

# Minnesota Pollution Control Agency Report: Rules to Prohibit Disposal of Solid Waste Based on Site Sensitivity to Groundwater Contamination



**Legislative Charge, from 2008 Minnesota Session Laws Chapter 363, Article 5, section 33:**

*“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.”*

**Author**

Jim Chiles

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**Contributors**

Daniel Vleck  
Mark Rys  
Kris Hulsebus  
Nathan Cooley  
Gary Pulford  
Dave Richfield  
Mark Rust

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**Editing and Graphic Design**

Theresa Gaffey

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**Minnesota Pollution Control Agency**

520 Lafayette Road North | Saint Paul, MN 55155-4194 | [www.pca.state.mn.us](http://www.pca.state.mn.us) | 651-296-6300  
Toll free 800-657-3864 | TTY 651-282-5332

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# 1. Executive summary

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The Legislature directed in May 2008 that the Minnesota Pollution Control Agency (MPCA) restructure rules so that solid waste will be disposed with groundwater protection—intrinsic suitability—as a prime factor. This report on rulemaking progress, due on January 15, 2010, describes a MPCA proposal for carrying out that directive. In developing this progress report, the MPCA conducted much stakeholder interaction. It was through that effort that the Agency learned many stakeholders have a different interpretation of the legislative directive. The MPCA believes clarification is needed from the Legislature before the Agency enters into formal rulemaking.

Setting the intrinsic quality of “groundwater sensitivity” at a landfill site as a primary consideration would be easier to implement when siting new facilities than in dealing with continued operations at landfills already permitted and operating under the current rules. Operators of existing facilities, and counties in particular, have stated concerns that the draft rule as presently proposed could raise expenses and limit their ability to expand onto land that would be classed by the rule as sensitive to groundwater contamination. These operators have indicated that the new rule should apply only to new landfills. The MPCA developed the draft rule as presently proposed based on an interpretation of the legislative directive to cover all land disposal, at both new and existing landfills, as follows: “... 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 (Minn. Stat. 116.07, subd. 4). If the Legislature clarifies their intended directive to be narrower in scope, only applying to new facilities, the MPCA can easily modify the scope of the rule accordingly.

Based on its initial interpretation of the legislative directive, this report does describe some proposals to accommodate the transition at existing landfills, which takes into account waste characteristics among other factors. In light of a broader interpretation of the legislative directive that solid waste disposal should not occur in areas where the groundwater is sensitive to contamination from landfills, the MPCA provides a regulatory approach whereby solid waste disposal would begin a shift away from such sensitive areas.

Although the draft rule as presently proposed utilizes long-term exceptions/variances subject to public scrutiny at MPCA Citizens Board meetings, it is important to emphasize the need for any final rule language to adequately address issues such that variances are extremely rare.

Current rules and statutes set out 13 criteria regarding proper locations for solid waste disposal sites. Most of these are setback distances originally created for reasons other than groundwater protection and the draft rule as presently proposed would not “disqualify” an existing landfill from continuing operations, if protective assurances can be written into the next set of permit conditions. The MPCA notes that the draft rule as presently proposed selects just two of these locational criteria—rapid groundwater flow and unpredictable flow—as disqualifying existing landfills from continuing more than 10 years into the future. The MPCA believes an argument can be made that these deserve a special status, because they are intrinsic suitability criteria that are directly related to an increased risk of groundwater contamination.

The Legislature also called for financial assurance rule changes to “ensure” that the public will not have to pay the costs of cleaning up groundwater contamination from landfills, if it occurs. Achieving this outcome will depend on accurate cost estimates at each landfill; each landfill having access to sufficient funds; and the money being available without delay, over the full span of time that a landfill could incur significant costs for maintenance or remedial action. This could be many decades in some cases.

Minn. Stat. 116.07, subd. 4h, sets a specific figure of 30 years’ funding for financial assurance at mixed municipal solid waste (MMSW) landfills. There is no such upper time limit in current statute relative to financial assurance at landfills permitted for waste types other than MMSW. To address this inconsistency, the Legislature may want to consider changing the MMSW landfill language to “a minimum of 30 years” to allow the MPCA to require a longer period where needed.

Given the questions that exist regarding the scope of the 2008 Legislature directive, the MPCA will seek clarification from the Legislature during the 2010 session before it initiates formal rulemaking. During this period, the MPCA will also engage in further discussions with landfill operators, local governments, environmental groups, state agencies, and other interested parties.

The Minnesota Administrative Procedures Act (APA) requires that when the Legislature calls for rulemaking, an agency must publish a notice of intent to adopt rules or a notice of a hearing within 18 months of the effective date; otherwise, the agency's authority to do this rulemaking automatically expires. (Minn. Stat. 14.125 Time Limit on Authority to Adopt, Amend or Repeal Rules)

The legislative provision calling for a rule amendment was enacted in May 2008. Because the 18-month mark was reached in November 2009, the Legislature should remove any ambiguity by renewing or rescinding the MPCA's authority to amend the solid waste rules.

## 2. Legislative background and process to date

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### Stakeholder discussions in advance of formal draft of "Financial Assurance and Siting" (FASIT) rule amendments, May 2009 to date

By January 15, 2010, the MPCA is to deliver a report to the Legislature "...on proposed rules, under Minnesota Statute § 116.07, subdivision 4, to prohibit the disposal of solid waste in specific areas due to the sensitivity of the area to groundwater contamination." The Legislature also directed the MPCA to update its rules on financial assurance to avoid having the public pay for the costs of cleaning up groundwater contamination from landfills.

This is a progress report on the status of the development of the draft rule as presently proposed addressing the site suitability and financial assurance issues. The MPCA has labeled this project the FASIT rule, for "financial assurance and siting." After completing previous stakeholder work directed by the Legislature in the same legislation, the MPCA assembled a comprehensive list of interested parties, including legislators and legislative staff. The MPCA requested meetings with the following stakeholder groups:

- Association of Minnesota Counties
- Construction and Demolition and Industrial Landfill Workgroup
- Landfill Advisory Group
- Friends of Washington County
- League of Minnesota Cities
- Minnesota Association of County Planning and Zoning Administrators
- Minnesota Chamber of Commerce
- Minnesota Environmental Partnership
- Minnesota Groundwater Association
- Public Risk Management Association
- Department of Natural Resources
- Department of Health
- Minnesota Geological Survey
- Solid Waste Administrators' Association
- Solid Waste Association of North America
- Solid Waste Management Coordinating Board

From May to July 2009, the MPCA held meetings with, and received input from, these groups. At these meetings, the MPCA summarized the legislation and the background of the existing solid waste rules, and invited each group to assign one or more liaisons to follow the process, attend meetings, and bring the group's information and opinions to the MPCA. The MPCA then assembled a concept document on its plans to deal with specific issues raised by the legislation. The MPCA distributed the concept document, which was formatted in the form of questions and answers, to interested parties. The MPCA hosted stakeholder meetings in St. Paul and St. Cloud to get reaction on those concepts. After this feedback, the MPCA staff prepared an initial, informal rule draft with its rationale appended to each section. On November 30, 2009, the MPCA distributed this informal rule draft via electronic mail to 300 people on its interested parties list, and invited them to an all-day meeting in St. Paul on December 7, 2009. The MPCA explained that the principal purpose of this meeting was to hear stakeholder comments on the informal rule draft so that it could summarize key issues for the January 2010 legislative report on progress of the rule. The MPCA explained that the document sent out on November 30, 2009 was an informal rule draft, distributed for comment well in advance of the formal rulemaking process. The MPCA explained that the formal process would not begin until after the legislative report was turned in and after any feedback was received from the 2010 legislative session.

Forty stakeholders attended the December 7, 2009, meeting in St. Paul. The MPCA also received 60 comments by mail, fax, and electronic mail through December 18, 2009. The MPCA posted meeting notes from its December 7 meeting and other replies received by mail and electronic mail at the FASIT rulemaking webpage, <http://www.pca.state.mn.us/waste/fasit.html>.

Due to strong interest expressed by stakeholders, especially those related to the scope of the legislative directive (i.e., new and existing landfills, or just new), the MPCA plans to send out a second pre-publication informal rule draft following the 2010 session. The Agency will also host another stakeholder meeting to get reactions on the second informal rule draft. The formal rulemaking process would then follow, if authority to continue this rulemaking process is granted by the Legislature.

The Minnesota Administrative Procedures Act (APA) requires that when the Legislature calls for rulemaking, an agency must publish a notice of intent to adopt rules or a notice of a hearing within 18 months of the effective date; otherwise, the agency's authority to do this rulemaking automatically expires. (Minn. Stat. 14.125 Time Limit on Authority to Adopt, Amend or Repeal Rules)

The Legislature directed the MPCA to report on the progress of the rulemaking by January 15, 2010. The MPCA interpreted this to mean that the Legislature wanted the opportunity to provide guidance before the rule amendment was formalized and, therefore, the 18 month rulemaking timeline was not met. Given the strong differences of opinion regarding the scope of the 2008 directive, further legislative direction is essential.

The legislative provision calling for a rule amendment was enacted in May 2008. Because the 18-month mark was reached in November 2009, the Legislature should remove any ambiguity by renewing or rescinding the MPCA's authority to amend the solid waste rules.

## 3. Summary of issues

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### A. Highlighting key topics

Stakeholders have consistently raised several overarching issues as the MPCA moved to implement the May 2008 legislative directive:

Sensitivity to Groundwater Contamination: What does it mean to say that groundwater flow is "rapid" or "unpredictable" as related to monitoring or remediability? How is this to be measured and how do these measures or definitions fit with scientific consensus? (see items C-1 and C-2)

Engineering Measures and Operational Safeguards: Under current rules, engineering measures (such as liners and covers), and operational safeguards (such as limitations on waste types) generally are considered an acceptable response to sensitive groundwater features underlying a landfill site, such as fractured bedrock. Why does the informal rule draft reduce the previous reliance on engineering and operational safeguards? (see items C-1 and C-4)

Financial Assurance: What rule changes are necessary to satisfy the legislative directive that financial assurance “ensure” that the state does not have to pick up the cost of remedying groundwater contamination from landfills? How does this play out specifically in terms of funding needed, financial mechanisms, length of care to be funded, and whether a landfill is publicly or privately owned? (see items D-1 through D-6)

New vs. New and Existing Landfills: Did the legislation encompass new landfill sites only, or by referring to “solid waste disposal” did it also intend to cover existing landfills when re-permitted or expanded?

The draft rule as presently proposed was prepared by the MPCA based on an interpretation that the legislative directive applied to new and existing landfills. The MPCA would modify the scope of the draft rules consistent with any clarification it receives from the Legislature during 2010 session.

## **B. Introduction: The need to manage landfill risks more closely**

The Legislature highlighted two tasks for the MPCA: adopt rules to guard against disposal of solid waste in areas of Minnesota that are sensitive to groundwater contamination, and to guard against the public having to pay for cleaning up groundwater contamination from landfills. This report lays out how the MPCA read the directive, how it sought to balance competing factors, and summarizes major issues discussed during public comment on the informal rule draft circulated at the end of November in preparation for this report. Satisfying the legislative directive, using a broad interpretation of the scope, will require significant changes. Siting plans for new landfills will change, along with development plans at existing ones.

Regulators, landfill owners and consultants have primarily relied upon engineering and operational controls to overcome shortcomings with landfill sites’ sensitivity to groundwater contamination. Based on experience, the MPCA has found that more rigorous consideration of site sensitivity as a groundwater contamination risk factor is a good complement to sound engineering and operational practices.

Several factors contribute to supplementing the traditional, engineering-centered approach. These factors include:

- Thousands of new chemicals entering the stream of commerce, many of which have not been tested for their health effects when disposed;
- Utilizing land use planning as a preventative measure, since in coming decades now remote land may have development pressures including use of local aquifers.
- The difficulty of predicting long term effectiveness of engineering controls such as plastic piping and one-liner systems over many decades; and
- The difficulty of independently verifying whether best practices in quality control are actually being met.

In light of these factors, it is wise to build on sites known to be inherently safer in case engineering or operational safeguards were to fail.

The MPCA’s experience with administering the Closed Landfill Program, which has now spent \$277 million with 13 sites with known construction left to complete, is a reminder that most unlined landfills (including ones that operated after the adoption of the solid waste rules in 1988) did have a history of leaking. About half of that population of sanitary landfills was on track for cleanups under the Minnesota Superfund law until the new law allowed landfills that closed properly to shift all obligations over to perpetual state care.

The current population of landfills is a different mix than the population of 112 mixed municipal solid waste (MMSW) landfills that opted into the Closed Landfill Program of 1994. The landfills to be affected by this rule represent the full range of classifications, rather than sanitary landfills alone. They represent a wide range of waste types, from inert to reactive.

The four landfill classes regulated by the MPCA are MSW combustor ash, demolition debris, industrial waste, and mixed municipal solid waste. Some of these landfills, if properly sited, constructed and operated will represent a very low risk to health, the environment, and the public budget. Many demolition wastes like brick and glass are inert. Landfills set up for reactive industrial or household wastes are now lined to enable the collection of percolated liquids (called “leachate”). At such landfills, leachate is no longer free to flow out the bottom of the landfill on its way to rivers, lakes, or aquifers (as was the case with most landfills operating as of 1994). Instead the leachate is collected at the bottom, and either is recirculated back into the waste mass or pumped out for management as a wastewater. Landfills accepting organic wastes commonly have vents and sometimes are required to have pumps and combustors to manage flammable gases inevitably produced by the decomposition of wet organic wastes when isolated from oxygen.

These additional engineering measures reduce the risk of uncontrolled releases but they also result in an increase in long term maintenance costs. This growing dependence on leachate and gas collection systems, and the expectation that some systems (particularly leachate collection) may have to operate reliably for decades after the revenue stream ceases, is a significant new development, and was not foreseen when the MPCA began issuing permits in 1969 to landfills that were little more than holes in the ground. The MPCA first stated its concerns about financial assurance and the long-term financial liability risks of MMSW landfills in a report to the Legislature, published in January 1998. (*Minnesota Mixed Municipal Landfill Liability Report*, available at <http://www.pca.state.mn.us/waste/pubs/mmsw.pdf>.)

Some of these financial risks are not well known. Some methods from the first generation of landfills are holding up, but other methods considered acceptable in the early years of lined landfills have been found unsatisfactory. Some measures being used today for landfill expansions are too new to allow for high confidence in the estimated costs for long-term maintenance.

Operators stated that rule changes can place their investments at risk, meaning “sunk capital” that is already committed and would not be recoverable if the landfill was placed in financial jeopardy by higher costs. Some are concerned about lost opportunities or the chance to take advantage of future landfilling in areas at which no investment has yet been made. Counties have said that services to the public will be less convenient and more expensive.

If newly constructed space at existing landfills is subject to the same oversight as a new landfill, there would be no entitlement, under rule and law, to landfill space merely because it is identified in the owner’s blueprints and business plans. The relevant facts as to any given landfill’s usable capacity are the MPCA-issued permits in force, the “permitted capacity” named in those permits, and, in the case of MMSW landfills, the certificate of need.

Regarding financial assurance changes, the MPCA interprets the term “ensure” to mean that, after rules are adopted, there would be no significant likelihood that state taxpayers will have to cover the cost of cleaning up landfill-related groundwater contamination. There are two key factors relative to the financial assurance issue: money must be adequate to meet the needs at a given landfill, and money must be available as soon as needed.

The legislative directive does raise difficult questions of how much financial protection is enough. The higher the level of protection, the higher the cost to landfills and customers who use them. The problem is compounded by the fact that leachate collection technology, groundwater monitoring, gas control, and waste characteristics have changed in the last 20 years and no doubt will continue to change. In addition, it is inherently difficult to predict the long-term effectiveness of traditional one liner systems. These issues highlight the importance of placing landfills where the risk of potential harm to the public’s water supplies if the engineering fails is low.

The need to cover future risks also should take into consideration that conventional insurance will not underwrite the environmental liabilities of landfills. There is no national or international risk pool to cover the high loss, which while rare, can be very expensive.

The question is particularly relevant for existing demolition landfills that historically have had to pay little by way of expenses for environmental protection, but also that charge little in gate fees. Both county and small private demolition landfill owners have expressed concern about the burden associated with financial assurance. Minnesota has dozens of small demolition landfills, and few have been required to post financial assurance. These are mostly owned and operated by small businesses, or by counties choosing to provide services not offered by the private sector. Some county landfill operators have expressed concern about the state requiring new or additional financial assurance because they are providing a service at a low price subsidized by the county. Operators said they may have to close due to this requirement and the lack of county funding.

The draft rule as presently proposed includes measures to accommodate existing demolition landfills without significant releases to the groundwater. This is an attempt to strike a reasonable balance between financial burden and risk management. The MPCA requires clarification regarding the 2008 legislative directive from the Legislature during the 2010 legislative session.

## **C. MPCA progress on “site-specific criteria to prohibit areas from solid waste disposal due to groundwater contamination sensitivity”**

The following sections address concerns raised by stakeholders during discussions about the informal rule draft as presently proposed. These sections follow a standard format. The first segment, “What the MPCA proposed in the November 30 informal rule draft,” summarizes proposed changes laid out in the informal draft that the MPCA distributed to stakeholders via electronic mail on November 30, 2009. The second segment, “Stakeholder responses to the November 30 informal rule draft” paraphrases the range of comments noted at the December 7, 2009 stakeholder meeting along with written comments as sent to the MPCA through December 18, without an attempt to prioritize them. Meeting notes and correspondence are available on the rulemaking website, <http://www.pca.state.mn.us/waste/fasit.html>. The third segment, “The MPCA position following the December 7 meeting,” summarizes the MPCA’s thoughts following stakeholder feedback.

### **C-1. Updates to the sensitivity criteria**

**What the MPCA proposed in the November 30 informal rule draft:** Based on the MPCA interpretation of the 2008 legislative directive, the MPCA’s draft rule as presently proposed identifies two intrinsic geologic conditions for landfill locations: avoiding karst geology, and avoiding areas with rapid and unpredictable groundwater flow.

Based on stakeholder discussions that began in July 2008 with members of the Construction, Demolition, and Industrial Landfill Workgroup, the MPCA determined that it could meet the legislative directive by proposing restricting landfill locations either to very tight soils where groundwater flow is very slow (such as clay aquitards), or to sites where the groundwater flow is predictable enough and slow enough to assure that any contamination can be detected and remedied in a timely fashion. The MPCA chose an upper preliminary “groundwater flow speed limit” of one meter per day. The goal is to predictably detect any contaminants released at the compliance boundary sampling that occurs every three months, except in winter.

The draft rules as presently proposed also prohibited the siting of landfills over near-surface karst features (soluble bedrock with an established system of solution channels that can result in sinkholes) to protect structural soundness. Instead of proposing final grade separation, the MPCA proposed a preliminary site screening tool of at least 50 feet of overburden over karst to reduce the potential risk of structural subsidence. Characterizing groundwater flow is a separate and more involved process. The MPCA requires a separate

assessment of whether groundwater flow can be sufficiently characterized over any soluble or non-soluble bedrock, including fractured bedrock.

**Stakeholder responses to the November 30 informal rule draft:**

- The rules should require the landfill proposer to characterize the geology of multiple sites, then require the proposer to select the most geologically superior site from those evaluated.
- The MPCA is going too far in prohibiting sites with certain hydrogeologic features.
- Some commenters objected to certain definitions, including karst (and whether an upper layer of soils could render karst suitable), fractured bedrock, and rapid flow.
- Regarding the criteria for what constitutes “rapid flow,” why pick an upper limit of one meter per day? There should be no “speed limit” on groundwater flow because the suitability of a site should be a scientifically based judgment after full characterization.
- The karst prohibition should not be limited to rock known to have solution channels, but rather any carbonaceous bedrock because it could become karst in the future.
- The MPCA isn’t going far enough in prohibiting sites with certain hydrogeologic features.
- The MPCA should consider design/engineering in the prohibition equation. Other state rules for manure lagoons allow a variation in overburden depth to karst, based on engineering and other factors.
- Fifty feet of overburden between the landfill and karst is too much.
- Fifty feet of overburden between the landfill and karst is too little.
- The MPCA shouldn’t consider design/engineering in the prohibition equation.
- The MPCA’s preference for impermeable soils is in conflict with its preference for predictable/monitorable groundwater.
- Clay soils can be engineered into liners for landfills and waste ponds under existing rules, so the MPCA should allow for engineering when determining site suitability and not have sites disqualified for intrinsic reasons. Natural occurring clay deposits are not as uniform as an engineered liner. An engineered clay liner is tested more densely than natural clay.
- Natural properties of clay attenuate the movement of released contaminants. So the MPCA should promote siting in low-permeable soils in preference to siting in sand and other permeable soils.

**The MPCA position following the December 7 meeting:** The MPCA regards proper siting to include avoiding areas with groundwater that is sensitive to contamination. This determination rests on being able to identify areas with rapid or unpredictable groundwater flow. The MPCA welcomes more input on the definitions of karst and fractured bedrock, and on the role of overburden separating the landfilled waste from subsurface karst. Regarding the request from some interested parties that rules require landfill proposers to evaluate a list of multiple candidate sites before picking one, the MPCA notes that the requirements of 7001.3200, “Preliminary Site Evaluation Report” and 7001.3275 “Detailed Site Evaluation Report,” while previously required for mixed municipal solid waste facilities only, have been modified to apply to an applicant for any landfill type. Within the contents of 7001.3200 as modified, an applicant must provide a description of the site selection process, stating how candidate sites were chosen, how and by whom they were evaluated, and the basis for eliminating potential sites from consideration. The report must contain preliminary information about how site-specific geologic characteristics at any proposed sites might affect the ability of onsite soils to attenuate a potential release, and the owner’s ability to monitor or mitigate groundwater impacts. The site which falls out as the most favorable location following the evaluation required in 7001.3200 is then evaluated in more detail for both environmental and engineering suitability through the requirements specified in 7001.3275.

## C-2. Site-specific testing to determine sensitivity

**What the MPCA proposed in the November 30 informal rule draft:** Beginning at meetings in July 2008, the MPCA heard proposals from some stakeholders to require specific groundwater tests to validate proposers' groundwater flow models. Two tests that were mentioned by proponents at stakeholder meetings were age dating and dye tracing. Opponents of such tests had concerns about even making references to age dating and dye tracing as optional in the rules, stating that age dating is only meaningful for deeper aquifers; dye tracing takes a long time and has not historically added value; and it is possible to use the presence of nitrates, chlorides, or other existing elements in site characterization.

In the draft rules as presently proposed, the MPCA did not require age dating or dye tracing. The MPCA wants to use the best available tests at any given time to characterize site-specific concerns, but wants to avoid prescribing specific tests by rule given that procedures will change as science improves. All relevant, proven test methods and technologies should be available to fully characterize conditions at a particular site. The MPCA will work with stakeholders on guidance to describe the proper application of various tests, and the MPCA's technical staff has the necessary authority under the solid waste rules to require tests appropriate to fully characterize a given setting.

**Stakeholder responses to the November 30 informal rule draft:** The draft rule as presently proposed did not generate comment from attendees at the December 7 meeting.

### **The MPCA position following the December 7 meeting:**

The MPCA plans to continue with the approach set out in draft rule as presently proposed, unless otherwise directed by the Legislature.

## C-3. Setback criteria, separately treated from groundwater contamination sensitivity

**What the MPCA proposed in the November 30 informal rule draft:** Current landfill siting rules set out several parameters for properly locating landfills. These are intended to manage a variety of environmental and human health impacts. Some of the rules set minimum "setback" distances between the waste mass and other geographical features (like wetlands, highways, and streams) and protective systems (like lines of monitoring wells). These setbacks appear in several rule sections and lack consistency. The draft rule as presently proposed seeks to unify and combine setback requirements in such a way that one section would apply to all solid waste disposal facilities, but also that the actual provisions are relevant to specific landfill types. The setbacks in the draft rules as presently proposed have been gathered from existing rule sections, permit provisions, and guidance documents. For instance, the minimum five foot separation distance to the water table comes from the current rule criteria for "permit by rule" landfills. This is a vertical setback distance; the most common setbacks are horizontal distances, and are intended to keep landfill activities from causing an impact to lakes, rivers, wetlands, and more.

The MPCA believes it is reasonable to apply uniform setback requirements to all landfills for the protection of groundwater and surface water, thus providing a buffer of land that could be used to remediate a groundwater contaminant plume if necessary. For instance, the MSW landfill rule requires a 200-foot separation to the compliance boundary (a line of monitoring wells), whereas the industrial landfill rule only required a 20-foot separation distance and the demolition landfill rule required a 50-foot separation distance. If the groundwater became contaminated, a 200-foot buffer would be valuable for monitoring and remediation regardless of the landfill type. A similar rationale has been developed for the other setback requirements that were consolidated into the draft rule as presently proposed.

Given the draft rule as presently proposed, the MPCA staff conducted a quick, preliminary survey of the number of existing landfills that would not meet the specific setback requirements in the informal rule draft. Since a majority of facilities would be out of compliance with at least one of the combined setback requirements, it was thought that exceptions from the requirements could be provided by the permitting staff, which is delegated with this authority from the commissioner, if uniform practices are followed. For instance,

if a wetland is located within 200 feet of a demolition landfill but monitoring indicates that groundwater flows in the opposite direction, an exception could be provided to allow disposal operations within 200 feet of the wetland upon documentation of that justification.

#### **Stakeholder responses to the November 30 informal rule draft:**

- Preparing and processing exceptions for all the landfills that don't comply with the setback criteria will be a burden on the MPCA staff and landfill operators.
- A setback from the property line should not be needed upgradient of the landfill because groundwater doesn't flow that direction.
- When applying for an exception from a setback requirement, the facility owner might face additional scrutiny during the public permitting process. Instead of requiring a setback from wetlands, the MPCA use the stormwater plans to address possible impacts.
- The MPCA might use the setback criteria to close facilities.

**The MPCA position following the December 7 meeting:** In preparing the draft rule as presently proposed, the MPCA made an initial effort to combine locational criteria into a unified section, separating those setback criteria that are directly related to water contamination from those that prevent nuisance and other aesthetic objections, such as odor, noise, and traffic concerns. In addition to addressing criteria directly related to preventing water contamination, the MPCA plans to unify and clarify other rule setback requirements as well. The MPCA also intends to set out criteria for technical staff to follow when applying the MPCA commissioner's discretion on setback requirements for a re-permitted facility in the next rule draft. (Further elaboration on approach to handling setback problems at existing landfills in the coming years can be found in Item C-4.)

#### **C-4. Stakeholder concerns about economic impacts**

**What the MPCA proposed in the November 30 informal rule draft:** Based on the MPCA's interpretation of the legislative directive (i.e., applying to new and existing landfills) the MPCA acknowledges that this could result in the closure of a limited number of landfills where owners are unable to afford the necessary additional investments. The MPCA wants to balance possible increased cost to facility owners against possible future savings to taxpayers. Particularly for new cells and new landfills, which represent no investments already committed under the existing rules, the MPCA proposes to increase the initial emphasis on groundwater sensitivity factors as screening criteria relative to imposing additional operational requirements and engineering fixes.

#### **Stakeholder responses to the November 30 informal rule draft:**

- Existing facilities should be simply grandfathered out of the new rule, or there will be closures.
- The fact that the legislation allowed expansions of existing landfills during the moratorium suggests that existing landfills shouldn't be affected by the rules.
- While the rule anticipates that lesser siting issues (such as setback distances to the nearest adjacent owner) can be handled with exceptions through the permit rather than formal variances, there is no guarantee to landfill operators that the MPCA will grant this exception. Without the exceptions, demolition landfills that were sited with proper setback distances under the old rules will have to close under the new rules.

#### **The MPCA position following the December 7 meeting:**

The MPCA has heard clearly that the effect of the draft rule as presently proposed on the population of existing landfills and their expansion plans is a subject of higher concern from stakeholders than the effect of the rules on the siting of new landfills. The MPCA agrees with stakeholders that fairness is an issue for existing landfills given their previous investments and their role in the current waste management network. The following plan identifies some ways of addressing these concerns.

1. Existing landfills would be able to continue receiving waste at current fill rates for 10 years after the effective date of the rules, regardless of intrinsic qualities of the landfill footprint now in use.
2. Landfills that had neither setback problems, nor groundwater sensitivity problems, would continue as before.
3. Operators of existing landfills located in areas that are found to be sensitive to groundwater contamination because of rapid or unpredictable groundwater flow, would have a choice of either closing within 10 years of the effective date of the rules, or applying for a variance to the MPCA Citizens Board. As mentioned earlier, it is important to emphasize the need for any final rule language to adequately address issues such that variances are extremely rare.
4. Operators of existing landfills whose only difficulty is a setback distance less than required in the rules for that type of landfill would communicate with technical staff before their 10 year period expires. They would request an exception through the permitting process, proposing measures to manage any risk. The MPCA expects that 90% of existing landfills would be able to propose sufficient engineering and risk management measures in the permits that would allow expansions even where setbacks are less than would be required for new landfills. (Tabular information on existing permitted landfills is available at <http://www.pca.state.mn.us/waste/fasit.html>).

### C-5. Permit by rule demolition landfills

**What the MPCA proposed in the November 30 informal rule draft:** Small PBR (“permit by rule”) demolition debris landfills follow a notification, signature, and compliance process with county involvement, rather than a full-blown application permitting process with public input. Based on concerns about PBRs from the Construction, Demolition and Industrial Landfill Workgroup, the MPCA proposed a reduction in size and duration for PBR landfills (reducing the maximum volume from 15,000 cubic yards to 2,000 cubic yards, and maximum duration from one year to 90 days); a prohibition for PBRs less than 15 miles from a permitted demolition landfill; a requirement to notify neighbors; and a minimum spacing of at least 1,000 feet between PBRs. The MPCA proposed a streamlined process involving a review of printed hydrogeologic information for determining the PBR site’s sensitivity to groundwater contamination. The MPCA did not propose requiring financial assurance, nor did it require groundwater monitoring, so PBR landfills would remain a faster and less expensive alternative than permitted demolition landfills.

#### **Stakeholder responses to the November 30 informal rule draft:**

- This proposal fairly closely follows the January 2009 recommendations of the Construction, Demolition and Industrial Landfill Workgroup, which was concerned about overuse of PBRs.
- Some counties felt that the option for truly affordable demolition landfill PBRs are vital for owners of farm sites who want to demolish old structures and clean up the place at a low cost. The smaller size and duration proposed won’t be a problem for them, but they will be totally unable to deal with any kind of hydrogeologic investigation, even if it is only a review of printed geology atlases.
- Even if the MPCA’s change is adopted into the rule, the change won’t fix a different problem, which is a state law (Minn. Stat. §17.135<sup>1</sup>) that allows farmers to burn or bury waste “if the burying is done in a nuisance-free, pollution-free, and aesthetic manner on the land used for farming” unless counties have adopted a resolution to stop this. Most counties have not passed such a resolution even though it is impossible for open combustion of farm waste to meet the legislative standard of pollution-free combustion.

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<sup>1</sup> Soon after a 1980s statute was passed banning backyard garbage burning statewide, the Legislature added an exemption for farms, Minn. Stat. §17.135, which allows farmers to burn or bury their solid waste on site (with some exceptions), unless their county takes action to pass a resolution stating that garbage service is reasonably available countywide. Less than 30 counties have adopted such resolutions, so the practice of burning and burial at farms continues.

**The MPCA position following the December 7 meeting:** PBR landfills should be smaller and shorter in duration. Given that they are neither lined nor monitored, and have no financial assurance, their use should be restricted to small demolition projects in lightly populated areas not served by more protective facilities.

## **D. Financial assurance: MPCA progress on rule modifications to “ensure the state is protected from financial responsibility for future groundwater contamination”**

### **D-1. Choice of financial mechanisms**

**What the MPCA proposed in the November 30 informal rule draft:** The draft rule as presently proposed would allow only cash-funded trust accounts and letters of credit as financial assurance mechanisms for landfills. This would discontinue the use of the self-test and surety bonds at solid waste landfills unless a variance is approved by the MPCA Citizens Board allowing an operator to augment the cash account with a surety bond under specific set conditions. As mentioned earlier, it is important to emphasize the need for any final rule language to adequately address issues such that variances are extremely rare.

The form of financial assurance referred to as the “financial test” would no longer be allowed under any circumstances.

Money for financial assurance would come either from landfill fees in the case of trust funds or from a landfill operator’s line of credit, where a bank is willing to put up a “standby letter of credit.” Most existing landfills that have financial assurance in place now use trust funds in whole or part. With cash-funded trust accounts, funds are deposited in a sequestered account that can be released only to pay for landfill care, including remediation of environmental problems caused by landfill operations. It is best when cash is deposited as the waste accumulates, and in proportion to the increasing risk. Landfill fees are essentially user fees, in which the money to pay for financial assurance comes from the users of the landfills, and so internalizes those costs. This seems reasonable as compared to externalizing the costs to the public at large. A similar situation happened after a wave of Superfund cases among MMSW landfills in the 1990s caused so much litigation that taxpayers had to assume the perpetual costs of 112 MMSW landfills that closed in time to meet a legislative deadline and qualify for Minnesota’s one-time Closed Landfill Program.

A letter of credit comes from a bank, typically a bank that is holding some kind of collateral put up by a private operator to support a line of credit. The MPCA recognizes that some existing landfill operators would not be able to establish fully funded financial assurance immediately or in the next few years, especially if their landfills are already well into their operating lives. In such cases, they may have to augment their cash deposits with a letter of credit until they achieve full cash funding. Letters of credit are generally reliable as financial assurance, although the MPCA is aware that they can present difficulties if for any reason the issuer fails to honor the letter, or if the operator at any point is unable to qualify for a letter of credit or a renewal thereof, perhaps because of the inability to post acceptable collateral for the issuer of the letter. The MPCA staff tracks closely the status of each letter of credit, since the MPCA has a limited time to respond if a letter of credit is not renewed or otherwise replaced.

Surety bonds, whether payment or performance bonds, are highly unreliable, because a bond issuer would presumably be reluctant to pay a claim without challenging the claim and asserting defenses to liability. This would present a need for the MPCA to litigate the claim, perhaps for an extended period of time and at significant expense, with a highly uncertain outcome. Given the legislative requirement to obtain reliable financial assurance, surety bonds (or anything which functions as environmental insurance coverage) are inadequate. However, if a landfill operator is able to clearly demonstrate that they are unable to provide full cash funding or a supplemental letter of credit in order to meet financial assurance requirements, the MPCA is open to considering the allowance of some operators to supplement cash funding with a surety bond.

The use of a “financial test” as financial assurance is even less reliable. The “test” is an assertion by an operator that it has, and will have at any unspecified future date, funds sufficient to pay to complete an environmental cleanup or to take contingency action for remediation, and that it will make the funds available as and when needed. This claim is then supported by financial statements to make the case that necessary funds are available, as of the date the financial statements were prepared. It would be difficult for the state to verify that money will be available in the future given assurances that are complex financial statements which can be a year old, and contain complex accounting descriptions of business affairs in other states and countries. The MPCA had such concerns in the solid waste and hazardous waste programs even before the financial collapse of recent years, in which previously strong financial companies, including insurers, bond issuers, and lenders of all kinds, either failed or required rescue by taxpayers.

In cases where landfills could not provide sufficient trust fund or a letter of credit, they would need to follow the process for requesting a variance from the MPCA Citizens Board. As mentioned earlier, it is important to emphasize the need for any final rule language to adequately address issues such that variances are extremely rare.

#### **Stakeholder responses to the November 30 informal rule draft:**

- Counties and some private operators do not have the option to use letters of credit, so this proposal leaves them only trust funds as an option.
- Counties aren’t going to go bankrupt and are creations of the state so they deserve separate treatment in the financial assurance rules. Counties should have the option of committing some of their bonding capacity to cover long-term landfill costs.
- Landfill operators can’t charge high enough fees at the gate to cover abruptly higher financial assurance costs, because customers won’t pay it. The most difficult situation is where a landfill has not been required to set aside cash financial assurance in the past and is getting close to full; in that case even if the MPCA offers 10 years to ramp up trust funds to the full amount to cover waste in place, it wouldn’t solve the problem because the landfill fee would have to go so high that customers wouldn’t come. In some cases demolition landfills nearing completion could not even afford to put up trust funds for closure since there is little volume left to fill, and therefore little waste on which to add a surcharge.
- To provide extra money, the state should allow demolition landfill operators to receive the 60-cent per cubic yard solid waste management tax on demolition waste, if they put it into a trust fund for financial assurance.
- One state agency (Department of Military Affairs) operates a demolition landfill at a military base, and state agencies don’t have the option to use either trust funds or letters of credit as far as we know. A response from the AG is needed.

**The MPCA position following the December 7 meeting:** Based on the MPCA’s interpretation of the 2008 Legislative directive, the draft rule as presently proposed would meet the legislative directive about financial assurance. However, the MPCA may modify this approach while keeping it consistent with the legislative directive and addressing owner concerns.

#### **D-2. New trust agreement language**

**What the MPCA proposed in the November 30 informal rule draft:** The draft rule as presently proposed provides that cash in trust funds be invested subject to the limitations imposed upon investments of public funds. These limitations will assure more conservative (and thus protective) investments than allowed in the past. Given investment losses incurred by cash accounts due to the financial failures in the last several years, more conservative limitations for investments are appropriate for landfill operators, as well as for taxpayers who are also meant to be protected by financial assurance requirements. This provision requires submitting a new trust agreement that conforms to the revisions of the trust agreement language, as revised. The investment options under the revised language reduce the risk that financial shocks will deplete the value of the cash trust

funds, protecting the citizens of Minnesota from future liabilities. The revised language is consistent with other limitations in Minnesota Statute § 118A.04 and 118A.05 restricting investment choices by public entities so as to minimize investment losses.

**Stakeholder responses to the November 30 informal rule draft:** There were no comments on this proposal at the December 7 meeting.

**The MPCA position following the December 7 meeting:** The MPCA plans to continue with the approach in the November 30 informal rule draft.

### **D-3. Changes in financial-assurance cost estimates**

**What the MPCA proposed in the November 30 informal rule draft:** The draft rule as presently proposed would require cost estimates based on a third party (typically a contractor) mobilizing its equipment and personnel to the landfill and performing the work using off-site materials. This is based on recommendations from the EPA to ensure cost estimates are as accurate as possible. For example, the cost estimate underlying the financial assurance obligation for final cover construction would be based on hauling in acceptable soils, with a general contractor overseeing the construction. For postclosure care, the cost estimates would assume a designated third party would mobilize to the site to perform inspections, mowing the cover, leachate and landfill gas management, and making repairs as necessary.

Using third-party estimating software provided by the EPA, the MPCA estimates that a third-party financial assurance obligation for closure could be 10 times the amount currently estimated for closure by small demolition landfill owners. On average, the cost to close a demolition landfill is \$50,000 per acre if the soil is available on site. For the smallest landfills, the amount needed to be set aside for a trust fund payment could be approximately \$1 per cubic yard of waste received at the gate. Because of economies of scale, large demolition landfills tend to see lower closure costs per acre than small demolition landfills.

Lined-landfill owners already estimate costs on the basis of using a combination of a third-party construction firm and onsite or offsite materials. This is because they do not use simple soil covers, but rather an engineered system usually involving a geomembrane on the final cover. There are detailed specifications and required tests to be conducted during construction projects at these facilities. Therefore, the impact of the changes from the draft rule as presently proposed, requiring a shift to third-party closure cost estimates, would not be as much with lined landfills, since their estimates are already higher than if they did the work themselves.

A third party estimate for postclosure care of lined landfills would not be a significant change because most of the estimated significant costs are already based on a third party performing the work. Highest cost items for routine care at a lined landfill have been leachate hauling, groundwater monitoring, and landfill gas control. The same holds true for contingency action. Lined landfills will see less of a change from requiring third party cost estimates than will unlined landfills.

#### **Stakeholder responses to the November 30 informal rule draft:**

- Demolition landfill owners said that if a soil stockpile is maintained at the facility and designated for final cover construction, the cost estimate should be based on using the onsite material.
- MMSW landfill owners questioned whether a county's highway department staff could be considered a "third party" for performing construction and postclosure care work.

**The MPCA's response at the December 7 meeting:** The MPCA will consider allowing cost estimates that could be based, where reasonable, on a wider consideration as to who would perform the work, and where construction materials would come from. As examples, the MPCA might allow cost estimates that presume a county road department would be performing routine postclosure care at a county demolition landfill or allow a lower cost estimate for final cover soils where they have been stockpiled by a private or public landfill operator in preparation for closure.

#### **D-4. Shifting existing landfills to new financial assurance**

**What the MPCA proposed in the November 30 informal rule draft:** The draft rule as presently proposed would require a facility owner to fund the financial assurance obligation, based on the revised cost estimates, using either a cash-funded trust fund, or a letter of credit with a standby trust fund, or a combination of the two mechanisms. Surety bonds and self insurance were deemed to be inadequate and unreliable financial assurance mechanisms. In the draft rule as presently proposed a facility owner that had been using a surety bond or self insurance to provide financial assurance would have to shift to the new requirements for financial assurance within one year of the rule implementation date.

#### **Stakeholder responses to the November 30 informal rule draft:**

- One stakeholder representing a private landfill thought that if a cash trust fund cannot be fully funded immediately, a letter of credit should be maintained while payments into a trust fund are made, so that full funding is maintained.
- Stakeholders requested clarification about obligations as a landfill passes through various stages of completion.
- Counties said they would have no other form of financial assurance available to them other than trust funds, because they cannot get a letter of credit as a unit of government.

#### **The MPCA position following the December 7 meeting:**

Given the legislative directive to ensure that the state would not have to pick up the cost of groundwater contamination from landfills, the MPCA needed to clarify its intention that the facility owner must, from the outset, maintain funding sufficient to handle the costs of waste in place, and the costs of waste to be placed in constructed cells that are not yet filled. A letter of credit can make this transition easier, for those with sufficient bank credit. For example, a facility owner can use a combination of a cash trust fund and a letter of credit to maintain fully funded financial assurance, and reduce the value of the letter of credit annually as the value of the trust fund increases until the trust fund is at least 80% funded, at which point the letter of credit could be dropped.

#### **D-5. Financial assurance at unlined demolition landfills**

**What the MPCA proposed in the November 30 informal rule draft:** The draft rule as presently proposed would require all unlined permitted landfills to fund the costs of closure, namely the costs of a cap that is suitable for demolition waste. Funding of postclosure-care and contingency action costs would be required only if the groundwater becomes contaminated above a specific threshold.

Setting aside sufficient funds for demolition landfill closure is wise because after waste disposal ends, a good final cover system at an unlined landfill is the only protection measure for groundwater and surface water.

MPCA inspectors have repeatedly seen final covers at unlined landfills constructed from inferior materials. The final cover should consist of soils with low permeability to reduce the infiltration of stormwater, and good topsoil so that the vegetation becomes well established. With good topsoil and vegetative cover, erosion and infiltration is reduced. For facilities that don't have these materials stockpiled on site, it is reasonable to require that funds be set aside to purchase soils and build the final cover. The cost for unlined demolition landfills to comply with the draft rule as presently proposed will depend on the size of the landfill that will require closure. Closure costs for a small landfill might range from \$25,000 to \$75,000 if the soil is available on site.

Given current knowledge, it would be unreasonable to require all existing unlined landfills to obtain financial assurance for postclosure care and contingency action costs. Most of the unlined landfills are limited to a restricted list of demolition debris so they are unlikely to contaminate groundwater to the extent that remediation would be required. Since there is no liner and leachate collection system to maintain, postclosure costs at a landfill not under a remediation order would be minimal.

If groundwater becomes contaminated, the costs for postclosure care and possibly contingency action will increase. In the case of significant contamination, it is reasonable to require additional funding. The funding might be used for ongoing groundwater monitoring and the installation of a groundwater remediation system. This threshold could be crossed if the evidence indicates a demolition landfill is consistently producing groundwater contaminant levels above the Health Risk Limit, for contaminants that bear on human health rather than aesthetic qualities.

A facility owner with a clear record of groundwater contamination that is high enough to trigger this condition—after which it would need to fund closure, postclosure, and contingency action costs—might need to make trust fund payments in the range of \$1,000 to \$4,000 per month. For a mid-sized demolition landfill, this could amount to approximately \$1 per yard of waste received at the gate to pay into a trust fund. The cost for a small demolition landfill to fund the entire obligation might be \$7 per cubic yard of waste received.

#### **Stakeholder responses to the November 30 informal rule draft:**

- Most stakeholders weren't highly concerned about funding for closure costs, if the MPCA took a broad reading of third-party estimates and offsite materials (see Item D-3).
- There was some concern that current boron levels in groundwater at some facilities, associated with demolition debris, might trigger the "full funding" condition, requiring a facility owner to fund postclosure and contingency action costs in addition to closure.
- Another commenter suggested that if contingency action cost obligations will be required based on the groundwater contamination, perhaps the obligation should be solely based on the corrective actions for groundwater, rather than implementing obligations on the entire contingency action plan.

**The MPCA position following the December 7 meeting:** The draft rule as presently proposed attempts to address some of the concerns of operators of unlined demolition landfills by limiting their financial assurance requirements to closure costs only, in cases where the unlined landfill is not contaminating the groundwater at actionable levels. Operators would need to plan ahead on how to pay for closure given that after waste deposits cease, there is no more money coming in to cover future costs of environmental protection or clean-up. Financial planning for this necessary expense will ensure that closure is performed in a professional fashion.

#### **D-6. Postclosure period, and release of postclosure care and contingency action funds**

**What the MPCA proposed in the November 30 informal rule draft:** The draft rule as presently proposed requires each landfill owner to evaluate the likely duration of postclosure care based on the time needed to reduce the risk of the leachate, landfill gas, groundwater, and final cover to an acceptably stable and safe condition. The MPCA recognizes that the duration of postclosure care will vary depending on the facility design and types of waste, but that a minimum postclosure care period of 20 years is necessary to ensure the integrity of the landfill components is maintained. There are certain postclosure care activities that should continue indefinitely, such as annual mowing to prevent tree growth. The draft rule as presently proposed would require the identification of a custodial care agent to continue these activities even after the MPCA releases the owner from formal postclosure care.

The draft rule as presently proposed would require postclosure care to be funded for the duration identified using the postclosure care evaluation. Due to the endless production of leachate, the lined landfills should be expected to have a longer postclosure care period than unlined landfills. State statute currently limits the financial responsibility of MSW landfill owners to 30 years of postclosure care and other landfills to a minimum of 20 years, meaning that there is no upper limit on the latter. The economic impact of these rule revisions will be facility specific and, for some lined industrial landfills, may cause the financial obligation to be doubled.

Due to this disparity in funding obligation, a provision was added to the financial assurance draft rule as presently proposed that would allow the MPCA to deny a reimbursement of incurred postclosure care costs if the funding is inadequate. In other words, if the funding is limited to 30 years due to the current statutory limit,

and the postclosure evaluation identifies a 60-year postclosure care period, the MPCA would not release financial assurance funds during the first 30 years of postclosure care.

**Stakeholder responses to the November 30 informal rule draft:**

- There was uncertainty on how the evaluation leading to an endpoint to postclosure care would work out for specific landfills.
- There was some opposition from landfill operators about the proposal that would allow the MPCA to hold back reimbursements of postclosure care expenses, if the MPCA determined that the funds remaining were inadequate given the likely time period needing postclosure care.
- Some landfill owners opposed any extension to postclosure periods, beyond the minimum time period specified in the current rules or their permits.
- Landfill operators also said that they also should be able to make a case to reduce that period below the minimum of 20 to 30 years of postclosure care, because their landfill would no longer pose any significant risk according to the postclosure care modules being worked out in other venues (see papers from the Environmental Research and Education Foundation, etc.).
- Some endorsed the MPCA proposal to work out details of the “endpoint” of financial assurance in a separate guidance document rather than this rule, and asked to be involved in the development of the guidance. What would be the timeline for getting it completed?

**The MPCA position following the December 7 meeting:** Minnesota Statute § 116.07, subd. 4h specifies rules are to provide for MMSW landfills’ financial assurance for a duration of 30 years, rather than “a minimum of 30 years.” There is a conflict between that statute and the May 2008 legislative directive, which also appears in Minnesota Statute § 116.07. The MPCA recommends that the Legislature amend the time horizon for funding MMSW landfill financial assurance to “a minimum of 30 years.”