



Mines update

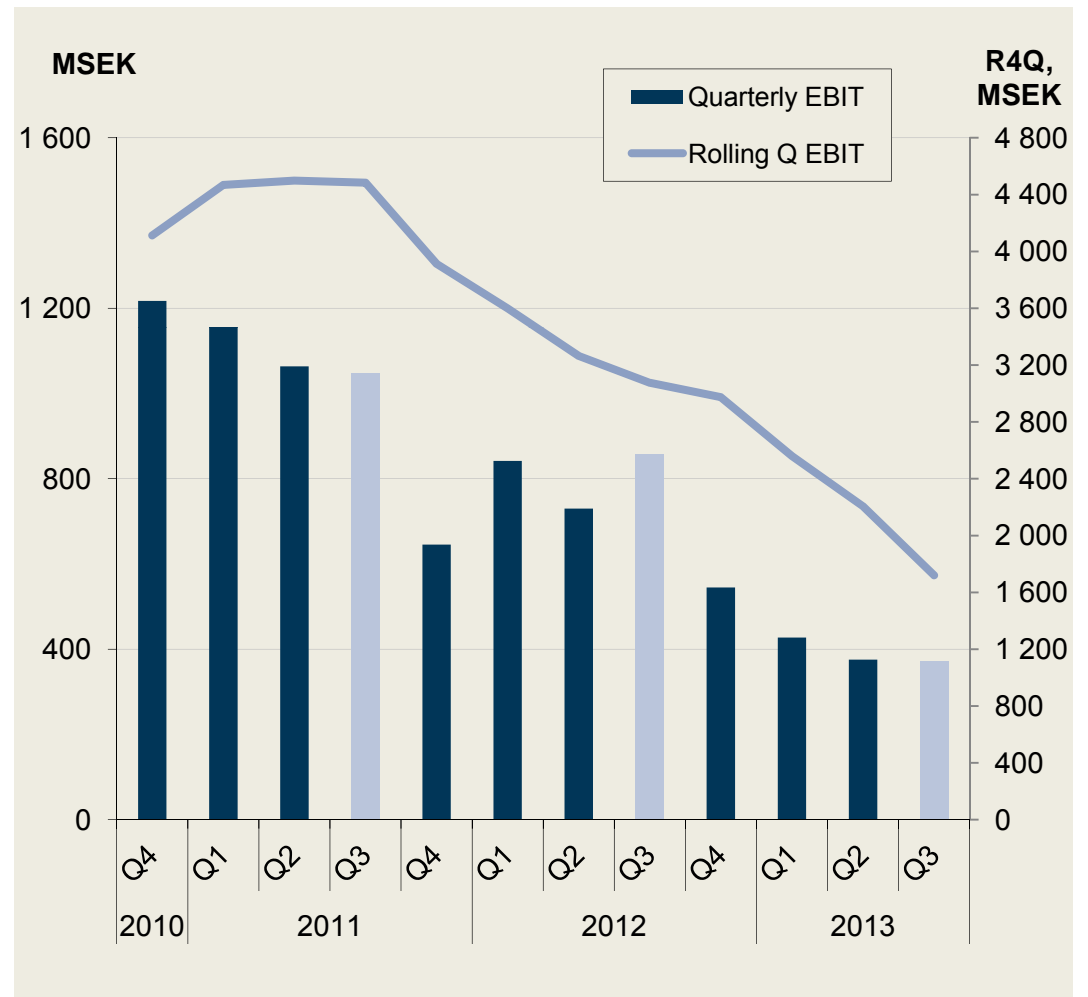
CMD 21 November 2013

Jan Moström
President
Boliden Mines

 **BOLIDEN**

Mines – Financial development

- EBIT 372 (858) MSEK
 - 376 MSEK in Q2 2013
- EBIT decline in past quarters driven by:
 - Metal price decline
 - Strong Swedish krona
 - Lower grades
- Costs
 - Much lower inflation
- Expansion projects on plan



Boliden Mines 2013

- Operational excellence
 - EHS
 - NBW
- Exploration
 - Near mine
- Aitik
 - Aitik 36 Mton and further expansions
- Boliden area
 - Consolidation of expansions
- Garpenberg
 - Finalizing expansion project
- Tara
 - Challenging cash cost position
 - Cost reduction program



Boliden Mines, looking forward

- Operational excellence
 - EHS
 - NBW
- Exploration
 - Increased brownfield focus
- Technology
 - Develop processes for challenging mineralizations
 - Mine automation
- Environment
 - Develop techniques to minimize environmental impact



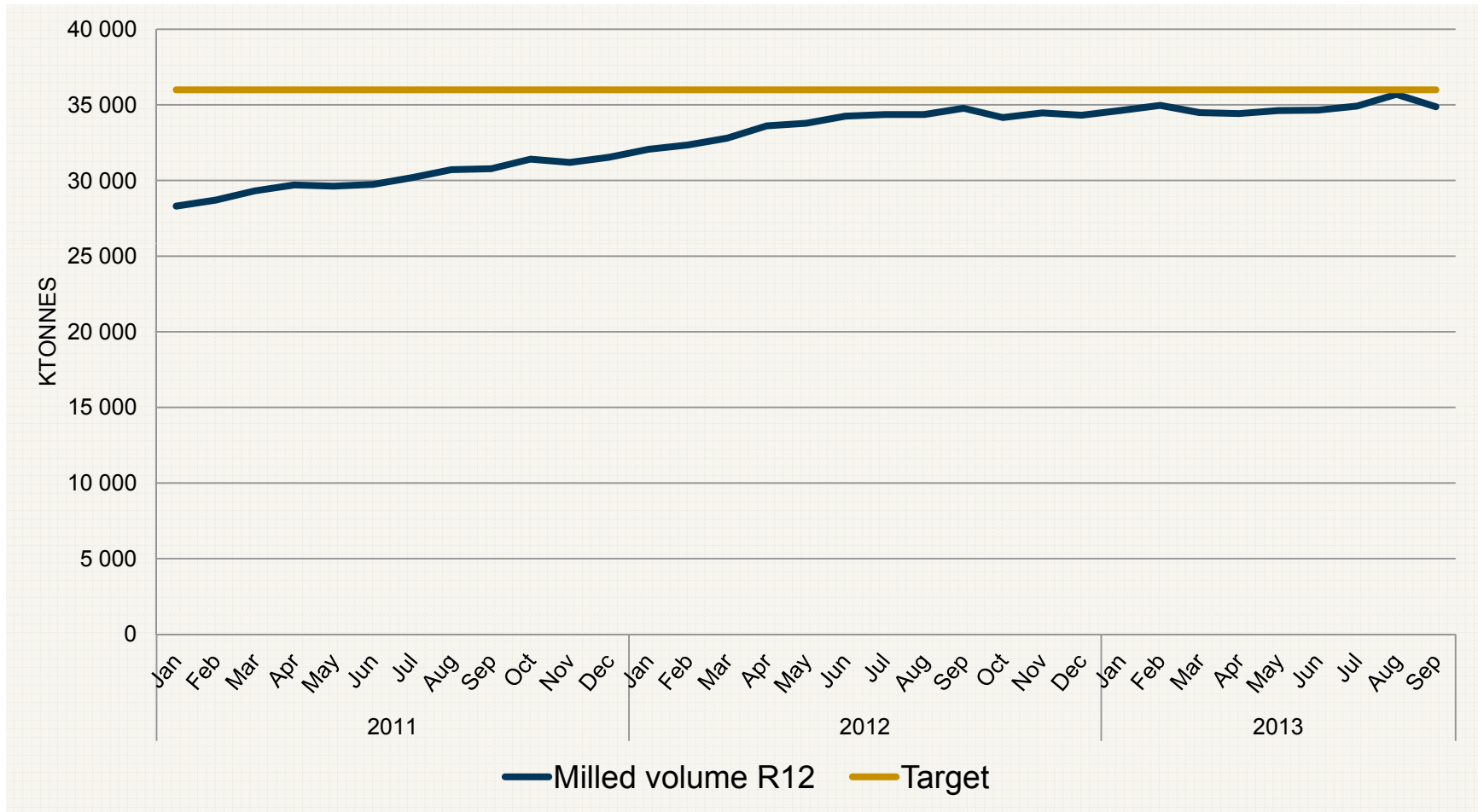
Aitik – as is



Aitik 36

- Time
 - On plan
 - 36 Mton latest 2014
- Capacity
 - Tested above 36 Mton
- Cost
 - Higher than planned
 - Competitive position maintained

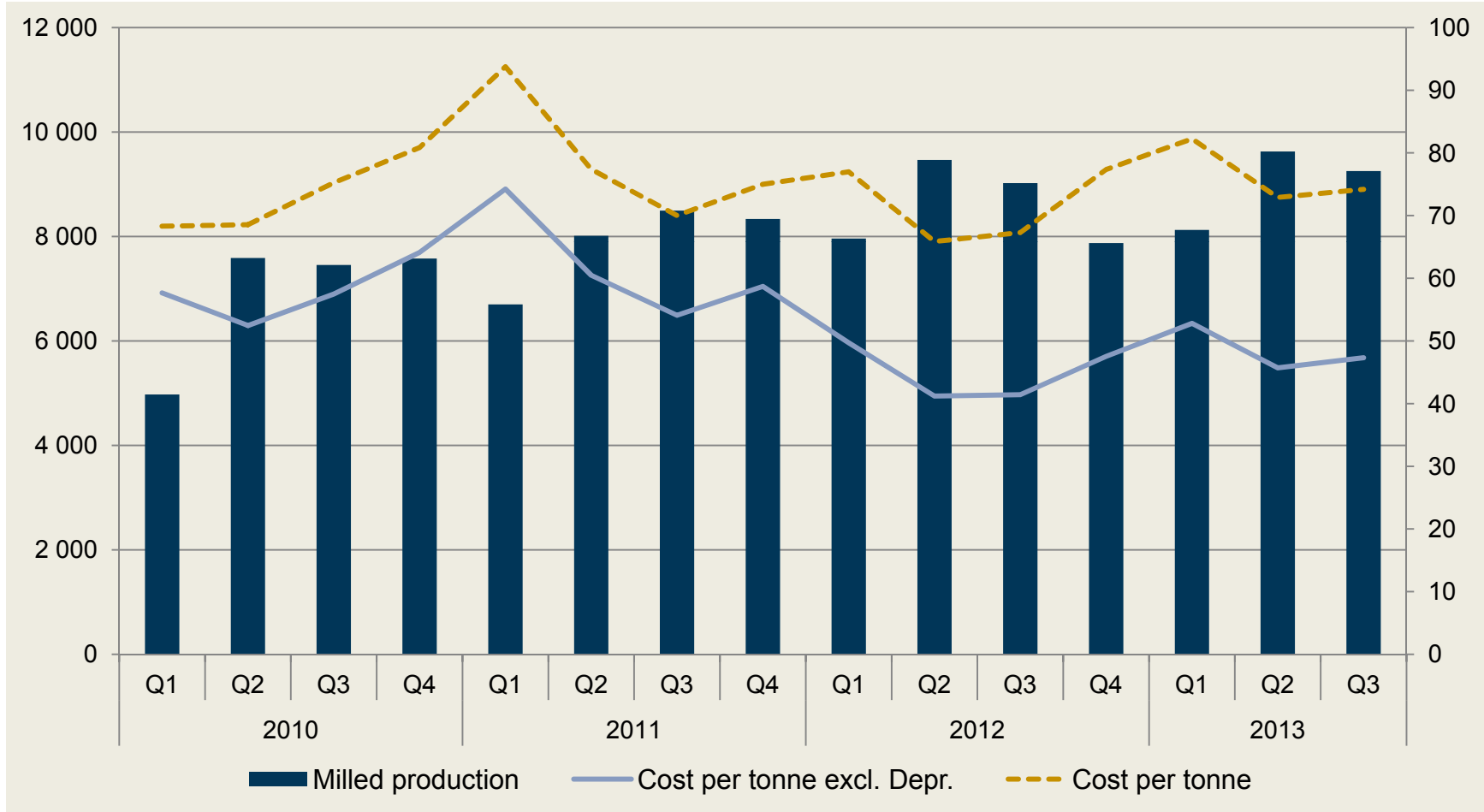
Production 2011 – 2013 (through September)



Aitik – decreased sensitivity for winter conditions

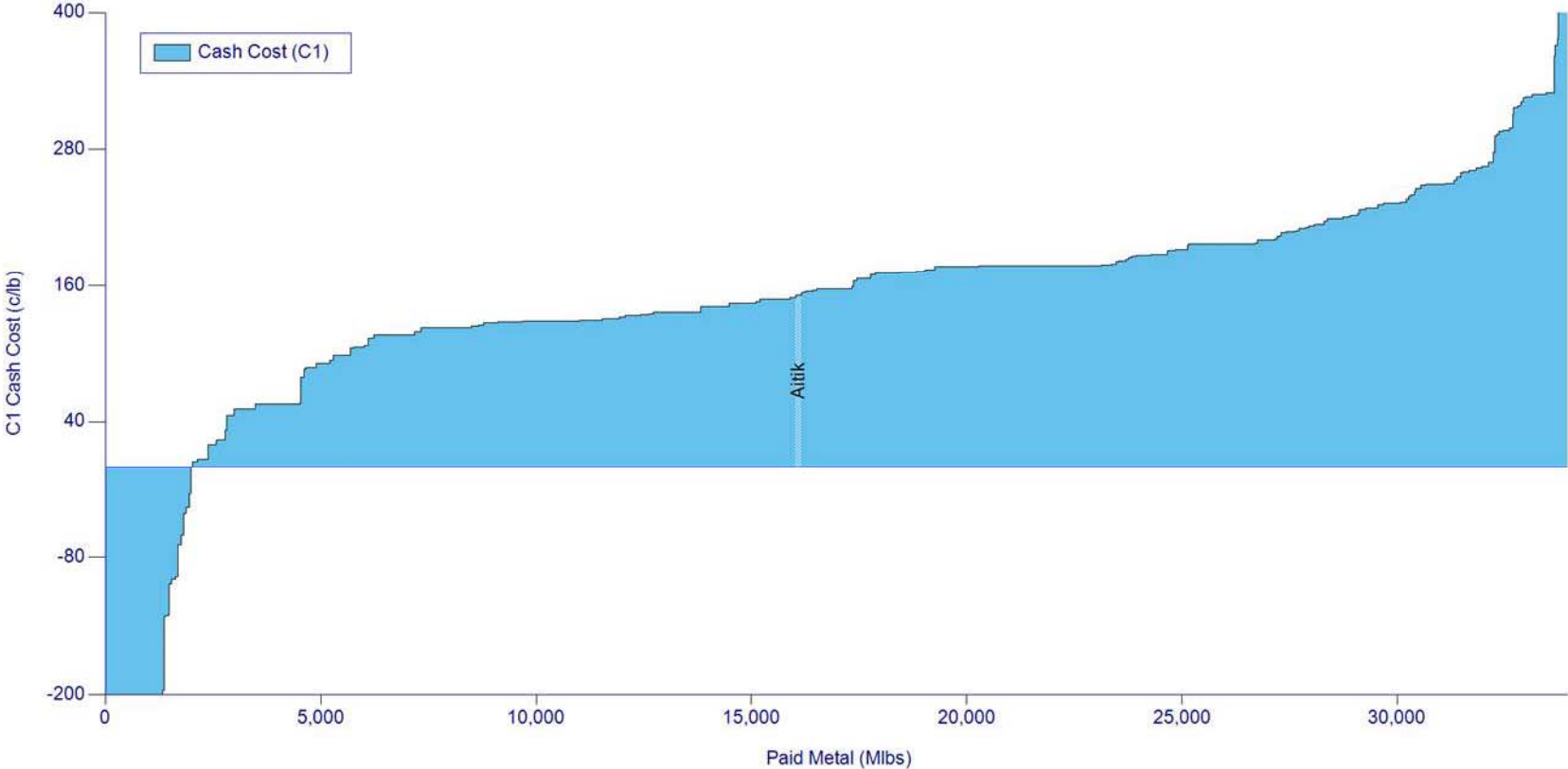
- Crushers:
 - Re-design – re-building
- Conveyors:
 - Re-design – re-building
 - Improved qualities, belts
- Intermediate storage
 - Re-design – re-building
 - Chutes
 - Boilers – heaters
- Ore storage
 - Re-design – re-building
 - Chutes
 - Boilers – heaters

Aitik – operating cost/milled ton



Copper

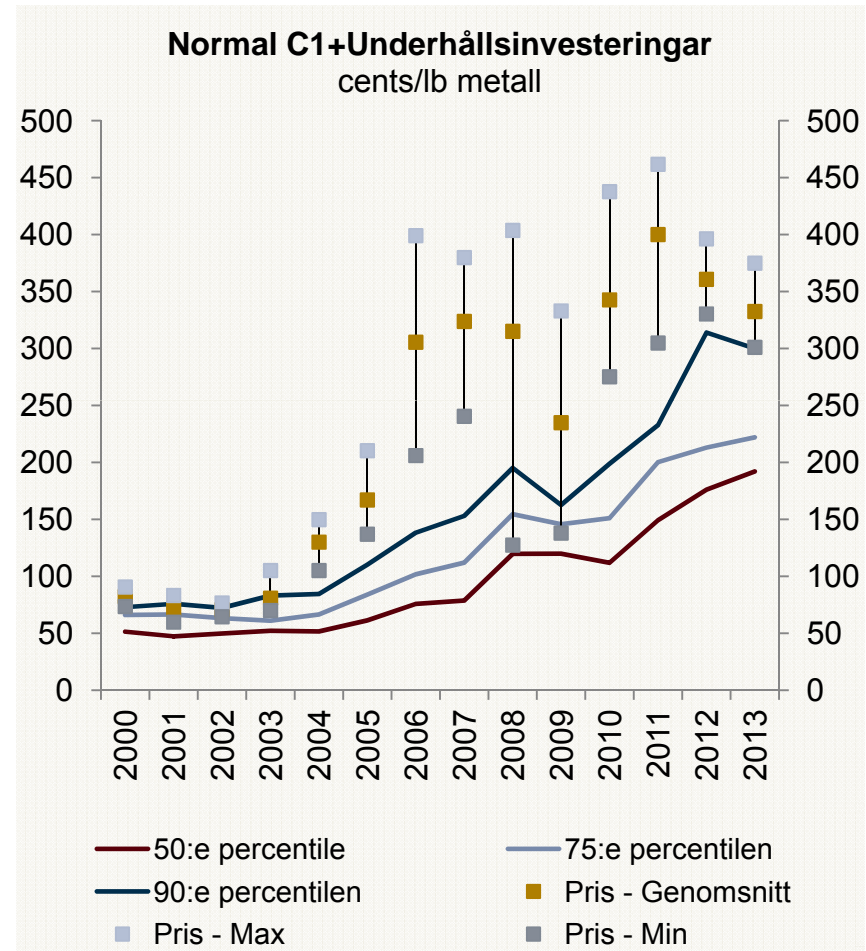
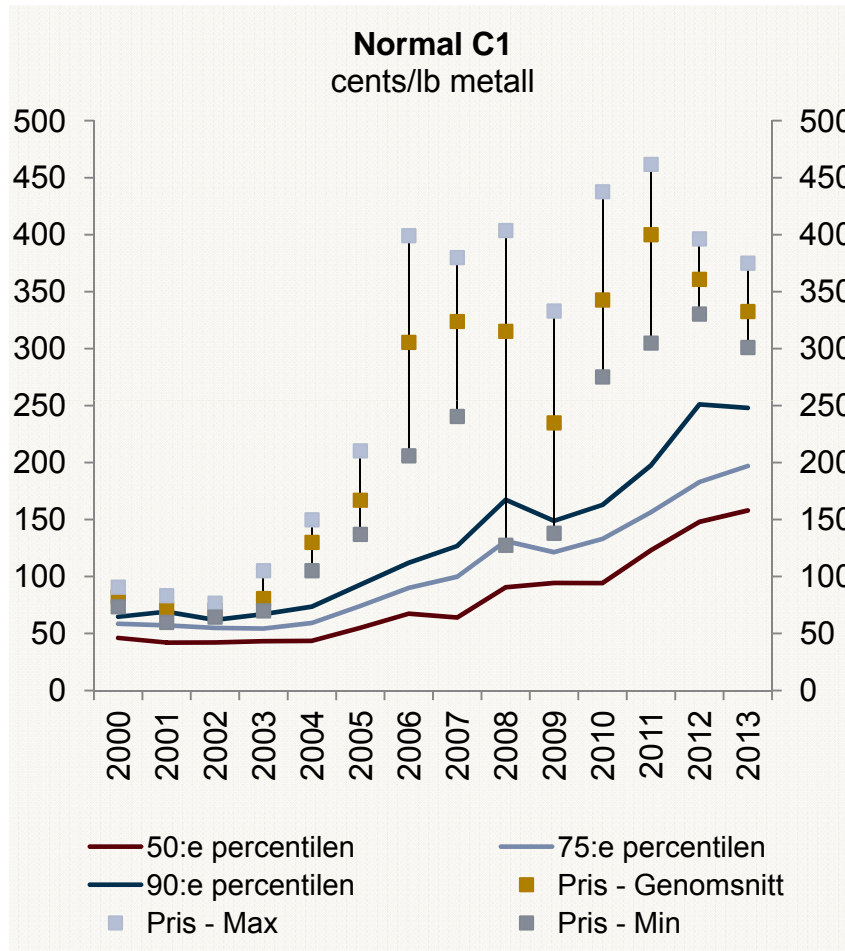
2013 Copper Mine, Normal, C1 Cash Cost
Grouped By Mine and Ranked By Cash Cost (C1)



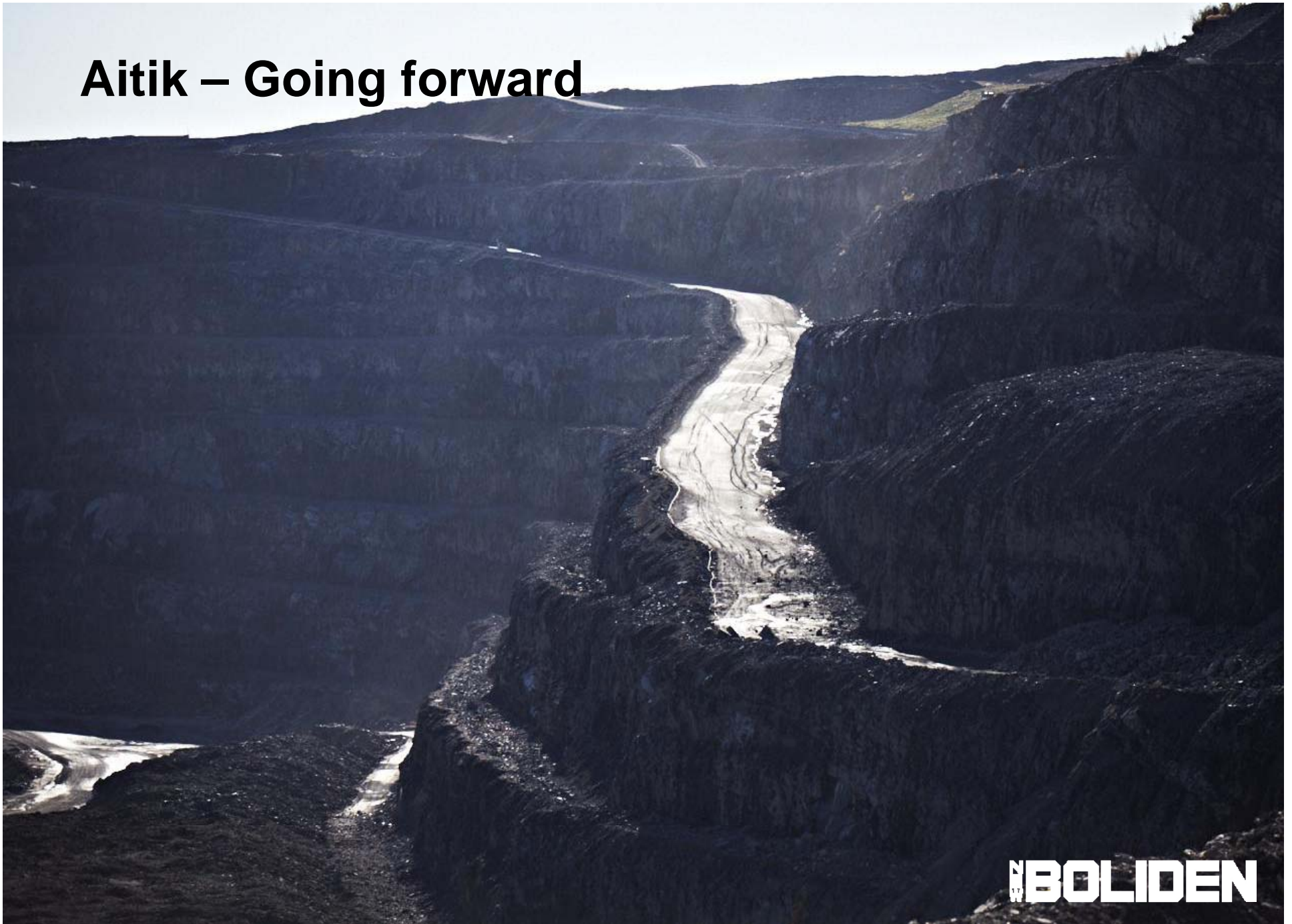
Source: Wood Mackenzie Ltd, Dataset: 2013 Q4



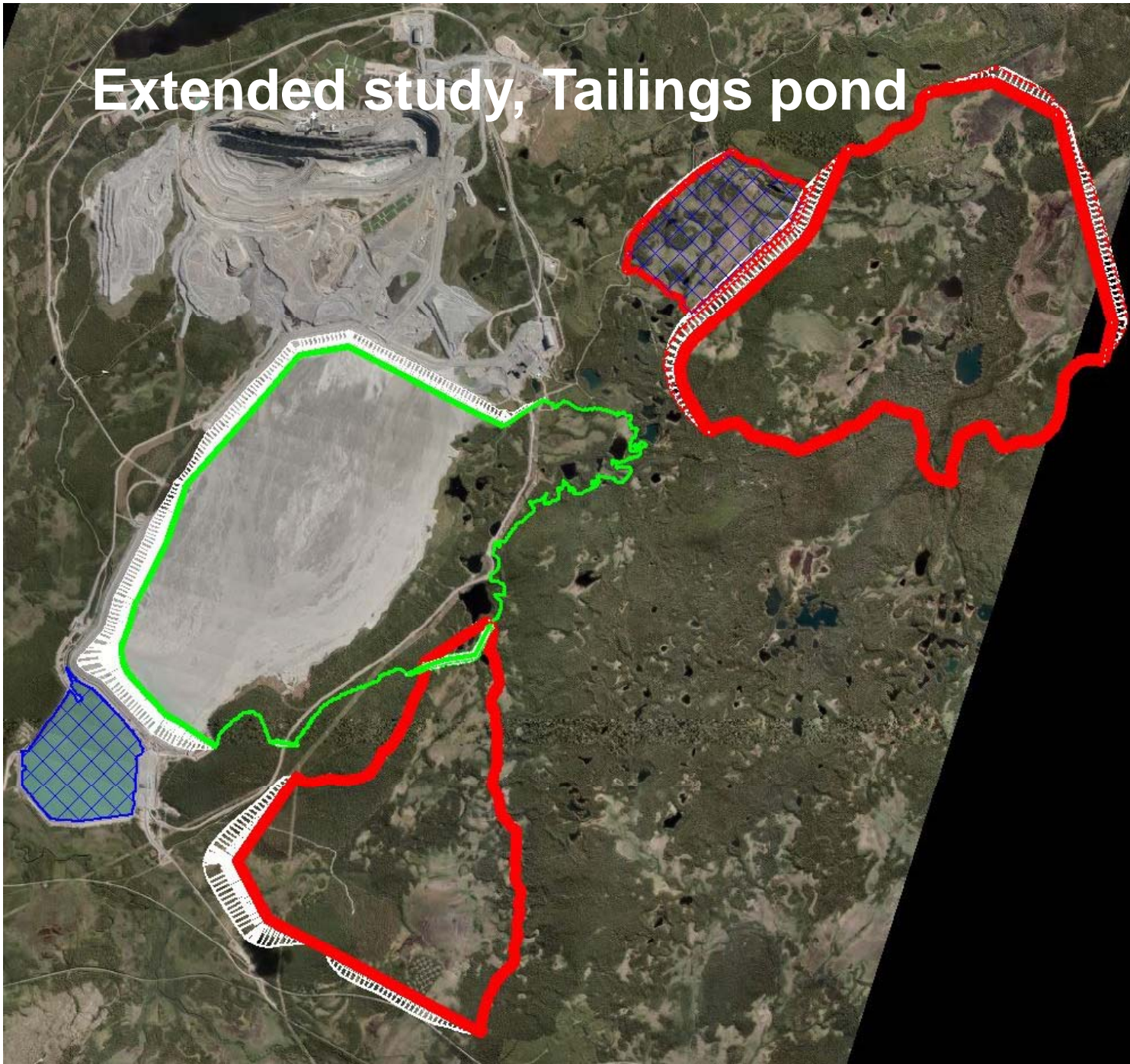
Copper



Aitik – Going forward



Extended study, Tailings pond



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Aitik Going Forward

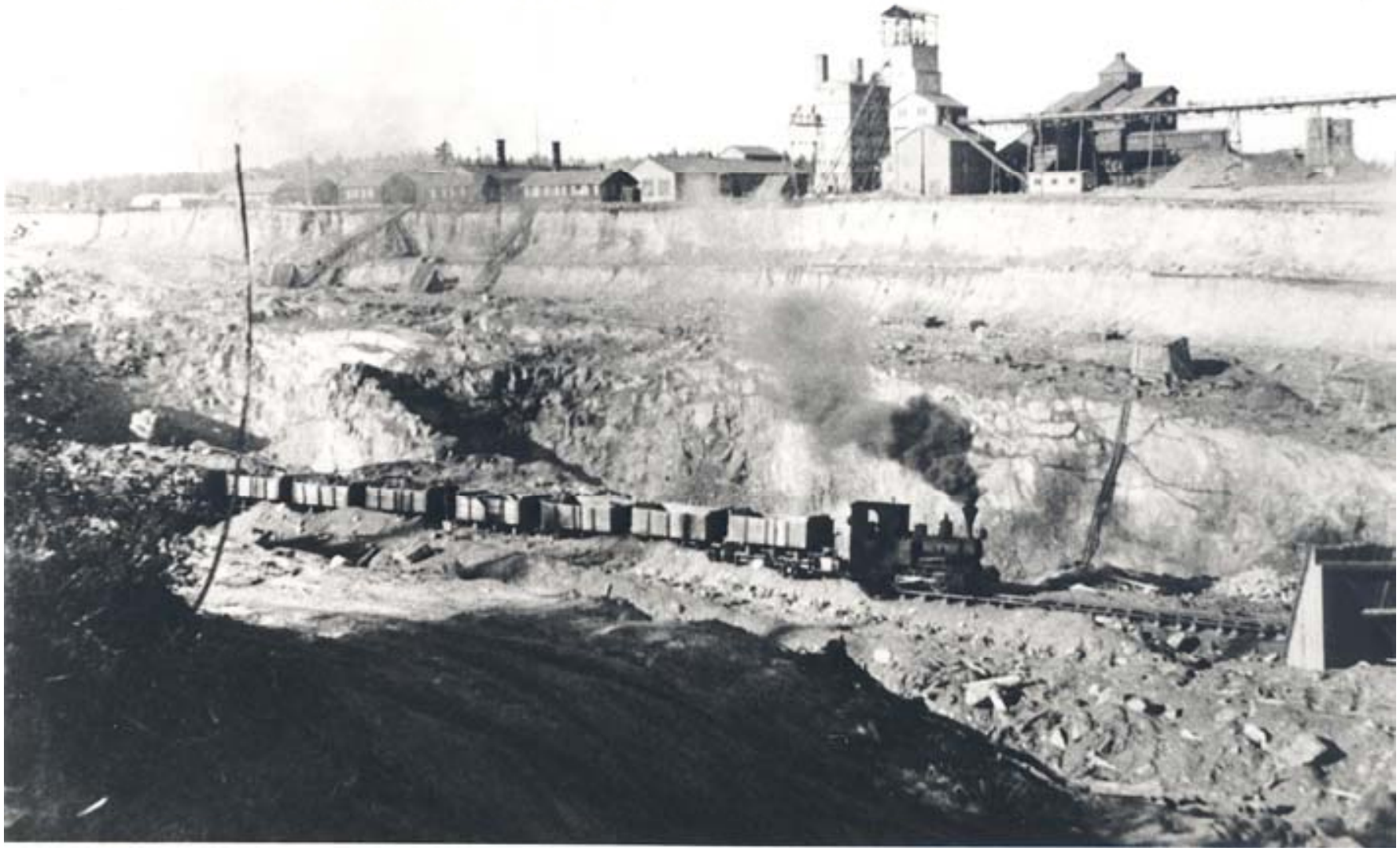
- Infrastructure
 - In pit crushing, performance and cost
 - TMF (Tailing Management Facilities)
 - Reclamation, sequences and techniques
 - Increased environmental cost (Capex & opex)

- Production
 - Mining sequences and design of mine
 - Reclamation of present infrastructure regarding old mill, workshops and other buildings
 - Construction of new workshops and other buildings

Aitik 45 - characteristics

- Increased volume to 45 mt/year
 - Lower grades
 - Increased ore reserves
 - Low strip ratio
 - Lower cost/ton milled ore
 - Longer life of mine
- Capex for expansion 2014-2016
 - Infrastructure
 - Environment
- Capex after 2020
 - New tailings dam, substantial
- Decision 2014

Boliden area



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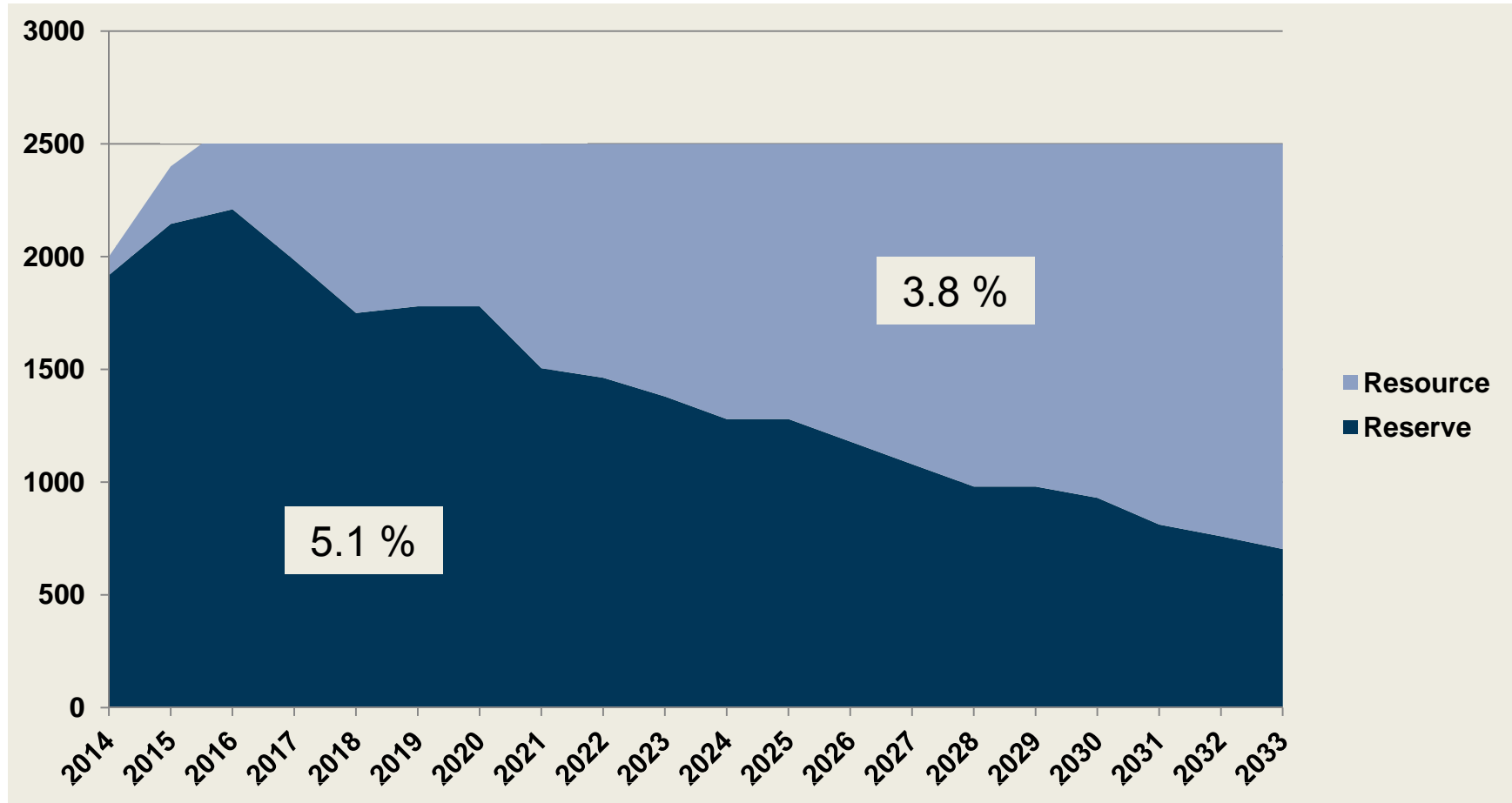
Boliden area going forward

- **Boliden Concentrator**
 - Multi metal – multi process concentrator
 - Continuous improvement on metallurgical performance
- **Kankberg Mine**
 - Increased reserve and resource
 - Mining method
 - Productivity
- **Renström mine**
 - Production volume
- **Kristineberg Mine**
 - Profitability problem
 - Cost focus
 - Mining method
 - Productivity
- **Maurliden**
 - In operation after push back
- **Maurliden East**
 - Depleted

Garpenberg Summary

- Expansion project on time and cost
- Commissioning: mine
 - Ore on stock
 - Crushers – ore passes
 - Shaft – hoisting critical
 - Capital development on track
 - Mining sequences on track
- Commissioning: concentrator
 - Water, pipes, valves, pump capacity etc
 - Waste rock, milling and pulp flow
 - Low grade ore, metallurgical performance
 - Ore, operational
- Commissioning Expansion project
 - First half year 2014
 - Production target 2,0 Mtonnes
- Full production
 - 2,5 Mtonnes 2015

Garpenberg – Ore production and grade mix



Tara



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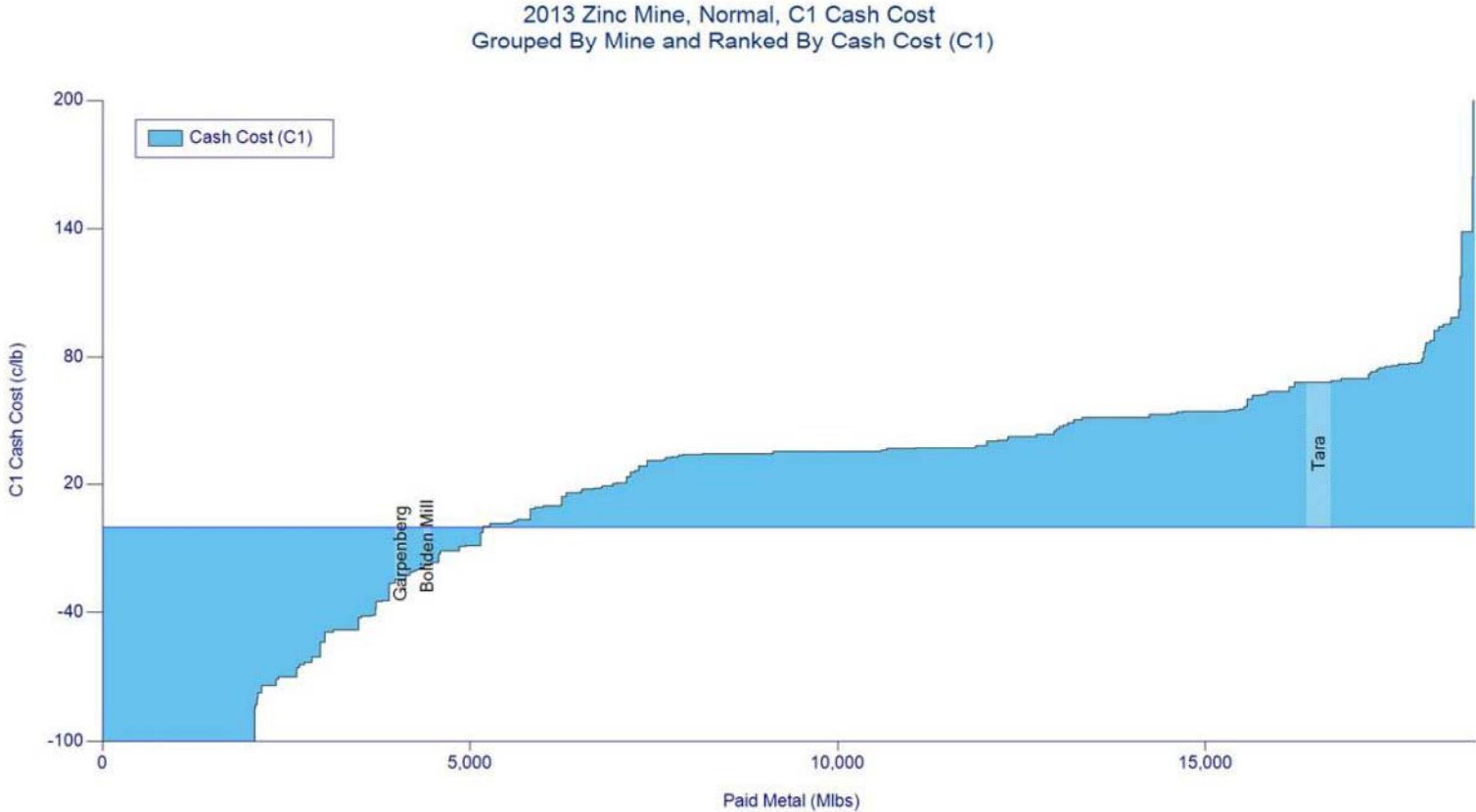
Action plan

- Increased productivity and efficiency
 - Continuous mining
 - Continuous mucking
 - Waste mucking
 - Reduce, reuse and recycle
 - More flexible use of contractors in craft areas
- Cost savings from personnel cost
 - Employee reduction to 650
 - Further reductions in overtime

Stefan Romedahl new General Manager in Tara since 1 September 2013



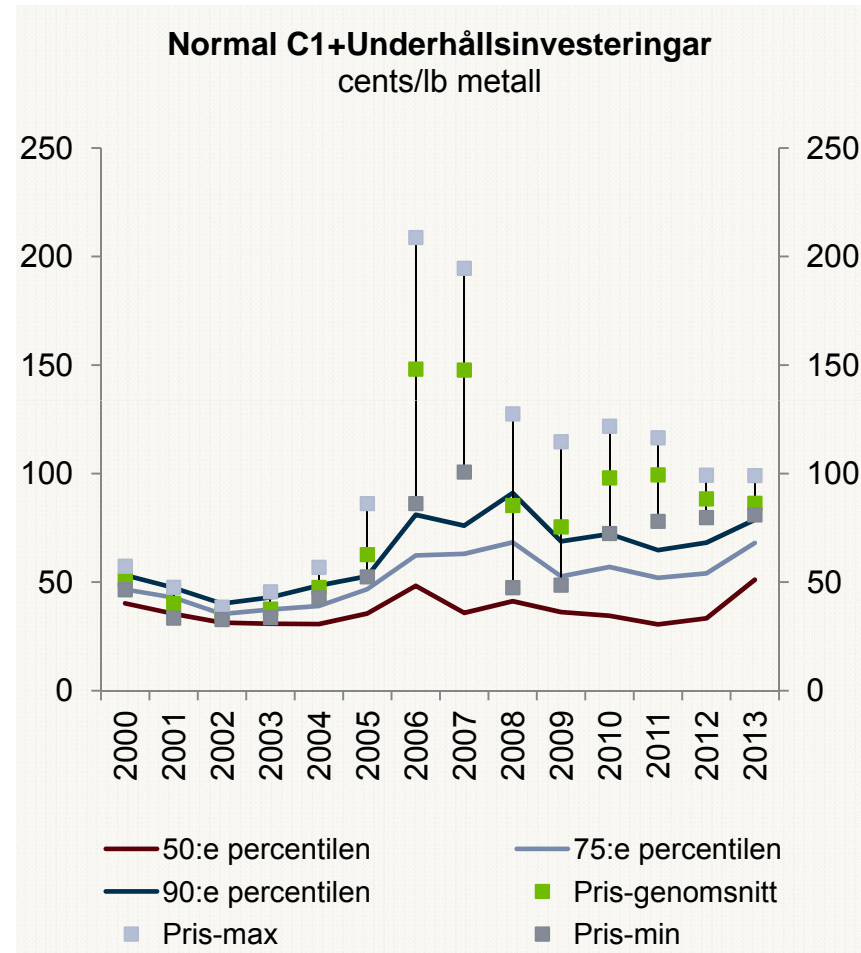
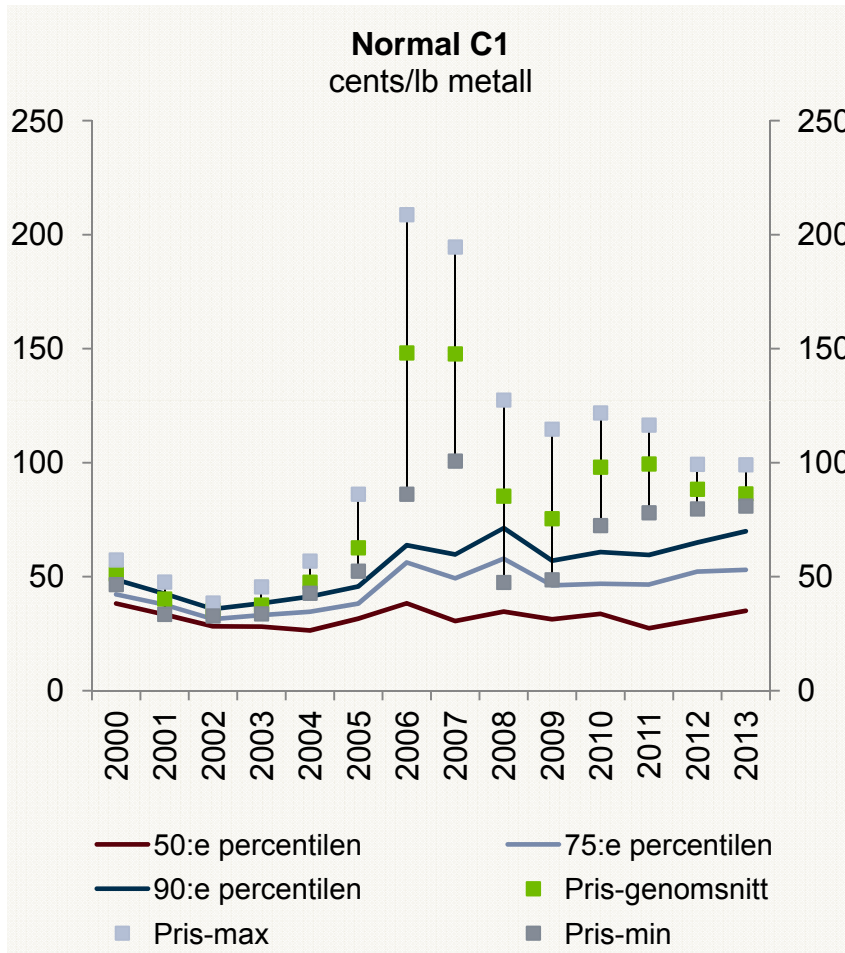
Zinc



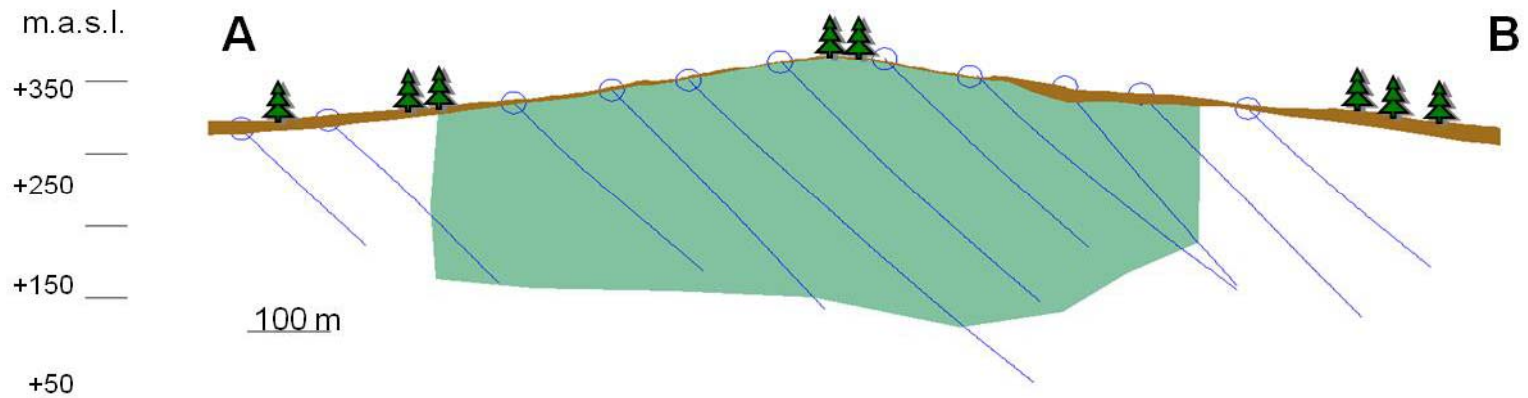
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Zinc

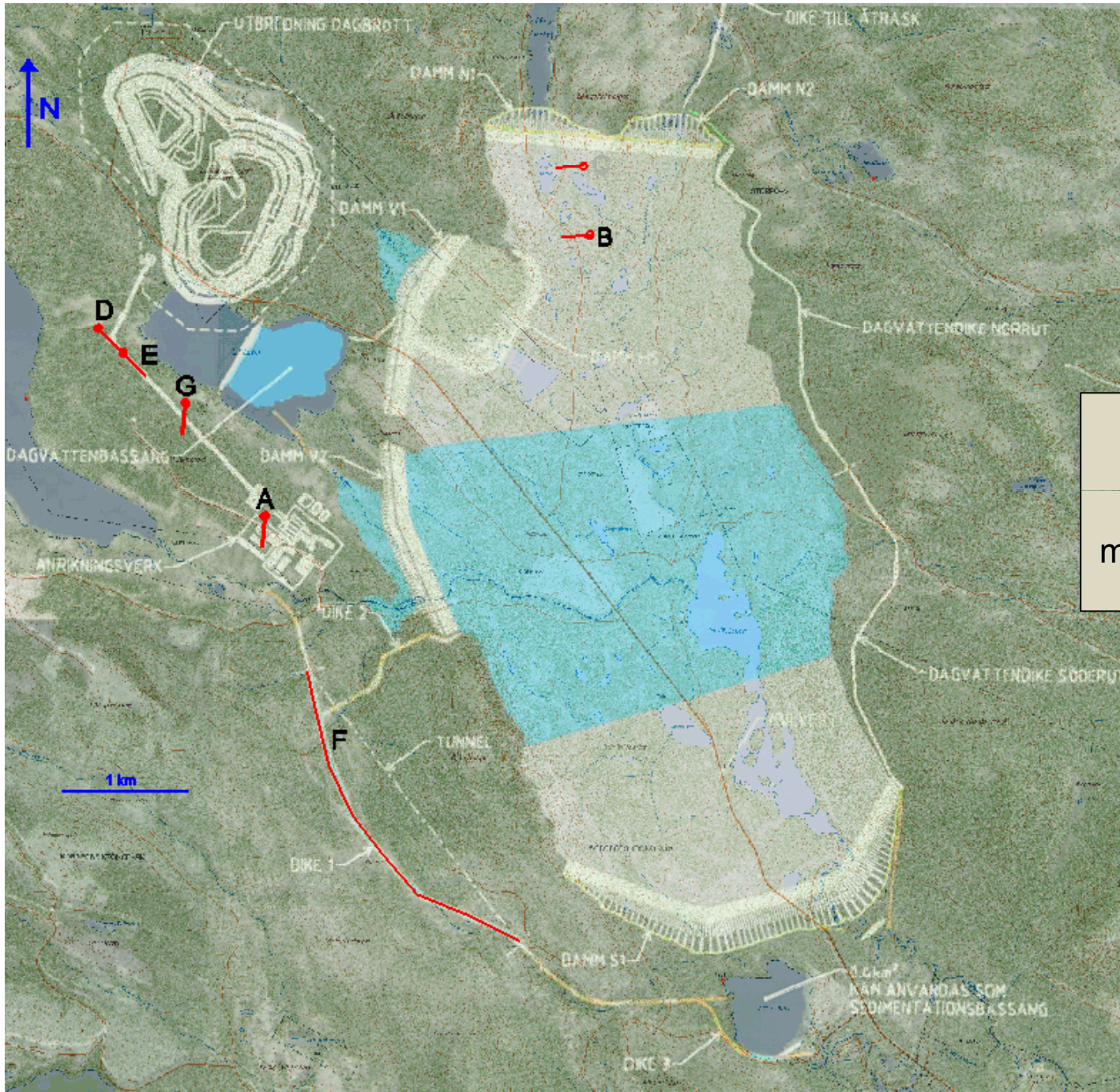


Laver



- Extended conceptual study
- Technology base line
 - Aitik 36
- Environment impact assessment
 - Decrease impact on landscape and environment
 - Develop BAT for reclamation
- Progress 2013
 - Continued drilling
 - Test mining, 3 500 tonnes of mineralization
 - Focus on general design, TMF, Mine and Concentrator

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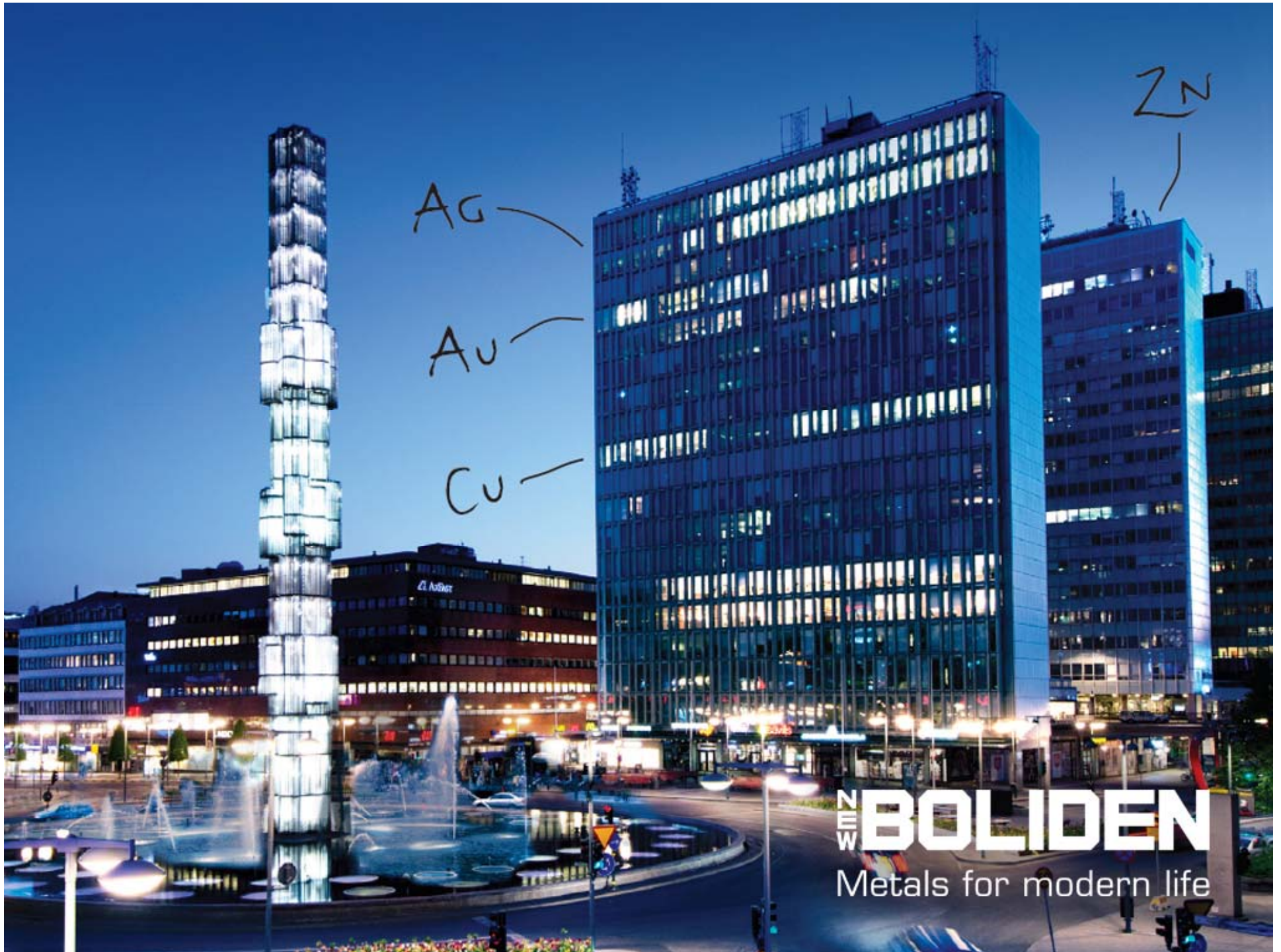
Next step:
Application for
mining concession



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Ag

Au

Cu

Zn

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