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EMZ BOLIDEN



Expansion to 9 Mtonnes

Mikael Staffas, President Boliden Mines, & Peter Bergman, General Manager Kevitsa
Capital Markets Day 2017 | 22 November

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Kevitsa – mine with potential

- Open-pit mine in one of Finland's biggest deposit areas
- Start 2012
- Acquired by Boliden in 2016
- Revenue breakdown (at present prices)
 - Copper ~50%, Nickel ~35%, PGM, Au, Co ~15%
- Long reserve life and large resources
- High potential in unexplored geological region
- 400 employees



Consistent value increasing strategy



*The ND/E in an economic upturn shall be no higher than 20%

Kevitsa acquisition ticked all boxes

- ✓ Excellent operational and geographical fit
- ✓ Expansion potential in attractive geological region
- ✓ Synergies with smelting operations
- ✓ Timing

	Q3 16-Q2 17 1 st FY post acquisition	Q3 15-Q2 16
Nickel, ktonnes	13.3	9.4
Copper, ktonnes	26.5	16.5
EBIT, MEUR	53	-22
ROCE, %	8	N/A



Kevitsa concentrates fit Harjavalta

Clear synergy benefits across the group

Industry know-how from over 90 years of mining in the Nordics

Technology creates synergy

Operational know-how optimises processes

Centralised procurement gives economies of scales

Enhanced raw material mix and optimize separation

Reliable deliveries reduces need for stockpiling

Geographical proximity



What we have achieved during the last 18 months

- ✓ Integration finalised
- ✓ Management team in place
- ✓ Strong cooperation between Boliden Tech and Kevitsa
- ✓ Expansion plan to 9 Mtonnes



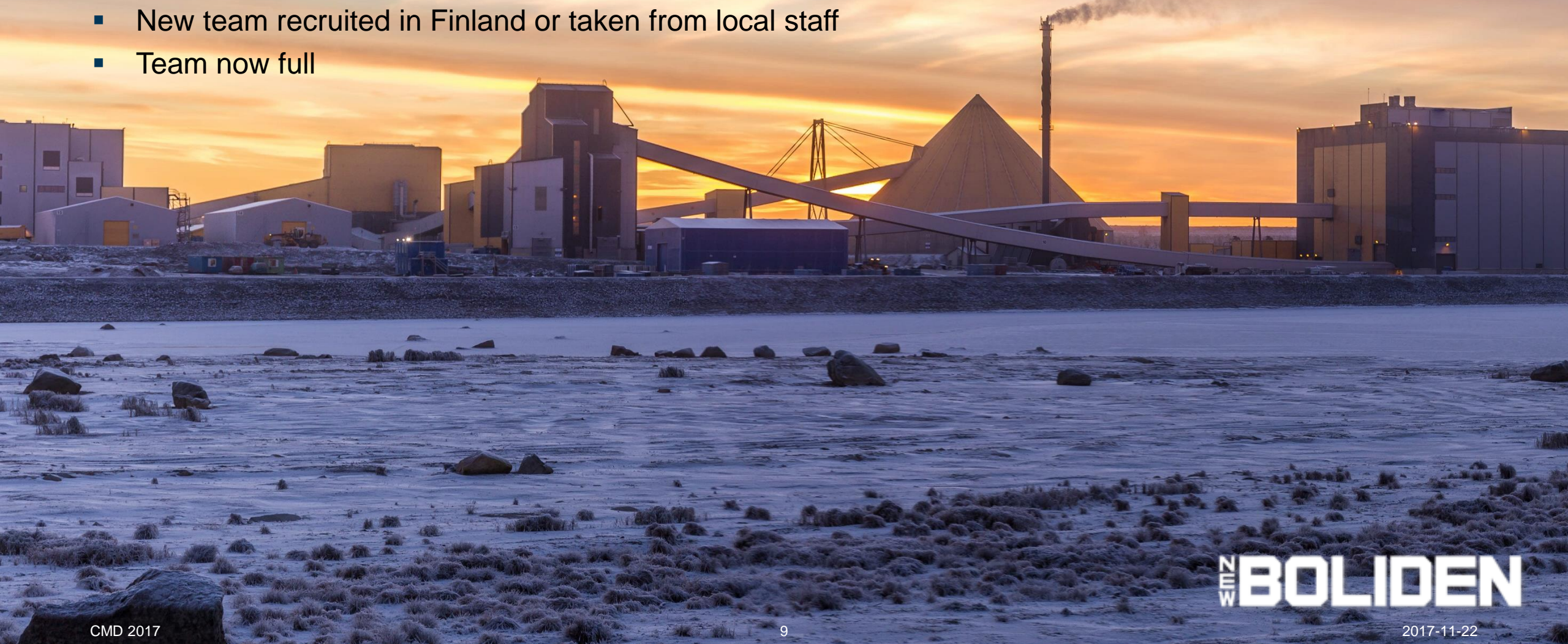
Integration finalised

- Management team in place
- Integration into Boliden management system and procedures
- IT partially integrated



Boliden management team in place

- Initial "rental" of management team from First Quantum (20 people)
- Local management now in place (two managers from the old team have elected to stay)
- New General Manager from Boliden (Boliden Area and Aitik experience) – Peter Bergman
- New team recruited in Finland or taken from local staff
- Team now full

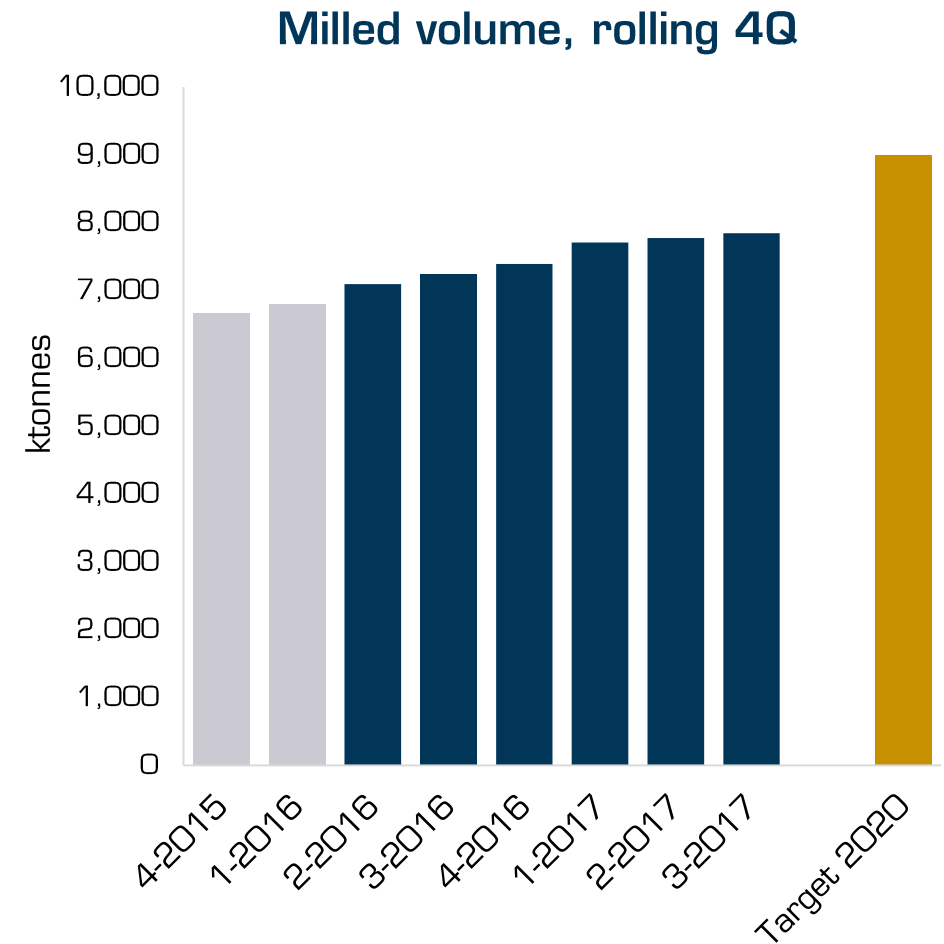


Cooperation with Boliden's tech team progressing well

- Boliden's technical staff involved already in the integration
- Boliden has experience in mining in Arctic conditions
- Several functions leveraged, for example
 - Tailings management
 - Milling and flotation
 - Business development
 - Feasibility studies
 - Project management

Kevitsa from 7 Mtonnes to 9 Mtonnes

- Optimal utilization of installed infrastructure
 - Optimization in the crushing circuit
 - Improved ore blending
 - Softer ore than average helps short term
- Install an additional mill and debottlenecking in concentrator
 - Feasibility study
 - Improve throughput to 9 Mtonnes
 - Preliminary Capex of 70 MEUR
 - Preliminary time plan commissioned 2020

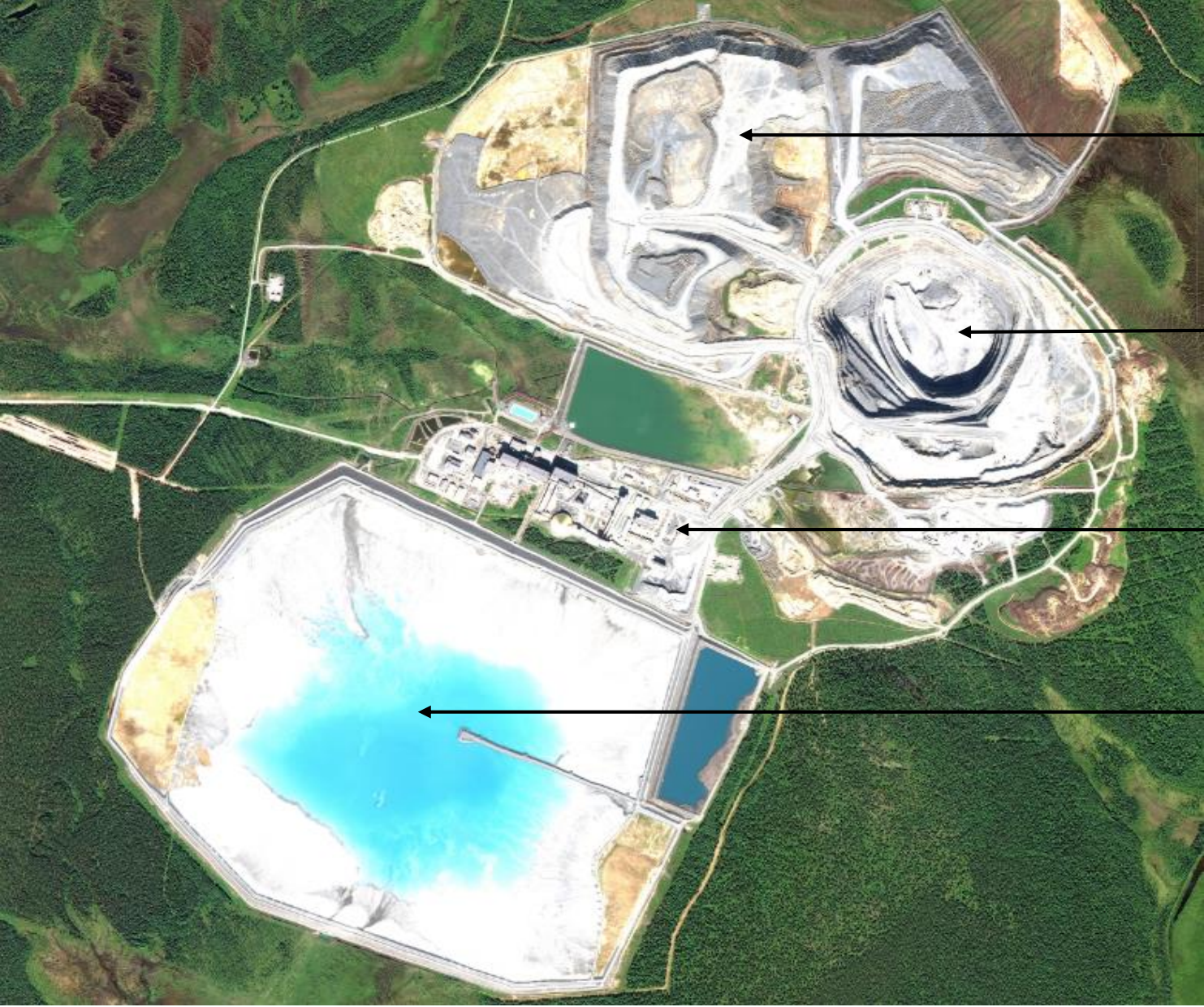


Kevitsa acquisition ticked all boxes and expansion to 9 Mtonnes progressing well

- ✓ Excellent operational and geographical fit
- ✓ Expansion potential in attractive geological region
- ✓ Synergies with smelting operations
- ✓ Timing



Kevitsa



Waste rock dump

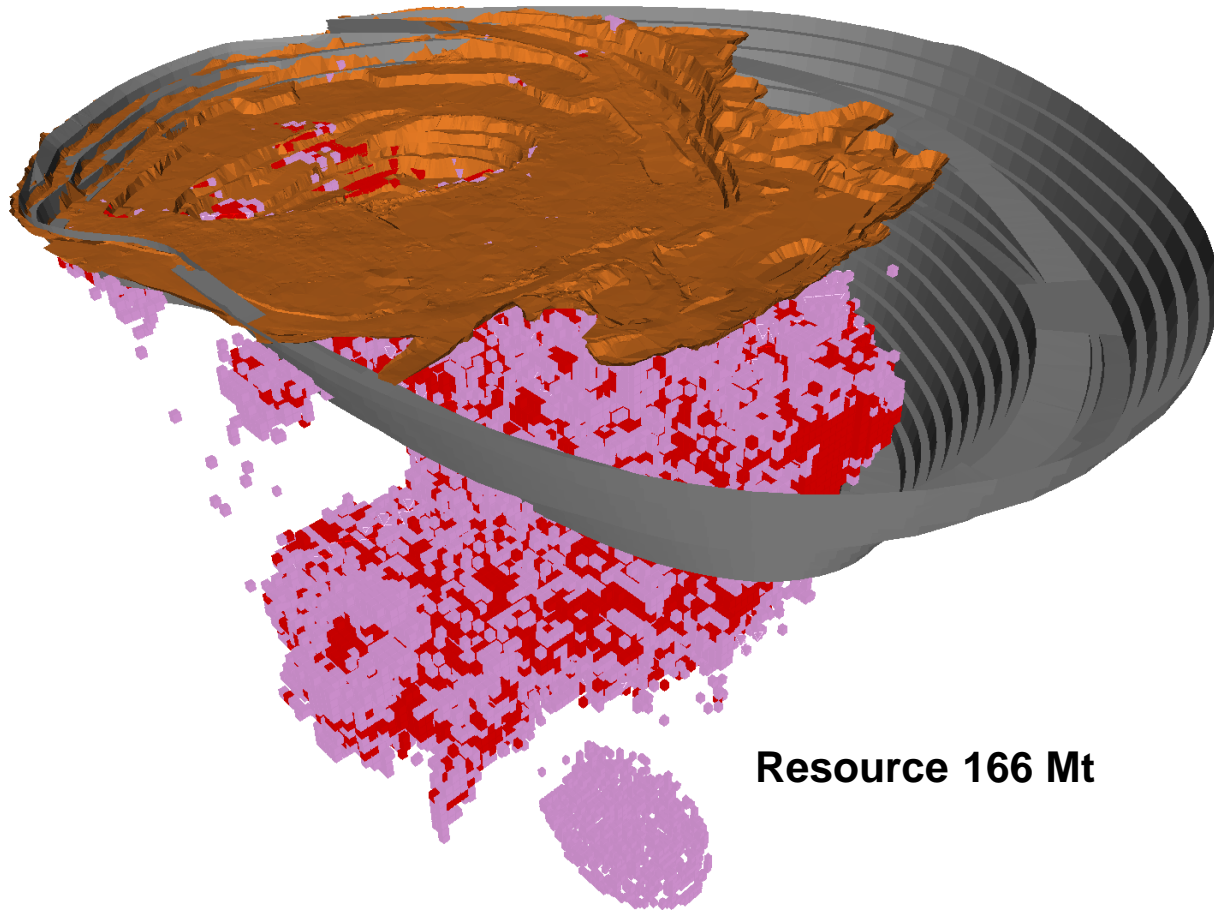
Mine

Mill

Tailings dam



Kevitsa operation

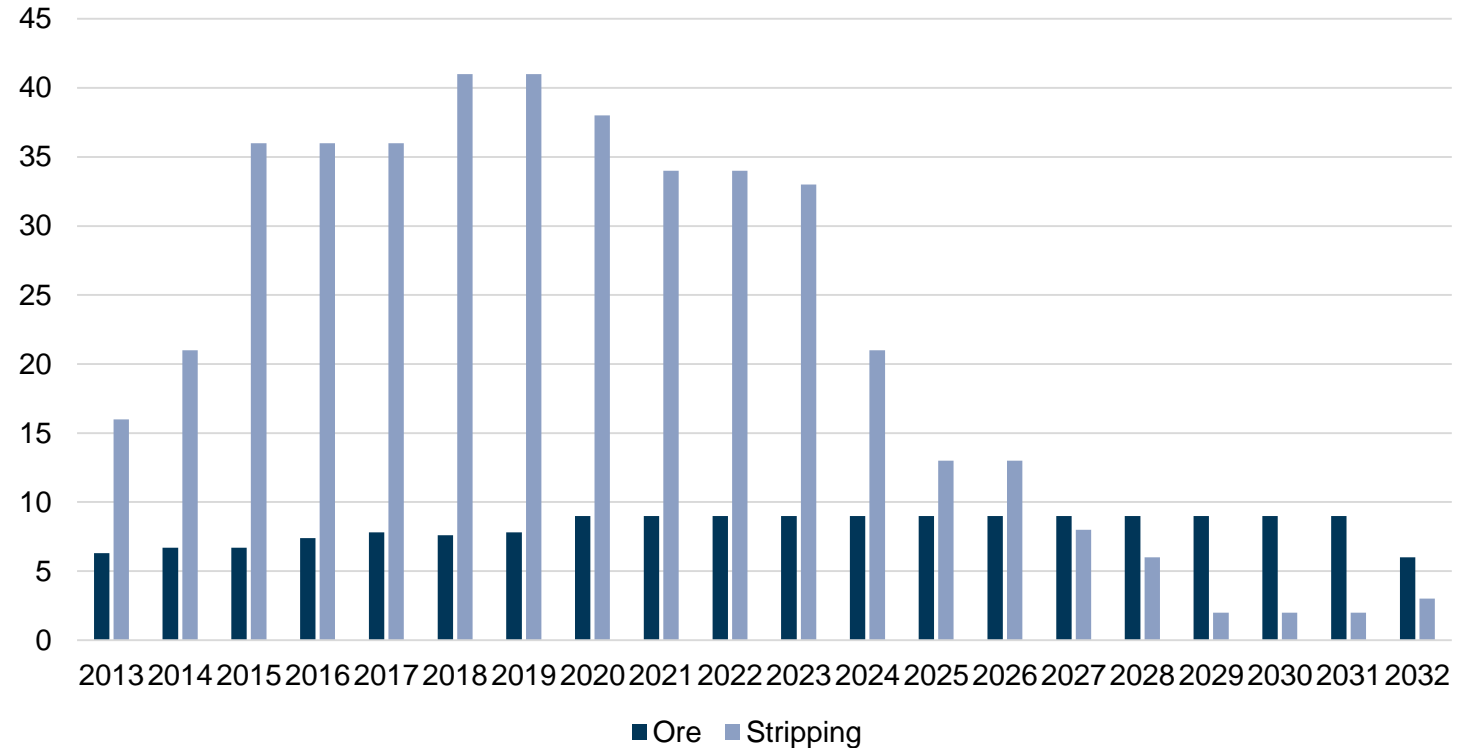


Production

	2016	2015	2014
Mill feed, t	7 391 710	6 665 500	6 711 200
Ni% (in sulphides)	0.22	0.20	0.23
Cu%	0.31	0.29	0.30
Ni, t	11 795	9 300	10 100
Cu, t	20 571	17 200	17 500
Au, kg	486	400	400
Pt, kg	1 178	992	1 060
Pd, kg	901	784	808
Mining total, Mt	40	37	28

High investment in stripping in Kevitsa

- High stripping 2015 - 2023
- 2018 - 2019 peak years



Kevitsa production



Drilling



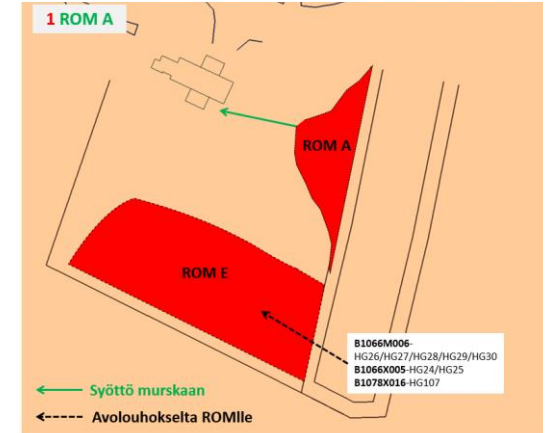
Blasting



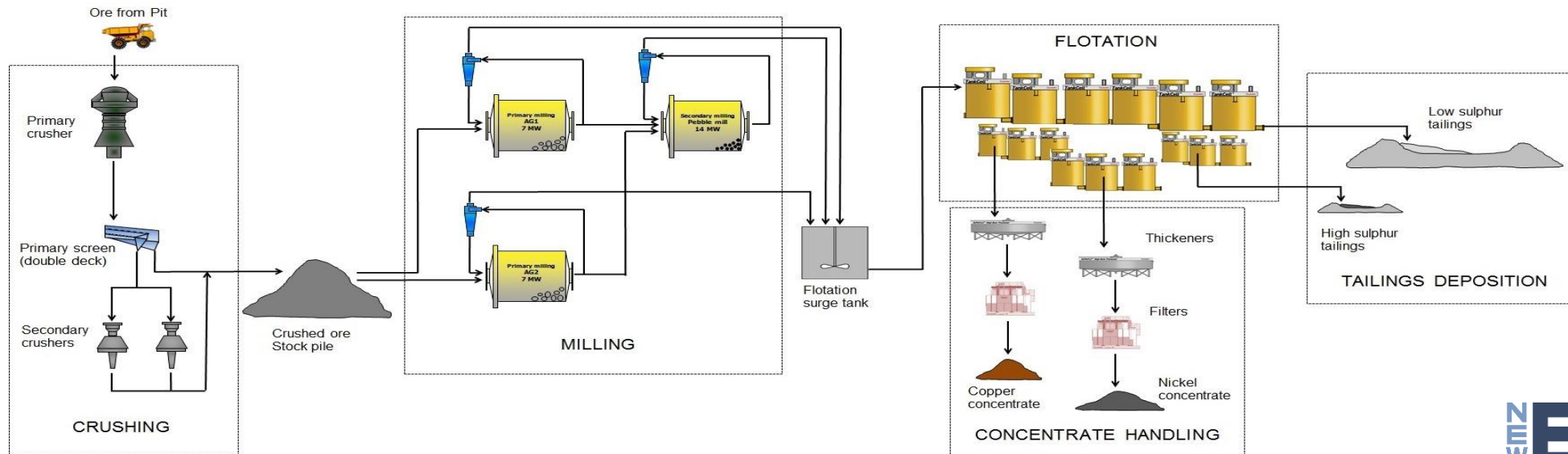
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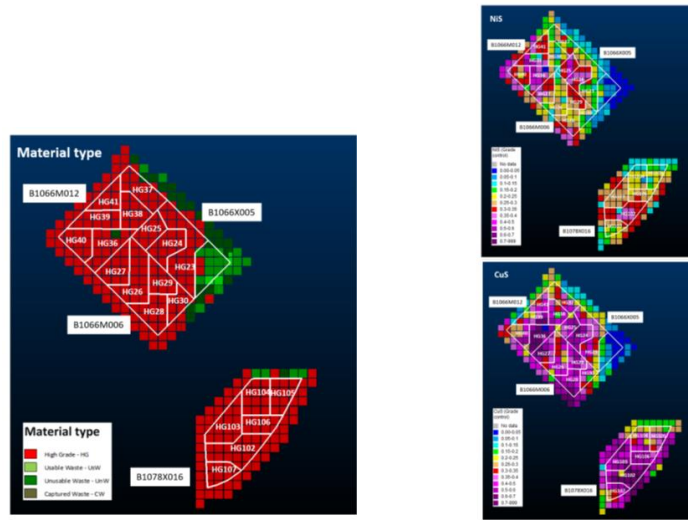
Hauling



Dumping



Optimise the Kevitsa operation – Mine to Mill



Ore inventory

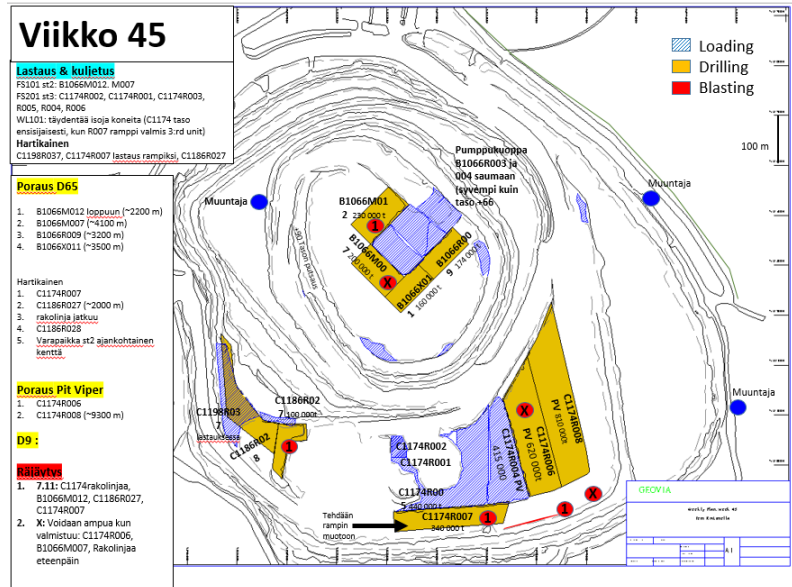
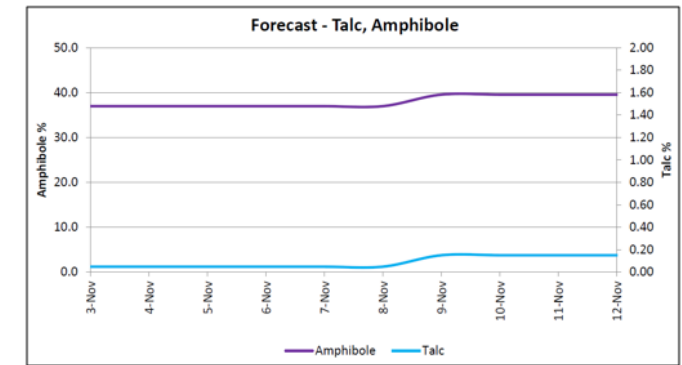
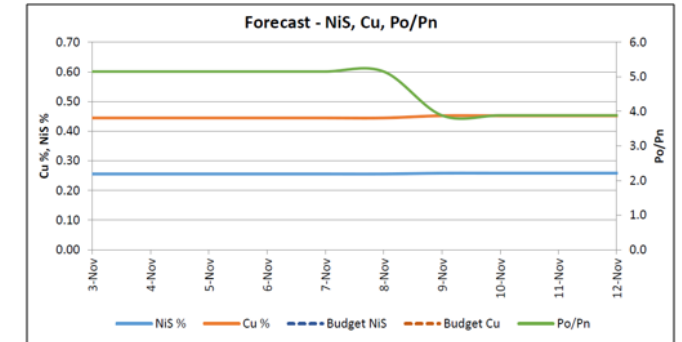
Blast	Material	Status	Pit	ROM A	ROM E	NiS	CuS	Po/Pn	NiCuEq	Talc	Amph	P.F.
B1078X016	HG107	ROM A		33,000		0.24	0.44	2.76	0.67	0.00	15.5	1.4
B1066X005	HG23	ROM A		80,300		0.20	0.33	6.44	0.55	0.03	35.6	1.4
B1066X005	HG24	ROM A		28,600		0.36	0.49	4.01	0.81	0.03	45.3	1.4
B1066X005	HG25	ROM A		31,500		0.33	0.49	5.45	0.79	0.17	54.2	1.4
B1066M006	HG26	PIT	59,200			0.22	0.37	4.28	0.57	0.11	45.4	1.4
B1066M006	HG27	PIT	40,800			0.30	0.47	3.64	0.72	0.54	40.6	1.4
B1066M006	HG28	PIT	39,900			0.28	0.52	3.88	0.79	0.01	25.2	1.4
B1066M006	HG29	PIT / ROM E	30,000		1,700	0.31	0.51	2.99	0.77	0.01	36.4	1.4
B1066M006	HG30	PIT	23,700			0.17	0.29	4.65	0.47	0.00	51.4	1.4
B1066M012	HG36	Blast 07.11.17	50,100			0.38	0.61	3.82	0.94	0.25	31.5	1.4
B1066M012	HG37	Blast 07.11.17	43,800			0.24	0.33	4.27	0.54	0.26	41.6	1.4
B1066M012	HG38	Blast 07.11.17	37,100			0.20	0.35	6.06	0.56	0.90	48.3	1.4
B1066M012	HG39	Blast 07.11.17	36,500			0.37	0.40	3.29	0.82	0.45	21.7	1.4
B1066M012	HG40	Blast 07.11.17	33,100			0.32	0.37	3.22	0.67	0.06	24.6	1.4
B1066M012	HG41	Blast 07.11.17	28,300			0.32	0.38	5.03	0.67	0.16	20.7	1.4

Crusher feed

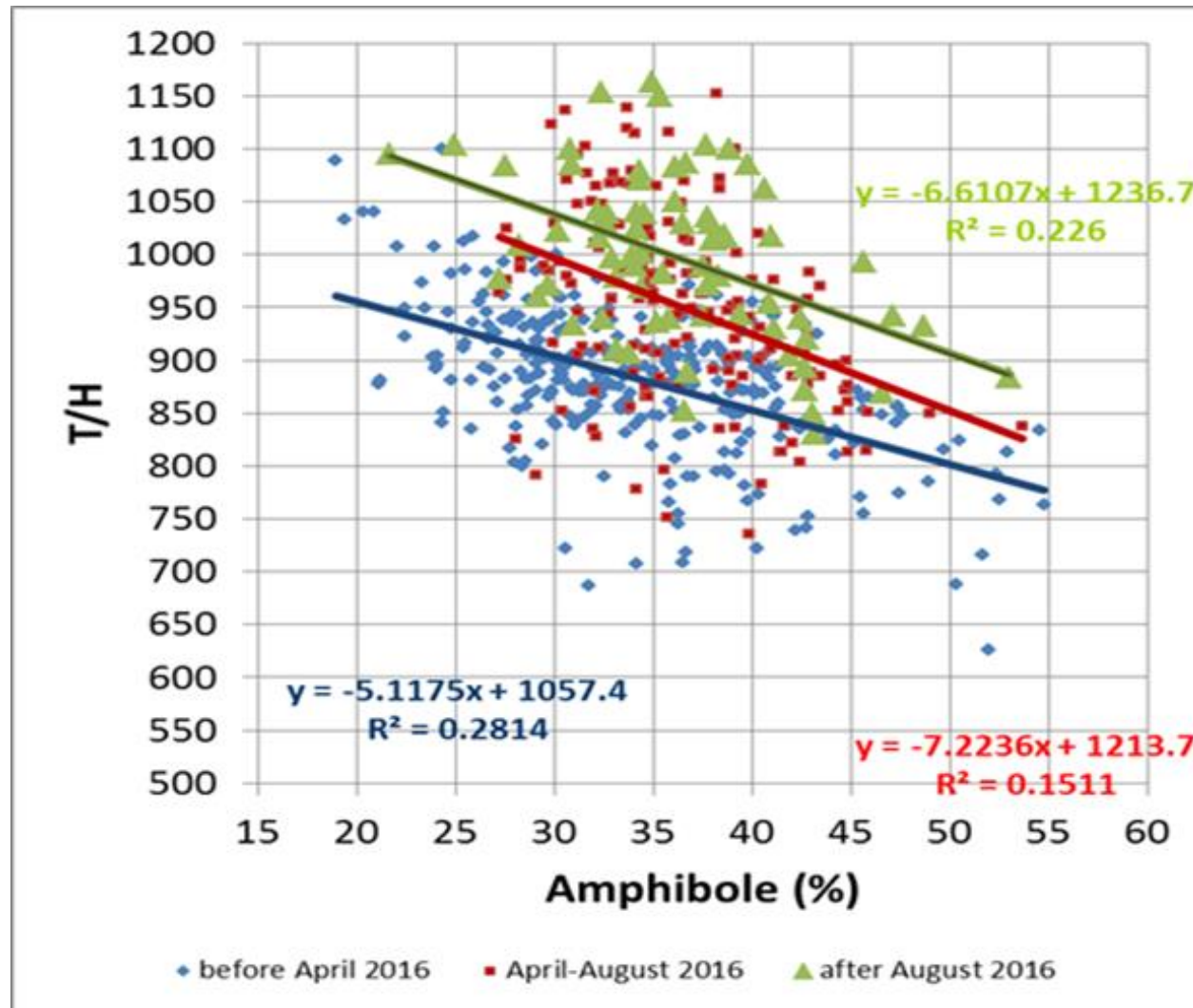
Location	Material	03-Nov	04-Nov	05-Nov	06-Nov	07-Nov	08-Nov	09-Nov	10-Nov	11-Nov	12-Nov
ROM A	Mixed	25,000	25,000	25,000	25,000	25,000	25,000				
ROM E	Mixed							25,000	25,000	25,000	25,000
TOTAL		25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000

Forecast grades and features

Forecast	3-Nov	4-Nov	5-Nov	6-Nov	7-Nov	8-Nov	9-Nov	10-Nov	11-Nov	12-Nov
Ni %	0.29	0.29	0.29	0.29	0.29	0.29	0.27	0.27	0.27	0.27
NiS %	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Cu %	0.44	0.44	0.44	0.44	0.44	0.44	0.45	0.45	0.45	0.45
CuS %	0.40	0.40	0.40	0.40	0.40	0.40	0.43	0.43	0.43	0.43
Po/Pn	5.15	5.15	5.15	5.15	5.15	5.15	3.88	3.88	3.88	3.88
Talc	0.05	0.05	0.05	0.05	0.05	0.05	0.15	0.15	0.15	0.15
Amphibole	37.0	37.0	37.0	37.0	37.0	37.0	39.6	39.6	39.6	39.6
Serpentine	1.54	1.54	1.54	1.54	1.54	1.54	0.94	0.94	0.94	0.94
Chlorite	3.32	3.32	3.32	3.32	3.32	3.32	3.64	3.64	3.64	3.64
CuS in Cub	24%	24%	24%	24%	24%	24%	26%	26%	26%	26%



Optimizing the Kevitsa operation – Mine to Mill – Continuous Improvements



Q&A

Expansion to 9 Mtonnes

