Boliden Summary Report

Resources and Reserves | 2020

Kevitsa Mine

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Abbreviations used in this document

PGE for platinum-group elements

TSF for Tailing Storage Facility

EIA for Environmental Impact Assessment

NSR for Net Smelter Return

LOMP Life Of Mine Plan

RPEEE for Reasonable Prospects for Eventual Economic Extraction

PERC for Pan-European Reserves and Resources Reporting Committee

FQM for First Quantum Minerals Limited

CRIRSCO for Committee for Mineral Reserves International Reporting Standards

FRB for Fennoscandian Review Board

AusIMM for Australasian Institute of Mining and Metallurgy

FAMMP for Fennoscandian Association for Metals and Minerals Professionals

MRE for Mineral Resource Estimation and **GC** for Grade Control

GTK for Geological Survey of Finland

SGL for Scandinavian Minerals

BKMOY for Boliden Kevitsa Mining Oy

BFXOY for Boliden FinnEx Oy

TUKES for Finnish Safety and Chemicals Agency

CLGB for Central Lapland Greenstone Belt

DD for Diamond Drilling and **DDH** for Diamond Drill Hole

RC for Reverse Circulation

FINAS for Finnish Accreditation Service

XRF for X-ray fluorescence

ICPES for Inductively Coupled Plasma Emission Spectrometry

QAQC for Quality Assurance and Quality Control

ROM for Run Of Mine

NiEq for Ni Equivalent

1 SUMMARY

The Mineral Resources and Mineral Reserves for Boliden Kevitsa Ni-Cu-PGE Mine are reported in Table 1. The Mineral Reserve figures have been depleted to account for mining up to the end-of-month December 2020.

Table 1. Mineral Resources and Mineral Reserves for Boliden Kevitsa Mine as of 31-12-2020 and 31-12-2019 for comparison.

2020 Classification	Mton	NiS (%)	Cu (%)	Au (g/t)	Pd (g/t)	Pt (g/t)	CoS (%)
Mineral Reserves							
Proved	**70**	**0.19**	**0.31**	**0.09**	**0.11**	**0.17**	**0.01**
Probable	**59**	**0.24**	**0.33**	**0.10**	**0.14**	**0.20**	**0.01**
Total	128	0.21	0.32	0.09	0.12	0.18	0.01
Mineral Resources							
Measured	**43**	**0.19**	**0.29**	**0.08**	**0.11**	**0.18**	**0.01**
Indicated	**132**	**0.23**	**0.34**	**0.07**	**0.07**	**0.13**	**0.01**
Total M&I	175	0.22	0.33	0.07	0.08	0.14	0.01
Inferred	**4**	**0.12**	**0.22**	**0.03**	**0.02**	**0.06**	**0.01**
2019 **Classification**	**Mton**	**NiS (%)**	**Cu (%)**	**Au (g/t)**	**Pd (g/t)**	**Pt (g/t)**	**CoS (%)**
Mineral Reserves							
Proved	**62**	**0.25**	**0.33**	**0.10**	**0.12**	**0.19**	**0.01**
Probable	**78**	**0.23**	**0.31**	**0.11**	**0.16**	**0.24**	**0.01**
Total	140	0.24	0.32	0.10	0.14	0.21	0.01
Mineral Resources							
Measured	**26**	**0.23**	**0.33**	**0.08**	**0.10**	**0.16**	**0.01**
Indicated	**113**	**0.23**	**0.34**	**0.08**	**0.09**	**0.14**	**0.01**
Total M&I	139	0.23	0.34	0.08	0.09	0.15	0.01
Inferred	**18**	**0.22**	**0.33**	**0.06**	**0.08**	**0.13**	**0.01**

- *Mineral Resources are reported exclusive of Mineral Reserves.*
- *Mineral Resource and Mineral Reserves is a summary of Resource estimations and studies made over time adjusted to mining situation of December 31 2020.*
- *Mineral Resources are reported as undiluted, with no mining recovery applied in the Statement. Assumptions for mining factors (mining and selling costs, mining recovery and dilution, pit slope angles) and processing factors (metal recovery, processing costs), during the optimisation process only.*
- *Boliden considers there to be reasonable prospects for economic extraction by constraining within an optimised open pit shell constructed using long term market forecast commodity prices.*
- *A 2021 LOMP production schedule along with mining factors (mining recovery and dilution), processing factors (Recovery and Processing costs) and revenue factors (metal prices, selling costs) were incorporated in a financial model and economic analysis by which Boliden determined the Mineral Reserves to be currently economic.*
- *Mineral Resources are reported above the optimized pit shell and above a NSR marginal cut-off of 10 EUR /t, which reflects the economic and technical parameters, and below the mine design pit shell used to report the Mineral Reserve.*
- *Mineral Reserves are reported within the pit design at a NSR operational cut-off of 20 EUR/t for 2021-2022, and 15 EUR/t from 2023 onwards.*
- *Mineral Reserves include 40 Mt of ore to be mined at the last four years of the LOM (years 2030-2034) for which current TSFA capacity is insufficient. These Mineral Reserves are dependent on Kevitsa identifying a suitable location, designing and obtaining relevant permits for additional TSF capacity within the next 10 years - prior to the tailings deposition.*
- *Tonnes and grades are rounded which may result in apparent summation differences between tonnes, grade and contained metal content.*

Mineral Reserves were reported from the 2020 Mineral Resource block model, using LOMP 2021 NSR cut-offs and the final pit design. No Inferred Mineral Resources are included in the Mineral Reserves. Kevitsa Mineral Resources are reported from the new 2020 Mineral Resource model/estimation, work done by Sonja Pabst, fulltime employed Boliden Senior Resource Geologist, and Member of the AIG Australian Institute of Geoscientists, Membership No. 7473. Statement was performed using a constraining Whittle pit shell to demonstrate RPEEE.

Since both 2020 and new 2020 Mineral Resource models are used, this document refers to PERC compliant Technical Reports by SRK (2020) and by Pabst et al. (2020).

2 GENERAL INTRODUCTION

This report is issued annually to inform the public (shareholders and potential investors) of the mineral assets in the Kevitsa mining operation ("the Kevitsa Mine") held by Boliden Mineral AB ("Boliden"). The report is a summary of internal and Competent Persons' Reports for the Kevitsa Mine. Since 2018 Boliden is reporting following standard from the PERC "Pan-European Standard For Reporting Of Exploration Results, Mineral Resources And Reserves" ("The PERC Reporting Standard 2017"). The PERC Reporting Standard is an international reporting standard that has been adopted by the mining associations in Sweden (SveMin), Finland (FinnMin) and Norway (Norsk Bergindustri), to be used for exploration and mining companies within the Nordic countries.

The Kevitsa Mine's Mineral Resources and Mineral Reserves were previously reported under the FRB's standard at the end of 2017 and 2018 has been a transitional year from FRB to PERC Reporting Standard. Prior to 2017, Mineral Resources and Mineral Reserves were reported according to National Instrument 43-101 under the previous owner FQM.

Boliden considers that Mineral Resource and Mineral Reserve figures released in previous years are accurate and reliable.

2.1 The PERC Reporting Standard

PERC is the organisation responsible for setting standards for public reporting of Exploration Results, Mineral Resources and Mineral Reserves by companies listed on markets in Europe. PERC is a member of the CRIRSCO, and the PERC Reporting Standard is fully aligned with the CRIRSCO Reporting Template.

The PERC Reporting Standard sets out minimum standards, recommendations and guidelines for Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves in Europe.

2.2 Definitions

Public Reports on Exploration Results, Mineral Resources and/or Mineral Reserves must only use terms set out in the PERC standard.

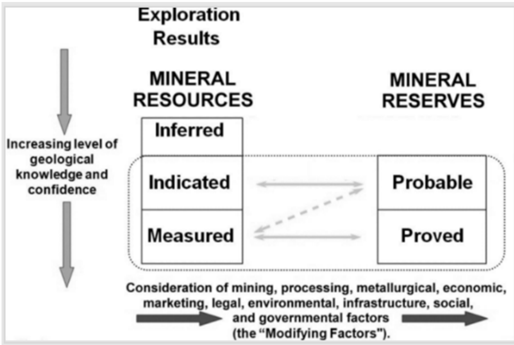

Figure 1. General relationship between Exploration Results, Mineral Resources and Mineral Reserves (PERC 2017).

2.2.1 Mineral Resource

A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling.

2.2.2 Mineral Reserve

A Mineral Reserve is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at Pre-Feasibility or Feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified.

2.3 Competence

The compilation of this report has been completed by a team of professionals who work directly for Boliden Mineral AB. The report has been reviewed and approved by Gunnar Agmalm and Seth Mueller. Gunnar Agmalm is Boliden's Ore Reserves and Project Evaluation manager and a member of AusIMM and FAMMP. Seth Mueller is Boliden's Senior Development Engineer and a member of FAMMP, as such he can act as a Competent Person according to PERC.

Table 2. Contributors and responsible competent persons (CP) for this report

Description	Contributors	Support to CP	Responsible CP
Compilation report	Loraine Berthet		Gunnar Agmalm
Geology and Resource Estimation	Loraine Berthet	Sonja Pabst	
Mineral Processing	Benjamin Musuku	Sami Hindström	
Mining	Jukka Brusila	Sami Ojanen	
Environmental and legal permits	Johanna Holm	Anniina Salonen	Seth Mueller

3 KEVITSA MINE

The Kevitsa Mine is a Ni-Cu-PGE open pit mine located at Sodankylä, Finland.

The mined out ore tonnage for 2020 was 9.489 Mt, which is an increase from last year by 1.8 Mt. Total mined material (ore + waste) was 39.452 Mt at 2020.

Total milled material in 2020 was 9 185 kt. Nickel metal annual production was 11 074 t in Ni concentrate. Copper recovery improved by 1.3 % units to Copper concentrate, and total copper recovery improved by 1.9 % units. Cu metal annual production was 24 294 t in Cu concentrate and 3 108 t in Ni concentrate.

Cu is the most valuable commodity in the Kevitsa Mine, even though the Kevitsa Mine produces more Ni concentrate. Revenue from Cu concentrate was 44.1 % and 32.1 % from Ni concentrate. Other valuable commodities are Au, Pd and Pt, which are payable in Cu concentrates and Co in Ni concentrate (in addition to Pt and Pd). Table 3 presents the revenue per commodity at Kevitsa.

Table 3. Percentage of 2020 total revenue per element at Mineral Reserve average grades.

Commodity	Revenue (%)
Cu	44.1
Ni	32.1
Co	1.2
Au	6.0
Pd	9.8
Pt	6.7

3.1 Major changes

- Several NSR formulas and cut-offs were used during 2020 for grade control. They are presented in Table 4.

Table 4: NSR revenue factors by commodity and cut-off applied for grade control in 2020

	July 2019	February 2020	March 2020	July 2020	August 2020	January 2021
Commodity	**Factor**	**Factor**	**Factor**			**Factor**
Cu	38.7	38.83	39.53			43.76
NiS	48	72.11	46.91			62.54
CoS	81.4	44.93	44.40			54.65
Au	8.9	12.51	13.56			14.79
Pd	7.4	12.64	22.37			17.74
Pt	6.5	7.96	7.55			7.47
NSR cut-off EUR	**15**	**15**	**15**	**11**	**13**	**17**

Note: NSR cut-off was lowered to 11 € in July in order to compensate primary crusher fire that happened May 29th 2020. Mobile crushing fleet was contracted while repair work was performed.

- MRE/Resource model by SRK in June 2020, estimation parameters have been implemented in production in July 2020.
- Modifications on pit designs for LOMP and Budget 2021 were used for reserve calculation.
- New MRE/Resource model by S. Pabst in December 2020 was used for resource calculation.
- Infill drilling campaign was completed during 2020 and taken into account in MRE in addition to an important backlog from 2017-2019 infill drilling campaigns.
- Whittle pit optimisation was used to define RPEEE from December 2020 new MRE.

3.1.1 Technical studies

Technical studies conducted during the year:

- The structural geology model was reviewed. Faults are no longer considered to act as boundaries for grade continuity.
- Updated Mineral Resource grade shells are informing the Resource Model.
- Mineral Resource Estimate/Resource model was updated.

Information on the technical studies can be found from the report of 2020 New Mineral Resource Estimate, Pabst et al. (2020).

3.2 Location

The Kevitsa Mine is located some 142 km north-northeast of Rovaniemi, the capital of Finnish Lapland, and approximately 140 km north of the Arctic Circle in the Municipality of Sodankylä. Sodankylä is located approximately 40 km south by road and the nearest village Petkula is located 8 km west of the property. A location map is presented in Figure 2. More detailed description in Pabst et al. (2020).

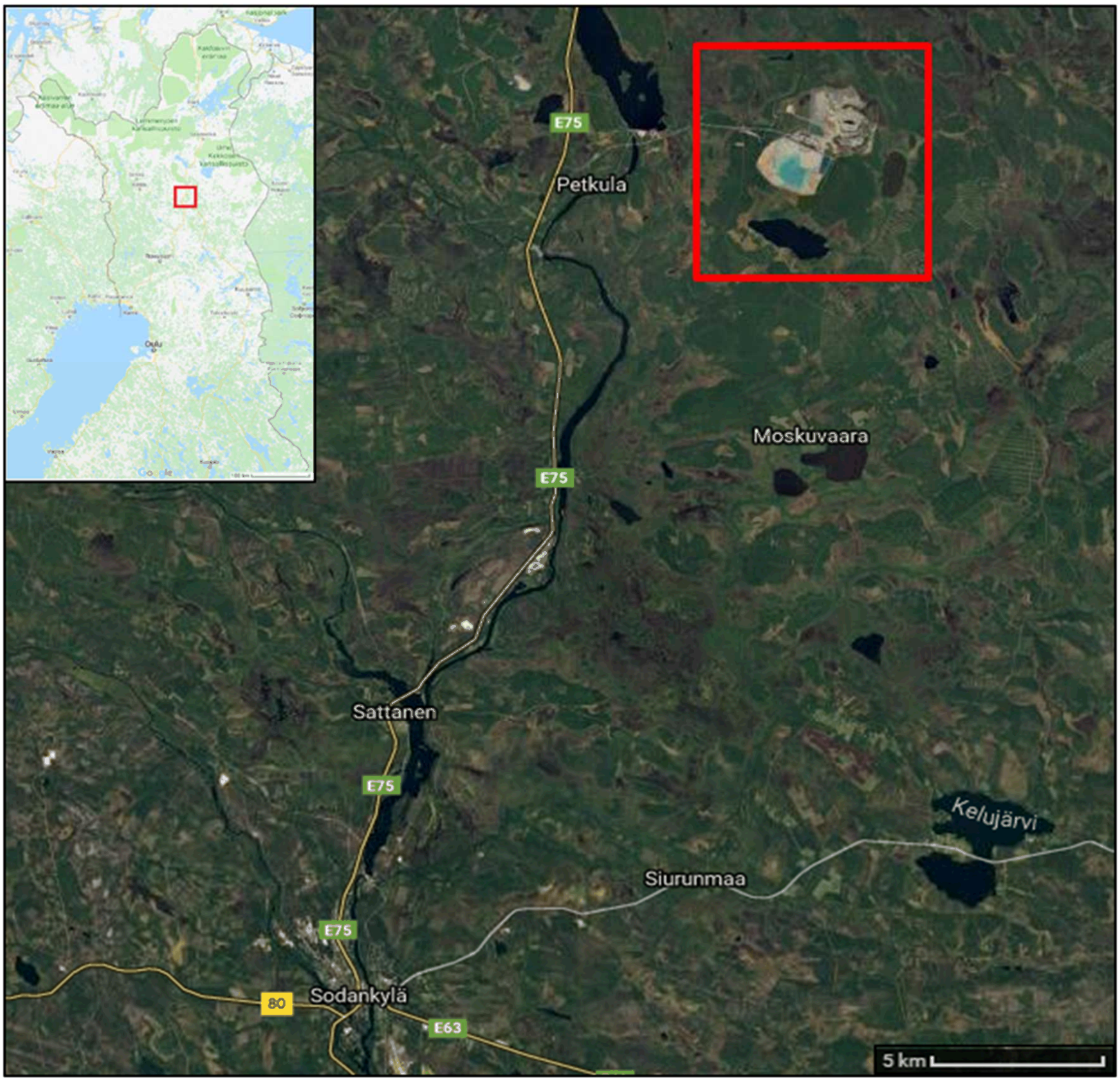

Figure 2. Map of the Kevitsa Mine property (red square) in relation to Sodankylä

3.3 History

An historical summary of the Kevitsa Mine is summarised in Table 5, production history is in Table 6 and process history in Table 7. A more detailed description of the project history from exploration to production can be found in Gregory et al. (2010) and Gray et al. (2016).

Table 5. Kevitsa Project History

Kevitsa Project History	
1960s	Mapping of outcrops and river boulders
1970s	Outokumpu reconnaissance exploration work
1984	Initial diamond drilling (GTK)
1984-1987	Ground geophysical surveys (magnetic, gravity, electromagnetic) and basal till sampling
1987	**Diamond drilling and discovery of Ni-Cu mineralization**
1990	Diamond drilling
1992-1995	Main diamond drilling and trenching programme
1994	Airborne Survey GTK
1996-1998	Till geochemistry and drilling and processing test work undertaken by Outokumpu Metals & Resources
2000	Project owned by SGL
2008	Project owned by FQM
2010	Construction commenced
2012	Commercial production
2016	**FQM sells the Kevitsa Mine to Boliden Mineral AB**
2020	Commissioning of 9.5 Mtpa expansion project, with design capacity of 9.9 Mtpa

Table 6.Waste and ore production history of the Kevitsa Mine in Mt

Production		**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**Total to date**
Ore	[Mt]	3.37	5.81	6.93	6.63	7.67	8.28	7.93	7.68	9.49	63.79
Waste	[Mt]	4.23	16.01	21.21	30.39	31.9	34.2	33.5	32.23	29.96	233.63
Total	[Mt]	7.6	21.82	28.14	37.02	39.57	42.48	41.4	39.91	39.45	297.39

Table 7. Processed metals history of the Kevitsa plant

Production		2012	2013	2014	2015	2016	2017	2018	2019	2020	Total to date
Milled, tonnes	[kt]	3 137.7	6 313.6	6 711.2	6 665.5	7 391.7	7 911.2	7 582.1	7 536.3	9 185.9	62 435
Cu metal in concentrates	[t]	8 093	14 775	17 535	17 204	20 571	29 957	27 498	19 736	27 402	182 771
Ni metal in Ni concentrate	[t]	3 874	8 963	9 434	8 805	11 100	13 777	13 948	9 021	11 074	89 996
Co metal in Ni concentrate	[t]	167	401	422	369	501	587	591	445	495	3 978
Au in concentrates	[oz]	6 914	12 875	14 110	14 110	17 143	22 822	22 223	14 368	20 591	145 032
Pt in concentrates	[oz]	15 097	33 369	37 390	35 133	41 553	50 019	55 592	33 629	45 027	346 553
Pd in concentrates	[oz]	13 298	27 020	28 501	27 761	31 782	36 015	40 812	24 654	30 251	259 857

3.4 Ownership

In accordance with Finnish regulations, BKMOY owns the land within the mining concession. The land was previously under the control of the Finnish State Forestry Commission, Metsähallitus, who are the principal landowner of the surrounding property of the region. Kevitsa Mine does not pay any royalties because in Finland the mining concession holder pays annual compensation (excavation fee) to the landowner.

3.5 Permits

The site operating entity is BKMOY. The Ministry of Economic Affairs and Employment of Finland originally granted mining concession No. 7140 to FQM Kevitsa Mining Oy (owned by FQM) on 28th September 2009. BKMOY has also applied for an expansion of the mining concession for the potential requirement of building new infrastructure around the mine area. The valid and applied mining concessions and the surrounding exploration permits are presented in Table 8 and shown in Figure 3.

The environmental permit was granted in July 2009. At 2014, new environmental permit was granted for mining 10 Mt of ore per annum. BKMOY shall submit an application for review of the environmental permit to the authority by 31st August 2021. According to the assessment made by the company itself, some of the permit clauses are necessary to review. The existing capacity of TSFA is not sufficient. Boliden is in the process of conducting the required investigations for TSFA 2, and plans on applying for additional environmental permits in the future. EIA is done for five different alternative locations and for 203 Mt tailings. A new closure plan for Kevisa mine has been submitted to the authorities in autumn 2019 and the permitting process is proceeding. As a potential social issue, the contract from 2009 with the reindeer herders to compensate their losses is to be updated before 2026.

BKMOY has eight valid exploration permits granted by TUKES around the mining concession. One permit is awaiting the three-year validity extension. The company has also two pending exploration permit applications. BFXOY operates exploration in the permit areas and holds one valid exploration permit in the near mine area (one is waiting the three-year validity extension). BFXOY has also two pending exploration permit applications.

Table 8: Table of tenements

Tenement type	Owner	Area (km2)	No. of blocks	Permit ID
Valid Mining Concession	BKMOY	14.13	1	7140
Applied - Mining Concession, Extension	BKMOY	4.01	3	7140
Valid Ore Prospecting Permits	BKMOY	64.02	8	ML2014:0097 ML2015:0037 ML2015:0038 ML2015:0039 ML2016:0054 ML2016:0055 ML2017:0002 ML2017:0003
Valid Ore Prospecting Permits	BFXOY	14.45	1	ML2015:0064
Applied Ore Prospecting Permits	BKMOY	15.06	2	ML2014:0111 ML2014:0112
Applied Ore Prospecting Permits	BFXOY	14.07	2	ML2014:0113 ML2014:0114
Applied - Ore Prospecting Permits - Extension of the Validity	BKMOY	0.12	1	ML2013:0079
Applied - Ore Prospecting Permits - Extension of the Validity	BFXOY	10.69	1	ML2013:0078

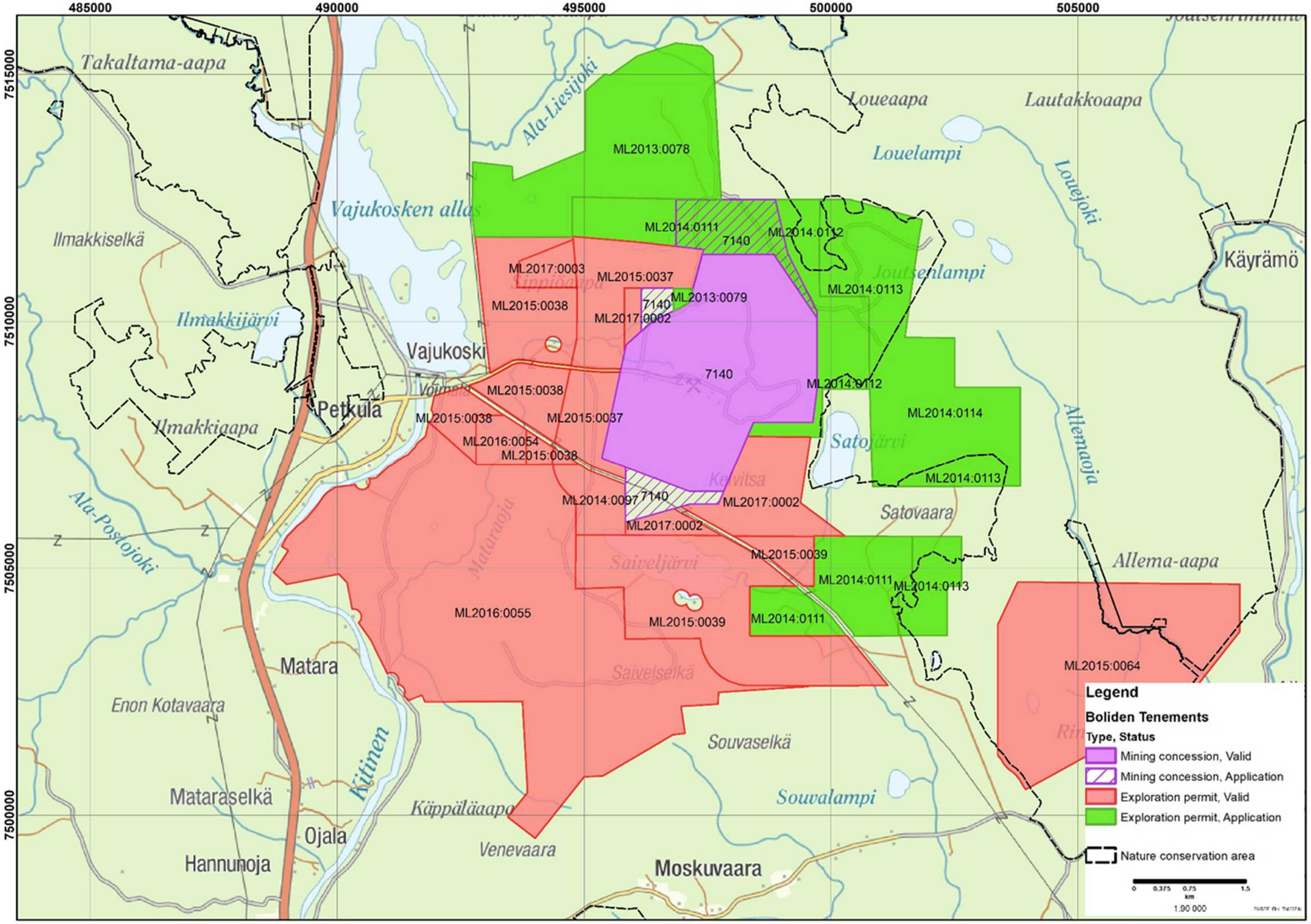

Figure 3: BKMOY and BFXOY tenements

3.6 Geology

The description of the geological setting and mineralisation are largely reproduced from Lappalainen and White (2010).

3.6.1 Regional

The Kevitsa igneous complex lies within the CLGB located within the Precambrian Fennoscandian Shield (Figure 4). CLGB is a large area that consists of volcano-sedimentary rocks of Paleoproterozoic age and it is divided to seven stratigraphical groups (Räsänen et al. 1996). Which are from oldest to youngest: Salla, Onkamo, Sodankylä, Savukoski, Kittilä, Lainio, and Kumpu Groups Savukoski group supracrustal rocks that are enveloping Kevitsa intrusion. It is representing a major marine transgression dominated by dominated by black schists, phyllites, tuffites, mafic metavolcanics and the uppermost unit of ultramafic metavolcanics. According to Räsänen et al. (1996) these rocks are polyfolded, and thrusted resulting in overturning and structural repetition of the stratigraphy. There are three major ductile deformational events (D1-D3), simultaneous and later shear zones that are related to regional structures of the CLGB and are described in detail by Hölttä et al. (2007).

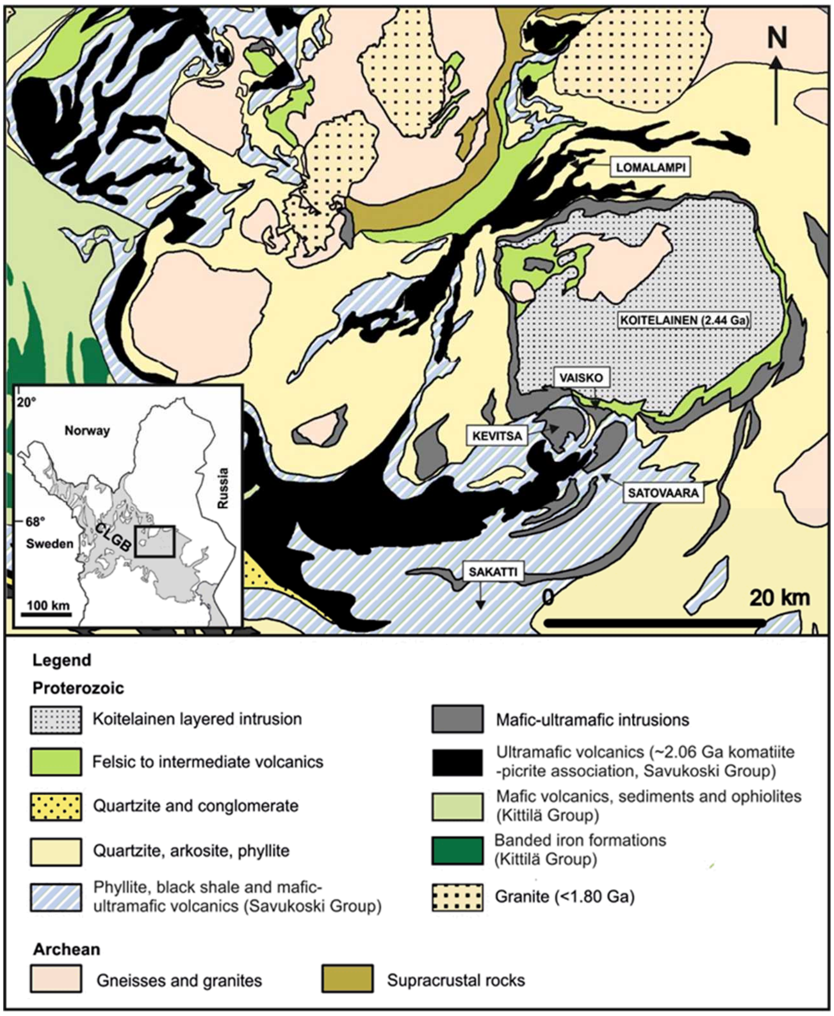

Figure 4. Regional geological map from Luolavirta et al. (2017)

3.6.2 Local

Kevitsa igneous complex layered ultramafic-mafic intrusive rocks dated at 2058 ± 4 Ma (Mutanen & Huhma, 2001). The body of the intrusion extents to 2 km. The Kevitsa intrusions ultramafic units are on lower parts of the intrusion, which is overlain by the gabbroic rocks that are located on the South-West side of the ultramafics. There is a dunite unit in the middle of the deposit, which is disconcordant to magmatic layering as well in the bottom of the intrusion. Xenoliths are common in the ultramafics and within the ore body. They are variable in sizes and by composition; they typically are sedimentary, mafic or ultramafic. There are also several mafic dykes, in the intrusion, ranging in different ages but they are not very voluminous. Geological map of Kevitsa igneous complex is presented in the Figure 5.

The Kevitsa area has undergone several tectonic and metamorphic events which are evident in the intrusion and in the country rocks (Hölttä et al. 2007). The NNE-SSW trending Satovaara fault, and other structures which are associated with it, are a structurally significant feature of the area. The Satovaara fault has deformed the eastern margin of the Kevitsa intrusion and within the deposit, there are smaller scale structures in similar trend.

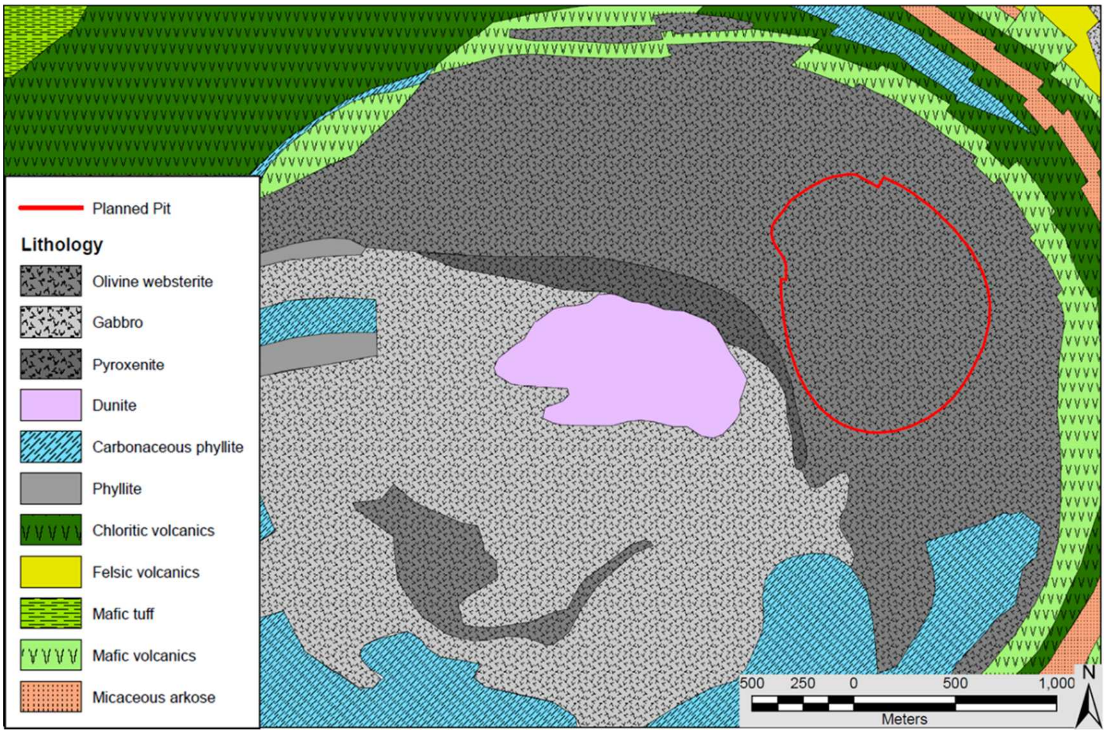

Figure 5.Geological map of the Kevitsa igneous ultramafic complex

3.6.3 Property

The Ni-Cu-(PGE) mineralization is located in the centre of the intrusions ultramafic rocks, and it is hosted typically by olivine websterite and its variants. In the broad sense, they can be described as clinopyroxene-dominated rocks with 0-30 % orthopyroxene, 5-25 % olivine and 0-10 % plagioclase. These rocks have very subtle visual and geochemical differences. The distribution and form of observed mineralogical and geochemical patterns are interpreted to represent multiple magmatic phases. There are no internal contacts to these pulses, but in many instances the base of one pulse (olivine websterite) will grade relatively sharply into the upper part of another pulse (plagioclase bearing olivine websterite). These layers are irregular in shape. Geochemically, differentiation within these pulses is most clearly demonstrated by Al2O3. It is proposed by Luolavirta et al. (2017), that the Kevitsa magma chamber was initially filled by stable continuous flow ("single" input) of basaltic magma followed by differentiation in an at least nearly closed system. In the following stage, new magma pulses were repeatedly emplaced into the interior of the intrusion in a dynamic (open) system forming the sulfide ore bodies. This model would explain the contrasting intrusive stratigraphy in the different parts of the intrusion, which likely is reflecting different emplacement histories. A schematic stratigraphy column after Luolavirta (2017) is given in Figure 6.

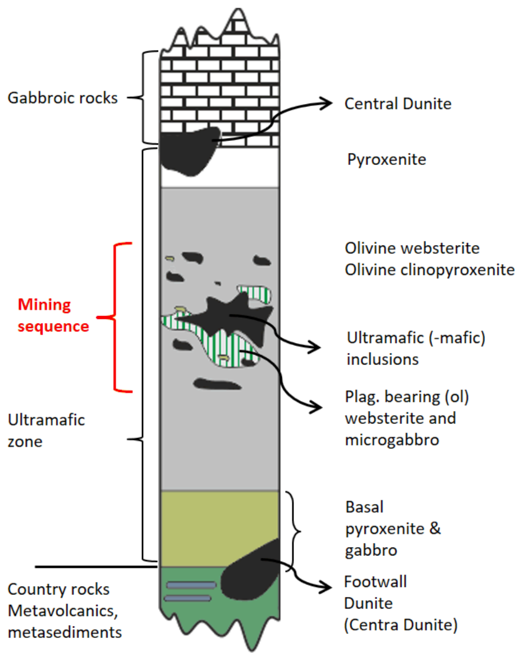

Figure 6. Schematic stratigraphy column of Kevitsa intrusion by Luolavirta, 2017

The most widespread alteration in Kevitsa resource area is amphibole alteration of ferromagnesian minerals. The alteration is typically pervasive in style and has generally "'sharp boundaries" i.e. it does not grade out. Pervasively amphibole altered rocks are often accompanied by carbonate alteration: there can be millimetre- to metre-scale carbonate or carbonate-quartz veining. The first alteration phenomenon in Kevitsa, being also common, is the serpentine alteration where the olivine is replaced by dark serpentine. Magnetite was initially primary mineral but it is also associated with other alteration styles as veins like serpentine and carbonate alteration. Epidote alteration is associated with the rodingite dykes. Actinolite-chlorite alteration seem to be associated with the structures. Narrow actinolitic selvedges are also common on carbonate ± quartz vein margins, but these wider, green actinolite features are a distinctive vein set. Talc-carbonate alteration is strongly associated with the shear zones, late fractures and veins representing CO2 bearing fluids. The style can range from selective replacement of ferromagnesian species to pervasive alteration of the rock.

3.6.4 Mineralization

The known economic Ni-Cu-PGE mineralization is disseminated in style. While having some minor semi massive sulphide veins. Overall mineralization volume is irregular in shape, and it is cut by several faults which locally are offsetting the mineralization. The predominant mineralization type is Ni-Cu, comprising 95 % of the deposit. Within it, are mineralization domains, which can be separated by the distribution of Cu and NiS grades, and as well with the amount of PGE's. The so-called Ni-PGE mineralization is in relatively small in volume.

The main economical minerals are chalcopyrite and pentlandite, but mineralogically speaking pyrrhotite is the most common sulphide. Typically, the sulphide grain size varies from fine to medium, and the grain aggregates are in the interstitial spaces of the silicates. In unaltered rocks the sulphide silicate grains are smooth and plain but in amphibole altered rocks the boundaries are irregular and serrated. Chalcopyrite generally occur as large anhedral grains, sometimes with cubanite and talnakhite, and as fine intergrowths within the gangue silicates. Pentlandite can be coarse-grained sub-euhedral, smaller intergranular grain bands between silicates and pyrrhotite, and "exolution flame" inclusions within pyrrhotite or pyrite of very fine grain size. In addition to pentlandite the nickel occurs in crystal lattice of some silicate minerals such as olivine, clinopyroxene and tremolite. The nickel in silicates is not recoverable in metallurgical process and therefore sulphide nickel is analysed by selective leach method. Pd and Pt typically occur as sulfosalts, such as arsenides and tellurides. According to Kojonen et al. (2008), over half of the PGE carrying minerals are as inclusions in amphibole, serpentine and chlorite. PGE carrying minerals which are related to sulphides occur mostly on sulphide grain boundaries, inclusions in sulphides or in late fracture fillings in pentlandite.

3.7 Drilling procedures and data

More detailed information of drilling procedures and data, as well information from previous campaigns in Kevitsa can be found from Gregory et al. (2010), Gray et al. (2016) and from Kevitsa MRE Report for 2020 from Pabst et al. (2020). Work and results of the BKMOY DD campaigns 2017 to 2020 can be found in Berthet (2020a).

3.7.1 Drilling techniques

Mineral Resource definition, infill and exploration drilling has been done by DD. The new 2020 Kevitsa MRE from Pabst et al. (2020) includes data from 616 diamond drill holes, which incorporates 62 new infill holes comparing to 2020 Kevitsa MRE from SRK (2020). New DDH that were not available for the previous MRE include 11 DDH drilled in 2017, 2 DDH from 2018 and 21 DDH drilled in 2019 with backlog of data rectified in 2020. BKMOY and BFXOY logged, assayed, verified and loaded into the database before September 2nd, 2020.

Both MRE performed in 2020 include grade control RC drilling, totalling 6 222 RC holes in new 2020 Kevitsa MRE.

3.7.2 Downhole surveying

The collar positions have been surveyed by the Mine Survey Department and by independent contractor, Rovamitta Oy, in previous years. All drill collar locations are referenced to Finnish National Grid Coordinate System Zone 3 coordinates. The drilling contractors have conducted the downhole surveying at the Kevitsa Mine; hence, the surveying tool has changed depending on the contractor and the year. There are drill holes, which are missing deviation survey and have been used in Mineral Resource estimates (Pabst et al., 2020). 126 historic GTK drill holes which are relatively short (average 40.5 m), and nine holes with an average depth of 136 m drilled in 2011, are missing deviation surveys. Several grade control RC holes have no method information (N/A) and where drilled prior to the 2016 MRE; between 18 and 100 m short vertical holes. These holes were used for MRE update as the expected deviation was not considered to be material.

3.7.3 Sampling

Sample preparation and analysis has good evidence of being managed in a secure manner at both on and off site preparation and laboratory facilities. Drilling, logging and sampling data were collected from diamond core and RC cuttings by reputable companies and suitably trained persons. All geological data held by the Kevitsa Mine is loaded to SQL database with a Maxwell's DataShed front end.

All of the DDH were logged and then marked for the sampling intervals, sample numbers and QC samples. Then the core was photographed as dry and wet and cut according the sample list and marks in the core by the Kevitsa Mine sample technicians. GTK and SGL were systematically sampling in two meters intervals. FQM, BFXOY and BKMOY were also sampling in two meters intervals, however were honouring lithological contacts - sample intervals do not cross the contacts.

The cut core was packed in sample bags with sample tags and numbers and sent to an external and independent laboratory for sample preparation and analyses. BKMOY uses Labtium Oy ("Labtium") laboratory based at Sodankylä. Chain of custody forms were sent with the samples to Labtium and a copy retained on site for reference. Samples were prepared and analysed at Labtium and results are then electronically uploaded into a secure database system DataShed. Labtium is a FINAS-accredited testing laboratory T025 meeting the requirements of international standard SFS-EN ISO/IEC 17025:2005. Regular laboratory visits and audits were completed by the geological team from Kevitsa since 2009. All the analyses methods per drilling campaign and the primary laboratory are described in Table 9.

Table 9. Summary of analytical methods used by different drilling campaigns and the primary laboratory used.

Campaign	Primary laboratory	Aqua Regia[1]	Selective Leach	Multi element	Fire Assay[2]
		Total Ni, Cu, S etc	Sulphidic Ni, Cu, Co	Ni, Cu etc	Au, Pt, Pd
GTK	GTK	X			X
SGL	GTK, Labtium[3]	X	X		X
FQM KMOY	Labtium Rovaniemi	X	X		X
FQM FinnEX	ALS Loughrea			X	X
BKMOY and BFXOY	Labtium Sodankylä	X	X		X

RC samples have used XRF Labtium analysis method 195X since 2012 for total nickel (Ni), total copper (Cu) and cobalt (Co). Despite the method change from Aqua Regia ICPES to XRF in 2012, all RC results for total Ni and total Cu have been used for 2020 MRE. Based on the validation, these two methods are comparable when analysing Ni and Cu. However, in the future, additional data for validation would be preferred.

3.7.4 Density

A total of 369 DDH within the resource area have density data collected by a conventional gravimetric (Archimedes) method. Data was collected weighting core in air and in water. Density was calculated by dividing the weight in air by the difference between weight in air and weight in water. The different density sampling approach over time resulting in density measurements representing core intervals of different lengths make it difficult to assume the same statistical support during estimation, further details can be found in Pabst et al. (2020). All density measurements were completed without drying due to the very low moisture content. A SOP is in place (Vierelä et al., 2019). Specific gravity (SG) is approximated to density (SG values are reported in the database).

3.7.5 QAQC

BKMOY and BFXOY have practiced QAQC for the duration of their DD campaigns. There has been QAQC programs carried out through the project history. BKMOY inserts blanks, commercial standards, quarter core duplicates per sample batch sent out. This program is also applied to RC samples.

[1] Full set of elements analysed; Ag, As, Cd, Co, Cr, Cu, Fe, Mn, Mo, Ni, Pb, Sb, S
[2] The majority of samples were analysed using lead collection fire assay
[3] SGL switched from using GTK Rovaniemi to using Labtium Rovaniemi Laboratory in September 2007. Some of the drill holes were submitted for analysis by FQM after acquiring SGL in 2008.

3.8 Exploration activities

Boliden conducts exploration work within the Kevitsa Mining Concession and adjacent Exploration Permit areas through BFXOY, a separate entity from the mine operator. Since the release of the 2016 Kevitsa MRE (Gray et al. 2016), BFXOY carried out its first DD campaign focusing primarily in resource definition from March to June 2019, consisting of 21 DDH including extensions of two older holes (KEV18003 and KEV18004). The purpose of the drilling campaign was upgrading existing and find new resources adjacent to the Kevitsa pit. Drill core was subject to the same geological logging, geotechnical logging and measurements, sampling and assaying procedures than those used by BKMOY.

Work and results of the BFXOY resource drilling campaign 2020 can be found in Voipio (2020). Between April and June 2020 15 DDH totalling close to 6 600 m were drilled by the exploration department Boliden FinnEx. All BFXOY DD results were included in new 2020 Kevitsa MRE from Pabst et al. (2020).
More detailed descriptions can be found in Pabst et al. (2020).

3.9 Mining methods, processing and infrastructure

This chapter is largely reproduced from Gray et al. (2016). More detailed description of mining methods, processing and infrastructure can be found from Gregory et al. (2010) and Gray et al. (2016).

All infrastructure required by the Mine is in place including sealed roads, power lines and substations, process plant, site offices, workshops, tailings dam, and waste storage facilities.

3.9.1 Mining methods

The Kevitsa Mine is an open pit mine operation using conventional truck and shovel operations. BKMOY owns a mining fleet and uses contractor to assist ore re-handling on the ROM pad for primary crusher feed. The onsite technical group supervises the contractor. Since April 2020, ore and waste mining is not assisted anymore by contractor services.

The Kevitsa Mine commenced mining operations in autumn 2011, Hartikainen was then contracted to mine waste from stage 1. Mining has proceeded from initial excavation: stage 1 and stage 2 have been mined out and stage 4 mining has started in 2019. A strategic project will be held during 2021 in order to revise the life of mine with the feasibility of a possible expansion to an additional pushback, stage 5.

The mining sequence broadly follows the sequence of events as follows:

- Grade control RC holes delineate the ore zones
- Blast patterns designed to reduce material throw and ore dilution - and a Blast Master planning process controls sequence of operation
- When possible, ore and waste blasted and mined separately as fragmentation requirements vary significantly. Blast movement monitoring is in place to minimize dilution and ore loss for mixed blasts
- Waste removed on each 12 m bench prior to the mining of ore, removal of waste in the successive cut-backs utilizes planned bulk systems of operation
- Trim blasts and perimeter blasting utilized to ensure pit wall profiles are cut to the correct angle and wall damage minimized
- Face shovels load rock into 225 t class trucks and ore hauled from the pit to the finger stockpiles which are integral part of the feed sequence to ensure ore blending can be achieved, haulage efficiencies can be maximized and operational flexibility enhanced at all times

3.9.2 Mineral processing

The mineral processing facilities at Kevitsa have undergone several modifications and an expansion since commissioning in 2012. In 2020, 9.5 Mtpa expansion project was commissioned, with a design capacity of 9.9 Mtpa.

The following unit processes comprise the Kevitsa Metallurgical facility (Figure 7):

- Primary crushing of ROM ore from the open pit (delivered by dump truck).
- Screening of the primary crushed ore to produce three products -coarse lumps and fines as feed to the AG mills, and a mid-size product for the pebble mill.
- Pebble storage bin 750 t live capacity.
- Crushing of excess pebbles.
- A single stockpile of the mixed coarse and fine ore, with 15,000 t live capacity (16.7 h).
- Two 7 MW AG mills operating in parallel on material fed from the stockpile.
- The two AG mills operate in partial closed circuit with hydrocyclones, and with transfer of AG mill discharge slurry to the pebble mill by pump. Cyclone overflow is final product to flotation.
- One 14 MW AG mill operating on material feed from stockpile and in complete closed circuit with hydrocyclones.
- A single pebble mill in closed circuit with cyclones to produce a final product (P80) size of 95 µm.
- Sequential flotation of copper and nickel concentrates.
- Copper flotation cleaning in four stages with regrind of scavenger concentrates product.
- Nickel flotation cleaning in five stages with regrind of the 2nd cleaner concentrate product.
- Flotation of sulphide rich concentrate from the nickel scavenger flotation tails to produce a low Sulphur content tailings with low acid forming capacity.
- Dewatering of Cu and Ni concentrates by thickening and filtration.
- Deposition of primary tailings into conventional (unlined) TSF.
- Deposition of sulphide rich concentrate into a dedicated lined tailings storage facility.

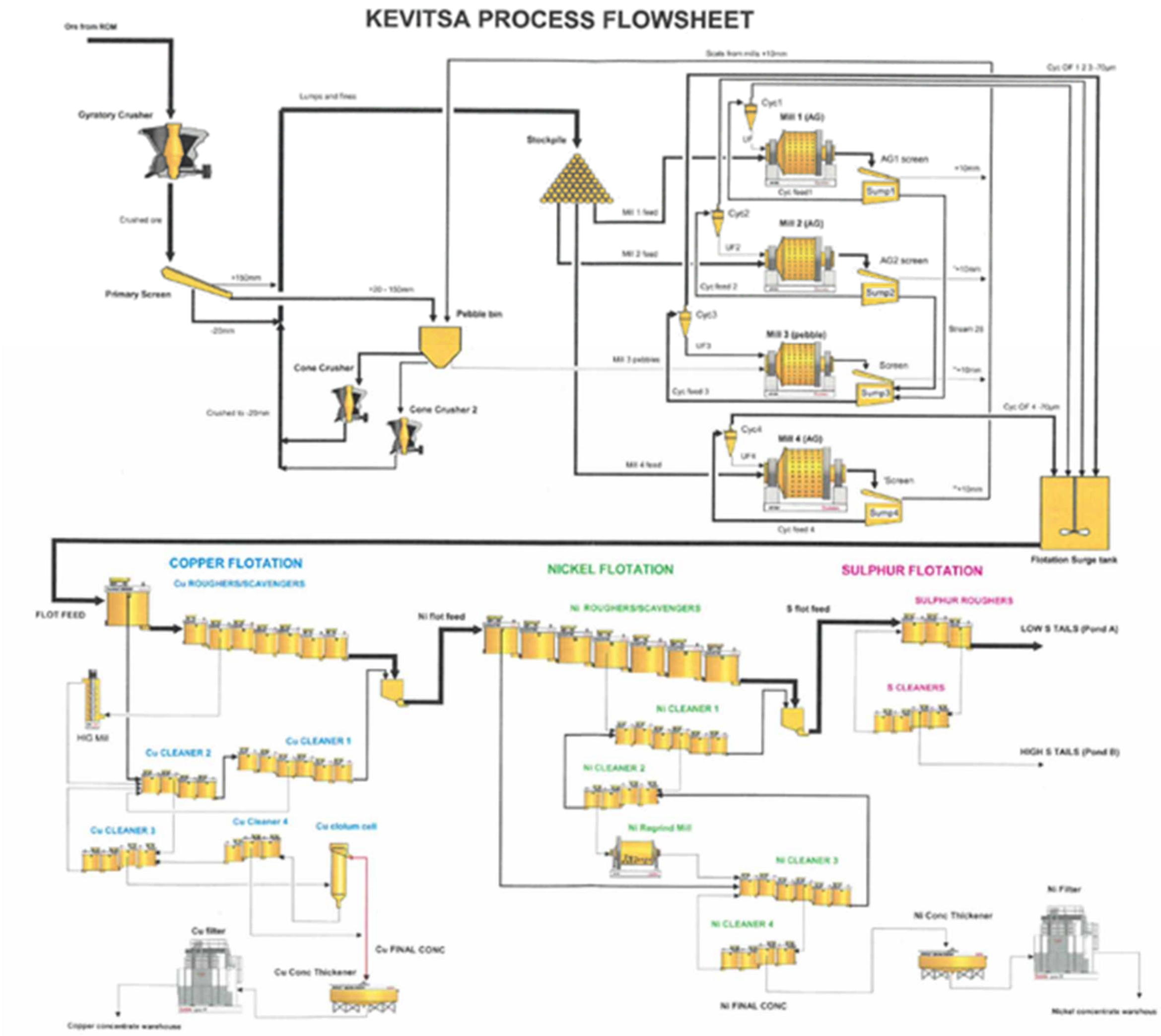

Figure 7. Simplified flowchart of the Kevitsa Mine process

Historical test work in the 1990's and early 2000's indicated that by flotation a bulk sulphide concentrate containing Cu and Ni could be produced successfully. The grades of the bulk concentrate produced during these metallurgical studies did not meet the requirements for downstream processing and the test work for producing separate saleable concentrates of copper and nickel was not successful. From 2004 to 2009 metallurgical testing was carried out at the laboratories of GTK (formerly VTT) in Outokumpu, Finland, with the focus being on developing a flotation process to produce separate smelter-grade copper and nickel concentrates. This work was carried out at bench scale and in a pilot plant campaigns. Numerous operational test work programs have been run in the site laboratories. Results have indicated unsuccessful separation of copper and nickel in the bulk concentrate to produce separate saleable concentrates.

3.10 Prices, terms and costs

Boliden's planning prices, which are an expression of the anticipated future average prices for approximately 10 years, are presented in Table 10. The maintenance, mining, processing and concentrate transporting costs are included in calculations for the cut-off at the Kevitsa Mine.

Table 10. Long term planning prices used in Kevitsa Mine Reserve and Resource reporting

		Prices	
	Mineral Resources	Mineral Reserves	Mineral Reserves
	Long Term 2020->	Budget 2021	Long Term 2022->
Copper	6 600 USD/t	6 630 USD/t	6 600 USD/t
Gold	1 200 USD/oz	1 963 USD/oz	1 300 USD/oz
Nickel	16 000 USD/t	15 429 USD/t	16 000 USD/t
Palladium	1 000 USD/oz	2 172 USD/oz	1 200 USD/oz
Platinum	1 000 USD/oz	925 USD/oz	1 000 USD/oz
Cobalt	25 USD/lb	15.38 USD/lb	20 USD/lb
EUR/USD	1.18	1.20	1.17

The NSR formula is based on process recovery figures from the process plant as well as general terms for payables and deleterious elements. It assumes the recoveries and prices, which are set from Boliden's Budget Prices respective Long-Term Prices (LTP).

NSR formulas and cut-off used are described in 3.11.2 Mineral resource reporting and 3.12 Mineral Reserves.

3.11 Mineral Resources

The new 2020 Kevitsa Mineral Resource was estimated in December 2020 by Sonja Pabst, fulltime employed Boliden Senior Resource Geologist, and Member of the AIG Australian Institute of Geoscientists, Membership No. 7473. Statement was performed using a constraining whittle pit shell to demonstrate RPEEE. Eleven grade elements (Cu, Ni(S), Co(S), Au, Pt, Pd, Cu(S), Fe, Mg, Ni and S), twenty-six mineral concentrations[4] and density were estimated. An additional 62 DDH were utilized in the estimate compared to the previous 2020 Mineral Resource estimate. New MRE includes 616 DDH and 6 222 RC holes from 2020 drilling campaign and previous years' backlog, which was rectified in 2020.

Mineral Resource grade shells were generated using Leapfrog Geo, the model consists of two mineralisation domains defined by a combined cut-off of Cu and NiS; 'Normal ore' and 'NiS PGE ore', described in Berthet (2020b). An additional domain called 'False ore' was modeled; it has previously been described by Mutanen (1997) and removes S-rich mineralisation with un-economical NiS and Cu grades from the rest of the mineralisation volumes. As 'False Ore' is causing high volumes of waste that requires to be capsulated in order to avoid acid mine drainage (AMD), it is of great importance for Kevitsa LOMP to quantify the corresponding tonnages accurately.

Statistical analysis was undertaken using Snowden Supervisor. The model extent was defined to cover the stage 5 pit design and all drilling. Grade estimation was completed using Ordinary Kriging (OK) in Leapfrog Geo EDGE. For a detailed description of the estimation methodology, including statistical data analysis, grade variography, estimation parameters and model validation, refer to Pabst et al. (2020).

[4] albite, amphibole, anorthite, biotite, calcite, chalcopyrite, Fe chlorite, Mg chlorite, cubanite, diopside, dolomite, enstatite, hornblende, hypersthene, magnetite, marcasite, milerite, olivine, Fe pentlandite, Ni pentlandite, hexagonal pyrrhotite, monoclinic pyrrhotite, quartz, serpentine, talc, troilite

3.11.1 Model depletion

Sami Ojanen, fulltime employed Boliden Senior Development Engineer, was in charge of recoding, depleting and reporting the new 2020 Kevitsa Mineral Resource for the end of year (EOY) reporting period (to 31 December 2020). The following data was supplied:

- New 2020 Mineral Resource block model by S. Pabst in Datamine-format
- 12 November 2020 survey pickup
- forecast EOY position for 2020
- LOMP 2021 stage 4 final pit design

The summation of Mineral Resources was conducted by solids interrogation in Deswik Cad. The RPEEE pit shell, exported from Whittle (by centroids), was extruded and closed into a solid and depleted by the actual LOMP 2021 final pit design and actual production surface. A long section along 3499000mN is presented in Figure 8, illustrating the remaining Mineral Reserves and Mineral Resources.

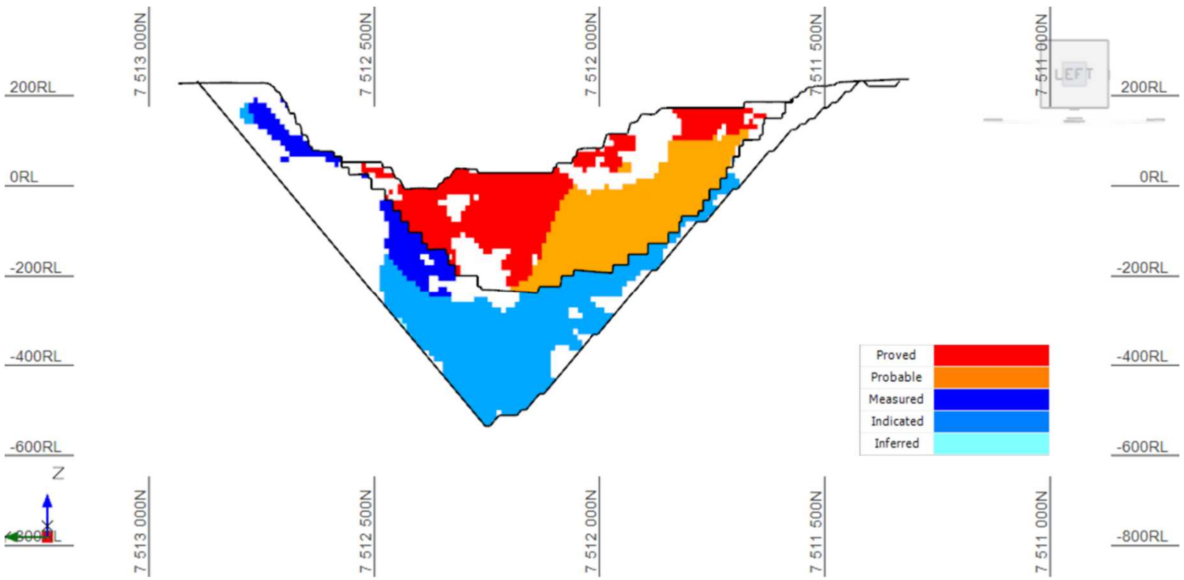

Figure 8. N-S long section along 3499000mN, illustrating the Mineral Reserves and Mineral Resources as of 31 December 2020 (below projected EOM December 2020 surface).

3.11.2 Mineral resource reporting

The 2020 Mineral Resources have been reported by cut off based on NSR long-term prices. Boliden long-term metal prices and smelter terms have only changed moderately since last year and from the year before, why the revenue model is unchanged from the previous RPEEE Pit Shell generation.

The undiscounted RPEEE Pit Shell was generated in Whittle, according to the following simplified formula for NSR:

NSR=Ni(S) % x 60 +Cu % x 42 +Pt ppm x 6 + Pd ppm x 6 +Au ppm x 9 +Co(S) % x 50

The 2020 Mineral Resource tabulation, depleted to 31 December 2020, is presented in Table 11. The Mineral Resources have been reported at a 10 €/t NSR cut-off and have been constrained below the Stage 4 final pit (LOMP 2021) and within the Resource Whittle shell, reflecting reasonable prospects for eventual economic extraction. All blocks outside the Whittle shell have been excluded. For more detail on the generation of the Whittle shell, refer to Ojanen (2020).

The Mineral Resources are reported exclusive of and additional to the Mineral Reserves.

Table 11. New 2020 Kevitsa Mineral Resources, depleted to 31 December 2020, at a 10 €/t NSR cut-off

	2020						
Classification	Tonnes (Mt)	NiS (%)	Cu (%)	Au (g/t)	Pd (g/t)	Pt (g/t)	CoS %
Measured	43	0.19	0.29	0.08	0.11	0.18	0.010
Indicated	132	0.23	0.34	0.07	0.07	0.13	0.011
Total M&I	**175**	**0.22**	**0.33**	**0.07**	**0.08**	**0.14**	**0.011**
Inferred	4	0.12	0.22	0.03	0.02	0.06	0.010
Total Mineral Resources	**179**	**0.22**	**0.33**	**0.07**	**0.08**	**0.14**	**0.011**

- *Mineral Resources are reported exclusive of Mineral Reserves.*
- *Mineral Resource is a summary of Resource estimations and studies made over time adjusted to mining situation of December 31 2020.*
- *Mineral Resources are reported as undiluted, with no mining recovery applied in the Statement. Assumptions for mining factors (mining and selling costs, mining recovery and dilution, pit slope angles) and processing factors (metal recovery, processing costs), during the optimisation process only.*
- *Boliden considers there to be reasonable prospects for economic extraction by constraining within an optimised open pit shell constructed using long term market forecast commodity prices.*
- *Mineral Resources are reported above the optimised pit shell and above a NSR marginal cut-off of 10 EUR /t, which reflects the economic and technical parameters, and below the mine design pit shell used to report the Mineral Reserve.*
- *Tonnes and grades are rounded which may result in apparent summation differences between tonnes, grade and contained metal content.*

3.12 Mineral Reserves

The Mineral Reserve is based on the 2020 Mineral Resource performed by SRK, not the new 2020 Mineral Resource outlined in Section 3.11.

Alexandra Voronchikhina, fulltime employed Boliden Development Engineer, was in charge of depleting and reporting the Mineral Reserve to 31 December 2020. The same files as per the Budget 2021 were used to code the 2020 Mineral Reserve in Deswik CAD using the same resource category defined by SRK.

The Mineral Reserve was constrained within the stage 4 pit. Stage 4 pit design is based on the pit optimization done using 2018 MRE. The Mineral Reserve has been reported using a two-stage cut-off based on two NSR budget prices defined by forecast production period, as stipulated by Boliden.

Blocks within the scheduled 2021-2022 production period were reported above a cut-off grade of NSR ≥ 20 €. Blocks within scheduling period of 2021 were reported using the following NSR factors:

NSR=Ni(S) % x 62.54 +Cu % x 43.76 +Pt ppm x 7.47 + Pd ppm x 17.74 +Au ppm x 14.79 +Co(S) % x 54.65

Blocks within the scheduled 2023-2034 production period were reported above a cut-off grade of NSR ≥ 15 €. Blocks scheduled between 2022 and 2034 were reported using a second NSR formula:

NSR=Ni(S) % x 64.35 +Cu % x 43.12 +Pt ppm x 7.05 + Pd ppm x 8.29 +Au ppm x 8.89 +Co(S) % x 64.62

Only blocks above the respective cut-offs and classified as Measured within the 2020 Mineral Resource were classified as Proved Mineral Reserves. Indicated blocks above the NSR cut-offs were classified as Probable Mineral Reserves. No Inferred Mineral Resources have been included in the Mineral Reserves.

The design used for Budget 2021 was modified to address operational constraints in hauling material using 37-40 m ramps as 33 m ramps are not suitable for double lane traffic. Moreover, geotechnical issues on the northern part of final pit wall were addressed, that caused pumping station relocation and new 50 m berm creation.

Mineral Reserves are factored before reporting to account for the recovery (ore loss) and dilution typically experienced with mining at the Kevitsa Mine. Mining recovery was set to 93 % and dilution was set to 7 %. No grade was attributed to the dilution.

The 2020 Kevitsa Mineral Reserve, depleted to 31 December 2020 projected surface (using the most up to date short term plan), is presented in Table 12. The Mineral Reserve has been reported within the stage 4 pit design, using a two-stage NSR cut-off approach (see above) and factored to account for dilution and recovery.

Table 12.2020 Kevitsa Mineral Reserve, depleted to 31 December 2020

	2020						
Classification	**Tonnes (Mt)**	**NiS (%)**	**Cu (%)**	**Au (g/t)**	**Pd (g/t)**	**Pt (g/t)**	**CoS (%)**
Proved	**70**	**0.19**	**0.31**	**0.09**	**0.11**	**0.17**	**0.01**
Probable	**59**	**0.24**	**0.33**	**0.10**	**0.14**	**0.20**	**0.01**
Total	**128**	**0.21**	**0.32**	**0.09**	**0.12**	**0.18**	**0.01**

- *Mineral Reserves is a summary of Resource estimations and studies made over time adjusted to mining situation of December 31 2020.*
- *Mineral Reserves are reported inclusive of mining modifying factors which are based historical reconciliation results, a 7 % dilution and a 93 % mining recovery are applied in the statement.*
- *A 2021 LOMP production schedule along with mining factors (mining recovery and dilution), processing factors (Recovery and Processing costs) and revenue factors (metal prices, selling costs) were incorporated in a financial model and economic analysis by which Boliden determined the Mineral Reserves to be currently economic.*
- *Mineral Reserves are reported within the pit design at a NSR operational cut-off of 20 EUR/t for 2021-2022, and 15 EUR/t from 2023 onwards.*
- *Mineral Reserves include 40 Mt of ore to be mined at the last four years of the LOM (years 2030-2034) for which current TSFA capacity is insufficient. These Mineral Reserves are dependent on Kevitsa identifying a suitable location, designing and obtaining relevant permits for additional TSF capacity within the next 10 years - prior to the tailings deposition.*
- *Tonnes and grades are rounded which may result in apparent summation differences between tonnes, grade and contained metal content.*

3.13 Comparison of Mineral Resources and Mineral Reserves with previous year

3.13.1 Mineral resource changes

The main differences between the new 2020 Resource Model (used to report the 2020 Mineral Resource) and the 2018 Mineral Resource Model are explained by:

- An additional 100 DDH have been included in the new 2020 MRE.
- Grade control RC holes were not taken into account in 2018 MRE. Consequently 6 222 RC holes have been added in the new 2020 MRE relative to 2018 one.
- Mineralisation domains defined by a combined cut-off of Cu and NiS; 'Normal ore' and 'NiS PGE ore', differ from the independent Cu and NiS gradeshells used in 2018 MRE.
- Mineralisation model does no longer consider faults as boundaries for grade continuities.
- An additional domain called 'False ore' was modeled; it has previously been described by Mutanen (1997) and removes S-rich mineralisation with un-economical NiS and Cu grades from the rest of the mineralisation volumes
- Modifications have been made to the grade estimation parameters.
- Mineral concentrations estimates have been updated in the new 2020 MRE.
- Minor changes in Resource classification adjacent to additional drilling have been applied.
- NSR formula has been used instead of a NiEq calculation (exclusion of PGEs, Co and Au).
- A modified cut-off has been applied.

A waterfall chart, quantifying some of the major differences, is presented in Figure 9.

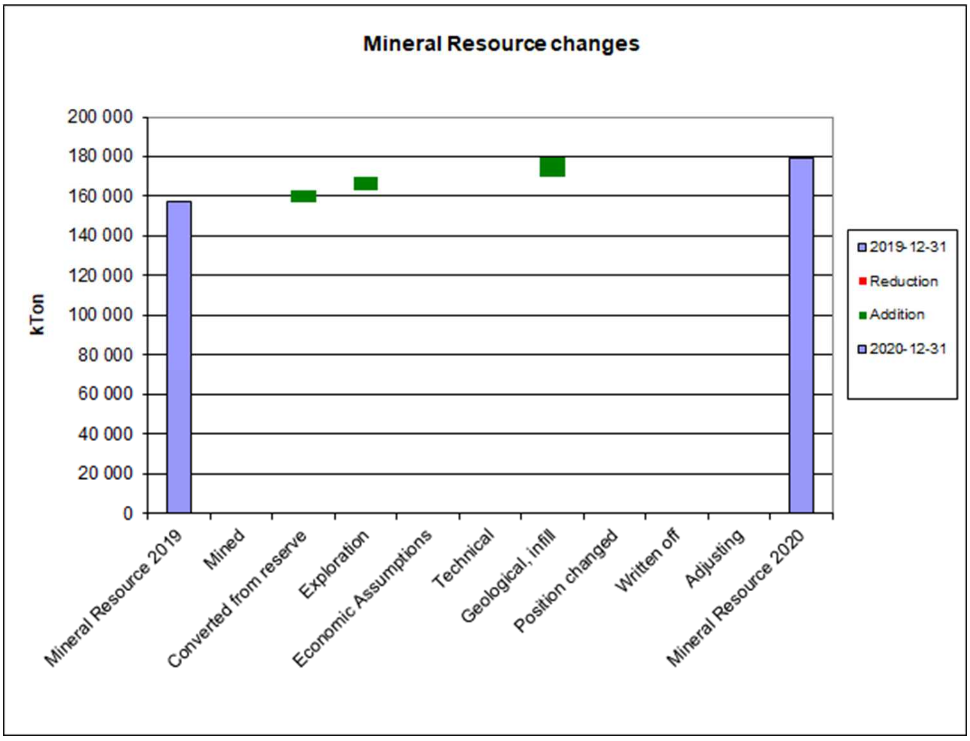

Figure 9. Mineral Resource changes with previous year

3.13.2 Mineral reserve changes

The 2020 Mineral Reserve is based on the 2020 Mineral Resource model by SRK (the same model as used in LOMP and Budget 2021), main differences are explained by:

- A modification in the NSR cut-offs used to classify and report the Mineral Reserve.
- Changes to the stage 4 pit design.

A waterfall chart, quantifying some of the major differences, is presented in Figure 10.

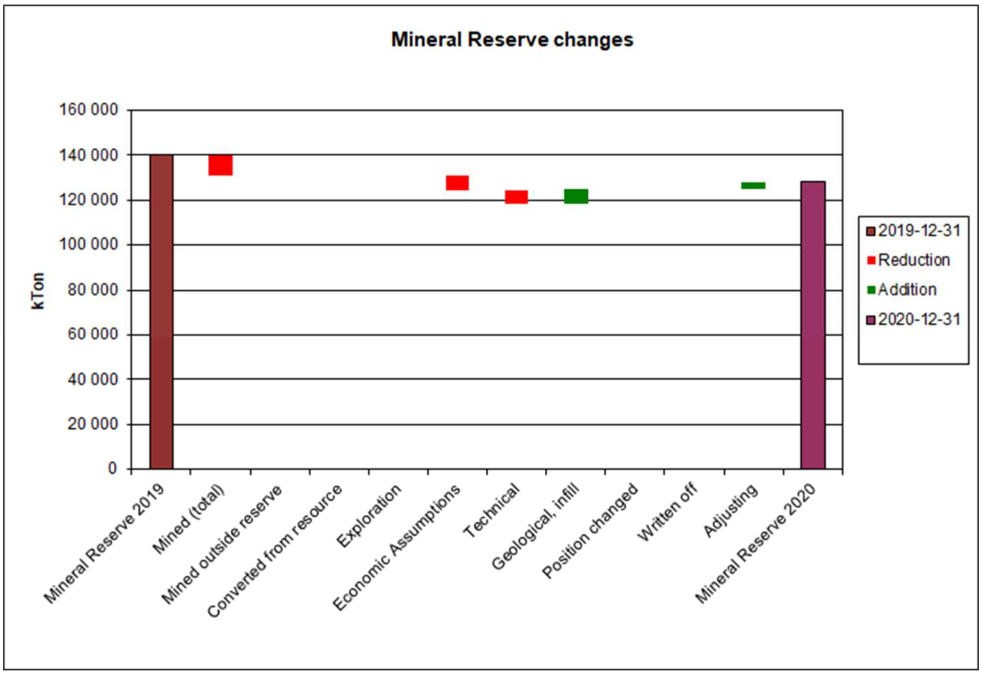

Figure 10. Mineral Reserve changes with previous year

3.14 Reconciliation

Figure 11 shows that models have improved production forecast since 2018 when 2018 MRE estimation parameters have been implemented in GC model estimation.

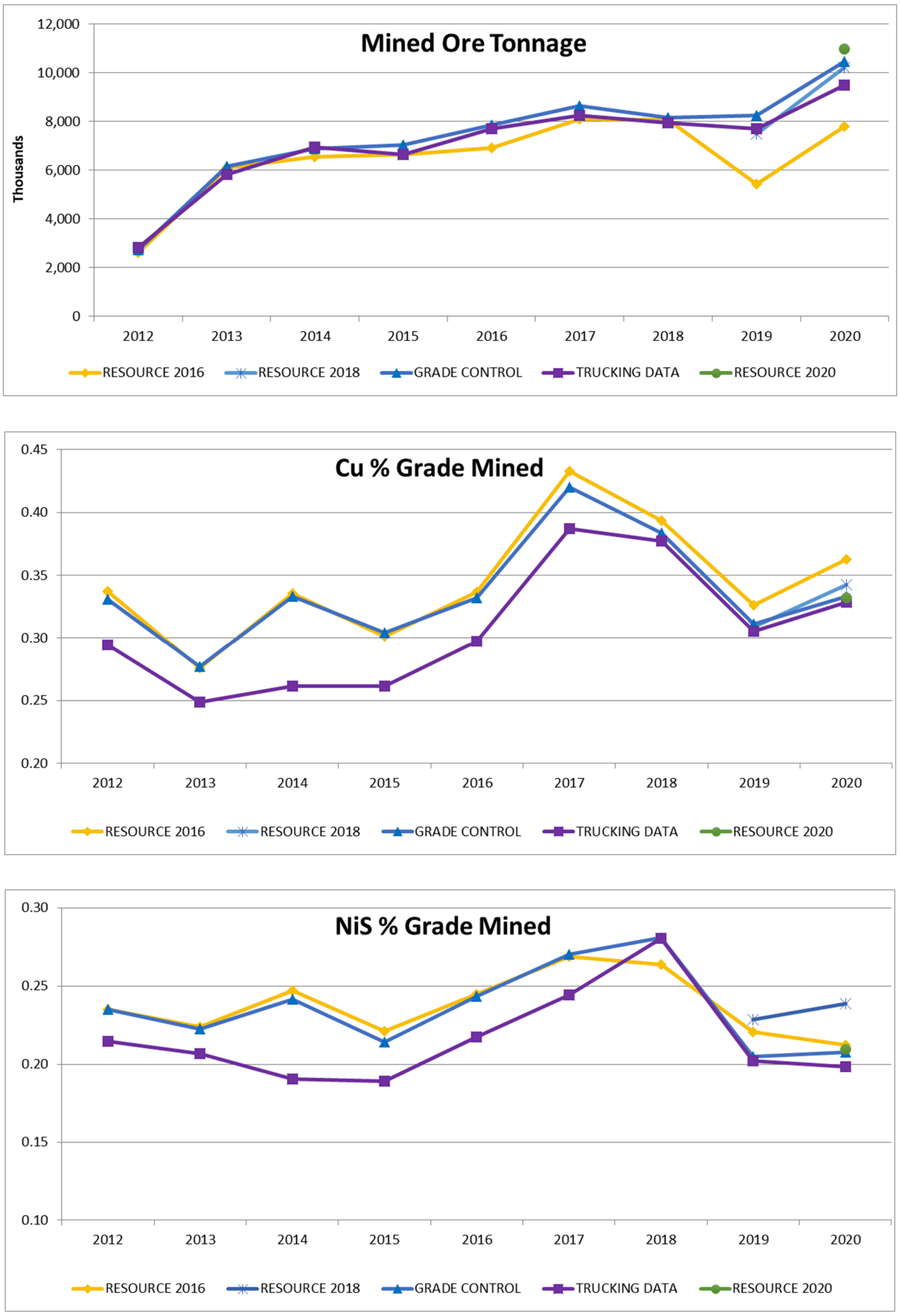

Figure 11. Yearly mined ore tonnage and average Cu and NiS grade comparison between production (Trucking Data) MRE (Resource) and GC (Grade Control)

During first half 2020, 2018 MRE parameters were in use for GC model estimation. In July 2020, GC model estimation was updated with 2020 MRE parameters.

For the 2020 production period, reconciliation was carried out between production and the 2018 and 2020 MRE models. Comparisons are presented in Table 13. In Kevitsa data management system, tonnes which are loaded and hauled (Trucked or Actual Mined) have metal grades and mineral concentrations interrogated from ore blocks in dig plans. They are consequently the best representation of the Mineral Reserve estimation.

Table 13: Reconciliation between 2020 production and Mineral Resource models

	Tonnes (Mt)	NiS %	Cu %
Resource (2018)	10.20	0.24	0.34
Resource (2020)	10.96	0.21	0.33
Grade Control	10.44	0.21	0.33
Forecast	9.30	0.22	0.36
Actual Mined (Trucked)	9.49	0.20	0.33
Plant (Float Feed)	9.19	0.18	0.33
	Variance (t)	**Variance NiS**	**Variance Cu**
GC (1st half 2020) vs Actual Mined	**15.4%**	**3.6%**	**3.0%**
MRE 2018 (1st half 2020) vs Actual Mined	27.6%	18.8%	-3.9%
MRE 2020 (1st half 2020) vs Actual Mined	29.7%	4.4%	-0.2%
GC (2nd half 2020) vs Actual Mined	**5.6%**	**6.2%**	**-0.2%**
MRE 2018 (2nd half 2020) vs Actual Mined	-8.9%	23.1%	13.5%
MRE 2020 (2nd half 2020) vs Actual Mined	4.0%	-0.3%	0.8%
GC vs Plant	7.2%	13.5%	1.6%
Actual Mined vs Plant	-2.5%	8.3%	0.2%
Resource 2018 vs Plant	4.8%	19%	4.5%
Resource 2020 vs Plant	12.6%	4.6%	1.3%

Updating GC models with 2020 MRE (from SRK, 2020) parameters during second half of 2020 improved tonnage and Cu grade forecasts.

Reconciliation of 2018 MRE against Plant shows that NiS grades were overestimated. Lower average NiS grades resulting from the new 2020 MRE by Pabst et al. (2020) are expected to be more realistic. Particular attention will be paid to NiS grade control during 2021.

Figure 12 shows that after July 2020, there is a better fit between GC and Actual Mined (Trucking Data) tonnages.

Those results confirm the importance of updating MRE and GC models for Kevitsa operation.

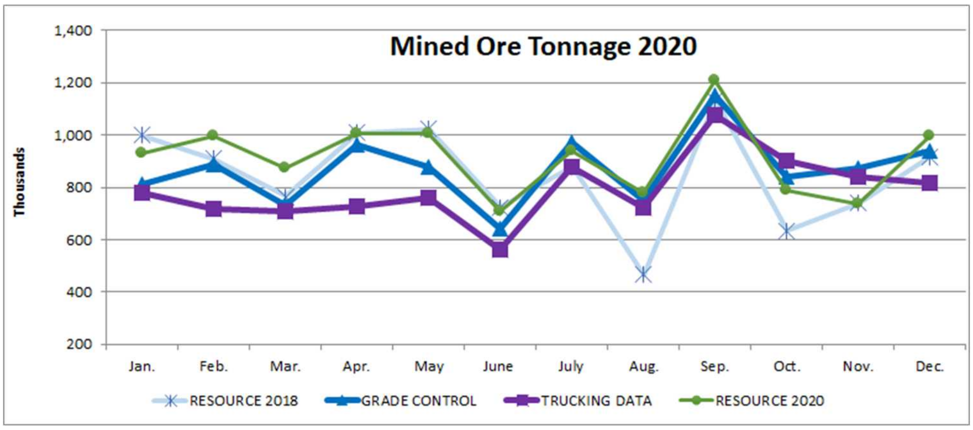

Figure 12. Monthly mined ore tonnage comparison between production (Trucking Data) MRE (Resource) and GC (Grade Control)

According to Plant results, MRE 2020 improved NiS and Cu grades estimation comparing to MRE 2018; this is presented Table 13 and Figure 13.

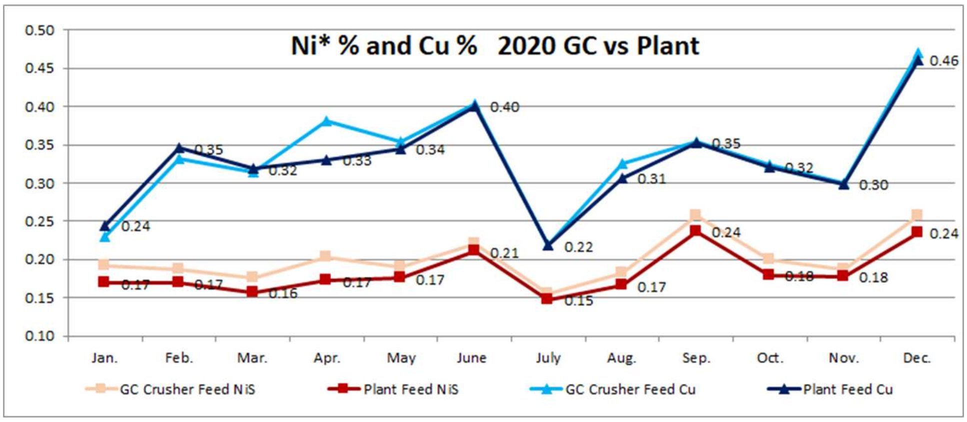

Figure 13. Monthly average NiS and Cu grade comparison between production (Trucking Data) MRE (Resource) and GC (Grade Control)

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