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Metallic Mineral Mining in Maine

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ABSTRACT

In 2012 the Maine State Legislature passed a bill directing the Maine Department of Environmental Protection (DEP) to rewrite the regulations governing metallic mineral mining in Maine. The bill was introduced after pressure from Maine's largest private land owner and timber company, J.D. Irving, Limited. The company has a lucrative mineral deposit on one of their landholdings in northern Maine and is interested in pursuing a mining development project. The bill aimed to streamline the regulatory framework around mining operations and make the permitting process more conducive to mineral development throughout the state. The 2012 Maine Metallic Mineral Mining Act shifts regulatory authority solely to the DEP and changes the permitting process and regulations governing metallic mineral mining. The Maine DEP and Land Use Planning Commission are currently in the process of rewriting these relevant rules to reflect a streamlined permitting process for metal mining development applications.

This study examines the economic, environmental, social and political implications of changes to mining regulations and increased mineral development. I examine the history and legacy of metal mining in Maine and compare two mining projects in other states to the proposed Bald Mountain Mine in Aroostook County, Maine to provide insight into the potential future impacts of open-pit mining in the state. A comprehensive overview of the political process and stakeholders involved in the passage of the new mining law highlights the specific benefits and concerns that would be associated with the reintroduction of metal mining as an industry in the state of Maine. This study also includes an analysis of the specific regulatory changes pursuant to the new 2012 mining law that allow for increased mining opportunities in the state. Finally, I discuss the critical lessons and issues around mining in Maine focused on water quality, regional economic impact, corporate accountability and remediation. If metal mining has a future in Maine, it must combine strong and clear environmental regulations with specific mechanisms for community involvement to ensure better overall outcomes. If the final rules governing metal mining do not reflect these two conditions, mining should not be pursued in Maine.

ACKNOWLEDGEMENTS

I would like to thank many individuals for the immeasurable assistance and support while writing this thesis. I was fortunate to be able to attend a number of conferences, public hearings, and informational forums to meet and interview a number of key stakeholders in Aroostook County and experts in mining and geology. These people helped provide ideas and specific information for my research. I also want to thank the many fellow students and friends who aided in the entire thesis process, especially Sally Holmes ’13 and Michael Stephens ’13 for their continuous motivation and support in our shared Diamond study carrel. My parents also deserve considerable thanks for helping me keep up to date on the mining discourse in Aroostook County and allowing me to come home for valuable interviews, public forums, and conferences. The Dean’s Special Projects Fund provided support which allowed me to travel to these events and interviews. Thank you to my readers, F. Russell Cole, Oak Professor of Biological Sciences, and Gail Carlson, Assistant Professor of Environmental Studies, for their encouragement and constructive feedback on my thesis. Finally, I would especially like to thank my advisor and principle reader Philip Nyhus, Associate Professor of Environmental Studies for his immeasurable support throughout the entire process. His constant presence and willingness to answer my questions, no matter how busy he was, was absolutely instrumental to my success with this project.

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ACRONYMS AND ABBREVIATIONS

AMD	Acid Mine Drainage
APP	Aroostook Partnership for Progress
BEP	Maine Board of Environmental Protection
CEAA	Canadian Environmental Assessment Act
CWA	US Clean Water Act
DEC	Alaska Department of Environmental Conservation
DEP	Maine Department of Environmental Protection
DMTS	DeLong Mountain Regional Transportation System
DNR	Alaska Department of Natural Resources
EA	Environmental Assessment
EPA	US Environmental Protection Agency
LEAD	Leaders Encouraging Aroostook Development
LUPC	Land Use Planning Commission
LURC	Land Use Regulatory Commission
MCV	Maine Conservation Voters
MRSA	Maine Revised Statutes
MOU	Memorandum of Understanding
NEAA	Newfoundland Environmental Assessment Act
NMDC	Northern Maine Development Commission
NPDES	National Pollutant Discharge Elimination System
NRCM	Natural Resources Council of Maine
TRI	EPA Toxic Release Inventory
UT	Maine's Unorganized Territory
VBNC	Voisey's bay Nickel Company, Limited

INTRODUCTION

Maine has had a consistent history of general mining since the 1800s, but metallic mineral mining has not been a major part of industrial mining in the state (Lepage et al. 1990, Beck 2012). There has been no metal mining in Maine since 1977 (Maine Geological Survey 2005). However, metallic mineral mining became a major point of contention in Maine environmental policy during the spring of 2012. Rising metallic mineral prices generated an interest by J.D. Irving, Limited (Irving) [1] to look in to the process for developing a metallic mineral mining operation on one of their land holdings near the town of Ashland in Aroostook County. The Bald Mountain massive sulfide deposit falls on Irving Land in the Unorganized Territory of the state in T12 R8. The deposit was discovered by J.S. Cummings in 1997, and contains high concentrations of copper, zinc, gold, and silver (Cummings 2012).

Irving representatives spoke with Representative John Martin, a Democrat from Eagle Lake, and asked him to sponsor legislation to update the state metallic mineral mining rules to make the permitting and approval process more conducive for development. Representative Martin drafted and sponsored LD 1853, "An Act to Improve Environmental Oversight and Streamline Permitting for Mining in Maine". The bill was introduced at the very end of the Second Regular Session of the 125th Maine Legislature. Bills are typically not introduced during the final weeks of a session, so the entire legislative process was unusually rushed and many criticized the proposal for being too last minute (Abello 2012, Bartovics 2012, Edwards 2012, Fields 2012, Joseph 2012, Kleiner 2012, Maine People's Alliance 2012).

The bill generated a lot of attention and controversy, but was ultimately passed into law as the Maine Metallic Mineral Mining Act. The law directs the Maine Department of Environmental Protection (DEP) to rewrite the state's 20 year old mining rules governing metallic mineral mining. The previous rules, developed in 1991, involved permit oversight from both the DEP and the Land Use Planning Commission (LUPC) and were strict enough to serve as a "*de facto* ban on mineral mining in the state of Maine" according to J.S.

[1] J.D. Irving, Limited is the branch of Irving companies dealing with forestry, agricultural, and railroad operations. Irving Oil, Limited is a separate entity started by K.C. Irving. References to Irving throughout this paper are exclusively referring to J.D. Irving, Limited.

Cummings, the geologist who discovered the Bald Mountain deposit in 1977 (Cummings 2012).

The new law is an attempt to encourage the development of metallic mineral mines in the state of Maine. It shifts regulatory oversight from both the state DEP and LUPC to just the state DEP and directs the DEP to rewrite the rules governing all aspects of permitting, approving, monitoring, and closure of metal mining projects. The state DEP is currently in the process of rewriting the rules and is expected to release a final draft in 2014.

LUPC is also directed to rewrite their rezoning rules under the new Maine Metallic Mineral Mining Act. Under the new framework, a mine developer only has to work with LUPC if their proposed mining project falls within a LUPC regulatory zone in the designated Unorganized Territory (UT) of the state. If the land parcel is within the UT, project developers must submit a LUPC rezoning application to change the zoning designation of the land parcel and ensure compliance with LUPC standards (Land Use Planning Commission 2010). The specifics of these agency roles will be explained in this paper.

I was first interested in this issue because the Bald Mountain deposit is close to my hometown. The proposed mine would be located in the headwaters of the Fish River, which literally flows through my backyard in Fort Kent. In my study, I focused specifically on four categories of potential risks and benefits that could be derived from metallic mineral mining development: environmental, economic, political, and social. I used these categories to compare two different mining operations outside of Maine and two metals mines that operated in the 1970s in Maine to see if any relevant lessons emerge about the future of mining development in Maine.

METHODS

I conducted a primary literature review of recent newspaper articles and editorials regarding LD 1853 and the mining regulatory process throughout the spring of 2012. I requested copies of the written testimony from the Maine State Legislative Library and analyzed the environmental, economic, social, and political issues raised throughout the hearing process. I examined the proposed changes and testimony in order to understand the major aspects of the new permitting process and the shifts in agency oversight. After gaining an understanding of the issues raised through the testimony process, I compared the previous regulations (38 MRSA §349) to the framework outlined by the finalized law that resulted from LD 1853: the Maine Metallic Mineral Mining Act (38 MRSA §490).

Maine has had two large-scale metal mines operate in the state. These two mines, both operating along the Downeast coast, have left lasting environmental legacies and are examples of negative consequences of improper reclamation and closure management. I examined these two examples in Maine, but also studied the experience of two other mine projects to predict future outcomes for mining in Maine. I chose case studies based on their relevance to Maine, taking into consideration their ecological, economic, and political contexts. Anthony Hourihan, the Director of Land Development for Irving, highlighted four benchmark mines that the company is looking at as examples of success, so I worked with two of these identified projects: Voisey's Bay Mine in Newfoundland and Labrador, and the Red Dog Mine in Alaska. I summarized the environmental, economic, social, and political factors and outcomes from each of these projects to compare their relative successes and failures.

I attended a number of meetings, hearings, and forums to gather information and establish contacts with experts in the regulatory changes and future landscape of mining in Maine. Table 1 includes a list of these meetings and events.

Table 1. Relevant events and meetings attended during the 2012/2013 academic year.

Event Title	Sponsor	Date
Field Trip to Bald Mountain	Maine Geological Survey	9/8/2012
Maine Metallic Minerals Conference	Geological Society of Maine	9/9/2012
Mining for Metals in Maine? Big Promises. Harsh Realities. (Annual Meeting)	Natural Resources Council of Maine	9/27/2012
Regional & Statewide Planning (Breakout Session)	Grow Smart Maine	10/23/2012
Chapter 12 Rulemaking Public Hearing	Land Use Planning Commission	12/14/2012
Ashland Community Forum on Mining – Presentation by Anthony Hourihan, J.D. Irving	Central Aroostook Chamber of Commerce, Town of Ashland, Town of Portage Lake	12/20/2012
A Public Forum on Mineral Deposits, Mining, Mine Water Treatment, and Environmental Concerns	UMPI Environmental Studies and Sustainability Program & Maine Geological Survey	3/23/2013
Water is more Precious than Gold tour of Sandra Carolina Ascencio	Natural Resources Council of Maine	4/1/2013
Maine: Open for Open Pit Mining?, Nick Bennett, NRCM Staff Scientist	Colby College Environmental Studies Program	4/10/2013

I attended the Natural Resources Council of Maine (NRCM) annual meeting in September and spoke with Ramsey Hart of Mining Watch Canada, their keynote speaker. I attended another NRCM event on April 1st, 2013 where El Salvadorian mining activist Sandra Carolina Ascencio spoke on the impacts of mining in her country as part of the national "Water is More Precious than Gold" tour. After her remarks, NRCM staff scientists Nick Bennett provided an update on the mining issue in Maine. I was able to speak directly

with Nick Bennett about the role NRCM played in the legislative process and their main concerns with the new mining law. I also attended the GrowSmart Maine 2012 conference and learned from Nick Livesay, the new director of the Land Use Planning Commission (LUPC), about the recent changes in the structure of the agency and their role in state policy.

In November, I traveled with the Maine Geological Survey to the actual deposit proposed for development, the Bald Mountain Volcanogenic Massive Sulfide Deposit in Northern Maine. This site is owned by Irving and is the deposit being considered for mineral development. It is located within Maine's Unorganized Territory in Township 12, Range 8. Dr. Robert Marvinney, the Maine State Geologist, led the visit to the deposit and explained the regional geological context. As part of this event sponsored by the Maine Geological Survey, I also attended the Maine Metallic Minerals Conference at the University of Maine at Orono. At this conference, I met with geologists and technical mining experts and heard presentations on mineral rights, modern mining techniques, and examples from other mine sites across North America.

I met with Anthony Hourihan, the director of land development for Irving, to discuss plans for developing the Bald Mountain site and the company's involvement in the legislative process. Mr. Hourihan also spoke at a community forum on mining I attended in Ashland on December 20, 2012. This forum was designed to give the citizens of Ashland and Portage an update on the Bald Mountain project and to answer questions about their concerns. The University of Maine at Presque Isle hosted a public forum titled "Mineral Deposits, Mining, Mine Water Treatment, and Environmental Concerns" sponsored by both the Environmental Studies and Sustainability Program and the Maine Geological Survey. The forum panelists included Dr. Robert Marvinney, the Maine State Geologist, and two Canadian mining industry representatives, Dr. David Lentz with the OSISKO Mine, and Mr. James Cormier with the Xstrata Zinc Brunswick Mine in Canada.

I spoke with a number of leaders in Aroostook County about the potential impacts the Bald Mountain project would have on the region. Robert Dorsey, President of the Aroostook Partnership for Progress, outlined a number of potential benefits the new mining industry would bring to the entire region. The director of the Central Aroostook Chamber of Commerce, Theresa Fowler, echoed support for the potential Bald Mountain development. Fowler is also a member of the Aroostook County Tourism committee and expressed full

support for bringing mining into the area. I also spoke with the town managers from Ashland and Portage Lake, the two communities closest to the Bald Mountain deposit. Ralph Dwyer, Ashland Town Manager, was optimistic about the direct benefits Ashland would garner from the project. The Town of Portage Lake recently elected a new town manager, Larry Duchette. When I spoke with Mr. Duchette, he was still considering the issue and maintained that he was neither for nor against the project.

The Land Use Planning Commission (LUPC) has been directed by LD1853 to rewrite the rules regarding the rezoning process for land within the Unorganized Territory (UT) in order to accommodate mining. I attended a LUPC hearing in Farmington on December 14, 2012 to hear testimony from Maine environmental organizations, concerned citizens, and environmental lawyers in the state.

I used ArcGIS 10 software to map out the area surrounding the Bald Mountain deposit in Northern Maine. By putting the proposed 600 acre mine into regional context, I was able to illustrate the projected actual size and the physical proximity to nearby landscape features. I used the regulations outlining the visual impact assessment required for large wind development projects under Maine's Expedited Permitting of Grid-Scale Wind Energy Development law (35-A MRSA §3452) and highlighted both a three and eight mile radius around the proposed project to demonstrate the potential visual impact. These requirements do not apply to mining development, but they are useful for scale and may be included in the new DEP rules. The GIS data layers used in my analysis were obtained from the Maine Office of GIS and the Maine Geological Survey.

HISTORICAL CONTEXT

Granite, limestone, gravel, and peat are common resources that have been extracted in Maine throughout the state's history (Lepage et al. 1990). Metal mining in Maine, however, is still relatively undeveloped. Metallic mineral mining is the predominant focus of this study, so this section provides a brief overview of the history of metal mining in Maine and describes the legacy sites that resulted from two metal mines in the state. My specific area of focus, the Bald Mountain deposit, has changed ownership several times since its discovery, so I include an overview of the relevant history of the deposit. The state of Maine has a long history of small-scale mining, but larger mineral development projects have not been pursued. Only three operational metal mines were developed in Maine in the 20th century despite many identified metal resource deposits (Beck 2012).

Mining in Maine

The Maine State Legislature authorized the first assessment of Maine's mineral resources in 1836 (Lepage et al. 1990). The assessment concluded that the state had good quality mineral deposits including: lime, roofing slate, granite, and metals. It also highlighted the development potential from mining these resources. By the early 1800s, small Maine quarries were producing high quality granite and limestone and exporting it to other New England states. Feldspar mines were opened following the discovery of the first feldspar deposit in Topsham in 1853 (Lepage et al. 1990). Mining of granite, limestone, and feldspar, along with slate, peat, and mica have had a relatively consistent presence in Maine to this day.

Metal mining, on the other hand, has a more limited history. A handful of small-scale metal mines operated across the state through the mid-1800's, but mining interest escalated during the mining boom between 1879 and 1882 (Lepage et al. 1990, Maine Geological Survey 2005, Beck 2012). During this time, many small mines opened across the state with a concentration of mines along the coast. These new developments produced iron, silver, copper, lead, and zinc (Maine Geological Survey 2005). The state saw a brief "Silver Rush" between 1877 and 1882, but the initial excitement and speculation about the deposits was exaggerated (King 2000). The deposits were not as lucrative as initially thought, which made the operations uneconomical, especially without local smelters or refineries (King 2000). In

1883, the state's metal market faced a downturn and metal prices dropped, making many Maine mining operations no longer viable (Maine Geological Survey 2005).

Since then, there have been periods of mineral exploration but only three modern metal mines have been developed and operated in Maine. An increase in mineral exploration along the Downeast coast of Maine occurred during the early 1960s due to increasing metal prices and land agreements between mineral companies and paper companies (Lepage et al. 1990). These conditions allowed for the development of the two best-known metal mines in Maine: the Black Hawk Mine in Blue Hill and the Callahan Mine in Brooksville. They were both re-developed from abandoned mines that operated during the mining boom in the late 1880s (Lepage et al. 1990). The third, lesser known mine was the Leach Mine located only about one mile away from the Callahan Mine. All three of these projects closed in the late 1960s to the early 1970s as mineral prices dropped and operations became uneconomical, but there are still undeveloped mineral reserves on each site (Beck 2012). Another period of exploration in the 1990s led to the discoveries of some of the largest mineral deposits in Maine, including the Ledge Ridge and Alder Pond deposits in western Maine, the Bald Mountain deposit in Aroostook County, and the Mount Chase deposit north of Katahdin. None of these deposits have been developed, and there has been no metal mining in Maine since 1977 (Maine Geological Survey 2005).

Black Hawk Mine, Blue Hill, Maine

In 1972 Kerramerican, a subsidiary of the Kerr Addison Mines, began operations at the Black Hawk Mine near Blue Hill. The initial operation was a shaft mine, but the project later expanded into an open pit mining operation, which is usually easier and cheaper to manage but more risky (Bennett 2013a).The mining company extracted zinc and copper ore on site, but sent the concentrate out of state for processing and smelting. The estimated total output of the Black Hawk mine during its operation was one million tons of ore (Lepage et al. 1990). The company originally promoted the project as a 10-20 year operation that would employ 200 to 300 workers, but in reality it only operated for five years, closing in 1977. During operations, the Black Hawk Mine employed about 100 workers (Chapman 2012). After the mining operation ended in 1977, reclamation efforts began which included sealing the mine openings and covering the tailings area with topsoil (Lepage et al. 1990).

According to Ralph Champan, the Maine State Representative in Blue Hill, the tailings cover ultimately eroded and studies indicate substantial metal contamination of both the ground and surface water around the site. An investigation conducted in the mid-1900s estimated that 10,000 to 12,000 pounds of dissolved zinc was being released into surface waters each year from the waste rock storage system (Chapman 2012). In 2007, Kerramerican and the Maine Department of Environmental Protection agreed to coordinate cleanup efforts in the area (Hewitt 2007). The site saw significant improvement due to the cleanup efforts, and has been nearly stabilized, but will still require continuous maintenance (Bennett 2013a).

Callahan Mine, Brooksville, Maine

The Callahan mine was an open-pit zinc and copper mine open between 1968 and 1972. It was developed by the Callahan Mine Company near Brooksville in Hancock County (Lepage et al. 1990). During its lifespan, about 800,000 tons of ore and five million tons of waste rock were removed from the deposit (Lepage et al. 1990, Chapman 2012). After the mine was closed in 1972, the entire area, including the mine pit, was flooded and used until 1979 as an aquaculture facility for salmon and oysters by a business called Maine Sea Farms (Lepage et al. 1990).

The Maine Department of Marine Resources and the Maine Department of Environmental Protection have studied contaminant levels in the organisms, water, and soils from the area near Goose Cove and the Callahan mine. These studies found high concentrations of arsenic, cadmium, copper, lead, and zinc in marine organisms, water samples, and sediments collected (ATSDR 2008, US EPA 2013). In 2002, the US Environmental Protection Agency (EPA) classified the mine site as a Superfund site on the National Priorities List (ATSDR 2008). The EPA identified a number of threats to human and environmental health including (US EPA 2013):

- High PCB contamination in the soil, making it unsafe for human contact
- Lead and arsenic bioaccumulating in regional biota
- Groundwater at the site "unsuitable for human consumption"
- Leakages and discharges from the mine waste areas exceed contamination levels and are hazardous to aquatic organisms

The EPA requested a health consultation from the Agency for Toxic Substances and Disease Registry (ATSDR) at the site to determine the potential human health impacts of the metal contamination from mining operations and improper closure (ATSDR 2008). At the time of the study, there were four residential properties on the road directly adjacent to the former mining pit and several other homes within a quarter mile of the mine site (ATSDR 2008). ATSDR also found that despite a State advisory against harvesting and eating shellfish from the regional water bodies and the official closure of the shell fishing beds to commercial harvesting, residents continued to collect and eat shellfish from the area. The study determined that residents living in the area are exposed to lead from contaminated soils, sediments, surface and ground water, and local fish, lobster, and clams (ATSDR 2008). Based on this conclusion, the agency recommended blood lead screenings for the residents in the area, clean-up measures for the contaminated soils, and community outreach to publicize the contamination levels and promote the fish and shellfish advisories (ATSDR 2008). These human health impacts demonstrate the risks associated with improper mining operations and remediation efforts.

According to the EPA, the estimated total cleanup cost for the site could approach $23 million with the state of Maine responsible for covering 10 percent of the total expenses (Moretto 2012b). The EPA cleanup efforts began in the spring of 2011 with an effort to remove the PCBs, lead, and arsenic contaminated soils from the area. This initial step took longer than anticipated, but EPA officials expect to completely finish remediation efforts at the Callahan Mine site within the next few years (Moretto 2012a). It is unlikely that any of the contaminated land will be usable in the future.

Bald Mountain Deposit

Since its discovery, the Bald Mountain deposit has been a source of interest for Maine's geology and mining companies. During the period between 1950 and the 1990s, over $50 million was spent in Maine on mineral exploration (Lepage et al. 1990). J.S. Cummings, Inc., a consulting firm in Bangor owned by John S. Cummings, was one of the most successful exploration companies, identifying 11 out of the 16 new major deposits discovered during this era (Beck 2012). The Bald Mountain deposit was found in September of 1977 in the Unorganized Territory of Township 12, Range 8 near the town of Ashland in Aroostook County. The regional context, including nearby communities and landscape features, is shown in Figure 1. The geological formation is known as a "massive sulfide deposit" which typically contains higher ore concentrations. According to Cummings' data, the deposit contains more than two billion pounds of copper (at a 2% ore concentration) and zinc (at a 2-3% ore concentration), over 800,000 ounces of gold, and more than 17 million ounces of silver (Cummings 2012). The US Geological survey estimates that the deposit contains 30 million metric tonnes (Mt) of mineralized rock, with ore concentrations ranging from 1.03%-2.78% copper, 0.53-1.2% zinc, and 0.42%-1.1% arsenic, with 0.51-0.75 grams/ton of gold and about 14 grams/ton of silver (Foose and Slack 1999). A number of mining companies have invested significant time and money into exploring the deposit, with over 400 cores being extracted from the area (Foose and Slack 1999). During the field trip with the Maine Geological Survey to the Bald Mountain deposit, we were able to see some of these core samples, which are now owned by Irving (the current landowner) and stored in Presque Isle.

The actual land parcel that contained the deposit was owned by Great Northern Paper, Inc. until it was purchased by Bowater, Inc., the parent company of Great Northern Paper. The landowners allowed mineral exploration companies to conduct testing and research the mineral resources on the property, and when the land was sold, all the research and data went with it (Roy Bernard, pers. comm.). Irving purchased the land parcel from Bowater as part of a 1 million acre purchase of timberland in 1998 (Lagasse 1998).

In his account of the history of the Bald Mountain deposit, *The Lost Promise of Golconda: Metals in the Maine Earth*, J.S. Cummings recounts the political and corporate controversies that limited the development of the Bald Mountain deposit.

At the time of the discovery, J.S. Cummings Inc. was funded by both Superior Oil Company (based in Houston, Texas) and the Louisiana Land & Exploration Company (based in New Orleans) (Lepage et al. 1990). According to Cummings, the agreement under this contract stated that if any deposits were discovered and deemed viable they would be developed into a mining operation and managed by Superior Oil Company, with J. S. Cummings Inc. receiving substantial royalty payments (Cummings 2012).

The discovery of the deposit generated considerable interest in the potential for this type of mining development. However, the two companies involved in the venture with J.S. Cummings, Superior and Louisiana L&E, ultimately could not negotiate terms for developing the deposit and pushed J.S. Cummings out of the project. In 1981, the two companies decided to sell their research claims to the site, masking their inability to work together under the guise of declining mineral market prices (Cummings 2012). After they sold their claim to exploration on the Bald Mountain land parcel, a number of companies leased these rights for short amounts of time, until a Swedish mining company (Boliden Mining Co.) purchased the rights in 1989 (Lepage et al. 1990).

Boliden was serious about their intentions to develop the site. However, as they prepared to apply for a permit to open the mine, the Maine DEP determined that the state mining regulations were not comprehensive enough and began the process of writing new rules (Cummings 2012). Cummings viewed this process as a way to stall mineral development and criticized the Department for "starting from scratch" to develop the regulations. The rules were developed under the direction of the Maine DEP Deputy Commissioner Elizabeth Armstrong. Based on Cummings narrative of the political climate at the time, he and others (including State Senator Donald F. Collins, a republican from Caribou) believed that Commissioner Armstrong was directly opposed to mining in Maine (Cummings 2012). The new mining regulations were passed in 1991 and were strict enough to serve as a "*de facto* ban on mineral mining in the state of Maine" according to Cummings in his personal account of the situation (Cummings 2012). Because of the strict regulations, Boliden decided they would not apply for a permit for the Bald Mountain mine and sold their holdings in Bald Mountain to Black Hawk mining company, the same mining company that developed the mine in Blue Hill.

In 1996, NNM Resources, Inc., a subsidiary of Black Hawk Mining, Inc., publicized their intent to develop a small mining operation to extract just the gold and silver ores from the upper part of the Bald Mountain deposit (USGS 1996). Their application was formally submitted in December of 1997 and was the first mining application to be submitted under the new mining rules adopted in 1991 (USGS 1997). The application was reviewed by the Maine Land Use Regulation Commission (LURC) and the Maine DEP, but Black Hawk withdrew their application for development in 1999 because of low metal prices (USGS 1999). As mentioned above, the land parcel was sold to Irving in 1998, and they are the current land and mineral rights owners of the Bald Mountain deposit (Lagasse 1998).

In 2013, Maine DEP is once again in the process of rewriting the state's mining regulations in response to increased interest in metallic mineral development from the mining industry. The industry pressure in both the early 1990s and in 2013 are key components of the political context of the issue of metallic mineral mining in Maine. However, the composition of the DEP and the state legislature are different in the recent changes to the metallic mineral mining regulations. The 125th Maine State Legislature was controlled by the Republicans, and Governor LePage is relentlessly pro-development and pro-industry (Office of Governor Paul LePage 2012). These conditions influenced the success of making changes to the rules, and will continue to shape the direction of future Maine environmental policies governing mineral development.

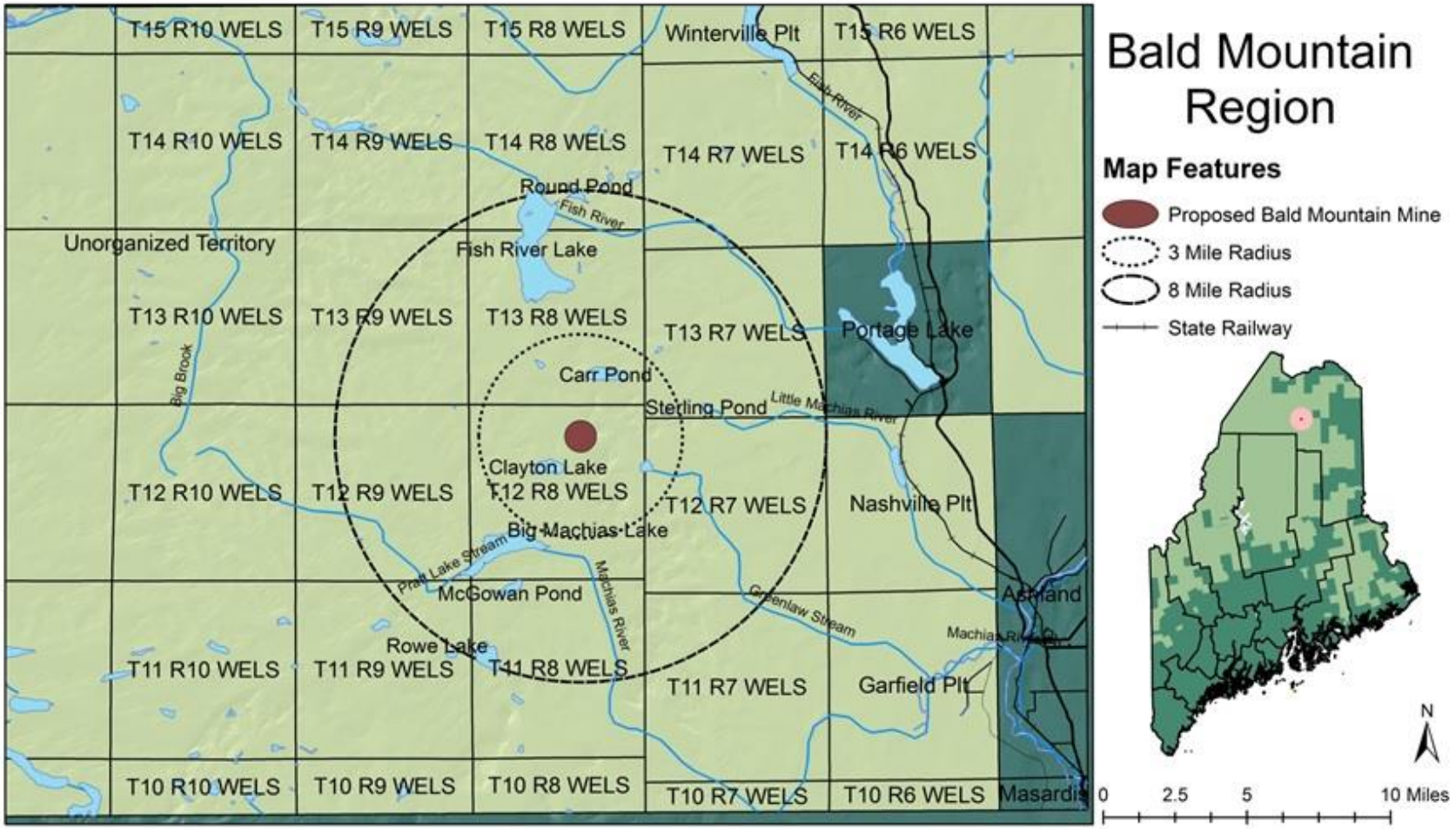

Figure 1. Site of the proposed Bald Mountain Mine in northern Maine. The mine site is projected to be about 600 acres, located in T12 R8 (Maine Office of GIS, Maine Geological Survey).

STAKEHOLDERS

A number of relevant stakeholders have been and will continue to be involved in the future of mining development in the state of Maine. State agencies like the Department of Environmental Protection and the Land Use Planning Commission have the immediate task of shaping the policies and regulations that will dictate mining future development. Irving is the main corporate stakeholder currently involved in the process, but once the state establishes the direction of the new regulations governing mining other mineral development projects may emerge. Regional leaders and organizations in Aroostook County have an important role in advocating for mineral development in the region. They have demonstrated support for the Bald Mountain project and its potential economic benefits. Maine's non-governmental organizations (NGOs) work to monitor the bill's progress and highlight potential weaknesses that might endanger Maine's natural environment and resources. Each stakeholder group was represented throughout the testimony process and has a distinct role in shaping the future of mining policy in Maine.

State Agencies

Land Use Planning Commission (LUPC)

Maine's Land Use Planning Commission (LUPC) has jurisdiction over planning and zoning for the 10.4 million acres of Unorganized Territory in the state. The designated Unorganized Territory in Maine is shown in yellow in Figure 2. The commission was originally established in 1971 as the Land Use Regulatory Commission (LURC) and was responsible for comprehensive land use planning, zoning, and assessing development permits for large projects proposed within the state's unorganized territory (Beardsley and Medina 2011, Livesay 2012). In 2012, the Maine legislature passed "An Act to Reform Land Use Planning in the Unorganized Territory" (LD 1798), reorganizing LURC into the Land Use Planning Commission under the Maine Department of Agriculture, Conservation, and Forestry (NRCM 2012). Pursuant to the legislative changes directing LUPC, major development applications are now handled within the Maine Department of Environmental Protection (Beardsley and Medina 2011).

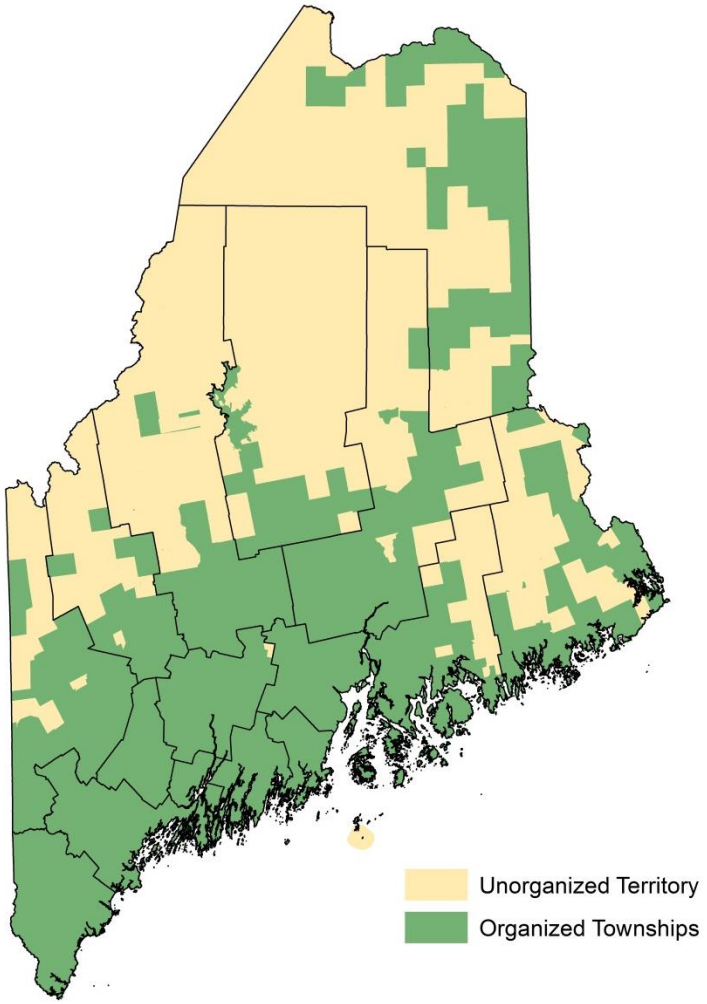

Figure 2. The Land Use Planning Commission manages Maine's Unorganized Territory, highlighted on the map in yellow (Source: Maine Office of GIS).

These changes impact the permitting process required for the proposed Bald Mountain mine. The mine developers no longer have to apply through LUPC for approval because the permitting process for large developments has been shifted to the Department of Environmental Protection. However, if a proposed mining project falls within a LUPC regulatory zone in the Unorganized Territory, the project developers will have to submit a LUPC rezoning application to change the zoning designation of the land parcel and ensure compliance with LUPC standards (Land Use Planning Commission 2010).

Maine Department of Environmental Protection (DEP)

The Maine DEP is the primary agency responsible for enforcing the state environmental laws and regulations. It is divided into three bureaus based on their main project areas: Air Quality, Land and Water Quality, and Remediation and Waste Management. The responsibilities of the DEP include making recommendations to the Legislature, assessing and issuing licenses and permits for a variety of regulatory standards, and enforcing environmental laws. Along with administering Maine regulations, the DEP also implements and enforces federal environmental laws (Maine DEP 2013a).

Since the reorganization of LUPC, the Maine Department of Environmental Protection is the lead permitting authority for all large development projects that fall under the Site Location of Development regulations, commonly referred to as Site Law (Maine DEP 2013c). This law applies to development projects that would have a "substantial effect" on the environment and specifically includes all metallic mineral mining projects (38 MRSA §481). In order to obtain a Site Law permit, the project must meet DEP standards for "stormwater management, groundwater protection, infrastructure, wildlife and fisheries, noise, and unusual natural areas" (Maine DEP 2013c).

The passing of LD 1853 into the new Maine Metallic Mineral Mining Act and the actions around restructuring LUPC specifically gave sole permitting authority for proposed metallic mineral mining to the DEP. In accordance with the conditions of LD 1853, the DEP is currently in the process of drafting changes to their Chapter 200: Metallic Mineral Exploration, Advanced Exploration and Mining rules (06-096 CMR Chapter 200). The changes will fulfill the legislative mandate to rewrite the Maine metallic mineral mining rules (DePoy-Warren 2012). The DEP hired the North Jackson Company and Maine-based S.W. Cole Engineering, Inc. to draft the new rules. The North Jackson Company is a Michigan based environmental science and engineering firm with experience in environmental rulemaking and mining projects. S.W. Cole Engineering, Inc. is a Maine based firm with experience in geotechnical engineering and working in Maine under the state environmental regulations.

The new rules will be reviewed by the Maine Board of Environmental Protection (BEP) before January 2014. If approved by the Maine BEP, the new rules will have to be approved by the 126th Maine Legislature (Crawford 2013). According to Patricia Aho,

Commissioner of the Maine Department of Environmental Protection, the goal of the DEP throughout the rulemaking process will be to "ensure Maine and its citizens receive the benefits of the resource and associated activities, while also ensuring that environmental protections and subsequent remediation and closure are adequate" (Aho 2012).

Maine Board of Environmental Protection (BEP)

The Maine Board of Environmental Protection (BEP) is the citizen arm of the Maine Department of Environmental Protection that oversees rulemaking. Its seven members are appointed by the Governor and confirmed by the Legislature but must include at least three members with a background in environmental science. The overall purpose of the BEP is to provide an independent analysis of state environmental issues and to ensure public participation in all DEP decisions. The BEP has the authority to "adopt, amend or repeal Department rules" and is responsible for reviewing applications for projects which would have statewide impacts (Maine BEP 2013).

Once the new mining rules have been drafted by the DEP, they will be submitted for review and approval to the Maine BEP. The rules must be reviewed by the BEP before January 10, 2014. If approved, the rules will then be brought to the 126th Maine Legislature for final approval prior to enactment by the statutory deadline on July 1, 2014 (Crawford 2013).

Corporate Stakeholders

J.D. Irving, Limited

J.D. Irving, Limited (Irving) is the corporate stakeholder driving the Bald Mountain development in Aroostook County. The company was founded over 130 years ago and has operated in Maine since 1946 when they purchased 200,000 acres of timberland in northern Maine (DeMont 1992). Initially, local communities in Aroostook County were wary of the Canadian company coming into the area and "buying up everything in sight." However, despite the initial skepticism, Irving has positively impacted the competitiveness of the regional forestry market and continues to operate in northern Maine today (DeMont 1992).

The Bald Mountain mineral deposit is located on land owned by Irving. The parcel was purchased by Irving from Bowater, Inc. (the parent company of Great Northern Paper Co.) in October 1998 as part of a 1 million acre purchase of timberland around the Ashland

and Portage area (Lagasse 1998). Irving serves as the parent company of Aroostook Timberlands, the current owner of the land around Bald Mountain, and the parcel is managed by Irving Woodlands. After looking into the potential to develop the mineral rights for the Bald Mountain deposit on their land, Irving determined that the regulatory process was too onerous and presented an obstacle for development. Irving representatives encouraged the Maine legislature to update the mining regulations to eliminate the duplication and complication inherent in the regulatory process for mining developments (Doyle 2012).

Irving has a history of economic development in the state, particularly in northern Maine. According to a report from Jupia Consultants, Inc. commissioned by the company and using company data from 2011, Irving employs 339 workers across the state and serves as one of the larger private sector employers in Maine. In northern Maine, Irving manages forestry, agricultural, and rail operations that directly employ 144 people. The company has received praise from other development-focused industries and organizations in Maine. Cianbro, one of the biggest developers in the state of Maine, highlighted their positive experiences working with Irving on various construction projects. According to Cianbro CEO Peter Vigue, "Jim Irving's word is his bond, period" (Walton 2012). Given that the company currently owns 1.25 million acres of land in Maine, it is certainly in their best interest to protect their reputation. Robert Dorsey, the CEO of the Aroostook Partnership for Progress also spoke on the company's reputation and financial resources, claiming that Irving will only move forward with the project if it can be done right (Dorsey 2012).

North Jackson Company

Pursuant to the legislative mandate in LD 1853, the Maine Department of Environmental Protection sent out a request for proposals looking to contract technical assistance in drafting Maine's new environmental regulations governing mining. The Maine DEP only received one proposal and hired the North Jackson Company to help draft the new metallic mineral mining rules for the state. The company is an environmental science and engineering firm based in Michigan with experience in both mining and environmental rulemaking (DePoy-Warren 2012).

According to their website, the North Jackson Company provides a variety of consulting services to help clients meet permitting requirements and deal with overall project management. The company was founded in the Marquette Mineral District, an area with iron

mining in Michigan (North Jackson Company 2013). The company will work under the direction of the Maine DEP, and has recruited and partnered with Maine-based S.W. Cole Engineering to help address local conditions and concerns (North Jackson Company and Wiitala 2012).

The Natural Resources Council of Maine (NRCM) openly criticized this selection, asserting that the North Jackson Company's close ties with the mining industry will limit their ability to be objective in the rulemaking process. According to NRCM, the North Jackson Company has connections to some of the world's largest mining companies and has primarily worked for the mining industry (Didisheim 2012). Alternatively, NRCM suggested that DEP staff should provide the main technical input in the rulemaking process and should work with the Maine Geological Survey and the Maine Department of Inland Fish and Wildlife instead of contracting with North Jackson Company. The expert staff serving these state agencies are more accountable to the people of Maine and have a much better understanding of the political climate and natural resources (Didisheim 2012).

Despite this criticism, the DEP has maintained their position and contract with North Jackson Company. DEP spokeswoman Samantha DePoy-Warren responded to the NRCM assertions by highlighting the DEP's commitment to the State and the Legislature to "go above and beyond to be transparent" (Cousins 2012a).

S.W. Cole Engineering

Maine-based S.W. Cole Engineering was involved in the project by the North Jackson Company to lend credibility and local knowledge to the rewrite process. They were pursued by both the North Jackson Company and the DEP based on their expertise dealing with Maine environmental regulations and their work in geotechnical engineering consulting (DePoy-Warren 2012). S.W. Cole offers services in geotechnical engineering, geoenvironmental services, ecological consulting and construction materials testing. They have four different offices in the state of Maine and direct work experience on projects across the state (S.W. Cole 2013).

Aroostook County Stakeholders

Local Communities

The Bald Mountain deposit is located in the unorganized township of T12 R8. The towns of Ashland and Portage Lake are the nearest communities to the deposit. Local politicians and development organizations representing these towns have demonstrated support for the potential development. Ralph Dwyer, the town manager in Ashland, highlighted the potential economic benefit the community would see - not only from the job opportunities offered at the mine site, but also from increased business for other local industries like mechanics, hotels, and restaurants. Based on his personal observations, Dwyer suggested that most of the community is in support of the mine, but some of the area's senior citizens remain wary of the potential environmental impact. Dwyer is optimistic about the technological advancements made by the mining industry and believes that if the community is informed and involved throughout development and operations, the project will be a success (Ralph Dwyer, pers. comm.). Kevin Charette, a town councilman in Ashland, mirrored the optimism in the community for the potential economic benefits, noting that 43% of the population of Ashland is on some sort of assistance (Charette 2012). The economic benefits derived from increased employment and revenue would provide a substantial boost for the town of Ashland.

Community leaders from Portage Lake also spoke in favor of mining at Bald Mountain. Hollie Umphrey, the Portage Lake town manager at the time (the current town manager is Larry Duchette) supported LD 1853 during the testimony process. According to Umphrey, the possibility of 300+ jobs would have a significant positive impact on the entire Northern Aroostook region and help to alleviate the economic struggles these small communities face (Umphrey 2012). The State Representative for the Portage Lake district (House District 2) Ken Theriault focused on the opportunity to combat the "brain drain" trend in northern Maine, with young people leaving the area to find jobs elsewhere. According to Theriault, the new and diverse jobs at the mine might help to alleviate this trend and draw young people back to Aroostook County (Theriault 2012). Portage Lake selectperson Barbara Pitcairn also spoke in favor of the Bald Mountain mine, saying the development, "will permit our small, struggling communities to grow and prosper as they did 40 years ago when the logging industry was at its peak (Pitcairn 2012)." The new Portage Lake town manager,

Larry Duchette, has not yet formed a public opinion on the mine project (Larry Duchette, pers. comm.).

The Central Aroostook Chamber of Commerce and the Aroostook County Tourism Committee both support mining development at Bald Mountain as a major investment in the area (Theresa Fowler, pers. comm.). According to Theresa Fowler, the Executive Director of the Central Aroostook Chamber of Commerce, the diverse job opportunities at the mine could attract new skills to Aroostook County. Fowler spoke highly of Irving's commitment to community involvement, explaining that because Irving is a private company, they do not have to involve community stakeholders at all. The Central Aroostook Chamber will remain an important voice in the process, and hopes to bring some of the hearings and state agency meetings closer to Aroostook County to increase participation from local residents (Theresa Fowler, pers. comm.).

I attended a community forum in Ashland on December 20, 2012 sponsored by the Central Aroostook Chamber of Commerce, the Town of Ashland, and the Town of Portage Lake. Anthony Hourihan, the Director of Land Development for Irving, spoke at the forum specifically about Irving's interest in the Bald Mountain development and outlined some of the potential regional benefits the mine project may have in the area. Hourihan also highlighted benchmark mine projects that Irving would be researching as they begin their development plans. The forum was well attended, but many of the people there were either local political or development leaders who had a vested interest in the project or company representatives. After Mr. Hourihan's presentation, he answered a number of questions from the audience which ranged from concerns about water pollution, skepticism about how long the employment opportunities would last, and Irving's lack of mining experience. From my perspective, the overall sentiment from those in attendance was supportive of the project if Irving was able to adequately address some of these major concerns.

Aroostook County Politicians

The politicians representing Aroostook County were a critical component of the passage of LD 1853 and are supportive of mining development in Aroostook County. The bill was sponsored and presented by the Democratic Representative John Martin of Eagle Lake and cosponsored by six legislators, including Democratic Senator Troy Jackson of

Aroostook, Republican Senator Roger Sherman of Aroostook, and two other Representatives from Aroostook county: Republican Ricky Long and Republican Bernard Ayotte.

Representative Martin has been a fixture in Maine politics for almost 50 years. First elected to the Maine House of Representatives in 1964, Martin has served in both the house and the senate during his political career and was the speaker of the House for 10 consecutive terms. Martin lost the re-election race for his House seat in 2012, ending his long-running streak in Augusta (Cousins 2012b). During the 125th legislative session, Martin introduced LD 1853, "An Act To Improve Environmental Oversight and Streamline Permitting for Metallic Mineral Mining in Maine." Martin introduced the bill after representatives from Irving expressed their concerns with the regulatory process governing mining development. The main reasons Martin stated for supporting the opportunity to streamline the state's mining regulations were technological improvements in the mining industry and a need to bring jobs to Aroostook County (Clark 2012).

Senator Troy Jackson, a Democrat from Allagash, represents Senate District 35 (which includes Portage Lake) and served six years in the Maine House of Representatives before being elected to his first term in the Senate. Jackson was a key co-sponsor of LD 1853, maintaining that the technology in the mining industry has improved and that with proper regulations the Bald Mountain project could provide new jobs without creating environmental impacts. Senator Jackson is especially concerned about the risks to water quality and has said that he would oppose the project if he was not certain the water would be protected (Higgins 2012).

Aroostook County Business Advocacy Organizations

Aroostook County has three main economic development and business advocacy organizations that have played an important role in promoting the community benefits of mining development projects in Maine. Each of these groups works to promote Aroostook County and leverage economic growth opportunities for the entire region. Representatives from these organizations were involved in the legislative hearings for LD 1853 and will continue to advocate for the proposed Bald Mountain mine project.

LEADers Encouraging Aroostook Development (LEAD) is a member-based organization made up of about one hundred business leaders and community members from across Aroostook county (McLaughlin 2012). Their mission includes promoting regional job

creation, developing partnerships across Maine and eastern Canada, and supporting the "development of the natural resources of Aroostook County (LEAD 2009)." LEAD's board of directors supported LD 1853, stating that the mechanisms in the proposed regulatory framework would maintain environmental protections and provide adequate financial assurances (McLaughlin 2012). The Bald Mountain development fits directly within their mission to foster business opportunities and create benefits from the natural resources available to Aroostook County.

Serving both Aroostook and Washington counties, the Northern Maine Development Commission advocates for the region in an effort to promote and attract business to northern Maine. Their mission includes providing regional planning and creating resources to support regional growth and development (NMDC 2009). NMDC promoted the positive economic impact the potential Bald Mountain project would bring to Aroostook County if developed (Ouellette 2012).

The Aroostook Partnership for Progress (APP) is a public-private initiative to market Aroostook County as a viable business location. APP coordinates regional efforts and compiles pertinent research to encourage regional development (APP n.d.). The organization is "continuously looking for growth potential" in Aroostook County and sees the potential economic development from a mine development at Bald Mountain as a unique opportunity to help support this mission (Dorsey 2012).

Statewide Organizations & Nonprofits

Maine Professional Guides Association

The Maine Professional Guides Association is made up of about 900 Maine State guides, many of which maintain small independent businesses across rural Maine (Kleiner 2012). They work to preserve the natural resources that support the traditions of guiding and outdoor recreation in the state of Maine through education, political advocacy, and establishing standards for the profession. One of the main purposes of the Maine Professional Guides Association is to:

> Vigorously oppose legislation or regulation that would be harmful to professional Maine Guides or the guiding profession, or that would directly and negatively impact natural resources that are essential to the future of guiding or that would

unnecessarily restrict hunting, fishing or other related activities that have traditionally involved the use of Maine Guides (Maine Professional Guides Association 2013). Given this central purpose, the Association typically prioritizes the protection of Maine's high quality natural resources in most political issues (Don Kleiner, pers. comm.). Their livelihood is dependent on the quality and vitality of Maine's natural resources, so the risks associated with mining development make guides especially vulnerable.

Don Kleiner, the Executive Director of the state organization, testified against LD 1853, urging the legislature to ensure that the all of the potential implications of the bill were given careful consideration. In his testimony, Kleiner focused on the repercussions water contamination would have on Maine's wild brook trout populations (Don Kleiner, pers. comm.). In his experience, the recreational economy built around hunting and fishing in Maine has struggled for support and the proposed benefits from regional eco-tourism have not been realized. Kleiner explained that while the Association often finds a regional division on political issues between northern and southern Maine, in this case the division was most apparent between member guides in northern Maine. The promise of increased economic activity was weighed against the unknown long-term environmental impacts, leaving an overall sense of "risking long term business for short term gain (Don Kleiner, pers. comm.)." The Maine Professional Guides association plans to continue to monitoring the process and support protections for Maine's unique natural resources.

Environmental Non-governmental Organizations (NGOs)

Maine has a number of active and environmentally focused NGOs that monitor and help shape state policy. The main concerns of these groups through the development of the Maine Metallic Mineral Mining Act included maintaining strict environmental standards, improving procedural transparency, and increasing opportunities for stakeholder participation throughout the process. The groups represented by submitted testimony included: Maine Conservation Voters, the Maine Chapter of the Sierra Club, the Appalachian Mountain Club, Trout Unlimited, Maine Rivers, Maine People's Alliance, The Nature Conservancy, Environment Maine, the Natural Resources Council of Maine, Maine Audubon, and the Conservation Law Foundation.

These organizations closely follow each step of the legislative process and contribute to the policy process by holding informational meetings and events, sending updates and

information to their membership, and participating in hearings and meetings before the legislature, LUPC, and the Maine DEP. A coalition of groups including Conservation Law Foundation, Maine Audubon, Maine Conservation Voters, Natural Resources Council of Maine, and Trout Unlimited submitted specific language changes and amendments to the draft of LD 1853 (Conservation Law Foundation et al. 2012). Their recommendations focused on specifying the acceptable type of financial assurance available for maintenance after mining operations are completed, and ensuring that the applicant be held responsible for the burden of proof for regulatory compliance, not the state (Conservation Law Foundation et al. 2012). These organizations have also been involved in the ongoing efforts to amend the law, including drafting amendments, testifying at public hearings, and monitoring progress of the issue.

Business and Industry Non-Governmental Organizations (NGOs)

Organizations representing business and industry coalitions and interests were also active participants in the LD 1853 process. These groups advocated for the economic development potential and defended the goal of reducing obstacles to development. The groups represented by submitted testimony included: the Maine State Chamber of Commerce, Maine Forest Products Council, Cianbro Corporation, the Associated General Contractors of Maine, and the Associated Builders and Contractors of Maine.

Like the environmental NGOs, these groups promoted their interests in the passing of LD 1853 and solicited support from their members and stakeholders. The Maine Forest Products Council, a trade association representing all aspects of the forestry industry, submitted specific amendments to LD 1853 (Strauch 2012). Their organization highlighted the ability of mining development in Maine to benefit rural communities and economies, mirroring the sentiments of the Maine State Chamber of Commerce (Connors 2012a). The industry groups representing Maine builders and contractors advocated for the balance between environmental protections and mining development (Cote 2012, O'Dea 2012). These groups would like to see direct job opportunities and contracts from this type of land development.

LD 1853 HEARING PROCESS - MARCH, 2012

Given the significance of the proposed changes to the Maine metallic mineral mining rules, the public hearing process for LD 1853, "An Act To Improve Environmental Oversight and Streamline Permitting for Mining in Maine", was well attended by interested parties across the state. Representative John Martin (D-Eagle Lake) proposed the initial bill in March 2012, during the final weeks of the 125th Legislative session. A few days after the bill was proposed, there was an initial public hearing before the Committee on Environment and Natural Resources on March 14, 2012. A second hearing before the committee occurred on March 30th, 2012. These hearings offered interested parties from across the state a chance to express their thoughts on the proposed changes to mining regulations in Maine (Lynds 2012). Industry representatives, recreational, environmental and business organizations, local leaders, and concerned citizens were all represented throughout the hearing process, offering a full range of endorsements and concerns with the proposal of LD 1853.

Introducing a bill at the end of a session is unusual, and the timeline of activity from the proposal of LD 1853 in early March through the two public hearings, ten legislative committee work sessions, and the passage of bill on April 24, 2012 happened in less than two months. Concerns about the apparent rush to push the bill through the legislative process surfaced as a common theme throughout the written testimony submitted to the committee.

This section synthesizes some of the main points of the testimony submitted to the committee during both public hearings. I have divided these points into four main areas of impact: environment, economic, social, and political. Each of these areas has important potential benefits and impacts that were highlighted throughout the testimony for LD 1853. This summary includes information from both the March 14th and March 30th public hearing, so some of the later testimony reflects amendments and changes made to the proposed bill before March 30th.

Environmental Context & Impact

Natural resources and the environment are critical to Maine's identity. The Maine economy, reputation, political decisions, and future depend in part on protections for the natural environment. Environmental concerns are at the heart of the mining debate, both in Maine and in all other case studies examined in this paper. The main disconnect is the idea of "environmentally safe mineral development". Can environmental protection and mining

activities be compatible? More specifically, can the Bald Mountain project be developed without impacting local water quality? Water quality standards are a contentious aspect of mining development, with stakeholder disagreement over the likelihood of industry compliance with the standards. The health of some of Maine's iconic species, (e.g., wild brook trout), depends directly on healthy aquatic ecosystems, so any development must include water quality protections. Maine supports 97% of wild brook trout habitat in the US, and the areas of the state with mineral resources highlighted for potential development overlap with the watersheds of wild brook trout habitat (Kleiner 2012, Reardon 2012). These two main themes, the balance between development and environmental protections and the importance of water quality, were the two most common environmental issues brought up in the hearing process.

The DEP develops and implements water quality standards to ensure compliance with state and federal law (Maine DEP 2013d). Patricia Aho, Commissioner of the Maine DEP, emphasized the department's current role and expertise in managing the regulations and permits for Maine water resources and asserted that the DEP is committed to including appropriate environmental protections. According to Commissioner Aho, under continued oversight from the DEP, Maine's mineral resources could be developed in accordance with Maine environmental regulations and provide benefits for the entire state (Aho 2012). The DEP was involved in the committee work sessions and provided technical amendments and changes to the bill.

Testimony from Irving representatives also promoted the belief that mining could be conducted in a way that maintained environmental quality. Thomas Doyle of Aroostook Timberlands, LLC, represented Irving throughout the hearing process. LD 1853 was partly shaped by Irving's requests and involvement in the process, so Doyle explained the reasoning behind the technical changes enacted by the bill (Doyle 2012). The bill was modeled on the existing mining law in the state of Michigan and contains provisions which require projects to still apply for state environmental permits.

These permits include a state Natural Resource Protection Act permit, a permit for air emissions, and a wastewater discharge permit. The bill also requires water quality monitoring for at least 30 years after closure (with the option to extend the duration of monitoring), and specifically identifies the reclamation goal as returning the area to its prior condition (Doyle

2012). Throughout the process, Irving representatives emphasized environmental protection. According to Anthony Hourihan, Director of Land Development for Irving, "If it can't be done without creating environmental legacies, it shouldn't be done (Miller 2012)."

Local individuals also stressed the idea that mineral can be compatible with environmental protection. Hollie Umphrey, the former town manager of Portage Lake (during the LD 1853 hearing process), spoke on the improvements in technology to manage environmental impacts from mining operations and to measure water, air, and sediment contamination levels (Umphrey 2012). State contractor associations, (Associated General Contractors of Maine and the Associated Builders and Contractors of Maine) also promoted the belief that environmental protection and mining development can be compatible, if done properly (Cote 2012, Laite 2012, O'Dea 2012).

On the other hand, a number of those testifying saw mineral development as inherently risky for Maine's environmental quality. Environmental organizations, including Maine Conservation Voters (MCV), Maine Audubon, Sierra Club Maine, the Natural Resources Council of Maine, Environment Maine, and The Nature Conservancy all shared concerns about the potential environmental risks associated with mining operations. These organizations were critical of the mining industry as a whole and its negative reputation in other states and countries. Sulfide mining has a history of environmental damages and mining companies are often overly optimistic about their ability to mitigate or control contamination. Beth Ahearn of MCV referenced a peer-reviewed study of hardrock mining operations in her testimony, which found that predicted water quality impacts rarely match the actual impacts of mining operations (Ahearn 2012). The study found that while all mines plan to comply with water quality standards prior to beginning operations, about 76 percent of the mines that they studied failed to meet water quality standards. The study also found that the mitigation measures in place at the mines they studied failed 64 percent of the time (Septoff 2006). Even with the best available technology, there are numerous examples of failure and Maine must be wary of promises from the mining industry (Wright 2012).

Maine has experienced two cases where mines have failed and left behind negative environmental and community impacts: the Kerramerican Mine in Blue Hill and the Callahan Mine in Brooksville. Both mines were closed in the 1970s, but their communities are still dealing with significant clean-up costs and continued heavy metal contamination in ground

and surface waters (Chapman 2012). The mining companies promised the communities jobs and economic prosperity, but left a legacy of problems and damage (Edwards 2012). Testimony from the Department of Environmental Protection (DEP) asserted that both of these cases occurred prior to the establishment of the Maine DEP in 1972, and that the state of Maine has learned from these mistakes (Aho 2012). While the regulatory framework has changed substantially since the 1970s, these mines are examples of the potential environmental legacies mining can leave in communities and must be taken into consideration when considering reviving the mining industry in the state of Maine.

The stakeholders testifying against LD 1853 also raised concerns about statewide environmental impacts. The bill would make mineral development more economically feasible and lucrative, which would spark exploration and development at other deposits around the state, not just at Bald Mountain. Under a regulatory framework more conducive to mining development, sensitive areas of the state could be opened up to mining, putting some of Maine's most valuable natural resources at risk (Abello 2012, Fields 2012, Hoop 2012, Whittle 2012). Areas with high metal concentrations often support rare or specialized species unique to these types of environments (Rajakaruna 2012). These areas are important for maintain biodiversity and their ecological value must be considered in mineral development. The regulatory process should include a comprehensive ecological inventory to plan for appropriate remediation at each mining site (Rajakaruna 2012).

The specific metal resource and mine type involved in this project was also a concern for those testifying. Massive sulfide deposits, like Bald Mountain, are geologic formations that contain copper, lead, zinc, sulfides and other mineral components. Preliminary plans for the Bald Mountain mine involve an open-pit operation, which is a type of mining that has high potential to expose the sulfide components of the deposit. Sulfides oxidize readily when exposed to air or water and form sulfuric acid. When this sulfuric acid contaminates ground and surface water, it is commonly known as Acid Mine Drainage (AMD). Impacts to water quality from AMD are the most common environmental impact associated with metallic mineral development (Ahearn 2012, Hudson 2012). According to John Chisholm, a State of Maine Certified Geologist with personal knowledge of the Bald Mountain mineral deposit, the Bald Mountain deposit also contains arsenic bearing minerals which, once crushed through the mining process, would leach into mine waters (Chisholm 2012).

Maine representatives from the national Trout Unlimited organization highlighted specific concerns about Maine's brook trout habitat. Maine has some of the last naturally occurring Eastern brook trout habitats in the US, and the Bald Mountain deposit lies at the center of one of these critical habitats (Scott 2012). The mine at Bald Mountain would presumably drain directly into the headwaters of the Fish River chain of lakes in northern Aroostook County. This area is known for its excellent fishing, a reputation which supports a number of regional businesses (Heinz 2012). Outside of Aroostook County, other brook trout habitat has been found adjacent to mineral deposits, so an increase in mineral exploration and development would put many of these critical habitats at risk (Reardon 2012).

Contamination from acid mine drainage can have lasting effects on water quality long after the mining operation is finished. Ron Joseph, a professional wildlife biologist, referenced a case he worked on in Utah where open pit mining resulted in significant AMD water contamination and essentially wiped out the region's brook and cutthroat trout populations (Joseph 2012). These streams have yet to recover from the impacts of contamination and the fish populations have never returned (Joseph 2012). The vitality of Maine brook trout is important to organizations like Trout Unlimited and the Maine Professional Guides Association because they represent the recreation sectors of the state. The tourism revenue generated from outdoor recreation, especially fishing, is an important part of Maine's economy and provides the livelihood for a number of Maine people (Heinz 2012, Kleiner 2012).

Economic Context & Impact

Testimony in support of proposed mining development highlighted the industry's potential to create jobs, help strengthen the rural economy, and generate tax revenue for the state and local communities (Caribou Economic Growth Council 2012, Strauch 2012). Many residents and local leaders see the prospect of mining as a lucrative economic development tool for Aroostook County and believe it can be developed while maintaining environmental quality. The goal behind consolidating the permitting process with LD 1853 was to reduce obstacles for development and clarify the standards for permit approval (Connors 2012a, Doyle 2012). Opponents of mineral development, however, argue that streamlining the permitting process loosens the protections in place against environmental damage and offsets any potential economic benefits mining might provide. Substantial financial assurances from

potential developers must be secured to ensure that there is money available for monitoring or reclamation into perpetuity (Bartovics 2012, Maine People's Alliance 2012).

According to Irving projections, the Bald Mountain project has the potential to create up to 300 direct jobs with the potential to support up to700 direct and indirect jobs in Aroostook County (Anthony Hourihan, pers. comm.). Additionally, they expect the project to generate up to $120 million in state and local taxes (Doyle 2012). These projects are based on a study commissioned by Irving through Planning Decisions, a public policy analyst group in Maine. The Northern Maine Development Commission released similar predictions from an economic scenario modeling tool, suggesting that the area would see "between 497 and 652 new direct, indirect and induced jobs in the first year..." and "total earnings to the County would range between $19M and $28.8M (Ouellette 2012)." The job opportunities and tax revenue generated from the mine project would help spark the economy, alleviate regional unemployment, and address the out-migration trend in the area (Fowler 2012).

The two communities nearest the Bald Mountain deposit have unemployment rates above the Maine state average of 8.4%. Based on 2013 data, unemployment in Ashland was 11.7% and in Portage Lake it was 16.2%, with periods of unemployment as high as 26% (Dorsey 2012, Maine Department of Labor 2013). In Ashland, 43% of the community population is on some sort of assistance and local businesses are struggling to survive (Charette 2012). In recent years the region has seen two large sawmills and a power plant close, resulting in a substantial decrease in local job opportunities (Dwyer 2012). As a whole, Aroostook County has lost 33% of its population over the last 50 years, presumably due to high unemployment and regional economic conditions (Dorsey 2012). Local citizens in favor of the mining project see potential to revitalize their communities and bring new people into Aroostook County (Pitcairn 2012).

Table 2. Select census data comparing the Bald Mountain region to state averages (U.S. Census Bureau 2007-2011, Maine Department of Labor 2012-2013)

	Unemployment (% in 2013)	Median Household Income ($)	Population
Maine	8.4%	47,898	1,328,361
Aroostook County	10.1%	37,138	71,870
Portage Lake	16.2%	29,875	391
Ashland	11.7%	35,750	1,302

Recurring arguments against LD 1853 included requiring adequate financial assurances to protect the state and protecting Maine's nature based tourism industry. Financial assurances are mechanisms to ensure that secure funding is posted upfront and available after mining operations have been closed. Irving representatives emphasized the financial protections in the bill, including the provision that "financial assurance must be in place during mining operations, until reclamation has been completed, and through the post-closure monitoring period (Doyle 2012)." The Maine DEP also spoke on the issue of adequate financial assurances, promising that any rule changes will include strong and clear financial assurance mechanisms (Aho 2012). However, accidental contamination often occurs despite using the best available technology and having financial assurance mechanisms in place (Ahearn 2012). Financial assurances are based on predicted compliance with water quality standards, so the money set aside is often not adequate to deal with accidental contamination or problems after mine closure. These types of mistakes are costly to taxpayers and would negatively impact Maine's economy (Ahearn 2012, Bartovics 2012). The Kerramerican and Callahan mines are examples of mining failures costing Maine taxpayers and the federal government millions in cleanup costs (Chapman 2012, Maine People's Alliance 2012). Because mining companies predict full compliance, these externalities are rarely included in the estimates of economic impact in the planning stages of mining development. The state should learn from these mistakes and ensure that regulations, specifically those holding industry accountable for all associated costs, are strict enough.

Tourism is an important driver of the local economy in Aroostook County, but the industry has been hit hard by the economic downturn. While northern Maine is known for hunting, fishing, snowmobiling, and other outdoor recreation opportunities, these economic

drivers have seen recent declines in business and are struggling to keep restaurants, hotels, and other local businesses running (Umphrey 2012). The declining tourism industry strains the local economies and has had compounding effects on unemployment rates and income levels. Support for mining in Aroostook County highlights the dire need for economic development, and demonstrates trust among some groups in Irving's ability to operate safely and in the Maine DEP to regulate the process appropriately. Those who depend on Aroostook County's natural resources for their livelihood, including members of the Aroostook County Tourism Committee, are optimistic about the impacts mining would bring to the area (Fowler 2012). Maine's business community also understands the need to balance development with safeguards to ensure the protection of Maine's natural resources. Maine's landscapes and quality of life attract new businesses and people to the state (Connors 2012a).

On the other hand, others argue that the environmental risks associated with mining would put Maine's green image and tourism opportunities in jeopardy (Ahearn 2012, Heinz 2012, Kleiner 2012). Groups like the Maine Professional Guides Association and Trout Unlimited spoke directly on the negative impacts environmental damages would have on their members, who are directly involved in the state's nature-based tourism industry and value Maine's green reputation (Heinz 2012). Water contamination in streams, rivers, or lakes would almost certainly lead to additional negative impacts on Maine's tourism industry. Opening areas of the state to dangerous mineral development poses a direct threat to Maine's green reputation and the small businesses who depend on it (Bartovics 2012, Kleiner 2012).

Social Context & Impacts

Identified mineral deposits are located in rural and sparsely populated areas, making these regions especially receptive to both positive and negative impacts of mine development. These areas include the Unorganized Territory in Aroostook County, Western Maine, the Greenville area, and along the Downeast coast (see Appendix 1: Maine Geological Survey Map). The impacts of environmental damages on Maine's green reputation would be disproportionately borne in these rural communities whose main economic drivers depend on natural resources and tourism. At the same time, the positive opportunities associated with economic investments in these struggling communities have the potential to make a substantial impact and sustain the area economies. It is especially

important to include opportunities for public participation and prioritize local opinions in this type of major development project.

Local leaders in the towns of Ashland and Portage Lake have demonstrated support for the mining project. Both Ken Theriault, the Maine State Representative serving the Portage Lake area, and Ralph Dwyer, the Ashland town manager, testified in Augusta in support of LD 1853 (Dwyer 2012, Theriault 2012). In addition, the state Senators serving these communities, Republican Senator Roger Sherman and Democratic Senator Troy Jackson, both cosponsored LD 1853. Much of the local support stems from a desire for regional economic development. Recent economic conditions and mill closures have created a serious economic strain. Without an influx of new jobs or residents, these communities will continue to struggle for survival (Pitcairn 2012). Regional business development organizations and leaders also supported LD 1853. These development oriented organizations trust Irving's reputation and maintain that since the company has a vested interest in protecting their land holdings and reputation in Aroostook County, they will develop the project safely (Dorsey 2012, Walton 2012).

Other proponents highlight the potential for mining development to provide direct support for existing community resources. The Bald Mountain project could connect with the 30 megawatt (MW) ReEnergy biomass electricity plant in Ashland for its electricity needs (Cyr 2012). The biomass plant is currently closed due to lack of demand, but the Bald Mountain project could help secure enough demand to reopen the plant and return the 75 jobs that were lost when the plant was closed (Anthony Hourihan, pers. comm.). The projected power requirements for the mine are estimated at about 20 MW, which would cover about two thirds of what the ReEnergy plant is capable of producing. The project could also work directly with local university and community college systems to increase job training potential. The University of Maine schools in Fort Kent and Presque Isle, Husson College, and Northern Maine Community College could coordinate to create opportunities for direct training and education on all aspects of mining development and operation (Caribou Economic Growth Council 2012). These specific job training opportunities would serve northern Maine's underemployed but skilled workforce and give them enhanced opportunities for local employment at the mine.

While a number of individual Maine citizens testified at the hearing for LD 1853, only one individual from the Bald Mountain region testified against the bill. I suspect that the distance between Aroostook County and Augusta is the main reason for this lack of local testimony. This geographic challenge is important to point out given the regional implications LD 1853 would have on Aroostook County. Igor Sikorsky, resident of T8 R10 (less than 30 miles from Bald Mountain site) was the only northern Maine citizen to testify at the public hearing. Sikorsky owns the "Bradford Camps" facility, a hunting and fishing camp and vacation destination (Sikorsky 2012). Given the nature of his business, Sikorsky has serious concerns about the impact mining development would have on Maine's image and his business. According to Sikorsky, Maine's image supports recreation and tourism across the state and these industries are worth more than the 300 jobs projected for the project (Sikorsky 2012).

Political Context & Implications

According to policy advocates, the entire political process around LD 1853 was unusual (Nick Bennett, pers. comm.). The bill was introduced at the very end of the second regular session, with only about a month left of legislative work. While the session ultimately went longer than the original adjournment date, introducing a brand new bill (apparently coming out of nowhere) as the session is supposed to be winding down is certainly irregular. Additionally, the entire process from the introduction of the bill through the final signature from the governor happened in less than two months. During that short time span, the Committee on Environment and Natural Resources had ten work sessions and held two extensive public hearings. The fact that the bill needed ten work sessions demonstrates the magnitude and complexity of the changes it created. Introducing a major piece of legislation at the end of the session seems to be unprecedented in recent history in the state of Maine.

The bill was introduced at the request of Irving representatives interested in developing the mineral rights on part of Aroostook Timberlands' land holding at Bald Mountain. Aroostook Timberlands owns land throughout Aroostook County, which is managed by Irving. The company felt the rules governing metallic mineral mining development were an obstacle to development, citing these specific impediments in their testimony (Doyle 2012):

- Maine's permit approval standards are not clear
- Duplicative reviews and permits are needed from different agencies
- Permits must be renewed every five years
- Solid waste rules apply to mine wastes
- Financial assurance requirements are onerous
- LUPC zones are not designated for metallic mining
- Drinking water standards apply beneath mining areas
- Variances are not available for many of the requirements

LD 1853 was developed to address these constraints, remove duplication, expedite the permitting process, and clarify the standards.

The Maine State Chamber of Commerce also characterized the previous rules as an obstacle to development, suggesting that the rules "suppressed the industry for more than 20 years (Connors 2012a)." According to proponents of LD1853, the changes to reduce the bureaucracy and limitations inherent in the previous rulemaking process are not an attempt to circumvent environmental regulations (Dorsey 2012, McLaughlin 2012). Clarifying the permitting procedure and addressing the uncertainty in the regulatory process would facilitate job creation while maintaining the Maine Department of Environmental Protection's environmental standards (Cote 2012, O'Dea 2012). These claims are based on the common assumption of all those in favor of LD 1853: that mineral development and environmental stewardship can be compatible.

The original draft of the bill contained language that would limit municipal governments from passing ordinances or regulations stricter than the state regulations. However, the final bill that was enacted into law maintained municipal authority and automatic intervenor status for municipalities. According to Patrick Strauch with the Maine Forest Products Council, maintaining the "automatic intervener status" for municipalities is an appropriate way for municipalities to exert their authority in the process (Strauch 2012). The Maine Municipal Association also supported maintaining municipal authority, arguing that the impacts of mining development should be subject to local regulatory authority (Connors 2012b, Denis 2012).

Across the board, representatives from Maine's environmental organizations and outdoor industry criticized the bill draft. One of the concerns was the short timeframe for considering and reviewing the draft. Critics encouraged the committee to extend the

timeframe for considering LD 1853 to ensure participation from all relevant stakeholders, give all involved enough time to review the proposed bill and regulations, and ensure that the committee had enough time to research the full scope of the issue (Abello 2012, Gray 2012). A number of Maine's environmental organizations prepared a coordinated set of amendments to the original bill highlighting the weaknesses in financial assurance, public notice provisions, and ensuring that the DEP be given adequate information to assess a mining permit (Mahoney 2010).

COMPARISON OF PREVIOUS FRAMEWORK AND LD 1853

LD 1853 was enacted into Maine public law on April 24, 2012 as the Maine Metallic Mineral Mining Act (38 MRSA §490). The DEP and LUPC are currently in the process of rewriting their rules so the new framework is not entirely developed, but I compare the proposed changes to the previous rules to identify potential strengths and weaknesses of the new mining regulations in Maine.

Agency Oversight

One of the fundamental changes in the regulatory framework is the elimination of LUPC from the permitting process and the transfer of permitting authority to the DEP. LUPC still has some jurisdiction over projects that fall within the Unorganized Territory (UT) but does not participate in the overall permit approval. The statutory purpose of the LUPC is to "discourage the intermixing of incompatible industrial, commercial, residential and recreational activities" and to "encourage well-planned and well-managed multiple use… of land resources" (LUPC 2013). In line with this goal, LUPC is responsible for all rezoning petitions and would be required to certify that the proposed mining project is an allowable land use within the district it is proposed (12 MRSA §685). In the case of mining development, LUPC would have to accept the rezoning petition of the mine area as a Development-Planned Development (D-PD) subdistrict. The conditions for rezoning to a D-PD zone are described under LUPC's Chapter 12 Rule: Land Use District Requirements for Metallic Mineral Mining and Level C Mineral Exploration Activities (04-061 CMR Chapter 12).

Pursuant to the directive in the Maine Metallic Mineral Mining Act, LUPC is in the process of updating their Chapter 12 rules. The new rules will change the rezoning process but are supposed to maintain their agency directive to ensure that "the change in districting will have no undue adverse impact on existing uses or resources" in the area (12 MRSA §685). The rules include specific guidelines for the rezoning petition application and approval. Initial revisions to the Chapter 12 rules were posted by LUPC for public comment on November 2, 2012, and public hearings were held in December 2012. The public comment period closed mid-February 2013 and another draft of the Chapter 12 rules was released for public review on March 21, 2013 (Carr and Horn Olsen 2013).

The new permit process specifically exempts mineral developments from adhering to the Site Location of Development Permit and Solid Waste Permits. Instead, it involves one coordinated application for mineral development and only includes a state Natural Resources Protection Act Permit (under 38 MRSA §481), a state Waste Discharge License (under 38 MRSA §413), and a state Air Emission License (under 38 MRSA §582).

Applications for a mining permit under the new Maine Metallic Mineral Mining Act include conditions for municipal and public participation in the process. Specific provisions over and above adherence to the state Administrative Procedure Act (5 MRSA § 375) are required for the new mining permit process. Municipalities and counties are granted automatic intervenor status and are provided with assistance to fund expenses for participation from the permit applicant. Municipal authority is also retained in the new process, so municipalities are allowed to regulate mining or reclamation activities on their own. This framework for participation will likely be developed further in the rulemaking process.

Application Requirements

The application and approval requirements for pursuing metallic mineral development under the Maine Metallic Mineral Mining Act appear to be less specific than the previous requirements under the Maine DEP's Chapter 200 Metallic Mineral Exploration, Advanced Exploration and Mining Rules (06-096 CMR Chapter 200). Under the previous framework, the developer was required to submit a comprehensive pre-application including a baseline monitoring plan and an environmental review. The rules outlined the detailed requirements of both components of the pre-application, which included specific data on environmental conditions, regional socioeconomics, conditions for public input, and allowed the DEP and/or LUPC to ask for additional information (06-096 CMR Chapter 200). The new application procedure described in the Maine Metallic Mineral Mining Act does not mention a pre-application process (38 MRSA §490).

The overall permit requirements outlined in the statute appear to be much less specific and directed than they were under the 1991 regulatory framework. The former approval process involved a consolidated permit issued under the DEP and LUPC which included a:

A. Development Permit under the Land Use Regulation Law (12 MRSA §685)

B. Natural Resources Protection Act Permit under the Natural Resources Protection Act (38 MRSA §480)

C. Site Location of Development Permit under the Site Location of Development Law (38 MRSA §481)

D. Solid Waste Permit for mine waste under the Maine Hazardous Waste, Septage and Solid Waste Management Act (38 MRSA §1301).

A number of other state permits were also required under the old law depending on the conditions of the proposed development. These included permits from the Maine DEP for air emissions, oil discharge and storage, and a waste discharge license.

The Maine Metallic Mineral Mining Act does include specific components that must be included in the permit application, but they vary slightly from those required under the previous DEP rules. The new application procedure requires (38 MRSA §490):

A. The application fee,

B. An Environmental Impact Assessment that describes features and baseline conditions for the area and defines the mining/affected area.

C. An environmental protection, reclamation and closure plan which must include:

    a. Description of materials, methods and techniques

    b. Demonstrated proof that the methods are appropriate and will not cause harm

    c. Plans and schedules for reclamation

    d. A description of the geochemistry of the area

    e. A closure plan

    f. Provisions for preventing, controlling, and monitoring acid mine drainage (AMD)

    g. Storm and surface water management provisions

    h. A water quality monitoring plan

i. A wastewater discharge management plan

j. A description of the tailings impoundment methods

k. A plan for the storage of hazardous materials

l. Estimated costs for reclamation, closure, and environmental protection

D. A contingency plan that includes an assessment of risk to the environment and public health from incidents or failures

E. Financial assurance

F. A list of the other state/federal permits required

Under the previous DEP/LUPC joint application process, the applicant was required to submit a separate and very specifically outlined Baseline Monitoring Study as outlined in the pre-application requirement. In addition, the application required an Environmental Impact Report, which includes many of the same components required for the new Environmental Impact Assessment requirement with a few exceptions. The previous Environmental Impact Report requirements outlined 24 very specific factors to consider in a comprehensive assessment of potential environmental and socioeconomic impacts. The new rules only consider six of these factors, and none of them address the socioeconomic impacts.

The Maine Metallic Mineral Mining Act does not specifically require a formal operating plan in the application process. It calls for a "description of materials, methods and techniques that will be used", which is relatively vague. There is the possibility that the DEP rulemaking process will include more specific guidelines for what this means.

The specific language used in the rules to describe the relevance of potential impact factors is also important to compare. Under the previous rules, the applicant was required to identify "mitigation measures which may reasonably *eliminate* [emphasis added] or minimize adverse environmental and socioeconomic impacts associated with the proposed activity;" (06-096 CMR Chapter 200). The new statute only requires a process that will "*reasonably avoid* [emphasis added], minimize and mitigate the actual and potential adverse impacts…" (38 MRSA §490-OO). This significant language change gives the applicant substantial

flexibility in choosing mechanisms to address the potential adverse impacts under the new regulatory framework.

Approval Criteria

The approval criteria for mining project applications were significantly weakened by the changes enacted by the Maine Metallic Mineral Mining Act. The previous process required the applicant to meet all the permit criteria *in addition* to "affirmatively demonstrating" that the development would not violate the conditions of the permit (and the law) and that reclamation would actually be achieved. These extra conditions were eliminated in the new law. Compliance with the Maine Site Law (38 MRSA §484) was also eliminated from the new statute by specifically exempting metallic mineral mining developments from meeting the "Standards of Development" rules.

The conditions that were either eliminated or loosened appear to allow greater flexibility for the developer and weaken environmental protections. Important criteria that were removed required the developer to make "adequate provisions for fitting the development harmoniously into the existing natural environment", and meet storm water and blasting standards. Two significant language changes to Site Law criteria were made in the new law, both of which weaken environmental regulations:

- **From**: "The proposed development ***will not*** pose an unreasonable risk that a discharge to a significant ground water aquifer will occur." (38 MRSA § 484)

- **To**: "There is ***reasonable assurance*** that discharges of pollutants from the project will not violate applicable state water quality standards." (38 MRSA § 490)

- **From**: "… the development ***will not*** adversely affect existing uses, scenic character, air quality, water quality, or other natural resources in the municipality or in neighboring municipalities." (38 MRSA § 484)

- **To**: "The mining operation ***will not unreasonably affect*** existing uses, air quality, water quality or other natural resources." (38 MRSA § 490)

These language changes are central to the effort to make mineral mining in Maine easier to develop and are key details to monitor as the new framework is developed.

Despite substantial regulatory eliminations and language changes, some of the criteria for approval in the new law were actually taken directly from the Site Law. Some conditions for permit approval that carried over include:

- Applicant has the financial capacity and technical ability to develop the project in a manner consistent with applicable state environmental standards and with the provisions of this article.

- The mining operation will be built on soil types that are suitable to the nature of the mining operation.

- Applicant has made adequate provision of utilities… and the mining operations will not have an unreasonable or adverse effect on the existing or proposed utilities in the municipality or area served by those services.

- Activity will not unreasonably cause or increase the flooding of the alteration area or adjacent properties, nor create an unreasonable flood hazard to any structure.

It is important to note, however, that those conditions that carried over have nothing to do with environmental protection.

Environmental Monitoring & Conditions

Under the new Maine Metallic Mineral Mining Act, the DEP is only given limited direction for adopting performance, operation and reclamation standards in the new rules they are in the process are developing. According to the statute, the DEP rules must be "performance-based to the extent feasible" but should allow "a permittee to propose an alternative means of compliance that achieves equivalent environmental performance" (38 MRSA §490). These vague requirements seem to allow for considerable flexibility for the developer to propose their own means to meet the environmental regulations.

The new statute offers specific conditions for groundwater and surface water discharges that refer to state water quality laws but include specific exceptions that weaken water quality protections. The water quality standards applied to this type of development fall under the Maine State Water Classification Program (38 MRSA § 465). This classification system was developed in the 1950s to protect the quality of Maine's water resources.

According to the Maine DEP, the state has four classes of freshwater rivers and two classes for groundwater (Maine DEP 2013b). The conditions for permitting under the Maine Metallic Mineral Mining Act prohibit direct or indirect discharges into surface waters that violate the State Water Classification rules. For groundwater, the new law says that there must only be "reasonable assurance" that polluted water discharges will not violate state groundwater standards. The law also specifically allows discharges to groundwater within the mining area under the condition that "discharges may not result in groundwater beyond the mining area exceeding water quality standards" (38 MRSA § 490-QQ). This clause is of particular concern because groundwater "within the mining area" is still connected to the groundwater network – it is not isolated or contained by the arbitrary borders of the designated mining area (Reardon 2012).

The section of the new law pertaining specifically to monitoring water quality after mining operations are completed is relatively protective. Under the new framework, developers would be required to conduct both the ground and surface water monitoring provisions approved in the permit for at least 30 years after the mine is closed. The DEP also has jurisdiction to extend the post-closure monitoring period indefinitely in increments of 20 years (38 MRSA § 490-QQ). DEP oversight is really important to the long term protection of the area, so the DEP should be directly involved with developing and approving the specifics of a monitoring plan with the developer.

Reclamation & Closure

The reclamation goals outlined in the new mining law are less stringent than those required under the previous regulations. In the new law, the reclamation plan requires (see Application Requirements section above) in the application procedure must only "reasonably minimize the actual and potential adverse impacts on natural resources, the environment, and public health and safety..." (38 MRSA § 490). In another section of the law, the reclamation goal is to return the affected area to "the ecological conditions that approximate pre-mining conditions to the extent feasible and practicable…" (38 MRSA § 490-QQ). These loose definitions for appropriate reclamation seem to allow the developer to define essentially any effort as "reasonable" or "to the extent feasible" which gives them substantial room to violate or mismanage their reclamation plan.

The DEP rules that previously outlined the reclamation process and plan were much more protective and followed an overall reclamation goal to restore the site "to the original land use and form or an alternative land use and land form acceptable to the Department and/or Commission". The rules also encouraged alternative uses to be productive and "harmonious with the surrounding environment" (06-096 CMR Chapter 200). The previous model for reclamation plans provided detailed guidelines for what should be included and considered, including revegetation, soil replacement, erosion and sediment control plans, drainage systems, and reclamation costs as key factors. The former DEP rules also set operational standards for the remediation effort and outlined specific actions and measures. One of these measures included progressive remediation, which required the mine operator to begin closure and reclamation efforts throughout the life of the mine. Perhaps more specific guidelines will be developed in the process of the DEP's rulemaking, but the framework the new Maine Metallic Mineral Mining Act uses to direct reclamation efforts is weak.

The new law does not outline specific closure requirements, but mentions that a closure plan is part of the permit. According to the law, successful completion of the "environmental protection, reclamation and closure plan" must be certified by the DEP before the permit can be terminated. The project must demonstrate that natural resources are not polluted or impaired and that all the conditions for closure and post-closure monitoring have been satisfied (38 MRSA § 490-PP). Under the previous framework, the DEP rules included very specific monitoring and closure regulations including:

- Periodic sampling of mine waste to ensure stability
- Inspection and maintenance of the structural and chemical stability of the mine waste unit
- Continued operation of runon/runoff and leachate control systems
- Continued operation of ground and surface water monitoring stations
- And any other measure necessary to prevent a violation

The new law includes more vague requirements, but mandates both groundwater and surface water monitoring during operations, during the closure period, and for at least 30 years after the mine is closed (38 MRSA § 490-QQ).

Financial Assurance

As defined in the DEP Chapter 200 rules, financial assurance is in place to ensure "compliance with the reclamation, closure, and post-closure maintenance requirements of the permit, and the cleanup and corrective action costs of permitted or accidental releases" (06-096 CMR Chapter 200). Previously, the only acceptable form of financial assurance was a trust fund, but the new statute allows a variety of types of financial assurance including bonds, escrow, cash, a certificate of deposit, irrevocable letter of credit, or any combination of these forms. The chosen form must be approved by the DEP as adequate to protect the state's financial interest and must be in a form that cannot be cancelled or reduced without permission from the DEP. Under the new regulations, the permittee must annually assess the financial assurance mechanism and adjust it as needed to cover the anticipated costs. The previous conditions regulating financial assurance required a similar annual assessment, but also specifically allowed the DEP to require changes to the amount in the trust fund. The considerable variety of accepted financial assurance under the new rules seems more difficult to manage or certify, but serves to allow the developer more vehicles to meet the financial assurance requirements.

Summary of Changes

The regulatory changes enacted by the new metallic mineral mining law are less specific and more conducive to development than the 1991 mining law. Table 3 provides an overview of some of the changes I have identified between the two laws.

The new law eliminates the oversight power of the Land Use Planning Commission and gives sole permitting authority to the DEP. LUPC is in the process of rewriting their zoning rules for mining development within the Unorganized Territory, but it is assumed that this process will be less involved than a permit for development approval. These new rules will be important to the overall process once they have been finalized. Additionally, the new law provides less structure and direction in what must be included in the permit application and specifically exempts mining developments from a number of previously included Maine laws. A Baseline Monitoring Study is no longer required in the application, and the Environmental Impact Report only considers six factors, eliminating any reference to socioeconomic impacts.

Specific language changes in the approval criteria and reclamation requirements weaken environmental protections and allow considerable flexibility for developers. The DEP rules must now be "performance based to the extent feasible" but allow the developer to "propose an alternative means of compliance that achieves equivalent environmental performance" (38 MRSA § 490). The new rules also change the groundwater standards for mining development by allowing discharges within the mining area. Post-closure reclamation goals are much less protective of the overall environment in the new law, but the developer's closure plan must be approved by the DEP so presumably DEP oversight will maintain strong reclamation standards.

Finally, the new law allows much more flexibility in the type of financial assurance required. The previous law only allowed a trust fund as acceptable financial assurance, but the new law allows bonds, escrow, cash, a certificate of deposit, irrevocable letter of credit, or any combination of these forms.

Table 3. Summary of regulatory changes between 1991 law and the new Maine Metallic Mineral Mining Act

	1991 38 MRSA § 349	**2012 38 MRSA § 490**
Agency Oversight	DEP & LUPC	DEP Sole Authority
Approval Criteria	Strict & Clear	Weakened
Application Requirements	Baseline Monitoring required	More general requirements
Environmental Impact Report	Considers 24 specific factors	Considers 6 factors, excludes all socioeconomic factors
Ground Water Discharges	No discharge to groundwater	Discharge to groundwater allowed within the mining area
Reclamation Goal	Restoration to the "original land use and form" or an alternative approved by DEP	"Ecological conditions that approximate pre-mining conditions to the extent feasible and practical"
Financial Assurance	Trust Fund	Wide variety of financial assurance types

Next Steps

Both agencies are in the process of rewriting the rules regulating metallic mineral mining. The DEP rules are expected to be finalized over the next year and will likely be released in 2014. The Land Use Planning Commission will submit their updated Chapter 12 rules to the Secretary of State for approval following the confirmation of the final rules at the LUPC meeting on May 8, 2013. The future of mining in Maine will depend directly on the outcomes of these two rulemaking processes.

Currently (as of May 2013) the state legislature is considering three new bill proposals aimed at changing the new mining law (38 MRSA § 490). A public hearing was held before the Committee on Environment and Natural Resources on April 29, 2013 with three separate bill proposals being considered (Cairn 2013):

- LD 1059 – An Act to Protect Maine's Environment and Natural Resources Jeopardized by Mining
- LD 1302 – An Act to Amend Maine Metallic Mineral Mining to Protect Water Quality
- LD 1324 - An Act to Protect Local Communities When a Mining Project is Terminated

The majority of those testifying before the committee were interested in LD 1302, sponsored by Democratic Representative McCabe of Skowhegan. The bill aims to address some of the weak approval criteria language and concerns about water quality protection. The bill includes four main changes (LD 1302):

1. Permit applicants must demonstrate relevant experience with a successful mining operation that meets certain conditions.
2. Strengthens the approval criteria by eliminating the clause "There is reasonable assurance that discharges…" and replacing it with "Discharges of pollutants from the mining operation will not violate applicable water quality standards".
3. Prohibits the DEP from approving a permit if the mining operation will result in contamination or treatment for more than 10 years after the mine is closed.
4. Requires that financial assurance be achieved through the creation of a trust fund to ensure adequate protections.

The other two bills, LD 1059 and LD 1324 received less public attention. LD 1059 would repeal the Maine Metallic Mineral Mining Act, and LD 1324 reinstates the Mining Oversight Fund to provide money for corrective action. This fund would support municipalities if the site required remediation or clean up after the mine is closed (LD 1324). I would guess that the focus on LD 1302 reflects the fact that the amendment addresses some of main criticisms of the new Maine Metallic Mineral Mining Act. The proposed amendment to eliminate the law altogether (LD 1059) would be difficult to pass through the legislature given the apparent support for an update to mining regulations and all of the work that went into the initial passage of LD 1853.

As of this writing, these amendments are going through the Maine legislature. A public hearing was held on April 29, 2013 to address all three amendments, and a work session was held in the Committee on Environment and Natural Resources on May 8, 2013. During that session, LD 1059 and LD 1324 were voted on and received a divided report from the committee. LD 1302 was tabled and will be taken up in a future work session during this legislative session.

COMPARATIVE CASE STUDIES

One way to predict possible outcomes for the Bald Mountain mine and other metallic mining developments in Maine is to compare the experiences of mine projects with similar conditions and contexts from other regions. This study compares the environmental, economic, social, and political context two of mines outside of Maine to draw conclusions about the potential impacts comparable future projects would have in Maine. Through personal communication with Anthony Hourihan, Director of Land Development for Irving, three specific mining operations were identified as models Irving was using in planning their development: Voisey's Bay in Labrador, Red Dog in Alaska, Osisko in Quebec. I selected the Voisey's Bay Mine and the Red Dog Mine as case studies based on regional similarities to the state of Maine, comparable economic conditions in the local area, and similar mine operations. I specifically chose to study the Red Dog Mine in Alaska instead of the Osisko mine in Quebec because of its political relevance to the regulatory framework in Maine. The other two mining operations are regulated under Canadian and provincial law, but Red Dog operates under federal and state law in the United States.

I begin by describing the two cases, and then compare the economic, environmental, social and political factors at play in each example. Table 4 summarizes these factors and provides a comparison of the lessons learned in each case.

Voisey's Bay Development, Labrador, Canada

The overall context of the Voisey's Bay mine is similar to the conditions at the Bald Mountain deposit. The ecological conditions around both deposits contain valuable water resources and sensitive fish habitat (specifically brook trout), which would face significant threats from any acid contamination from mine accidents (JWEL 1997, Reardon 2012). Both regions are economically disadvantaged and serve to benefit from increased economic activity and employment opportunities. According to the company's annual environmental reports, the Voisey's Bay mine has seen minimal environmental damages throughout its operation. On the other hand, the company did not adequately follow through with its commitment to local stakeholders throughout the political process so this case serves as a lesson in maintaining meaningful community participation.

Table 4. Comparison of environmental, economic, social and political factors for the proposed Bald Mountain Mine development in Northern Maine to two existing mine sites identified by Irving: Voisey's Bay Mine in northern Labrador and Red Dog Mine in Alaska.

	Bald Mountain	**Voisey's Bay**	**Red Dog**
Environmental			
Mine type	Open-pit copper, lead, zinc, gold	Open-pit nickel, copper, colbalt	Open-pit zinc, lead
Region	Unorganized Territory	Aboriginal Territory	Remote Tundra
Size	600 acres	850 acres	44,800 acres
Regulatory compliance	Regulatory framework still being developed	Yes, minimal compliance issues	No – major polluter, dust and water contamination
Economic			
Unemployment rate	Higher than state and county averages	Higher than provincial and census division averages	Higher than state and borough averages
Jobs created	300 (estimated)	450	550
Social			
Community support	Initial community support	On paper – Yes Reality – No	Yes – joint venture with local development organization
Social impacts	May support existing community resources	Negative	Positive
Political			
Streamlined?	Yes – permit process consolidated	Yes – federal and provincial processes combined	No – regulated by state and federal permits
Stakeholder involvement	Will be key to success	Yes (but ultimately corporate interests won)	Yes – local stakeholders involved
Overall lessons?	**Strong regulatory framework & community involvement are more likely to produce positive outcomes**	**Strong environmental compliance but limited local involvement**	**Environmental problems, but strong community involvement**

Voisey's Bay

The Voisey's Bay Mine was developed by Voisey's Bay Nickel Company Limited (VBNC) in 2005. The deposit is one of the highest grade nickel ore bodies in the world and is operated as an open-pit nickel, copper, and cobalt mine and mill. The site includes the open-pit mine, a concentrator, waste storage areas and sedimentation ponds for tailings disposal, along with on-site accommodations capable of housing 225 people (INCO 2006). The remote location of the mine places it squarely within the territory of the Labrador Innu people. About 1,500 Innu people live near the mining development site, so agreements between VBNC and the Innu Nation were necessary to the development of the project (Cleghorn 1999). VBNC worked to include Innu perspectives in the permitting and environmental assessment process, but ultimately ignored the Innu conditions for development and proceeded with the project before meeting their needs. Despite the negative outcome, the Voisey's Bay case provides an example of local people participating in negotiations around environmental assessments and impacts and benefits agreements (Stewart et al. 1999).

Environmental Context & Impact

Voisey's Bay is located in northern Labrador on a peninsula bordered to the north by Anaktalak Bay (Figure 3; INCO Limited 1997b). The region near the mine has significant water resources including lakes, small ponds, and streams and rivers that flow to the Labrador Sea (INCO Limited 1997a). These freshwater habitats serve as important spawning and nursery habitat for several species of fish. Streams in the Voisey's Bay project area provide spawning, rearing, and holding habitat for brook trout (INCO Limited 1997a). The Voisey's Bay Environmental Baseline Technical Data Report identified brook and lake trout, Atlantic salmon, and Arctic char as fish species living within the regional ecosystem (JWEL 1997). Fish are an important food resources in northern Labrador, and are important to both the Innu and Inuit communities for traditional and subsistence fishing (INCO Limited 1997e). Other species of particular concern to the Innu Nation include Caribou, birds of prey, and waterfowl (Innu Nation n.d.).

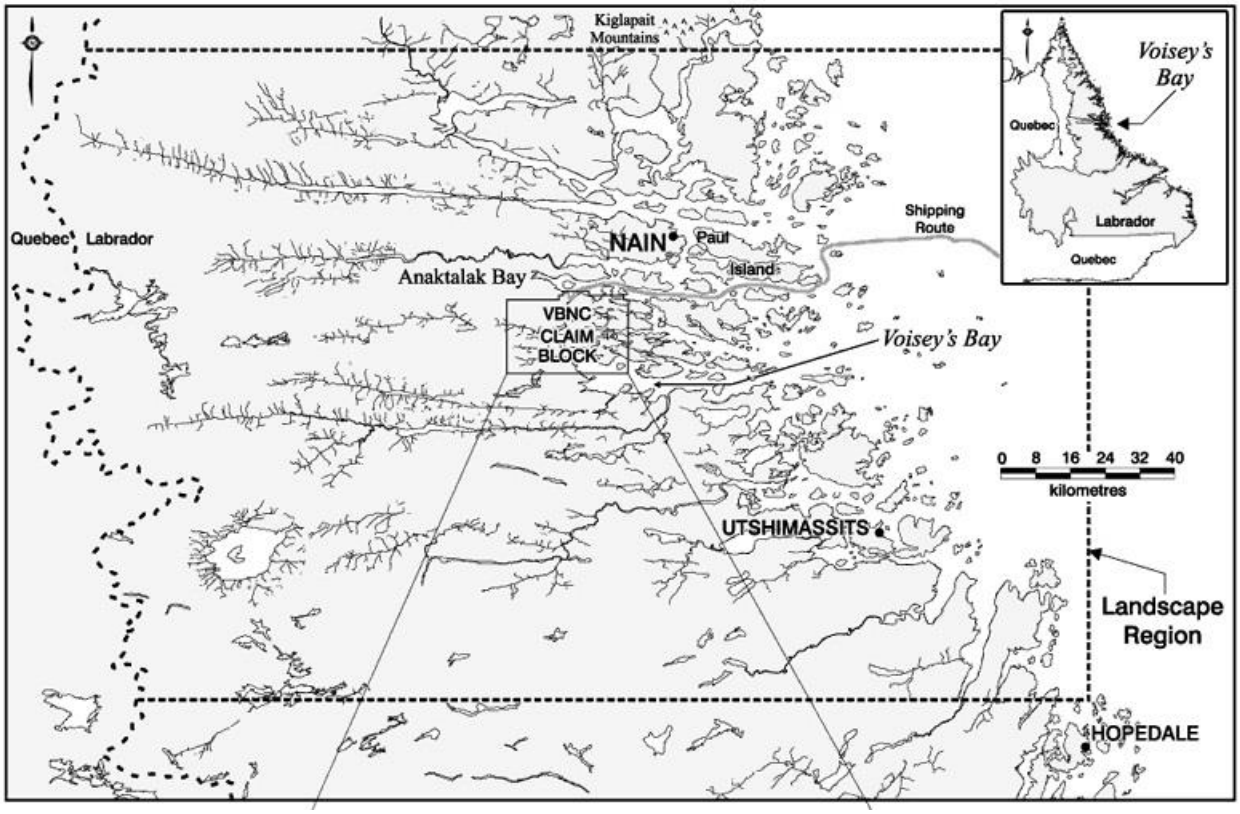

Figure 3. Location and general layout of Voisey's Bay project (INCO Limited, 1997c)

Some of the specific environmental monitoring features at Voisey's Bay include real time water quality monitoring, continuous air quality monitoring, comprehensive baseline data, and bioremediation for contaminated soils (Voisey's Bay Nickel Company Limited 2006). VBNC reported that they were the first industry partner to participate in the Newfoundland and Labrador Department of Environment Real Time Water Quality Monitoring Program in 2006, utilizing five real time monitoring stations around the project area (VALE 2011).

VBNC's 2006 Environmental Performance Report (the most recent report available on the company website) highlighted the incidents and environmental remediation efforts at the site. The company reported a 60% decrease in incidents from 2005, dropping from 28 to 12 cases. There were ten reported accidents in the water treatment process in 2006, with one significant release into a nearby bog. The company found no signs of residual contamination in adjacent waterways and no increase in toxicity in fish. Treated effluent from the mine met regulatory discharge requirements, with only one case where pH slightly exceeded the regulatory limit. All water discharged into Anaktalak Bay must meet stringent provincial regulatory requirements and Federal Metal Mining Effluent Regulations (Voisey's Bay Nickel Company Limited 2006). Final

rehabilitation plans aim to restore the site to a safe and environmentally stable condition, with regular inspection and monitoring after closure. Long-term treatment mechanisms will be developed if water is not suitable for discharge into regional waterways (INCO Limited 1997d).

Although acid mine drainage (AMD) can occur naturally, mining activities exacerbate the process and can contaminate water systems with sulfuric acid, decrease the pH level, and increase the water's toxicity. These changes have significant impacts on habitat viability and can be especially harmful if the AMD has high concentrations of metals (Sumi and Thomsen 2001). In addition, the waste products of mining, known as mine tailings, can create the potential for further environmental contamination. At Voisey's Bay, mine rock and tailings waste with potential to generate acid mine drainage are placed under permanent water cover to avoid acid generation and non-acid generating wastes are stored in surface facilities (INCO Limited 1997b). While advanced environmental management systems help reduce the risks of environmental contamination, they cannot eliminate the potential of accidental releases (Stewart et al. 1999). The mechanisms in place at Voisey's Bay have the potential to fail or leak and cause significant damage to local water quality. If AMD does occur on site, long-term management, with the potential for management into perpetuity, would be required. In this case, "the costs associated with long term pollution abatement can turn a once-profitable mine into an expensive liability" (Sumi and Thomsen 2001).

Economic Context & Impact

Newfoundland and Labrador has the weakest provincial economy in Canada, with the provincial unemployment rate above the Canadian average. In northern Labrador the economy is especially dependent on subsistence hunting, trapping and fishing activities because these activities provide a more stable source of income than more standard wage employment (INCO Limited 1997c). Regional economic growth is constrained by the size of the local market, so there is little potential for commercial growth without a significant increase in population or individual income (INCO Limited 1997c).

Aroostook County shares some of the same economic concerns as the Voisey’s Bay region. The county has seen consistently negative population growth and is an economically disadvantaged part of the state. According to the most recent data from the Maine Department of Labor, unemployment rates in Aroostook County as a whole and in the two communities closest to the Bald Mountain deposit (Ashland and Portage Lake) are all above the Maine state average

(Maine Department of Labor 2013). Unemployment rates in the Voisey's Bay region are also very high, with about 30% of the population unemployed, compared to only about 12% provincial unemployment.

Median household income, another measure of relative economic strength, is relatively low in the rural regions of Voisey's Bay and northern Maine (U.S. Census Bureau, 2011; Statistics Canada, 2007). Both regions and all of the communities closest to these mineral deposits have income levels well below the state and provincial average. This difference is especially striking in Aroostook County, with regional income rates more than $10,000 less than the state average (Maine Department of Labor 2012). As demonstrated in Table 5 below, these two regions share undesirable economic conditions.

Table 5. Comparison of select census data for the proposed Bald Mountain project in Maine and the Voisey's Bay Maine in northern Labrador (Statistics Canada 2007, U.S. Census Bureau 2007-2011, Maine Department of Labor 2012-2013)

Bald Mountain Region		**Voisey's Bay Region**	
Unemployment (%)			
Maine	8.4% (2013)	Newfoundland & Labrador	18.6% (2006)
Aroostook County	10.1% (2013)	Census Division 11	31.5% (2006)
Portage Lake	16.2% (2013)	Hopedale	32.5% (2006)
Ashland	11.7% (2013)	Nain	27.9% (2006)
Median Household Income ($)			(Canadian $)
Maine	47,898	Newfoundland & Labrador	49,645
Aroostook County	37,138	Census Division 11	46,848
Portage Lake	29,875	Hopedale	40,832
Ashland	35,750	Nain	45,952
Population			
Maine	1,328,361	Newfoundland & Labrador	505,469
Aroostook County	71,870	Census Division 11	2,414
Portage Lake	391	Hopedale	530
Ashland	1,302	Nain	1,034

At Voisey's Bay, the mine and concentrator at the facility employs approximately 450 people, with the potential to expand operations around 2018 and hire an additional 350 workers

(Vale 2013). In considering the Voisey's Bay development, the government of Newfoundland insisted that all jobs associated with the project stay in the province (Hanrahan 1999). While this requirement served to ensure that local communities were the main beneficiaries of new employment, it did not require job training for local workers or take into consideration that the Voisey's Bay Mine is a fly-in operation. This means that all of the workers are transported by charted aircraft from nearby communities and live on-site in facility accommodations. These details challenge the promised localized community impact of the Voisey's Bay development.

Social Context & Impact

The development at Voisey's Bay is an example of a mining company making an effort to engage the local community. The Innu Nation was included in negotiations around the development of the project and VBNC set up and funded an Innu Nation task force to assess the proposed regulations and make specific recommendations to the Environmental Assessment (VALE 2011). VBNC also focused on hiring aboriginal people for direct jobs and service contracts (VALE 2011). However, despite these formal efforts to include the Innu, the political context of the development at Voisey's Bay ultimately overruled Innu interests. Although aboriginal involvement was undermined in this case, the mechanisms that were in place to include them are important to recognize and serve as a lesson for similar projects.

This type of industrial development, especially in rural regions like northern Labrador, has the potential to disrupt cultural and social structure. Subsistence hunting, trapping, and fishing are a major part of the cultural identity of the Innu people, so the environmental risks associated with mineral extraction are especially high in the area. The severity of negative environmental impacts makes involving local communities in the planning and decision-making process critical (Hipwell et al. 2002). Also, because mining jobs are usually geared towards men, women are disproportionally excluded from the economic benefit of increased employment opportunities (Hipwell et al. 2002).

Political Context & Impact

The political process leading to the development of the Voisey's Bay mine can be considered a lesson in emphasizing the need for meaningful participation from community stakeholders. Mechanisms for participation must be closely followed to ensure agreements are sincere and not just company propaganda.

At Voisey's Bay, VBNC funded a task force led by Innu leaders to gather community opinions and host public forums about the project. Through this process, the task force identified a number of conditions under which the community would agree to mining development: settlement of their land claim with the government, negotiating an impact benefit agreement (IBA) with the company, and participation in the Environmental Assessment process (Hipwell et al. 2002).

A Memorandum of Understanding (MOU) was signed by the Innu Nation, the Labrador Inuit Association, and the federal and Newfoundland governments that ensured compliance with all federal and provincial regulations by outlining guidelines for the Environmental Assessment (INCO Limited 1997b, Sumi and Thomsen 2001). The MOU aimed to streamline the environmental assessment process by combining the regulations required from the Canadian Environmental Assessment Act (CEAA) and the Newfoundland Environmental Assessment Act (NEAA). In negotiations over the MOU, the Innu used their influence to broaden the definition of environment to better represent their interests and include "social, economic, recreational, cultural, spiritual and aesthetic" (Hipwell et al. 2002). It is important to note that the Labrador Métis people, who were vocally opposed to the project, were not included in the MOU (Hanrahan 1999). These types of coordinated agreements and negotiations should provide public input into the development process, but they must be carried out by all parties in order to be effective.

The Environmental Assessment guidelines developed by the MOU for the Voisey's Bay project consisted of five main components: a description of the environmental setting and project, specific environmental assessment methods, identification of potential environmental effects, proposed mitigation and monitoring methods, and follow-up programs for monitoring and remediation (INCO Limited 1997b). The Environmental Assessment panel ultimately concluded that the project should only be approved on two conditions. First, they agreed that the Innu and Innuit land claims should be settled with the Canadian government before the company began development on the site. Second, they wanted to ensure that a consensus was reached between all parties in the IBA and that it was signed before the project was authorized (Hanrahan 1999). Despite these clear mandates negotiated under the guise of aboriginal participation in the process, the government approved the project for permitting without meeting either of these conditions (Hanrahan 1999, Stewart et al. 1999, Hipwell et al. 2002, Innu Nation n.d.). This move by the

government was a major step back from the positive work that was being done between the Innu Nation and the project developers. Community trust in these types of projects is critical, and the political process must include honest provisions for local communities and stakeholders to influence the negotiations and regulations that are developed.

Red Dog Mine, Alaska

The Red Dog Mine is another benchmark mine identified by Irving to research as they begin to model their potential development at Bald Mountain (Anthony Hourihan, pers. comm.). The Red Dog Mine is the largest zinc mine in the world and provides 79% of all zinc production in the United States (Northern Alaska Environmental Center 2011, InfoMine 2012, Alaska DEC 2013, NANA 2013b). It is also the largest toxic polluter in the United States according to data from the US EPA's Toxic Release Inventory (TRI) program (Miller and D'Esposito 2004, Peabody et al. 2004). Red Dog Mine has struggled to comply with both state and federal environmental regulations, so Irving should not be focusing on their operations as a model for development in Maine. The environmental costs associated with the Red Dog Mine demonstrate the risks associated with metallic mineral mining operations and the importance of protective environmental policies. I chose the Red Dog Mine as a case study in order to draw overall conclusions about the state and federal regulatory framework in the US. The other two benchmark mines identified by Irving operate under Canadian law.

Despite the political relevance, the Red Dog Mine should not be considered as a benchmark for development in Maine. Maine would not see mining of this magnitude or scale, and the legacy of environmental problems should serve as red flag for Irving. My hope is that Irving identified this mine in order to learn from their mistakes, but I do not think this development is relevant to any future projects in the state of Maine.

Red Dog

The mineral development company, Teck Cominco Limited (Teck), entered into an agreement with the landowner of the ore deposit, NANA Regional Corporation, Inc. (NANA) in 1982 to develop the Red Dog Mine (Peabody et al. 2004). The mine is an open-pit operation extracting about 10,000 tons of ore per day of zinc and lead, and the facility includes the open-pit mine, a concentrator, tailings impoundment facility, seepage collection and pumping system, and a water reclamation and treatment system (Northern Alaska Environmental Center 2011, Alaska DEC 2013) The main pit of the mine remained in operation until 2012, but the company has expanded into a new, nearby deposit to continue operations (Northern Alaska Environmental Center 2011, Alaska DEC 2013).

The Red Dog Mine operates on land owned by the NANA Development Corporation (the business arm of the NANA Regional Corporation). The NANA mission directs the organization

to support the Iñupiat natives of northwest Alaska by engaging in projects and opportunities to provide jobs and direct community benefits (NANA 2013a). According to their website, NANA ensured that Iñupiat communities were involved in the development of the Red Dog Mine and would receive a substantial share of the associated economic benefits (NANA 2013b).

Environmental Context & Impact

The Red Dog Mine is located in the Northwest Arctic Borough, a remote region of Alaska in the DeLong Mountains (Northern Alaska Environmental Center 2011, InfoMine 2012). The ore deposit is in the middle fork of Red Dog Creek, which feeds into the Ikalukrok Creek and the Wulik River. These water resources are important habitat and subsistence resources for local communities.

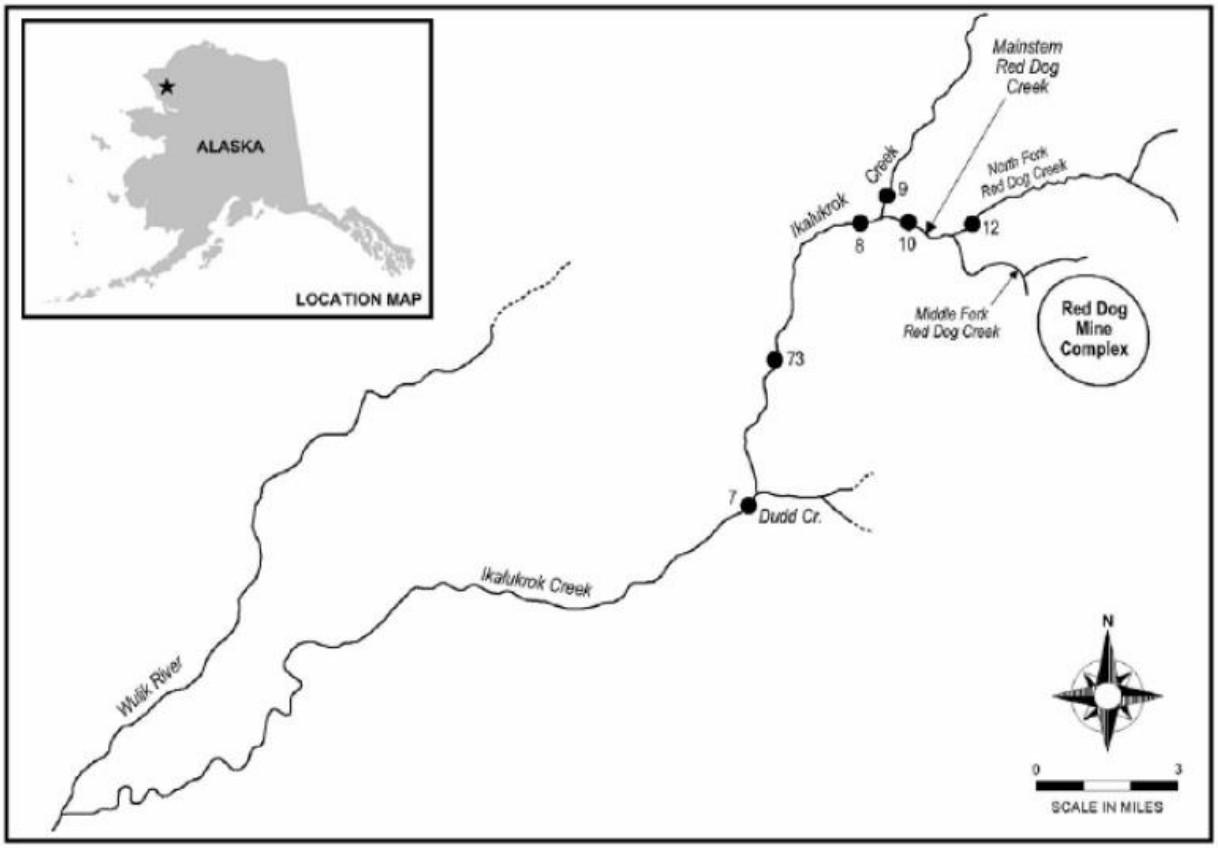

Figure 4. Location and general layout of the Red Dog Mine (Alaska Department of Environmental Conservation 2005)

Prior to the mining development, the water in the Red Dog watershed was already contaminated with naturally occurring metals from erosion of the deposit by the Red Dog Creek.

Because the baseline water quality already had metal concentrations, Teck's water collection and treatment system actually improves regional water quality. According to the company, the water discharged from the mine contains less metals than the residential drinking water in Anchorage (Teck Resources Limited 2009). However, despite company claims about water treatment and management, the company has struggled to meet water quality standards and has been criticized by non-governmental environmental groups across the state. The Red Dog Mine has routinely violated their federal water pollution discharge permit, resulting in fines and lawsuits from the surrounding communities (Bluemink 2010). Most recently, Teck faced appeals from a number of environmental organizations and individuals when they applied to modify and update their federal National Pollutant Discharge Elimination System (NPDES) permit (Peabody et al. 2004, Kulas 2010, Northern Alaska Environmental Center 2011).

Traces of ore dust particles contaminated with heavy metals have also been a substantial environmental concern at the Red Dog Mine. A study by the National Parks Service in 2001 found above average metal concentrations in mosses collected along the DeLong Mountain Regional Transportation System (DMTS) road that bisects Cape Krusenstern National Monument (Ford and Hasselbach 2001, Peabody et al. 2004). In response to this report, Teck invested more than $23.4 million to reduce dust emissions from their processing facilities and replaced their transport trucks with side-dumping, hydraulically sealed cargo covers (Peabody et al. 2004, Teck Resources Limited 2009). In addition, the company commissioned a risk assessment study from Exponent (a consulting firm) to determine the human and environmental health effects of the metal concentrations found in the NPS study (Exponent 2007).

The company study confirmed the presence of lead and cadmium in the mosses and soils along the DMTS road detected by the NPS study, but ultimately concluded that harvesting of subsistence foods in the area was safe and that there were no observed effects on animals or the environment. At the same time, the Alaska Department of Environmental Conservation also commissioned a study and found similar results (Peabody et al. 2004). One local public health focused nonprofit, the Alaska Community Action on Toxics, doubted the agency's conclusions and decided to sponsor an independent review of both studies to verify the conclusions. Their independent study concluded that the levels of cadmium and lead reported in subsistence foods collected near the Red Dog Mine exceeded safe levels suggested by both the World Health Organization and the US Food and Drug Administration (Peabody et al. 2004).

The Red Dog Ming was been classified as the largest toxic polluter on the EPA's TRI pollution registry (Miller and D'Esposito 2004, Peabody et al. 2004). The company defends its position by claiming that the ranking is based on the quantity of rock and tailings they transport, not based on the amount they pollute. According to Teck, any movement of mineralized rock is considered a "release to the land" by the EPA, so their high ranking reflects the volume of rock they move but does not accurately reflect the safe management of their waste rock and tailings (Teck Resources Limited 2009).

The environmental concerns at the Red Dog Mine are certainly an important factor in considering the impact of mining in rural areas of the US. Besides mismanagement during operations, mines can causes permanent damages that may require costly perpetual management after closure. In the case of Red Dog Mine, the tailings storage facility will ultimately hold almost 80 million tons of tailings containing heavy metals. Under this closure plan monitoring, and water treatment will be required into perpetuity (Northern Alaska Environmental Center 2008). This reliance on perpetual management as a closure plan is characteristic of most metallic mining operations, but not all mining companies include adequate financial resources upfront to cover these costs.

Economic Context & Impact

A comparison of economic indicators in the Northwest Arctic Borough of Alaska where the Red Dog Mine is located to the Bald Mountain region can help assess the potential economic impact a mine project would have in Aroostook County. As discussed previously, the region around the Bald Mountain deposit has high unemployment rates, low median household income, and a small (and declining) population. Unemployment rates in the region around the Red Dog Mine are also very high, with the communities nearest the mine site facing unemployment rates that are double the state average (Kotzebue 19.9%) or as high as five times the state average (Noatak 41.6%). Table 6 below demonstrates similarities between the economic contexts of the Bald Mountain region and northwest Alaska.

Table 6. Comparison of select census data: Bald Mountain, Maine and Red Dog, Alaska (U.S. Census Bureau 2007-2011, Alaska Department of Labor and Workforce Development, 2013)

Bald Mountain Region		Red Dog Mine Region	
Unemployment (%)			
Maine	8.4% (2013)	Alaska	8.4% (2013)
Aroostook County	10.1% (2013)	Northwest Arctic Borough	14.5% (2013)
Portage Lake	16.2% (2013)	Kotzebue	19.9%
Ashland	11.7% (2013)	Noatak	41.6%
Median Household Income ($)			(Canadian $)
Maine	47,898	Alaska	69,014
Aroostook County	37,138	Northwest Arctic Borough	59,893
Portage Lake	29,875	Kotzebue	71,761
Ashland	35,750	Noatak	61,875
Population			
Maine	1,328,361	Alaska	710,231
Aroostook County	71,870	Northwest Arctic Borough	7,523
Portage Lake	391	Kotzebue	3,201
Ashland	1,302	Noatak	514

While both regions face high unemployment and below average median household income levels, the Northwest Arctic Borough of Alaska has a very different economic context than northern Maine. The communities in this remote region of Alaska depend on mainly subsistence activities (Miller and D'Esposito 2004). The largest taxpayer in the borough is the Red Dog Mine, which provides 60% of the regional revenue and significant benefits to the local economy (Teck Resources Limited 2009). Over the ten year period between 1989 and 2009, the company provided about $921 million in benefits to the regional economy through wages, payments in lieu of taxes, and royalty payments to NANA. In 2009 alone, the company invested $217 million in the local and state economies by purchasing goods and services from local businesses and suppliers. The mine operation supports 550 full time jobs with an annual payroll of approximately $52 million (Teck Resources Limited 2009).

Social Context & Impact

The partnership between Teck and NANA highlights a commitment to respecting and working directly with the local communities. NANA is a regional Alaska Native corporation formed out of the Alaska Native Land Settlement Act which supports the culture and needs of the Iñupiat natives and the 11 villages in the NANA area (NANA Regional Corporation 2010). Because the Red Dog Mine is located on land owned by NANA, the mining company must respond to and address local interests (Bonneau 2010). As part of this mandate, the company created a "Subsistence Committee" of local hunters and elders to provide consistent operational direction for protecting local subsistence resources (Teck Resources Limited 2009).

The area the Red Dog Mine operates in has important regional significance. The transport road cuts directly through the Cape Krusenstern Monument, a federal preservation area dedicated to protecting native culture, subsistence resources, and unique habitats (Peabody et al. 2004). The Iñupiat people's representation through NANA gives them substantial influence, especially since nearly all the residents in the villages closest to the mine are also NANA shareholders. The potential human health risks associated with mismanaged mining operations would be felt most acutely in these villages, so NANA attempts to protect local interests by monitoring operational standards for the mine (Peabody et al. 2004).

Teck also engages in local initiatives and invests directly in the local communities. The company donated $1.25 million to the Northwest Arctic Borough School District Youth Leaders Program and $100,000 to the school's science and technology program (Teck Resources Limited 2009, The Arctic Sounder 2011). In the community, they subsidized over 10,000 gallons of heating oil, saving people within the local communities over $50,000 (Teck Resources Limited 2009). These investments in the people and region are standard for development projects of this scale, but are important to maintaining the company's social license to operate.

Political Context & Impact

The regulatory framework for mining in Alaska involves coordination between both state and federal agencies in developing and approving permits. Mining developments are regulated by the Alaska Department of Natural Resources Division of Mining, the Alaska Department of Environmental Conservation (DEC), and the Department of Fish and Game (Butler 2010). The DEC administers the Alaska Environmental Conservation Law, which regulates surface and groundwater quality, air emissions, and waste permits (Alaska DEC 2013). Mining development

in Alaska also requires compliance with the Federal Clean Water Act, the Endangered Species Act, and the federal Magnuson-Stevens Act (16 USC 1855), which upholds protections for designated "Essential Fish Habitat" (Alaska DEC 2013). The Clean Water Act (CWA) sets effluent limits for discharges based the strictest of either "technology-based effluent limits or water quality-based limits" (Alaska DEC 2013). The CWA also requires water quality monitoring and best management and quality assurance plans for mining operations. Compliance with these federal laws must be demonstrated in the permit for mining.

Financial assurance bonds must also be posted with the Alaska Department of Natural Resources (DNR) to ensure there is adequate funding available to complete the reclamation plan (Butler 2010). Financial assurances from the mining company can be in the form of a surety bond, letter of credit, certificate of deposit, corporate guarantee that meets certain financial tests, payments into the mine reclamation trust fund, or other types of security that meet the "certain financial tests" (Butler 2010).

Conflict between local stakeholders and the mine company surfaced when Teck began looking to expand operations in 2007. The company submitted a request to the federal government to modify their NPDES permit to accommodate developing a new deposit, the Aqqaluk Deposit (Northern Alaska Environmental Center 2011). The NPDES permit was reissued in 2010 but was appealed by a number of local environmental groups and individuals and heard before the EPA's Environmental Appeals Board (Alaska DEC 2013). Those opposed to the reissued permit argued that the activities at Red Dog Mine did not comply with the Clean Water Act and threatened the vitality and protection of Alaskan water resources by relaxing discharge limits and allowing more pollution (Northern Alaska Environmental Center 2011). Teck argued that the 1998 permit limitations were stringent enough and should be left in effect. Teck was supported by the final EPA decision which maintained the 1998 permit conditions (Kulas 2010). According to the DEC, the regulations agreed to under the permit were already "more stringent than those calculated for the 2010 permit and are more stringent than necessary to protect the receiving water" (Alaska DEC 2013). All the pertinent agencies approved the final regulations to continue the development of the Aqqaluk Deposit under the originally accepted permit. However, the company is still scrutinized for noncompliance with these permit conditions.

DISCUSSION

After assessing the mining legacy sites in Maine, the political discourse surrounding the recent changes to metallic mineral mining regulations, and the experiences at other mines outside of the state, I was able to identify some key lessons and concerns for the future of mining in Maine. I describe these below and present overall conclusions and recommendations based on these lessons.

Water Quality Concerns & AMD

Given Maine's wet climate and the remote location of the identified metal deposits, mining development poses significant risks for Maine's valuable freshwater ecosystems. The deposit at Bald Mountain is an example of a massive sulfide deposit, a geologic formation that contains sulfides that readily react when exposed to air or water (Cummings 2012). This reaction creates sulfuric acid, which can contaminate nearby water bodies through the mining process or from waste rock treatment and storage (Mining Truth Coalition 2012). A major component of mining operations is waste management because more than 99% of the rock extracted from the ground ends up as waste (Kuyek 2011). This waste rock has to be managed, treated, stored, and requires long-term maintenance to limit heavy metal contamination. Sulfide-based deposits also contain heavy metals including copper, lead, and zinc that can be dissolved by the sulfuric acid and contaminate the water (Mining Truth Coalition 2012). Acid Mine Drainage (AMD) occurs when sulfuric acid and other heavy metals contaminate ground and surface water. AMD is the most common environmental impact associated with metallic mineral mining (Ahearn 2012, Hudson 2012).

Maine is fortunate enough to have some of the last naturally occurring Eastern brook trout habitats in the US (Scott 2012). AMD contamination in these critical habitats around Bald Mountain and in other regions of the state would have devastating effects on the viability of these fish habitats and species (Joseph 2012, Reardon 2012). The area around Bald Mountain has a reputation for excellent fishing opportunities, and the protection of Maine's freshwater habitats as a whole is critical to supporting Maine's nature based tourism (Heinz 2012). Local businesses across the state are supported by the revenues generated from fishing and other wildlife associated recreation activities. In Maine, total expenditures for wildlife related recreation reached $1,442,445 in 2011, with fishing alone generating $371,829 (US Fish & Wildlife Service 2012). Revenues from outdoor recreation, especially fishing, are critical to Maine's

economy and provide the livelihood for a number of Maine people (Heinz 2012, Kleiner 2012). The state must demand rules that adequately protect Maine's water quality and maintain Maine's nature based tourism industry.

The recent amendment to the law, LD 1302, "An Act to Amend Maine Metallic Mineral Mining to Protect Water Quality", specifically strengthens the protections in place for Maine's water by limiting discharge allowances. Clear and specific environmental regulations must be included in the new DEP rules to protect both surface and groundwater quality and provide clear guidelines for monitoring, treatment, and reclamation of discharges. The mining company should be required to demonstrate a clear and attainable plan to avoid water contamination.

Regional Economic Impact

The Bald Mountain development could provide benefits for the local economies in Aroostook County. These small communities are struggling to survive, with declining populations, high unemployment rates, and the major economic drivers (paper and lumber mills) closing across the region (Pitcairn 2012). The opportunity for job creation is desperately needed in Aroostook County, so residents are willing to accept the risk of environmental damages to sustain their communities and livelihoods.

One of the interesting things I identified in my research is regional support for mining development in Aroostook County. Many of the people I spoke with were optimistic about the opportunities mining would bring, and were critical of politicians and environmental organizations in Augusta limiting their ability to pursue mining. This sentiment is summed up well by Senator Troy Jackson, one of the sponsors of LD 1853 and a legislator from the area (Sharon 2013):

> It's tiresome that people keep telling us, thinking that we're ignorant, we don't know how to do anything right and be environmentally safe, when I think that most of the area has been pretty well protected and we know how to be good stewards.

It is important to note that only a handful of Aroostook County residents testified in the LD 1853 process, and out of that small group only one person testified against the mine. Those who were able to travel to Augusta to testify mainly came from regional development organizations that have a vested interest in promoting job creation. There was very little representation from the general public in Aroostook County. This overall underrepresentation may be attributed to the

distance from Augusta, the last minute legislative process, and/or a lack of interest or awareness about the issue.

Forums and meetings similar to the one I attended in Ashland in December of 2012 will be critical moving forward as the company and communities begin shifting into the formal planning and permitting stages. These types of events help to educate the communities and address the lack of interest or awareness. Future meetings would benefit from including additional perspectives ranging from environmental groups, geologists, development organizations and scientists to ensure adequate and full disclosure of risks and benefits of mining. A wider range of participants in these types of community forums and meetings may draw in more of the general public and provide opportunities for all relevant stakeholders to assess the potential outcomes.

The direct job opportunities offered by the proposed Bald Mountain Mine match the type of labor force available in northern Maine. The project would provide a variety of jobs, including a number of equipment and machine operators. These jobs match up with the type of skilled workforce northern Maine already has due to the types of industries already present in the area (Anthony Hourihan, pers. comm.). There are also opportunities for the local universities and community colleges to develop job-training opportunities for local residents catered to the new mining jobs. The University of Maine schools in Fort Kent and Presque Isle, Husson College, and Northern Maine Community College are all community resources that could mutually benefit from the creation of coordinated mine-focused job training opportunities (Caribou Economic Growth Council 2012).

The proposed mine project includes other opportunities to support and mutually benefit existing community resources. The town of Ashland has an electricity generating biomass plant that is no longer operational due to lack of sufficient energy demand. A partnership between the ReEnergy biomass plant and the Bald Mountain Mine could secure demand for about two thirds of ReEnergy's potential energy output (Cyr 2012). This may allow the plant to reopen and reinstate the 75 jobs that were lost when it closed. These opportunities to provide direct employment and support some of these struggling communities are important to balance against environmental risks associated with mining.

Irving's Influence

Corporate accountability has proven itself as an important factor in the relative success of mining operations throughout this study. The Callahan Mine in Brooksville demonstrates the impacts mining operations have on the state and local communities when they fail to comply with environmental standards and then default on their promises for closure and reclamation funding. The Callahan Mine is an EPA Superfund Site, and has an estimated cleanup cost of $23 million which will fall on taxpayers (Moretto 2012b). However, companies that are invested and involved in the communities and regions they develop in tend to have better social or political outcomes and are more responsive to adapting to mistakes. The joint venture between Teck, the mining company operating the Red Dog Mine and the regional development organization, NANA, reportedly held the company to higher standards and created a situation where they had to respond to local pressure around their environmental record. The company responded to studies suggesting metal contamination from their operation by adapting their operating facilities and investing in the problem (Peabody et al. 2004, Exponent 2007).

Maintaining a positive reputation in the local region is becoming increasingly more important as companies realize the power of a "social license to operate". Support from the local community helps generate political support for project approval and helps the company understand the regional culture and context. With the Bald Mountain project, the company proposing the development, Irving, has a good reputation in Aroostook County. This reputation is advantageous to gathering political and social support both in the region and across the state. However, others may argue that because of Irving's size and regional power, they have considerable influence in Augusta. Representative Martin sponsored the initial bill in response to pressure from Irving, and company lobbyists and representatives were heavily involved in every step of the legislative process leading to the new Maine Metallic Metal Mining Act. Irving has already invested a substantial amount of time and money in changing the regulations in their favor.

While the company highlights the economic benefits of the proposed mine, it is informative to consider the lessons from other mining developments. Numerous mines that have ultimately been destructive to the environment, the people, and the local communities were initially developed by companies with good intentions, but they mainly wanted to make a profit. As we have seen in Maine specifically, mining companies overestimate the job creation

potential, the length of operations, and the overall money invested in the region. Additionally, the new mining law opens mining development to all interested parties, not just to Irving. The state of Maine must be certain that proper protections are in place to legitimize corporate promises and claims before metallic mineral mining projects are approved.

Closure Plan & Financial Assurances

Mining operations must include clear and specific plans for decommissioning and post closure operations. The new regulations allow the developer considerable flexibility with the definition of reclamation as simply attaining "the ecological conditions that approximate pre-mining conditions to the extent feasible and practicable…" (38 MRSA § 490-QQ). This language does not provide enough regulatory direction for the developer and seems to serve as an opportunity for the developer to just "do their best" rather than returning the site to a usable and/or stable resource. Interesting amendment proposals for the new bill would require developers to prove that they can fully close and eliminate the need for treatment or management within ten years. This eliminates the risk of perpetual treatment of mining projects and instead forces developers to plan for closure (LD 1302). According to the Natural Resources Council of Maine, this requirement is similar to existing mining legislation in New Mexico and Michigan (Bennett 2013b).

Closure plans must not only include environmental monitoring, management, and any necessary treatment, but they must also provide guaranteed financial assurance. Future costs and risks to the regional environment and communities must be factored into the initial planning and financial assurance requirements. Communities should be involved in the management and planning process, but the company must ensure that local communities are not responsible for managing or paying for long-term care (Kuyek 2011). A 2005 report from the US General Accountability Office highlighted the federal government's need to better manage and monitor financial assurances for mining projects. The report studied 48 ceased mining operations and found that 25 of the 48 cases did not have adequate financial assurances in place to cover the reclamation costs (GAO 2005). Gaps in financial assurance coverage leave local communities and taxpayers to deal with the cleanup costs. Regardless of the type, it is critical that financial assurance requirements be specific and include regular review to ensure that they continue to cover expected cleanup costs as the operations and cleanup needs change. Financial assurances must also be irrevocable and monitored to ensure the company cannot go bankrupt and disappear.

CONCLUSIONS AND RECOMMENDATIONS

Metallic mineral mining should only have a future in the state of Maine if there are strong and clear environmental regulations and specific mechanisms for community and local stakeholder involvement. If the ultimate rulemaking process does not reflect these two conditions, new metallic mineral mining projects should not be pursued.

The Department of Environmental Protection should consider the weaknesses inherent in the framework outlined by the Maine Metallic Mineral Mining Act (38 MRSA §490) and develop clear, comprehensive and specific rules governing metallic mineral mining. The legislature should consider the stronger water quality regulations specified in the new amendment bill, LD 1302, to direct the DEP to adopt more protective water quality regulations. Acid Mine Drainage is a real concern, so the rules must reflect this threat and protect Maine's waterways and brook trout habitats.

Mining development has potential to leverage a significant regional economic impact in northern Maine, but the proposed economic benefits are often overestimated. The state must ensure that the rules are in place to protect the environment before they accept the unqualified promises of economic benefits for the local communities. Local support from business development organizations and political leaders demonstrates the need for economic development. However, neither Irving nor the state DEP has experience with this type of mining development, so the state must be cautious to ensure that promised benefits and optimism do not risk future long-term environmental harm. Company promises alone are not enough to reasonably justify pursuing such risky economic development opportunities. The state must either strengthen the new law to ensure the DEP rules provide adequate protections, or the DEP must first independently adopt strict rules despite the weakened legislative directive. Without clear, specific, and protective environmental rules, mining companies may take advantage of vague language and potentially impact Maine’s natural resources.

Finally, development projects of this magnitude must include specific mechanisms for community involvement. The benefits and damages will be borne directly by the local communities, so they should have the opportunity to understand the full scope of the project and voice their concerns and opinions. Community involvement will be important, not only in the Bald Mountain case, but also in other rural areas across the state. Because lawmaking happens in Augusta, those living in rural Maine tend to be marginalized from participating more fully.

Augusta is over 200 miles away from the towns of Ashland and Portage Lake, so the local people who would be most impacted by the mine project less able to attend because of the distance and missed work time. If Irving does decide to go through the permit process for the mine once the DEP rules are finalized, the DEP should focus on hosting public forums and hearings for the permit in Aroostook County. Moving the hearings to the local communities will provide real mechanisms for local community members to be involved in the process. These factors are critical in ensuring positive overall outcomes from mining development in Maine.

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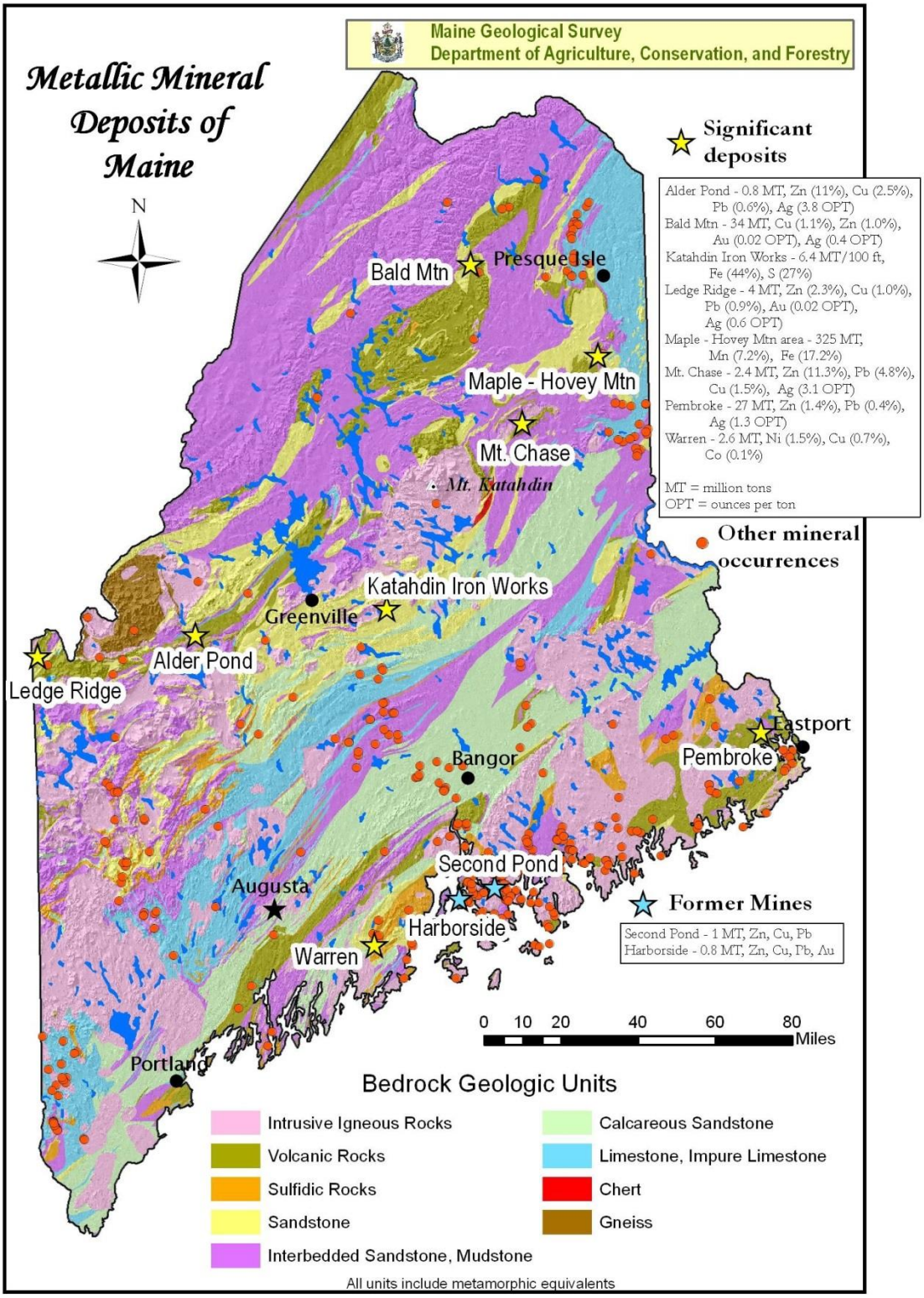
APPENDICES

Appendix 1 Metallic Mineral Deposits of Maine (Maine Geological Survey)



Appendix 2
PUBLIC Law, Chapter 653, LD 1853, 125th Maine State Legislature
An Act To Improve Environmental Oversight and Streamline Permitting for Metallic Mineral Mining in Maine

An Act To Improve Environmental Oversight and Streamline Permitting for Metallic Mineral Mining in Maine

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

Sec. 1. 12 MRSA §550-A, as amended by PL 1985, c. 819, Pt. A, §17, is repealed.

Sec. 2. 12 MRSA §685-B, sub-§1-A, ¶B-1 is enacted to read:

B-1. A permit is not required for a project for mining of metallic minerals that is reviewed under the Maine Metallic Mineral Mining Act. A person submitting a permit application to the Department of Environmental Protection under Title 38, chapter 3, subchapter 1, article 9 for a metallic mineral mining project located wholly or in part within the unorganized and deorganized areas of the State shall file a notice of the intent to develop and a map indicating the location of the proposed development with the commission prior to or concurrently with submission of a development application to the Department of Environmental Protection. The commission must certify to the department that the proposed development is an allowed use within the subdistrict or subdistricts for which it is proposed and that the proposed development meets any land use standards established by the commission and applicable to the project that are not considered in the department's review. This paragraph does not prohibit the commission from enforcing the land use standards certified to the Department of Environmental Protection under this paragraph;

Sec. 3. 12 MRSA §685-B, sub-§4, ¶A, as amended by PL 1999, c. 333, §16, is further amended to read:

A. Adequate technical and financial provision has been made for complying with the requirements of the State's air and water pollution control and other environmental laws, and those standards and regulations adopted with respect thereto, including without limitation the minimum lot size laws, sections 4807 to 4807-G, the site location of development laws, Title 38, sections 481 to ~~490~~489-E, and the natural resource protection laws, Title 38, sections 480-A to 480-Z, and adequate provision has been made for solid waste and sewage disposal, for controlling of offensive odors and for the securing and maintenance of sufficient healthful water supplies;

Sec. 4. 36 MRSA §2861, sub-§6, as enacted by PL 1991, c. 883, §4, is amended to read:

6. Oversight. The Treasurer of State, following the payment of excise tax revenues to municipalities pursuant to subsection 4, shall annually set aside 25% of the remaining revenues from mining operations ~~in municipalities not under the jurisdiction of the Maine Land Use Regulation Commission~~ to be deposited in the Mining ~~Corrective Action~~Oversight Fund. Money in this fund is available ~~to municipalities~~ to fund ~~corrective action~~oversight of mining activity as defined by rule by the Department of Environmental Protection in relation to metallic mineral exploration.

Sec. 5. 36 MRSA §2862, first ¶, as amended by PL 1991, c. 883, §5, is further amended to read:

Excise tax revenues remaining after municipal reimbursement and payments into the Mining

~~Corrective Action~~Oversight Fund under section 2861 must be used as follows.

Sec. 6. 36 MRSA §2866, as enacted by PL 1991, c. 883, §8, is amended to read:

§ 2866.Mining Oversight Fund

1. Creation of fund. The Mining ~~Corrective Action~~Oversight 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.** The fund may be used only for corrective action for mining operations located in municipalities.~~

4. Uses of fund. Money from the fund may be used only to fund ~~corrective action~~oversight of mining activity as ~~defined~~provided in the mining rules adopted by the Department of Environmental Protection ~~and the Maine Land Use Regulation Commission~~under the Maine Metallic Mineral Mining Act, and expenses for site oversight. ~~Corrective action includes, but is not limited to, remedial action related to:~~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.

~~A. Contaminated ground water;~~

~~B. Disposition of mining wastes;~~

~~C. Reclamation defects on or surrounding the site; and~~

~~D. Pollution control at the site.~~

~~**5. Restrictions and liability.** Money from the fund may be used only for corrective action necessary to address problems that occur at the site following termination of mining operations and closure of the mine. Corrective action necessary during the operation of a mine must be funded by the mining company. The existence of this fund does not relieve a mining company of any liability or responsibility arising from a corrective action following termination of its mining operation in a municipality.~~

~~**6. Disposition of fund.** When corrective action is necessary in accordance with this section, the board shall provide funds for remedial activities at the site on a pro rata basis to ensure that funds are available for any necessary corrective action at other sites. This determination is based on the amount of excise tax revenues generated at each site.~~

~~**7. Depletion of fund.** Following termination of mining operations, the mining company and, in the case of a mining company that is a subsidiary of a corporation, the parent company remain liable for any corrective action determined necessary by the board. If the contributions of the mining~~

~~company to the fund are insufficient to fund corrective action, the mining company or its successor, if the company has been sold, remains liable for the costs of corrective action. If the mining company ceases to exist, the parent company, if any, is liable for any necessary corrective action. Any funds expended for corrective action as provided in this section must be reimbursed in full by the mining company, its successor or its parent corporation.~~

Sec. 7. 38 MRSA §349-A, as enacted by PL 1989, c. 874, §1, is repealed.

Sec. 8. 38 MRSA §351, first ¶, as enacted by PL 1983, c. 574, §1, is amended to read:

The Maine Environmental Protection Fund, referred to in this subchapter as "the fund," is established as a nonlapsing fund to supplement licensing programs administered by the Department of Environmental Protection. ~~All~~Except as otherwise provided in this section, all fees established under this subchapter ~~shall~~must be credited to the fund, and administrative expenses directly related to licensing programs ~~shall~~must be charged to the fund~~, except that in fiscal year 1984, $41,250 shall be deposited in the General Fund~~.

Sec. 9. 38 MRSA §351, as amended by PL 1991, c. 9, Pt. E, §27, is further amended by adding after the first indented paragraph a new paragraph to read:

All fees related to metallic mineral mining applications and permits under section 352, subsection 4-A must be credited to the Metallic Mining Fund, Other Special Revenue Funds account, which is established as a subaccount of the Maine Environmental Protection Fund to provide for prompt and effective planning, oversight and implementation of metallic mineral mining operations.

Sec. 10. 38 MRSA §352, sub-§3, as amended by PL 2009, c. 642, Pt. A, §8, is further amended to read:

3. Maximum fee. The commissioner shall set the actual fees and shall publish a schedule of all fees by November 1st of each year. If the commissioner determines that a particular application, by virtue of its size, uniqueness, complexity or other relevant factors, is likely to require significantly more costs than those listed on Table I, the commissioner may designate that application as subject to special fees. Such a designation must be made at, or prior to, the time the application is accepted as complete and may not be based solely on the likelihood of extensive public controversy. The maximum fee for processing an application may not exceed $250,000, except that the maximum fee for processing an application under chapter 3, subchapter 1, article 9 is as provided for in subsection 4-A. All staff of the department, the Department of Inland Fisheries and Wildlife, the Department of Conservation, the Department of Agriculture, Food and Rural Resources and the Department of Marine Resources who have worked on the review of the application, including, but not limited to, preapplication consultations, shall submit quarterly reports to the commissioner detailing the time spent on the application and all expenses attributable to the application, including the costs of any appeals filed by the applicant and, after taking into consideration the interest of fairness and equity, any other appeals if the commissioner finds it in the public interest to do so. Any appeal filed by the applicant of an application fee must be to the agency of jurisdiction of the application. The costs associated with assistance to the board on an appeal before the board may be separately charged. The processing fee for that application must be the actual cost to the department, the Department of Inland Fisheries and Wildlife, the Department of Conservation, the Department of Agriculture, Food and Rural Resources and the Department of Marine Resources. The processing fee must be distributed to each department that incurs a cost to be deposited

in the account in which the expenses were incurred in that department to reimburse the actual cost to that department. The applicant must be billed quarterly and all fees paid prior to receipt of the permit. At the time of the quarterly billing by the department, the commissioner shall review the ongoing work of the department to identify, prevent and mitigate undue delays or vague requirements of the application processing. Nothing in this section limits the commissioner's authority to enter into an agreement with an applicant for payment of costs in excess of the maximum fee established in this subsection.

Sec. 11. 38 MRSA §352, sub-§4-A, as enacted by PL 1989, c. 874, §2, is repealed and the following enacted in its place:

4-A. Fees for metallic mineral mining. Metallic mineral mining permit applications under chapter 3, subchapter 1, article 9 are subject to the following fees. Fees under this subsection must be deposited in the Metallic Mining Fund, Other Special Revenue Funds subaccount.

A. The initial processing fee is $500,000.

B. Preapplication and processing fees are special fees subject to subsection 3. The maximum fee for processing an application must be discussed by the department and the applicant during preapplication meetings. If the applicant does not agree to the maximum fee as determined by the commissioner, the refund provisions of paragraph F apply.

C. The costs associated with the department's preparation for and attendance at any application proceeding held by the board, including the costs associated with assistance to the board, must be paid by the applicant.

D. The costs associated with the department's assistance to the board on an appeal by the applicant before the board must be paid by the applicant and may be separately charged to the applicant by the department. The costs associated with the department's assistance to the board on an appeal by a person other than the applicant before the board may not be charged to the applicant.

E. The annual license fee must be at least $20,000 and may not exceed $50,000 and must be set by the department prior to the issuance of the permit.

F. If at any time the application is withdrawn by the applicant, the department shall calculate the portion of the processing fee that was expended or committed by the department or the department's agents or contractors for processing the application prior to the withdrawal and the remainder of the processing fee not expended or committed must be refunded to the applicant.

Sec. 12. 38 MRSA §353, sub-§1-A, as enacted by PL 1989, c. 874, §3, is repealed.

Sec. 13. 38 MRSA §353, sub-§2, as amended by PL 1997, c. 794, Pt. B, §5, is further amended to read:

2. Processing fee. Except for annual air emission fees pursuant to section 353-A and annual waste discharge fees pursuant to section 353-B, a processing fee must be paid at the time of filing the application. Failure to pay the processing fee at the time of filing the application results in the application being returned to the applicant. One-half the processing fee assessed in section 352,

subsection 5-A for licenses issued for a 10-year term must be paid at the time of filing the application. The remaining 1/2 of the processing fee for licenses issued for a 10-year term must be paid 5 years after issuance of the license. The commissioner may not refund the processing fee if the application is denied by the board or the commissioner. ~~If~~Except as provided in section 352, subsection 4-A, if the application is withdrawn by the applicant within 30 days of the start of processing, the ~~processing fee must be refunded, except in the case of nonferrous metal mining applications~~portion of the processing fee that was expended or committed by the department or the department's agents or contractors for the cost of processing the application prior to the withdrawal of the application must be calculated, and the remainder of the processing fee not expended or committed must be refunded. ~~If an application for nonferrous metal mining is withdrawn by the applicant within 30 days of the date of filing, 1/2 of the application fee must be refunded.~~

Sec. 14. 38 MRSA §420-D, sub-§5, as amended by PL 2011, c. 206, §8, is further amended to read:

5. Relationship to other laws. A storm water permit pursuant to this section is not required for a project requiring review by the department pursuant to any of the following provisions but the project may be required to meet standards for management of storm water adopted pursuant to this section: article 6, site location of development; article 7, performance standards for excavations for borrow, clay, topsoil or silt; article 8-A, performance standards for quarries; article 9, the Maine Metallic Mineral Mining Act; sections 631 to 636, permits for hydropower projects; and section 1310-N, 1319-R or 1319-X, waste facility licenses. When a project requires a storm water permit and requires review pursuant to article 5-A, the department shall issue a joint order unless the permit required pursuant to article 5-A is a permit-by-rule or general permit, or separate orders are requested by the applicant and approved by the department.

A storm water permit pursuant to this section is not required for a project receiving review by a registered municipality pursuant to section 489-A if the storm water ordinances under which the project is reviewed are at least as stringent as the storm water standards adopted pursuant to section 484 or if the municipality meets the requirements of section 489-A, subsection 2-A, paragraph B.

Sec. 15. 38 MRSA §480-D, sub-§3, as amended by PL 2001, c. 618, §3, is further amended to read:

3. Harm to habitats; fisheries. The activity will not unreasonably harm any significant wildlife habitat, freshwater wetland plant habitat, threatened or endangered plant habitat, aquatic or adjacent upland habitat, travel corridor, freshwater, estuarine or marine fisheries or other aquatic life.

In determining whether mining, as defined in section 490-MM, subsection 11, will comply with this subsection, the department shall review an analysis of alternatives submitted by the applicant. For purposes of this subsection, a practicable alternative to mining, as defined in section 490-MM, subsection 11, that is less damaging to the environment is not considered to exist. The department may consider alternatives associated with the activity, including alternative design and operational measures, in its evaluation of whether the activity avoided and minimized impacts to the maximum extent practicable.

In determining whether there is unreasonable harm to significant wildlife habitat, the department may consider proposed mitigation if that mitigation does not diminish in the vicinity of the proposed activity the overall value of significant wildlife habitat and species utilization of the habitat and if there is no specific biological or physical feature unique to the habitat that would be adversely affected by the proposed activity. For purposes of this subsection, "mitigation" means any action taken or not taken to avoid, minimize, rectify, reduce, eliminate or compensate for any actual or potential adverse impact on the significant wildlife habitat, including the following:

A. Avoiding an impact altogether by not taking a certain action or parts of an action;

B. Minimizing an impact by limiting the magnitude, duration or location of an activity or by controlling the timing of an activity;

C. Rectifying an impact by repairing, rehabilitating or restoring the affected environment;

D. Reducing or eliminating an impact over time through preservation and maintenance operations during the life of the project; or

E. Compensating for an impact by replacing the affected significant wildlife habitat.

Sec. 16. 38 MRSA §482, sub-§2, ¶B, as amended by PL 2005, c. 330, §18, is further amended to read:

B. Is ~~a metallic mineral mining or advanced exploration activity as defined in this section or~~ an oil or gas exploration or production activity that includes drilling or excavation under water;

Sec. 17. 38 MRSA §482, sub-§2-B, as amended by PL 1995, c. 700, §4, is repealed.

Sec. 18. 38 MRSA §484, sub-§4-A, as amended by PL 2009, c. 506, §1 and affected by §3, is further amended to read:

4-A. Storm water management and erosion and sedimentation control. The proposed development~~, other than a metallic mineral mining or advanced exploration activity,~~ meets the standards for storm water management in section 420-D and the standard for erosion and sedimentation control in section 420-C. ~~A proposed metallic mineral mining or advanced exploration activity must meet storm water standards in department rules adopted to implement subsections 3 and 7.~~ If exempt under section 420-D, subsection 7, a proposed development must satisfy the applicable storm water quantity standard and, if the development is located in the direct watershed of a lake included in the list adopted pursuant to section 420-D, subsection 3, any applicable storm water quality standards adopted pursuant to section 420-D. For redevelopment projects only, the standards for storm water management in section 420-D are met if the proposed development is located in a designated area served by a department-approved management system for storm water as described in section 420-D, subsection 2, as long as the owner or operator of the parcel upon which the proposed development will be located enters into or obtains and remains in compliance with all agreements, permits and approvals necessary for the proposed development to be served by such management system for storm water.

Sec. 19. 38 MRSA §485-A, sub-§1-C, as amended by PL 2009, c. 602, §2, is further amended to read:

1-C. Long-term construction projects. The department shall adopt rules identifying requirements for a long-term construction project that allow approval of development within a specified area and within specified parameters such as maximum area and groundwater usage, although the specific nature and extent of the development or timing of construction may not be known at the time a permit for the long-term construction project is issued. The location and parameters of the development must meet the standards of this article. ~~This subsection does not apply to metallic mineral mining or advanced exploration activities.~~

Sec. 20. 38 MRSA §488, sub-§9, as amended by PL 2009, c. 615, Pt. E, §19, is further amended to read:

9. Development within unorganized areas. A development located entirely within an area subject to the jurisdiction of the Maine Land Use Regulation Commission, other than ~~a metallic mineral mining or advanced exploration activity,~~ an oil terminal facility or an offshore wind power project with an aggregate generating capacity of 3 megawatts or more that is not a community-based offshore wind energy project as defined in Title 12, section 682, subsection 19, is exempt from the requirements of this article.

A. If a development is located in part within an organized area and in part within an area subject to the jurisdiction of the Maine Land Use Regulation Commission, that portion of the development within the organized area is subject to review under this article if that portion is a development pursuant to this article. That portion of the development within the jurisdiction of the commission is exempt from the requirements of this article except as provided in paragraph B.

B. If a development is located as described in paragraph A, the department may review those aspects of a development within the jurisdiction of the Maine Land Use Regulation Commission if the commission determines that the development is an allowed use within the subdistrict or subdistricts for which it is proposed pursuant to Title 12, section 685-B. A permit from the Maine Land Use Regulation Commission is not required for those aspects of a development approved by the department under this paragraph.

Review by the department of subsequent modifications to a development approved by the department is required. For a development or part of a development within the jurisdiction of the Maine Land Use Regulation Commission, the director of the commission may request and obtain technical assistance and recommendations from the department. The commissioner shall respond to the requests in a timely manner. The recommendations of the department must be considered by the Maine Land Use Regulation Commission in acting upon a development application.

Sec. 21. 38 MRSA §488, sub-§11, as repealed and replaced by PL 1997, c. 502, §10 and affected by §18, is amended to read:

11. Farm and fire ponds. A pond that is used for irrigation of field crops, water storage for cranberry operations or fire protection determined to be necessary in that location by the municipal fire department is exempt from review under this article. This provision does not provide an exemption for ~~mining or advanced exploration activity or~~ excavation for borrow, clay, topsoil or silt.

Sec. 22. 38 MRSA §490, as amended by PL 1995, c. 700, §11, is repealed.

Sec. 23. 38 MRSA c. 3, sub-c. 1, art. 9 is enacted to read:

ARTICLE 9

MAINE METALLIC MINERAL MINING ACT

§ 490-LL. Short title

This article may be known and cited as "the Maine Metallic Mineral Mining Act."

§ 490-MM. Definitions

As used in this article, unless the context otherwise indicates, the following terms have the following meanings.

1. Advanced exploration. "Advanced exploration" means any metallic mineral bulk sampling or exploratory activity that exceeds those activities that are exploration activities and are specified in rules adopted by the department. Samples taken as part of exploration are not considered bulk sampling.

2. Affected area. "Affected area" means an area outside of a mining area where the land surface, surface water, groundwater, air resources, soils or existing uses are potentially affected by mining operations as determined through an environmental impact assessment.

3. Beneficiation. "Beneficiation" means the treatment of ore to liberate or concentrate its valuable constituents. "Beneficiation" includes, but is not limited to, crushing, grinding, washing, dissolution, crystallization, filtration, sorting, sizing, drying, sintering, pelletizing, briquetting, calcining, roasting in preparation for leaching to produce a final or intermediate product that does not undergo further beneficiation or processing, gravity concentration, magnetic separation, electrostatic separation, flotation, ion exchange, solvent extraction, electrowinning, precipitation, amalgamation and dump, vat, tank and in situ leaching.

4. Closure. "Closure" means activities undertaken to manage a mining area and, if necessary, an affected area, pursuant to an environmental protection, reclamation and closure plan approved by the department. "Closure" includes, but is not limited to, actions taken to contain metallic mineral wastes on site and to ensure the integrity of waste management structures and the permanent securement of pits, shafts and underground workings.

5. Contamination. As applied to groundwater, "contamination" means nonattainment of water quality standards, the cause of which is attributable to a mining operation, as:

A. Specified in rules relating to primary drinking water standards adopted pursuant to Title 22, section 2611; or

B. Demonstrated by a statistically significant change in measured parameters that indicates deterioration of water quality determined through assessment monitoring.

As applied to surface water, "contamination" means a condition created by any direct or indirect

discharge that causes or contributes to nonattainment of applicable water quality or licensing standards under section 414-A or 420. The nonattainment may be attributable to the mining operation either by itself or in combination with other discharges.

6. Exploration. "Exploration" or "exploration activity" means the following activities when conducted in accordance with rules adopted by the department for the purpose of determining the location, extent and composition of metallic mineral deposits: test boring, test drilling, hand sampling, the digging of test pits, trenching or outcrop stripping for the removal of overburden having a maximum surface opening of 300 square feet per test pit or trench or other test sampling methods determined by the department to cause minimal disturbance of soil and vegetative cover.

7. Heap or percolation leaching. "Heap or percolation leaching" means a process for the primary purpose of recovering metallic minerals in an outdoor environment from a stockpile of crushed or excavated ore by percolating water or a solution through the ore and collecting the leachate.

8. Metallic mineral. "Metallic mineral" means any ore or 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.

9. Metallic mineral operator. "Metallic mineral operator" means a permittee or other person who is engaged in, or who is preparing to engage in, mining operations for metallic minerals, whether individually or jointly or through agents, employees or contractors.

10. Metallic product. "Metallic product" means a commercially salable mineral or metal produced primarily for its metallic mineral content in its final marketable form or state.

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.

12. Mining area. "Mining area" means an area of land described in a permit application and approved by the department, including but not limited to land from which earth material is removed in connection with mining, the lands on which material from that mining is stored or deposited, the lands on which beneficiating or treatment facilities, including groundwater and surface water management treatment systems, are located or the lands on which water reservoirs used in a mining operation are located.

13. Mining permit. "Mining permit" means a permit issued under this article for conducting mining and reclamation operations.

14. Permittee. "Permittee" means a person who is issued a mining permit.

15. Post-closure monitoring period. "Post-closure monitoring period" means a period following closure during which a permittee is required to conduct monitoring of groundwater and surface water and other environmental parameters as specified in a mining permit.

16. Reclamation. "Reclamation" or "reclamation operation" means the rehabilitation of the mining area, affected area and any other area of land or water body affected by mining under an environmental protection, reclamation and closure plan approved by the department. "Reclamation" includes, but is not limited to, stabilization of slopes, creation of safety benches, planting of forests, seeding of grasses and legumes for grazing purposes, planting of crops for harvest and enhancement of wildlife and aquatic resources.

17. Tailings impoundment. "Tailings impoundment" means land on which is deposited, by hydraulic or other means, material that is separated from the metallic product in the beneficiation or treatment of minerals, including any surrounding dikes constructed to contain the material.

§ 490-NN. Administration and enforcement; rules; regulation by local units of government

1. Administration; jurisdiction; rules. The department shall administer and enforce this article in all areas of the State, including the unorganized territory, in order to regulate mining.

A. The provisions of articles 6, 7 and 8-A, chapter 13 and section 420-D do not apply to projects reviewed under this article. Projects reviewed under this article do not require any other permits from the department except for permits required under section 490-OO; permits required under article 5-A; waste discharge licenses required under section 413 for discharges of pollutants to groundwater via an underground injection well or discharges of pollutants to surface waters of the State, including permits for construction and industrial discharge issued by the department pursuant to 40 Code of Federal Regulations, Section 122.26; licenses required under chapter 4; and other permits or licenses issued pursuant to any United States Environmental Protection Agency federally delegated program. This article does not prohibit the department from adopting rules to implement standards for mining that are necessary to protect human health and the environment.

B. In addition to other powers granted to it, the department shall adopt rules to carry out its duties under this article, including, but not limited to, standards for exploration, advanced exploration, construction, operation, closure, post-closure monitoring, reclamation and remediation. Except as otherwise provided, rules adopted under this article are major substantive rules for purposes of Title 5, chapter 375, subchapter 2-A and are subject to section 341-H.

2. Maine Land Use Regulation Commission. The department may not approve a permit under this article in an unorganized territory unless the Maine Land Use Regulation Commission certifies to the department that:

A. The proposed mining is an allowed use within the subdistrict or subdistricts in which it is to be located; and

B. The proposed mining meets any land use standard established by the Maine Land Use Regulation Commission and applicable to the project that is not considered in the department's review.

3. Municipal authority. This article does not prevent a municipality from regulating or controlling mining or reclamation activities that are subject to this article, including, but not limited to, construction, operation, closure, post-closure monitoring, reclamation and remediation activities.

§ 490-OO. Mining permit; application procedure

1. Permit required. A person may not engage in mining without a permit issued by the department under this article.

2. Application procedure. An application for a mining permit must be submitted to the department in a format to be developed by the department. The application must include the following:

A. The fees established in section 352. All costs incurred by the department in processing an application must be paid for by the applicant;

B. An environmental impact assessment for the proposed mining operation that describes the natural and artificial features, including, but not limited to, groundwater and surface water quality, flora, fauna, hydrology, geology and geochemistry and baseline conditions for those features in the proposed mining area and affected area that may be affected by the mining operation and the potential impacts on those features from the proposed mining operation. The environmental impact assessment must define the mining area and the affected area and address practicable alternatives to address impacts to the mining area and potential impacts to the affected area. The department shall review the environmental impact assessment and may approve, reject or require modifications to the assessment;

C. An environmental protection, reclamation and closure plan for the proposed mining operation, including beneficiation operations, that will reasonably avoid, minimize and mitigate the actual and potential adverse impacts on natural resources, the environment and public health and safety within the mining area and the affected area. The plan must address unique issues associated with mining and must include, but not be limited to, the following:

(1) A description of materials, methods and techniques that will be used;

(2) Information that demonstrates that the methods, materials and techniques proposed to be used are capable of accomplishing their stated objectives in protecting the environment and public health. The required information may consist of results of actual testing, modeling, documentation by credible independent testing and certification organizations or documented applications in similar uses and settings;

(3) Plans and schedules for interim and final reclamation of the mining area and the affected area following cessation of mining operations and plans and schedules for measures taken during suspension of operations, including contemporaneous reclamation, to the extent practicable;

(4) A description of the geochemistry of the ore, waste rock, overburden, peripheral rock, spent leach material and tailings, including characterization of leachability, reactivity and

acid-forming characteristics;

(5) A mining operations closure plan;

(6) Provisions for the prevention, control and monitoring of acid-forming waste products and other waste products from the mining process in accordance with standards in subsection 4, paragraphs D and E;

(7) Storm water and surface water management provisions;

(8) A water quality monitoring plan;

(9) A description of the wastewater discharge management plan;

(10) A description of any tailings impoundment and the methods, materials and techniques to be used;

(11) A plan for the storage of hazardous materials; and

(12) An estimate of costs for reclamation, closure and environmental protection.

D. A contingency plan that includes an assessment of the risk to the environment and public health and safety associated with potential significant incidents or failures related to the mining operation and describes the metallic mineral operator's notification and response plans. When the application is accepted as complete for processing by the department, the applicant shall provide a copy of the contingency plan to each municipality in which the mining area and affected area may be located or, in the unorganized territory, to the county commissioners for each county in which the mining area or affected area may be located. The department may require amendments to the contingency plan;

E. Financial assurance as described in section 490-RR; and

F. A list of other state and federal permits or approvals anticipated by the applicant to be required.

3. Permit issuance if violation exists. A mining permit may not be issued or transferred to a person if the department has determined that person to be in violation of this article, rules adopted under this article, a mining permit, an order of the department issued pursuant to this article or any other state law, rule, permit or order that the department determines through rulemaking is relevant to the issuance or transfer of a mining permit unless the person has corrected the violation or the person has agreed in a judicially enforceable document to correct the violation pursuant to a compliance schedule approved by the department.

4. Criteria for approval. Except as provided for in subsection 3, the department shall approve a mining permit whenever it finds the following.

A. The applicant has the financial capacity and technical ability to develop the project in a manner consistent with applicable state environmental standards and with the provisions of this article.

B. The applicant has made adequate provision for fitting the mining operation harmoniously into the existing natural environment and the development will not unreasonably adversely affect existing uses, scenic character, air quality, water quality or other natural resources.

(1) In making a determination under this paragraph regarding a mining operation's effects on natural resources regulated by the Natural Resources Protection Act, the department shall apply the same standards applied under the Natural Resources Protection Act.

(2) The applicant must demonstrate that there is reasonable assurance that public and private water supplies will not be affected by the mining operations.

(3) The applicant must demonstrate that rules to protect human health and the environment adopted by the department pursuant to this article will be met.

C. The mining operation will be located on soil types that are suitable to the nature of the mining operation.

D. There is reasonable assurance that discharges of pollutants from the mining operation will not violate applicable water quality standards. Notwithstanding sections 465-C and 470, discharges to groundwater from activities permitted under this article may occur within a mining area, but such discharges may not result in contamination of groundwater beyond each mining area. In determining compliance with this standard, the department shall require groundwater monitoring consistent with the standards established pursuant to section 490-QQ, subsection 3.

E. The mining operation will not cause a direct or indirect discharge of pollutants into surface waters or discharge groundwater containing pollutants into surface waters that results in a condition that is in nonattainment of or noncompliance with the standards in article 4-A or section 414-A or 420.

F. Withdrawals of groundwater and surface water related to the mining operation will comply with article 4-B.

G. The applicant has made adequate provision of utilities, including water supplies, wastewater facilities and solid waste disposal, required for the mining operation, and the mining operation will not have an unreasonable adverse effect on the existing or proposed utilities in a municipality or area served by those services.

H. The mining operation will not unreasonably cause or increase the flooding of the area that is altered by the mining operation or adjacent properties or create an unreasonable flood hazard to any structure. Mining operations may be placed in flood plains or flood hazard areas as long as they are designed, constructed, operated and reclaimed in a manner that complies with the approval criteria in this subsection and the Natural Resources Protection Act.

I. The applicant has made adequate provision for protection of public safety.

J. The mining operation will not use heap or percolation leaching.

5. Permit coordination. If a person submits an application for a mining permit under this article and an application to the department for any other permit required pursuant to section 490-NN, subsection 1, the department shall process the applications in a coordinated fashion and issue a joint decision. The coordinated permit process must include consolidation of public hearings.

6. Public and local participation. In addition to provisions for public participation pursuant to Title 5, chapter 375 and department rules relating to public participation in the processing of applications, the following provisions apply to an application for a mining permit.

A. At least 60 days prior to submitting an application to the department, the applicant shall notify by certified mail the municipal officers of each municipality in which the mining area or affected area may be located or, in the unorganized territory, the county commissioners for each county in which the mining area or affected area may be located. The applicant at the same time shall provide a copy of the notice to the department and the Director of the Bureau of Geology and Natural Areas within the Department of Conservation.

B. At the time an application is submitted to the department, the applicant shall provide written notice to the municipal officers of each municipality in which the mining area and affected area may be located or, in the unorganized territory, to the county commissioners for each county in which the mining area or affected area may be located and shall publish notice of the application in a newspaper of general circulation in the area.

C. The department shall hold an adjudicatory public hearing within the municipality in which the mining operation may be located or, in the unorganized territory, in a convenient location in the vicinity of the proposed mining operation. Administrative expenses of a hearing held pursuant to this paragraph must be paid for by the applicant.

D. The municipal officers, or their designees, from each municipality in which the mining area or affected area may be located or, in the unorganized territory, the county commissioners, or their designees, for each county in which the mining area or affected area may be located have intervenor status if they request it within 60 days after notification under paragraph B. The intervenor status granted under this paragraph applies in any proceeding for a permit under this article. Immediately upon the commissioner's receipt of a request for intervenor status under this paragraph, the intervenors have all rights and responsibilities commensurate with this status.

E. The commissioner shall reimburse or make assistance grants for the direct expenses of intervention of any party granted intervenor status under paragraph D, not to exceed $50,000. The department shall adopt rules governing payment by an applicant to the department of fees necessary for the department to award intervenor assistance grants and governing the award and management of intervenor assistance grants and reimbursement of expenses to ensure that the funds are used in support of direct, substantive participation in the proceedings before the department. Allowable expenses include, without limitation, hydrogeological studies, traffic analyses, the retention of expert witnesses and attorneys and other related items. Expenses not used in support of direct, substantive participation in the proceedings before the department,

including attorney's fees related to court appeals, are not eligible for reimbursement under this subsection. Expenses otherwise eligible under this subsection that are incurred by the municipality or county commissioners after notification pursuant to paragraph B are eligible for reimbursement under this paragraph only if a completed application is accepted by the department. The department shall also establish rules governing the process by which an intervenor under paragraph D may gain entry to the proposed mining site for purposes of reasonable inspection and site investigations under the auspices of the department. Rules adopted pursuant to this paragraph are routine technical rules as defined in Title 5, chapter 375, subchapter 2-A.

§ 490-PP. Mining permit; duration; termination; revocation; transfer; amendment

1. Duration of permit. A mining permit issued by the department remains in effect until terminated or revoked by the department. The duration of other permits issued for the mining operation must be provided for in those permits. The department shall conduct annual reviews of the mining operations and assess compliance with the permit terms.

2. Termination of permit. After public notice, the department may terminate or request surrender of a mining permit if:

A. The permittee has not commenced construction of mining facilities or conducted mining activities covered by the mining permit within 4 years after the effective date of the mining permit; or

B. The permittee has satisfied the requirements of the environmental protection, reclamation and closure plan and completed final reclamation of the mining area and, if necessary, the affected area and requests the termination of the mining permit and the department determines all of the following:

(1) The air, water or other natural resources are not polluted or impaired from the mining operation;

(2) The permittee has otherwise fulfilled all conditions determined to be necessary by the department to protect the public health, safety and welfare and the environment; and

(3) The requirements for the post-closure monitoring period have been satisfied.

3. Revocation of permit. The department may revoke a mining permit after public notice pursuant to section 490-TT.

4. Transfer of permit. After public notice and unless otherwise provided in this article, a mining permit may be transferred with prior written approval of the department in accordance with the provisions of this subsection.

A. The person acquiring the mining permit shall submit to the department on forms provided by the department a request for transfer of the mining permit and shall provide the financial assurance required under section 490-RR.

B. A person acquiring a mining permit must accept the conditions of the existing mining permit and adhere to the requirements set forth in this article.

C. If a permittee is determined by the department to be in violation of this article or the rules adopted under this article at the mining site that is the subject of the transfer, the mining permit may not be transferred until the permittee has completed the necessary corrective actions or the person acquiring the mining permit has entered into a written consent agreement to correct all of the violations.

D. A transferee shall demonstrate to the department's satisfaction the technical and financial capacity and intent to:

(1) Comply with all terms and conditions of the mining permit; and

(2) Satisfy all applicable statutory and regulatory criteria, including, but not limited to, providing adequate evidence of the financial assurance required by section 490-RR.

5. Amendment of permit. After public notice, a mining permit may be amended in accordance with this subsection.

A. A permittee may submit to the department a request to amend a mining permit to address anticipated changes in the mining operation, including, if applicable, amendments to the environmental impact assessment and to the environmental protection, reclamation and closure plan.

B. The department may require a mining permit to be amended if the department determines that the terms and conditions of the mining permit are not providing reasonable protection of the environment, natural resources or public health and safety.

§ 490-QQ. Performance, operation and reclamation standards

1. Performance standards. Standards adopted by the department through rulemaking must be performance-based to the extent feasible, and the department may require that the applicant implement control devices or measures necessary to achieve the performance standards. If the rules include standards that are not performance-based, the rules may allow a permittee to propose an alternative means of compliance that achieves equivalent environmental performance. The department is not required to approve the proposed alternative means of compliance. If the applicant proposes a control device or measure, it must demonstrate that there is reasonable assurance that the device or measure will achieve the performance standard.

2. Suspension of mining operations. If mining operations are suspended for a continuous period exceeding 90 days, the permittee shall provide notice to the department and take actions, consistent with its environmental protection, reclamation and closure plan, to maintain, monitor and secure the mining area and shall conduct any interim sloping or stabilizing of surfaces necessary to protect the environment, natural resources and public health and safety in accordance with the mining permit. If mining operations are suspended for a continuous period exceeding 365 days, the

permittee is considered to have ceased mining operations and all requirements applicable to closure take effect unless the department agrees in writing to delay the implementation of the closure plan based on a written submission by the permittee that demonstrates that the mining operations are expected to recommence within a reasonable period of time as determined by the department. The department may require partial closure of mining operations.

3. Water quality monitoring. Through rulemaking the department shall establish standards for monitoring groundwater as close as practicable to any mining area that may pose a threat to groundwater. A permittee shall conduct groundwater and surface water monitoring in accordance with the provisions of a mining permit during mining operations, during suspension of mining operations, during closure and during the post-closure monitoring period. The post-closure monitoring period must be at least 30 years following cessation of mining, subject to the following conditions.

A. The permittee shall provide to the department a written request to terminate post-closure monitoring not less than 18 months before the proposed termination date and shall provide the department with technical data and information demonstrating the basis for the termination of the post-closure monitoring.

B. The department may shorten the post-closure monitoring period at any time upon determining that there is no significant potential for water contamination resulting from the mining operation.

C. The department shall extend the post-closure monitoring period in increments of up to 20 years unless the department determines, approximately one year before the end of a post-closure monitoring period or post-closure incremental monitoring period, that there is no significant potential for surface water or groundwater contamination resulting from the mining operation.

4. Reclamation. The following reclamation requirements apply.

A. Except as provided in paragraph B, a permittee shall commence and complete final reclamation of a mining area and, if necessary, any affected area consistent with mining permit conditions and the environmental protection, reclamation and closure plan approved by the department.

B. Upon written request of a permittee, the department may approve an extension of time to begin or complete final reclamation.

C. Both the mining area and the affected area must be reclaimed with the goal that the affected area be returned to the ecological conditions that approximate pre-mining conditions to the extent feasible and practicable and considering any changes caused by non-mining activities or other natural events.

D. Following closure and reclamation, the landowner or lessee of a mining area in an unorganized territory shall petition the Maine Land Use Regulation Commission for rezoning to an appropriate subdistrict designation.

5. Inspection and maintenance. A permittee shall fully comply with all inspection, maintenance and monitoring requirements contained in a mining permit. After closure, mining areas and affected areas must be inspected at least twice per year. All waste piles and impoundments or any

other pile or storage facility must be inspected by a licensed civil engineer with expertise in structural stability of waste piles and impoundments. The engineer shall either certify that the mining area and affected area are in good condition and not susceptible to failure due to significant weather, seismic or other events or identify the corrective measures that must be undertaken by the permittee. The inspections must document that all permit requirements, including storm water control, sediment and erosion control, dust migration, access controls, land use restrictions, waste pile or impoundment stabilization measures and treatment systems are fully compliant with the mining permit conditions and that there are no known conditions that could present an unreasonable threat to public health and safety or the environment. A permittee shall notify the department of any recommended corrective measures as soon as practicable after the inspection. A permittee shall submit an inspection report to the department within 21 days after the inspection.

§ 490-RR. Financial assurance

1. Duration of financial assurance. A permittee shall maintain financial assurance during mining operations until the department determines that all reclamation has been completed and during the post-closure monitoring period except that financial assurance must be reduced or released immediately upon termination of a mining permit under section 490-PP, subsection 2, paragraph A. The department may require financial assurance to remain in effect for as long as the mining operation and any associated waste material could create an unreasonable threat to public health and safety or the environment.

2. Coverage of financial assurance. The financial assurance required under subsection 1 applies to all mining and reclamation operations that are subject to a mining permit and must be sufficient to cover the cost for the department to administer, and hire a 3rd party to implement, activities necessary for the investigation, monitoring, closure, treatment, remediation, reclamation, operation and maintenance under the environmental protection, reclamation and closure plan as well as other necessary environmental protection measures, including remediation of any contamination of the air, surface water or groundwater.

3. Form of financial assurance. The financial assurance may consist of a surety bond, escrow, cash, certificate of deposit, trust, irrevocable letter of credit issued by a financial institution acceptable to the department, or other equivalent security, or combination thereof, as long as the department approves the financial assurance as proposed by the applicant. When determining the appropriate security to require, the department shall take into consideration the type and location of the mining operation and the type of security that is adequate to protect the State's financial interest. The financial assurance must be in a form that cannot be cancelled, withdrawn, revoked or otherwise reduced without the express written consent of the commissioner after a finding that the reduced amount is appropriate given the conditions related to the mining operation, including, but not limited to, the potential cost of long-term maintenance and monitoring, closure and any necessary response to episodic maintenance.

4. Updates to financial assurance. A permittee shall provide to the department an annual statement of financial responsibility, and the department may require that the financial assurance be adjusted to ensure that the financial assurance is sufficient for the purposes of subsection 2.

5. Failure to provide financial assurance. Failure to provide financial assurance under this section constitutes grounds for the department to order immediate suspension of mining activities pursuant to section 490-TT, including, but not limited to, the removal of metallic product from the mining area.

§ 490-SS. Mining and reclamation report

1. Filing requirement. A permittee shall file with the department a mining and reclamation report on or before March 15th of each year, during the period the mine is operating, during suspension of mining operations and during the post-closure monitoring period. The mining and reclamation report must contain the following:

A. A description of the status of mining and reclamation operations;

B. An update of the contingency plan. The permittee shall provide a copy of the update to the municipality or county commissioners, as applicable;

C. A report of monitoring results for the preceding calendar year;

D. A report of the total tons of material mined from the mining area and the amount of metallic product by weight produced from the mine for the preceding calendar year; and

E. A list of the notifications required under subsection 2 for the preceding calendar year.

2. Notification requirement. A permittee shall promptly notify the department and each municipality in which the mining area and the affected area are located, or, in the unorganized territory, the county commissioners for each county in which the mining area and the affected area are located, of any incident, act of nature or exceedance of a permit standard or condition related to the mining operation that has created, or may create, a threat to the environment, natural resources or public health and safety.

3. Records. Records must be retained as follows.

A. Records upon which mining and reclamation reports are based must be preserved by the permittee for 6 years. The permittee shall make the records available to the department upon request.

B. Records upon which incident reports under subsection 2 are based must be preserved by the permittee for 6 years or until the end of the post-closure monitoring period, whichever is later.

§ 490-TT. Violations

1. Permittee required to correct violations. If the department determines that a permittee has violated this chapter, a rule adopted under this article, an order of the department or a mining permit issued under this article, the department shall require the permittee to correct the violation and the department may pursue enforcement action pursuant to sections 347-A, 348 and 349.

2. Imminent endangerment. If the department determines that a violation under subsection 1 is causing or resulting in an imminent and substantial endangerment to the public health or safety, environment or natural resources, the department shall take action necessary to abate or eliminate the endangerment. Such action may include one or more of the following:

A. Revoking the mining permit as authorized by section 342, subsection 11-B;

B. Issuing an order to the permittee requiring immediate suspension of mining activities, including, but not limited to, the removal of metallic product from the site;

C. Issuing an order to the permittee to undertake such other response actions as may be necessary to abate or eliminate the endangerment; and

D. Issuance of an emergency order as authorized by section 347-A, subsection 3.

3. Effect of revocation or suspension. The revocation of a mining permit or suspension of mining activities under subsection 2 does not relieve a permittee of the responsibility to complete closure, reclamation, operation and maintenance and monitoring, to maintain financial assurance required under section 490-RR and to undertake all appropriate measures to protect the environment, natural resources and public health and safety.

4. Compliance with Maine Administrative Procedure Act. The department shall comply with the Maine Administrative Procedure Act in its actions under this section.

Sec. 24. 38 MRSA §633, sub-§2, as amended by PL 1989, c. 878, Pt. G, §8, is further amended to read:

2. Exceptions. This subarticle ~~shall~~does not apply to activities for which, prior to the effective date of this Act, a permit or permits have been issued pursuant to any of the following laws: Land use regulation laws, Title 12, sections 681 to 689; stream alteration laws, former sections 425 to 430; great ponds laws, former sections 391 to 394; alteration of coastal wetlands laws, former sections 471 to 478; site location of development laws, sections 481 to ~~490~~489-E; and small hydroelectric generating facilities laws, this subarticle.

Sec. 25. 38 MRSA §840, sub-§1, ¶D, as amended by PL 1995, c. 630, §2, is further amended to read:

D. Operating with a permit setting water levels issued under the protection of natural resources laws, sections 480-A to 480-S; the site location of development laws, sections 481 to ~~490~~489-E; the small hydroelectric generating facilities laws, sections 631 to 636; the land use regulation laws, Title 12, sections 681 to 689; or any other statute regulating the construction or operation of dams;

Sec. 26. 38 MRSA §1319-E, sub-§1, ¶E, as amended by PL 1993, c. 355, §54, is further amended to read:

E. Costs incurred in the inspection or supervision of hazardous waste, waste oil and biomedical waste activities and handlers; and

Sec. 27. 38 MRSA §1319-E, sub-§1, ¶F, as amended by PL 1993, c. 355, §54, is repealed.

Sec. 28. Mining Oversight Fund; legislative intent. It is the Legislature's intent that the Mining Oversight Fund created in the Maine Revised Statutes, Title 36, section 2866 be used only for its intended purpose to fund oversight of metallic mineral mining operations by the Department of Environmental Protection and the Metallic Mineral Fund created in the Maine Revised Statutes, Title 38, section 351 be used only for its intended purpose to provide for prompt and effective planning, oversight and implementation of metallic mineral mining operations and these funds should not be appropriated or allocated to any other purpose.

Sec. 29. Maine Land Use Regulation Commission rulemaking; issue screening.

1. Rulemaking; rezoning process. By January 15, 2013, the Maine Land Use Regulation Commission shall amend its rules relating to procedures and requirements for changes to land use subdistrict boundaries for metallic mineral mining activities to remove any provisions related to the permitting of metallic mineral mining activities regulated under the Maine Metallic Mineral Mining Act established in the Maine Revised Statutes, Title 38, chapter 3, subchapter 1, article 9. The amended rules may only relate to the procedures and requirements necessary to review a rezoning application. Rules adopted pursuant to this subsection are routine technical rules as defined in Title 5, chapter 375, subchapter 2-A. Prior to adoption of rules pursuant to this subsection, when reviewing an application for changes to a land use subdistrict boundary, the commission may only apply procedures and requirements necessary to review the rezoning and may not apply procedures and requirements related to environmental permitting regulated by the Department of Environmental Protection under the Maine Metallic Mineral Mining Act.

2. Issue screening. Within existing resources, or as resources become available through donations, the Maine Land Use Regulation Commission shall collect information regarding issues likely to arise in the rezoning of certain areas for metallic mineral mining for the purpose of making the rezoning process more efficient and complete.

3. Rulemaking; commission certification of mining permit applications. By January 10, 2014, the Maine Land Use Regulation Commission shall provisionally adopt and submit to the Legislature for review rules related to commission certification of metallic mineral mining permit applications as described in the Maine Metallic Mineral Mining Act established pursuant to the Maine Revised Statutes, Title 38, chapter 3, subchapter 1, article 9. Rules adopted pursuant to this subsection are major substantive rules as defined in Title 5, chapter 375, subchapter 2-A.

Sec. 30. Department of Environmental Protection major substantive rulemaking.

1. Rulemaking. By January 10, 2014, the Department of Environmental Protection shall provisionally adopt and submit to the Legislature for review rules related to the Maine Metallic Mineral Mining Act established pursuant to the Maine Revised Statutes, Title 38, chapter 3, subchapter 1, article 9. Rules adopted pursuant to this subsection are major substantive rules as defined in Title 5, chapter 375, subchapter 2-A.

2. Standards. The rules adopted pursuant to subsection 1 must include standards determined by the department to be necessary to protect the public health and safety and the environment. Standards adopted by the department may include, but are not limited to, standards regarding effects on groundwater quantity, control of noise, preservation of historic sites, preservation of unusual natural areas, effects on scenic character and protection of wildlife and fisheries.

3. Maine Land Use Regulation Commission certification. The rules adopted pursuant to subsection 1 relating to the permitting process for a mining permit must provide for Maine Land Use Regulation Commission certification pursuant to the Maine Revised Statutes, Title 38, section 490-NN, subsection 2 in the initial stages of the permitting process.

Sec. 31. Existing rules; exploration and advanced exploration; rulemaking.

1. Existing rules. Except as otherwise provided in this section, rules regulating metallic mineral mining adopted by the Department of Environmental Protection and the Maine Land Use Regulation Commission prior to the effective date of this section remain in effect until the Legislature approves major substantive rules provisionally adopted by the Department of Environmental Protection pursuant to this Act.

2. Exploration and advanced exploration. The Department of Environmental Protection and the Maine Land Use Regulation Commission shall jointly amend their rules related to exploration and advanced exploration activities to clarify the permitting requirements for exploration and advanced exploration. Rules adopted pursuant to this subsection remain in effect until the Legislature approves major substantive rules provisionally adopted by the Department of Environmental Protection pursuant to this Act. Rules adopted pursuant to this subsection are routine technical rules as defined in the Maine Revised Statutes, Title 5, chapter 375, subchapter 2-A.

Sec. 32. Appropriations and allocations. The Metallic Mining Fund, Other Special Revenue Funds account is established as a nonlapsing fund under the jurisdiction and control of the Department of Environmental Protection. The Metallic Mining Fund is established to provide for the capacity for prompt and effective planning, oversight and implementation of metallic mining operations. Notwithstanding any other provision of law, the State Controller shall transfer $250,000 from the Uncontrolled Sites Fund under the Maine Revised Statutes, Title 38, section 1364, subsection 6 and $250,000 from the Ground Water Oil Clean-up Fund under Title 38, section 569-A to the Metallic Mining Fund, Other Special Revenue Funds account within the Department of Environmental Protection on or before September 30, 2013.

Sec. 33. Effective date. Those sections of this Act that amend the Maine Revised Statutes, Title 12, Title 36 and Title 38 take effect June 1, 2014.

Effective 90 days following adjournment of the 125th Legislature, Second Regular Session, unless otherwise indicated.