

APPLICATION FOR WITHDRAWAL

*Superior National Forest
Cook, Lake, and Saint Louis Counties, Minnesota*

Items required by 43 C.F.R. 2310.1-2(c):

1. APPLICANT

Regional Forester
USDA Forest Service
626 East Wisconsin Ave
Milwaukee, WI 53202

2. STATEMENT OF DELEGATION

The general delegations of authority from the Secretary of Agriculture to the Chief of the Forest Service are set forth at 7 C.F.R. § 2.60. More specifically 7 C.F.R. § 2.60(a)(2) delegates authority to the Chief of the Forest Service to protect, manage, and administer the National Forest System. The Chief of the Forest Service has delegated the authority to request withdrawals to the Regional Foresters (FSM 2761.04).

3. OTHER AGENCY CONSENT

The subject lands are National Forest System lands under the administration of the U.S. Department of Agriculture, Forest Service. Pursuant to the delegations referenced above, the Forest Service consents to this application, on behalf of the Secretary of Agriculture.

4. TYPE OF WITHDRAWAL ACTION

This is a request for a new withdrawal. The Forest Service requests that these lands be withdrawn from disposition under laws relating to mineral and geothermal leasing, - including the Mineral Leasing Act of 1920 (30 U.S.C. 181 et seq. as amended), the Mineral Leasing Act for Acquired Lands of 1947 (30 U.S.C. 351 et seq. as amended), Section 402 of the President's Reorganization Plan No. 3 of 1946, 16 U.S.C. 520, and 16 U.S.C. 508b - subject to valid existing rights (VER). All of the lands would remain subject to the laws providing for the disposal of mineral materials under the Materials Act (43 U.S.C. 601 et seq.) or other applicable statute as defined by 36 C.F.R. Part 228, Subpart C.

The Forest Service recognizes that any segregation or future withdrawal of these lands will be subject to VER on the Federal land. The segregation and withdrawal would also be inapplicable to private lands owned in fee, private mineral estates, and private fractional mineral interests that are situated within the exterior boundaries of the area depicted on the attached map

(Appendix B).

5. LANDS INVOLVED IN WITHDRAWAL

The Federal lands are located within a portion of the Rainy River watershed, outside the Boundary Waters Canoe Area Wilderness (BWCAW) and the Boundary Waters Canoe Area Wilderness Mining Protection Area (MPA), as indicated on the attached map (Appendix B). More specifically, the Forest Service requests that all federal lands and interests in lands identified in Appendix A (but excluding lands with Federally owned fractional mineral interests) that are situated within the exterior boundaries of the area depicted on the attached map (Appendix B) be withdrawn from disposition under the laws relating to mineral and geothermal leasing, as explained in section 4 of this application. The Forest Service also requests that the withdrawal be made applicable to all fee title lands, which include all the mineral rights thereto, that are subsequently acquired by the Federal Government and situated within the exterior boundaries of the area depicted on the attached map (Appendix B).

The Federal lands are within the Rainy River watershed and drain into the BWCAW. The application of the mineral leasing laws to the BWCAW and the MPA is already precluded by Sec. 11(a) of the the Boundary Waters Canoe Area Wilderness Act (“BWCAW Act”) (Pub. L. 95-495, 92 Stat. 1649, 1655).

The National Forest System lands associated with this withdrawal application total approximately 225,378 acres in aggregate. All of these lands were included in the 2017 withdrawal application as discussed below. There are two categories of these National Forest System lands that include mineral interests owned entirely by the federal government – lands reserved from the public domain owned by the United States in fee simple, and acquired lands owned by the United States in fee simple. Any segregation triggered by this application will be subject to VER. Similarly, any withdrawal made by the Secretary of the Interior, in response to this application, will also be made subject to VER. It is for the BLM, not the Forest Service, to determine what constitutes VER with respect to this application and any resulting withdrawal.

6. OTHER WITHDRAWALS

The area containing the Federal lands subject to this withdrawal application overlaps with a hydropower withdrawal. Powersite Reserve Number 148, approved by Secraterial Order on July 29, 1910, and updated in Public Land Order No 7740 (FR Doc. 2010–9344 Filed 4–21–10), for 3,578 acres, located in Birch River and Tributaries, Minnesota, is “withdrawn from settlement, location, sale, or entry, and reserved for water power sites.” It is our understanding that this powersite reservation will not interfere with the granting of this application. See 43 CFR 2091.5-4.

Other than this 1910 powersite withdrawal, the requested withdrawal does not overlap with any other existing withdrawal.

Pursuant to Sec. 11(a) of the BWCAW Act (Pub. L. No. 95-495, 92 Stat. 1649, 1655) “no permit, lease, or other authorization may be issued by any agency or authority of the United States for [the] exploration for, or mining of, minerals owned by the United States within the Boundary Waters Canoe Area Wilderness and Boundary Waters Canoe Area Mining Protection Area.” These areas are adjacent to the lands that are the subject of this application.

7. PURPOSE OF WITHDRAWAL

The Federal lands associated with this withdrawal application are located within the Vermillion and Rainy Headwaters sub-watersheds of the Rainy River watershed in the Superior National Forest and are adjacent to the BWCAW and the MPA. The Rainy River watershed in Cook, Lake, and Saint Louis Counties in Minnesota supports outdoor recreation, wilderness, and biota critical to the socioeconomic conditions of the area. The BWCAW is a complex and interconnected ecosystem and offers recreational opportunities and other uses such that it is considered an irreplaceable national treasure. It provides opportunities for true solitude, outstanding primitive recreation in an unconfined and undeveloped natural setting, and a connection with untrammled nature. Water, especially water quality, is a focal point for this wilderness. Approximately 1175 lakes varying in size from 10 acres to 10,000 acres and several hundred miles of streams comprise about 190,000 acres (20%) of the BWCAW surface area and provide for the opportunity for long distance travel by watercraft. This type of experience is rare within the continental United States and the BWCAW is the only large lake-land wilderness in the National Wilderness Preservation System. Potential impacts from mining could alter water quality and thus degrade key components of the wilderness ecosystem such as habitat for wildlife (lynx, moose, loons), fish (walleye, lake trout, and other game fish), and wild rice, and have negative impacts on the recreation economy and native culture and food systems.

Mining Affects People, Resources, and Wilderness Character

There is interest in the development of hardrock minerals, involving the removal or mining of sulfide-bearing rock, within this portion of the Rainy River watershed. Any development of these mineral resources could ultimately result in the creation of permanently stored waste materials and other conditions upstream of the BWCAW and the MPA with the potential to generate and release fugitive dust, tailings, and effluent with elevated levels of acidity, metals, and other potential contaminants. These impacts, and any potential failure of required mitigation measures, containment facilities, or remediation efforts at mine sites and their related facilities located upstream of the BWCAW and the MPA could lead to irreversible degradation of this key water-based wilderness resource and jeopardize the purposes for the designation of the BWCAW and the MPA specified by Sec. 2 of the BWCAW Act (Pub. L. 95-495, 92 Stat. 1649). These concerns are exacerbated by the fact that perpetual maintenance of waste storage facilities, along with the perpetual treatment of water discharge emanating from the waste storage facilities, will likely be required to mitigate and/or address these adverse effects, yet it is not certain that such maintenance and treatment can be assured in perpetuity. Additionally, increased traffic, noise, light, dust, and other emissions resulting from mining operations could change the character and experience of the wilderness, and would affect

recreation experiences and other National Forest uses outside the wilderness, and the amenities-based economy that exists in the area. The Forest Service has reviewed the current circumstances and resulting threats to social, economic, and natural resources and now, as a matter of policy, seeks to pursue a holistic approach to ensure resource protection of this delicate ecosystem. This application is submitted to advance a comprehensive approach to protection of the fragile and vital social and natural resources, ecological integrity, and wilderness values that are threatened by potential future sulfide mining.

Salient examples of the potential impact of mining on key BWCAW resource components involve wild rice and fisheries, and the traditional uses and values drawn from them by indigenous peoples. The requested withdrawal area is within the 1854 Ceded Territory for the Chippewa Bands, where their continued exercise of usufructuary rights to hunt, fish, and gather are protected by the 1854 Treaty of LaPointe. Treaty protected resources that are important to the subsistence-based lifestyle of the Bands include fish, wild rice, and other aquatic wildlife, which would be particularly vulnerable to any contamination caused by sulfide ore mining in the watershed. The ability to continue to have access to these food sources contributes to food security for the Bands. Wild rice, also known as “Manoomin” in Tribal language, is not only Minnesota’s State Grain¹ but also a key component of the spiritual and physical well-being of the Bands. According to a 2008 Minnesota Department of Natural Resources study²:

Nowhere has natural wild rice been more important, nor had a richer history, than in Minnesota. No other native Minnesota plant approaches the level of cultural, ecological, and economic values embodied by this species. Natural wild rice has been hand harvested as a source of food in the Great Lakes region for thousands of years. The Ojibwe people have a special cultural and spiritual tie to natural wild rice. Known to their people as Manoomin, it is revered as a special gift from the Creator. In addition, many immigrants to Minnesota adopted hand harvesting of natural wild rice as an annual ritual.

The potential sulfide ore mining in this area has the potential to elevate sulfate levels in downstream waters (Miller 2002, USEPA 2014) and change the balance of the wilderness ecosystem and its associated subsistence lifestyle forever. If sulfate loading increases, evidence suggests that it would diminish the yield and ability to harvest wild rice and possibly present risks to food security. If sulfate enters wild rice waterbodies, it penetrates the sediment where the plant’s roots grow. In these anaerobic conditions, bacteria transform (or “reduce”) the sulfate into sulfide. Higher concentrations of sulfide can be toxic to roots and inhibit plant growth (Myrbo et. al. 2017a, Ng et. al. 2017, Pastor et. al. 2017, Pollman et. al. 2017). The scientific literature indicates elevated sulfate causes long-term declines in fish abundance, species number, and genetic diversity, and may facilitate the establishment of invasive species (Jennings et. al. 2008, Daniel et al 2014). As a result, the potential downstream effects from

¹ 2020 Minn. Statutes, section 1.148

² https://files.dnr.state.mn.us/fish_wildlife/wildlife/wildrice/natural-wild-rice-in-minnesota.pdf

mining include sulfide impacts to wild rice production, an important economic and tribal commodity (Johnson et al. 2019).

Sulfates also result in the production of methylmercury, the toxic form of mercury that bio-accumulates in fish (Coleman et al. 2015, Myrbo et. al. 2017b). Lakes and streams in the area are already listed as impaired waters of the state for methylmercury in fish (MPCA 2007). Minnesota's State Bird, the Common Loon, an iconic symbol of the wilderness revered for its unusual wailing call,³ is often spotted by visitors of the BWCAW. The Common Loon is particularly sensitive to methylmercury (Evers et al 2008), a risk potentially exacerbated by mining. The flora and fauna of the BWCAW, as exemplified by the Common Loon and wild rice, are demonstrative of a distinct and irreplaceable wilderness resource. Moreover, the history of both Tribes and others in the region who practice a subsistence lifestyle is interwoven with the BWCAW and its water-based resources.

Climate change increases the risk of bioaccumulation of toxic mercury in the aquatic food chain (Ghandi et al. 2014). The Fourth National Climate Assessment (USGCRP, 2018) reveals that the average temperature in the contiguous United States has increased by 1.2°F (0.7°C) relative to the beginning of the last century. Temperature is expected to rise over the next few decades, regardless of emissions, by an estimated average annual temperature of 2.5°F (1.4°C). The upper Midwest has experienced the greatest rate of change in rising temperatures across the nation and significant increases in major storm events. Temperature has risen 2.0°F since the beginning of the last century. Since 2000, the number of very heavy rains (6 inches or more in a day) have been 2-3 times more frequent than in the 20th century (Runkle et. al, 2017). Climate change related to rising temperatures is increasing the overall availability and accumulation of forms of mercury in northern Minnesota wetlands (Pierce et al. 2019) which are connected to downstream aquatic food chains (Monson, B.A.).

Breaches or leakage of sulfate rich mine waters can have dramatic impacts on the production of the form of the toxic metal mercury which accumulates in the aquatic food chain, especially in fish. Also, the increased likelihood of larger storms, due to climate change, increases runoff and the potential for breaches of contaminated water to impact water supplies (Saniewska et al. 2014, Thomson and Rose 2011).

Minnesota Department of Health (MDH) fish consumption advisories for pregnant women, women who could become pregnant, and children under age 15 suggest safe consumption be limited to only one serving per month for many preferred species (lake trout, walleye) and one serving per week for whitefish, herring, and other species⁴ (MDH 2021). A 2011 MDH study indicated that 10 percent of Minnesota newborns in the Lake Superior Basin have toxic levels of

³ <https://www.youtube.com/watch?v=WDxtAoUQkSk&t=30s>.
<https://www.projectremote.com/blog/loons-in-the-boundary-waters/>

⁴ For some lakes in the application area, the MNDNR advises not to eat the fish. For example, White Iron Lake in St. Louis County, MNDNR advises not to eat walleye larger than 23 inches.
<https://www.health.state.mn.us/communities/environment/fish/docs/eating/specoplakes.pdf>

mercury in their blood, likely from pregnant mothers eating fish (McCann 2011). Mercury in water and food has been shown to have detrimental effects on neural, nervous, and reproductive systems in humans with young children and developing fetuses particularly at risk (Kim et al. 2016, Henriques et al. 2019). Since subsistence users rely on these fish resources for food, increased mercury concentrations likely pose disproportional health risks to this population, raising an environmental justice issue.

Consequently, mining poses risks to perpetuating the health and traditional cultural values of the Chippewa Tribe due to impacts on wild rice, fish and other subsistence livelihood resources that connect the Chippewa to the land, their values, cultural heritage, and to one another. Hunting and gathering are cultural and spiritual activities that are crucial to the identity of the Chippewa⁵ (GLIFWC 2016).

As a final example, it is well documented that hardrock mining like that which is proposed adjacent to the BWCAW poses risks to public health from other changes to air and water. Six out of ten of the World Health Organization's identified chemicals of major public health concern are known to be released from hardrock mining. Arsenic, asbestos, cadmium, lead, particulate air pollution, and mercury could pose health risks such as cancer to workers and communities downstream and downwind of mining operations. A loss of a feeling of mental well-being due to the increased economic and emotional burden on families and individuals could arise from compromised health conditions due to toxic pollution of the region's air and water (Onello et. al. 2016).

Thus, the purpose underlying this withdrawal request is to effectuate a policy choice, based on current information concerning resources, uses, and threats, to pursue a holistic approach to protection of National Forest System resources located in the Rainy River Watershed, including the BWCAW, and the MPA, as well as the 1854 Ceded Territory, from the known and potential adverse environmental impacts arising from exploration and development of Federally-owned minerals conducted pursuant to the mineral leasing laws. Some of these concerns were identified in the Chief of the Forest Service's letter declining to consent to two hardrock mineral leases (MNES-01352 and MNES-01353) in December of 2016, and prompted the filing of an application for a withdrawal of 234,328 acres of National Forest System (NFS) land on the Superior National Forest in January of 2017. Others, such as Tribal and subsistence uses, and the effects of climate change on precipitation regimes were not, however. For the reasons set forth herein, the Regional Forester now believes that this new withdrawal application is a prudent, comprehensive course of action given the potential impacts to the social, cultural, economic, and natural resources described in part above, in light of pending plans for mine operations and pending applications for other hardrock mineral development activities within the withdrawal area.

Withdrawal Request and Consent Authority

⁵ Great Lakes Indian Fish and Wildlife Commission (GLIFWC). 2016. Metallic Mineral Mining: The Process & the Price. <https://www.glifwc.org/publications/pdf/2016Process.pdf>

As referenced above, a previous application for withdrawal of 234,328 acres of NFS land on the Superior National Forest was filed by the Forest Service in 2017. The segregation period for that application began on January 19, 2017, with the publication of the application notice in the Federal Register (82 FR 6639-01). The reports and case files necessary to support the application, as required by 43 CFR 2310.3-2, were never completed by the Forest Service, or filed with the Bureau of Land Management (BLM). At the time of the cancellation, the Regional Forester believed that a withdrawal order was not needed under the circumstances and that the Forest Service could rely upon its consent role in the hardrock mineral leasing process, applied on a case-by-case basis, to provide necessary protection of Superior National Forest resources and the BWCAW.⁶

After the cancellation of the 2017 withdrawal application, on May 15, 2019, the BLM renewed two hardrock mineral leases within the watershed (MNES-01352 and MNES-01353) for the third time (“the TMM Renewed Leases”). Those leases are held by Franconia Minerals (US) LLC, a wholly owned subsidiary of Twin Metals Minnesota LLC (collectively “TMM”). In renewing the leases, BLM relied upon an Opinion issued by the Office of the Solicitor, Department of the Interior. See Solicitor’s Opinion, M-37049, “Reversal of M-37036, Twin Metals Minnesota Application to Renew Preference Right Leases (MNES-01352 and MNES-01353)” (December 22, 2017). The renewal of those leases is currently in litigation.

Pursuant to the provisions of the TMM Renewed Leases, TMM submitted a Mine Plan of Operation (MPO) for joint approval by the Forest Service and BLM, in December 2019. Additionally, TMM submitted an application to the Forest Service for special use authorizations related to anticipated mining-related activities that would occur on non-leased NFS land. By this time, TMM had already filed with the BLM a Preference Right Lease Application (MNES 57965) (PRLA) in 2013 for a new lease comprising additional National Forest System land, beyond the lands associated with the TMM Renewed Leases.⁷ On June 30, 2020, the BLM published notice of its intent to be the lead federal agency in preparing an Environmental Impact Statement, which would serve as the necessary documentation under the National Environmental Policy Act to support agency decisions on these requests made by TMM. (85 FR 39206-02). The State of Minnesota is also preparing an Environmental Impact Statement as required by the Minnesota Environmental Policy Act.

The TMM Renewed Leases and requests for operations-related approvals did not exist in 2017 when the prior withdrawal application was noticed. Indeed, on December 14, 2016, the Chief of the Forest Service declined to give his statutory consent to the renewal of MNES-01352 and MNES-01353. In the 2016 denial of consent by the Chief, the Forest Service concluded that development under the two leases would pose an unacceptable risk to the BWCAW as the

⁶ The Forest Service is not aware that the Bureau of Land Management (BLM) denied any prospecting permit or lease request during the limited time that the segregation was in effect. Since the termination of the segregation in 2018, the BLM has had discretion to act upon mineral-related requests.

⁷ The MPO also includes proposed development for some of the minerals, which are the subject of the pending PRLA.

leases were located in the same watershed. However, after the Solicitor's 2017 M-Opinion, concluding that the TMM Renewed Leases were required to be issued (the Opinion now in litigation), the exercise of the Forest Service's consent role was constrained to preclude denial. As a result, in May of 2019 the Forest Service presented stipulations to BLM for inclusion in the TMM Renewed Leases.

As previously stated, the Forest Service is charged with protecting the BWCAW pursuant to the BWCAW Act, including in part for the following purposes: "(1) provide for the protection and management of the fish and wildlife of the wilderness so as to enhance public enjoyment and appreciation of the unique biotic resources of the region, (2) protect and enhance the natural values and environmental quality of the lakes, streams, shorelines and associated forest areas of the wilderness, (3) maintain high water quality in such areas, (4) minimize to the maximum extent possible, the environmental impacts associated with mineral development affecting such areas..." (Pub. L. No. 95-495). The Secretary of Agriculture has been provided with the means to protect National Forest resources in part by exercising a consent role before the BLM issues a prospecting permit or a lease on NFS lands in the Superior National Forest; where required under 43 C.F.R. 3503.20, such consent is a condition precedent to the BLM's issuance of a permit or lease.⁸ Further, that consent role includes the ability to prescribe conditions relating to the Forest Service's management of the surface in any issued permit or lease. By its nature, the Forest Service's consent authority is exercised on a case-by-case basis, when BLM is considering a particular application for a prospecting permit or lease. Likewise, the timing of the agency's consent determinations is an important consideration. Consent generally is exercised after considerable work by both the mine proponent and agency. By the time the agency sends its consent determination to BLM, much time and effort has been invested in development of data, analysis, and plans for a specific application for a permit or lease.

This Forest Service statutory consent authority described above exists irrespective of the submission, under the authority and procedures of 43 U.S.C. § 1714 and 43 CFR Part 2300, of this application for withdrawal. These withdrawal authorities allow the Forest Service to submit an application for the Secretary of the Interior to make a withdrawal, for the protection of National Forest resources and their uses. Such a withdrawal in this case would provide unified and comprehensive resource protection for a unique and complex ecosystem with one administrative action. In the withdrawal context, the Secretary of the Interior must decide whether to make the requested withdrawal. By contrast, the Forest Service (via delegated authority of the Secretary of Agriculture) may decide – on its own authority – whether to consent to a particular prospecting permit or lease. These are two different instruments, either of which may be used separately or together to ensure appropriate protection of the Superior National Forest, including its resources and uses. Withdrawal and consent represent different mechanisms for protection of National Forest resources available to the Forest Service under existing law; Consent offers a case-by-case localized means of resource protection, whereby

⁸ See Section 402 of Reorganization Plan No. 3 of 1946 (transferring authority under 16 USC 520, related to acquired National Forest System land); 16 U.S.C. § 508b (for public domain National Forest System land in Minnesota); and 43 CFR 3503.20.

withdrawal provides for a more strategic and comprehensive approach for broad-scale protection of ecological integrity of whole landscapes or ecosystems. They are not mutually exclusive and do not represent different desired outcomes, but the withdrawal approach can result in more efficient means of protection at scale. Given the recent increased interest in mineral development in this area, this withdrawal will provide more efficient ecosystem-wide resource protection because new prospecting permits or leases would not even be considered, and thus case-by-case consent determinations across this vast landscape would not be necessary.

The current requests for operational approvals represent new circumstances related to the potential for development of hardrock minerals on NFS land located within the Rainy River watershed. For the first time since the predecessor leases to the TMM Renewed Leases were issued in 1966, approval for an MPO is before the BLM and the Forest Service. At the time of the Regional Forester's September 6, 2018 cancellation of the 2017 withdrawal application, Leases MNES-01352 and MNES-01353 had not been renewed, though the 2017 M-Opinion of the Solicitor had been issued. Additionally, there was no pending MPO. In September of 2018, the Regional Forester generally believed the Forest Service could effectively and efficiently address concerns over the effects of mining on a localized, case by case basis through the Forest Service's statutory consent role. Now, the Forest Service and BLM are considering the approval of an MPO and related special use authorizations as well as the issuance of a new lease pursuant to the PRLA. Taken together, these requests demonstrate a very real current intent to actually develop a mine with a large footprint and decades-long useful life.⁹ Further, this currently active intent on the part of TMM will likely spur additional prospecting permit and lease requests to BLM, whether made by TMM or others, on nearby NFS lands. This is a far different context than that which existed at the time of the 2017 withdrawal application or its 2018 cancellation.

The Forest Service has new information, which it continues to gather, regarding the impacts of additional mining and exploration in the area on recreational uses and important resources such as water, air, wildlife, terrestrial and aquatic habitats, and native culture and food systems. The withdrawal is requested to protect those resources from the potential adverse effects of mining and exploration in the area, and in particular, potential effects of mining and exploration activities on three Endangered Species Act listed species and their habitats: the northern long-eared bat, listed as threatened in 2015; the Canada lynx, listed as threatened in 2000; and the gray wolf, most recently listed as threatened in 2015 and then delisted in 2020. New information includes but is not limited to disclosures associated with the MPO submitted by TMM in December of 2019 and the special use application. The Forest Service's Northern Research Station has begun research activities, funded by current appropriations, directed to further mercury-sulfur interaction research and mitigation to lessen the health impacts of mercury by interrupting the biochemical process between sulfur and mercury. There may be

⁹ The mere existence of mineral leases does not necessarily translate to an imminent risk of adverse effects from mining operations. To be sure, the predecessor leases had been in existence since 1966 without any actual proposal or development of a mine.

potential impacts of broad-scale mineral development on the relevant lands that have not yet been fully studied.

The potential for irreversible mining-related impacts on the BWCAW, the MPA, and 1854 Ceded Territory, to the extent located within the Rainy River watershed, support the submission of this new application for a 20-year withdrawal of the identified area, subject to valid existing rights. This will result in more efficient and effective Forest Service administration of such NFS resources in accordance with applicable Federal law and regulations that require the agency to maintain or restore the ecological integrity of terrestrial and aquatic ecosystems and watersheds. From a pragmatic perspective, the administrative burden of analyzing additional, new proposals, while addressing the exercise of any VER, could prove difficult to accommodate, along with other National Forest management priorities. A twenty-year withdrawal would enable a reassessment of all these concerns in two decades.

All these considerations, encompassing social, economic, cultural, and natural resource effects and legal implications, support the conclusion that a withdrawal order is a prudent and more comprehensive and efficient means to establish protection of National Forest resources from adverse mining impacts. Mining adjacent to BWCAW and MPA risks irreparable harm to irreplaceable wilderness and ecosystem integrity, values, and resources. Although the primary footprint of the proposed mines would be outside the BWCAW, there are critical linkages between aquatic and terrestrial ecosystems that are highly dependent on chemistry of water flowing through them. Large scale mining activity at the top of the watershed can cause many effects in the primary and secondary footprint related to water flow and chemistry (including aerial deposition) that will affect everything lower in the watershed. Given the high level of linkages between aquatic and terrestrial components of the ecosystem in the BWCAW, these effects will also extend into terrestrial vegetation and could cause an ecological cascade of effects to vegetation, wildlife, and rare species of plants and animals within the BWCAW wilderness. The expected extremes in precipitation and temperature due to warming climate are likely to exacerbate mining impacts, and reduce the resilience of forests and watersheds to disturbance caused by mining.¹⁰ Exercise of consent authority entails a piecemeal, project-specific approach that may result in similar protection but only at a more localized scale. Given the policy goals, resource considerations, and circumstances described above, a broader, more comprehensive approach to protect the ecological integrity of this area is warranted.

The factual findings and circumstances summarized above supporting a holistic approach to protection do not contradict the previous approach of relying upon Forest Service consent determinations to protect resources. Nor is there inconsistency inherent, as noted above, in these two different mechanisms concerning resource protection. Rather, a fresh consideration of the resources and Tribal interests at stake, coupled with evolving events concerning potential mining, lead to the conclusion that a withdrawal is the preferable path for comprehensive

¹⁰ Frelich LE. Terrestrial Ecosystem Impacts of Sulfide Mining: Scope of Issues for the Boundary Waters Canoe Area Wilderness, Minnesota, USA. *Forests*. 2019; 10(9):747. <https://doi.org/10.3390/f10090747>

resource protection. This withdrawal request envisions goals and objectives for protection at a broader geographic scale on a more unified and comprehensive basis for a unique ecosystem.

8. EXTENT OF WITHDRAWAL AND SEGREGATION

The Forest Service requests that the Federal lands within the area identified on the attached map (Appendix B) be withdrawn from disposition under laws relating to mineral and geothermal leasing – including the Mineral Leasing Act of 1920 (30 U.S.C. 181 et seq., as amended), the Mineral Leasing Act for Acquired Lands of 1947 (30 U.S.C. 351 et seq., as amended), Section 402 of the President’s Reorganization Plan No. 3 of 1946, 16 U.S.C. 520, and 16 U.S.C. 508b, but excepting authorities applicable to mineral materials disposal under 36 CFR 228, Subpart C, for “the maximum period of 20 years” authorized by 43 U.S.C. § 1714(c)(1), subject to valid existing rights.

The Forest Service also requests that the notice of this withdrawal application (published in the Federal Register pursuant to 43 C.F.R. § 2310.3–1(b)(1)) provide that the National Forest System lands within the area identified on the attached map (Appendix B) be segregated from the operation of the mineral leasing laws for the maximum period of two years as authorized by 43 U.S.C. § 1714(b)(1), subject to valid existing rights.

The Forest Service intends that the National Forest System lands within the area identified on the attached map (Appendix B) remain subject to the laws providing for the disposal of mineral materials set forth by 36 C.F.R. Part 228, Subpart C, throughout the duration of the segregation and any subsequent withdrawal.

9. ALLOWABLE TEMPORARY USES

Statutorily authorized multiple uses of National Forest System lands, i.e. outdoor recreation, range, timber, watershed, and wildlife and fish purposes, along with the disposal of mineral materials and any land adjustment actions, may be authorized by Forest Service officers during the requested 2-year segregation period. However, those uses would only be authorized if they comply with applicable Forest Service regulations and the applicable land management plan. They must also not cause adverse environmental impacts to National Forest System lands (and waters) located in the Rainy River Watershed, the BWCAW, and the MPA comparable to those that could arise from exploration and development of Federally-owned minerals conducted pursuant to the mineral leasing laws.

10. ANALYSIS OF ALTERNATIVES

Per 43 C.F.R. § 2310.1-2(b)(10), a withdrawal application should contain “[a]n analysis and explanation of why neither a right-of-way under section 507 of the Act (43 U.S.C. 1767), nor a cooperative agreement under sections 302(b) (43 U.S.C. 1732(b)) and 307(b) (43 U.S.C. 1737(b)) of the Act would adequately provide for the proposed use.” None of these statutory provisions are relevant to a withdrawal application submitted by the Forest Service for the withdrawal of

National Forest System lands.

Sections 302(b) and 307(b) of FLPMA, 43 U.S.C. §§ 1732(b) and 1737(b), are not applicable because they grant the Secretary of the Interior (43 U.S.C. § 1702(g)) authority to manage the public lands. And for purposes of FLPMA, “[t]he term ‘public lands’ means any land and interest in land owned by the United States within the several States and administered by the Secretary of the Interior through the Bureau of Land Management....” In contrast, all National Forest System lands, including the Superior National Forest, are administered by the United States Department of Agriculture, Forest Service (16 U.S.C. § 1609(a)). Indeed, 43 U.S.C. § 1702(k), a portion of the definitional section of FLPMA, explicitly distinguishes “public lands” from “lands within National Forests.”

Section 507(a) of FLPMA, 43 U.S.C. § 1767(a), permits “the Secretary concerned” to utilize the authority granted by other provisions in the subchapter to provide another department or one of that department’s agencies a right-of-way across land administered by the Secretary concerned. The phrase “the Secretary concerned” in 43 U.S.C. § 1767(a) refers to both the Secretary of the Interior and the Secretary of Agriculture as evidenced by a prior provision in the same subchapter: 43 U.S.C. § 1761(a). Per 43 U.S.C. § 1761(a), rights-of-way may be issued by “[t]he Secretary [i.e., the Secretary of the Interior (43 U.S.C. § 1702(g))], with respect to the public lands ... as defined in section 1702(e) of this title ... and, [by] the Secretary of Agriculture, with respect to lands within the National Forest System....” Accordingly, 43 U.S.C. § 1767(a) merely authorizes the Secretary of Agriculture to issue rights-of-way across National Forest System lands to other departments and their agencies. That authority has no bearing with respect to the Forest Service’s reason for requesting this withdrawal—to protect National Forest System lands (and waters) located in the Rainy River Watershed, the BWCAW, and the MPA from the adverse environmental impacts that would arise from exploration and development of Federally-managed hardrock minerals conducted pursuant to the mineral leasing laws.

Section 507 of FLPMA, 43 U.S.C. § 1767(b), cannot achieve the Forest Service’s purpose to protect the specified National Forest System lands because it merely prohibits the Secretary of the Interior from terminating or limiting a right-of-way for the benefit of any department or agency of the United States without that entity’s consent.

11. WITHDRAWAL DURATION

The Forest Service requests withdrawal of the Federal lands within the area indicated on the attached map (Appendix B) for the maximum period of 20 years as authorized by 43 U.S.C. § 1714(c)(1).

A withdrawal for the maximum duration of 20 years is warranted because of the potential adverse effects from the exploration and development of the Federally-managed hardrock minerals in the Rainy River watershed. These potential impacts are a direct result of the location of the minerals with the sulfide-bearing rock present in that area. Thus, the need to

protect the National Forest System lands (and waters) located in the Rainy River Watershed, the BWCAW, and the MPA, from the adverse environmental impacts arising from exploration and development of Federally-managed hardrock minerals—the purpose of this withdrawal request—remains a long-term threat to unique natural resources, ecosystems, and wilderness values of this area.

12. ALTERNATIVE SITES

Not applicable.

13. WATER REQUIREMENTS

No water rights will be needed to fulfill the purpose of this withdrawal request.

The unique and irreplaceable resource this withdrawal seeks to protect is the 1.1 million-acre BWCAW located in the northern third of the Superior National Forest, extending nearly 200 miles along the international boundary with Canada. The BWCAW includes nearly 2,000 pristine lakes ranging in size from 10 acres to 10,000 acres, and nearly 1,200 miles of canoe routes. It is the only large-scale protected sub-boreal forest in the lower 48 United States. There is a need to maintain and improve healthy forests and water quality to provide a host of watershed benefits, such as purifying water, sustaining surface water and ground water flow, maintaining fish habitats, and stabilizing streambanks.

14. LOCATION OF RECORDS

Records related to this application for the withdrawal may be examined at:

Superior National Forest
Supervisor's Office
8901 Grand Ave Pl
Duluth, MN 55808

REFERENCES

Coleman Wasik, J.K., D.R. Engstrom, C.P.J. Mitchell, E.B. Swain, B.A. Monson, S.J. Balogh, J.D. Jeremiason, B.A. Branfireun, R.K. Kolka, and J.E. Almendinger. 2015. The effects of hydrologic fluctuation and sulfate regeneration on mercury cycling in an experimental peatland. *Journal of Geophysical Research: Biogeosciences* 120: doi:10.1002/2015JG002993.

Daniel, W.M., D.M. Infante, R.M. Hughes, Y.P. Tsang, P.C. Esselman, D. Wiefelich, K. Herreman, A.R. Cooper, L. Wang, and W.W. Taylor. 2014. Characterizing coal and mineral mines as a regional source of stress to stream fish assemblages. *Ecological Indicators* 50: 50-61.

Evers, D.C., L.J. Savoy, C.R. DeSorbo, D.E. Yates, W. Hanson, K.M. Taylor, L.S. Siegel, J.H. Cooley Jr., M.S. Bank, A. Major, K. Munney, B.F. Mower, H.S. Vogel, N. Schoch, M. Pokras, M.W. Goodale, and J. Fair. 2008. Adverse effects from environmental mercury loads on breeding Common Loons. *Ecotoxicology* 17: 69-81. <http://dx.doi.org/10.1007/s10646-007-0168-7>.

Frelich LE. Terrestrial Ecosystem Impacts of Sulfide Mining: Scope of Issues for the Boundary Waters Canoe Area Wilderness, Minnesota, USA. *Forests*. 2019; 10(9):747. <https://doi.org/10.3390/f10090747>

Ghandi, N., R.W.K. Tang, S.P. Bhavsar. And G.P. Arhonditsis. 2014. Fish mercury levels appear to be increasing lately: A report from 40 years of monitoring in the Province of Ontario, Canada. *Environmental Science and Technology*. 48(10): 5404-5414.

Great Lakes Indian Fish and Wildlife Commission (GLIFWC). 2016. Metallic Mineral Mining: The Process & the Price. <https://www.glifwc.org/publications/pdf/2016Process.pdf>

Henriques, M.C., S. Loureiro, M. Fardilha, and M.T. Herdeiro. 2019. Exposure to mercury and human reproductive health: A systematic review. *Reproductive Toxicology*. 85: 93-103.

Jennings, S.R., D.R. Neuman, and P.S. Blicher. 2008. Acid Mine Drainage and Effects on Fish Health and Ecology: A Review. Reclamation Research Group LLC, Bozeman, MT. Prepared for US Fish and Wildlife Service.

Johnson NW, Pastor J, Swain, EB. 2019. Cumulative sulfate loads shift porewater to sulfidic conditions in freshwater wetland sediment. *Environmental Toxicology and Chemistry*. 38(6) 1231–1244.

K-H. Kim, E. Kabir, and S.A. Jahan. 2016. A review and distribution of Hg in the environment and its human health impacts. *Journal of Hazardous Materials*. 306: 376-385.

Miller et. al. 2002. Geology and Mineral Potential of the Duluth Complex and Related Rocks of Northeastern Minnesota, James D. Miller, Jr. John C. Green, Mark J. Severson, Val W. Chandler, Steven A. Hauck, Dean M. Peterson, Timothy E. Wahl, Minnesota Geological Survey, Report of Investigations 58, ISSN 0076-9177, Saint Paul, 2002

Minnesota Department of Health (MDH). 2021. Pregnant Women, Women Who Could Become Pregnant, and Children Under Age 15 (PDF). Accessed at:
<https://www.health.state.mn.us/communities/environment/fish/docs/pregntstateguide.pdf>

Minnesota Pollution Control Agency MPCA. 2007, Minnesota's Statewide Mercury Total Maximum Daily Load Study. March 2007. Final Report. Accessed at:
<https://www.pca.state.mn.us/sites/default/files/wq-iw4-01b.pdf>

Monson, B.A. 2009. Trend reversal of mercury concentrations in piscivorous fish from Minnesota lakes: 1982-2006. *Environmental Science and Technology*. 43: 1750-1755.

Myrbo, A., Swain, E. B., Johnson, N. W., Engstrom, D. R., Pastor, J., Dewey, B., Peters, E. B. (2017b). Increase in nutrients, mercury, and methylmercury as a consequence of elevated sulfate reduction to sulfide in experimental wetland mesocosms. *Journal of Geophysical Research: Biogeosciences*, 122, 2769– 2785. <https://doi.org/10.1002/2017JG003788>

Myrbo, A., Swain, E. B., Engstrom, D. R., Coleman Wasik, J., Brenner, J., Dykhuizen Shore, M., ... Blaha, G. (2017a). Sulfide generated by sulfate reduction is a primary controller of the occurrence of wild rice (*Zizania palustris*) in shallow aquatic ecosystems. *Journal of Geophysical Research: Biogeosciences*, 122, 2736– 2753. <https://doi.org/10.1002/2017JG003787>

Ng, G.-H. C., A. R. Yourd, N. W. Johnson, and A. E. Myrbo (2017), Modeling hydrologic controls on sulfur processes in sulfate-impacted wetland and stream sediments, *J. Geophys. Res. Biogeosci.*, 122, doi:10.1002/2017JG003822.

Onello, E., M.D., D. Allert, M.D., S. Bauer, M.D., J. Ipsen, M.D., Ph.D, M. Saracino, M.D., K. Wegerson, M.D., D. Wendland, M.D., MPH, J. Pearson, M.D. 2016. Sulfide Mining and Human Health in Minnesota. *Minnesota Medicine* 2016 (6) 51-55.

Pastor, J., Dewey, B., Johnson, N.W., Swain, E.B., Monson, P., Peters, E.B. and Myrbo, A. (2017), Effects of sulfate and sulfide on the life cycle of *Zizania palustris* in hydroponic and mesocosm experiments. *Ecol Appl*, 27: 321-336. <https://doi.org/10.1002/eap.1452>

McCann P. 2011. "Mercury Levels in Blood from Newborns in the Lake Superior Basin" (Nov. 30, 2011) Final Report.

Pierce, C.E., R.K. Kolka, S. Sebestyan, N. Griffiths, E. A. Nater, and B.M. Toner. 2019. The effect of climate change on mercury in a boreal peatland. International Conference on Mercury as a Global Pollutant. Krakow, Poland.

Pollman, C. D., Swain, E. B., Bael, D., Myrbo, A., Monson, P., & Shore, M. D. (2017). The evolution of sulfide in shallow aquatic ecosystem sediments: An analysis of the roles of sulfate, organic carbon, and iron and feedback constraints using structural equation modeling. *Journal of Geophysical Research: Biogeosciences*, 122, 2719– 2735. <https://doi.org/10.1002/2017JG003785>

Runkle, J., K. Kunkel, R. Frankson, D. Easterling, and S. Champion, 2017: Minnesota State Climate Summary. *NOAA Technical Report NESDIS 149-MN*, 4 pp.

Saniewska, D., M. Beldowska, J. Beldowska, A. Jedruch, M. Saniewski, and L. Falkowska. 2014. Mercury loads into the sea associated with extreme flood. *Environmental Pollution*. 191: 93-100.

Thomson, B., and M. Rose. 2011. Environmental contaminants in foods and feeds in the light of climate change. *Quality Assurance and Safety of Crops & Foods*. 3: 2–11.

USEPA 2014. An Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska. U.S. Environmental Protection Agency, Washington, DC, 910-R-14-001A, January 2014

USGCRP, 2018: *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 1515 pp. doi: 10.7930/NCA4.2018.

SUPPLEMENTAL INFORMATION

Appendix A: Legal Description of Superior National Forest Lands for Withdrawal Application

Appendix B: Map of Superior National Forest Withdrawal Application Area