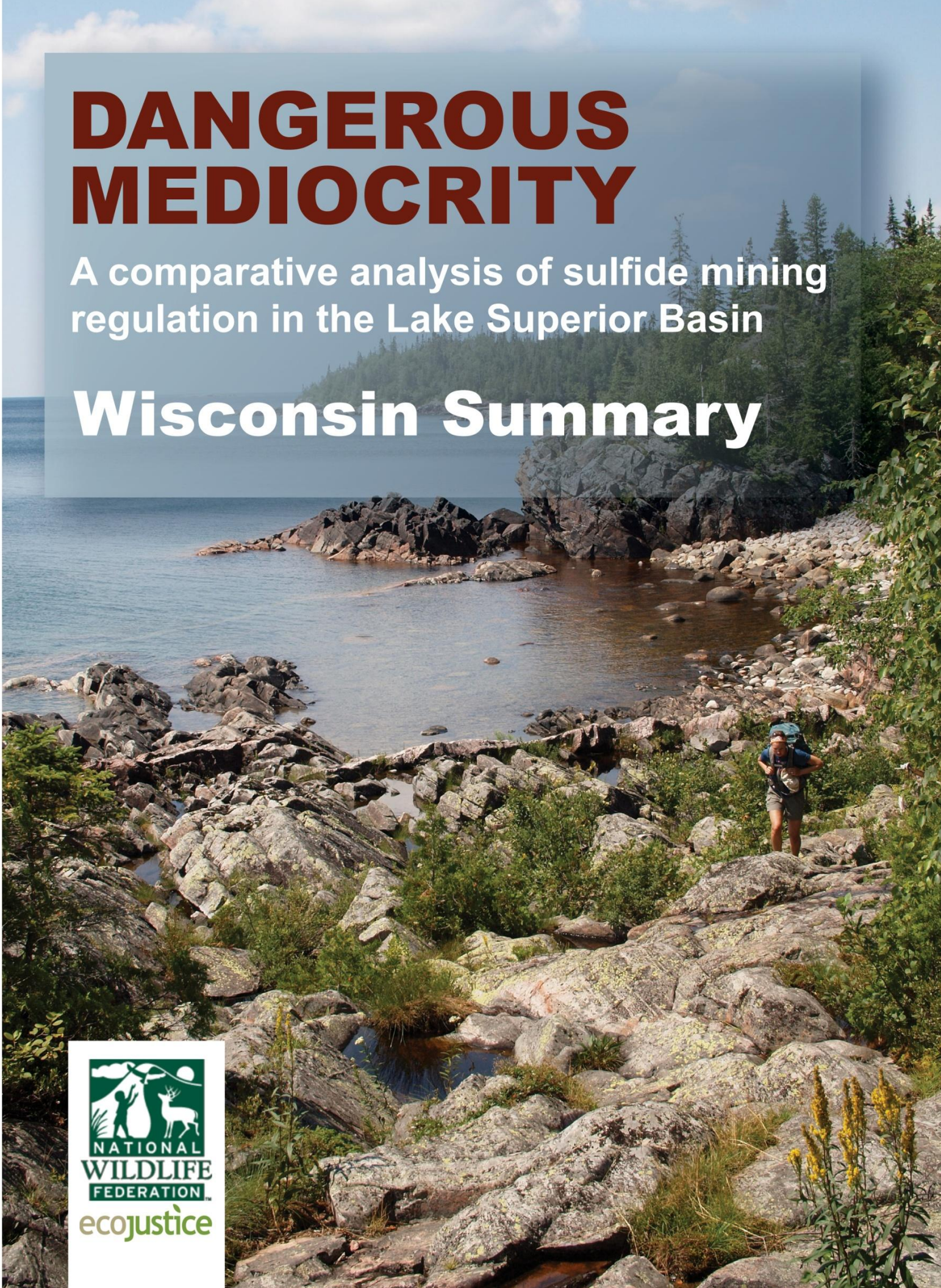
DANGEROUS MEDIOCRITY

A comparative analysis of sulfide mining regulation in the Lake Superior Basin

Wisconsin Summary



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The following are excerpts from **Sulfide Mining Regulation in the Great Lakes Region: A Comparative Analysis of Regulation in Michigan, Minnesota, Wisconsin & Ontario**. To read the full report, visit nwf.org/sulfidemining

WISCONSIN

In Wisconsin, nonferrous metallic mining is primarily regulated by the Department of Natural Resources ("DNR") under the authority of Wis. Stat. Chapter 293 and its implementing regulations, Adm. Code Rules NR 130, 131, 132, 182. These laws regulate both ferrous and nonferrous metallic mining in the same manner.[1] The applicant must submit a mining plan and reclamation plan to DNR to obtain a permit, and DNR itself must do an environmental impact study (EIS) for the project prior to permit approval. Wis. Stat. § 293.37(2)(a-b) and § 293.39.

However, sulfide mining is set apart from other types of metallic mining by a 1997 amendment placing an additional application requirement for sulfide mining permits.[2] Wis. Stat. §293.50. A sulfide mining operation can be approved only if the applicant submits evidence that sulfide mining can in fact be done without adverse environmental impacts. Specifically, the applicant must find a sulfide mine(s) with net acid generating potential in the U.S. or Canada which has been operating for at least 10 years and one which has been closed for at least 10 years without polluting groundwater or surface water from acid drainage at the tailings or mine site or from the release of heavy metals. Wis. Stat. §293.50(2). "Pollution" in this part means any degradation of water quality that has resulted in the violation of an environmental law as determined in a legal proceeding, as evidenced by any penalty assessed, decision rendered, or stipulated agreement, etc.

As of this date, there have been no successful applications for a sulfide mine in Wisconsin under the current law and none are currently pending. However, DNR's handling of the Nicolet Minerals Company's application to mine near Crandon (withdrawn in 2003) and the operation and reclamation of the Flambeau mine near Ladysmith provide some insight into how the state regulates nonferrous mining and reclamation activities and, for some, raises doubts about whether the law will provide adequate environmental protection for future sulfide mines. As is the case throughout the region, there is significant exploratory activity in the state for potential new sulfide mines.

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[1] There are currently a number of amendments to Wisconsin's mining law under legislative consideration. However, these amendments apply only to ferrous mining and should not, in theory, affect non-ferrous sulfide mine operations. However, as mentioned above, taconite mining that disturbs sulfide ore bodies can cause AMD just as non-ferrous metallic mining can. The proposed amendments streamline the process for ferrous mining without regard to the geologic context of the proposed project and therefore pose a threat of AMD. The Penokee project (which was the impetus behind this legislation) may unfortunately provide a convincing example of how taconite mining can cause AMD. While analysis of the ferrous mining amendments is beyond the scope of this report, the dangers posed by that and similar legislation cannot be ignored.

[2] While this amendment is called a "moratorium," it is applied and may be lifted on a per-project basis. In practice, therefore it operates simply as an additional application requirement rather than a blanket "moratorium."

SUMMARY OF FINDINGS

The following summarizes the "Assessment" section of the report, providing an overview of each jurisdiction's performance. The information found by this study reveals a number of interesting similarities and differences between the jurisdictions surveyed. A summary table can be found at Appendix B to this report, showing side by side all the criteria scores and overall scores for each jurisdiction.

However, as noted above, their very different practical experiences with sulfide mining regulation make an apples-to-apples comparison impossible. It would not be fair, for example, to assess the experiences of states that have already permitted sulfide mines against states that have no practical experience. It is, therefore, not the intent of this report to rank the jurisdictions against each other, but rather to evaluate each jurisdiction against the set of objective criteria set out in each assessment category. At the same time, it is worth noting any areas where one jurisdiction may provide a model of a regulatory framework or implementation practice for the other jurisdictions. Those suggestions are made in the "Recommendations" section at the end of the report.

Wisconsin's sulfide mining law has perhaps the greatest **regulatory scope** of any of the U.S. jurisdictions surveyed, providing detailed standards for permit applications and review in all phases of mining, from exploratory activities through reclamation. Notably, state agencies are charged with the essential task of completing the environmental review for the project in the application phase, rather than the permittee. Special attention is paid to siting criteria and water quality, and the financial assurance mechanisms are written to ensure that any necessary cleanup will be fully funded by the permittee. However, as in Minnesota, the reclamation standard and overall policy of the program is aimed not merely at environmental protection, but includes economic growth as a balancing factor.

The **application review** process in Wisconsin is regulated by highly technical requirements, both for the applicant's submission and for the state's review and decision-making process. The review process is further strengthened by the "prove-it-first" requirement and by the state's retention of authority to investigate and prepare an independent environmental analysis, rather than a reliance on an applicant-provided analysis. Public participation is also a central feature of the review process and is encouraged through multiple opportunities for comment and protest in formal hearings. The process could be improved by allowing for more input and consideration of tribal and local government concerns.

The **enforcement** authority granted to Wisconsin's DNR and to the public is the most extensive of any jurisdiction surveyed. It is marked not only by multiple opportunities and mandates for state enforcement actions, but also by open access for citizen participation in state enforcement actions and even direct citizen lawsuits against violators of the mining law. The one deficiency in this assessment category is the lack of a systematic monitoring scheme for the state to independently inspect and evaluate mining and reclamation activities.

Wisconsin's **program resources** are reasonably funded by direct billing of program costs to applicants in the application phase, but there are no such mechanisms in place to fund enforcement or monitoring activities. Financial assurance mechanisms may be subject to claims by a permittee's creditors. The potential shortfalls created by weak funding mechanisms could endanger the proper functioning of the regulatory scheme.

The requirements for **reporting and official statements** are relatively well-developed in Wisconsin, and as in all U.S. jurisdictions, all data and reports are fully publicly accessible.

1. REGULATORY SCOPE

The regulatory scope of a sulfide mining regulation program refers to the breadth and depth of issues and activities regulated by the jurisdiction, and also to the overall purposes and goals of the program. This analysis does not evaluate or account for how the law is actually implemented but simply how it is written; the quality of application and implementation is evaluated in later sections. An ideal program would cover all the major issues of concern (e.g., runoff from tailings, structural stability, financial capacity of the operator, etc.) and also set a robust policy goal for remediation and the greatest degree of environmental protection both during and after mining activities. Fulfillment of the following criteria would indicate a comprehensive system of regulation with an appropriate end goal of the greatest possible protection to the human and natural environment:

1. The state or province regulates a broad array of issues unique to sulfide mining, including: production, transport and fate of acid mine drainage and other contaminants; siting and buffers; heap and dump leaching; waste rock piles and storage; tailings basin management; particulate contributions to acidic conditions on and off site; transportation of acid-producing materials; long-term remediation and short and long-term acid production potential in pit and storage areas.
2. The state or province regulates and exhibits comprehension of the structural integrity of mines, including thorough rock mechanics review, lateral support issues and impacts to adjacent lands.
3. The state or province uses an ecosystem-based approach to mining regulation and employs comprehensive and integrated regulation and analysis of air, surface water, ground water and aquifer impacts, and considers all discharges synergistically to determine impacts on bioaccumulative chemicals of concern.
4. Regulations are applicable statewide or province-wide.

5. The state or province regulates exploration to ensure protective capping and site remediation, and a thorough review process determines whether exploration is permitted based on the location's appropriateness for future mining.
6. The state or province has an adequate monitoring program that allows for proactive, protective measures to be taken prior to any release or accident.
7. The state or province requires mining and cleanup operations to comply with all applicable state, federal and tribal regulations.
8. The state or province requires adequate up-front financial assurance to cover costs for worst-case scenario failures, contingency plan implementation.
9. Financial assurance requirements reach beyond the term of the mining and waste management permits to encompass long-term water treatment needs, etc.
10. A comprehensive web of effective, interactive regulations protect surface water, ground water, air, land, wildlife habitat, wetlands, endangered species and assess impacts on global warming; mining operations are not exempted.
11. An environmental review process that uses ecological values and carrying capacity is required and is applied by the state or province to determine where mining will be allowed.
12. Numeric standards or determination processes for setting numeric standards are consistently applied to all discharges in every medium (water, air, etc.); standards apply to all contaminants from all media and there are standards specifically applicable to sulfide mining contaminants (sulfides, heavy metals, chlorine, etc.).
13. The state or province requires holistic mine plans, including factors like stability, workers' safety; long-term viability of the mine (prohibiting high-grading), economic plans for communities' long-term health, reasonable royalties, past performance of applicant and community priorities as expressed in Master Plans, zoning, etc.
14. Mining sites must be returned to a functioning ecosystem that does not require perpetual care post-mining.
15. The state or province requires that all impacts, on and off site, be analyzed, assessed and included in permitting decisions.
16. The state or province requires a cumulative impacts analysis that includes impacts from any beneficiation or transportation of the facility's ore in the state or province.
17. The state or province requires contingency plans for any potential failures.

Wisconsin's regulation of sulfide mining is highly detailed in certain areas, specifically in its consideration of leaching and water quality effects. It also serves as a model for regulating all phases of a mine operation, from prospecting through waste storage and remediation, and for requiring highly detailed and environmentally responsible site selection. However, while providing a good scope of regulation, the state fails to integrate the different aspects of regulation in a systematic way or to set a high standard for reclamation and return to a functioning ecosystem.

Overall grade: Fair.

1	The state or province regulates a broad array of issues unique to sulfide mining, including: production, transport and fate of acid mine drainage and other contaminants; siting and buffers; heap and dump leaching; waste rock piles and storage; tailings basin management; particulate contributions to acidic conditions on and off site; transportation of acid-producing materials; long-term remediation and short and long-term acid production potential in pit and storage areas.	YES
2	The state or province regulates and exhibits comprehension of the structural integrity of mines, including thorough rock mechanics review, lateral support issues and impacts to adjacent lands.	SOME
3	The state or province uses an ecosystem-based approach to mining regulation and employs comprehensive and integrated regulation and analysis of air, surface water, ground water and aquifer impacts, and considers all discharges synergistically to determine impacts on bioaccumulative chemicals of concern.	NO
4	Regulations are applicable statewide or province-wide.	YES
5	The state or province regulates exploration to ensure protective capping and site remediation, and a thorough review process determines whether exploration is permitted based on the location's appropriateness for future mining.	SOME
6	The state or province has an adequate monitoring program that allows for proactive, protective measures to be taken prior to any release or accident.	SOME
7	The state or province requires mining and cleanup operations to comply with all applicable state, federal and tribal regulations.	NO
8	The state or province requires adequate up-front financial assurance to cover costs for worst-case scenario failures and contingency plan implementation.	YES
9	Financial assurance requirements reach beyond the term of the mining and waste management permits to encompass long-term water treatment needs, etc.	YES
10	A comprehensive web of effective, interactive regulations protect surface water, ground water, air, land, wildlife habitat, wetlands, endangered species and assess impacts on global warming; mining operations are not exempted.	SOME
11	An environmental review process that uses ecological values and carrying capacity is required and is applied to determine where mining will be allowed.	YES
12	Numeric standards or determination processes for setting numeric standards are consistently applied to all discharges in every media (water, air, etc.); standards apply to all contaminants from all media and there are standards specifically applicable to sulfide mining contaminants (sulfides, heavy metals, chlorine, etc.).	NO
13	The state or province requires holistic mine plans, including factors like: stability, workers' safety; long-term viability of the mine (not allowing just high-grading), economic plans for communities long-term health, reasonable royalties, past performance of applicant and community priorities as expressed in Master Plans, zoning, etc.	NO
14	Mining sites must be returned to a functioning ecosystem that does not require perpetual care post-mining.	NO
15	The state or province requires that all impacts, on and off site, be analyzed, assessed and included in permitting decisions.	YES

16	The state or province requires a cumulative impacts analysis that includes impacts from any beneficiation or transportation of the facility's ore in the state or province.	SOME
17	The state or province requires contingency plans for any potential failures.	YES

Discussion:

1. **The state or province regulates a broad array of issues unique to sulfide mining, including: production, transport and fate of acid mine drainage and other contaminants; siting and buffers; heap and dump leaching; waste rock piles and storage; tailings basin management; particulate contributions to acidic conditions on and off site; transportation of acid-producing materials; long-term remediation and short and long-term acid production potential in pit and storage areas.**

Wisconsin's regulations cover these issues in extreme detail, providing a near model of regulatory scope.

AMD: The threat of AMD contamination was the impetus behind one of the most remarkable aspects of Wisconsin's law. Wisconsin set a special standard for sulfide mining permit applications: a permit cannot be approved unless and until the applicant shows evidence of a sulfide mine with net acid generating potential in the U.S. or Canada which has been operating for at least 10 years, and one which has been closed for at least 10 years, without polluting groundwater or surface water from acid drainage at the tailings or mine sites or from the release of heavy metals. Wis. Stat. §293.50(2). "Pollution" in this part means any degradation of water quality that has resulted in the violation of an environmental law as determined in a legal proceeding, as evidenced by any penalty assessed, decision rendered, or stipulated agreement, etc. This limits the effectiveness of this provision.

Though never explicitly referring to "acid mine drainage," the statute and rules provide a number of parameters and submission requirements for tracking and management of mine discharges. For example, the mining permit application must include a plan of operations that details, *inter alia*, "[p]lans for collection, treatment and discharge of any water resulting from the operation" and "[g]round and surface water management techniques including provisions for erosion prevention and drainage control and a detailed water management plan showing source, flow paths and rates, storage volumes and release points." NR 132.07(3)(g) and (f), respectively. The statute requires DNR to set standards for all phases of mining operations regarding "[m]anagement, impoundment or treatment of all underground or surface runoff waters from open pits or underground prospecting or mining sites so as to prevent […] pollution of surface or subsurface waters … ." Wis. Stat. §293.13(2)(c)(3). Those standards are discussed below.

Siting and buffers: DNR's rules pertaining to site selection criteria and evaluation are highly specific. With regard to the purpose of site selection, "[t]he objective of the applicant's site selection process for the mining facilities, and for the disposal or storage of wastes or materials produced by such activities, shall be the selection of a viable site that would result in the least overall adverse environmental impact." NR 132.06(4)(a). This requires an identification of all viable sites and demonstration that the chosen alternative is the least environmentally damaging. NR 132.06(4)(b). The rules also provide special and extensive protection and regulation of siting

with regard to wetland protection at NR 132.06(4). The use of wetlands (or use of other areas that would have a significant adverse impact on wetlands) for mining, storage or disposal activities is "presumed to be unnecessary" unless the applicant demonstrates a number of special circumstances, e.g. that the siting results in the least environmental impact as among alternative sites, and will minimize loss of wetlands functions. NR 132.06(4)(d).

In addition to these general siting criteria, Wisconsin restricts the use of specified areas for metallic mining. "To the extent practicable," no one may construct, operate or maintain property for any mining-related construction in an "unsuitable" area, a floodplain, wetlands (unless specially permitted), or in any area that would result in noncompliance with other federal or state laws. NR 132.18. "Unsuitable" areas include any areas where surface mining would reasonable be expected to destroy or irreparably damage either habitat for endangered species or unique features of the land as determined by federal or state designation. NR 132.03(25). Such areas include all wilderness areas, wild and scenic rivers, national or state parks, historic landmarks, etc. Id. These prohibitions are subject, however, to an appeal process where the state may grant an exception, such as was done for the Flambeau mine. NR 132.19.

The siting criteria also include mandatory buffers for both mine sites and waste storage and treatment facilities. Mine sites may not be located within 1,000 feet of any navigable lake, pond or flowage, within 300 feet of a navigable river or stream, or "[w]ithin 1,000 feet of the nearest edge of the right–of–way of any of the following: any state trunk highway, interstate or federal primary highway; the boundary of a state public park; the boundary of a scenic easement purchased by the department or the department of transportation; the boundary of a designated scenic or wild river; a scenic overlook designated by the department by rule; or a bike or hiking trail designated by the United States congress or the state legislature; unless, regardless of season, the site is visually inconspicuous due to screening or being visually absorbed due to natural objects, compatible natural plantings, earth berm or other appropriate means, or unless, regardless of season, the site is screened so as to be aesthetically pleasing and inconspicuous as is feasible." NR 132.18(b), (c), and (e).

Waste sites must have a buffer from navigable waters, floodplains, rights-of-way, the property line, and other protected areas. NR 182.07. Additionally, all mining and waste storage/treatment sites must meet the minimum distance requirements between the outer edge of the facility and the "design management zone," which is a term of art under the water quality standards rules (NR 140) defining the boundary of the proposed activity or facility. NR 182.075(b).

Heap and dump leaching: The rules require disclosure and provide standards regarding leaching and leachate management in a number of places, from permit application through waste management. One of DNR's primary functions as administrator of the mining program is "[i]dentification and prevention of pollution as defined in § 281.01(10) resulting from leaching of waste materials." Wis. Stat. §293.13(2)(b)(11). The application to mine must disclose potential leaching, NR 132.07(4)(k), and the reclamation plan must also meet a number of minimum standards, including that "[a]ll toxic and hazardous wastes, refuse, tailing and other solid waste shall be disposed of in conformance with applicable state and federal regulations." NR 132.08(2)(a). Waste disposal sites are also subject to oversight of leachate and discharges. The location, design, construction and operation of the site must comply with point source discharge requirements, "including, but not limited to any point source discharge from a leachate … ." NR 182.02(6)(c).

Waste rock piles and storage: The proposed operating procedures (part of the application for a mining permit) must provide for the "[s]torage, loading and transportation of final products." NR 132.07(3)(e). Piles and storage of waste are also more comprehensively dealt with in NR Ch. 182.

Tailings basin management: The mining plan must include details of the "nature, extent and final configuration of the proposed excavation and mining site including location and total production of tailings and other mining refuse … ." NR 132.07(2). Similarly, the proposed operating procedures must include "tailings production, handling and final disposition." NR 132.07(3)(c). Finally, the rules require that tailings transport systems, if not buried, should be designed to provide for emergency tailings conveyance or storage should a pipeline break, and that the location of emergency spill areas must be consistent with the prevention of environmental pollution of surface waters. NR 132.17(13).

Particulate contributions to acidic conditions on and off site: Prospecting, mining and waste sites are all subject to groundwater standards set under NR 140. NR 182.075(1). These include a standard for sulfate concentration (NR140.12) and for alkalinity ("the preventative action limit shall be one pH unit above or below the pH of the background water quality." NR 140.20(2)(a)). Further, a waste site permit application must characterize and analyze the nature of the waste including "[d]etermination of the acid producing characteristics of the wastes considering the acid producing content of the materials, the size, form of the acid producing material, and spatial distribution of its particles, the neutralizing effect of host materials; and the quality of leachate produced by similar wastes." NR 182.08(2)(bi)(4)(a).

Transportation of acid-producing materials: The mine plan must include a plan for the transportation of the final product. NR 132.07(3)(e).

Long-term remediation and short and long-term acid production potential in pit and storage areas: A reclamation plan is a basic element of application for the permit to prospect (§293.35(3)) or mine (§293.37(3)). These reclamation plans must meet the minimum standards set under §293.13(c), which include "disposal of all toxic and hazardous wastes, refuse, tailings and other solid waste in solid or hazardous waste disposal facilities licensed under ch. 289 or 291 or otherwise in an environmentally sound manner." Further, the waste site permit application must include a "[d]etermination of the acid producing characteristics of the waste […] and [d]etermination of the leaching potential of the wastes and determination of the composition of the resulting leachate." NR 182.08(2)(bi)(4)(b). Among the minimum design and operational requirements for mine waste sites, "Provisions shall be made for collection and treatment of leachate for all sites designed to contain leachate." NR 182.11(1)(o). In addition, the applicant should "consider" that "[m]ining waste disposal should minimize the discharge of environmental pollutants to the groundwaters of the state." NR 182.11(2)(g). Finally, NR 132.17 contains a series of requirements for design and siting to ensure protection of surface and groundwater from contamination by mine activities and wastes. This is more or less a precursor regulation analogous to that found in NR 182 covering mine waste management.

2. **The state or province regulates and exhibits comprehension of the structural integrity of mines, including thorough rock mechanics review, lateral support issues and impacts to adjacent lands.**

While prohibiting activities or situation that threaten subsidence or caving, Wisconsin's regulations do not provide much guidance or technical review of mine construction. A mining permit application will be denied if the proposed activity may "reasonably be expected to create" landslides, subsidence, or other significant structural hazards to nearby structures, roads, or public facilities. NR 132.10, and see Wis. Stat. § 293.13(2)(d). Further, the applicant's reclamation plan must include evidence that "[a]dequate measures shall be taken to prevent significant surface subsidence, but if such subsidence does occur, the affected area shall be reclaimed." NR 132.08(1)(e).

3. **The state or province uses an ecosystem-based approach to mining regulation and employs comprehensive and integrated regulation and analysis of air, surface water, ground water and aquifer impacts, and considers all discharges synergistically to determine impacts on bioaccumulative chemicals of concern.**

Whether all impacts will be considered in an integrated, synergistic fashion remains to be seen; while it could happen in practice, there is no regulatory framework or requirement that they be handled this way. Though air, water, and other issues are all mentioned as part of the EIS process, there is no clear requirement that they be considered synergistically. There is also no framework set up in the statute or regulations to guarantee that different effects will be considered synergistically. Through the application and enforcement/monitoring phases, the different impact areas (air, water, waste) are handled by different groups though all are housed within the DNR and all are under a coordinated "team" approach for any given project. The team is led by an appointed project manager, usually the person who was coordinating the EIS.

4. **Regulations are applicable statewide or province-wide.**

There are no geographic exceptions to application of the law or regulations.

5. **The state or province regulates exploration to ensure protective capping and site remediation, and a thorough review process determines whether exploration is permitted based on the location's appropriateness for future mining.**

Exploration is a permitted activity covered through a separate section in the rules, NR Ch. 130. The state issues a prospecting permit when the applicant submits a brief description of the proposed activity, information regarding its finances, and posts a bond. Recently (in the last year), DNR has expanded these requirements to include a drilling plan detailing the exact location of the proposed drilling, though this is not yet memorialized in the rules. The permit will be denied if DNR finds the proposed activity will not include a list of standards (§293.13(2)(b) and (c)), which include a plan for capping and remediation of the site. However, there is no mention that the department must consider the location's appropriateness for future activities, nor is there an environmental review of the proposed exploration commensurate with that done for a full mining operation.

6. **The state or province has an adequate monitoring program that allows for proactive, protective measures to be taken prior to any release or accident.**

Wisconsin's monitoring requirements are relatively detailed, but do not require much in the way of independent, regular, mandatory monitoring. An application for a prospecting or mining permit must include a proposed monitoring plan (NR 131.06(3)(d) and 132.06(3)(d), respectively) and monitoring criteria must be included in both prospecting and mining permits. The monitoring action level (requiring follow-up action by the permittee) is set at a minimum level: "If the analyses of samples indicate that the quality of the groundwater is statistically significantly different from either baseline or background, the owner shall notify the department immediately." NR 132.11(2)(c). While set at a reasonably sensitive level, the system is based on the permittee's self-monitoring and self-reporting instead of independent and objective state monitoring, and there is no follow-up prescribed action or procedure for the department to follow in response. DNR has the discretion to do additional independent monitoring, but no mandate to do so. NR 131.11, 132.11. Also, DNR has "visitorial" powers to enter and inspect the mine site at any time, and the permittee cannot refuse such entry. §293.86; NR 132.14.

The waste management operation permitted in NR 182 is also subject to monitoring requirements by the Department: groundwater monitoring wells installed by the permittee are mandatory, and leachate monitoring and other types of monitoring are discretionary with the Department. NR 182.13(2). The monitoring frequency and parameters set for waste management sites is more explicit and exacting in the rules than that set for the mine site itself. See NR 182.13(2)-(5).

7. The state or province requires mining and cleanup operations to comply with all applicable state, federal and tribal regulations.

An application for a prospecting or mining permit must list in the application all "anticipated permits, approvals, certifications and licenses for the proposed prospecting project required by federal, state and local agencies," though it does not require actual compliance with these prior to the application being read or permit granted. NR 131.05(3)(g). When another state or federal standard "specifically regulates in whole an activity also regulated under [Chapter 293] the other state or federal statutes or rules shall be the controlling standard." Wis. Stat. 293.93. This could be rewritten as a requirement of compliance, but is currently only a recognition of another laws' potential precedence.

Some of the tribes in Wisconsin have established their own water quality standards. However, adherence to these standards is not prescribed in Wis. Stat. § 293.93. Tribes must be informed of applications, but no state law requires tribal consent or adherence to tribal regulations or laws prior to granting permits.

8. The state or province requires adequate up-front financial assurance to cover costs for worst-case scenario failures, contingency plan implementation.

Wisconsin requires both a reclamation bond and also an irrevocable trust as financial assurance for both regular contingency plan implementation and worst-case-scenario failures.

First**,** Wisconsin requires the permit applicant to post a bond based on the projected cost for the department to reclaim the site (as proposed in the reclamation plan) at any phase in the project. This is not a "worst case scenario" insurance policy, but rather takes care of the less-egregious situation of a mine operator failing to complete the required reclamation on its own and the state stepping in to take up the slack. Wis. Stat. 293.51, NR 132.09(2).

Second, the applicant must set up an irrevocable trust agreement in which a fund is created and regularly paid into by the permit holder. NR 132.085. This fund is intended to

finance preventative and remedial activities necessitated by unforeseeable "worst case" environmental damages not addressed by the regular remediation plan. The size and timing of payments into the fund depends on the stage of the project.

9. **Financial assurance requirements reach beyond the term of the mining and waste management permits to encompass long-term water treatment needs, etc.**

The reclamation bond will be reduced to 10% or 20% of the total potential cost of reclamation after DNR grants a certificate of completion of all reclamation activities, and this amount will be entirely released only after 20 years. NR 132.13. The trust fund does not apply to "long-term care" activities but as part of the reclamation plan (NR 132.085(4)(e)), the applicant must provide proof of financial ability to be responsible for the mine waste facility's "long term care" for 30 years after closure. NR 182.17(2)(b). The applicant's successor in interest will also be bound to this responsibility. NR 182.17(2)(c). The mine waste facility's long term care is part and parcel of the reclamation plan in these sections.

10. **A comprehensive web of effective, interactive regulations protect surface water, ground water, air, land, wildlife habitat, wetlands, endangered species and assess impacts on global warming; mining operations are not exempted.**

Mining operations are not exempt from any environmental law, including air and water quality. All review and processing is done within DNR's various sub-departments and is coordinated through a single project manager. However, whether this in practice will result in synergistic or interrelated review and management of effects remains to be seen; there is no framework for such coordination set up in the regulations.

11. **An environmental review process that uses ecological values and carrying capacity is required and is applied by the state or province to determine where mining will be allowed.**

Wisconsin has the most detailed list of site characteristics and "suitability" analysis of any jurisdiction surveyed, and is useful therefore as a model. The statute and regulations call for a high level of scrutiny for site analysis, with specific regard given to the environmental attributes of a proposed site. A site is deemed "unsuitable" for a prospecting or mining permit when it has been identified as a protected area in the statute, is endangered species habitat, or is an area "of a type designated as unique or unsuitable for surface mining." See NR 131.03(23), 132.03(23). Thus, the rules give the department the leeway to make such a determination of unsuitability (and thereupon deny an application), but do not require it necessarily.

A prospecting permit will not be issued if DNR deems the site legally "unsuitable" for mining activities (§293.45(1)) and even if a prospecting permit is issued, DNR must *again* consider whether the area is "suitable" when making a decision on the mining permit application (§293.49(1)(a)(3)) and must deny an application for operations in an unsuitable area. "Unsuitability" is defined by §293.01(28) as follows:

> "Unsuitability" means that the land proposed for prospecting or surface mining is not suitable for such activity because the prospecting or surface mining activity itself may reasonably be expected to destroy or irreparably damage either of the following:

(a) Habitat required for survival of species of vegetation or wildlife designated as endangered through prior inclusion in rules adopted by the department, if such endangered species cannot be firmly reestablished elsewhere.
(b) Unique features of the land, as determined by state or federal designation and incorporated in rules adopted by the department, as any of the following, which cannot have their unique characteristic preserved by relocation or replacement elsewhere:
1. Wilderness areas.
2. Wild and scenic rivers.
3. National or state parks.
4. Wildlife refuges and areas.
5. Archaeological areas.
5m. Listed properties, as defined in s. 44.31 (4).
6. Other lands of a type designated as unique or unsuitable for prospecting or surface mining.

The regulations also add a list of 173 protected "scientific areas" to the definition of unsuitability (NR 131.3(23) and 132.3(23)).

12. Numeric standards or determination processes for setting numeric standards are consistently applied to all discharges in every media (water, air, etc.); standards apply to all contaminants from all media and there are standards specifically applicable to sulfide mining contaminants (sulfides, heavy metals, chlorine, etc.).

There are no numeric standards set specifically for nonferrous metallic mining operations. Standards are set on a case-by-case basis, developed in the permitting process when considering background data.

13. The state or province requires holistic mine plans, including factors like: stability, workers' safety; long-term viability of the mine (not allowing just high-grading), economic plans for communities' long-term health, reasonable royalties, past performance of applicant and community priorities as expressed in Master Plans, zoning, etc.

Wisconsin does not require non-environmental impact protection in mine plans. See NR 132.07. While past performance of the applicant and local government involvement are features of the EIS and application review, they are not included in the mine plan per se. See Wis. Stat. §293.39(2)(f), NR 131.06(3)(g), 132.06(3)(g) (respectively).

14. Mining sites must be returned to a functioning ecosystem that does not require perpetual care post-mining.

A reclamation plan must be submitted as part of each application for a prospecting or mining permit, but the state does not require a return to a "functioning ecosystem" necessarily, or even to the pre-hoc scenario. Wis. Stat. Ann. §§ 293.35(2), 293.37(3). Instead, "[i]f it is physically or economically impracticable or environmentally or socially undesirable for the reclamation process to return the affected area to its original state, the plan shall set forth the reasons therefor and shall discuss alternative conditions and uses to which the affected area can be put." Id.

The administrative rules echo this approach: the reclamation plan should provide "the greatest feasible protection to the environment" (NR 132.03(21)), but the reclamation standards themselves do not use a functioning ecosystem as the measure of success. They rather use "conformance with applicable state and federal statutes and regulations" as the measure of completeness and modify expectations with "to the extent practicable." NR 132.08(2). The standards also leave room for the mine to be reclaimed in a way that will not yield a "functioning ecosystem" or even a "clean" or pre-hoc environment, by restating the statutory loophole noted above: "If it is physically or economically impracticable or environmentally or socially undesirable for the reclamation process to return the affected area to its original state, the plan shall set forth the reasons therefor and shall discuss alternative conditions and uses to which the affected area can be put." NR 132.08(3).

15. The state or province requires that all impacts, on and off site, be analyzed, assessed and included in permitting decisions.

Wisconsin requires all impacts to be considered in the permit decision, both on-site and off-site (all effects to public health, safety and welfare, and effects to all potentially affected communities). Wis Stat. §293.49(1)(a). All impacts are also assessed in the EIS. See NR 150, specifically NR 150.22 ("Preparation and content of the EA or EIS").

16. The state or province requires a cumulative impacts analysis that includes impacts from any beneficiation or transportation of the facility's ore in the state or province.

Cumulative impacts are assessed through the applicant's EIS, and should include both beneficiation and transportation activities.[3] This requirement is not, however, made explicit in the regulations. Wisconsin requires additional special cumulative impacts analysis for wetlands protection; i.e. whether there are cumulative effects of piecemeal alterations to a wetland ecosystem, or cumulative effects from the proposed activity in concert with prior activities on the site. Both prospecting and mining permit applicants must address these wetlands impacts. NR 131.06(4)(g), NR 132.06(4)(g).

17. The state or province requires contingency plans for any potential failures.

A contingency plan is required for each stage of permitting for a proposed mine: (1) the mine prospecting permit application (NR 131.07(2)(h-i), (2) the mining permit application (NR 132.07(3)(i-j)), and (3) waste management and disposal operations (NR 182.08(i)). The mining rules require both a risk assessment of "possible accidental health and environmental hazards potentially associated with the mine operation" and contingency measures with respect to the risks, and measures for notifying the public and government agencies of potentially hazardous conditions. NR 132.07(3)(i-j).

[3] Larry Lynch, Wisconsin DNR (personal communication with author, July 12, 2011).

2. REVIEW PROCESS

Since each jurisdiction surveyed prohibits mining or related activities without a state-issued permit, with the sole exception of Ontario, the process of reviewing an application for a mining permit is a critical part of the states' regulatory scheme. The application stage is a jurisdiction's best opportunity to control a sulfide mine by setting the parameters of the operation's location, technologies, monitoring requirements, and so on, or by denying an application that fails to meet the state's safety requirements. An ideal application review process is highly detailed, independent, and public. There are a number of factors the jurisdiction can require of a proposed mine that will decrease the likelihood of environmental damage and ensure that the mine operator/owner is providing a net positive value to the jurisdiction. The jurisdiction should apply clear standards to each application, and should have the resources (financial and expert) to conduct a thorough and competent review. It is also important that the application review process be open to the public and that special care be taken to respond meaningfully to the concerns of any local governments or tribes whose interests are directly affected by the proposed mine. These standards and expectations are set forth in the following criteria:

1. The state or province requires applicants and permittees to submit supporting data sufficient to provide for meaningful and substantive review of the application or request.
2. The state or province is supportive of and cooperative with other applicable regulatory regimes including federal and tribal governments.
3. The state or province has an integrated process for assessing applications and integrating input. The process should include cross-disciplinary review and input from fellow agencies that is unhampered by political pressure.
4. The state facilitates and incorporates feedback from public participation in all aspects of environmental review, application assessment, permitting and enforcement.
5. Consent by any impacted tribe/First Nation is required for mine approval.
6. Standards and criteria are concrete, clear and easily enforced. Self-realizing standards are best (like the WI "Prove it first" law).
7. Standards for reclamation and remediation are in place prior to mining; the applicant must demonstrate that they can be met prior to an application gaining approval.
8. Government-to-government consultation results in tribal requests being integrated into the permitting process and enforceable.
9. The state or province denies permits if they do not meet the regulatory standards.
10. All state or province analytical materials and data are available to the public.
11. The state or province requires that all data supporting an application be available to the public.
12. The state or province supplements applicant-provided data with its own, independently-gathered data.

13. Tribes/First Nations impacted by a mine proposal have delegated authority, if desired, for regulation and enforcement of environmental standards and adequate resources to pursue that authority.
14. The state or province ensures that regulators do not have financial conflicts of interest in making permit decisions.
15. Public funds may not be committed to financing or assisting project development until environmental review is completed.
16. Financial assurance is calculated transparently and well-before any permit is issued.
17. Financial assurance, including its amount and devices, is developed collaboratively with financial as well as environmental expertise.

Wisconsin's application review process is very thorough and provides clear standards for both applicants and agency review. The "prove-it-first" standard places the impetus on the permittee to show that a sulfide mine can in fact operate without causing environmental damage, while the department retains responsibility to investigate and create the environmental assessment independently, instead of relying on an assessment prepared by the permittee. The process could be improved by better integration and giving more weight to tribal input, and by making cross-disciplinary coordination more systematic.

Overall grade: Fair

1	The state or province requires applicants and permittees to submit supporting data sufficient to provide for meaningful and substantive review of the application or request.	YES
2	The state or province is supportive of and cooperative with other applicable regulatory regimes including federal and tribal governments.	SOME
3	The state or province has an integrated process for assessing applications and integrating input. The process should include cross-disciplinary review and input from fellow agencies that is unhampered by political pressure.	SOME
4	The state facilitates and incorporates feedback from public participation in all aspects of environmental review, application assessment, permitting and enforcement.	SOME
5	Consent by any impacted tribe/First Nation is required for mine approval.	NO
6	Standards and criteria are concrete, clear and easily enforced. Self-realizing standards are best (like the WI "Prove it first" law).	YES
7	Standards for reclamation and remediation are in place prior to mining; the applicant must demonstrate that they can be met prior to an application gaining approval.	YES
8	Government-to-government consultation results in tribal requests being integrated into the permitting process and enforceable.	NO
9	The state or province denies permits if they do not meet the regulatory standards.	N/A
10	All state or province analytical materials and data are available to the public.	YES
11	The state or province requires that all data supporting an application be available to the public.	YES

12	The state or province supplements applicant-provided data with its own, independently-gathered data.	SOME
13	Tribes/First Nations impacted by a mine proposal have delegated authority, if desired, for regulation and enforcement of environmental standards and adequate resources to pursue that authority.	NO
14	The state or province ensures that regulators do not have financial conflicts of interest in making permit decisions.	YES
15	Public funds may not be committed to financing or assisting project development until environmental review is completed.	NO
16	Financial assurance is calculated transparently and well-before any permit is issued.	YES
17	Financial assurance, including its amount and devices, is developed collaboratively with financial as well as environmental expertise.	N/A

Discussion:

1. **The state or province requires applicants and permittees to submit supporting data sufficient to provide for meaningful and substantive review of the application or request.**

The application for a mining permit must include a mining plan, reclamation plan, and a host of other detailed data. NR 132.06(3). The requirements for both the mining plan (the key part of the application), Wis Stat. § 293.37(2)(a), and the reclamation plan are similarly detailed. NR 132.08. These regulations comprehensively establish what the department is interested in learning from an applicant and give the department additional leeway to seek any other information from the applicant it desires. NR 132.06(3)(k). These regulations go much farther and are far more specific than Michigan's regulations and requirements for a permit application.

2. **The state or province is supportive of and cooperative with other applicable regulatory regimes including federal and tribal governments.**

Wisconsin gives no official support to tribal governments, nor is it required to support any applicable tribal regulations or rules; federal agencies are consulted on an ad hoc basis.

Tribal government: Tribes are consulted basically the same way as local units of government; there is no separate formal way of dealing with tribes, or special consideration given to their opinions or regulation. Some tribes, however, may have "treatment as state" status for water quality management in a particular location, and in that case the tribe would have status equal to that of the state in enforcing water quality standards.

Federal: The state coordinates with federal agencies on an ad hoc basis. In the first Crandon project, a joint EIS was prepared with the Army Corps of Engineers (ACE), but on the Flambeau project, ACE had no authority and so did no EIS. DNR coordinates with the US Fish and Wildlife Service for endangered species management.

3. **The state or province has an integrated process for assessing applications and integrating input. The process should include cross-disciplinary review and input from fellow agencies that is unhampered by political pressure.**

The assessment of applications does not require official cross-disciplinary coordination, though this occurred in the review of the Crandon mine and the Flambeau project. Inter-agency coordination is an expected part of any large project review, but not formalized in any regulation, rule, or guidance document. The extent of political pressure is unknown.

4. The state facilitates and incorporates feedback from public participation in all aspects of environmental review, application assessment, permitting and enforcement.

Wisconsin has a well-developed system for integrating public participation in all phases of a project. In the application phase, the first opportunity for public participation comes with the mandatory public hearing on the Notice of Intent (which is submitted prior to any application). Then, the draft EIS is released, and another public hearing is held. The EIS is reviewed for adequacy and there is a mandatory contested case hearing on the EIS. The hearing examiner's decision can be appealed by anyone. Non-formal avenues for participation are also available through ongoing public meetings on the project or specific areas of concern. All DNR meetings with the potential permittee are reportedly open and can be recorded.

In the enforcement phase, public participation is not solicited but the public is kept informed via the departmental website. If a permit is modified, there must be public notice and may be a hearing. Formal complaints become public, but non-formal questions/comments/complaints from the public do not become public record. The public may participate in enforcement activities, if the landowner agrees.

5. Consent by any impacted tribe/First Nation is required for mine approval.

Consent is not required for permit approval.

6. Standards and criteria are concrete, clear and easily enforced. Self-realizing standards are best (like the WI "Prove it first" law).

The "prove it first" test that requires the applicant to submit evidence of other sulfide mines that have not polluted and have been successfully reclaimed is a high bar, and should be easily enforced. The Crandon mine applicant proposed a set of mines that it thought met the bar, but withdrew the application before the state made a final assessment. In addition to the prove-it-first standard, Wisconsin's application requirements are more than a mere list of descriptions and technical submissions. Rather, they include standards of care, design, and specific protective devices. Wis. Stat. § 293.37(2)(a). For example, the applicant must show that its design will not cause an exceedance of groundwater quality standards for the site.

7. Standards for reclamation and remediation are in place prior to mining; the applicant must demonstrate that they can be met prior to an application gaining approval.

The reclamation plan is part of the permit application, NR 132.06(3), and the application is reviewed for both operational and financial feasibility.[4]

[4] Larry Lynch, supra note 31.

8. **Government-to-government consultation results in tribal requests being integrated into the permitting process and enforceable.**

Tribes are considered coequal with any other affected person or party; they have no special power or authority in the permitting process. The law nowhere requires consultation or consideration of tribal requests.

9. **The state or province denies permits if they do not meet the regulatory standards.**

The statute requires denial for failure to meet requirements, but in practice, the department has not yet rejected any application.

10. **All state or province analytical materials and data are available to the public.**

Everything is available and would probably be posted online (though the state has no experience with this as yet). An applicant or operator can request confidentiality but only through a formal process.

11. **The state or province requires that all data supporting an application be available to the public.**

All data is available online as part of the application.

12. **The state or province supplements applicant-provided data with its own, independently-gathered data.**

Most of the data is gathered by the applicant but the state does some independent gathering (e.g., monitoring wells) and monitors and verifies the applicant's sampling and data. The samples are generally analyzed by state-certified labs and the Notice of Intent sets out procedures and licenses for collection and analysis.

13. **Tribes/First Nations impacted by a mine proposal have delegated authority, if desired, for regulation and enforcement of environmental standards and adequate resources to pursue that authority.**

Tribes have no delegated authority from the state regarding sulfide mining operations. They may, however, exercise some authority where they have federally-granted "treatment as state" status.

14. **The state or province ensures that regulators do not have financial conflicts of interest in making permit decisions.**

This is not regulated specifically by the mining regulations, though financial conflicts of interest are prohibited by general state government ethics rules.

15. **Public funds may not be committed to financing or assisting project development until environmental review is completed.**

Nothing in the law prohibits the state from financing or entering into agreements with projects undergoing environmental review.

16. Financial assurance is calculated transparently and well-before any permit is issued.

DNR makes the financial assurance calculations, but may bring in an outside consultant if needed and all calculations are public. The bond is filed after application is approved but before the state issues authority to begin mining activities. Wis. Stat. §293.51.

17. Financial assurance, including its amount and devices, is developed collaboratively with financial as well as environmental expertise.

Given the lack of experience in this area, there is not enough data to evaluate the state's performance.

3. ENFORCEMENT

A regulatory structure is only as strong as its enforcement, including the mechanisms and powers granted to the regulators and whether and how the regulators actually use them. An ideal enforcement system gives regulators the tools and resources to enforce the standards set forth in statutes, rules and permits, and to ensure that deviations from or violations of those standards are reversed and adequately punished so as to deter future violations. In addition to having the authority, staff, and money to enforce the law, a meaningful enforcement system must have regulators capable of and committed to enforcement.

It is important to note that the lack of experience in regulating sulfide mines in the jurisdictions surveyed leaves a lack of certain data in this area. Until sulfide mines are permitted, operate, and close under the existing laws, it is impossible to say how a jurisdiction actually and fully enforces its laws and permit conditions, and this report does not speculate on such issues. Furthermore, we recognize that the strength of enforcement may depend to some extent on the political climate in a jurisdiction, and may therefore ebb and flow with legislative and executive changes. However, there is at least some experience to work from in some jurisdictions, and the basic capacity for enforcement is very clearly set out in the statutory authorization, staffing and funding of each jurisdiction's sulfide mining program.

In all states, a mine operator/owner holding a Clean Water Act (CWA) wastewater/stormwater permit will be subject to CWA penalties for violating those permits, including monetary sanctions and stop orders. In all states, citizens can sue operators for violations of CWA permits, with attorneys' fees awarded to successful plaintiffs. In all states, the CWA allows citizen intervention in NPDES permit, 404 and 401 appeals. This system of regulation operates in parallel with the mining permit enforcement scheme in each U.S. jurisdiction, but there is little to no operational overlap. For a review of states' CWA enforcement mechanisms, see the Water Quality Report at Appendix A.

1. The state or province has adequate enforcement policies in place, including authorization to: issue stop orders and corrective action orders, to assess civil penalties, to impose costs of inspections, and attorney and staff costs. States should have written enforcement policies that are available to the public.

2. The state or province provides for citizen intervention in state enforcement actions and for citizen suits, with attorney's fees for prevailing citizens.
3. The state or province allows citizen intervention in state proceedings. States allow citizens to intervene in permit proceedings or appeals and in state suits.
4. The state or province facilitates an atmosphere in which environmental protection is the top priority of the regulatory scheme and those charged with implementing it; agencies do not view themselves or act like agents of the industry.
5. The state or province has adequate enforcement capabilities, including dedicated staff time and expertise.
6. The state or province requires personnel to conduct inspections and enforcement of mining and cleanup operations sufficiently frequently and ensures that problems are addressed promptly.
7. Citizens have access to all enforcement data.
8. Reclamation, enforcement and monitoring are enabled beyond the life of the permit.
9. Post-closure enforcement is strong, with adequate resources and public involvement.
10. Immediate independent judicial review is available to citizen plaintiffs.
11. Citizens can initiate and participate in inspections.
12. Parent and successor corporations and other materially participating entities are obligated to assume permit requirements.
13. Permit conditions and work plans are reviewed at least annually.
14. The agency has authority to modify permit conditions whenever necessary ("adaptive management"), and exercises that authority as needed.
15. Any permit variances, amendments, or changes requested by the permittee are rare and uncontested.

Wisconsin's enforcement procedures and authority are the most extensive of any jurisdiction surveyed, and include open access to citizen suits and intervention in any state proceeding.

Overall Grade: Good.

1	The state or province has adequate enforcement policies in place, including authorization to: issue stop orders and corrective action orders, to assess civil penalties, to impose costs of inspections, and attorney and staff costs. States should have written enforcement policies that are available to the public.	YES
2	The state or province provides for citizen intervention in state enforcement actions and for citizen suits, with attorney's fees for prevailing citizens.	YES
3	The state or province allows citizen intervention in state proceedings. States allow citizens to intervene in permit proceedings or appeals and in state suits.	YES
4	The state or province facilitates an atmosphere in which environmental protection is the top priority of the regulatory scheme and those charged with implementing it; agencies do not view themselves or act like agents of the industry.	SOME

5	The state or province has adequate enforcement capabilities, including dedicated staff time and expertise.	N/A
6	The state or province requires personnel to conduct inspections and enforcement of mining and cleanup operations sufficiently frequently and ensures that problems are addressed promptly.	NO
7	Citizens have access to all enforcement data.	YES
8	Reclamation, enforcement and monitoring is enabled beyond the life of the permit.	YES
9	Post-closure enforcement is strong, with adequate resources and public involvement.	N/A
10	Immediate independent judicial review is available to citizen plaintiffs.	YES
11	Citizens can initiate and participate in inspections.	SOME
12	Parent and successor corporations and other materially participating entities are obligated to assume permit requirements.	YES
13	Permit conditions and work plans are reviewed at least annually.	YES
14	The agency has authority to modify permit conditions whenever necessary ("adaptive management"), and exercises that authority as needed.	YES, N/A
15	Any permit variances, amendments, or changes requested by the permittee are rare and uncontested.	N/A

DISCUSSION:

1. **The state or province has adequate enforcement policies in place, including authorization to: issue stop orders and corrective action orders, to assess civil penalties, to impose costs of inspections, and attorney and staff costs. States should have written enforcement policies that are available to the public.**

Wisconsin's statutes authorize the DNR and the Department of Justice to take a variety of actions against violators of state statutes, rules, or state-issued permits. Wis. Stat. §§ 293.83, 293.85, 293.87, 293.89; NR 132.16. In certain cases, the DNR is authorized to take immediate action or assess civil penalties of its own accord, and in others state courts must render the order.

Stop orders: DNR is required to issue a stop order requiring the immediate cessation of mining, in whole or part, any time DNR determines the continuance of mining constitutes an immediate and substantial threat to public health and safety or the environment. Wis. Stat. § 293.83(4). Within five days after the stop order is issued, DNR must notify the operator and hold a hearing to determine whether to affirm, modify or set aside the stop order. Wis. Stat. § 293.83(4)(b).

Corrective action orders: If the DNR "finds" a violation of law or any unapproved deviation from the mining or reclamation plan, it is required by statute to either issue an order requiring the operator to comply "within a specified time," require the operator to appear at a hearing and answer charges complained of, or request the department of justice to initiate an action. Wis. Stat. § 293.83(1).

Civil penalties: Civil penalties may be assessed by any circuit court (when brought by the Department of Justice) for a number of specific statutory or rule violations. These include:

> *False, misleading, or incomplete statements*: A person making a false or misleading statement or failing to make an annual report or refusing to submit information required by the permit is liable for between $1,000-$5,000. Wis. Stat. § 293.87(2).
> *Permittee's violation of a statute or rule*: A permitted prospecting or mining operator in violation of any order issued or rule adopted thereunder is liable for at least $10 and up to $10,000 per day, per violation. Wis. Stat. § 293.87(3)
> *General violation of a statute or rule*: Any person (including those not holding mining or prospecting permits) who violates any rule, order, or permit thereunder, is liable for at least $10 and up to $5,000 per day, per violation. Wis. Stat. § 293.87(4).

Cost of inspection charged to permittee: The cost of inspections by the Wisconsin Department of Justice may be charged to permittee if a violation is found. Wis. Stat. § 293.87(4)(b). There is no provision, however, for DNR to directly recover its costs of any regular inspection or monitoring of the permittee; only the cost review of the application to mine and preparing the EIS is covered directly by the permittee.

Attorney/staff costs charged to permittee: Any enforcement action taken by the Department of Justice may be charged to the violator via a court order of attorney's fees and reasonable costs associated with investigation and enforcement activities. Wis. Stat. § 293.87(4)(b).There is no provision, however, for DNR to recover its enforcement or litigation costs, aside from its initial application review costs which are charged directly to the applicant. The applicant also pays for the costs incurred by the state agencies preparing the EIS, though this money goes into the state's general fund and is not specifically earmarked for the mining program. Wis. Stat. §293.32;

Additional Enforcement Powers: Wisconsin's statute deals severely with operators who fail to comply with their reclamation obligations. DNR is also required by statute to take over reclamation activities in certain situations where the permittee is unwilling or unable to do so, and to cancel any prospecting or mining permits held by an operator who refuses to reclaim a site in accordance with the plan.

> *DNR takeover of reclamation activities*: If reclamation is not proceeding in accordance with the plan and the operator fails to rectify the problem within the time set by the department; OR if reclamation is not complete in conformance with the plan 1 year after completion or abandonment of the mining site; OR if the exploration or prospecting permit is revoked, then the department shall take actions necessary to reclaim the site and the operator is liable for the state's costs in doing so. Wis. Stat. § 293.83(2).
> *Cancellation of other permits*: The department shall cancel any other prospecting or mining permits held by, and shall not issue any other mining or prospecting permits to, an operator who refuses to reclaim a site in accordance with the reclamation plan. Wis. Stat. § 293.83(3).

Written policy available to public: DNR's general enforcement procedures (not specific to mining or sulfide mining) are available online.[5] However, this does not describe people's rights

[5] Enforcement procedures are available online at http://dnr.wi.gov/org/es/enforcement/envenf.htm. Accessed December 28, 2011.

or options in permit application participation or other appeals or intervention in the enforcement or judicial processes. Those details are found only in the regulations and statutes. There is also a hotline and email for reporting violations.

2. **The state or province provides for citizen intervention in state enforcement actions and for citizen suits, with attorney's fees for prevailing citizens.**

Wisconsin authorizes both citizen suits and citizen intervention in state enforcement actions. Any citizen may file suit against either a person allegedly in violation of Wis. Stat. §293or against DNR for failing to perform any nondiscretionary act under the statute. Wis. Stat. § 293.89. If the department is already prosecuting a civil or criminal action against the operator, the citizen cannot commence an independent suit but may intervene as a matter of right in that suit. Wis. Stat. § 293.89(2)(a)(2). Attorney's fees and costs shall be awarded to a winning plaintiff. Wis. Stat. § 293.89(3). The statute also calls for treble damages awarded to a plaintiff who incurs damages as a result of non-permitted mining, or a willful violation of the statute, regulation, or order. Id.

Any person may also seek administrative review of any decision of the department made under Chapter 293, pursuant to the Administrative Procedure and Review statutes. Wis. Stat. § 227; Wisc Stat. § 293.95. According to the rules, the complaint to the department must be made by 6 or more individuals, and will result in a public hearing on the allegation. NR 132.16(1).

3. **The state or province allows citizen intervention in state proceedings. States allow citizens to intervene in permit proceedings or appeals and in state suits.**

Wisconsin allows for citizen intervention without any standing bars. The state allows citizen intervention without a standing requirement in permit or prospecting application review. Every mining or prospecting permit application will be reviewed in a hearing; public notice will be given and "[p]ersons who wish to participate as parties shall file a written notice with the hearing examiner setting forth their interest …" and may express their opinions or facts related to the application orally or in writing. Wis. Stat. § 293.43(5)(b).

If the department is already prosecuting a civil or criminal action against the operator, the citizen cannot commence an independent suit but may intervene as a matter of right in that suit without establishing special standing. Wis. Stat. § 293.89(2)(a)(2).

4. **The state or province facilitates an atmosphere in which environmental protection is the top priority of the regulatory scheme and those charged with implementing it; agencies do not view themselves or act like agents of the industry.**

The "prove it first" requirement ostensibly demonstrates the state's emphasis on environmental protection. Wis. Stat. § 293.50. While there are moves underway to change the mining law in Wisconsin (in favor of development), this is so far restricted specifically to ferrous mining. As in Minnesota, there is a split perspective on the intent and outlook of the regulators, many environmental groups questioning their resources and motivations, based in part on the treatment of the cleanup of the Flambeau mine.

5. **The state or province has adequate enforcement capabilities, including dedicated staff time and expertise.**

Given the lack of experience in this area, this cannot be answered yet.

6. **The state or province requires personnel to conduct inspections and enforcement of mining and cleanup operations sufficiently frequently and ensures that problems are addressed promptly.**

No provision of statute or regulation requires regular inspections. However, the department must do an annual review of permit conditions and department staff asserts that the department would do very frequent inspections (if there were any mines in operation). At the Flambeau mine, DNR staff monitored every day during construction and a couple times per week during the first year, then about weekly for the life of the mine.[6] However, there are no guidelines or specifications for these inspections, so as with Michigan, the state's requirements are at best minimal.

7. **Citizens have access to all enforcement data.**

Citizens have access to all data and reports, through all phases: permitting, operation and post-closure.

8. **Reclamation, enforcement and monitoring are enabled beyond the life of the permit.**

Wisconsin provides a model for post-closure enforcement and permitting. Operators must monitor and manage the mining site for a minimum 24 years after closure, and a reclaimed mine waste disposal facility must be maintained and monitored for at least 40 years.[7] After the mining period ends and reclamation begins, the rules require a new permit for waste management and reclamation activities.[8] NR 182.09. The operator must submit a plan of operation for the reclamation activities, including detailed schematics and plans for pollution control from tailings, etc. NR 182.09(2).

The regulations also provide a series of minimum standards for the design of the waste management system, all designed for maximum environmental protection. NR 182.11. Agency personnel may inspect the waste disposal facility at any time; operators are required to inspect the entire operation on a weekly basis and log the results; active dams are to be inspected monthly (with specific requirements for inspection); and any "potentially defective condition" found in an inspection must be reported as soon as possible to the department, including a proposed correction action. NR 182.12(6). The department is authorized to conduct its own monitoring of the waste disposal facility or require the operator to conduct monitoring of a set of physical indicators including groundwater and leachate, surface water, physical features (vegetations, subsidence, etc.), and shall require the operator to submit an operations report to assess the effectiveness and environmental acceptability of the operation. The operator is also required to keep an operating log documenting the course of the operation, how much material is disposed of, monitoring data, and so on. NR 182.14. Monitoring data is submitted to the department quarterly, and the operator must also submit an annual report summarizing the operation's cumulative and annual data. NR 182.14.

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[6] Larry Lynch, supra note 31.

[7] For more information regarding waste disposal requirements, see DNR's factsheets at http://www.dnr.state.wi.us/org/aw/wm/mining/metallic/infosheets/dnr-per.pdf. Accessed December 14, 2011.

[8] Alternately, if the mine waste is to be deposited back into the closed mine, the operator must submit a plan of operation for the backfilling and reclamation along with the original mining permit.

9. **Post-closure enforcement is strong, with adequate resources and public involvement.**

Post-closure enforcement is strong as written (see discussion above, at Criterion #8). However, given the lack of experience with a post-closure scenario, this criterion cannot be fully evaluated yet.

10. **Immediate independent judicial review is available to citizen plaintiffs.**

Citizen suits are permitted. (See discussion above at Criterion #2)

11. **Citizens can initiate and participate in inspections.**

This is not specifically permitted by statute or rule. A citizen could file an allegation or report to initiate an investigation. But, contrary to Michigan's Rule 425.408, the department would not then be required to take action based on an allegation of wrongdoing. Non-agency personnel are allowed to participate in state inspections under certain circumstances but only with the permission of the mine operator (property owner).

12. **Parent and successor corporations and other materially participating entities are obligated to assume permit requirements.**

When one corporation or party succeeds to the interest of the mining operator before completion of the project, the original operator is released from all responsibility only when the successor takes on the permit conditions and meets all the original requirements for operators. Wisc Stat. §293.5.

13. **Permit conditions and work plans are reviewed at least annually.**

DNR is required to review the mining and reclamation plans annually. If changed conditions indicate that the reclamation plan may not function successfully, the department shall require the operator to submit a proposed amended plan. NR 132.12.

14. **The agency has authority to modify permit conditions whenever necessary ("adaptive management"), and exercises that authority as needed.**

DNR has the authority to modify conditions if it finds the plan no longer sufficient. It must in that situation order the operator to file an amended plan which will be reviewed the same as an original application. NR 132.12. However, whether a mining permit would be modified as per the statute at the appropriate time(s) remains to be seen.

15. **Any permit variances, amendments, or changes requested by the permittee are rare and uncontested.**

Given the lack of experience in this area, this cannot be answered yet.

4. PROGRAM RESOURCES

In order to implement the provisions of statutes, rules, and permit conditions, a regulatory authority must have the resources to do so. Necessary resources include time, money, expertise and personnel. Ideally, the state or province funds the sulfide mining program adequately and ensures that payments and penalties assessed against mine owners and operators go back to the mining program. Such funding or self-funding must be adequate to cover the program's needs in all stages including regulating exploration and prospecting, reviewing permit applications, overseeing ongoing mining operations and reclamation activities, and post-closure monitoring.

1. The state or province provides adequate funding, staffing, external experts and time to agencies responsible for mining regulation programs for thorough review of permit applications, modifications to permit, enforcement activities, and post-closure cleanup activities.
2. The state or province charges a permit application fee commensurate with permitting costs to support its mining regulation programs. States should require a permit application fee that is dedicated to use by the mining regulatory body.
3. The state or province allows civil penalties to be used by the mining regulation program.
4. Financial assurance is required in a form that is safe from creditors and is utilized and available when needed.

Wisconsin's funding mechanisms have some gaps in coverage. Funding for the application phase is neatly covered by the regulations, and there are no hard deadlines for review of applications or other activities. However, when it comes to monitoring and enforcing the rules on an active mine or mine cleanup, the Department may be left without adequate funding or the ability to hire additional staff. Financial assurance is only partly required to be safe from creditors and there is no guarantee that civil penalties or other fees collected from active mines will return to the mining program.

Overall grade: Fair

1	The state or province provides adequate funding, staffing, external experts and time to agencies responsible for mining regulation programs for thorough review of permit applications, modifications to permits, enforcement activities and post-closure cleanup activities.	SOME
2	The state or province charges a permit application fee commensurate with permitting costs to support its mining regulation programs. States should require a permit application fee that is dedicated to use by the mining regulatory body.	YES
3	The state or province allows civil penalties to be used by the mining regulation program.	NO
4	Financial assurance is required in a form that is safe from creditors and is utilized and available when needed.	SOME

Discussion:

1. **The state or province provides adequate funding, staffing, external experts and time to agencies responsible for mining regulation programs for thorough review of permit applications, modifications to permit, enforcement activities, and post-closure cleanup activities.**

As in Minnesota, permit fees are calculated by the state's actual costs in reviewing the project, including any outside consultants hired by the department. Wis. Stat. § 293.32. The base application fee is $10,000, which will be trued up or down depending on the department's costs of reviewing the application. NR 132.06(3)(a). The EIS fee goes back to the general fund, but the permit application fee goes to a program revenue account that DNR has control over. There are interim deadlines for departmental decision-making, but no general limit on the whole process. DNR staff state that they would tell an applicant that the process would take 3-5 years, but the Crandon mine application process took 10 years before it was abandoned.[9]

While funding of the state's review of a permit application is well-covered, funding of enforcement, monitoring and post-closure activities is not well-established in the law. There are a number of associated funds that "tax" a mine's waste, e.g. the Environmental Fund and the Groundwater Fund, but these monies do not go directly back to the mining program or its activities.[10]

2. **The state or province charges a permit application fee commensurate with permitting costs to support its mining regulation programs. States should require a permit application fee that is dedicated to use by the mining regulatory body.**

Permit application fees are based on department's actual costs in reviewing the project. Wis. Stat. § 293.32; NR 132.06(3)(a). The EIS fee goes back to the general fund, but the regulatory fee goes to a program revenue account that DNR has control over.

3. **The state or province allows civil penalties to be used by the mining regulation program.**

Civil penalties would go into a general fund, not directly back to the mining program.

4. **Financial assurance is required in a form that is safe from creditors and is utilized and available when needed.**

Only half of Wisconsin's financial assurance requirements are safe from creditors. Wisconsin requires two types of financial assurance: the irrevocable trust fund and the reclamation bond. The irrevocable trust fund monies would be safe from creditors, and DNR controls the fund as the sole beneficiary and is the only entity authorized to withdraw funds from the trust. NR 132.085(3). The reclamation bond, on the other hand, is not required to be in a form safe from creditors, nor must the permittee notify the department if it is going into bankruptcy. The reclamation bond must be posted by licensed surety company, but cash, certificates of

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[9] Larry Lynch, supra note 31.

[10] For more information, see Thomas Evans, "An Overview of Metallic Mineral Regulation in Wisconsin." (3rd Ed.) Wisconsin Geological and Natural History Survey, Special Report 13, 2004, (Madison, WI), at 57.

deposit, or government bonds are alternatives to the reclamation surety bond. Wis. Stat. § 293.51, NR 132.09(2).

5. REPORTING AND OFFICIAL STATEMENTS

An ideal sulfide mining regulatory program requires the highest quality data from permittees so decisions and actions are based in fact, not simply on a permittee's assurances. Not only must the permittee be accountable to the regulators, but the regulators must be accountable to the public whose safety and resources they are charged to protect. In order to assess these factors, the following criteria were considered:

1. The state or province provides and/or requires accurate, adequate and truthful legally-required reports informed by statistically appropriate, high-quality data.

2. All monitoring reports, and the raw data that informs them, are available to the public in easily accessible (electronic) formats before, during and after mining.

For information on water quality monitoring and reporting, see the Water Quality Report, at Appendix A.

Though lacking in practical experience with active sulfide mining operations, Wisconsin has safeguards and standards already in place to ensure high-quality monitoring and reporting. It also ensures complete public access to reports and underlying data in all phases of an operation.

Overall score: Good

1	The state or province provides and/or requires accurate, adequate and truthful legally-required reports informed by statistically appropriate, high-quality data.	YES
2	All monitoring reports, and the raw data that informs them, are available to the public in easily accessible (electronic) formats before, during and after mining.	YES

Discussion:

1. The state or province provides and/or requires accurate, adequate and truthful legally-required reports informed by statistically appropriate, high-quality data.

Wisconsin has a reasonably well-established concept of how it intends to require and verify accurate reporting from sulfide mines. The methods and measurements required in reporting documents will be set forth in the Notice of Intent document created in the application phase of a proposed mine. All measurements and samples must be analyzed by a state-licensed lab, and the state will oversee the permittee's monitoring activities about 80% of the time.[11] Further, regulators gather split samples[12] at least once a year on groundwater monitoring and

[11] Larry Lynch, supra note 31.

[12] Split sampling involves two or more entities gathering samples simultaneously, but sending them to different labs for analysis. Outcomes are then compared to ensure quality control and calibration.

conduct ad hoc split sampling of air filters. These requirements and verification methods are as yet untested on an operating mine, yet their existence indicates that Wisconsin is at least mindful of the need for such safeguards.

2. **All monitoring reports, and the raw data that informs them, are available to the public in easily accessible (electronic) formats before, during and after mining.**

All monitoring reports are available to the public and would likely be posted on the DNR website and fee-free even for special requests. This includes all raw data underlying self-monitoring reports and department reports.

RECOMMENDATIONS

A. Recommendations for Michigan, Wisconsin and Minnesota:

1. There should be a formal, standard method set forth in the law to coordinate the efforts of the various agencies responsible for different aspects of permitting, monitoring, and enforcement of a mining project.
2. State-conducted independent monitoring should be conducted regularly and systematically at any active mine and reclamation site, including in the post-closure phase, and should be funded by the permittee. Leaving this essential task to the permittee is unacceptable. DEQ should be required, not just empowered, to take immediate action to stop and/or remediate any problem found.
3. Affected tribes should be empowered to participate in permit decisions and monitoring.
4. Mine plans should include non-environmental goals and standards such as workers' safety, long-term viability of the mine (prohibiting high-grading), economic plans for communities' long-term health, reasonable royalties, past performance of applicant and community priorities as expressed in Master Plans, zoning, etc.
5. Public funds must not be committed to financing or assisting any project that has not completed and passed environmental review. This should be a matter of law with no exceptions.
6. Civil penalties and fees assessed for noncompliance should be dedicated to return to the nonferrous metallic mining program.

B. Wisconsin-specific recommendations:

1. Certain of the standards for mine construction and reclamation could use additional technical detail, as noted in the assessment section. For instance, structural stability and subsidence are considered but no technical requirements are laid out in the regulations (as they are in Minnesota).
2. Funding for monitoring and enforcement activities should be as comprehensive as that provided for application review. In other words, the permittee should be responsible in some way for the state's costs of monitoring and enforcing the law.

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(Cover photo: Adam Kahtava)