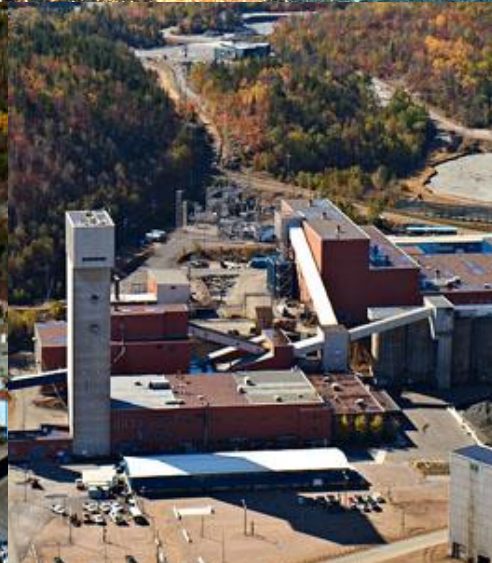


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Presentation to Greater City of Sudbury
December 13th, 2016

Nickel Assets



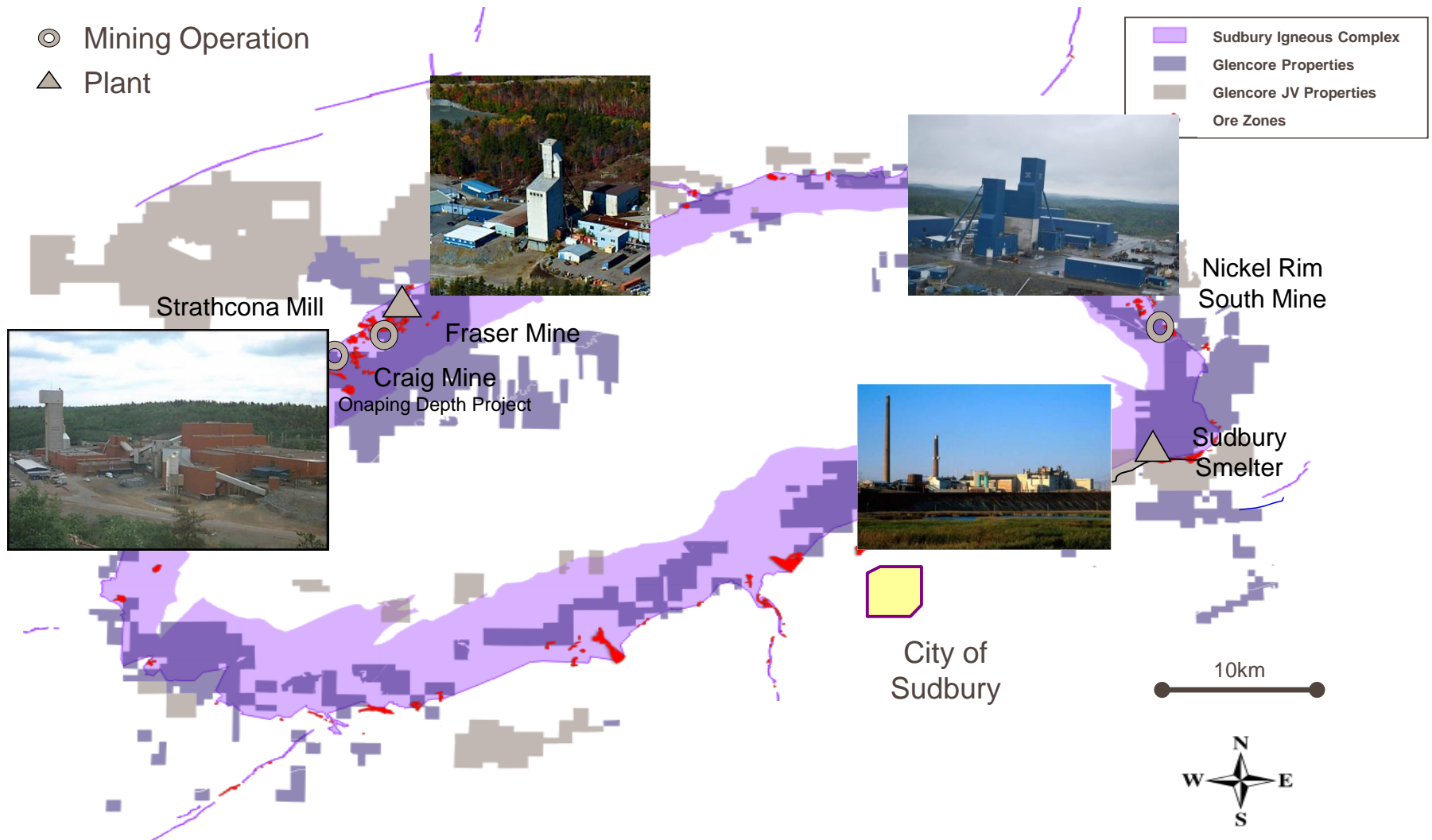
A photograph of two workers in an industrial facility, likely a nickel processing plant. The workers are wearing orange high-visibility shirts with reflective silver stripes, blue jeans, and hard hats. The worker on the left is wearing a white hard hat with a headlamp, and the worker on the right is wearing a blue hard hat with a headlamp. They are standing on a metal walkway with a yellow safety railing, looking down at the complex machinery and equipment below. The facility is dimly lit, with bright lights illuminating the workers and the machinery. The background shows a large industrial structure with various pipes, valves, and metal frameworks.

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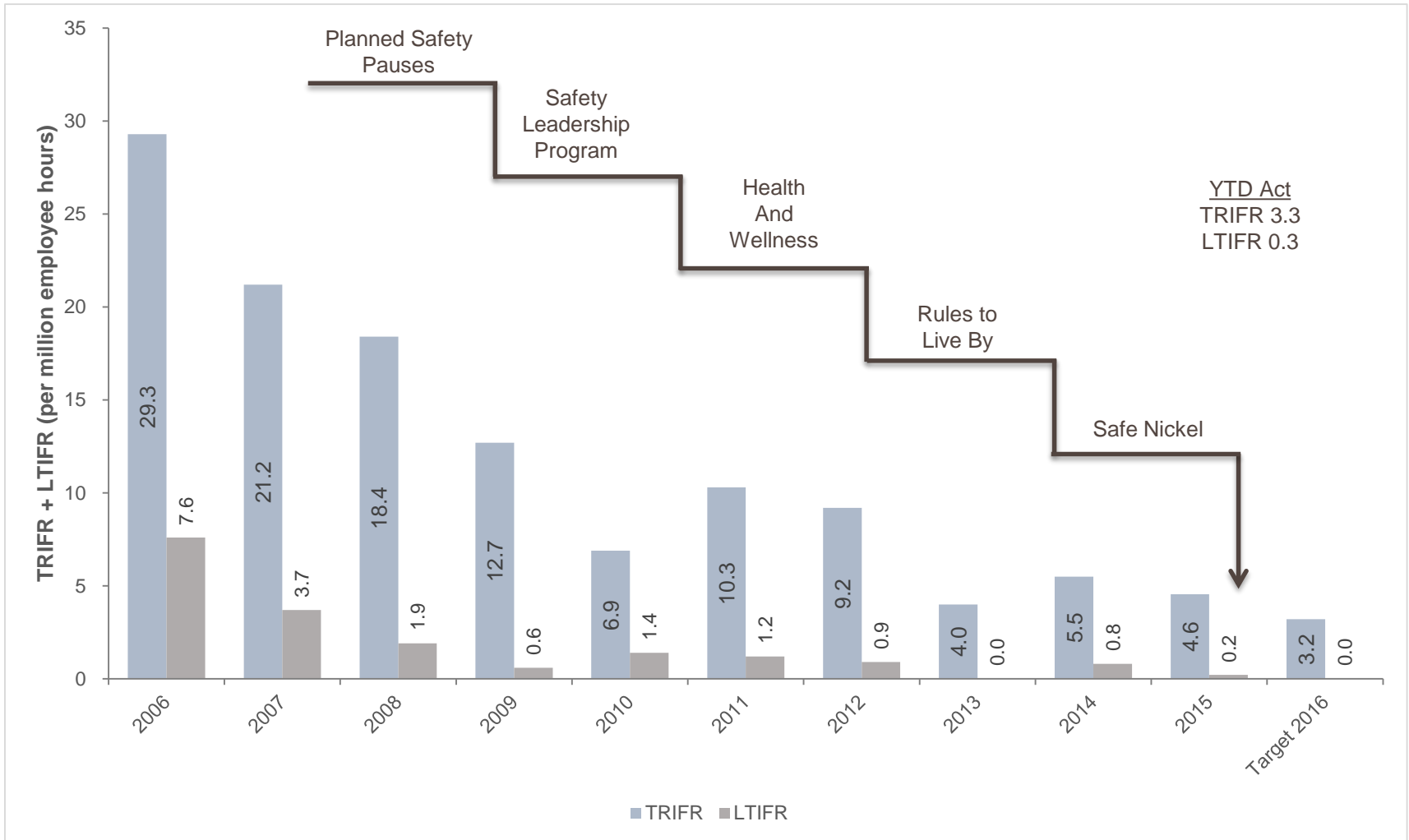
Sudbury Operations - Overview

Sudbury Integrated Nickel Operations



Safety Performance

Toward Zero Harm



Recent Awards and Recognition

- **Sudbury INO's Smelter Process Gas Project (PGP) team received the 2016 CIM Mining & Minerals Project Development Safety Award**
 - The team has been recognized for being the project with the lowest reportable injury rate across metal mines in Canada with a record of close to 500,000 worked hours over the period of 30 months with zero reportable injuries.
- **Received 2014 MAC-TSM Leadership Award for Sustainability in the following areas:**
 - Safety and health, Aboriginal and community outreach, crisis management, tailings management, biodiversity conservation management, and energy use and greenhouse gas (GHG) emissions management.
- **All sites are ISO certified (*2015 marks 10 year anniversary of ISO certification at Fraser Mine and Strathcona Mill/Complex, and Exploration*)**
- **Nickel Rim South Mine recognized as the safest metal mine in Ontario in 2013 and 2014 - John T. Ryan Award**
- **Nickel Rim South received CAT 5 star and Maintenance Award in 2013, and maintains this status to date**

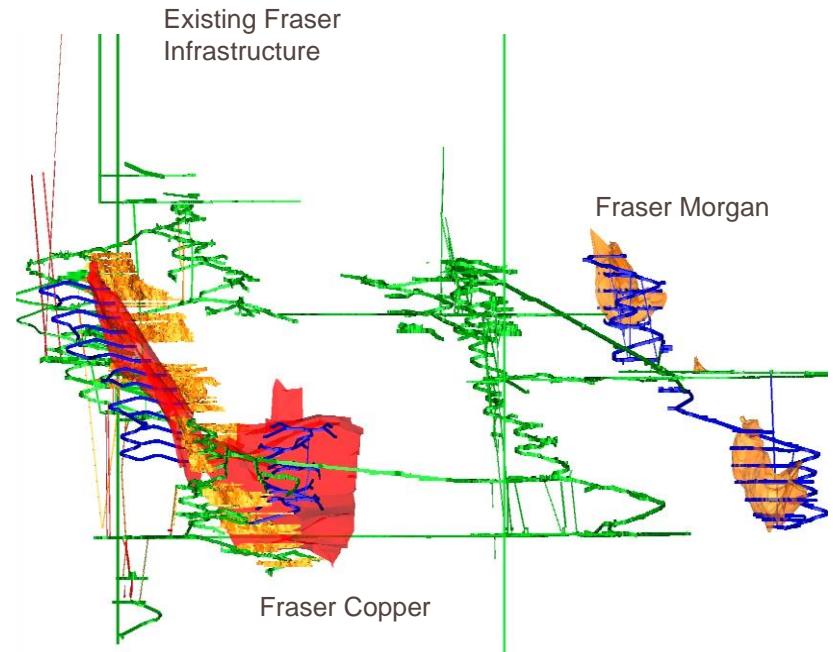
Nickel Rim South Mine

- World class nickel, copper and precious metal deposit at a depth of 1,100 – 1,800 m
- LEED GOLD certification
(Leadership in Energy and Environmental Design)
- Ethernet backbone allows mine to operate at new levels of production and cost efficiency



Fraser Mine

- The Fraser Mine Complex consists of the Copper Zone and the Fraser Morgan Nickel Zone. The complex produces roughly 9K tonnes of Nickel and 11K tonnes of Copper on an annual basis.
- The Fraser Copper Zone is a narrow-vein mining operation extracting Copper, Nickel and Precious Metals (Gold, Platinum, Palladium).
- The Fraser Morgan Zone is a bulk Nickel-Copper mining operation that commenced production in 2013 and is currently operating at capacity.



Strathcona Mill

Own Ore

Nickel Rim Nickel
Nickel Rim Copper
Fraser Copper
Fraser Morgan Nickel

Custom Ore

Vale Slag Brick

Classified Tails Sales

NRS
Fraser Mine
Outside Glencore



Nickel Concentrate

Sudbury Smelter

10.5% Nickel
5% Copper
Co + PGM's

Copper Concentrate

Horne Smelter

32% Copper
0.5% Nickel
PGM's

Sudbury Smelter

Own Concentrate

Sudbury
Raglan

Custom Concentrates

Boliden/Kevitsa
Vale
BHP
Lundin Eagle
Canadian Royalties
NAP

Secondaries

Reverts
Sludge/Residues
Petro-refinery Catalysts
Batteries

Nickel Matte

Nikkelverk Refinery

55% Nickel
18% Copper
Co + PGM's

Sulphuric Acid

Norfalco

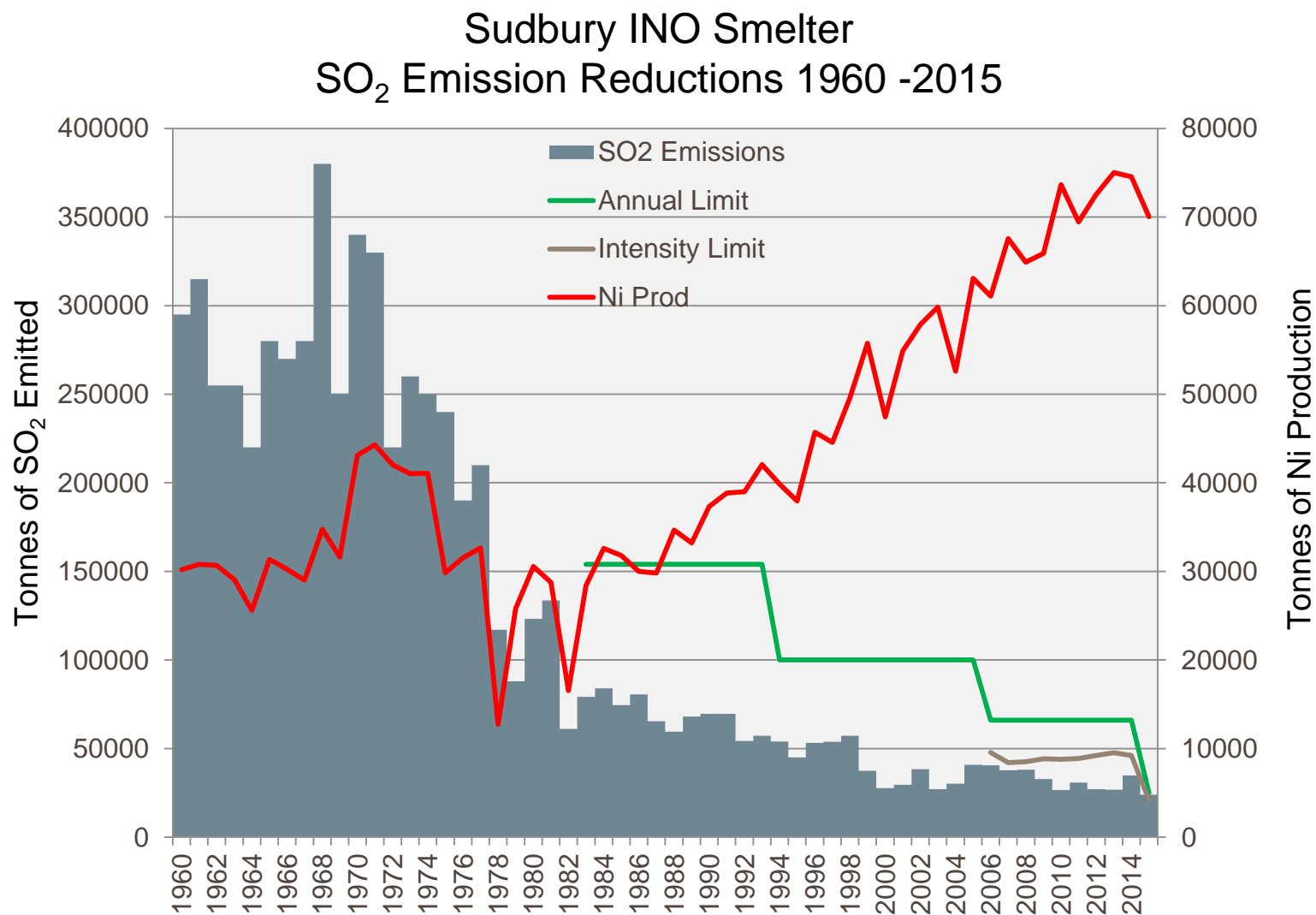
+300 ktpa



Sudbury Smelter – Custom Feed Calcliner



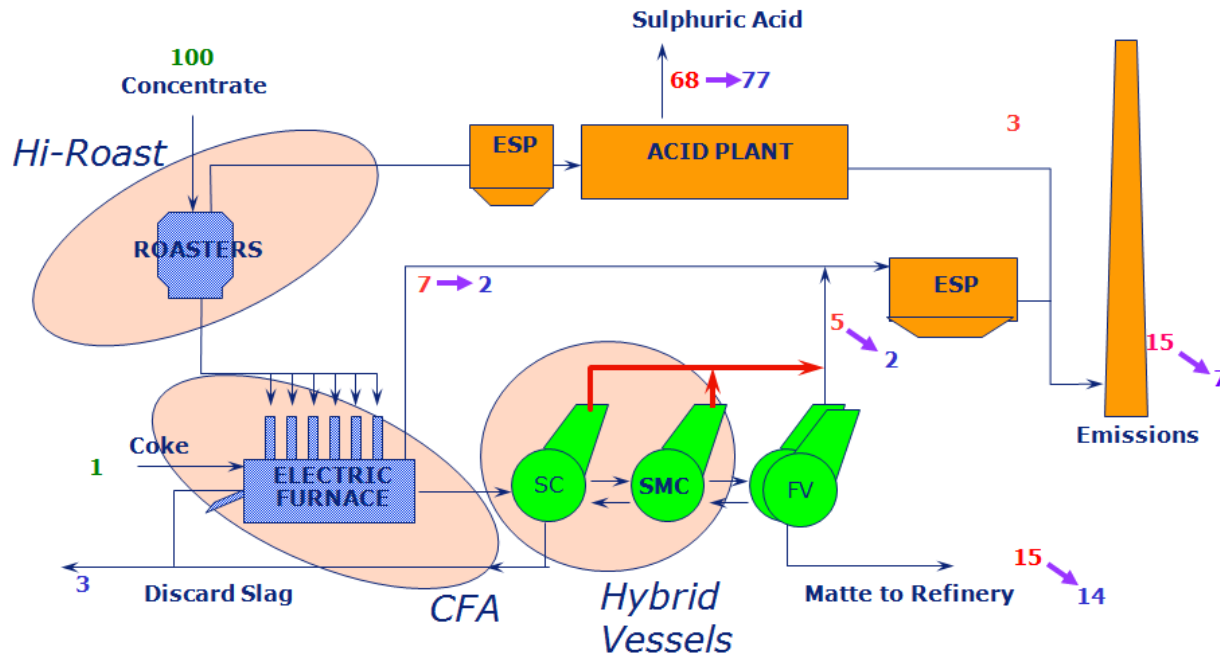
Sudbury Smelter – Long Term Performance Trend



PGP - Preferred Solution to Meet Regulations

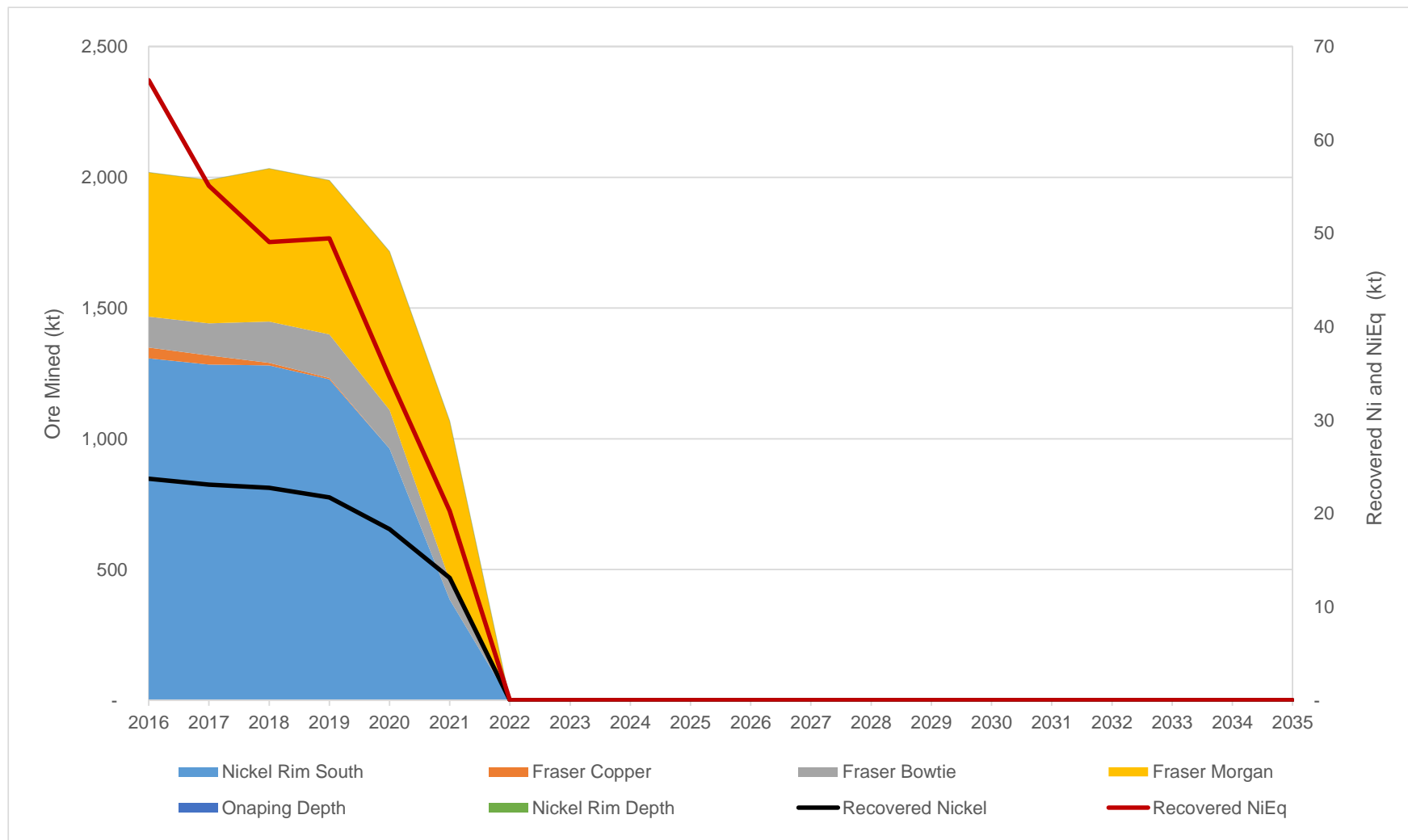
'Process-based'

Sulphur distribution change from current to *Hi-Roast/CFA/Hybrid Vessels*

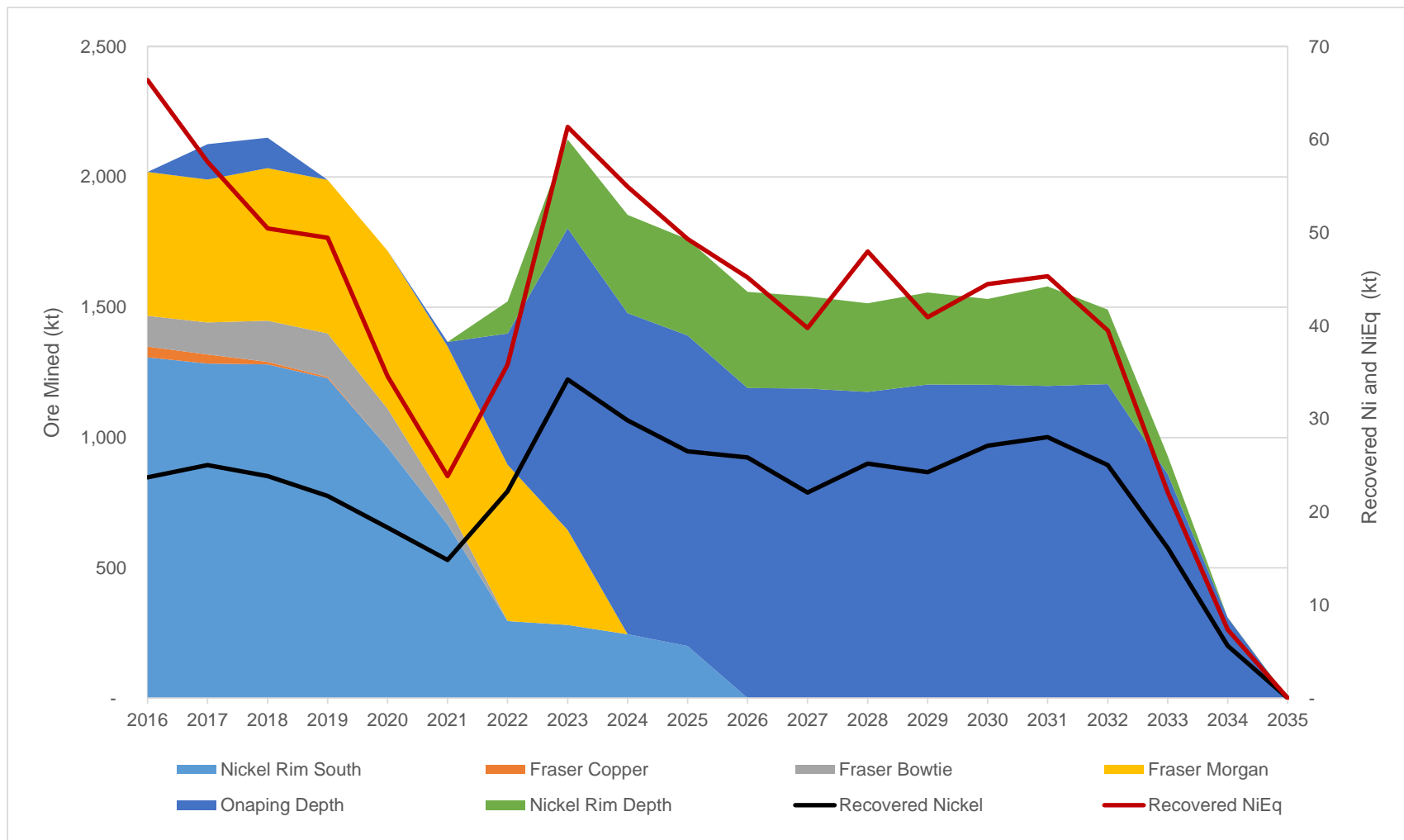


- High Roast: Remove additional sulphur in concentrate (from 70% to 80%) and convert to by-product sulphuric acid.
- Controlled Furnace Atmosphere (CFA): Reduce oxygen concentration in the furnace freeboard to suppress unwanted sulphur oxidation.
- Hybrid Vessel :Increase operability of the converter aisle to enable processing high roast matte – benefit of increased capacity.

Sudbury Mines/Mill – LOM without investment



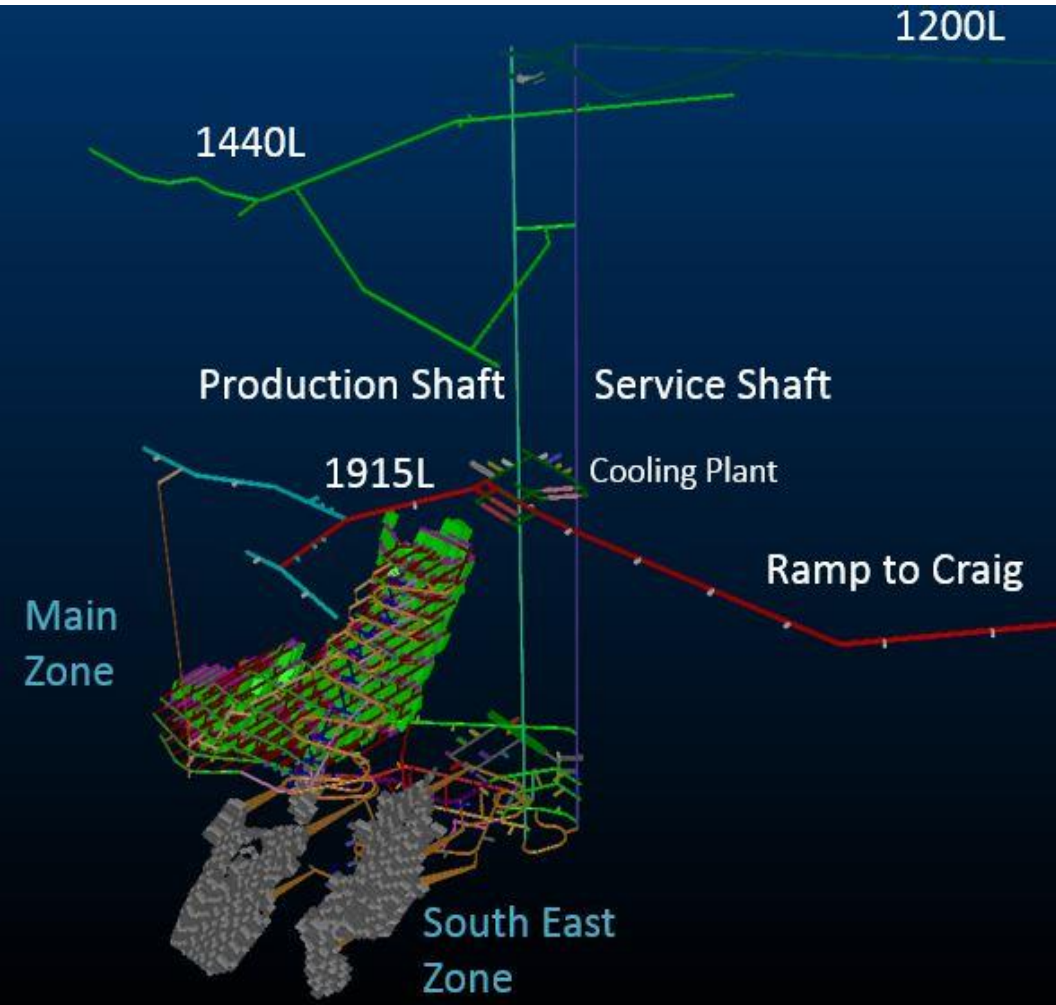
Sudbury Mines/Mill – with investment (Onaping Depth and Nickel Rim Depth)



Craig Mine - Onaping Depth Project

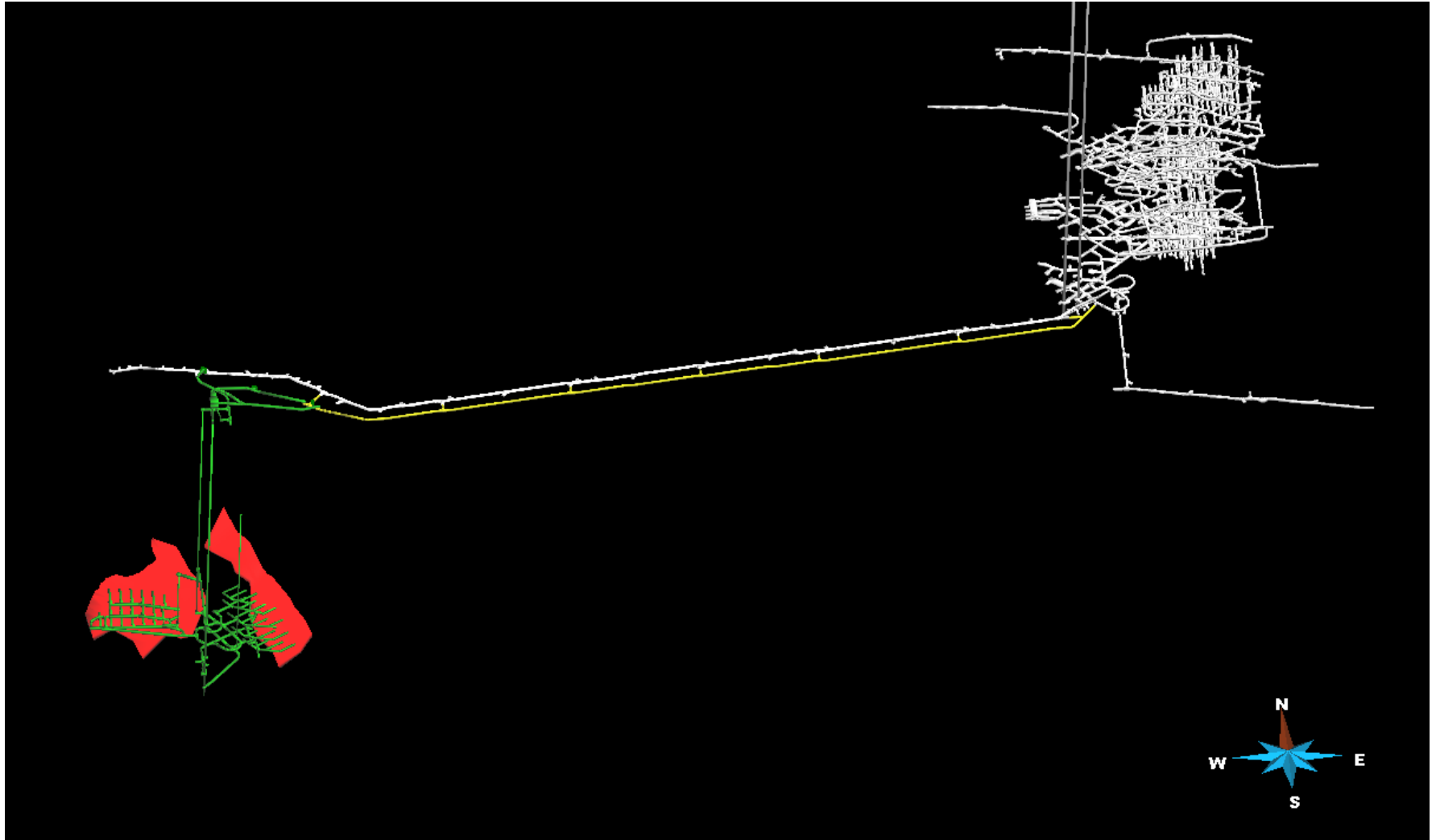


Craig Mine – Onaping Depth project

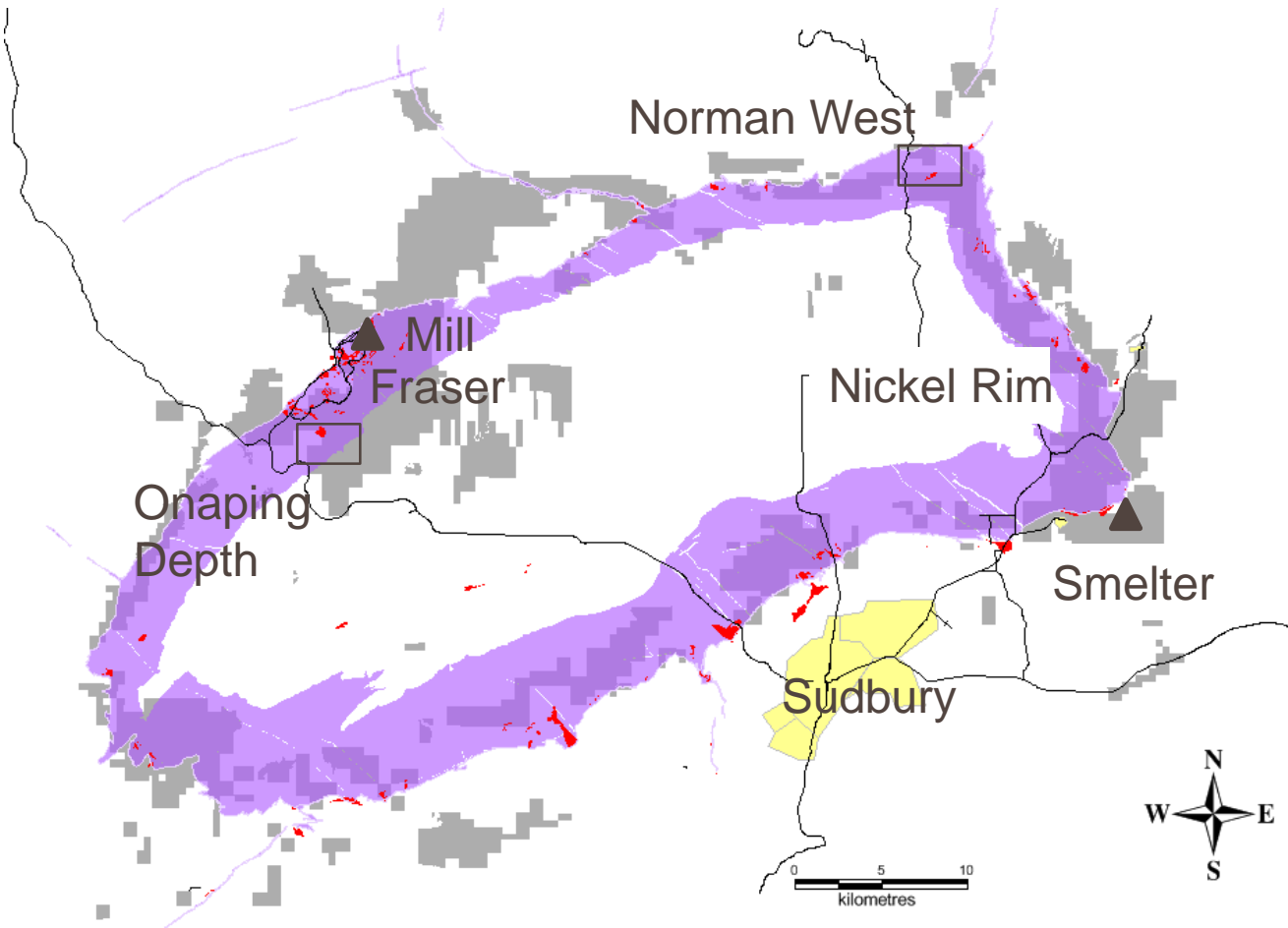


- Feasibility Study Completion – end of 2016
- Bottom up mining approach supported by a single shaft development
- 100% battery electric operated mobile fleet
 - Energy efficiency
 - Ventilation savings (lower flow)
 - Cooling system savings
 - Improved health benefits
 - Increased opportunity to improve production profile

Nickel Rim Depth Plan

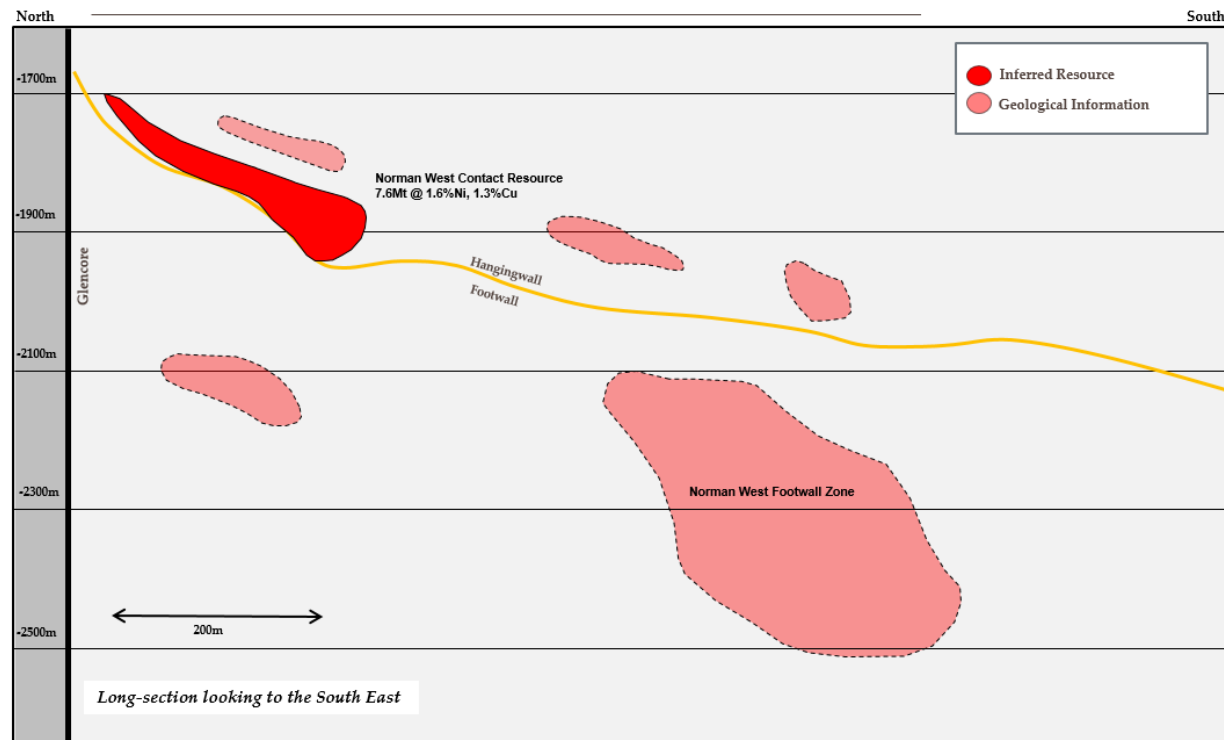
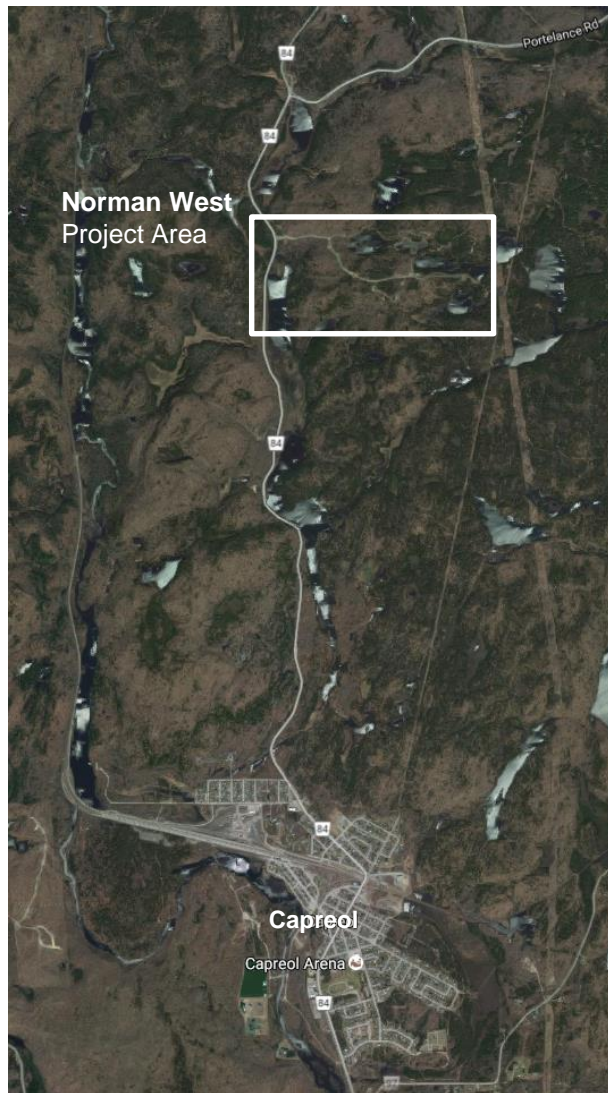


Exploration



- Exploration near mine targets extending mine life by discovering new lenses in close proximity to existing infrastructure (Nickel Rim Depth)
- Regional targets improving existing discoveries such as Onaping Depth or finding new stand alone ore bodies

Norman West



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Environmental performance and
Community Engagement

Environmental Performance



- **ISO 14001 certified**
- **Smelter emissions reduction initiatives**
- **Downward trend in water, energy and GHG targets**
- **Land reclamation**



Aboriginal Partnerships



- Partnership agreements in place with Wahnapiatae First Nations, Sagamok First Nations, and Métis Nations of Ontario
- Financial support of Laurentian University's Indigenous Sharing & Learning Centre



Wahnapiatae Centre of Excellence

Community Engagement

- **Proactive participation in various community initiatives and programs.**
 - Investment of approximately \$17 million over past 8 years
 - Active management involvement on several community boards
 - Community surveys
- **Continued partnership in the following five giving areas:**
 - Environment
 - Economic Development/Livelihoods
 - Health
 - Education
 - Locally/regionally relevant projects




Health Sciences North Cath-Lab



Community Open Houses

Challenges and Opportunities

- Our Sudbury operations has a solid business portfolio in Ontario
- Working on potential projects that could extend our current life of mine. These projects, both involved ultra-deep mining, will need substantial investment.
- The current low nickel prices and challenging market outlook, as well as regulatory uncertainty, pose significant hurdles to these projects being realized.
- Mining is a cyclical business and we are continuously facing new challenges. Some of the current challenges our business is managing include:
 - low metal prices
 - high energy costs
 - regulatory uncertainty (climate change, emissions – SO₂ and others)

A person wearing an orange high-visibility jumpsuit with reflective silver stripes is holding a red hard hat. A green headlamp is attached to the front of the hard hat. The background is black.

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Questions?