

August 2016 - Exploration for Metallic Mineral Resources in Minnesota

Duluth Complex

The DULUTH COMPLEX

Hosting World Class Copper, Nickel, and Platinum Group Metal Resources

Exploring since 1948

There are many deposits of copper, nickel, and Platinum Group Metal (PGM) resources in the bedrock along approximately 40 miles of the edge of the Duluth Complex near Babbitt, Minnesota. This map shows the locations of the deposits, state metallic mineral leases, and federal hardrock leases and prospecting permits.

Exploration Leases and Permits

- Active state nonferrous metallic mineral leases**
See company label codes below for map labels. State leases have no number appended to the label.
 - Active federal hardrock mineral leases**
Beaver Bay Joint Venture (B2) is the only company with federal mineral leases.
 - Active federal hardrock prospecting permits**
The map labels add a '3' after a company label code where they have a federal prospecting permit to help differentiate them from other leases.
- Company labeled codes**
Twin Metals, Minnesota and its Ownership Interest:
 A - Agate Lake Resources
 B - Beaver Bay Joint Venture
 D - DME (USA) LLC
 E - Encampment Minerals
 F - Franconia Minerals
 L - Lehmann Exploration
 P3 - Prime Meridian Resources
 TA - Teck American Inc.
 T - Twin Metals Minnesota
 The number '3' is appended to the label code for Federal Prospecting Permits.
- Terminated state nonferrous metallic mineral leases (1967-August 2016)**
Private mineral leases are not shown.

Mineral Deposits

- Deposits of Copper, Nickel, PGM and/or Titanium
- | Deposit Name | Minerals | Company | NI 43-101 |
|--------------------|-----------------|--------------------------|-----------|
| Water Heat Deposit | Cu, Ni, PGM, Ti | Prime Meridian Resources | |
- *National Instrument NI 43-101 is a national instrument for the Standards of Disclosure for Mineral Projects within Canada. Mineral deposits on this map with a completed NI 43-101 are: Spruce Road, Maturi, Birch Lake, Noremet, Longnose, Tiac, South, and Tamarack North.

- PolyMet's NorthMet Project Area**

Iron Ore Mining Features

- Active taconite mining plant
- Idle taconite pellet plant or pig iron nugget plant
- In closure taconite mining plant
- Biwabik Iron Formation
- Taconite or Natural Iron Ore Pit
- Tailings Basin

General Bedrock Geology Terranes

- Duluth Complex
- North Shore Volcanic Group, Beaver Bay Complex, or miscellaneous midcontinent rift intrusions
- Penokean Virginia Formation, Thomson Formation, or Pokegama Quartzite
- Archean Granite or Greenstones of the Superior Province

Map Scale is 1:110,000

Map Location



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About this map and data
Map was updated by Kevin Hanson in August of 2016 at the Minnesota Department of Natural Resources, Division of Lands and Minerals.
Iron Mining Plant Status (08/16), Iron Mining Features (1/15), Known Metallic Mineral Deposits (02/14), and Active State Metallic Mineral Leases (08/16) from the DNR's Division of Lands and Minerals. Federal Hardrock Leasing and Prospecting Permits from USDA Forest Service (1/15) - No changes to this data since January of 2015. Bedrock Geology features were generated from the MGS 5-21, 2011 version (1:500,000). Roads and Railroads from MNDOT. County Boundaries, State Parks, SNAs, BWCAs, Public Land Survey features, and Cities from the DNR. Lakes shown are greater than 200 acres and were taken from the DNR.