require the applicant to use approved evaluative field techniques to ensure that the current best practices are employed. The Agency is not prescribing specific methods in this rule. While current methods should adequately characterize a site, the investigative tools and methods have historically changed and improved rapidly in this field. The Agency believes it is reasonable to not prescribe specific methods in these rules because it believes that investigative methods in this field are likely to improve over time. The Agency expects the applicant to use current investigative methods.

Such field investigation techniques may include but are not be limited to tracer testing to identify dominant fracture groundwater flow pathways, and both borehole and surface geophysical techniques to help characterize subsurface features not observed at the surface. The Agency may also require horizontal drilling techniques (or equivalent) to establish subsurface conditions. The Agency may require rock cores to be evaluated at different orientations for structural features. The Agency may also seek installation of a groundwater remediation system that can be activated in time to contain any potential release to groundwater.

"2.11 7035.2525 SOLID WASTE MANAGEMENT FACILITIES GOVERNED.

2.12 [For text of subp 1, see M.R.]

*2.13 Subp. 2. **Exceptions.** Parts 7035.2525 to 7035.2915 do not apply to the following*

2.14 solid waste management facilities or persons, except as indicated:

2.15 [For text of items A to E, see M.R.]

2.16 F. industrial solid waste land disposal facilities, except that those receiving an

2.17 initial permit after January 1, 2011, must comply with part 7035.2555;

2.18 [For text of items G to K, see M.R.]”

The Agency proposes modifying the exemption for industrial solid waste land disposal facilities provided in subpart 2, item F in order to require industrial landfills newly permitted after January 1, 2011 to comply with the siting requirements found in 7035.2555 in addition to the other standards for siting a landfill. The legislative directive says which types of landfills must comply with the new standards in this rulemaking and new industrial landfills are included. The Agency believes it is reasonable to assure that industrial landfills permitted after January 1, 2011, meet the more protective siting standards.

VI. Regulatory Analysis under Minn. Stat. § 14.131

Minn. Stat. § 14.131, entitled Statement of Need and Reasonableness, is supported by Minn. Stat. § 14.23, and Minn. R. 1400.2070, and requires the following considerations in the SONAR:

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

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

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

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

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

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

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

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

Also,

(8) The statement must 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.

(9) The statement must also describe the agency's efforts to provide additional notification under section 14.14, subdivision 1a, to persons or classes of persons who may be affected by the proposed rule or must explain why these efforts were not made.

(10) The agency must consult with the commissioner of finance to help evaluate the fiscal impact and fiscal benefits of the proposed rule on units of local government.

(11) The agency must send a copy of the statement of need and reasonableness to the Legislative reference Library when the notice of hearing is mailed under section 14.14, subdivision 1a."

The Agency addresses these considerations in order below:

1. Classes of Persons Affected.

The Agency is to describe 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.

Who is affected?

These rules will regulate those parties applying for an initial permit to site one of the types of landfills described in Section I. While the proposed rules will increase site evaluation requirements for parties already regulated, they do not increase the size of the regulated community.

There are a relatively small number of parties likely to be regulated by these proposed landfill siting rules. In the recent past, the Agency has received on the order of about 1 initial permit application per year for all of the landfill types that would be regulated by these proposed siting rules combined.

Recent experience has shown that the most common practice is for existing permitted landfills to expand their existing facility. The legislative directive in Minn. Stat. § 116.07, subd. 4(d), explicitly exempts from these rules landfills that wish to expand under an existing permit issued prior to January 1, 2011.

Proposed rules broaden the applicability of existing rules that already apply to siting a new MMSW or MSW ash landfill. These would now apply to all new regulated landfills described in part 7001.3111, subpart 1 of the proposed rule. The Agency believes this is necessary in order to meet the legislative directive's intent that siting rules must better protect sensitive groundwater in Minnesota.

Who bears the cost of complying with these new rules?

There are many rules and processes that govern the siting of any new landfill. Minn. R. 7001.3111, subp. 1, describes the classes of landfills regulated by the proposed rule.

The proposed rules increase the applicability and scope of existing site evaluation rules. The associated increased cost of siting a landfill will likely relate directly to the size and hydrogeologic complexity and conditions of the proposed site. Any added costs to comply with the proposed rules will primarily be borne by the permit applicants.

As a result of the legislative directive, in these proposed siting rules the Agency broadens the applicability of existing rules that require detailed site evaluation at MMSW and MSW ash landfills to apply to the other types of landfills described in Section I. Note that while this area of the existing site evaluation rules had only specified MMSW and MSW ash landfills, the Agency has used its existing general permitting authority to apply equivalent requirements to other types of landfills as a condition of their obtaining a permit. In addition, the proposed rules change some of the information required for site evaluation to include specific criteria for groundwater sensitivity and the propensity for karst development at the site.

Who benefits?

The proposed rules are primarily intended to protect the health of Minnesotans and their environment by taking reasonable steps to protect areas most sensitive to groundwater contamination if a landfill's waste containment system were to fail. It should be noted that historically, landfill groundwater contaminant problems are associated with dumps (unlined landfills or unlined portions of landfills before modern- engineered containment systems were used). The Agency has observed that the most damaging and expensive cleanups have occurred in areas with the fastest moving or hardest to track groundwater.

Where the land beneath a waste containment system is structurally stable (e.g., not subject to karst-related subsidence), the waste containment system is less likely to fail due to the structural collapse of the underlying bedrock. If a landfill's waste containment system were to fail for any reason, it would be easier to mitigate groundwater contamination where groundwater flow is predictable and not too fast (e.g., groundwater is not too sensitive as defined by this rule). It is reasonable to say that requiring more careful evaluation of site conditions prior to siting landfills provides better assurance that the waste containment system will not fail, and that if it should fail, any contaminant release can be mitigated without exceeding health standards at the landfill's compliance boundary.

It can result in significant costs to the permittee to investigate and remediate any contaminant release if a landfill fails. It is reasonable to believe that a permittee may benefit from siting rules that are more environmentally protective because this should reduce the likelihood of a failed containment system or of associated cleanup costs. These rules can help permittees determine when a site poses higher risks and higher associated liabilities.

The site evaluations are conducted in up to four (4) progressively more detailed (and more costly) phases. A preliminary site evaluation should help rule out sites that would require more costly evaluations. That said; applicants may have business reasons to pursue demonstrating the adequacy of a site with difficult site conditions (at additional cost). The legislative directive established higher standards for specified types of new landfills, especially when an applicant proposes a site with difficult geophysical conditions.

2. Probable Costs to Agencies and Effect on State Revenues.

The Agency is to consider probable costs to itself or to any other agency of the implementation and enforcement of the proposed rule and any anticipated effect on state revenues.

What are the costs to the Agency?

The Agency anticipates that the additional cost of implementing and enforcing the proposed rule changes will be relatively minor. The Agency will spend some administrative effort to communicate the changes to the regulated community. The number of regulated parties affected by the proposed rules remains small and unchanged. The Agency will spend some additional effort developing guidance and evaluating newly required site evaluation reports to determine that they provide the required assurance of adequacy, but anticipates continuing its review with existing staff resources.

What are the costs to other agencies?

The Agency does not anticipate that the rule changes will cause any additional costs to be incurred by other state or federal agencies. However, the rules will have an effect on any of governmental unit (typically a county) that chooses to initiate siting a landfill regulated under these rules.

What is the effect on State revenue?

The Agency believes that these amendments are revenue neutral (e.g., no positive or negative impact on State revenues).

3. Consideration of Less Costly Methods to Achieve Purpose of the Rules.

The Agency is to consider whether there are less costly methods or less intrusive methods for achieving the purpose of the proposed rule.

Since the primary need for these proposed rules is to address the legislative directives, and since the legislative directives were specific about what the rules must contain, the Agency's ability to provide less costly or less intrusive alternatives to these proposed amendments is limited. The Agency was mindful of costs associated with meeting requirements of the proposed rules. The rules result in lower likely costs to verify the adequacy of safer sites. The rules also allow flexible pathways to verify the adequacy of a single site. This typically involves verifying relatively simple time of travel, distance from karst features and depth to carbonaceous bedrock criteria; or, providing more detailed evaluations to prove that groundwater can be monitored and protected and that karst is unlikely to develop at the site.

The Agency expressed concern in the January 15, 2010 report to the Legislature that applying these rules to the smaller demolition type landfills would most likely prohibit their use. These small demolition landfills are especially important in Greater Minnesota where alternative landfills are often not locally available. The May 2010 legislative directive specified that the proposed rules would not regulate these small demolition landfills.

Adopting rules that are clear about where siting may be problematic (and possibly more costly to evaluate), and providing consistent site evaluation requirements should ultimately make compliance less burdensome for regulated parties.

4. Description of Alternatives Considered to Achieve Purpose of the Rules.

The Agency is to describe any alternative methods seriously considered for achieving the purpose of the proposed rule and the reasons why they were rejected in favor of the proposed rule.

Since the primary need for these proposed rules is to address the legislative directives, and since the legislative directives were specific about what the rules must contain, the Agency's ability to provide alternative methods to those in these proposed amendments is limited.

It is more common to find karst development and challenges to monitoring groundwater in areas underlain by shallow carbonaceous bedrock; this bedrock is commonly found in areas south and east of the Minneapolis area in Minnesota. The Agency considered the impact of imposing standards that would effectively prohibit regulated landfills in areas underlain by carbonaceous bedrock, roughly the southeast corner of Minnesota. However, people successfully live, work, farm, build structures of all kinds and conduct business all over that region, avoiding karst and protecting groundwater. The Agency believed it would be unreasonable and costly to prohibit landfills where all these other normal human activities take place.

The Agency met with stakeholders, sought their input, and negotiated agreeable rule language to achieve protective standards.

5. Probable Costs of Complying with the Proposed Rules.

The Agency is to evaluate the probable costs of complying with the proposed rules, 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.

The Agency believes that there are likely to be some increased costs to most landfill types regulated under the proposed landfill siting rules. Applicants will need to conduct more elaborate site evaluations. Those in areas with easily determined groundwater flow and no potential for karst development will see little or no change in site evaluation costs. Those in areas with complex or rapid groundwater flow or potential for karst development will have higher site evaluation costs. Individuals, businesses or local units of government may own or operate landfills, so they will incur any increased costs associated with a chosen site.

These site evaluations involve a phased approach beginning with researching documented local conditions and potentially escalating to very extensive field surveys, data collection and modeling. A first phase survey can quickly eliminate concerns about karst in over three-quarters of Minnesota (karst areas are well-documented); similarly, this survey can provide strong clues about groundwater predictability. Applicants choosing landfill sites in areas without carbonaceous bedrock and with easily characterized groundwater conditions will have less added evaluation costs (possibly several hundreds of dollars) than those hoping to site in an area characterized by shallow carbonaceous bedrock, karst or complicated groundwater conditions (possibly tens or hundreds of thousands of dollars).

The legislative directives clarified the Legislature's intent to increase standards that reduce risks to groundwater related to siting a landfill. The proposed rules increase the burden of proof to ensure safety when siting in areas with potentially sensitive groundwater conditions, or where karst is likely to develop.

The costs can be reduced by choosing a siting alternative without shallow carbonaceous bedrock and with easily characterized groundwater conditions. Costs may increase if an applicant chooses a site that requires access to additional land to provide compliance boundaries at a distance adequate to allow timely detection and remediation of potential contaminants should a landfill containment system fail.

6. Probable Consequences of Not Adopting the Proposed Rules.

The Agency must consider the probable consequences of not adopting the proposed rules, including those consequences borne by identifiable categories of affected parties, such as separate classes of government units, businesses, or individuals.

Individuals, businesses or local units of government may own or operate landfills, so have to deal with some consequences if the proposed rules are not adopted. One immediate consequence of not adopting the proposed rule is that the Legislature imposed this moratorium:

"(d) Until the rules are modified as provided in paragraph (c) to include site-specific criteria to prohibit areas from solid waste disposal due to groundwater contamination sensitivity, as required under this section, the agency shall not issue a permit for a new solid waste disposal facility, except for:

(1) the reissuance of a permit for a land disposal facility operating as of March 1, 2008;

(2) a permit to expand a land disposal facility operating as of March 1, 2008, beyond its permitted boundaries, including expansion on land that is not contiguous to, but is located within 600 yards of, the land disposal facility's permitted boundaries;

(3) a permit to modify the type of waste accepted at a land disposal facility operating as of March 1, 2008;

(4) a permit to locate a disposal facility that accepts only construction debris as defined in section 115A.03, subdivision 7;

(5) a permit to locate a disposal facility that:

(i) accepts boiler ash from an electric energy power plant that has wet scrubbed units or has units that have been converted from wet scrubbed units to dry scrubbed units as those terms are defined in section 216B.68;

(ii) is on land that was owned on May 1, 2008, by the utility operating the electric energy power plant; and

(iii) is located within three miles of the existing ash disposal facility for the power plant; or

(6) a permit to locate a new solid waste disposal facility for ferrous metallic minerals regulated under Minnesota Rules, chapter 6130, or for nonferrous metallic minerals regulated under Minnesota Rules, chapter 6132."

The Agency believes that if the Legislature were to simply lift the moratorium, and did not impose new statutes in lieu of the proposed rules, costs of not adopting these rules should be minor. The regulated community must still comply with existing solid waste rules. The proposed rules provide a useful clarification of current practices that should improve the consistency of rule application. The Agency has other existing authority to deny a permit to landfills in areas that are not proven safe, but to date those rules have not been entirely effective in some areas of concern where sensitive groundwater resources exist or karst is likely to develop. Therefore, the consequences of not adopting these rules are significant in terms of risks to human health and the environment that this rule is meant to mitigate.

7. Assessment of Differences between the Proposed Rule and Related Federal Regulations.

The Agency must assess any differences between the proposed rule and existing federal regulations, and provide specific analyses of the need for and reasonableness of each difference.

The proposed siting rules define sensitive groundwater based on the speed at which potential contaminants would travel with groundwater if released from a landfill (at least 100 days to a typical 200 foot compliance boundary). The rules also prohibit landfills where karst is likely to develop (determinants such as 200 feet from surficial or remnant expressions of karst prior to construction and with at least 50 feet of unconsolidated overburden above carbonaceous bedrock).

Related federal groundwater regulations are found at Title 40 Code of Federal Regulations Part 258 (40 CFR 258) [below] addresses applicability of groundwater monitoring. 40 CFR § 258.50 applies explicitly to MMSW landfills (the Agency's proposed rules are broader in scope as they apply to additional landfill

types). 40 CFR § 258.15 applies to new, existing, and expanded Municipal Solid Waste Landfill (MSWLF) units (proposed rules are narrower in scope in this regard as they would apply only to newly permitted landfills). More importantly, the Agency's proposed rules specifically define certain groundwater conditions as sensitive enough to prohibit landfill siting, irrespective of design; this standard is more stringent than § 258.50 which does not define prohibitively sensitive groundwater conditions.

“Subpart E—Ground-Water Monitoring and Corrective Action

§ 258.50 Applicability.

(a) The requirements in this part apply to MSWLF units, except as provided in paragraph (b) of this section.

(b) Ground-water monitoring requirements under § 258.51 through § 258.55 of this part may be suspended by the Director of an approved State for a MSWLF unit if the owner or operator can demonstrate that there is no potential for migration of hazardous constituents from that MSWLF unit to the uppermost aquifer (as defined in § 258.2) during the active life of the unit and the post-closure care period. This demonstration must be certified by a qualified ground-water scientist and approved by the Director of an approved State, and must be based upon: (1) Site-specific field collected measurements, sampling, and analysis of physical, chemical, and biological processes affecting contaminant fate and transport, and (2) Contaminant fate and transport predictions that maximize contaminant migration and consider impacts on human health and environment.

(c) Owners and operators of MSWLF units, except those meeting the conditions of § 258.1(f), must comply with the ground-water monitoring requirements of this part according to the following schedule unless an alternative schedule is specified under paragraph (d) of this section: (1) Existing MSWLF units and lateral expansions less than one mile from a drinking water intake (surface or subsurface) must be in compliance with the ground-water monitoring requirements specified in §§ 258.51–258.55 by October 9, 1994; (2) Existing MSWLF units and lateral expansions greater than one mile but less than two miles from a drinking water intake (surface or subsurface) must be in compliance with the ground-water monitoring requirements specified in §§ 258.51–258.55 by October 9, 1995; (3) Existing MSWLF units and lateral expansions greater than two miles from a drinking water intake (surface or subsurface) must be in compliance with the ground-water monitoring requirements specified in §§ 258.51–258.55 by October 9, 1996. (4) New MSWLF units must be in compliance with the ground-water monitoring requirements specified in §§ 258.51–258.55 before waste can be placed in the unit.

(d) The Director of an approved State may specify an alternative schedule for the owners or operators of existing MSWLF units and lateral expansions to comply with the ground-water monitoring requirements specified in §§ 258.51–258.55. This schedule must ensure that 50 percent of all existing MSWLF units are in compliance by October 9, 1994 and all existing MSWLF units are in compliance by October 9, 1996. In setting the compliance schedule, the Director of an approved State must consider potential risks posed by the unit to human health and the environment. The following factors should be considered in determining potential risk: (1) Proximity of human and environmental

receptors; (2) Design of the MSWLF unit; (3) Age of the MSWLF unit; (4) The size of the MSWLF unit; and “

Related federal siting regulations are found at 40 CFR 258 (§ 258.15 [below] addresses unstable areas) and 258.15 applies only to MMSW landfills (the Agency’s proposed rules are broader in scope as they apply to additional landfill types). 40 CFR § 258.15 applies to new, existing, and expanded MSWLF units (proposed rules are narrower in scope in this regard as they would apply only to newly permitted landfills). 40 CFR § 258.15 allows reliance on engineering measures to ensure integrity (proposed rules are more stringent as they prohibit siting where karst is likely to develop based on measurable criteria; engineering is not a consideration).

“(a) Owners or operators of new MSWLF units, existing MSWLF units, and lateral expansions located in an unstable area must demonstrate that engineering measures have been incorporated into the MSWLF unit’s design to ensure that the integrity of the structural components of the MSWLF unit will not be disrupted. The owner or operator must place the demonstration in the operating record and notify the State Director that it has been placed in the operating record. The owner or operator must consider the following factors, at a minimum, when determining whether an area is unstable: (1) On-site or local soil conditions that may result in significant differential settling; (2) On-site or local geologic or geomorphologic features; and (3) On-site or local human-made features or events (both surface and subsurface).

(b) For purposes of this section: (1) Unstable area means a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity of some or all of the landfill structural components responsible for preventing releases from a landfill. Unstable areas can include poor foundation conditions, areas susceptible to mass movements, and Karst terranes. (2) Structural components means liners, leachate collection systems, final covers, run-on/run-off systems, and any other component used in the construction and operation of the MSWLF that is necessary for protection of human health and the environment. (3) Poor foundation conditions means those areas where features exist which indicate that a natural or man-induced event may result in inadequate foundation support for the structural components of an MSWLF unit. (4) Areas susceptible to mass movement means those areas of influence (i.e., areas characterized as having an active or substantial possibility of mass movement) where the movement of earth material at, beneath, or adjacent to the MSWLF unit, because of natural or man-induced events, results in the downslope transport of soil and rock material by means of gravitational influence. Areas of mass movement include, but are not limited to, landslides, avalanches, debris slides and flows, soil fluction, block sliding, and rock fall. (5) Karst terranes means areas where karst topography, with its characteristic surface and subterranean features, is developed as the result of dissolution of limestone, dolomite, or other soluble rock. Characteristic physiographic features present in karst terranes include, but are not limited to, sinkholes, sinking streams, caves, large springs, and blind valleys.”

The Agency believes that a plain reading of the legislative directive clearly requires increasing the stringency of Minnesota’s landfill siting standards. The Agency believes the proposed rules are a reasonable way to meet that requirement.

“MS section 116.07, subd. 4. (c) The rules for the disposal of solid waste shall include site-specific criteria to prohibit solid waste disposal based on the area’s sensitivity to groundwater contamination, including site-specific testing. The rules shall provide criteria for locating landfills

based on a site's sensitivity to groundwater contamination. Sensitivity to groundwater contamination is based on the predicted minimum time of travel of groundwater contaminants from the solid waste to the compliance boundary. The rules shall prohibit landfills in areas where karst is likely to develop. The rules shall specify testable or otherwise objective thresholds for these criteria. [...]"

8. Consideration of Performance Based Rules (Minn. Stat. § 14.002).

The Agency must describe how, in developing the rules, it considered and implemented the legislative policy supporting performance-based regulatory systems.

Minn. Stat. § 14.002, titled State Regulatory Policy, reads as follows:

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

The legislative directives prescribed certain rule content in Minn. Stat. § 116.07, subd. 4(c) and (d):

"(c) The rules for the disposal of solid waste shall include site-specific criteria to prohibit solid waste disposal based on the area's sensitivity to groundwater contamination, including site-specific testing. The rules shall provide criteria for locating landfills based on a site's sensitivity to groundwater contamination. Sensitivity to groundwater contamination is based on the predicted minimum time of travel of groundwater contaminants from the solid waste to the compliance boundary. The rules shall prohibit landfills in areas where karst is likely to develop. The rules shall specify testable or otherwise objective thresholds for these criteria.

[...]

(d) Until the rules are modified as provided in paragraph (c) to include site-specific criteria to prohibit areas from solid waste disposal due to groundwater contamination sensitivity, as required under this section, the agency shall not issue a permit for a new solid waste disposal facility, except for:

[...]"

The Agency's proposed rules provide for performance-based alternative means to determine groundwater sensitivity and the potential for karst development at a proposed landfill site.

During the extensive dialog with stakeholders and interested parties, a citizen interest group requested simple statewide criteria and thresholds needed to demonstrate compliance. On the other hand, counties and businesses that own landfills asserted that they should be allowed the opportunity to use more extensive site-specific fieldwork to demonstrate meeting the goal of ensuring that contaminant movement is slow enough to allow detection and remediation before levels of concern would reach the compliance boundary. Similarly, while the rule provides a simple threshold for determining that karst is not likely to develop, it also allows an applicant to conduct more extensive site-specific evaluations to demonstrate that karst is not likely to develop. The Agency believes it reasonable to allow the applicant to comply using either alternative approach.

The rule requires applicants to demonstrate that any leaked contaminants would take at least 100 days to reach a compliance boundary. The Agency envisions the 100 day minimum standard as the most straight forward way to demonstrate acceptable groundwater conditions. That provision also allows the applicant to demonstrate groundwater monitorability and remediability using alternative methods.

The allowed alternative is to demonstrate acceptable groundwater conditions (performance of monitorability and remediability) by some other unspecified means. The Agency expects these methods to meet testable or otherwise objective thresholds (e.g., not to exceed applicable standards at an acceptable compliance boundary).

The Agency envisions that the burden to demonstrate adequacy using an allowed alternative pathway would be more rigorous than meeting the basic setback conditions of this provision.

Similarly, to address the legislative directive's prohibition on siting where karst is likely to develop, the proposed rule prescribes avoiding areas within 200 lateral feet of karst features, and to avoid areas of carbonaceous bedrock with 50 feet or less of undisturbed, unconsolidated overburden prior to construction. The proposed rules use testable or otherwise objective thresholds to provide a straight forward test for where karst is likely to develop: less than 50 feet to carbonaceous bedrock and nearby lateral expressions of karst. The Agency envisions meeting these conditions as the most straight forward means to demonstrating that karst is unlikely to develop.

The proposed rule also provides a performance-based alternative allowing the applicant to demonstrate to the Agency's Commissioner, using appropriate and approved site evaluation and field techniques, and adequate verification from experienced licensed geologists and engineers, that karst is not likely to develop and that the site will support the proposed landfill structure. The Agency envisions a greater burden to demonstrate adequacy using an alternative pathway than more simply meeting the basic thresholds of this provision.

9. Additional Notice Plan.

The Agency must describe efforts to provide additional notification to persons or classes of persons who may be affected by the proposed rule, or explain why these efforts were not made (Minn. Stat. § 14.14, subd. 1a).

The Agency believes that the proposed rules do not change the regulated universe of those interested in siting new landfills. The Agency has worked closely with representatives from the potentially regulated community, their associations and other interested parties (stakeholders) since July 2008. The Agency has hosted or attended numerous stakeholder meetings to gather input as it developed draft rule language. It has communicated widely during the rule development process through Webcasts, meetings and emails.

The Agency has held or attended numerous stakeholder meetings and has sent or posted many communications related to these proposed rules beginning in July 2008. In the last year alone, the Agency hosted and Webcast the following stakeholder input meetings related to developing siting rules:

- July 23, 2010: "FASIT Siting Meeting"
- August 20, 2010: "FASIT Siting Meeting"
- October 12, 2010: "Fasit Siting Meeting"
- October 15, 2010: "Fasit Siting Meeting"
- January 6, 2011: "Draft Siting Rules"

Subsequently, during the 2011 Minnesota Legislative Session, the Agency worked closely with key stakeholder representatives to negotiate final rule language and to allow input on the development of this SONAR.

With a high level of stakeholder awareness and interest in workable rules, the Agency believes that the standard notice processes required by Minn. Stat. § 14.22, would be adequate. Still, the Agency has provided additional notice as shown below.

The Agency's Notice Plan includes giving standard notices required by statute as follows:

1. Publishing notice of its intent to adopt these proposed rules in the *State Register* in accordance with Minn. Stat. § 14.22
2. Mailing notices to parties who have registered with the Agency for the purpose of receiving notice of rulemaking proceedings as required by Minn. Stat. § 14.14, subdivision 1a
3. Providing notice to the Legislature per Minn. Stat. § 14.116
4. Notifying and seeking approval to proceed from the Governor's Office and
5. The Agency published a Request for Comments (an advanced notice of possible rules to seek advice) in the *State Register* in July 2008 and again in January 2011.
6. The Agency has developed an interested party mailing list and will notify interested parties when notices are made available.

The Agency's Additional Notice Plan will be submitted to the Office of Administrative Hearings intending to obtain optional approval as allowed under Minn. R. 1400.2060. The following is an outline of the Agency's intended additional notice plan:

1. The Agency plans to send emails to interested parties and stakeholders for whom it has a current email address informing them where to find official notices.
2. The Agency plans to provide links to *State Register* notices via email.
3. The Agency plans to post advice about the proposed rules on the Agency's website at (www.pca.state.mn.us). This includes information about the Agency contact person.
4. The Agency published an updated (2nd) Request for Comments (an advanced notice of possible rules to seek advice) in the *State Register* in January 2011, originally published in July 2008.

The Agency plans to provide a standard comment period of 30 days for the proposed rules.

10. Fiscal Impact.

The Agency must consult with the commissioner of the Department of Finance to help evaluate the fiscal impact and fiscal benefits of the proposed rule on units of local government (Minn. Stat. § 14.131). The Agency's Executive Budget Officer initiates this consultation with the Department of Finance.

In accordance with the interim process established by the Department of Finance on June 21, 2004, the Agency will provide Finance with a copy of the proposed rule and SONAR at the same time as it sends these to the Governor's Office. This timing allows the fiscal impacts and fiscal benefits of a proposed rule to be reviewed by the Department of Finance concurrent with the Governor's Office review (up to 21 days).

The documents include: the Governor's Office Proposed Rule and SONAR Form; almost final draft rules; and almost final SONAR. The Department of Finance response will become part of the rulemaking record.

The Agency believes that few local governments (e.g., counties) will see any fiscal impact from the proposed rules. This is because so few regulated new landfills are likely to be sited in Minnesota, much less by any one of 87 Minnesota counties. Also, if a landfill were sited in a county, the county might realize long-term fiscal benefits from the proposed rules either directly or indirectly.

When landfills are owned or operated by private ventures, the host county could benefit directly by assurance that the landfill is sited in an area where site conditions are known and certified as environmentally protective. The county is better protected from a landfill failing due to proper siting. If a private landfill fails to contain waste, the county is better protected from potential remediation costs by having more monitorable and less-sensitive groundwater conditions.

Should a county choose to site a regulated new landfill of its own, the proposed rules would require added investment in site evaluation. This could result in offsetting fiscal impacts in a couple of ways. First, the rules encourage siting in lower risk areas (which should minimize siting costs, and reduce future remediation risks). If a county chooses to site a landfill in a more complex hydrogeologic location (following more detailed site evaluation), there are likely to be substantial fiscal impacts. Still, the county benefits from its ability to make a more informed cost/benefit analysis, and also from having proven a site's viability and likely reduced risk of possible future remediation costs.

11. Copy to Legislative Reference Library.

The Agency must send a copy of the SONAR to the Legislative Reference Library when the notice of hearing is mailed under Minn. Stat. § 14.14, subd. 1a.

The Agency plans to submit all required documentation.

VII. Other Statutory Considerations

Other *Minnesota Statutes* contain requirements in addition to those required SONAR considerations in Minn. Stat. § 14.131:

1. Minn. Stat. § 14.111 Farming Operations
2. Minn. Stat. § 14.116 Notice to Legislature
3. Minn. Stat. § 116.07 Pollution Control Agency; exercise of powers (business considerations)
4. Minn. Stat. § 174.05 Pollution Control Agency; Rules and Standards (notifying the Commissioner of the Minnesota Department of Transportation)
5. Minn. Stat. § 14.127 Legislative Approval Required, subd. 1, Cost thresholds
6. Minn. Stat. § 116.07, subd. 2(f), analysis of differences between the proposed rule and similar federal and bordering and Environmental Protection Agency (EPA) Region-5 state standards.

The Agency addresses these below in order:

1. Minnesota Statute § 14.111 Farming Operations:

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

A rule may not be invalidated for failure to comply with this section if an agency has made a good faith effort to comply.”

The Agency believes that its proposed rules do not affect farming operations and that it is not required to notify the commissioner of the Department of Agriculture under Minn. Stat. § 14.111. Any landfill applicant may agree to purchase land previously used for farming. Also, a county or other local government unit might use rights of eminent domain to compel an owner(s) to sell land for a publicly-owned landfill, whether or not used in farming.

Either of these possibilities exists under existing rules and would remain possible under the proposed rule. The total acreage of farmland used for landfills in Minnesota would remain miniscule and would not be changed by the proposed rule. It is also conceivable that a closed landfill might someday be returned to some type of farming practice (e.g., hay production).

2. Minnesota Statute § 14.116 Notice to Legislature:

“When an agency mails notice of intent to adopt rules under section 14.14 or 14.22, the agency must send a copy of the same notice and a copy of the statement of need and reasonableness to the chairs and ranking minority party members of the legislative policy and budget committees with jurisdiction over the subject matter of the proposed rules.

In addition, if the mailing of the notice is within two years of the effective date of the law granting the agency authority to adopt the proposed rules, the agency shall make reasonable efforts to send a copy of the notice and the statement to all sitting legislators who were chief house and senate authors of the bill granting the rulemaking authority. If the bill was amended to include this rulemaking authority, the agency shall make reasonable efforts to send the notice and the statement to the chief house and senate authors of the amendment granting rulemaking authority, rather than to the chief authors of the bill.”

The Agency plans to send copies of the notice, the proposed rule, and the SONAR to the chairs and ranking minority party members of the Senate Environment and Natural Resources Committee. The Agency will also copy the chairs and ranking minority members of the House Environment, Energy and Natural Resources Policy and Finance Committee.

Since mailing of this notice is within two (2) years of the effective date of the law granting the Agency authority to adopt the proposed rules, the Agency shall make reasonable efforts to send a copy of the notice and the statement to all sitting legislators who were chief house and senate authors of the bill granting the rulemaking authority. Since the bill was amended to include this rulemaking authority, the Agency will make reasonable efforts to send the notice and the statement to the chief sitting house and senate authors of the amendment granting rulemaking authority, as well as to the chief authors of the bill.

3. Minnesota Statute § 116.07 Pollution Control Agency; Exercise of Powers (Business Considerations)

Minn. Stat. § 116.07, subd. 6 (and identical language in Minn. Stat. § 115.43, subd. 1), state the following regarding the consideration of economic impacts:

“In exercising all its powers the pollution control agency shall give due consideration to the establishment, maintenance, operation and expansion of business, commerce, trade, industry, traffic, and other economic factors and other material matters affecting the feasibility and practicability of any proposed action, including, but not limited to, the burden on a municipality of any tax which may result therefrom, and shall take or provide for such action as may be reasonable, feasible, and practical under the circumstances.”

The Agency worked with a variety of stakeholders while developing the proposed rules. This included a coalition lead by the Minnesota Chamber of Commerce representing private, business and public owners and operators of landfills. The Agency has duly considered possible economic impacts from various options leading to the negotiated proposed rules. The Agency believes the scope of these rules will not prohibit future landfill siting. The proposed rule may result in applicants seeking more economically favorable sites which have fewer geologic issues. The legislative directives provided that the rules should not apply to landfills with existing permits or to their expansion.

Within the context of the cost of siting, constructing and operating a landfill, the additional cost of the proposed site evaluation rules should generally be incremental. Some minor, indirect cost savings may be realized by regulated parties that benefit from selecting a site that meets the more easily determined criteria relating to groundwater sensitivity and potential for karst development for their landfill. This could save evaluation costs and any costs associated with future monitoring or remediation.

4. Minnesota Statute § 174.05 Pollution Control Agency; Rules and Standards (Notifying the Commissioner of the Minnesota Department of Transportation)

Minn. Stat. § 174.05, titled Pollution Control Agency; Rules and Standards, provides the following requirements regarding notifying the Commissioner of Transportation:

*“ Subdivision 1. **Notification by Pollution Control Agency.** The commissioner of the Pollution Control Agency shall inform the commissioner of transportation of all activities of the Pollution Control Agency which relate to the adoption, revision, or repeal of any standard or rule concerning transportation established pursuant to section 116.07. Upon notification the commissioner shall participate in those activities. Participation may include, but is not limited to, access to all pertinent information collected or compiled by the Pollution Control Agency and transmittal to the commissioner of the Pollution Control Agency of information and expert opinions concerning the ability of affected modes of transportation to accomplish the desired objectives and the impact that alternative methods of attaining those objectives would have on present or planned transportation systems in the state.*

*Subd. 2. **Commissioner to submit review of proposed rules.** Prior to public hearings on any rule concerning transportation proposed by the Pollution Control Agency, the commissioner of transportation shall submit a written review of those rules, including an*

analysis of their impact upon the state's transportation system, and may propose alternative rules or standards. This report shall be made part of the record of the hearing and shall be made available to any person prior to the hearing.

*Subd. 3. **Report by Pollution Control Agency.** Upon the adoption, revision or repeal of a rule concerning transportation, the commissioner of the Pollution Control Agency shall publish a written report of the manner in which the adopted rule reflects consideration of the factors specified in section 116.07, subdivision 6, and the specific issues raised in the commissioner of transportation's report."*

The Agency believes that the proposed rules present no special concern regarding Minnesota's transportation systems. Therefore, the Agency believes there is no obligation to provide special notice of the proposed rules to the Commissioner of Transportation under Minn. Stat. § 174.05.

5. Minnesota Statute § 14.127 Legislative Approval Required, Subdivision 1, Cost Thresholds

Minn. Stat. § 14.127, titled Legislative Approval Required, subd. 1, Cost thresholds, provides the following requirement:

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

Subd. 2. Agency determination. An agency must make the determination required by subdivision 1 before the close of the hearing record, or before the agency submits the record to the administrative law judge if there is no hearing. The administrative law judge must review and approve or disapprove the agency determination under this section.

Subd. 3. Legislative approval required. If the agency determines that the cost exceeds the threshold in subdivision 1, or if the administrative law judge disapproves the agency's determination that the cost does not exceed the threshold in subdivision 1, any business that has less than 50 full-time employees or any statutory or home rule charter city that has less than ten full-time employees may file a written statement with the agency claiming a temporary exemption from the rules. Upon filing of such a statement with the agency, the rules do not apply to that business or that city until the rules are approved by a law enacted after the agency determination or administrative law judge disapproval.

Subd. 4. Exceptions.

(a) Subdivision 3 does not apply if the administrative law judge approves an agency's determination that the legislature has appropriated money to sufficiently fund the expected cost of the rule upon the business or city proposed to be regulated by the rule.

(b) Subdivision 3 does not apply if the administrative law judge approves an agency's determination that the rule has been proposed pursuant to a specific federal statutory or regulatory mandate.

(c) This section does not apply if the rule is adopted under section 14.388 or under another law specifying that the rulemaking procedures of this chapter do not apply.

(d) This section does not apply to a rule adopted by the Public Utilities Commission.

(e) Subdivision 3 does not apply if the governor waives application of subdivision 3. The governor may issue a waiver at any time, either before or after the rule would take effect,

but for the requirement of legislative approval. As soon as possible after issuing a waiver under this paragraph, the governor must send notice of the waiver to the speaker of the house and the president of the senate and must publish notice of this determination in the State Register.

Subd. 5. Severability.

If an administrative law judge determines that part of a proposed rule exceeds the threshold specified in subdivision 1, but that a severable portion of a proposed rule does not exceed the threshold in subdivision 1, the administrative law judge may provide that the severable portion of the rule that does not exceed the threshold may take effect without legislative approval.

The proposed rules do not require anyone to construct a landfill. The rules only require adherence to improved siting standards for those who wish to apply to construct a landfill. Landfills are typically run as a for-profit venture (whether publicly or privately owned).

The Agency believes that the cost of complying with the proposed rule in the first year is not likely to exceed the statutory \$25,000 cost threshold for any one business with less than 50 full-time employees or for any one statutory or home rule charter city with fewer than ten full-time employees. There are no statutory or home rule charter cities that own or operate the landfills regulated by these proposed rules. A large business is most likely to propose a landfill regulated by these proposed rules. Several landfills are also owned/operated by counties.

The proposed rule represents an incremental change to existing rules for an existing regulated community. The regulated community would have had to perform some level of site evaluation prior to these proposed rules. The Agency believes that most increased site evaluation costs are incremental in nature and that these increased costs are unlikely to exceed \$25,000 in the first year for any business with less than 50 full-time employees.

6. March 3, 2011 Statutory SONAR Requirements:

2011 Minnesota Session Laws Chapter 4 requires that for proposed rules adopting solid waste standards, the SONAR must include an assessment of any differences between the proposed rule and existing federal standards adopted under 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 EPA Region 5; and a specific analysis of the need for and reasonableness of each difference.

The EPA's regulations governing non-hazardous, municipal solid waste landfills are contained in 40 CFR Part 258, Subpart B, §§ 258.10 through 258.15. These relate to airport safety, floodplains, wetlands, seismic fault areas, seismic impact areas, and geologically unstable areas. 40 CFR Part 258 requires no evaluation of groundwater sensitivity such as groundwater flow speed or the likelihood of future karst development. Therefore, in regard to the siting of newly permitted landfills, the proposed rule would be more restrictive than the EPA regulations.

In the five states that share borders with Minnesota (IA, WI, SD, ND and MI [MN shares a Lake Superior water border with MI]) there are no comparable rules that prohibit future landfills based on

groundwater sensitivity (based on groundwater contaminant time of travel from the solid waste to a compliance boundary) or on the likelihood that karst will develop. These states' rules have site prohibitions for MMSW landfills that are based on EPA Subtitle D regulations (40 CFR Part 258). Wisconsin's Department of Natural Resources provided this comment to the Agency: "Our code specifies minimum distances that must be maintained from solid waste facilities to water supply wells, surface water bodies and property boundaries, but these apply to all sites and do not vary according to susceptibility of the resource to groundwater contamination. Susceptibility to contamination may be considered on a case-by-case basis when we are considering a request for an exemption to one of the setback requirements."

Of the three states in EPA Region 5 other than Wisconsin and Michigan (IL, OH, IN), Ohio is the only state having rules with a prohibitory emphasis on a site's inherent groundwater-sensitivity characteristics, and that are considered apart from engineering solutions. Ohio's landfill siting process considers estimated travel time for leachate emitted from landfilled waste, but rather than travel time of contaminants to the compliance boundary as in Minnesota's proposed rules, Ohio looks at the travel time to public water supplies (minimum of five years time-of-travel for ground water flow to a public water supply well or within a designated drinking water source protection area for a public water system using ground water.) Ohio also prohibits the siting of MSW landfills over sole-source aquifers and over sand and gravel aquifers yielding more than 100 gallons per minute. In Ohio, the base of the bottom liner must be isolated from the underlying uppermost aquifer system by at least 15 feet of soil or other geologic material. While Ohio EPA does grant variances on occasion, engineering is not considered a substitute for the siting requirements: "Engineered liner and leachate collection systems are used to provide additional ground water protection, and cannot be used to satisfy siting criteria, or to replace the natural protection provided by proper landfill siting." (Ohio Solid Waste Guidance Document #0690, June 23, 2004).

Relevant Ohio rules may be found at Ohio Administrative Code 3745-27 (MMSW landfills); OAC 3745-29 (industrial landfills); OAC 3745-30 (residual solid waste landfills) and OAC 3745-400 (construction and demolition debris landfills).

2011 Minnesota Session Laws Chapter 4 also requires a specific analysis of the need and reasonableness for each difference from federal and neighboring state solid waste standards. In laws passed in 2008 and 2010 the Minnesota Legislature directed the MPCA to adopt rules to set measurable thresholds to prohibit the siting of landfills based on the time of travel of contaminants, and based on the likelihood that karst would develop at the site in the future. By directing the rule changes, the 2008 and 2010 laws created the need for the rule amendments. It is reasonable for the MPCA to meet that need by consulting with stakeholders following the law passage, setting thresholds, and specifying how the measurements or other objective criteria would be evaluated, while allowing the option of performance-based standards if sensitive groundwater is protected.

VIII. List of Authors, Witnesses and Attachments

The following Agency staff participated in the development of this rulemaking and SONAR:

- a. Nathan Cooley, Rule Coordinator, Municipal Division, Land Policy Unit
- b. Jim Chiles, Policy Coordinator, Municipal Division, Land Policy Unit
- c. Mark Rys, Hydrogeologist, Municipal Division, Solid Waste Permitting
- d. Dan Vleck, Professional Engineer, Municipal Division, Solid Waste Permitting
- e. David Richfield, Supervisor, Municipal Division, Land Policy Unit
- f. Paula Connell, Supervisor, Municipal Division, Solid Waste Permitting
- g. Gary Pulford, Section Manager, Municipal Division, Solid Waste Section

In support of the need for and reasonableness of the proposed rules, the Agency anticipates that it will enter the following exhibits into the hearing record:

IX. Attachments:

1 - Certified Copy of Rule Language.

X. CONCLUSION

Based on the discussion in this document, the proposed rules are both needed and reasonable.

7/29/11
Date

for Paul Aasen
Paul Aasen
Commissioner

ATTACHMENT 1—Certified Copy of Rule Language

"May 17, 2011

Legislative Reference Library
645 State Office Building
100 Constitution Avenue
St. Paul, MN 55155

RE: Proposed Amendment to Minnesota Pollution Control Agency *Minnesota Rules*, Chapters 7001 and 7035 (new part 7001.3111 provides additional siting requirements for certain landfills that have not received a permit before January 1, 2011; and revised part 7035.2525 governing solid waste management facilities); Governor's Tracking #AR 422

Dear Librarian:

The Minnesota Pollution Control Agency intends to amend its rules governing siting certain types of new landfills. It plans to publish a Notice of Intent to Adopt Rules without a Public Hearing in the May 23, 2011 *State Register*.

The Agency has prepared a Statement of Need and Reasonableness (SONAR). As required by Minnesota Statutes, sections 14.131 and 14.23, I have submitted an electronic copy of the SONAR to the Legislative Reference Library via e-mail to sonar@lrl.leg.mn and sonars@lrl.leg.mn on the date of this letter. If you have questions, please contact me at 651-757-2290.

Sincerely,

Nathan Cooley
Rule Coordinator
Policy, Local Government Assistance and Solid Waste Section
Municipal Division

NC:wgp

Enclosure: Statement of Need and Reasonableness was sent electronically"

Please call if you have any questions. Thanks

Nathan Cooley
651-757-2290

Minnesota Pollution Control Agency
Statement of Need and Reasonableness (SONAR)

Proposed Amendment to Rules Governing Siting of Solid Waste Landfills

Minnesota Rules, Chapters 7001 and 7035



**Minnesota Pollution
Control Agency**

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I. Introduction and Background

The Minnesota Pollution Control Agency (Agency) is amending *Minnesota Rules* (Minn. R.) chapters 7001 and 7035 governing siting of landfills. The Agency is revising existing rules to address two legislative directives, each requiring it to improve siting and financial assurance standards for landfills. The Agency split this into two separate rulemakings; this one addressing siting rules to address a legislative moratorium, and another addressing financial assurance.

The Agency published a *Request for Comments* in July 2008, and has worked with stakeholders since that time. The legislative directives were laid out in a May 2008 Omnibus Supplemental Budget bill, 2008 Minnesota Laws, as amended in May 2010 (pertinent language below, or search entire law at the following link: www.revisor.mn.gov/data/revisor/law/2010/0/2010-361.pdf):

“From 2008 Minnesota Session Laws Chapter 363, Article 5

[...]

*Sec. 33. **SOLID WASTE DISPOSAL RULES REPORT; LEGISLATIVE REVIEW.***

By January 15, 2010, the Pollution Control Agency shall report to the senate and house of representatives environment policy and finance committees and divisions on proposed rules, under Minnesota Statutes, section 116.07, subdivision 4, to prohibit the disposal of solid waste in specific areas due to the sensitivity of the area to groundwater contamination.” [...]

*“From LAWS of MINNESOTA for 2010, **CHAPTER 361–S.F.No. 3275***

Sec. 63. Minnesota Statutes 2008, section 116.07, subdivision 4, is amended to read:

[...]

*Subd. 4. **Rules and standards.***

[...]

“(c) The rules for the disposal of solid waste shall include site-specific criteria to prohibit solid waste disposal based on the area's sensitivity to groundwater contamination, including site-specific testing. The rules shall provide criteria for locating landfills based on a site's sensitivity to groundwater contamination. Sensitivity to groundwater contamination is based on the predicted minimum time of travel of groundwater contaminants from the solid waste to the compliance boundary. The rules shall prohibit landfills in areas where karst is likely to develop. The rules shall specify testable or otherwise objective thresholds for these criteria. The [...] siting modifications to the rules specified in this paragraph do not apply to:

(1) solid waste facilities initially permitted before January 1, 2011, including future contiguous expansions and noncontiguous expansions within 600 yards of a permitted boundary;

(2) solid waste disposal facilities that accept only construction and demolition debris and incidental nonrecyclable packaging, and facilities that accept only industrial waste that is limited to wood, concrete, porcelain fixtures, shingles, or window glass resulting from the manufacture of construction materials; and

(3) requirements for permit by rule solid waste disposal facilities.

(d) Until the rules are modified as provided in paragraph (c) to include site-specific criteria to prohibit areas from solid waste disposal due to groundwater contamination sensitivity, as required under this section, the agency shall not issue a permit for a new solid waste disposal facility, except for:

- (1) the reissuance of a permit for a land disposal facility operating as of March 1, 2008;
- (2) a permit to expand a land disposal facility operating as of March 1, 2008, beyond its permitted boundaries, including expansion on land that is not contiguous to, but is located within 600 yards of, the land disposal facility's permitted boundaries;
- (3) a permit to modify the type of waste accepted at a land disposal facility operating as of March 1, 2008;
- (4) a permit to locate a disposal facility that accepts only construction debris as defined in section 115A.03, subdivision 7;
- (5) a permit to locate a disposal facility that:
 - (i) accepts boiler ash from an electric energy power plant that has wet scrubbed units or has units that have been converted from wet scrubbed units to dry scrubbed units as those terms are defined in section 216B.68;
 - (ii) is on land that was owned on May 1, 2008, by the utility operating the electric energy power plant; and
 - (iii) is located within three miles of the existing ash disposal facility for the power plant; or
- (6) a permit to locate a new solid waste disposal facility for ferrous metallic minerals regulated under Minnesota Rules, chapter 6130, or for nonferrous metallic minerals regulated under Minnesota Rules, chapter 6132. [...].”

Rule Development:

Pursuant to the above legislative directives, the Agency published advanced notice of its intent to amend these rules in the *State Register* in July 2008, and began working with stakeholders and interested parties. The 2008 legislative directive required the Agency to report progress on proposed rules to the Legislature by January 15, 2010. The Legislature then clarified its directions and renewed the Agency’s authority to make these rules in May 2010. The Agency republished an advanced notice of its intent to amend these rules in the *State Register* on January 3, 2011.

The Agency has registered input and developed lists of interested parties during this process. The Agency originally intended to develop one rule addressing both the siting and the financial assurance aspects of the legislative directive. The Agency later determined that, with different stakeholders and staff involved, and with a moratorium on most new landfills pending the Agency promulgating siting rules that address the legislative directive, it made sense to separate each topic into a separate rulemaking that could proceed on an independent schedule. The Agency anticipates general support for the Legislature’s directives to improve siting standards for Minnesota landfills.

Alternative Format:

The Agency can make this document available in alternative formats such as large print, Braille, or cassette tape. To make a request, please contact Nathan Cooley at the Agency, Municipal Division, 520 Lafayette Road North, St. Paul, MN 55155 (phone 651-757-2290). TTY users may call the Agency at 651-282-5332 or 800-657-3864. You may also fax a request to 651-297-8676, or send an e-mail to nathan.cooley@pca.state.mn.us.

II. Statutory Authority

The Agency has the necessary authority to adopt these proposed solid waste rules. Minn. Stat. § 116.07, subd. 2 and subd. 4(b) provide the Agency general authority for solid waste standards. These general authorities were adopted and effective before January 1, 1996, and allow the Agency to amend existing solid waste rules.

In May 2008, and again in May 2010, the Legislature amended Minn. Stat. § 116.07, subd. 4(c) and 4(d), and subd. 4h, providing the Agency with specific authority to improve siting standards for landfills initially permitted after January 1, 2011.

Minn. Stat. § 14.125, part of the Administrative Procedures Act (APA), allows the Agency to subsequently amend these rules without additional legislative authorization. It also requires agencies to propose rules within 18-months of receiving specific legislative authorization. These specific rulemaking authorities require the Agency to propose rules no later than November 17, 2011.

III. General Need for these Amendments

Minn. Stat. ch. 14 requires the Agency 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 Agency must set forth the reasons for its proposal, and the reasons must not be arbitrary and capricious. However, to the extent that need and reasonableness are separate, need has come to mean that a problem exists which requires administrative attention, and reasonableness means that the solution proposed by the Agency is a reasonable approach to addressing the expressed need.

The primary needs driving the Agency to propose these rules are the May 2008 and the May 2010 legislative directives described by the Minnesota Statute extracts shown in Section I (Introduction and Background). The legislative directives charge the Agency with making rules to improve siting rules for certain landfills that receive initial permits after January 1, 2011. The Legislature believed there was a fundamental need to amend siting rules for the regulated landfills in order to be more protective of areas sensitive to groundwater contamination and to assure that taxpayers are not saddled with costs to correct or mitigate failures in operating or closed landfill systems. The Legislature and the Agency share common goals of protecting public health, the environment and the economy.

Minn. Stat. § 116.07, subd. 4(c) requires that rules provide criteria for locating landfills based on a site's sensitivity to groundwater contamination, and to prohibit siting where karst is likely to develop:

“(c) The rules for the disposal of solid waste shall include site-specific criteria to prohibit solid waste disposal based on the area's sensitivity to groundwater contamination, including site-specific testing. The rules shall provide criteria for locating landfills based on a site's sensitivity to groundwater contamination. Sensitivity to groundwater contamination is based on the predicted minimum time of travel of groundwater contaminants from the solid waste to the compliance boundary. The rules shall prohibit

landfills in areas where karst is likely to develop. The rules shall specify testable or otherwise objective thresholds for these criteria. [...]"

Minn. Stat. § 116.07, subd. 4(d) provides a moratorium on permitting specified types of new landfills until the Agency promulgates rules that address the legislative directive:

"(d) Until the rules are modified as provided in paragraph (c) to include site-specific criteria to prohibit areas from solid waste disposal due to groundwater contamination sensitivity, as required under this section, the agency shall not issue a permit for a new solid waste disposal facility, except for:

(1) the reissuance of a permit for a land disposal facility operating as of March 1, 2008;

(2) a permit to expand a land disposal facility operating as of March 1, 2008, beyond its permitted boundaries, including expansion on land that is not contiguous to, but is located within 600 yards of, the land disposal facility's permitted boundaries;

(3) a permit to modify the type of waste accepted at a land disposal facility operating as of March 1, 2008;

(4) a permit to locate a disposal facility that accepts only construction debris as defined in section 115A.03, subdivision 7;

(5) a permit to locate a disposal facility that:

(i) accepts boiler ash from an electric energy power plant that has wet scrubbed units or has units that have been converted from wet scrubbed units to dry scrubbed units as those terms are defined in section 216B.68;

(ii) is on land that was owned on May 1, 2008, by the utility operating the electric energy power plant; and

(iii) is located within three miles of the existing ash disposal facility for the power plant; or

(6) a permit to locate a new solid waste disposal facility for ferrous metallic minerals regulated under Minnesota Rules, chapter 6130, or for nonferrous metallic minerals regulated under Minnesota Rules, chapter 6132. [...]"

The moratorium provides a strong incentive for the Agency and stakeholders to develop the siting criteria meeting the intent of the legislative directive.

IV. General Reasonableness of these Amendments

Minn. Stat. ch. 14 requires the Agency 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 Agency must set forth the reasons for its proposal, and the reasons must not be arbitrary and capricious. However, to the extent that need and reasonableness are separate, need has come to mean that a problem exists which requires administrative attention, and reasonableness means that the solution proposed by the Agency is a reasonable approach to addressing the expressed need. The Agency discusses the general reasonableness of the proposed rules in this section and provides a more detailed discussion in following sections.

The proposed rules include criteria for prohibiting areas from solid waste disposal based on groundwater contamination sensitivity, as required by the legislative directive. They provide minimum times of travel for any contaminant from solid waste to reach a compliance boundary if released. They also provide criteria for prohibiting landfills in areas where karst is likely to develop. The Agency believes the proposed rules provide a reasonable approach to addressing the needs delineated by the legislative directive.

The May 2008 legislative directive had the Agency work on developing appropriate rules and to report progress by January 15, 2010. The Agency worked with stakeholders and formulated a preliminary rule approach to addressing the original legislative directive. The Agency was aware of varied and conflicting stakeholder positions, so in its January 15th report, the Agency asked the Legislature to further clarify its direction.

One example of missing direction was that the original legislative directive was silent on whether the rules should apply to all, existing, expanded or only new landfills. The May 2010 legislative directive clarified that the rule should only apply to specified types of new landfills that receive an initial permit after January 1, 2011.

With the benefit of having the clarifications in the 2010 legislative directive in hand, the Agency revised its approach to these proposed rules, especially by limiting their scope. In addition to limiting the rules to the specified regulated landfills, the Agency determined that it should focus fairly strictly on meeting the legislative directive.

Normally, when the Agency opens a rule for revision, it takes advantage of that opportunity to do some rule “housekeeping” to take care of fixing minor errors or inconsistencies or to improve organization or clarity of existing rules. In this case, the Agency found that in order to comply with the legislative directive in a timely manner, it needed to limit its efforts clearly on that goal. The Agency believes this is a reasonable approach because with many stakeholders, side-issues might make it hard to satisfy the legislative directive in a timely manner.

While the Agency determined it would limit its efforts to addressing only the legislative directives at this time, it also made a future commitment to stakeholders to continue working with them following rulemaking to explore options to improve rules, guidance and practices into the future.

V. Detailed Analyses of Rule Provisions

The Agency has imbedded the detailed analyses of need and reasonableness of key rule provisions for this SONAR within an extract of the proposed rule language. The imbedded discussion immediately follows each substantive rule provision. The rule extract shows new rule language in an underlined format and any deleted rule language as ~~stricken~~. The Agency imbeds its discussion following each substantive rule provision.

Imbedding the analyses within an extract of the proposed rule language clearly ties the rationale to the proposed change. An alternative would be to provide the discussion separate from the rule language and then to refer the reader to the pertinent rule using citations in the discussion. Imbedding the discussion within the rule extract retains “page.line” numbers in the left margin that relate to the official rule. This helps readers to identify and communicate about the specific language of interest. Finally, readers can use an electronic version of this document to quickly search for keywords of interest.

Disclaimer: The Revisor of Minnesota Statutes maintains the only official version of Minnesota Rules (published in printed book form). While the Agency has been diligent in verifying that rule language used in this SONAR is accurate, the Revisor has the only officially certified version. A certified version is published in the *State Register* as part of the public notice.

Background:

In May 2008, the Minnesota Legislature put a moratorium on siting most types of new landfills until the Agency amended its siting rules to “provide criteria for locating landfills based on a site’s sensitivity to groundwater contamination.” The Agency considered stakeholder input and reported its progress to the Legislature on January 15, 2010. Please see the link to updated FASIT law below, in which the Legislature retained its moratorium and further clarified its direction to the Agency in May 2010. Link to updated FASIT law:

www.revisor.mn.gov/data/revisor/law/2010/0/2010-361.pdf.

In this rulemaking, the Agency adheres to the legislative directive, in Section I (Introduction and Background); to increase standards for siting regulated new landfills (described in proposed Minn. R. 7001.3111, subp. 1). These rules do not apply to landfills with existing permits, to renewals of permits for those landfills, or to expansions of those landfills. These rules do not apply to small demolition landfills. These rules prohibit the siting of new landfills in areas deemed sensitive to groundwater contamination or where karst is likely to develop. The Agency does not plan to make unrelated corrections to its existing landfill rules in this rulemaking.

The following are extracts from the proposed new landfill siting rules followed by the Agency’s rationale:

- “1.1 Pollution Control Agency***
- 1.2 Proposed Permanent Rules Relating to Landfill Siting***
- 1.3 7001.3111 ADDITIONAL SITING REQUIREMENTS FOR CERTAIN***
- 1.4 LANDFILLS THAT HAVE NOT RECEIVED A PERMIT BEFORE JANUARY 1,***
- 1.5 2011.***
- 1.6 Subpart 1. Applicability. In addition to the requirements of this chapter and chapter***
- 1.7 7035, after January 1, 2011, an applicant for a solid waste land disposal facility permit***
- 1.8 that is not a contiguous expansion of a permitted facility or a noncontiguous expansion***
- 1.9 within 600 yards of a permitted facility must demonstrate to the commissioner that the***
- 1.10 facility meets the additional requirements of this part, unless that facility will accept only***

- 1.11 demolition and construction debris and incidental packaging or that facility will accept
1.12 only industrial waste that is limited to wood, concrete, porcelain fixtures, shingles, or
1.13 window glass resulting from the manufacture of building materials.”

In Minn. R. 7001.3111 subp. 1, the Agency describes the applicability of these rules using the language provided by the May 2010 legislative directive about when and to what kinds of landfills these rules apply. It is reasonable to include a section that describes the facilities that this rule is applicable to because the new requirements are not applicable to all facilities; the Agency believes it is also reasonable to base the rule language on the language found in the legislative directive. This reduces the chance of changing the intent of the legislative directive.

- “1.14 Subp. 2. **Site evaluation.** The applicant must comply with parts 7001.3175,
1.15 7001.3200, and 7001.3275.”

In order to ensure that new facilities are located in compliance with the siting criteria required by the legislative directive, the Agency determined that it must gather more information about hydrogeologic conditions at a proposed site. In Minn. R. 7001.3111 subp. 2, the Agency requires regulated new landfills to provide the information already required of Mixed Municipal Solid Waste (MMSW) and Municipal Solid Waste (MSW) ash landfills under existing permit rules. These rules require persons proposing regulated landfills to produce information on the hydrological setting of the proposed facility and about the proposed facility itself, including a proposed location for a compliance boundary. Minn. R. 7001.3175 governs the *Contents of Preliminary Application*, 7001.3200 governs a *Preliminary Site Evaluation Report* and 7001.3275 governs a *Detailed Site Evaluation Report*.

It is reasonable to require this site-specific information for regulated landfills because it is necessary to determine whether the site meets the siting criteria in subpart 3 (see below). These proposed rules provide for a phased approach to site evaluation, consistent with Minn. R. 7035.2815, subp. 3; they focus on collecting site-specific data in a timely and cost-effective sequence/manner. The information must be developed, in part, based on testing. This meets the standard in Minn. Stat. § 116.07, subd. 4(c). The Agency believes it is reasonable to broaden the applicability of existing requirements that assure that the applicant will provide the information needed to determine compliance with the new siting standards in subpart 3, and that it is reasonable to reference existing rules with which the regulatory community is familiar.

- “1.16 Subp. 3. **Siting standards.** The applicant must demonstrate to the commissioner
1.17 using testable or otherwise objective data that the proposed landfill site meets the
criteria in
1.18 item A or B and the criteria in items C and D. The applicant must provide a
certification for
1.19 site and groundwater conditions from a professional geologist licensed in
Minnesota and a
1.20 certification for structural conditions from a professional engineer licensed in
Minnesota.”

Following is a pertinent extract of legislative directive that is addressed by subpart 3:

“MS section 116.07, subd. 4(c): The rules for the disposal of solid waste shall include site-specific criteria to prohibit solid waste disposal based on the area's sensitivity to groundwater contamination, including site-specific testing. The rules shall provide criteria for locating landfills based on a site's sensitivity to groundwater contamination. Sensitivity to groundwater contamination is based on the predicted minimum time of travel of groundwater contaminants from the solid waste to the compliance boundary. The rules shall prohibit landfills in areas where karst is likely to develop. The rules shall specify testable or otherwise objective thresholds for these criteria. [...]”

The Agency believes that a plain reading of the legislative directive clearly requires that proposed rules specify siting criteria based on testable or otherwise objective thresholds. Subpart 2 required the applicant to generate this data regarding a proposed site. Subpart 3 requires the applicant to use the site-specific data to demonstrate how the proposed site meets the siting standards in items A or B, and in items C and D. It is reasonable to require the applicant to provide adequate and accurate data to demonstrate compliance with siting standards.

As part of the demonstration, subpart 3 goes on to require that qualified professionals certify the conditions found during site evaluation: site and groundwater conditions require certification by a licensed professional geologist, and structural conditions require certification from a licensed professional engineer. The Agency expects the certifying professionals to have directly-applicable experience with the hydrogeologic and structural issues found at a proposed site. The Agency believes it reasonable to expect that a qualified professional geologist oversee the hydrogeologic evaluations necessary to certify the adequacy of the proposed site. Similarly, the Agency believes it reasonable to expect that a qualified professional engineer oversee the structural evaluations necessary to certify the structural adequacy of the proposed site.

Additionally, it is reasonable to require qualified professionals to provide these certifications because the techniques involved in these evaluations are specialized, complex and changing over time. The Agency is not prescribing specific investigative methods in this rule because while current methods should adequately characterize a site (these may include desktop modeling, seepage rates, dye traces, or others), the investigative tools and methods have historically changed and improved rapidly in this field. The Agency believes it is reasonable to not prescribe specific methods in these rules because it believes that investigative methods in this field are likely to improve over time. The Agency expects the applicant to use current investigative methods.

*“1.21 A. The predicted minimum time of travel of groundwater contaminants from
1.22 the proposed landfill's base grade to an approvable proposed compliance boundary
is at
1.23 least 100 days.
1.24 B. Groundwater flow is known in sufficient detail to allow monitoring for
1.25 potential contaminant releases, and site and groundwater conditions would allow
the
1.26 owner/operator sufficient space and time to implement corrective actions to
prevent
2.1 contaminants released from the landfill from exceeding applicable standards at a
2.2 compliance boundary.”*

The Agency believes that the intent of the legislative directive was that the rules would require the evaluation of site suitability prior to facility construction. The legislative directive requires that:

“The rules shall provide criteria for locating landfills based on a site's sensitivity to groundwater contamination. Sensitivity to groundwater contamination is based on the predicted minimum time of travel of groundwater contaminants from the solid waste to the compliance boundary.”

Items A and B reasonably reflect this intent to prohibit solid waste disposal based on an area's sensitivity to groundwater contamination. Item A requires an applicant to demonstrate that it would take groundwater contaminants released from a proposed landfill's base grade at least 100 days to reach a proposed compliance boundary. Items A and B are both based on demonstrating that a site meets sensitivity criteria for groundwater contamination; predicted contaminant travel time cannot impede the ability to monitor, detect, track and effectively respond to a possible release of contaminants from a landfill.

The Agency was charged with determining criteria to establish when a site was sensitive to groundwater contamination. The first sensitivity criteria determined by the Agency, working with interested parties, was that a contaminant release from a proposed landfill must take at least 100 days to reach the proposed compliance boundary. The Agency based this “speed limit” on current practices at Minnesota landfills. With quarterly environmental monitoring practices, 100 days represents an approximate time between monitoring events. Also, compliance boundaries are normally located about 200 feet from the waste footprint.

Normally, contaminant concentrations would be detected at low enough levels to allow sufficient time to respond before contaminants built to levels that raised health concerns. If a contaminant was to reach a compliance boundary in less than 100 days, the agency had concern that the opportunity to respond to the contaminant release might be reduced. The goal is to ensure that contaminant movement is slow enough to allow detection and remediation before levels of concern would reach the compliance boundary. Following extensive stakeholder input, the Agency selected 100-days as a reasonable threshold for the time of travel of contaminants. It is not the Agency's intent that a permit applicant might try to remedy a site's high groundwater flow velocity by increasing the frequency of monitoring beyond what is currently best management practice established at a quarterly rate per year, or by moving monitoring wells closer to the landfill. The intent of the rules is to reduce the risk of contamination by siting landfills in areas with lower groundwater travel velocities.

During the extensive dialog with stakeholders and interested parties, a citizen interest group requested simple statewide criteria and thresholds needed to demonstrate compliance. On the other hand, counties and businesses that own landfills asserted that they should be allowed the opportunity to use more extensive site-specific fieldwork to demonstrate meeting the goal of ensuring that contaminant movement is slow enough to allow detection and remediation before levels of concern would reach the compliance boundary. The Agency believed it reasonable to allow the applicant to comply with either item A or B.

Item A provides a simple compliance option based on uniform underlying assumptions about distances from waste to compliance boundaries (typically 200 feet), groundwater monitoring frequency (approximately 100 days) and timely responses to detected contaminant releases.

The alternative compliance option offered under item B recognizes that not all landfill site configurations and operations reflect the typical underlying assumptions. Under item B, in lieu of fixed assumptions under item A, the applicant may demonstrate through the collection of site-specific data, that groundwater flow is known in sufficient detail to allow the detection of potential contaminant

releases, and sufficient space and time to implement corrective actions to prevent contaminants from exceeding standards at a compliance boundary.

The Agency would expect applicants using item B to conduct a very rigorous site-specific hydrogeologic evaluation to establish the nature of groundwater flow beneath the site. Such field investigation techniques may include but are not be limited to tracer testing to identify dominant fracture groundwater flow pathways, and both borehole and surface geophysical techniques to help characterize subsurface features not observed at the surface.

The proposed rules allow some additional flexibility in determining time of travel. Few contaminants migrate as fast as the groundwater flow field because contaminants exposed to the hydrogeologic media tend to be attenuated and degraded with time. If a projected contaminant moves faster than groundwater (this is unusual), it must be used to determine time of travel. If no projected contaminant moves faster than water, the applicant can use either the fastest moving projected contaminant or the speed of the groundwater to determine time of travel (this is meant to provide a conservative, lower cost methodology).

The Agency anticipates that most applicants would be able to determine whether the time of travel criteria can be met with groundwater studies alone. This demonstration might preclude a more detailed analysis of the unsaturated zone or of how an individual contaminant reacts chemically with other conditions found at the site.

When the time of travel through the saturated zone is demonstrated to be at least 100 days, the applicant need not also determine travel time through the unsaturated zone; this is reasonable as it is likely to save time and money. Travel time through the unsaturated zone can be added to that found for the saturated zone if needed to meet the 100-day minimum limit. This requires using site-specific data and evaluation using the same phased approach as applied in the saturated zone. The applicant should first consider the shortest travel time through the saturated zone. If this saturated zone transport time meets the 100-day threshold, it is reasonable to presume that the overall transport time also meets the threshold and that further evaluation through the unsaturated zone is not needed.

The predicted minimum travel time must be based on the fastest moving contaminant (or the speed of groundwater flow is allowed if no contaminant is faster) associated with the proposed waste type. The applicant's calculation of time of travel may take into account contaminant transport through both the saturated and unsaturated zones. The applicant may not include the liner system when calculating contaminant transport times to the compliance boundary or when establishing contaminant concentrations entering the unsaturated zone beneath the landfill. Since the applicant is predicting time of travel for a proposed system, if the applicant needs to include travel through the unsaturated zone, the top of this zone would be the landfill's proposed base grade, not the pre-construction surface grade.

A primary purpose of these rules is to prohibit landfills based on a site's sensitivity to groundwater contamination. This is based on a potential contaminant's time of travel from the waste to a compliance boundary, in the event of a containment system failure, through saturated and unsaturated soils. Developing an accurate estimate of contaminant-transport from the base grade of a proposed landfill through the unsaturated zone is a complex undertaking, largely because hydrogeologic properties of soils change as water passes through.

Associated estimates of unsaturated flow require rigorous sampling and analysis to accurately define the hydrogeologic and geochemical characteristics of each geologic unit comprising the unsaturated zone. It further requires complex modeling where the associated flow equations are nonlinear and not subject to easy solutions.

The Agency believes that defining a site's sensitivity requires using conservative modeling assumptions, such as the hypothetical failure of a landfill's containment system. Landfills are designed to operate with up to one foot of leachate on their liner system. For purposes of modeling travel time through the unsaturated zone to determine site sensitivity, the Agency believes it is reasonable to assume one foot of pressure head applied over the area defined by the proposed landfill's base grade. This also requires the applicant to use properly defined hydrogeologic properties of each geologic unit comprising the unsaturated zone in compliance with Minn. R. 7035.2815, subp. 3, item G.

The Agency believes it is consistent with its legislative directive to prohibit siting based on a site's inherent groundwater sensitivity. Also, that it would be improper to model a site's sensitivity based on highly-limited leakage rates through largely-intact liner systems.

- "2.3 C. No karst exists within 200 feet laterally of the proposed waste fill area.
2.4 D. At sites where carbonate bedrock exists, either of the following conditions
2.5 are met within the area of the compliance boundary:
2.6 (1) more than 50 feet of undisturbed, unconsolidated overburden has been
2.7 maintained prior to construction of the landfill so that karst is not likely to develop;
or
2.8 (2) based on the site evaluation in subpart 2, employing field techniques
2.9 approved by the commissioner, the commissioner finds that karst is not likely to
develop
2.10 and the site will support the proposed landfill structure."

The legislative directive requires the following:

"The rules shall prohibit landfills in areas where karst is likely to develop. The rules shall specify testable or otherwise objective thresholds for these criteria."

Karst development can pose three key concerns: structural stability, reliability of groundwater monitoring, and speed of groundwater flow. Karst development can result in surficial subsidence (sink holes) which could cause the waste containment system to fail and to release contaminants to groundwater. Therefore, it is reasonable to require applicants to demonstrate that the geologic structural features underlying the proposed site will support the containment system and protect groundwater resources. Also, if contaminants reach groundwater in certain karst conditions, these can be very difficult to fully track.

The Agency needed to establish criteria for when a site was likely to develop karst. The timeframe that the Agency would consider for the likelihood of karst development is the life of the landfill starting with facility construction and ending with completion of post-closure duties needed to protect groundwater.

While it is possible that karst could develop at some future date following post closure care, the end of post closure only occurs after the Agency has determined that the waste no longer poses risks to human health or the environment. Also, this determination is made with the benefit of having observed the site through operation and closure cycles wherein any changes in karst development would have been observable.

Items C and D reasonably reflect this intent. Item C requires the applicant to demonstrate that no karst exists within 200 feet laterally from the proposed waste fill area. Item D requires the applicant to demonstrate that either (1) there is more than 50 feet of undisturbed, unconsolidated overburden over

carbonaceous bedrock, or (2) based on the site evaluation in subpart 2, karst is not likely to develop and the site will support the proposed structure.

For item C, the Agency had discussions with stakeholders that ranged from requiring no setback to requiring a setback of 1,000 feet. The Agency found general acceptance among interested parties for requiring a 200-foot lateral setback from existing or remnant karst features.

Looking at a map, surficial expressions of karst frequently appear clustered around areas with the highest potential for karst development. That said; hydrogeologic features can vary widely across relatively short distances or geologic boundaries. Within the vicinity of geologic divides or anomalies, very different geologic features exist within a short distance. For example, there could be a ridge or plateau with shallow carbonaceous bedrock that exhibits many karst features; while these features may be absent in an adjacent valley. Also, varied conditions may occur in areas underlain by carbonate bedrock where glacial systems created geologic divides between cut deep river valleys filled with thick overburden deposits and where nearby carbonate bedrock is covered with thin overburden deposits just beyond the limits of the river valley system.

The applicant needs to evaluate the proposed area for evidence of both current and remnant karst features (e.g., sinkholes that have been filled over time). The applicant should look into historic records and conduct a ground survey of the proposed site's surface features.

Item C prohibits siting regulated landfills where karst exists within 200 feet. There is a direct correlation between the distance to existing karst and the potential for karst development at a site. Karst features statistically occur in clusters or groups. The presence of nearby karst features increases the probability that karst features, detected or undetected, exist currently or will develop at a proposed landfill development site. The Agency believes that 200 feet to existing (or remnant) karst features provides one reasonable criteria for determining whether karst development poses a risk of impacts at a proposed landfill facility.

Item D prohibits siting regulated landfills where karst is likely to develop based on testable or otherwise objective thresholds. In addition to meeting the simple conditions of item C, it is reasonable to further require meeting the additional conditions of item D in a more elaborate phase of site evaluation.

In item D, subitem (1) provides a primary compliance criterion that is fairly simple. This 50-foot threshold is based on research conducted by experts associated with the University of Minnesota. The research established that, in areas underlain by carbonaceous bedrock, having had at least 50 feet of unconsolidated overburden provided a simple predictor that karst was unlikely.

Subitem (2) recognizes that the simple fixed threshold test in subitem (1) is not a perfect predictor of the likelihood of karst development. It allows applicants to conduct more extensive field work to more-completely evaluate bedrock and to more definitively determine whether karst is likely to develop and that the site will support the proposed landfill structure. It is reasonable to offer an alternative approach for applicants willing to conduct more elaborate site-specific evaluations to verify site conditions.

The Agency expects the applicant to use current field investigation techniques to evaluate the geologic and hydrogeologic characteristics of the proposed site. Such techniques might include but not be limited to historic records as well as borehole and surficial geophysical techniques (or equivalent) to help characterize subsurface features. The Agency may also require horizontal drilling techniques (or equivalent) to establish subsurface conditions.

Karst normally develops in conjunction with the carbonaceous bedrock found in southeast Minnesota (mostly in areas south and east of the Twin Cities metropolitan area). To assure that karst is not likely to

develop in areas with carbonaceous bedrock, it is reasonable to require additional evaluation. The 50-foot threshold also applies in areas where the St. Peter Sandstone is underlain by carbonate rock (mostly along the Mississippi River valley in southeast Minnesota). In such cases, the Agency believes it is reasonable to require 50 feet of unconsolidated overburden above any sandstone covering the carbonate bedrock.

The applicant must show that there is at least 50 feet of undisturbed, unconsolidated overburden across the site prior to the construction of the landfill, or must conduct more extensive field work to demonstrate that karst is not likely to develop. The “50-foot” threshold is reasonable based on University of Minnesota research that correlates the thickness of undisturbed overburden with the likelihood of karst developing over carbonate bedrock. Where overburden exceeds 50 feet, research suggests that karst is not likely to develop. The Agency believes this research makes it reasonable to require meeting this criterion prior to constructing the landfill.

Based further on karst expert testimony, the Agency agrees that the 50 feet of overburden must have been in place for a long, uninterrupted period of time prior to construction in order to prevent karst and serve as an indicator. The Agency sees intact overburden as a means to verify that karst is unlikely to develop. Disturbed or replaced overburden reduces protection and may hide karst expressions.

The karst expert testimony suggests that decreased thickness of the overburden, whether by natural conditions or by human activity (such as gravel mining), can increase the likelihood of karst features developing. Therefore, to provide more assurance that karst is unlikely to develop, it is important that a required depth of overburden remains substantively undisturbed prior to landfill construction. For example, an applicant may not add unconsolidated fill to a site to enhance the thickness of overburden to meet the 50-foot threshold (e.g., filling in a gravel pit).

It is reasonable to require that the depth of overburden cannot have been modified substantively by recent human-timescale activity within the 50-foot limit. Exceptions might include normal farming activities including having plowed fields and associated homesteading appurtenances (e.g., the Agency might allow a properly-grouted homestead well, cistern or foundation).

Further, when overburden has been adequate prior to construction, the Agency believes that, using due diligence, the final base of the landfill can be closer than 50 feet from bedrock without undue risk of causing karst development. The Agency believes landfills can be constructed to manage water movement/conditions to prevent increases to bedrock dissolution.

The Agency believes it is reasonable to require the applicant to use approved evaluative field techniques to ensure that the current best practices are employed. The Agency is not prescribing specific methods in this rule. While current methods should adequately characterize a site, the investigative tools and methods have historically changed and improved rapidly in this field. The Agency believes it is reasonable to not prescribe specific methods in these rules because it believes that investigative methods in this field are likely to improve over time. The Agency expects the applicant to use current investigative methods.

Such field investigation techniques may include but are not be limited to tracer testing to identify dominant fracture groundwater flow pathways, and both borehole and surface geophysical techniques to help characterize subsurface features not observed at the surface. The Agency may also require horizontal drilling techniques (or equivalent) to establish subsurface conditions. The Agency may require rock cores to be evaluated at different orientations for small scale structural features which may indicate potential karst development. The Agency may also seek installation of a groundwater remediation system that can be activated in time to contain any potential release to groundwater.

“2.11 7035.2525 SOLID WASTE MANAGEMENT FACILITIES GOVERNED.

2.12 [For text of subp 1, see M.R.]

2.13 Subp. 2. **Exceptions.** Parts 7035.2525 to 7035.2915 do not apply to the following

2.14 solid waste management facilities or persons, except as indicated:

2.15 [For text of items A to E, see M.R.]

2.16 F. industrial solid waste land disposal facilities, except that those receiving an

2.17 initial permit after January 1, 2011, must comply with part 7035.2555;

2.18 [For text of items G to K, see M.R.]”

The Agency proposes modifying the exemption for industrial solid waste land disposal facilities provided in subpart 2, item F in order to require industrial landfills newly permitted after January 1, 2011 to comply with the siting requirements found in 7035.2555 in addition to the other standards for siting a landfill. The legislative directive says which types of landfills must comply with the new standards in this rulemaking and new industrial landfills are included. The Agency believes it is reasonable to assure that industrial landfills permitted after January 1, 2011, meet the more protective siting standards.

VI. Regulatory Analysis under Minn. Stat. § 14.131

Minn. Stat. § 14.131, entitled Statement of Need and Reasonableness, is supported by Minn. Stat. § 14.23, and Minn. R. 1400.2070, and requires the following considerations in the SONAR:

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

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

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

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

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

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

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

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

Also,

(8) The statement must 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.

(9) The statement must also describe the agency's efforts to provide additional notification under section 14.14, subdivision 1a, to persons or classes of persons who may be affected by the proposed rule or must explain why these efforts were not made.

(10) The agency must consult with the commissioner of finance to help evaluate the fiscal impact and fiscal benefits of the proposed rule on units of local government.

(11) The agency must send a copy of the statement of need and reasonableness to the Legislative reference Library when the notice of hearing is mailed under section 14.14, subdivision 1a."

The Agency addresses these considerations in order below:

1. Classes of Persons Affected.

The Agency is to describe 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.

Who is affected?

These rules will regulate those parties applying for an initial permit to site one of the types of landfills described in Section I. While the proposed rules will increase site evaluation requirements for parties already regulated, they do not increase the size of the regulated community.

There are a relatively small number of parties likely to be regulated by these proposed landfill siting rules. In the recent past, the Agency has received on the order of about 1 initial permit application per year for all of the landfill types that would be regulated by these proposed siting rules combined.

Recent experience has shown that the most common practice is for existing permitted landfills to expand their existing facility. The legislative directive in Minn. Stat. § 116.07, subd. 4(d), explicitly exempts from these rules landfills that wish to expand under an existing permit issued prior to January 1, 2011.

Proposed rules broaden the applicability of existing rules that already apply to siting a new MMSW or MSW ash landfill. These would now apply to all new regulated landfills described in part 7001.3111, subpart 1 of the proposed rule. The Agency believes this is necessary in order to meet the legislative directive's intent that siting rules must better protect sensitive groundwater in Minnesota.

Who bears the cost of complying with these new rules?

There are many rules and processes that govern the siting of any new landfill. Minn. R. 7001.3111, subp. 1, describes the classes of landfills regulated by the proposed rule.

The proposed rules increase the applicability and scope of existing site evaluation rules. The associated increased cost of siting a landfill will likely relate directly to the size and hydrogeologic complexity and conditions of the proposed site. Any added costs to comply with the proposed rules will primarily be borne by the permit applicants.

As a result of the legislative directive, in these proposed siting rules the Agency broadens the applicability of existing rules that require detailed site evaluation at MMSW and MSW ash landfills to apply to the other types of landfills described in Section I. Note that while this area of the existing site evaluation rules had only specified MMSW and MSW ash landfills, the Agency has used its existing

general permitting authority to apply equivalent requirements to other types of landfills as a condition of their obtaining a permit. In addition, the proposed rules change some of the information required for site evaluation to include specific criteria for groundwater sensitivity and the propensity for karst development at the site.

Who benefits?

The proposed rules are primarily intended to protect the health of Minnesotans and their environment by taking reasonable steps to protect areas most sensitive to groundwater contamination if a landfill's waste containment system were to fail. It should be noted that historically, landfill groundwater contaminant problems are associated with dumps (unlined landfills or unlined portions of landfills before modern- engineered containment systems were used). The Agency has observed that the most damaging and expensive cleanups have occurred in areas with the fastest moving or hardest to track groundwater.

Where the land beneath a waste containment system is structurally stable (e.g., not subject to karst-related subsidence), the waste containment system is less likely to fail due to the structural collapse of the underlying bedrock. If a landfill's waste containment system were to fail for any reason, it would be easier to mitigate groundwater contamination where groundwater flow is predictable and not too fast (e.g., groundwater is not too sensitive as defined by this rule). It is reasonable to say that requiring more careful evaluation of site conditions prior to siting landfills provides better assurance that the waste containment system will not fail, and that if it should fail, any contaminant release can be mitigated without exceeding health standards at the landfill's compliance boundary.

It can result in significant costs to the permittee to investigate and remediate any contaminant release if a landfill fails. It is reasonable to believe that a permittee may benefit from siting rules that are more environmentally protective because this should reduce the likelihood of a failed containment system or of associated cleanup costs. These rules can help permittees determine when a site poses higher risks and higher associated liabilities.

The site evaluations are conducted in up to four (4) progressively more detailed (and more costly) phases. A preliminary site evaluation should help rule out sites that would require more costly evaluations. That said; applicants may have business reasons to pursue demonstrating the adequacy of a site with difficult site conditions (at additional cost). The legislative directive established higher standards for specified types of new landfills, especially when an applicant proposes a site with difficult geophysical conditions.

2. Probable Costs to Agencies and Effect on State Revenues.

The Agency is to consider probable costs to itself or to any other agency of the implementation and enforcement of the proposed rule and any anticipated effect on state revenues.

What are the costs to the Agency?

The Agency anticipates that the additional cost of implementing and enforcing the proposed rule changes will be relatively minor. The Agency will spend some administrative effort to communicate the changes to the regulated community. The number of regulated parties affected by the proposed rules remains small and unchanged. The Agency will spend some additional effort developing guidance and evaluating newly required site evaluation reports to determine that they provide the required assurance of adequacy, but anticipates continuing its review with existing staff resources.

What are the costs to other agencies?

The Agency does not anticipate that the rule changes will cause any additional costs to be incurred by other state or federal agencies. However, the rules will have an effect on any of governmental unit (typically a county) that chooses to initiate siting a landfill regulated under these rules.

What is the effect on State revenue?

The Agency believes that these amendments are revenue neutral (e.g., no positive or negative impact on State revenues).

3. Consideration of Less Costly Methods to Achieve Purpose of the Rules.

The Agency is to consider whether there are less costly methods or less intrusive methods for achieving the purpose of the proposed rule.

Since the primary need for these proposed rules is to address the legislative directives, and since the legislative directives were specific about what the rules must contain, the Agency's ability to provide less costly or less intrusive alternatives to these proposed amendments is limited. The Agency was mindful of costs associated with meeting requirements of the proposed rules. The rules result in lower likely costs to verify the adequacy of safer sites. The rules also allow flexible pathways to verify the adequacy of a single site. This typically involves verifying relatively simple time of travel, distance from karst features and depth to carbonaceous bedrock criteria; or, providing more detailed evaluations to prove that groundwater can be monitored and protected and that karst is unlikely to develop at the site.

The Agency expressed concern in the January 15, 2010 report to the Legislature that applying these rules to the smaller demolition type landfills would most likely prohibit their use. These small demolition landfills are especially important in Greater Minnesota where alternative landfills are often not locally available. The May 2010 legislative directive specified that the proposed rules would not regulate these small demolition landfills.

Adopting rules that are clear about where siting may be problematic (and possibly more costly to evaluate), and providing consistent site evaluation requirements should ultimately make compliance less burdensome for regulated parties.

4. Description of Alternatives Considered to Achieve Purpose of the Rules.

The Agency is to describe any alternative methods seriously considered for achieving the purpose of the proposed rule and the reasons why they were rejected in favor of the proposed rule.

Since the primary need for these proposed rules is to address the legislative directives, and since the legislative directives were specific about what the rules must contain, the Agency's ability to provide alternative methods to those in these proposed amendments is limited.

It is more common to find karst development and challenges to monitoring groundwater in areas underlain by shallow carbonaceous bedrock; this bedrock is commonly found in areas south and east of the Minneapolis area in Minnesota. The Agency considered the impact of imposing standards that would effectively prohibit regulated landfills in areas underlain by carbonaceous bedrock, roughly the southeast corner of Minnesota. However, people successfully live, work, farm, build structures of all kinds and conduct business all over that region, avoiding karst and protecting groundwater. The Agency believed it would be unreasonable and costly to prohibit landfills where all these other normal human activities take place.

The Agency met with stakeholders, sought their input, and negotiated agreeable rule language to achieve protective standards.

5. Probable Costs of Complying with the Proposed Rules.

The Agency is to evaluate the probable costs of complying with the proposed rules, 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.

The Agency believes that there are likely to be some increased costs to most landfill types regulated under the proposed landfill siting rules. Applicants will need to conduct more elaborate site evaluations. Those in areas with easily determined groundwater flow and no potential for karst development will see little or no change in site evaluation costs. Those in areas with complex or rapid groundwater flow or potential for karst development will have higher site evaluation costs. Individuals, businesses or local units of government may own or operate landfills, so they will incur any increased costs associated with a chosen site.

These site evaluations involve a phased approach beginning with researching documented local conditions and potentially escalating to very extensive field surveys, data collection and modeling. A first phase survey can quickly eliminate concerns about karst in over three-quarters of Minnesota (karst areas are well-documented); similarly, this survey can provide strong clues about groundwater predictability. Applicants choosing landfill sites in areas without carbonaceous bedrock and with easily characterized groundwater conditions will have less added evaluation costs (possibly several hundreds of dollars) than those hoping to site in an area characterized by shallow carbonaceous bedrock, karst or complicated groundwater conditions (possibly tens or hundreds of thousands of dollars).

The legislative directives clarified the Legislature's intent to increase standards that reduce risks to groundwater related to siting a landfill. The proposed rules increase the burden of proof to ensure safety when siting in areas with potentially sensitive groundwater conditions, or where karst is likely to develop.

The costs can be reduced by choosing a siting alternative without shallow carbonaceous bedrock and with easily characterized groundwater conditions. Costs may increase if an applicant chooses a site that requires access to additional land to provide compliance boundaries at a distance adequate to allow timely detection and remediation of potential contaminants should a landfill containment system fail.

6. Probable Consequences of Not Adopting the Proposed Rules.

The Agency must consider the probable consequences of not adopting the proposed rules, including those consequences borne by identifiable categories of affected parties, such as separate classes of government units, businesses, or individuals.

Individuals, businesses or local units of government may own or operate landfills, so have to deal with some consequences if the proposed rules are not adopted. One immediate consequence of not adopting the proposed rule is that the Legislature imposed this moratorium:

“(d) Until the rules are modified as provided in paragraph (c) to include site-specific criteria to prohibit areas from solid waste disposal due to groundwater contamination sensitivity, as required under this section, the agency shall not issue a permit for a new solid waste disposal facility, except for:

(1) the reissuance of a permit for a land disposal facility operating as of March 1, 2008;

(2) a permit to expand a land disposal facility operating as of March 1, 2008, beyond its permitted boundaries, including expansion on land that is not contiguous to, but is located within 600 yards of, the land disposal facility's permitted boundaries;

(3) a permit to modify the type of waste accepted at a land disposal facility operating as of March 1, 2008;

(4) a permit to locate a disposal facility that accepts only construction debris as defined in section 115A.03, subdivision 7;

(5) a permit to locate a disposal facility that:

(i) accepts boiler ash from an electric energy power plant that has wet scrubbed units or has units that have been converted from wet scrubbed units to dry scrubbed units as those terms are defined in section 216B.68;

(ii) is on land that was owned on May 1, 2008, by the utility operating the electric energy power plant; and

(iii) is located within three miles of the existing ash disposal facility for the power plant; or

(6) a permit to locate a new solid waste disposal facility for ferrous metallic minerals regulated under Minnesota Rules, chapter 6130, or for nonferrous metallic minerals regulated under Minnesota Rules, chapter 6132.”

The Agency believes that if the Legislature were to simply lift the moratorium, and did not impose new statutes in lieu of the proposed rules, costs of not adopting these rules should be minor. The regulated community must still comply with existing solid waste rules. The proposed rules provide a useful clarification of current practices that should improve the consistency of rule application. The Agency has other existing authority to deny a permit to landfills in areas that are not proven safe, but to date those rules have not been entirely effective in some areas of concern where sensitive groundwater resources exist or karst is likely to develop. Therefore, the consequences of not adopting these rules are significant in terms of risks to human health and the environment that this rule is meant to mitigate.

7. Assessment of Differences between the Proposed Rule and Related Federal Regulations.

The Agency must assess any differences between the proposed rule and existing federal regulations, and provide specific analyses of the need for and reasonableness of each difference.

The proposed siting rules define sensitive groundwater based on the speed at which potential contaminants would travel with groundwater if released from a landfill (at least 100 days to a typical 200 foot compliance boundary). The rules also prohibit landfills where karst is likely to develop (determinants such as 200 feet from surficial or remnant expressions of karst prior to construction and with at least 50 feet of unconsolidated overburden above carbonaceous bedrock).

Related federal groundwater regulations are found at Title 40 Code of Federal Regulations Part 258 (40 CFR 258) [below] addresses applicability of groundwater monitoring. 40 CFR § 258.50 applies explicitly to MMSW landfills (the Agency's proposed rules are broader in scope as they apply to additional landfill types). § 258.15 applies to new, existing, and expanded Municipal Solid Waste Landfill (MSWLF) units (proposed rules are narrower in scope in this regard as they would apply only to newly permitted landfills). More importantly, the Agency's proposed rules specifically define certain groundwater conditions as sensitive enough to prohibit landfill siting, irrespective of design; this standard is more stringent than § 258.50 which does not define prohibitively sensitive groundwater conditions.

“Subpart E—Ground-Water Monitoring and Corrective Action

§ 258.50 Applicability.

(a) The requirements in this part apply to MSWLF units, except as provided in paragraph (b) of this section.

(b) Ground-water monitoring requirements under § 258.51 through § 258.55 of this part may be suspended by the Director of an approved State for a MSWLF unit if the owner or operator can demonstrate that there is no potential for migration of hazardous constituents from that MSWLF unit to the uppermost aquifer (as defined in § 258.2) during the active life of the unit and the post-closure care period. This demonstration must be certified by a qualified ground-water scientist and approved by the Director of an approved State, and must be based upon: (1) Site-specific field collected measurements, sampling, and analysis of physical, chemical, and biological processes affecting contaminant fate and transport, and (2) Contaminant fate and transport predictions that maximize contaminant migration and consider impacts on human health and environment.

(c) Owners and operators of MSWLF units, except those meeting the conditions of § 258.1(f), must comply with the ground-water monitoring requirements of this part according to the following schedule unless an alternative schedule is specified under paragraph (d) of this section: (1) Existing MSWLF units and lateral expansions less than one mile from a drinking water intake (surface or subsurface) must be in compliance with the ground-water monitoring requirements specified in §§ 258.51–258.55 by October 9, 1994; (2) Existing MSWLF units and lateral expansions greater than one mile but less than two miles from a drinking water intake (surface or subsurface) must be in compliance with the ground-water monitoring requirements specified in §§ 258.51–258.55 by October 9, 1995; (3) Existing MSWLF units and lateral expansions greater than two miles from a drinking water intake (surface or subsurface) must be in compliance with the ground-water monitoring requirements specified in §§ 258.51–258.55 by October 9, 1996. (4) New MSWLF units must be in compliance with the ground-water monitoring requirements specified in §§ 258.51–258.55 before waste can be placed in the unit.

(d) The Director of an approved State may specify an alternative schedule for the owners or operators of existing MSWLF units and lateral expansions to comply with the ground-water monitoring requirements specified in §§ 258.51–258.55. This schedule must ensure that 50 percent of all existing MSWLF units are in compliance by October 9, 1994 and all existing MSWLF units are in compliance by October 9, 1996. In setting the compliance schedule, the Director of an approved State must consider potential risks

posed by the unit to human health and the environment. The following factors should be considered in determining potential risk: (1) Proximity of human and environmental receptors; (2) Design of the MSWLF unit; (3) Age of the MSWLF unit; (4) The size of the MSWLF unit; and “

Related federal siting regulations are found at 40 CFR 258 (§ 258.15 [below] addresses unstable areas) and 258.15 applies only to MMSW landfills (the Agency’s proposed rules are broader in scope as they apply to additional landfill types). 40 CFR § 258.15 applies to new, existing, and expanded MSWLF units (proposed rules are narrower in scope in this regard as they would apply only to newly permitted landfills). 40 CFR § 258.15 allows reliance on engineering measures to ensure integrity (proposed rules are more stringent as they prohibit siting where karst is likely to develop based on measurable criteria; engineering is not a consideration).

“(a) Owners or operators of new MSWLF units, existing MSWLF units, and lateral expansions located in an unstable area must demonstrate that engineering measures have been incorporated into the MSWLF unit’s design to ensure that the integrity of the structural components of the MSWLF unit will not be disrupted. The owner or operator must place the demonstration in the operating record and notify the State Director that it has been placed in the operating record. The owner or operator must consider the following factors, at a minimum, when determining whether an area is unstable: (1) On-site or local soil conditions that may result in significant differential settling; (2) On-site or local geologic or geomorphologic features; and (3) On-site or local human-made features or events (both surface and subsurface).

(b) For purposes of this section: (1) Unstable area means a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity of some or all of the landfill structural components responsible for preventing releases from a landfill. Unstable areas can include poor foundation conditions, areas susceptible to mass movements, and Karst terranes. (2) Structural components means liners, leachate collection systems, final covers, run-on/run-off systems, and any other component used in the construction and operation of the MSWLF that is necessary for protection of human health and the environment. (3) Poor foundation conditions means those areas where features exist which indicate that a natural or man-induced event may result in inadequate foundation support for the structural components of an MSWLF unit. (4) Areas susceptible to mass movement means those areas of influence (i.e., areas characterized as having an active or substantial possibility of mass movement) where the movement of earth material at, beneath, or adjacent to the MSWLF unit, because of natural or man-induced events, results in the downslope transport of soil and rock material by means of gravitational influence. Areas of mass movement include, but are not limited to, landslides, avalanches, debris slides and flows, soil fluction, block sliding, and rock fall. (5) Karst terranes means areas where karst topography, with its characteristic surface and subterranean features, is developed as the result of dissolution of limestone, dolomite, or other soluble rock. Characteristic physiographic features present in karst terranes include, but are not limited to, sinkholes, sinking streams, caves, large springs, and blind valleys.”

The Agency believes that a plain reading of the legislative directive clearly requires increasing the stringency of Minnesota’s landfill siting standards. The Agency believes the proposed rules are a reasonable way to meet that requirement.

“MS section 116.07, subd. 4. (c) The rules for the disposal of solid waste shall include site-specific criteria to prohibit solid waste disposal based on the area's sensitivity to groundwater contamination, including site-specific testing. The rules shall provide criteria for locating landfills based on a site's sensitivity to groundwater contamination. Sensitivity to groundwater contamination is based on the predicted minimum time of travel of groundwater contaminants from the solid waste to the compliance boundary. The rules shall prohibit landfills in areas where karst is likely to develop. The rules shall specify testable or otherwise objective thresholds for these criteria. [...]”

8. Consideration of Performance Based Rules (Minn. Stat. § 14.002).

The Agency must describe how, in developing the rules, it considered and implemented the legislative policy supporting performance-based regulatory systems.

Minn. Stat. § 14.002, titled State Regulatory Policy, reads as follows:

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

The legislative directives prescribed certain rule content in Minn. Stat. § 116.07, subd. 4(c) and (d):

“(c) The rules for the disposal of solid waste shall include site-specific criteria to prohibit solid waste disposal based on the area's sensitivity to groundwater contamination, including site-specific testing. The rules shall provide criteria for locating landfills based on a site's sensitivity to groundwater contamination. Sensitivity to groundwater contamination is based on the predicted minimum time of travel of groundwater contaminants from the solid waste to the compliance boundary. The rules shall prohibit landfills in areas where karst is likely to develop. The rules shall specify testable or otherwise objective thresholds for these criteria.

[...]

(d) Until the rules are modified as provided in paragraph (c) to include site-specific criteria to prohibit areas from solid waste disposal due to groundwater contamination sensitivity, as required under this section, the agency shall not issue a permit for a new solid waste disposal facility, except for:

[...]”

The Agency's proposed rules provide for performance-based alternative means to determine groundwater sensitivity and the potential for karst development at a proposed landfill site.

During the extensive dialog with stakeholders and interested parties, a citizen interest group requested simple statewide criteria and thresholds needed to demonstrate compliance. On the other hand, counties and businesses that own landfills asserted that they should be allowed the opportunity to use more extensive site-specific fieldwork to demonstrate meeting the goal of ensuring that contaminant movement is slow enough to allow detection and remediation before levels of concern would reach the compliance boundary. Similarly, while the rule provides a simple threshold for determining that karst is

not likely to develop, it also allows an applicant to conduct more extensive site-specific evaluations to demonstrate that karst is not likely to develop. The Agency believes it reasonable to allow the applicant to comply using either alternative approach.

The rule requires applicants to demonstrate that any leaked contaminants would take at least 100 days to reach a compliance boundary. The Agency envisions the 100 day minimum standard as the most straight forward way to demonstrate acceptable groundwater conditions. That provision also allows the applicant to demonstrate groundwater monitorability and remediability using alternative methods.

The allowed alternative is to demonstrate acceptable groundwater conditions (performance of monitorability and remediability) by some other unspecified means. The Agency expects these methods to meet testable or otherwise objective thresholds (e.g., not to exceed applicable standards at an acceptable compliance boundary).

The Agency envisions that the burden to demonstrate adequacy using an allowed alternative pathway would be more rigorous than meeting the basic setback conditions of this provision.

Similarly, to address the legislative directive's prohibition on siting where karst is likely to develop, the proposed rule prescribes avoiding areas within 200 lateral feet of karst features, and to avoid areas of carbonaceous bedrock with 50 feet or less of undisturbed, unconsolidated overburden prior to construction. The proposed rules use testable or otherwise objective thresholds to provide a straight forward test for where karst is likely to develop: less than 50 feet to carbonaceous bedrock and nearby lateral expressions of karst. The Agency envisions meeting these conditions as the most straight forward means to demonstrating that karst is unlikely to develop.

The proposed rule also provides a performance-based alternative allowing the applicant to demonstrate to the Agency's Commissioner, using appropriate and approved site evaluation and field techniques, and adequate verification from experienced licensed geologists and engineers, that karst is not likely to develop and that the site will support the proposed landfill structure. The Agency envisions a greater burden to demonstrate adequacy using an alternative pathway than more simply meeting the basic thresholds of this provision.

9. Additional Notice Plan.

The Agency must describe efforts to provide additional notification to persons or classes of persons who may be affected by the proposed rule, or explain why these efforts were not made (Minn. Stat. § 14.14, subd. 1a).

The Agency believes that the proposed rules do not change the regulated universe of those interested in siting new landfills. The Agency has worked closely with representatives from the potentially regulated community, their associations and other interested parties (stakeholders) since July 2008. The Agency has hosted or attended numerous stakeholder meetings to gather input as it developed draft rule language. It has communicated widely during the rule development process through Webcasts, meetings and emails.

The Agency has held or attended numerous stakeholder meetings and has sent or posted many communications related to these proposed rules beginning in July 2008. In the last year alone, the Agency hosted and Webcast the following stakeholder input meetings related to developing siting rules:

- July 23, 2010: "FASIT Siting Meeting"
- August 20, 2010: "FASIT Siting Meeting"

- October 12, 2010: “Fasit Siting Meeting”
- October 15, 2010: “Fasit Siting Meeting”
- January 6, 2011: “Draft Siting Rules”

Subsequently, during the 2011 Minnesota Legislative Session, the Agency worked closely with key stakeholder representatives to negotiate final rule language and to allow input on the development of this SONAR.

With a high level of stakeholder awareness and interest in workable rules, the Agency believes that the standard notice processes required by Minn. Stat. § 14.22, would be adequate. Still, the Agency has provided additional notice as shown below.

The Agency’s Notice Plan includes giving standard notices required by statute as follows:

1. Publishing notice of its intent to adopt these proposed rules in the *State Register* in accordance with Minn. Stat. § 14.22
2. Mailing notices to parties who have registered with the Agency for the purpose of receiving notice of rulemaking proceedings as required by Minn. Stat. § 14.14, subdivision 1a
3. Providing notice to the Legislature per Minn. Stat. § 14.116
4. Notifying and seeking approval to proceed from the Governor’s Office and
5. The Agency published a Request for Comments (an advanced notice of possible rules to seek advice) in the *State Register* in July 2008 and again in January 2011.
6. The Agency has developed an interested party mailing list and will notify interested parties when notices are made available.

The Agency’s Additional Notice Plan will be submitted to the Office of Administrative Hearings intending to obtain optional approval as allowed under Minn. R. 1400.2060. The following is an outline of the Agency’s intended additional notice plan:

1. The Agency plans to send emails to interested parties and stakeholders for whom it has a current email address informing them where to find official notices.
2. The Agency plans to provide links to *State Register* notices via email.
3. The Agency plans to post advice about the proposed rules on the Agency’s website at (www.pca.state.mn.us). This includes information about the Agency contact person.
4. The Agency published an updated (2nd) Request for Comments (an advanced notice of possible rules to seek advice) in the *State Register* in January 2011, originally published in July 2008.

The Agency plans to provide a standard comment period of 30 days for the proposed rules.

10. Fiscal Impact.

The Agency must consult with the commissioner of the Department of Finance to help evaluate the fiscal impact and fiscal benefits of the proposed rule on units of local government (Minn. Stat. § 14.131). The Agency’s Executive Budget Officer initiates this consultation with the Department of Finance.

In accordance with the interim process established by the Department of Finance on June 21, 2004, the Agency will provide Finance with a copy of the proposed rule and SONAR at the same time as it sends

these to the Governor's Office. This timing allows the fiscal impacts and fiscal benefits of a proposed rule to be reviewed by the Department of Finance concurrent with the Governor's Office review (up to 21 days).

The documents include: the Governor's Office Proposed Rule and SONAR Form; almost final draft rules; and almost final SONAR. The Department of Finance response will become part of the rulemaking record.

The Agency believes that few local governments (e.g., counties) will see any fiscal impact from the proposed rules. This is because so few regulated new landfills are likely to be sited in Minnesota, much less by any one of 87 Minnesota counties. Also, if a landfill were sited in a county, the county might realize long-term fiscal benefits from the proposed rules either directly or indirectly.

When landfills are owned or operated by private ventures, the host county could benefit directly by assurance that the landfill is sited in an area where site conditions are known and certified as environmentally protective. The county is better protected from a landfill failing due to proper siting. If a private landfill fails to contain waste, the county is better protected from potential remediation costs by having more monitorable and less-sensitive groundwater conditions.

Should a county choose to site a regulated new landfill of its own, the proposed rules would require added investment in site evaluation. This could result in offsetting fiscal impacts in a couple of ways. First, the rules encourage siting in lower risk areas (which should minimize siting costs, and reduce future remediation risks). If a county chooses to site a landfill in a more complex hydrogeologic location (following more detailed site evaluation), there are likely to be substantial fiscal impacts. Still, the county benefits from its ability to make a more informed cost/benefit analysis, and also from having proven a site's viability and likely reduced risk of possible future remediation costs.

11. Copy to Legislative Reference Library.

The Agency must send a copy of the SONAR to the Legislative Reference Library when the notice of hearing is mailed under Minn. Stat. § 14.14, subd. 1a.

The Agency plans to submit all required documentation.

VII. Other Statutory Considerations

Other *Minnesota Statutes* contain requirements in addition to those required SONAR considerations in Minn. Stat. § 14.131:

1. Minn. Stat. § 14.111 Farming Operations
2. Minn. Stat. § 14.116 Notice to Legislature
3. Minn. Stat. § 116.07 Pollution Control Agency; exercise of powers (business considerations)
4. Minn. Stat. § 174.05 Pollution Control Agency; Rules and Standards (notifying the Commissioner of the Minnesota Department of Transportation)
5. Minn. Stat. § 14.127 Legislative Approval Required, subd. 1, Cost thresholds
6. Minn. Stat. § 116.07, subd. 2(f), analysis of differences between the proposed rule and similar federal and bordering and Environmental Protection Agency (EPA) Region-5 state standards.

The Agency addresses these below in order:

1. Minnesota Statute § 14.111 Farming Operations:

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

A rule may not be invalidated for failure to comply with this section if an agency has made a good faith effort to comply.”

The Agency believes that its proposed rules do not affect farming operations and that it is not required to notify the commissioner of the Department of Agriculture under Minn. Stat. § 14.111. Any landfill applicant may agree to purchase land previously used for farming. Also, a county or other local government unit might use rights of eminent domain to compel an owner(s) to sell land for a publicly-owned landfill, whether or not used in farming.

Either of these possibilities exists under existing rules and would remain possible under the proposed rule. The total acreage of farmland used for landfills in Minnesota would remain miniscule and would not be changed by the proposed rule. It is also conceivable that a closed landfill might someday be returned to some type of farming practice (e.g., hay production).

2. Minnesota Statute § 14.116 Notice to Legislature:

“When an agency mails notice of intent to adopt rules under section 14.14 or 14.22, the agency must send a copy of the same notice and a copy of the statement of need and reasonableness to the chairs and ranking minority party members of the legislative policy and budget committees with jurisdiction over the subject matter of the proposed rules.

In addition, if the mailing of the notice is within two years of the effective date of the law granting the agency authority to adopt the proposed rules, the agency shall make reasonable efforts to send a copy of the notice and the statement to all sitting legislators who were chief house and senate authors of the bill granting the rulemaking authority. If the bill was amended to include this rulemaking authority, the agency shall make reasonable efforts to send the notice and the statement to the chief house and senate authors of the amendment granting rulemaking authority, rather than to the chief authors of the bill.”

The Agency plans to send copies of the notice, the proposed rule, and the SONAR to the chairs and ranking minority party members of the Senate Environment and Natural Resources Committee. The Agency will also copy the chairs and ranking minority members of the House Environment, Energy and Natural Resources Policy and Finance Committee.

Since mailing of this notice is within two (2) years of the effective date of the law granting the Agency authority to adopt the proposed rules, the Agency shall make reasonable efforts to send a copy of the notice and the statement to all sitting legislators who were chief house and senate authors of the bill granting the rulemaking authority. Since the bill was amended to include this rulemaking authority, the Agency will make reasonable efforts to send the notice and the statement to the chief sitting house and senate authors of the amendment granting rulemaking authority, as well as to the chief authors of the bill.

3. Minnesota Statute § 116.07 Pollution Control Agency; Exercise of Powers (Business Considerations)

Minn. Stat. § 116.07, subd. 6 (and identical language in Minn. Stat. § 115.43, subd. 1), state the following regarding the consideration of economic impacts:

“In exercising all its powers the pollution control agency shall give due consideration to the establishment, maintenance, operation and expansion of business, commerce, trade, industry, traffic, and other economic factors and other material matters affecting the feasibility and practicability of any proposed action, including, but not limited to, the burden on a municipality of any tax which may result therefrom, and shall take or provide for such action as may be reasonable, feasible, and practical under the circumstances.”

The Agency worked with a variety of stakeholders while developing the proposed rules. This included a coalition lead by the Minnesota Chamber of Commerce representing private, business and public owners and operators of landfills. The Agency has duly considered possible economic impacts from various options leading to the negotiated proposed rules. The Agency believes the scope of these rules will not prohibit future landfill siting. The proposed rule may result in applicants seeking more economically favorable sites which have fewer geologic issues. The legislative directives provided that the rules should not apply to landfills with existing permits or to their expansion.

Within the context of the cost of siting, constructing and operating a landfill, the additional cost of the proposed site evaluation rules should generally be incremental. Some minor, indirect cost savings may be realized by regulated parties that benefit from selecting a site that meets the more easily determined criteria relating to groundwater sensitivity and potential for karst development for their landfill. This could save evaluation costs and any costs associated with future monitoring or remediation.

4. Minnesota Statute § 174.05 Pollution Control Agency; Rules and Standards (Notifying the Commissioner of the Minnesota Department of Transportation)

Minn. Stat. § 174.05, titled Pollution Control Agency; Rules and Standards, provides the following requirements regarding notifying the Commissioner of Transportation:

*“ Subdivision 1. **Notification by Pollution Control Agency.** The commissioner of the Pollution Control Agency shall inform the commissioner of transportation of all activities of the Pollution Control Agency which relate to the adoption, revision, or repeal of any standard or rule concerning transportation established pursuant to section 116.07. Upon notification the commissioner shall participate in those activities. Participation may include, but is not limited to, access to all pertinent information collected or compiled by the Pollution Control Agency and transmittal to the commissioner of the Pollution Control Agency of information and expert opinions concerning the ability of affected modes of transportation to accomplish the desired objectives and the impact that alternative methods of attaining those objectives would have on present or planned transportation systems in the state.*

*Subd. 2. **Commissioner to submit review of proposed rules.** Prior to public hearings on any rule concerning transportation proposed by the Pollution Control Agency, the commissioner of transportation shall submit a written review of those rules, including an*

analysis of their impact upon the state's transportation system, and may propose alternative rules or standards. This report shall be made part of the record of the hearing and shall be made available to any person prior to the hearing.

*Subd. 3. **Report by Pollution Control Agency.** Upon the adoption, revision or repeal of a rule concerning transportation, the commissioner of the Pollution Control Agency shall publish a written report of the manner in which the adopted rule reflects consideration of the factors specified in section 116.07, subdivision 6, and the specific issues raised in the commissioner of transportation's report."*

The Agency believes that the proposed rules present no special concern regarding Minnesota's transportation systems. Therefore, the Agency believes there is no obligation to provide special notice of the proposed rules to the Commissioner of Transportation under Minn. Stat. § 174.05.

5. Minnesota Statute § 14.127 Legislative Approval Required, Subdivision 1, Cost Thresholds

Minn. Stat. § 14.127, titled Legislative Approval Required, subd. 1, Cost thresholds, provides the following requirement:

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

Subd. 2. Agency determination. An agency must make the determination required by subdivision 1 before the close of the hearing record, or before the agency submits the record to the administrative law judge if there is no hearing. The administrative law judge must review and approve or disapprove the agency determination under this section.

Subd. 3. Legislative approval required. If the agency determines that the cost exceeds the threshold in subdivision 1, or if the administrative law judge disapproves the agency's determination that the cost does not exceed the threshold in subdivision 1, any business that has less than 50 full-time employees or any statutory or home rule charter city that has less than ten full-time employees may file a written statement with the agency claiming a temporary exemption from the rules. Upon filing of such a statement with the agency, the rules do not apply to that business or that city until the rules are approved by a law enacted after the agency determination or administrative law judge disapproval.

Subd. 4. Exceptions.

(a) Subdivision 3 does not apply if the administrative law judge approves an agency's determination that the legislature has appropriated money to sufficiently fund the expected cost of the rule upon the business or city proposed to be regulated by the rule.

(b) Subdivision 3 does not apply if the administrative law judge approves an agency's determination that the rule has been proposed pursuant to a specific federal statutory or regulatory mandate.

(c) This section does not apply if the rule is adopted under section 14.388 or under another law specifying that the rulemaking procedures of this chapter do not apply.

(d) This section does not apply to a rule adopted by the Public Utilities Commission.

(e) Subdivision 3 does not apply if the governor waives application of subdivision 3. The governor may issue a waiver at any time, either before or after the rule would take effect, but for the requirement of legislative approval. As soon as possible after issuing a waiver under this paragraph, the governor must send notice of the waiver to the speaker of the house and the president of the senate and must publish notice of this determination in the State Register.

Subd. 5. Severability.

If an administrative law judge determines that part of a proposed rule exceeds the threshold specified in subdivision 1, but that a severable portion of a proposed rule does not exceed the threshold in subdivision 1, the administrative law judge may provide that the severable portion of the rule that does not exceed the threshold may take effect without legislative approval.

The proposed rules do not require anyone to construct a landfill. The rules only require adherence to improved siting standards for those who wish to apply to construct a landfill. Landfills are typically run as a for-profit venture (whether publicly or privately owned).

The Agency believes that the cost of complying with the proposed rule in the first year is not likely to exceed the statutory \$25,000 cost threshold for any one business with less than 50 full-time employees or for any one statutory or home rule charter city with fewer than ten full-time employees. There are no statutory or home rule charter cities that own or operate the landfills regulated by these proposed rules. A large business is most likely to propose a landfill regulated by these proposed rules. Several landfills are also owned/operated by counties.

The proposed rule represents an incremental change to existing rules for an existing regulated community. The regulated community would have had to perform some level of site evaluation prior to these proposed rules. The Agency believes that most increased site evaluation costs are incremental in nature and that these increased costs are unlikely to exceed \$25,000 in the first year for any business with less than 50 full-time employees.

6. March 3, 2011 Statutory SONAR Requirements:

2011 Minnesota Session Laws Chapter 4 requires that for proposed rules adopting solid waste standards, the SONAR must include an assessment of any differences between the proposed rule and existing federal standards adopted under 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 EPA Region 5; and a specific analysis of the need for and reasonableness of each difference.

The EPA's regulations governing non-hazardous, municipal solid waste landfills are contained in 40 CFR Part 258, Subpart B, §§ 258.10 through 258.15. These relate to airport safety, floodplains, wetlands,

seismic fault areas, seismic impact areas, and geologically unstable areas. 40 CFR Part 258 requires no evaluation of groundwater sensitivity such as groundwater flow speed or the likelihood of future karst development. Therefore, in regard to the siting of newly permitted landfills, the proposed rule would be more restrictive than the EPA regulations.

In the five states that share borders with Minnesota (IA, WI, SD, ND and MI [MN shares a Lake Superior water border with MI]) there are no comparable rules that prohibit future landfills based on groundwater sensitivity (based on groundwater contaminant time of travel from the solid waste to a compliance boundary) or on the likelihood that karst will develop. These states' rules have site prohibitions for MMSW landfills that are based on EPA Subtitle D regulations (40 CFR Part 258). Wisconsin's Department of Natural Resources provided this comment to the Agency: "Our code specifies minimum distances that must be maintained from solid waste facilities to water supply wells, surface water bodies and property boundaries, but these apply to all sites and do not vary according to susceptibility of the resource to groundwater contamination. Susceptibility to contamination may be considered on a case-by-case basis when we are considering a request for an exemption to one of the setback requirements."

Of the three states in EPA Region 5 other than Wisconsin and Michigan (IL, OH, IN), Ohio is the only state having rules with a prohibitory emphasis on a site's inherent groundwater-sensitivity characteristics, and that are considered apart from engineering solutions. Ohio's landfill siting process considers estimated travel time for leachate emitted from landfilled waste, but rather than travel time of contaminants to the compliance boundary as in Minnesota's proposed rules, Ohio looks at the travel time to public water supplies (minimum of five years time-of-travel for ground water flow to a public water supply well or within a designated drinking water source protection area for a public water system using ground water.) Ohio also prohibits the siting of MSW landfills over sole-source aquifers and over sand and gravel aquifers yielding more than 100 gallons per minute. In Ohio, the base of the bottom liner must be isolated from the underlying uppermost aquifer system by at least 15 feet of soil or other geologic material. While Ohio EPA does grant variances on occasion, engineering is not considered a substitute for the siting requirements: "Engineered liner and leachate collection systems are used to provide additional ground water protection, and cannot be used to satisfy siting criteria, or to replace the natural protection provided by proper landfill siting." (Ohio Solid Waste Guidance Document #0690, June 23, 2004).

Relevant Ohio rules may be found at Ohio Administrative Code 3745-27 (MMSW landfills); OAC 3745-29 (industrial landfills); OAC 3745-30 (residual solid waste landfills) and OAC 3745-400 (construction and demolition debris landfills).

2011 Minnesota Session Laws Chapter 4 also requires a specific analysis of the need and reasonableness for each difference from federal and neighboring state solid waste standards. In laws passed in 2008 and 2010 the Minnesota Legislature directed the MPCA to adopt rules to set measurable thresholds to prohibit the siting of landfills based on the time of travel of contaminants, and based on the likelihood that karst would develop at the site in the future. By directing the rule changes, the 2008 and 2010 laws created the need for the rule amendments. It is reasonable for the MPCA to meet that need by

consulting with stakeholders following the law passage, setting thresholds, and specifying how the measurements or other objective criteria would be evaluated, while allowing the option of performance-based standards if sensitive groundwater is protected.

VIII. List of Authors, Witnesses and Attachments

The following Agency staff participated in the development of this rulemaking and SONAR:

- a. Nathan Cooley, Rule Coordinator, Municipal Division, Land Policy Unit
- b. Jim Chiles, Policy Coordinator, Municipal Division, Land Policy Unit
- c. Mark Rys, Hydrogeologist, Municipal Division, Solid Waste Permitting
- d. Dan Vleck, Professional Engineer, Municipal Division, Solid Waste Permitting
- e. David Richfield, Supervisor, Municipal Division, Land Policy Unit
- f. Paula Connell, Supervisor, Municipal Division, Solid Waste Permitting
- g. Gary Pulford, Section Manager, Municipal Division, Solid Waste Section

In support of the need for and reasonableness of the proposed rules, the Agency anticipates that it will enter the following exhibits into the hearing record:

IX. Attachments:

1 - Certified Copy of Rule Language.

X. CONCLUSION

Based on the discussion in this document, the proposed rules are both needed and reasonable.

Date

Paul Aasen
Commissioner

ATTACHMENT 1—Certified Copy of Rule Language