

MAINE STATE LEGISLATURE

The following document is provided by the
LAW AND LEGISLATIVE DIGITAL LIBRARY
at the Maine State Law and Legislative Reference Library
<http://legislature.maine.gov/lawlib>



Reproduced from electronic originals
(may include minor formatting differences from printed original)

Maine's Taxation of Metallic Mineral Mining Business Activity

**Report Prepared for the
Joint Standing Committee on Taxation**

January 15, 2024

**Department of Administrative and Financial Services
Maine Revenue Services
Office of Tax Policy**

Executive Summary

Pursuant to R. 2023, c. 83, “Resolve, Directing the Office of Tax Policy to Study Maine's Mining Excise Tax” (the “Resolve”), the Maine Revenue Services (“MRS”), Office of Tax Policy reviewed the history of mining and current mining opportunities in Maine, the application of the Maine Mining Excise Tax, other state mining and severance taxes, and other Maine taxes applicable to mining operations and evaluated them against the policy and purposes set in the Maine Revised Statutes, Title 36, section 2853. This is due to the recent discovery of significant Lithium deposits in Maine and the global rise in demand for the metal has spurred interest in mining activity in the State.

Historically, metallic mining began in Maine during the second half of the 19th century, peaking in 1879-82 and then continuing sporadically until 1918. After a 50-year hiatus, mining in Maine resumed in the 1960s and continued through 1977. But since 1977, no metals have been mined in Maine.

In 1982, Maine’s Mining Excise Tax was enacted but it has never been applied. The tax is equal to the greater of a 0.5% tax on facilities and equipment or a tax on gross proceeds. The tax on gross proceeds is a hybrid severance tax, based on the value of mined mineral products as measured by the mining company’s gross proceeds. The tax rate varies between 0.9% and 3.5%, depending on a ratio of gross proceeds to net proceeds, which is a measure akin to profit margins. When net proceeds are 27.78% of gross proceeds, or lower, then the tax rate is 0.9%. As net proceeds rise to 100% of gross proceeds, the point where all the company’s revenue is profit, the tax rate rises and tops out at 3.5%. Note that the Mining Excise Tax is imposed in lieu of all property taxes except those on “buildings, excluding fixtures and equipment” and “land, excluding the value of minerals or mineral rights.”

In addition to reviewing Maine’s Mining Excise Tax, the Office of Tax Policy analyzed mining taxes in other states, focusing on structure and rates. In doing so, the Office of Tax Policy concluded that Maine’s Mining Excise Tax is an outlier among state mining taxes in terms of complexity and rate structure. The Office of Tax Policy also determined that changes to other Maine taxes, in particular the property tax, has rendered Maine’s Mining Excise Tax to be out of sync with other Maine taxes and bordering on unadministrable.

Based on this analysis, this report makes the following five recommendations. First, simplify the rate structure of the Maine Mining Excise Tax and adjust it towards the upper middle of the multistate comparison range with a rate of 3.5%. Second, align and better integrate the Maine Mining Excise Tax with the Maine Revised Statutes, Title 38 environmental mining statutes and regulations. Third, simplify and better integrate the Maine Mining Excise Tax with other Maine taxes, with a focus on existing broad based property tax business exemptions and appeals processes. Fourth, simplify the provisions dedicating revenue from Maine’s Mining Excise Tax and focus on the core goals of 36 M.R.S. § 2853 while preserving specific revenue use decisions until the potential revenue stream is better understood. Finally, the Office of Tax Policy should undertake further research if other mining activity occurs, or seems likely to occur, for instance, the mining of other minerals or the processing of Lithium or other metals, or if there are significant changes to the Lithium market.

Table of Contents

Executive Summary	2
Table of Contents	3
Introduction	4
Review	4
Application of Current Maine Taxes	5
Mining Excise Tax	5
Other Maine Taxes	7
Income Tax	7
Sales and use tax	8
Property tax	9
Real estate transfer tax	12
Mining Taxes in Other States	12
Tax Base	13
Tax Rate	13
Other Considerations	15
Findings and Recommendations	15
Multistate Lithium/mining rate comparison and guiding principles	15
Revenue use, simplification and guiding principles	16
Follow-up	16
Definitional alignment with Title 38 mining statutes and regulations	16
Simplification	17
Property Tax	17
Net income	18
Sales tax	18
Conclusion	19
Appendix A: Bibliography	
Appendix B: Resolve 2023, Chapter 83 (LD 1855)	
Appendix C: Public Law 2023, Chapter 398 (LD 1363) and selected testimony	
Appendix D: DACF Overview of Maine Metallic Mineral Deposits and Mining	
Appendix E: Metallic Mineral Deposits of Maine	
Appendix F: Legislative Proposal	

Introduction

“Resolve, Directing the Office of Tax Policy to Study Maine's Mining Excise Tax” (“the Resolve”), R. 2023, c. 83 directed the Department of Administrative and Financial Services, Bureau of Revenue Services, Office of Tax Policy (“the Office”) to examine and evaluate the State's taxation of metallic mineral mining business activity, including the Mining Excise Tax. The Resolve directs the Office to review mining taxes and fees from other states, including severance taxes, excise taxes, extraction fees and royalties and corresponding potential uses of collected revenue, and consult with national mining tax experts as appropriate.

At the conclusion of the study, the Resolve requires the Office to submit a report to the Joint Standing Committee on Taxation no later than January 15, 2024, that includes its findings and recommendations, including suggested legislation, that is consistent with the policy and purposes in 36 M.R.S. § 2853. The Joint Standing Committee on Taxation may submit legislation related to the report to the Second Regular Session of the 131st Legislature.

Review

36 M.R.S. § 2853 provides the policy underlying Maine’s current taxation of metallic mineral mining and important context and direction for this report.

§ 2853. Purpose

It is the policy of the State to encourage the sound and orderly development of Maine's mineral resources. The object of this policy is to assure that the actions associated with development of these resources will:

1. **Expansion and diversification of economy.** Encourage expansion and diversification of the state's economy and create new employment opportunities for the state's people;
2. **Land use; environmental, safety and health regulations.** Adhere to sound and effective land use, environmental, safety and health regulations administered through appropriate public agencies;
3. **Assistance to municipalities and counties.** Provide planning and development assistance to municipalities, counties and the unorganized territory if significantly affected by mineral resource development; and
4. **Scheme of taxation.** Establish a practical scheme of taxation on mining companies which will:
 - A. Permit these companies to profitably operate mines within the State;
 - B. Encourage the economically efficient extraction of minerals;
 - C. Permit the State to derive a benefit from the extraction of a nonrenewable resource; and
 - D. Compensate the State and its political subdivisions for present and future costs incurred or to be incurred as a result of the mining activity.

In conducting the study, the Office examined and evaluated the State's current taxation, including income, sales, property, and Mining Excise Tax, of metallic mineral mining business activity, see the application of current taxes section. The Office also performed a multistate review of mining taxes, with an interest on those applicable to Lithium mining, see the Multistate Lithium/mining rate comparison and guiding principles section. This report's focus on the mining of Lithium in the State was drawn from the legislative history for both this Resolve and that of PL 2023, c. 398 (LD 1363). The legislative history for the bills shows that the recent discovery of Lithium deposits in Maine and the global rise in demand for the metal were the impetus for both bills and this resulting study. The report also discusses the issue of mining other minerals and potential processing activity in the "Follow-up" subsection of the "Findings and Recommendation" section. Finally, the Office prepared this report along with recommendations and proposed legislation consistent with 36 M.R.S. § 2853, see the "Findings and Recommendation" section and Appendix F.

Application of Current Maine Taxes

Mining Excise Tax

Metallic mining began in Maine during the second half of the 19th century, peaking in 1879-82 and then continuing sporadically until 1918. After a 50-year hiatus mining resumed in the 1960s and continued through 1977. Since 1977, no metals have been mined in Maine.¹

In 1982, the Maine Mining Excise Tax was enacted but it has never been applied. The Mining Excise Tax is equal to the greater of a 0.5% tax on facilities and equipment or a tax on gross proceeds. The tax on gross proceeds is a hybrid severance tax; comprised of a tax based on the value of mined mineral products as measured by the mining company's gross proceeds.² The tax rate is dependent on the company's profit varying between 0.9% and 3.5%, depending on the mining company's ratio of gross proceeds to net proceeds, a measure akin to profit margins.^{3, 4} When net proceeds are 27.78% of gross proceeds, or lower, then the tax rate is 0.9%. As the net proceeds rise to 100% of gross proceeds, the point where all the company's revenue is profit, the tax rate rises and tops out at 3.5%.

The Mining Excise Tax is imposed in lieu of all property taxes except those on "buildings, excluding fixtures and equipment" and "land, excluding the value of minerals or mineral rights."⁵ Specifically, an Act to Create an Excise Tax on Mining Companies and Regulate Mining Activities⁶ (the "Act"), created the current Mining Excise Tax to replace the existing property tax on minerals and mineral rights and

¹ *History of Metal Mining in Maine*, Maine Geological Survey, available at <http://www.maine.gov/dacf/mgs/explore/mining/minehist.htm>.

² Gross proceeds are defined as "a mining company's federal gross income from mining with respect to a mine site", *Id.* § 2855(5).

³ Net proceeds is defined as "a mining company's federal taxable income from the property with respect to a mine site" with several adjustments, *Id.* § 2855(14).

⁴ *Id.* § 2856.

⁵ 36 M.R.S. § 2854.

⁶ PL 1981, c. 711. Maine Bureau of Revenue Services has not issued any guidance, rules, or forms for the Mining Excise Tax. Likewise, the Maine Department of Environmental Protection has not issued any mining permits since the tax was enacted.

mining fixtures and equipment.⁷ During House deliberations, these changes were described as a tax decrease by Representative Martin, a supporter of the bill.⁸ The Act also addressed several ancillary issues, including the removal of certain property from the Tree Growth designation, the reimbursement of municipalities for the lost property tax revenue, and the use of Mining Excise Tax revenue.⁹ While there have been some amendments to Chapter 371, Mining Excise Tax, there have been no changes to the tax rate or base.

The interactions between the Mining Excise Tax and the income and property taxes make it difficult to project the revenue that may be generated from the Mining Excise Tax absent practical recent experience with mining in Maine. Any revenue generated from the Mining Excise Tax flows to the General Fund, to municipalities, and to three dedicated funds, with the portion going to each fund changing every year. Specifically, Mining Excise Tax revenues are allocated in the following manner:

1. Municipal reimbursement for the mining property tax exemptions, ranging from 50% to 100% of lost revenue.
2. The Mining Oversight Fund to fund oversight of mining activity as provided in the mining rules adopted by the Department of Environmental Protection.¹⁰
3. The Mining Impact Assistance Fund to provide impact assistance to municipalities, counties or the Unorganized Territory Education and Services Fund through grants overseen by the DAFS Commissioner.¹¹
4. To the Mining Excise Tax Trust Fund to replace the loss to the State of a nonrenewable natural resource, to protect the State's environment and to protect municipalities from any adverse impact resulting from mining of metallic minerals, overseen by the Mining Excise Tax Trust Fund Board.¹²
5. And to the General Fund.

⁷ 36 M.R.S. §§ 2854 & 2856.

⁸ Legis. Rec. 11 (5th Spec. Sess. 1982).

⁹ 36 M.R.S. ch. 371.

¹⁰ Money from the fund may be used only to fund oversight of mining activity as provided in the mining rules adopted by the Department of Environmental Protection under the Maine Metallic Mineral Mining Act, and expenses for site oversight. Expenses for site oversight include, but are not limited to, expenses of the department or the department's agents or contractors related to site oversight, including costs of personnel and administrative costs and expenses necessary to administer, review and monitor corrective action. 36 M.R.S. § 2866(4).

¹¹ The Mining Impact Assistance Fund shall be used to provide impact assistance to municipalities, counties or the Unorganized Territory Education and Services Fund through grants. 36 M.R.S. § 2863.

¹² There is created a separate trust fund to be known as the Mining Excise Tax Trust Fund, referred to in this chapter as the "fund," to replace the loss to the State of a nonrenewable natural resource, to protect the State's environment and to protect municipalities from any adverse impact resulting from mining of metallic minerals.

A. To purchase and develop land or other real property interests for park and recreational uses;

B. To purchase wildlife habitats, marine habitats and unique natural areas; or

C. To restore the quality of marine waters, lakes, rivers and streams.

5 M.R.S. §§ 452 & 455.

Other Maine Taxes

In addition to the current Maine Mining Excise Tax, mining operations in Maine are subject to other state taxes. This section provides a summary of the application of the other major Maine tax types to mining operations.

Income Tax

Mining operations in Maine may be operated by corporations taxed at the corporate level or by business taxed on a pass-through basis (LLCs, S-Corps, and partnerships) with their owners paying any resulting income tax.¹³

Maine corporate income tax laws generally focus on a Maine apportionment factor, based solely on sales.¹⁴ However, Maine does not have specific apportionment rules on mining activity. Rather, sales are sourced depending on the activity (e.g., sales of services are sourced to the location where the service is received, while sales of tangible property are sourced to where the property is received). Revenues from mining operations could include, but are not limited to, receipts from extraction, processing, and sales of minerals. Receipts from the extraction and processing would generally be sourced to where the service is *received*. Therefore, extraction should be sourced to the mining site in Maine, while the sourcing of receipts from processing services could depend on whether such services are connected to the actual sale of minerals (i.e., tangible personal property) or if the processing services are considered stand-alone activities. The sale of tangible personal property is generally sourced to where the tangible personal property is delivered (which, for Lithium, could be entirely outside of Maine). Therefore, the actual sale of metallic minerals, specifically Lithium, from mining operations in Maine may not be expected to generate much, if any, Maine corporate income tax. As an aside, royalty income or other intangible income may be received as part of mining activities, and receipts from intangible income is sourced to where the intangible property is used. Regardless of the business activity, the Assessor could always require alternative apportionment if doing so is considered to more accurately reflect the economic activity of such mining operations in Maine.

In addition, for federal income tax purposes, exploration costs, depreciation, depletion, and amortization can create significant amounts of net operating losses (NOLs) for mining companies that can offset federal income tax for many years. Maine conforms to these federal deductions. As a result, mining companies likely will be able to also offset or significantly reduce any *Maine* corporate income tax liability for years due to these NOLs.

The sourcing of mining income and the allowable deductions would also apply to mining business taxed on a pass-through basis. However, the effect of sourcing income from mining exports outside of Maine depends on whether the owners are Maine residents. Nonresidents are only subject to tax on income sourced to the State and so would not pay income tax on profits sourced outside the State. For Maine residents the result is less certain. Residents are taxed on all their income, wherever sourced, with a tax credit available for taxes paid on certain income sourced to other states. This credit may offset all, some,

¹³ It is possible, but unlikely, that mining operations would be directly conducted by an individual and that possibility is not discussed here.

¹⁴ See, e.g., 36 M.R.S. § 5211.

or none of the Maine income tax. If the income is sourced to a state with no income tax, the resident pays the full tax to Maine. On the other hand, if the income is sourced to a state that imposes a greater effective tax rate than Maine, they will pay no tax to Maine.

Sales and use tax

Similar to Maine's corporate income tax laws, Maine sales and use tax laws do not have provisions specifically addressing mining. But the general sales/use tax rule is that if a taxpayer is conducting business in Maine, its purchases of tangible personal property and certain services will be subject to sales tax and its sales of goods and certain services will be taxable unless an exemption or exclusion applies. Depending on its business model, a mining operation may qualify for certain exemptions as a manufacturer. This includes, but is not limited to, the following categories of exemptions:

- A. Machinery and Equipment Used in Production
- B. Ingredients (Raw Materials) or Component Parts
- C. Items that are Consumed or Destroyed in Production
- D. Fuel and electricity Used at a Manufacturing Facility¹⁵

In addition, there are sales tax exemptions for certain water and air pollution control facilities for which a mining operation may qualify. Each of these exemptions has detailed and specific requirements for the purchase or use of an item to qualify for the exemption, and whether a mining operation qualifies for any or all the exemptions discussed will ultimately depend on the specific piece of equipment and how it is being used in the operation's mining activities.

The primary exemption likely applicable to mining operations would be the "production exemption."¹⁶ A mining operation will purchase (or lease) machinery and equipment to conduct its mining activities. The equipment is exempt under 36 M.R.S. § 1760(31) if it qualifies as machinery and equipment used in production. In general, machinery and equipment used to sever raw materials from the ground do not qualify, but the machinery and equipment used primarily and directly to transform or convert those raw materials into a product of different form, composition or character will qualify for exemption. Thus, depending on the type of activity and the type of equipment being used, some of the mining operation's equipment might qualify for the production exemption.¹⁷

¹⁵ MRS Sales Tax Division, A Reference Guide to the Sales and Use Tax Law, p.160.

¹⁶ 36 M.R.S. § 1760(31).

¹⁷ Maine sales tax statutes, and MRS sales tax rules and guidance, provide more details of what qualifies for the production exemption. See MRS Rule 303, Sales to Industrial Users ("The acquisition of raw materials, the transportation of raw materials or goods in process between production sites, and administrative and distributive operations do not constitute production.") and 36 M.R.S. § 1752(9-B) ("Production" does not include biological processes except as otherwise provided by this subsection, wood harvesting operations, the severance of sand, gravel, oil, gas or other natural resources produced or severed from the soil or water, or activities such as cooking or preparing drinks, meals, food or food products by a retailer for retail sale."). Compare special tax provision in 36 M.R.S. § 2013 for refund of sales tax paid on depreciable machinery and equipment used in commercial wood harvesting ("Commercial wood harvesting" means the commercial severance and yarding of trees for sale or for

Property tax

The general rule in Maine is that all real and tangible personal property is subject to property tax unless an exemption applies.¹⁸ However, the Mining Excise Tax is designed to be imposed in lieu of the property tax that would otherwise be paid on certain “mining property,” as defined in statute.¹⁹ If real or tangible personal property qualifies under the mining excise statute, it is exempt from property tax.²⁰ Other property of a mining company, however, would continue to be subject to property tax.

Pursuant to 36 M.R.S. § 2865(1), the State Tax Assessor first must determine what constitutes a “mine site,” considering all relevant information including, but not limited to, plans or permits approved under the site location of development law, 38 M.R.S. §§ 481 - 489-E. The Assessor must notify the municipality and the mining company of the determination, which is subject to reconsideration. “Mine site” is defined in 36 M.R.S. § 2855(7), as follows:

“Mine site” means the entire contiguous area owned, leased or otherwise subject to the possessory control of a mining company within which mining or activities incidental thereto, occur or may reasonably be expected to occur.

The mine site includes, without limitation, the contiguous area in which are located or reasonably may be expected to be located: The excavation; tailings, waste rock or overburden storage areas; mills; conveyors; concentrators; crushers; screens; pipes; canals; dams; ponds; lagoons; ditches; roads; access roads; utility facilities or equipment; pollution control facilities; railroad tracks or sidings; administrative or other buildings; or improvements, structures, rights-of-way or easements appurtenant or related to any of the foregoing.

After the mine site has been established, “mining property” can be identified. Mining property generally includes all real estate at a mine site, and all tangible personal property at or in transit to or from a mine site.²¹ While in general the Mining Excise Tax is imposed in lieu of property tax with respect to mining property, there are numerous exceptions and exclusions that make the question more complicated. Property located at or in transit to or from a mine site can be broken down into three basic categories: 1) property located at or in transit to or from a mine site that is not mining property; 2) mining property that is not exempt from property tax; and 3) mining property that is exempt from property tax.

Property located at or in transit to or from a mine site that is not mining property

As noted above, mining property generally includes all real estate at a mine site, and all tangible personal property at or in transit to or from a mine site.²² There are, however, several exceptions. Vehicles on which Maine vehicle excise tax was paid for the current registration year are not considered

processing into logs, pulpwood, bolt wood, wood chips, stud wood, poles, pilings, biomass or fuel wood or other products commonly known as forest products.”). *See also* Sales Tax Instruction Bulletin No. 22, Manufacturers.

¹⁸ 36 M.R.S. § 502.

¹⁹ 36 M.R.S. § 2854(4).

²⁰ 36 M.R.S. §§ 655(1)(S), 656(1)(I).

²¹ 36 M.R.S. § 2855(12).

²² 36 M.R.S. § 2855(12).

mining property.²³ Tangible personal property²⁴ that is not owned, leased, or otherwise subject to the possessory control of a mining company²⁵ is not mining property.²⁶ Property that is not mineral products and is not primarily used or held for use in connection with, incidental to, or in support of mining is also not mining property.²⁷

While the Mining Excise Tax is imposed in lieu of property taxes, that is only true with respect to mining property.²⁸ Since the above types of property are not considered mining property, they would generally be subject to property tax like any other property. However, note that vehicles subject to vehicle excise tax are exempt from property tax, per 36 M.R.S. § 1485, and other business property may qualify for exemption under the Business Equipment Tax Exemption program, per 36 M.R.S. §§ 691—700-B.

Mining property that is not exempt from property tax

Certain property meets the definition of mining property but is not exempt from property tax. Buildings at a mine site are technically mining property but are not exempt from property tax.²⁹ However, this includes only the building itself and does not include any fixtures and equipment of the building.

Similarly, land of a mine site is mining property but is not exempt from property tax.³⁰ This does not include, however, the value of minerals or mineral rights in the land. Note also that the definition of “land” is narrow and generally refers to raw land only.³¹ But land improvements within a mine site are not considered “land” under the statute and are thus not excluded from the property tax exemption.

Mining property that is exempt from property tax

The above exclusions and exceptions dramatically narrow the types of property that are exempt from property tax under the Mining Excise Tax law. The categories of property at a mine site that are therefore eligible for the property tax exemption are: minerals, mineral rights, and mineral products;³² and fixtures and equipment of buildings, land improvements, and tangible personal property that is owned, leased, or possessed by a mining company and primarily used or held for use in connection with, incidental to, or in support of mining.³³ Note that in addition to the exemption language in the Mining Excise Tax

²³ 36 M.R.S. § 2855(12)(C)(2).

²⁴ The ownership/control requirement technically applies to real property as well, although the requirement is built into the determination of what constitutes the “mine site” rather than what constitutes “mining property.” See 36 M.R.S. § 2855(7).

²⁵ A mining company is any person who engages in mining in the State. 36 M.R.S. § 2855(11).

²⁶ 36 M.R.S. § 2855(12)(B).

²⁷ 36 M.R.S. § 2855(12)(C)(1).

²⁸ 36 M.R.S. § 2854.

²⁹ 36 M.R.S. § 2854(2)(A).

³⁰ 36 M.R.S. § 2854(2)(B).

³¹ 36 M.R.S. § 2855(6).

³² “Mineral products” includes all unextracted and extracted minerals and all products derived therefrom by mining. 36 M.R.S. § 2855(8).

³³ 36 M.R.S. § 2854(2).

statute, Part 2 also includes language incorporating the exemption into the corresponding real estate and personal property tax exemption sections of the property tax statute.³⁴

Assessment of property tax on mine site property

As discussed above, while certain property located at or in transit to or from a mine site is subject to property tax, the property is not assessed in the same way as other taxable property in the municipality. Under 36 M.R.S. § 2865(2), the State Tax Assessor is responsible for determining the valuation of all mining property and the percentage of that valuation attributable to land and buildings that are *not* exempt from property tax. That value must be used by the municipality when assessing property tax on that property. The municipality may appeal the State Tax Assessor's determination of value to the State Board of Property Tax Review.

In addition, 36 M.R.S. § 603(10) contains specific provisions on the tax situs of property related to mine sites. Generally, personal property is taxed to the owner of the property in the municipality of residence.³⁵ However, the tax situs for tangible personal property that is in transit to or from a mine site and owned, leased or otherwise subject to the possessory control of a mining company (i.e., mining property) is the mine site.³⁶

Finally, there is an exception in statute for the value of minerals in the calculation of current use withdrawal penalties. Under both the Tree Growth and Farm and Open Space Tax Law,³⁷ any withdrawal penalty must be calculated without regard to the presence of minerals on the property, provided that a Mining Excise Tax is in effect when the payment of the penalty is made or demanded.³⁸

Property tax credit against the Mining Excise Tax

A mining company can take a credit against the Mining Excise Tax for property taxes that have been paid in certain circumstances. If property on which property tax has been paid becomes exempt during the year under the Mining Excise Tax, whether paid by the mining company or another person, the mining company is allowed a prorated credit against the Mining Excise Tax.³⁹ The credit may be used in the current tax year or any future tax year.

The mining company is also allowed a credit against the Mining Excise Tax for any property taxes paid, by the mining company or any other person, on land and buildings that are mining property.⁴⁰ As with the previous credit, the property tax credit may be used in the current or any future tax year.

³⁴ 36 M.R.S. §§ 655(1)(S), 656(1)(I).

³⁵ 36 M.R.S. § 602.

³⁶ 36 M.R.S. § 603(10).

³⁷ There is no similar provision in the 4th current use program, the Working Waterfront program, 36 M.R.S. §§ 1131-1140-B. However, based on the type of land that qualifies for Working Waterfront, it is unlikely (but not impossible) that there would be mineral value attached to Working Waterfront property.

³⁸ 36 M.R.S. §§ 581-D, 1112-B.

³⁹ 36 M.R.S. § 2858(1).

⁴⁰ 36 M.R.S. § 2858(2).

Municipal reimbursement

Under 36 M.R.S. § 2861, the revenues from the tax are required to first be used to reimburse the municipalities for the property tax exemptions. The State is required to reimburse the municipalities for at least 50% and, if funds are available, up to 100% of the lost property tax revenue associated with the exemptions.

To calculate the lost property tax revenue, the State Tax Assessor must add the value of the property exempted because of the Mining Excise Tax to the municipality's total taxable municipal valuation, then divide that sum into the total amount of property taxes levied by the municipality. The resulting rate must be applied to the value of the exempt property to determine the potential tax revenue loss. For purposes of the calculation, the value of the exempt property is calculated by taking the total value and reducing it by the value of any property that would have been exempt under Title 36 on the day before the Mining Excise Tax went into effect (so whether the property would have been exempt from property tax under Title 36 as it existed on August 11, 1982).

That loss must then be reduced by the additional school funding received by the municipality due to the reduced state valuation resulting from the exempt property. The State must pay at least 50% of the resulting calculated tax loss, and up to 100% if available, to the municipalities by February 1st of the year following the year of the property tax loss. The Unorganized Territory must be reimbursed for the lost property tax revenue in the same manner as the municipalities.

Real estate transfer tax

Maine imposes a tax on any transfer by deed of real property located in the State, known as the real estate transfer tax. Real property consists of land and anything affixed to land, and also includes improvements and other things constructed or situated on land when the owner of the improvements is not the landowner. The tax is imposed half on the grantor and half on the grantee. Thus, a mining company who buys or sells real property in the State will be subject to their portion of the real estate transfer tax based on the purchase price of the property.⁴¹

Mining Taxes in Other States

Mining taxes vary significantly by state. Unlike state income taxes or sales taxes, state mining taxes do not follow one standard structure, with the biggest differences being the mining tax bases and tax rates.

In addition to reviewing Maine's Mining Excise Tax, MRS analyzed 11 other states with mining taxes. Some states were prominent mining states (e.g., Alaska, Nevada, and West Virginia), while other states were smaller in scale (e.g., Arkansas). The complete list of 11 researched states includes: Alaska, Arkansas, California, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Utah, and West Virginia. Note that MRS also had discussions with policy analysts with the State of California to discuss California's new Lithium Extraction Excise Tax.

⁴¹ 36 M.R.S. ch. 711-A. Note that mineral rights, similar to timber rights, could possibly be subject to real estate transfer tax, but the Property Tax Division is currently reviewing this issue further.

Tax Base

While the mining tax base varies by state, there are a few *general* categories to consider. First, states can define their mining tax base based on some type of *gross* measurement income or revenues from, or value of, the minerals being mined. While these states may use different terminology like gross income (e.g., Colorado), gross value (e.g., Montana), or gross revenues (e.g., Nevada), these tax bases tend to share a common quality whereby few, if any, deductions are allowed before applying the tax rate to the tax base. In particular, large deductions for depletion and production costs tend to be disallowed when arriving at this gross tax base.

The second common approach in defining a mining tax base is using some type of *net* measurement, whether by net income (e.g., Alaska), net value (e.g., Idaho), or taxable value (e.g., Utah). These states generally apply the mining tax rate to the tax base *after* allowing for certain deductions, including depletion and production costs.

Finally, although less common, states may also use some *other* type of measurement to define the tax base. For instance, states may define the tax base by the quantity or weight of the mineral mined (e.g., the tax base for California's Lithium Extraction Excise Tax is measured by metric ton of Lithium carbonate equivalent). Regardless of what the tax base is called or how it is measured, it is most important to examine how a state *defines* or calculates its tax base.

Tax Rate

Similar to the mining tax base, the mining tax rates also vary by state. The range of tax rates may be due to different factors, such as the differences in tax base, incentives, or mineral types. Therefore, it is not entirely accurate to measure Maine's tax rate among other mining states, because of the differences in tax structures, calculations, and incentives.

Despite these differences, it may be most helpful to compare Maine's tax rate to those states with similar tax bases with some gross measurement of gross income, gross value, or gross revenues. For example, Maine's Mining Excise Tax applies to "gross proceeds," which means a mining company's federal gross income from mining with respect to a mine site, as defined in Internal Revenue Code ("IRC") § 613.⁴² Such federal gross income is further defined to mean, in general, the value, or revenues from the sale, of minerals.⁴³

The following is a table of mining tax rates of other states that also measure the tax base by some gross measurement of income, value, or revenue:

⁴² See 36 M.R.S. § 2855(5).

⁴³ See IRC § 613; Treas. Regs. §§ 1.613-3; 1.613-5.

State	Tax Rate	Tax Base	Authority
Maine	0.9% to 3.5% of "gross proceeds"	<p>"Gross proceeds" is defined as a mining company's federal gross income, per IRC § 613.</p> <p>*Rate on gross proceeds depends on the calculation of net proceeds in relation to gross proceeds.</p>	36 M.R.S. § 2856(2); 36 M.R.S. § 2855(5)
Arkansas	5% of "market value" at time and point of severance	Note that "market value" is only defined for natural gas and means the producer's actual cash receipts from the sale of natural gas to the first purchaser less the actual costs to the producer of dehydrating, treating, compressing, and delivering the gas to the purchaser.	Ark. Code Ann. § 26-58-111(10)(A); Ark. Code Ann. § 26-58-110(10);
Colorado	2.25% on "gross income" in excess of \$19 mill	"Gross income" means, for metallic minerals, the value of ore immediately after its removal from the mine, and does not include any value added subsequent to mining by any treatment processes, such as crushing, grinding or concentration, by transportation from the mine, or by marketing of such ore or any products derived therefrom, but does not include income from the extraction or processing of ores or minerals from mine waste or residue of previously processed ores.	Colo. Rev. Stat. § 39-29-103; Colo. Rev. Stat. § 39-29-102;
Montana	1.6% to 1.81% of the amount of gross value of product at the time of extraction from the ground, if in excess of \$5,000	"Gross value of product" means the receipts received, as defined in Mont. Code Ann. § 15-23-801, from all merchantable metals or concentrate containing metals or precious and semiprecious gems and stones extracted or produced each reporting period from any mine or mining property in the state or recovered from the smelting, milling, reduction, or treatment in any manner of ores extracted from the mine or mining property or from tailings resulting from the smelting, reduction, or treatment of the ores.	Mont. Code Ann. § 15-37-103; Mont. Code Ann. § 15-37-102; Mont. Code Ann. § 15-23-801
Nevada	<p>0.75% of "gross revenues" \$20 mill to \$150 mill and 1.1% over \$150 mill</p> <p>*But this is <u>in addition</u> to general mining tax of 2% to 5% of net proceeds.</p>	<p>A recent Nevada law imposes Gold & Silver Excise Tax of 0.75% gross revenues of \$20 million to \$150 million, and 1.1% on gross revenues over \$150 million.</p> <p>Nevada's general mining tax is based on "net proceeds." Net proceeds are determined by subtracting from gross yield certain costs incurred during each six-month period.</p>	Nev. Rev. Stat. § 362.140; Nev. Rev. Stat. § 362.120(3)
West Virginia	4% on the "gross value" of the natural resource produced, as shown by the gross proceeds derived from the sale thereof by producer	<p>"Gross value" in the case of natural resources means the market value of the natural resource product, in the immediate vicinity where severed, determined after application of post production processing generally applied by the industry to obtain commercially marketable or usable natural resource products.</p> <p>*Note that there is an exemption from mining tax for 12 years beginning July 1, 2023, for severing, extracting, reducing to possession and producing for sale, profit or commercial use rare earth elements and critical minerals, which includes "lithium."</p>	W. Va. Code § 11-13A-3c W. Va. Code § 11-13A-2(6)

Other Considerations

Note that most states do not specifically refer to Lithium in its mining tax laws. However, New Mexico appears to tax Lithium, but only by means of imposing a Severance Tax on “rare earths and other metals.” West Virginia also imposes mining tax on “rare earths and critical elements,” which is defined to include “Lithium.” In fact, California is the only state that has enacted a specific Lithium mining tax (i.e., Lithium Extraction Excise Tax). However, in MRS’s discussions with California policy analysts, California’s new Lithium Extraction Excise Tax was intended to target existing geothermal mining activities and there is no other Lithium mining expected at this time.

States also offer different mining tax incentives for mining companies. Some states exempt a certain amount of dollars from tax. For instance, Montana exempts the first \$5,000 of gross value, Colorado exempts the first \$19 million of gross income, and Nevada exempts the first \$20 million of gross revenue from its new Gold & Silver Excise Tax. Although not as common, some states may also exempt the first period of mining (e.g., Alaska exempts the first 3.5 years of mining operations and West Virginia exempts the first 12 years for rare earths and critical elements).

Most mining states do not provide exemptions from other state taxes. For instance, most states with mining taxes also assess mining property for purposes of property tax. Although two notable states do provide either an exemption (Alaska) or a property tax credit against mining tax (Colorado), most mining states specifically assess mining property in the property tax laws in addition to mining tax.

Findings and Recommendations

Multistate Lithium/mining rate comparison and guiding principles

Comparing different state’s mining tax rates is difficult because of differences in the tax base and available exemptions or credits. However, it can be useful to put Maine’s tax rate in context. The study found that comparable states have a tax rate of 0.75%⁴⁴ to 5%, placing Maine’s base tax rate of 0.9% at the low end of that range. In certain, potentially rare, circumstances Maine’s tax rate can move as high as 3.5%, still well within the range of surveyed states.

As guideposts in establishing a fair excise tax rate, policymakers can look to this multistate comparison as well as the policy criteria outlined 36 M.R.S. § 2853(4):

4. **Scheme of taxation.** Establish a practical scheme of taxation on mining companies which will:
 - A. Permit these companies to profitably operate mines within the State;
 - B. Encourage the economically efficient extraction of minerals;
 - C. Permit the State to derive a benefit from the extraction of a nonrenewable resource; and
 - D. Compensate the State and its political subdivisions for present and future costs incurred or to be incurred as a result of the mining activity.

Paragraphs A & B focus on the establishment and efficient operation of the mineral extraction market. Paragraphs C & D, on the other hand, focus on two underlying justifications for a mining or severance

⁴⁴ The state with a tax rate of 0.75%, Nevada, imposes the tax in addition to general mining tax of 2% to 5% of net proceeds.

tax. First, because the resources available to the state are permanently reduced by extractive industries, unlike most other industries operating in a state, the state should derive some benefit from that extraction to offset the permanent loss. Second, mining operations have often resulted in negative externalities⁴⁵ in the form of environmental damage or degradation.

A mining tax should raise sufficient revenue to compensate for the permanent loss of value in the state and the risk of environmental damage, while allowing the profitable operations of mines, all the while doing so in an economically efficient manner. Because mining in Maine, and mining Lithium in the United States, is at an early stage in its development, there continue to be considerable unknowns regarding how these criteria should be balanced. This uncertainty suggests that a conservative approach be taken at the outset, making sure that the state is not left in a worse position due to the mining activity, and then, if necessary, revisited as the market matures. **The study recommends removing the variance in Maine’s tax rate and increasing the base rate toward the upper middle of the surveyed range, while remaining within the current range of the Maine Mining Excise Tax with a rate of 3.5%.**

Revenue use, simplification and guiding principles

The study found that the number of revenue flows, and their yearly variations, authorized under current law may be unnecessarily complex to meet the policy goals laid out in 36 M.R.S. §2583. In addition, it may be difficult for those overseeing the various funds to predict how much revenue they will have to distribute or use. **The study recommends simplifying this structure and reserving spending decisions until there is experience with mining in the State and more accurate projections of potential revenue by directing all of the revenue generated by the tax to go to the Mining Excise Tax Fund and requiring the Governor to propose uses for the fund, consistent with section 2853, as part of the first biennial budget submitted after revenue has been deposited in the Mining Excise Tax Fund.**⁴⁶

Follow-up

The study focused on the potential of Lithium mining in Maine under current market conditions. **The study recommends that the Office of Tax Policy undertake further research if other mining activity occurs, or seems likely to occur, for instance, the mining of other minerals or the processing of Lithium or other metals, or if there are significant changes to the Lithium market.** The additional research, and any corresponding legislation proposed by the Administration, should then be presented to the Legislature.

Definitional alignment with Title 38 mining statutes and regulations

The study found that similar terms were used in similar contexts within the Department of Environmental Protection (“DEP”) regulatory structure pursuant to Title 38 and in the Mining Excise Tax pursuant to Title 36 but that they did not share the same definitions. The differing definitions are likely

⁴⁵ A side effect or consequence of an industrial or commercial activity that affects other parties without this being reflected in the cost of the goods or services involved.

⁴⁶ The recommended legislation would amend the Mining Oversight Fund and rename it as the Mining Excise Tax Fund. The legislation would leave in law the Mining Excise Tax Trust Fund, 5 M.R.S §§ 452, *see also* Me. Const. art. IX, § 20 (restricting the use of the Mining Excise Tax Trust Fund). Further consideration should be given to the Constitutional significance of the fund before repealing it.

to cause taxpayer confusion and result in mining activities that are subject to DEP regulation but not mining taxation (and vis versa). **The study recommends aligning similar Title 36 definitions with the Title 38 definitions, when possible.**

Simplification

The study found that the existing Mining Excise Tax, enacted in 1982, has become increasingly complex as the legal framework of the Maine property and income taxes has shifted around it. The intervening changes have left the Mining Excise Tax, and its interaction with other areas of State tax law, in a level of complexity that is approaching unadministrable. The study explored the need and opportunity for simplification to further the policy goals outlined in Title 36, Section 2853. Simplification is an important component of allowing companies to profitably operate mines within the State and in encouraging the economically efficient extraction of minerals. In addition, simplification is necessary for the administration of the Mining Excise Tax and the property tax on mining operations.

Property Tax

Business property. The State property tax treatment of business property was significantly changed by the enactment of the Business Equipment Tax Reimbursement (“BETR”) and Business Equipment Tax Exemption (“BETE”). These programs have refined the taxation of business property and produced a consistent statewide approach. The study found that current overlap between the Mining Excise Tax business property tax provisions and BETE is needlessly complex. In addition, intervening developments in the property tax appeal processes have made the current appeal process for the property taxation of mining equipment untenable. **As such, the Study recommends the repeal of most of the Mining Excise Tax business property tax provisions and their replacement with BETE and the general property tax appeal processes.**

Mineral products. A primary focus of the 1982 legislation was exempting from property taxation mineral products, whether below ground or after mining. The difficulty in valuing mineral products creates an area ripe for controversy, business and revenue uncertainty, and compliance and administrative burdens. In addition, taxing mined mineral products is economically inefficient. The 1982 legislation partially addressed these issues by exempting mineral products, but by requiring municipal reimbursement – despite authorization from an accompanying constitutional amendment⁴⁷ to not reimburse municipalities, left the difficult task of valuing the minerals. **The study recommends continuing the exemption for mining products and fully removing the difficult valuation issues by removing municipal reimbursement for the exemption and that municipal compensation concerns be addressed through the Mining Excise Tax revenue sharing provisions.**

Credit for property taxes. As currently structured, the mining companies are offered a credit against the Mining Excise Tax for the property taxes paid on mining property. This structure results in a tax that only applies to the extent that it is greater than the property tax due. As such, it does not fully address the policy goal of insuring that the State receives a benefit from the extraction of a nonrenewable resource, nor does it compensate the State and its political subdivisions for present and future costs incurred as a

⁴⁷ Me. Const. art. IV, § 23.

result of the mining activity. The study found that similar credits are rare among other states with mining or severance taxes. **The study recommends that the credit for property taxes paid be repealed, and the concerns regarding the overall tax burden be addressed through setting an appropriate Mining Excise Tax rate.**

Net income

The study found that Maine's use of a mining companies net income to determine the tax rate imposed on a company's gross proceeds was rare among the states surveyed.⁴⁸ Because Maine's increased rate does not begin to apply until the ratio of net proceeds to gross proceeds (akin to a profit margin) exceeds 27.78%, the effective rate of the excise tax should be assumed to be at the lower end of the range most, if not all, of the time.⁴⁹

The purpose of such a sliding scale is to allow the State to automatically increase the tax rate imposed if changing market conditions (increased mineral prices) cause unexpectedly high profits. However, the complexity of the net income measure, a measure similar to, but different in important aspects, to the income measures used for federal income tax purposes and State income tax purposes, and lack of practical mining experience in Maine prevented the study from coming to the conclusion that the sliding scale would accomplish that purpose. **Instead, the study recommends that a static rate be set at a level that will meet the needs of the State and that the market conditions be monitored. If market conditions change to a degree that the tax rate no longer addresses the needs of the State, then it can be adjusted by the Legislature.**

Sales tax

Exemption for mining equipment. The study found that there is no current exemption that broadly applies to the purchase of mining equipment. This lack leads to mining being treated differently than many other activities occurring early in the supply chain, for instance, there are exemptions or refunds available for products used in aquacultural production and bait, commercial agricultural production, commercial forestry, and the production of tangible personal property generally. These exemptions address the economic inefficiency, tax pyramiding, and tax transparency issues that arise from applying a sales tax early in the supply chain, as opposed to the point of final consumption. To the extent the industries tax burden is a concern, adjusting the Mining Excise Tax rate should be considered in place of a sales tax on the purchase of mining equipment. **The study recommends creating a new sales tax exemption for products used in commercial mining modeled after existing production exemptions.**

⁴⁸ Note that Nevada does impose an unrelated mining tax on patented mines, which does utilize a ratio of net proceeds to gross proceeds of mining operations.

⁴⁹ The revenue of the top 40 global mining companies, which represent a vast majority of the whole industry amounted to a record \$943 billion in 2022. The net profit margin of the mining industry decreased from 25% in 2010 to 14% in 2022.

Conclusion

The Office of Tax Policy found that the Maine Mining Excise tax was an outlier among the states in terms of complexity and rate structure, and that changes in other Maine taxes, in particular the property tax, since the Mining Excise Tax's 1982 enactment has left the Mining Excise Tax out of sync with other Maine taxes and bordering on unadministrable.

After comparing Maine's Mining Excise Tax with similar taxes in other states and analyzing the application of other Maine taxes on mining operations, the report makes the following recommendations. First, it recommends simplifying the rate structure and adjusting it towards the upper middle of the multistate comparison range with a rate of 3.5%. Second, it recommends aligning and better integrating the tax with the Title 38 environmental mining statutes and regulations. Third, it recommends simplifying the tax and better integrating it with other State taxes, with a focus on utilizing existing broad based property tax business exemptions and appeals processes. Fourth, it recommends that the provisions dedicating revenue from the Mining Excise Tax be simplified and focused on the core goals of section 2853 while preserving specific revenue use decisions until the potential revenue stream is better understood. Finally, it recommends that the Office of Tax Policy undertake further research if other mining activity occurs, or seems likely to occur, for instance, the mining of other minerals or the processing of Lithium or other metals, or if there are significant changes to the Lithium market.

Appendix A: Bibliography

1. Resolve 2023, Chapter 83 (LD 1855) and testimony
2. Public Law 2023, Chapter 398 (LD 1363) and testimony, and Maine Department of Environmental Protection rulemaking
3. Maine Constitution Art. IV, § 23
4. Maine Constitution Art. IX, §§ 8 & 20
5. *History of Metal Mining in Maine*, Maine Geological Survey
6. *Overview of Maine Metallic Mineral Deposits and Mining*, Maine Geological Survey
7. *Metallic Mineral Deposits of Maine*, Maine Geological Survey
8. *2022 List of Critical Minerals*, United States Geological Survey
9. *2023 Mineral Commodity Summaries – Lithium*, United States Geological Survey
10. *2018 Minerals Yearbook – Lithium*, United States Geological Survey
11. Report of the Mineral Policy Advisory Committee to Commissioner Richard E. Barringer, Department of Conservation (October 1980)
12. Maine Legislative Record 11 (5th Spec. Sess. 1982)
13. Multistate Mining and Severance Taxes Internal Review

STATE OF MAINE

—
IN THE YEAR OF OUR LORD
TWO THOUSAND TWENTY-THREE

—
H.P. 1185 - L.D. 1855

Resolve, Directing the Office of Tax Policy to Study Maine's Mining Excise Tax

Sec. 1. Office of Tax Policy to study State's mining excise tax; report.

Resolved: That the Department of Administrative and Financial Services, Bureau of Revenue Services, Office of Tax Policy shall examine and evaluate the State's taxation of metallic mineral mining business activity, including the mining excise tax, and shall review mining taxes and fees from other states, including severance taxes, excise taxes, extraction fees and royalties and corresponding potential uses of collected revenue, and consult with national mining tax experts as appropriate. No later than January 15, 2024, the Office of Tax Policy shall submit a report to the Joint Standing Committee on Taxation that includes its findings and recommendations, including suggested legislation, that are consistent with the policy and purposes in the Maine Revised Statutes, Title 36, section 2853. The Joint Standing Committee on Taxation may submit legislation related to the report to the Second Regular Session of the 131st Legislature.

STATE OF MAINE

IN THE YEAR OF OUR LORD
TWO THOUSAND TWENTY-THREE

H.P. 877 - L.D. 1363

**An Act to Support Extraction of Common Minerals by Amending the Maine
Metallic Mineral Mining Act**

Be it enacted by the People of the State of Maine as follows:

Sec. 1. 38 MRSA §490-MM, sub-§3-A is enacted to read:

3-A. Cement. "Cement" means any of various calcined mixtures of clay and limestone that can be mixed with water and used as an ingredient in making mortar or concrete.

Sec. 2. 38 MRSA §490-MM, sub-§8, as enacted by PL 2011, c. 653, §23 and affected by §33, is amended to read:

8. Metallic mineral. "Metallic mineral" means any mineral, ore or excavated material ~~to be excavated from the natural deposits on or in the earth for its metallic mineral content to be used for commercial or industrial purposes. "Metallic mineral" does not include thorium or uranium that has metal or a metalloid element as its economically valuable constituent, regardless of the chemical end product of the metal or metalloid element.~~

Sec. 3. 38 MRSA §490-MM, sub-§11, as enacted by PL 2011, c. 653, §23 and affected by §33, is amended to read:

11. Mining, mining operation or mining activity. "Mining," "mining operation" or "mining activity" means activities, facilities or processes necessary for the extraction or removal of metallic minerals or overburden or for the preparation, washing, cleaning or other treatment of metallic minerals and includes the bulk sampling, advanced exploration, extraction or beneficiation of metallic minerals as well as waste storage and other stockpiles and reclamation activities, but does not include exploration: or any of the following activities:

A. The physical extraction, crushing, grinding, sorting, storage or heating of calcium carbonate or limestone to produce cement when such activity is subject to article 6, article 8-A or Title 12, chapter 206-A or when such activity covers one acre or less of surface area in total;

B. The exploration for or physical extraction, crushing, grinding, sorting or storage of borrow, topsoil, clay or silt when such activity is subject to article 7 or Title 12, chapter 206-A or when such activity covers 5 acres or less of surface area in total;

C. The exploration for or physical extraction, crushing, grinding, sorting or storage of gemstones, aggregate, dimension stone or other construction materials from a quarry that is subject to article 8-A or Title 12, chapter 206-A or when such activity covers one acre or less of surface area in total; and

D. The exploration for or physical extraction, crushing, grinding, sorting or storage of any other metallic minerals when such activity has been excluded from the requirements of this article pursuant to a determination made by the department under section 490-NN, subsection 4.

Sec. 4. 38 MRSA §490-NN, sub-§4 is enacted to read:

4. Determination of applicability of Maine Metallic Mineral Mining Act requirements. As provided in this subsection and following the adoption of rules by the department pursuant to this subsection, a person proposing to conduct exploration for or physical extraction, crushing, grinding, sorting or storage of metallic minerals as described in section 490-MM, subsection 11, paragraph D may request a written determination from the department that the requirements of this article do not apply to the activity. The department shall adopt rules governing the requirements for issuance of such a determination under this subsection, which must include, but are not limited to:

A. Provisions for ensuring that the activity will generate only mine waste that does not have the potential to create acid rock drainage, alkali rock drainage or drainage or other discharges that could cause violations of water quality criteria or standards other than sedimentation or turbidity and will not release or expose radioactive or other materials that could endanger human health or the environment. The provisions under this paragraph must include, but are not limited to, preextraction sampling requirements;

B. Provisions for ensuring that the activity, if excluded from the requirements of this article, is subject to requirements of article 6, article 7, article 8-A or Title 12, chapter 206-A as applicable, including, but not limited to, applicable requirements and standards under those laws regarding the effect of the activity on wildlife habitat and other protected natural resources; and

C. Provisions for requiring monitoring as necessary to demonstrate compliance with applicable standards and to protect water quality and human health during and after the activity.

An activity excluded from the requirements of this article as determined by the department pursuant to this subsection is not subject to the otherwise applicable requirements of this article, the otherwise applicable rules adopted pursuant to this article, except for those rules adopted by the department pursuant to this subsection, or the fees for metallic mineral mining set forth in section 352, subsection 4-A. Rules adopted by the department pursuant to this subsection are major substantive rules, as defined in Title 5, chapter 375, subchapter 2-A.

Sec. 5. 38 MRSA §490-NN, sub-§5 is enacted to read:

5. Mining excise tax. A person engaging in mining activities pursuant to this article and a person, pursuant to article 6, article 7, article 8-A or Title 12, chapter 206-A, engaging in activities described in section 490-MM, subsection 11, paragraph D following a determination by the department under subsection 4 is subject to the mining excise tax under Title 36, chapter 371. A person engaging in the activities described in section 490-MM, subsection 11, paragraphs A to C is not subject to the mining excise tax under Title 36, chapter 371.



HOUSE OF REPRESENTATIVES

2 STATE HOUSE STATION

AUGUSTA, MAINE 04333-0002

(207) 287-1400

TTY: MAINE RELAY 711

H. Scott Landry Jr.

137 Shepherd's Lane

Farmington, ME 04938

Residence: (207) 491-9041

Scott.Landry@legislature.maine.gov

April 13, 2023

Testimony of Rep. Scott Landry presenting

**LD 1363, An Act to Support Extraction of Common Minerals by Amending the Maine
Metallic Mineral Mining Act**

Before the Joint Standing Committee on Environment and Natural Resources

Senator Brenner, Representative Gramlich and members of the Environment and Natural Resources Committee, I am Representative Scott Landry. I serve House District 75, which includes the towns of Chesterville and Farmington. Thank you for the opportunity to present **LD 1363, An Act to Support Extraction of Common Minerals by Amending the Maine Metallic Mineral Mining Act**.

In 2020, the Maine Climate Council got to work on the Maine Won't Wait Climate Action Plan which established ambitious goals for Maine's future including decreasing greenhouse gas emissions by 45% by 2030 and 80% by 2050, and achieving carbon neutrality by 2045. Since then, we have made significant progress towards meeting those goals, progress that has resulted in more renewable energy generation and subsequently, a need for more battery storage capacity to help keep supply and rates stable and to maximize the potential of all of that energy.

Further, just last year the federal government unveiled the *American Battery Materials Initiative* which aims to secure a reliable and sustainable supply of critical minerals used for power, electricity, and electric vehicles. The U.S. does not currently produce enough of the critical minerals and battery materials, such as lithium, needed to power our clean energy technologies. Right now, China controls a significant amount of the critical mineral supply chain, but Maine is poised to take the lead on one key element of battery production – lithium mining.

Here in Maine, we are fortunate to have the largest lithium deposit in the world. But we also have some of the most prohibitive mining laws on the books. LD 1363 would amend Maine's Metallic Mining Act to allow for open-pit mining of lithium with certain important caveats.

Lithium is unlike most other metals which are typically bound up in sulfide. For those types of metals, like gold or silver, once you open up a deposit, exposing the sulfite to rain and other elements, it turns into extremely harmful sulfuric runoff. Mining the kind of lithium we have here in Maine does not have this problem, which makes the actual act of extracting the material much less dangerous. The lithium in the deposit in Newry is bound up in hard rock, meaning the

extraction process would be much more similar to a gravel pit or a granite quarry than typical metal mining.

Now, just because the extraction process is significantly less harmful than other metals doesn't mean there couldn't be other issues. That's why this bill proposes that mining of this kind only be allowed when other conditions are met. Specifically, it requires that open-pit mining only be allowable if the mine waste will not produce dangerous drainage issues or violate water quality standards. It further requires that any operation include a reclamation process which would involve retaining and stabilizing any topsoil that is disturbed during the mining process, reintroducing native vegetation wherever possible, returning intermittent and perennial streams that were diverted during the mining activity to the original channels, among other remediation measures.

By outlining very specifically what conditions must be met in order to allow for open-pit mining, LD 1363 would safely and responsibly permit the mining of lithium. We have to acknowledge that we need this resource, and we can do that while also being thoughtful and measured in our approach to extracting it. Not all mining is bad. The endorsement of this bill by the Natural Resources Council of Maine demonstrates how important this measure is for the wellbeing of Maine's natural resources, the climate and our collective futures. We have an unprecedented opportunity here, let's not squander it.

Thank you for the opportunity to present this bill. I'm happy to answer any questions you may have.



JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION



MELANIE LOYZIM
COMMISSIONER

**TESTIMONY OF
Melanie Loyzim, Commissioner**

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

SPEAKING IN SUPPORT OF L.D. 1363

**AN ACT TO SUPPORT EXTRACTION OF COMMON MINERALS BY AMENDING
THE MAINE METALLIC MINERAL MINING ACT**

SPONSORED BY REP. LANDRY

**BEFORE THE JOINT STANDING COMMITTEE
ON
ENVIRONMENT AND NATURAL RESOURCES**

DATE OF HEARING:

APRIL 13, 2023

Senator Brenner, Representative Gramlich, and members of the Committee, I am
Melanie Loyzim, Commissioner of the Department of Environmental Protection,
speaking in support of L.D. 1363.

Maine has one of the most stringent mining laws in the nation, ensuring that valuable
minerals can be safely extracted and processed in our state without sacrificing the
quality of drinking water, lakes and streams, and other natural resources. L.D. 1363
would make changes to Maine's Metallic Mineral Mining Act to clarify what metallic
minerals are covered by the law, and it would allow open-pit mining under a very narrow
set of circumstances. This bill would retain all other environmental protections currently

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826

BANGOR
106 HOGAN ROAD, SUITE 6
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769
(207) 764-0477 FAX: (207) 760-3143

provided by Maine's law and the Department's Chapter 200 rule, *Metallic Mineral Exploration, Advanced Exploration and Mining*.

Recent discoveries of metallic mineral deposits have led to questions about whether mining of those deposits are, or should be, subject to the Mining Act. The current law's blanket prohibition on open-pit mining makes it virtually impossible from a practical perspective to extract metallic mineral deposits near the surface, and compliance with the highly protective requirements of the law and DEP's rule will be very expensive for those who want to mine for metals in Maine. The owners of a quarry in Newry, where a spodumene deposit containing lithium was discovered, have asserted that the rocks they remove from the deposit do not meet the current law's definition of a metallic mineral. DEP disagrees with their interpretation of the statute, and they have filed two lawsuits against the Department on this issue that are now pending in the Kennebec County Superior Court. Due to that pending litigation, DEP is not able to discuss the particulars of that situation here today, but looking forward suggests that the Legislature is a more appropriate forum to decide how mining should be regulated in Maine.

Prior to 2011, Maine's Mining Act specifically excluded "common rock forming minerals, such as quartz, calcite, dolomite, feldspar, pyroxenes, amphiboles, zeolites, clays, or micas." Pyroxenes include spodumene. The new definition adopted into Maine's law in 2011 mirrored a similar mining law in effect in Michigan, which does not include those specific exemptions. Throughout three rounds of major substantive rulemaking to incorporate Maine's 2011 mining law into DEP's rules, from 2012 through 2017, there was little discussion about what that new definition of metallic mineral would cover. The primary focus by citizens and lawmakers was on massive sulfide deposits, groundwater contamination, siting restrictions and tailings management.

Now that lithium and so-called "rare earth metals" are in high demand for renewable energy technology and other uses, and deposits of those metals are being found in

Maine, we are faced with a question of balancing the fight against global climate change with protection of groundwater and natural resources in our backyards.

As we prepared for this legislative session, DEP considered recommending that the old exclusion of common rock forming minerals be added back into Maine's mining law. However, that would categorically exempt all activities involving those minerals from the environmental standards in the mining law and rule, including facilities that may process those minerals using chemicals and other extractive methods to create a high value, raw metallic product. Although digging up minerals like pyroxene and silica may present a lower risk to the environment than the extraction of sulfidic metals such as gold, industrial metallic processing facilities produce tailings and other wastes that must be carefully managed and are subject to a wide array of state and federal environmental standards. Maine's Mining Act and DEP's rule give mining companies a roadmap for meeting all of those standards.

Additionally, we could not assure you that digging up any of those minerals would not jeopardize ground water supplies in all locations of the state. It may be relatively low risk in some locations, and high risk in others, depending on the surrounding geology. Therefore, we recommend a careful approach focused on environmental risk. The proposed change to the metallic mineral definition in LD 1363 is not a perfect solution, but is intended to focus changes to the law in a way that retains the Mining Act's highly protective effect.

Thank you for the opportunity to provide testimony. I am available to answer questions of the Committee, both now and at work session.

Testimony of Mary Freeman in Support of LD 1476 and LD 1433 and Opposition to LD

1363 and LD 1508

Senator Brenner, Representative Gramlich and members of the Joint Standing Committee on Environment and Natural Resources, I am Mary Freeman, from South Paris, Maine, and I am here representing myself as a veteran Maine gem miner.

My husband and I purchased property in Western Maine and have been exploring Maine pegmatites for more than 25 years. Western Maine is blessed with granite pegmatites that have centuries of mining history without environmental problems. Tourmaline and other gems as well as Spodumene form in these pegmatites.

In 2018 we uncovered large spodumene crystals on the north side of Plumbago Mountain in Newry. Spodumene contains lithium, a metal, and, as a result, concerns have been raised about our proposal to quarry spodumene. Yesterday there was a very informative presentation from the State Geologist and representatives from the Maine DEP on basic geology and the Maine Mining Act. As was discussed, the majority of elements on the periodic table are metals, and the vast majority of minerals contain metal elements. The environmental risks, however, vary by the class of mineral, and spodumene is a very low risk common rock-forming silicate mineral. I refer you to a bulletin by Henry Berry that discusses lithium and the spodumene at Plumbago Mountain and explains its classification. Simply put, spodumene is not in the class of minerals that present the environmental risks that Mining Act was intended to regulate.

LD 1476 and LD 1433 are important because they clarify what types of minerals would be subject to comprehensive regulation under the Mining Act. As you heard yesterday, the Mining Act and Chapter 200 establish a comprehensive set of regulations and a robust permitting process that require a significant dedication of time and money. It would not make sense to

subject relatively benign activities to that regulatory program. These two bills provide important clarifications that would ensure the mining of minerals that present environmental risks are subject to the robust requirements of the Mining Act, but the excavation of minerals that do not present such risks (and that have occurred for generations in Maine) can continue under the Performance Standards for Quarries.

Crushed spodumene of the purity present at Plumbago Mountain is needed to make scientific glass including our computer and cell phone screens. Our proposal to develop a 5 to 10 acre quarry to excavate this spodumene would be indistinguishable in appearance and environmental impact from the limestone and granite quarries that exist throughout Maine. When responding to our request for a quarry license, the DEP agreed and concluded that the environmental risk associated with our proposal to quarry spodumene was generally comparable to extraction of limestone or granite, particularly when compared to mining sulfide deposits to extract metals. Nonetheless, because of uncertainty in the definition of what constitutes a metallic mineral, the DEP denied our request.

We have been working for more than three years with the DEP to try to resolve and clarify issues associated with our proposal to quarry spodumene. Everyone agrees it does not present environmental risks that warrant regulation under the Mining Act. I hope that common sense can prevail and we can clarify the law consistent with its intent. The regulatory burden should be commensurate with the environmental risks. Subjecting relatively benign quarrying activities to regulation under the Mining Act is not needed to protect the environment. I strongly urge you to approve legislation that allows environmentally responsible quarrying of granite pegmatites to proceed in accordance with Maine's Performance Standards for Quarries.

I also understand that Legislators and citizens are concerned about the potential impact of chemical processing of spodumene to make lithium salts for use in EV batteries. We are not proposing to do so. We understand that concern, however, and would support language that requires chemical processing of any ore be regulated under the Mining Act.

Finally, I am opposed to LD 1363 because as drafted, the definition of metallic mineral would subject any mineral containing a metallic or metalloid element of economic value, to the Mining Act regardless of its use. That would include tourmaline because it contains lithium. In fact it would include all Maine's gemstones, granites, gravels and soils and a host of other commonly quarried materials to regulation under the Mining Act and lead to discussions about the economic values of aluminum, iron and other common metals rather than focusing on environmental impacts.

We do not have to sacrifice the environment to have new products; nor do we need to sacrifice advancements to care for our environment. With thoughtful planning and legislating, we can have both.

Thank you for consideration of my comments and I am happy to answer any questions.

Mary Freeman

South Paris, Maine



**Testimony on Proposed Legislation Concerning Mining
and Possible Amendments to the Maine Metallic Mineral Mining Act**

By Pete Didisheim, Advocacy Director
April 13, 2023

Senator Brenner, Representative Gramlich, and members of the Environment and Natural Resources Committee. My name is Pete Didisheim, and I am the advocacy director for the Natural Resources Council of Maine (NRCM). NRCM is Maine's largest environmental advocacy group with more than 25,000 members and supporters.

NRCM worked closely with the Department of Environmental Protection (DEP) and this committee in developing the 2017 Metallic Mineral Mining Law ("Mining Law") and its associated rules. Based on that experience and having reviewed the bills before the Committee, as well as available literature about spodumene and rare earth deposits in Maine, our advice today is a simple one: we urge you to proceed with caution.

There is a lot that we do not know about the ore deposits that have spurred a flurry of media attention and public interest here in Maine. We know very little about the full range of materials that exist in these deposits and whether they have the potential to cause acid mine drainage, basic mine drainage, or toxic metal leachate that could violate Maine's water quality standards.

We have seen no plans that explain how or where these ore bodies would be processed at scale. And we know essentially nothing about possible ore transportation plans, site remediation plans, or whether the deposits in Maine are even economically viable compared with other spodumene deposits or other technologies for lithium production.

Any path forward should be guided by a "no regrets" policy, and this means digging into the details about these ore deposits, about the possible environmental impacts of various processing techniques, and the potential liabilities for neighboring communities and Maine taxpayers.

The world is riddled with mining operations that have gone awry. We do not want rushed legislation today to result in contaminated waters, stigmatized communities, and a trail of clean-up challenges in the future.

NRCM is not categorically opposed to amending Maine's Mining Law. In fact, our testimony includes amendments for the purpose of advancing conversations about spodumene mining. But we firmly believe that the critical safeguards for the environment and Maine taxpayers that are key features of Maine's Mining Law must be kept intact.

We fully recognize the important role that lithium plays in electric vehicles and other clean energy technologies. But we also recognize that there is a lot that we don't know. Maine has no experience with spodumene mining, so we all are still pretty low on this learning curve.

That said, NRCM believes that, of the many and diverse bills before you today, LD 1363 comes closest to striking a defensible path forward. We appreciate the work that the DEP and the bill sponsor have put into this legislation. NRCM opposes LD 1433 and LD 1476, which would remove spodumene mining from being regulated by the Mining Law. And we are not taking a position on the other bills at this time.

LD 1363 would allow the restriction on open-pit mining in Maine's Mining Law to be lifted if, and only if, a proposed mining operation would only generate mine waste that does not have the potential to create acid mine drainage, basic mine drainage, or toxic metal leachate in amounts that would violate water quality standards. We support this general approach for three primary reasons:

First, the bill applies statewide to any metal or metalloid element, and not just to one particular deposit of spodumene (the mineral from which lithium is obtained) in Newry. This statewide approach makes sense.

Second, it puts the appropriate burden of proof on the mining operator to provide data showing that the deposit does not co-occur with deposits of reactive, acid-generating ores, or materials that are otherwise dangerous because of high levels of heavy metals or uranium, for example.

Third, this approach keeps intact all of the other safeguards in Maine's Mining Law that protect Maine's environment and taxpayers from a legion of possible risks associated with mining extraction and processing activities. These safeguards include:

- No use of tailings impoundments and a requirement to use dry stack tailings management;
- A ban on mines requiring perpetual treatment;
- A requirement not to contaminate groundwater beyond 100 feet from a mining operation; and
- A requirement that a mining operation provide sufficient funding up front to the State to cover a worst-case mining disaster (refundable after successful closure).

Many recent press articles have contained claims that mining spodumene is just like mining granite, but this is highly misleading.

The major difference between granite and spodumene mining is that with granite mining, granite is the end-product. But spodumene must undergo considerable processing, or beneficiation, to produce purified spodumene concentrates that are useful to make the raw materials, such as lithium hydroxide, for batteries. This beneficiation process creates high volumes of waste, called tailings. Because there is no way to manage this liquid waste properly, the Mining Law requires drying the tailings and stacking them. This requirement needs to stay in place for spodumene. LD 1363 does that.

Beneficiation involves grinding the ore and running it through a series of processing tanks containing surfactants, which can be highly toxic. Air is bubbled up through the tanks, and spodumene concentrate floats to the surface. The concentrate is removed for further processing, and the tailings, which make up the vast majority of the ore, sink to the bottom of these tanks.

In Australia, the country with the largest spodumene industry, mining companies discharge these tailings to impoundments, which have a risk of catastrophic failure. Examples of recent catastrophic tailings dam failures include the Mount Polley Mine in British Columbia and the Samarco Mine in Brazil. The Legislature should not make any amendments to Maine's mining law that would allow tailings impoundments. LD 1363 would keep the prohibition on tailings impoundments in existing law in place. It

would also maintain the other protections that are relevant to spodumene mining and processing as mentioned above. LD 1476 and LD 1433 would exempt spodumene mining **and processing** from all provisions of the Mining Law, including the ban on tailings impoundments, which is **why we oppose** these two bills.

Unlike granite mining, Maine has no experience with large-scale open-pit spodumene mining, which is why state law should require deposit owners to characterize their deposits thoroughly before allowing them to use open-pit mining techniques. For example, we know from the very limited public data about the Newry deposit that there is some galena, or lead sulfide, present in the ore. This is an acid-generating mineral and has the potential to leach lead. We are uncertain if galena is present at levels that are dangerous, but the only way to know would be through detailed characterization of the deposit. This has not happened in Newry.

There is also an additional step in the manufacture of battery materials from spodumene concentrate that involves treatment of the concentrate with acid at high temperatures. Like beneficiation using chemical flotation, this process also uses large amounts of energy and chemicals. The Legislature should decide whether Maine's current environmental laws and rules are adequate to regulate this process, with which our state has no experience. I mention lithium processing because it is a critical component of turning any spodumene concentrate into a form that is useful for products such as electric vehicle batteries.

Let me now turn to our proposed amendments, which we would be glad to describe in more detail for the work session:

Sec. 2. Our suggested language would clarify that spodumene is a metal that would be regulated under the 2017 Maine Mineral Mining Law and that the Legislature could specifically identify other metals to come under the Mining Law in the future. Spodumene mining is not treated like quarrying in Australia, but is regulated as metal mining. This language conforms with that approach.

Sec. 3. Our suggested language would clarify that exempting limestone beneficiation for cement does not include chemical flotation of limestone. We do not believe that chemical flotation of limestone occurs in Maine, but the Department needs to be more specific about what sort of exemption it is proposing, or this language could potentially allow future tailings impoundments for limestone beneficiation waste and set a precedent for allowing tailings impoundments more broadly.

Sec. 4. Our suggested language is intended to clarify that independent rock crushing and sorting facilities in Maine would not be regulated under the Mining Law. Such operations could receive, crush, and sort material that is not acid generating or hazardous in other ways, as long as the operation is covered as specified. The original bill language could be read to suggest that any open-pit mine operation that uses an off-site crusher would be exempt from monitoring as would any processing facilities at the mine. We do not believe this was the intent of the sponsor or the Department. The proposed amendment tries to close a loophole that we do not believe was intended.

Sec. 5. Our suggested language would clarify the intention of the bill that an open-pit mine is not allowed if the ore and waste materials are reactive (acid generating or base generating), or if they have the potential to leach heavy metals at levels that would violate water quality criteria or other water quality standards other than those for sedimentation or turbidity. In other words, the ore/waste can only be Group C waste as defined in Chapter 200 section 2{XX}

XX. Group C Waste. “Group C waste” means a mine waste that does not have the potential to violate water quality standards other than sedimentation or turbidity.

Our suggested language also requires the DEP to develop rules about what constitutes sufficient characterization of an ore body to determine whether a waste is “Group C” and what the best practices are for open-pit mining of such ore deposits.

Sec. 6. Our suggested language would limit the size of an allowed open pit to 10 acres at any one time, not 100 acres, consistent with title 38 section 490-D(8)(a). The amendment also would make clear that DEP rules would be major substantive and require “contemporaneous reclamation”, meaning that remediation would occur in stages. Remediation would need to occur on mined-out pits prior to moving on to new areas. It also clarifies that the rulemaking the DEP is calling for is major substantive.

Finally, as it discusses the bills before the Committee, we urge you to consider these additional factors regarding mining for lithium for batteries:

1. **Diverse sources for lithium:** There are two major sources of battery lithium: brine deposits and spodumene deposits. Spodumene mining is significantly more chemical and energy intensive than obtaining lithium from brine deposits. An emerging technology for extracting lithium from brine, called Direct Lithium Extraction allows removal of lithium salts from brine without evaporation of the brines and the impacts this can cause to groundwater supplies. Although it is not at commercial scale yet, there is every reason to believe that it will get there.
2. **Current sources of lithium:** The vast majority of the world’s lithium, about 80%, comes from Australia and Chile.¹ Although China processes lithium from many other places and makes a large share of lithium-ion batteries, it produces far less lithium than either Australia or Chile. Because both Chile and Australia are close U.S. allies with free trade agreements, their lithium would be treated as equivalent to domestic lithium under the Inflation Reduction Act.
3. **Many U.S. lithium sources:** The U.S. has many possible domestic lithium sources, including brine deposits. The Nature Conservancy produced an extensive report looking at 72 sites in the U.S. Among its conclusions are: 1) the U.S. has enough lithium in the ground or in brine to supply the world for 100 years at current levels of consumption (even though consumption is increasing, this is still a high volume of lithium); and 2) the U.S. should focus on developing brine resources using Direct Lithium Extraction rather than on spodumene mining. We urge the Committee to review this report.²

¹ Accessed at <https://www.statista.com/statistics/677245/distribution-of-world-lithium-production-by-country/>.

² Accessed at https://www.scienceforconservation.org/assets/downloads/Lithium_Report_FINAL.pdf.

4. **Future lithium needs:** Long-term predictions of lithium demand may or may not be correct, and efficient use and recycling of lithium will lower demand. The Climate and Community Project has written a recent report on this that we also urge the Committee to review.³
5. **Lithium market:** The price of lithium is likely to fluctuate dramatically as prices for other commodities do. Prices for lithium carbonate (a key raw material for batteries) have dropped about 30% this year and supply is now outpacing demand.⁴

These factors suggest that the Legislature can give the Department the time it needs to develop rules that would allow for safer regulation of future spodumene mining in Maine.

Thank you for the opportunity to testify.

³ Accessible at

https://www.climateandcommunity.org/files/ugd/d6378b_b03de6e6b0e14eb0a2f6b608abe9f93d.pdf.

⁴ Accessed at <https://www.reuters.com/markets/commodities/lithium-price-slide-deepens-china-battery-giant-bets-cheaper-inputs-2023-02-28/>.

An Act to Support Extraction of Common Minerals by Amending the Maine Metallic Mineral Mining Act

Be it enacted by the People of the State of Maine as follows:

Sec. 1. 38 MRSA §490-MM, sub-§3-A is enacted to read:

3-A. Cement. "Cement" means any of various calcined mixtures of clay and limestone, which can be mixed with water and used as an ingredient in making mortar or concrete.

Sec. 2. 38 MRSA §490-MM, sub-§8, as enacted by PL 2011, c. 653, §23 and affected by §33, is amended to read:

8. Metallic mineral. "Metallic mineral" means any mineral, ore or excavated material to be excavated from the natural deposits on or in the earth for its metallic mineral content to be used for commercial or industrial purposes. "Metallic mineral" does not include thorium or uranium that has metal or a metalloid element as its economically valuable constituent, regardless of the chemical end product of the metal or metalloid element. For the purposes of clarification, spodumene is a metallic mineral. The Legislature may further clarify additional minerals as metallic minerals as the need arises.

Sec. 3. 38 MRSA §490-MM, sub-§11, as enacted by PL 2011, c. 653, §23 and affected by §33, is amended to read:

11. Mining. "Mining," "mining operation" or "mining activity" means activities, facilities or processes necessary for the extraction or removal of metallic minerals or overburden or for the preparation, washing, cleaning or other treatment of metallic minerals and includes the bulk sampling, advanced exploration, extraction or beneficiation of metallic minerals as well as waste storage and other stockpiles and reclamation activities, but does not include exploration. "Mining," "mining operation" or "mining activity" does not include calcium carbonate or limestone extraction or beneficiation to produce cement, provided that the limestone beneficiation does not involve chemical flotation.

Sec. 4. 38 MRSA §490-OO, sub-§4, ¶D, as amended by PL 2017, c. 142, §7, is further amended by amending the first blocked paragraph to read:

In determining compliance with this standard, the department shall require groundwater monitoring consistent with the standards established pursuant to section 490-QQ, subsection 3, except that facilities that crush and mechanically sort material excavated from an open-pit mining operation that has a permit in good standing under this article are exempt from the requirements of section 490-QQ as long as the crushing, sorting, storage, loading and unloading of the material takes place in a building or shelter that prevents rain, snow, snowmelt, ice melt and runoff from commingling with the material. However, nothing in this section is intended to regulate independently owned rock crushing and sorting facilities that are not part of a mining operation. Such facilities may accept metallic mineral ore from an open-pit mining operation with a permit in good standing under this article for crushing and sorting without performing groundwater monitoring pursuant to section 490-QQ as long as the crushing, sorting, storage, loading

DEPARTMENT OF AGRICULTURE, CONSERVATION AND FORESTRY

Maine Geological Survey

Robert G. Marvinney, State Geologist

CIRCULAR NO. 15-9

Title: *Overview of Maine Metallic Mineral Deposits and Mining*

Author: *Robert G. Marvinney*

Date: *April 2015*

Contents: 13 p. report

Recommended Citation: Marvinney, Robert G., 2015, Overview of Maine Metallic Mineral Deposits and Mining: Maine Geological Survey, MGS Circular 15-9, 13 p.

Table of Contents

1. Metallic Mineral Deposits in Maine	1
2. Why Are Sulfide Minerals of Great Concern?	1
3. Components of a Typical Metallic Mineral Mine	2
A. Mineral Extraction Site	3
B. Ore Concentrating Facilities.....	4
C. Mine Wastes	6
D. Water Treatment.....	8
4. Current and Past Metallic Mining Activity in Maine	10
5. Legacy Mines vs. Modern Mines	11
6. Surface Mining vs. Underground Mining.....	13
7. Mine Reclamation.....	13

Overview of Maine Metallic Mineral Deposits and Mining

Robert G. Marvinney, Maine State Geologist

1. Metallic Mineral Deposits in Maine

Maine's complex geology hosts numerous metallic mineral deposits, mostly associated with two broad belts of volcanic rocks and numerous granite intrusions (see [Metallic Mineral Deposits of Maine map](#)).

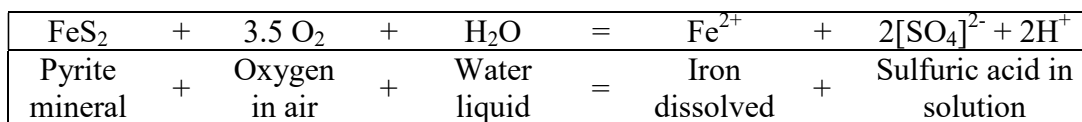
Notes to accompany the map:

- This is a map of mineral **occurrences**, not of future mines. Most occurrences shown on the map are of insufficient size to warrant further investigations.
- A few of the larger deposits have been characterized to some degree. None has been sufficiently characterized to determine whether or not it might be mined economically.
- Page 2 of the map lists Significant Known Metallic Mineral Deposits in Maine, including approximate tonnage and grade. Essential geologic details of size, shape, and grade would be determined by exploration and advanced exploration at each site.
- Most occurrences on the map are base metal (iron, copper, lead, zinc) sulfide deposits, some with precious metals (gold, silver).
- Some of the known deposits are oxide deposits, such as the Maple-Hovey mangiferous slates in Aroostook County.
- Maine shares much geology in common with New Brunswick. As has happened in New Brunswick, a comprehensive exploration program would lead to additional discoveries in Maine.

2. Why Are Sulfide Minerals of Great Concern?

- Sulfide minerals are compounds of sulfur with metals such as iron, copper, lead, or zinc.
- Upon exposure to the atmosphere and water, sulfide minerals weather, releasing metals and sulfuric acid. Both oxygen and water are necessary for reaction to occur.

For example:



- Other metals present in the minerals, such as arsenic, also go into solution.
- The grinding necessary to separate mineral components greatly increases surface area, accelerating the weathering process.
- Pyrite is one of the most common minerals in mine tailings. It has little economic value.

3. Components of a Typical Metallic Mineral Mine

A typical metallic mineral mine consists of a mineral extraction site which may be an open-pit mine or an underground mine. Ore extracted from the mine is sent through a mill complex where the minerals are crushed and separated. Waste minerals are usually managed at the mine site. The ore concentrate is sent off site for smelting to produce pure metal. The accompanying figure shows an example of how the various components could be arranged at a mine site. Details of the site design, specific to each mine, depend on many factors.



Components of a mine. Aerial view, showing ore extraction sites (pits), processing area (crusher, concentrator), waste storage areas (tailings and main waste), stockpiles, and water management facilities. This example is of a large open pit mine. (*Red Dog Mine, Alaska*)

A. Mineral Extraction Site

Open pit. This method of mining accesses the ore from the surface through a series of benches that allow vehicle access. This is the easiest method of mining, but it generates far more waste rock than does underground mining.



Photo: F.M. Beck, Inc.

Small open pit, Callahan Mine, Maine, 1972. The pit was 360 feet deep, about 500 feet across. 800,000 tons of ore were mined from this site from 1968-1972.

Open Pit Mining

- Ore accessed on surface
- Blasting
- Haul to crusher/mill

A photograph showing a massive explosion or blast in an open-pit mine, with a large plume of white smoke and dust rising from the center of the excavation.

A photograph showing a large piece of mining machinery, possibly a conveyor system or a large truck, operating within the terraced walls of an open-pit mine.

A photograph of a large yellow CAT 793 dump truck, a common vehicle used in open-pit mining, parked on a dirt road. A small white car is parked next to it for scale.

Source: U.S. EPA

Large open pit, Bingham Canyon Mine, Utah. The Bingham Canyon pit is the largest man-made excavation on earth, measuring more than 2.5 miles across and over 3,000 feet deep. This ore body measures 832 million tons, over 1,000 times larger than the Callahan deposit.

Underground workings. Deeper deposits are often mined using underground mining methods. While perhaps more expensive to operate, underground mining is more selective and results in far less waste rock than does surface mining, so environmental management costs may be less.

B. Ore Concentrating Facilities

The minerals of interest in an ore deposit may comprise 1% or less of the ore in low grade deposits, and up to 15-20% in the case of the richest deposits. Regardless of the grade of the ore, a large volume of uneconomical minerals must be separated from the valuable minerals through a combination of mechanical and chemical processes.

Rock crushers. A series of rotating ball mills and grinders mechanically reduce the size of the ore rock to a very fine particle size.

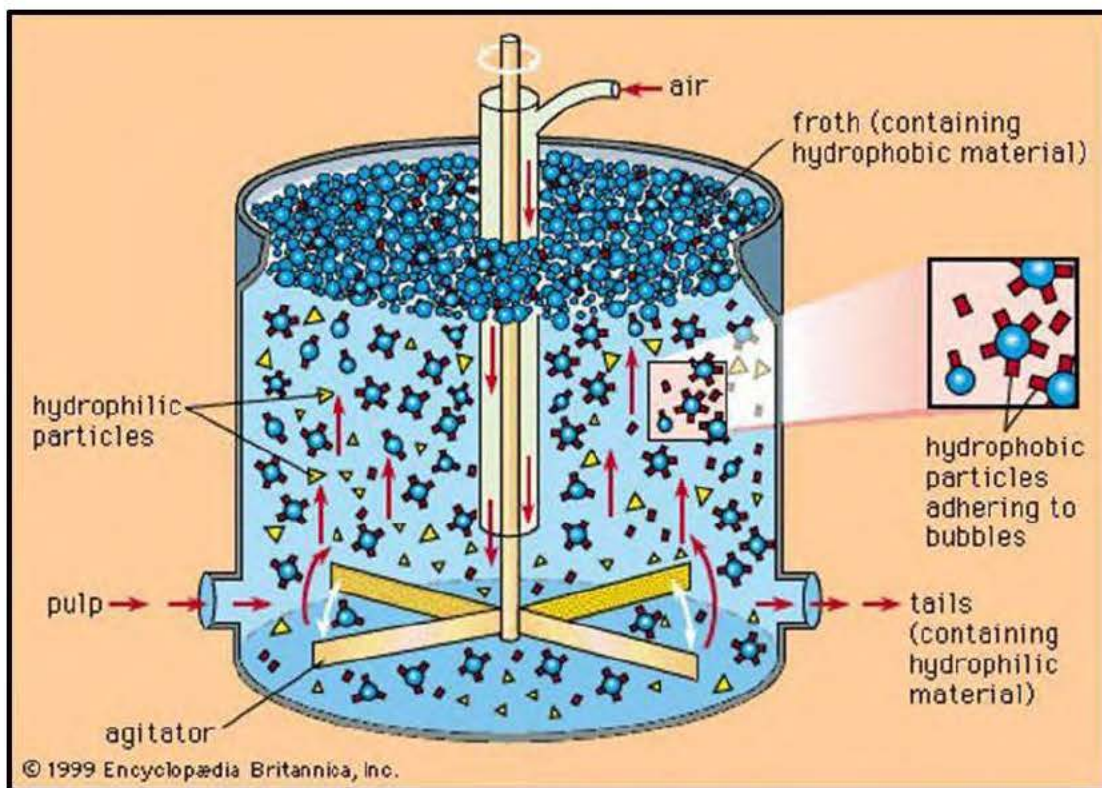
A series of mills with successively smaller steel balls reduce the grain size such that each grain is of a single mineral – this often requires grinding to a fine powder depending on the natural properties of the ore.

Water may be added during this process to facilitate the next phase in ore concentrating.



Source: U.S. EPA

Rotating ball mill. Used for grinding ore to a fine particle size.



Flotation cell. The pulp of ground ore and water is introduced to the cell along with chemicals. Air is injected into the cell to create bubbles and an agitator mixes the pulp. The ore minerals adhere to the bubbles and float to the top as a froth, which is scraped off. Unwanted minerals sink to the bottom of the cell as 'tailings.'

Concentrators. After grinding, the ore minerals must be separated from the uneconomical minerals. A physical way of concentrating the ore minerals is through a series of flotation cells, illustrated in this diagram.

- The ore concentrate is dried and shipped to a smelter for final processing.
- Tailings are eventually stored on site in a tailings storage facility.
- Chemicals used for concentrating may include organic compounds, cyanide, copper sulfate, zinc sulfate, oils, alcohol, lime, acids or other chemicals, depending on the ore composition.
- Management of tailings and appropriate handling of chemicals are major environmental concerns at a mine site.

Leaching. Alternatively, metals may be extracted from the crushed and ground ore by leaching with chemicals. Gold ore is often processed this way by leaching with cyanide. While this process was often done in an open environment (heap leaching), it is now more commonly done in a closed environment (vat leaching). Heap leaching is prohibited in Maine by law.

C. Mine Wastes

Among the greatest environmental concerns at a mine site are the mine wastes, which occur in two forms, waste rock and tailings.

Waste rock. In many mines, considerable rock must be removed to access the ore.

- While uneconomical to mill, this waste rock often contains enough sulfide minerals to generate acid on exposure to the atmosphere.
- The surface area is increased through the mining process, thereby increasing exposure of minerals to the atmosphere.
- Open pit mines generate much more waste rock than do underground mines.
- Management techniques include separating non-acid-generating rocks from acid-generating rocks, and capping the waste or backfilling waste rock into the open pit or underground workings.



Waste rock pile. Large slab in right foreground is 3 feet across. (*Restigouche Mine, northern New Brunswick.*)

Tailings. Tailings are the most significant environmental concern at any mine site. Reasons for this concern include:

- A large volume of crushed ore sent through the mill ends up as tailings. For example, the average grade of copper ore being mined in the world is about 1%, meaning that 99% of the material sent through the mill ends up as tailings.
- Fine crushing in the mill increases the surface area of the minerals exponentially, allowing more opportunity for chemical reaction with water and oxygen, which means more opportunity for sulfide minerals to generate acid.

- Several recent, high-profile tailings dam failures underscore the need to ensure that these facilities are designed and built to high standards.



Tailings facility, Brunswick No. 12 Mine, northeastern New Brunswick. The mine began operating in 1964. When operating, Brunswick No. 12 was the largest underground zinc mine in the world. The tailings impoundment, holding about 100 million tons of waste (mostly pyrite), covers 1.3 square miles. A water treatment plant to the right of the ponds must operate in perpetuity. The long axis of the tailings basin measures 6,500 feet.

Isolating residual sulfide minerals from water or oxygen (or both) inhibits acid-generating chemical reactions. Some methods used to address environmental concerns from tailings:

- Install underliners to prevent infiltration of leachate into groundwater.
- Cap dry tailings with impermeable materials.
- Establish permanent wet cover to limit exposure to the atmosphere.
- Mix with paste to backfill mine.
- Pre-treat tailings with buffering compounds to inhibit chemical reactions.

D. Water Treatment

At modern mines, particularly at those extracting sulfide minerals, water treatment systems are employed to ensure that surface and groundwater released from the site meet environmental standards. Such systems may be necessary while the mine is active and after mine closure. A treatment system may be an active system such as a water treatment plant that adds buffering agents to acidic water to increase pH and precipitate metals. Or a treatment system may be passive, such as one that uses a constructed wetland system to treat metal-bearing water.

Treatment plant concerns include:

- Cost to run and maintain.
- Detection and response protocols for any unacceptable water quality that may occur.
- Proper disposal of sludge generated through the treatment process.
- How long a treatment plant may need to run after the mine is closed, to ensure that waste water meets required quality standards.



Source: XStrata

Water management, large open pit. Example of water management system with a collection pond in which pH is buffered (upper left) before being processed through an active water treatment facility (lower center). At east edge of the Brunswick No. 12 mine complex (see previous map), Bathurst, New Brunswick.

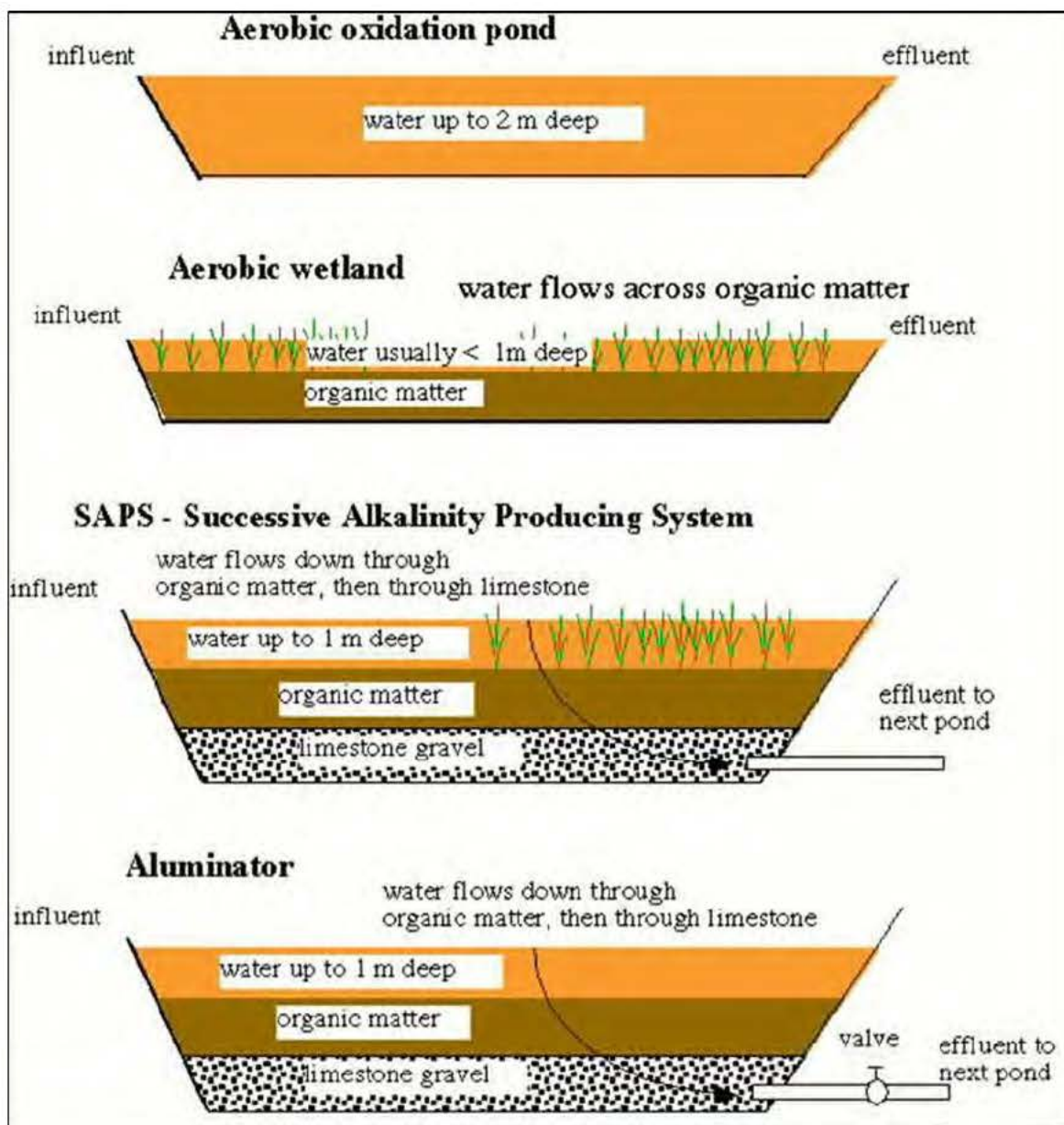
In modern mine construction, mined ore may be stored under cover to limit water exposure, and waste rock may be stored on lined pads so that all water which contacts it may be collected, monitored, tested, and treated before being released to the environment. Management of precipitation and storm water is also an important consideration to minimize the amount of water that comes in contact with mined rock.



Source: Lundin Mining

Water management, modern underground mine. Trucks come to the surface (at 14), and dump coarse ore in enclosed storage area (9). Waste rock is kept in an "environmentally secure," lined storage facility (11), after which it is processed through the backfill plant (13) to be mixed with cement and returned to the underground mine. Ore is trucked off-site to the Humbolt processing facility. Every truck is washed (7) before leaving the site. "Non-contact" water (precipitation) is collected separately and infiltrates at several basins on the property. "Contact" water, including water used in the Truck Wash, is collected in large basins (10), processed through the water treatment plant (6) and returned to the ground through a large infiltration system (4). The surface operations site is about 2300 feet across. (*Eagle Mine, Michigan, which began operations in September, 2014.*)

Passive water treatment. Passive treatment systems may consist of a series of constructed ponds and constructed wetlands designed to alter water that flows through it by gravity, without pumping. Biological processes and layering of materials change the chemistry of water that flows through the passive system. The number of ponds or wetlands and what they do depends on the chemistry of the water flowing in.



Source: Bucknell University/Carl S. Kirby

Passive water treatment. Each pond or constructed wetland in these examples addresses a different aspect of the mine water chemistry. Ponds and wetlands may be employed in series to sequentially adjust the water chemistry.

4. Current and Past Metallic Mining Activity in Maine

While there are numerous metallic mineral deposits known throughout the State, and there has been sporadic exploration activity in the past several years, there are currently no metallic mineral mines in operation today.

The only extraction of earth materials occurring today are rock quarrying and excavation of surficial materials, such as sand and gravel, from pits. Hundreds of these quarries and pits are

regulated by the Maine Department of Environmental Protection under laws and rules separate from those regarding metallic metal mining.

Dozens of small metallic mineral mines, primarily from the late 1800's to early 1900's are scattered across Maine. Among the commodities produced were silver, gold, iron, lead, copper, and zinc, with lesser amounts of nickel, tin, lithium, beryllium, cesium, manganese, sulfur, and graphite.

The Callahan Mine in Brooksville (1968-1972) and the Kerramerican Mine in Blue Hill (1972-1977) are classified as legacy mines, in operation before the Clean Water Act of 1972, and before the Maine DEP was created in 1972. For a brief review of these two sites, see [Legacy Mines in Maine](#) (MGS Circular 15-10, 2015).

5. Legacy Mines vs. Modern Mines

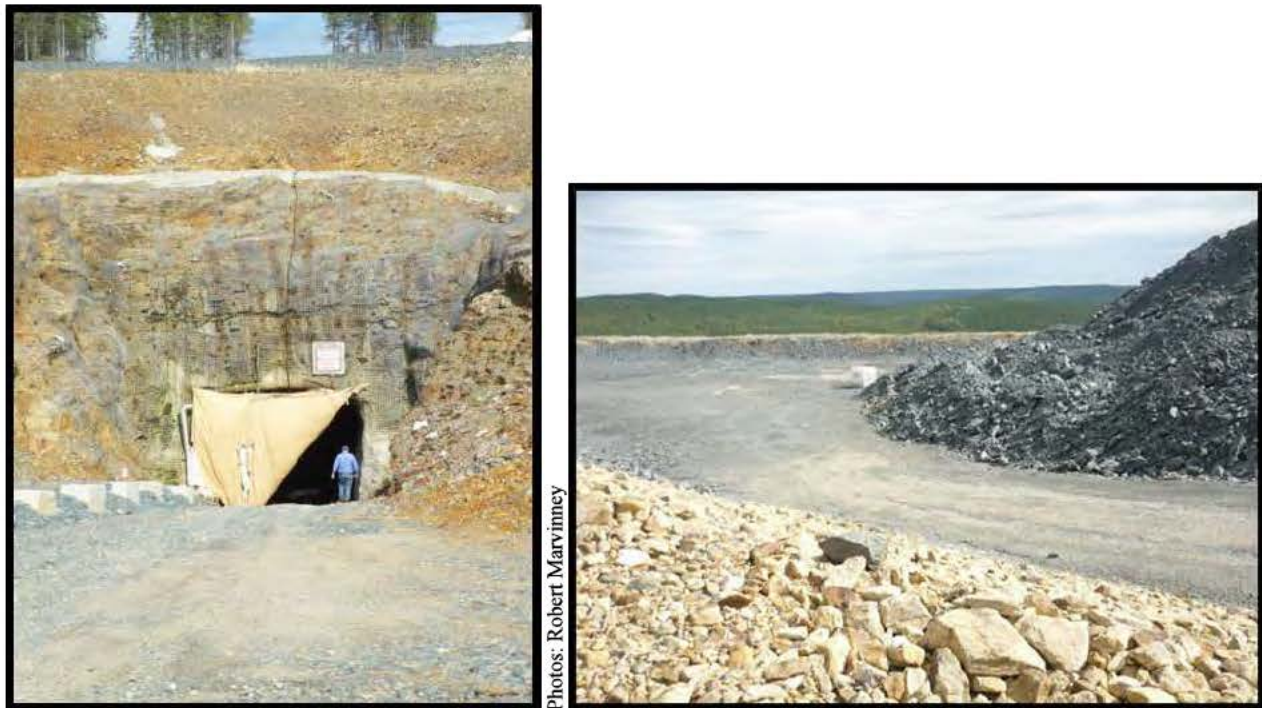
Maine's two largest mine sites, the Callahan Mine and the Kerramerican Mine, are legacy mines. They were planned, permitted, and active before regulations were established to address the environmental impacts of mine development and mine waste. Many legacy mine sites require long-term, expensive environmental remediation (e.g. Brunswick No. 12). Some mines permitted under modern regulations have had significant failures of systems designed to protect the environment. But acceptable standards and requirements have changed over time.

Examples of some differences in best practices between legacy mines and modern mines:

Legacy Mine	Modern Mine
No baseline monitoring before mine construction.	Baseline monitoring of water, air, and biological resources.
Reclamation considered after the mine is closed.	Reclamation considered/tested before mining begins.
Waste rock unsegregated.	Waste rock separated into non-acid generating and acid-generating.
Acid-generating waste rock used for construction around the mine site.	Acid-generating waste rock isolated: back-filled, capped.
Waste rock untreated.	Waste rock chemically tested, interlayered with acid-neutralizing materials.
Tailings dam commonly built from tailings.	Tailings dam built from stable geologic materials.
No liners between mine wastes and the environment.	Liners for waste rock and tailings impoundments.
No water treatment.	Comprehensive water treatment systems.



Tailings dam at a legacy mine. Left picture looks directly down the slope of the dam, built from tailings, showing significant gulley erosion. Right picture shows the top of the dam structure, with rock armoring along the left and stabilized tailings to the right. (*Brunswick No. 12 mine, New Brunswick.*)



Waste rock management at a modern mine. Halfinile Mine, New Brunswick, opened in 2012. Entrance to underground mine on left. Pad for potentially acid-generating waste rock on right. Every 1,000 tons of waste rock (about 10,000 cubic feet) is tested for acid-generating potential. Waste rock with a high potential to generate acid will be returned to backfill the mine as mining progresses.

6. Surface Mining vs. Underground Mining

The decision to develop a mineral deposit by open-pit or underground methods depends on many factors, generally related to economics, engineering, environmental impact, and safety. The combination of all these factors and more drives the decision on mining method. Here are some factors and how they might favor each method.

Factor	Open Pit	Underground
Depth of the ore body	Shallow	Deep
Shape of the ore body	Bowl-shaped	Tabular or complicated
Inclination of the ore body	Gentle	Steep
Grade of ore	Low	High
Waste volume	High	Moderate
Production cost	Low	High

7. Mine Reclamation

Modern mines are planned with reclamation in mind. At legacy mine sites in Maine and many around the country, mine reclamation was only considered near the end of active mining if at all. Most U.S. and Canadian jurisdictions now require a comprehensive reclamation plan and funding assurances to be approved at the permitting stage. A typical reclamation includes:

- Stockpiling original soil and overburden to be replaced during reclamation.
- Backfilling the pit or underground excavation.
- Neutralizing acid-generating waste rock.
- Recontouring the ground surface and drainage to approximate pre-mining conditions.
- Establishing native vegetation and wetlands according to intended land use.



Reclamation at a modern sulfide mine. Left: Active pit during operations. Right: Mine site after completion of reclamation in 1999. (*Flambeau Mine, Wisconsin, permitted in 1991.*)

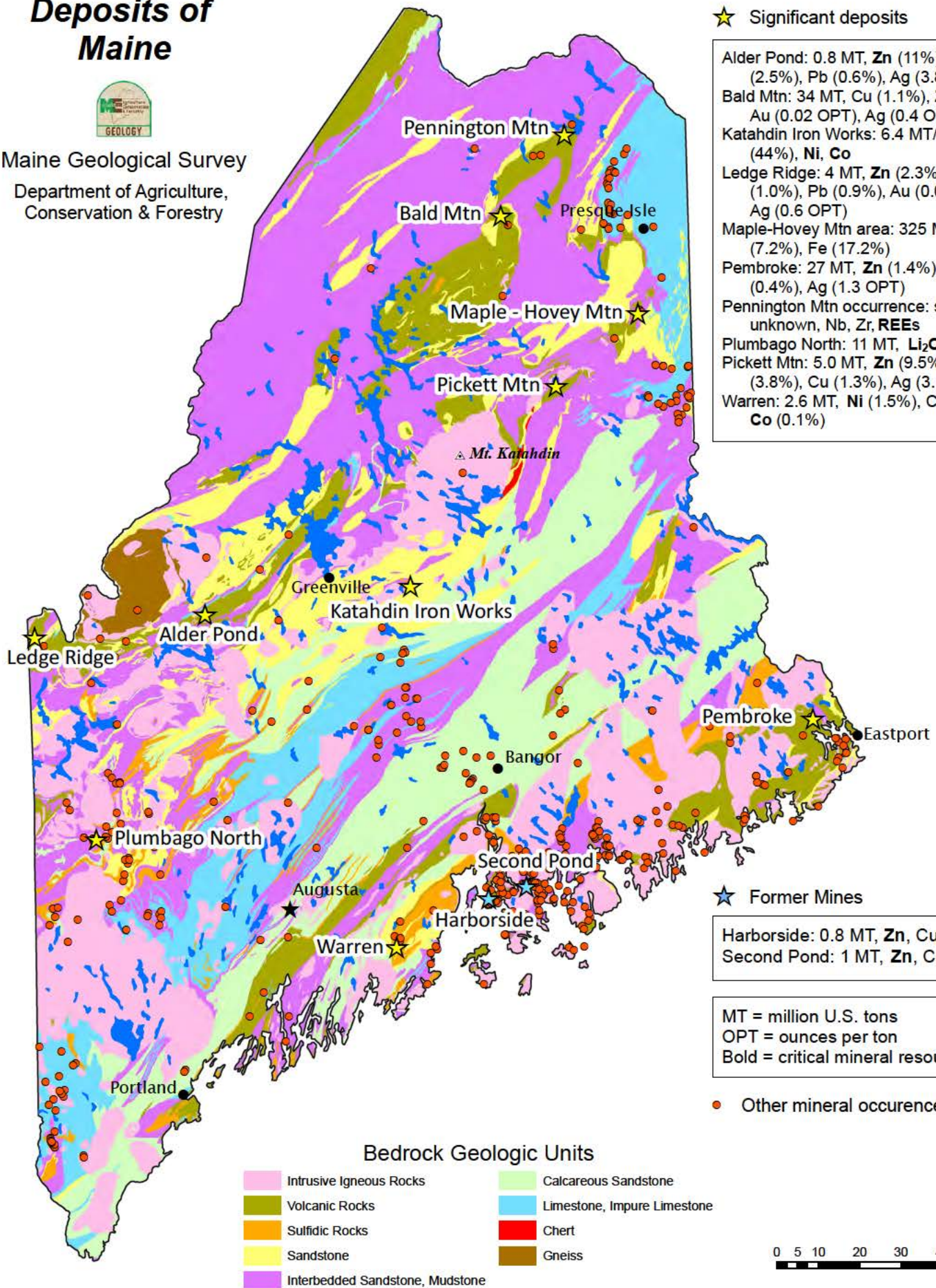


Source: Wisconsin Dept. of Natural Resources

Metallic Mineral Deposits of Maine



Maine Geological Survey
Department of Agriculture,
Conservation & Forestry



★ Significant deposits

Alder Pond: 0.8 MT, **Zn** (11%), Cu (2.5%), Pb (0.6%), Ag (3.8 OPT)
Bald Mtn: 34 MT, Cu (1.1%), **Zn** (1.0%), Au (0.02 OPT), Ag (0.4 OPT)
Katahdin Iron Works: 6.4 MT/100 ft, Fe (44%), **Ni, Co**
Ledge Ridge: 4 MT, **Zn** (2.3%), Cu (1.0%), Pb (0.9%), Au (0.02 OPT), Ag (0.6 OPT)
Maple-Hovey Mtn area: 325 MT, **Mn** (7.2%), Fe (17.2%)
Pembroke: 27 MT, **Zn** (1.4%), Pb (0.4%), Ag (1.3 OPT)
Pennington Mtn occurrence: size unknown, Nb, Zr, **REEs**
Plumbago North: 11 MT, **Li₂O** (4.68%)
Pickett Mtn: 5.0 MT, **Zn** (9.5%), Pb (3.8%), Cu (1.3%), Ag (3.1 OPT)
Warren: 2.6 MT, **Ni** (1.5%), Cu (0.7%), **Co** (0.1%)

★ Former Mines

Harborside: 0.8 MT, **Zn, Cu, Pb, Ag**
Second Pond: 1 MT, **Zn, Cu, Pb**

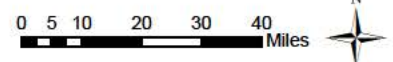
MT = million U.S. tons
OPT = ounces per ton
Bold = critical mineral resource

● Other mineral occurrences

Bedrock Geologic Units

Intrusive Igneous Rocks	Calcareous Sandstone
Volcanic Rocks	Limestone, Impure Limestone
Sulfidic Rocks	Chert
Sandstone	Gneiss
Interbedded Sandstone, Mudstone	

All units include metamorphic equivalents



April 11, 2023

<https://www.maine.gov/dacf/mgs/explore/mining/metallic.htm>

Significant Known Metallic Mineral Occurrences in Maine

Approximate tonnage and grade are listed, if known.¹

Commodities on the 2022 federal Critical Minerals list are shown in **bold print**.

*Alder Pond - 3.4 million tons (MT) massive sulfide, of which 0.8 MT grades 2-3% copper, 9-17% **zinc**, 0.5-1.0% lead, and 3-6 oz/ton silver. Advanced exploration permit issued by DEP to BHP mining in late 1980s for underground decline. BHP did not pursue mining operation. There is a current exploration lease on State Land. (*Lower Enchanted Twp, Somerset Co.*)

Bald Mountain - 33.8 MT total, including 30 MT massive sulfide, 2.4 MT copper-rich supergene zone and 1.4 MT gold-rich gossan cap. Average grade of massive body 1% copper, 1% **zinc**, 0.02 oz/ton gold, 0.4 oz/ton silver. Drilled extensively in 1980s, with over 400 holes. Mining application submitted in 1997 under 1991 rules; withdrawn by applicant, citing low metal prices. (*T12R8 WELS, Aroostook Co.*)

*Harborside (or Callahan Mine) - 0.8 MT of massive sulfide ore mined in 1968-72, averaging 5.5% **zinc**, 1.3% copper, 0.5% lead, and 0.5 oz/ton silver. Mine closed in 1972 according to existing laws and current best practices. Now listed as Superfund site, with State of Maine as one of the responsible parties. (*Brooksville, Hancock Co.*)

Katahdin Iron Works (or Ore Mountain) - 6.4 MT per 100 feet depth (extent unknown); massive iron sulfide with gossan. 44% iron; copper, **nickel**, **cobalt** less than 0.5%. Historical surface mining of gossan in 1800s. (*Katahdin Iron Works Twp, Piscataquis Co.*)

Ledge Ridge - 4 MT massive sulfide, grading 2% **zinc**, 1% copper, 1% lead, 0.02 oz/ton gold, and 0.6 oz/ton silver. (*Parmachenee Twp, Oxford Co.*)

Maple-Hovey deposits - 325 MT, stratabound ore grading 7.2% **manganese** and 17.2% iron. Not a sulfide ore. Extensive investigation by U.S. Bureau of Mines and U.S. Geological Survey in 1950s-60s. (*across several townships, eastern Aroostook Co.*)

Pembroke - 27 MT massive sulfide, grading 1% **zinc**, 0.4% lead, and 1 oz/ton silver. Historical surface mine for lead in early 1900s at Big Hill. Further exploration, including geophysical surveys and drilling was done in 2007-2008 and in 2021. (*Pembroke, Washington Co.*)

Pennington Mountain occurrence - tonnage and grade unknown. Geophysical exploration and surface sampling by the USGS and Maine Geological Survey identified an area of highly mineralized rock enriched in Nb, Zr, and the **rare earth elements** (REE). (*T15 R6 WELS*)

Plumbago North - **Lithium**-bearing pegmatite with large spodumene crystals. Preliminary evaluation suggests 11 million U.S. tons with Li₂O content of 4.68%. (*Newry, Oxford Co.*)

Pickett Mountain deposit - Indicated and inferred resource of 5.0 million tons massive sulfide, grading 9.5% **zinc**, 3.8% lead, 1.3% copper, and 3.1 oz/ton silver. There is a current LUPC rezoning application to allow mining. (*T6R6 WELS, Penobscot Co.*)

*Second Pond (or Blue Hill Mine) - 1 MT of massive sulfide ore mined in 1972-1977, averaging 6.9% **zinc** and 0.9% copper with minor lead and silver. Reserves of about 1.4 MT at 8% **zinc** remain at depth. (*Blue Hill, Hancock Co.*)

Warren - 2.6 MT massive sulfide, grading 1.5% **nickel**, 0.7% copper, 0.1% **cobalt**. A mining proposal in the late 1980s was withdrawn after passage of a town ordinance. (*Warren, Knox Co.*)

* Asterisk indicates a deposit partly on State-owned land. Others are privately owned.

¹ Disclaimer: This document contains historical information or estimates from various sources. It is not intended to comply with Canadian National Instrument NI 43-101 disclosure standards for resource or reserve estimates.

An Act to Amend the State Tax Laws

Be it enacted by the People of the State of Maine as follows:

Sec. 1. 36 MRSA §1760, sub-§115, is enacted to read:

115. Products used in commercial mining. Sales to a mining company for use in mining in a mining area, as those terms are defined in defined in section 2855.

Sec. 2. 36 MRSA §2854, is amended to read:

§2854. Excise tax in lieu of property taxes

1. Annual excise tax. A mining company shall pay to the State Tax Assessor, for the use set forth in this chapter, an annual excise tax for the privilege of conducting mining within the State.

2. Property tax exemption. ~~The excise tax imposed by this chapter shall be in lieu of all property taxes on or with respect to mining property, except for the real property taxes on the following:~~

~~A. Buildings, excluding fixtures and equipment; and~~

~~B. Land, excluding the value of minerals or mineral rights.~~

Sec. 3. 36 MRSA §2855, sub-§2, is repealed.

Sec. 4. 36 MRSA §2855, sub-§3, is repealed.

Sec. 5. 36 MRSA §2855, sub-§4, is repealed.

Sec. 6. 36 MRSA §2855, sub-§5, is amended to read:

5. Gross proceeds. "Gross proceeds" means a mining company's federal gross income from mining with respect to mining in the State ~~a mine site~~, as defined in Section 613 of the code.

Sec. 7. 36 MRSA §2855, sub-§6, is repealed.

Sec. 8. 36 MRSA §2855, sub-§7, is amended to read:

7. Mine site Mining area. "Mine site Mining area" has the same meaning as in Title 38, section 490-MM, subsection 12 ~~means the entire contiguous area owned, leased or otherwise subject to the possessory control of a mining company within which mining or activities incidental thereto, occur or may reasonably be expected to occur.~~

~~A. The mine site includes, without limitation, the contiguous area in which are located or reasonably may be expected to be located: The excavation; tailings, waste rock or overburden storage areas; mills; conveyors; concentrators; crushers; screens; pipes; canals; dams; ponds; lagoons; ditches; roads; access roads; utility facilities or equipment; pollution control facilities; railroad tracks or sidings; administrative or other buildings; or improvements, structures, rights of way or easements appurtenant or related to any of the foregoing.~~

~~B. The mine site shall be determined according to section 2865.~~

Sec. 9. 36 MRSA §2855, sub-§9, is amended to read:

9. Minerals. "Minerals" means all naturally-occurring metallic minerals as defined in Title 38, section 490-MM, subsection 8.

Sec. 10. 36 MRSA §2855, sub-§10, is amended to read:

10. Mining. ~~The term "Mining"~~ The term "Mining" has the same meaning as in Title 38, section 490-MM, subsection 11, except that activity described in Title 38, section 490-MM, subsection 11, paragraph D is mining for the purposes of this chapter following meanings.

~~A. "Mining" means:~~

~~(1) The extraction of minerals from the ground; or~~

~~(2) Processes used in the separation or extraction of the mineral or minerals from other material from the mine or other natural deposit, including, but not limited to: Crushing; grinding; beneficiation by concentration (gravity, flotation, amalgamation, electrostatic or magnetic); cyanidation; leaching; crystallization; or precipitation or processes substantially equivalent to or necessary or incidental to any of the foregoing; but not including electrolytic deposition; roasting; thermal or electric smelting; or refining.~~

~~B. Mining does not include exploratory activity.~~

Sec. 11. 36 MRSA §2855, sub-§12, is repealed.

Sec. 12. 36 MRSA §2855, sub-§13, is repealed.

Sec. 13. 36 MRSA §2855, sub-§14, is repealed.

Sec. 14. 36 MRSA §2855, sub-§16, is repealed.

Sec. 15. 36 MRSA §2855, sub-§17, is repealed.

Sec. 16. 36 MRSA §2856, is amended to read:

The amount of the annual excise tax on a mining company ~~is shall be the sum of the excise taxes due on each mine site. The excise tax due on each mine site shall be the greater of the following:~~

1. Tax on facilities and equipment. ~~The value of facilities and equipment multiplied by 0.005; or~~

2. Tax on gross proceeds. The gross proceeds multiplied by 0.35:

~~A. If net proceeds are greater than zero, the greater of the following:~~

~~(1) 0.009; or~~

~~(2) A number determined by subtracting from 0.045 the quotient obtained by dividing:~~

~~(a) Gross proceeds, by~~

~~(b) Net proceeds multiplied by 100.~~

~~B. If net proceeds are equal to or less than zero, then 0.009.~~

Sec. 17. 36 MRSA §2857, is amended to read:

§2857. Returns

1. Annual return. A mining company shall file, on or before the date the mining company's state income tax return is due to be filed, an annual return on a form specified by the State Tax Assessor for each tax year.

2. Form and contents. The return shall indicate:

A. The tax due;

B. The estimated tax payments made; and

~~C. Credits provided under section 2858; and~~

D. Information relating to ~~the value of facilities and equipment~~, gross proceeds, ~~net proceeds~~ or other relevant information as the State Tax Assessor may ~~by rule~~ require.

3. Payments. A mining company shall pay the tax due, less estimated tax payments ~~and credits~~, at the time its annual return is due without extensions.

4. Extensions. The State Tax Assessor may grant a reasonable extension of time for filing a return, declaration, statement or other document or payment of tax or estimated tax required by this chapter on such terms and conditions as he may require. The extension may not exceed 8 months.

5. Computation. ~~In computing a mining company's tax, gross proceeds and net proceeds shall be computed as if each mine site were a separate taxpayer.~~ The State Tax Assessor may distribute, apportion or allocate on a reasonable basis gross proceeds, deductions, credits or allowances between or among mining companies ~~or mine sites~~, if such distribution, apportionment or allocation is necessary to prevent evasion of taxes imposed by this chapter, or to reflect clearly the gross ~~or net~~ proceeds of any mining company ~~or mine site~~.

Sec. 18. 36 MRSA §2858, is repealed.

Sec. 19. 36 MRSA §2861, is repealed.

Sec. 20. 36 MRSA §2862, is amended to read:

§2862. Distribution of remaining revenues

Excise tax revenues ~~remaining after municipal reimbursement and payments into the Mining Oversight Fund under section 2861 must~~ shall be deposited ~~used as follows:~~ in the Mining Excise Tax Fund.

1. First year. ~~In the first year following the commencement of mining, revenues shall be distributed as follows:~~

- A. ~~20% to the General Fund; and~~
- B. ~~80% to the Mining Impact Assistance Fund.~~

~~**2. Second year.** In the 2nd year following the commencement of mining, revenues shall be distributed as follows:~~

- A. ~~15% to the General Fund;~~
- B. ~~10% to the Mining Excise Tax Trust Fund; and~~
- C. ~~75% to the Mining Impact Assistance Fund.~~

~~**3. Third year.** In the 3rd year following the commencement of mining, revenues shall be distributed as follows:~~

- A. ~~20% to the General Fund;~~
- B. ~~15% to the Mining Excise Tax Trust Fund; and~~
- C. ~~65% to the Mining Impact Assistance Fund.~~

~~**4. Fourth year.** In the 4th year following the commencement of mining, revenues shall be distributed as follows:~~

- A. ~~25% to the General Fund;~~
- B. ~~25% to the Mining Excise Tax Trust Fund; and~~
- C. ~~50% to the Mining Impact Assistance Fund.~~

~~**5. Fifth year.** In the 5th year following the commencement of mining, revenues shall be distributed as follows:~~

- A. ~~25% to the General Fund;~~
- B. ~~30% to the Mining Excise Tax Trust Fund; and~~
- C. ~~45% to the Mining Impact Assistance Fund.~~

~~**6. Subsequent years.** In the years following the 5th year after the commencement of mining, revenues shall be distributed as follows:~~

- A. ~~30% to the General Fund;~~
- B. ~~60% to the Mining Excise Tax Trust Fund; and~~
- C. ~~10% to the Mining Impact Assistance Fund.~~

~~**7. Changes in mining activity.** If, prior to the commencement of extraction of minerals for sale, a mining company ceases construction of a mine site, any taxes due during the period of construction cessation shall be distributed according to the most recently applicable provision of this section.~~

~~**8. Adjustments to distribution formula.** The distribution provisions of this section shall be altered as follows:~~

- A. ~~Amounts paid in accordance with section 2858, subsection 3, in each year shall be deposited in the Mining Impact Assistance Fund.~~

~~B.~~

~~C. Funds allocated to the Mining Excise Tax Trust Fund which would raise the fund above its limit shall be redistributed as follows:~~

~~(1) 33 1/3% to the Mining Impact Assistance Fund; and~~

~~(2) 66 2/3% to the General Fund.~~

~~D.~~

Sec. 21. 36 MRSA §2863, is repealed.

Sec. 22. 36 MRSA §2865, is repealed.

Sec. 23. 36 MRSA §2866, is amended to read:

§2866. Mining Oversight Excise Tax Fund

1. Creation of fund. The Mining ~~Oversight~~ Excise Tax Fund, referred to in this section as "the fund," is established as a nonlapsing fund ~~administered by the Mining Excise Tax Trust Fund Board of Trustees, referred to in this section as "the board."~~ The board shall oversee and authorize expenditures from the fund.

2. Investment. The Treasurer of State shall invest the money in the fund as authorized by Title 5, section 138.

3. Scope of corrective action.

4. Uses of fund. Money from the fund may be used only to fund oversight of mining activity as provided in the mining rules adopted by the Department of Environmental Protection under the Maine Metallic Mineral Mining Act, and expenses for site oversight. Expenses for site oversight include, but are not limited to, expenses of the department or the department's agents or contractors related to site oversight, including costs of personnel and administrative costs and expenses necessary to administer, review and monitor corrective action. The Governor shall propose uses for the fund, consistent with section 2853, as part of the first biennial budget submitted after revenue has been deposited in the Mining Excise Tax Fund.

5. Restrictions and liability.

6. Disposition of fund.

7. Depletion of fund.