



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION



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MEMORANDUM

TO: Board of Environmental Protection
FROM: Jeffrey Crawford, Office of the Commissioner
DATE: December 2, 2013
RE: Chapter 200 Metallic Mineral Exploration, Advanced Exploration and Mining-
Issues for Discussion

Background

In 2011, the Maine Legislature passed Public Law 2011, Chapter 653, An Act to Improve Environmental Oversight and Streamline Permitting for Metallic Mineral Mining in Maine, which directed the Department to promulgate new rules intended to modernize Maine's mining requirements and reduce the number of separate environmental permits necessary for mining activities.

The Department's proposal will repeal and replace the existing Chapter 200 regulations, and provide a comprehensive application and permitting process within the statutory framework for exploration, advanced exploration and mining activities.

On October 17, 2013, the Board held a public hearing on the Department's draft proposal, and heard testimony from a number of consultants, interested parties and the general public. Additional testimony was received from these and other commenters during the written comment period, which closed on October 28, 2013.

The Board held the first of several planned deliberative sessions to discuss public comments at its November 7, 2013 meeting. During this session, Board members and Department staff discussed a number of key issues raised by commenters, including: a) Prohibitions against mining in or under waters of the State; b) Post-closure wastewater treatment periods; c) Groundwater compliance monitoring requirements; d) Financial assurance requirements and mechanisms; e) Identification and implementation of multiple industry best management practices in other jurisdictions; f) Ground and surface water monitoring requirement; g) Air quality standards monitoring; and h) Mining setback standards.

On November 21, the Board continued its deliberations, providing additional guidance on these and other key issues.

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Recognizing that some of the Board's recommendations would constitute a "significant change" and require an additional public comment period pursuant to the Maine Administrative Procedures Act, the Department has prepared suggested draft language incorporating many of the concerns expressed by Board members during these deliberations. The suggested draft language includes:

Attachment 1: Revisions to Section 1(B) amending the proposal to allow mining in groundwater, under waters of the state and in freshwater wetlands (these activities would still be subject to all permitting requirements, including the Natural Resources Protection Act, as applicable).

Attachment 2: Revisions to Section 9(B) requiring the disclosure of all entities with a financial interest in the proposed activity.

Attachment 3: Changes to Section 9(D)(12) regarding the use of wet waste management techniques.

Attachment 4: Revisions to the financial assurance and insurance requirements (Subchapter 4) providing greater flexibility and allowing incremental funding of the financial assurance mechanism(s), with full funding prior to the extraction of any ore.

Attachment 5: Changes to Sections 20(B)(3) and (4) that eliminate the prohibition against mining on public reserve lots and the limit the mining setback to ¼ mile from certain resources.

Attachment 6: Revision to Section 20(G)(2) that require all discharges to affected areas to meet applicable water quality standards as soon as practicable, but in no case greater than 30 years, with the exception of wet waste management units.

Attachment 7: Additional requirements as Section 20(L) that institute explicit air quality requirements¹.

Attachment 8: Revisions to the monitoring and reporting requirements in Section 22. Of particular note are provisions that allow the Department to require the use of continuous monitoring systems, requirements that compliance monitoring wells be located no greater than 100 feet from an activity (unless otherwise determined by the Department), and ambient air quality monitoring requirements.

Attachment 9: Changes to Section 24(B)(5) that provide for the post-closure care of wet waste management units.

Attachment 10: New procedures detailing the appeals process for orders issued under the proposed Chapter 200.

¹ The definition of "air contaminant" as defined in 06-096 CMR 100 is also being proposed for inclusion in Section 2 of the proposal.

ATTACHMENT 1

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Subchapter 1: GENERAL PROVISIONS

1. Applicability.

A. To all portions of a mining operation established after the effective date of this Chapter.

B. ~~Prohibition.~~ No permit shall be issued under this Chapter to a mining operation that includes:

(1) Heap or percolation leaching.

(2) Mining for thorium or uranium ore.

(3) ~~Mining in or under the waters of the state.~~ Removal of ore from great ponds, rivers, brooks and streams, and coastal wetlands as defined in 38 M.R.S. 480-B, except that gold panning and recreational motorized gold prospecting are permitted pursuant to 38 M.R.S. §§ 480-Q(5) and 480-Q(5-A) and are exempt from the requirements of this Chapter.

(4) ~~Mining in or under coastal wetlands.~~

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B. Application Contents. The Applicant shall provide all submissions the Department determines are necessary to evaluate the application under the criteria for a permit under the applicable laws and rules. The applicant shall prepare and submit to the Department an application for a permit to mine, which shall at a minimum contain:

(1) Applicant Information. Information about the Applicant and the proposed activity must be provided including, but not limited to, the following:

(a) The name, mailing address, and phone number of the Applicant and principal representative of the applicant;

(b) The general organizational structure of the applicant, any parent companies, owners, principal stockholders, partners, and joint ventures;

(c) All entities with a financial interest in the proposed activity;

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- (12) Waste management plan including descriptions by waste stream type, source, anticipated volumes, characteristics, provisions for minimization, treatment, on-site storage, containment, management, transportation, and disposal endpoints. Waste management plans shall not include perpetual treatment methodologies. For the purpose of this rule, any treatment necessary for wet waste management units in excess of the 30-year post-closure period shall not be considered perpetual treatment.

Subchapter 4: FINANCIAL ASSURANCE AND INSURANCE

17. Financial Assurance and Insurance Requirements

A. Requirements. Financial assurance and insurance is required for all advanced exploration and mining activities.

- (1) The Permittee shall continuously maintain financial assurance, as a condition of the permit to mine, until the Department determines that all reclamation, ~~closure, and~~ post-closure maintenance and monitoring, and corrective actions have been completed.
- (2) The Permittee shall be required to maintain financial assurance for as long as the Department determines that the mining operation and any associated waste material could create an unreasonable threat to public health ~~or~~ and safety ~~and~~ or the environment.
- (3) Financial assurance must be available and made payable to the Department when ~~needed~~ requested by the Department.
- (4) Financial assurance may be canceled by the Permittee only after it is replaced by alternative mechanisms in the appropriate amount on the express written consent of the Commissioner.
- (5) Financial assurance must be fully valid, binding, and enforceable under state and federal law,
- (6) Financial assurance may not be discharged through bankruptcy of the Permittee.
- (7) All terms and conditions of financial assurances must be approved by the Department and must be analyzed by individuals with documented experience in material handling and construction, mining costs, and financial analysis. All costs incurred by the Department in hiring third parties to perform these evaluations must be paid by the applicant.

B. Coverage of Financial Assurance

- (1) Financial assurance under this section applies to mining and reclamation operations that are subject to a mining permit, and must be sufficient for the Department to:
 - (a) Administer all activities necessary for the investigation, monitoring, closure, post closure, treatment, remediation, corrective action, reclamation, siting, development, operation and maintenance under the ~~environmental protection, reclamation, and closure plan~~ mine plan; and
 - (b) Implement other necessary environmental protection measures, including remediation of any air, surface water, or groundwater contamination.
- (2) Financial assurance must be adequate for the Department to hire a third party to implement all ~~reclamation and remediation~~ activities required by this rule including pursuant to sections 23 and 24, ~~above~~ below.

- (3) The Applicant or Permittee must provide detailed documentation of the estimated cost to implement the reclamation plan, closure activities, and post-closure monitoring activities for the mine plan and the provisions of 9 (I) (5) with the application for permit, in the corrective action plan, or in other submittals as follows:
- (a) Cost estimates must be ~~based on~~ in current U.S. dollar value;
 - (b) No salvage value attributed to the ~~sale~~ sale of products, wastes, facility structures, equipment, land or other assets may be used for estimating purposes; and
 - (c) Cost estimates must be re-evaluated and updated at any time that the Department requires a corrective action, a change to the permit to mine or changes to the cost estimates and the financial assurance amount must be adjusted accordingly within 30 days of the filing of a new or modified corrective action plan, mine plan or when the permit or cost estimates are changed.
- (4) Cost estimates must reflect reclamation, closure and post-closure monitoring costs for each mine plan activity included in the advanced exploration or mining permit and for activities required by the Department, and must:
- (a) Utilize the highest alternative cost option for all estimates and include a minimum of a 15% contingency to account for unexpected expenses;
 - (b) Assume that all activities are to be completed concurrently; and
 - (c) Base cost estimates on the maximum permitted quantities and volumes.
- (5) The financial assurance must be updated annually and adjusted using the implicit price deflator for gross national product as published by the U.S. Department of Commerce, Survey of Current Business and submitted to the Department on or before March 15 of each year.
- ~~(6) The estimated cost to implement the reclamation plan and post closure monitoring activities must cover the costs required if the mining operations were to cease in the current year.~~
- (6) The financial assurance must not include funds from the Maine Mining Oversight Fund as established at 36 M.R.S. § 2866.
- (7) Without limitation, changes in the financial assurance may be required due to modifications of the permit, changed financial or site conditions, technology changes, inflation, anticipated changes in mining activity and waste unit utilization, or changes in requirements for closure, post-closure maintenance, corrective action, or reclamation. The Permittee shall annually report to the Department, subject to the Department's approval, an estimate of cost changes as provided in this rule on or before March 15. The permit remains in effect only if all required deposits or increases are made within 30 days of the due date provided in this rule. The obligation to make deposits or increases ceases only upon approval from the Department.

C. Financial Assurance Mechanisms. The financial assurance must be in a form that cannot be canceled, withdrawn, revoked, or otherwise reduced without the express written consent of the Department.

- (1) Mining operations that will produce Group A or B wastes. Financial assurance for a mining operation that will produce Group A or B wastes must consist of a trust fund that is secured with negotiable property. Acceptable financial instruments are limited to:
 - (a) A cash account in one or more federally insured accounts;
 - (b) Negotiable bonds issued by the United States, a state or municipality having a Standard and Poor's rating of AAA or AA, or an equivalent rating from a national securities rating service; ~~and~~
 - (c) Negotiable certificates of deposit in one or more federally insured depositories; and
 - (d) Irrevocable letter of credit.

- (2) Mining operations that will produce Group C wastes. Financial assurance for a mining operation that will produce only Group C wastes may consist of any of the options listed in C(1) above, or:
 - (a) Surety bond;
 - (b) Trust fund that is secured with:
 - (i) Escrow funds;
 - (ii) Cash;
 - (iii) Negotiable bonds issued by the United States, a state or municipality having a Standard and Poor's rating of AAA or AA, or an equivalent rating from a national securities rating service; and/or
 - (iv) Negotiable certificates of deposit;
 - (c) Irrevocable letter of credit;
 - (d) Other equivalent security as approved by the Department; or
 - (e) Combination of above.

D. Financial Assurance Administration

- (1) Trust fund requirements.
 - (a) When a trust fund is utilized as the financial assurance instrument, the Permittee shall deposit ~~at least fifty percent (50%)~~ of the required financial assurance prior to the commencement of construction sufficient to conduct reclamation, closure, post closure and corrective actions as if the operations were to cease in the upcoming year; the Permittee shall evaluate and deposit any required additional financial on an annual basis. The trust fund must be fully funded with one or more of the instruments identified in (C)(1) above before the removal of any ore. within five years of the permit issuance. Deposits to the trusts fund must be in equal amounts throughout the five years.
 - (b) Any irrevocable letter of credit must be issued by a separate financial institution from the trust fund financial institution.

~~(c)(b)~~The Department shall be a party to the trust agreement as beneficiary and shall have the right to withdraw and use part or all of the funds in the trust fund or to require the liquidation of the assets of the trust fund, at its sole discretion, to carry out the Act requirements including all associated regulations, permit, and other requirements as the Department determines necessary. The trust agreement must provide that there shall be no withdrawals from the trust fund except as authorized in writing by the Department.

~~(d)(e)~~The trust fund must not constitute an asset of the trustee or Permittee, and must be established in such a manner so as to ensure the funds in the account will be available to the Department and not any creditor, including in the event of bankruptcy or reorganization of the trustee or Permittee. The Permittee shall pay all costs of managing the fund and compensating the trustee.

~~(e)(d)~~The trustee must not invest assets of the trust fund in any real estate or real estate investment trust, any contract for the future sale or delivery of commodities or foreign currency, any state, municipal or corporate bond, or any other equity instrument or security, except that assets of the trust fund may be invested in securities issued by the United States Treasury.

~~(f)(e)~~The trustee shall notify the Department immediately in the event that any payment from the Permittee is not remitted by the due date.

~~(g)(f)~~The trustee shall submit to the Department an annual statement of deposits, letters of credit, investments, and any income and principal in the trust fund, and changes in the same over the prior year.

~~(h)(g)~~ The financial institution serving as a trustee is subject to Department approval, and is limited to the following:

(i) A bank or trust company chartered by the State of Maine;

(ii) A national bank chartered by the Office of the Comptroller of Currency; or

(iii) An operating subsidiary of a national bank chartered by the Office of the Comptroller of Currency.

(2) Letter of credit and surety bond requirements. Financial assurances utilizing a letter of credit or surety bond must meet the following requirements:

(a) A letter of credit must meet the terms below, and be unconditional, irrevocable, issued for a period of at least 1 year, include a standby trust, and otherwise be in a form satisfactory to the Department.

(i) A letter of credit must be issued by:

(A) A bank chartered by the State of Maine;

(B) A national bank chartered by the Office of the Comptroller of Currency; or

(C) An operating subsidiary of a national bank chartered by the Office of the Comptroller of Currency.

(ii) When a letter of credit is used as financial assurance for activities involving a site with Group A and B wastes, the issuing financial institution must be acceptable to the

Department and the institution must have sufficient resources and assets to demonstrate that there is a strong likelihood that the money will be available should the Department need to draw the funds.

~~(iii)(ii)~~-(ii)-At least 120 days before the expiration date, the financial institution issuing the letter of credit shall notify the Permittee and the Department if the letter of credit will not be renewed for an additional 1-year period. If the Permittee is unable to obtain a letter of credit that complies with this Chapter prior to 45 days before the expiration of the current letter of credit, the ~~Permittee~~ Department shall immediately draw all funds under the letter of credit and deposit those in ~~a~~-the standby trust fund. The Permittee must also take all other measures necessary to maintain the letter(s) of credit as provided herein and to assure such letter(s) do not expire unless replaced with another duly qualified letter.

~~(iv)(iii)~~-(iii)-The Permittee and the letter of credit institution must be independent of one another. A financial arrangement in the form of a bond but that otherwise qualifies as a letter of credit meeting the requirements of this section, including the ability of the Department to draw upon the bond at its sole discretion, shall be considered a letter of credit for purposes of this Chapter. ~~;~~~~and~~

(v) The letter of credit, trust fund, and stand by trust fund language must be modeled after the respective instrument language in 40 CFR 264.151 as modified to cover mining activities and meet the needs of this rule.

(b) Surety bonds must be properly executed by an acceptable surety, with the seal of corporate surety affixed, accompanied by the power of attorney showing proof of signing authority as surety's representative. Surety bonds must be issued by a qualified surety approved by the U.S. Department of Treasury (<http://www.fms.treas.gov/c570>) and must have an A- or greater rating on the AM Best requirements pursuant to DGOM requirement R647-4-113.4.11.

E. Release of Financial Assurance

(1) When requesting release of financial assurance funds, the Permittee shall submit to the Department:

(a) ~~A~~an environmental evaluation of the mining operation, mining site, impacted areas, waste units, reclamation and any required corrective action to ensure that any remaining problems are identified and corrected before financial assurance ~~is~~ funds are released; ~~and~~

(b) A detailed cost breakdown of the expended funds and the amount of money requested by the Permittee to be released from the trust fund.

(2) When the Department makes a determination to release funds, it shall notify the Permittee and trustee, if applicable, in writing of the decision. At that time, the Department shall supply written approval to transfer the excess funds or to close the account. The Department does not release the Permittee from any mining obligations, reclamation, closure, post-closure, or corrective action requirements or third party liability as a result of releasing any funds.

F. Insurance Requirement. The Applicant must include, as part of its application, and the Permittee must provide annually thereafter as part of the mining and reclamation report required under subsection 26(B) of this Chapter, proof of comprehensive liability insurance for the site for sudden and accidental occurrences. The need for non-sudden occurrence insurance shall be ~~assessed-required~~ by the Department on a case-by-case basis whenever there are land disposal.

land storage or land treatment units. The Department will make the final decision as to the necessary amount and need for each insurance. The insurance underwriter(s) must be approved by the Department. Requirements include, but are not limited to, the following:

- (1) Liability insurance coverage must be provided during operation, reclamation, corrective actions, closure, and, where mine wastes will remain on the site after closure, during the post-closure maintenance period;
- (1) The level of coverage for sudden and accidental insurance must be at least \$2 million per occurrence and \$4 million annual aggregate, unless because of a greater risk, a higher minimum is required by the Department for a particular site;
- (3) The level of coverage for non-sudden insurance must be at least \$6 million per occurrence and \$12 million annual aggregate, unless because of a greater risk, a higher minimum is required by the Department for a particular site;
- (4)(3)All liability insurance coverage amounts must be exclusive of legal defense costs;
- (5)(4) An Applicant/Permittee may not self-insure. If liability insurance is unavailable, an irrevocable letter of credit drawn upon a reputable bank which meets the criteria of subsection 17(D) above, may be utilized in lieu of liability insurance for sudden and accidental and non-sudden occurrences; and
- (6)(5)The liability insurance policy may not be written as a “claims made” policy unless approved by the Department

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- (3) Mining Excluded. Except as allowed under state and federal laws, no mining shall be conducted in or on the following:
- (a) National and state parks;
 - (b) National wilderness areas;
 - (c) National wildlife refuges;
 - (d) ~~Designated lands pursuant to 12 M.R.S. § 598-A, including but not limited to Tthe Allagash Wilderness Waterway, state-owned wildlife management areas and public reserve lands and lots; and~~
 - (e) State-owned wildlife management areas;
 - (f) Public reserved lands; and
 - ~~(g)(e)~~ State or national historic sites.
- (4) ~~Surface Disturbance Prohibited. Only underground mining and material hauling~~ Mining shall not be allowed within $\frac{1}{4}$ mile of the jurisdictional limits of the following:
- ~~(a)(e)~~ National and state parks;
 - ~~(b)(d)~~ National wilderness areas;
 - (c) National wildlife refuges;
 - (d) ~~Designated lands pursuant to 12 M.R.S. § 598-A, including but not limited to Tthe Allagash Wilderness Waterway, state-owned wildlife management areas and public reserve lands and lots; and~~
 - (e) State-owned wildlife management areas; and
 - (f) Public reserved lands.
 - ~~(e)~~ State or national historic sites;
 - (f) Any river designated pursuant to the federal Endangered Species Act as critical habitat for Atlantic salmon;
 - (g) One of the 66 great ponds located in the State's organized area identified as having outstanding or significant scenic quality in the "Maine's Finest Lakes" study published by the Executive Department, State Planning Office in October 1989; and
 - (h) One of the 280 great ponds in the State's unorganized or de-organized areas designated as outstanding or significant from a scenic perspective in the "Maine Wildlands Lakes Assessment" published by the Maine Land Use Regulation Commission in June 1987.

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G. Reactive Mine and Designated Chemical Materials Management Systems

- (1) Reactive mine and designated chemical materials management systems must provide for containment, unless the material has been neutralized or stabilized and will not cause a direct or indirect discharge of pollutants that could reasonably result in a condition of nonattainment of water quality standards or noncompliance with the performance standards of this Chapter.

- (2) Reactive mine and designated chemical materials management systems must provide for the collection, treatment and disposal of any water containing mining activity contamination derived from reactive mine materials, designated chemical materials, or combinations of reactive mine and designated chemical materials with a reasonable potential of migrating beyond designated containment areas; in compliance with the Act, rule and permit to mine as well as other applicable state and federal standards. ~~The use of active or passive treatment methods must be limited to no more than 30 years post-closure.~~ Except for wet waste management units, the collection, treatment and disposal methods must be designed to ensure that discharges to affected areas must meet water quality standards without requiring treatment as soon as practicable, but in no case greater than 30 years post-closure. The Permittee must design mine waste ~~units storage facilities~~ capable of operating without such treatment after that time.

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L. Air Quality Standards. No air contaminant shall appear in the atmosphere in concentrations significantly above the background level nor exceed the current Maine ambient air quality standards at any time. Mining operations must be designed, constructed and operated in a manner that prevents adverse impacts on air quality, considering:

(a) The volume and physical and chemical characteristics of potential sources of air emissions at the site, including their potential for volatilization and wind dispersal;

(b) The existing air quality, including other sources of air emissions and their cumulative impact on the air;

(c) The potential damage to the environment and public health and safety caused by air emissions from the site; and

(d) The persistence and permanence of the potential adverse effects to the environment and public health and safety.

Section 2 Definitions:

I. Air contaminant. "Air contaminant" or "air contaminants" include, but are not limited to, dust, fumes, gas, mist, particulate matter, smoke, vapor or any combination thereof.

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22. Monitoring and Reporting Requirements

- A. The Permittee shall conduct monitoring in accordance with this Chapter, the mining permit, and the Act. The Applicant shall prepare an integrated environmental monitoring plan for the site.
- (1) The plan detailing how the Applicant proposes to comply with this section must be submitted with the application and will be reviewed and approved by the Department as part of the application. All sample collection and analysis conducted under the monitoring program must specify sampling frequencies, procedures and techniques for sample collection, sample preservation and shipment, sample data sheets, analytical procedures and detection limits, chain-of-custody control, data validation and reporting methods, sampling and analytical quality assurance, quality control procedures, and include a description of sampling locations, a sampling location map, dates of sample collection, and other information determined to be necessary by the Department. The monitoring plan must be prepared by a qualified professional.
 - (2) Parameters analyzed from any samples at each monitoring point shall be based on the potential threat from the mine, mine waste or designated chemical materials used on the site, the transformation and degradation products of those materials as well as general indicator parameters of contamination associated with a release of those materials.
 - (3) Baseline conditions specific to each monitoring location and parameter identified in the monitoring plan must be established such that a statistically significant change from baseline conditions trend indicative of declining water quality, or other evidence of adverse environmental impact may be identified in the compliance monitoring dataset.
- B. The monitoring plan must include the following elements:
- (1) Groundwater. The following groundwater monitoring criteria apply to all mining operations:
 - (a) The monitoring system must have a sufficient number of groundwater wells, at appropriate depths and locations, to detect contamination of groundwater. Downgradient monitoring wells must be placed as close to all mining operations as practicable, but in no case greater than 100 feet away, unless placing some of the wells at a greater distance enhances the ability to detect a release from the site. In such a case, the Department may require the placement of monitoring wells more than 100 feet from the mining operations based on the site hydrogeology, access to the monitoring location, and other factors determined to be relevant by the Department.
 - (i) The points to be monitored for compliance with the groundwater standards for the purposes of 38 M.R.S. § 490-MM(5) are the downgradient boundaries of all mining operations as they exist at the time any sample is collected. Areas of the site proposed and approved for future use or stripped and graded or otherwise prepared for future construction are not considered mining operations for the purposes of compliance with this standard. Establishment of additional monitoring locations and abandonment of wells and other monitoring locations, in accordance with procedures described in this Chapter, may be required, and applicants should design monitoring

networks with this in mind. Any new monitoring location to be used as a compliance point must be established to allow collection of at least one year of data prior to ~~its~~ ~~their~~ becoming a compliance ~~points of compliance~~;

- (ii) The Department may require groundwater monitoring within any mining area if it determines such monitoring to be necessary to assess the performance of pollution control measures or the potential for contamination as defined at 38 M.R.S. § 490-MM(5) outside any mining area;
- (iii) The Department may require groundwater monitoring at any location to determine the potential for groundwater discharges to surface waters that would cause or contribute to nonattainment of applicable water quality criteria. Failure of groundwater to meet applicable water quality criteria at points of baseflow discharge constitutes contamination as defined at 38 M.R.S. § 490-MM(5);
- (b) Background groundwater quality monitoring well(s) must be established in an area or areas unaffected by mining operations and hydrologically upgradient of the mining areas to be monitored. Background groundwater quality may be measured at wells that are not upgradient of mining operations if those locations are determined to be representative by the Department;
- (c) Wells must be cased to maintain the integrity of the bore hole. Casing must be screened or perforated and the annular space packed with gravel or sand, where necessary, to enable collection of samples. Any annular space above the sampling depth must be sealed to prevent contamination of samples and groundwater;
- (d) Design, location, installation, development, and decommissioning of any monitoring wells, piezometers, and other measurement, sampling, and analytical devices require review and approval by the Department prior to action by the Applicant and must be documented in the Mining and Reclamation Reports required pursuant to section 26(B) of this Chapter;
- (e) Monitoring wells, piezometers, and other measurement sampling, and analytical devices must be operated and maintained so that they conform to design specifications throughout the life of the monitoring program;
- (f) The number, spacing, location and depths of monitoring wells and other instruments must be proposed by the Applicant and must be approved by the Department prior to installation. The Department may require additional monitoring wells or other instruments it determines to be necessary. The Applicant shall consider the following in its monitoring system design:
 - (i) Characterization of saturated and unsaturated geologic units and fill materials overlying and underlying the uppermost aquifer including, but not limited to, thicknesses, stratigraphy, lithology, hydraulic conductivities, and porosities; and
 - (ii) Characterization of the uppermost aquifer including, but not limited to, the thickness, flow rate, and flow direction;
- (g) Parameters for which the Applicant must monitor include, but are not limited to, those for which groundwater performance requirements are established. Changes in parameters to be monitored may be made as determined by the Department;

- (h) Monitoring must take place at least quarterly during the life of the mine, including any post-closure maintenance period or more frequently if determined to be necessary by the Department. Less frequent monitoring may be performed as approved by the Department. The monitoring results must be submitted to the Department within 30 days of the end of each quarter in a format approved by the Department; and
 - (i) Any revisions to the plan are subject to review and approval by the Department.
- (2) Surface Water and Sediments
- (a) The Applicant shall establish a surface water monitoring system that is capable of detecting direct or indirect discharges to surface waters from mining operations, including, but not limited to, discharges licensed under 38 M.R.S. § 413, of any parameter for which a performance requirement has been established or indicator parameters as determined to be necessary by the Department. This system must be capable of detecting any exceedance of performance requirements.
 - (b) The Applicant shall establish a sediment monitoring system capable of detecting accumulations of pollutants in sediments within water bodies affected by mining operations.
 - (c) Surface water and sediment monitoring programs are subject to review and approval of the Department and must, at a minimum, meet the following criteria:
 - (i) Provision for surface water and sediment monitoring to determine background levels in the receiving water. Background samples must be collected as close in time as possible to the collection of samples at the monitoring points; and
 - (ii) For the surface water and sediment monitoring program, specification of the monitoring frequencies for each parameter and media. Monthly monitoring is required for all monitored parameters in surface water unless a change in parameters or frequency of monitoring is approved by the Department. At a minimum, annual monitoring must be required of sediments. The Department may require continuous monitoring of certain parameters, including but not limited to water depth, specific conductance, pH, temperature, and dissolved oxygen.
- (3) *Hydrology.* Hydrology of the mining area and affected area must be monitored where mining activities have reasonable potential for measurable impact on surface water and groundwater.
- (4) *Biological Resources.* Biological resources of the background locations, mining areas and affected areas shall be monitored where mining activities have a reasonable potential for measurable impact to these resources. This monitoring must include analyses of fish tissue, fish population, invertebrate population and abundance, and any other measure of ecological health determined to be necessary by the Department.
- (5) Mining operations. The Department may require collection of samples for analysis and other monitoring procedures at certain structures on the site, including but not limited to lagoon underdrains, leachate collection systems, and impoundment drains.
- (6)(5) Initiation of Monitoring. Monitoring, except baseline monitoring activities, must start at the time when extraction or removal of metallic minerals, overburden or development rock is initiated pursuant to an advanced exploration or mining permit.

~~(7)(6)~~ Duration of monitoring. Unless the Department determines that a reduction or cessation is appropriate, monitoring must continue for at least 30 years after closure of the mine subject to the following conditions:

- (a) If the mining-related activity or disturbance resulting in the reasonable potential for measurable impact has ceased and the results from post-closure monitoring confirm that there is no significant potential for future impact resulting from the mining operation, the monitoring period may be reduced or terminated.
- (b) If the mining-related activity or disturbance has ceased and the resulting impacts have been reclaimed or mitigated in conformance with mining permit conditions and the results from post-closure monitoring confirms that there is no significant potential for future impact resulting from the mining operation and that the implemented reclamation or mitigation measures are self-sustaining, the monitoring period may be reduced or terminated.
- (c) The Permittee may provide the Department a written request to terminate all or specific aspects of monitoring not less than 18 months before the proposed termination date and if such a request is made must provide supporting data and information demonstrating that the conditions required to terminate monitoring have been achieved. The Department may reduce the 18-month notification requirement on a case-by-case basis.
- (d) The Department may reduce the default 30-year post-closure monitoring period at any time upon determining that there is a reasonable assurance of no significant potential for environmental, natural resource, public health and safety, and/or property damage impacts resulting from the mining operation and that implemented reclamation or mitigation measures are self-sustaining.
- (e) The Department shall extend the post-closure monitoring period in increments of up to 20 years for all or specific aspects of monitoring unless the Department determines, approximately one year before the end of a post-closure monitoring period or post-closure incremental increase to the monitoring period, that there is a reasonable assurance of no significant potential for environmental, natural resource, public health and safety, and/or property damage impacts resulting from the mining operations and that implemented reclamation or mitigation measures are self-sustaining.

~~(8)(7)~~ Methods. Monitoring methods, parameters, frequencies and locations will be reviewed and are subject to approval by the Department and shall be sufficient to verify that potential and actual mining-related impacts, including those identified in the environmental impact assessment, are avoided, or where unavoidable are adequately minimized, compensated for, or mitigated and that reclamation is effective and complete and self-sustaining as stipulated in the mining permit application documents, the mining permit and the rule.

~~(9)(8)~~ Reference location. At least one reference monitoring location shall be established outside of the mining area and the affected area with the purpose of providing data relevant to non-mine related influences on monitored parameters and conditions.

~~(10)(9)~~ Benchmarks. The Permittee shall propose to the Department for approval, as part of the permit application, benchmarks indicative of statistically significant change from baseline conditions for each parameter at each monitoring point, and where appropriate, for specific time periods such as hydrologic season. The Department may accept these for use or require different benchmarks, limits, or other performance criteria, based on its review of the data and site conditions.

~~(11)~~(10) Submission of data. The Permittee shall submit all monitoring data to the Department in a format specified by the Department. Monitoring data must be submitted to the Department within 10 days of its receipt by the Permittee.

~~(12)~~(11) Notification. The Permittee shall notify the Department at such time as monitoring indicates that one or more of the following compliance standards has been exceeded or a statistically significant change has been identified at any monitoring station:

- (a) For surface water, the compliance standards are based on ambient water quality criteria for toxic pollutants, or applicable water quality-based permit conditions established pursuant to 38 M.R.S. § 413 and §§ 464-469.
- (b) For ground water, the compliance standards are based on the primary drinking water standards adopted pursuant to 38 M.R.S. § 2611, applicable water quality-based license conditions established pursuant to 38 M.R.S. § 413 and §§ 464, 465-C, and 470 or ground water quality benchmarks.
- (c) For biological criteria, sediment, or other relevant environmental criteria, compliance standards are established pursuant to 38 M.R.S. § 413 and §§ 464-469, baseline conditions, or as determined by the Department.

~~(13)~~(12) Minimum elements of notification. The notification must consist of:

- (a) A table and chart presenting all data for that monitoring location;
- (b) Data from associated reference or upgradient monitoring locations;
- (c) The associated standard or benchmark;
- (e) An analysis of that data relative to the presence or absence of a statistically significant trend indicative of declining water quality or other evidence of adverse environmental impact; and
- (f) An analysis of the probability that an observed statistically significant change indicative of declining water quality or other evidence of adverse environmental impact from baseline conditions is related to the mining operation.

~~(14)~~(13) Timing of notification. The Department must be notified within 24 hours of the failure to meet a compliance standard at any monitoring location. The Department may require the Permittee to resample the location or locations to confirm the result; confirmation resamples, if required, must be taken within 7 days of the initial Department notification. At such time that results from compliance monitoring indicate that a compliance standard has been exceeded for two or more consecutive monitoring samples, the Permittee shall immediately take action and within two weeks submit a response action plan to the Department for approval. The Department may determine that the cause of noncompliance is seasonal, dependent on precipitation, or not continuous for other reasons, and therefore might not be identified in successive sampling events. In such cases, the Department may require response actions listed below or other actions by the permittee to address noncompliance, as it determines to be necessary. The response action may include, but not be limited to:

- (a) Increased monitoring;

- (b) Source investigation;
- (c) Corrective action;
- (d) Modification of active or post-closure mining activity; or
- (e) Other action as determined to be necessary by the Department.

(15)(14) Duration of response action. The response action shall continue, and may be amended from time to time, until such time as the Department determines that successful corrective action has occurred.

(16) Other conditions requiring response actions. The Department may require any action listed in paragraph (14) if it identifies in the submitted data a trend or other pattern indicative of discharges of contaminants or deterioration in water quality, or observes conditions on the site indicative of discharges of contaminants or deterioration in water quality.

(17) Air monitoring.

- (a) Air emissions, including fugitive emissions, shall be monitored in accordance with a plan approved by the Department.
- (b) If at any time during operation, closure or post-closure for the mining operation, the monitoring demonstrates that the performance standards are not being met, a corrective action plan must be implemented, the details of which must be specified or approved by the Department.

ATTACHMENT 9

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- (5) Length of the Post-Closure Care Period. The post-closure care period for Group A and Group B wastes must end 30 years from the time of closure certification, provided the Department determines the mine waste unit has been closed in compliance with the performance requirements of this Chapter and the post-closure performance standards of this section, and that the site will continue to remain in compliance with such standards. The post-closure care period for Group A and Group B wet mine waste management units may exceed 30 years from the time of closure certification provided a Department-approved long-term monitoring and maintenance plan is in effect, and a Department-approved financial assurance mechanism is in effect for the length of term determined to be necessary by the Department. The post-closure care period for Group C waste must be 5 years from the time of closure certification.

33. Orders Issued Under This Chapter

- A.** Any order issue under this Chapter, except an emergency order as authorized by 38 M.R.S. § 347-A(3) and for which the procedure is set forth in that section, shall be governed by this section.
- B.** Any order issued under this Chapter must contain findings of fact. Service of a copy of the Commissioner's order must be made by the Sheriff or deputy sheriff or by hand delivery by an authorized representative of the Department in accordance with the Maine Rules of Civil Procedure. The person to whom the order is directed shall comply immediately.
- C.** A person to whom such an order is directed may apply to the board for a hearing on the order if the application is made within 48 hours after receipt of the order by the person to whom the order was directed. Within 7 working days after receipt of the application, the Board shall hold a hearing, make findings of fact and vote on a decision that continues, revokes or modifies the order. That decision must be in writing and signed by the Board chair using any means for signature authorized in the Department's rules and published within 2 working days after the hearing and vote. The nature of the hearing is an appeal. At the hearing, all witnesses must be sworn and the Commissioner shall first establish the basis for the order and for naming the person to whom the order was directed. The burden of going forward then shifts to the person appealing to demonstrate based upon a preponderance of the evidence, that the order should be modified or rescinded. The decision of the board may be appealed to the superior Court in accordance with 38 M.R.S. § 346 and Title 5, chapter 375, subchapter 7.

NOTE: A person to whom an order is directed also may appeal directly to the Superior Court pursuant to 38 M.R.S. § 346(1) and Title 5, chapter 375, subchapter 7.
