



BA Mines Update

Operational Excellence Growth

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President BA Mines

BOLIDEN

Structure for operational excellence and growth – New Boliden Way

- **Foundation for operational excellence**
 - Resource development and investments (design of mines, processes and plants)
- **Operational excellence**
 - Improvement of processes - equipment – plants
- **Performance excellence**
 - Performance management and continuous improvement
- **Technology excellence**
 - Technology prioritized areas

R&D Program

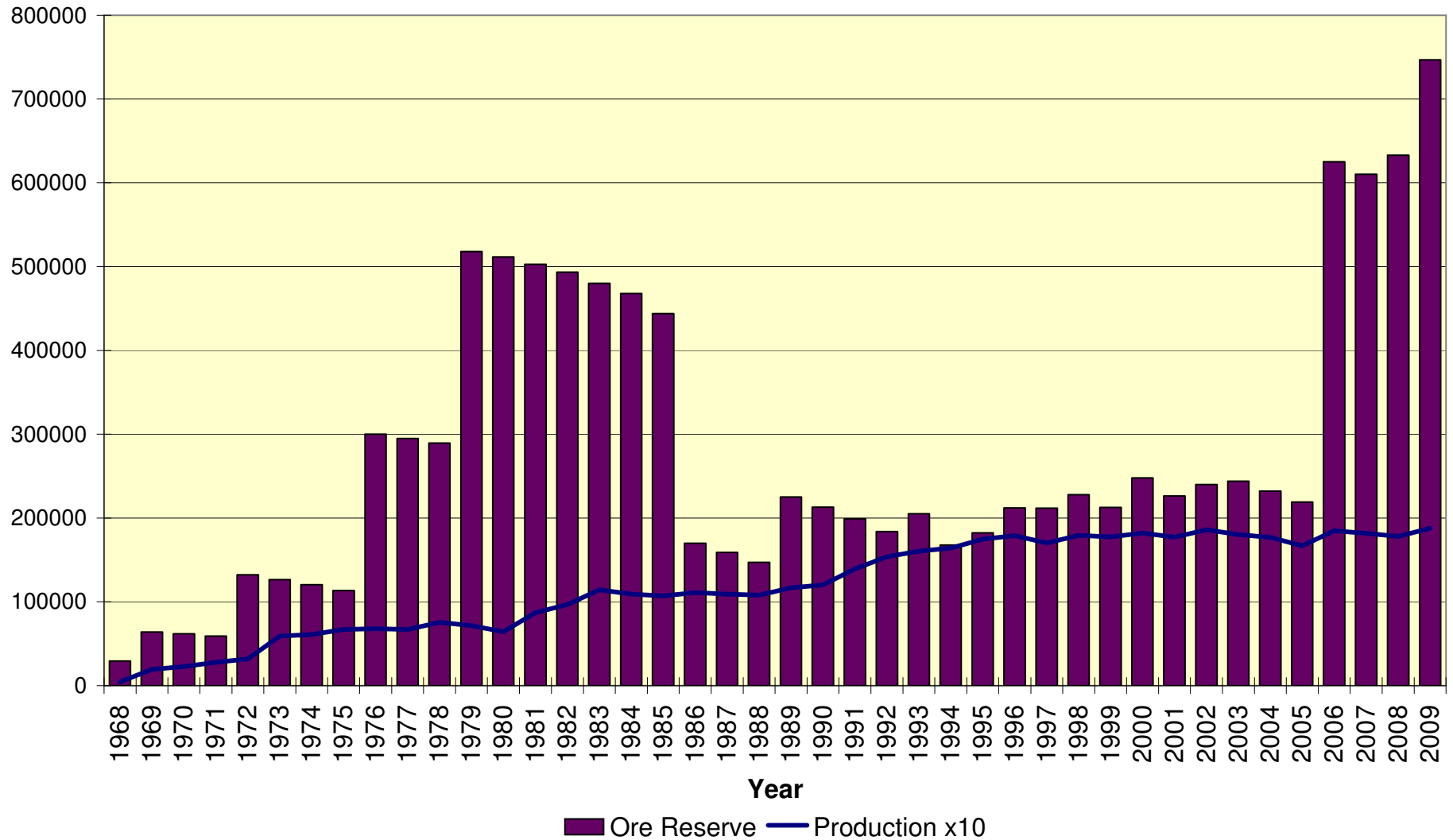
- Exploration
 - Geometallurgy
 - Improving geological and drill core data for production design (rock mechanics, comminution and processing, optimization of production plans)
- Mining
 - Mine automation
 - Communication systems, remote control, autonomous units
- Processing
 - Flotation design
 - Circuit design for higher recoveries
 - Treatment of penalty elements
 - Reduce penalty costs, better marketability, new resources
 - Process control
 - Improving recoveries/quality by real time adjustments according to ore properties
- Environmental
 - Water treatment
 - Control of emissions and minimized operating costs (metals, nitrogen, thiosulfates)

Growth

- Exploration, near mines
- Exploration, field – in connection to producing mines
- Acquisition of development projects
- Acquisition of producing mines

Ktonnes

Aitik

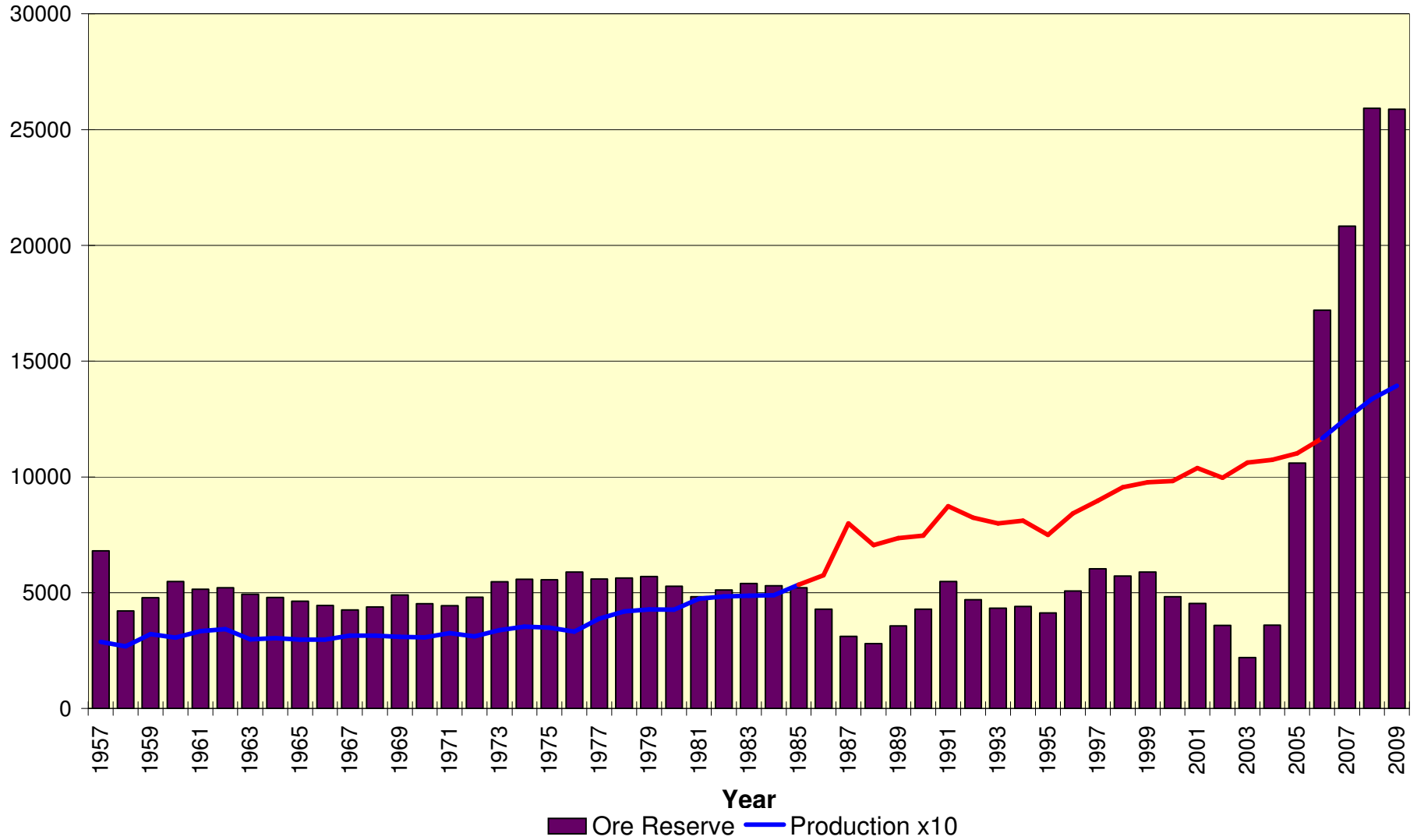


Aitik reserve 1968 –



Garpenberg

Ktonnes

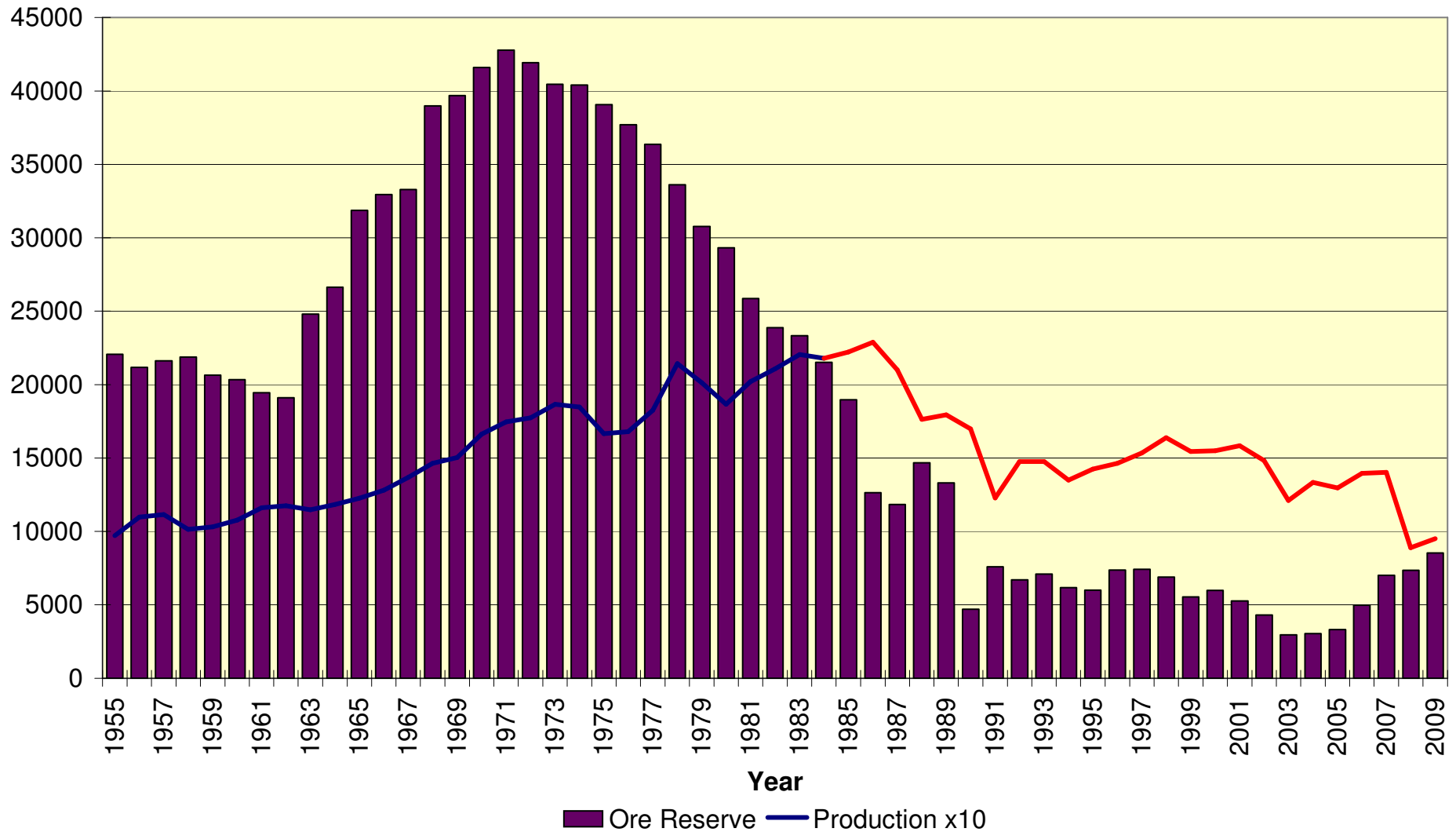


Garpenberg ore reserve development



Boliden Area Operations

Ktonnes

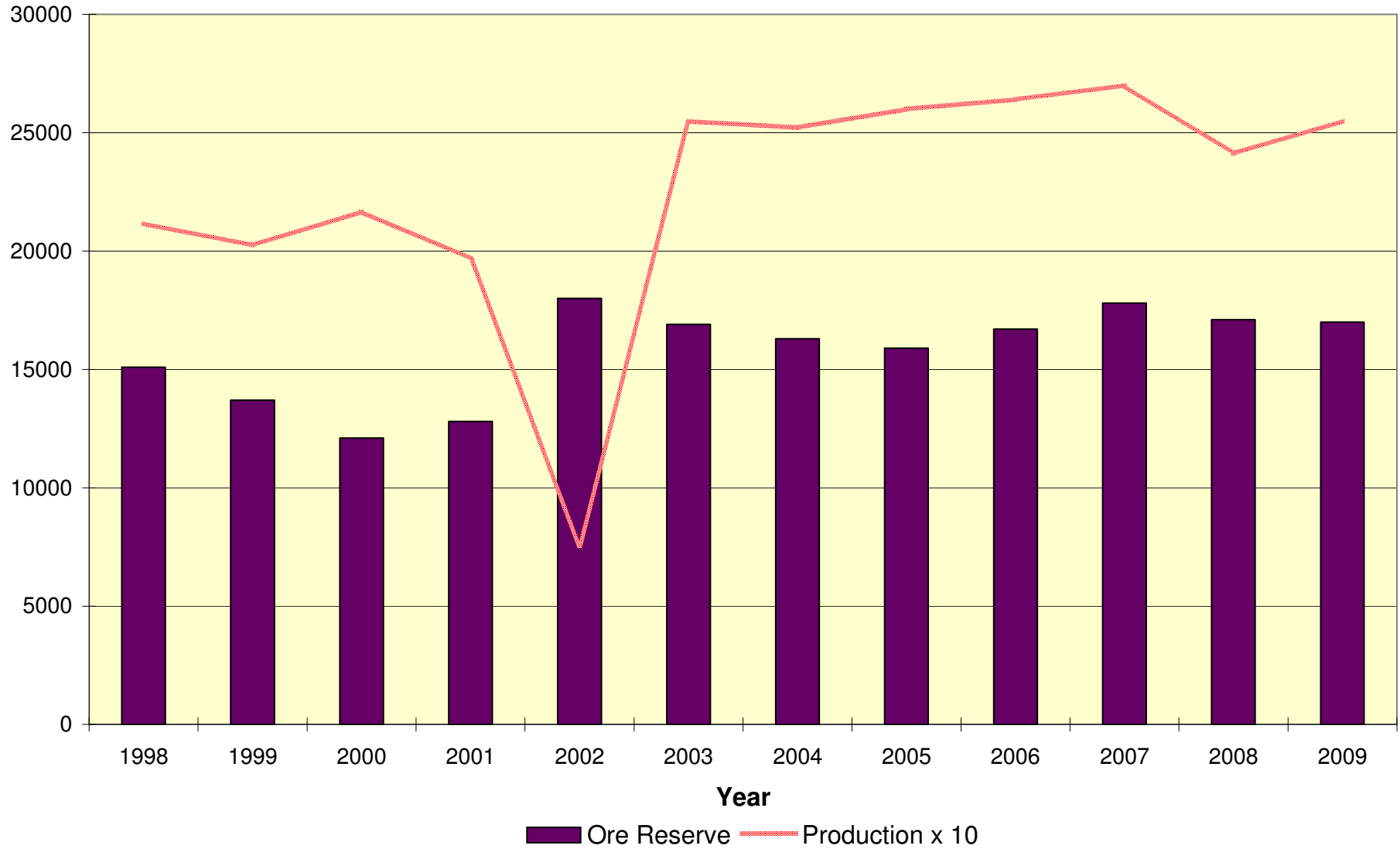


Boliden Area ore reserve



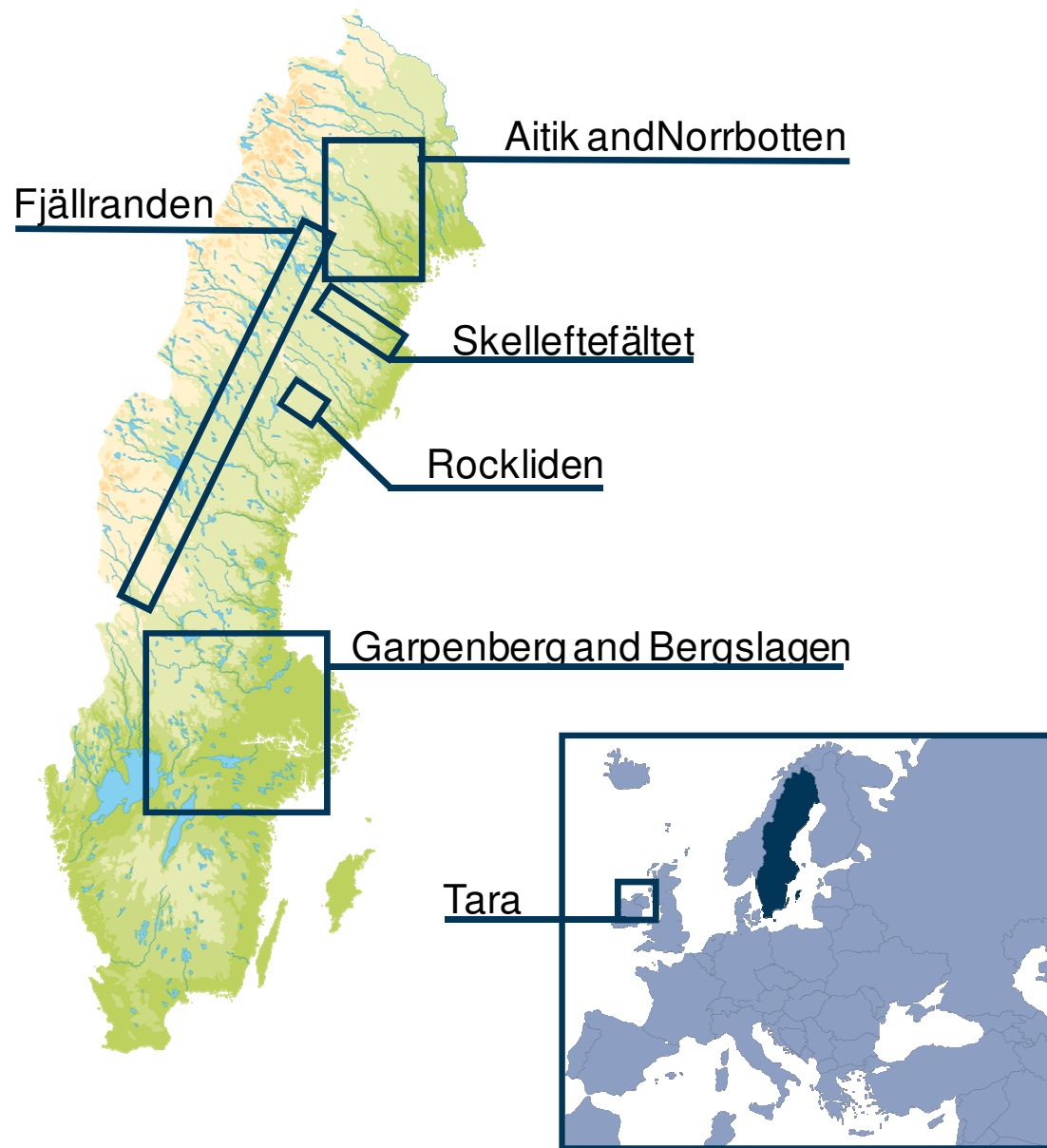
TARA

Ktonnes

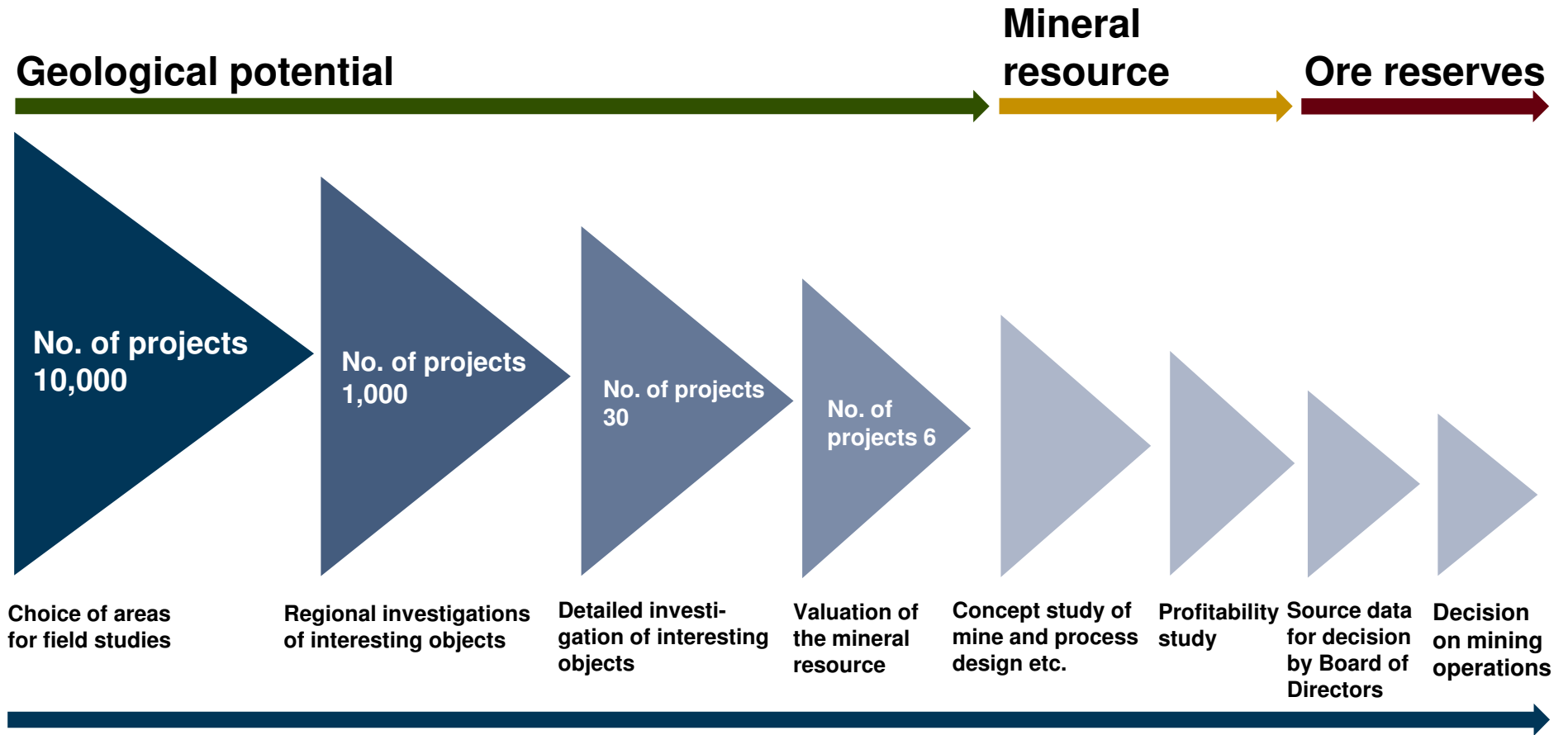


Tara ore reserve development





From exploration to mineral resource and ore reserve





Operations update

Aitik

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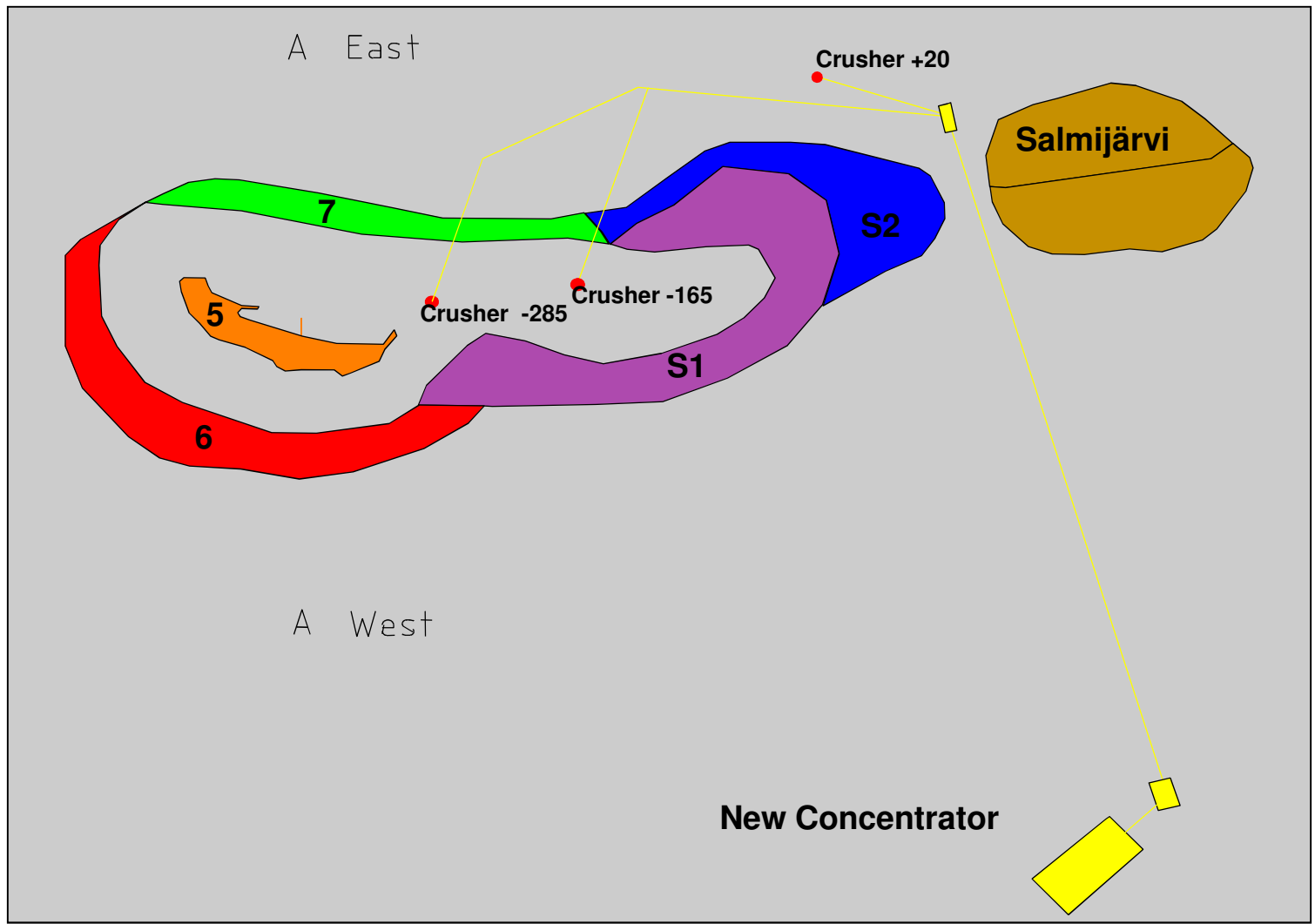
- Reliability
- Vibrations
- Wear parts

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- Grinding mill line one
 - Adopted new discharge grates
- Grinding mill line two
 - Replace existing discharge grates

Production areas with Hauling Cycles



Mine

Mining

- Drilling
- Charging
- Volume of blasted rounds

Predictability

- Production plan rounds, blasts
- Production plan shovels and hauling



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Aitik summary



	Capacity	Reliability
Mine and logistics	✓	
Crushers	✓	
Conveyors	✓	
Mills	✓	✓
Flotation	✓	

Old crusher –
to be reconnected to new system



Operations Update

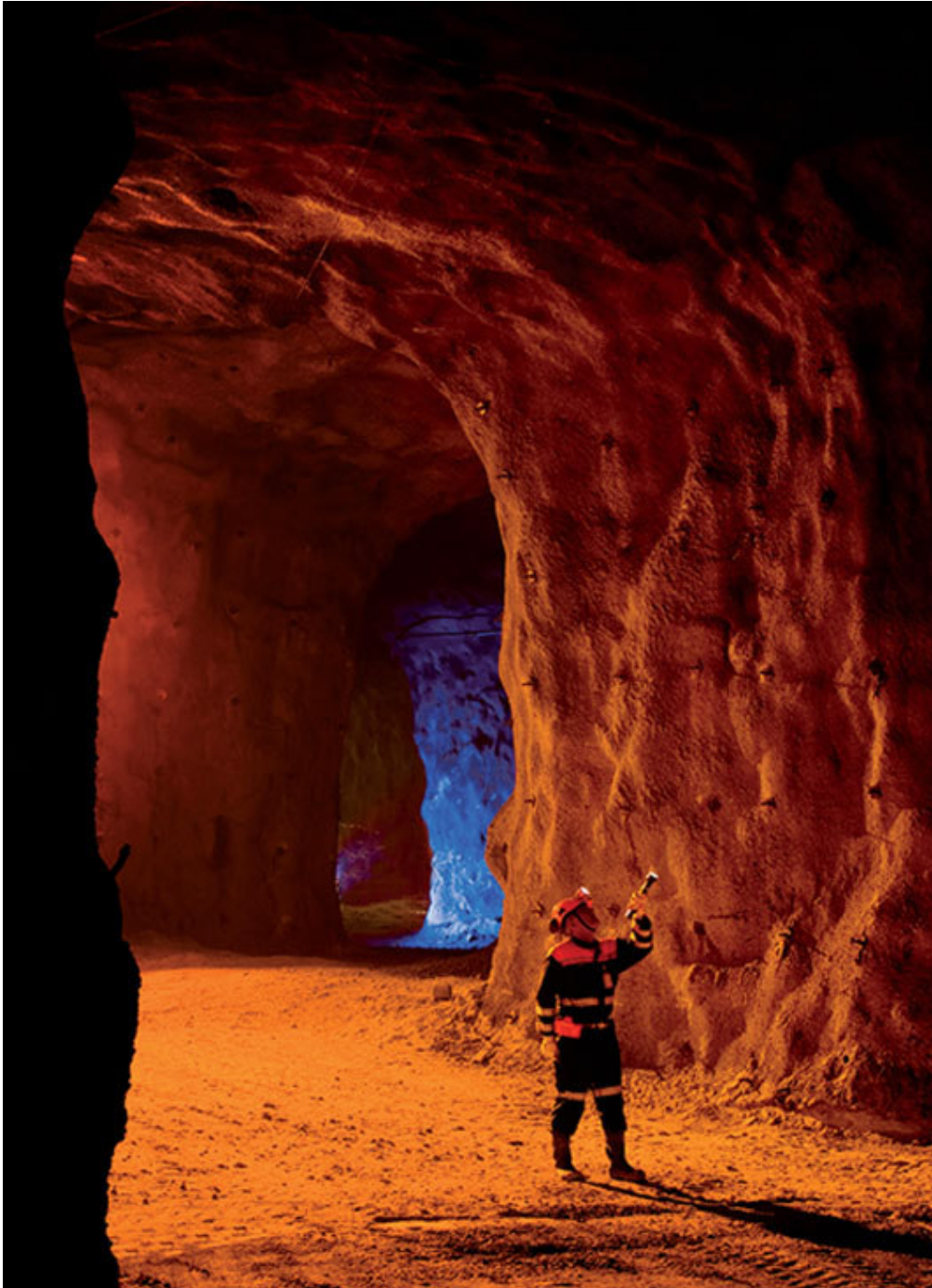
Boliden Area

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Opening Blast Maurliden Östra



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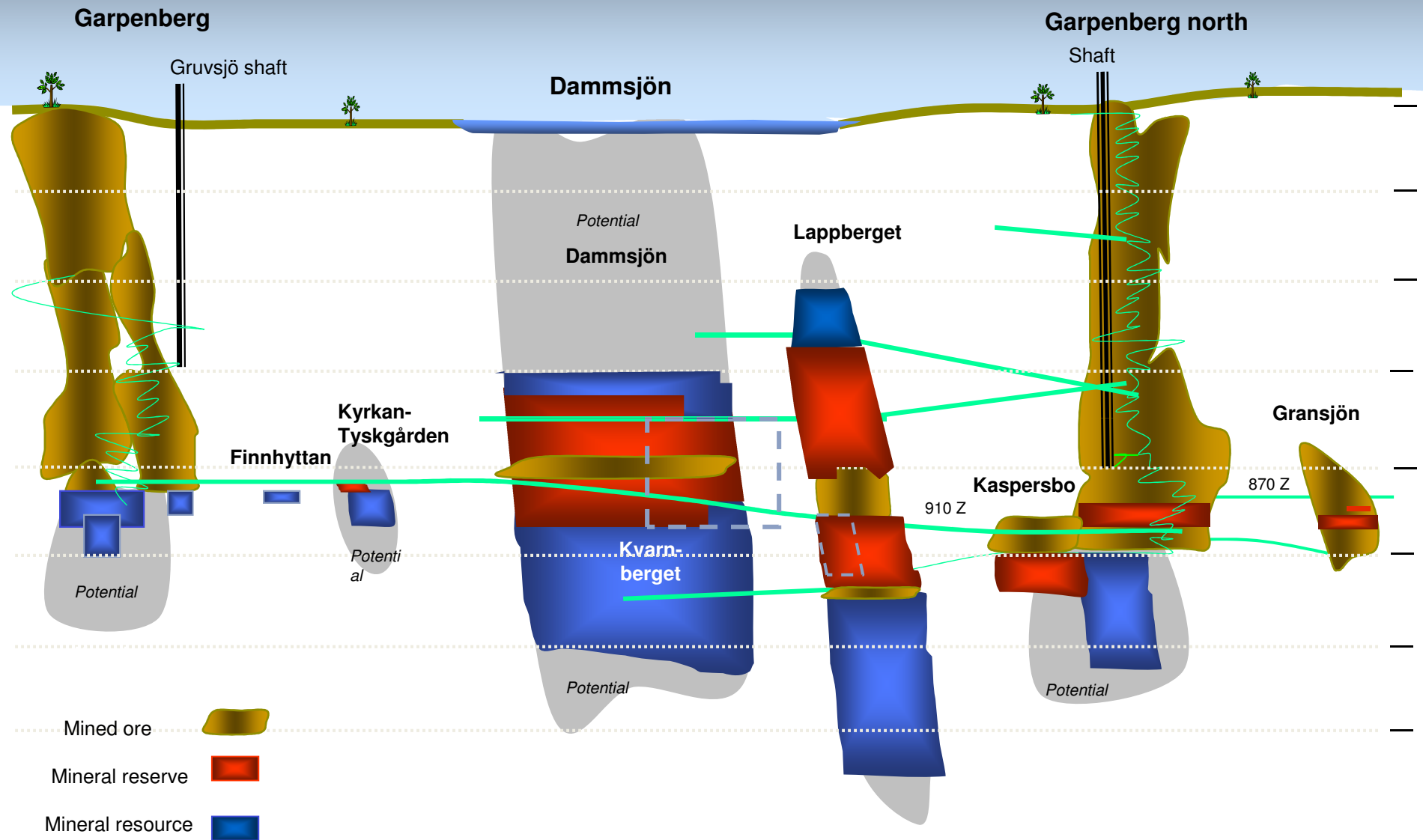


Operations Update

Garpenberg

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Garpenberg



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Operations Update

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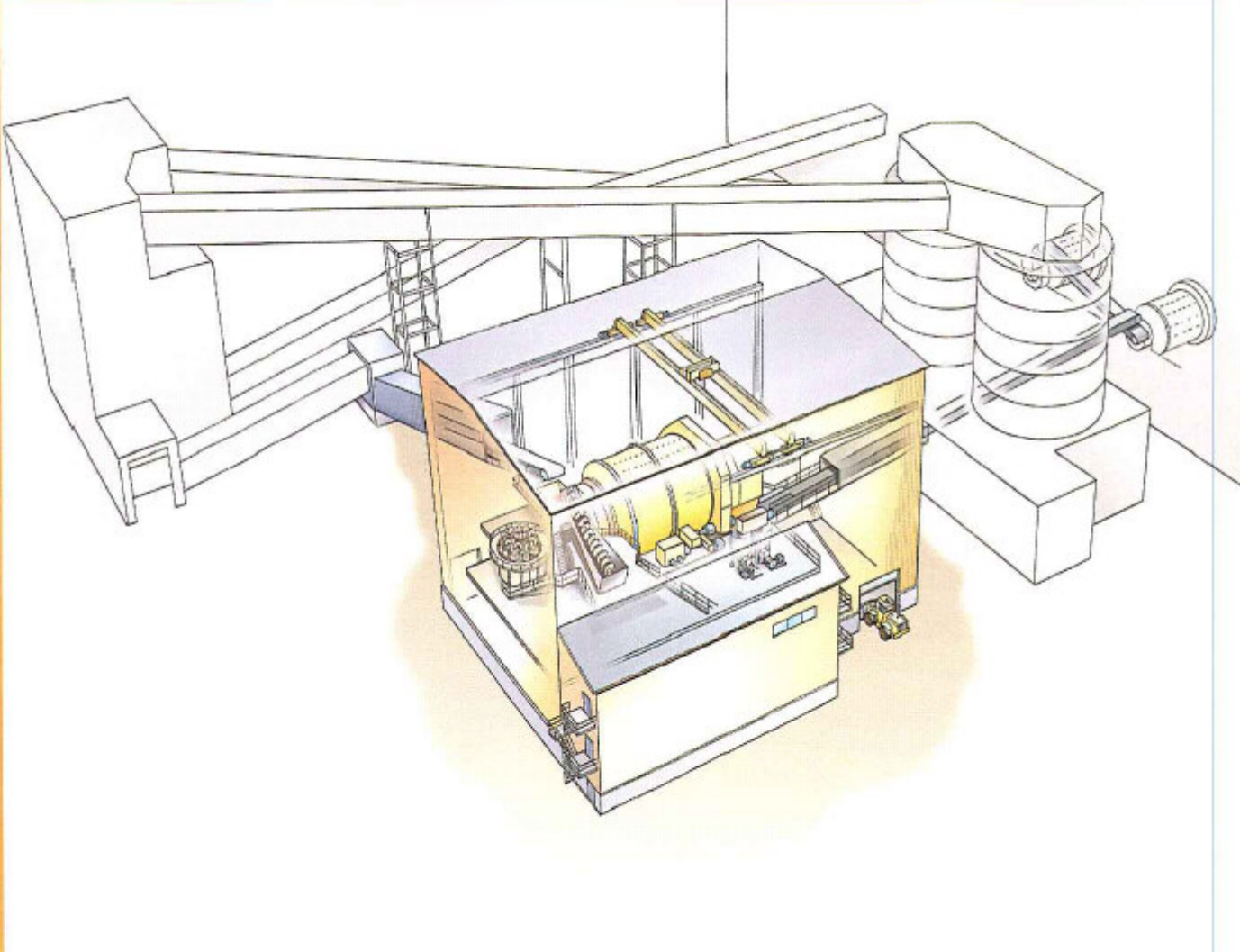
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AG grinding mill Tara



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AG grinding mill Tara



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