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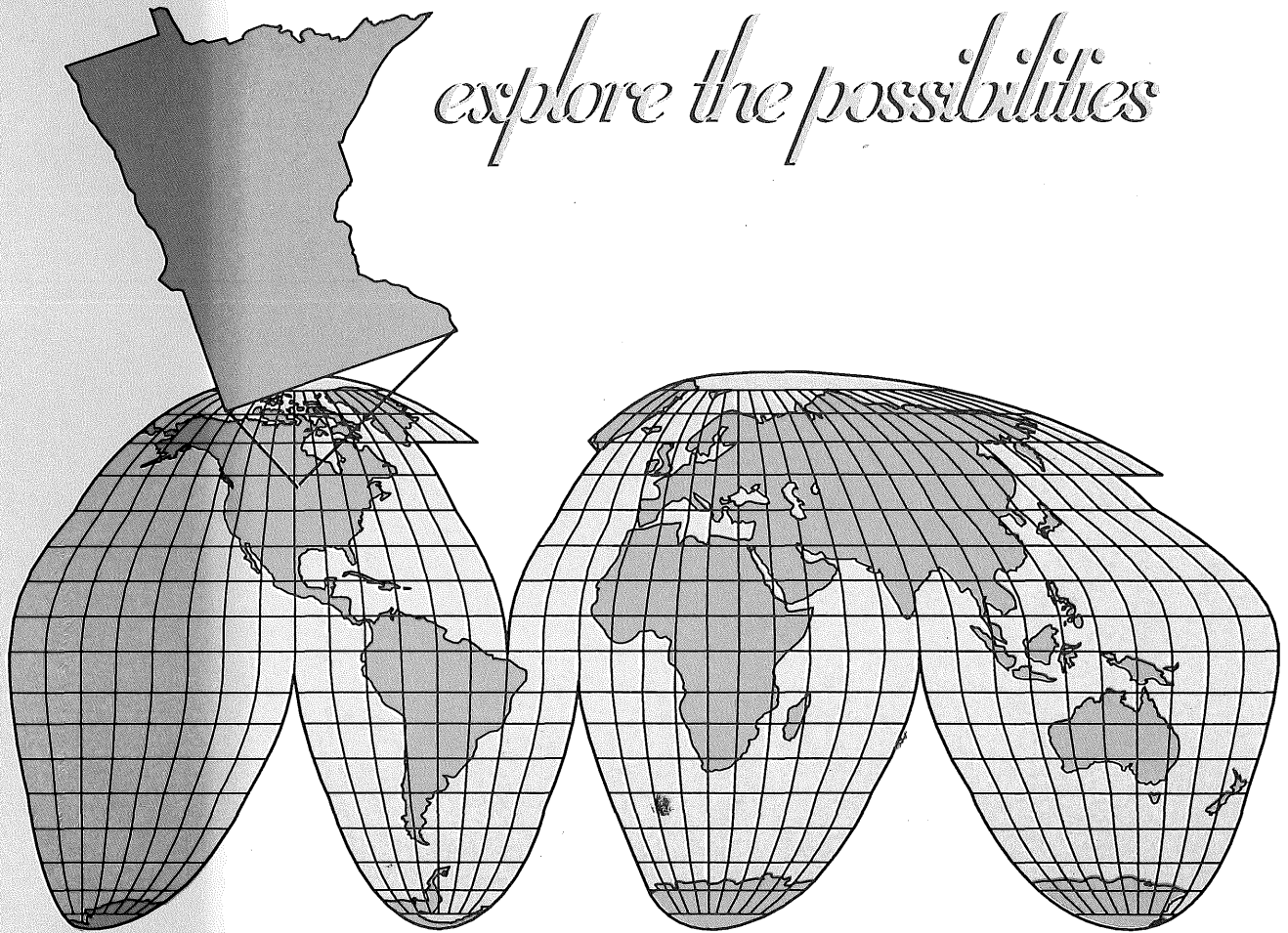
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Leasing State-Owned Non-Ferrous Metallic Mineral Rights in Minnesota



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Minnesota Department of Natural Resources
Division of Minerals
Mineral Leasing and Mineral Rights Management Section

March 1997



INTRODUCTION

The State of Minnesota has an active program of leasing state-owned lands for metallic minerals exploration. Minnesota has a mineral rights ownership base of over 12 million acres with excellent potential for base and precious metals.

The state-owned mineral rights are managed for the benefit of the schools, the university, local units of government and the public. The method used is an ecosystem-based management which focuses on three interacting dimensions: the economy, the social community, and the environment. The management philosophy of the Department of Natural Resources is expressed in its vision statement, which is as follows:

We will work with people to manage the state's diverse natural resources for a sustainable quality of life.

Minnesota's mineral policy is found in the Minnesota Constitution and the laws of the state. This body of law has evolved over a century of mineral exploration and development. In summary, the mineral policy of the state encourages environmentally sound development of mineral exploration and mining in this state. The state's environmental statutes are fair but tough.

The mineral policy of the state emphasizes low mining taxes. In 1987, the state repealed the existing occupation tax and replaced it with a tax calculated in the same manner as the corporate income tax. A net proceeds tax was enacted and applies to all minerals except iron ore and taconite. The rate of the net proceeds tax is 2% of the gross proceeds from mining less allowable deductions for mining costs.

The state metallic minerals leasing rules have been amended several times, most recently in 1995. The most recent amendments responded to requests for a royalty rate structure more in line with industry standards by establishing a royalty based on "net return" value of metallic minerals. The amendments also established a system which offers "preference rights leasing" through application.

Rules have also been adopted to regulate non-ferrous metallic mineral reclamation. The mineland reclamation rules assure that metallic mineral development in Minnesota will occur in an orderly manner and in an environmentally responsible atmosphere.

We encourage you to come and explore the possibilities for metallic minerals in Minnesota.



William C. Brice, Director
Division of Minerals

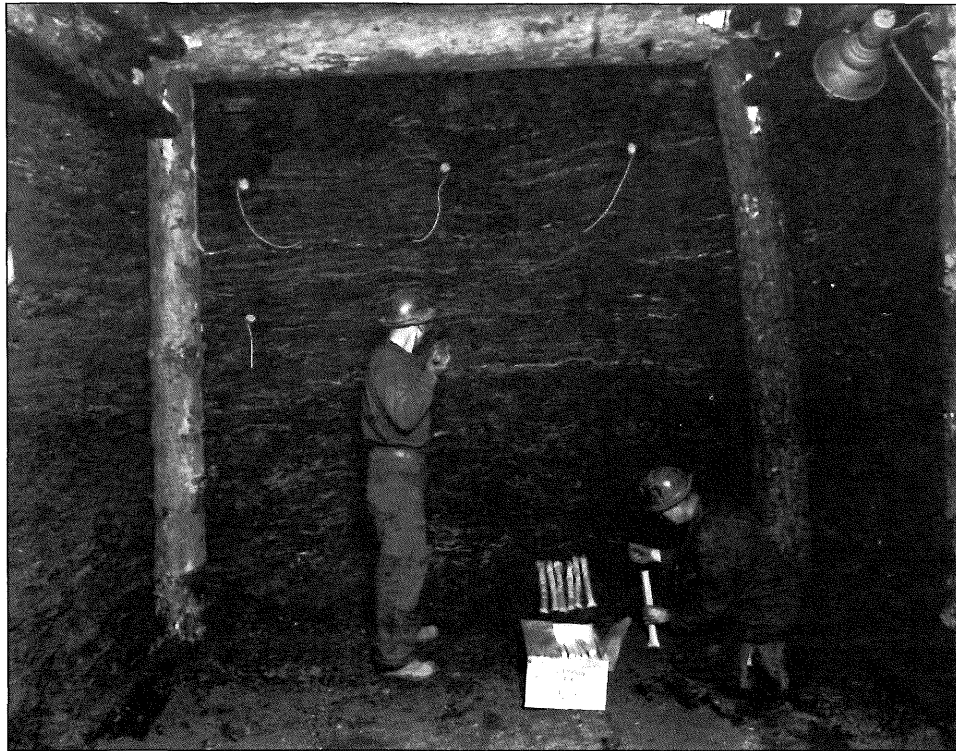


Photo: Minnesota Historical Society

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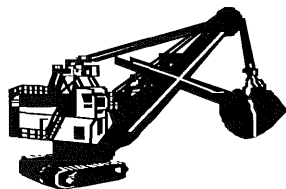




Photo: DNR, Larry Duke

A sample of iron ore from the Hopkins Mine, Cuyuna Range, Minnesota.

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LEASING STATE-OWNED LANDS FOR METALLIC MINERALS

The Basic Procedures

State metallic minerals leases are made available by three different methods: through public lease sale, by application through the preference rights leasing process, and through negotiation. The preference rights leasing process was added to the leasing program in 1995. Most leases are issued with a term of 50 years. Many of the lessees make their preliminary evaluation of the lease properties within five years of issuance and thereafter surrender the lease.

The State does not offer any prospecting permit independent of the lease. However, as an alternative to applying for a state lease, any party may apply for authorization to conduct geological data gathering activities on state-owned land. This authorization is referred to as a Regional Geological Reconnaissance Authorization (RGRA). Activities allowed under this authorization include geophysical and geochemical activities, sampling of glacial overburden, and the sampling and drilling of bedrock, provided that any drilling and sampling of bedrock is limited to a maximum penetration of 20 feet into bedrock. The authorization does not grant any rights to a mineral lease and is nonexclusive.

An applicant must meet certain qualifications before it can apply for or hold a state lease or an RGRA. The applicant must show that it has met certain minimum standards to qualify the applicant to do business in Minnesota. In addition, the applicant must be qualified to conduct exploratory borings in Minnesota by fulfilling the requirements of the Minnesota statutes regulating exploratory borings. The commissioner may also request additional evidence that the applicant is technically and financially capable of performing under the terms of the lease or RGRA and that the applicant has shown the capability to comply with environmental laws and permits. Such evidence may include a corporate report, an audited financial statement, resumes of corporate officers, and evidence of past compliance with environmental laws and permits in Minnesota or in other states or in other countries.

Public lease sales. The rules pertaining to the leasing procedures and containing the lease form are numbered Minnesota Rules, parts 6125.0100-.0700. (See pages 19 to 44 for the lease rules.) The rules authorize the Commissioner of Natural Resources to issue leases to explore for, mine and remove ores that are primarily valuable for their non-ferrous metallic minerals content.

The department holds lease sales regularly, usually on an annual basis. The first step in the process, which is at least eight months before the opening of bids, is a letter sent to those parties on the Division of Minerals mailing list that have expressed interest in a lease sale. The parties are asked to submit a list of areas they would like the department to consider offering at the next lease sale and given about six weeks to reply. (The requests submitted are classified under Minnesota law as confidential information for a period of three years from the sale date.)

The next step in the lease sale process is the department's preparation of a map showing the general areas under consideration for a lease sale. For example, in 1993 the State offered approximately 3.11 million acres of state-owned mineral rights for leasing in the counties of Aitkin, Beltrami, Carlton, Cass, Crow Wing, Itasca, Koochiching, Lake, Lake of the Woods, Marshall, Morrison, Norman, Otter Tail, Roseau and St. Louis. In 1995, the State offered approximately 1.78 million acres of state-owned mineral rights in thirteen of the same counties. The department also issues a notice of intent to hold a sale, which is published at least 90 days in advance of the bid opening.

After the map of the general areas under consideration is prepared, the department assembles data on the state's ownership of mineral rights in these areas. The department also requests and reviews input from various parties concerning the existing use of tracts within the general area under consideration. Through an environmental screening process, some state lands are excluded from the lease sale. Some lands are offered for lease with the exception of a special feature, and some lands are offered for lease with a certain special feature or use identified by the Commissioner. The Commissioner may require a lessee to adjust exploration plans or plans for construction of roads or trails due to special features or uses within the leased premises or due to other natural resource management concerns. The state does not offer all state-owned lands within the area under consideration, and no lands outside the area under consideration are offered.

The exact day of the lease sale, which is the day bids are opened, is announced at least thirty days in advance. The notice of sale is also published in local newspapers and some mining journals and newspapers. All parties on the Division of Minerals mailing list for the lease sale are also sent a copy of the notice.

At least thirty days before the lease sale date, the department will have prepared a mining unit book. The mining unit book will be available for purchase from our Saint Paul office, and will be available for inspection in our Saint Paul and Hibbing offices. The mining unit book is essential for the submission of bids since it lists the exact legal description of the lands being offered at the lease sale.

Bids must be submitted on forms obtained from the department. A separate bid is required for each mining unit, as identified in the mining unit book (the Commissioner of Natural Resources designates the land that makes up each mining unit, and the units usually vary in size from 40 to 640 acres). There are specified rental rates and a base royalty rate in the state lease. The bids submitted are an additional royalty rate above the base royalty rate.

The sealed application and bid forms must be received by the Commissioner before 4:30 p.m. on the last business day before the day specified for opening bids. All sealed bids submitted to the commissioner are preserved unopened until the lease sale date. At the time specified, the bids are opened by the Commissioner.

After the bids are opened and announced, the department reviews the bids and bidders for compliance with the bidding requirements. The department determines if the bidders have qualified to hold a lease as provided under the leasing rules. Within a month or two after the bid opening, the department will present its recommendations to the State Executive Council (the State Executive Council consists of the six constitutional officers of the state.) The leases are awarded by the Commissioner of Natural Resources, with the approval of the State Executive Council, to the highest bidder. However, no bid for less than the base royalty rates can be accepted and the state may reject any or all bids.

Preference rights leases (lease by application).

The Commissioner has established a list of mining rights available for leasing through application. Mining units may be included in the preference rights lease availability list if they do not contain an identified mineral resource and the area is not being explored by multiple parties.

Specific criteria for inclusion in the list are that the mining unit has been offered at a public metallic minerals lease sale after December 31, 1994 and within the last four years, the mining unit does not contain an identified mineral resource, state metallic minerals leases are not in effect within three miles of the mining unit (unless the leases are held by only one party), a state metallic minerals lease is not in effect for other lands in the same government section of lands as covered by the mining unit under consideration, and the mining unit is not within an area being offered at a current public metallic minerals lease sale (as identified through a published notice of intent to hold a public metallic minerals lease sale).

Parties may submit to the Commissioner suggestions of mining units to be considered for inclusion on the preference rights lease availability list. Prior to including selected mining units on the preference rights lease availability list, the Commissioner shall give public notice by publication in local newspapers and the State Register. The Commissioner may add mining units to the preference rights lease availability list only on the first business day of each month. The Commissioner may withdraw mining units from the list at any time and mining units shall be deemed withdrawn from the list without any further action by the Commissioner as soon as the mining units no longer meet the criteria to be included on the list.

Applications shall be submitted on a form obtained from the department. Applicants must submit with the application evidence that the applicant is qualified to hold a mineral lease as specified in the rules. Within ten days after receipt of an application, the Commissioner will send written acknowledgment that the application was received. The department will review the application during this time and the applicant will be advised if additional evidence is required.

Preference rights leases shall be awarded to the first qualified applicant who files an application that is not rejected under the leasing rules. Although there may be times when circumstances dictate that royalty rates for preference rights leases be higher than the base rate, it is intended that preference rights leases usually be issued at the base royalty rate. The availability of this type of lease without any additional bid rate is intended to be an incentive being offered to encourage exploration in areas of the State where there is not currently any active exploration interest.

Applications will be rejected if the application was not completed or signed, the application fee was not submitted, or if the applicant failed to submit evidence of qualification to hold a state lease (or failed to submit additional evidence within 45 days of receipt of a request for additional evidence). Prior to filing an application, any party may contact the Commissioner for information as to whether the circumstances necessary for a preference rights lease application exist as to the mining units the party is interested in for a lease. Any party may contact the Commissioner for a review of the party's qualification to hold a mineral lease. The preference rights lease availability list is available for inspection in our Saint Paul office.

Preference rights leases shall be awarded only with the approval of the State Executive Council.

Negotiated leases. Negotiated leases may be issued to an applicant qualified under the rules to hold a state lease when the Commissioner finds that the best interests of the State will be served and when certain circumstances exist. Generally, those circumstances are that it would be impractical to hold a public lease sale on a mining unit because of its location, size or extent of the state's interest in the minerals in the unit.

A negotiated lease will be considered when the State's mineral ownership interest in the lands to be leased is an undivided fractional interest and the applicant holds under control a majority of the remaining undivided fractional mineral interests in the lands to be leased. A negotiated lease may also be issued when the applicant holds a State metallic minerals lease covering other lands within the same government section of land or when the applicant holds, within one-half mile of the requested lands to be leased, a State metallic minerals lease or a private metallic minerals lease, and no other party holds a State metallic minerals lease covering land within the same government section of land where the requested lands to be leased are located. A negotiated lease will also be considered if the lands to be leased contain an identified mineral resource, and the applicant holds under its control the majority of the same type of minerals in the remaining lands containing the identified mineral resource.

The State may acquire additional mineral ownership in a government section where its mineral interests are held under a metallic minerals lease. Additionally, there may be identification by the State's active program of mineral rights ownership research or by other means of additional State mineral ownership not known at the time the State mineral ownership in that government section of land was leased. A negotiated lease may be applied for under these circumstances. If the negotiated lease is issued, and if there has been no new drilling or production since the State metallic minerals lease was issued, the royalty rate for the newly acquired or identified lands shall be the same as that contained in the State metallic minerals lease already held by the applicant.

The State Executive Council must approve the issuance of negotiated leases.

How to Obtain More Information

More information on the state's mineral leasing procedures is available from the Saint Paul office of the Division of Minerals. Please contact:

Kathy A. Lewis, Mineral Leasing Manager
Minnesota Department of Natural Resources
Division of Minerals
500 Lafayette Road
Saint Paul, Minnesota 55155-4045
(612) 296-4807

The Division of Minerals office in Hibbing has maps and reports on Minnesota's mineral resources, including drill core and exploration data from terminated state and private leases. This data is available for public inspection, with a period of confidentiality under state law covering a written report or other documentation of the private analyses of state-owned or controlled drill core.

To arrange a time for a visit to the Hibbing office or for more information, please contact:

Richard Ruhanen, Minerals Potential
Geologist
Minnesota Department of Natural Resources
Division of Minerals
1525 Third Avenue East
Hibbing, Minnesota 55746
(218) 262-6767

For general information from the Minnesota Department of Natural Resources, contact the DNR Information Center:

Twin Cities: (612) 296-6157
MN Toll Free: 1-800-766-6000
Telecommunication Device for the Deaf:
Twin Cities: (612) 296-5484
MN Toll Free: 1-800-657-3429



STATE OWNERSHIP OF MINERAL RIGHTS

Inquiries are often made concerning the extent of the state's ownership of mineral rights. While the federal, state and local governments own or control some surface and mineral rights in Minnesota, the vast amount of both interests remain privately held. Nevertheless, the State of Minnesota is the largest single owner of mineral rights in the state, owning approximately 24% of such mineral rights. The following is a brief summary of how the state acquired mineral rights.

Trust Fund Lands

Trust fund lands were deeded to the state directly from the federal government. The trust fund lands include school lands, swamp lands, internal improvement lands and university lands.

In 1857 the territory was authorized to form a constitution and was granted sections 16 and 36 in every township for the purpose of schools. The territory was also authorized to select alternative school lands where designated school sections had already been settled, cultivated or occupied as town sites. The total conveyance of school lands to Minnesota was about 2,956,000 acres.

In 1860 the U.S. Congress granted the state all the swamp and overflowed lands within its borders that had not been previously reserved or conveyed. The total conveyance of swamp lands to the state was about 4,461,000 acres.

Five hundred thousand acres were granted to the state in 1866 through recognition of the applicability of a 1841 federal law that granted a half million acres of land for purposes of internal improvements to new states upon admittance to the union.

The state also received, at the time it was admitted to the union, the ownership of the beds of navigable waters.

Acquired Lands

The State of Minnesota has also acquired lands through purchase, gift and forfeiture. In most instances, these lands have been first held in private ownership prior to ownership by the state.

Large acreages of lands have been acquired by the state through forfeiture for non-payment of general real estate taxes. The state receives title to tax forfeited lands and holds them in trust for local taxing districts. The acreage of tax forfeited lands in which the state owns the surface interests fluctuates due to new tax forfeitures, land sales and land transfers. There are currently almost three million acres of tax forfeited lands in which the state owns the surface interests in trust for the taxing districts.

Sizable acreages of mineral rights have been acquired by the state through forfeiture for non-payment of severed mineral interest taxes. (The severed mineral interests law is explained on page 11.) The state receives title to forfeited severed mineral interests and holds them in trust for local taxing districts. As of February 1996, thirty counties have completed forfeiture proceedings of severed mineral interests for non-payment of the severed mineral interest tax.

Another type of land acquired through tax forfeiture is known as consolidated conservation area land. By a series of legislative acts in 1929, 1931 and 1933, the state assumed payment of drainage ditch bonds that had been issued by seven northern counties (Aitkin, Beltrami, Koochiching, Lake of the Woods, Mahnommen, Marshall and Roseau). In return for the assumption of the bonds, which were facing default, the state received title to tax forfeited lands in areas defined by the laws.

The state has purchased certain lands from the federal government. These lands include Volstead lands and Land Utilization Project Lands.

The Minnesota Bureau of Rural Credit was established in 1924 to issue mortgage loans to farmers in an effort to bolster the troubled farm economy. Due to widespread agricultural depression, the Bureau acquired thousands of acres of land from foreclosures. Mineral rights were reserved to the state with subsequent sales of the land.

The state also acquires lands for parks, forest purposes, fish and wildlife management, public accesses and other public purposes.

Reservation of Mineral Rights

The state has followed a policy of reserving mineral rights when it sells land. This policy first arose in 1889 after the State Auditor refused to sell lands in the iron range areas without first reserving mineral rights. The legislature, in 1889, made it discretionary as to reserving mineral rights upon the sale of state trust fund lands in the counties of Cook, Lake and St. Louis. This reservation became mandatory in 1901 for the sale of trust fund lands in all counties.

The policy of reserving mineral rights was subsequently extended to other lands owned by the state. It is required that mineral rights also be reserved whenever the state sells tax forfeited lands, consolidated conservation area lands, state surplus lands and other state lands.



SEVERED MINERAL INTERESTS

The Minnesota Supreme Court and other courts in the country recognize that mineral rights may be owned separately from the surface interest. It is therefore possible to sell land and reserve minerals, or sell minerals and reserve the surface interest. Once severed, mineral rights become a type of real property that may be sold or inherited, in the same manner as other real estate, independently of the ownership of the surface of the land.

Over the years the ownership of severed minerals had quite often become very obscure and fractionalized. Some interests remaining in families for generations had been divided among so many descendants of the original party to the severance that their fractional interests had become extremely small. It had also been quite common for the conveyance of severed mineral interests to go unrecorded, causing the obscure ownership to require expensive title searches.

The prohibitive expense of title searches necessary to determine ownership of these fractional interests made taxation difficult. Taxing authorities were also frustrated in their attempts to tax severed mineral interests because of the difficulty of assigning taxable value to those interests. As a result, severed mineral interests became a class of real property that, for practical purposes, were not taxed even though the value of the minerals sometimes exceeded the surface value of the land.

The Minnesota Legislature addressed these issues through the Severed Mineral Interests Law.¹ This law requires owners of severed mineral interests to register their interests with the office of the county recorder or, if registered property, in the registrar of titles' office of the county in which the interests are located. Such severed mineral interest statements were to have been made either by January 1, 1975, for interests owned on or before December 31, 1973, or within one year of acquisition as to interests acquired thereafter.

Severed mineral interests are taxed.² The annual rate of taxation is \$0.40 per acre or portion of an acre. If the severed mineral interest tax is not paid, the severed mineral interest will forfeit to the state in trust for the local taxing districts. The appropriate county auditor completes the forfeiture actions for nonpayment of severed mineral interest taxes.

If the mineral interest owner does not file the severed mineral interest statement within the time deadline provided by law, the mineral interest will forfeit to the state after notice and opportunity for hearing.³ The Commissioner of Natural Resources notifies the last owner of record on file in the county recorder's or registrar of titles' office of a hearing in which the court will be requested to enter an order adjudging absolute forfeiture of the mineral interest to the state.

¹This law was originally enacted in 1969 and was amended in 1973, 1979 and 1988. The severed mineral interests registration provisions are presently coded in Minn. Stat., secs. 93.52-.58. The taxing provisions are presently coded in Minn. Stat., secs. 273.165, 272.039, and 272.04, subd. 1.

²This tax was ruled constitutional by the Minnesota Supreme Court in its decision in the case of *Contos, U.S. Steel Corp., et al v. Herbst, et al*, 278 N.W.2d 732 (MN 1979); rehearing denied March 13, 1979; appeal dismissed October 30, 1979, 100 U.S. Sup.Ct. 24.

³The Minnesota Supreme Court, in *Contos v. Herbst* cited in footnote 2, also upheld the forfeiture penalty for failure to timely file a statement of severed mineral ownership, but held that the procedures attending the forfeiture provisions for failure to timely register a severed mineral interest violated constitutional requirements of due process because the notice provisions were inadequate and the mineral owner was denied the opportunity for a hearing prior to forfeiture. The severed mineral interests law was amended in 1979 to comply with the Minnesota Supreme Court's decision.

The owner, to avoid forfeiture, must prove to the court that the severed mineral interests taxes were timely paid and that the county records specified the true ownership, or, in the alternative, that procedures affecting the title of the interest had been timely initiated and pursued by the true owner during the time when the interest should have been registered.

The 1988 Minnesota Legislature adopted a law amending and supplementing the severed minerals interest law. This law⁴ authorizes the Commissioner of Natural Resources to lease severed mineral interests that were not registered or were not timely registered. State lessees are allowed to conduct exploration activities, but they are not allowed to mine the property until the severed mineral interest forfeiture proceedings are completed. This law frees up more lands for exploration, while retaining the court hearing on forfeiture for failure to register a severed mineral interest statement as required under the law.

The severed mineral interests law has aided mineral exploration by the identification of mineral rights owners. It has also resulted in owners of mineral interests being required to pay a minimal tax on such interests rather than avoiding taxation.

⁴Minn. Stat., sec 93.55, subds. 1, 1a, and 3.



UNDISCOVERED METALLIC MINERAL RESOURCES

There are five general Precambrian geologic terranes in Minnesota. Elsewhere in the world such Precambrian terranes have yielded significant mineral wealth. The large extent in Minnesota of these prospective geologic terranes strongly supports the statement that undiscovered world-class metallic mineral deposits probably exist in Minnesota.

In comparison to many other easily accessible regions of the world, relatively little modern exploration has occurred in Minnesota. Therefore, the opportunity remains for successful discovery of economically viable deposits (high grade, large tonnage, near-to-bedrock surface, or a cluster of ore-bodies). For example, neighboring Ontario provides many cases of clusters of valuable ore bodies within the Archean Superior geologic province. This geologic terrane underlies almost half of the land area of Minnesota.

Adequate mineral lands are available for exploration in Minnesota. The greatest challenge to the explorer lies in conducting exploration in this glaciated terrane, where the bedrock and ore deposits are buried. Bedrock outcrops occur over only a small percentage of the total land area, and the remaining geology is obscured by 10 to 150 meters of glacial drift.

Much information pertinent to metallic mineral exploration in Minnesota is already available. The available sources of geologic information include geologic maps and samples of bedrock cores including cuttings and thin sections. Also available are assessment files from terminated exploration leases, including assays, geochemical and geophysical data. There are numerous published reference articles written by knowledgeable people, including theses, and other reference materials including maps, government reports, and unpublished digital computer data. One example of the kind of information available is the statewide coverage of high resolution aeromagnetic data (see Figure 1). Another source of information is the State drill core library in Hibbing which contains

over 2 million linear feet of bedrock core and cuttings, indexed by geographic location. There are lithologic logs and chemical analyses for thousands of the drill core. Some samples have not been examined for decades, and may contain valuable exploration clues. These samples are available within a modern facility for inspection by geologists. Amenities at the facility include access to binocular and petrographic microscopes, and a small library of economic geology references.

The possibility exists for discovery of metallic mineral resources within the context of the five most prospective Precambrian geologic terranes. The following paragraphs describe these terranes and give terrane age, geologic environment, and a list of metals which might be found in the terrane. The metals listed are those that reasonably match appropriate ore deposit models. For most models, there are known ore mineral occurrences in Minnesota to support the model.

The oldest terrane occurs in southwestern Minnesota (see Figure 2, Early to Middle Archean map unit). The age of this terrane is Middle Archean, about 3,600 million years ago (m.y.). The terrane is composed of granitic gneiss, gneissic amphibolite, and lesser metagabbro and metasedimentary gneiss. It was metamorphosed at 3,050 m.y., and 2,600 m.y., and intruded by igneous rocks at 2,600 m.y., 1,800 m.y. and 1,700 m.y. Thus, this terrane remained tectonically active over a long time span into the middle of the Proterozoic era (a time span of approximately 1,700 m.y.). Little is known about the geology of this terrane beyond the exposures along the Minnesota River Valley. Based on crude analogies, there are models for deposits of gold, silver, platinum group elements, copper, nickel, cobalt, iron and zinc. Although there is very little hard data for this terrane, it is known that significant laterite-type paleoweathering deposits blanket parts of this large area. It is possible that primary deposits of gold, silver, platinum group elements, copper, iron and nickel may be overlain by a

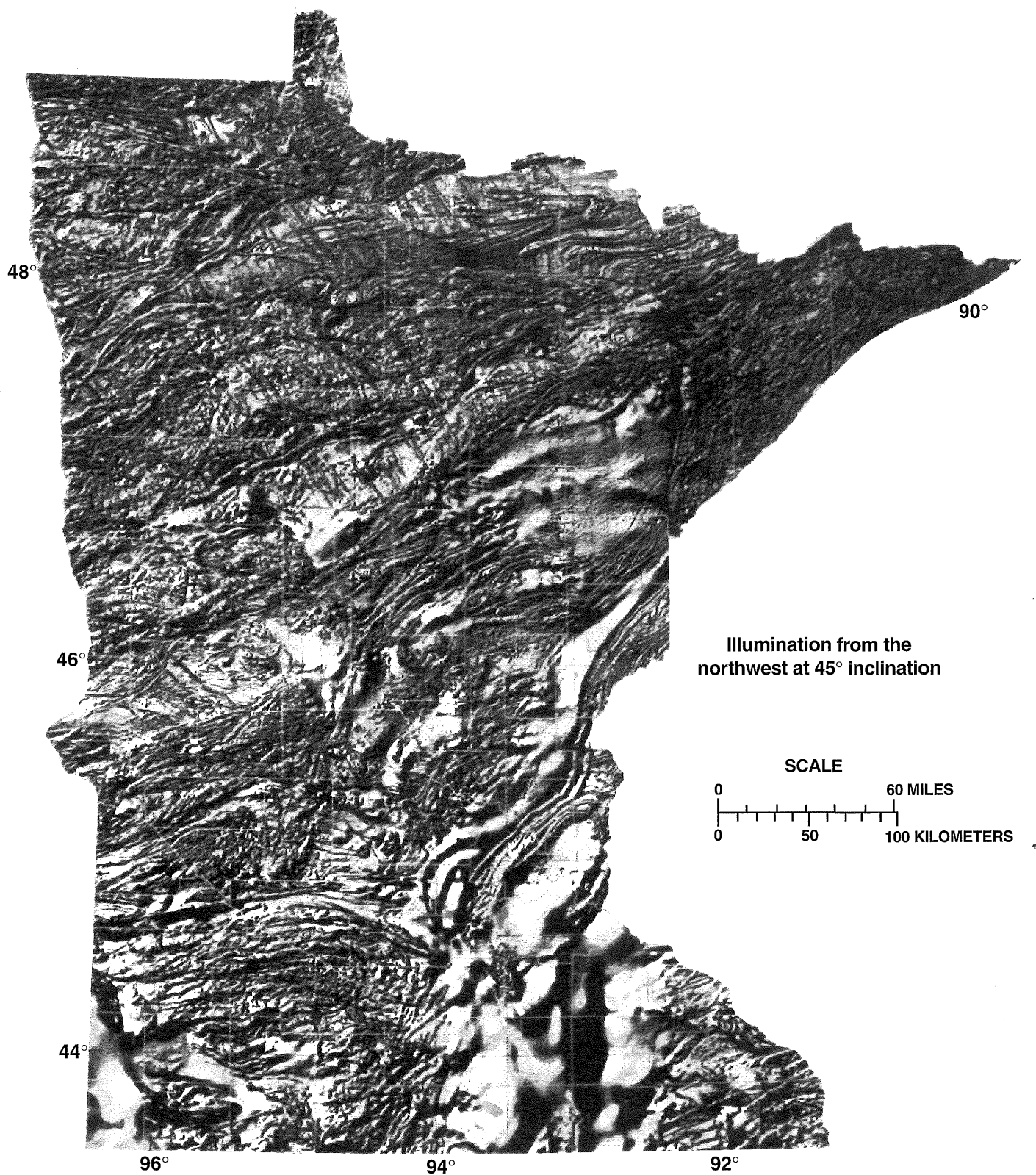


Figure 1. This shaded-relief aeromagnetic image of Minnesota is computer generated from data collected in an airborne aeromagnetic survey. The map has no relation to ground topography. Peaks correspond to areas of higher magnetism. Valleys correspond to areas of lesser magnetism. Minnesota Geological Survey.

GENERALIZED GEOLOGIC MAP OF MINNESOTA

University of Minnesota
Minnesota Geological Survey
D. L. Southwick, Director

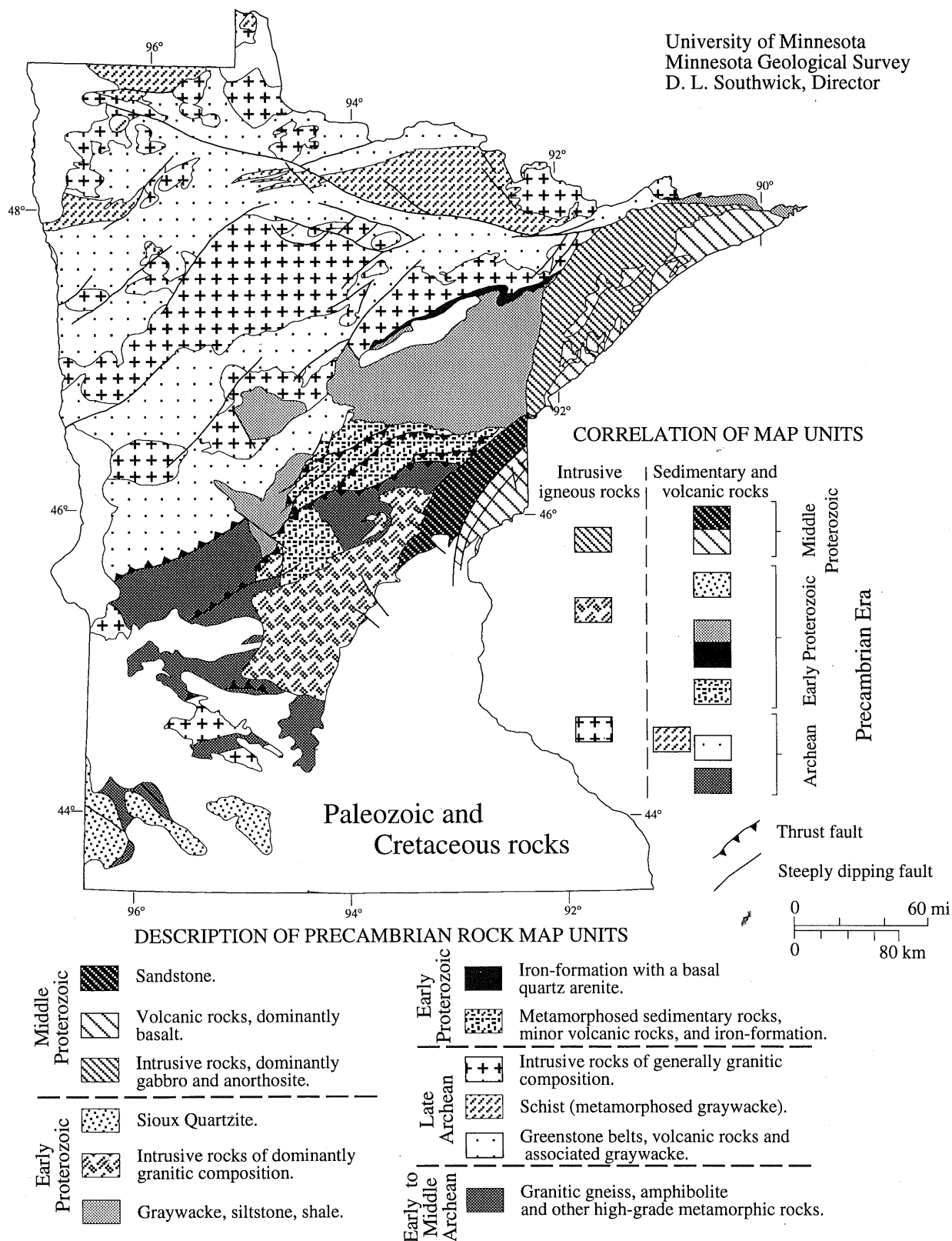


Figure 2. This simplified schematic geologic map shows the general distribution of Precambrian rock types underlying Minnesota. The colorless areas are places where Precambrian rocks are covered by Phanerozoic sedimentary rocks. Minnesota Geological Survey.

weathered zone with enriched grade deposits or deposits with other factors which could increase the value of the deposits. Very little exploration has occurred here, except for recent kaolin exploration.

The second terrane, an extension of the Late Archean Superior Province, occurs in northern Minnesota (see Figure 2, all Late Archean map units). The age of this Late Archean terrane is about 2,600 m.y. to 2,750 m.y. In contrast to the older gneiss terrane, a large volume of data is available for this terrane. The terrane is referred to as greenstone-granite terrane. It is composed of deformed volcanic rocks, associated metasedimentary rocks, and granitoid plutonic rocks. Structural evidence indicates that this terrane has not been tectonically active since the major cratonization event at the end of the Late Archean. Based upon good analogies, there are models for deposits of gold, silver, copper, zinc, lead, nickel, chromium, molybdenum, tantalum, niobium, beryllium, rare earth elements, uranium, tungsten, platinum group elements, titanium, diamonds, and iron. Factors which create opportunities for grassroots exploration programs in this terrane include known auriferous deformation zones, complete volcanic sequences and alteration zones to explore, and geochemical and geophysical anomalies which are known from terminated exploration reports and government reports. It is also possible that, in the western half of the state, high grade supergene enrichment zones may occur in preserved weathering profiles.

The third terrane, one part of the Early Proterozoic terrane here, occurs in central Minnesota (see Figure 2, all Early Proterozoic map units except Sioux Quartzite). Its age is about 2,200 m.y. to 1,770 m.y. Here, the terrane is part of the larger Penokean orogen. It is composed of two tectonic zones, a stable foreland basin and a fold-thrust belt. This terrane overlies the Great Lakes Tectonic Zone, an Archean crustal boundary between the greenstone-granite terrane to the north and the older gneiss terrane to the south. The foreland basin is composed mostly of clastic sedimentary rocks and Lake Superior type iron formations. The fold-thrust belt is composed of volcanic rocks, clastic and chemical sediments with Algoma-type iron formations, granitoid

intrusions, and Archean gneisses. This terrane includes the current iron mining region of the Mesabi Range and the historic manganese mining region of the Cuyuna Range. Recent studies by the Minnesota Geological Survey have found that the manganese mineralization is the result of large scale hydrothermal alteration activity beneath an ancient sea floor. Volumes of data and hundreds of drill core from this district need to be re-evaluated in terms of base metal ore deposit models. Additionally, there are models for deposits of gold, silver, nickel, cobalt, bismuth, platinum group elements, uranium, tin, tungsten, tantalum, niobium, beryllium, rare earth elements, titanium, and iron. Numerous ore mineral occurrences from drill core samples have only recently been published.

The fourth terrane, also Early Proterozoic, occurs in southern and southwestern Minnesota (see Figure 2, Sioux Quartzite map unit). The age of the Sioux Quartzite is between 1,600 m.y. and 1,725 m.y. This terrane is composed of quartzite and lesser metamudstone and metaconglomerate. Evidence from Iowa indicates that felsic volcaniclastic rocks make up an increasing component to the south. There are models for deposits of uranium and gold.

The fifth Precambrian terrane, the Middle Proterozoic, occurs in northeast Minnesota (See Figure 2, all Middle Proterozoic map units). The major geologic feature located in Minnesota which is associated with this terrane is the Mid Continent Rift System. The age of the Mid Continent Rift is 1,100 m.y. The Rift is composed of layered intrusive and extrusive rocks of dominantly mafic composition, and clastic sedimentary rocks. Fault activity associated with this rift was active intermittently into the Phanerozoic. There are models for deposits of copper, nickel, platinum group elements, gold, silver, titanium, vanadium, cobalt, and chromium in this terrane. Moreover, in Minnesota and within this terrane are 13 significant known prospects for copper and nickel deposits, one prospect for platinum group elements, and 10 or more prospects for titanium.

The other three younger geologic terranes found in Minnesota, the Paleozoic rocks, the Mesozoic rocks, and the Quaternary deposits, have an impact upon the exploration for metallic minerals, but contain lesser potential for metallic mineral deposits than the Precambrian terranes.

The Paleozoic terrane occurs in southeastern and northwestern Minnesota. It includes sediments of Cambrian, Ordovician, and Devonian age (See Figure 2). It is composed mainly of sandstone, limestone, dolostone, and shale. There are models for deposits of lead, zinc, copper, and iron. In southeastern Minnesota, there are occurrences of Mississippi Valley type lead and zinc deposits, but no significant historic quantities nor production. There is significant outcrop exposure of this terrane within southeastern Minnesota.

The Mesozoic terrane is scattered across southwestern, northwestern, central, and north central Minnesota. It includes sediments of Jurassic and Cretaceous age (See Figure 2). It is composed mainly of mudstone, siltstone, red shale and a thick weathering mantle. There are ore deposit models for manganese, aluminum, kaolin, and gold in this terrane.

The Quaternary deposits occur across all of Minnesota, with a wide variation in thickness, type, and stratigraphy. These include many types of unconsolidated sediments, including glacial deposits, loess, colluvium, alluvium, and peat. There are ore deposit models in this terrane for placer gold and platinum group elements.

In summary, there is a large land area in Minnesota underlain by Precambrian bedrock of the type that has yielded significant metallic mineral deposits when explored elsewhere in the world. The State of Minnesota offers for lease the metallic mineral rights from many of the most attractive areas for exploration. The State further makes available a significant body of information pertinent to exploration, including samples, assessment files with assays, and maps. In view of the fact that relatively little modern exploration has occurred in the state, a good opportunity remains for successful discovery of an economically viable metallic mineral deposit in Minnesota.



STATE METALLIC MINERALS LEASE RULES

Overview of Lease Rules

Minnesota Rules, parts 6125.0100-.0700 govern the issuance of state leases covering state-owned land for metallic minerals exploration and development. The rules were adopted by the Commissioner of Natural Resources and approved by the State Executive Council on November 8, 1966. The first amendments to the rules became effective on September 7, 1982. Further amendments to the rules became effective May 23, 1988, and June 26, 1995.

The 1995 amendments included: simplification and reduction in the royalty rates, the adoption of a new method of determining ore value, and exploration plan review.

The lease rules describe the procedures for the issuance of leases and contain the lease form.

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LEASES FOR METALLIC MINERALS, EXCEPT IRON ORES AND TACONITE ORES

6125.0100 PURPOSE

The purpose of parts 6125.0100 to 6125.0700 is to promote and regulate exploration for, mining, and removing ores that are primarily valuable for their metallic minerals content, and the rules hereunder shall be construed to carry out that purpose.

6125.0200 DEFINITIONS

Subpart 1. **Scope of terms.** For purposes of parts 6125.0100 to 6125.0700, the following words have the meanings given them.

Subp. 1a. **Associated mineral products.** “Associated mineral products” means those intermingled or associated materials and substances recovered from each ton of crude ore mined from the mining unit that are excluded from the definition of metallic minerals.

Subp. 2. **Commissioner.** “Commissioner” means the commissioner of natural resources of the state of Minnesota, or the commissioner’s designated representative.

Subp. 2a. **Metallic minerals.** “Metallic minerals,” whether singular or plural, means any mineral substances of a metalliferous nature, except iron ores and taconite ores.

Subp. 3. **Mining unit.** “Mining unit” means the land and water area designated as such by the commissioner, wherein the state owns an interest in the minerals and mineral rights.

Subp. 4. **Ton.** “Ton” means 2,000 pounds avoirdupois after removal of all free moisture from the material weighed, by drying at 212 degrees Fahrenheit.

Subp. 5. **Troy ounce.** “Troy ounce” means a unit of mass equal to 480 grains or 31.1035 grams or 1.0971 avoirdupois ounces.

6125.0400 LEASES

The commissioner, with the approval of the state executive council, may issue leases to explore for, mine, and remove metallic minerals on lands where an interest in the minerals is owned by the state, including trust fund lands, land forfeited for nonpayment of taxes and held in trust by the state, lands where severed mineral interests have forfeited under Minnesota Statutes, section 93.55, lands where severed mineral interests have been otherwise acquired, lands where severed mineral interests may be leased by the commissioner under Minnesota Statutes, section 93.55, subdivisions 1a and 3, the beds of public waters, and lands otherwise acquired that have been designated by the commissioner as mining units. Each lease shall cover one mining unit. No lease shall be issued for a term longer than 50 years.

6125.0410 QUALIFICATIONS TO HOLD LEASE AND AUTHORIZATION TO CONDUCT GEOLOGICAL DATA GATHERING ACTIVITIES

The right to apply for, acquire and hold a lease to prospect for, mine and remove metallic minerals owned by the state, and the right to apply for and to hold an authorization to conduct geological data gathering activities are subject to items A and B:

A. The applicant is qualified to do business in Minnesota as shown by:

- (1) If a corporation organized under the laws of Minnesota, a Certificate of Incorporation from the Secretary of State's office;
- (2) If a corporation organized under the laws of any state other than Minnesota or another country, a Certificate of Authority to Transact Business in Minnesota from the Secretary of State's office;
- (3) If a limited partnership, a Certificate of Limited Partnership from the Secretary of State's office;
- (4) If an individual, proof of United States citizenship and of legal age; or
- (5) If a general partnership or other business entity, evidence that the general partners or individuals controlling the business entity meet the requirements listed above in this part.

B. The applicant is qualified to conduct exploratory borings in Minnesota by fulfilling the requirements of Minnesota Statutes, section 103I.601, subdivision 3.

The commissioner may request additional evidence that the applicant is technically and financially capable of performing under the terms of a state minerals lease or an authorization to conduct geological data gathering activities and that the applicant has shown the capability to comply with environmental laws and permits. Such evidence may include but is not limited to a corporate report, an audited financial statement, resumes of corporate officers and evidence of past compliance with environmental laws and permits in this or other states or in other countries. If such evidence is requested, the applicant must submit the evidence within 45 days of receipt of the request.

6125.0420 NOTICES OF PUBLIC LEASE SALES, NEGOTIATED LEASES AND PREFERENCE RIGHTS LEASE

The commissioner shall maintain a list of all persons who have registered with the department for the purpose of receiving notices of public lease sales, the filing of applications for negotiated leases and notices of intent to offer lands available through preference rights leasing. The department may inquire as to whether those persons on the list wish to maintain their names thereon and may remove names for which there is a negative reply or no reply within 60 days.

When the commissioner publishes a notice under 6125.0500, subp. 1, 6125.0610, subp. 2 or receives an application under 6125.0600, a copy of the notice or application shall be sent to all persons registered with the department to receive the notices.

6125.0500 PUBLIC SALE OF LEASES

Subpart 1. **Time, place, and notice.** Except as otherwise expressly provided by law, or as otherwise provided in parts 6125.0600 and 6125.0610, leases to explore for, mine, and remove metallic minerals owned by the state shall be issued only upon public sale authorized by the commissioner.

The public sale of leases shall be held at such times and places as may be designated by the commissioner. The commissioner shall give public notice of intent to hold a public sale by publication in the State Register and the EQB Monitor and such other publications as the commissioner may direct at least 90 days prior to the proposed date of sale. The commissioner shall give public notice of each sale by publication for three successive weeks in a qualified newspaper that has its known office of issue in the county seat of the county in which the mining units to be leased are located. If no qualified newspaper has its known office of issue in the county seat of a particular county, then notice must be published in the qualified newspaper designated as the publisher of the official proceedings of the county board of that county. The first publication shall be at least 30 days before the date of sale. Like notice shall be published in the State Register and the EQB Monitor and may be published in additional newspapers and trade magazines as the commissioner may direct. Each notice shall contain the following information:

- A. time and place of holding the sale;
- B. the place or places where the list of mining units to be offered for sale will be available for purchase or inspection, and where bid forms may be obtained; and
- C. such other information as the commissioner may direct.

Subp. 2. **Mining unit books.** Those interested in obtaining a copy of the mining unit book may obtain one by submitting a request to the commissioner. The request must be accompanied by a check or money order, payable to the Department of Natural Resources, in the amount specified by the commissioner, based on copying and mailing costs, as a fee for a mining unit book. Unit books will be available for inspection at the Hibbing and Saint Paul offices of the Division of Minerals, Department of Natural Resources.

Subp. 3. **Bids.** Bids shall be submitted on a form obtained from the commissioner. The bid form must require identification of which mining units, as designated in the mining unit book, are being bid upon. The bid form will also require identification of the additional bid royalty rate offered for each mining unit being bid upon. Each bid form must be accompanied by a certified check, cashier's check or bank money order, payable to the Department of Natural Resources, in the sum of the following amounts:

- A. An application fee of \$100.00 for each mining unit being bid upon; and
- B. Rental for one full calendar year for each mining unit being bid upon. For the purposes of the bid, the rental is calculated at \$1.50 per acre times the gross acreage of the lands offered for lease. The remaining rentals, due at the time the lease is issued, shall be due upon the effective date of the lease.

The bid form, together with the certified check, cashier's check, or bank money order, shall be submitted in a sealed envelope marked CONFIDENTIAL—BIDS FOR STATE MINERAL LEASES. Each sealed bid envelope shall be delivered in person or by mail to the commissioner at Saint Paul, Minnesota. Bids may be submitted at any time before 4:30 p.m., Saint Paul, Minnesota time, on the last business day before the day specified for the opening of the bids, and no bids submitted after that time shall be considered. Upon receipt, the commissioner shall endorse upon each sealed bid envelope the exact time of presentation and preserve the same, unopened in the commissioner's office.

At the time specified, the commissioner shall then publicly open the bids and announce the amount of each bid separately. The commissioner shall request each high bidder to provide evidence the bidder is qualified to hold state mineral leases pursuant to part 6125.0410. The evidence must be provided within 45 days of the request from the commissioner or the bids from that high bidder will be rejected.

Subp. 4. Issuance of Leases. Leases shall be awarded by the commissioner, with the approval of the state executive council, to the highest bidder for the respective mining units, but no bids shall be accepted that do not equal or exceed the base royalty rates in part 6125.0700. The right is reserved to the state, through the executive council, to reject any or all bids. Tie bids will be resolved by the commissioner, with the approval of the state executive council, by the random drawing of the name of one tied bidder from a pool comprised of the names of all the tied bidders. Upon the award of a lease, the application fee submitted with the bid shall be deposited with the state treasurer as a fee for the lease. All bids not accepted shall become void, and the application fee and rental payment accompanying the bids shall be returned to the respective bidders; provided, however, the application fee and rental payment accompanying a bid shall not be returned if the bidder was the high bidder and subsequently withdraws its bid prior to the awarding of a lease.

6125.0600 NEGOTIATED LEASES.

Subp. 1. Purpose and eligibility for negotiated leases. When the commissioner finds that the best interests of the state will be served and the circumstances in this subpart exist, the commissioner, with the approval of the executive council, may issue a lease to explore for, mine, and remove metallic minerals through negotiations to an applicant qualified under part 6125.0410.

A lease may be issued through negotiations under any of the following circumstances:

- A. The state's mineral ownership interest in the lands to be leased is an undivided fractional interest and the applicant holds under control a majority of the remaining undivided fractional metallic mineral interests in the lands to be leased;
- B. The applicant holds a state metallic mineral lease covering other lands within the same government section of land;
- C. The applicant holds, within one half mile of the requested lands to be leased, a state metallic minerals lease or a private metallic minerals lease and no other party holds a state metallic minerals lease covering land within the same government section of land where the requested lands to be leased are located; or
- D. The lands to be leased contain an identified mineral resource, and the applicant holds under its control the majority of the same type of minerals in the remaining lands containing the identified mineral resource.

Subp. 2. **After acquired or later identified state mineral ownership.** The state may acquire additional mineral ownership in a government section where its mineral interests are held under a metallic minerals lease or there may be identification of additional state mineral ownership not known at the time the state mineral ownership in that government section of land was leased. When an applicant applies for a negotiated lease under these circumstances and the commissioner determines it is in the best interest of the state to issue a negotiated lease to the applicant, the royalty rate for the newly acquired or identified lands shall be the same as that contained in the state mineral lease held by the applicant if there has been no new drilling or production since the state metallic mineral lease was issued under parts 6125.0100 through 6125.0700.

Subp. 3. **Application for negotiated lease.** Application for a negotiated lease shall be submitted on a form obtained from the commissioner and shall contain information as the commissioner may prescribe. The applicant shall submit with the application a certified check, cashier's check, or bank money order, payable to the Department of Natural Resources in the sum of \$100 as a fee for filing the application. The application fee will not be refunded under any circumstances.

The right is reserved to the state to reject any or all applications for negotiated leases.

Subp. 4. **Issuance of lease.** The leases so issued shall be in the form set forth in part 6125.0700, with such additional terms and conditions consistent with the lease as may be agreed upon. The rental and royalty rates agreed upon shall be not less than those prescribed in part 6125.0700.

No lease shall be issued under this part for the removal of metallic minerals from any mining unit for which notice of public sale has been published, until the public sale has been held.

6125.0610 PREFERENCE RIGHTS LEASES

Subp. 1. **Purpose.** When the commissioner determines the best interests of the state will be served, the commissioner may establish a list of mining units available for preference rights leasing through application. Mining units may only be included in the preference rights lease availability list if they do not contain an identified mineral resource and the area is not being explored by multiple parties.

Subp. 2. **Compilation of Preference Rights Lease Availability List.** Mining units may be included in a preference rights lease availability list only if they meet all of the following criteria:

- A. The mining unit has been offered at a public metallic minerals lease sale held under parts 6125.0100 to 6125.0700 from and after December 31, 1994;
- B. The mining unit has been offered at a public metallic minerals lease sale held under parts 6125.0100 to 6125.0700 within the last four years;
- C. The mining unit does not contain an identified mineral resource;
- D. State metallic minerals leases are not in effect within three miles of the mining unit, unless the state metallic mineral leases are held by only one party;
- E. A state metallic minerals lease is not in effect for other lands in the same government section of lands as covered by the mining unit under consideration; and
- F. The mining unit is not within an area being offered at a public metallic minerals lease sale, as identified through a published notice of intent to hold a public metallic minerals lease sale.

Parties may submit to the commissioner suggestions of mining units to be considered for inclusion on the preference rights lease availability list.

Prior to including selected mining units on the preference rights lease availability list, the commissioner shall give public notice of intent to offer mining units available through preference rights leasing. The public notice shall be published in the State Register, the EQB Monitor, and a qualified newspaper that has its known office of issue in the county seat of the county in which the mining units to be included on the preference rights availability list are located. If no qualified newspaper has its known office of issue in the county seat of a particular county, then notice must be published in the qualified newspaper designated as the publisher of the official proceedings of the county board of that county. Like notice may be published in other publications as the commissioner may direct. The notice shall be published at least 30 days prior to including the selected mining units on the preference rights lease availability list.

The commissioner may add mining units to the preference rights lease availability list only on the first business day of each month. The commissioner may withdraw mining units from the preference rights lease availability list at any time. Mining units shall be deemed withdrawn from the preference rights lease availability list without any further action by the commissioner as soon as the mining units no longer meet the criteria to be included on the list.

A written record will be maintained of the date and time of all additions and withdrawals from the preference rights lease availability list.

Subp. 3. Preference Rights Lease Availability List. The preference rights lease availability list must be maintained and available for inspection in the office of the Division of Minerals, Department of Natural Resources, 500 Lafayette Road, Saint Paul, Minnesota 55155-4045.

Those interested in obtaining a copy of the preference rights lease availability list may obtain one by submitting a request to the commissioner. The commissioner shall charge a fee for each copy of the list based on copying and mailing costs.

Subp. 4. Application for Preference Rights Lease.

Application for a preference rights lease shall be submitted on a form obtained from the commissioner and shall contain information as the commissioner may prescribe. The applicant shall submit with the application evidence that it is qualified to hold a mineral lease as specified in part 6125.0410. The applicant shall submit with the application a certified check, cashier's check, or bank money order, payable to the Department of Natural Resources, in the sum of the following amounts:

- A. An application fee of \$100.00 for each mining unit for which a preference rights lease is requested; and
- B. Rental for one full calendar year for each mining unit for which a preference rights lease is requested. For the purposes of this payment, rental is calculated at \$1.50 per acre times the gross acreage of the lands for which a preference right lease is requested. The remaining rentals, due at the time the lease is issued, shall be due upon the effective date of the lease.

If the application for a preference rights lease is rejected, the rental payment accompanying the application shall be returned to the applicant. The application fee will not be refunded under any circumstances.

Applications may be submitted in person or by mail to the office of the Division of Minerals, Department of Natural Resources, 500 Lafayette Road, Saint Paul, Minnesota 55155-4045. Applications will only be accepted during the hours of 8:30 a.m. to 4:00 p.m. on regularly scheduled business days. Applications received at any other time will not be officially accepted until the next regularly scheduled business day, and the commissioner assumes no responsibility for applications submitted in person at any time other than the time specified in this subpart. Applications will not be accepted by facsimile transmission.

Subp. 5. Commissioner's Review of Application. Within 10 days after receipt of an application, the commissioner will send written acknowledgment that the application was received. The commissioner must review the application to determine if:

- A. The application was completed and signed;
- B. The application fee was submitted; and
- C. Evidence of qualification to hold a state lease, as specified in part 6125.0410, was submitted.

The applicant must also be advised if additional evidence is required by the commissioner to determine if the applicant is qualified to hold a state lease as specified in part 6125.0410.

Subp. 6. Rejection of Application. Applications for preference rights leases will be rejected by the commissioner under the following circumstances:

- A. The application was not completed or signed;
- B. The application fee was not submitted;
- C. The applicant failed to submit evidence of qualification to hold a state lease as specified in part 6125.0410; or the applicant failed to submit additional evidence, within 45 days of receipt of the commissioner's request, as to qualification to hold a state lease as specified in part 6125.0410;
- D. There was a simultaneous filing of applications for a preference rights lease on the same mining unit and more than one of the applicants meets the requirements of part 6125.0410. For the purpose of these rules, simultaneous filings are those that arrive in the mail or in person on the same day;
- E. An application for a preference rights lease was filed on a prior day for the same mining unit and the commissioner has determined that the prior applicant meets the requirements of part 6125.0410 and the prior application is not rejected pursuant to this part;
- F. The mining unit was not on the preference rights lease availability list at the time of the application; or

- G. The mining unit had been deemed withdrawn from the preference rights lease availability list prior to the time of application because the mining unit no longer met the criteria to be included on the preference rights lease availability list.

Prior to filing an application for a preference rights lease, any party may contact the commissioner for information as to whether the circumstances described in this part exist as to the mining units the party is interested in for a lease. Prior to filing an application for a preference rights lease, any party may contact the commissioner for a review of the party's qualification to hold a mineral lease as specified in part 6125.0410.

The right is reserved to the state to reject any or all applications for preference rights leases. However, if the commissioner rejects the application based on item D, then no preference rights lease may be issued for the mining unit until after it has first been offered at public lease sale.

Subp. 7. Issuance of Lease. Leases shall be awarded by the commissioner, with the approval of the state executive council, to the first qualified applicant who files an application that is not rejected pursuant to subpart 6. The preference rights leases so issued shall be in the form set forth in part 6125.0700. The rental and royalty rates shall not be less than those prescribed in part 6125.0700.

Subp. 8. Report to State Executive Council. The commissioner must provide annual reports to the state executive council on the use and results of the preference rights leasing system.

6125.0620 AUTHORIZATION TO CONDUCT GEOLOGICAL DATA GATHERING ACTIVITIES.

As an alternative to applying for a state mineral lease, any party may apply to the commissioner for authorization to conduct geological data gathering activities on state-owned land. The applicant must meet the qualifications to hold an authorization to conduct geological data gathering activities as specified in part 6125.0410.

For the purposes of this authorization, geological data gathering activities include geophysical and geochemical activities, sampling of glacial overburden, and the sampling and drilling of bedrock; provided that any drilling and sampling of bedrock is limited to a maximum penetration of 20 feet into bedrock. Each authorization granted by the commissioner is limited to the size of one township, or portion thereof. The fee for each authorization is \$100.00. The authorization does not grant any rights to a mineral lease and is nonexclusive.

6125.0700 FORM OF LEASE.

The form of lease for exploration for, mining, and removing metallic minerals belonging to the state shall consist of the following provisions, with insertions, changes, or additions as may be necessary to incorporate the royalty rates and other particulars applicable to each lease as may be authorized under parts 6125.0100 to 6125.0700:

This lease agreement is entered into on the ____ day of _____, _____. The parties to this lease are the State of Minnesota, called the state, and _____, called the lessee.

1. **Term; description of mining unit.** The state, in consideration of the sum of _____ Dollars, paid by the lessee, being the rental provided in this lease for the unexpired portion of the current calendar year and for the next succeeding two (2) calendar years, the receipt whereof is hereby acknowledged, and in further consideration of the covenants and conditions of this lease to be performed by the lessee, agrees to lease to the lessee for a term of _____ years beginning the _____ day of _____, _____, the following described mining unit, situated in the county of _____, in the State of Minnesota:
2. **Definitions.** For the purposes of this lease, the following words have the meanings given them:
 - a. "Associated mineral products" means those intermingled or associated materials and substances recovered from each ton of crude ore mined from the mining unit that are excluded from the definition of metallic minerals.
 - b. "Commissioner" means the commissioner of natural resources of the state of Minnesota, or the commissioner's designated representative.
 - c. "Metallic minerals," whether singular or plural, means any mineral substances of a metalliferous nature, except iron ores and taconite ores.
 - d. "Ton" means 2,000 pounds avoirdupois after removal of all free moisture from the material weighed, by drying at 212 degrees Fahrenheit.
 - e. "Troy ounce" means a unit of mass equal to 480 grains or 31.1035 grams or 1.0971 avoirdupois ounces.
3. **Use of surface of lands.** The mining unit is leased to the lessee for the purpose of exploration for, mining, and removing ores primarily valuable for metallic minerals content that are found on or in the mining unit.

The lessee has the right to construct or make buildings, excavations, openings, ditches, drains, railroads, roads, and other improvements on the mining unit as necessary or suitable for those purposes. All buildings and ditches must be constructed according to applicable local ordinances. The locations of railroads, roads, and other improvements are subject to review by the commissioner. The lessee has the right to mill and concentrate the ore so mined, either upon the mining unit or elsewhere, but the right to mill and concentrate does not include the right to reduce or smelt ore upon the mining unit without an agreement between the lessee and the commissioner, authorizing that use of the surface of the land and providing for the necessary protection of life and property. The lessee may contract with others for doing any work authorized or required under this lease, or for the use of the mining unit or any part of it for the purposes of the lease, but no contract of this type relieves the lessee from any duty, obligation, or liability under the lease. No such contract providing for shipping, handling, or removal of ore-bearing material becomes effective for any purpose until three executed duplicates of the contract have been filed with the commissioner.

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4. **State's right to lease iron ores, taconite ores, coal, oil, gas, and other liquid or gaseous hydrocarbon substances.** The state reserves the right to lease or grant to other persons or corporations the right to explore for, mine, remove, and beneficiate iron ores, taconite ores, coal, oil, gas, and other liquid or gaseous hydrocarbon substances, that are located in the mining unit. The state agrees that any permit or lease granted by it to any person or corporation to explore for, develop, mine, or dispose of the iron ores, taconite ores, coal, oil, gas, and other liquid or gaseous hydrocarbon substances shall contain a provision that the permittee or lessee shall exercise those rights so as not to cause any unnecessary or unreasonable injury or hindrance to the operations of the lessee of this lease in the exploration for, or the development, mining, or removal of metallic minerals other than iron ores, taconite ores, coal, oil, gas, and other liquid or gaseous hydrocarbon substances covered by that permit or lease. The lessee of this lease agrees that it will exercise the rights granted to it by this lease in such manner as not to cause any unnecessary or unreasonable injury or hindrance to the operations of any permittee or lessee of the state in the exploration for, or the development, mining, or removal of iron ores, taconite ores, coal, oil, gas, and other liquid or gaseous hydrocarbon substances.

Written notice shall be provided by the commissioner to the lessee whenever the commissioner is planning to issue a mineral lease according to the rights reserved under this paragraph. The commissioner must meet with the lessee to obtain information for terms and conditions under which multiple mineral development could occur.

5. **State's right to lease surface and sell timber.** The state reserves the right to sell and dispose of all the timber upon the mining unit without hindrance from the lessee and according to the law now or hereafter governing the sale of timber on state lands, and reserves to the state and to the purchaser of the timber, and the purchaser's agents, the right at all times to enter the mining unit, and to cut and remove timber from it according to the terms of the purchaser's permit from the state. The timber purchaser shall not unduly interfere with the exploration or mining operations. The state further reserves the right to grant leases, permits, or licenses to any portion of the surface of the mining unit to any person, partnership, corporation, or other association under the authority of Minnesota Statutes, section 92.50, or other applicable laws, after consultation with lessee. The surface leases, permits, or licenses shall not unduly interfere with the exploration or mining operations conducted on the mining unit.
6. **Annual rental.** The lessee agrees to pay to the state rental for the mining unit at the rate of \$1.50 per acre of land and water area included in the mining unit, per calendar year, payable in advance, for the unexpired portion of the current calendar year from the effective date of this lease and for the next succeeding two calendar years; and after that time at the rate of \$5 per acre per calendar year, payable quarterly for the three succeeding calendar years; and after that time at the rate of \$15 per acre per calendar year, payable quarterly for the five succeeding calendar years; and after that time at the rate of \$30 per acre per calendar year, payable quarterly for the remainder of the term of this lease.

The mining unit may include lands where an interest in the minerals is owned by the state, including trust fund lands, land forfeited for nonpayment of taxes and held in trust by the state, lands where severed mineral interests have forfeited under Minnesota Statutes, section 93.55, lands where severed mineral interests have been otherwise acquired, lands where severed mineral interests may be leased by the commissioner under Minnesota Statutes, section 93.55, subdivisions 1a and 3, the beds of public waters, and lands otherwise acquired. Any amount paid for rental, at the time of payment, shall be allocated to the proper fund as determined by the mineral ownership.

Any amount paid and accrued for rental in excess of the rate of \$5 per acre per year for any calendar year shall be credited on any royalty that may become due for ore removed under this lease during the same calendar year in which the rental was due but no further, and only to the extent that the rental

was paid or deposited into the particular fund to which the royalty for the ore is due. Any amount paid for royalty in excess of rental at the rate of \$5 per acre per year for any calendar year must be credited on rental, if any, subsequently accruing for that same calendar year but no further, and only to the extent that the royalty was paid or deposited into the particular fund to which the rental is due.

Rental payments must be made on or before May 20, August 20, November 20, and February 20 for the previous calendar quarters. The first calendar quarter is the first three calendar months of the year, and so on. Any rental payments not received by the date due are subject to interest at the rate of six percent per year from the due date.

When the lessee exercises its right under paragraph 30 of this lease to surrender any part or parts of the mining unit, the annual rental payment may be discontinued as to those parts for all subsequent calendar years; however, the rentals paid on the parts surrendered must not be credited on any royalties due for ore removed from that part of the mining unit which remains under lease.

Where the state owns only a fractional undivided interest in the minerals in any portion of the mining unit, only that fractional part of the rentals and royalties established in this lease shall be paid for that portion.

If at any time during the term of this lease it is determined in a proper proceeding that the state does not own the minerals in a part of the area included in the mining unit, the commissioner shall delete from the description of the mining unit the part not owned by the state, and only if that determination is made prior to the fifth anniversary date of this lease is the lessee entitled to a refund, or in the case of tax forfeited minerals to receive credit on future payments due the same fund, for payments made to the state on that part prior to the determination. If the commissioner deems it necessary, additional time to make the determination may be granted.

7. **Tonnage for royalty purposes.** Royalty must be computed on the dry weight of the crude ore. The dry weight of the crude ore shall be calculated from natural crude ore weights and moisture percentages from samples taken at the time the crude ore is weighed.

8. **Royalty.**

- a. The royalty to be paid to the state by the lessee for the metallic minerals and associated mineral products recovered from each ton of ore mined from the mining unit is the sum of the base rate described in this paragraph and an additional bid rate of percent multiplied by the net return value of the metallic minerals and associated mineral products recovered from each ton of dried crude ore.
- b. The base rate must not be less than 3.95 percent nor more than 20 percent and varies with the net return value of the metallic minerals and associated mineral products recovered from each ton of ore mined from the mining unit. The base rate must be determined from the Base Royalty Rate Table which is found in Exhibit A and which is made a part of this lease.
- c. If in any month: (1) the net return value of the metallic minerals and associated mineral products recovered from each ton of dried crude ore mined from the mining unit exceeds \$75; and (2) the unadjusted Producer Price Index for All Commodities (1982 equals 100), as originally published (unrevised) by the Bureau of Labor Statistics of the United States Department of Labor, or any succeeding federal government agency publishing the Index, in the monthly publication titled *Producer Price Indexes*, for the first month in the calendar quarter for which royalty payment is to be made, exceeds 121.5, which was the originally published (unrevised) level of the index for November 1994 (hereinafter called the "Base Index"), then an adjustment to the base rate must be computed in the manner hereinafter provided.

The adjustment to the base rate must be computed by multiplying \$75 by a fraction, the denominator of which is the Base Index and the numerator of which is equal to the amount by which the Producer Price Index for All Commodities for the month in question exceeds the Base Index. The resulting products must be carried to four decimal places and then rounded to the nearest one-hundredth of a dollar. The difference between this rounded product and the net return value must then be determined. The Royalty Base Rate Table must be referred to and the difference resulting from this computation must be used instead of the net return value to determine the base rate.

For example, the Base Index under this lease is 121.5 and if the Producer Price Index for All Commodities for January 1996 was 132.7, the adjustment to the base rate would be computed as follows:

$$\$75 \times \frac{(132.7 - 121.5)}{121.5} = \$6.9136, \text{ rounded to } \$6.91$$

If the net return value of the metallic minerals and associated mineral products recovered from each ton of dried crude ore equalled \$85, then the difference between the net return value and \$6.91 would be computed as follows:

$$\$85 - 6.91 = \$78.09$$

The resulting difference of \$78.09 would then be used instead of the net return value to determine the base rate.

If some period other than 1982 is used as a base of 100 in determining the Producer Price Index for All Commodities, for the purposes of this lease provision the index must be adjusted so as to be in correct relationship to the 1982 base. In the event the index is not published by any federal agency, the index to be used as previously provided must be the index independently published, which, after necessary adjustments, if any, provides the most reasonable substitute for the Producer Price Index for All Commodities during any period after November 1994, it being intended to substitute an index that most accurately reflects fluctuations in the prices of commodities in the all commodities index in the manner presently reported by the Producer Price Index for All Commodities (1982 equals 100), published by the Bureau of Labor Statistics of the United States Department of Labor.

- d. The lessee may apply to the commissioner and the commissioner may grant the lessee a partial deferral of the lessee's obligation to pay royalties under this lease. Up to 50 percent of royalties due and payable less any credits against royalties as provided in paragraph 6, may be deferred by the commissioner. Any deferral granted applies only to the royalties due and payable during the first consecutive years, up to a maximum of the first five consecutive years, beginning with the first year that any royalties are due and payable under this lease, or to royalties due and payable during the first one-half of the expected operational life of the first mine established under this lease in the mining unit, whichever is less.

The amount of royalties deferred for each calendar quarter as provided above, plus interest at the rate of six percent per year, becomes finally due and payable on the future date that is determined by adding the total number of years of deferral granted under this section to the date on which royalties would have been due and payable had there been no deferral.

The commissioner in considering the lessee's application for deferral of royalties may consider factors including, but not limited to, the expected operational life of the mine producing the royalties, the express purposes for which the money deferred is proposed to be used by the lessee, the cash flow analysis of the mine, the amount of either the capital invested or to be invested, or

both, by the lessee in exploration and mining operations under this lease, and the technical and financial capabilities of the lessee.

9. Net return value of metallic minerals and associated mineral products.

- a. If the final metal product is recovered in a smelter, the net return value of metallic minerals and associated mineral products recovered from each ton of dried crude ore must be determined monthly as follows: Multiply the total pounds respectively of each metal and associated mineral product recovered during the month in the mill concentrate from the mining unit, by the average market price per pound respectively for that month of each fully refined metal and of each associated mineral product. Subtract from that total, the allowable charges, as later defined in this lease, to obtain the net return value of each metallic mineral and each associated mineral product. Add the net return values thus obtained for each metallic mineral and each associated mineral product for the month, and divide the sum by the total number of tons of dried crude ore from the mining unit concentrated in the mill during the month, to obtain the net return value of the metallic minerals and associated mineral products recovered from each ton of dried crude ore. The net return value must be carried to four decimal places and rounded to the nearest one-hundredth of a dollar.

The allowable charges in determining the net return value of metallic minerals and associated mineral products recovered in a smelter from each ton of dried crude ore are limited to the following: (1) the base smelter treatment and refinery charges assessed by the smelter for treating each ton of the mill concentrate; and (2) the smelter losses, refinery losses, and penalties for impurities that are deducted from the assay or market values to arrive at the gross payment to the lessee for each of the metallic minerals and associated mineral products paid for by the smelter.

- b. If the final metal product is recovered in a hydrometallurgical process, or in a combination hydrometallurgical and pyrometallurgical process, the net return value of metallic minerals and associated mineral products recovered from each ton of dried crude ore must be determined monthly as follows: Multiply the total pounds respectively of each metal and associated mineral product recovered from the mining unit during the month in the final metal product from a hydrometallurgical process or a combination hydrometallurgical and pyrometallurgical process by the average market price per pound respectively for that month of each fully refined metal and of each associated mineral product. Subtract from that total, the allowable charges, as later defined in this lease, to obtain the net return value of each metallic mineral and each associated mineral product. Add the net return values thus obtained for each metallic mineral and each associated mineral product for the month, and divide the sum by the total number of tons of dried crude ore from the mining unit processed by hydrometallurgy or by a combination of hydrometallurgy and pyrometallurgy during the month, to obtain the net return value of the metallic minerals and associated mineral products recovered from each ton of dried crude ore. The net return value must be carried to four decimal places and rounded to the nearest one-hundredth of a dollar.

As used in this lease for the purpose of determining the net return value of metallic minerals, “hydrometallurgy” means that phase of metallurgy which involves the extraction and recovery of metals using aqueous or organic solutions, and “pyrometallurgy” means that phase of metallurgy which involves the extraction and recovery of metals using heat. The unit processes of hydrometallurgy include the leaching of ores or concentrate for recovery of metals, the separation of the leaching solution from the spent ore, and the recovery of the dissolved metal from the leaching solution.

The allowable charges in determining the net return value of metallic minerals and associated mineral products recovered in a hydrometallurgical process or a combination hydrometallurgical

and pyrometallurgical process are limited to the following: charges attributable to recovery of dissolved metal from the leaching solution by chemical purification, pressurization, roasting of concentrate, melting of concentrate, filtration, absorption, solvent extraction, evaporation, distillation, electrolysis, ion exchange, or precipitation. The charges attributable to the direct leaching of ores for recovery of metals, or to the separation of the leaching solution from the spent ore are non-allowable charges.

- c. When metallic minerals and associated mineral products recovered during the month are sold during the same month, only those metallic minerals and associated mineral products recovered that are actually paid for by the smelter, refiner, or other purchaser must be included as part of the metallic minerals and associated mineral products recovered during the month. When metallic minerals and associated mineral products recovered during the month are not sold during the same month, the net return value of the metallic minerals and associated mineral products recovered during the month must be adjusted, if necessary, at the time they are sold to reflect the market price at the time of sale, and to reflect any recovered metallic minerals and associated mineral products that are not actually paid for by a smelter, refiner, or other purchaser. Any prior payment of royalty that becomes an overpayment of royalty as a result of the adjustment of net return value under this paragraph is a credit against future royalty payments due under this lease.
- d. Metallic minerals and associated mineral products sold by the lessee to a nonaffiliate shall be deemed sold at the time the metallic minerals and associated mineral products are delivered to the nonaffiliate. Metallic minerals and associated mineral products sold or transferred by lessee to an affiliate shall be deemed sold by lessee at the time of delivery to the affiliate and net return value must be calculated on the basis of the market prices at the time of the deemed sale of the metallic minerals and of the associated mineral products sold or transferred to the affiliate. Metallic minerals and associated mineral products retained by the lessee for its own internal use and consumption shall be deemed sold when they are removed from the mining unit and net return value must be calculated on the basis of the market prices at the time of the removal of the metallic minerals and of the associated mineral products retained for internal use and consumption. For the purpose of this lease "affiliate" means the lessee, or any business entity that is effectively owned or controlled directly or indirectly by the lessee or that directly or indirectly effectively owns or controls the lessee, or any business entity operated by or that operates the lessee.
- e. If material is recovered and sold on a basis other than for the purpose of recovering the fully refined metals and the associated mineral products contained in the material, such as the recovery and sale of titanium dioxide for paint pigment uses, then the net return value of the material recovered and sold, for royalty calculation purposes, is subject to agreement between the commissioner and the lessee.
- f. If the metallic minerals and associated mineral products are treated at a smelter or hydrometallurgical processing facility owned by, or directly or indirectly effectively controlled by, the lessee or its affiliate, or that the lessee or its affiliate operates or manages, then the allowable charges are equal to the allowable charges that the smelter or hydrometallurgical processing facility would assess or charge an unaffiliated third party desiring to have substantially similar metallic minerals and associated mineral products treated at the smelter or hydrometallurgical processing facility. If the smelter or hydrometallurgical processing facility owned by, operated by, or effectively controlled by the lessee or its affiliate does not provide treatment services to unaffiliated third parties, then the allowable charges are equal to the mean of the allowable charges assessed and charged for substantially similar metallic minerals and associated mineral products in contracts between unaffiliated parties. The lessee shall provide to the state certified copies of all smelter contracts,

settlement sheets, and other agreements, to which the lessee is a party, which detail and describe the allowable charges under this lease to arrive at the net return value as defined in this lease. For purposes of such net return value determination, the state may disapprove and reject, in whole or in part, the lessee's smelter contracts, settlement sheets, and other agreements. Should the state reject the agreements or otherwise disagree with the allowable charges, the lessee has the burden of proof of substantiating the allowable charges.

- g. The average market price of copper per pound for each month is that quoted for U.S. producers, cathode, as reported in Metals Week. The average market price of nickel per pound for each month is that quoted for N.Y. merchant, spot, as reported in Metals Week. The average market price of gold per troy ounce for each month is that quoted for London, 3:00 p.m., as reported in Metals Week. The average market price of silver per troy ounce for each month is that quoted for Handy & Harman, N.Y., as reported in Metals Week. The average market price of zinc per pound for each month is that quoted for U.S. special High Grade, as reported in Metals Week. The average market price of lead per pound for each month is that quoted for U.S. and Canadian producers, as reported in Metals Week. The average market price of palladium per troy ounce for each month is that quoted for London p.m. fix, as reported in Metals Week. The average market price of platinum per troy ounce for each month is that quoted for London p.m. fix, as reported in Metals Week. The average market price of other metallic minerals and of associated mineral products per pound for each month shall be that quoted for the usual and customary shipping quantities, f.o.b. the usual and customary place of shipment, United States import duty (if any) included, as reported in Metals Week. If Metals Week does not or ceases to report an average monthly market price for any metallic mineral or associated mineral product, then the average monthly market price of that metallic mineral or associated mineral product is the arithmetic average of the daily market prices for the metallic mineral or associated mineral product for that month as reported in Metals Week. If Metals Week or its successors cease to furnish such quotations, or its quotations cease to be recognized in the trade, or a particular metallic mineral or associated mineral product is not listed, then the quotations of such other source as the parties may agree upon shall govern.
10. **Commingled ores.** The lessee has the right to commingle ore from the mining unit with other ore, either in the mine, in stockpile, in the mill, or in the smelter, but the ores must be kept entirely separate and distinct until their quantities and metal and mineral contents have been separately measured and determined. Ratios of concentration, percent mill recoveries, and any other factors necessary for determining the beneficiating amenability of the commingled ores, the allocation of values and the royalties, must be separately measured and determined by methods approved by the commissioner and shall be reported on a monthly basis. "Ratio of concentration" means the dry weight of the crude ore divided by the dry weight of the concentrate derived from the crude ore. "Percent mill recovery" means the dry weight of the metal in the concentrate divided by the dry weight of the metal in the crude ore, expressed as a percent.
11. **Quarterly payment on ore removed.** The lessee agrees to pay to the state, on or before May 20, August 20, November 20, and February 20 in each year during the period this lease continues in force, royalty at the rates specified in paragraph 8 for all of the ore removed from the mining unit during the previous calendar quarter. The lessee also agrees to pay to the state on or before May 20 of each year all royalty due and payable as a result of the adjustment to value of the metallic minerals and associated mineral products sold during the previous calendar year as provided for in paragraph 9c.

The lessee is liable for payment of royalty when due on all ore removed from the mining unit for concentration elsewhere or for any other purpose, from the actual time of removal; and if the royalty due on the ore is not determined and accounted for as provided by the next royalty payment date, the commissioner may determine the royalty by any method as the commissioner deems appropriate and consistent with the royalty rates set forth in this lease. Any amount paid for royalty must be allocated

to the proper fund as determined by the mineral ownership. Any royalty payments not received by the date due are subject to interest at the rate of six percent per year from the due date.

12. **Lessee to transmit statement of ore removed and royalty due.** The lessee shall transmit to the commissioner with each royalty payment an exact and truthful statement of the tonnage and royalty value of the ore mined and removed from the mining unit during each of the three months for which the payment is made, and the amount of royalty due on the ore, separated as to the various state fund ownerships. The lessee shall provide for all the operations required for these determinations except as otherwise specified.
13. **Weighing.** The methods of obtaining the weights used to determine tonnage for the calculation of royalty, or to determine other weights required by the state, are subject to the approval of the commissioner.
14. **Sampling.** Samples for royalty purposes must be taken of the ores and their products at places and intervals subject to the approval of the commissioner. A portion of each sample or composite sample must be delivered to the commissioner unless, by mutual agreement, it has been decided that certain of such portions are not needed by the state. Except as otherwise permitted by the commissioner, all ore mined from this mining unit must be sampled and its weight determined before being commingled with any other ores.

Each royalty sample must be analyzed at the expense of the lessee by competent chemists or assayers approved in writing by the commissioner. The elements in the royalty sample for which analytical determinations will be made are subject to agreement between the commissioner and the lessee.

15. **Monthly reports.** Except as otherwise permitted by the commissioner, the lessee shall transmit within 20 days after the end of each calendar month, statements for that calendar month in the form the commissioner may require, covering the tonnages and analyses of the following: all material mined from the mining unit, all material milled from the mining unit, all material stockpiled from the mining unit, all concentrates produced from the mining unit, all material mined from any source and commingled with material from the mining unit, all commingled material concentrated, all commingled material stockpiled, all commingled concentrates produced during that calendar month, and such other information as may reasonably be required by the commissioner for the purpose of verifying the amount of royalty due.

The weight of ore as set forth in the monthly statements shall prima facie be binding as between the parties, but the state has the right to sample the ore, check the analyses, and inspect, review and test the correctness of the methods, books, records and accounts of the lessee in sampling, analyzing, recording, and reporting the weights, and to inspect, review, and test the correctness of the weights and scales and other equipment used in measuring the amount of ore, it being understood that any errors in these reports, when ascertained, shall be corrected.

16. **Additional monthly and annual reports to be furnished by lessee; exploration; mine samples required.** Except as otherwise permitted by the commissioner, in addition to other reports or statements required in this lease, the lessee shall furnish the following:
 - a. Copies of all exploration data, including, but not limited to, all logs and drill hole records; all maps and coordinates showing drill holes, geophysical grids, geochemical and geologic sampling, trenching, and survey data; all mineral analyses and assays; all chemical and analytical data and information; all laboratory test data; all geophysical, geochemical, and geologic records; all results of mine and metallurgical testings; and all periodic mine maps, analyses maps, cross-sections, and development plans. All material required under this subparagraph must be available to the commissioner, or the commissioner's representative, at all reasonable times. Copies must be

submitted annually to the commissioner when the data is in the form customarily prepared for permanent record of the operations on the mining unit. Material available to and furnished to the commissioner under this subparagraph and subparagraph b. shall be considered confidential during the life of this lease or any extension of it.

- b. At least a quarter-portion of all exploration samples, and when requested by the commissioner in writing, a quarter-portion of mine or mill samples. In the event that the lessee requires certain exploration samples in their entirety, the commissioner or the commissioner's representative may waive the requirement for a quarter-portion of such exploration samples, provided that the lessee grants the state an opportunity to examine and classify such samples before they are crushed or processed.
 - c. A monthly report showing the estimated weights and analyses of all materials stockpiled, including lean ore, waste and tailings, and divided as to property of origin and deposition.
 - d. Certified copies of smelter statements, schedules, agreements, and settlement sheets or receipts from sales involving materials produced from this mining unit showing the product sold and factors relevant to the calculation of royalties.
 - e. Not later than March 1 of each year during the term of this lease, a summary statement of the tonnage of all ore mined and all ore milled from the premises and all ore materials placed in or removed from stockpile during the previous calendar year, divided as to the property of origin and the disposition of the ore materials and showing such analyses of them as the commissioner may require.
17. **How remittances and reports are to be transmitted.** All remittances by the lessee under this lease must be made payable to the Department of Natural Resources. All such remittances and all reports, notices and documents required under this lease must be transmitted to the commissioner through the director of the division of minerals at Saint Paul, Minnesota.
18. **State inspection; inspectors at plants and mines.** The commissioner may at all reasonable times enter the mining unit and any other premises used or operated by the lessee in connection with the operation of the mining unit, inspect the operations conducted under this lease, and conduct such engineering and sampling procedures and other investigations as the commissioner may require, not unreasonably hindering or interrupting the operations of the lessee.

The lessee shall provide, upon written request of the commissioner, a suitable room in the dry or wash house or in some other suitable place on the mining unit or elsewhere when necessary, with water, light, and heat, all without cost to the state, for the use of state inspectors. The room must be at least equal in size and equipment to that customarily furnished for the use of the mine engineer.

Whenever royalties or rentals due the state are required to be distributed to more than one fund, or when ore from the mining unit is commingled with other ore, or when ore from the mining unit is concentrated at the same plant as other ore, the commissioner may appoint special inspectors as the commissioner considers necessary to insure proper accounting and protect the interests of the state. The lessee shall reimburse the state monthly for the cost of this inspection service upon notification by the commissioner.

19. **Removal of ore for experimental purposes.** Notwithstanding paragraph 11, upon written application of the lessee, the commissioner may authorize the removal of ore from the mining unit for experimental purposes without payment of royalty; and it is further understood that the removal of samples obtained by drilling, trenching, or testpitting, for the purposes of exploration, is not subject to the payment of royalty.

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20. **Stockpiled materials.** All materials mined and not shipped from the mining unit remain the property of the state and shall be stockpiled only in such manner and on such sites as may be authorized by the commissioner in writing. When, however, the commissioner agrees that substantially all minerals of value have been extracted from the mill tailings, the material may be used for stope filling on the mining unit or elsewhere, and the tailings material used shall be considered abandoned, and title to the material shall revert to the mineral owners of the property in which it is deposited.
21. **Reversion of title on land conveyed to the state for stockpiling purposes.** When the commissioner determines that it is necessary and that the interests of the state will be fully protected, the lessee may convey land to the state upon the condition that it be used for the storage of ore or other materials having present or potential value belonging to the state. The commissioner may accept a conveyance that provides for the state's interest in the land to terminate and title to revert to the lessee when the land is no longer needed or used for storage of ore or other materials. No consideration shall be paid for the conveyance unless authorized by law.
22. **Cross-mining rights.** The lessee is hereby granted the right to mine and remove any ores from the mining unit through any shafts, openings, or pits that may be made upon adjoining and nearby premises controlled by the lessee; and the lessee may, if it so desires, use the mining unit and any shafts, openings, or pits, made on it for the mining or removal of any ores from adjoining or nearby premises, not, however, preventing or interfering with the mining or removal of ore from said mining unit. The ores taken from the mining unit must at all times be kept entirely separate and distinct from any other ores until measured and sampled as provided in this lease so that the rights of the lessor are at all times preserved and protected. The lessor recognizes the rights and liens of the owners of any nearby or adjoining premises in any ores mined from them and transported through the mining unit.
23. **Lessee's obligations under state and federal laws and regulations.** The provisions of this lease are subject to all applicable state and federal statutes, orders, rules and regulations, and all operations under this lease shall be conducted in conformity with them. All activities shall be conducted in conformity with the applicable mine land reclamation statutes and rules. No interference, diversion, use or appropriation of any waters over which the commissioner or any other state agency has jurisdiction, may be undertaken unless authorized in writing by the commissioner or the state agency.
24. **Operations to be conducted in accordance with good mining, metallurgical, and environmental engineering.** The lessee shall open, use, and work the mine or mines on the mining unit and conduct metallurgical operations in such manner only as is usual and customary in skillful and proper mining and milling operations in accordance with the requirements, methods, and practices of good mining, metallurgical, and environmental engineering, and in such manner as not to cause any unnecessary loss of minerals, or unusual permanent injury to the mining unit. Surface lands owned by the state in the mining unit are not to be cleared or used for construction or stockpiling purposes until such use has been approved by the commissioner in writing. The surface use of the mining unit must be conducted in such manner as to prevent or reduce scarring and erosion of the land and pollution of air and water.
25. **Notice to owner of surface estate.** When the leased premises do not include the surface estate, the lessee shall give notice, in writing, to the owner or administrator of the surface estate at least 20 days in advance of any activities which will require use of the surface estate on the leased premises. The notice shall sufficiently describe the activities to enable the owner or administrator of the surface estate to evaluate the extent of the use of the surface estate.
26. **Review of exploration; exploration site closure and stabilization.** "Exploration" means the act of searching for or investigating a mineral deposit. Exploration includes examination of an area to determine the quality and quantity of minerals, including obtaining a bulk sample by drilling,

excavating, trenching, constructing shafts, ramps, tunnels, pits, and producing refuse and other associated activities. Exploration does not include activities intended, by themselves, for commercial exploitation of the ore body.

- a. The lessee shall advise the commissioner, in writing, at least 20 days in advance of any exploration on the leased premises. The lessee shall specify:
 - i. the location of proposed activities depicted on a 1:24,000 scale United States Geological Survey 7-½ minute quadrangle map, or other map of the same scale;
 - ii. the exploration activities that will be performed, including but not limited to the type of activity, method of sampling, and types and sizes of vehicles and equipment that will be used;
 - iii. the approximate beginning and ending dates of the proposed activities;
 - iv. for exploration activities at sites with special features or uses, methods of mitigation to be used in the exploration to minimize to the extent practicable adverse impacts on the special features or uses;
 - v. the location and method of access to the exploration site, and if new roads or trails are to be constructed, the location of the proposed roads or trails; and
 - vi. the proposed plan for site closure and stabilization, if needed.

The commissioner will identify special features or uses within the leased premises. Conditions identified as special features or uses may include: wildlife management areas and sites; peatland watershed areas of the peatland scientific and natural areas; the Black Bay Management Area; natural heritage sites and features; designated trout streams; state canoe and boating routes; state trails; historic and archaeological sites; rights-of-way; fire towers; campgrounds; public access sites; state highway rest areas; and other existing easements, sites, conditions and encumbrances. The commissioner may require the lessee to adjust its exploration plans or plans for construction of roads or trails due to special features or uses within the leased premises or due to other natural resource management concerns.

Unless notified to the contrary by the commissioner within 20 days after receipt of the exploration plan by the commissioner, the lessee may proceed with exploration as described in the submitted exploration plan.

- b. Upon completion of the exploration, the lessee must promptly remove all supplies and equipment and must restore the leased premises and roads to a condition satisfactory to the commissioner. The lessee must, when needed, implement and complete closure and stabilization of the exploration site to the satisfaction of the commissioner. The lessee shall be relieved of obligations imposed by the plan for exploration site closure and stabilization only when the lessee notifies the commissioner in writing that site closure and stabilization has been completed and release has been granted by the commissioner.

27. **Lessee's obligation for damages.** It is understood and agreed that in case any interest in the land or minerals covered by this lease is owned by anyone other than the state, this lease shall not be construed as authorizing any invasion of or trespass upon such other interest. The lessee hereby agrees and is obligated to indemnify and hold the state harmless from all damages or losses caused directly or indirectly by operations under this lease, whether to land, timber, minerals, growing crops, or buildings, or to any person or other property, including damages suffered by that other owner of the surface or mineral rights, and the state shall not be liable for them.

28. **Lessee to pay all taxes.** The lessee agrees to pay when due all taxes, general and specific, personal and real that may be assessed against the mining unit and the improvements made on it, and the ore materials in it or mined from it, and any personal property on the mining unit owned, used, or controlled by the lessee. This covenant does not apply to taxes assessed against any part of the mining unit as a result of any other lease granted by the state to other parties. The cancellation, termination, or expiration of this lease does not relieve the lessee of the obligation to pay taxes assessed during the continuance of the lease, even though such taxes may be due or payable after the cancellation, termination, or expiration date.
29. **State lien for unpaid sums due.** The state reserves and shall at all times have a lien upon all ore mined from the mining unit, all ore concentrated from it, smelter returns due the lessee for the ore, and all improvements made under this lease for any sums not paid when due.
30. **Lessee's right to terminate lease.** The lessee may at any time deliver to the commissioner written notice of intention to terminate this lease, and this lease shall terminate 60 days after the delivery unless the notice is revoked by the lessee by further written notice delivered to the commissioner before the expiration of 60 days. On December 31 following the tenth anniversary date of this lease, and on any succeeding December 31, the lessee may surrender its rights and privileges granted in this lease on any part or parts of the mining unit, by giving the lessor written notice of its intention so to do at least 60 days before the date of such surrender. For the purposes of this paragraph, "part of the mining unit" means a quarter section of a quarter section or a government lot as described by the public land survey, or a bed of public waters. All sums due to the state under this lease up to the effective date of termination must be paid by the lessee. Any sums not received within 20 days after the effective date of termination are subject to interest at the rate of six percent per year from the effective date of termination.
31. **Lessor's right to cancel lease upon lessee's failure to meet production requirements.** The state may cancel this lease as provided in paragraph 32 if the lessee has not met both of the following conditions by the end of the 20th full calendar year of this lease:
- (a) The lessee must be actively engaged in mining ore under this lease from:
 - i. the mining unit;
 - ii. a metallic mineral mine within the government township in which the mining unit is located; or
 - iii. a metallic mineral mine within a government township that has at least one point in common along its boundary line with the government township in which the mining unit is located.
 - (b) The lessee must have paid to the state at least \$100,000 in earned royalty under a metallic minerals lease. This amount must be paid during a single calendar year.

The state may exercise its option to cancel the lease during the 21st calendar year of the lease. If it does not do so, and if the conditions have not been met by the end of the 35th full calendar year of this lease, it may exercise its option to cancel during the 36th calendar year of the lease. The commissioner shall take the lessee's financing needs and the state's proportional ownership interest into consideration in determining whether the requirements of this paragraph have been met.

The lessee, at any time, may request a determination and the commissioner, at any time in response to such a request, may determine whether the state will exercise its option to cancel the lease. If the state decides in response to such a request not to exercise its option to cancel the lease, such a decision may require the lessee to meet additional conditions and may include the option to cancel at a time other than the times specified in this paragraph.

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32. **Lessor's right to cancel lease upon default.** This lease is granted upon the express condition that, if any sum owed under it by the lessee for rental, royalty, or otherwise remains unpaid after the time when it became due, or if the lessee or its agent or servant knowingly or willfully makes any false statement in any report, account, or tabulation submitted to the state or to the commissioner, or any of the commissioner's agents pertaining to any matter under this lease, or if the lessee fails to perform any of the conditions required by this lease, the commissioner may cancel this lease by mailing or delivering to the lessee 60 days' notice of the cancellation in writing, specifying such nonpayment or other default as the case may be. This lease shall terminate at the expiration of the 60 days, and the lessee and all persons claiming under the lessee shall be wholly excluded from the mining unit except as hereinafter provided in paragraph 31. Termination does not relieve the lessee from any liability for payment or other liability incurred under this lease. If the default consists of a nonperformance of an act required under this lease other than payment of royalty or rental, the lessee may perform within the period of 60 days and the lease continues in effect. If the correction of any such default requires more time than 60 days after the notice has been received by the lessee, the commissioner, upon written request of the lessee and for good cause shown, may, at his or her discretion, grant an extension of the period of 60 days. If the default consists of a nonpayment of royalty or rental and the lessee performs within 15 days from the mailing or delivery of notice of cancellation, the lease continues in effect; and if the lessee performs at any time thereafter within the period of 60 days, the commissioner, at his or her discretion, may continue the lease in effect.
33. **Rights of lessor and lessee during 180-day period following termination.** Upon termination of this lease, whether by expiration of its term or by act of either party, except as necessary to comply with applicable mineland reclamation statutes and rules, the lessee has 180 days after termination in which to remove all equipment, materials, railroad tracks, structures and other property placed or erected by the lessee upon said mining unit. Property not removed within that time shall, at the discretion of the commissioner, either be removed by the state at the lessee's expense or become the property of the state. The lessee shall not remove or impair any supports placed in any mine or mines on the mining unit, or any timber or framework necessary to the use or maintenance of shafts or other approaches to such mine or mines or tramways within the mining unit, all of which become the property of the state. During the period of 180 days, the lessee shall, at its own expense, properly and adequately fence all pits, and do all other work which the commissioner deems necessary to leave the premises in a safe and orderly condition to protect against injury or damage to persons or property. Subject to the foregoing, upon the termination of this lease, whether by expiration of the term hereof or otherwise, the lessee shall quietly and peaceably surrender possession of the mining unit to the state.
34. **Recovery of expenses.** If it is necessary for the state to incur expenses by court action or otherwise for the ejectment of the lessee, or removal from the leased premises of the lessee's property, or recovery of rent or royalties, or for any other remedy of the state under this lease, and the state prevails in the court action or otherwise, then the lessee shall pay to the state all expenses, including attorney's fees, thus incurred by the state.
35. **Mining of minerals other than metallic minerals.** If any ore found on or in the mining unit is primarily valuable for other than its metallic minerals content, the terms and conditions upon which the ore may be mined or products recovered from it shall be as may be agreed upon by the lessee and the commissioner and approved by the state executive council. This provision does not apply to iron ores, taconite ores, coal, oil, gas, and other liquid or gaseous hydrocarbon substances.
36. **Agreements, assignments, or contracts.** All assignments, agreements, or contracts affecting this lease must be made in writing and signed by all parties thereto, witnessed by two witnesses, properly acknowledged and must contain the post office addresses of all parties thereto, and when so executed must be presented in triplicate to the commissioner for record. No such instrument is valid until approved in writing by the commissioner and approved as to form and execution by the attorney

general. No assignment or other agreement relieves the lessee of any obligation or liability imposed by this lease, and all assignees, sublessees, and subcontractors are also liable for all obligations or liabilities imposed by this lease.

37. **Lease binding on assignees and successors.** The covenants, terms, and conditions of this lease run with the land and extend to and bind all assignees and other successors in interest of the lessee.
38. **Notices.** For the purposes of this lease, the addresses of the parties are as follows, unless changed by written notice to all parties: For the state—Commissioner of Natural Resources, State of Minnesota, 500 Lafayette Road, Saint Paul, Minnesota 55155-4037; for the lessee—



EXHIBIT A. BASE ROYALTY RATE TABLE

Net return value per ton	Base royalty rate (%)	Net return value per ton	Base royalty rate (%)	Net return value per ton	Base royalty rate (%)
\$ 0.01- 75	3.9500	\$108.01-109	4.3113	\$142.01-143	4.8979
\$ 75.01- 76	3.9574	\$109.01-110	4.3253	\$143.01-144	4.9186
\$ 76.01- 77	3.9650	\$110.01-111	4.3395	\$144.01-145	4.9394
\$ 77.01- 78	3.9728	\$111.01-112	4.3540	\$145.01-146	4.9605
\$ 78.01- 79	3.9808	\$112.01-113	4.3686	\$146.01-147	4.9817
\$ 79.01- 80	3.9890	\$113.01-114	4.3834	\$147.01-148	5.0032
\$ 80.01- 81	3.9974	\$114.01-115	4.3984	\$148.01-149	5.0248
\$ 81.01- 82	4.0060	\$115.01-116	4.4136	\$149.01-150	5.0466
\$ 82.01- 83	4.0147	\$116.01-117	4.4290	\$150.01-151	5.0687
\$ 83.01- 84	4.0237	\$117.01-118	4.4446	\$151.01-152	5.0909
\$ 84.01- 85	4.0329	\$118.01-119	4.4604	\$152.01-153	5.1133
\$ 85.01- 86	4.0422	\$119.01-120	4.4764	\$153.01-154	5.1359
\$ 86.01- 87	4.0518	\$120.01-121	4.4926	\$154.01-155	5.1587
\$ 87.01- 88	4.0615	\$121.01-122	4.5089	\$155.01-156	5.1818
\$ 88.01- 89	4.0715	\$122.01-123	4.5255	\$156.01-157	5.2050
\$ 89.01- 90	4.0816	\$123.01-124	4.5423	\$157.01-158	5.2283
\$ 90.01- 91	4.0919	\$124.01-125	4.5592	\$158.01-159	5.2519
\$ 91.01- 92	4.1025	\$125.01-126	4.5764	\$159.01-160	5.2757
\$ 92.01- 93	4.1132	\$126.01-127	4.5938	\$160.01-161	5.2997
\$ 93.01- 94	4.1241	\$127.01-128	4.6113	\$161.01-162	5.3239
\$ 94.01- 95	4.1352	\$128.01-129	4.6290	\$161.02-163	5.3482
\$ 95.01- 96	4.1465	\$129.01-130	4.6470	\$163.01-164	5.3728
\$ 96.01- 97	4.1580	\$130.01-131	4.6651	\$164.01-165	5.3976
\$ 97.01- 98	4.1697	\$131.01-132	4.6834	\$165.01-166	5.4225
\$ 98.01- 99	4.1816	\$132.01-133	4.7020	\$166.01-167	5.4477
\$ 99.01-100	4.1937	\$133.01-134	4.7207	\$167.01-168	5.4730
\$100.01-101	4.2060	\$134.01-135	4.7396	\$168.01-169	5.4986
\$101.01-102	4.2185	\$135.01-136	4.7587	\$169.01-170	5.5243
\$102.01-103	4.2311	\$136.01-137	4.7780	\$170.01-171	5.5502
\$103.01-104	4.2440	\$137.01-138	4.7975	\$171.01-172	5.5763
\$104.01-105	4.2571	\$138.01-139	4.8172	\$172.01-173	5.6027
\$105.01-106	4.2703	\$139.01-140	4.8371	\$173.01-174	5.6292
\$106.01-107	4.2838	\$140.01-141	4.8571	\$174.01-175	5.6559
\$107.01-108	4.2974	\$141.01-142	4.8774	\$175.01-176	5.6828

Net return value per ton	Base royalty rate (%)	Net return value per ton	Base royalty rate (%)	Net return value per ton	Base royalty rate (%)
\$176.01-177	5.7099	\$226.01-227	7.3134	\$276.01-277	9.4044
\$177.01-178	5.7372	\$227.01-228	7.3505	\$277.01-278	9.4512
\$178.01-179	5.7647	\$228.01-229	7.3877	\$278.01-279	9.4981
\$179.01-180	5.7924	\$229.01-230	7.4251	\$279.01-280	9.5453
\$180.01-181	5.8202	\$230.01-231	7.4628	\$280.01-281	9.5927
\$181.01-182	5.8483	\$231.01-232	7.5006	\$281.01-282	9.6403
\$182.01-183	5.8766	\$232.01-233	7.5386	\$282.01-283	9.6880
\$183.01-184	5.9050	\$233.01-234	7.5768	\$283.01-284	9.7360
\$184.01-185	5.9337	\$234.01-235	7.6152	\$284.01-285	9.7841
\$185.01-186	5.9626	\$235.01-236	7.6538	\$285.01-286	9.8325
\$186.01-187	5.9916	\$236.01-237	7.6926	\$286.01-287	9.8810
\$187.01-188	6.0209	\$237.01-238	7.7316	\$287.01-288	9.9298
\$188.01-189	6.0503	\$238.01-239	7.7708	\$288.01-289	9.9787
\$189.01-190	6.0799	\$239.01-240	7.8102	\$289.01-290	10.0278
\$190.01-191	6.1098	\$240.01-241	7.8498	\$290.01-291	10.0772
\$191.01-192	6.1398	\$241.01-242	7.8895	\$291.01-292	10.1267
\$192.01-193	6.1700	\$242.01-243	7.9295	\$292.01-293	10.1764
\$193.01-194	6.2004	\$243.01-244	7.9697	\$293.01-294	10.2263
\$194.01-195	6.2310	\$244.01-245	8.0100	\$294.01-295	10.2764
\$195.01-196	6.2618	\$245.01-246	8.0506	\$295.01-296	10.3267
\$196.01-197	6.2928	\$246.01-247	8.0913	\$296.01-297	10.3772
\$197.01-198	6.3240	\$247.01-248	8.1323	\$297.01-298	10.4279
\$198.01-199	6.3554	\$248.01-249	8.1734	\$298.01-299	10.4788
\$199.01-200	6.3870	\$249.01-250	8.2147	\$299.01-300	10.5299
\$200.01-201	6.4188	\$250.01-251	8.2563	\$300.01-301	10.5811
\$201.01-202	6.4507	\$251.01-252	8.2980	\$301.01-302	10.6326
\$202.01-203	6.4829	\$252.01-253	8.3399	\$302.01-303	10.6843
\$203.01-204	6.5153	\$253.01-254	8.3820	\$303.01-304	10.7361
\$204.01-205	6.5478	\$254.01-255	8.4243	\$304.01-305	10.7882
\$205.01-206	6.5806	\$255.01-256	8.4668	\$305.01-306	10.8404
\$206.01-207	6.6135	\$256.01-257	8.5095	\$306.01-307	10.8929
\$207.01-208	6.6467	\$257.01-258	8.5524	\$307.01-308	10.9455
\$208.01-209	6.6800	\$258.01-259	8.5955	\$308.01-309	10.9984
\$209.01-210	6.7135	\$259.01-260	8.6388	\$309.01-310	11.0514
\$210.01-211	6.7473	\$260.01-261	8.6822	\$310.01-311	11.1046
\$211.01-212	6.7812	\$261.01-262	8.7259	\$311.01-312	11.1580
\$212.01-213	6.8153	\$262.01-263	8.7698	\$312.01-313	11.2116
\$213.01-214	6.8496	\$263.01-264	8.8138	\$313.01-314	11.2654
\$214.01-215	6.8841	\$264.01-265	8.8581	\$314.01-315	11.3195
\$215.01-216	6.9188	\$265.01-266	8.9025	\$315.01-316	11.3736
\$216.01-217	6.9537	\$266.01-267	8.9472	\$316.01-317	11.4280
\$217.01-218	6.9888	\$267.01-268	8.9920	\$317.01-318	11.4826
\$218.01-219	7.0241	\$268.01-269	9.0371	\$318.01-319	11.5374
\$219.01-220	7.0596	\$269.01-270	9.0823	\$319.01-320	11.5924
\$220.01-221	7.0953	\$270.01-271	9.1277	\$320.01-321	11.6476
\$221.01-222	7.1311	\$271.01-272	9.1733	\$321.01-322	11.7029
\$222.01-223	7.1672	\$272.01-273	9.2192	\$322.01-323	11.7585
\$223.01-224	7.2035	\$273.01-274	9.2652	\$323.01-324	11.8143
\$224.01-225	7.2399	\$274.01-275	9.3114	\$324.01-325	11.8702
\$225.01-226	7.2766	\$275.01-276	9.3578	\$325.01-326	11.9264

Net return value per ton	Base royalty rate (%)
\$326.01-327	11.9827
\$327.01-328	12.0392
\$328.01-329	12.0960
\$329.01-330	12.1529
\$330.01-331	12.2100
\$331.01-332	12.2673
\$332.01-333	12.3249
\$333.01-334	12.3826
\$334.01-335	12.4405
\$335.01-336	12.4986
\$336.01-337	12.5569
\$337.01-338	12.6153
\$338.01-339	12.6740
\$339.01-340	12.7329
\$340.01-341	12.7920
\$341.01-342	12.8512
\$342.01-343	12.9107
\$343.01-344	12.9704
\$344.01-345	13.0302
\$345.01-346	13.0903
\$346.01-347	13.1505
\$347.01-348	13.2109
\$348.01-349	13.2716
\$349.01-350	13.3324
\$350.01-351	13.3934
\$351.01-352	13.4546
\$352.01-353	13.5161
\$353.01-354	13.5777
\$354.01-355	13.6395
\$355.01-356	13.7015
\$356.01-357	13.7637
\$357.01-358	13.8260
\$358.01-359	13.8886
\$359.01-360	13.9514
\$360.01-361	14.0144
\$361.01-362	14.0775
\$362.01-363	14.1409
\$363.01-364	14.2045
\$364.01-365	14.2682
\$365.01-366	14.3322
\$366.01-367	14.3963
\$367.01-368	14.4606
\$368.01-369	14.5252
\$369.01-370	14.5899
\$370.01-371	14.6548
\$371.01-372	14.7199
\$372.01-373	14.7852
\$373.01-374	14.8507
\$374.01-375	14.9164
\$375.01-376	14.9823

Net return value per ton	Base royalty rate (%)
\$376.01-377	15.0484
\$377.01-378	15.1147
\$378.01-379	15.1812
\$379.01-380	15.2479
\$380.01-381	15.3147
\$381.01-382	15.3818
\$382.01-383	15.4491
\$383.01-384	15.5165
\$384.01-385	15.5842
\$385.01-386	15.6520
\$386.01-387	15.7201
\$387.01-388	15.7883
\$388.01-389	15.8567
\$389.01-390	15.9254
\$390.01-391	15.9924
\$391.01-392	16.0632
\$392.01-393	16.1324
\$393.01-394	16.2018
\$394.01-395	16.2714
\$395.01-396	16.3412
\$396.01-397	16.4112
\$397.01-398	16.4814
\$398.01-399	16.5518
\$399.01-400	16.6223
\$400.01-401	16.6931
\$401.01-402	16.7641
\$402.01-403	16.8352
\$403.01-404	16.9066
\$404.01-405	16.9781
\$405.01-406	17.0499
\$406.01-407	17.1218
\$407.01-408	17.1940
\$408.01-409	17.2663
\$409.01-410	17.3388
\$410.01-411	17.4115
\$411.01-412	17.4844
\$412.01-413	17.5576
\$413.01-414	17.6309
\$414.01-415	17.7044
\$415.01-416	17.7781
\$416.01-417	17.8519
\$417.01-418	17.9260
\$418.01-419	18.0003
\$419.01-420	18.0748
\$420.01-421	18.1494
\$421.01-422	18.2243
\$422.01-423	18.2994
\$423.01-424	18.3746
\$424.01-425	18.4501
\$425.01-426	18.5257

Net return value per ton	Base royalty rate (%)
\$426.01-427	18.6016
\$427.01-428	18.6776
\$428.01-429	18.7538
\$429.01-430	18.8302
\$430.01-431	18.9069
\$431.01-432	18.9837
\$432.01-433	19.0607
\$433.01-434	19.1379
\$434.01-435	19.2153
\$435.01-436	19.2929
\$436.01-437	19.3707
\$437.01-438	19.4487
\$438.01-439	19.5268
\$439.01-440	19.6052
\$440.01-441	19.6838
\$441.01-442	19.7625
\$442.01-443	19.8415
\$443.01-444	19.9207
\$444.01 and above 20.0000	

SIX GOOD REASONS FOR EXPLORING IN MINNESOTA

A century of mining has barely scratched the surface of Minnesota's mineral wealth. Thousands of square miles of our state await exploration for untapped bodies of ore. The DNR Minerals Division has invited explorers to conduct searches for this ore. Here are six reasons why they should accept.

Mineral potential. Much of our geologic terrain is a continuation of the mineral-rich Canadian Shield which has yielded zinc, copper, nickel, titanium, gold, silver, and other sought-after metals.

Extensive data base. Drill cores totaling more than two million feet from many formations are cataloged for convenient reference in a rock library. Available, too, are geologic maps, high-resolution aeromagnetic maps, and geo-chemical results of test drillings.

Land for exploration. Millions of acres of state-owned mineral rights are available for lease.

Mining tradition. The first load of iron ore was shipped on sailing from northern Minnesota more than a century ago. This long association with mining has taught Minnesotans how to accommodate mineral development while protecting the environment and the state's economic interests.

Trained workers and support industries. A skilled labor force and network of support industries undergird Minnesota's mining industry. Labor and supplies are available.

Roads, rails, and power. Mining sites are never far from highways, railroads, utilities, and four Great Lakes cargo ports.

Our state's vast mineral wealth has hardly been touched. To explorers we're saying, "Come and investigate the possibilities in Minnesota!"

