PolyMet Mining Update
Brad Moore and LaTisha Gietzen

January 23, 2019
2018

Major milestones

DNR, MPCA release draft permits including draft Permit to Mine

Glencore makes $80 million in additional funding available

We publish updated feasibility study (Technical Report 43-101)

Land exchange with USFS closes and titles change hands

And…..
2018 Major Milestones

DNR and PCA issue their permits

November 2018 DNR Issues:
- First ever nonferrous Permit to Mine including FA
- Water appropriations permits
- Dam safety permits
- Wetland Conservation Act approval
- Public water works permit
- Takings permit

December 2018 MPCA Issues
- Air permit
- NPDES/SDS permit
- 401 Certification
Environmental Review & Permitting

Progress

2004
Background Studies
Scoping EAW

2005
MOU DNR and USACE
Scoping Decision Document

2006
EIS Development Starts

2007
Detailed Project Description

2008
EIS Work Continues
Land Exchange Discussion Begins

2009
Draft EIS Completed
Draft EIS Public Noticed and Meetings

2010
Decision to prepare Supplemental EIS

2011-2012
SDEIS Preparation
SDEIS Includes USFS Land Exchange and Project Improvements

2013
Supplemental EIS Completed
SEIS Public Notice and Meetings

2014
SEISReceived over 50,000 Comments

2015
Final EIS Completed
Final EIS Public Notice

2016
DNR Adequacy Decision
Permit Applications Submitted

2017
USFS ROD
Draft Dam Safety and Water Appropriation Permits Public Notice

2018
Draft Permit to Mine, Air and Water Permits Public Notice
Public Meetings

2013
Supplemental EIS

2014
Draft EIS

2015
Final EIS

2016
DNR Adequacy Decision

2017
USFS ROD

2018
Draft Permit to Mine, Air and Water Permits Public Notice
Public Meetings

We are here

Final Permits
Land Exchange
Overview
Permitting status

December 2013
Supplemental DEIS
Included a 90-day public review and comment period and 3 public meetings.

November 2015
Final EIS
Included responses to comments, supplemental analysis developed since the SDEIS, and revisions to EIS text.

March 2016
State Adequacy Determination
EIS Adequacy needed to proceed to permitting.

January 2017
USFS Record of Decision
Sect 106 MOA Biological Opinion

Nov/Dec 2018
State Permit Decisions

November 2015
State Adequacy Determination
EIS Adequacy needed to proceed to permitting.

June 2018
USFS Land Exchange

CONSTRUCTION
USACE Record of Decision and 404
# Major Permits

## Status

<table>
<thead>
<tr>
<th>Permit Type</th>
<th>Submitted</th>
<th>Determined Complete</th>
<th>Draft for Public Review</th>
<th>Final Permits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permit to Mine</td>
<td>Nov 2016</td>
<td>NA</td>
<td>January 5, 2018</td>
<td>November 1, 2018</td>
</tr>
<tr>
<td>Water Quality (NPDES/SDS) Permit</td>
<td>July 2016</td>
<td>Aug 2016</td>
<td>January 31, 2018</td>
<td>December 20, 2018</td>
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<tr>
<td>Air Quality Permit</td>
<td>Aug 2016</td>
<td>Sept 2016</td>
<td>January 31, 2018</td>
<td>December 20, 2018</td>
</tr>
<tr>
<td>404 Federal Wetland Permit</td>
<td>Aug 2013</td>
<td>NA</td>
<td>NA</td>
<td>TBD</td>
</tr>
<tr>
<td>Section 401 Water Quality Cert.</td>
<td>Aug 2016</td>
<td>NA</td>
<td>January 31, 2018</td>
<td>December 20, 2018</td>
</tr>
<tr>
<td>Dam Safety Permits (2)</td>
<td>July 2016</td>
<td>Aug 2016</td>
<td>September 15, 2017</td>
<td>November 1, 2018</td>
</tr>
<tr>
<td>Water Appropriations Permits (6)</td>
<td>July 2016</td>
<td>Aug 2016</td>
<td>August 11, 2017</td>
<td>November 1, 2018</td>
</tr>
</tbody>
</table>
Permit to Mine

Financial assurance

Permit to Mine required PolyMet to secure $74 million in financial assurance before it was issued. FA is provided through a combination of the following instruments:

• cash trust
• letters of credit
• bonds

Permit to Mine also requires $10 million of Pollution Insurance
Litigation

Unfortunately part of permitting

• Four lawsuits filed challenging land exchange
• Several environmental groups filed appeals in the Minnesota Court of Appeals on supplemental EIS request
• Multiple appeals filed challenging permits issued and the state’s non-ferrous mining rules
• Legal challenges are typical of mining projects at this stage
• We don’t anticipate these legal challenges to hinder our ongoing efforts in final engineering, raising capital and site preparation
Project Timeline
Path forward

- Final EIS
- Draft Permits
- Land Exchange
- Final State Permits
- Final 404 Permit
- Project Finance
- Construction (24-30 Months)
- Commercial Production
NORTHMET PROJECT
Location
Duluth Complex

World class copper, nickel, PGM resources located in the Duluth Complex

District with 130 years of iron mining history

Experienced labor, construction and supplier networks

Established transportation and energy infrastructure

Strong community and elected officials support
Responsible Mining

ENVIRONMENTAL STEWARDSHIP
Design safeguards water, air and other natural resources
Repurposes idled plant and addresses legacy water quality
Among highest EPA rating of EIS of any mine in U.S.

COMMUNITY COMMITMENT
Vested partner in Iron Range communities
Aligned company and community values
Strong support across business, labor and community spectrum
Site history

Erie Mining Company

1953-1957
- Construction of Taconite processing and shipping facilities
- $300M construction project

1970s
- Peak employment over 3000

1986
- LTV Corp acquires Erie

2001
- LTV ceases operation
- Assets sold to Cliffs and Minnesota Power

2004
- PolyMet acquires option to buy the former LTV plant, tailings basin and associated infrastructure from Cliffs
Project location

Mining zone
Existing Assets

NorthMet Deposit

- Proven & Probable Reserve: 255Mt
- Measured & Indicated Resource: 649Mt
- Inferred Resource: 509Mt
- Revenue distribution:
  - Cu 61%, Ni 18%, PGM 18%, Co 2%, Au 1%

Plant Site

- Previously processed 100k tpd taconite
- Primary crusher, ore transfer facilities and buildings will be refurbished
- Installed industrial electric power
- Tailings basin with over 300Mt capacity

Associated Infrastructure

- Rail connecting mine and plant
- Onsite access to class one rail carrier
- Plentiful water sources
- Established supplier network

1 Source: “2018 Technical Report” as filed under the Company’s SEDAR and EDGAR profile. Additional resource and reserve information, including grades is included on slide 17.
2 Based on payable metal in copper and nickel concentrates and metal price assumptions of $3.22/lb Cu, $7.95/lb Ni, $973/oz Pd, $1128/oz Pt, $20.68/lb Co, $1308/oz Au.
Development
Phase I – Concentrate

- Develop 225M ton ore body
- Open traditional open-pit mine
- Refurbish existing plant facilities
- Install new SAG, ball and flotation circuit
- Upgrade existing tailings basin
- Produce copper and nickel concentrates

Phase II – Hydromet

- Construct 1,000 tpd hydromet facility
- Finance with operating cash flows
- Improve metal recoveries
- Value added products
  - Nickel-cobalt hydroxide
  - PGM precipitate
  - Higher copper concentrate quality

Source: “2018 Technical Report” as filed under the Company’s SEDAR and EDGAR profile. Additional resource and reserve information, including grades is included on slide 17.
Reuse

Existing Tailings Basin

- Reuse existing stable basin with added enhancements reduces overall impact
- Extensive geotechnical investigation
- Rock buttresses added
- Containment, collection and treatment of seepage
Estimated Production

20 year permit

Ore: 225 million tons
Copper: 1.16 billion lbs
Nickel: 170 million lbs
Cobalt: 6.2 million lbs
PGM: 1.56 million oz
Economic benefits

Job creation

$515 million annual economic benefit

1000 jobs direct and spinoff

2 million hours construction labor- PLA in place

Source: NorthMet Economic Impact 2011 Update University Of Minnesota Duluth Labovitz School of Business and Economics
Project investment
Since 2006

54 million wages and consulting
131 million environmental and permitting
179 million other (mine plan, mill, mineral rights, etc.)
364 million total

As of September 30, 2018
Essential metals
Improving our health and environment

Copper
- Electric Cars

Nickel
- Medical Instruments

Cobalt
- Joint Replacements

Platinum
- Catalytic Converters

Palladium
- Cancer Treatment

Gold
- Computer Components
Net import reliance

1995 vs 2017

Greater than 50%

100%

24 vs 53
Annual Median Concentration of Particulate Air Matter

Data: World Health Organization
Unregulated Mining
No child labor laws

- Despite cleanup vows, smartphone and electric cars still keep miners digging by hand in the Congo
- Working conditions at unregulated mines pose serious risks to workers' health and safety
- Global demand for cobalt is increasing
- Tracking the source of cobalt is nearly impossible with no domestic sources

SOURCE: SCOTT PATTERSON/THE WALL STREET JOURNAL
SITE READINESS
Current Activities
On-site

Current activities

EMS/EMIS development and implementation

Well installation and geotechnical work

Installation of monitoring equipment

Permit-required monitoring

Abatement work

Section 106 cultural resource documentation
EMS-EMIS

Managing permit compliance

Environmental Management System (EMS)

Environmental Management Information System (EMIS)

- **Intelex**: over 1,300 clients and 1.6 million users worldwide

- Tracks environmental data for the EMS

- Sample of clients across industries: Xstrata, Teck, Nalco, Komatsu, ABB, Subaru, Heinz, Saskatchewan Environment, GE, Citgo

Source: Intelex Website
Well Installation and Geotech

Collecting baseline data

- Well Installation
  - 13 Surficial Aquifer Wells
  - 24 Bedrock Wells

- Geotechnical Data
  - Test Pits
  - Borings
Monitoring Equipment Installation

Collecting baseline data

- Air Monitoring
  - 3 air monitoring stations
    - 2 for PM10
    - 1 for PM2.5

- Stream Monitoring
  - 8 stream gages stations
    - 3 already installed
Onsite work

Asbestos abatement - concentrator
Asbestos abatement - electrical tunnel
Asbestos abatement - service tunnel

Total of approximately 1,400 cubic yards of asbestos removed!
Community involvement
Corporate responsibility
Resolutions of Support

Current resolutions

MUNICIPALITIES
- City of Aurora
- City of Babbitt
- City of Bivabik
- City of Chisholm
- City of Ely
- City of Gilbert
- City of Grand Rapids
- City of Hibbing
- City of Hoyt Lakes
- City of Mountain Iron
- City of Virginia
- Embarrass Township
- Town of Foyat
- Town of White

COUNTY BOARDS
- Aitkin County Board
- Itasca County Board
- St. Louis County Board of Commissioners

CHAMBERS OF COMMERCE
- Brainerd Lakes Chamber of Commerce
- Duluth Chamber of Commerce
- Grand Rapids Chamber of Commerce
- Hibbing Chamber of Commerce
- Laurentian Chamber of Commerce
- Owatonna Area Chamber of Commerce & Tourism
- Richfield Chamber of Commerce
- River Heights Chamber of Commerce
- Willmar Lakes Area Chamber of Commerce

SCHOOL DISTRICTS
- Chisholm Independent School District No. 695
- Virginia Independent School District No. 704

JOINT COUNTY GROUPS
- Joint Counties Natural Resources Board
- Aitkin County
- Beltrami County
- Clearwater County
- Koochiching County
- Lake of the Woods County
- Mahnomen County
- Marshall County
- Roseau County
- NE Minnesota Office of Job Training
- Aitkin County
- Carlton County
- Cook County
- Itasca County
- Lake County
- Koochiching County
- St. Louis County

MISCELLANEOUS
- APED
- Duluth Seaway Port Authority
- East Range Joint Powers Board
- City of Aurora
- City of Bivabik
- City of Hoyt Lakes
- Town of White
- By Joint Powers Board
- By School District
- City of By
- Town of Morse
- City of Winton
- RAMS
THANK YOU