



**TSX: TI**



# **THE NEWEST U.S. ZINC PRODUCER**

LEVERING EXCESS CAPACITY  
TO DRIVE CASH FLOW GROWTH

**ANALYST/INVESTOR SITE VISIT**

**JUNE 13, 2018**

# Forward-Looking Information

This presentation contains "forward-looking information" within the meaning of Canadian securities laws. In some cases, forward-looking information can be identified by the use of forward-looking terminology such as "plans", "targets", "expects", "is expected", "unique investment opportunity", "is positioned" or "assumes", or variations of such words and phrases or state that certain actions, events or results "may", "could", "would" or "will" occur or be achieved. In addition, any statements that refer to expectations, predictions, indications, projections or other characterizations of future events or circumstances contain forward-looking information. Statements containing forward-looking information are not historical facts, but instead represent management's expectations, estimates and projections regarding future events.

Forward-looking information includes, among other things, statements relating to: estimated C1 Costs and AISC; future financial or operating performance and condition of the Company, including its ability to continue as a going concern, and its business, operations and properties; the Company's ability to implement its growth strategy to maximize the value of its property holdings; the Company's planned exploration and development activities; costs, timing and results of future exploration and drilling; forecasted trends in the global zinc market, including in respect of the price of zinc; capital and operating cost estimates; economic analyses (including cash flow projections) from the Technical Report; the adequacy of the Company's financial resources; the estimation of mineral resources; the realization of mineral resource estimates; the probability of inferred mineral resources being converted into measured or indicated mineral resources; the production schedule for the Empire State Mines' #4 mine ("#4 mine"); the timing of completion and results of drift rehabilitation and refurbishment of the #4 mine; production estimates for the #4 mine; the Company's plans for marketing of zinc concentrate produced at the Empire State Mines and mill; any updates to the mine plan for the #4 mine and continuation of the drill program at the Empire State Mines; timing, receipt and maintenance of approvals, consents and permits under applicable legislation; the Company's ability to re-negotiate expired leases and the timing thereof; environmental, permitting, legal, taxation, title, socio-economic, community relations or political issues that may adversely affect the Company's current and anticipated operations; the Company's expectations with respect to the payment of dividends; the Company's ability to make scheduled payments of the principal, or to pay interest on or refinance, its indebtedness; the Company's expectations with respect to principal shareholders; and the Company's expectation that it will be able to continue to locate and retain employees and consultants with required skills and knowledge.

Forward-looking information is based on opinions, assumptions and estimates made by the Company in light of its experience and perception of historical trends, current conditions and expected future developments, as well as other factors that the Company believes are appropriate and reasonable in the circumstances, as of the date of this presentation, including, without limitation, assumptions about: equity and debt capital markets; the ability to raise any necessary additional capital on reasonable terms; future prices of zinc and other metals; the timing and results of exploration and drilling programs; the likelihood of discovering new mineral resources in the Balmat-Edwards district; the accuracy in the Technical Report of the mine production schedule, the estimated time of completion of drift rehabilitation and refurbishment of the #4 mine, the production estimates, the geology and geophysical data of the Empire State Mines, the metallurgical forecast, the economic analysis, capital and operating cost estimates; the accuracy of any mineral resource estimates; the successful integration of the Empire State Mines into the Company's business; availability of labour; the accuracy of drill sample results at the Empire State Mines; future currency exchange rates and interest rates; operating conditions being favourable; political and regulatory stability; the receipt of governmental and third party approvals, licenses and permits on favourable terms; obtaining required renewals for existing approvals, licenses and

permits and obtaining all other required approvals, licenses and permits on favourable terms; sustained labour stability; stability in financial and capital goods markets; availability of equipment and the condition of existing equipment being as described in the Technical Report; the absence of any long-term liabilities created by the mining activity in the Balmat region beyond those described in the Technical Report; the accuracy of the Company's accounting estimates and judgments; the impact of adoption of new accounting policies; and the Company's ability to satisfy the terms and conditions of its indebtedness. There can be no assurance that such estimates and assumptions will prove to be correct. In addition, if any of the assumptions or estimates made by management prove to be incorrect, actual results and developments are likely to differ, and may differ materially, from those expressed or implied by the forward-looking information contained in this presentation. Accordingly, readers of this presentation are cautioned not to place undue reliance on such information.

Forward-looking information is necessarily based on a number of the opinions, assumptions and estimates that, while considered reasonable by the Company as of the date such statements are made, are subject to known and unknown risks, uncertainties, assumptions and other factors that may cause the actual results, level of activity, performance or achievements to be materially different from those expressed or implied by such forward-looking information, including but not limited to the following factors described in greater detail under the heading "Risks and Uncertainties" in the Company's Management's Discussion and Analysis for the year ended December 31, 2017, available at [www.sedar.com](http://www.sedar.com): limited operating history; dependence on the Empire State Mines; refurbishment of the mine and mill; inherent risks of mining; estimates of mineral resources; production decisions based on mineral resources; uncertainty in relation to inferred mineral resources; fluctuations in demand for, and prices of, zinc; production projections and cost estimates for the #4 mine may prove to be inaccurate; future requirements for additional capital; profitability of the Company; ability to attract and retain qualified management; title; competition; governmental regulations; market events and general economic conditions; environmental laws and regulations; threat of legal proceedings; rights, concessions and permits; social and environmental activism; land reclamation requirements; Tailings Management Facility and environmental reclamation; insurance; undisclosed liabilities; health and safety; dependence on information technology systems; zinc hedging activities; conflicts of interest; risks inherent in the Company's indebtedness; risks inherent in acquisitions; integration of the mine assets; labour and employment retention relations; anti-corruption and bribery regulation, including ESTMA reporting; infrastructure; enforceability of judgments; absence of a market for the common shares; fluctuations in price of the common shares; loss of entire investment; significant ownership by Richard W. Warke; future sales of common shares by Richard W. Warke and other directors and officers of the Company; use of proceeds; payment of dividends; currency exchange rate risks; pro forma financial information; public company status; financial reporting and other public company requirements; dilution; and securities analysts' research or reports could impact the price of the common shares. These factors and assumptions are not intended to represent a complete list of the factors and assumptions that could affect the Company. These factors and assumptions, however, should be considered carefully.

Keith Boyle, P.Eng., Titan's Chief Operating Officer, is a Qualified Person under NI 43-101, and has reviewed and approved the technical contents of this presentation on behalf of Titan.

# Titan Investment Highlights

## Restart Fully Funded, Quick Ramp Up to Free Cash Flow

- **Successful restart of mining operations at Empire State Mines' #4 mine** – pure zinc producer in New York State, with first ore skipped on schedule in January and first concentrate shipped in March 2018
- **Positive operating cash flow** – expected Q3 2018
- **Attractive economics** – US\$169M of cumulative after-tax cash flow 2018-2021<sup>(1)</sup>
- **Strong leverage to zinc price** – 2018 PEA: 2019-2024 average ~1,800 tpd mill throughput and ~100M lb per year of payable zinc in concentrate with C1 costs of US\$0.65/lb and AISC of US\$0.72/lb<sup>(1)</sup>

## Three-Pronged Growth Strategy

- **Levering excess capacity to drive organic cash flow growth**
  - Fill the shaft (3,000 tpd; target 150M lb Zn/year) with near-mine mineral resource additions
  - Fill the mill (5,000 tpd; target 225M lb Zn/year) strategy supported by regional exploration
  - Modernize the operation, improving efficiencies and lowering costs
- **Expanding resource** – inferred mineral resource more than doubled in Q1 2018 to 5.4M tons at undiluted grade of 12.50% zinc from previous estimate of 2.3M tons at undiluted grade of 13.37% zinc<sup>(1)</sup>
- **Exploration upside potential** – digitization of data, remnants, extension of mineralized zones, and near-mine, district and regional targets

## Experienced Management and Board

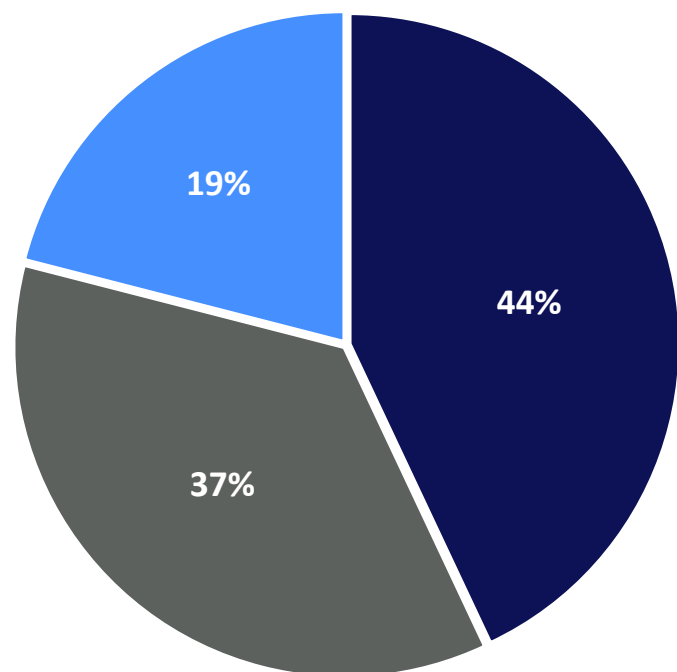
- **Proven track record** – the Augusta Group has generated extraordinary shareholder value through excellence in exploration and development
- **Extensive experience** – COO and VP, Projects and Innovation have over 50 years of combined experience in mine building and operations
- **Well-connected** – Board of Directors includes George Pataki, former three-term governor of New York

All dollar amounts are in US dollars and tonnage is in short tons unless otherwise indicated

(1) Refer to technical report entitled "NI 43-101 Preliminary Economic Assessment Updated Technical Report, Empire State Mines, Gouverneur, New York, USA", dated May 24, 2018 ("2018 PEA"). The Company's production decisions are based on the 2018 PEA and not on a feasibility study of mineral reserves demonstrating economic and technical viability and, as a result, there is increased uncertainty and there are multiple technical and economic risks of failure associated with these decisions. These risks, among others, include areas that would be analyzed in more detail in a feasibility study, such as applying economic analysis to mineral resources and mineral reserves, more detailed metallurgy and a number of specialized studies in areas such as mining and recovery methods, market analysis, and environmental and community impacts. The 2018 PEA is preliminary in nature and uses inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the results of the 2018 PEA will be realized. Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no certainty that all, or any part, of the estimated mineral resources will be converted into mineral reserves. The 2018 PEA assumes the following zinc prices: 2018: US\$1.50/lb; 2019: US\$1.45/lb; 2020: US\$1.40/lb; 2021: US\$1.35/lb; 2022: US\$1.20/lb; US\$1.05/lb thereafter.

# Experienced Management, Strong Balance Sheet

Share Ownership



■ Mgmt/Insiders ■ Institutional ■ Retail

Source: Company reports

Toronto Stock Exchange Symbol	TI
Shares Outstanding	102.0 million
Options	7.0 million
Fully Diluted Shares Outstanding	109.0 million
Share Price (6/8/2018)	C\$1.18
Market Capitalization	C\$120 million
Cash & Cash Equivalents (as of 3/31/2018)	\$12 million
Long-Term Debt (as of 3/31/2018)	Nil

## MANAGEMENT

Richard Warke	President & CEO
Keith Boyle	Chief Operating Officer
Michael McClelland	Chief Financial Officer
Jerrold Annett	SVP, Corporate Development
Jacqueline Allison	VP, Investor Relations and Strategic Analysis
Scott Burkett	VP, Exploration
Naomi Johnson	VP, Community Relations
Eric Strom	VP, Projects and Innovation

## DIRECTORS

Richard Warke
Purni Parikh
George Pataki
Lenard Boggio
Gregory Clark

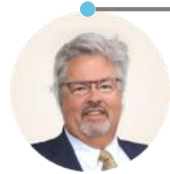
## ADVISORS

R. Stuart Angus
James Gowans



# Extensive Experience in Exploration, Development and Mine Operations

**Titan Mining has the RIGHT TEAM in place with a successful track record in capital markets, and responsible exploration, development and operations**



**Richard Warke**

- Successful long-term track record of creating shareholder value at Augusta Group of companies



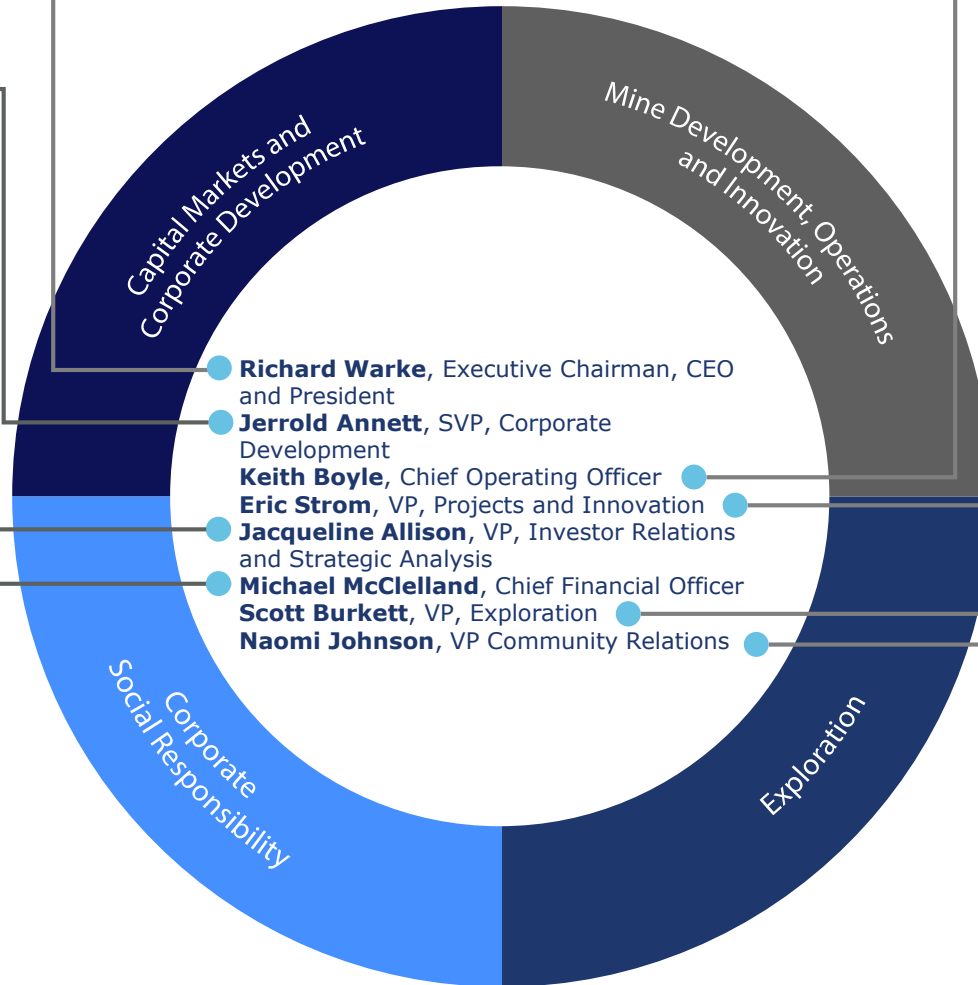
**Jerrold Annett and Jacqueline Allison**

- Combined 40+ years of capital markets and corporate experience
- Goal is to grow Titan Mining into North American-focused multi-asset mining company



**Michael McClelland**

- 15 years' experience with global mining companies
- Former CFO of Bisha Mining Share Company, a subsidiary of Nevsun Resources



**Keith Boyle and Eric Strom**

- Combined 50+ years' experience in mine building and operations
- Strong focus on safety, efficiency, cost control and innovation
- Tasked with ramp up, expansion and modernization at Empire State Mines



**Scott Burkett**

- 10+ years' experience in exploration and ore control
- Served as Chief Geologist at Arizona Mining's Hermosa project where mineral resource expanded significantly



**Naomi Johnson**

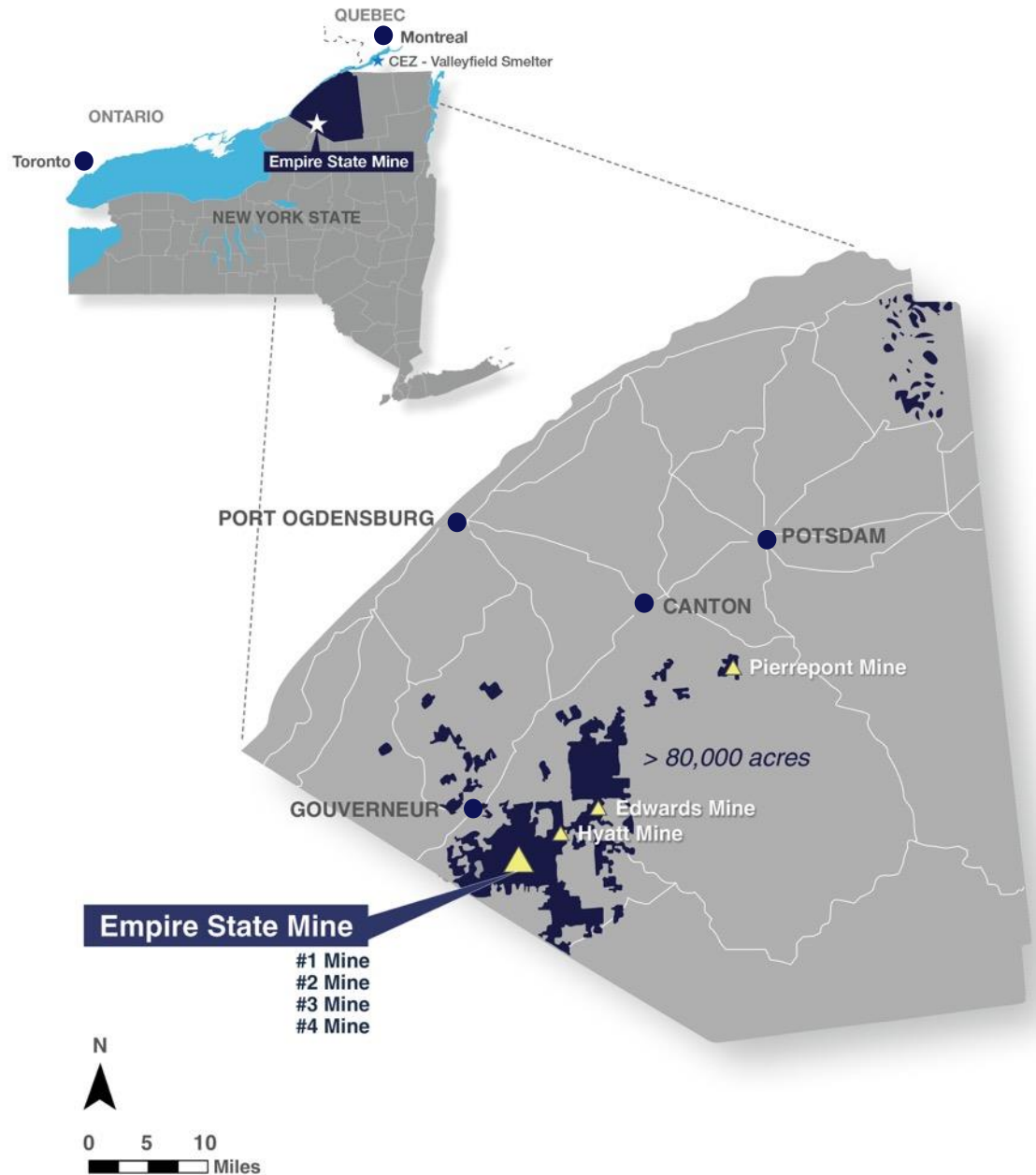
- 15 years' experience in community relations and law
- Leading-edge approach to stakeholder risk and impact management



# Empire State Mines: Reviving a 100-Year-Old Zinc District

## Established mining district in northern New York State

- Empire State Mines' #4 mine (restarted) and six historic mines
- Historic production – 44M tons milled at average grade of 9.4% zinc
- >80,000 acres of mineral rights controlled by Titan
- Excellent infrastructure
- Experienced local workforce



# Empire State Mines: Seven Mines Within 30-Mile Radius of Mill

## EMPIRE STATE MINES

### #1 MINE

- Zinc showings identified 1920s
- Inclined shaft to 300 foot level
- Mined #1 zone at 3-4% Zn

### #2 MINE

- Discovered 1927
- Inclined shaft to 2,500 foot level and 500 tpd mill
- Opened 1930, closed 1998
- Produced 17.6 Mt at 8.8% zinc or 1.5 Mt zinc
- 5 orebodies
- ~50% of historic production from #1-#4 mines

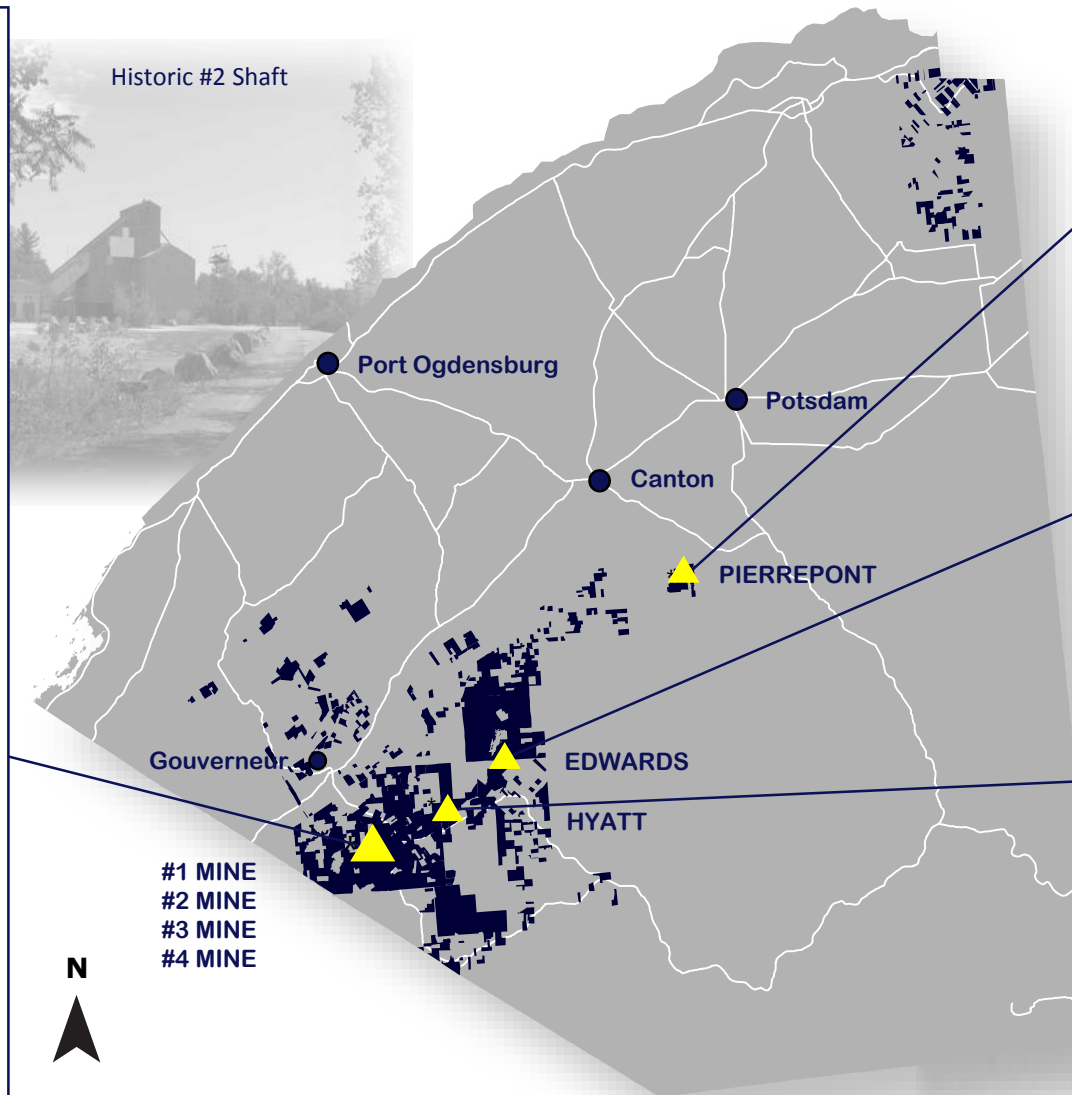
### #3 MINE

- Discovered 1945
- Vertical shaft to 900 foot level
- Opened 1953, closed 1985 (flooded)
- Produced 5.7 Mt at 9.4% zinc or 537 kt zinc
- 3 orebodies

### #4 MINE

#### (Restarted January 2018)

- Discovered 1965
- Vertical shaft to 3,100 foot level and 5,000 tpd mill
- Opened 1971, placed on care and maintenance 2008
- Produced 10.5 Mt at 7.9% zinc or 831 kt zinc
- 8 orebodies



Historic #2 Shaft

Port Ogdensburg

Potsdam

Canton

PIERREPONT

Gouverneur

EDWARDS

HYATT

#1 MINE  
#2 MINE  
#3 MINE  
#4 MINE



0 5 10  
Miles

### PIERREPONT MINE

- Discovered 1979
- Ramp to ~700 foot depth
- Opened 1982, closed 2001 (flooded)
- Continuous operation
- High-grade mine
- Produced 2.7 Mt at 16.3% zinc or 433 kt zinc
- 2 orebodies

### EDWARDS MINE

- Discovered 1903
- Vertical shafts; deepest workings at 3,500 feet
- Opened 1915, closed 1980
- Continuous operation
- Produced 6.5 Mt at 10.8% zinc or 706 kt zinc
- 6 orebodies

### HYATT MINE

- Discovered 1917
- 2 ramps to 1,200 foot depth
- Opened 1918, closed 1998 (flooded)
- Produced 946 kt at 8.6% zinc or 82 kt zinc
- 6 orebodies



Historic Edwards Mine

# Empire State Mines: Historic Production

## EMPIRE STATE MINES

### #1 MINE

- Mined #1 zone at 3-4% Zn

### #2 MINE

- Opened 1930, closed 1998
- Produced 17.6 Mt at 8.8% zinc or 1.5 Mt zinc
- 5 orebodies
- ~50% of historic production from #1-#4 mines

### #3 MINE

- Opened 1953, closed 1985 (flooded)
- Produced 5.7 Mt at 9.4% zinc or 537 kt zinc
- 3 orebodies

### #4 MINE

#### (Restarted January 2018)

- Opened 1971, placed on care and maintenance 2008
- Produced 10.5 Mt at 7.9% zinc or 831 kt zinc
- 8 orebodies

## PIERREPONT MINE

- Opened 1982, closed 2001 (flooded)
- Produced 2.7 Mt at 16.3% zinc or 433 kt zinc
- 2 orebodies

## EDWARDS MINE

- Opened 1915, closed 1980
- Produced 6.5 Mt at 10.8% zinc or 706 kt zinc
- 6 orebodies

## HYATT MINE

- Opened 1918, closed 1998 (flooded)
- Produced 946 kt at 8.6% zinc or 82 kt zinc
- 6 orebodies

Historic Edwards Mine



# Underutilized Mine and Mill Complex

## Mill recommissioned and first ore hoisted on schedule and budget

- Mill – 5,000 tpd capacity
- #4 shaft adjacent to mill – 3,800 tpd capacity<sup>(1)</sup>

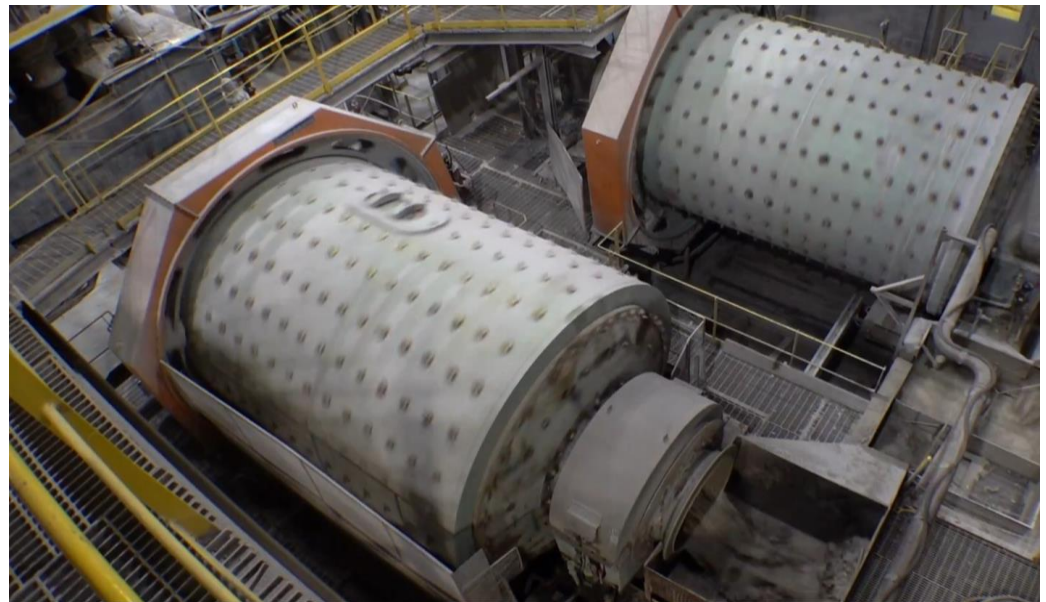
## Underground development commenced

- Fully-developed access to multiple levels
- Second egress provided by #2 shaft and hoist

(1) Assumes a hoisting rate of 200 tons per hour and an average availability of 19 hours per day.



Office building and 3,800 tpd shaft



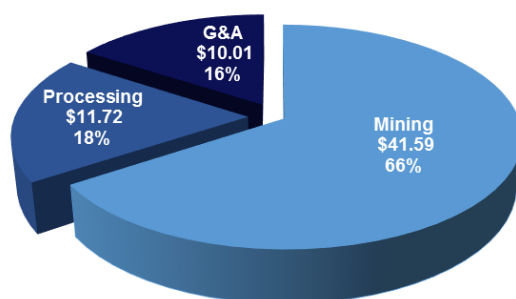
5,000 tpd processing plant

# 2018 PEA – Base Case Financial & Operating Highlights<sup>(1,2)</sup>

## Key Operating Statistics

	Unit	Value
Mine Life	Years	8
Planned Tons Mined	Mt	4.3
Annualized Throughput	tpd	1,582
Average Zinc Head Grade	%	9.2
Recovered Zinc (LOM)	Mlb	756
Average Annual Zinc Production	Mlb	94
Payable Zinc Production (LOM)	Mlb	643
Average Annual Payable Zinc Production	Mlb	80
Average Annual C1 Costs (LOM)	\$/lb zinc	\$0.70
Average Annual AISC <sup>(3)</sup> (LOM)	\$/lb zinc	\$0.79

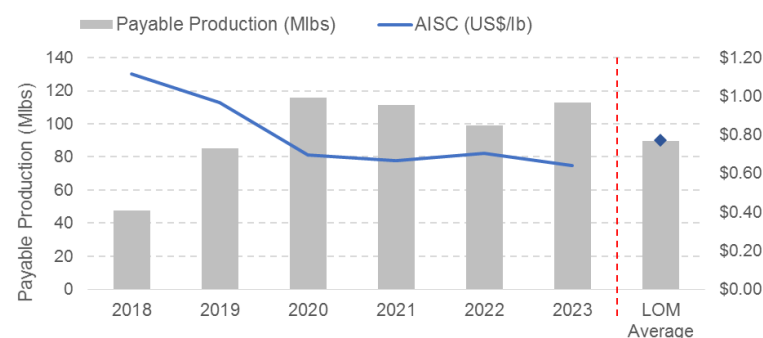
## Breakdown of LOM C1 Costs \$/ton



## Financial Highlights

	Unit	Value
Pre-Production Capital Expenditures	\$M	\$1.4
Total LOM Capital Expenditures	\$M	\$64.2
NSR (Net of 0.3% Average Royalty)	\$M	\$640.6
Pre-Tax Cash Flow	\$M	\$306.9
Taxes	\$M	\$56.1
After-Tax Cash Flow	\$M	\$250.8
After-Tax NPV <sub>8%</sub>	\$M	\$183.3

## Payable Zinc Production and AISC<sup>(4)(5)</sup>



(1) 2018 PEA assumes the following zinc prices: 2018: \$1.50/lb; 2019: \$1.45/lb; 2020: \$1.40/lb; 2021: \$1.35/lb; 2022: \$1.20/lb; \$1.05/lb thereafter.

(2) Zinc production refers to production of zinc in concentrate.

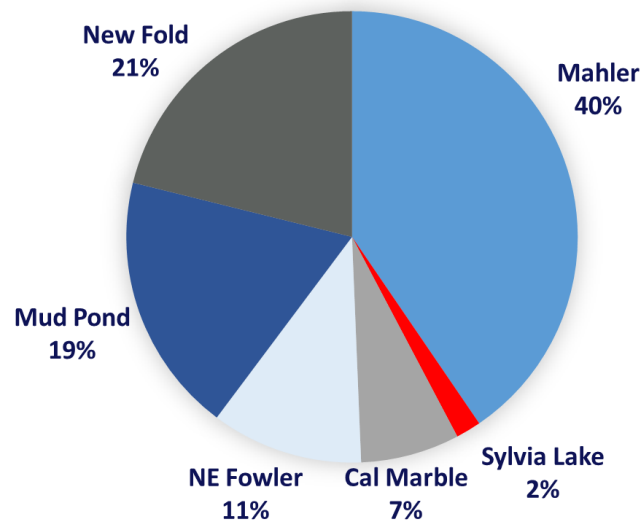
(3) AISC defined as site-level cash operating costs (mining, processing, G&A, royalties), plus off-site costs plus sustaining capital divided by payable metal production expected in the period.

(4) 2018 AISC excludes \$2.4 million of expected development capital spending, before capitalization of pre-commercial production adjustments.

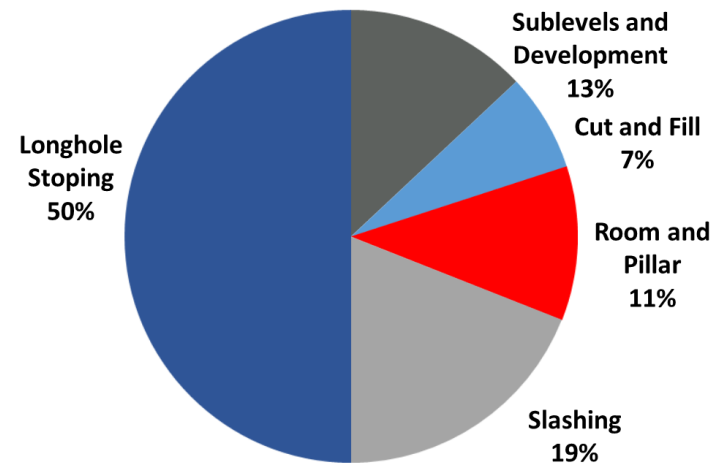
(5) LOM average figures exclude 2025 (wind-down year).

# Breakdown of Production at Empire State Mine

**By Mineralized Zone**



**By Mining Method**

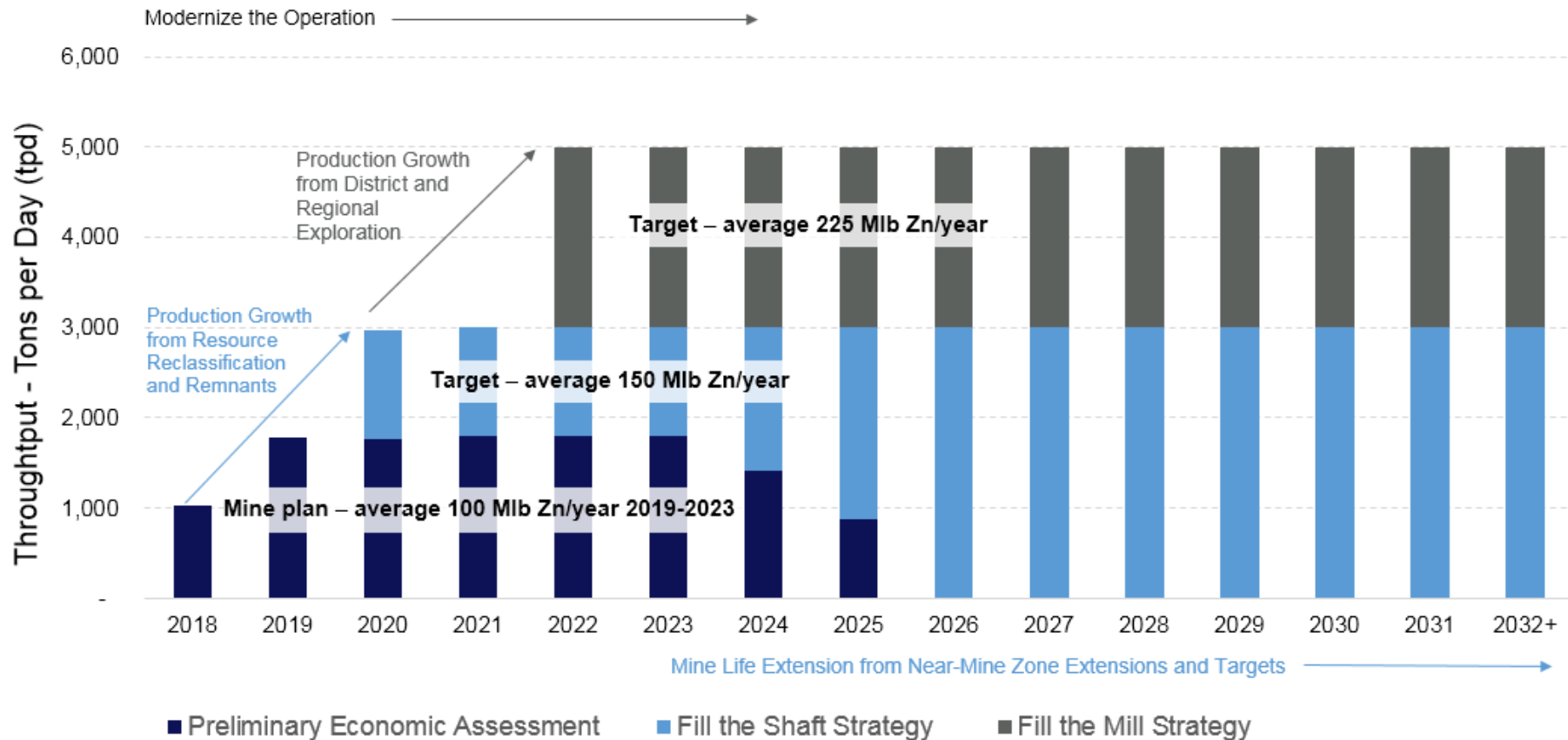


# Three-Pronged Growth Strategy

## Cash flow growth from leveraging excess shaft and mill capacity

- Fill the shaft (3,000 tpd) and extend mine life with near-mine mineral resource additions
- Fill the mill (5,000 tpd) strategy supported by district and regional exploration
- Modernize the operation, improving efficiencies and lowering costs

### Growth Strategy – Levering Excess Capacity



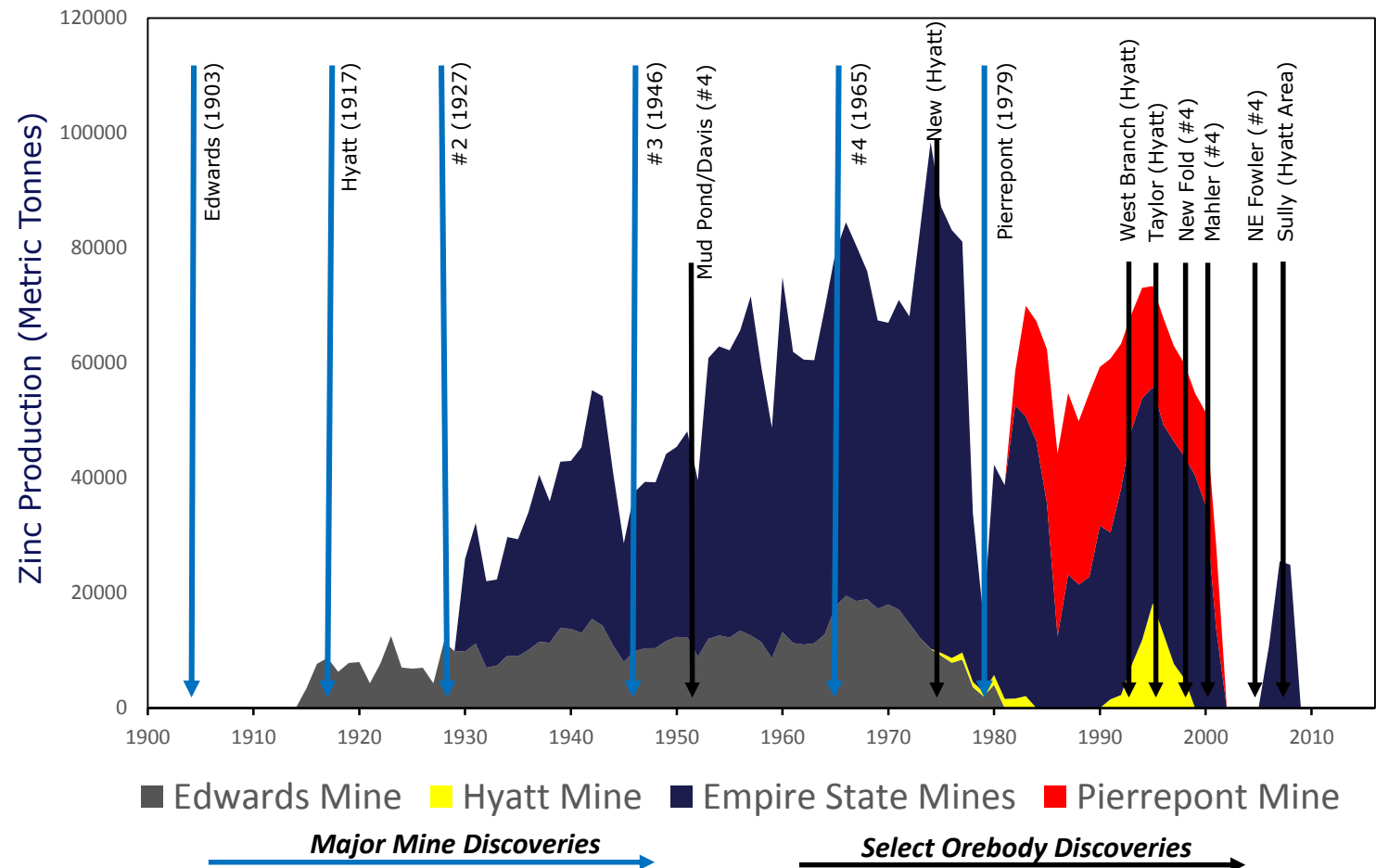


# History of Exploration Success Plus Potential for Additional Discoveries

Many discoveries made during almost a century of mining operations

- Minimal exploration during 2000-2010 period
- District remains highly prospective – refocus on exploration concurrent with ramp up of production

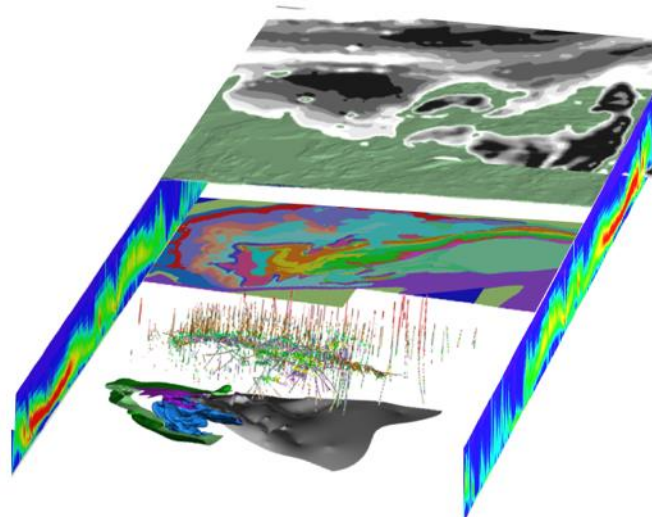
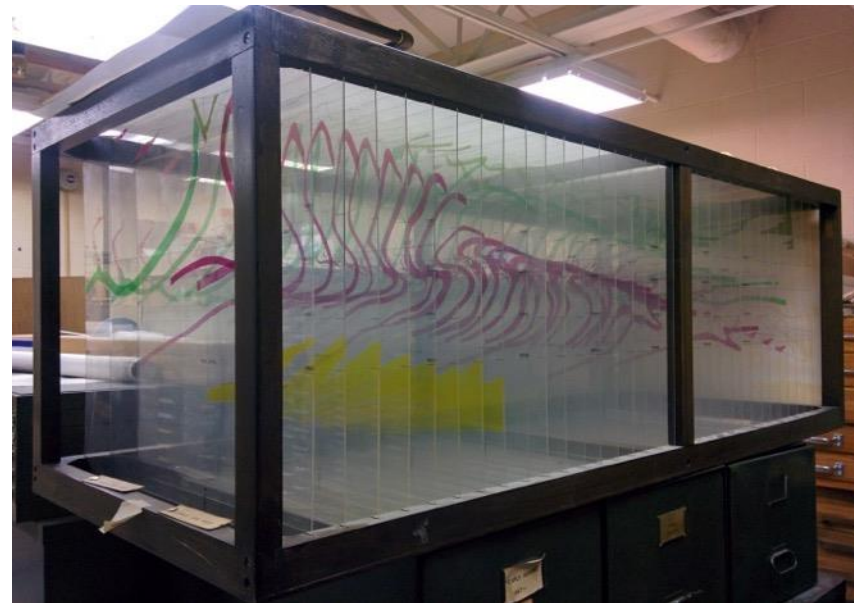
## Long Production History With Numerous Discoveries



# First Priority – Mining Historical Data

## Compiling, digitizing and modelling existing data

- 100 years of historical exploration –  
~800 kilometers of available drill data
- Consolidating and assessing  
exploration data from multiple  
programs and operators
- Previous (re)discoveries based on  
examination of historical data
  - Red Lake-Dickenson (Goldcorp)
  - Sigma-Lamaque (Integra Gold)
  - Horne 5 Project (Falco)

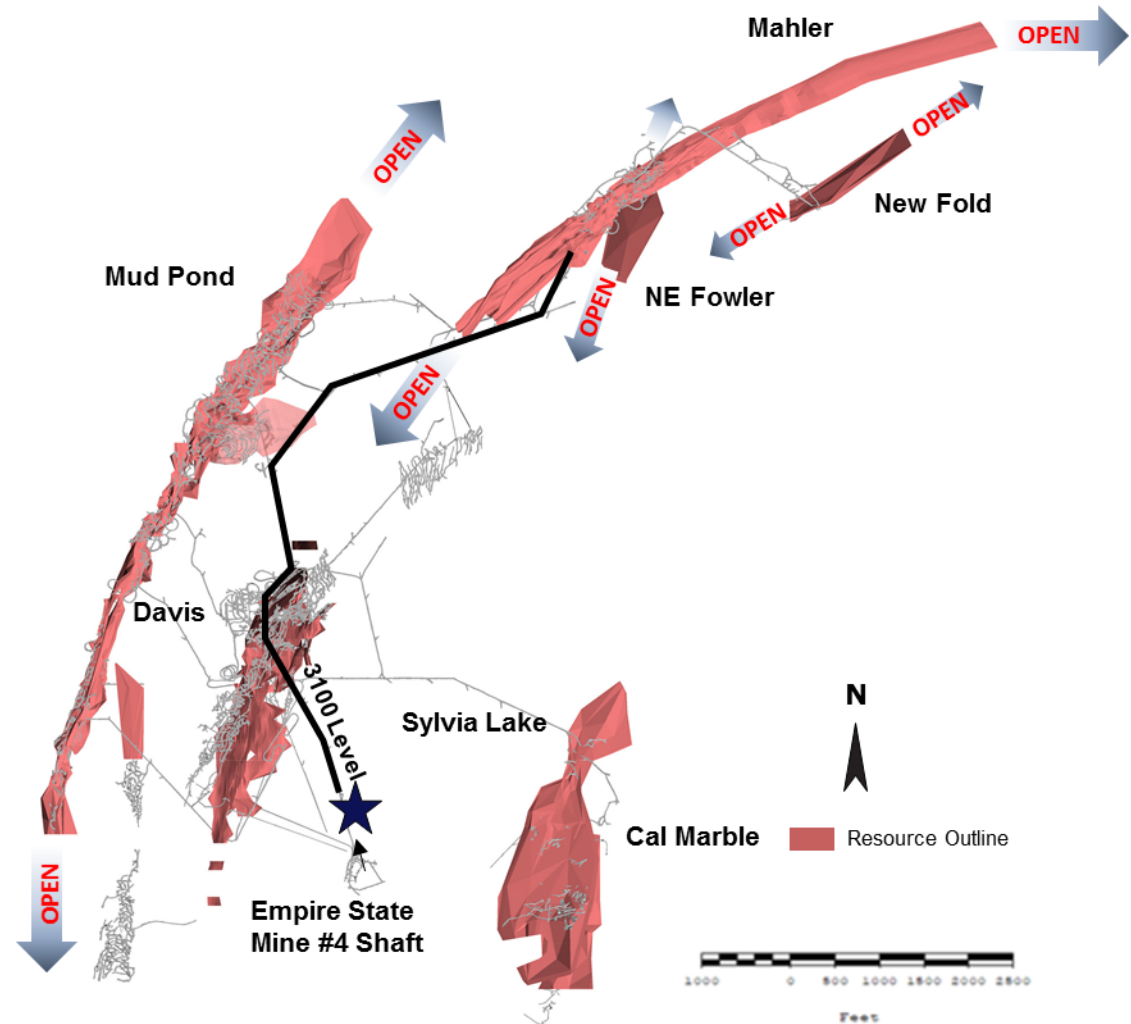


- Re-interpreted  
magnetic data
- Inversion of airborne  
VTEM
- High precision LIDAR  
topo
- Digitization and  
synthesis of  
geological mapping
- Transition to modern  
core logging scheme
- 3D modelling of  
geology, ore shells  
and mine workings

# Mineral Resource Upgrade and Expansion Potential – Plan View of #4 Mine

## Potential to expand production and increase mine life

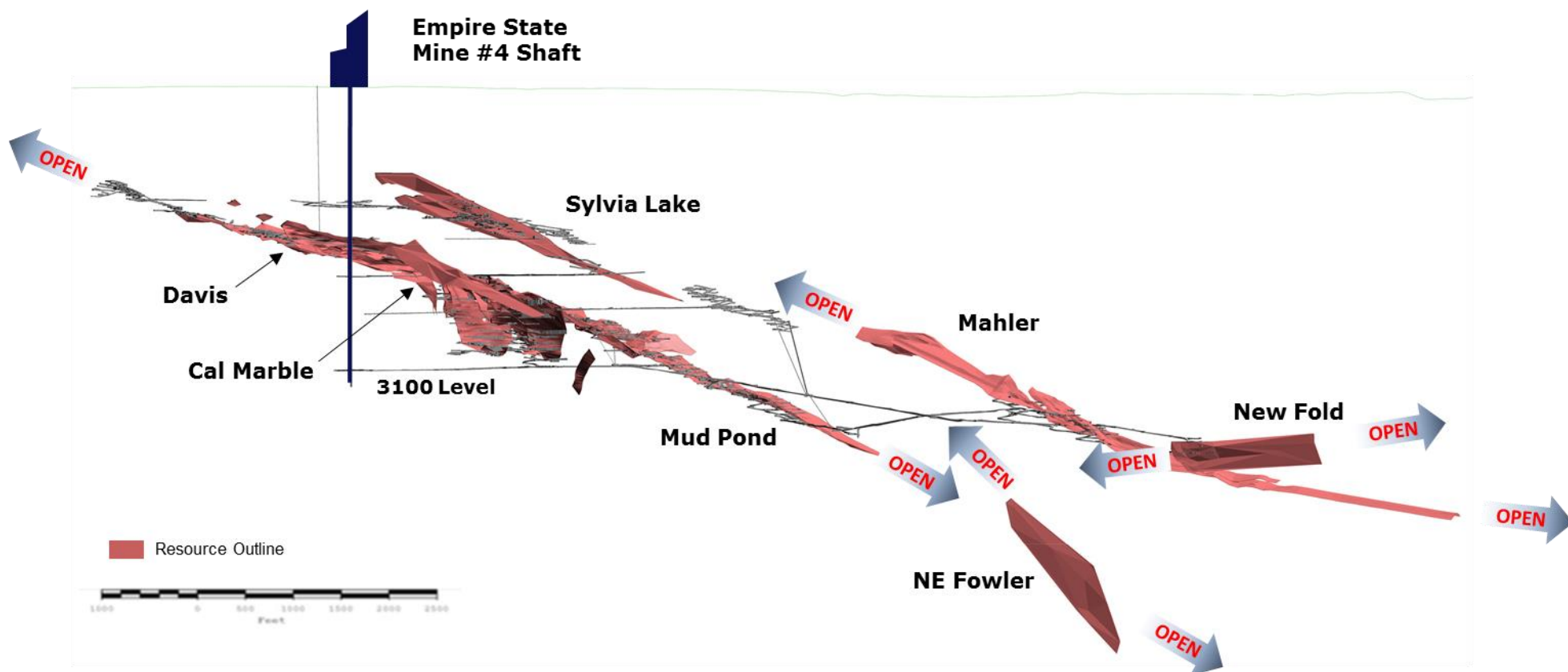
- Mineral resources are in seven mineralized zones with excellent potential for zone extension
- Definition drilling to upgrade inferred mineral resources at Mud Pond, Mahler and New Fold zones – started Q2
- Underground drilling to target up-plunge extension of New Fold and NE Fowler – started Q2
- Predominant structure is Sylvia Lake syncline trending southwest to northeast – sphalerite (zinc sulphide) tends to occur in axial regions and limbs of local folds and faults



# Mineral Resource Expansion Potential –Longitudinal View of #4 Mine (Looking Northwest)

## Potential to expand production and increase mine life

- Mineralized zones occur at depth of 1,400 - 5,500 feet and generally plunge to northeast – potential to extend zones up- and down-plunge
- Existing development provides access to all zones, except NE Fowler and Cal Marble, and includes higher-grade areas such as New Fold





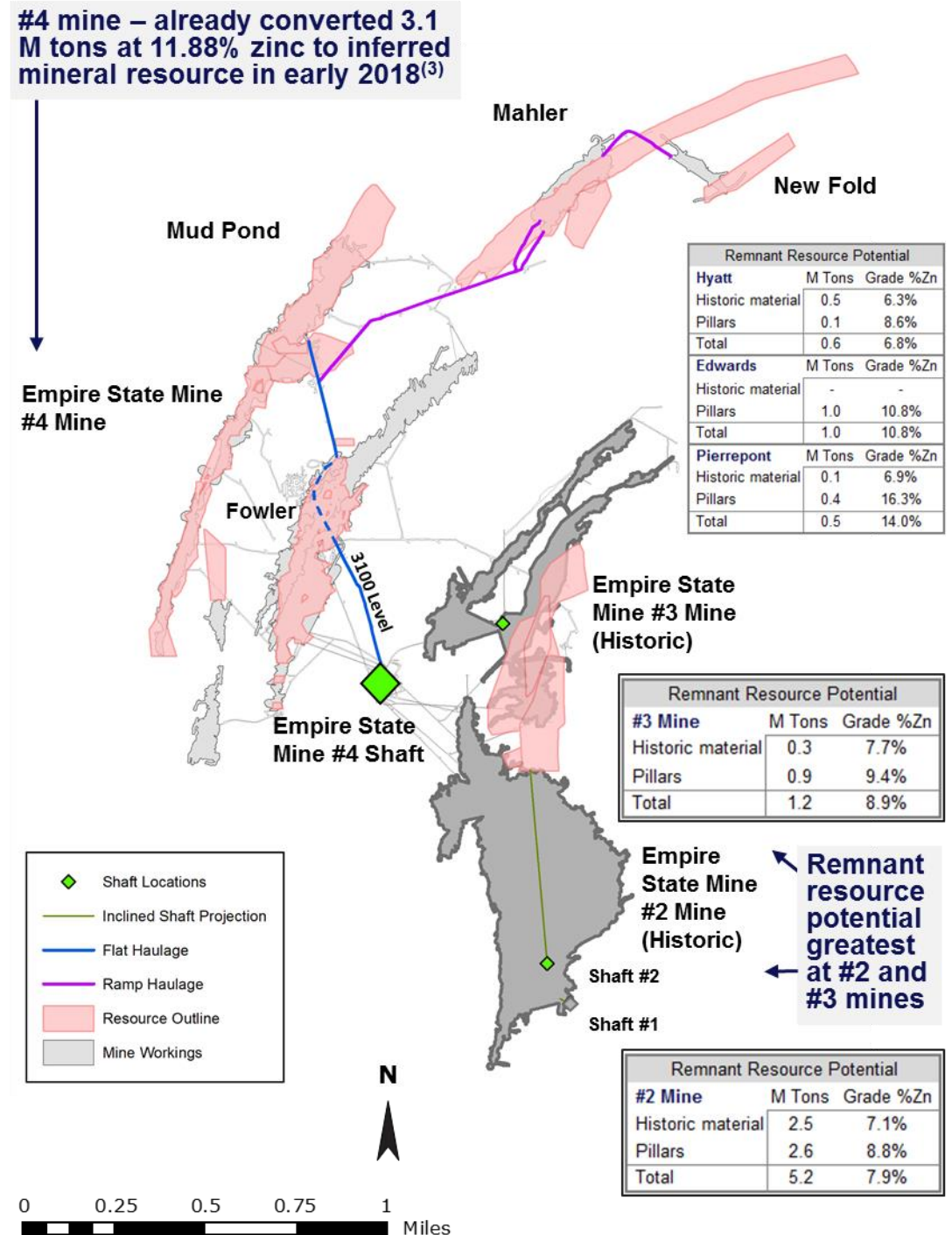
# Filling the Shaft (3,000 tpd) – Focus on Converting More Remnants to Mineral Resources

- Historic mineralized material write-downs of ~4 million tons at Empire State Mines<sup>(1)</sup>
- Pillars – historic mining left significant tonnage in place for structural support
- Remnant resource potential from historic mineralized material and pillars at Empire State Mines: ~9 million tons at 8% zinc<sup>(2)</sup>; further upside potential from zone extensions

(1) Refer to Slide 34 for historic mineralized material write-downs. Historical mineralized material is not equivalent to proven and probable mineral reserves as classified by NI 43-101.

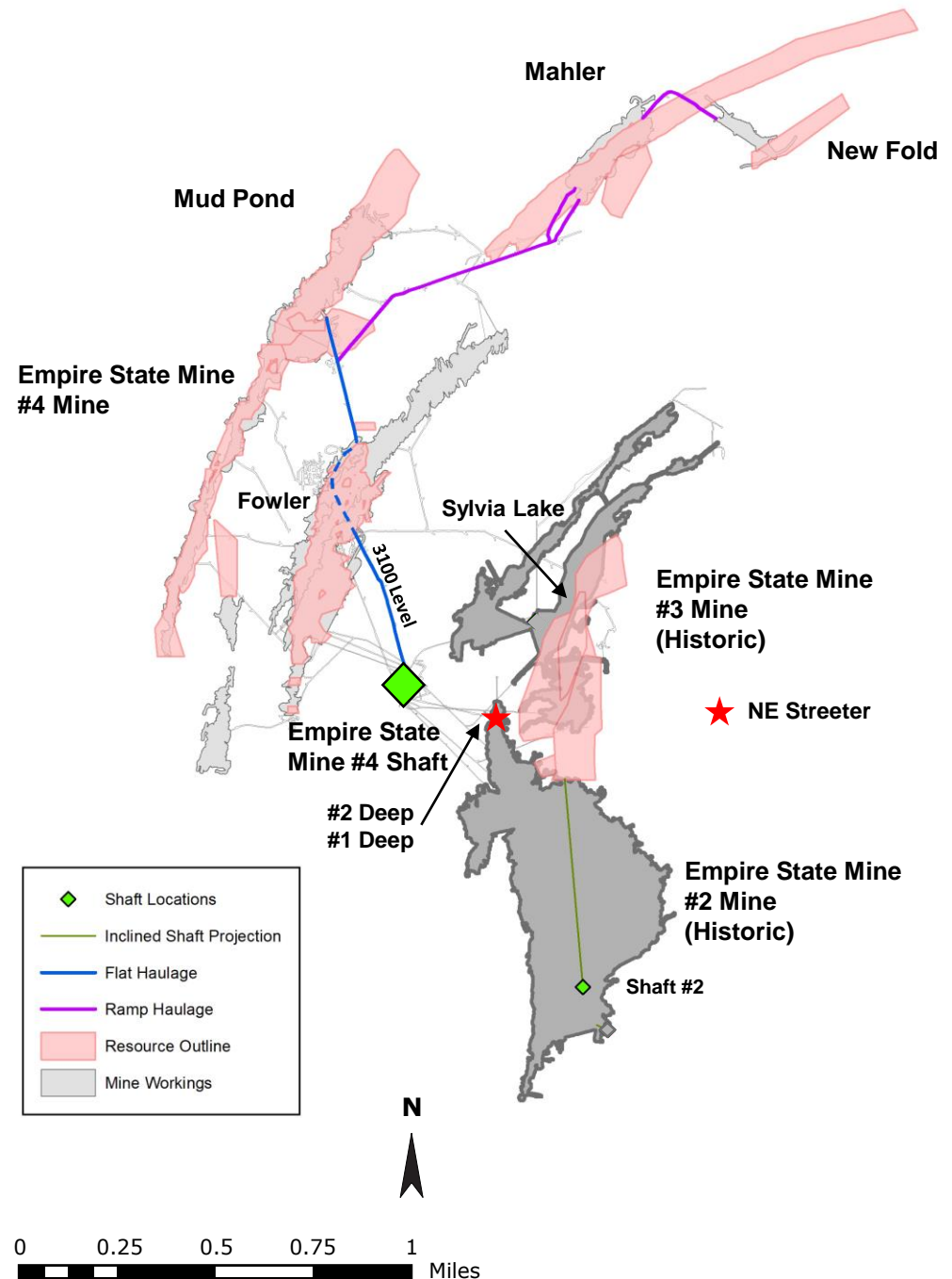
(2) Assumes that remnant resource potential in pillars at Empire State Mines is 15% of the tonnage and the same average grade as historic production at each mine.

(3) Refer to news release dated April 10, 2018, for mineral resources at the Empire State Mines' #4 mine as at January 31, 2018.



# Filling the Shaft (3,000 tpd) – New Near-Mine Mineralized Zones

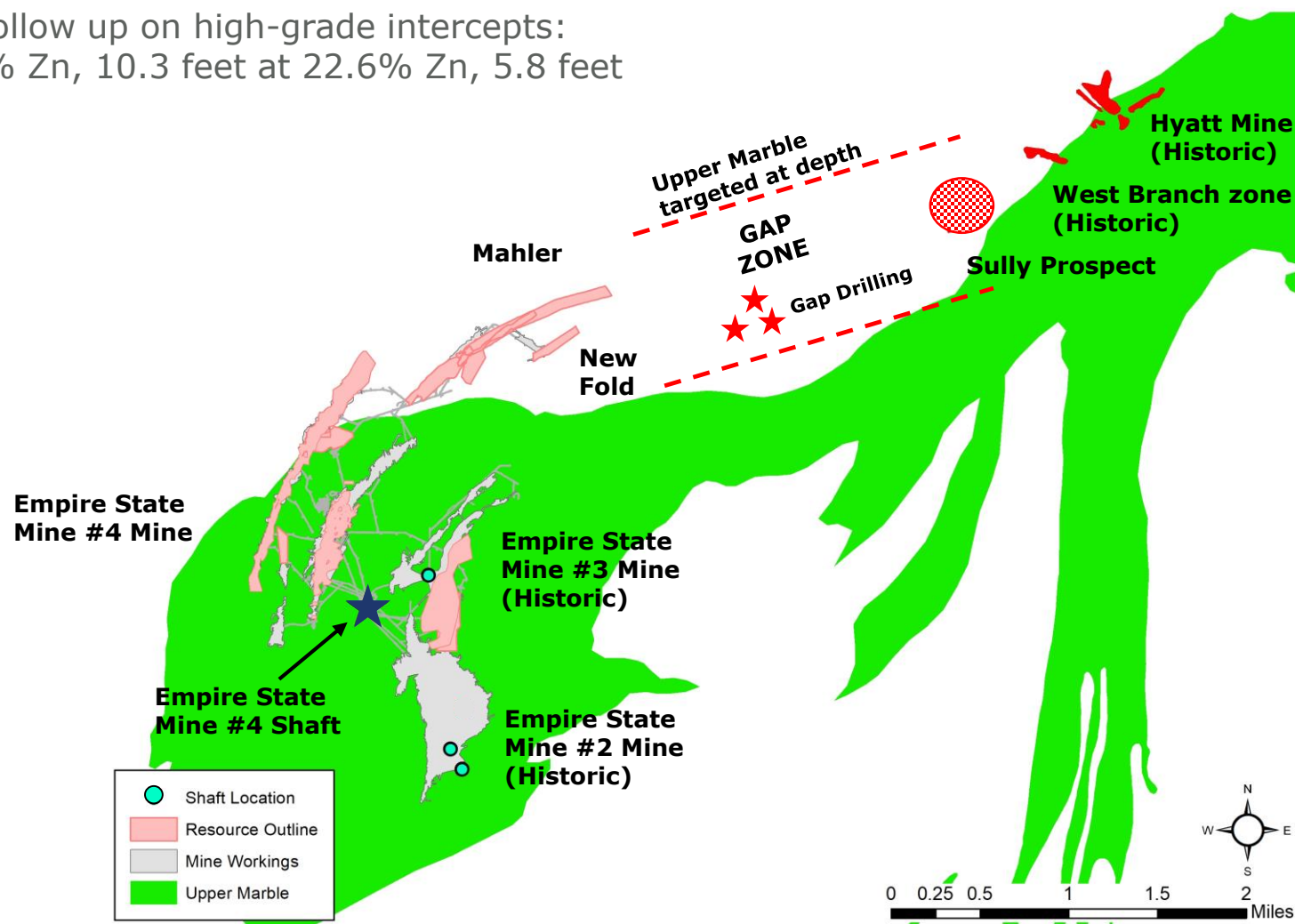
- #2 Deep - potential extension of zone mined in historic #2 mine; 1,300 feet east of #4 shaft; unmined historic mineralized material 931,000 tons at diluted grade of 6.59% zinc
- NE Streeter – 2,000 feet from Sylvia Lake deposit; unmined historic mineralized material 300,000 tons at diluted grade of 6.28% zinc
- #1 Deep – potential extension of a zone mined in historic #1 mine; unmined historic mineralized material 410,000 tons at diluted grade of 6.95% zinc
- All three zones are open down-plunge



# Filling the Mill (5,000 tpd)

## Exploration – 2018 budget US\$5M

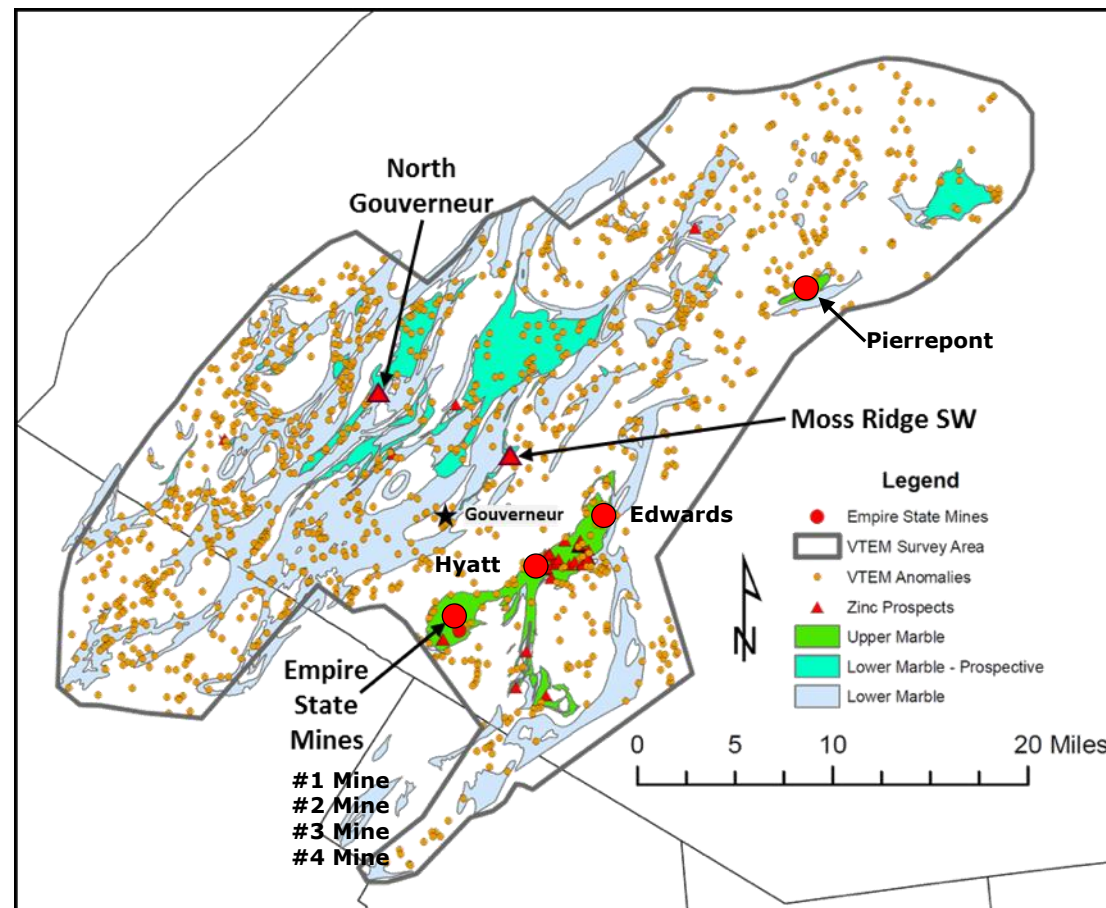
- Gap Zone – high priority target; potential down-plunge extension of known mineralized zones
- Sully prospect – follow up on high-grade intercepts: 19.5 feet at 16.7% Zn, 10.3 feet at 22.6% Zn, 5.8 feet at 34.1% Zn



# Filling the Mill (5,000 tpd) cont'd

## New district opportunities

- Untested geophysical targets generated from 2008 VTEM
- North Gouverneur and Moss Ridge SW
- Gravity survey





# A Catalyst-Rich Path to Phase 1 Production

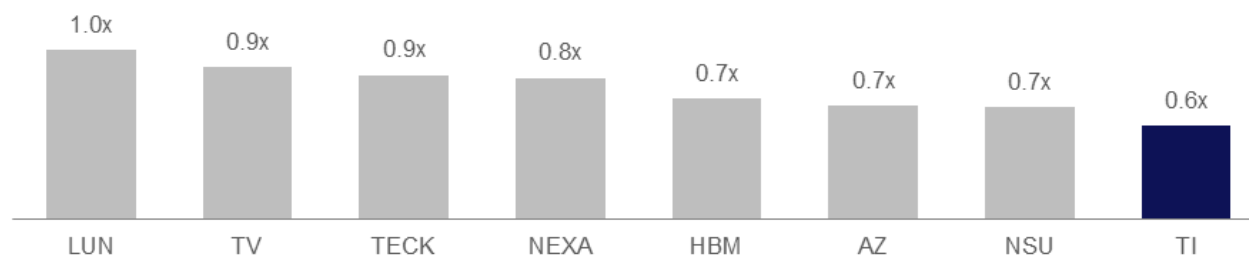
✓ <b>Re-commissioning (Q4 2017)</b>	<ul style="list-style-type: none"> <li>• Refurbishment of existing infrastructure and equipment</li> <li>• Reconditioning and re-starting the mobile equipment fleet</li> <li>• General rehabilitation of the underground workings</li> </ul>
✓ <b>First ore skipped (January 2018)</b>	<ul style="list-style-type: none"> <li>• Development of new ramps, drifts and stopes concurrently with capitalized pre-commercial production</li> </ul>
✓ <b>Concentrate offtake agreement</b>	<ul style="list-style-type: none"> <li>• Long-term contract with Glencore</li> <li>• Concentrate to be transported within North America – simple, low-risk logistics</li> </ul>
✓ <b>Mineral resource update (Q1 2018)</b>	<ul style="list-style-type: none"> <li>• Mineral resource expansion completed Q1 and announced early April</li> <li>• Updated PEA filed in May – main update is inclusion of economic impact of U.S. tax reform<sup>(1)</sup></li> </ul>
✓ <b>Start of 2018 exploration program (Q1 2018)</b>	<ul style="list-style-type: none"> <li>• US\$5M budget for regional exploration, including 40,000 feet of diamond core drilling</li> <li>• Success-based budget – potential to add drills</li> </ul>
<b>Commercial production (Q3 2018)</b>	<ul style="list-style-type: none"> <li>• Ramp up to commercial production</li> </ul>
<b>Exploration results (Q4 2018)</b>	<ul style="list-style-type: none"> <li>• Ongoing drill program and review of historical data</li> </ul>
<b>Updated LOM plan (Q1 2019)</b>	<ul style="list-style-type: none"> <li>• Economic analysis to include additional mineral resources</li> </ul>
<b>Phase 1 production milestone (Q1 2019)</b>	<ul style="list-style-type: none"> <li>• Mill throughput of 1,800 tpd</li> <li>• Three ore zones – Mud Pond, Mahler and New Fold</li> </ul>

(1) H.R. 1 – Tax Cuts and Jobs Act of 2017.

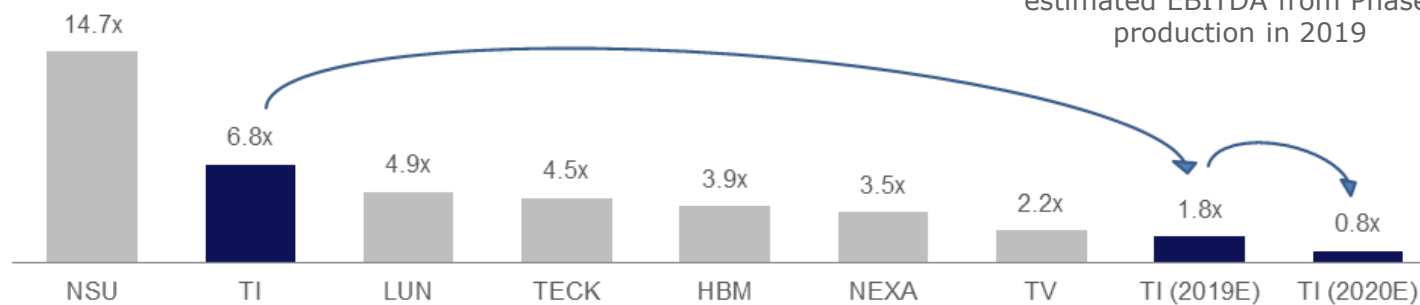
# Valuation Upside – Trading at a Discount

## Executing to a premium valuation

### Price to Net Asset Value



### Enterprise Value to EBITDA (2018E)

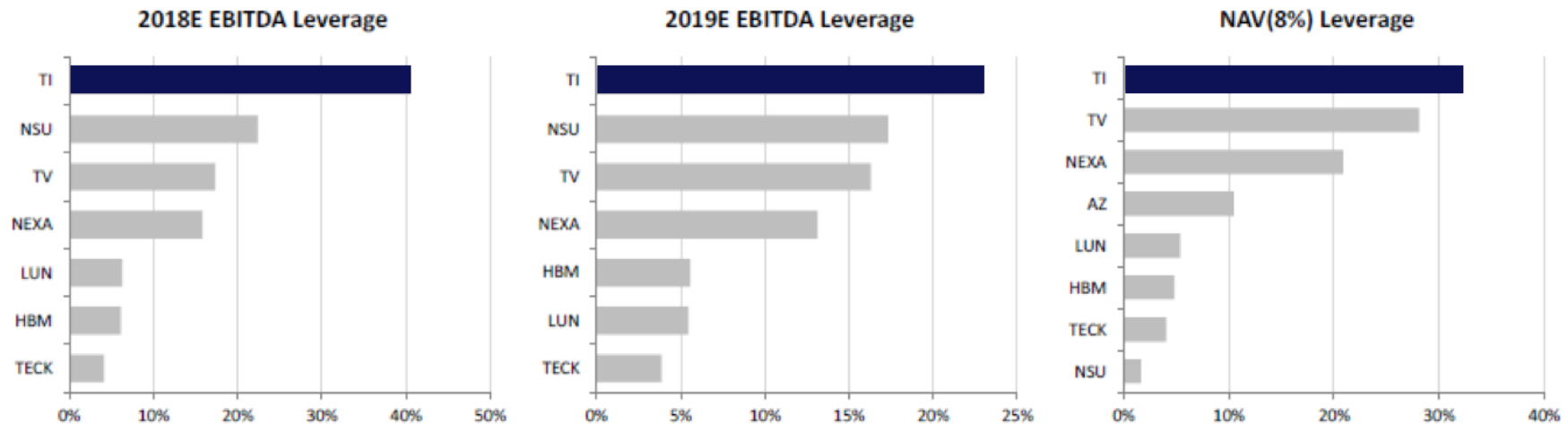


Titan is currently trading at only 1.8x estimated EBITDA from Phase 1 production in 2019

Source: Scotiabank, May 24, 2018; NAV calculated at discount rate of 8% and long-term zinc price of \$1.00/lb from 2023; EBITDA based on zinc price of \$1.60/lb in 2018 and 2019, and \$1.50/lb in 2020.

# Impressive Leverage to Zinc Price

**Titan offers the highest leverage amongst peers to a 10% increase in zinc prices**



Source: Scotiabank, April 4, 2018; zinc price assumptions – \$1.60/lb in 2018 and 2019, and \$1.00/lb from 2023 onwards.

# Permitting and Environment

## Mining Permit

- Allows for the mining of ore from workings on and beneath the land package owned by the permittee
- Conditions of the permit cover storage of explosives, blasting restrictions, tailings management, dam inspections and land reclamation

## SPDES (State Pollutant Discharge Elimination System) Permit

- Allows for discharge of wastewater within strict parameters
- Regular testing and monitoring required

## Petroleum Bulk Storage (PBS) Certificate

- Covers permanent petroleum storage tanks within the facility
- Regulations relate to over-fill protection, containment, labeling, gauging and alarm types
- Facility inspections of the storage tanks, conducted using the program standards, completed on a monthly basis

# Permitting, Environment, Health & Safety

## Chemical Bulk Storage Permit (CBS) Certificate

- Covers cupric sulfate storage tanks within ore processing plant
- Regulations cover over-fill protection, containment, labeling, gauging and alarm types

## Air Facility Registration Certificate

- Covers emissions from both process and stationary combustion sources

## Water Withdrawal Permit

- Authorizes withdrawal of water for mine dewatering and ore processing operations

## NYS Department of Health Certificate of Registration

- Covers XRF installations in laboratory and processing plant

## MSHA (Mine Safety and Health Administration - U.S. Department of Labor)

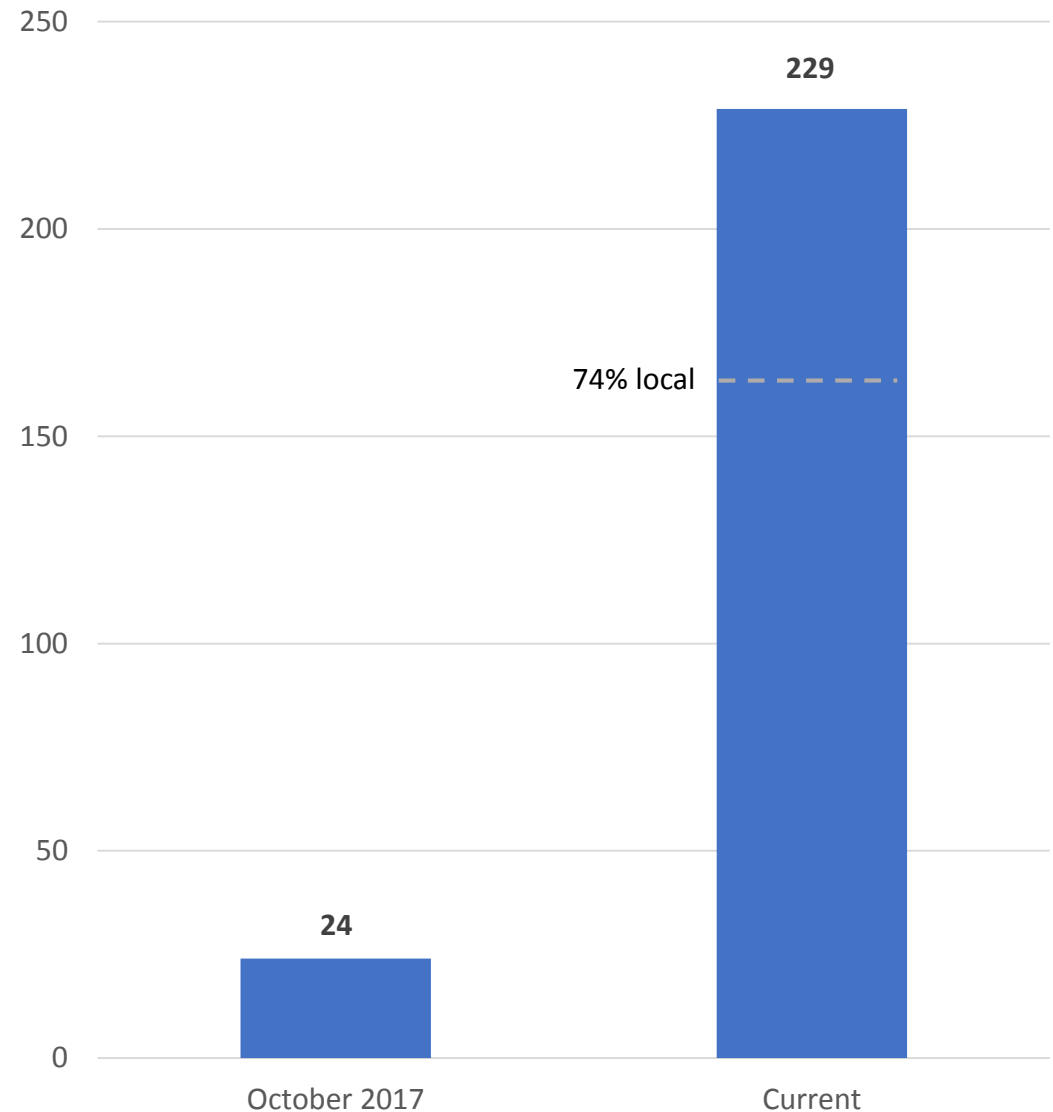
- Enforces safety and health rules for Empire State Mines and all U.S. mines



# Localization: Local Employment

- Raised \$41.4M in October 2017
- Commitment to investing in the local workforce
- Since the start of the project, the workforce has grown from 24 to more than 200 people (74% are local)
- ESM is working with the NYS Department of Labor, NYS Power Authority, Workforce Development Institute, and Fort Drum in order to recruit and train the local workforce

Total Workforce at Empire State Mines



# Training and Localization: Underground Basic Training Program

- 13 week training program
- First of 10 sessions started April 23
- Transition from mining contractor over the next 12 months
- Trainees are paid as full-time employees, benefits are also provided



**First Class of Local Trainees**

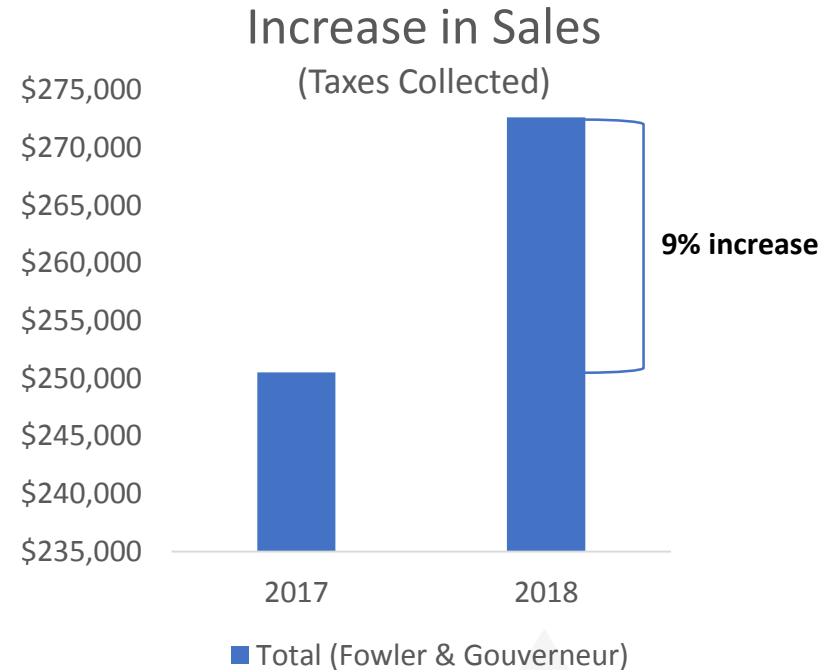
# Support to the Local Community

- Donations to the Gouverneur Hospital in support of the Emergency Room Project
- Support to local Fire Department
- Sponsorship of local educational events



# Local Economic Impact

- Providing business for local restaurants, bars, motels, B&B
- Purchasing prescription safety glasses from the local optician
- Supporting other local vendors for the services, supplies and material needed on site
- Utilizing Gouverneur Hospital for pre-employment physical, drug screening, hearing tests and other medical services as needed







## Appendix

Opportunities to enhance economics relative to PEA

Dilution control

Initial pre-production capital cost breakdown

Sensitivity analysis

Zinc market

Analyst coverage

Empire State Mines ore types

Mineral resources

Historic mineralized material write-downs

Augusta Group track record

Management, directors and advisors

Technical report Qualified Persons



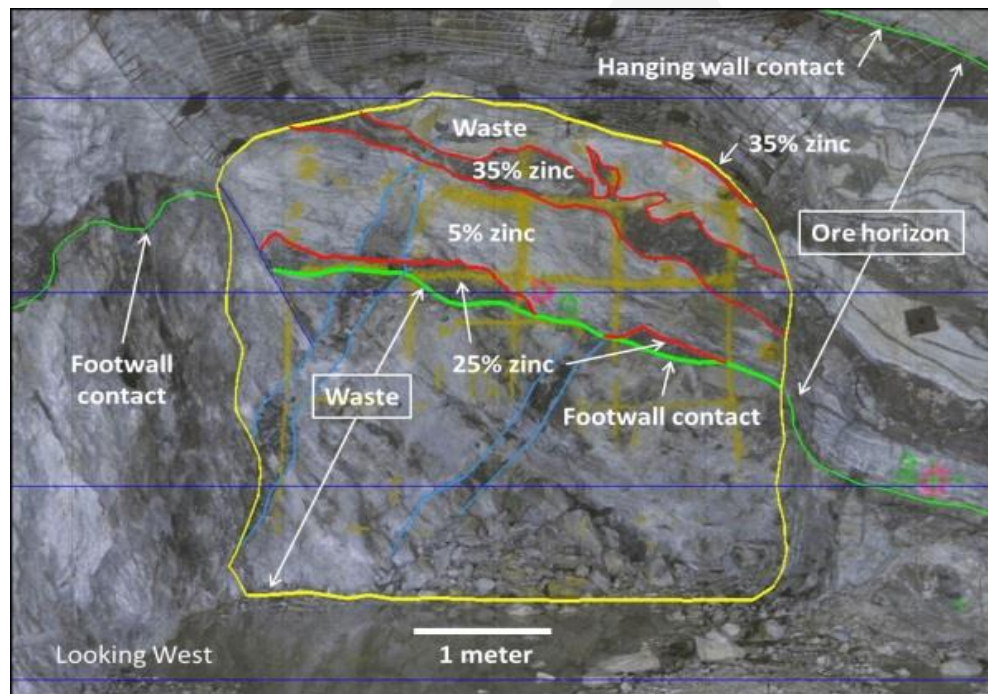
# Opportunities to Enhance Economics Relative to the PEA

	Explanation	Potential Benefit
<b>Plant Feed Sorting</b>	Use sorting technology to reject waste rock mixed with mineralized mill feed	Lower rate of dilution and increased head grade entering the mill
<b>Rail-veyor</b>	Use Rail-veyor technology for hauling material in the mine	Simpler materials handling and reduction of mine operating costs by eliminating or reducing the need for truck haulage of mill feed
<b>Drill Core Sampling</b>	Resample core from holes that were excluded from the study due to lack of verification data	Potential to enhance the tonnage, grade and classification of mineral resources within the PEA mine plan, without additional drilling
<b>Metallurgical Testing</b>	Investigate retention times in cleaner flotation stages and forced air type cells in rougher stage, as locked cycle test proved concentrate grades of 60%, higher than budget of 56%	Potential to increase concentrate grade
<b>Modernizing the Mine</b>	Operate loaders from surface, drill/muck between shifts, leaky feeder monitoring/vent controls, real time scheduling/execution	Reduce operating costs by utilizing between-shift “dead” hours and improving efficiency

# Dilution Control

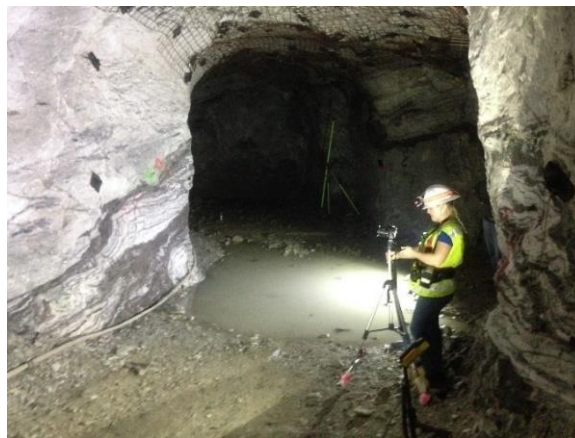
## Rigorous grade control is key

- On-shift grade control geologist
- Disciplined approach to sourcing incremental zinc mineralization
- Tighter stope design



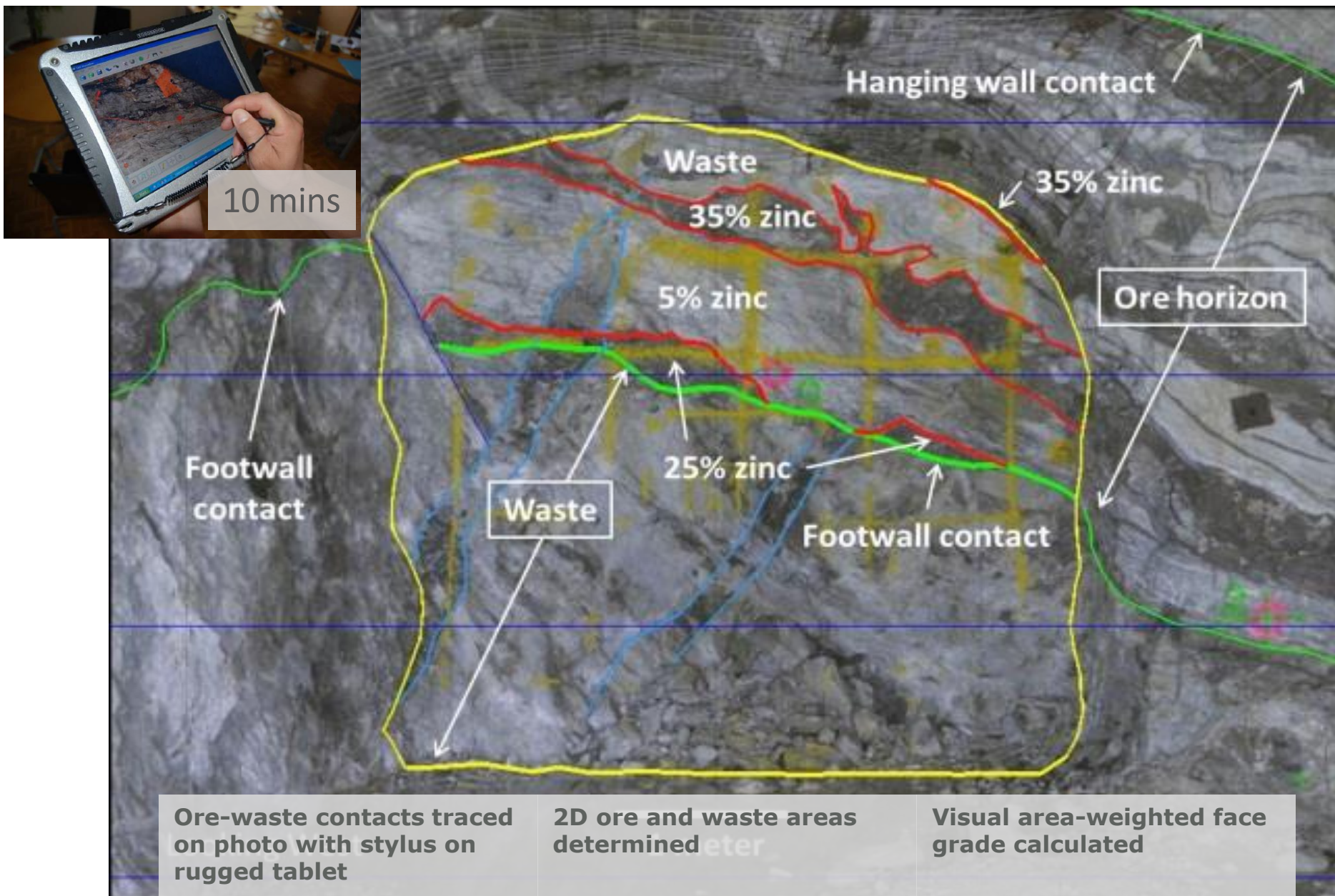
# Grade Control: Face Mapping

- Document grade control procedures – match/monitor head grade 9.2%
- Real time digital mapping at the face with industry leading technology
- Not chasing incremental ore with design or production
- Immediate confirmation of mineral resource model or variance
- Full reconciliation from the resource model to the mill including CMS stope surveys
- Post-mortem review on stope production reconciliation
- Washed heading - 8 photos taken (4 pairs) / 10-15 minutes required

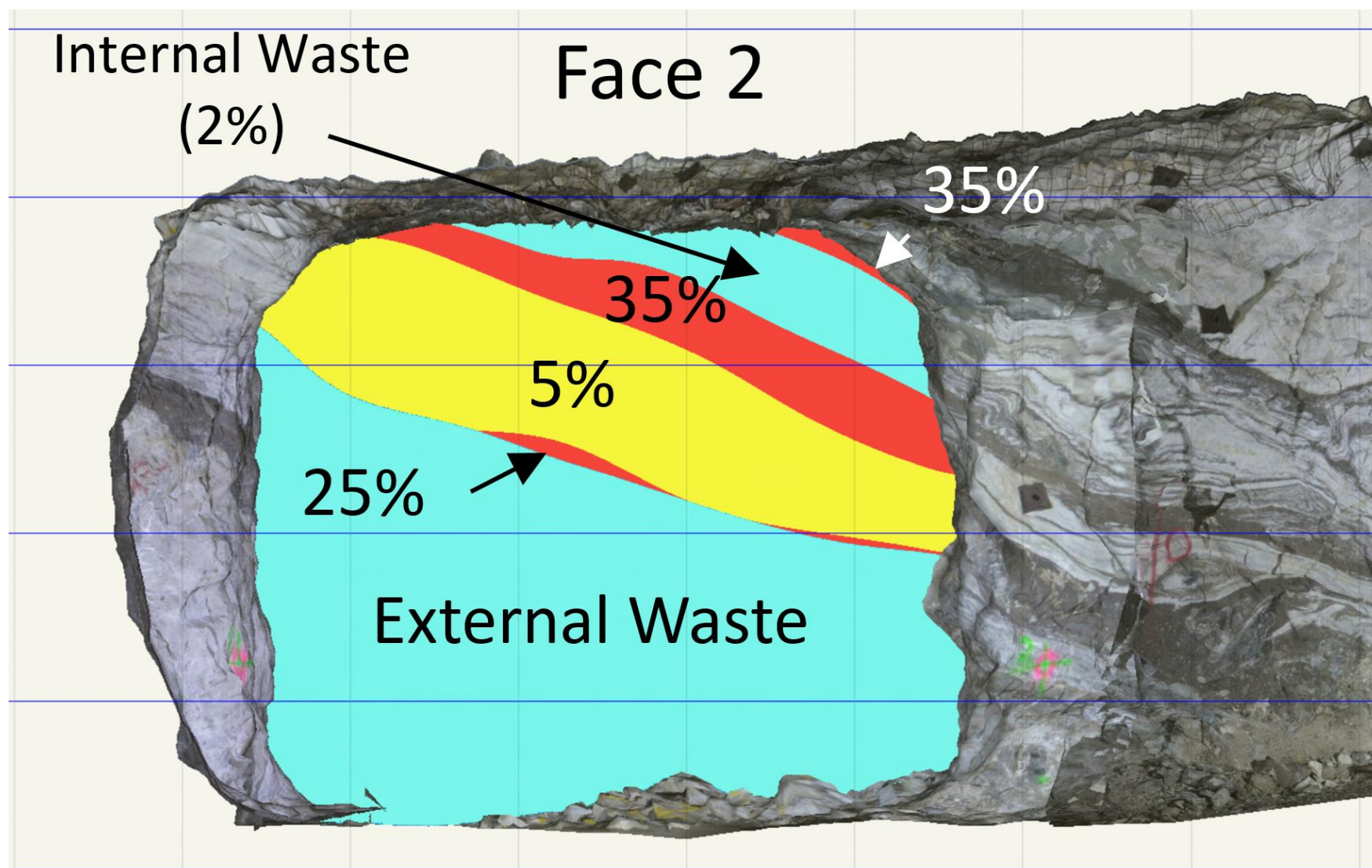




# Grade Control: Face Mapping



# Grade Control: MA3891 Current Face

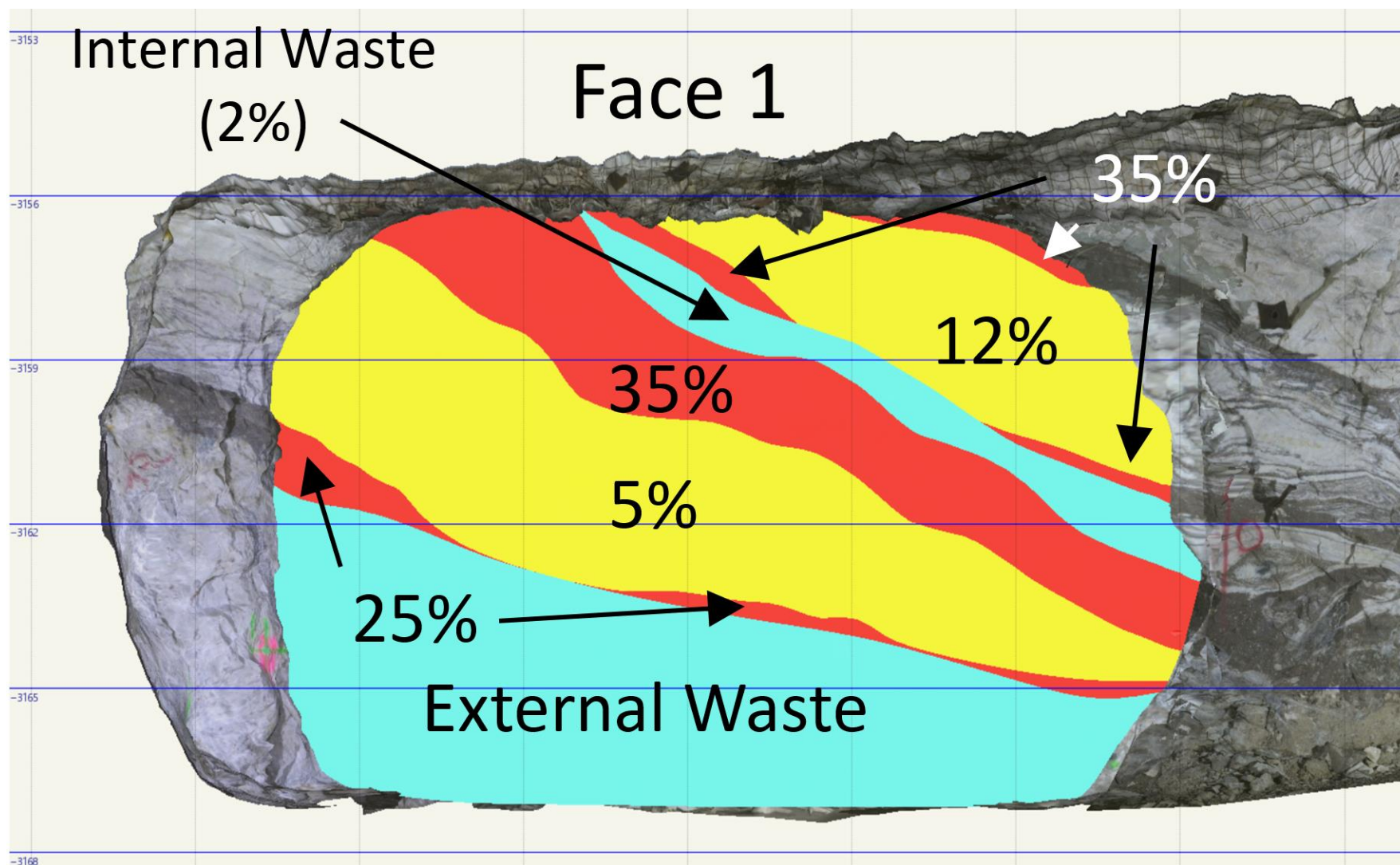


## Area-weighted visual estimates

- Ore Envelope Grade 12% Zinc
- Full face grade 5% zinc (131% in-situ dilution)



# Grade Control: MA3891 Previous Face



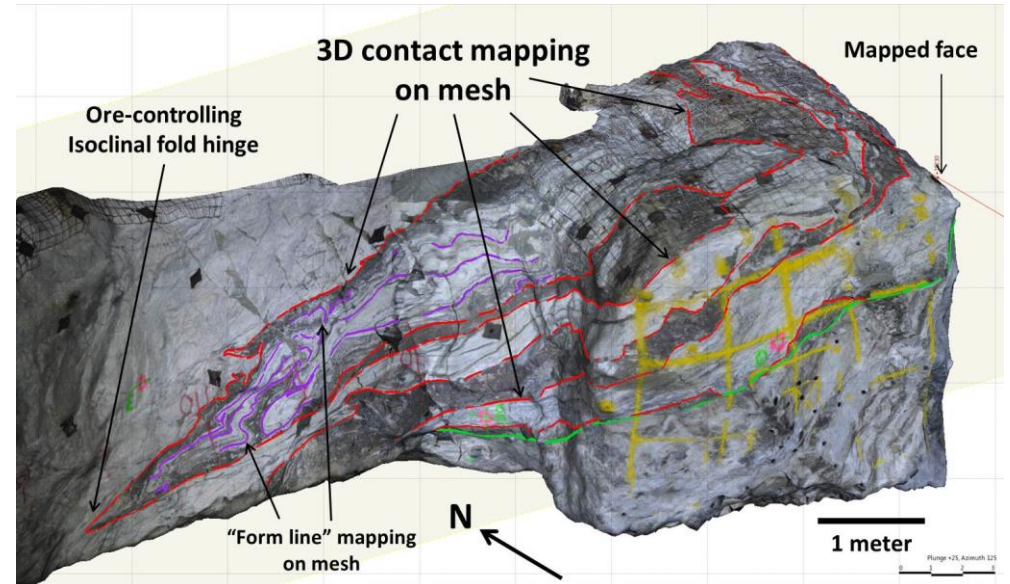
## Area-weighted visual estimates

- Ore envelope grade 15% zinc
- Full face grade 10% zinc (47% in-situ dilution)

# Grade Control: Image Processing

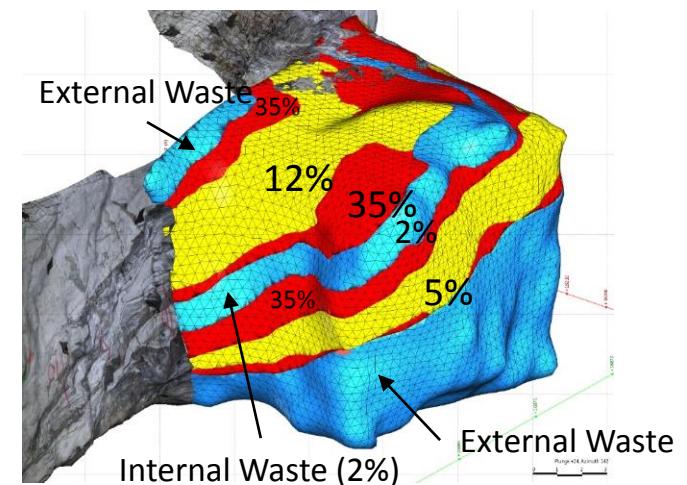
## Geological mapping accuracy

- Traditional mapping sketches and projections are inaccurate
- 3D mesh mapping fixes exact contact location, orientation and configuration
- Realtime geological model monitoring / with changes in geological control direction communicated to development miners



## Drift round tonnes and grade

- Tonnage of drift round is calculated: 135 tonnes
- Volume-weighted drift-round grade is calculated: 8% zinc
- In-situ dilution is determined: 91%
- Data provides basis for accurate reconciliation



# Initial Pre-Production Capital Cost Breakdown<sup>(1)</sup>

Item	Cost (\$M)
Mining	5.3
Mineral Processing	1.1
Tailings Management	-
Infrastructure	0.8
Indirect Costs including EPCM	0.4
Owners Costs	0.1
Other	-
Contingency (10%)	1.0
Subtotal Refurbishment	8.6
Capitalized Pre-Commercial Production	
Operating Costs	7.6
Revenue Credit	(5.5)
Total Capital Cost	10.7

(1) Technical report entitled "NI 43-101 Preliminary Economic Assessment Updated Technical Report, Empire State Mines, Gouverneur, New York, USA", dated May 24, 2018 ("2018 PEA").

# Sensitivity Analysis<sup>(1)</sup>

## Summary of Economic Results

	Unit	Value
After-Tax NPV <sub>0%</sub>	\$M	\$248
After-Tax NPV <sub>8%</sub>	\$M	\$183
After-Tax NPV <sub>10%</sub>	\$M	\$171
After-Tax IRR	%	215%
After-Tax Payback	Years	0.8

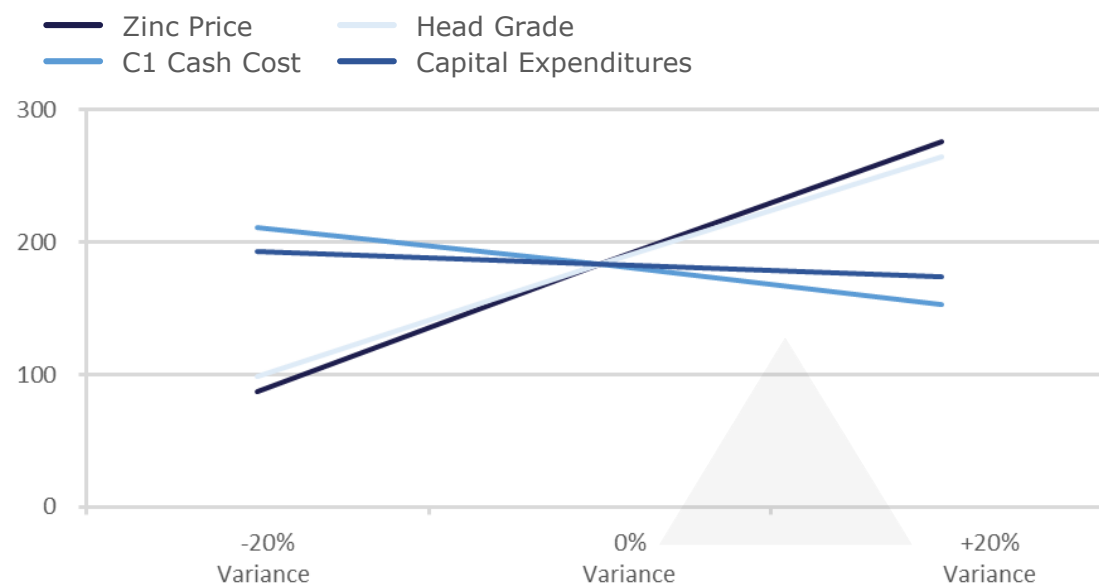
## NPV<sub>8%</sub> Sensitivity

\$M

Variable	Pre-Tax NPV <sub>8%</sub>			Post-Tax NPV <sub>8%</sub>		
	-20% Variance	0% Variance	+20% Variance	-20% Variance	0% Variance	+20% Variance
Zinc Price	\$107	\$229	\$350	\$87	\$183	\$276
Capital Expenditures	\$239	\$229	\$219	\$193	\$183	\$174
C1 Cash Cost	\$268	\$229	\$189	\$211	\$183	\$153
Head Grade	\$120	\$229	\$337	\$98	\$183	\$265

## Post-Tax NPV<sub>8%</sub> Sensitivity

\$M



(1) 2018 PEA assumes the following zinc prices: 2018: \$1.50/lb; 2019: \$1.45/lb; 2020: \$1.40/lb; 2021: \$1.35/lb; 2022: \$1.20/lb; \$1.05/lb thereafter. Mineral resources are not mineral reserves and have no demonstrated economic viability.

# Zinc Prices Have Re-Rated Higher

As a 100% zinc producer, Titan is poised to benefit as zinc inventories appear to be approaching a critical level<sup>(1)</sup>



(1) The Company re-commenced mining operations at the Empire State Mines in January 2018, and the information in respect of the Company is a forecast based on the 2018 PEA. The comparison figures are based on historical information. The Empire State Mines cannot be considered to be commercially viable at this point, as the Company has not completed a pre-feasibility study or feasibility study.

Source: LME and U.S. Federal Reserve



# Zinc Market Balance

## Zinc Supply/Demand Forecast ('000 Tonnes)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018E	2019E	2020E	2021E	2022E
GROSS TOTAL MINE PRODUCTION	11,549	11,292	12,107	12,550	12,709	12,818	12,954	13,179	12,342	13,028	13,953	14,700	15,270	15,504	15,640
LESS: DISRUPTION ALLOWANCE @ 3.0%											(419)	(441)	(458)	(465)	(469)
NET TOTAL MINE PRODUCTION	11,549	11,292	12,107	12,550	12,709	12,818	12,954	13,179	12,342	13,028	13,535	14,259	14,812	15,039	15,171
Mined Zn production growth %	5.9%	-2.2%	7.2%	3.7%	1.3%	0.9%	1.1%	1.7%	-6.4%	5.6%	3.9%	5.4%	3.9%	1.5%	0.9%
CONCENTRATE SURPLUS/(DEFICIT)	300	248	(393)	(197)	610	322	99	(123)	(798)	(9)	0	0	0	0	0
REFINED ZINC PRODUCTION	11,487	11,175	12,715	12,968	12,454	12,935	13,233	13,715	13,588	13,583	14,123	14,859	15,376	15,637	15,785
Refined Zn production growth %	3.0%	-2.7%	13.8%	2.0%	-4.0%	3.9%	2.3%	3.6%	-0.9%	0.0%	4.0%	5.2%	3.5%	1.7%	0.9%
CONSUMPTION	11,198	10,102	11,626	12,455	12,707	13,155	13,666	13,804	14,082	14,362	14,610	14,863	15,145	15,427	15,716
Global consumption growth %	-2.1%	-9.8%	15.1%	7.1%	2.0%	3.5%	3.9%	1.0%	2.0%	2.0%	1.7%	1.7%	1.9%	1.9%	1.9%
NET SURPLUS/(DEFICIT)	288	1,073	1,089	513	(253)	(220)	(433)	(89)	(494)	(779)	(487)	(4)	231	210	69
Total exchange inventories (LME/SHFE/Bonded)	317	660	1,012	1,186	1,554	1,210	885	747	741	401	214	210	440	650	719
Days of forward consumption	10	24	32	35	45	34	24	20	19	10	5	5	11	15	17
Total inventories (exchange + non-exchange)	1,389	2,448	3,683	4,169	3,942	3,723	3,289	3,199	2,705	1,926	1,439	1,435	1,666	1,875	1,944
Days of forward consumption	45	88	116	122	113	103	88	85	70	49	36	35	40	44	45
LME spot price (USD/lb)	\$0.86	\$0.74	\$0.98	\$1.00	\$0.88	\$0.87	\$0.98	\$0.88	\$0.95	\$1.31	\$1.60	\$1.60	\$1.40	\$1.30	\$1.25
Chinese Zn mine production	3,142	3,189	3,706	4,247	4,467	4,653	4,864	4,836	4,882	5,045	5,196	5,325	5,460	5,595	5,735
Chinese Zn mine production growth %	1.0%	1.5%	16.2%	14.6%	5.2%	4.2%	4.5%	-0.6%	1.0%	3.3%	3.0%	2.5%	2.5%	2.5%	2.5%
Chinese Zn mine production as a % total	27.2%	28.2%	30.6%	33.8%	35.1%	36.3%	37.6%	36.7%	39.6%	38.7%	37.2%	36.2%	35.8%	36.1%	36.7%
Consumption Growth by Region %															
China	7.5%	8.0%	14.8%	11.0%	6.5%	8.1%	5.6%	3.2%	3.3%	2.3%	2.3%	2.2%	2.1%	2.0%	2.0%
Rest of Asia (Ex China)	-4.1%	-15.8%	19.5%	2.4%	1.1%	3.5%	3.4%	-2.3%	3.6%	3.8%	1.5%	1.7%	2.3%	2.3%	2.3%
Europe	-8.8%	-27.1%	20.4%	5.4%	-6.7%	-1.0%	1.8%	2.2%	-0.6%	2.8%	1.4%	1.4%	1.5%	1.5%	1.5%
North America	-11.3%	-9.7%	1.9%	6.5%	6.8%	-1.3%	4.7%	-3.5%	3.1%	-3.9%	-0.1%	-0.1%	0.4%	0.4%	0.4%
Latin America	-0.4%	-20.5%	11.6%	3.4%	2.8%	-1.5%	-0.5%	-6.9%	2.1%	0.7%	0.5%	0.5%	2.0%	2.0%	2.0%
Rest of world	-1.2%	-12.7%	13.8%	5.1%	-5.0%	-5.6%	0.6%	1.4%	-8.1%	1.2%	2.1%	2.2%	2.5%	2.5%	2.6%
Consumption Mix by Country/Region:															
China	33.9%	40.6%	40.4%	41.9%	43.7%	45.7%	46.4%	47.5%	48.1%	48.2%	48.5%	48.7%	48.8%	48.9%	48.9%
Rest of Asia (Ex China)	20.2%	18.9%	19.6%	18.8%	18.6%	18.6%	18.5%	17.9%	18.2%	18.5%	18.5%	18.5%	18.5%	18.6%	18.7%
Europe	23.1%	18.6%	19.5%	19.2%	17.5%	16.8%	16.4%	16.7%	16.2%	16.3%	16.3%	16.2%	16.2%	16.1%	16.1%
North America	10.1%	10.1%	8.9%	8.9%	9.3%	8.9%	9.0%	8.6%	8.7%	8.2%	8.0%	7.9%	7.7%	7.6%	7.5%
Latin America	6.0%	5.3%	5.1%	4.9%	5.0%	4.7%	4.5%	4.2%	4.2%	4.1%	4.1%	4.0%	4.0%	4.0%	4.0%
Rest of world	6.7%	6.5%	6.4%	6.3%	5.9%	5.3%	5.2%	5.2%	4.7%	4.7%	4.7%	4.7%	4.7%	4.7%	4.8%

Source: Wood Mackenzie, Scotiabank GBM estimates – April 4, 2018



# Western World Mine Closures vs Forecast New Supply

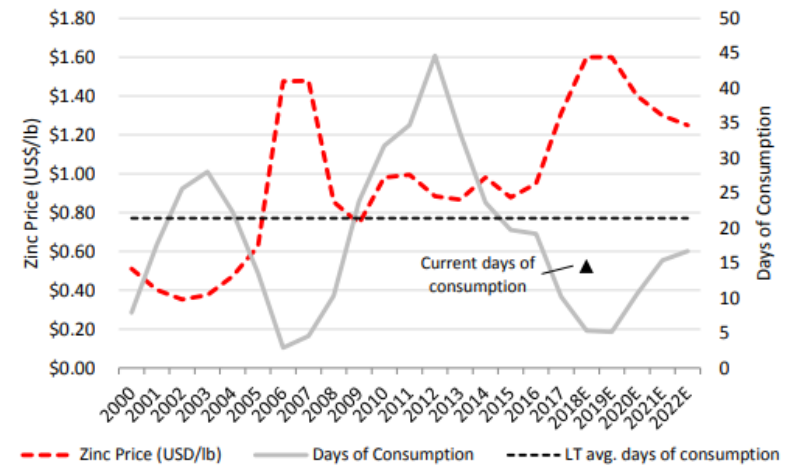
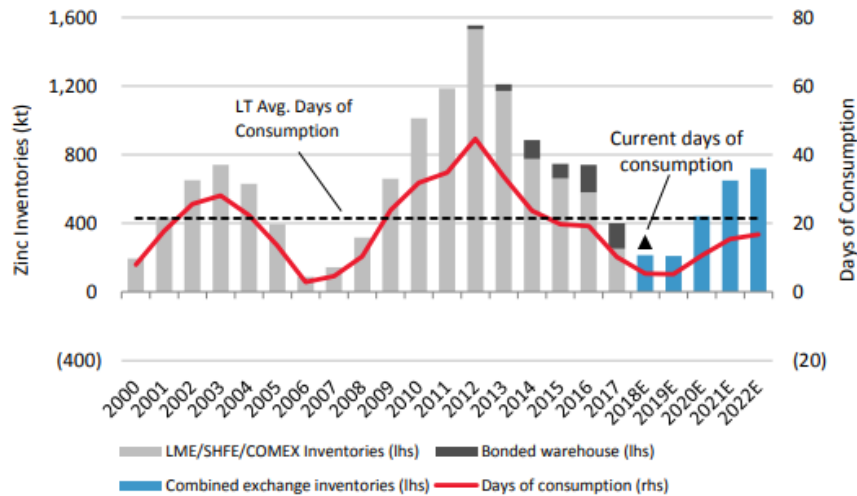
## Western Mine Closures vs Chinese Growth, New Projects and Mine Restarts ('000 Tonnes)

	2012A	2013A	2014A	2015A	2016A	2017A	2018E	2019E	2020E	2021E	2022E	11 Year Net Change
<b>Scheduled Major Mine Closures/Depletions</b>												
Brunswick	173	51	-	-	-	-	-	-	-	-	-	
Century	515	488	466	393	17	-	-	-	-	-	-	
Lisheen	172	148	133	103	-	-	-	-	-	-	-	
Perseverance	125	42	-	-	-	-	-	-	-	-	-	
Skorpion	159	140	130	80	99	81	115	115	115	60	-	
<b>Total</b>	<b>1,144</b>	<b>869</b>	<b>729</b>	<b>576</b>	<b>116</b>	<b>81</b>	<b>115</b>	<b>115</b>	<b>115</b>	<b>60</b>	<b>-</b>	<b>(1,144)</b>
YoY Change		(275)	(140)	(153)	(460)	(35)	34	-	-	(55)	(60)	
<b>Total Chinese Production</b>	<b>4,467</b>	<b>4,653</b>	<b>4,864</b>	<b>4,836</b>	<b>4,882</b>	<b>5,045</b>	<b>5,196</b>	<b>5,325</b>	<b>5,460</b>	<b>5,595</b>	<b>5,735</b>	<b>1,268</b>
YoY Change		186	211	(29)	47	163	151	129	134	136	140	
<b>Major Non-Chinese Zn Production Growth</b>												
Antamina	219	260	211	229	198	372	389	421	416	404	344	
Bisha	-	-	-	-	41	95	100	102	87	34	-	
Castellanos	-	-	-	-	-	10	50	70	75	75	75	
Century Tailings	-	-	-	-	-	-	22	91	135	135	135	
Dugald River	-	-	-	-	-	12	120	150	170	170	170	
Gamsberg	-	-	-	-	-	-	50	200	250	250	250	
Kipushi	-	-	-	-	-	-	-	-	-	50	150	
Neves Corvo	30	53	67	62	70	71	70	90	157	186	154	
Penasquito	173	149	176	208	140	163	140	195	206	192	173	
Shalkiya	-	-	-	-	-	-	-	25	45	55	80	
Taylor	-	-	-	-	-	-	-	-	11	126	216	
Zhaimem	-	-	-	-	-	-	-	-	85	130	160	
<b>Total</b>	<b>422</b>	<b>463</b>	<b>454</b>	<b>499</b>	<b>448</b>	<b>724</b>	<b>941</b>	<b>1,343</b>	<b>1,638</b>	<b>1,808</b>	<b>1,907</b>	<b>1,485</b>
YoY Change		41	(8)	45	(50)	276	216	403	294	171	99	
<b>Restarts of Idled Capacity</b>												
Balmat-Empire State	-	-	-	-	-	-	20	40	62	60	51	
Middle Tennessee	48	50	47	47	-	22	55	65	80	80	80	
Iscaycruz	87	80	84	77	-	-	-	-	-	40	80	
McArthur River	30	40	74	118	12	15	-	-	-	100	200	
Mount Isa Pb/Zn (Lady Loretta)	390	405	437	478	288	226	350	410	410	410	410	
<b>Total Restarts</b>	<b>555</b>	<b>575</b>	<b>642</b>	<b>720</b>	<b>300</b>	<b>263</b>	<b>425</b>	<b>515</b>	<b>552</b>	<b>690</b>	<b>821</b>	<b>267</b>
YoY Change		21	67	78	(420)	(37)	162	90	37	138	131	
<b>All other mines</b>	<b>6,126</b>	<b>6,267</b>	<b>6,269</b>	<b>6,545</b>	<b>6,607</b>	<b>6,955</b>	<b>7,276</b>	<b>7,402</b>	<b>7,506</b>	<b>7,350</b>	<b>7,176</b>	<b>1,051</b>
YoY Change		141	2	276	62	348	321	126	104	(156)	(174)	
<b>TOTAL</b>	<b>12,713</b>	<b>12,827</b>	<b>12,959</b>	<b>13,176</b>	<b>12,354</b>	<b>13,068</b>	<b>13,953</b>	<b>14,700</b>	<b>15,270</b>	<b>15,504</b>	<b>15,640</b>	<b>2,928</b>
YoY Change		115	132	217	(822)	714	885	747	570	234	136	
Cumulative Additions(Deletions)		115	246	463	(359)	356	1,241	1,988	2,558	2,791	2,928	

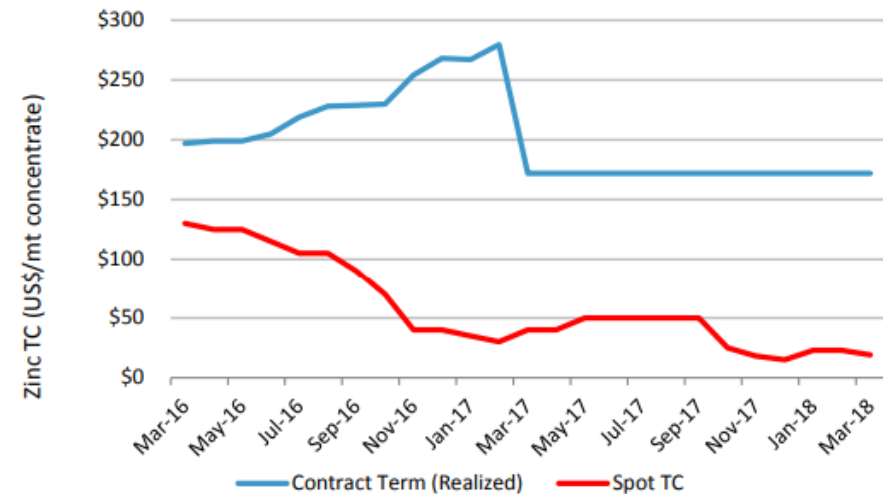
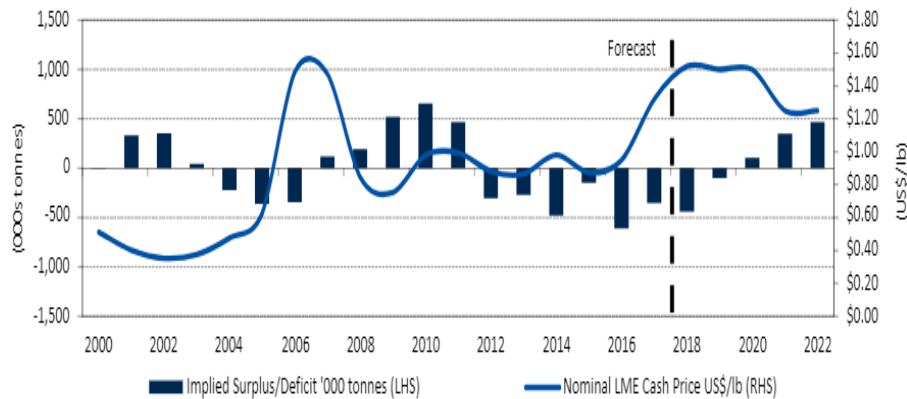
Source: Wood Mackenzie, Scotiabank GBM estimates – April 4, 2018

# Zinc Market Remains Tight

Limited mine supply, strong demand, and low inventories and treatment charges (TCs)



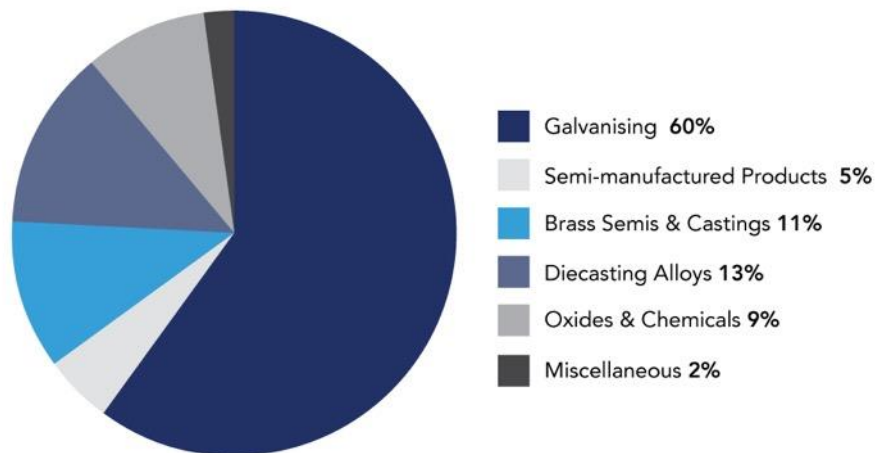
## Global Refined Zinc Implied Surplus/Deficit



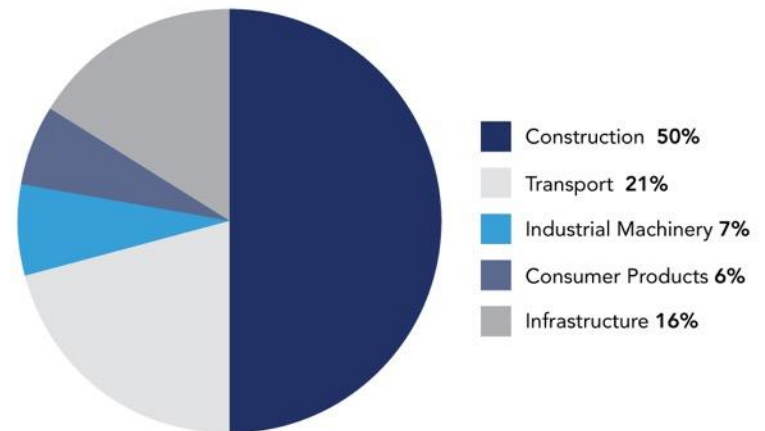
Source: Wood Mackenzie, Bloomberg, Scotiabank GBM, RBC Capital Markets

# Zinc Uses

**2016 Global Zinc Consumption by First Use**



**2016 Global Zinc Consumption by End Use**



Source: Wood Mackenzie and RBC Capital Markets

# Analyst Coverage

Analyst	Company
Dalton Baretto	Canaccord Genuity
Orest Wowkodaw	Scotiabank
Shane Nagle	National Bank Financial

# Empire State Mine Ore Types

## Primary (Parent) Ore

- Conformable lenses (175m x 750m)
- Sphalerite with pyrite and minor galena
- ~1.0-3.0 Mt @ 11.5-14.5% Zn

## Remobilized (Daughter) Ore

- Cross-cutting, elongate trends (125m x ~2000m)
- Sphalerite with minor pyrite
- ~1.5-4.5 Mt @ 8% Zn



# Mineral Resources

## Mineral Resources at Empire State Mines' #4 Mine as at January 31, 2018

Mineralized Zones	Measured		Indicated		Measured & Indicated		Inferred	
	'000 Tons	Grade (% Zn)	'000 Tons	Grade (% Zn)	'000 Tons	Grade (% Zn)	'000 Tons	Grade (% Zn)
<b>Mud Pond</b>	337.0	10.40%	285.2	10.87%	622.2	10.61%	1,390.5	10.68%
<b>New Fold</b>	68.0	12.75%	249.6	11.72%	317.6	11.94%	539.4	13.97%
<b>Mahler</b>	400.5	15.89%	700.9	15.27%	1,101.4	15.50%	516.6	15.59%
<b>Other Mineralization</b>	44.9	10.73%	83.5	10.16%	128.4	10.36%	2,969.6	12.55%
<b>Total</b>	850.4	13.19%	1,319.2	13.33%	2,169.6	13.27%	5,416.1	12.50%

Notes:

- (1) Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no certainty that all, or any part, of the mineral resources estimated will be converted into mineral reserves.
- (2) The underground mining economics used operating costs of \$70/t, and a zinc price of \$1.00/pound at 96% recovery.
- (3) Tonnage is reported to the nearest 100 tons, and grades are rounded to the nearest two decimal places.
- (4) Rounding as required by reporting guidelines may result in apparent summation differences between tons, and grade.
- (5) Mineral resources were completed by Allan Reeves, P.Geo., President of Tuun Consulting Inc.



# Historic Mineralized Material Write-Downs(1,2)

Year	Area	Proven Ore			Probable Ore			Proven Ore and Probable Ore			Inferred Ore		
		Tons	Zinc Grade	Contained Zinc	Tons	Zinc Grade	Contained Zinc	Tons	Zinc Grade	Contained Zinc	Tons	Zinc Grade	Contained Zinc
1985	Balmat (No. 2 and No.4)	824,225	7.11%	58,602	860,620	7.41%	63,772	1,684,845	7.26%	122,374	1,096,800	6.84%	75,021
1985	Balmat No. 2 Mine - Shaft Pillar	-	-	-	222,700	7.63%	16,992	222,700	7.63%	16,992	-	-	-
1992	Balmat Mine – Low Grade Reserves	-	-	-	130,162	7.60%	9,895	130,162	7.60%	9,895	-	-	-
2001	Mud Pond Pillars	105,000	10.30 %	10,815	-	-	-	105,000	10.30%	10,815	-	-	-
1976	Balmat No.3 Mine – Upper Gleason Pillars	20,000	12.00 %	2,400	-	-	-	20,000	12.00%	2,400	-	-	-
1985	Pierrepont	6,800	6.00%	408	123,100	6.97%	8,575	129,900	6.92%	8,983	-	-	-
1998	Hyatt Mine	79,246	7.78%	6,166	101,533	4.75%	4,818	180,779	6.08%	10,984	315,969	6.37%	20,124
<b>Total</b>		1,035,271	7.57%	78,391	1,438,115	7.24%	104,052	2,473,386	7.38%	182,443	1,412,769	6.73%	95,145

(1) Contained zinc is expressed in tons.

(2) Refer to Table 6.5 in technical report entitled “NI 43-101 Preliminary Economic Assessment Technical Report on the Empire State Mines, Gouverneur, New York, USA”, dated September 19, 2017. The Company’s objective is to evaluate potential exploration targets consisting of the historical probable and proven ores and remnants at the Empire State Mines. The Company does not treat the historical estimates as a current mineral resource or mineral reserve. A Qualified Person has not done sufficient work to classify these historical estimates as a current mineral reserve or mineral resource. The Company believes that this historic proven ore, historic probable ore and historic inferred ore are relevant to its prospects to extract additional mineralized material at the Empire State Mines, however, the Company is not basing its production decision on the historical estimates.

# The Augusta Group Track Record

**Extraordinary shareholder value realized through excellence in exploration and development<sup>(1)</sup>**



**VENTANA GOLD CORP.**

La Bodega gold project (Colombia)

**SOLD for ~C\$1.6B in 2011**

12,960% Share Price Increase



**ARIZONA  
MINING**

Hermosa-Taylor zinc-lead-silver project (Arizona)

**Current Market Cap of ~C\$1.4B**

4,480% Share Price Increase



Rosemont copper project (Arizona)

**SOLD for ~C\$666M in 2014**

3,300% Share Price Increase



**NEWCASTLE  
GOLD**

Castle Mountain gold project (California)

**MERGED into EQX for ~C\$200M in 2017**

700% Share Price Increase

(1) The results for Ventana Gold Corp., Augusta Resource Corp., Arizona Mining Inc. and NewCastle Gold Ltd. are independent of the results of the Company and are no guarantee of the future performance of the Company. Undue reliance should not be placed thereon when considering an investment in Titan Mining.

# Experienced Management

## **Richard Warke**

*President & CEO*

Richard Warke is a Vancouver-based mining executive and the founder and Executive Chairman of Titan Mining, part of the Augusta Group of Companies which he founded in 2005. The Augusta Group previously included Ventana Gold Corp., which sold for C\$1.6 billion in 2011, and Augusta Resource Corporation, which sold for C\$666 million in 2014. Mr. Warke also serves as Executive Chairman of Arizona Mining Inc. In addition, he acquired control of Newcastle Gold Ltd. in 2016 and was Executive Chairman until its merger to form Equinox Gold in December 2017. With more than 25 years of experience in the mining industry, Mr. Warke has been instrumental in raising over a billion dollars in equity for resource companies.

## **Keith Boyle**

*Chief Operating Officer*

Keith Boyle has more than 30 years of experience in building and operating narrow vein and bulk underground mines as well as open pit mines, with a strong focus on safety, efficiency and cost control. He has successfully led the completion of numerous exploration programs, NI 43-101 feasibility studies, independent reviews, financing due diligence, and the construction and development of mines. He has led the implementation of industry-leading health, safety and environmental management systems. Mr. Boyle was recognized by the mining industry with a second J.T. Ryan trophy for managing the Stobie Mine as the safest mine in Ontario.

## **Michael McClelland**

*Chief Financial Officer*

Michael McClelland joined Titan in March 2018. He is a Chartered Professional Accountant and is currently Chief Financial Officer of Bisha Mining Share Company, an operating subsidiary of Nevsun Resources Ltd. Mr. McClelland previously worked for Goldcorp Inc. as the Mine General Manager at Wharf Resources (now owned by Coeur Mining), and prior to that was Director of Finance, Canada and USA. He started his career at KPMG LLP as a Senior Accountant with the mining group.

## **Jerrold Annett**

*SVP, Corporate Development*

Jerrold Annett joined Titan in 2017. He has over 11 years of experience with Teck Resources Limited and Falconbridge Ltd. and an additional 10 years in capital markets, most recently with Scotiabank. Mr. Annett is currently Senior Vice President, Corporate Development, of Arizona Mining Inc. He worked for Cominco Ltd. as a metallurgist at the lead-zinc Polaris Mine, Sullivan lead-zinc mine, and the Quebrada Blanca mine. He was ranked a Brendan Woods Top Gun Super League Sales Professional during the last two surveys in 2015 and 2012.

# Experienced Management, cont'd

## Jacqueline Allison

*VP, Investor Relations &  
Strategic Analysis*

Jacqueline Allison joined Titan in January 2018. She is a Chartered Financial Analyst with a PhD in Mineral Economics, and has 20 years of capital markets and corporate experience. Prior to joining Titan, she was Vice President, Investor Relations for Dominion Diamond Corp., and Director, Investor Relations for Hudbay Minerals. Previously, Ms. Allison served as Vice President and Research Director, Fundamental Equities for BMO Asset Management, and Vice President, Canadian Equities for Natcan Investment Management.

## Scott Burkett

*VP, Exploration*

Scott Burkett has over 10 years of experience in mineral exploration, ore control, geologic modeling, resource estimation and database management. Mr. Burkett earned his BSc in Geology from the University of Idaho, and has since worked on a number of base and precious metal exploration projects at various stages, ranging from grassroots to advanced exploration. Prior to joining Titan Mining, he worked for Arizona Mining Inc. where he served as Chief Geologist for the Hermosa Project, and was instrumental in designing programs which resulted in significant expansion of the mineral resources. Mr. Burkett also brings experience in exploration and ore control from previous roles at Metal Mining Consultants Inc., First Solar, Hycroft Resources & Development, Inc. (Allied Nevada Gold) and Yamana Gold, Inc..

## Naomi Johnson

*VP, Community Relations*

Naomi Johnson joined Titan in April 2018. She is a global community relations executive, international development specialist and lawyer. She has 15 years of management experience in leadership positions across the private, public and not for profit sectors. Ms. Johnson was most recently a Partner and Senior Director of Community Relations at Barrick Gold. She has previously worked for Hatch, War Child Canada and the United Nations High Commissioner for Refugees. She lends a diverse and broad perspective to developing sustainable and leading-edge approaches to stakeholder impact and risk management.

## Eric Strom

*VP, Projects and Innovation*

Eric Strom joined Titan in March 2018. Mr. Strom is a mining engineer with over 20 years of industry experience in precious and base metals mine development and operations in Canada and Australia. He was most recently Director of underground mining for New Gold Inc., and has previously worked for Placer Dome, Goldcorp, Rio Tinto and China Molybdenum. Mr. Strom led the implementation of the world's first fully automated underground hard rock mine at Northparkes Mines, Australia, and has experience in optimizing operations across a spectrum of mining methods including narrow vein handheld, longhole stoping and autonomous block caving.

# Directors & Advisors

## Directors

### **Richard W. Warke**

*Executive Chairman*

Richard Warke is a Vancouver-based mining executive and the founder, President & CEO of Titan Mining, part of the Augusta Group of Companies which he founded in 2005. The Augusta Group previously included Ventana Gold Corp., which sold for C\$1.6 billion in 2011, and Augusta Resource Corporation, which sold for C\$666 million in 2014. Mr. Warke also serves as Executive Chairman of Arizona Mining Inc. In addition, he acquired control of Newcastle Gold Ltd. in 2016 and was Executive Chairman until its merger to form Equinox Gold in December 2017. With more than 25 years of experience in the mining industry, Mr. Warke has been instrumental in raising over a billion dollars in equity for resource companies.

### **Purni Parikh**

*Director*

Purni Parikh has more than 25 years of experience working with public companies in the areas of legal and regulatory administration, corporate finance, governance and investor relations. She has completed governance and board-related course work at Harvard Business School. Ms. Parikh has a Certificate in Business from the University of Toronto, and completed additional course work at Simon Fraser University. She has a Gemology degree with honours. Ms. Parikh is currently the President of the Augusta Group of Companies and Senior Vice President, Corporate Affairs of Arizona Mining Inc. She was previously Vice President, Corporate Secretary of Newcastle Gold Ltd., Augusta Resource Corporation and Ventana Gold Corp. prior to their acquisition. Ms. Parikh is also an Accredited Director with ICD. D certification.

### **George E. Pataki**

*Director*

George E. Pataki is the co-founder and Chairman of the Pataki-Cahill Group, a specialized development firm, and serves as Senior Counsel to the international law firm Norton Rose Fullbright. Previously, he served three terms as the 53rd Governor of the State of New York from 1995 to 2006, being elected after serving consecutively as the mayor of Peekskill, an assemblyman in the New York State Legislature, and as a senator in the New York State Senate. Mr. Pataki has vast experience serving on the boards of international conglomerates, private equity firms, and venture capital funds.

### **Lenard Boggio**

*Director*

Len Boggio was formerly a partner of Pricewaterhouse Coopers LLP (PwC) where he served for more than 30 years until his retirement in May 2012. During that time, he was Leader of the B.C. Mining Group of PwC, a senior member of PwC's Global Mining Industry Practice and an auditor of Canadian, United States, U.K. and other internationally-listed mineral resource and energy clients. Mr. Boggio is a Fellow of the Chartered Professional Accountants of Canada (FCPA, FCA) and has served as president of the British Columbia Institute of Chartered Accountants and chairman of the Canadian Institute of Chartered Accountants.



# Directors & Advisors, cont'd

## Directors

### Gregory Clark

*Director*

Greg Clark has been retired since 2013, prior to which he was a Licensed Aircraft Technician in the Heavy Maintenance Department at Canadian Airlines and, subsequently, Air Canada.

## Advisors

### James Gowans

*Advisor*

James Gowans has more than 30 years of experience in mineral exploration, mine feasibility studies, construction and operation, including the Red Dog and Polaris mines. Mr. Gowans is currently President and CEO of Arizona Mining Inc. and was formerly Co-President, EVP and COO of Barrick Gold Corporation. Prior roles include Managing Director of Debswana Diamond Company (Pty) Ltd., President & CEO of De Beers Canada Inc., COO & SVP of International Nickel Indonesia tbk PT, and EVP at Placer Dome Inc.

### R. Stuart Angus

*Advisor*

Stuart Angus is an independent business advisor to the mining industry and was formerly Head of the Global Mining Group for Fasken Martineau. Mr. Angus was formerly the Chairman and a director of Nevsun Resources Ltd, and was previously Chairman of the Board of BC Sugar Refinery Limited, a Director of First Quantum Minerals until June 2005, a Director of Canico Resources Corporation until its takeover by CVRD in 2005, a Director of Bema Gold until its takeover by Kinross Gold in 2007, a Director of Ventana Gold until its takeover by AUX Canada Acquisition in 2011 and a Director of Plutonic Power until its merger with Magma Energy in 2011.

# Technical Report Qualified Persons

Qualified Person	Company	Professional Designation
Mike Makarenko	JDS Energy & Mining Inc.	P.Eng.
Matt Moss	JDS Energy & Mining Inc.	P.Eng.
Indi Gopinathan	JDS Energy & Mining Inc.	P.Eng.
Allan Reeves	Tuun Consulting Inc.	P.Geo.
Robert Raponi	TR Raponi Consulting Ltd.	P.Eng.



**TSX: TI**



# **THE NEWEST U.S. ZINC PRODUCER**

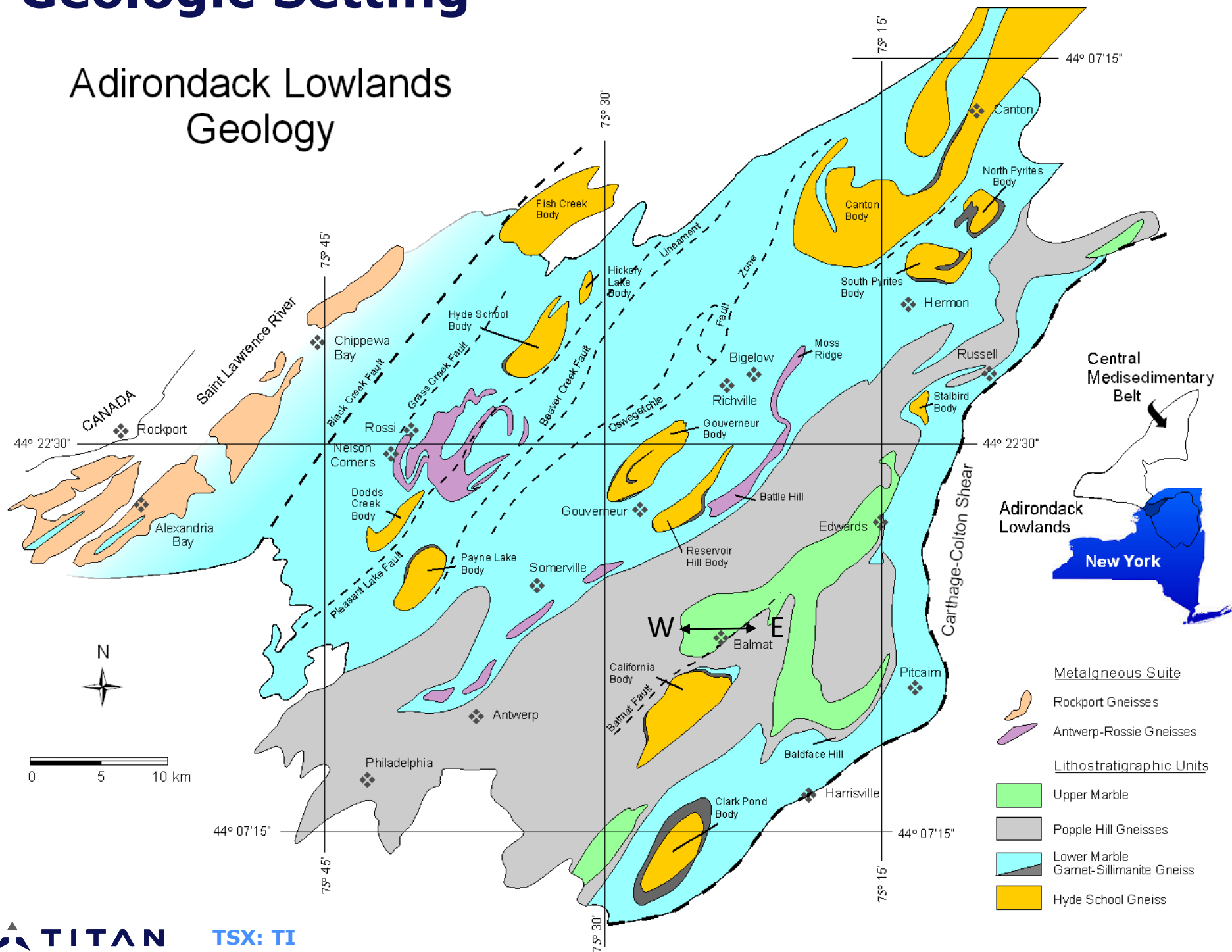
LEVERING EXCESS CAPACITY  
TO DRIVE CASH FLOW GROWTH

ANALYST/INVESTOR SITE VISIT  
EXPLORATION

June 13, 2018

# Geologic Setting

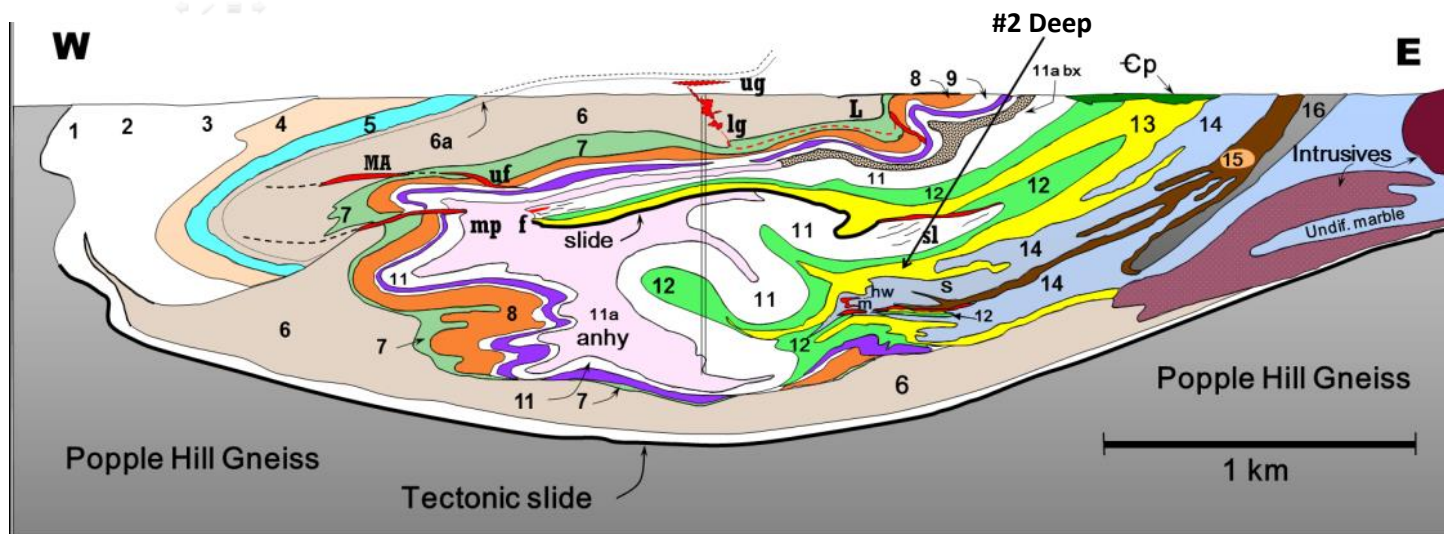
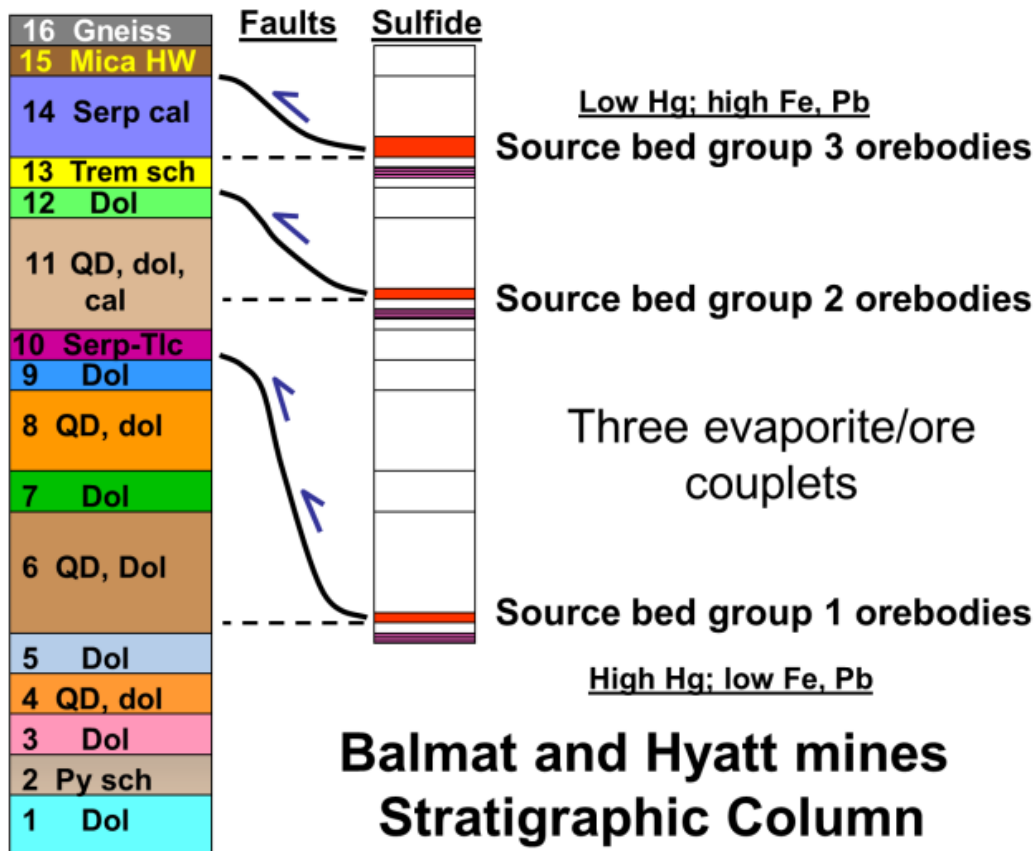
## Adirondack Lowlands Geology



# Upper Marble Stratigraphy

## Mineralization Types

- **Primary mineralization**
  - Unit 14 (#2 Mine, Hyatt)
  - Unit 11 (Fowler)
  - Unit 6 (Gleason)
- **Secondary mineralization**
  - Crosscuts stratigraphy
  - Mud Pond, Mahler, New Fold



**W-E cross-section through the Balmat Mine**



# Potential within Historical Data

## Compiling, digitizing and modelling existing data

- 100 years of historical exploration – ~800 kilometers of available drill data
- Consolidating and assessing exploration data from multiple programs and operators

## Historic data review ongoing

- 40% complete

## Modelling

- 3D Geologic Modeling
  - ESM #1-#4 Mines, Gap Zone and Sully (complete)
  - Hyatt and Edwards (Q4 completion)

## New interpretation

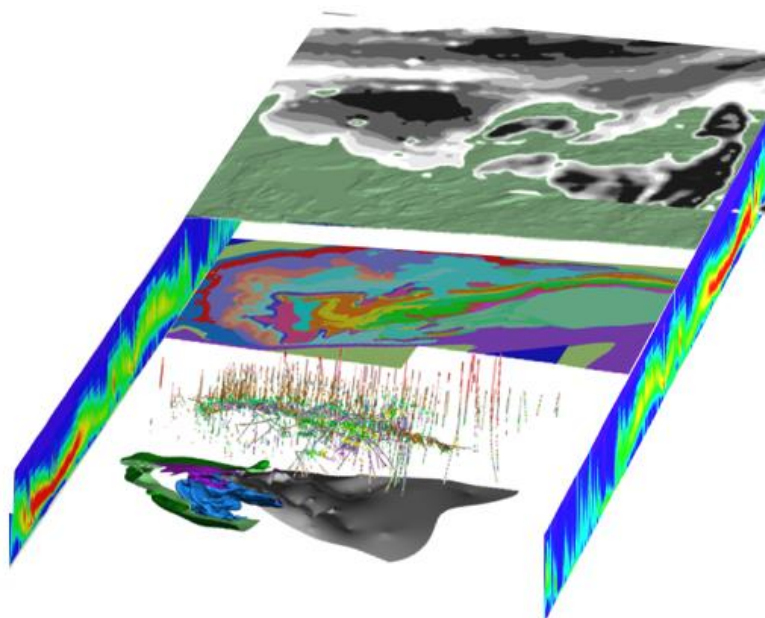
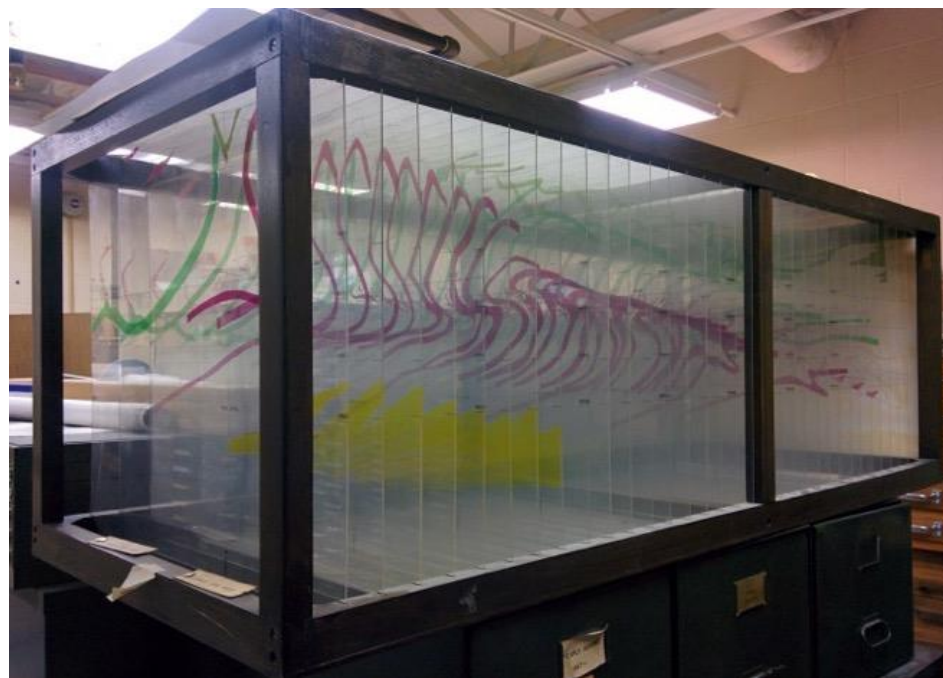
- VTEM Survey
  - Structural contour mapping

## Identifying near-mine opportunities

- #2 Deep
- #1 Deep
- NE Streeter

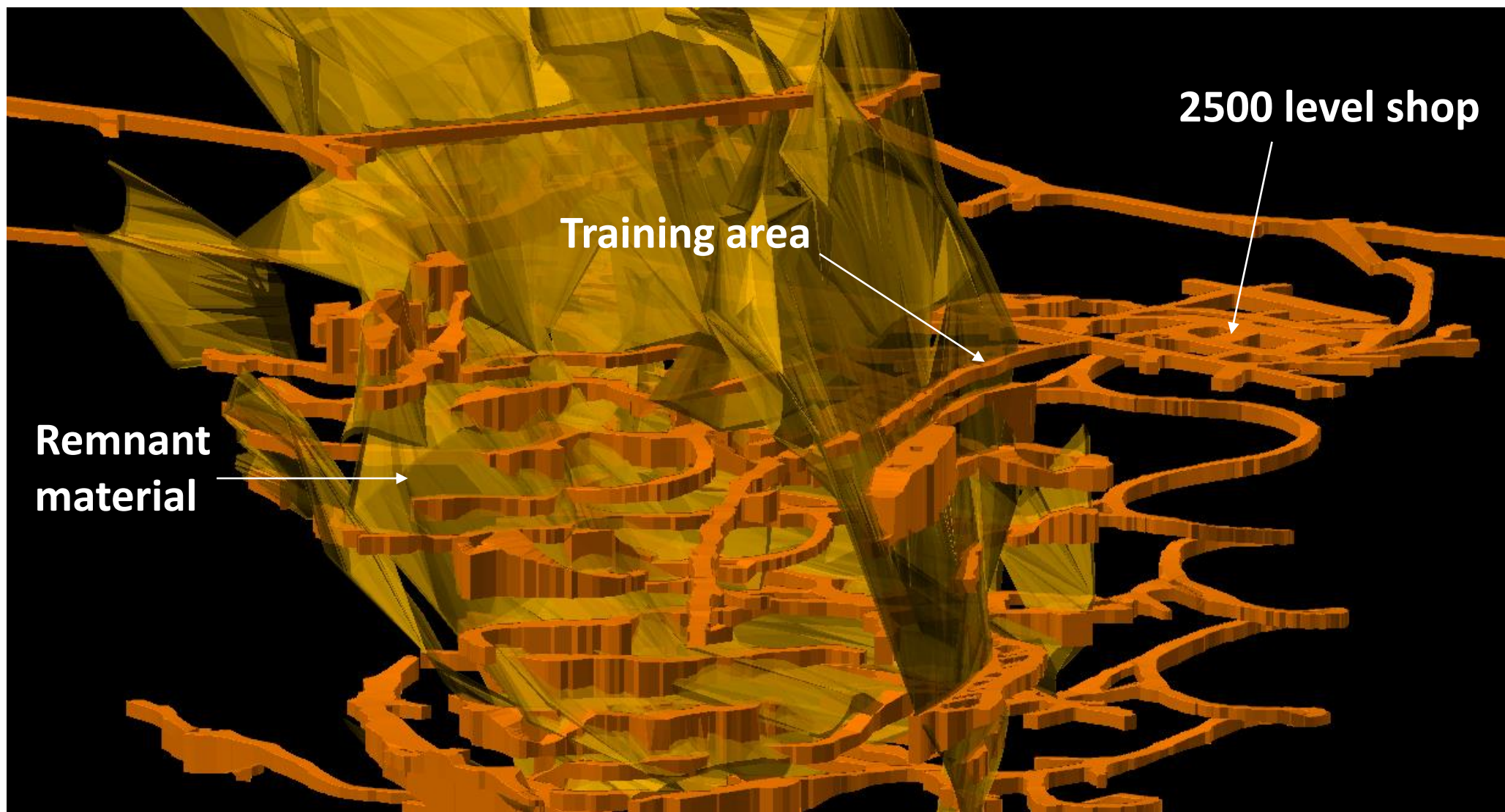
## Remnants

- As-builts



- Re-interpreted magnetic data
- Inversion of airborne VTEM
- High precision LIDAR topo
- Digitization and synthesis of geological mapping
- Transition to modern core logging scheme
- 3D modelling of geology, mineralized shells and mine workings

## Remnants – Fowler (Looking Southwest)



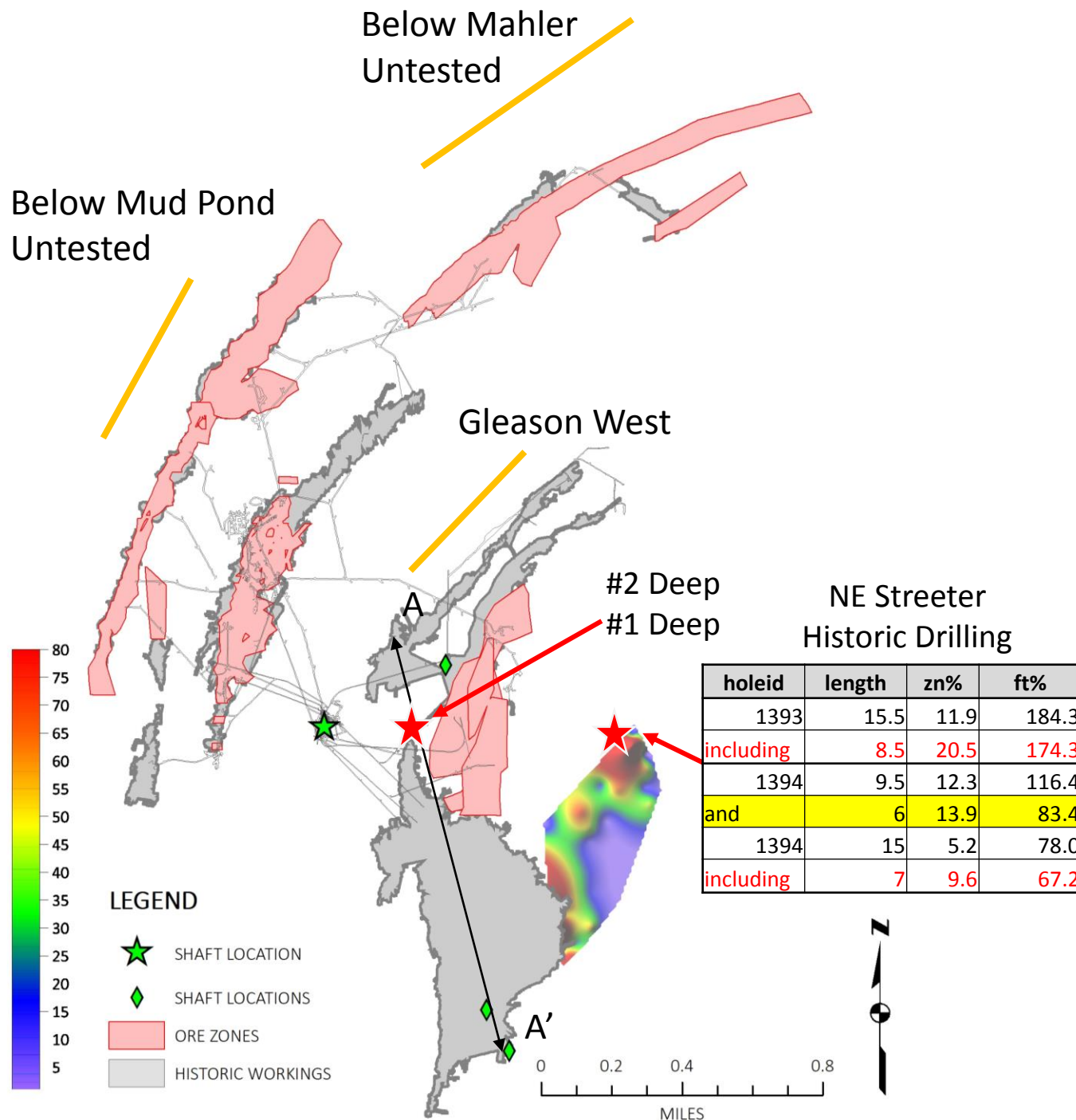
## Near-Mine Opportunities – Plan View

### Opportunities

- Known mineralized domains remain open down plunge
- Significant intercepts without follow up drilling (#2 Deep, #1 Deep and NE Streeter)
- Potential for discoveries at depth
  - Lack of deep drilling
  - Favorable stratigraphy and structure
  - Existing infrastructure

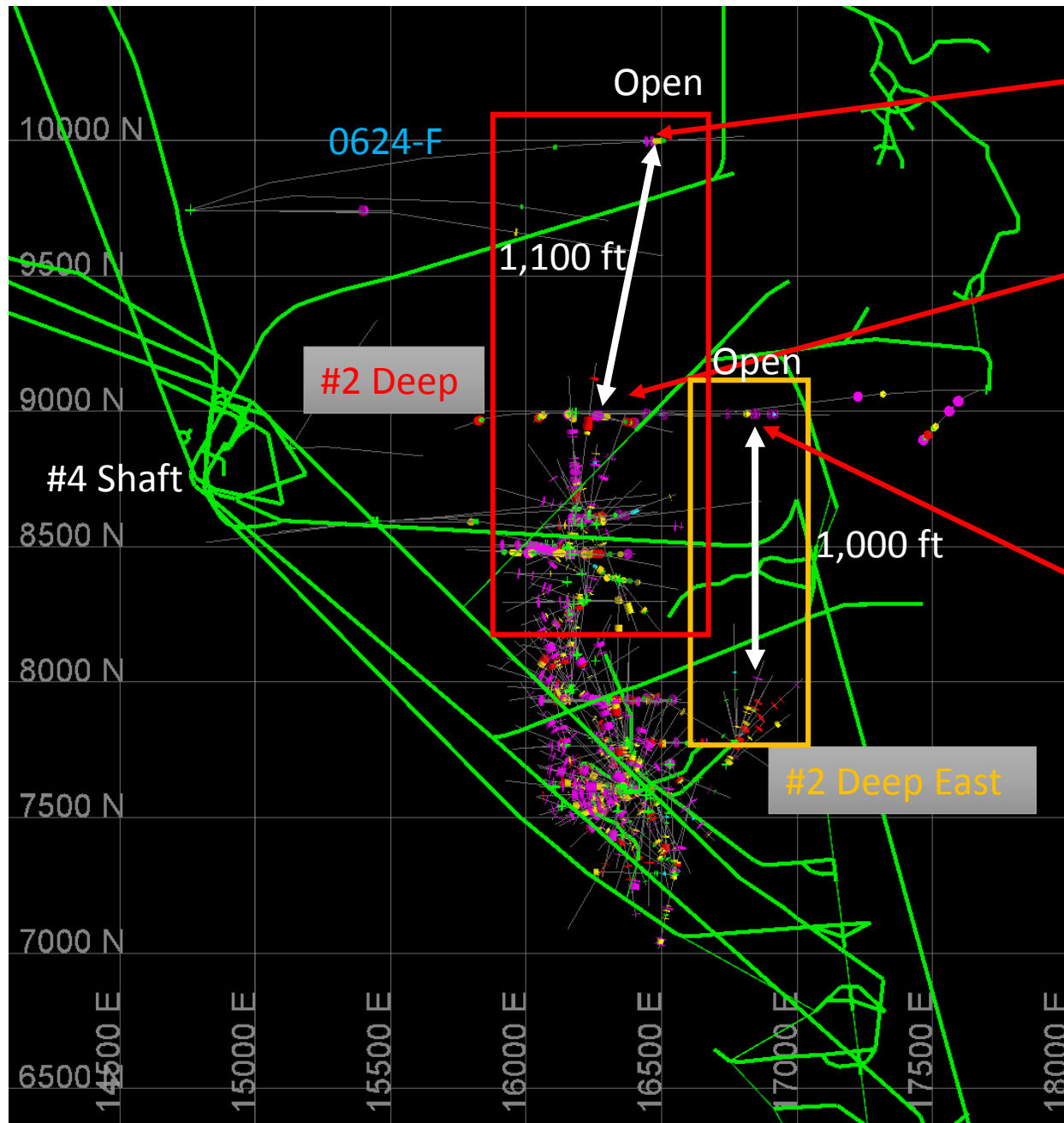
### Exploration plan

- Review of historic data to identify additional opportunities
- Refine geologic models to develop targets
- Test targets with surface and UG drilling





# #2 Deep-Plan View



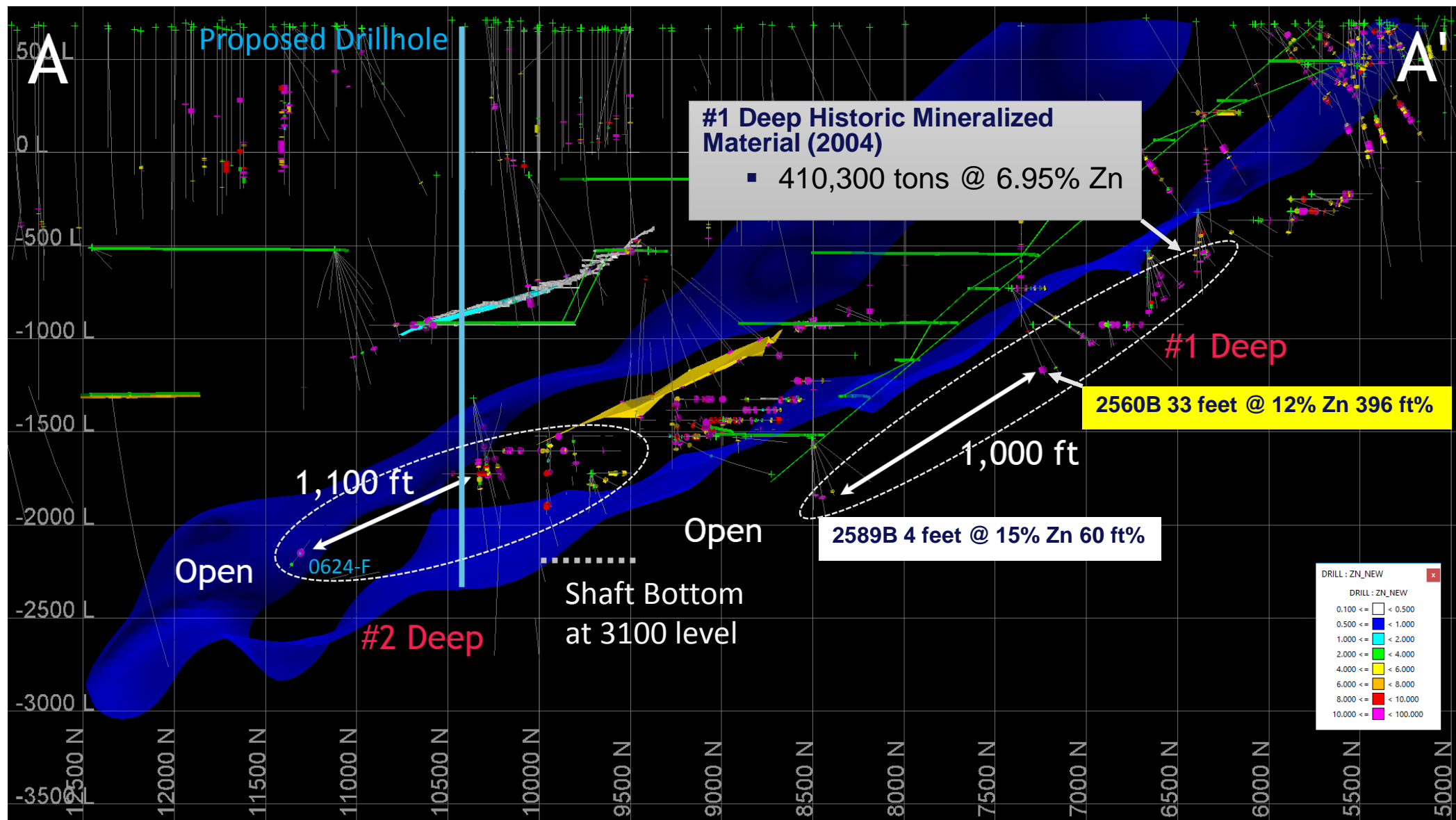
## #2 Deep Historic Drill Intercepts

holeid	length	zn%	ft%
0624-F	15	9.85	147.8
including	8	16.9	135.2
and			
0624-F	54	5.06	273.3
including	9	10.8	97.2
1877-B	42	5.7	237.9
including	17	9.3	158.1
1878-B	44.5	5.3	234
including	11	11.5	126.5
and			
1878-B	78	3.1	243.7
including	22	7.1	156.2
1879-B	52	5.2	269.3
including	8	13.6	108.8
2630-B	67	8.4	561
including	51	9.8	499.8
2631-B	16	24.0	384
1881-B	24	4.6	110.5
including	3	15.4	46.2

## #2 Deep historic unmined mineralized material (1984)

- 931,200 tons @ 6.6% Zn(diluted)

# #2 Deep and #1 Deep - Section Looking East





# District Exploration

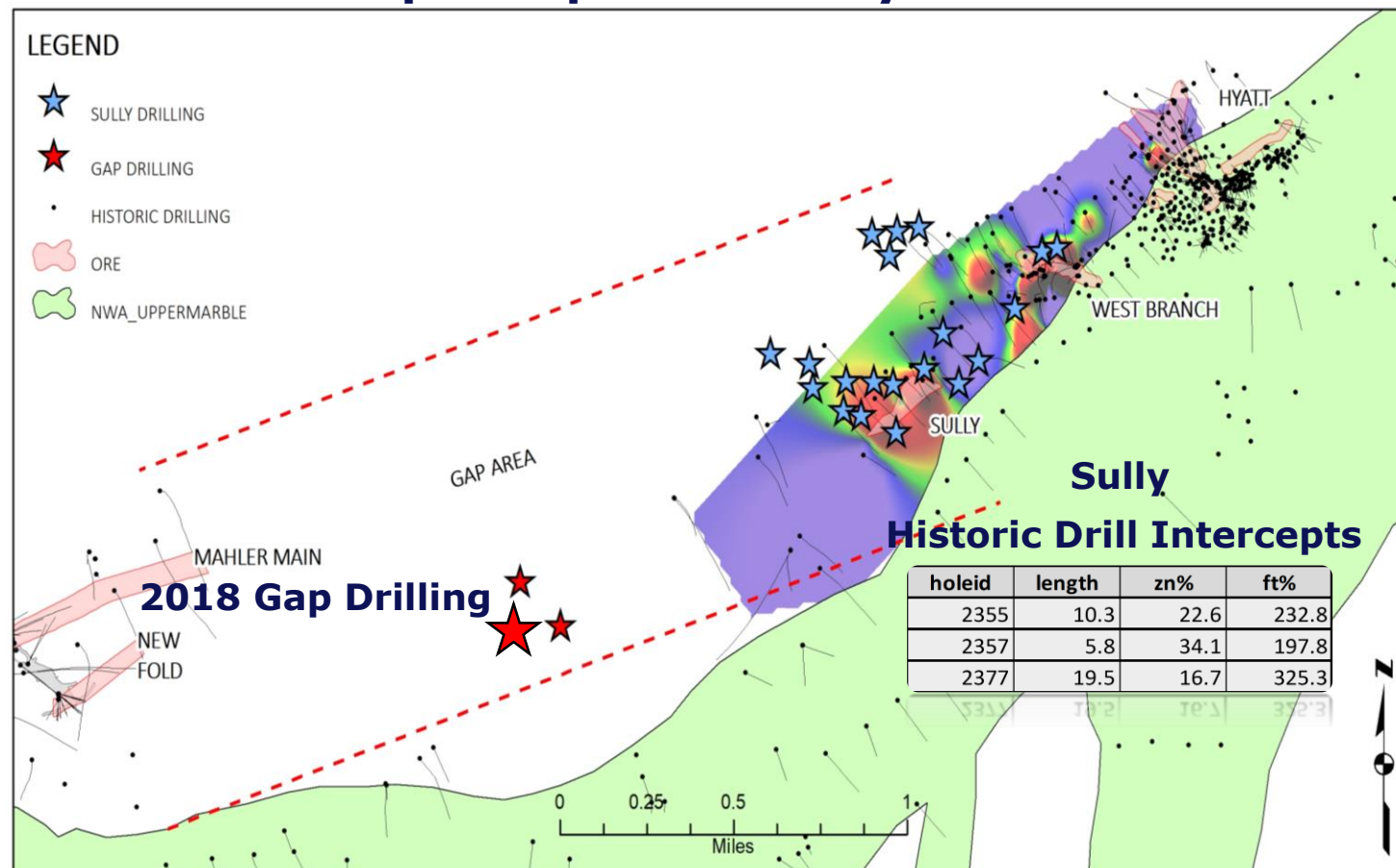
## Drilling

- Gap Zone – currently drilling third hole
  - High priority target; potential down-plunge extension of known mineralized zones
- Sully/West Branch
  - 24 hole program designed to test extensions (lateral and vertical)

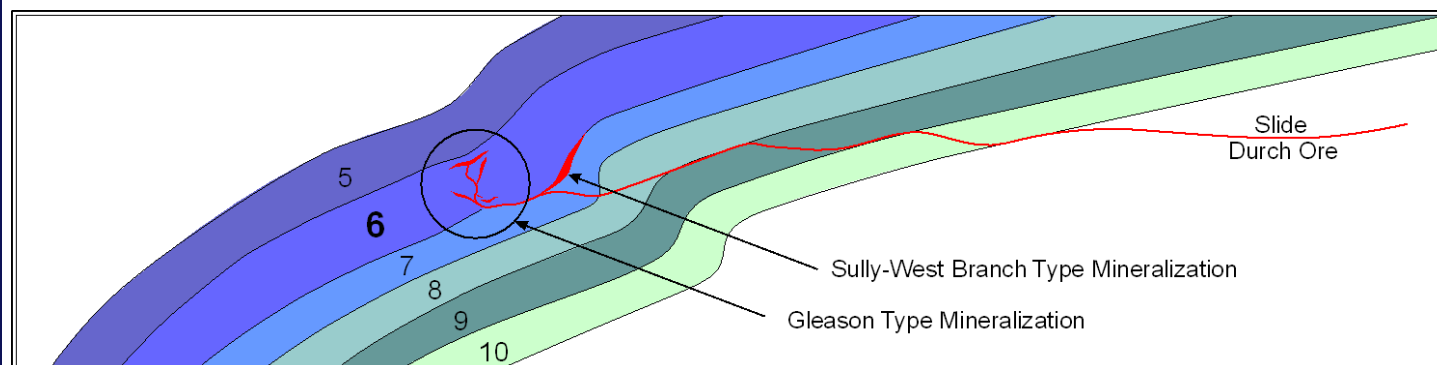
## Modeling

- Extend model extents to include Hyatt and Edwards

## Plan Map – Gap Zone -> Hyatt



## Conceptual Model – Sully Area Mineralization



# Regional Exploration

## Indicator Mineral Orientation

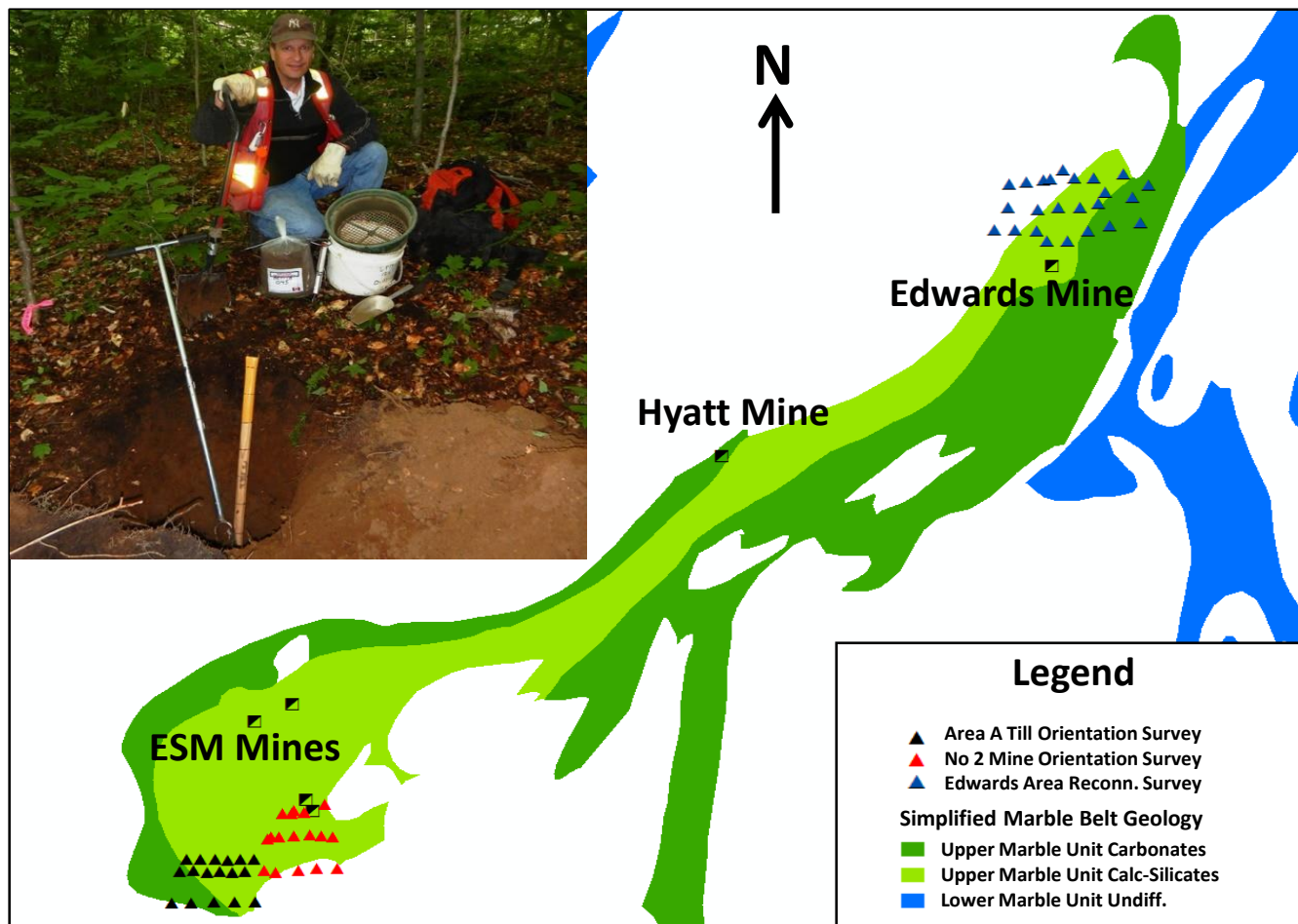
- To determine if known mineralized zones contain heavy indicator minerals dispersed by glaciers (e.g. gahnite).

## Reconnaissance Survey

- Wide-spaced recon samples to vector in on drill targets.
- Allows for prospecting below areas concealed by thick glacial, fluvial and lacustrine cover.

## Soil Sampling Orientation Survey

- Determine optimal sample spacing and analytical method
- B-horizon soil samples over undisturbed ZnS bodies

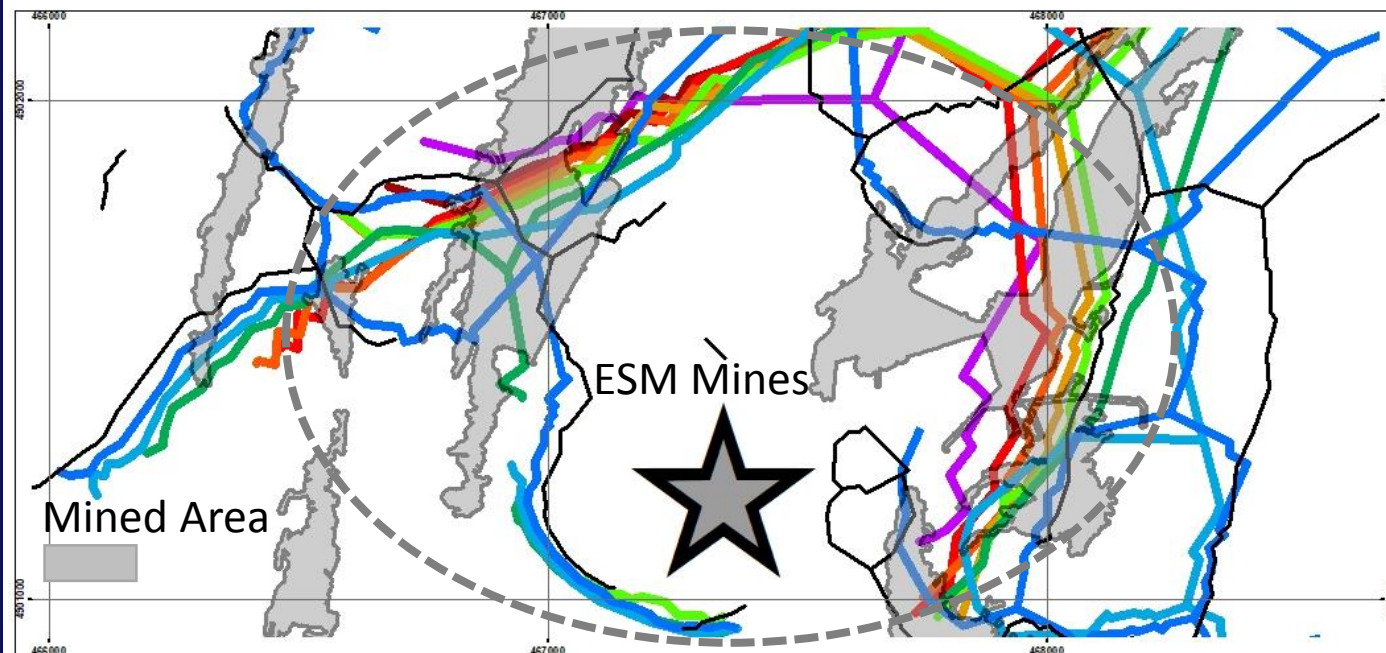


## Regional Exploration

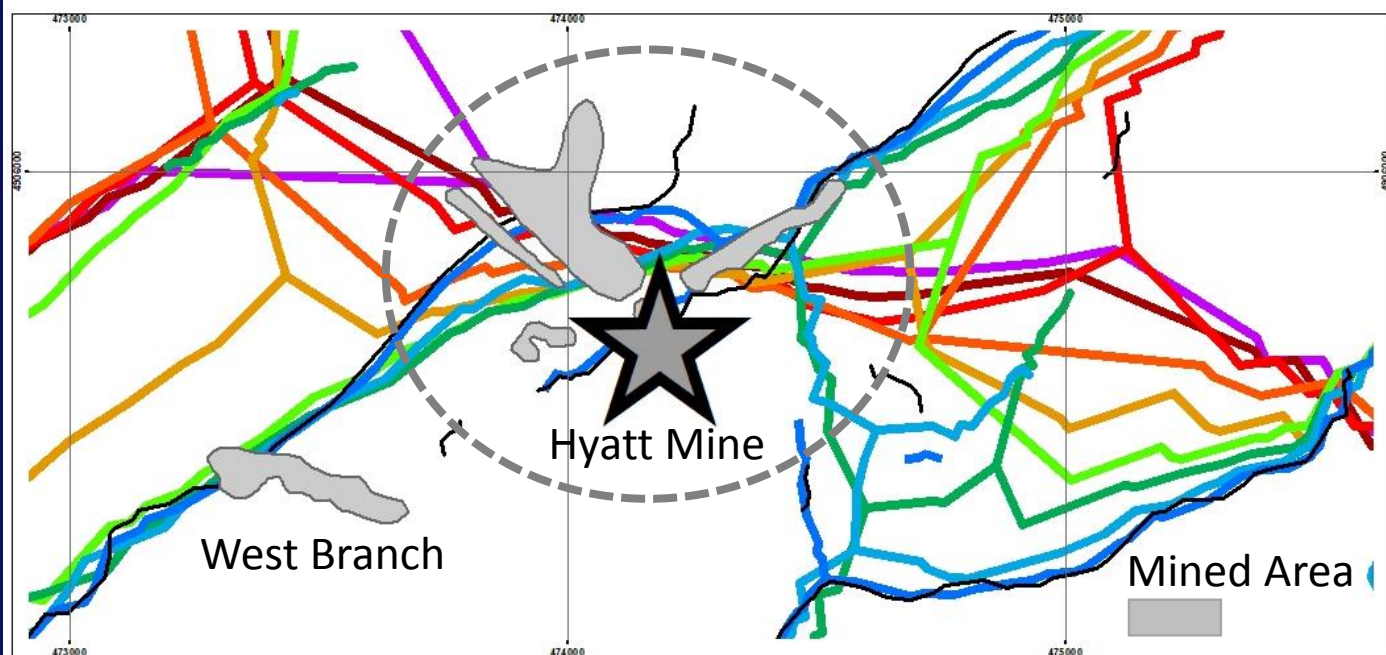
### Re-interpretation of VTEM

- Using magnetic data to generate a sub surface structural contour map
- Anomalies represent structures with lateral continuity with increasing depth
  - Correlation between anomalies and known deposits
  - 37 anomalies selected within district
    - Prioritizing targets
    - Follow up with soil sampling

### ESM Mines – Structural Contour Mapping



### Hyatt Mine – Structural Contour Mapping



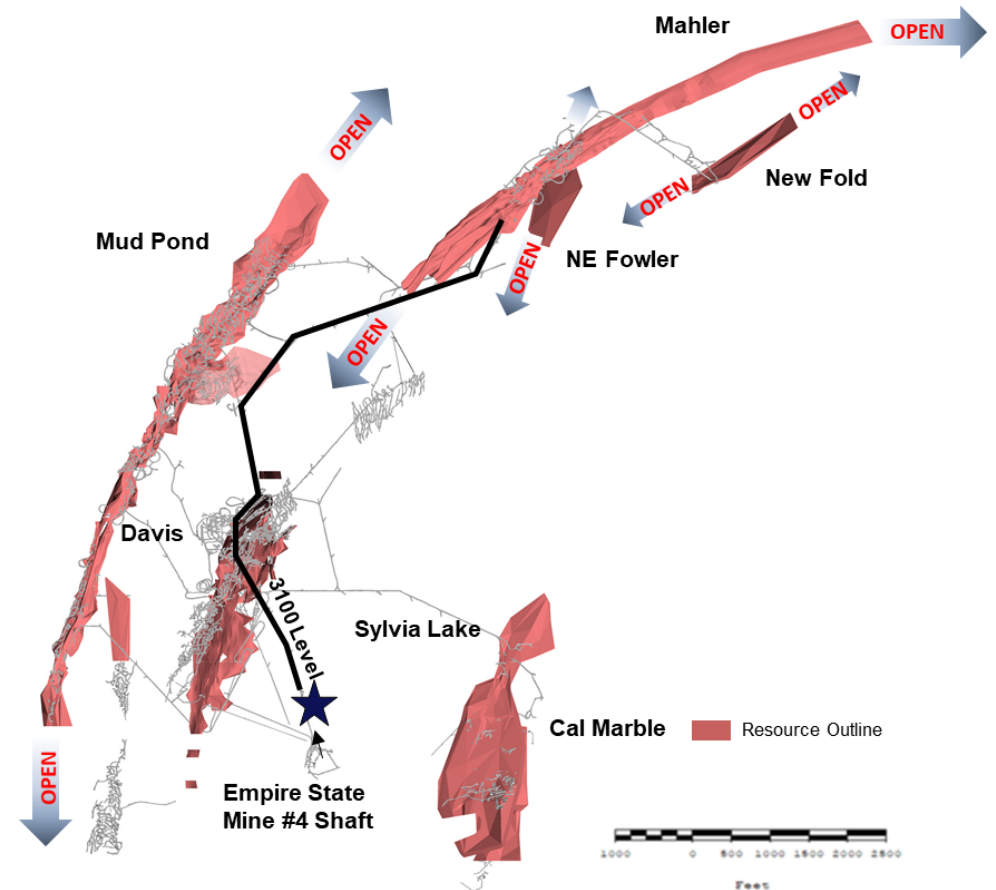


# Mineral Resource Upgrade and Expansion Potential

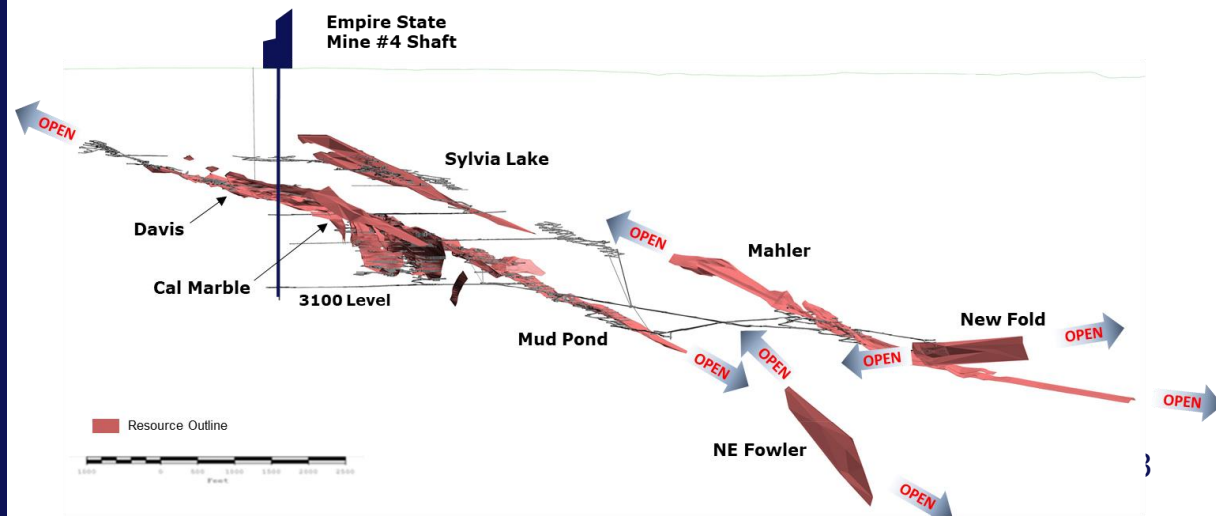
## Potential to expand production and increase mine life

- Mineral resources are in seven mineralized zones with excellent potential for zone extension
- Mineralized zones occur at depth of 1,400 - 5,500 feet and generally plunge to northeast – potential to extend zones up- and down-plunge
- Definition drilling to upgrade inferred mineral resources at NE Fowler - started Q2
- Underground drilling to target up-plunge extension and upgrade inferred mineral resource of New Fold, Mahler, Mud Pond and NE Fowler – started Q2
- Predominant structure is Sylvia Lake syncline trending southwest to northeast – sphalerite (zinc sulphide) tends to occur in axial regions and limbs of local folds and faults
- Existing development provides access to all zones, except NE Fowler and Cal Marble, and includes higher-grade areas such as New Fold

## Plan View of #4 Mine



## Longitudinal View of #4 Mine – Looking Northwest



# Mineral Resource

## Resource Growth

- **Expanding resource** – inferred mineral resource more than doubled in Q1 2018<sup>(2)</sup> to 5.4M tons at undiluted grade of 12.50% zinc from previous estimate of 2.3M tons at undiluted grade of 13.37% zinc

### Mineral Resources at Empire State Mines' #4 Mine as at January 31, 2018

Mineralized Zones	Measured		Indicated		Measured and Indicated		Inferred	
	'000 Tons	Grade (% Zinc)	'000 Tons	Grade (% Zinc)	'000 Tons	Grade (% Zinc)	'000 Tons	Grade (% Zinc)
Mud Pond	337.0	10.40	285.2	10.87	622.2	10.61	1,390.5	10.68
New Fold	68.0	12.75	249.6	11.72	317.6	11.94	539.4	13.97
Mahler	400.5	15.89	700.9	15.27	1,101.4	15.50	516.6	15.59
Other Mineralization	44.9	10.73	83.5	10.16	128.4	10.36	2,969.6	12.55
<b>Total</b>	<b>850.4</b>	<b>13.19</b>	<b>1,319.2</b>	<b>13.33</b>	<b>2,169.6</b>	<b>13.27</b>	<b>5,416.1</b>	<b>12.50</b>

### Mineral Resources at Empire State Mines' #4 Mine as at April 6, 2017

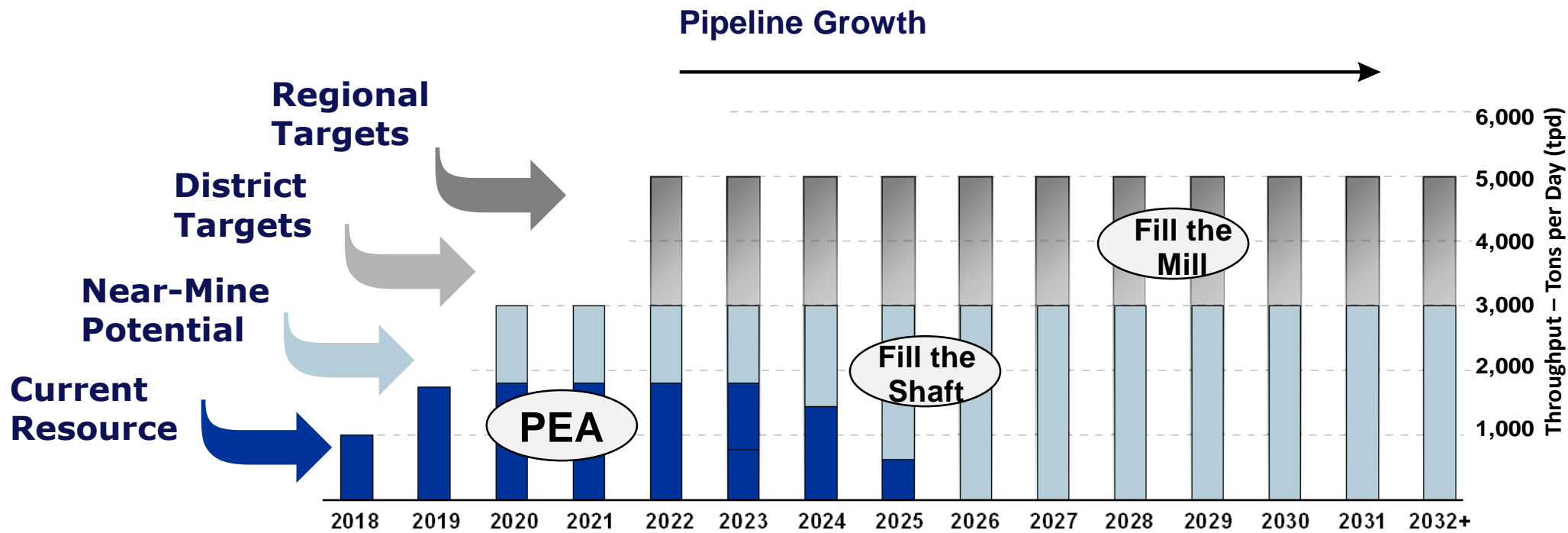
Mineralized Zones	Measured		Indicated		Measured and Indicated		Inferred	
	'000 Tons	Grade (% Zinc)	'000 Tons	Grade (% Zinc)	'000 Tons	Grade (% Zinc)	'000 Tons	Grade (% Zinc)
Mud Pond	336.7	10.40	273.9	10.89	610.6	10.62	392.9	10.70
New Fold	68.0	12.75	249.6	11.72	317.6	11.94	539.4	13.97
Mahler	400.5	15.89	700.9	15.27	1,101.4	15.50	516.6	15.59
Other Mineralization	44.9	10.73	83.5	10.16	128.4	10.36	827.1	12.85
<b>Total</b>	<b>850.1</b>	<b>13.19</b>	<b>1,307.9</b>	<b>13.35</b>	<b>2,158.0</b>	<b>13.29</b>	<b>2,276.0</b>	<b>13.37</b>

## Exploration Upside Potential

- **Extension of mineralized zones** – New Fold, NE Fowler, Lower Mud Pond, Mahler
- **Near-mine targets** – #2 Deep, #1 Deep, NE Streeter
- **Regional exploration** – Sully, new geophysical and geochemical anomalies
- **Historical data** – Review and digitization



# Growth Strategy – Exploration



## Mine Life Extension from In-Mine Zone Extensions and Targets

Preliminary Economic Assessment	Near-Mine Potential	District Targets	Regional Targets
<ul style="list-style-type: none"> <li>Existing resource</li> <li>Remnants</li> </ul>	<ul style="list-style-type: none"> <li>Extensions of zones</li> <li>#2 Deep, #1 Deep</li> <li>NE Streeter</li> <li>West Gleason</li> </ul>	<ul style="list-style-type: none"> <li>Hyatt, West Branch, Sully</li> <li>Edwards</li> <li>VTEM</li> </ul>	<ul style="list-style-type: none"> <li>Geochem</li> <li>VTEM</li> </ul>



**TSX: TI**



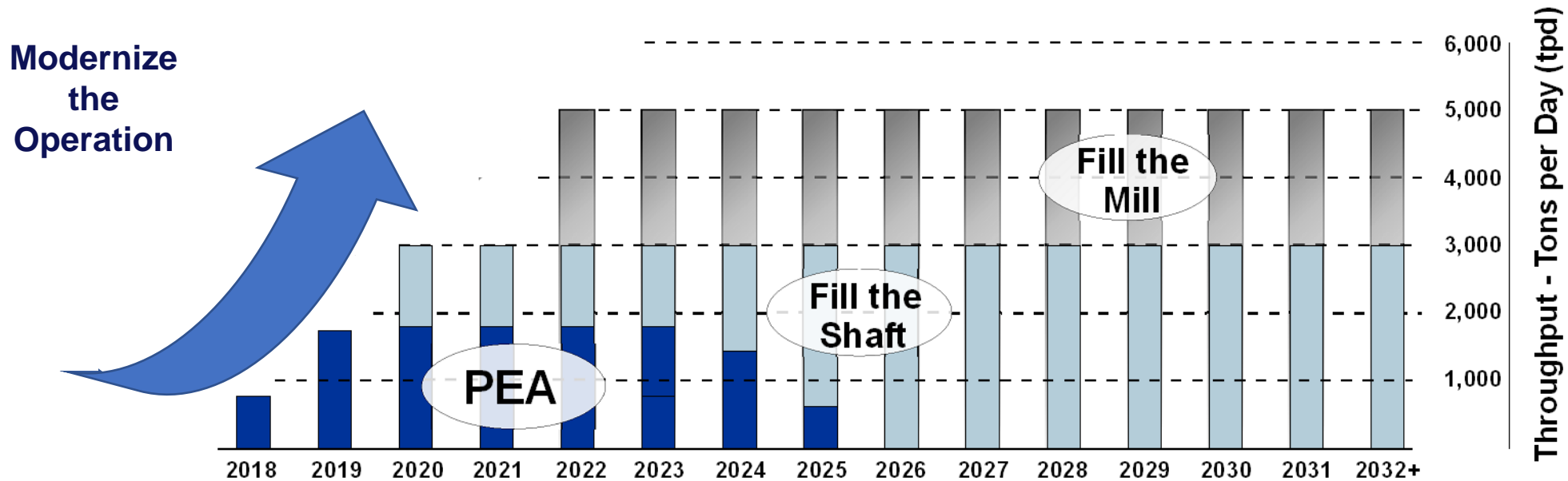
# **THE NEWEST U.S. ZINC PRODUCER**

LEVERING EXCESS CAPACITY  
TO DRIVE CASH FLOW GROWTH

ANALYST/INVESTOR SITE VISIT  
PROJECTS AND INNOVATION

JUNE 13, 2018

# Three-Pronged Growth Strategy



## -> 1,800 TPD

- Equipment largely in place
- Current production profile

## -> 3,000 TPD

- Haulage upgrade
- Mobile fleet additions
- Pastefill
- Current resources

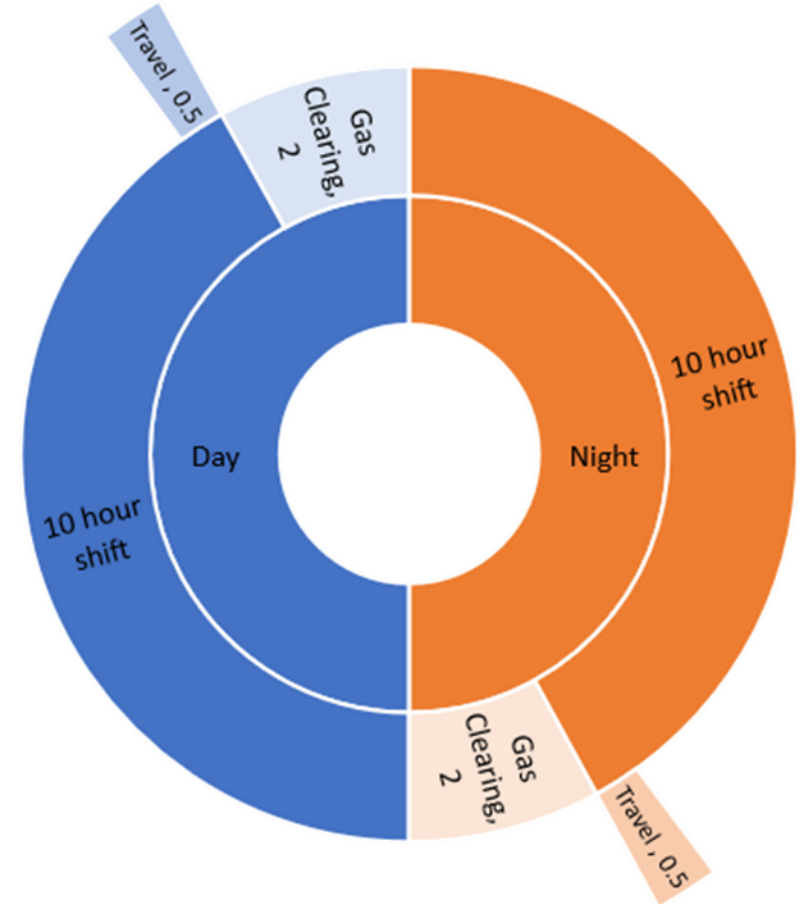
## -> 5,000 TPD

- Hoisting / haulage upgrade II
- Mobile fleet additions
- Ventilation upgrade
- Potential truck-in or satellite ore sources

# Innovation Strategy

## Operate through shift change

- Use tele-remote equipment to utilize time between shifts
- Increase time at face by 20%
- Remove operator from the environment

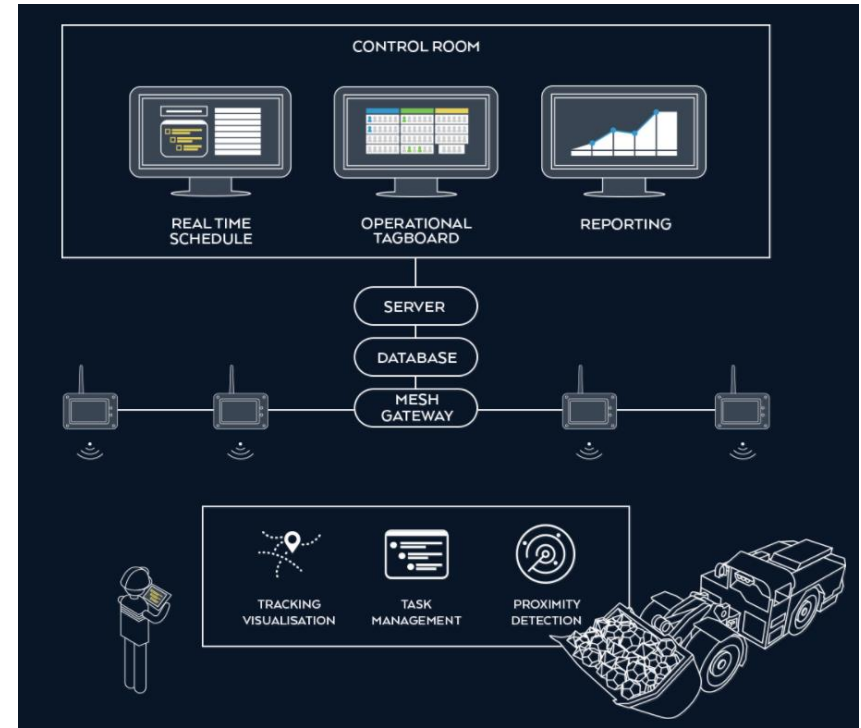




# Innovation Strategy

## Location Data and Short Interval Control

- Use an updated communications backbone to provide up-to-the-minute location and production data
- 50% of ESM production from longhole methods, balance from small diameter drill and blast cycle
  - Managing the movement of machines and people is vital
- Dundee Precious Metals – Chelopech mine - applied short interval control and achieved 400% increase in productivity
- Increase productivity by 20-40%



**Implementation has started**  
**Plan to apply innovation across the business**



# ► Projects: -> 3,000 TPD

## Additional Workplaces

- Raises production with an incremental capital investment
  - Additional people and equipment
  - Ventilation
- Remnant mining located in the Upper Mud Pond, Sylvia Lake and Fowler historic mining areas
- Life-of-mine studies to be completed before year-end
  - Geotechnical
  - Pastefill
  - Mine design
  - Haulage



## Higher Productivity from All Workplaces

- Increasing the production from existing workplaces without additional equipment
  - Most cost effective way to meet production goals
- Operate through shift change
- Short interval control in every workplace



# ► Projects: -> 3,000 TPD

## Improvements in Haulage

- Lower extremities of mine require a more cost effective, ventilation efficient method than trucking
  - Rail-veyor is an attractive option – efficient and proven technology
  - Reduced mining costs relative to trucking
  - No improvements to ventilation system required
- Upper levels of mine (remnant mining) will use ore passes to feed existing haulage system



Rail-veyor installed at Goldex Mine

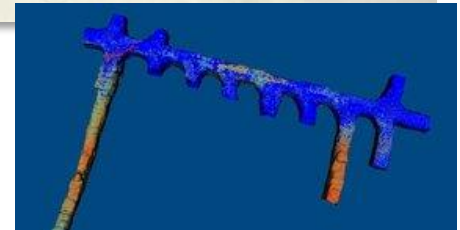


Rail-veyor installed at Vail Mine

# Remnant Mining

## Mining of Upper Mud Pond, Sylvia Lake and Fowler Mineral Resource

- Inspection of the historic areas so far has found:
  - Some rehab required, remote surveying will be necessary
  - Materials handling system already in place

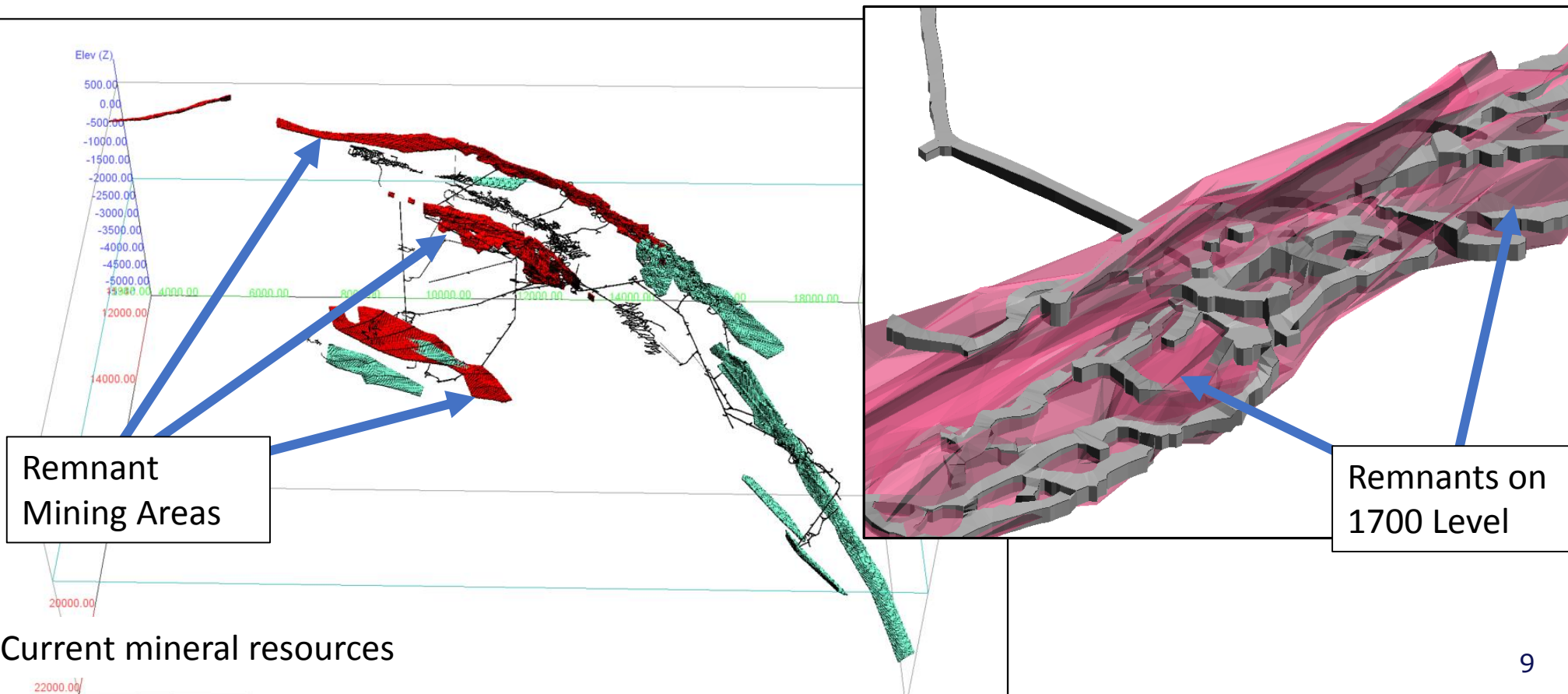


Surveying drone in use at Vale

# Remnant Mining

## Mining of Upper Mud Pond, Sylvia Lake and Fowler

- Preparing for a mining operation that uses area-specific (bespoke) mine designs
- Concept for the zone; tool box of solutions for different situations:
  - Ground support tools and methods (support types, monitoring methods, pastefill, etc)
  - Manage ventilation (electric or battery power, smaller equipment)
  - Production flexibility (multiple sources, etc)
  - Geotechnical guidelines (max spans, pillar spacing and sizes)
- Science-based geotechnical approach is potential upside

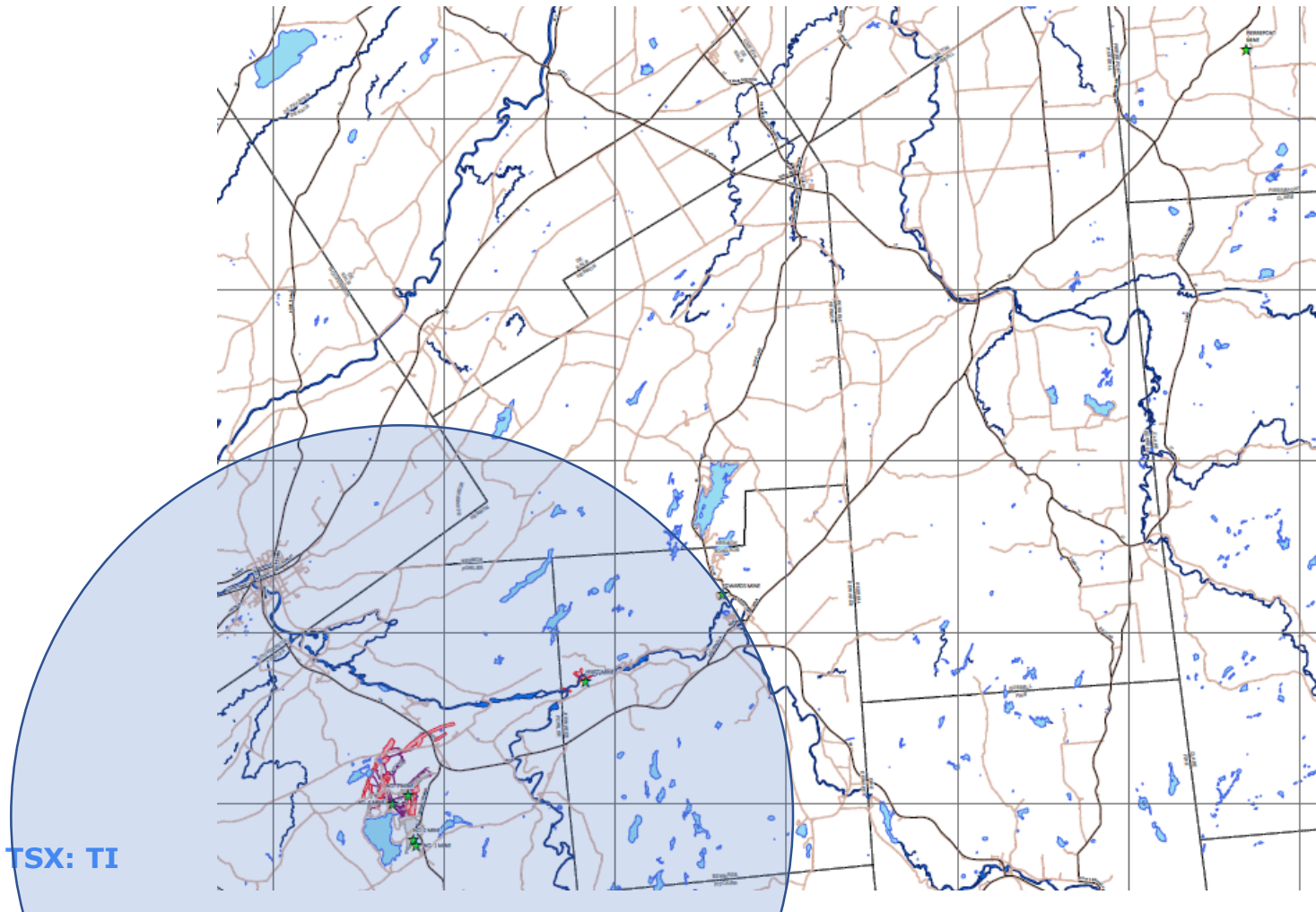




# Projects: -> 5,000 TPD

## Potential Sources of Incremental Mill Feed

- Current mineral resources
- Additional resource potential in remnant areas
- Other near-mine opportunities (including #2 Deep, #1 Deep, NE Streeter)
- Truck-in ore sources such as historic Hyatt and Edwards mines
- Future discoveries of satellite deposits

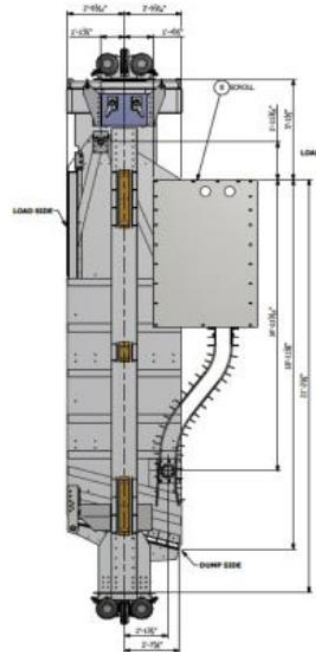




# Projects: -> 5,000 TPD

## Defining the Excess Capacity Above 3,800 TPD

- Capability assessment work is defining upside potential for hoist and haulage systems.
  - Review of hoisting underway – potential to exceed 3,800 TPD
- Hoist motor and controls upgrade planned by mid-2019 to ensure reliability
  - Includes optionality for future production increases
- Existing shaft built to a high standard
  - Concrete lined, steel bracing and solid rail guides
  - Opportunity for larger skips and optimized cycle times



# Modernization – Driving Growth, Improved Efficiencies and Lower Costs

Modernization has started – advancing towards 1,800 tpd milestone

Opportunities exist to reduce capital costs

New technology is off-the-shelf – proven and available







**TSX: TI**

[www.titanminingcorp.com](http://www.titanminingcorp.com)

**FOR MORE INFORMATION  
CONTACT:**

**Jerrold Annett**

Senior Vice President, Corporate  
Development

416-366-5678 Ext. 207

[jannett@titanminingcorp.com](mailto:jannett@titanminingcorp.com)

**Jacqueline Allison**

Vice President, Investor Relations  
and Strategic Analysis

416-366-5678 Ext. 205

[jallison@titanminingcorp.com](mailto:jallison@titanminingcorp.com)