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RHETORIC AND PERCEPTION: A CASE STUDY OF THE PROPOSED
NORTHMET MINE ON MINNESOTA'S IRON RANGE

By

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B.A., University of Minnesota, Minneapolis, MN, 2011

Thesis

presented in partial fulfillment of the requirements
for the degree of

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in Environmental Studies

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ABSTRACT

Frank, Sophie, M.S., Spring 2020
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The struggle for social license: A case study on public perceptions of the NorthMet controversy in northern Minnesota

Chairperson: Neva Hassanein

Northern Minnesota is rich in natural resources, perhaps most uniquely the expansive mineral deposits of the Mesabi and Vermilion Ranges. The steel and taconite mining opportunities along these veins helped facilitate the rapid growth and infrastructure development of the area and is an important part of the identity of the region northwest of Duluth, aptly known as Iron Range. In addition to iron deposits, The Iron Range contains large deposits of copper and nickel. Recently proposed copper-nickel mining projects by PolyMet and Twin Metals have garnered a great deal of public controversy, especially around issues of economic revitalization of the region and potential pollution associated with this type of mining. This thesis considers public perceptions of the proposed NorthMet mine in the Arrowhead Region of Minnesota. By considering the strategies both pro-mining and environmental groups have used in an attempt to sway public opinion, analyzing public comments, and conducting interviews, this research addresses how considering the NorthMet controversy in terms of the concept of social license to operate helps to frame a conversation about public perceptions of PolyMet and the proposed mine itself. A term coined by the mining industry, social license to operate (SLO) refers to a society's general acceptance of a corporation or project, based on considerations of legitimacy, credibility and trust. SLO is considered separately from regulatory acceptance. While a social license to operate is not strictly required for a mining project to succeed, failure to achieve SLO may affect the efficient progress of a project through resulting protests, blockades, litigation, and other methods.

In the following research, I consider a breadth of data, including rhetorical strategies implemented by PolyMet, pro-mining groups, and environmental groups to sway public opinion about the project, a random sampling of public comments on the Final Environmental Impact Statement, and a handful of semi-structured interviews with individuals from the Arrowhead region of Minnesota. Presented as a case study, this thesis contributes to a growing body of academic literature about social license to operate and community perception of extractive industries.

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This work brings together one of my oldest loves—the northern wilds of Minnesota—with the rural sociology, qualitative research, and place-based storytelling that I have spent the last three years exploring at the University of Montana. Without the following people I never would have been able to complete this work, and I extend my greatest thanks to:

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My family—Nancy, Rod, Eric, Emily, and Isaac—my oldest and always adventure partners to whom I owe my love of the northern wilds of Minnesota.

My dearest Missoula community, who saw me through the past three wild years of work and anxiety and joy and exhaustion, always ready with a board game or a glass of wine or a quiet walk to share.

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Figure 1 - Map of case study area

INTRODUCTION

Driving out of the Twin Cities, the billboards splashed with flashy advertisements for art events and accident insurance begin to phase out as you move through the closely packed box homes of the suburbs and onto northbound 35. As the landscape shifts to lakes, farms, small towns, and more lakes, the billboards shift to beautiful landscape photography of the stark rocky beaches along Lake Superior, the wolves and bears in the wild forests, fishing in the vast lakes of the Boundary Waters, and snowmobiling through the rolling forests of the Iron Range. They promise the wildness and luxuriousness of a vacation to northern country.

As you crest the final hill, the world opens up—the boundless blue of Lake Superior stretches forever in front of you, the smokestacks and commercial ships of Duluth sit below. The drive north from Minneapolis is one I have done countless times since I was a kid, fighting with my sister in the backseat. It is a drive that is familiar to enough city folk that the two-hour car ride to Duluth quickly turns to four or five hours of gridlock if you leave Minneapolis on a Friday night in the summer. Still, every time I crest that hill and look out over the great expanse, my heart catches in my throat. This is the North Country.

While my familiarity with northern Minnesota as a frequent seasonal tourist is a familiar one for residents of the region, tourism is only a part of the Arrowhead region of Minnesota. Northern Minnesota is rich in natural resources, which includes timber, game, and water, but perhaps most unique is its expansive mineral deposits. The steel and taconite mining opportunities along these veins helped facilitate the rapid growth and

infrastructure development of the area and is an important part of the identity of the region northwest of Duluth, aptly known as Iron Range.

The Iron Range contains one of the largest unmined deposits of copper and nickel in the world (Phadke 2017:163). These earth metals are critical for plumbing, electrical infrastructure, and clean energy technology (e.g., wind turbines, electric cars), and they enjoy both reliably high market value and demand (Phadke 2017:163). In 2009, PolyMet Mining Corporation began the permitting process for NorthMet, an open-pit copper-nickel mining project in the Mesabi Iron Range Mining District near Hoyt Lakes, Minnesota. NorthMet would be the first sulfide ore copper-nickel (SOCN), or hard-rock, mine in Minnesota. Over the past 10 years the project has garnered a significant amount of public criticism by environmental and human health advocacy groups, as well as support from groups who highlight the boost that new mining operations would provide for local economies. PolyMet has successfully undergone a 10-year government-led environmental review process and in 2018 completed a land exchange of 6,650 acres with the United States Forest Service (USFS) in preparation to begin building mining infrastructure (PolyMet 2018).

In order to begin mining operations, the company needs to obtain up to sixteen required permits from the Minnesota Department of Natural Resources (DNR), the Minnesota Pollution Control Agency (MPCA), and the Minnesota Department of Health (MDH) (Minnesota DNR 2018). While PolyMet successfully acquired all 16 permits by spring 2019, significant pushback from anti-mining groups and citizens has led to ongoing litigation and the overturning of four of the originally granted permits.

Such pushback calls into question whether or not PolyMet has successfully taken community needs into account and achieved public support. For instance, Minnesota nonprofit Friends of the Boundary Waters Wilderness (2019) refers to the permitting process as “opaque” and “lack[ing] public input” in a way that favors PolyMet. Tom Landwehr, former commissioner of the DNR and current executive director of the Campaign to Save The Boundary Waters, has similarly criticized the state permitting process as being incomplete, asserting that it only “relates to environmental impact. So, it doesn’t look at economic, it doesn’t look at cultural, it doesn’t look at quality of life. It’s a very narrow prescriptive. It doesn’t look at health” (Carlson and Entzel 2019).

Scholars have described the dynamics of public participation in case studies on other environmental controversies, noting how regulatory decisions often fail to eliminate controversy or fully take public concerns into account. In a case study on the Fernald radium cleanup in Ohio, for example, Jennifer Hamilton noted a pattern wherein regulatory risk perception relied on public input as “a mechanism for legitimating scientific decisions” rather than as a substantial contribution to democratic decision-making (Hamilton 2003:298). Rhetorical scholar Frank Fischer points to this as a systemic problem, wherein regulatory decision-making regarding environmental health is firmly rooted in scientific and technological considerations of the issue (Fischer 2000:91). While public perception and cultural knowledge is generally outside the bounds of regulatory environmental permitting, the mining industry has acknowledged that gaining public approval is often a necessary component of a successful mining project (Boutilier and Thomas 2011). This public approval is encompassed in a framework, which originated in the mining industry, called social license to operate. This

framework considers issues of legitimacy, credibility, and trust as aspects of gaining public approval for a mining project.

By considering the strategies both pro-mining and environmental groups have used in an attempt to sway public opinion, analyzing public comments, and conducting interviews, this research addresses how considering the NorthMet controversy in terms of the concept of social license to operate helps to frame a conversation about public perceptions of PolyMet and the proposed mine itself. In the following research, I consider a breadth of data, including rhetorical strategies implemented by PolyMet, pro-mining groups, and environmental groups to sway public opinion about the project, a random sampling of public comments on the Final Environmental Impact Statement, and a handful of semi-structured interviews with individuals from the Arrowhead region of Minnesota. Presented as a case study, this thesis contributes to a growing body of academic literature about social license to operate and community perception of extractive industries.

The following chapter provides a literature review of the rhetorical frameworks I use when considering strategies implemented by both sides of the NorthMet debate to leverage public opinion and the concept of social license to operate. It also offers an introduction to the case study area, including a brief overview of the many intertwining legacies of the region that serve to frame the issue and inform public perception. I then consider the rhetorical strategies used primarily by PolyMet and WaterLegacy (a prominent environmental organization that has remained an active voice throughout the ongoing conversation) to define the issue and leverage public opinion for or against the mine, tying it into the social license to operate framework. Next I look at public

comments on the 2015 FEIS and interviews conducted in February 2020 to look deeper at public perceptions of NorthMet using social license to operate to frame the discussion. In the conclusion I examine the utility of the social license to operate framework, including how it serves as a useful tool when considering the NorthMet debate and its limitations as a wholistic framework. Finally, I end with a brief discussion of implications and limitations of this study, as well as opportunities for future research.

LITERATURE REVIEW

This chapter begins with an introduction of rhetorical frameworks used in other case studies about particular environmental controversies that I will later use to consider strategies used by PolyMet and WaterLegacy to leverage public opinion. Next, I introduce the concept of social license to operate and how it has moved from a model within the mining industry to an academic framework for considering extractive projects in terms of community members' perceptions. In the second half of this chapter I introduce the case study area in northern Minnesota, including the intertwining legacies of the region that serve as critical context when framing the controversies surround the proposed NorthMet mine.

Analytical Framework

Rhetorical Strategies

Rhetorical strategies used by opposing sides to affect public opinion in environmental controversies have been the subject matter of a great breadth of literature. One example is from the Spotted Owl controversy of the early 1990s, where timber companies were pitted against environmentalists in the Pacific Northwest over the fate of old growth forests. In an analysis of the Spotted Owl Debate, Jonathon Lange (1993) addresses the rhetorical strategies used by both sides, including the four-pronged rhetorical strategy of “mirroring and matching.” This strategy involves (1) “framing and reframing” the issue by wrangling “facts, explanations, and interpretations... to discursively construct a reality favorable to one’s own rhetorical goals” (Lange 1993:246); (2) “selecting high and low data,” or which data is chosen and presented by each side to garner public support and demonstrate that “science favors their position,”

and which data is obscured in the process (Lange 1993:248); (3) “vilifying and ennobling,” in the way each side characterizes both themselves and their opponents (Lange 1993:249); (4) “simplifying the issue,” by obscuring complexities and thereby allowing disparate sides to dramatize the issue in the public sphere (Lange 1993:250).

Another example of framing rhetorical strategies used to leverage public opinion is the Fernald radium mine cleanup in Ohio, where a debate raged over whether cleanup of a highly toxic mine should happen immediately or should be postponed so that the medical research industry could use the radium waste in cancer research. In her case study on this controversial issue (2003), Jennifer Hamilton utilizes a similar framework in considering the rhetorical strategies used by both proponents of cleaning up the mine quickly and proponents of holding off so that radium mining waste could be utilized in cancer research. Hamilton highlights three main rhetorical strategies utilized by participants in the debate: (1) “Defining a situation,” by highlighting a dominant storyline and choosing what information is selected and what is deflected by the definition; (2) “Identification,” by creating bridges between stakeholder groups to create an “us,” and subsequently drawing a line in the sand between “us” and “them;” (3) “Circumference,” or creating boundaries around a controversy (e.g., in space or time) in order to define the scope of a situation, thereby obviating what is not within the defined borders (Hamilton 2003:294). Within this framework she considers how technical rationality (e.g., scientific knowledge and comparisons) and cultural rationality (e.g., experiential knowledge, historical precedent, analogy) are leveraged within each strategy to define or affect risk assessment varies amongst stakeholders (Hamilton 2003:293). In other words,

stakeholder perception is affected by scientific “facts,” but also by cultural context and personal or historical experiences.

These frameworks for considering rhetorical strategies used to influence public opinion highlight both how information is presented and for what purpose. As observed by Lange in the Spotted Owl controversy, success is “measured not only by the outcome of the issues in question, but by favorable or unfavorable publicity as well, showing the connection between these processes and the overall information campaign for public opinion” (Lange 1993:252). This emphasis on swaying public opinion in tandem with changing the outcome of the PolyMet mine is to some extent apparent in the rhetorical strategies utilized by both the mining industry and environmental groups. While rhetorical strategies in public discourse surrounding the PolyMet project have the potential to affect official permitting process (e.g., by the Minnesota DNR), they are more directly related to affecting public opinion. In discourse surrounding PolyMet’s NorthMet project, this “campaign for public opinion” can be considered in terms of an effort to gain or block an informal social license to operate.

Social License to Operate

A term coined by the mining industry, social license to operate (SLO) refers to a society’s general acceptance of a corporation or project, considered separately from regulatory acceptance (Holley and Mitcham 2016:18). While a social license to operate is not strictly required for a project to succeed, the social and business risk of *not* obtaining an SLO is widely regarded in the business community as ample reason to strive towards achieving one (Holley and Mitcham 2016:19, Moffat and Zhang 2014). Specifically,

members of the business community and scholars have acknowledged the increasing influence that communities affected by extractive industries may have on the smooth and timely progress of a project in the form of protests, blockades, litigation, media campaigns, and lobbying (Prno and Slocombe 2012, Campbell and Roberts 2010). Positive, ongoing public relationships also serve to build a positive image of the mining industry and “help ensure greater salability of junior projects to larger, more reputation-sensitive firms” (Prno and Slocombe 2012:347).

Originally developed by the business community to describe the methods of gaining public support for extractive industries, the concept of social license to operate has more recently been used by scholars (Holley and Mitcham 2016, Conde and Le Billon 2017, Koivurova et al. 2015, Prno and Slocombe 2012) as a framework for understanding mining communities and their support or resistance to particular projects. The present case study on the proposed NorthMet mine is situated within the SLO literature, contributing to the analysis of how public support may be gained and lost throughout the early stages of a mining project.

Social license to operate includes the three major tenets of *legitimacy*, *credibility*, and *trust*, which can be considered as a three-rung ladder that is climbed step by step to achieve full SLO (Moffat and Zhang 2014, Koivurova et al. 2015). The most basic level of social license is *legitimacy*, which is the acceptance – by an individual, a stakeholder group, or a larger community – that “authorities, institutions, and social arrangements are appropriate, proper, and just” (Koivurova et al. 2015:198). In considering mining projects this may include economic viability, environmental impact, social justice, legal

precedence, and technical or scientific ability as it relates to interactions between the mining company, the project, and the community.

After legitimacy comes *credibility*, which can be considered in terms of authority figures (in this case study, PolyMet, Glencore, and to some extent the mining industry as a whole) staying true to their promises and dealing fairly, honestly, with an acceptable amount of transparency, and without significant sociopolitical risk (Koivurova et al. 2015:198). While credibility is ultimately assigned to the specific mining company involved, functionally it includes issues of historical precedence and how the region has been treated by mining companies in the past, which informs community member's biases and may affect their baseline tendencies towards trust in extractive industries.

Trust is the final level of SLO and may only be achieved if both legitimacy and credibility are present. Trust can be considered in terms of interactional trust (i.e., the project managers listen and engage in conversation with the community, are generally trustworthy, and demonstrate reciprocity), and institutionalized trust (i.e., the project managers and stakeholders hold mutual regard for each other's interests) (Boutilier and Thomas 2011:4). If legitimacy, credibility, and trust are each fully realized, the final rung of the social license to operate ladder is psychological identification with the process, in which a given community considers the mining operation to be a core piece of their identity. Such identification is only attained in "communities that have full trust in a company [and] believe that the company will always act in the community's best interest" (Koivurova et al. 2015:199).

Social license to operate is best considered in greyscale rather than as a black or white model; the degree to which social license has been secured depends on how many

of the levels have been achieved. Within this model, *psychological identification* is a scenario in which trust, credibility, and legitimacy are all perceived by the community. Moving down the ladder, *approval* is when both credibility and legitimacy have been achieved but not trust, and *acceptance* is when a community sees a project as legitimate but not credible. If a community rejects the legitimacy, credibility, and trustworthiness of a project, social license to operate is *withheld*. SLO may also be *withdrawn* during a process or shift between levels (Boutilier and Thomas 2011:2). There is often a difference in level of SLO granted between different stakeholder groups or discourse communities, where a discourse community is “a group of people who holds and communicates similar ideas, beliefs, and social goals” (Campbell and Roberts 2010:211, Boutilier and Thomas 2011).

While SLO originated in the mining industry, as a model of building support for extractive projects, researchers have also used the framework of social license to operate to analyze community conflicts surrounding various extractive industries. Holley and Mitcham’s 2016 analysis of the proposed Pebble Mine in Alaska utilized both social license to operate to consider *whether* the mine had community support, as well as corporate responsibility to consider *how* the mining company responded to community needs (Holley and Mitcham 2016:25). Through their study of the Pebble Mine they made two major conclusions. First, while scientific data was not likely to change public opinion (either for or against), access to scientific data did help build interactional trust. Second, incorporating public voices into the project design and risk / benefit negotiation was a critical component to successful SLO and corporate responsibility (Holley and Mitcham 2016:26).

According to Conde and Le Billion's review of 224 case studies, a community's decision to resist or support proposed mining projects is most often based on four factors: (1) the mining project (e.g., geographical features, environmental impacts, livelihoods); (2) community trends and relationships (e.g., marginalization, mining history and economic dependency, relationship to place and place values, and alliances); (3) the mining company (corporate social responsibility, willingness to listen to community needs); or (4) government and policy (e.g., pro-industry policies, criminalization of dissent, participatory processes) (Conde and Le Billion 2017).

While using the social license to operate framework to consider specific case studies is increasing in use, it remains a relatively new concept that could benefit from increased application. For instance, Prno and Slocombe call for "further investigation" of case studies within an SLO framework that could shed light on "which governance models function best and in what combination, and how model effectiveness varies through differing social, political, and economic contexts" (Prno and Slocombe 2012:354). Since 2010, there have been over 200 new mining conflicts per year worldwide (Conde and Le Billion 2017:682). It is critical that research of mining communities and conflicts continue, in order to determine potential avenues to successful decision-making processes (Conde and Le Billion 2017:693). By considering the social and political landscape of the proposed PolyMet mine, the following research serves to extend SLO literature and contribute suggestions for how to increase the utility of the framework as a method of organizing and analyzing landscapes of public opinion regarding environmental controversies.

Case Study Background

Northeastern Minnesota is a land with many legacies. Typified by sprawling lake and river systems that are punctuated by Lake Superior, the region is rich in water, forests, and minerals. Many disparate groups have been drawn to the region for the variety of natural resources available. Ojibwe tribes have been utilizing the wild rice, maple syrup, and wealth of plants and animals native to the land for centuries. French voyageurs trapped and hunted the region until the logging industry moved in. Once the region was thoroughly logged the mining industry took over, having finally realized the abundance of iron and copper. While various groups enjoyed the exploitation of these resources for wealth and livelihood, in the 20th century a new contingent of resource users began the process of protecting pieces of the Northwoods from extraction as wilderness for recreation.

Understanding these intertwining legacies and their contribution to strong, place-based identities is critical when considering the proposed copper mines in the region today and how they are perceived by different stakeholder groups. In this chapter I will briefly discuss the recent histories of the region, including the Ojibwe legacy, extractive industries in the region (e.g., mining, logging), and the introduction of environmental regulation, in order to provide a context for PolyMet's proposed NorthMet mine in the region.

Lake Superior Bands of Ojibwe. During early European contact in the mid-17th century, Northern Minnesota was home primarily to the Dakota and other Siouan-

speaking tribes (Barr Engineering et al. 2012:41)¹. In the late 16th and 17th century, Algonquin-speaking Ojibwe², or Chippewa, tribes began moving from the east coast, likely near the Saint Lawrence River, to the Great Lakes region (Vennum 1978, Danziger 1990). By 1760, the Ojibwe controlled territory in Ontario, Quebec, Michigan, Wisconsin, and Minnesota, maintaining a strong role in the regional fur trade. By 1800 Ojibwe tribes held exclusive control of northern Minnesota as the Dakota moved north, south, and west of the area (Barr Engineering et al. 2012:43).

Ojibwe tribes in the region followed a traditional woodland cycle that included maple sugaring in the spring, fishing and hunting small game in the summer, harvesting wild rice in the fall, and hunting large game in the winter as a major part of their livelihoods strategies (Danziger 1990:11). Due to the short growing season of northern Minnesota and the relatively poor soil, plant gathering for food, medicine, and building materials was critical to the Ojibwe (Barr Engineering et al. 2012:42). Such plants included wild rice, spruce root, cedar and birch bark, sage, maple sap, hazelnuts, blueberries, roots, and mushrooms (Barr Engineering et al. 2012:44). Tribes lived in semi-permanent villages, generally located near wild rice habitat, and influenced the vegetation in the region through selective harvesting and controlled burns (Barr Engineering et al. 2012:40).

¹ This references a cultural inventory that is cited throughout this thesis as “Barr Engineering et al.” according to the ASA style guide. Though the reference is a bit misleading, this is a useful compilation of data sourced from tribal and nontribal entities on both sides of the issue.

² Ojibwe, Chippewa, and Anishinaabe are used throughout this work. Anishinaabe refers to the larger group of indigenous tribes that speak Algonquin languages, which include the Ojibwe, among many others. Ojibwe are indigenous people who traditionally speak Ojibwe, an Algonquin language, and ranged historically in the northern Great Lakes region. They are the fifth largest native American group in the United States. Chippewa is the anglicization of Ojibwe that is predominant in the United States.

Known as Manoomin (which translates to “the food that grows on water”) in Ojibwe, wild rice serves an important role in Ojibwe culture, and has therefore served as a linchpin in conversations around conservation in the Great Lakes region³. Endemic to lakes and slow rivers, wild rice was harvested in the fall and served as a food staple to local tribes. With a lengthy storage life of up to ten years, wild rice was critical in the harsh northern climate (Barr Engineering et al. 2012: 51). It has historically been an economic and organizational centerpiece, dictating indigenous movement and settlement, and used for trade (Keller 1978). Manoomin also plays an important spiritual role, used ceremonially and holding a critical place in legends of place and formation.

As of 2008, over 2 million pounds of wild rice are harvested by members of Ojibwe bands annually (Fletcher and Christin 2015:34). In 2007 wild rice provided more than \$400,000 in tribal revenue, speaking to its continued relevance both culturally and economically (Fletcher and Christin 2015:34). There are 118 identified wild rice locations in the St. Louis Watershed alone, and while many of these wild rice habitats exist in ceded territory, the Ojibwe retain use rights in order to access this critical species (Fletcher and Christin 2015:34).

The Lake Superior Chippewa ceded their territory along Lake Superior to the United States government in the La Pointe Treaty of 1854 (see Figure 2), which established approximately 100,000 acres for the Fond du Lac reservation (Treaty with the Chippewa 1854, Fletcher and Christin 2015). The Fond du Lac reservation lies within the St. Louis watershed, approximately 20 miles west of Duluth and adjacent to the small city of Cloquet (Fletcher and Christin 2015:10). The La Pointe treaty explicitly grants the

³ Since 1973 Minnesota has had a water quality standard based around wild rice (10mg/L sulfate) under the Clean Water Act

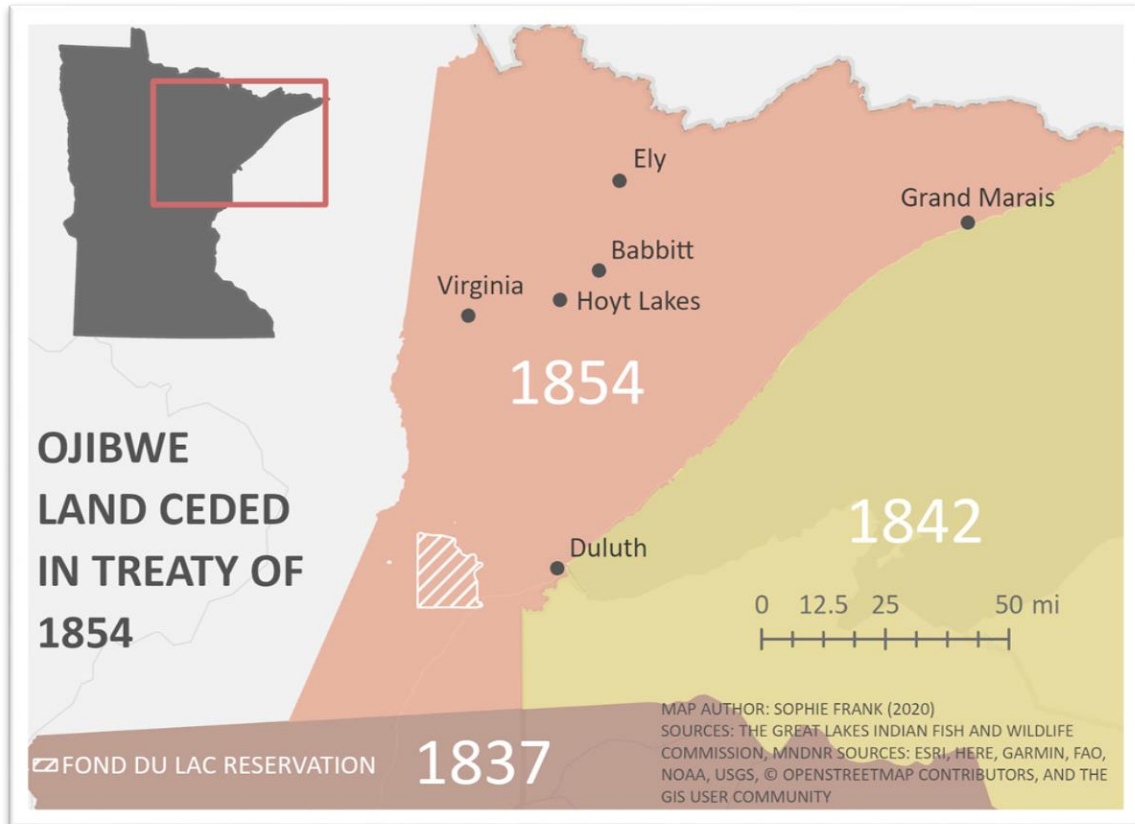


Figure 2 - Map of Ojibwe land ceded in Treaty of 1854

Ojibwe rights to hunt, fish, and harvest from ceded territories (Treaty with the Chippewa, 1854). These treaty rights are classified as property rights under the U.S. Constitution and include a governmental obligation to protect natural resources within these areas (Thompson 2017:5).

Following a cultural inventory conducted by PolyMet in conjunction with the Fond du Lac, Bois Fort, Grand Portage, and Bad River bands of Chippewa, a handful of specific historically significant sites within the area of the proposed NorthMet mine have been recognized by the State Historic Preservation Office. These include Spring Mine Lake Sugarbush (a maple sugar camp), a portion of the Laurentian Divide that is considered “culturally significant” to multiple Ojibwe bands, a portion of the trail between Beaver Bay and Lake Vermillion, and multiple sites associated with the Erie

Mining Company (MDNR 2015:ES-40). These specific protections do not take into account the potential environmental degradations (e.g., water quality) that could affect tribal rights to land usage (e.g., wild rice harvest, maple sugar tapping, fishing, and hunting). Bands of Ojibwe in Minnesota, especially the Fond du Lac band, have vocalized criticism of the NorthMet project throughout the permitting process, citing these rights and potential degradations.

Mining legacy of the Iron Range. Though the history of fur-trappers and voyageur culture in the Great Lakes dates back to the 17th century (Nute 1930), the 1854 treaty opened up longer-term European settlement in the region. Agricultural ventures were primarily small-scale, subsistence projects due to the harsh climate and lack of transportation for market crops, but public land sales in 1875 and 1882 led to expansion of the logging industry and construction of railroads throughout northern Minnesota (Barr Engineering et al. 2012:88, Manuel 2015:xiii). While logging remained northern Minnesota's primary industry in the 19th century, prospectors began to emerge in the region, searching for gold but instead discovering vast deposits of iron and copper (Manuel 2015).

Prospectors mapped the large iron deposits of the Vermilion and Mesabi Ranges (two iron ranges collectively known as the Iron Range region of Minnesota) in the late 19th century (See Figure 3), which became increasingly valuable as sources for the burgeoning steel industry became scarcer (Manuel 2015). Beginning in the 1880s, the natural ore extraction in the region experienced a rapid boom that continued through the early 20th century (Manuel 2015:15).

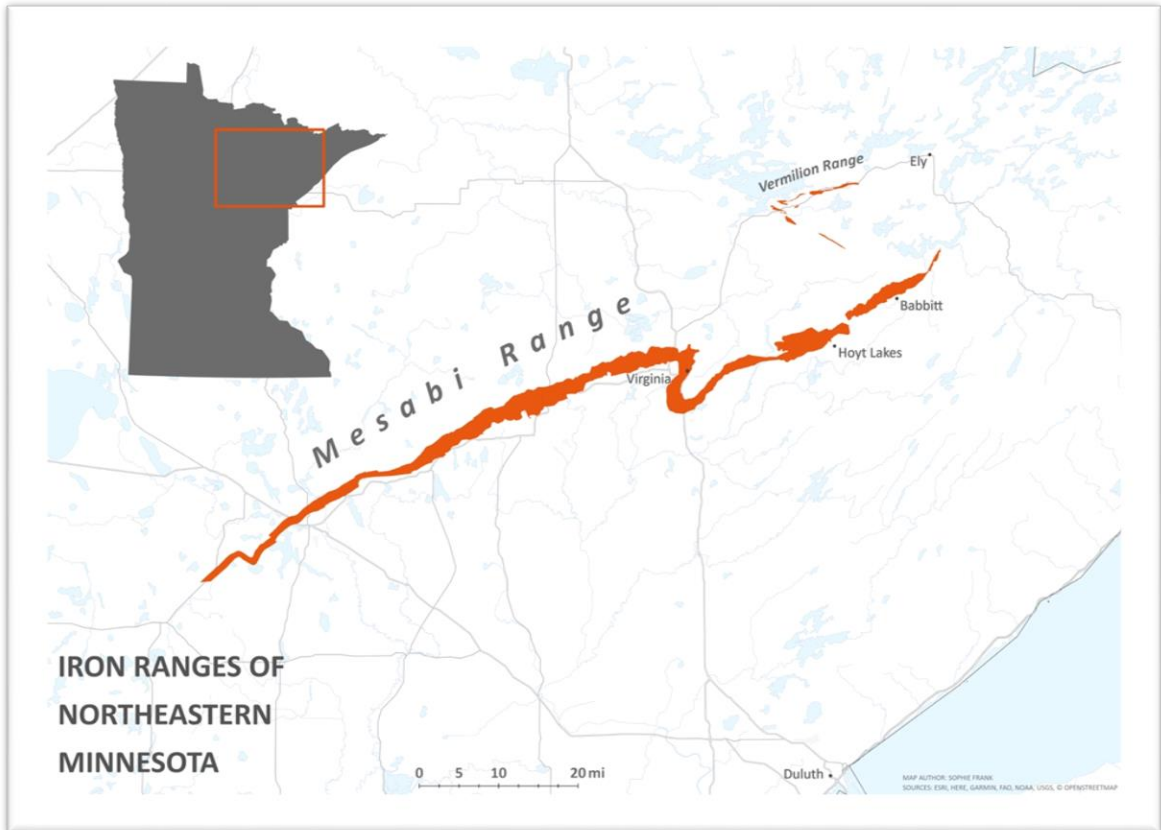


Figure 3 - Map of the Mesabi and Vermilion Iron Ranges

Fears of resource depletion following the success of the massive open pit mines helped spur experimentation with extracting iron from the endemic low-grade taconite (Barr Engineering et al. 2012:93). By the 1950s and 60s, the long-feared decline of natural ore was compounded by an unprecedented influx of iron from international sources (Manuel 2015:49). The resulting job losses and rural flight served as an impetus for many workers to support what became known as the 1964 Taconite bill, providing a tax break to mining companies that made it economical for them to open new taconite mines in the region (Manuel 2015:63).

Since the early 20th century, the Iron Range has been typified by boom and bust cycles centered on the taconite mining industry (Manuel 2015). Boom cycles were

characterized by vibrant communities, which the mining companies helped sustain directly through jobs, and indirectly through the subsequent support for businesses and schools in the region (Kojola 2018:377). Bust cycles were associated with struggling businesses and schools, difficulty for residents to find sustainable employment, and the need to move elsewhere to find work (Kojola 2018:377). Bob Dylan, who hailed from the Iron Range town of Hibbing, MN, concludes the song North Country Blues with a bleak description of an Iron Range bust town in the 1950s where, “The summer is gone, the ground’s turning cold / The stores one by one they’re all folding / My children will go as soon as they grow / Well, there ain’t nothing here now to hold them” (Dylan 1964). Current decline in the mining industry of the region, due in part to the globalization and increased mechanization of the mining industry, has resulted in current high levels of unemployment and population loss that hark back to these earlier bust cycles.

Along with a legacy of mining comes a legacy of pollution, which has generally increased with the shift towards taconite mining. The taconite industry, while allowing mining to continue as an economic linchpin on the Iron Range, produces significantly more tailings⁴ as a byproduct than natural ore. Taconite, as a lower grade ore, is made up of only 22% iron, meaning that the remaining 78% must be stored or dumped somewhere as tailings (Manuel 2015:88).

By the end of the 19th century, industrial mining companies had come to understand that water pollution was a concern and generally worked to carefully plan and recycle water supplies (Manuel 2015:89). Neither the mining companies nor the

⁴ Tailings refer to the waste material generated in mining. Tailings are generally in slurry form with a mud-like consistency. They include ground rock and any substances generated in the mining process, (e.g., water, heavy metals, minerals, and chemicals).

government regulators yet understood the full ecological repercussions of improperly stored mine tailings, however. An extreme example of a common practice of the time was Reserve Mining Company's project on the North Shore, which from 1955 to 1980 dumped the equivalent of about 67,000 tons of tailings per day directly into Lake Superior (Manuel 2015:89). This dumping was fully permitted, and the mining company operated under the belief that at the bottom of Lake Superior the tailings "would be out of sight forever and posterity would not have to cope with them" (Manuel 2015:90). Tailings were considered more in terms of a waste product to be hidden from sight than a potentially toxic mass that could spread to pollute nearby communities.

In the late 20th century this widespread failure to account for environmental degradation as the result of mining was federally curtailed. Beginning with the Water Pollution Control Act (1948), more stringent water protection acts followed, including the Water Quality Act (1965), the Clean Water Act (1972), the Safe Drinking Water Act (1974), and a revised Clean Water Act (1977) (Manuel 2015:93). The Environmental Protection Agency (EPA) was established in 1970 in the midst of a national-level watershed moment regarding environmental pollution.

In 1987, the EPA identified the St. Louis watershed – including the Iron Range towns of Hibbing and Virginia, the Fond du Lac Reservation, and Duluth and spills into Lake Superior – as a "Great Lakes Area of Concern," particularly for its high mercury levels (Fletcher and Christin 2015:20). Mining acts as the largest source of mercury emissions in Lake Superior, leading to bioaccumulation in fish, wildlife, and humans (Fletcher and Christin 2015:20). A study published in 2011 found that approximately 10% of newborns in the region have what is considered an unusually high level of

mercury in their bloodstream, likely due to their mother's consumption of Lake Superior fish (Fletcher and Christin 2015:21).

The proposed NorthMet site is located in the St. Louis watershed, upstream of the Partridge and Embarrass Rivers. This means that tailings, should there be any technical failure, would ultimately flow into Lake Superior (see Figure 4). Testing done during

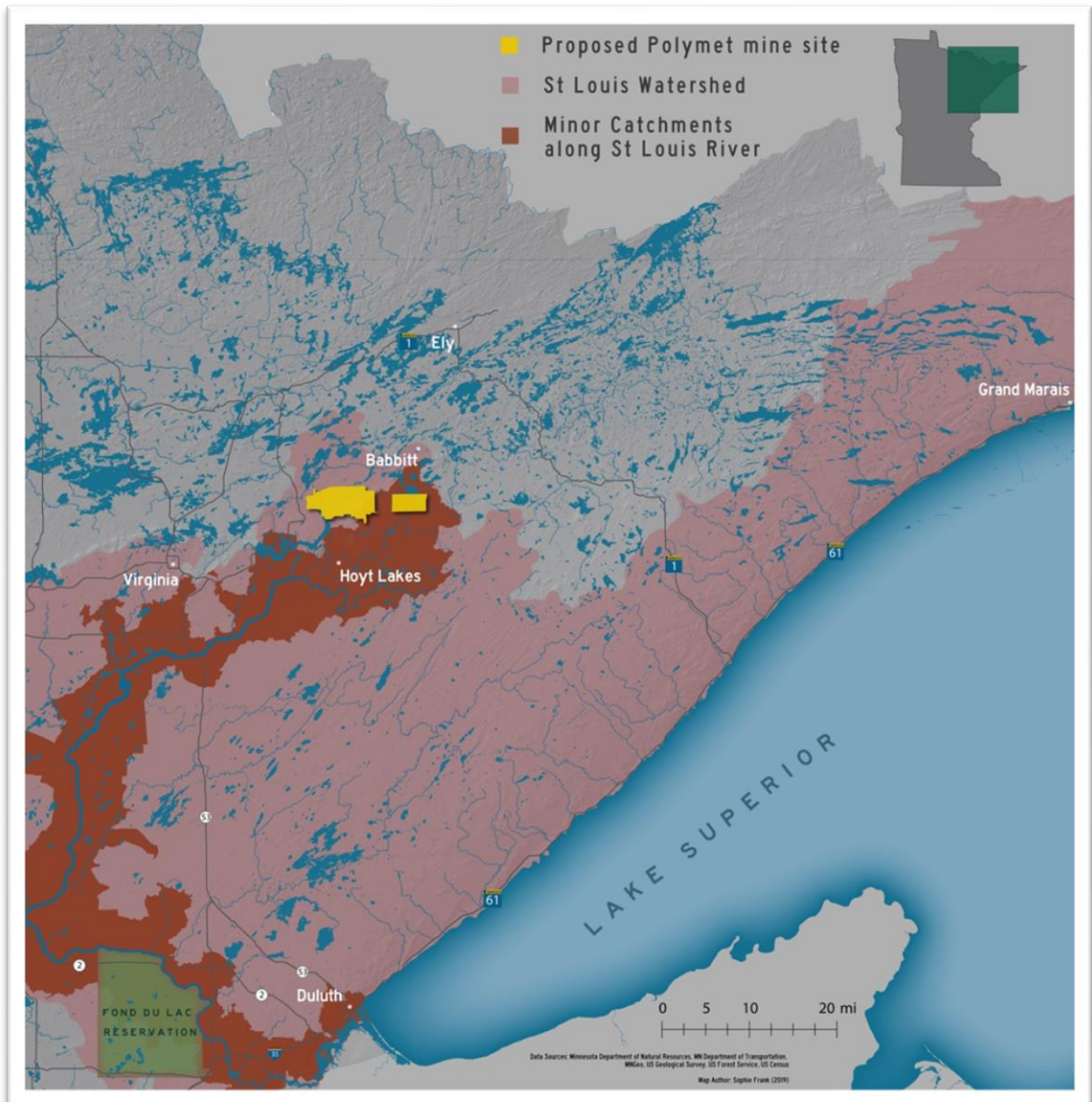


Figure 4 - Map of the St. Louis Watershed

NorthMet's environmental review process has indicated that all of the waters downstream of the mine site are already in excess of water quality standards for mercury per the Great Lakes initiative (Maccabee 2009:1146).

The legacy of mining on the Iron Range has caused rifts in the population concerning community development and economic strategies in light of the decline of the iron and taconite industries. Some residents argue for a maintenance of industrial mining, expanding and continuing operations through boom and bust cycles, and embracing mining as a big piece of residents' place-based identity (Manuel 2015:163, Kojola 2018:376). Others call for a re-imagining of the region in terms of "industrial nostalgia," turning the long history of mining into an economic strategy to draw tourists to the region, while ultimately moving into a post-extractive economic strategy for the Iron Range (Manuel 2015:163).

Tourist industry in northern Minnesota. Non-mining industries, especially tourism and recreation focused on the lakes and wilderness of the region, have emerged in the 20th and 21st centuries as key pieces of economic strategy in northern Minnesota. Such industries rely on intact ecosystems for continued success, though the size of the industries varies from community to community. Duluth, Minnesota, for example, boasts an annual 3.5 million visitors (Duluth Area Chamber of Commerce 2018), many of whom use the hub as a stopover for trips up the shore of Lake Superior or into the Iron Range and Boundary Waters areas. Water contamination at the top of the St. Louis watershed could potentially have a serious impact on the tourist industry and the income of many northern Minnesota residents who rely on the tourism and recreation industries as a livelihoods strategy.

Though not within the St. Louis watershed, the nearby Boundary Waters Wilderness Area (BWCA) has been a large part of the discussion surrounding proposed copper mining in Minnesota. The Boundary Waters Canoe Area, officially established under the Wilderness Act of 1964, includes over 1,000,000 acres of forests and lakes along 199 miles of the Minnesota-Canadian border (Dvorak et al. 2012:2). The BWCA, which includes nearly 450,000 acres of surface water, was expanded and given additional protections (including logging prohibitions, a mining protection area, and heavily curtailing motor usage) in the Boundary Waters Canoe Area Wilderness Act of 1978 (Dvorak et al. 2012:2). It is the largest wilderness area east of the Mississippi River and the most visited wilderness area in the United States (Dvorak et al. 2012:2), with approximately 143,300 visitors reported in 2015 (Hjerpe 2018:64).

Iron Range communities attract fewer annual visitors than the North Shore (i.e., the Minnesota shore of Lake Superior) and the BWCA, though tourism remains an important component of the economy, with a range of historical mining and logging museums and site tours, as well as traditional outdoor recreation offerings such as extensive trail systems and lakes (Iron Range Tourism Bureau 2019). Residents of these communities with a strong mining legacy often consider tourists as “outsiders—wealthy urban liberals—who want to preserve their wilderness playground and dictate how local communities—insiders—use the land” (Kojola 2019:375). As we shall see in the following case study, this tension between land users comes to a head when environmental regulation and permits for extraction are up for discussion.

PolyMet’s Proposed NorthMet Project. PolyMet, originally named Fleck Resources Ltd., was incorporated in Canada in the early 1980s and first leased mineral rights in the Duluth Complex from U.S. Steel in 1989. In 2005 PolyMet began their first steps towards opening NorthMet (see Figure 5), a proposed sulfide ore copper-nickel (SOCN), or hard-rock, mine that would be the first of its kind in Minnesota. The proposed NorthMet site would be primarily located on a brownfield⁵ site previously mined by LTV Steel Mining Company (LTVSMC). Along with the land, PolyMet acquired infrastructure from LTVSMC, including a railroad line, tailings pit, and rock crushing facility, which they intend to repurpose for proposed mining operations (Hoffmeister 2019:4).

First proposed in 2013, the Minnesota Department of Natural Resources (MDNR) finalized a land exchange between PolyMet and the United States Forest Service (USFS) in 2018 amidst public controversy. PolyMet provided approximately 6,700 acres of private forest land for approximately 6,650 acres of land located in the Superior National Forest (MNDNR 2015:ES-31). Prior to the exchange, PolyMet owned subsurface mineral rights for the USFS land, while the USFS held surface rights (Hoffmeister 2019:6).

By 2015 MDNR completed their final Environmental Impact Statement and in 2017 PolyMet submitted their Permit to Mine application to MDNR. In order to begin mining operations, sixteen permits are required from the Minnesota Department of Natural Resources (DNR), the Minnesota Pollution Control Agency (MPCA), and the Minnesota Department of Health (MDH) (Minnesota DNR 2018). By March 2019,

⁵ A brownfield site is loosely defined as an area that has been previously developed but is no longer in use (Alker 2000). Environmental groups have contested the use of this term for the NorthMet site, as it implicitly devalues the land as a no longer a functioning ecological system, implying that future development would not contribute to re-degradation

PolyMet had received the necessary permits from the DNR (including Permit to Mine, Wetland Replacement Plan, Water Appropriation, Dam Safety, Endangered Species Taking Permit, and Permit for Work in Public Waters), MPCA (including air emission permit, water quality permit, and 401 certification), and the Army Corps of Engineers (a wetlands permit) (Minnesota DNR 2019).

Environmental groups such as WaterLegacy, Friends of the Boundary Waters Wilderness, and the Minnesota Center for Environmental Advocacy, as well as the Fond du Lac band of Chippewa, have been waging a multi-pronged battle on the social and legal fronts since PolyMet first proposed permits in 2009 (WaterLegacy 2009). Their appeals have focused on the value of natural resources in the region both for recreation and indigenous livelihoods, human health and issues of clean water and mercury-free fish, and the global legacy of mines extracting profits from mining ventures and then absconding to leave residents and taxpayers with the resulting cleanup.

As of September 2019, three major permits had been stayed by the Minnesota Court of Appeals pending official review. In June, the court issued a stay on the water quality permit issued by the Minnesota Pollution Control Agency (MPCA), citing irregularities in communication between the EPA and MPCA that could reflect a desire to keep EPA comments criticizing NorthMet private (MPR 2019). In August, the same court issued stays on PolyMet's permit to mine and dam safety permits (MPR 2019).

In January 2020 the Minnesota Court of Appeals officially reversed the two dam permits and PolyMet's permit to mine. A week later trial began in the Ramsey County District Court to determine whether the communication irregularities between the MPCA and EPA constituted deliberate obfuscation of the EPA's concerns over the

environmental effects of the proposed NorthMet mine. The case was brought against the Minnesota Pollution Control Agency and PolyMet Mining, Inc. by Center for Biological Diversity, Friends of the Boundary Waters Wilderness, Minnesota Center for Environmental Advocacy, WaterLegacy, and Fond Du Lac Band of Lake Superior.

Abridged NorthMet Permit Timeline

- 2005** – Scoping Environmental Assessment Worksheet (EAW)
- 2008** – Switzerland-based corporation Glencore invests in PolyMet (owning between 25 and 40%)
- 2009** – DNR completes draft EIS
- 2013** – DNR completes supplemental Draft EIS to respond to comments, add changes to the project, and include a land exchange with the USFS.
- 2015** – Minnesota DNR completes Final EIS of NorthMet Project and opens the public commenting period.
- 2017** – PolyMet submits Permit to Mine application to Minnesota DNR.
- Feb 2018** – WaterLegacy submits objections to PolyMet’s Permit to Mine application and Petitions for a Contested Case Hearing
- June 2018** – PolyMet finishes 6700-acre land exchange with USFS. WaterLegacy and Minnesota Center for Environmental Advocacy have filed a lawsuit against the exchange.
- June 2018** – Friends of the Boundary Waters Wilderness, Minnesota Center for Environmental Advocacy, and the Center for Biological Diversity request a supplementary EIS. The DNR denied this request
- July 2018** – WaterLegacy initiates a request for a supplementary EIS. The DNR denies this request
- Nov. 2018** – DNR issues permits for NorthMet.
- Dec. 2018** – MPCA issues air and water permits
- March 2019** – US Army Corps of Engineers issues final wetlands permit for NorthMet project
- June 2019** – MN Court of Appeals issues stay on PolyMet’s water quality permit
- Aug 2019** – MN Court of Appeals issues stay on PolyMet’s permit to mine and dam safety permit
- Jan 2020** – MN Court of Appeals reverses two dam permits and PolyMet’s permit to mine
- Jan 2020** – Ramsey County District Court begins trial over potential MPCA misconduct
- Feb 2020** – Minnesota DNR submits petition to Minnesota Supreme Court requesting review of January 2020 decision to overturn three DNR-issued permits

Figure 5 - Abridged timeline of the NorthMet permitting process 2005 - Mar 2020

Framing the Case Study

Current permit reversals and litigation over transparency demonstrates the ability of stakeholders to leverage public opinion to delay or halt PolyMet's mining project. Campaigns by environmental groups who have led the lawsuits against both PolyMet and regulatory agencies have served to inform and mobilize the public to gain traction by forcing the issue into local, regional, and national media and political platforms. In the following research I consider data sources throughout the permitting process to look at the struggle to mobilize public opinion and where points of tension remain between various stakeholders and the mining company using the concept of social license to operate to frame the case study. Considering the strategies both pro-mining and environmental groups have used in an attempt to sway public opinion, analyzing public comments, and conducting interviews, this research frames the NorthMet controversy using a social license to operate model to discuss public perceptions of PolyMet and the mine itself.

PURPOSE & METHODOLOGY

In this chapter I detail the methods implemented to meet each of my research outcomes, including basic analytical frameworks, how I narrowed my focus, and my choice of using a case study method. I then detail the public comments on the Final Environmental Impact Statement (FEIS), including their initial DNR coding, and how I selected samples and coded a selection of the public comments. Next, I discuss my use of semi-structured interviews, including how participants were selected and their demographics. Finally, I briefly discuss the limitations of this research and my own personal bias as a researcher on the issue.

Research Goals

In this research I use a case study method in order to answer the following questions — How are rhetorical strategies operationalized by PolyMet and WaterLegacy in an effort to influence public opinion about the NorthMet project? What does a consideration of the NorthMet controversy using the framework of social license shed light on in terms of how various stakeholders perceive the issue? What does the SLO framework leave out and what changes need to be made to this theory as it is adopted by scholars to make it a comprehensive framework? In order to address these questions, this thesis works towards the following three outcomes:

- 1. To identify and describe the rhetorical strategies utilized by PolyMet and WaterLegacy, who serve as two of the most vocal players in the NorthMet controversy, in order to obtain or stall an informal social license to operate from community, regional, and national stakeholders.**

While many individuals and stakeholder groups have taken an active role in the public debate surrounding NorthMet, I have identified PolyMet and WaterLegacy as two of the most prominent, and polarized, to study. WaterLegacy is a Minneapolis-based non-profit that was founded in 2009 specifically to “counter the threat of sulfide mining proposed for Northern Minnesota” (WaterLegacy 2019). Their focus has been elevating the issue into the public sphere, educating and mobilizing the public to take action against the proposed mines (including PolyMet and Twin Metals), and working on anti-mining litigation to slow or halt the permitting process.

In considering the strategies that both pro-mining and environmental groups use to sway public opinion, I look at their web presence (e.g., websites, social media activity, community engagement) of PolyMet and WaterLegacy and their supporters. I also consider opinion pieces and news articles published in local media outlets and how they frame and construct the controversy. Using a blend of the rhetorical frameworks laid out by Hamilton and Lange (regarding the radium-mine cleanup and the spotted owl debate respectively) and paying particular attention to the use of technical versus cultural rationality, I analyze the public discourse of the NorthMet debate.

2. To explore where and for what reason social license to operate has been granted or withheld for the NorthMet project among different stakeholder groups.

I will consider social license to operate in terms of the factors presented in social license to operate literature (Boutilier and Thomson 2011, Koivurova et al. 2015, and others), including legitimacy, credibility, and trust. In order to determine the extent to which SLO for NorthMet has been achieved, I look to the extensive public comments on the final Environmental Impact Statement (EIS) and eight semi-structured interviews

with various stakeholders. Because the list of stakeholders is so extensive, for the purpose of this case study I necessarily limited the research scope. While randomly sampled public comments may include anyone who chose to participate in the commenting period, when considering opinion-editorials and seeking interviewees I narrowed the stakeholder groups to non-tribal residents of the Arrowhead Region of Minnesota (including the Iron Range, Ely, and Duluth). The research scope and the resulting exclusion of certain voices in the controversy is further articulated in the limitations section of this chapter.

3. To situate this Minnesota case study within the already existing social license to operate literature, use this case study to extend previous research, and note strengths and weaknesses of the SLO framework when applied to this case study on the proposed NorthMet mine.

Through analysis of data gathered from public comments on the final EIS and interviews with members of identified stakeholder groups, I engage with the existing body of literature around social license to operate and public process. I will compare my findings to case studies conducted in other communities engaging with proposed mining projects to find similarities and discrepancies and comment on the utility of the SLO framework in providing analysis and potential feedback or recommendations regarding public perceptions on their ability to affect change. Through this case study, located within a specific context in space and time, I will implement what Burawoy (1998) refers to as reflexive science, using the specific to speak back to the theory, and “reduce the effects of power” (i.e., domination, silencing, objectification, and normalization) by painting a landscape of multiple stakeholders in the issue (Burawoy 1998:30).

Coined by the mining industry as a means of capturing the general necessity of public support to ensure the success of a particular project, the concept of a social license to operate has been operationalized by academics to consider the integration of stakeholder opinions in decision-making regarding extractive projects. Using this framework in an analysis of the proposed NorthMet copper-nickel mine in northern Minnesota, the following research helps extend this increasing body of literature and address limitations of the SLO framework as a stand-alone model.

Data Sources & Collection

This study considers a broad pool of data, including websites, op-eds, public comments, and semi-structured interviews. This diversity of data sources allows for a richer consideration of rhetorical strategies and their pervasiveness or visibility in how various individuals perceive the proposed NorthMet mine. Sources such as websites and online op-eds served to help define rhetorical strategies utilized to help frame the debate from both sides of the issue. Consideration of public comments allowed insight into which rhetorical strategies took root and are reflected in how people think about and publicly respond to the issue, considering the broad group of stakeholders that chose to participate. Including semi-structured interviews allowed for a narrowing of stakeholder views by considering voices of individuals geographically located within the region of the proposed NorthMet mine and allowed for more informality, bringing greater depth to the consideration of rhetorical strategies and how they are reflected using the social license to operate framework. While web data was gathered by combing PolyMet and WaterLegacy's websites, I implemented more formal collection strategy for public comments and semi-structured interviews, which is detailed below.

Public Comments

The Final Environmental Impact Statement (FEIS) on the proposed NorthMet mine and the land exchange was made available to the public on November 9, 2015 and the public comment period was open through December 21, 2015. A total of 30,441 public comments were submitted by 24,969 different commenters. Comments ranged from single sentence submissions to over one hundred pages. Each comment was identified by a sequential submission number based on the order in which it was received.

A total of 29,648 (97%) of the comments received were form letters. The DNR identified 9 different form letter sources and tallied the number of submissions that included each form letter (see Appendix A). Form letter submissions were categorized as *form letter non-variants* (i.e., the form letter was submitted without any significant alterations by the commenter) or *form letter variants* (i.e., the form letter was altered or supplemented substantially by the commenter). Of the form letter submissions, 388 were categorized as form letter variants and 29,260 were categorized as form letter non-variants. There were 793 comments labeled as *unique submissions* (i.e., comments that did not rely on form letters but were completely composed by the commenter), which made up 3% of the total comments received (MNDNR et al. 2016:6).

The DNR identified 27 issues in public comments on the FEIS and used these as codes to organize the comments received. A full list of DNR codes is available in Appendix B. One shortcoming of this coding system is that while full comments were cut so that sections could be assigned to different codes, cut sections were not assigned more than one code. This means that a selected sentence that addressed the land exchange, vegetation, and financial assurance would only be coded within the “most relevant” of

these sections (MNDNR et al. 2016:7). Coding comments under one topic and not the others could effectively downplay certain issues and make it more difficult to find all of the comments that address a certain concern with the proposed NorthMet mine.

Unique and form-variant submissions are publicly available via the Minnesota DNR website in their coded form (i.e., submissions were split up into sections and organized by codes). In order to select comments for analysis, I first put the names of everyone who had submitted unique or form variant letters in an Excel spreadsheet. Then, using a random number generator, I selected 100 submitters and extracted all of the pieces of their comments from the DNR coded document. There were 1181 comments labeled as unique or form variants, meaning I analyzed 8.5% of those comments.

I coded comments based on topic and theme, and comments could be coded within multiple categories. Of the 100 sampled comments, 12 were in favor of the mine being permitted, 84 were against the mine being permitted, and four did not take a stance on the mine going forward but did point out changes that should be made in the regulation of the mine. Public comments included the name of the commenter and the option to include an associated organization. Only 5 of the 100 comments I analyzed included an associated organization, though 2 others included an associated business or organization within the comment itself. Because this was the only available identification, apart from occasional geographical or personal markers (i.e., “I live off the Gunflint trail” or “I work at an outfitters”), it was difficult to identify commenters as members of specific stakeholder groups with certainty.

Semi-Structured Interviews

I conducted in-person interviews in northern Minnesota during February 2020. Additionally, I had two informal conversations in December 2019 (one with a member of a major environmental organization based in the Twin Cities and the other with an aide for a politician who serves on the state energy council and has watched as the PolyMet issue develops politically). These conversations helped tune me in to critical aspects of the issue and solidify the importance of speaking with residents of the Arrowhead region outside of larger organizations and political structures in order to understand how the machinations of larger institutions (e.g., unions, politicians, governmental groups, and mining companies) affected those who lived full-time in northern Minnesota.

I selected participants using a combination of purposive and snowball sampling, with the goal of speaking to residents in different parts of the Arrowhead region and across the spectrum of the issue. When contacting organizations, I specifically reached out to smaller organizations or organizational chapters located within northern Minnesota rather than those primarily based in the Twin Cities or nationally. Initial contacts were found using a combination of organizations listed in the public comments, individuals associated with organizations who contributed multiple op-eds to local papers, and some savvy google searches.

I initially sent 24 email requests for interviews and received seven replies. Four of these replies indicated that the individual was not willing to participate or asked for further information (e.g., intent, bias) but did not lead to acceptance of the interview request. All four of these emails were from individuals who held public office and were concerned about participation regardless of assurances of anonymity.

I set up two meetings with small organizations on either side of the issue before arriving in northern Minnesota. I set up a third meeting via email with an organizer who was not specifically involved in the PolyMet issue but focused on other sustainability issues within the Iron Range and larger northern Minnesota community and had the unique perspective of maintaining professional neutrality on the issue due to its divisiveness. After building rapport with these initial contacts, I asked them if there were other folks I should reach out to and gained another short list of contacts.

In total I conducted seven interviews with eight people, who are publicly vocal about the issue and have participated in the permitting process in some way (e.g., attended town halls, submitted public comments a version of the EIS). In two of the interviews, an additional person (either relative or friend) joined partway through our conversation and would occasionally add their own comments but did not actively participate in the interview. Interview locations were selected by the interviewees. Six interviews were held in cafes and the seventh was held in an office associated with a small organization run by the interviewee.

One participant lived in Duluth, one lived in Cloquet, four lived in the larger Ely area, and two lived in Cook. I spoke with three women and five men and seven of the eight were age 50 or older. Two participants worked directly in the mining industry during their career, one was a carpenter who worked closely with the mining industry, one worked for the DNR, one worked for multiple environmental organizations, one works for a small sustainability-focused nonprofit, one was a lawyer, and one was a homemaker whose husband worked in the taconite mines. Ultimately, four participants were in favor of PolyMet and four were against it, with varying levels of conviction.

Participants were informed that their names and identities would not be shared and asked for consent to record the interview. Before the conversations began, I asked if participants had questions for me. I asked this again at the end of the interview to maintain transparency. While many participants were at first wary to talk to me, or had a specific agenda that they were prepared to present to me, most were surprised and interested by the direction of my questions towards particular experiences and feelings, rather than focusing on the debate itself or coming to a value judgement about the PolyMet mine. This allowed me to build rapport and contributed to the success of using snowball sampling methods as most interviews ended with the interviewee asking, “had I talked to so-and-so yet,” and sharing their contact information with me.

A copy of the interview guide can be found in Appendix C. While this guide served to direct the conversation, it was not followed verbatim in every interview, and each conversation included departures from the questions outlined in the guide based on the participant’s interests and experiences. Questions were focused on what issues remain pressing regarding the NorthMet project (and if this has changed since the final EIS and the permitting process), levels of trust in PolyMet, environmental advocacy groups, and the DNR, the legitimacy of the project, whether stakeholders feel like their needs are being heard and met, what they see as shortcomings in the review and permitting process, how the debate over PolyMet has affected community dynamics, and what sort of a future they would like to see for the region. The focus of the interview was based on takeaways from analyzing the public comments, including the need to get deeper into issues of trust, the need to obtain an updated temporal picture of the issue, and the need to

broaden the scope of the analysis beyond just the mining operation to include more governmental dynamics and affects that this issue has had on Iron Range residents.

Limitations & Personal Bias

When I began this research, I had a grand plan to create a thick description case study of the PolyMet controversy that included deep consideration of all stakeholder groups. As my research progressed, I realized that such lofty schemes were not possible within the limitations of this particular master's thesis in terms of time, location, and status as outsider.

Originally, I had hoped to include tribal interviews as Ojibwe narratives are a critical piece of any discussion of the St. Louis watershed, and particularly regarding NorthMet, which would at the headwaters of the Saint Louis River, upstream of the Fond du Lac reservation. Additionally, members of the Fond du Lac band have been vocal participants in conversations around NorthMet throughout the past fifteen years, including official statements, participation in the cultural landscape study conducted by PolyMet, and pushing through anti-mining litigation.

As I began to lay plans for this research, however, I discovered that I would need to go through an additional tribal IRB process and potentially rebuild my research questions and analytical frameworks. This type of participant-driven research to elevate indigenous experiences and perspectives is extremely important. Unfortunately, due to personal time constraints and location hundreds of miles away from the indigenous communities that I needed to have important conversations and build trust and rapport

with, I chose to narrow my scope to communities that were more readily accessible to me, as an outsider.

I grew up in Minneapolis, MN and spent a significant amount of time skipping stones in Lake Superior, camping in the Iron Range, cross-country skiing in Ely, and canoeing through the Boundary Waters Canoe Area. As an adult I have continued this tradition and treasure the weeks I get to spend in the north country each year. I also have a background in environmentalism and come from a graduate program that is rooted in environmentalism. It is important to note that, while I strive to present a full picture of the landscape of opinions surrounding NorthMet, I carry personal biases and a strong emotional attachment to place and a desire to see an equitable outcome.

RESULTS & DISCUSSION

The following chapter considers three major sources of data, including the digital presentation of PolyMet and WaterLegacy, a random sampling of 100 public comments on the final environmental impact statement (FEIS) from 2015, and eight semi-structured interviews with residents of the Arrowhead region conducted in February 2020. The chapter is organized as a sort of call and response, where the first section focuses on how two of the larger organizations on either side of the issue – PolyMet and WaterLegacy – have utilized rhetorical strategies in how they have presented the issue of the NorthMet mine to the public, and how their presentation of the issue serves as an attempt to attain or undermine public support of the NorthMet project. The second portion of this chapter focuses on public perceptions of the mine, framed in terms of social license to operate. Considered together, these sections help illustrate which aspects of the issue prove critical in terms of social license, and where rhetorical strategies have been successful or not, in that they are reflected in the way that individuals make decisions about the issue. I conclude this chapter with a discussion of community dynamics and the limitations of the SLO framework in capturing these types of complexities surrounding the issue.

Rhetorical Strategies and the Struggle for Public Support

Rhetorical strategies of both pro-mining and anti-mining groups can be considered in terms of attempting to achieve or deter a social license to operate from those affected by the proposed project. The social license to operate framework accounts for the use of rhetorical strategies not only to affect the official, governmental permitting process, but to affect public opinion amongst stakeholders.

In the following section, I will outline rhetorical strategies utilized by PolyMet in an effort to achieve SLO, as well as strategies implemented by prominent environmental activists to keep SLO from being achieved. In considering these strategies I will look primarily at both PolyMet and WaterLegacy's web presence – including individual websites, fact sheets, and recordings of speeches – as well as opinion and news pieces published in local media outlets. My analysis of the issue of sulfide ore copper nickel (SOCN) mining in Minnesota will consider the rhetorical strategies of both PolyMet and WaterLegacy, using Hamilton's basic framework while speaking back to Lange's study of the spotted owl debate. I will consider how both sides implement rhetorical strategies to (1) define the issue, emphasizing what is included and what is left out through their respective definitions and framings of the landscape (2) identify themselves, including how they distance themselves from opposing groups through vilification and ennobling and build relationships with stakeholders, and (3) create boundaries around the issue (e.g., in space and time), thereby electing what is included in the controversy and what is obscured. By considering how PolyMet and WaterLegacy each engage in these three strategies, I will explore how they attempt to sway public opinion and gain or stall SLO for the NorthMet mine. Determining whether or not SLO has been achieved is not within the scope of this study, but the following analysis will set the stage for future research focusing on stakeholder perspectives regarding PolyMet's NorthMet project that can better speak to the ultimate successes and failures of these strategies.

Defining the Issue

The disparate ways that pro-mining and environmental groups define the issue of NorthMet begin with how they name the type of mining PolyMet has proposed in

northern Minnesota. Pro-mining interests refer to the proposed NorthMet project as a “copper-nickel mine,” emphasizing the precious earth metals that would be extracted as a result of the project. WaterLegacy and other environmental groups refer to NorthMet and similar proposed projects as “sulfide mines,” highlighting the toxic acid-mine drainage that would result from such projects. Each serves to define the mining project based on a specific part of the mining process, while excluding the other (i.e., “copper-nickel mine” does not speak to the risks involved while “sulfide mine” does not acknowledge the benefits).

By emphasizing the precious metals that will be mined through NorthMet, PolyMet chooses to define their project within the context of maintaining the status quo, including modern, technological lifestyles comprised of cell phones, computers, and televisions, while promoting sustainable development of “green technologies” such as hybrid cars and wind turbines. Asserting that, “our lifestyles – and the shift towards a sustainable future – rely on the responsible and safe extraction of metals,” PolyMet points out that 35% of our copper and gold are imported and the United States only has one active nickel mine (PolyMet 2018). The proposed copper-nickel mine, then, is not only necessary to maintain the current technological age and increase sustainability, but critical to the United States’ self-sufficiency and national economic development.

PolyMet defines the issue not only as a national need for precious earth metals, but as a strategy to move away from the economic depression due to the decline of the historic Iron Range mining industry. The banner on their main web page says, “Welcome to the Next Generation of Mining in Minnesota,” speaking to a preservation of mining as a historic way of life (PolyMet 2018). The website is rife with images of happy people

hard at work, emphasizing the ability of the NorthMet project to provide much-needed careers in the region. They highlight the number of jobs and construction hours, as well as the “\$515 million-dollar annual boost to St. Louis County Economy” (PolyMet 2018). In a header on their website, PolyMet posits that they are “breathing life into an idle plant” (PolyMet 2018). This headline alludes to their assertions that they are building on an old taconite mine brownfield site (i.e., a piece of land that is already degraded due to previous development) and making use of already existing mining infrastructure. Use of the term “idle” also bolsters their definition of the issue as putting an idle community back to work.

WaterLegacy challenges the assertion that more copper-nickel mines are required to meet demand for precious earth metals, claiming that if copper recycling were bolstered in the United States, an adequate amount copper could be recommissioned for technological projects (WaterLegacy2016). They also emphasize non-mining economies on the Iron Range, especially tourism and recreation, which rely on an intact ecosystem for continued success. Duluth, Minnesota boasts an annual 3.5 million visitors (Duluth Area Chamber of Commerce 2018), many of whom use the hub as a stopover for trips up the shore of Lake Superior or into the Iron Range and Boundary Waters areas. Water contamination that could result from a failure in NorthMet’s infrastructure would have a serious impact on the tourist industry and the income of many northern Minnesota residents who rely on the tourism and recreation industries as a livelihoods strategy.

In 2018, WaterLegacy led a film crew on a canoe trip into the area where PolyMet plans to build NorthMet’s mining infrastructure. By including film that highlights the beauty of a recuperating, functioning landscape they defined the issue not as the further

development of a brownfield site, but as the re-degradation of a recovering ecosystem (WaterLegacy 2018). By emphasizing the importance of intact ecosystems for outdoor recreation without addressing the call for more skilled labor in the region, they fail to address the fact that jobs in the recreation industry generally pay less than those in the mining industry. Furthermore, much of the Iron Range has not yet successfully entered the recreation industry and the majority of tourism is focused on the shores of Lake Superior and the BWCA.

For environmental groups, the issue is not about the economy or job production, but about a threat against water, human health, and cultural traditions. WaterLegacy describes their mission as “protect[ing] Minnesota’s clean waters and the communities that rely on them, particularly from the threat of sulfide mining pollution” (WaterLegacy 2018). They emphasize that many health organizations (including the Minnesota Nurses Association, the Minnesota Public Health Association, and Minnesota Medical Association, Minnesota Academy of Family Physicians) and tribal groups have requested additional risk assessments that focus on potential effects on human health (WaterLegacy 2018). They also emphasize the fact that all such requests have been denied by the DNR, expanding the issue to include failures in the regulatory process.

For PolyMet, the issue of potential environmental degradation is a technical issue, and they choose to define and address it in terms of technical rationality. PolyMet asserts that “by meeting Minnesota’s strict environmental standards, and with today’s modern mining techniques and processes, we can mine the metals we need every day safely and responsibly” (PolyMet 2018). Their definition of the issue implies that the failures of past mining ventures were a result of technical failures and minimal environmental standards

that have been overcome through increased regulation and scientific know-how. This is reinforced in their response to criticism from environmental groups after the 2019 failure of the Córrego do Feijão mine in Brazil, that has led to a ban of upstream tailings dams in the country (Arneson 2019):

Our tailings basin... remained one of the most studied aspects of the entire NorthMet Project during its 14-year environmental review and permitting process. Its design was reviewed extensively by independent, international experts during environmental review and by different experts hired by the state during the permitting. *The dam was found to meet or exceed every factor of safety for dam stability.* Further, requirements imposed by the Dam Safety Permit and Permit to Mine and agreed to by PolyMet far exceed the standards set forth in the Minnesota Rules (PolyMet 2019).

This claim both establishes the scientific integrity of the NorthMet plans, as well the willingness of PolyMet to work towards not only meeting but exceeding legal standards.

PolyMet's emphasis on a lengthy and rigorous permitting process, green-lighting by outside technical "experts," and extensive regulation speaks to their privileging of technical rationality when it comes to the safety of the NorthMet project. The Minnesota Center for Environmental Advocacy called the permitting of NorthMet a "\$1 billion gamble for Minnesota taxpayers," emphasizing both the risk and the level of unknowns despite PolyMet's appeal to technical rationality (Kraker 2018).

Identification

Both sides of the NorthMet debate seek to identify themselves, and their opponents, by placing their organization within the community and forming relationships

with other groups that help bolster their identification. While the Arrowhead region is made up of a number of diverse communities, broad references to “community” help construct an image of the Iron Range as a place where residents together make up a single cohesive community, masking the complexities of the issue and brushing over the divergent wants and needs of different communities within the region.

PolyMet promotes itself as a member of the larger Arrowhead community, asserting on their website that “Minnesota is our home. We care deeply about our people, our communities and our environment” (PolyMet 2018). By using “we” and “our” continually throughout their campaign they seek to normalize their status as a part of the Iron Range community. This construction of community also helps simplify PolyMet’s identification as a community member without taking sides, posing themselves as a stakeholder that is not just an extractive industry giant from away, but a company with a vested interest in the well-being of regional communities and environment of northern Minnesota. Indeed, they posit themselves as “environmental stewards,” wielding “modern mining techniques to protect Minnesota’s natural resources for years to come” (PolyMet 2018).

While PolyMet repeatedly speaks to the benefits of extraction and advancement in mining technology, they are careful to promote themselves as environmentally-minded, at one point even describing the metals mined on the Iron Range as “the silent rivers that have run through the northern Minnesota economy since the late 1800s” (PolyMet 2018). The use of a “silent river” as a metaphor is telling because the image implies a pristine waterway, which is in stark contrast to the contaminated watershed predicted by environmental groups. PolyMet’s choice of imagery throughout their website and

promotional materials is also firmly rooted in environmentalism, including not only photographs of pristine riparian areas as they describe plans for reclamation, but an image of a larch branch when describing their final Environmental Impact Statement (EIS) publication.

PolyMet's identification goes beyond imagery and self-promotion to include emphasizing key regional partnerships that help contribute to how they may be perceived by stakeholders. One project that is highlighted on their website is a collaboration with Ducks Unlimited – an outdoor sports based wetlands and waterfowl conservation group – to work on their Living Lakes Initiative project, with the goal of conserving Minnesota wetlands that serve as critical wild rice habitat (PolyMet 2018). By emphasizing their partnerships with conservation groups, PolyMet extends their identification to include environmental conservation and recreation. Their involvement in preserving wild rice specifically, which is a culturally significant plant to the Lake Superior bands of Ojibwe and has a long history of controversy, serves to ally themselves at least peripherally with the tribes. Through their environmental language, imagery, and advocacy, PolyMet seeks establish itself as part of the natural landscape of northern Minnesota, rather than as the polluter that anti-mining groups present them as.

PolyMet extends its identification as a member of the regional community beyond textual claims by speaking to future job-creation and tangible contributions to community development. On their job opportunities web page PolyMet states that they provide “family-sustaining salaries,” shifting the emphasis away from the monetary aspect of mining and towards a focus on supporting families (PolyMet 2019). For an industry that is constantly challenged for being focused on profit and their bottom line, the more they

are able to transform strict economics into support of community and family, the more they are able to grow beyond a money-focused image. That said, identifying themselves as a critical piece in the economic landscape of the Iron Range is a big part of how they promote themselves and gain public support.

PolyMet also takes an active role in community development on the Iron Range. One major way they do this is by funding socially oriented programs, including a high school scholarship (aptly named “Mining for Excellence”) and community college leadership programs that focus on educating and retaining Iron Range graduates. The company also sponsors the high school hockey league, co-sponsors the East Range Community Advisory Panel (a self-described diverse community group that meets to interact with residents about Iron Range issues), and provides monetary and in-kind charitable donations to various other community programs (PolyMet 2018). In this way they present themselves as a positive force on the Iron Range community landscape.

Rather than promoting themselves as “the good guys,” environmental advocacy groups tend to vilify both mining groups and regulatory agencies. By creating a villain, they are, implicitly, setting themselves up as the heroic force of good standing between the bad guys and certain environmental destruction. The imagery used throughout WaterLegacy’s website and social media posts frequently includes pristine natural photographs, demonstrating what residents stand to lose if they allow PolyMet to begin mining operations (WaterLegacy 2018). Unlike PolyMet, however, WaterLegacy also utilizes imagery of degraded landscapes, including streams running yellow, slickens (i.e., soil deposits so toxic that nothing can grow in them), and rusted signs with warnings such as “Contaminated fish, do not eat” (WaterLegacy 2018). This type of imagery further

vilifies PolyMet as the would-be polluter, playing on fear of a toxic future that could last for centuries and an accepted distaste for polluted landscapes.

Environmental groups challenge PolyMet's claim that they are invested community members, calling out the historical trend in similar mining operations for small, national (or close-to-national in the case of Toronto-based PolyMet) mining companies to sell to large, international corporations who then disappear before remediation of the mine is completed. WaterLegacy is quick to point out PolyMet's association with Glencore PLC, "a notoriously corrupt multinational corporation" (WaterLegacy 2016). Glencore serves as PolyMet's "strategic partner," owns a sizeable portion of the company, and holds the rights to "all products" from the proposed NorthMet mine (WaterLegacy 2018). Highlighting these associations serves to undermine PolyMet's claims that they prioritize northern Minnesota's environment and communities and instead associates them with "notorious," "corrupt," and faceless international baddies.

WaterLegacy also challenges PolyMet's claim that they prioritize Iron Range communities' needs by highlighting stakeholders who are left out of the decision-making process and in some cases adamantly oppose the proposed mining. NorthMet would be located on treaty lands, ceded in 1854 by the Ojibwe, who retain legal rights to hunting, fishing, and gathering on the tract. Such harvesting includes fish, plants, wild rice, and wildlife that could be adversely affected by any wetland or watershed pollution that could result from a failure of mining technology (WaterLegacy 2018). Ojibwe tribal organizations have taken explicit stands against PolyMet throughout the permitting process, including publishing a "major difference of opinion" (included as an appendix in

the final EIS) and a formal request for an additional evaluation of mine design in 2019 (DNR 2019). In 2019 the Fond du Lac band brought litigation against the EPA and U.S. Army Corps of Engineers over two permits that had been granted to PolyMet (one regarding water quality and one regarding wetlands) (Fond du Lac Band of Lake Superior Chippewa v. EPA and Army Corps of Engineers). Most recently, the Minnesota Chippewa Tribe – which includes the Boise Forte, Fond du Lac, Grand Portage, Leech Lake, Mille Lacs and White Earth bands – issued an unprecedented joint letter in support of a bill to ban copper-nickel mining in Northern Minnesota (Chavers 2020).

Environmental groups have raised concerns that PolyMet has not been transparent about their intentions regarding scope of operations. Environmentalists point to PolyMet’s recent financial document that “outlines the much-larger profits that would come from a larger mine” (Marcotty 2018). By raising these allegations, anti-mining groups are able both to call into question the trustworthiness of PolyMet and to leverage concerns as a means of bolstering litigation that would call for an additional environmental impact statement. Previous requests for an additional EIS by WaterLegacy and other environmental organizations have been denied by the DNR (DNR 2018). Most recently, three of PolyMet’s permits have been cancelled, pending a contested case hearing to further consider environmental risks of the proposed mine. As of March 2020, the DNR and PolyMet are slated to appeal this ruling in front of the Minnesota Supreme Court (Associated Press 2020).

WaterLegacy’s vilification of opponents in the controversy extends beyond mining groups and to the regulatory agencies who have approved the many mining permits and denied requests for additional review processes put forward by advocacy

groups. On the top of their website's home page, WaterLegacy begs visitors to "Take Action," "Don't Let MPCA Gut Our Rules," and "Save our water quality standards!" (WaterLegacy 2018). In introducing the proposed changes to water quality standards, WaterLegacy asserts that "here they go again," calling out the MPCA for repeatedly failing to adequately protect and enforce water quality through legislation (WaterLegacy 2018). This wording normalizes regulatory agencies' alleged failures and works to undermine citizen trust in governmental agencies. In light of their claim to be the "protectors" of clean water and communities, WaterLegacy alleges a need for environmental organizations to step up and fill the role that regulatory governmental agencies have failed to uphold.

Circumference & Simplification

Pro-mining and environmental groups draw different physical and temporal boundaries around the NorthMet issue, which serve to highlight and occlude different aspects of the proposed NorthMet project. PolyMet speaks to the issue in terms of the economically depressed mining communities in northern Minnesota, as well as the national need for precious earth metals. Indeed, they seek to "solidify the state's position as a supplier of critical raw materials for the nation and usher in a new era of economic prosperity on the East Range" (PolyMet 2018). They draw boundaries such that the issue is contained within discussions of economics and technology. By speaking to the economic benefits of the project, especially in terms of the history of mining in Minnesota, PolyMet obscures the potential effects of NorthMet on other critical economic contributors in the region, including recreation industries, certain ecosystem services (e.g., wild rice), and forest management. Issues of human health or water

degradation are explained through the technological advancements of the mining industry, rather than addressed on an individual, experiential level. The impetus for the NorthMet project is explained through the need for continued technological advancement on a societal level, without considering alternative strategies for development.

The boundaries PolyMet uses for the issue are also implicitly temporal. By speaking to job creation and appealing to economic sensibilities, they place the issue in the short term. According to the DNR's permit to mine, PolyMet plans to keep the mine in operation for 20 years (Kraker 2018). Using broad promises to leave a restored natural landscape when extraction is complete, PolyMet does not address how they will leave the economic landscape once the high-paying jobs created in association with the NorthMet mine go the way of historical taconite mines (i.e., disappear). Presenting new mining opportunities as a solution to the slump of old mining opportunities leaves out the potential for a re-imagining of the economic landscape that creates longer-term, high-paying jobs.

In contrast, groups that oppose the NorthMet mine focus on the potential long-term effects of the project. On their website, WaterLegacy asserts that while the proposed length of the NorthMet project is 20 years, the “duration of pollution from mine pits and other permanent contaminant sources [is] perpetual” (WaterLegacy 2016). This serves to define the economic benefits asserted by PolyMet as short-term and the potential pollution as long-term, indeed, forever. In emphasizing long-term effects and creating a large-scale temporal scope for the NorthMet issue, WaterLegacy fails to address the short-term economic needs of Iron Range residents.

Leveraging rhetoric to affect social license to operate

The rhetorical strategies implemented by both PolyMet and WaterLegacy can be considered in terms of their efforts to sway public opinion and gain or block social license to operate (SLO). How each side frames the proposed NorthMet project through their definition of the issue (i.e., what is included and what is left out in how the issue is framed), identification (i.e., how each group characterizes themselves while distancing from the opposing group and works to build relationships with stakeholders), and circumference (i.e., what is included and what is left out based on how each group presents the spatial and temporal scope of the issue), can be considered in terms of how it relates to one or more of the three components of SLO laid out by Boutilier and Thomas and others (i.e., legitimacy, credibility, and trust).

By defining the issue in terms of the economic benefits that NorthMet would bring on national, regional, and local scales, PolyMet asserts their economic legitimacy. Through emphasis on local job creation and contributing to the community through scholarships and coalition building, they seek to establish their socio-political legitimacy and build social capital. In tandem with their relationship-building, PolyMet's assertion that they are a part of the community, with a deep connection to place serves to build a foundation of interactional trust, wherein they act as a member of the Iron Range community and have residents interests at heart. By relegating environmental concerns over the NorthMet project to the realm of technical rationality, wherein advanced scientific knowledge and the resulting infrastructure, in conjunction with agreed upon amounts of money and time set aside for mitigation, serves to build institutionalized trust.

WaterLegacy, through their own rhetorical strategies, seeks to undermine each of these components of SLO in turn. By drawing much larger borders or circumferences

around the issue in terms of time, they call into question the economic legitimacy of the project. If NorthMet is only operational for twenty years and cleanup lasts for over 200 and is ultimately passed off to taxpayers, then the jobs created are not necessarily enough of an incentive to support the mine. By emphasizing the potential detrimental effects of the mine on human health, as well as the environmental justice issues associated with how tribes are affected, WaterLegacy challenges the socio-political legitimacy of PolyMet by asserting that, far from contributing positively to the region, they serve as a decidedly negative force. WaterLegacy challenges the institutional trustworthiness of PolyMet by emphasizing their relationship to Glencore, a notorious international organization, thereby undermining PolyMet's assertion that they are a part of the community with the Iron Range's best interests at heart. This lack of concern for the community and intention to follow through on promises is further bolstered by WaterLegacy's emphasis on environmental health, as well as their assertion that PolyMet's financial outlooks reflect a much larger operation than proposed in the permitting applications. By including cultural rationality in their consideration of the dangers of mining, WaterLegacy undercuts the institutional trustworthiness of PolyMet in terms of their inability to protect the environment.

In this analysis it is useful to consider rhetorical strategies in terms of how they contribute to PolyMet achieving or failing to achieve a social license to operate by affecting public opinion. Considering the rhetorical strategies of definition, identification, and circumlocution utilized by both PolyMet and WaterLegacy clarifies what information is included and what is obscured within different narratives of the complex NorthMet issue. Doing so helps make sense of how groups frequently speak across each other (as

Lange noted in the spotted owl debate) rather than speaking directly to each other. The goal is not to convince the other side to change their mind, nor in most cases to completely disprove a point that the other side is making, but to prove more convincing to undecided stakeholders. By speaking across each other, environmental groups ignore the economic needs of the community while PolyMet sweeps environmental concerns under the rug as an issue of money and science.

This brief rhetorical analysis considers how PolyMet and WaterLegacy, who have been two of the most vocal players throughout the NorthMet permitting process, have worked to leverage public opinion for or against the proposed mine. In the next section I will analyze comments on the final environmental impact statement and semi-structured interviews conducted in early 2020 to address where and for what reason social license to operate has been granted or withheld by a range of individual stakeholders.

Social License to Operate

In the following section I present and discuss data gleaned from public comments, semi-structured interviews, and op-eds on the proposed PolyMet mine in local Minnesota publications using a social license to operate (SLO) framework. Of the 100 sampled public comments, 12 were in favor of the mine being permitted, 84 were against the mine being permitted, and four did not take a stance on the final outcome of the mine. Four interviewees were in favor of the mine being permitted and four were against it. This section is organized in ascending order up the metaphorical ladder of SLO, including sections on legitimacy, credibility, and trust. At the end of this section I include data that does not readily fit into the SLO framework but is nevertheless critical to understanding

the issue of the proposed NorthMet mine on the Arrowhead region, demonstrating one of the limitations of the framework, namely, specificity to the particular case.

As discussed in the preceding literature review, social license to operate refers to a society's general acceptance of a corporation or project, considered separately from regulatory acceptance (Holley and Mitcham 2016:18). SLO includes three major components – legitimacy, credibility, and trust (Moffat and Zhang 2014). Scholars have operationalized the framework to explore community reactions to proposed mining projects, and the subsequent success or failure of these projects (Holley and Mitcham 2016, Conde and Le Billon 2017, Prno and Slocombe 2012).

While a useful framework, the concept of social license to operate originated in the mining industry and, even when used outside of extractive industries, includes potential biases in favor of extractive considerations by using the goal of obtaining social license for a given project as a lens through which to view people's perceptions and experiences. Successful implementation of SLO, for example, refers to a mining company achieving community support for a mining project, thereby implying positivity, though a mining project may not be viewed as "positive" in all cases or by all stakeholders. SLO is also ultimately a generalized framework, considering issues of legitimacy, credibility, and trust, without necessarily fully fleshing out the landscape of the region in terms of history, identity, values, and political tensions. It also speaks to the need for community support without acknowledging the existence of many different, often conflicting, communities in the same region with varying degrees of sociopolitical power, and therefore varying degrees of importance when considering social license to operate. In the following analysis I utilize an SLO framework to consider public

perceptions of the NorthMet project as demonstrated through public comments on the final environmental impact statement and in interviews with eight residents of the Arrowhead Region.

Legitimacy

According to Koivurova et al., *legitimacy*, in terms of social license to operate, is “the belief that authorities, institutions, and social arrangements are appropriate, proper, and just” (2015:198). This is the foundation for achieving any degree of social license, and includes the most basic potential value of a project, such as economic viability (i.e., a project includes the provision of some sort of economic benefit to stakeholders) and socio-economic validity (i.e., the project has a net positive effect on a community or region and is perceived as fair by stakeholders) (Boutilier and Thomas 2011:4). Issues of legitimacy were at the forefront of all data sources, highlighting the economic potential of NorthMet and contested socio-political aspects of the proposed mine, including who is considered a “stakeholder” and should have a voice in the conversation, potential cultural impacts and issues of environmental justice, issues of pollution, and consideration of the fairness and transparency of the current legal process for attaining necessary mining permits.

Economic legitimacy. A consistent theme throughout conversations about the proposed PolyMet mine is the economic legitimacy of the project. Since the decline of the steel and taconite industries, due both to falling prices and increasing mechanization of the mining process, the Iron Range of Minnesota has seen significant out-migration and a decrease in services offered (e.g., grocery stores, movie theaters, public schools, medical clinics). This was visible to me as an outsider walking or driving through towns

on the Iron Range, where the number of vacant storefronts frequently outnumbered the number of open businesses. Aurora, the small town next to Hoyt Lakes that I used as a home base when conducting interviews, had recently lost its only grocery store.

Interviewees spoke of the increasing need to drive further or pay more for services that were previously readily available to them in their hometowns.

Four of the interview participants spoke about changes in the Iron Range throughout their lifetime from thriving communities with an array of services, including businesses and schools, to a severely diminished landscape, both in terms of services offered and population. One participant described the Iron Range towns when he was a kid compared to today:

I'd hop on my bike in the morning and drive through town, the street was full of cars and businesses. It seems like I just slowly watch it die. It's kind of discouraging. You watch it. You see it through all the towns – Hibbing, Virginia, Chisum – you know, closed storefronts... Back then it was just booming all over the place. My mom used to bring me down to Virginia and we'd walk down the main street... shopping for school clothes or whatever it was. People all over... It's depressing to see what's happening. The Iron Range, it was good. But now it looks like it's just - through automation or whatever - it's slowly dying.

The potential job creation and economic windfall of the NorthMet project has therefore played a major role in the conversation. Proponents of the mine speak to new, high-paying jobs bringing more people to the region and the potential to expand community businesses and services. Those against the mine speak to the potential effect of any resulting pollution on the tourist industry and the relatively short life of the mine project.

Thirty-six of the 100 public comments mentioned the creation of jobs and the importance of mining to the economy of the Iron Range. Some were positive and used it to justify NorthMet as a project that will “create needed job[s] in north eastern Minnesota.” One commenter claimed that “The Iron Range community deserves this

mine and the jobs that go with it... I was born and raised on the Iron Range, have you been there lately, their communities need the work,” while others heralded the “economic advantages that would result” from NorthMet. Commenters both for and against the NorthMet project spoke to the economic depression of the Iron Range where, “jobs are badly needed in the area” and “350 jobs are huge for this area!”

Interviewees expounded on the need for jobs in the region. One interviewee stated that, “The people that live up in that part of the state are hungry for jobs. And mining jobs are good, really good paying jobs. So that's the carrot that they're hanging on to.” Another explained that, while he did not see unemployment as a huge issue in the region, “we want jobs with decent paychecks.” He qualified this statement, asserting that it exemplifies the need to diversify the economy of the region to include long-term high-wage jobs, rather than relying on the short-term opportunities that the NorthMet mine would provide. Another interviewee described mining jobs as “jobs you can raise a family on,” going on to explain that this sort of job, complete with pension and health insurance, is increasingly difficult to find in the area.

Others spoke to both the good-paying mining jobs and the expansion of service and tangential industry jobs that would be created by the proposed NorthMet mine:

You know, many [recreation jobs] are at twenty-four, twenty-eight thousand dollars [a year] is all. Whereas these mining jobs you start out at maybe eighty grand. It's very good paying. And a lot of the issue is that while it's a foreign company that owns it, but it's us that is working it. It's the people that are going to have a good paying income. The people that are going to go down to Mike's Motors and buy a car or truck or buy groceries or clothing or whatever.

The re-establishment of lost services in the region was mentioned by six interviewees as a major obstacle in the region, and a large benefit that could come as a result the NorthMet project and other mining projects in the region.

While two commenters claimed that “the project will provide immediate and long term financial stability for many businesses,” twenty-two spoke of the lack of longevity of the jobs created by a mine slated to be open for a few decades, the boom-and-bust cycle of mining operations, or that an economic trade-off for environmental pollution would not be worth it. One commenter stated that “the cost and risks of environmental catastrophe however greatly outweighs the short-term job growth.” Another claimed that “the number of people to be employed by the industry does not outweigh the risk for severe and permanent environmental damage.” One interviewee, who had spent his life working in the mining industry both in Minnesota and throughout the country explained:

I've seen mining communities over the years. I guess the one thing I've noticed when I go back 30 years later, they're not thriving... a part of my opposition to mining in Minnesota is not just that it's environmentally damaging, it's economically unproductive. You know, I live on the Iron Range and you look at the length of that community of the Iron Range, and there's not one really thriving community.

This speaks to the idea that new mining operations would serve to perpetuate the boom and bust cycle that he sees as endemic to the region rather than helping the Iron Range break out of that cycle.

Other interviewees addressed the potentially short-term nature of the jobs, though they questioned the commonly used number of 20 877765ww5years of mining operation that was presented throughout the public comments. One interviewee stated that “the mines... are expected to last for 20 years, which seems kind of short to me. I suspect it will go on longer than that. And then once they get that part mined out, they'll go deeper, wider or something.” Another asserted that the boom and bust cycle that has typified the region is largely due to “external reasons” such as “major economic downturns in the United States” that affected the economy on a national level and was not unique to the

Iron Range. He ultimately argued that “the mining industry is going to be here... it has been here since the late eighteen hundreds and it’s still going.”

Both pro-mine and anti-mine individuals spoke of the increasing mechanization of the mining industry and the resulting decrease in jobs available within the mining industry. One talked about how “they take fewer and fewer people to do the same amount of mining.” Another, who has worked in the mining industry for over 40 years, explained that “when Reserve was in its heyday, we had better than 3000 employees. And today we're producing maybe more tons than was produced back then with 3000 people. We've got maybe 500 [employees]. It's a whole different ball game.” He went on to assert that the automation has been critical to maintaining the ability to compete in the mining industry and, while fewer jobs will be available, the jobs that *are* created are good jobs that are critical to the region.

Many commenters addressed the need to break out of the boom and bust cycle through economic diversification in the region. One stated that “Northern Minnesota needs a diverse economy and mining would just be more of the boom and bust job pattern that has always been a problem in that region.” Another stated that, “for a few hundred jobs for a number of finite years? People of the north deserve jobs that will last.” This need for diversification also came up in four interviews, where participants expressed their dissatisfaction with the narrative of mining versus tourism jobs and brought up the need for bolstering other industries on the Iron Range, such as healthcare and agriculture.

While many comments reference the need for continued diversification of the region, fifteen comments speak specifically to the potential affects that NorthMet would have on the recreation and tourism industry. One local outfitter stated that, “There are

many of us who would like to stay at our jobs we've carved out for ourselves in some of the tourism industry, who are NOT pining for jobs in the mining industry." Another commenter emphasized that, "a sustainable tourism and recreation economy depends on clean lakes and water," while a third claimed that "run off into Lake Superior will effect tourism... our biggest source of revenue in Cook County." One commenter asserted that "this mine that promises to provide 350 jobs for twenty years has no place jeopardizing the thriving tourism-based economy that sustains 18,000 jobs annually."

Those who are for the NorthMet project are quick to assert the danger of a direct comparison between mining jobs and tourism jobs. One interviewee stressed that, while "tourism has always been a big part of Ely... the mining and the logging provide better wages for families. These tourist jobs are part time from May to maybe September... [Iron Range residents] need jobs that pay similar wages year-round, not just three months a year." Even interview participants from the Arrowhead region who were ultimately anti-mine expressed the need to acknowledge this distinction. One interviewee explained:

We've had all these iron mines and taconite mines up there and we've been able to maintain a pretty healthy outdoors economy, which has been the kind of slowly but steadily growing. But it doesn't produce a lot of high paying jobs. That's the challenge... it's hard to survive on those jobs for a lot of people.

Many used this as an example of the need for further diversification of the region to establish industries that could provide long-term, sustainable jobs that would sustain the region.

All commenters and interviewees who brought up jobs acknowledged that there are potential economic benefits to the NorthMet project. How they weighed the potential economic benefits of the project with potential harms differed, however, as did ideas for how the Iron Range should move forward economically (e.g., through further

diversification of the economic landscape or returning to established industries such as mining). Even at the level of economic legitimacy, which might be considered the most basic level of social license, there is immense contestation between stakeholders.

Socio-political legitimacy. If a mining operation establishes socio-political legitimacy, the company or project contributes to the well-being of the area, respects the local way of life and acts in accordance with community's views of fairness (Boutilier and Thomas 2011:4). In terms of the proposed NorthMet mine, this includes concerns about pollution, such as potential effects on human health, beauty of the landscape, and environmental justice. Also included within the umbrella of socio-political legitimacy are the ways in which the proposed NorthMet mine fits into already established Iron Range culture or way of life.

Seventy comments included considerations of the potential impacts of NorthMet on ecosystem and human health. Ecosystem impacts cited included loss of biodiversity, further detrimental effects on wild rice, reduction of critical habitat and wilderness corridors, decreased water quality, and decreased air quality. Many comments remained broad in their concern over potential effects of the mine, speaking of "horrific and irreversible environmental damage," a "change in quality of Minnesota's north woods and lakes," and "poisoning more than 21,000 acres," while others homed in on specific aspects of ecological degradation.

Many commenters spoke of the importance of water quality in a uniquely water rich region. One asserted that "this mining project is positioned at the headwaters of the greatest human resource in our entire solar system, the fresh water of the great lakes." Others called for an explicit comparison in value between the extractable minerals and

water resources, including one that asked, “How does the short term need for these low-grade metals along with 300 jobs justify the pollution of Lake Superior, the largest body of fresh water on the planet? Water is a long-term, necessary resource.” Another stated that, “In this age of freshwater shortages, it is unthinkable to me even to consider further jeopardizing the quality of one of the greatest sources of the very thing right in our own backyard.”

The emphasis on water quality came up in six of the interviews as well, voiced by individuals on both sides of the issue. Some interviewees spoke of water resources and the water richness of Minnesota as the deciding factor in whether or not they would support the mine. One interviewee asserted the importance of considering our water a valued resource, stating that “We are a water state. That is our resource. That is the number one resource. If we're putting gold and nickel and copper and all of these other metals above water, I mean, you can't drink any of those things or eat them.” Another explained that the potential water pollution was why he was more concerned about copper-nickel mining than taconite and that “although [taconite mines] put some humongous scars in the earth, they do not have a huge impact in terms of water quality, whereas a copper nickel mining has a huge potential to be a water quality problem.”

While many commenters focused on pollution in terms of ecosystem degradation and loss of water resources, others spoke of pollution in terms of a diminishment of the “singular natural beauty” of the region. Comments depicted the Boundary Waters as “priceless, one of a kind,” a “precious landscape,” “pristine nature,” “the crown jewel of the national forest system,” and “a global treasure... something future generations need.” Though these comments speak of the Boundary Waters Canoe Area, which is located

outside of the St. Louis watershed but still in proximity to the proposed NorthMet mine, others spoke specifically in terms of the beauty of the great lakes and of Jay Cooke State Park (located downstream of the mine site, along the St. Louis river).

Many of these comments refer to the potential effects on future generations and the obligation of the present generation to preserve resources and beauty for the future. One commenter claimed that, “We owe it to subsequent generations of Minnesotans, as well as to the rest of the planet, to safeguard this rare freshwater treasure.” Others stated that, “the waters of northern Minnesota must be kept pristine for future generations,” and that the beauty of northern Minnesota “must be preserved for generations to come.”

Some interviewees took issue with this persistent call to protect the pristine beauty of the environment. One criticized the usage of emotional rhetoric around pristine beauty utilized by environmental groups, stating that:

When you say, well, let's protect the Boundary Waters, money comes in like crazy. Because, I mean, of course we want to protect it. But the thing of it is that many of their people will say, you know, I spend so many days up on this lake and that lake, oh, and the glory and the beauty and all the sky, the stars up above, you know, and so poetic and stuff like that. And it is. It really is. But it doesn't feed families.

She went on to assert that her support of mining did not undermine her love of the environment, stating that water pollution is “the last thing that I would want to see. And I would make sure that the company addressed any issue, not stop the whole mining, but address the issue, make it better.”

Many commenters spoke of pollution not only in terms of environmental degradation but also in terms of human health. One aspect of this concern is regarding human health issues that could arise due to potential water pollution, including “risks to drinking water,” and bioaccumulation in the ecosystem, which presents “risks to

vulnerable populations... who rely on fish for subsistence.” Another aspect of concerns about human health are for mine workers themselves. Some commenters spoke of “hundreds of jobs which will in turn create hundreds of workman’s comp claims from the multitude of health problems created” and “risks to the health of plant and mine workers from exposure to cancer-causing asbestos-like fibers and metal dust.”

Pro-mine interviewees emphasized that their support of the mine does not indicate a lack of concern about the environment. They highlight the “strict water policies” in Minnesota as well as the long history of mining in the region and mining companies and residents alike “learning from our mistakes” in a way that mitigates the risk and bolsters the preparedness of the region to deal with potential environmental impacts. One participant described the “balancing act” of protecting the environment while supporting the economy, ultimately concluding that “there might be a little bit of pollution but it's going really build up the economy.”

Holley and Mitcham emphasize the fact that “social license is most commonly withdrawn based on perceived risk or lack of benefits to stakeholders” (2016:25). While both economic benefits and environmental risks are acknowledged by stakeholders on both sides of the issue, ultimately their acknowledgement of legitimacy of NorthMet seems to be based in their personal weighing of the associated risks and benefits of the mine. Proponents of the mine acknowledge the environmental risks involved in mining but feel that the tradeoff is worth it to achieve economic stability and thriving communities in the region. Those that are against NorthMet, while acknowledging the need for economic stimulus in the region in the form of good-paying jobs, believe that the risk of environmental degradation is too great to allow the project to move forward.

Legal legitimacy. Another aspect of socio-political legitimacy is the legal status of the proposed mine. In other words, that “the company has all necessary legal permits in place and is observing the official legal norms” (Koivurova et al. 2015:). While there was not a question of whether or not the mine had legally received permits in the sampled comments, commenters expressed either support for or critique of how the permitting process was conducted. As of Winter 2019, three of PolyMet’s permits were overturned by The Minnesota Court of Appeals court and the company is currently in partnership with the DNR to appeal these rulings to the Minnesota Supreme Court. Additionally, the Minnesota Pollution Control Agency was brought to court for potential suppression of EPA comments critiquing the mine. Accordingly, questions surrounding the legal legitimacy of the permitting process, including current litigation and what is required in the process, played a major role in the conversations I had with residents of the Arrowhead region in February 2020.

One aspect of the permitting process that was critiqued throughout the comments was the role of transparency throughout the permitting. Twenty commenters spoke to the need for transparency or lack of transparency surrounding the inner workings of the permitting process, technical plans for the mine, financial structures of accountability, and a full discussion of potential environmental ramifications of the mine. Many of these comments refer explicitly to the issues of risk and the unknown. One commenter claimed that, “The public has the right to know what the financial assurance package entails, and the risk involved, before the project is permitted.” Others call for inclusion of risk assessments and the “need to be transparent and not just scattered throughout the document,” claim that “the DNR... glosses over modeling,” that “PolyMet’s final EIS is

full of general information, but very short on details.” Another criticizes the document, stating that “the FEIS does not address numerous substantive questions of critical importance to providing the public with a clear understanding of the purpose, nature, scope, and environmental and public health impacts of the project.”

Related to transparency was the potential for bias due to the close relationships between the DNR, the mining company, and the scientists conducting studies throughout the permitting process. One commenter stated that, “Also concerning is the retention of a law firm with strong ties to the mining industry...this lack of independence and transparency raises a question about the resolve of the State to adequately represent the best interest of its citizens and protect the environment.” Another called out the DNR for refusing to allow outside review of their scientific findings:

DNR rejected the request for an independent third party to review the findings... we find it troubling that outside scientists from the Great Lakes Indian Fish and Wildlife Commission have questioned the ‘modeling assumptions’ provided by DNR and used by PolyMet’s engineering firm, Barr Engineering, a firm that could gain substantial economic benefits by the mine’s approval and construction.

Commenters generally called the DNR in its EIS “to be transparent and objective by not just promoting benefits of PolyMet, and also clarifying the consequences to our water quality and environment...” Ultimately, while PolyMet was permitted and followed the requirements of the permitting process, the legal legitimacy of PolyMet relating to the validity of the permitting process itself remains an open question.

Three commenters specifically state that they felt the permitting process and scientific analysis had been adequately sound and transparent. One stated that, “the in-depth review and analyses of the potential impacts of the project more than adequately demonstrate [the viability] of the new mine as well as reuse of existing facilities with

related infrastructure improvements can be constructed and operated in an environmentally responsible manner.” Others criticized the constant critiques and litigation throughout the length of the permitting process, stating that, “PolyMet mining project now has the completed NorthMet Final Environmental Impact Statement. Let PolyMet, MNDNR, and the co-lead agencies do their job.”

The sentiment that the DNR adequately considered NorthMet throughout the permitting process and was transparent throughout was reiterated in three of the interviews. One participant stated that he felt the DNR’s decision was “not kneejerk, they've spent the time. They've studied it, they've taken into account everybody who's put in... comments, and they've come up with an answer that says, yes, these people can meet the regulations that are set in front of them... so there is no reason to say they can't have a permit.” Another asserted, “I thought the DNR—from my point of view—was open and transparent about what they were doing.” Interviewees mentioned the town halls and multiple opportunities for public comment as examples of how community questions and voices were heard throughout the process.

Others reiterated the fact that PolyMet had adequately passed the requirements laid forth in the permitting process and concluded that environmentalists’ issues were with the laws themselves, which should be considered separately. One pro-NorthMet interviewee stated that:

They [PolyMet] have done as good as they can under the present laws. If the laws are that inadequate, then these environmental groups need to be addressing the legislators to change the laws. As far as we can see, the laws have been met, have been addressed and PolyMet has met all these. All these steps, stipulations, and stuff. They should be allowed to move forward and start construction and then mine.

Another interviewee argued a similar point, stating that NorthMet should move forward because the permitting process was laid out by the state as the necessary set of procedures and should not be changed or stalled through litigation at this point. He firmly supported the governmental process as it is set up, continuing by asking, “can the state make those regulations stronger, harder? Yeah, let’s do that. Let’s call our representatives and get those strengthened or added, whatever. But we’ve got a process. Here’s what you follow. You can’t change the goalposts in midstream.” These comments establish PolyMet as legitimate, in that the company has strived to meet the goals as set forth by the Minnesota government. Questions of legal legitimacy are then shifted from NorthMet and on to governmental agencies who craft and implement the requirements.

Other participants argued that the permitting process was perfunctory and that biases within the process and political pressures had served to determine the outcome before the analysis and input process was complete. One participant asserted that the “conclusion was built into the process... The people that I see doing the permitting, they decided that they're going to permit this mine and they're going to follow the procedures, cross the t's, dot the i's, and then they're going to permit the mine. And my thought is we have to change that attitude in our permitting process.” Another had a similar feeling of predetermination, though he felt like the DNR’s transparency throughout the permitting process has not been in question, stating, “I think as far as being pretty transparent to the public as far as what was going on in the permitting process and opportunities to comment and all that... I can't fault them too much for that. But you always felt like the end result had been pretty much predetermined and it was more they were going through the process.” Again, issues of transparency and legitimacy are shifted away from

PolyMet and onto the DNR, who some commenters saw as simply jumping through the necessary hoops to reach a predetermined outcome, implying that that the permitting process itself was simply performative.

Ultimately, commenters and interviewees agreed that the requirements of the permitting process have been largely fulfilled. Where they disagreed was regarding (1) the adequacy of the process itself and the requirements it set forth, (2) the intentions of the regulating agencies, and (3) the degree to which politics and power influenced permitting decisions as opposed to an unbiased consideration of the project in terms of risks and benefits. This fits within SLO literature, which notes that “full legal compliance with state environmental regulations has become an increasingly insufficient means of satisfying society’s expectations with regards to mining issues” (Prno and Slocombe 2012:346). While PolyMet fulfilled the requirements of the permitting process, some stakeholders’ lack of trust in the process and the regulatory agencies themselves has arguably undermined PolyMet’s ability to achieve legal legitimacy in the eyes of stakeholders. This shortcoming has in turn led to litigation, which has significantly slowed the full permitting of the mine.

Credibility

While a significant contingent of commenters and interviewees questioned even the basic tenets of legitimacy regarding the NorthMet project, others maintained that the project is legitimate based on economic benefits, socio-political appropriateness, and legal requirements. The next aspect of social license to operate is *credibility*, which can be understood as “the foundation of trust” and “the absence of sociopolitical risk” (Koivurova et al. 2015:198). When a mining company is considered credible, “it is seen

as following through on promises and dealing honestly with everyone” (Thomson and Boutilier 2011:1785). The comments discussed when considering socio-political legitimacy in the previous section speak to numerous indications of socio-political risk perceived by the public, including risk of pollution and intergenerational justice. Additional sources of risk or perceived risk that came out of the comments and interviews included financial reliability of PolyMet as a company and technical risk in terms of scientific knowledge.

PolyMet’s technical and financial credibility. In considering PolyMet’s credibility, many commenters and interviewees questioned both whether PolyMet *will* follow through on promises, but also that they *can*. Commenters questioned the company’s ability to conduct environmental remediation as promised due to technical abilities (e.g., whether it is possible, based on current data, to fully remediate after this type of mining) and financial stability (e.g., if PolyMet will remain financially viable through the end of proposed remediation), as well as the difficulties surrounding planning for 200 years from now.

One major theme that emerged in the comments was the time frame that PolyMet has set forth for remediation. Fifty-four commenters criticized the long-term temporal aspect of site treatment and ecosystem remediation in terms of monetary costs, ecosystem health, and technical know-how. One states that “the need to treat water for centuries is a significant design failure; it is likely to be impossible.” Another asks, “how can a nonexistent company guarantee anything in the way of long-term environmental protection, or even care, for that matter, that far into the future?” Other commenters refer to the proposed length of cleanup as “truly incredible” and “crazy.”

Interviewees also questioned the length of cleanup proposed by PolyMet. One stated that:

There is absolutely no way to do this without causing harm, requiring long term treatment that just isn't sustainable. I mean, they're talking about hundreds of years of treatment... We don't even know what our society is going to look like...the waste problem is so big that it dwarfs, for me, any positive impact that come to it.

Another took issue with the claim that NorthMet would be built using the best technology to set them up for a long-term remediation project. She asked, “when you say we have the best technology, we can do it well from 500 years from now, is that technology still going to be the best technology and is it still going to be doing what it was proposed to do? ... you know, they say that they're going to invest and have the money to clean it up. I don't trust them.”

A smaller number of commenters questioned PolyMet’s financial ability to follow through on promises of remediation. Eight comments speak to the potential for bankruptcy or financial ruin that would preclude PolyMet’s ability to financially provide for cleanup costs. Eight comments explicitly talk about cleanup costs in terms of the proposed timeline of “perpetual treatment,” asking “what and or who will be around to manage problems in 2 or 3 hundred years or longer?” Again, the uncertainty inherent in making plans in terms of centuries serves to undermine the credibility of PolyMet. Particularly in a landscape that has witnessed the economic boom and bust cycle and technical failures of extractive companies for over a century, it is difficult for many stakeholders to take PolyMet at their word when they make long-term promises.

In addition to technical and financial ability to follow through on promises, some individuals question the intentions of PolyMet to do so. One major theme that emerged

from the sampled comments was the perception of corporate greed and the mining industry's prioritization of profits over health and safety, which was mentioned explicitly in twenty-three comments and alluded to in many others. Commenters voiced the sentiment that "they [PolyMet] are after making money first," that there is a focus on "immediate monetary rewards" and "personal profit" over environmental regulation and that the entire proposed mine and permitting process "smacks of greed, corruption, and personal profiteering." One comment claimed that "corporations are always in a rush due to stock price pressures, yet the public interest is to NOT rush things." This sentiment regarding "a strong economic incentive to shave corners wherever possible," including at the expense of environmental protection and mine safety emerged in many comments. One commenter stated that, "they will never live here, never invest positive time and energy in our communities except where that investment begets enormous stockholder profit."

In tandem with the theme of corporate greed was the concept of financial accountability and the concern that PolyMet would not be held accountable for potential environmental implications of the mine on a long-term time scale. Thirty-three comments mentioned the cleanup costs of the proposed NorthMet mine. Four comments speak explicitly to the belief that without strict financial accountability, PolyMet would "take their money and leave" and that "the mining industry is notorious for avoiding liability after taking financial gains." Others simply alluded to the fact that PolyMet might fail to complete clean-up due to the extremely long proposed time scale (200-500 years).

Such characterization of PolyMet does not necessarily undermine the company's capacity to gain credibility. While being a "good corporate citizen" is gaining traction in

some sectors of the business community, corporations within the extractive industry are not necessarily expected to act against the bottom line. Historical union structures and financial contracts are in place to account for this. Nevertheless, the characterization of PolyMet as willing to shave corners and prioritize profit over communities was a consistent theme in comments and conversations, serving to influence how individuals considered the NorthMet issue and whether or not they trusted PolyMet, which will be discussed in more detail in following section.

Some commenters considered this characterization in terms of the potential consequences if financial promises are not kept. Sixteen comments speak specifically to the potential ramifications of NorthMet on taxpayers or the state should cleanup be abandoned before completion. Comments were largely skeptical of PolyMet's claim that they will remain financial backers of remediation and claimed that the bulk of costs, both in terms of economic cost and ecological cost, will be "funded by public moneys," or "by the expense of the taxpayers." One comment claimed that "if those who stand to profit from this venture are unwilling to risk their money then the tax-payers should not risk their money either."

Fifteen comments consider the potential long-term ramifications in terms of the short-term benefits of NorthMet, with the general sentiment that the trade-off would not be worth it as, "the mine will provide jobs, but only in the short run. Eventually the mine will play out...", "mines are boom and bust operations – once the minerals are out of the ground, the operation is over, and only those lucky folks in superior positions get to keep on," and that "these ventures always become depleted, leaving devastation." Here, while

the commenter does not question PolyMet's promise of job creation, they articulate what they see as the unspoken fact that these jobs will be short-lived.

Many comments voiced concerns about PolyMet's intention and ability to follow through financially and technically with remediation of the proposed NorthMet mine. These concerns speak to perceptions of risk, including environmental and economic impacts on Minnesota and Minnesotans, undermining the credibility of PolyMet, which requires low risk perception and a modicum of trust. These concerns are in some cases compounded by and in some cases offset by the long history of mining on the Iron Range that feeds into the identity of the region and its residents.

Precedence of mining in the region. Many commenters and interviewees speak implicitly or explicitly to the legacy of mining on the Iron Range. As one interviewee explained, "this [mining] heritage, this culture is really, really ingrained here... A lot of people are really proud of that. And that's great because we all should be proud of where we come from." When asked to describe the Iron Range, many interviewees went into a timeline of the different mining companies that had operated regionally over the past fifty years, demonstrating the importance of mining history to how they think of the region.

Some use the legacy of mining as foundational and a solid precedence for NorthMet to build on in a positive way. One commenter claimed that "we have been mining for years up there, we know what we are doing." An interviewee put it simply, stating that "mining is what we do," and going on to assert that the long history of mining in the region, including both successes and failures, has served to create a community that understands mining and can do it well. Many see the legacy of mining on the Iron Range as a reason that NorthMet should move forward, continuing the legacy and run by

workers that have a deep understanding of mining and love for the landscape. Others, however, point to the history of taconite mining on the Iron Range and sulfide mining elsewhere in terms of setting a precedence of pollution and a reason to keep NorthMet from moving forward.

Eight comments referenced the Dunka Mine, a taconite mine located just southeast of Babbitt, MN and operational from 1964 until the early 90s by LTV Steel. Dunka's mining operations exposed sulfide materials from the copper and nickel deposits in close proximity to the desired iron ore. As water flowed over the exposed deposits, acidic drainage flowed into the surface and groundwater of the area with significant environmental and economic implications. Comments referenced the Dunka Pit as an example of how environmental and economic impacts have a precedent of negatively affecting the Iron Range explaining that "we, the public, have been monitoring and adapting [to] the Dunka Pit's drainage for many years without solving the issue."

Others used the Dunka Pit as an example of regulatory failure to prevent negative impacts. One comment claimed that "the DNR has repeatedly failed to enforce existi[ng] rules and regulations, such as the sulfate standard and continued variances at the Dunka mine seriously undermin[ing] its credibility as an effective steward of our Public Resources." One interviewee, who had had a career with the Minnesota DNR, alluded to the agency's failure to hold previous and existing mines to the legal standards. He stated that, "we've learned that the permits permit them to mine, but I'm not sure they do a very good job of actually controlling and regulating what they're doing... And if you can't do a good job of keeping the taconite mine within their standards, how are you going to do it with a sulfide mine which is much more dangerous?"

Other specific and broad examples of mining operations were used throughout the comments and interviews both to undermine and support credibility. A handful of comments spoke of the Mount Polley spill in British Columbia, which “passed a similar environmental impact statement process, then left unacceptable amounts of pollution to clean up...” Others spoke to the fact that “there are no non-ferrous metal mines that have not polluted,” alluding to the lack of precedence for successful operations. While past experiences with mining companies caused some individuals to question the credibility of PolyMet, for others it seemed to affect how they saw the credibility of regulatory agencies. Ultimately, it still contributed to undermining a social license for the NorthMet project but is a notable distinction.

While many comments and interviewees used examples of other mines and mining companies to undermine the credibility of PolyMet and the NorthMet project, others used these sorts of case studies to support PolyMet’s credibility. One interviewee claimed that the Dunka Pit, though “there might be some issues of a leakage depending on the water level,” is ultimately a success story because it was closed and has been monitored since 1977. She went on to assert that other mine pits in Minnesota with sulfide issues are blown out of proportion by environmentalists. She brought up the fact that trout inhabited some of these pits that had since filled with water, explaining that:

Brook trout are considered like the canary in the coal mine. If the canary dies, you better get your butt out of that coal mine. If a trout dies, you got a big problem. These trout were thriving and multiplying, so this low sulfide—2 to 3 percent sulfide—pit water did not impact the brook trout.

Commenters and interviewees asserted that because of the long experience with mining on the Iron Range, including experience solving issues of environmental degradation as

they come up, indicates that the region is uniquely prepared to mine for copper in the safest way possible.

While there was no consensus among stakeholder groups on the credibility of PolyMet regarding their proposed NorthMet project, many commenters and interviewees used the legacy of mining on the Iron Range as a basis for their stance on the issue. Looking to past issues with pollution, contributions of mining operations to the local economy, and experiences with mining as a fundamental way of life and identity has contributed to opinions of stakeholders on both sides of the issue. When considering social license to operate, public belief in the legitimacy and credibility of a project is enough to establish public acceptance. As demonstrated through comments and interviews, this acceptance has been established in at least some major stakeholder groups, particularly those residing on the Iron Range and with personal experience with the mining industry. In order to fully achieve social license to operate and psychological identification, however, there remains the component of trust.

Trust

The final level of the social license to operate framework is trust, which can only be achieved if both legitimacy and credibility have been attained. The two major types of trust included in the social license to operate framework are interactional and institutional trust. *Interactional trust* includes “the perception that the company and its management listen, respond, keep promises, engage in mutual dialogue, and demonstrate reciprocity in its interactions” (Koivurova et al. 2015:198). Interactional trust comes closest to capturing the idea of *trustworthiness*, where the mining company can be believed because they listen and follow through on promises made. *Institutional trust* includes “a

perception that relations between the stakeholders' institutions (e.g., the community's representative organizations) and the project / company are based on an enduring regard for each other's interests" (Koivurova et al. 2015:198). In other words, trust implies that the mining company is not looking out solely for their own interests but has a genuine, long-term investment in the well-being of the community.

PolyMet's rhetorical strategies of identification and positioning (e.g., identifying themselves as members of the community through scholarships and partnerships and language while downplaying their status as partnered with a large multinational corporation) serve as a critical means of establishing both interactional and institutional trust in the community. When commenters and interviewees on both sides of the issue spoke about their level of trust in PolyMet, they often specifically brought up some of the strategies the company used to establish trust or the arguments that WaterLegacy and other environmental organizations utilized to undermine it.

When asked about trust, four interviewees cited the relationship between PolyMet and Glencore as a reason for lack of trust, bringing up the fact that while PolyMet has engaged with the community and worked to establish relationships, they are ultimately a part of a larger, outside mining company that prioritizes profit over community prosperity. One interviewee explained that she is "always just kind of skeptical when it comes to industry and, you know, multi-national corporations. Something always just seems too good to be true."

Alternately, three interviewees who were in favor of NorthMet criticized this argument as "flimsy," as working with large, international companies is not setting a new precedent for mining on the Iron Range. One participant explained that, "if you look at all

of the taconite mines in the whole area, they're all owned by foreign companies.”

Additionally, she argued that even those who are against mining support multi-national corporations through industries such as car manufacturing. Three participants spoke to the fact that despite Glencore being a multi-national corporation, the NorthMet project is critical to national independence from other countries (and other multi-national corporations) who the United States currently relies on to supply copper and nickel.

Participants in favor of the NorthMet mine spoke to the fact that, while PolyMet is backed by Glencore, it is run by locals and individuals who work to have a direct relationship with the surrounding communities. One interviewee explained that he knew many of PolyMet’s employees “on a friendship basis. You know, people from the local industry that I've known for all the years I've been here—professional people.” Another interviewee stated that, though he did not know any of the PolyMet employees before their time with the company, he had been able to establish working relationships with them and felt that they were approachable and professional. While he qualified these relationships by stating that they do not agree on a lot of things, he ultimately trusted their intentions and willingness to be transparent about the NorthMet project. Interviewees felt that their personal relationships with PolyMet employees helped establish mutual trust.

Others felt that PolyMet’s hiring of locals was nothing more than a tool used to gain community support and not a valid reason to trust the company. Three interviewees spoke about the trend of hiring locals at the beginning as a strategic move towards successful permitting or building goodwill in communities. One interviewee brought up the fact that though PolyMet intentionally hired locals to work for them throughout the

permitting process and did outreach to establish themselves as community members, asserting that this was simply a strategy to get to the permitting process rather than an indication of character or future intentions. He explained:

I go to mining conferences – I'm an old miner – and they tell you at the mining conferences how to get permitted. Put a local face on your operation and they [PolyMet] do that. They brought in some local people... a lot of them from the iron mining operations... Once a mine is up and running, though, not very much.

Because hiring locals was seen as a specific strategy to gain community support, some felt that that trend would not continue once it was no longer strategically useful to the company.

Another participant spoke about this early trend of hiring locals and, when asked if he would say that he trusted PolyMet he mused:

have they been a corporate good citizen? There's really nothing there. They're kind of a shell, with employees that get moved in and out. Those of us working on it always felt that as soon as they got through the permitting process, it would be sold, and it was immediately. So there are financial players behind the scenes.

To him, these financial players are an indication of lack of transparency and significant bias that undermines trustworthiness. He expanded on this lack of transparency, and failure to be upfront about intentions, in a way that is akin to the characterization of politicians, stating:

And my impression is, through the environmental impact statement for PolyMet, that they kind of try to do the least that they have to to meet the standards enough to get the permits. And that's why they're constantly in court and going through this, rigmarole, because they're always right on the borderline rather than just saying, okay, we're going to come into Minnesota and build the best copper nickel mine that was ever built. They'll tell you they're doing that. But in reality, I don't think [they are].

Another interviewee echoed this sentiment, asserting that while PolyMet has actively portrayed themselves as environmental stewards who follow the standards, they are

simultaneously working to change the standards to be less stringent, undermining this image.

Fifteen public comments brought up the fact that Glencore is a major player in the issue to argue that NorthMet is ultimately about the financial bottom line, is not invested in the community, and is more likely to renege on their promises to remediate NorthMet once it ceases operation and abscond with the money, leaving taxpayers to clean it up. One commenter stated that, “If the owners are international corporations trying to hold them responsible for cleanup is nearly impossible.” Another comment asserts that, “the chances are very, very good that after PolyMet has used up all the resources in the area they will take their money and leave, and the site will have to be cleaned up by the expense of the taxpayers.”

Another comment offers a similar sentiment, while undermining PolyMet’s involvement in the Iron Range (e.g., funding the high school hockey team) as strictly about making money and not about becoming engaged members of the community asking, “Do we kid ourselves into thinking that the directors of PolyMet (with Glencore/BP's Tony Hayward at its head) care about our long-term pollution? They will never live here, never invest positive time and energy in our communities except where that investment begets enormous stockholder money.” This concern over the longevity of PolyMet’s involvement in cleanup is one that came up in many comments and interviews, both in terms of their ability to commit to long-term cleanup as detailed in the credibility section and in terms of intention to follow through on their promises, which seems to affect perception of credibility but is more firmly rooted in issues of trust.

While some commenters and interviewees brought up the lack of trustworthiness of PolyMet, especially in conjunction to their relationship to Glencore and as a member of the mining industry, others saw this partnership with a big financial backer as a reason to trust PolyMet to stick around and see their promises through. One comment, in speaking about the lengthy and expensive permitting process that PolyMet is in the midst of, asserted that “PolyMet themselves has financed the majority of this extensive, lengthy process out of their own resources, again showing their dedication to the project.” An interviewee, after speaking about the amount of time and money that PolyMet has invested into NorthMet, said that “I've watched what they've done up till now. I've been involved in the industry with all kinds of companies and they are not a fly-by-night. They're here to stay. And if they weren't here to stay, then you couldn't trust them. That in itself tells you an awful lot. They're not here for tomorrow, they're here for the long, long term.” Glencore’s partial ownership of PolyMet provides access to financial security that has allowed them to continue to push for NorthMet through a lengthy, expensive process which, for some interviewees, creates a level of trust.

While three interviewees who wish to see the NorthMet project go through ultimately stated that they trusted PolyMet, it appears that such trust is rooted firmly in legal requirements and financial agreements rather than understood reciprocity. One interviewee stated that:

both PolyMet and Twin Metals have stated, physically stated in front of everybody, ‘We will meet everything or exceed everything that's required of us.’ That's pretty hard to disagree with. I don't care how you add it. If they say they will do it and they have the financial backing to do it and they'll put the bond up for whatever is necessary, then I don't see a negative.

Here, it is not just that PolyMet “say[s] they will do it,” but that they simultaneously agree to legal and financial requirements that hold them to their promises.

The Iron Range has a long history of union organizing that has helped inform this practical accountability, though academics and community members alike have noted a recent shift from the strong unionizing of the past (Manuel 2015). One interviewee explained this shift, stating:

There's the old-time miners and the new time miners. Old timers would be like, “you never trust the company. You don't trust the company. They're giving you that information... they're talking line of bullshit... we organize. You don't trust the man and you organize...” Then there's this new group that's like, “we're trusting the man. Because we've got it good...” There was that level of distrust, but now it's like there's so much trust there with them. You want to tell this new generation to be like “you don't trust the man.”

Another participant noted the weakened voting power of the unions, asserting that “people got smarter along the way and said, well, maybe we're going to pick who we want, who meets our needs rather than what we were told to do.” Indeed, the historically democrat-leaning, union-dominated voting bloc of the Iron Range has in recent elections shifted to become more republican-leaning, though there remains a strong contingent of union organizers. This political shift reflects shifting dynamics on the Iron Range, including the decrease in mining industry jobs as a result of both automation and closing mines, as well as the shrinking towns and economic depression of the Iron Range.

Using a social license to operate framework to consider public opinions about the proposed NorthMet mine works well as a way to think about the issue by beginning with basic questions of legitimacy, moving to credibility, and finally tackling issues of trust. Despite its utility in framing how individuals see PolyMet, the social license to operate

model did not fully encompass the complex landscape of the NorthMet issue, even within the limited scope of this case study.

Social license to operate originated in the mining industry as a model for considering how public opinion has the potential to affect a mine's success or failure. As such, it is best suited for considering relationships between stakeholders and the mining company. For a more robust understanding of the landscape of public opinion, however, it is necessary to also consider relationships between different stakeholder groups (e.g., including between community members, political groups or figures, regulatory agencies, and environmental groups).

Community Dynamics

While a full discussion of the stakeholder landscape around the NorthMet issue is not within the scope of this thesis, it is worth bringing in some of the emergent themes in my research that speak to these relationships and their importance in shaping perception of the issue, particularly regarding how public discourse around the NorthMet issue has shaped community and interpersonal dynamics in the Arrowhead Region. Here, community refers primarily to communities of place, centered in the small towns of the sparsely populated Iron Range, where limited population and amenities force frequent interaction between individuals with diverse beliefs and interests that might not occur as habitually or intimately in a different geographic area. Throughout this research, the theme of community dynamics continued to surface, including how it serves to reflect and extend the polarization playing out on a regional, political level at a smaller, community level.

The consideration of the NorthMet controversy in terms of social license to operate demonstrates a polarization of regional stakeholders as for or against the mine, with few points of agreement, even at the lowest level of legitimacy in the SLO framework. One interviewee spoke to what he saw as an extreme division on the Iron Range, explaining that “PolyMet was the beginning of it. But this split in people and their desires and attitudes is now festering worse than I've ever, ever seen it. It's hate. It's literal hate.” The debate around PolyMet has in some ways served as a catalyst to expose some of the tensions that have been increasing in the region around unions, politics, the economy, and community visions for the future.

These dynamics play out in formal conversations around NorthMet, through various organizational tactics. Prno and Slocombe point out that “civil society and market actors now regularly share governing duties with the state” (2012:346). This sort of governing, in the form of policing, boycotting, and shifting community dynamics, is apparent within the small towns of the Arrowhead Region that are involved in the debate. In one instance, an interviewee described a town hall meeting she had attended on the issue:

The people who were for [NorthMet], they had really organized their people to kind of be intimidating, in a way, to people that were speaking out against it. They had given them water bottles so they would crunch the water bottles so people couldn't hear. People were verbally called names— even by elected officials who were in support of it. It was a very intimidating atmosphere.

Another participant explained “There's lots of advocates for the project that speak out or write editorials. And then they kind of get people. City councils and school districts hefting voiced support for it on the record.” Here, power is asserted and leveraged to elevate certain opinions, both by groups of individuals who together create an

“intimidating” atmosphere at what is nominally an open forum for discussion of NorthMet, and by people who hold political clout in the community.

The polarization of the NorthMet controversy is not relegated to formal conversations about mining but plays out in more informal community settings as well. One participant in Cook, Minnesota – a small Iron Range town with an official population of 574 as of the 2010 census – explained this using a personal anecdote. She had asked the city-owned liquor store if they could start carrying beer from Bent Paddle – a regionally popular Duluth-based microbrewery that publicly supports anti-mining organizations such as Save the Boundary Waters. She was told that:

If they started carrying that, then the whole liquor store would close down because everybody's going to boycott because if they had that on their shelves, then people would get the word out, an organized effort would get the word out to say ‘don't go there because they've got that Bent Paddle on the shelf’ and he's like, so I can order it in secret.

Another participant, who is actively involved with environmental groups organizing against the mine described an incident in Duluth where an event for the organization Duluth for Clean Water was cancelled by the bar where it was to be held. He went on to explain this cancellation stating, “They thought there was gonna be a little dust up. The proprietor canceled – didn't want the publicity, or maybe they're threatening a little boycott.” A third participant spoke about informal boycotting, explaining that because he knows where proprietor’s stand on the PolyMet issue, “I wouldn't step foot in some stores that I used to shop in all the time, I just don't.” These examples demonstrate the potential for stakeholders to wield power on a community level, by leveraging businesses to make decisions based on public perceptions around NorthMet.

This community divide has contributed to an inability to communicate with those holding opposing viewpoints. For some, this has translated to not interacting with those holding opposing viewpoints because it feels impossible. One participant explained, “Yeah, we don't talk about the weather. Because we're so far apart. They won't listen to anything I say. And they only want to stuff the other down your throat. I'm on a white horse and I got a white hat, I'm saving everybody from everything.” Another explained that he had received some verbal backlash from community members because of his opinion on the issue, but that he believed it was toned down because of the social capital he and his wife had built up over 30 years of living and working in the area.

For some participants, the polarizing nature of the debate has meant refraining from broaching the subject of NorthMet in order to maintain relationships and continue working together on other projects. One participant was initially wary of speaking with me due to her need to remain professionally neutral because of her position in a regionally focused nonprofit. She explained that in order for her organization to continue functioning they refrained from taking a stance on the issue, due to widely differing opinions among members of the organization. On a personal level, she explained that with one particular friend and fellow political organizer, “we just can't talk about it. But we work together for a lot of other things with, you know, health care for all or with the farmer's market. And we just kind of sidestep that issue.” While this participant found that she was able to continue doing community organizing despite the polarizing nature of the issue, most participants cited the debate surrounding copper-nickel mining as significantly detracting from the cohesion of the small communities on the Iron Range and ability to work together.

In addition to effects within Iron Range communities, the NorthMet controversy has served to accentuate regional tensions for some, particularly an urban-rural divide that differentiates between northern Minnesota's residents and tourists, and raises the question of who counts as a stakeholder in the issue. One interviewee, who is a long-time resident of Ely, considered residents of the Arrowhead region as the only valid stakeholders:

We get people coming up here [from the Twin Cities]. My god, they attend all these public hearings, they're not stakeholders. They don't live here. We have people that have been paying real estate taxes up here... for 30 years and 40 years. They have skin in the game. They are stakeholders... But these people that come up here have no skin in the game... These 'stakeholders' that come up here once a year, breathe the air, and go back [thinking] 'We're stakeholders. That's government land we own one square millimeter...'

Another participant, who lives just outside of the Duluth area, noted this dynamic of this urban-rural division, stating that "people in northern Minnesota look at the metro area versus the northern Minnesotans. And the same thing's going happen now between Duluth and the Iron Range -- it's this division." Because many individuals, businesses, and nonprofit organizations in Duluth have been outspoken about both PolyMet and Twin Metals, he feared that the long-standing division between the Twin Cities and "up north" would extend to include Duluth, speaking to a common conception that it is liberal city dwellers who are against the mines, while those who actually live on the Iron Range are firm supporters of NorthMet.

While the conception that outsiders are against the mine and residents are for the mine is widely perpetuated, it does not accurately capture the range of voices in northern Minnesota. Though "the community" is often used in conversation around the NorthMet issue (e.g., by PolyMet to simplify the issue, by residents to speak to their daily lives in a

small town, or by academics to refer to the social fabric of the region as compared to other regions), it does not speak to the many different communities and ranges of viewpoints that exist in the Arrowhead Region. Seven commenters spoke to this directly, expressing opposition to the mine after establishing themselves as residents of northeast Minnesota, and therefore stakeholders in the issue. Four of the eight northern Minnesotan interview participants were against the mine, though two were from the greater Duluth area and not the smaller, old mining communities of the Iron Range.

One participant, who lives on the Iron Range, further problematizes the conception of rural versus urban tensions and who counts as a stakeholder:

One of the criticisms has always been, oh it's just people from the Twin Cities Center are against this. Not us people who live up here. And I think [environmental groups] have really focused the issue of okay hey, but it's our water and we're going to be impacted when this all... We're going feel the downstream impacts from that... saying we do have a stake and it doesn't matter that we don't live that we have a stake in because our water's going to be affected.

This watershed thinking has been leveraged by environmental groups and is a useful way of thinking about environmental controversies—not just in terms of direct physical proximity, but in terms of downstream effects that reflect scientific understandings of how ecosystems function.

Watershed thinking further complicates understandings of the issue as “watersheds” are expanded to include additional levels of connection between local, regional, national, and even international actors. These types of connections and experiences were a consistent piece of how interviewees described the NorthMet issue, the Iron Range, and their experiences to me. Examples included regional and state-level political dynamics, the ways in which environmental groups spoke about Iron Range

communities, personal experiences with DNR regulation, and regional shifts from a union-oriented, primarily democratic district to a more right-leaning district, voting for Trump in the 2016 elections in a historic Republican upset. While these dynamics do not fit tidily into a social license to operate framework, or within the scope of this study, they are critical for building a comprehensive understanding of the NorthMet issue, and public perceptions surrounding it.

CONCLUSION

This research examines the NorthMet controversy in Minnesota by pairing a rhetorical analysis of major interest groups with a social license to operate framework to consider public perceptions and the concept of trust as it relates to whether an individual chooses to support or oppose the proposed mining project. Using a breadth of sources that include stakeholder group websites, op-eds, public comments on the Final Environmental Impact Statement, and semi-structured in-depth interviews, this case study serves to extend the growing body of social license to operate literature while exploring relationships between rhetorical narratives and public response to an extremely polarizing issue.

Summary of Findings

By considering the NorthMet controversy in terms of rhetorical strategies used by both PolyMet and WaterLegacy, the struggle to sway public perception for or against the mining project becomes clearer. Key rhetorical strategies implemented by PolyMet and WaterLegacy to affect public perceptions of the proposed NorthMet mine have included: (1) Definition, or how each group defines the issue; (2) Identification, or how each group characterizes itself, how they characterize opponents, how they establish themselves as members of the regional community (using a largely constructed, universalized concept of “community” to mask the complexity of the social and political landscape of the Arrowhead region), and how they build relationships with stakeholders; (3) Drawing boundaries around the issue, or how each group uses spatial and temporal scope to determine what is included in the controversy and what is obscured.

Each of these strategies serves to present a particular narrative of the issue, carefully curating a cast of stakeholders and defining the issue by elevating certain aspects while excluding others. Rather than engaging in conversation, these narratives speak across each other, attempting to sway undecided stakeholders and further polarizing individuals on one side of the issue or the other.

The rhetorical arguments made by each side, both explicitly and implicitly, are reflected in the public comments and interviews with residents of the Arrowhead region. Similarly, the extreme polarization of larger organizations (e.g., PolyMet and WaterLegacy) can be seen in the increasing polarization of smaller groups (e.g., community-level organizations) and individual stakeholders over the past ten years. This polarization makes determining an overall judgment of whether or not PolyMet has achieved social license impossible. Through an analysis of the public comments and interviews, it is clear that PolyMet has gained all of the levels of social license from some individuals, and none from others.

In considering legitimacy, which is the most basic requirement of social license to operate, major concerns emerged regarding the need for jobs in the region on the one hand and concern for environmental degradation on the other. Rather than being a straightforward issue of jobs versus the environment, however, for many it came down to a balancing act between two important aspects of a thriving community (i.e., a healthy environment and sustainable livelihoods), and a careful weighing of risks versus benefits. The legal legitimacy of the NorthMet project remained a point of contention, as many commenters and interviewees on both sides of the issue noted that PolyMet had

technically completed requirements for permitting, but took issue with the requirements themselves, including with the permitting process and the regulatory agencies involved.

When considering levels of credibility (i.e., that PolyMet will follow through on their promises) and trust (i.e., that PolyMet will work with community members towards achieving common goals and prioritizes the good of the community), stakeholders considered both whether PolyMet *can* follow through on promises and also that they *will*. Comments around credibility included PolyMet's financial ability to follow through on promises of remediation as well as their technical ability to do so. Comments around trust included consideration of PolyMet's intentions around following through on those promises. Trust also encompassed characterization of PolyMet (e.g., as a member of the community staffed by locals or as a multi-national, greedy corporation) that established them as "trustworthy" or not. While consideration of public comments and interviewees using this framework allowed for a useful organization of how a variety of regional stakeholders think about aspects of the issue and how that reflects the rhetorical strategies implemented by larger interest groups, it fails to capture the full complexity of the NorthMet controversy.

Arguably, the current status of the NorthMet project demonstrates that failure to achieve all levels of social license from major stakeholder groups can have a tangible effect on the success of a mining project. It is important to note that the social and political capital of these stakeholder groups is a major factor in their ability to affect meaningful change (e.g., slowing down or halting a mining project) and groups that do not demonstrate a certain amount of clout are often left out of the conversations and compromise that surround extractive project planning. State-level environmental groups

such as WaterLegacy and Friends of the Boundary Waters, in partnership with larger national-level groups, were able to rally a large number of people to their cause, including prominent politicians and individuals with social and financial clout. Their effectiveness is notable in the wide amount of press coverage that the PolyMet controversy has received, as well as the unprecedented 30,441 public comments on the FEIS. Though PolyMet successfully attained all 16 required permits and fulfilled all legal requirements, four permits have now been overturned in court due to litigation introduced by environmental groups and tribal entities and the permitting process has lasted over 15 years.

Though the proposed NorthMet mine will likely still move forward despite these hurdles (as was emphasized in every interview and informal conversation I had with stakeholders about this project), failure to achieve social license from all stakeholder groups with social and political clout has significantly drawn out an already lengthy permitting process and increased expenses to PolyMet in money as well as time. Prno and Slocombe noted that to obtain social license from local communities, “early, ongoing communication, transparent disclosure of information, development of conflict resolution mechanisms, and culturally appropriate decision making” would be necessary (2012:347). Holley and Mitcham, in studying SLO regarding the Pebble Mine in Alaska, observed that incorporating public voices into the project design and negotiating risks and benefits with community members was vital to successfully achieving SLO (2016:26). The way that narratives crafted by the mining industry and environmental groups spoke across each other rather than engaging in conversation, and the way similar trends played out between local and regional stakeholders (e.g., crumpling water bottles during a town

hall to physically silence the opposing side), demonstrates a failure to maintain the ongoing mechanisms called for by Prno and Slocombe and engage in the involvement of community voices in the planning process called for by Holley and Mitcham.

This failure to engage adequately with opposing stakeholders throughout the process, and the increasing polarization of individuals and stakeholder groups along the way, echoes issues noted by Holley and Mitcham in the Alaska. They note that companies did not adequately engage with the community throughout the planning process, which would have included addressing stakeholder concerns, working together to create “shared goals,” and collaborating on the mining plan to provide maximum benefits to the community (2016:25). Rhetorical strategies implemented by PolyMet nominally speak to concerns around pollution and economy and work to establish credibility as a member of the community working to see it thrive. Looking at public comments, conducting interviews, and watching current litigation, however, seems to indicate a failure to collaborate more broadly with stakeholder groups, instead focusing on certain stakeholders who may already support the mining industry. Though failure to achieve a broad social license has not necessarily brought PolyMet to a stand-still, it has significantly slowed the permitting process and pushed back the timeline of the proposed mine.

Limitations

In taking on the lengthy and wide-reaching controversy surrounding the proposed NorthMet mine for a thesis-sized research project, my scope was necessarily narrow. Limitations of the study, as noted in the methods chapter, include simplification in terms of quantity of data and breadth of stakeholder voices. A more robust case study would

include more stakeholder groups, particularly indigenous voices, and a larger pool of public comments and interviews. While the random sampling of 100 comments included commenters on both sides of the issue, the great majority took a stance against the mine. It would be worth considering who is participating in the public commenting period and who has chosen not to and working to incorporate those voices into future studies. This case study was focused on those who had engaged in opportunities for public participation throughout the permitting process, but by drawing those boundaries of scope, failed to capture the full range of public perceptions on the NorthMet project.

Another major limitation was time. My research took place during 2019-2020, which is a small piece of a permitting process that is far from over. Further, because my time on the ground was limited to about one week, I was restricted in the amount of community engagement and rapport I was able to build. A more robust study might allow for multiple months on the Iron Range, building relationships in the community and gaining a thicker experiential understanding of this complex issue.

Future Research and Concluding Thoughts

Despite these limitations, this case study adds to the growing body of literature that considers extractive issues in terms of social license to operate. By pairing an SLO analysis with a consideration of rhetorical strategies, this research works to provide depth the SLO framework, applying it not only to public perceptions of the issue but also how rhetoric has served to affect those perceptions. More case studies are necessary to continue to build social license to operate into a more comprehensive framework and further transition it out of the business sector and into academic use, with a focus on shifting the framework to be less biased towards extractive industry. Used within the

mining industry, “successful” implementation of a social license to operate model indicates public support of a particular mining project. Used as an academic framework, this should not be the underlying assumption.

Expanding application of the SLO framework to include analysis of how individuals and stakeholder groups perceive other large interest groups (e.g., environmental groups, governmental agencies) could help start to dismantle these biases while further excavating the complexities of a given case study and giving greater depth to individual histories and experiences that color how they define the issue. Arguably, the more complexity allowed for within a framework, the less easy it is to see issues as binaries and dig into the trenches of extreme polarization.

One interviewee shared a sentiment that has stuck with me throughout this research. She said that while collaboration may have been possible at the earliest meetings, where both sides were still sitting down, there was no way anyone could agree on anything now. It was too late. This sort of polarization is not unique to the Iron Range. Recent large-scale confrontations, such as the 2016-2017 Dakota Access Pipeline protests at Standing Rock, demonstrate a climate of increasing division and combativeness between extractive industries, environmental advocates, and the communities that exist in the midst of the struggle (often as participants). In Minnesota, while the issue plays out in the courts on a regional and national level, issues of livelihood and community are affected on a local level, where extractive industry jobs continue to decrease, and the effect of the COVID-19 pandemic on the regional tourist industry is yet to be realized.

Future case studies on the NorthMet controversy in Minnesota could pick up where this one left off and extend the SLO framework in light of how current litigation

plays out. Additionally, it could build on the data from this study by including a broader consideration of stakeholder groups and more community-based research, where questions and research trajectories are determined in collaboration with community members. This type of participatory research is critical for an inclusive narrative and analysis of the NorthMet controversy, allowing the deep, place-based histories of residents to shed light on the complexities of the issue and perhaps arrive at a way to move forward and revive the once thriving communities of the Iron Range.

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APPENDIX A – SOURCES OF FORM LETTERS FOR THE FEIS

SOURCES OF FORM LETTERS FOR THE FEIS	
Affiliated Organization(s)	Number of Submissions
Mining Truth, Conservation Minnesota, WaterLegacy, MEP	12,716
League of Conservation Voters	6,202
Sierra Club	4,718
Mining Minnesota	3,016
Center for Biological Diversity	2,843
Izaak Walton League	101
League of Women Voters MN	26
YMCA Camp Menogyn	22
Building Trades	4

APPENDIX B – DNR CODES FOR PUBLIC COMMENTS ON THE FEIS

List of 27 topic codes utilized by the DNR to categorize public comments on the Final Environmental Impact Statement (FEIS):

- Air Quality
- Alternatives
- Aquatic Species
- US Army Corps of Engineers 404 Permit
- Cultural Resources
- Cumulative Effects
- Editorial (errors within FEIS text)
- Financial Assurance
- General Topics
- Geotechnical Stability
- Hazardous Materials
- Human Health and Safety
- USFS Land Exchange
- Land Use, Recreation, and Visual Resources
- MEPA Adequacy
- Mercury
- Noise and Vibration
- NEPA and MEPA Topics
- Other
- Project Description
- Permitting and Regulatory Considerations
- USFS Draft ROD
- Socioeconomics and Environmental Justice
- Vegetation
- Water Resources
- Wetlands
- Terrestrial Wildlife
- Wilderness and Special Designation Areas

APPENDIX C – INTERVIEW GUIDE

Thanks for taking the time to sit down with me for this interview. These interviews are part of a larger study I'm doing, where I'm trying to understand how folks like you are thinking about the proposed NorthMet mine and your views the process. I have questions for you about your experiences in the region, how you see the issue of PolyMet, how you've gotten involved in the permitting process, what you'd like to see the Iron Range look like in the future, that sort of thing.

Before we begin, I want to let you know that your identity as a participant in this interview will remain confidential and I won't use your name in any presentations or written reports. This is so you can speak your mind without worrying about what you say becoming publicly linked to you.

With your permission, I'd like to record the interview to maintain accuracy and better focus on our conversation without worrying about writing everything down. Is that alright with you?

Background, *I grew up in St. Paul and, while I have spent time in northern Minnesota, I do n't know the Iron Range very well. [To get some background on the issue I looked at a bunch of comments on the final EIS to see what people see as the major issues at stake in the proposed NorthMet mine.]*

1. How would you describe the area?
[potential probes if this doesn't spark much of a response: how long have you lived here? What are some of the things you value most about the region? What are some of the biggest challenges you have here?]

Process *Now that we've talked about the region in broader terms, I'd like to hear about your experience throughout the ten years (!) of the permitting process.*

2. Tell me about how you first became involved with the proposed mine.
 - a. When was that?
 - b. Why did you decide to get involved?
3. Did you submit a public comment on any of the Environmental Impact Statements or participate in other aspects of the permitting process (such as attending meetings, writing editorials or other things like that)? Why or why not?
4. How, if at all, has your understanding of the issue and opinion about the mine changed throughout the permitting process?
5. When you think about DNR's permitting process, what do you think they've done well?
 - a. Anything else?

6. What do you think they could have done better?
 - a. Anything else?

7. Do you trust the permitting process?

[potential probes if this doesn't spark much of a response: In other words, do you feel like the permitting process does a good job of involving community? Do you feel like it does a good job of researching and setting in place regulations that will lead to a positive outcome? Do you trust that the regulators are working towards the best outcome for the region?]

Credibility / Legitimacy *Let's move away from the permitting process and talk a little more about the nitty-gritty issues of the mine itself.*

8. What do you see as potential benefits of the NorthMet mine?
 - a. What's the best way these benefits happen?
9. What do you see as potential downsides of the NorthMet mine?
 - a. What should happen to address those potential downsides?

Trust *Let's talk a bit about the idea of trust when it comes to some of the major interest groups at play, including PolyMet, environmental groups, and the DNR. Considering the regulators and permitting process as separate from the mine itself,*

10. When you're trying to find information about this issue, who do you listen to or consider the best source of information on this issue? Why?
 - a. Are there any major voices in the debate who you don't listen to....?
11. How would you describe your relationship with PolyMet? In other words, have you had any positive or negative interactions with folks from PolyMet or PolyMet as an institution?
12. Over the past ten years are there ways that PolyMet has gotten involved in the community?
13. Do you trust PolyMet?
 - a. Probe: to follow through on their promises?
14. Do you trust the environmental groups who have been involved in the PolyMet debate (such as WaterLegacy, Friends of the Boundary Waters, and others).
15. Do you trust the DNR? Governor's office? Minnesota Pollution Control Agency?

Winding down *I'd like to take a step back from these big questions about the permitting process and the mine itself for a moment and return to this landscape and your place in*

it. This issue has been in the public eye for over a decade now. I'm curious how you feel like this has affected the Iron Range community.

16. How has this debate affected community dynamics?

17. When you think twenty-five years down the road, what would you like to see the community look like?

a. If it happens if it doesn't happen

18. Those are all the formal questions I have for you. Is there anything we didn't cover that you think we should talk about?

Thank you so much for chatting with me about your home and your experience with the proposed mine. Do you have any questions for me? If you have anything you'd like to add or clarify about what we talked about, you can reach me here (have something with phone number and email address).