

Volume 5--Chapter 4

LANDS AND MINERALS OWNERSHIP IN THE
REGIONAL COPPER-NICKEL STUDY AREA

Level II - Characterization

Minnesota Environmental Quality Board
Regional Copper-Nickel Study

PRELIMINARY
SUBJECT TO REVIEW

Volume 5-Chapter 4

LANDS AND MINERALS OWNERSHIP IN THE
REGIONAL COPPER-NICKEL STUDY AREA

Level II - Characterization

MINNESOTA ENVIRONMENTAL QUALITY BOARD
REGIONAL COPPER-NICKEL STUDY

Minnesota Environmental Quality Board
Regional Copper-Nickel Study

Authors: Barbara Nelson
Marit Waldum

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4.1 INTRODUCTION AND SUMMARY OF FINDINGS

Control of surface and subsurface (mineral) ownership is an important consideration with regard to the availability of prospective mining related land and minerals. State and Federal regulations and procedures governing title, exchanges, and leases may also directly affect the availability of lands for mineral development. Therefore, it is necessary to understand ownership patterns in the Study Area as they may conflict with mining or other existing and potential land uses.

The study of subsurface ownership was concentrated along the Duluth Gabbro Complex between the BWCA and Hoyt Lakes and portions of the Biwabik Iron Formation. These areas are most likely to be affected by the development of copper-nickel mining and/or increased taconite mining. The examination of surface ownership was not limited to areas of mineralization because this information is important in estimating potential land use for activities other than mining development (e.g. settlement, industry, recreation).

Within the Study Area (522,291 hectares), surface ownership is comprised of 30% federal, 12% state, 11% county, 39% private, and 8% under water. Approximately 14% of the mineral rights within the Mineral Ownership Study Area (160,000 hectares) are claimed by more than party. Ownership of the undisputed mineral rights is comprised of 36% federal, 21% state, 37% private, 4% under water, and 2% partial or unknown ownership.

A large portion of the surface and mineral rights in the Copper-Nickel Development and Resource Zones is under the control of various governmental

agencies. Roughly 40% of the Copper-Nickel Resource Zones is covered by pending and granted federal leases and permits and state mineral leases. Federal prospecting permits and mineral leases are concentrated in zones 1 and 2 where the federal government owns the majority of the surface and mineral rights. Federal Special Use permits are found in zones 5, 6, and 7 where, although the federal government does not own the majority of the mineral rights, it has substantial land holdings. State mineral leases have been issued in all resource zones but zone 5.

Only parties involved in taconite and natural ore mining are presently engaged in commercial extractive activities within the Study Area. INCO, the only company holding federal copper-nickel leases, has suspended exploration activities and moved out of the Study Area. There are also nine federal mineral lease applications pending approval for copper-nickel mining in the Study Area. Four companies hold state copper-nickel leases, and AMAX, Inc. is currently conducting extensive exploration activities primarily on state leases held by Bear Creek Mining Co. (under agreement with Bear Creek Mining Co.).

4.2 DATA COLLECTION AND STORAGE

Surface ownership data were collected for the entire Study Area using mapped information from the U.S. Department of Interior, Bureau of Land Management (BLM), St. Louis County Plat Books (1976), and tax records from the Lake County Assessors' office. More detailed public surface ownership data in 1969 and 1973, specifying the government managing units, was in storage at the Minnesota Land Management Information System (MLMIS).

Data gathering for subsurface ownership was limited to the Duluth Complex and the surrounding area. This includes the areas most likely to be affected by

copper-nickel mining development. Subsurface information was supplied by the Register of Deeds and Titles for St. Louis County from official registration records.

A necessary step in the development of copper-nickel mining on public lands involves procurement of permits and leases for land area and mineral units to be prospected, mined, or otherwise disturbed. The federal and state governments have promulgated rules and regulations for the purpose of promoting and regulating prospecting and extraction of copper, nickel, iron ore, and associated minerals. Information pertaining to federal prospecting permits, special use permits, and mineral leases was supplied by the BLM at Silver Springs, Maryland, and the U.S. Department of Agriculture Forest Service (USFS), at Duluth. The Minnesota Department of Natural Resources (DNR), Minerals Division, supplied the status of state mineral leases, leasing procedures, and reclamation information. The DNR Lands Division supplied information on title conflict resolutions and state surface leases.

4.3 CHARACTERIZATION OF SURFACE OWNERSHIP

Within the Study Area (552,291 hectares), approximately half of all surface lands are under public ownership (Table 1)(Figure 1). Surface ownership within the Mineral Ownership Study Area is comprised of 55 percent federal, 13 percent state, 6 percent county, and 26 percent private.

Table 1, Figure 1

The federal government owns approximately 164,000 hectares (405,100 acres) within the Study Area. The majority of this land is concentrated within the Superior National Forest and is managed by the U.S. Department of Agriculture

Table 1. Surface ownership in the Study Area.

<u>SURFACE OWNER</u>	<u>HECTARES¹</u>	<u>PERCENT OF TOTAL AREA</u>
Federal	164,000	30
State	66,400	12
County	60,800	11
Private	216,700	39
Under Water	44,300	8

SOURCE: BLM, 1977/MLMIS

¹1 hectare = 2.47 acres.

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



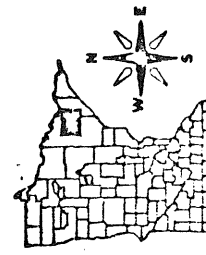
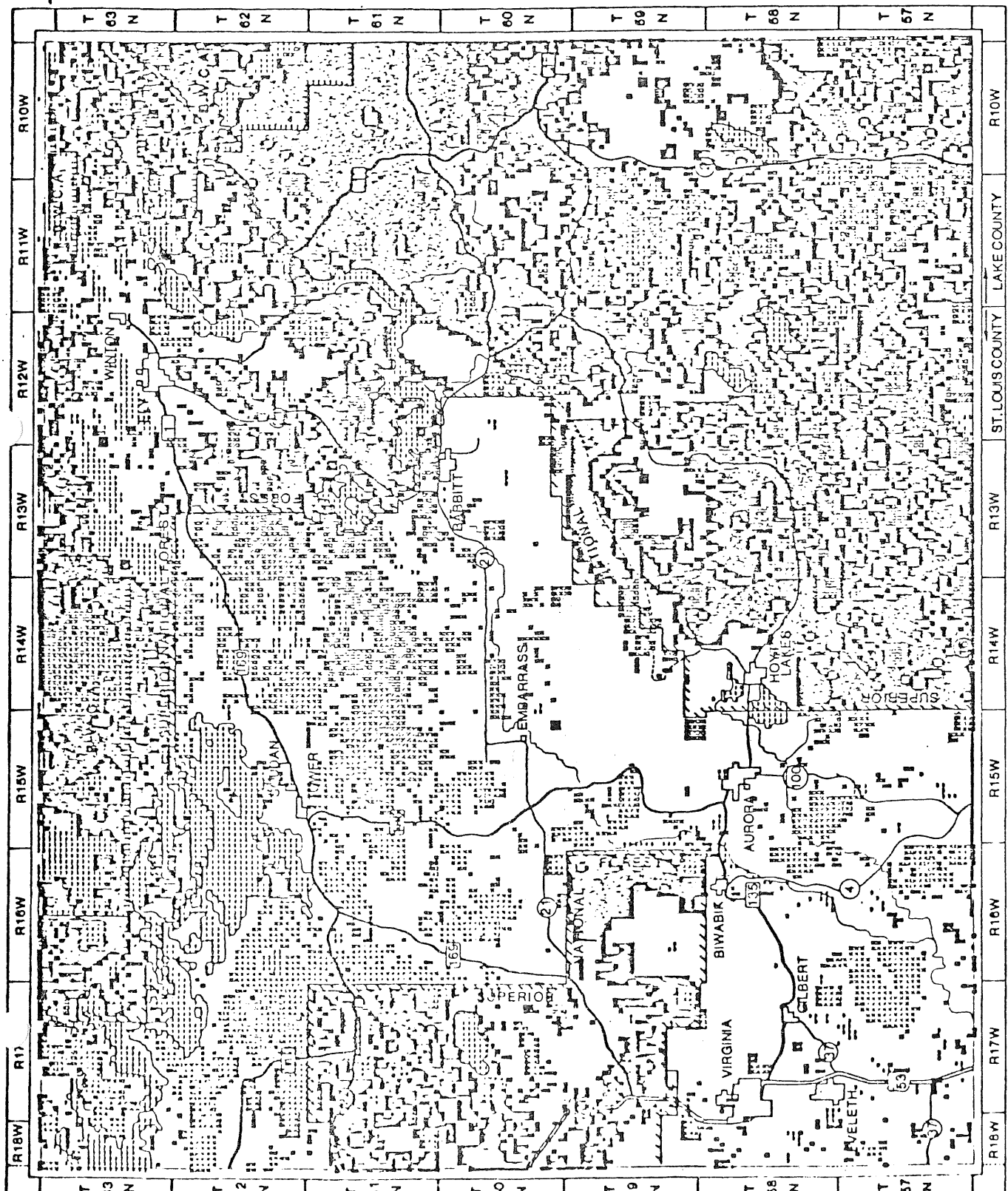
-  FEDERAL LAND
-  STATE LAND
-  COUNTY LAND
-  WATER
-  PRIVATE

Figure 1.



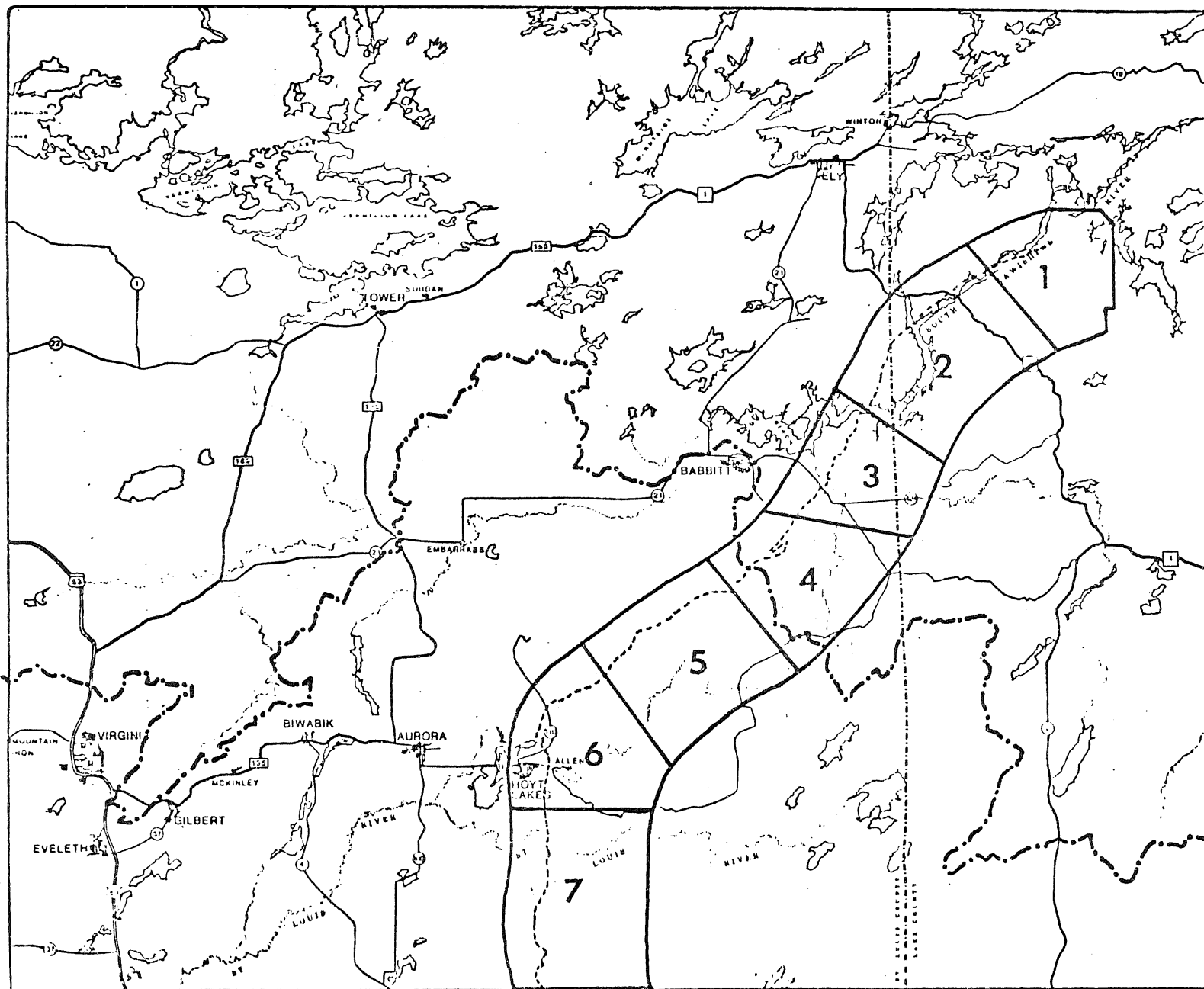
KEY MAP

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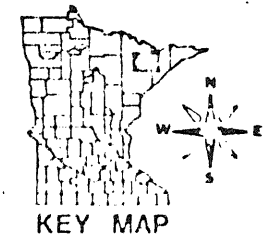
MEQB REGIONAL COPPER-NICKEL STUDY

PUBLIC SURFACE OWNERSHIP



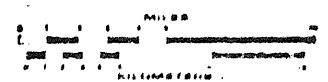
LEGEND

- LAURENTIAN DIVIDE
- DULUTH CONTACT



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MN CU/NI DEVELOPMENT ZONES



Forest Service (USFS) for multiple uses such as forestry, recreation, and wilderness. Federal land in northeastern Minnesota originates from public domain, tax forfeiture, and federal acquisition.

The state of Minnesota controls approximately 66,400 hectares (164,100 acres) or roughly 12% of the land within the Study Area. State lands are dispersed throughout the Study Area and generally are school, swamp, and university trust fund lands, state parks, state forests, or public water accesses. The DNR Lands Division administers the leasing of state claimed surface lands.

Land owned or administered by counties comprises approximately 11 percent of the Study Area or 60,800 hectares (150,200 acres). County land in the Study Area originates from county acquisitions, county memorial forests, and tax forfeiture lands for which the state has granted the county the right to administer. St. Louis County owns 92% and Lake County owns 8% of the county lands in the Study Area.

Private parties own approximately 216,700 hectares (535,200 acres) or 39% of the lands in the Study Area. A major concentration of these privately held lands is located along the Mesabi Iron Range and is primarily controlled by mining or speculative interests. Concentrations of privately owned land are also evident along the Embarrass Valley (along St. Louis County Hwy. 21), in the southwestern quadrant of the Study Area, around lakes, and scattered within the Superior National Forest. Based on available information, none of the mining companies historically interested in copper-nickel resources, except U.S. Steel Corp., have significant surface holdings.

The Copper-Nickel Study assumes that a majority of the surface operations associated with copper-nickel mining development will be contained within the

Copper-Nickel Development Zones, unless non-economic factors prevail.

Approximately 75% of the land within the development zones is under public ownership, although the distribution of ownership varies by zone (Table 2).

Lands in development zones 1 and 2 are predominantly owned by the federal government. Surface ownership in development zones 3, 4, 5, and 6 is divided between the federal government and private parties with some state lands scattered throughout the zones. The federal government owns approximately 70% of the lands in zone 7 with scattered parcels of state and county lands.

Table 2

4.4 CHARACTERIZATION OF SUBSURFACE OWNERSHIP

For purposes of this study examination of mineral ownership was confined to areas most likely to be immediately affected by mining development. Mineral claims adjacent to the Biwabik Iron Formation are controlled primarily by private concerns, though the state of Minnesota has issued numerous iron ore leases in the area.

Within the Mineral Ownership Study Area (160,000 hectares), approximately 14% of the mineral rights (22,000 hectares) are claimed by more than one party. Of the total mineral rights, the Federal government claims 31%, the state claims 18%, private parties claim 30%, and 4% are under water (Figure 2)(Table 3).

Figure 2, Table 3

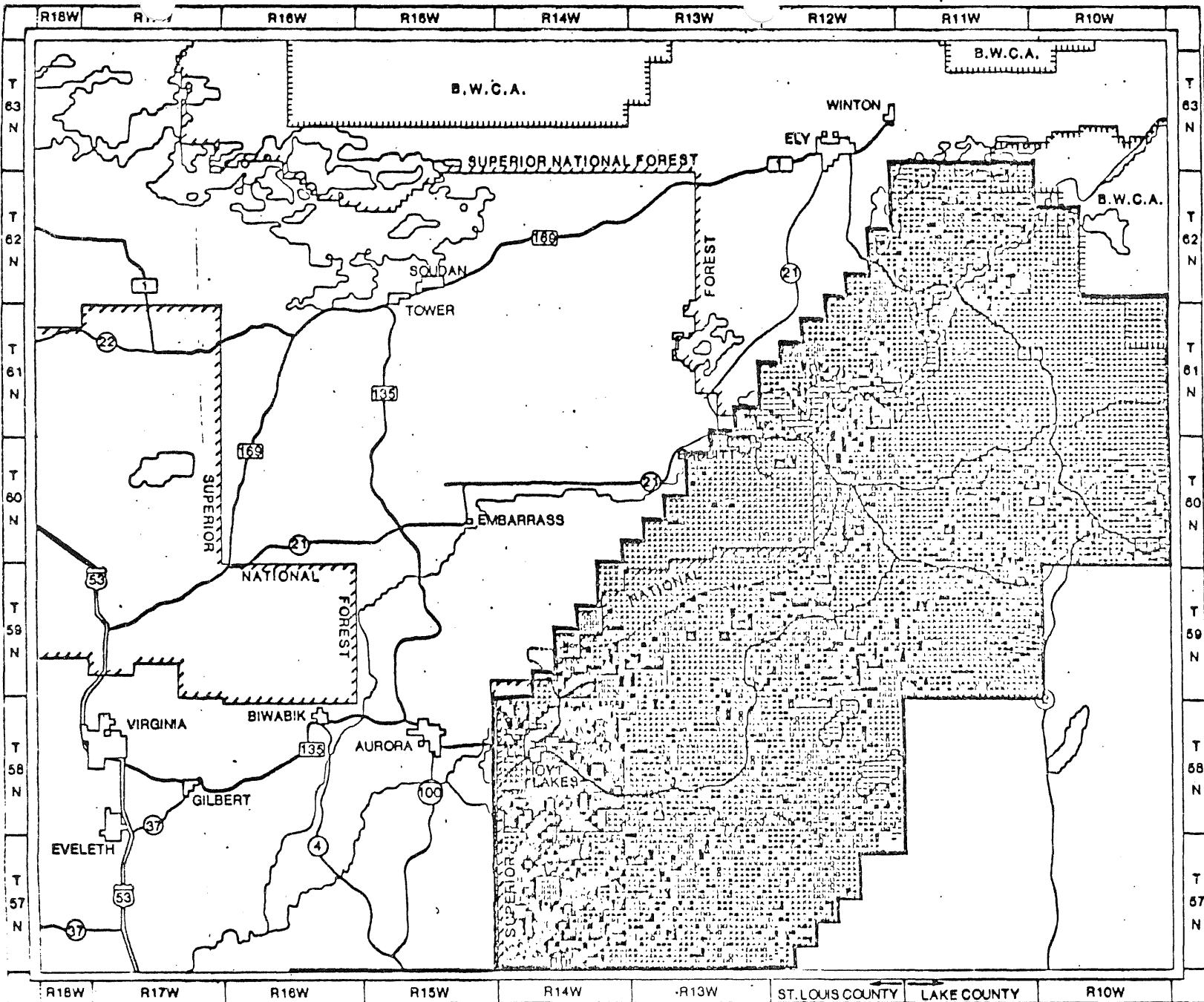
The federal government claims approximately 49,425 hectares (122,080 acres) of undisputed mineral rights in the Mineral Ownership Study Area. Another 18,251 hectares (45,080 acres) of federal claims are disputed, or are claims on a 16.1

Table 2. Percent distribution of surface ownership within Copper-Nickel Development Zones.

LOCATION	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	ZONE 7	TOTAL
SURFACE OWNER								
Federal	74	69	46	35	46	47	70	56
State	8	13	14	26	11	8	8	12
County	--	1	--	--	3	6	19	5
Private	10	8	35	39	40	38	3	24
Over 50% Water	8	9	5	--	--	1	--	3
TOTAL	100	100	100	100	100	100	100	100

SOURCE: BLM, 1977/MLMIS.

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




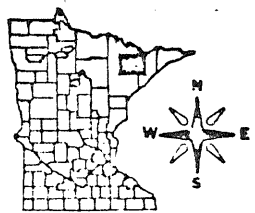
-  ALL FEDERAL
-  ALL STATE
-  ALL PRIVATE
-  CONFLICTS
-  PART FEDERAL / PART PRIVATE
-  WATER

Figure 2.



KEY MAP

1 422 400



MEQB REGIONAL COPPER-NICKEL STUDY

FILED MINERAL OWNERSHIP

ST. LOUIS COUNTY LAKE COUNTY

Table 3. Subsurface ownership in the mineral ownership Study Area.

<u>MINERAL OWNER</u>	<u>HECTARES¹</u>	<u>PERCENT OF TOTAL AREA</u>
Federal	49,425	31
State	28,599	18
County	49	—
Private	51,352	32
Conflicts	22,057	14
Part Fed.--Part Private	1,652	1
Inf. not available	955	—
Under Water	<u>5,911</u>	<u>4</u>
TOTAL	159,999	100

SOURCE: Clark Isle, Register of Deeds and Titles,
St. Louis County, 1977/MLMIS.

¹1 hectare = 2.47 acres.

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hectare parcel shared by the federal government with private parties. Federal mineral ownership in northeastern Minnesota originates from public domain lands, federal acquisitions, and minerals retained under non-federal surfaces.

The state of Minnesota claims 28,599 hectares (70,640 acres) of undisputed mineral rights in the Mineral Ownership Study Area. An additional 2,397 hectares (5,921 acres) claimed by the state are also claimed by the Federal government and/or private parties. The DNR Minerals Division reports that the state of Minnesota can only guarantee title for Trust Fund lands and minerals. All other state claimed lands and minerals, though sometimes offered for minerals exploration and extraction, may be under disputed title.

Mineral ownership within the Copper-Nickel Resource Area is comprised of 24% federal, 15% state, 32% private, 26% conflicts, and 2% under water. The distribution of mineral ownership varies by resource zone (Table 4). The majority of the mineral rights in resource zones 1 and 2 are owned by the federal government. These two resource zones contain over 60% of the known Cu-Ni resources in the entire Resource Zone (see Volume 3-Chapter 2--Mineral Resource Potential). Approximately half of the minerals in resource zones 3 and 4 are under private ownership and the state owns one-quarter to one-third of the total mineral rights in these zones. Mineral rights in zone 5 are predominantly under private ownership with parcels of federal and state minerals scattered throughout the zones. Over half of the mineral rights in resource zones 6 and 7 are claimed by more than one party. Most of these conflicts occur between private and public parties, although some disputes involve only private parties.

Table 4

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Table 4. Percent ownership of mineral ownership distribution within resource zones.

LOCATION	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	ZONE 7	TOTAL
MINERAL OWNER								
Federal	77.33	60.74	17.50	8.30	4.29	8.67	14.89	23.97
State	0	6.28	23.76	29.64	10.99	9.29	20.33	14.86
County	0	0	0	0	0	0	0	0
Private	2.0	6.28	49.50	55.34	73.19	26.32	7.33	31.99
Conflicts	15.34	15.97	7.26	6.32	8.85	55.72	56.50	26.00
Part Fed. Part State	0	0	0	0	0	0	0	0
Part Fed. Part Private	2.67	0	0	0	2.41	0	0	0.59
Part State Part Private	0	0	0	0	0	0	0	0
Inf. not available	0	0.26	0	0.40	0.27	0	0.95	0.32
Over 50% Water	2.67	10.47	1.98	0	0	0	0	2.27
TOTAL	100	100	100	100	100	100	100	100

SOURCE: Clark Isle, 1977/MLMIS.

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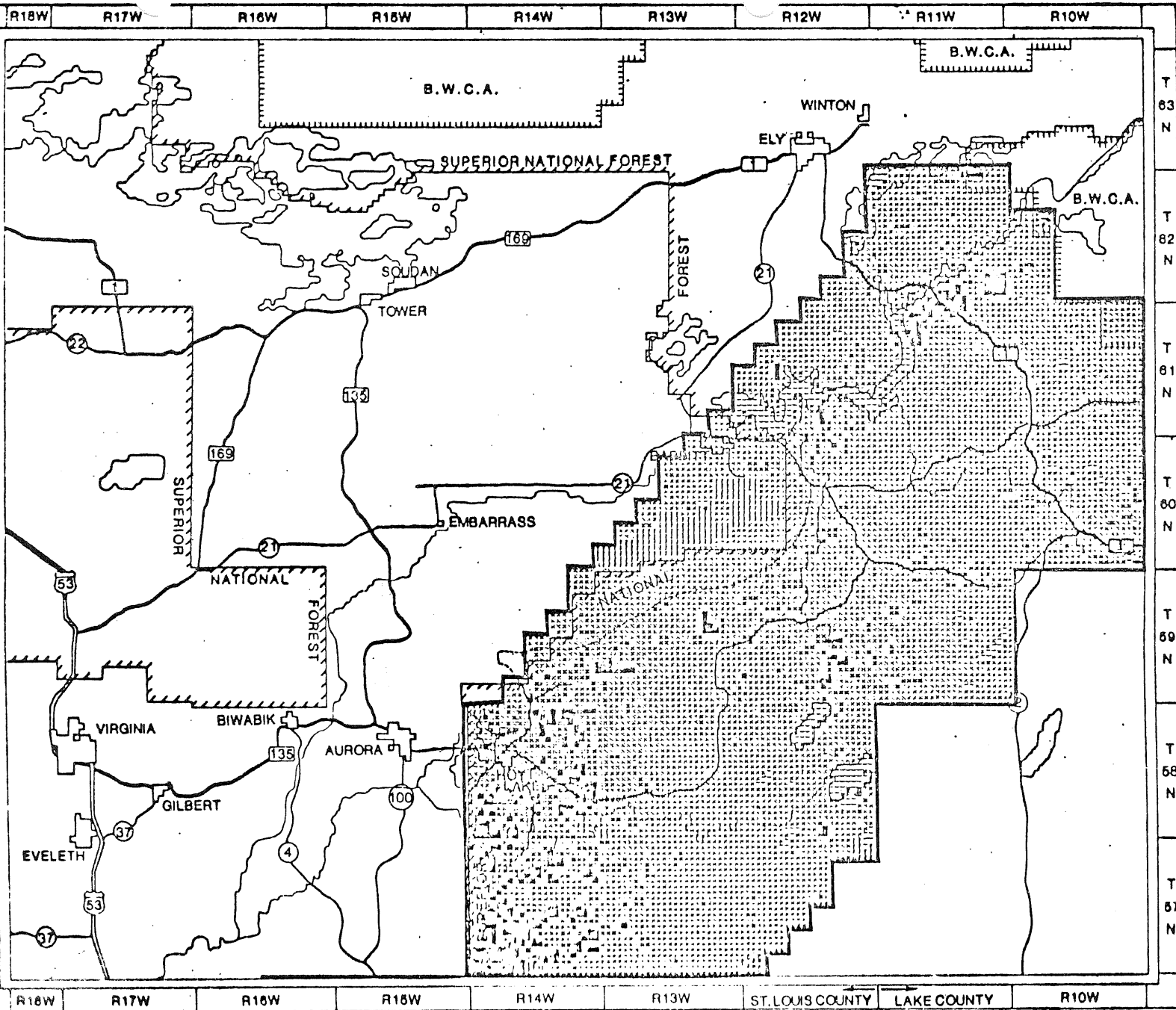
4.5 CONFLICTS IN SURFACE AND SUBSURFACE CLAIMS AND RECORDS

Approximately six percent of the Study Area has discrepancies in surface ownership upon comparison of BLM records and the information stored in MLMIS. Most of these conflicts can be attributed to a two-year time difference between the sources of information rather than actual conflicting ownership claims. When the sources are viewed separately, the MLMIS data show one percent of the Study Area as having conflicts in surface ownership and the BLM records show no such conflicts. This is primarily due to different classification systems used by each source.

There are roughly 22,000 hectares (54,340 acres) of disputed mineral rights in the Mineral Ownership Study Area (Figure 3). Approximately 71% of the disputed rights are claimed by the federal government and private parties; 15% are all private conflicts, and 9% are claimed by the state of Minnesota and private parties. The remaining conflicts are between the state, the federal government, and private parties. When more than one party claims subsurface rights, the state receives a property tax of \$0.61 per hectare per year from each claiming party.

In many cases, one party claims the surface rights and another party claims the mineral rights to the same mining unit resulting in so called "severed mineral rights." The state receives property taxes from both the surface and subsurface owners in these cases.

The Minnesota Severed Minerals Act (M.S. 93.52-93.58) was an attempt to clarify the ownership of severed mineral interests in the state. Under this act, all parties claiming mineral interests on land for which a separate party owns the surface must file for record in the county recorder office and pay a \$0.61 per



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


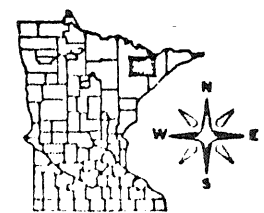
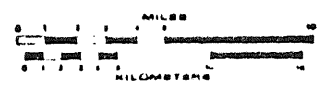
-  0 - 100 PERCENT
-  101 - 200 PERCENT
-  201 + PERCENT
-  UNKNOWN PERCENTAGES
-  WATER
-  OTHER LAND

Figure 3



KEY MAP



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FILED MINERAL PERCENTAGE

R18W R17W R16W R15W R14W R13W R12W R11W R10W ST. LOUIS COUNTY LAKE COUNTY

T 63 N
T 62 N
T 61 N
T 60 N
T 59 N
T 58 N
T 57 N

hectare per year property tax to the state. If the party did not file by January 1, 1975, and pay the subsequent tax, the mineral rights were forfeited to the state (see Volume 5-Chapter 12). This law is being tested in the Minnesota Supreme Court.

When land is leased for mining purposes, a title search is conducted by the USFS at the federal level and by the DNR at the state level to determine the official owner status. If conflicts involving disputed mineral claims and surface titles cannot be settled between the parties, they will go to court for resolution.

4.6 LEASING AND PERMITTING PROCEDURES

To prospect for or to extract minerals, a party must make agreements with the owners of the surface and subsurface rights. The federal and state governments have promulgated rules and regulations for the purpose of regulating exploration and extraction activities on public lands. Thirty-nine percent of the lands within the Study Area are not covered in these regulations.

4.6.1 Federal Procedures

The circumstances of federal acquisition of the Superior National Forest lands have greatly complicated the legal framework which governs mineral extraction from them. The bulk of the Forest was established around a nucleus of public domain land by the acquisition of land from private owners under the Weeks Act of 1911. In order to get a complete picture of leasing hard rock minerals in the Superior National Forest, one must consider two sets of federal mineral laws: one set controlling minerals extraction on public domain land; the other, mineral extraction on acquired lands.

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The Act of February 18, 1873, Ch. 159, 17 Stat. 465, removed the public domain land in Minnesota from operation under the General Mining Law of 1872, and such lands including mineral rights could be sold or patented without reference thereto. The Act of June 30, 1950, permits the prospecting, development, and utilization of those mineral resources in the public domain lands, including lands exchanged for public domain lands, situated within the exterior boundaries of the National Forests in Minnesota; which, because of withdrawal, reservation, statutory limitation, or otherwise, are not subject to the general mining laws of the United States and for which no other authority exists. Leases or permits under the Act of June 30, 1950, may be issued by the Bureau of Land Management only with the prior consent of the Secretary of Agriculture or his delegate, and subject to such conditions and stipulations as that official may prescribe to insure adequate utilization and protection of the lands for the primary National Forest purpose for which they are being administered.

The Act of March 4, 1917, 39 Stat. 1150, is the authority for development of hard rock minerals in all lands acquired under the authority of or made subject to the Weeks Law. The President's Reorganization Plan 3 of 1946 transferred the mineral functions of the Secretary of Agriculture in lands so acquired to the Secretary of Interior. Hard rock minerals in certain other acquired lands have been made subject by law or regulations to the Reorganization Plan and procedures. The Reorganization Plan and each of the special acts authorizing the leasing of deposits of minerals, other than leasing act minerals, require the Secretary of the Interior to obtain the consent of the Secretary of Agriculture and to attach such conditions as he may prescribe to protect the land for the purpose for which acquired or administered.

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A clear distinction between leasable minerals such as potassium, sodium, phosphate and fossil fuels, and the hard rock minerals such as copper, nickel, cobalt, and other metallic minerals also known as base metals, is necessary to properly relate them to the authorities under which they are disposed.

It is clear from the above that in Minnesota, the Secretary of Agriculture or his delegate can write into any prospecting or mining lease for hard rock minerals any stipulations that are necessary to protect the National Forest lands for the primary purpose for which they are being administered. Also, Congress in 1969, passed the National Environmental Policy Act, "to promote efforts which will prevent or eliminate damage to the environment," and further ordered that, "to the fullest extent possible the...public laws of the United States shall be interpreted and administered in accordance with policies set forth in the Act."

Non-federal parties must be granted a Special Use Permit by the USFS before engaging in most surface activities on lands managed by the Forest Service. A Special Use Permit may cover any type of surface operation such as road construction, road use, railroad easements, stockpiles, logging, building construction, gravel excavation or residential occupancy. Special Use Permits often accompany federal prospecting permits and mining leases to regulate surface use and reclamation. Special Use Permits are administered by the USFS after review and recommendations have been submitted by the U.S. Department of the Interior Geological Survey (USGS).

The BLM is the official leasing agent for all federal lands covered by the Mineral Leasing Act of 1947 (61 Stat. 913; 30 V.S.C. 351-359). The USFS can approve or reject prospecting permit applications on lands within the Superior

National Forest. Approximately one-half of the Study Area and 99% of the Copper-Nickel Resource Zones lies within the boundaries of the Superior National Forest.

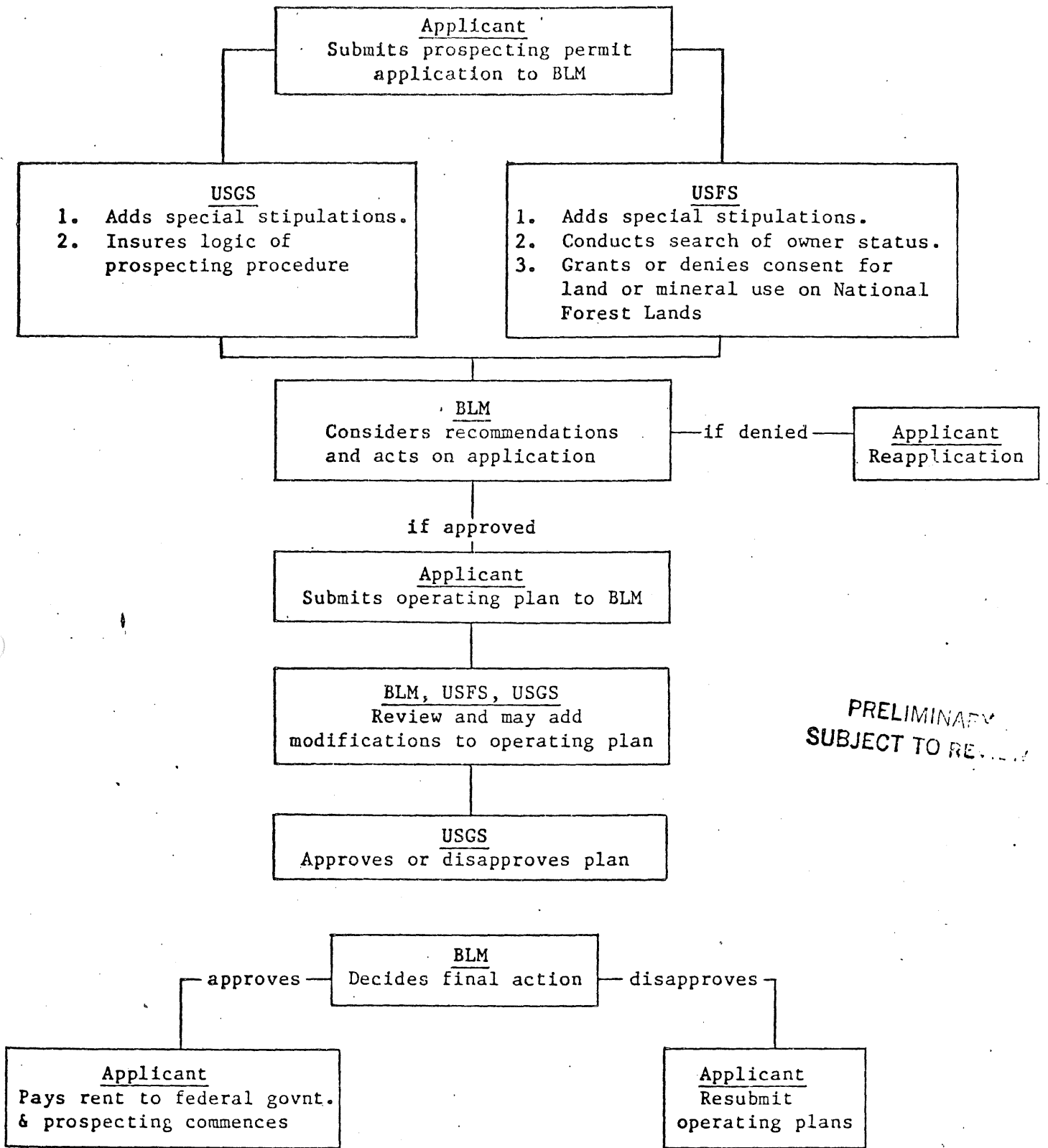
After a prospecting permit application has been formally filed with the BLM, the USFS and USGS review the application and may attach special stipulations to the permit application covering activities from resource conservation to fire fighting (Figure 4). The USGS also determines if the applicant proposes a reasonable method of exploration and the USFS conducts a title search to determine the official ownership status of the tracts for which the application has been filed. The BLM considers the submitted recommendations and acts on the application. The BLM may deny or delay an application due to disputed ownership status or environmental regulations.

Figure 4

If an applicant is granted a permit, the party must submit an operating plan to the BLM for review and approval before prospecting can begin. The BLM, USFS, and USGS may add any necessary modifications to the operating plan to insure optimum prospecting efficiency and resource protection. The final decision is again made by the BLM. Authorized exploration may only commence after the approval of the operating plan and the consequent rent payment of \$0.61 per hectare per year to the federal government. This process, from date of application to date of final approval may span a few months to five years.

If federal land in Minnesota which has been worked as authorized under a federal prospecting permit proves to possess valid mining potential, the prospecting party may apply to the BLM for a preferential rights mineral lease. (Mining

Figure 4. Federal prospecting permit application procedure.



SOURCE: R. Pederson, USFS, Duluth, Minnesota, 1977.

claims on federal lands in Minnesota are not allowed.) The expired prospecting permit protects a prospecting party's right to receive first consideration, should a second party apply for the same tracts. The USGS and USFS are again consulted by the BLM for recommendations regarding approval or disapproval of the application (Figure 5).

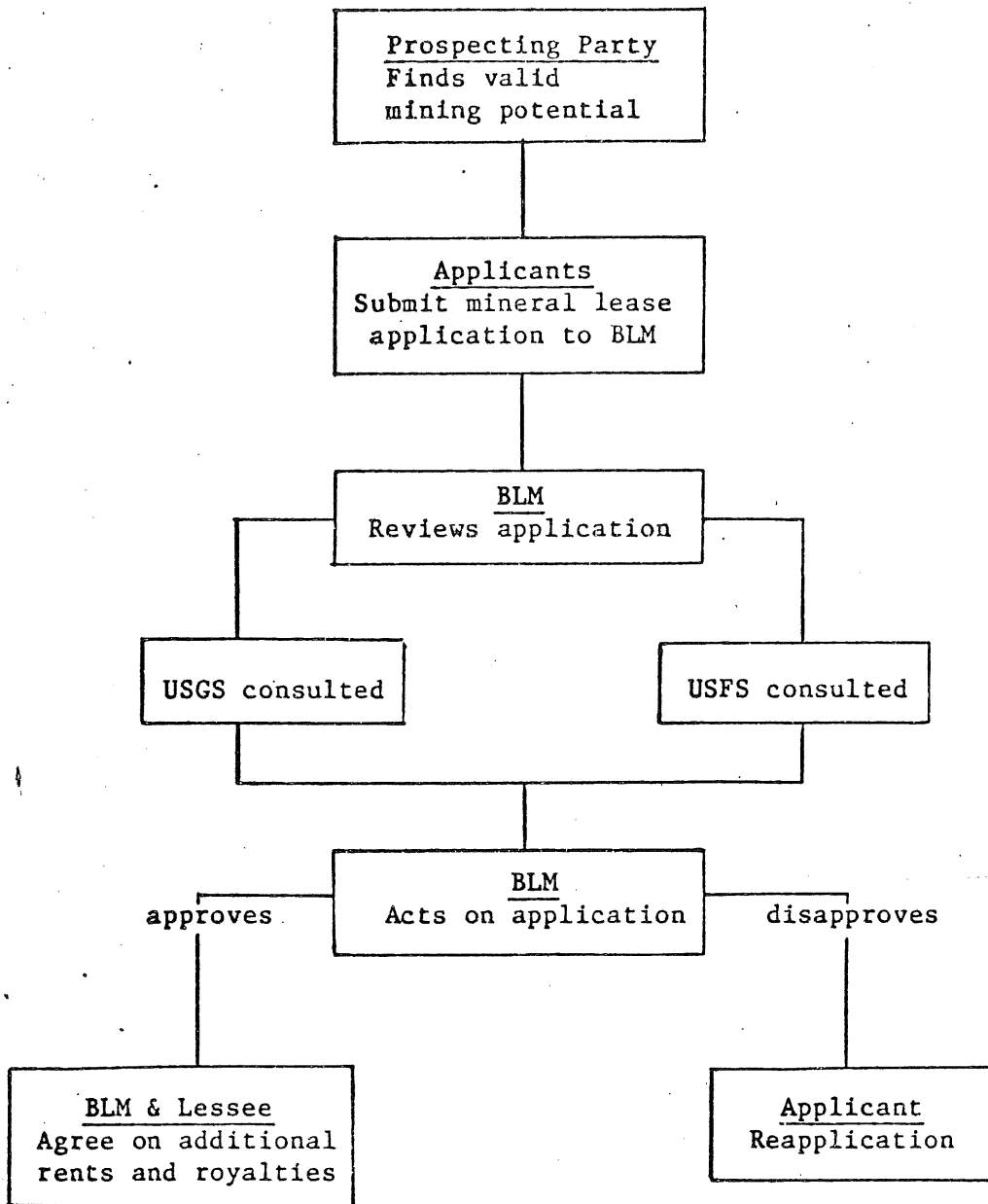
Figure 5

A mineral lease allows the lessee to extract, test, process, and market minerals taken from the mining units as stated in the lease. Additional rent payment must be agreed upon by the BLM and the lessee. The lessee must also pay a royalty to the federal government as defined in each lease for all minerals extracted and processed. The United States has the option to reserve certain mineral rights. Reserved minerals usually include coal, oil, gas, and minerals essential to the production of fissionable material.

4.6.2 State of Minnesota Procedures

The first mineral lease law was passed by the state legislature in 1889 and has been substantially modified and expanded since that time. The authority and guidelines for the Department of Natural Resources' management of state-owned mineral rights are set forth in Minnesota Statutes, Chap. 93. Under state mineral laws, mineral rights are not sold, but state lands believed to have mineral potential are leased at public sale or under certain cases are negotiated. The mineral leases provide for payments to the state an annual minimum royalty or ground rental when no ore is mined, and a royalty for each ton of ore mined and/or shipped.

Figure 5. Federal mineral lease application procedure.



SOURCE: R. Pederson, USFS, Duluth, Minnesota, 1977.

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Most of the laws governing the leasing of state-owned minerals have naturally been directed at iron ore and taconite. However, the following laws relate to the leasing of non-ferrous minerals:

1) M.S., Sec. 84.027, empowers the Commissioner of Natural Resources to have charge and control over public minerals of the state and their leasing.

2) M.S., Chap. 93, basic law relating to state mineral ownership and leasing.

93.01-93.04 Reserves minerals in state-owned lands.

93.05 Requires compensation to be paid by state lessee to any surface owner damaged by the lessee's mining operations.

93.06 Reserves minerals under navigable lakes and rivers.

93.08 Authorizes prospecting, leasing and mining of non-ferrous minerals, such as gold, silver, and copper under the waters of public lakes or streams pursuant to rules and regulations adopted by the Commissioner of Natural Resources and approved by the State Executive Council.

93.24 Authorizes the mining of ores, such as gold, copper, and silver, by a lessee having an iron ore lease only pursuant to a supplemental written agreement entered into between the state and the lessee.

93.25 Authorizes prospecting; leasing and mining of non-ferrous minerals, such as gold, silver, and copper, upon any lands owned by the state (including tax-forfeited lands) and the beds of adjacent waters, pursuant to rules promulgated by the Commissioner of Natural Resources. These permits and leases

must be approved by the State Executive Council.

93.335, Subd. 4 Provides for the apportionment of rents and royalties derived from leasing of tax-forfeited minerals: 20% to the state general fund; 80% to the local taxing districts to be apportioned 3/9ths to the county, 2/9ths to the town, village or city, and 4/9ths to the school district.

93.34 Makes it unlawful to mine under public lakes without proper authorization from the state or without the consent of the State Executive Council.

93.43 Authorizes the Commissioner of Natural Resources to give permits or licenses across state-owned land to businesses engaged in copper-nickel mining for pipelines, pole lines, sluiceways, roads, flowage, etc.

The Minerals Division of the DNR administers state controlled minerals. The DNR periodically makes available to the public for prospecting and mining tracts which have been designated by the commissioner of the DNR as mining units. Mining units are subsurface tracts which are thought to contain mineral reserves. The State Executive Council approves a DNR decision to publicize the availability of certain tracts wherein an interest in the minerals is owned by the state. These tracts can include Trust Fund lands, lands forfeited for non-payment of taxes and held in trust by the state, beds of public waters, and other land acquisitions.

Parties interested in leasing state minerals submit competitive bids which include a royalty rate offer over and above a specified minimum of 2% of the mineral value of the ore recovered in concentrate. The sealed bids are submitted to the DNR, and the highest bid is accepted. The state reserves the

right to reject any or all bids. If the lease is granted, the mining unit is generally leased for a period of 50 years, but is not an authorization for mining (Figure 6).

Figure 6

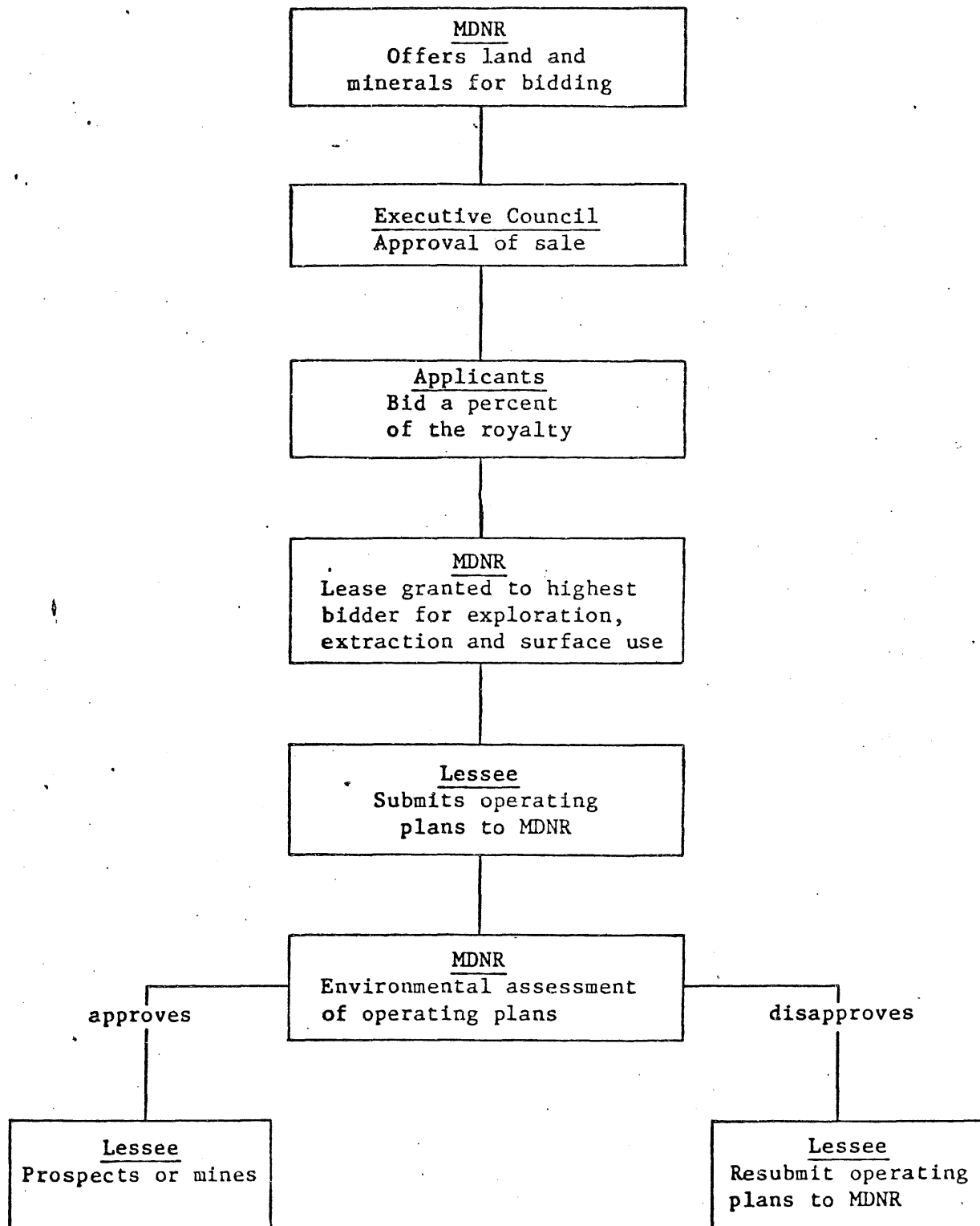
The DNR also issues negotiated leases, or leases granted without the formal bidding process, to interested parties when the Commissioner finds it impractical to hold a sale because of the size, location, or extent of the state's mineral interest in the mining unit.

A state mineral lease allows for the engagement of prospecting, mineral extraction and surface use, unlike the procurement of separate permits and leases required by the federal government. Stipulations for ore processing on state leased land may be added to the lease by the DNR. Ore smelting upon the surface of the leased mining unit would require another agreement between the lessee and the DNR.

After issuance of a state mineral lease, the lessee must submit operating plans to the DNR for evaluation and approval. The DNR may modify the operating plan or add stipulations to insure adequate resource protection. Work can commence only after appropriate environmental assessments have been filed and accepted by the state of Minnesota.

The state reserves the right to sell and dispose of all timber upon the leased mining unit without let from the lessee. The state may also grant leases for iron ore and taconite exploration and extraction to parties other than those who may possess a valid lease for copper and nickel mining on the same mining unit. Thus, two parties could mine the same tract for different types of ore.

Figure 6. State mineral lease procedure.



SOURCE: D. Meineke, MDNR, Minerals Division, Hibbing, 1978.

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The lessee contracts with the state to pay a rent of \$2.47 per hectare of leased land or water area per year. The rate increases in subsequent years of active extraction. The lessee must also pay the state a royalty, as agreed upon in the original lease, for all mineral products recovered from each ton of ore mined from the leased mining unit.

Parties other than the state of Minnesota must be granted a surface lease when engaging in surface activities on state-owned land that are not covered under a mineral lease. Surface operations on state lands such as road construction and use, railroad easement, stockpiles, tailing ponds, utility easements, and residential occupancy all require a state surface lease. The terms of the lease such as lease life, rent payments, and permissible activities vary according to the particular surface use. The DNR Lands Division administers state surface leases and is responsible for reviewing the lease application, adding any necessary stipulations and determining the appropriate rent. State surface leases are subject to cancellation at any time by either party upon proper notification.

4.7 STATUS OF LEASES AND PERMITS

Four major concentrations of known copper-nickel mineralization (greater than 0.5%) are found within resource zones 1, 2, 4, and 5. The two major areas of near surface mineralization (greater than 0.25% copper) are located in zones 1, 3, and 4 (see Volume 3-Chapter 2--Mineral Resources Potential). In zones 1 and 2 the majority of lands and minerals are publicly owned and the major mineralized areas are under federal and state mineral leases, and federal lease applications. In zones 3 and 4 the state has significant land and mineral holdings and has issued several state mineral leases in this area. Within zone

5, the majority of the minerals are privately owned although the federal government owns approximately half of the surface lands. No state or federal mineral leases have been applied for or issued in this zone although several Special Use Permits have been granted. No major concentrations of known copper-nickel mineralization are found in zones 6 and 7. Over half of the mineral rights in these zones are disputed and the majority of surface lands are publicly owned. Three companies hold state leases within these zones and several Special Use Permits have been granted.

4.7.1 Federal Authorizations

Approximately 4,227 hectares (10,440 acres) or 2.6% of the Mineral Ownership Study Area is covered by pending or granted federal copper-nickel leases. This area, in addition to the area covered by pending or approved Prospecting Permits and Special Use Permits totals approximately 19,498 hectares (48,160 acres) or 12% of the Mineral Ownership Study Area (Figure 7).

Figure 7

The USFS grants Special Use Permits in mineralized zones within the Superior National Forest often for the purpose of conducting geophysical and geological surveys where activities are limited to surface operations. Reserve Mining Company, U.S. Steel Corporation, Bear Creek Mining Company, and Exxon Corp. hold Special Use Permits for geophysical survey work covering approximately 9,992 hectares (24,680 acres) within the Mineral Ownership Study Area. Two applications for Special Use Permits by Duval Corp. and J. Purcel are pending approval by the USFS. Over 90% of the Special Use Permits in the Mineral Ownership Study Area are located within the Copper-Nickel Development Zones and most are found

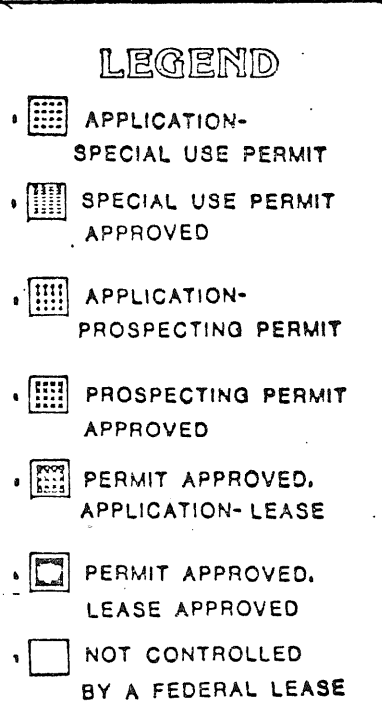
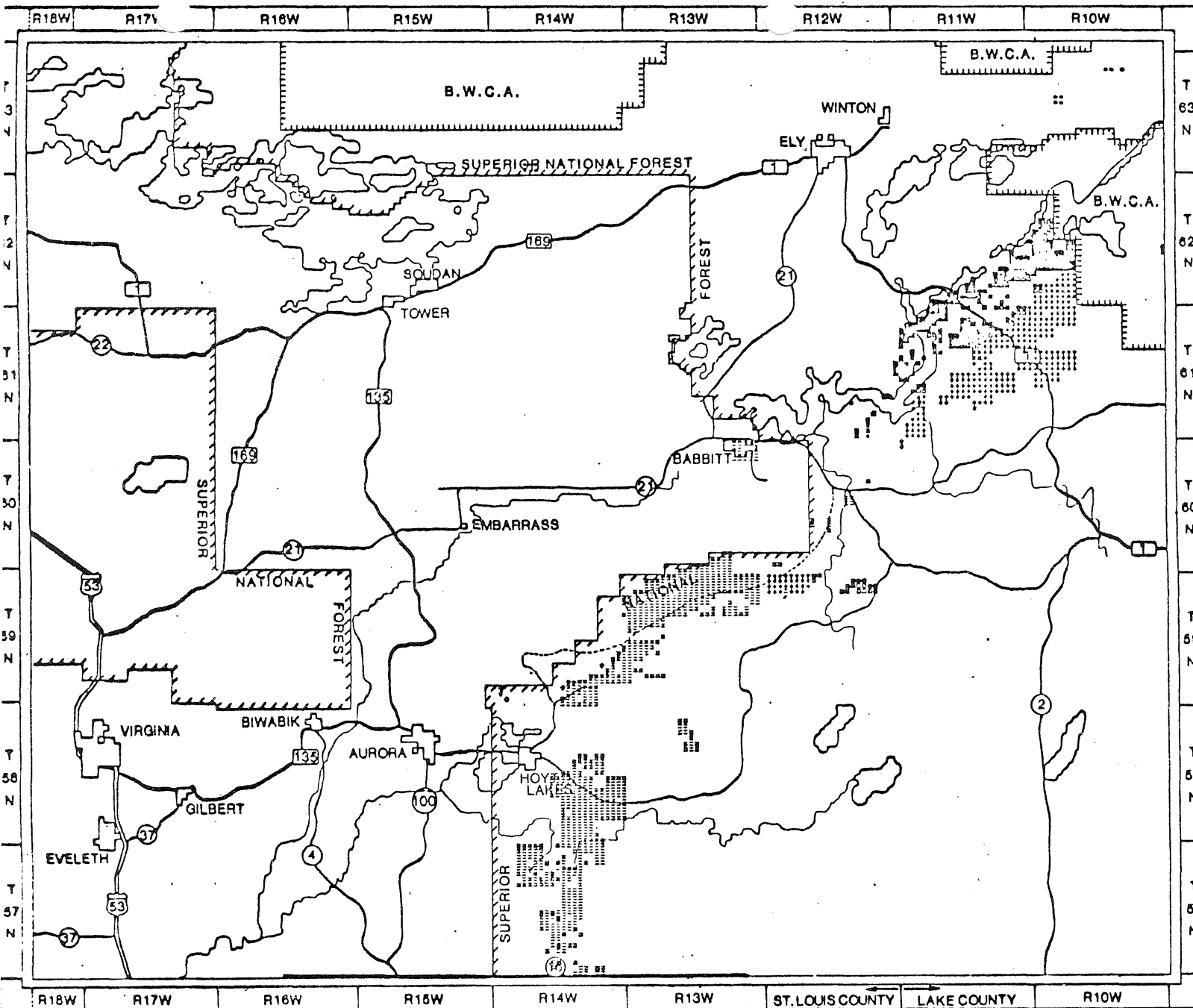
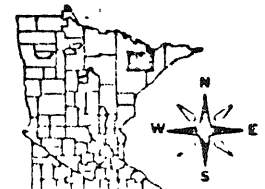


Figure 7



KEY MAP

1 422 400



MEQB REGIONAL COPPER-NICKEL STUDY

FEDERAL LEASES

in zones 5, 6, and 7 (Table 5). No Special Use Permits have been issued by the USFS in zones 1 and 2. Land used for resorts and seasonal homes in the Superior National Forest are also under surface lease issued by the federal government.

Table 5

Within the Copper-Nickel Resource Zones, approximately 98% of pending and approved federal mineral leases and permits are located in resource zones 1 and 2 (Table 6). The majority of the surface and mineral rights in these zones are owned by the federal government. Currently (1878), seventeen federal prospecting permit applications for lands within the Mineral Ownership Study Area are pending approval. There are also three outstanding prospecting permits. Permits are effective for only two years from date of approval. Exxon Corporation holds an active permit for exploration on 49 hectares of minerals until November of 1979. Lloyd K. Johnson and Duval Corporation hold prospecting permits now pending expiration.

Table 6

Nine preferential rights lease applications have been filed for lands within the Mineral Ownership Study Area. The International Nickel Company (INCO) holds the only federal mineral leases in the Study Area, but six federal mineral lease applications filed by Hanna Mining Company, Heart Lake Associates, INCO, Lloyd K. Johnson, and W.S. Moore Company are pending completion of environmental assessments which are conducted by the BLM Lake States Office.

Within the Copper-Nickel Resource Zones, roughly one-quarter of the undisputed federal mineral rights are under approved federal mineral leases. The federal

Table 5. Special Use Permits within the Copper-Nickel Development Zones (hectares¹).

LOCATION	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	ZONE 7	TOTAL
PERMIT HOLDER								
Exxon Corp.	--	--	--	--	--	--	292	292
Reserve Mining Co.	--	--	--	275	1377	--	--	1652
U.S. Steel Co.	--	--	--	--	2008	1927	3206	7141
Bear Creek Mining Co.	--	--	81	194	--	--	--	275
TOTAL			81	469	3385	1927	3498	9360

SOURCE: MnDNR, 1977/MLMIS.

¹1 hectare = 2.47 acres.

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Table 6. Federal mineral authorizations within the Copper-Nickel Resource Zones (hectares¹).

	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	ZONE 7	TOTAL
<u>FEDERAL AUTHORIZATION</u>								
<u>Prospecting Permit Application</u>								
Hanna Mining Co.	16	--	--	--	--	--	--	16
Heart Lake Assoc.	49	--	--	--	--	--	--	49
INCO	567	324	--	--	--	--	--	891
AMAX, Inc.	--	--	32	--	--	--	--	32
Exxon Corp.	--	--	16	--	--	32	--	48
L.K. Johnson	--	--	--	243	--	--	--	243
TOTAL	632	324	48	243	0	32	0	1279
<u>Prospecting Permit Approved</u>								
Duval Corp.	--	32	--	--	--	--	--	32
Exxon Corp.	--	--	49	--	--	--	--	49
Warren S. Moore	--	--	--	--	--	--	65	65
TOTAL	0	32	49	0	0	0	65	146
<u>Permit Approved-Lease Application</u>								
Hanna Mining Co.	243	567	--	--	--	--	--	810
Heart Lake Assoc.	--	227	--	--	--	--	--	227
INCO	--	16	--	--	--	--	--	16
L.K. Johnson	--	--	--	49	--	--	--	49
TOTAL	243	810	0	49	0	0	0	1102
<u>Permit Approved-Lease Approved</u>								
INCO	891	1231	16	--	--	--	--	2138
TOTAL	891	1231	16	0	0	0	0	2138
<u>Total Pending or Approved Permits and Leases</u>								
	1766	2397	113	292	0	32	65	4665

SOURCE: BLM, 1977/MLMIS.

¹1 hectare = 2.47 acres.

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government has issued leases for approximately half of its undisputed minerals in zone 1, one-third of its undisputed minerals in zone 2, and 2% of its undisputed minerals in zone 3. The remaining zones contain no approved federal leases. Approximately 38% of the undisputed federal mineral rights in the Copper-Nickel Resource Zones are under pending and approved mineral leases.

4.7.2 State Authorizations

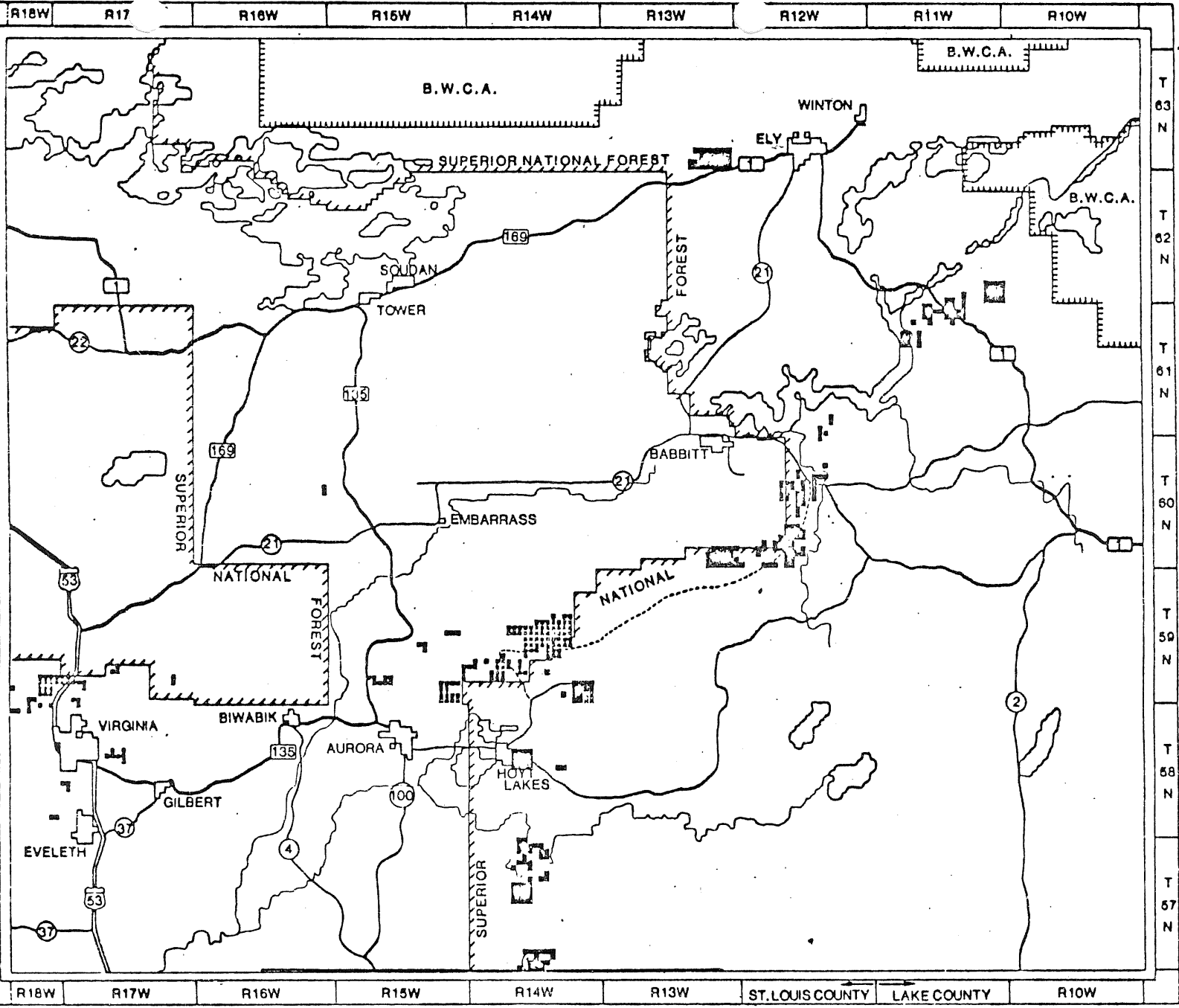
Within the Copper-Nickel Resource Area, four companies hold ten state leases for copper-nickel and associated minerals (Figure 8)(Table 7). These companies include Duval Corporation, INC., American Shield Corp., Exxon, and Bear Creek Mining Company. AMAX is currently conducting extensive exploration activities primarily on Bear Creek Mining Co. leases (under agreement with Bear Creek), but no companies are involved in extractive activities.

Figure 8, Table 7

Approximately half of the undisputed state minerals in the Copper-Nickel Resource Zones are under state mineral leases. The state may issue leases for lands and minerals which have conflicting claims as is the case in zones 1 and 2. The state has issued leases in zones 4 and 7 for roughly half of their undisputed minerals, and 83% of the undisputed state minerals have been leased. No state mineral leases have been issued in zone 5.

Iron ore and taconite mining occurs within and adjacent to the Biwabik Iron Formation. The seven companies possessing and working state leases in the Study Area include, U.S. Steel Corporation, Pittsburgh Pacific Company, Rhude and Fryberger Incorporated, Erie Mining Company, Eyeleth Expansion Company, and Inland Steel Mining Company.

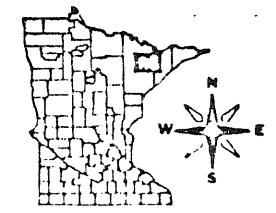
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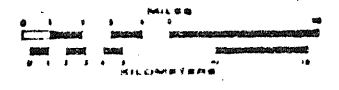
LEGEND

- NOT CONTROLLED BY A LEASE
- COPPER-NICKEL LEASES
- ▨ IRON ORE LEASES
- ▩ BOTH TYPES OF LEASES

Figure 8



KEY MAP



MEQB REGIONAL COPPER-NICKEL STUDY

IRON AND COPPER-NICKEL STATE MINERAL LEASES

Table 7. State Cu-Ni leases within Resource Zones (hectares¹).

LOCATION	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	ZONE 7	TOTAL
<u>LESSEE</u>								
Exxon Corp.	--	--	--	--	--	--	259	259
American Shield	--	--	--	--	--	405	16	421
Duval Corp.	243	405	--	--	--	--	--	648
Bear Creek Mining Co.	--	--	275	567	--	--	405	1247
TOTAL	243	405	275	567	0	405	680	2575
<u>Undisputed State Minerals</u>	0	389	1166	1215	664	486	1393	5313
<u>Percent of Undisputed State Minerals Leased</u>		104	24	47	0	83	49	49

SOURCE: MnDNR, Minerals Division, 1977/MLMIS.

¹1 hectare = 2.47 acres.

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Within the area of copper-nickel mineralization, four mining companies hold eight state surface leases. These companies are International Nickel Company, Reserve Mining Company, AMAX, Inc., and Erie Mining Company.

In summary, only parties involved in taconite and natural ore mining are presently engaged in commercial extractive activities within the Regional Copper-Nickel Study Area. INCO, the only company holding federal copper-nickel leases, has suspended exploration activities and moved out of the Study Area. AMAX is currently conducting extensive exploration activities primarily on Bear Creek Mining Co. state leases. There are also nine federal mineral lease applications pending approval for copper-nickel mining in the Study Area, and four companies holding state copper-nickel leases.

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