

Twin Metals Minnesota Project

Update

Minnesota House Committee on Mining and Outdoor Recreation

February 3, 2015



Twin Metals Minnesota

Twin Metals Minnesota (TMM) is pursuing the development and operation of an underground copper, nickel, platinum, palladium, gold and silver mining project in the Iron Range region of northeast Minnesota.

TMM is a wholly-owned subsidiary of Antofagasta plc, one of the world's leading copper mining companies.

TMM has offices in St. Paul and Ely, Minnesota.



Twin Metals Minnesota

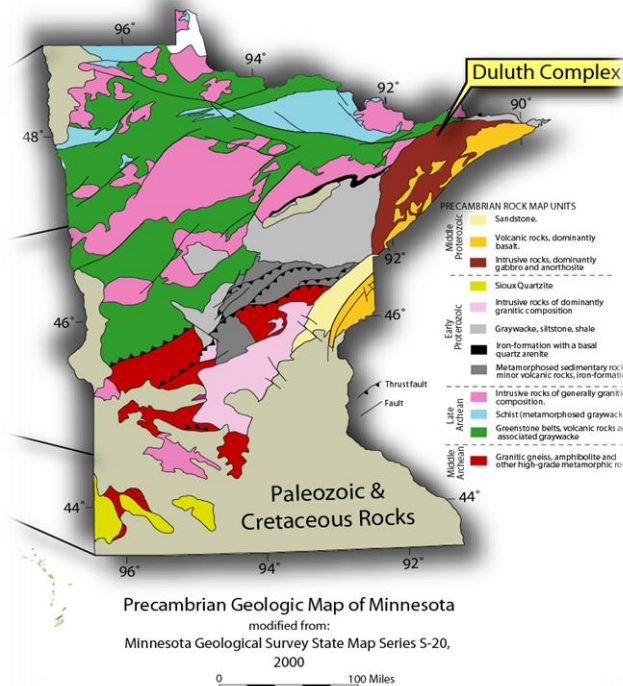


ANTOFAGASTA PLC

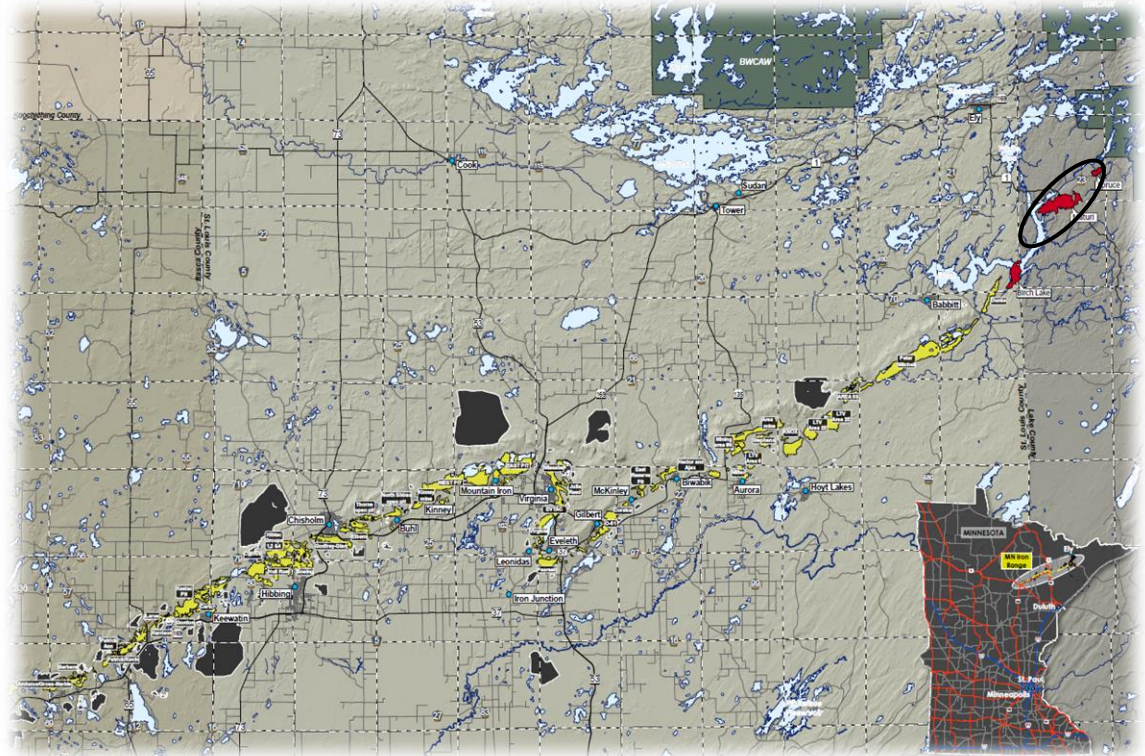
Chilean-based copper mining company w/ additional operations in transportation and water distribution.

- **Top 10 global copper producer w/ three Chilean operations.**
- **Member - International Council on Mining and Metals: focus on sustainability and environmental stewardship.**
- **Strong balance sheet. Committed to long-term investment through market cycles. World-class technical & operational expertise.**
- **Antofagasta has operated in Minnesota since 2010.**

TMM General Project Location



The TMM Project is located in the Iron Range region of northeast Minnesota, in the area of the Duluth Complex.



The Maturi deposits are located nine miles SE of Ely, and 11 miles NE of Babbitt.

TMM Project – Prefeasibility Milestone

A TMM Project Prefeasibility Study (PFS) was completed June 2014.

- **A PFS examines mining concepts and a conceptual mine plan to establish a foundation for further engineering, economic and environmental study.**
- **Independent third-party Technical Report on the TMM PFS:**
 - **Highlights released 8/20/14.**
 - **Full report released 10/3/14.**



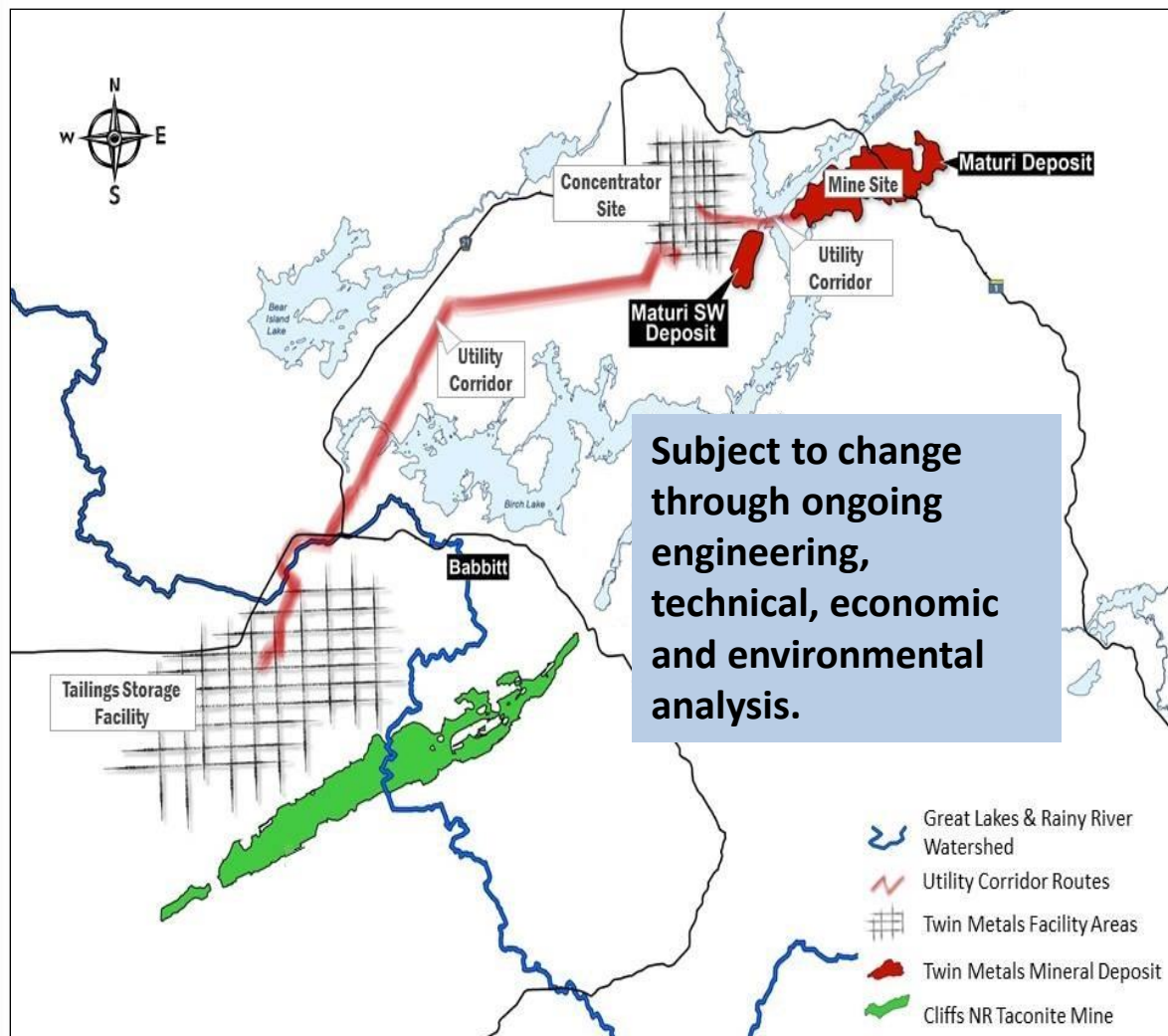
TMM Project – Next Phase of Development

Completion of PFS is an important early project milestone, followed by:

- **Further detailed engineering, economic and environmental study.**
- **Changes to PFS conceptual mine plan likely based on ongoing analysis.**
- **Long-term: develop and submit formal mine plan proposal to state and federal agencies for formal environmental review.**



PFS Tech Report – Conceptual Mine Plan



- **Underground mine @ Maturi & Maturi SW deposits.**
- **Four conceptual facilities: mine site; concentrator; tailings storage; connecting corridors.**
- **Produce copper and nickel concentrates.**
- **50% of tailings backfilled.**

TMM Project – Environmental Commitment

TMM is committed to protecting Minnesota's wilderness, natural environment & recreational resources.

- **TMM Project must meet state and federal environmental standards to be approved:**
 - ✓ **Rigorous environmental review by state & federal agencies and tribal governments.**
 - ✓ **State and federal permits protecting water, air, land and wildlife will include stringent environmental standards.**
 - ✓ **TMM Project will NOT pollute the waters of the Boundary Waters Canoe Area Wilderness.**



Environmental Regulation/Oversight

The TMM Project is under the regulatory oversight of state and federal agencies.

- **MN Dept. of Natural Resources**
- **MN Pollution Control Agency**
- **Tribal Governments**
- **US Forest Service**
- **US Bureau of Land Management**
- **US Army Corps of Engineers**
- **US Environmental Protection Agency**



Typical EIS & Environmental Permitting Process

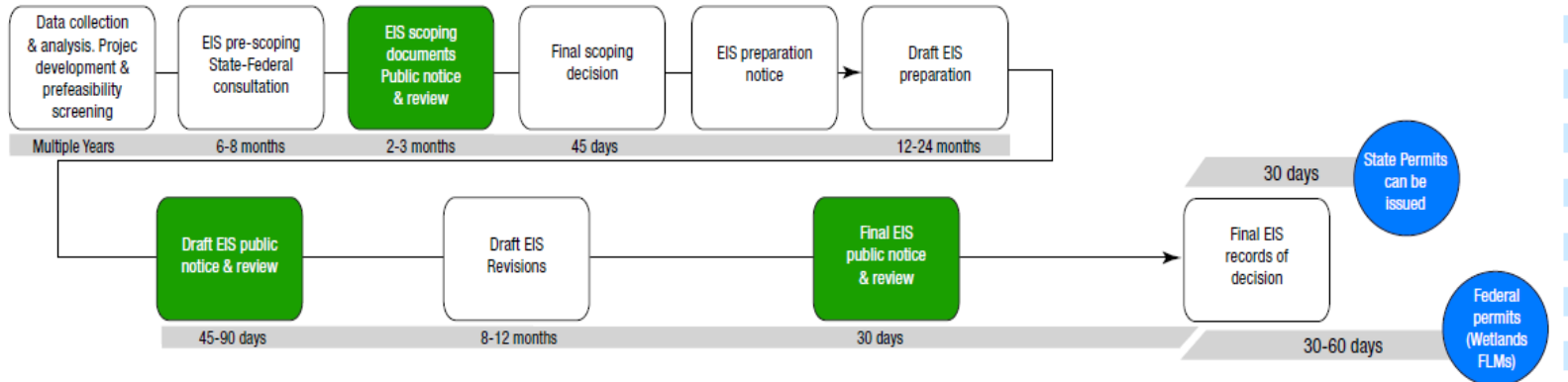
DNR / MPCA

TMM is here



Public Input

MN-DNR Process



Technical Studies for EIS
Migration Identified



MPCA Process

PFS Tech Report - Job Creation Estimates



- **Approx. 850 full-time jobs when TMM Project is in operation.**
- **12 million labor hours during a three-year construction period.**
- **1,700-1,900 additional indirect jobs for the region's economy (UMD).**
- **Geologists, engineers, carpenters, safety inspectors, mine designers & more.**

Jobs for Generations

Twin Metals Minnesota – MN Partners

TMM has partnered with numerous Minnesota businesses throughout the multi-year project development process, including:

IDEA Drilling

Kraus-Anderson

Barr Engineering

Conestoga-Rovers & Assoc.

Golder Associates

Evergreen Construction

W.P. & R.S. Mars

Itasca Consulting Group

Northeast Technical Services

SEH

David Braslau Associates

Pace Analytical Services

Warren Johnson Excavating

Twin City Fan Companies

106 Group

AMEC

OSI Environmental

Partnerships to Develop Future Workforce



SOUTH DAKOTA



SCHOOL OF MINES
& TECHNOLOGY



"The rocks are the final court of appeal" Francis Pettijohn



Working to increase representation of American Indians
and Alaskan Natives in engineering, science and other
related technology disciplines in the Upper Midwest

North Star AISES Alliance
and Professional Chapter

Welcome To NSAAP

PFS Tech Report - Capital Estimates



The TMM Project represents significant investment in Minnesota's future

- **Initial capital to build the PFS Conceptual Mine Plan = \$2.77 billion.**
- **30-year “life of the mine” capital = \$5.41 billion.**
- **More than \$250 million invested in Project development to date.**

TMM Project – Myths vs. Facts

Myth: Twin Metals is secretly planning to develop an open pit mine.

FACT: The TMM Project is being developed as an underground mining project, a FACT reiterated numerous times in the TMM Project's PFS Technical Report.

Myth: The TMM Project is economically unviable.

FACT: The PFS Technical Report's independent economic analysis states: “Based on the assumptions detailed in this report, the Project shows a positive financial return...”

Myth: The TMM Project will pollute the waters of the BWCAW.

FACT: The TMM Project will NOT pollute the waters of the BWCAW. TMM is fully committed to protecting Minnesota's wilderness, natural environment & recreational resources.

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