Twin Metals Minnesota Project
Post-Prefeasibility Study Update
Laurentian Vision Partnership
January 2015
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. Antofagasta brings extensive technical expertise and financial resources to the TMM Project. TMM has offices in St. Paul and Ely, Minnesota.
Twin Metals Minnesota

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

• Top 10 global copper producer w/ three Chilean operations.
• Strong balance sheet. Committed to long-term investment through market cycles.
• Experienced world-class technical & operational expertise.
• Member - International Council on Mining and Metals: focus on sustainability and environmental stewardship.
• Antofagasta has operated in Minnesota since 2010.
The TMM Project is located in the Iron Range region of Northeast Minnesota.

The Maturi and Maturi SW deposits are located nine miles SE of Ely, and 11 miles NE of Babbitt.
• The TMM Project Prefeasibility Study (PFS) was successfully completed June 2014.

• National Instrument (NI) 43-101 Technical Report on the TMM PFS:
  ➢ Highlights released 8/20/14.
Completion of PFS is an Important Early Project Milestone; next is “MPO” Phase.

- Detailed engineering, economic and environmental study of PFS conceptual mine plan.
- Develop formal “Mine Plan of Operation” (MPO)
- Submit MPO to state and federal agencies for environmental review.
- PFS-level conceptual mine plan subject to change during MPO Phase.
The TMM Project

PFS Analysis

• 30-year mine plan – underground mine.
• Develop Maturi and Maturi SW deposits.
• Ave. production rate 50Ktns. mineralized ore/day.
• Produce copper and nickel concentrates.
• 50% of tailings backfilled.
TMM Conceptual Mine Plan Id’s Four Mining Facilities

- Underground Mine Site (Maturi & Maturi SW deposits).
- Potential Concentrator Site.
- Potential Tailings Storage Facility (TSF).
- Utility Corridor Concepts.
TMM Project – Environmental Commitment

TMM is Committed to Protecting Minnesota’s Wilderness, Natural Environment & Recreational Resources

• The TMM Project will meet state and federal environmental standards:
  ✓ Project will face rigorous and thorough environmental review by state and federal agencies and tribal governments.
  ✓ State and federal permits protecting water, air, land and wildlife will include stringent environmental standards.
  ✓ Project MUST meet environmental standards, or it will not be approved.
PFS Tech Report - Job Creation Estimates

- Approximately 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 study).
- Geologists, engineers, carpenters, safety inspectors, mine designers, mapping experts & more.

Jobs for Generations
Annual Mining Wages 2013
Source: U.S. Bureau of Labor Statistics

MINING JOBS COMPARED TO OTHERS

- All Industries Avg. in MN: $50,475
- Mining Jobs in MN: $83,359 (+65%)
- All Industries Avg. in U.S.: $49,700
- Mining Jobs in U.S.: $72,512 (+46%)
Significant Investment in Minnesota’s Future

- Initial capital to build the TMM 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.
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TMM Project Post-Prefeasibility Update
Backup Slides with Conceptual Project Detail
Winter 2014-15
PFS Tech Report – Conceptual Mine Plan

Underground Mine Site

- @ Maturi and Maturi SW deposits.
- Facilities underground:
  - Primary crushers
  - Conveyors
  - Pumping stations
  - Electrical substations
Concentrator

• 2.5 mi. west of Mine Site, south of Ely Airport.

• Facilities include:
  ✓ Concentrator plant
  ✓ Primary portal
  ✓ Temporary stockpiles
  ✓ Process water pond.

• Water estimates reduced; water source re-examined.
Tailings Storage Facility (TSF)

- 11 mi south of Concentrator, near Peter Mitchell Mine.
- South of Laurentian Divide.
- TSF facilities:
  - Concentrate filtration plant
  - Intermediate pond
  - Electrical substation
  - Rail facility.
TMM Project – Managing Waste Responsibly

Reduce Surface Impacts & Protect the Environment

- Waste rock from mining used as underground backfill.
- 50% of tailings returned to mine as paste backfill.
- Remainder of tailings stored in modern, lined TSF.
Utility Corridors

- Utility Corridors connect Mine Site with Concentrator and TSF.
- Serve multiple needs:
  - Concentrate transport
  - Tailings transport
  - Water pipelines
  - Service roads
  - Rail extension