Report to:

NORDIC GOLD INC

LAIVA, FINLAND
NI 43-101 RESOURCE UPDATE

Document No. 782-SWIN03287AA-R-002C

A TETRA TECH COMPANY

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Report to:

NORDIC GOLD INC

LAIVA, FINLAND
NI 43-101 RESOURCE UPDATE

Effective Date: 18th September 2019

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REVISION HISTORY

REV. NO	ISSUE DATE	PREPARED BY AND DATE	REVIEWED BY AND DATE	APPROVED BY AND DATE	DESCRIPTION OF REVISION
A	20th September 2019	Ruth Bektaş Arun Vathavooran	James Barr	Andrew Carter	Draft Report
B	3rd October 2019	Ruth Bektaş	Andrew Carter	Andrew Carter	Final Report
C	15th November 2019	Ruth Bektaş	Andrew Carter	Andrew Carter	Correction in Table 1.1

TABLE OF CONTENTS

1.0 SUMMARY 1-1

1.1 BACKGROUND TO THE RESOURCE ESTIMATE UPDATE 1-1
1.2 PROPERTY DESCRIPTION AND LOCATION 1-1
1.3 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES AND PHYSIOGRAPHY 1-1
1.4 GEOLOGY AND MINERALISATION 1-2
1.5 EXPLORATION 1-2
1.6 MINERAL PROCESSING AND METALLURGICAL TESTING 1-3
1.7 MINERAL RESOURCE ESTIMATE 1-3
1.8 CONCLUSION, RECOMMENDATIONS, RISKS AND OPPORTUNITIES 1-3

2.0 INTRODUCTION 2-1

3.0 RELIANCE ON OTHER EXPERTS 3-1

4.0 PROPERTY DESCRIPTION AND LOCATION 4-1

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY 5-1

6.0 HISTORY 6-1

6.1 HISTORICAL EXPLORATION 6-2
6.2 HISTORICAL RESOURCE AND RESERVE ESTIMATES 6-2

7.0 GEOLOGICAL SETTING AND MINERALISATION 7-1

7.1 GEOLOGICAL SETTING 7-1
7.1.1 REGIONAL GEOLOGY 7-3
7.1.2 LOCAL GEOLOGY 7-4
7.2 MINERALISATION 7-8
7.2.1 QUARTZ VEINS 7-8
7.2.2 GRANITE AND DOLERITE DYKES 7-8
7.2.3 ALTERATION 7-8
7.2.4 MINERALISATION DETAILS 7-8

8.0 DEPOSIT TYPES 8-1

9.0 EXPLORATION 9-1

9.1 ROCK-CHIP SAMPLING 9-1
9.2 SURFICIAL TILL SAMPLING 9-1
9.3 BASE OF TILL AND TOP OF BEDROCK SAMPLING 9-2
9.3.1 LAIVA AREA 9-2
9.4 CHANNEL SAMPLING 9-2
9.5 GEOPHYSICAL SURVEYS 9-3
9.5.1 GTK AIRBORNE SURVEYS 9-3
9.5.2 BOUGER GRAVITY DATA 9-3
9.5.3 GROUND MAGNETIC DATA 9-3
9.5.4 INDUCED POLARISATION DATA 9-4
9.5.5 GROUND PENETRATING RADAR DATA 9-4
9.5.6 GROUND MAGNETIC SURVEY, 2018 9-4
9.6 STRUCTURAL GEOLOGY INTERPRETATION 9-4

9.7 CONCLUSIONS 9-5

10.0 DRILLING 10-1

10.1 INTRODUCTION 10-1
10.2 EXPLORATION AND GRADE CONTROL DRILLING 10-3
10.3 DIAMOND DRILLING PROCEDURES 10-3
10.4 REVERSE CIRCULATION DRILLING PROCEDURES 10-4
10.5 SAMPLE RECOVERY 10-4
10.6 COLLAR SURVEYS 10-5
10.7 DOWNHOLE DEVIATION SURVEYS 10-5
10.8 CORE ORIENTATION SURVEYS 10-5
10.9 LOGGING 10-5
10.10 DATABASE 10-6
10.11 TWIN HOLES 10-6
10.12 TRIAL GRADE CONTROL PROGRAMME, 2014 10-6
10.13 RESULTS OF DRILLING PROGRAMMES 10-7
10.14 COMMENTS ON DRILLING 10-7

11.0 SAMPLE PREPARATION, ANALYSES AND SECURITY 11-1

11.1 SAMPLING METHODS 11-1
11.1.1 DRILL CORE / REVERSE CIRCULATION SAMPLE PROTOCOL 11-1
11.1.2 GRADE CONTROL PROTOCOL 11-1
11.1.3 DOWN HOLE DIRECTIONAL SURVEY METHODOLOGY 11-2
11.1.4 SURVEY METHODOLOGY 11-2
11.2 SAMPLING DISCUSSION 11-2
11.3 QUALITY CONTROL MEASURES 11-3
11.3.1 QA/QC PROTOCOL 11-3
11.3.2 LABORATORIES 11-7
11.4 NORDIC OY PROTOCOLS 11-8
11.4.1 SAMPLE SECURITY 11-8
11.4.2 SAMPLE PREPARATION AND HANDLING (LABTIUM AND ALS) 11-8
11.4.3 ANALYTICAL METHOD (LABTIUM, ALS AND CRS) 11-10
11.4.4 QC TOLERANCE LIMITS 11-12

12.0 DATA VERIFICATION 12-1

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING 13-1

13.1 SUMMARY 13-1
13.2 REVIEWED DOCUMENTS 13-1
13.3 MINERALOGY 13-1
13.4 FLOTATION TEST WORK 13-2
13.5 GRAVITY TEST WORK 13-3
13.6 LEACH TEST WORK 13-4
13.7 RECOVERY ESTIMATE 13-5

14.0 MINERAL RESOURCE ESTIMATES 14-1

14.1 MINERAL RESOURCES SUMMARY 14-1
14.1.1 ESTIMATION PROCEDURE 14-1
14.2 GEOLOGICAL INTERPRETATION 14-2
14.3 EXPLORATORY DATA ANALYSIS 14-3
14.3.1 DRILL HOLES AND ASSAYS 14-8
14.3.2 CAPPING 14-8
14.3.3 COMPOSITES 14-9

14.4 BULK DENSITY 14-9
14.5 SPATIAL ANALYSIS 14-9
14.6 RESOURCE BLOCK MODEL 14-9
14.7 INTERPOLATION PLAN 14-13
14.8 MINERAL RESOURCE CLASSIFICATION 14-16
14.9 MINERAL RESOURCE TABULATION 14-18
14.10 BLOCK MODEL VALIDATION 14-19
14.10.1 VISUAL COMPARISON OF BLOCK AND INFORMING SAMPLES 14-19
14.10.2 GRAPHICAL COMPARISON OF BLOCK MODEL AND SAMPLES 14-19
14.10.3 CHECK ESTIMATES 14-20
14.10.4 CONCLUSION 14-20
14.11 COMPARISON WITH PREVIOUS ESTIMATES 14-22
14.12 CATEGORISATION OF MINERAL RESOURCE ESTIMATE BY GRADE 14-23

15.0 MINERAL RESERVE ESTIMATES 15-1

16.0 MINING METHODS 16-1

17.0 RECOVERY METHODS 17-1

18.0 PROJECT INFRASTRUCTURE 18-1

19.0 MARKET STUDIES AND CONTRACTS 19-1

20.0 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT 20-1

21.0 CAPITAL AND OPERATING COSTS 21-1

22.0 ECONOMIC ANALYSIS 22-1

23.0 ADJACENT PROPERTIES 23-1

24.0 OTHER RELEVANT DATA AND INFORMATION 24-1

25.0 INTERPRETATION AND CONCLUSIONS 25-1

26.0 RECOMMENDATIONS 26-1

26.1 GENERAL RECOMMENDATIONS 26-1
26.2 GRADE CONTROL AND MINING RECOMMENDATIONS 26-1
26.3 EXPLORATION RECOMMENDATIONS 26-2
26.4 METALLURGY AND PROCESSING RECOMMENDATIONS 26-2

27.0 REFERENCES 27-1

28.0 CERTIFICATE OF QUALIFIED PERSON 28-1

APPENDICES

APPENDIX A: SITE VISIT REPORT, 782-SWIN.3287AA-R-001A (19TH AUG 2019)

APPENDIX B: NORDIC SAMPLING PROTOCOLS

LIST OF TABLES

Table 1.1 Summary of Mineral Resources, Reporting at a Cut-Off Grade of 0.3 g/t Gold 1-3
Table 4.1 Laiva Project Exploration Licences 4-3
Table 6.1 Laiva Gold Mine, Historical Resource Estimates 6-3
Table 10.1 Laiva Property Drilling History 10-1
Table 13.1 Head Assays 13-2
Table 13.2 Summary of Flotation Results 13-2
Table 13.3 Gravity Concentration Results 13-3
Table 13.4 Head Assays of Leach Feed 13-4
Table 13.5 Summary of Leach Results 13-4
Table 13.6 Recovery Estimate 13-5
Table 14.1 Details of Domains 14-3
Table 14.2 Global Data Statistics for Raw Data (Au ppm) as a Whole and by Domain 14-3
Table 14.3 Global Data Statistics for Composited Data (Au ppm) with a 0.3 g/t Au Lower Cut-off, as a Whole and by Domain 14-4
Table 14.4 Block Model Extent 14-10
Table 14.5 Block Model Items 14-10
Table 14.6 Domain Search Parameters 14-10
Table 14.7 Other Input Parameters Used in the Estimate 14-10
Table 14.8 Domain Variography Parameters 14-11
Table 14.9 Summary of the Different Parameters Applied to the Estimates for the Purpose of Comparison 14-13
Table 14.10 Baseline Estimate Results from Model Using Old Topography. 14-13
Table 14.11 Baseline Estimate Results from the Model Using New Topography 14-14
Table 14.12 Estimate Results from Model Using New Topography, with 30 g/t Au Top-cut . 14-14
Table 14.13 Estimate Results from Model Using New Topography, with 0.2 g/t Au Low-cut 14-14
Table 14.14 Estimate Results from Model Using New Topography, with 0.5 g/t Au Low-cut 14-15
Table 14.15 Estimate Results from Model Using New Topography, with 0.9 g/t Low-cut . 14-15
Table 14.16 Difference Between Old and New Topography Model Estimates, Compared to Production Data 14-16
Table 14.17 Material Remaining in Stockpiles Based on Figures Provided by Nordic Gold . 14-16
Table 14.18 Material Remaining in Sulphidic Rock Dump Based on Figures Provided by Nordic Gold. 14-16
Table 14.19 Search Parameters Used for Classification of Estimate in Each Domain 14-17
Table 14.20 Detailed Breakdown of the Resource Estimate in Measured, Indicated and Inferred Categories (Block model only) 14-18
Table 14.21 Summary Table of Classified Resource Estimate (Block Model Only) 14-19
Table 14.22 Summary Table of Classified Resource Estimate (Low-Grade Stockpile and Sulphidic Rock Dump Included) 14-19
Table 14.23 Ordinary Kriging Estimate Results with New Topography, For Comparison . 14-20
Table 14.24 Table of Final Estimate Using Old Topography and New Topography in Comparison to Historical Estimates 14-22
Table 14.25 Classification of Resource by End Process of CIL or HL 14-24

LIST OF FIGURES

Figure 4.1 Laiva Project Location 4-1
Figure 4.2 Laiva and Oltava Licence Areas 4-2
Figure 5.1 View of Laiva Project Area 5-1
Figure 5.2 Road Map Showing Location of Project (orange star) and Access Route Discussed in Text 5-2
Figure 5.3 Plan of Existing Facilities at the Laiva Project 5-3
Figure 7.1 Map A: Main Bedrock Units of the Eastern Part of the Fennoscandian Shield; Map B: Geological Map of Finland 7-2
Figure 7.2 Structural Geology of the Laiva Project Area 7-3
Figure 7.3 1:200k Bedrock Geology of the Laiva Area (modified from Geological Survey of Finland, 2013) 7-5
Figure 7.4 Granitic Dykes and Sills (orange) Encapsulating Xenoliths of Mineralised Metavolcanic Rocks (blue and green) 7-6
Figure 10.1 Plan View of Drilling used in Resource Estimate 10-3
Figure 10.2 Representative Cross Section of Drilling Looking West 10-7
Figure 11.1 Graph of Sample Length versus Sample Grade 11-2
Figure 14.1 Map of Domains used in the Resource Estimate 14-3
Figure 14.2 Raw Data Histograms (normal and log) 14-4
Figure 14.3 Histogram and Log Histogram of Composited Data with 0.3 g/t Au cut-off for Domain 1 (SP) 14-5
Figure 14.4 Histogram and Log Histogram of Composited Data with 0.3 g/t Au cut-off for Domain 2 (NPW) 14-5
Figure 14.5 Histogram and Log Histogram of Composited Data with 0.3 g/t Au cut-off for Domain 3 (NPE) 14-5
Figure 14.6 Histogram and Log Histogram of Composited Data with 0.3 g/t Au cut-off for Domain 4 (E) 14-6
Figure 14.7 Log Probability Plots by Domain using Composited Data with 0.3 g/t Au Cut-off Applied 14-6
Figure 14.8 Mean and Variance Plots for Gold Grade from Composited Data with 0.3 g/t Au Cut off Applied 14-7
Figure 14.9 Scatter Plots of Arsenic and Gold Grade by Domain 14-8
Figure 14.10 North-south Cross section Showing Drilling and Composites, Looking West . 14-9
Figure 14.11 Screen Shot of Model Looking North west, Showing Gold Grade 14-11
Figure 14.12 Cross Section of Block Model Looking North 14-11
Figure 14.13 Cross Section Looking North of Block Model Zones 14-12
Figure 14.14 Plan View of Block Model at Base of North Pit Level (-12 m reduced level) . 14-12
Figure 14.15 Cross Section Showing Drilling and Block Model 14-12
Figure 14.16 Sensitivity of estimate to cut-off 14-15
Figure 14.17 Swath Plots in X, Y and Z Directions 14-20
Figure 14.18 Bar Graph of Final Estimate Using Old Topography and New Topography in Comparison to Historical Estimates (tonnes on left, gold ounces on right) 14-23
Figure 14.19 Tonnage Versus Grade Variation Between Historical Estimates 14-23

GLOSSARY

Units of Measure

Annum (year)	a
Centimetre	cm
Cubic metre	m^3
Day	d
Degree	°
Degrees Celsius	°C
Dollar (American)	US $
Euro	€
Gram	g
Grams per tonne	g/t
Greater than	>
Hectare (10,000 m^2)	ha
Inverse Distance squared	ID^2
Kilo (thousand)	k
Kilogram	kg
Kilometre	km
Kilovolt	kV
Less than	<
Litre	L
Metre	m
Metres above sea level	masl
Metric ton (tonne)	t
Microns	µm
Millilitre	mL
Millimetre	mm
Million	M
Million years ago	Ma
Million ounces	Moz
Million tonnes	Mt
NanoTelsa	nT
Ounce	oz
Per tonne	/t
Percent	%
Plus or minus	±
Revolutions per minute	rpm
Square kilometre	km^2
Square metre	m^2
Tonne (1,000 kg)	t
Tonnes per cubic metre	t/m^3
Tonnes per day	t/d
Year (annum)	a

Abbreviations and Acronyms

ALS Chemex Laboratory	ALS
Aluminium	Al
Antimony	Sb
Arsenic	As
Atomic Absorption Spectroscopy	AAS
Bachelor of Science	BSc
Bachelor of Science, Engineering	BSc Eng
Barium	Ba
Berylium	Be
Bismuth	Bi
Cadmium	Cd
Calcium	Ca
Canadian Institute of Mining, Metallurgy and Petroleum	CIM
Carbon in Leach	CIL
Certified Engineer	CEng
Certified Reference Material	CRM
Chromium	Cr
Cobalt	Co
Coffey Geotechnics Ltd, A Tetra Tech Company	Coffey
Copper	Cu
Core Storage Facility	CSF
CSA Global (UK) Ltd	CSA
Digital Global Positioning System	DGPS
Doctor of Philosophae	PhD
East	E
Endomines OY	Endomines
European Engineer	EUR ING
Fellow of the Geological Society	FGS
Firesteel Resources	Firesteel
Gallium	Ga
GEM Systems	GSM
General and Administration	G&A
Global Positioning System	GPS
Gold	Au
Ground Penetrating Radar	GPR
GTK Geolaboratory. Geological Survey of Finland	GTK
Heap Leach	HL
Induced polarisation	IP
Inductively Coupled Plasma-Atomic Emission Spectroscopy	ICPS-AES
Iron	Fe
Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy	JORC
Labtium OY laboratory	Labtium
Laiva Gold Project	Laiva Project
Lanthanum	La
Lead	Pb
Life of Mine	LOM
Lionsbridge Plc	Lionsbridge

Magnesium	Mg
Maldonite	Au^2Bi
Manganese	Mn
Master of Science	MSc
Member of the Institute of Materials, Minerals and Mining	MIMMM
Member of the South African Institute of Mining and Metallurgy	MSAIMM
Mineral liberation analyser	MLA
Molybdenum	Mo
National Instrument 43-101	NI 43-101
Nickel	Ni
Nordic Gold Inc	Nordic Gold
Nordic Gold OY	Nordic OY
Nordic Mines Marknad AB	Nordic ~~Mines~~
~~North~~	~~N~~
~~Outokumpo Oy~~	~~Otokumpo~~
Phosphorous	P
Polyvinyl Chloride	PVC
Potassium	K
Professional Geologist	PGeo
Quality Assurance / Quality Control	QA/QC
Qualified Person	QP
Reduced Level	RL
Reverse Circulation	RC
Rock Tunnelling Quality Index	Q-Value
Rock Quality Designation	RQD
Run of Mill	ROM
Scandium	Sc
Selective Mining Unit	SMU
Silver	Ag
Society for Mining, Metallurgy and Exploration, Inc	SME
Sodium	Na
SRK Consulting	SRK
Strontium	Sr
Sulphur	S
Tellurium	Te
Thallium	Tl
Thorium	Th
Titanium	Ti
Topography	topo
Tungsten	W
United Kingdom	UK
Uranium	U
Value Added Tax	VAT
Vanadium	V
Virtual Reference Station	VRS
Volcanic Massive Sulphide	VMS
Westech International Pty Ltd	Westech
Zinc	Z

1.0 SUMMARY

1.1 BACKGROUND TO THE RESOURCE ESTIMATE UPDATE

Several mineral resource and reserve estimates were commissioned by Nordic Gold OY (Nordic Oy) between 2008 and 2018. At the request of Brian Wesson of Nordic Gold Inc (Nordic Gold), Coffey Geotechnics Ltd, A Tetra Tech Company (Coffey) has been retained to provide a resource estimate update for the Laiva Gold Project (Laiva Project). The study complies with Canadian National Instrument 43-101 (NI 43-101) guidelines (2011).

The Laiva Mine initially commenced production in January 2012; mining ceased in December 2013. The mill continued to operate, processing low-grade stockpile material until March 2014. The second period of operation was from August 2018, continuing to March 2019 when the operation was put into care and maintenance. Nordic Gold is planning to re-develop the Laiva Project by rebuilding the technical side of the company to move it back into production.

1.2 PROPERTY DESCRIPTION AND LOCATION

The Laiva Project is located in western Finland, 20 kilometres (km) south of the nearest town, Raahe, and 70 km south of the city of Oulu. The current open pits, process plant and tailings storage facility are located in the Laiva licence of the Laiva Project.

The Laiva Gold Mine is fully constructed, fully permitted and was previously financed to production via a gold forward sale agreement provided by Pandion Mine Finance. The Laiva Gold Mine is currently not in production and is on ‘care and maintenance’. Nordic Gold has entered into a services agreement with both Lionsbridge Plc and Westech International Pty Ltd (“Westech”) under which Lionsbridge Plc will provide the Company with corporate management services.

1.3 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES AND PHYSIOGRAPHY

The project area is generally flat with gentle topography within the forest. Access to the area is possible all year round from the town of Raahe, 20 km northwest of the mine.

The region has a sub-arctic climate, with mild summers and cold winters. The ground is snow covered for most of winter, although the snow rarely exceeds 1 m deep and does not affect the operating season for exploration or mining activities.

Nordic Gold reports sufficient surface rights and water resources for mining and processing operations. The mine site has access to two grid power lines. A diesel storage area to supply fuel to the mine fleet is located at the mine site.

1.4 GEOLOGY AND MINERALISATION

Finland is part of the Archean-Paleoproterozoic Fennoscandian Shield, which comprises the Archean Karelian and Kola cratons flanked by the Paleoproterozoic Caledonide and Svecofennian orogenic belts to the west and southwest. The Laiva gold deposit is located in the Svecofennian orogenic belt, which formed during a northeast vergent collision between multiple calc-alkaline volcanic arc complexes and microcontinents 1900 million years ago (Ma). Pleistocene glacial till covers much of the low-lying areas of the shield.

Quartz diorite to granodiorite plutons intrude the supracrustal strata and occupy the central and eastern part of the project area. Together, the metavolcanic and quartz diorite are the main host to mineralisation in shear zones. All units are intruded by granitic plutons mainly to the west, with dykes and later mafic (dolerite) dykes more widely distributed.

The structural geology of Laiva is complex, with poorly-defined large-scale folding of schists, weak localised schistosity in mafic metavolcanic and quartz diorite units, and localised development of foliation in some granite dykes. Several generations of faults are recognised, comprising mylonitic shear zones which are inferred to be synchronous with mineralisation and later strike-slip and reverse faults which offset mineralisation.

Syn-mineral quartz-sulphide veins occupy mylonitic shear zones with a steep dip (75 degrees [°] to 85° to the south) and have a general east-northeast to east-southeast trend either side of the Red Shear Zone. Alteration at Laiva is weak. There are rare, narrow (mm-scale) sericite-pyrite selvedges to mineralised shear zones.

In both the North and South Pits, the mineralised shear zones vary in width between less than (<)1 m to greater than (>)10 m. Within the mineralised shear zones, vein density varies between one and 29 veins per metre.

1.5 EXPLORATION

Recent exploration includes a detailed mapping and structural geology interpretation, conducted by Specialized Geological Mapping Ltd. in 2010 and a trial Ground Penetrating Radar (GPR) survey at the Laiva gold deposit in 2016.

Previous exploration work has involved rock-chip sampling, surficial till sampling, base of till and top of bedrock sampling and channel sampling. Various geophysical surveys have been carried out such as airborne regional magnetic, radiometric and electromagnetic surveys; Bouger gravity surveys, ground magnetics, induced polarisation and ground penetrating radar surveys.

Extensive drilling has been completed over the years from 1981 to 2018. 32 channels totalling 250 metres (m), 434 diamond drill holes totalling 69,052 m and 553 reverse circulation (RC) drill holes totalling 24,679 m have been completed. Further drilling was then carried out for grade control purposes; including 203 diamond drill holes totalling 6,927 m, 2,553 RC drill holes totalling 58,028 m and 15,243 blastholes totalling 89,583 m. From this drilling, only the holes considered of a suitable quality for NI 43-101 standards were included in the resource estimate update. These have been indicated in the main body of the report.

1.6 MINERAL PROCESSING AND METALLURGICAL TESTING

A high-level summary of all related test work is presented along with the key results and conclusions.

The estimated metallurgical recovery is 86.5 percent (%) which is comparable to the feasibility study recovery of 85.6% and an average recovery of 85% based on the historical mine operating data.

1.7 MINERAL RESOURCE ESTIMATE

The Mineral Resource Estimate for the Laiva Project area is a global estimate prepared in September 2019, with the effective date of 18th September 2019. The mineral resources have been estimated in accordance with the guidelines and standards given in NI 43-101 (2011). The Mineral Resources are summarised in Table 1.1.

Table 1.1 Summary of Mineral Resources, Reporting at a Cut-Off Grade of 0.3 g/t Gold

	Tonnes	Au g/t	Au oz
Measured	1,780,452	1.54	87,963
Indicated	5,810,777	1.56	291,515
Measured + Indicated	**7,591,229**	**1.55**	**379,478**
Inferred	24,677,098	1.52	1,209,438
Total	**32,268,327**	**1.53**	**1,588,916**

Key: Au – Gold, g/t – Grams per tonne, oz - ounces

The material remaining in the low-grade stock pile from previous production has been included in the measured category as it is ready to be fed to the mill at start-up. The sulphidic waste rock dump (potentially acid forming) is included in the inferred category of the estimate as it is considered to be above the planned cut-off grade of 0.3 g/t gold.

1.8 CONCLUSION, RECOMMENDATIONS, RISKS AND OPPORTUNITIES

The new resource of 32.27 million tonnes (Mt) grading 1.53 g/t gold (1.59 Moz) is reported using a 0.3 g/t cut-off and is based on a geological and mineralisation interpretation of the deposit. The model has incorporated four mineralised domains, included recent drilling and has been cut by current topography. The deposit remains open in the north, south and east. It is cut by a granite pluton in the west of the current north pit. It is also open at depth, with multiple high-grade intersections approximately 250 m below the South Pit at greater than 5.00 g/t gold, up to 34 g/t gold.

The recommendations for the Laiva Project are focussed on plans and trial runs of grade control programmes to ensure the best method of grade control is selected for use in mining. The method or combination of methods need to be reliable, efficient and provide enough clarity to mine the ore with minimal dilution. Some of the recommendations are as follows:

- Operate three pits simultaneously to allow more time for sampling, assay results, blasting and mining.
- Sulphide dump and low-grade ore dump should be sorted and dumped systematically to allow access to low grade ore as or when the gold price allows.
- Blast offset direction should be along strike to minimise dilution, with ore and waste blasted separately where possible.

Drilling between North Pit and mine offices to investigate the different style of mineralisation intercepted by one drill hole at that locality. The metavolcanic rock appears to be carrying gold grade even in the absence of visible sulphides, in contrast to the mineralisation seen elsewhere in the area.

2.0 INTRODUCTION

At the request of Brian Wesson of Nordic Gold Inc. (Nordic Gold), Coffey Geotechnics Ltd, A Tetra Tech Company (Coffey) has been retained to provide a resource estimate update for the Laiva Gold Project (Laiva Project). The study has been prepared in accordance with Canadian National Instrument 43-101 (NI 43-101) guidelines. Coffey does not have, nor has it previously had any beneficial interest in Nordic Gold or any of its subsidiaries.

Nordic Gold Inc (Nordic Gold) has entered into a services agreement with both Lionsbridge Plc (Lionsbridge) and Westech International Pty Ltd ("Westech") under which Lionsbridge will provide the Company with corporate management services. Nordic Gold is planning to develop the Laiva Project and bring it back into production. Andrew Carter and Ruth Bektaş of Coffey visited the Laiva Project in August 2019. A summary report on the site visit was prepared (Appendix A). During the site visit the open pits, process plant and core storage facilities were visited; waste rock dumps, stockpiles and tailings storage facilities were also visited.

Nordic Gold Inc (formerly Firesteel Resources Inc [Firesteel]) (Nordic Gold) is the Canadian public parent company (TSXV:NOR). Nordic Gold wholly-owns Nordic Mines Marknad AB (Nordic Mines), a Swedish company, which in turn wholly-owns Nordic Gold OY (Nordic OY), a Finnish company where the Laiva Mine assets reside.

Conclusions and recommendations contained in this report represent Coffey's independent opinions which are based on information available at the time of this Technical Report.

Coffey is pleased to acknowledge the helpful cooperation of the mine management and personnel, all of whom made any and all data requested available and responded openly and helpfully to all questions, queries and requests for information. Data used in the preparation of this report and resource update was provided by Nordic Gold.

The resource estimate has been completed by Ruth Bektaş (BSc FGS) whilst working as a Resource Geologist at Coffey. Section 13, Mineral Processing has been completed by Arun Vathavooran (BSc Eng, PhD, CEng, MIMMM, SME). The Qualified Persons (QP) responsible for this study are as follows:

- For the review of the Resource Estimate, James Barr (PGeo).
- For authorisation of the report, Andrew Carter (EUR ING, CEng, BSc, MIMMM, MSAIMM, SME) Technical Director for Coffey.

Sources of Information

Coffey referred to the following key documents prepared by others:

- O'Conner, M. and Reeves, C., 2012. Summary Report – mineral resource and ore reserve update, Laiva Gold Deposit, Finland. Summary technical report prepared for Nordic by CSA Global (UK) (R215.2012).

- Orudña, J., 2016. Review of the regional exploration potential of the Laiva gold project, Finland. Unpublished report prepared by Rocklore Exploration Services Ltd.

- Pratt, W., 2010. Controls on gold mineralisation at Laiva mine, Finland. Unpublished report prepared by Specialised Geological Mapping Ltd.

- SRK Consulting (UK) Ltd, 2013. A mineral resource update for the Laiva Gold Mine, Finland. Prepared for Nordic (UK5700).

- SRK Consulting (UK) Ltd, 2015. The Laiva Gold Mine updated business plan 2014 – technical report. Unpublished report prepared for Nordic (UK6191).

- Titley, M., 2008. Mineral resource summary report, Nordic Mining – Laiva Gold Deposit, Finland. Summary technical report prepared for Nordic by CSA Global (UK) (R254.2008).

- Titley, M., 2009. Laiva Gold Project, Finland. NI 43-101 technical report prepared for Nordic by CSA Global (UK).

- Titley, M., 2011. Summary report – mineral resource and ore reserve update, Laiva Gold Deposit, Finland. Summary technical report prepared for Nordic by CSA Global (UK).

- Titley, M., 2012. Summary report – mineral resource and ore reserve update, Laiva Gold Deposit, Finland. Summary technical report prepared for Nordic by CSA Global (UK) (R451.2012).

- BOYD, 2018. NI43-101 Technical Report Preliminary Economic Assessment Laiva Gold Mine Project, Raahe, Finland.

3.0 RELIANCE ON OTHER EXPERTS

Information reviewed during preparation of this report included historical data for the project from the previous operator, Nordic OY, as well as direct observations made by members of the Coffey project team. The data contained in the historical files remaining from Nordic OY included reports prepared by others, as well as operating records and other information developed by Nordic OY. While this data provided background and general context for the Laiva Project, there was no reliance on this data in Coffey's preparation of the primary subject of this Technical Report, except as hereinafter specifically cited as a reference.

Much of the drill hole information upon which this Resource Estimate Technical Report is based is recent historical information. Coffey has reviewed and qualified to NI 43-101 standards this data in preparation of the Resource Estimate.

Other information provided by Nordic Gold is contained in this Technical Report, including without limitation, validity of mineral tenure, status of environmental permits and potential liabilities. These matters were not independently verified by Coffey but appear to be reasonable representations that are suitable for inclusion in this Technical Report – Resource Estimate Update.

4.0 PROPERTY DESCRIPTION AND LOCATION

The Laiva Project is located in western Finland, 20 km south of the nearest town, Raahe, and 70 km south of Oulu, the closest city and airport. Helsinki, the nearest international airport, is approximately 600 km south, with many one-hour flights every day to and from Oulu. The project is centred on 2528500 mE, 7161000 mN (Finnish Coordinate System, Zone 2).

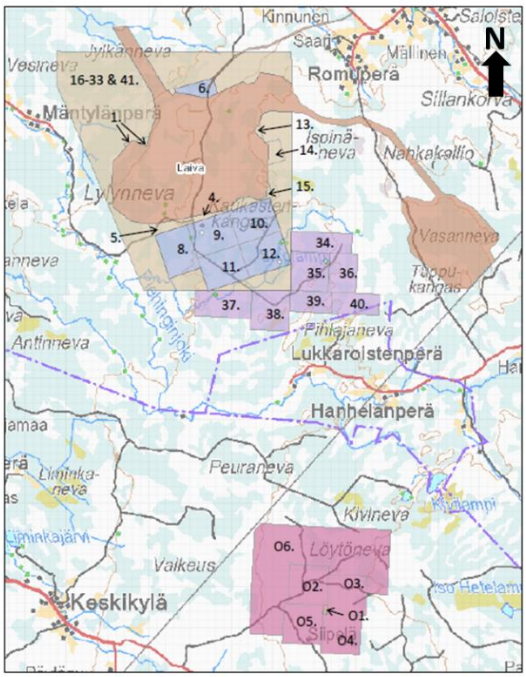
Figure 4.1 Laiva Project Location

Source: http://www.destination360.com/europe/finland/map

There are two main licence areas at the Laiva Project, Laiva and Oltava. The current open pits, processing plant and tailings storage facility are located in the Laiva licence, as well as advanced stage exploration projects at Mussuneva (Item 8 in Fig.

4.2) and Kaukainen (Item 10 in Fig. 4.2). Oltava is an early stage exploration property 12 km south of Laiva.

Figure 4.2 Laiva and Oltava Licence Areas



NORDIC GOLD OY LICENCES

Laiva = Mining concession

1. Laiva 1, exploration permit, extension applied
4. Laiva 4, exploration permit, extension applied
5. Laiva 5, exploration permit, extension applied
6. Laiva 6, claim, extension applied
8. Laiva 8, claim, extension applied
9. Laiva 9, claim, extension applied
10. Laiva 10, claim, extension applied
11. Laiva 11, claim, extension applied
12. Laiva 12, claim, extension applied
13. Laiva 13, exploration permit, extension applied
14. Laiva 14, exploration permit, extension applied
15. Laiva 15, exploration permit, extension applied
16. Laiva 16-33 & 41, exploration permit, extension applied
34. Laiva 34, claim, extension applied
35. Laiva 35, claim, extension applied
36. Laiva 36, claim, extension applied
37. Laiva 37, claim, extension applied
38. Laiva 38, claim, extension applied
39. Laiva 39, claim, extension applied
40. Laiva 40, claim, extension applied
O1. Oltava 1, exploration permit, extension applied
O2. Oltava 2, exploration permit, extension applied
O3. Oltava 3, exploration permit, extension applied
O4. Oltava 4, exploration permit, extension applied
O5. Oltava 5, exploration permit, extension applied
O6. Oltava 6, exploration permit, extension applied

Tormua 1-7, located ~275km to ENE from the Laiva mine

Source: Nordic Gold

Exploration and mining licences are governed by the Mining Act that was issued by the Ministry of Employment and Economy and has been effective since 2011. The Finnish Safety and Chemicals Agency is the mining authority and is responsible for administration of permitting.

The Laiva Project comprises exploration licences totalling 34 square kilometres (km^2) and a single 16.9 km^2 mining licence, for a total landholding of 50.9 km^2. The registration numbers of the licences which form the Laiva Project, and the current status of the licences are shown in Table 4.1. There are also exploration licences at Tormua, 275 km East North East (ENE) from the mine.

Table 4.1 Laiva Project Exploration Licences

NORDIC GOLD LICENCES, MAY 2019

Licence	Licence type	Status	Area ha	Expiry date	Remarks
Laiva Mining lease		Valid	1551.93	31/10/2023	
Laiva Mining lease help area		Valid	142.30	31/10/2023	
Laiva 1	Exploration permit, mining law 621/2011	Extension applied	5.74		
Laiva 4	Exploration permit, mining law 621/2011	Extension applied	17.29		
Laiva 5	Exploration permit, mining law 621/2011	Extension applied	17.71		
Laiva 6	Claim, mining law 503/1965	Extension applied	24.20		
Laiva 6B	Claim, mining law 503/1965	Extension applied	5.70		
Laiva 8	Claim, mining law 503/1965	Extension applied	99.25		
Laiva 9	Claim, mining law 503/1965	Extension applied	98.30		
Laiva 10	Claim, mining law 503/1965	Extension applied	98.47		
Laiva 11	Claim, mining law 503/1965	Extension applied	98.86		
Laiva 12	Claim, mining law 503/1965	Extension applied	95.02		
Laiva 13	Exploration permit, mining law 621/2011	Extension applied	4.05		
Laiva 14	Exploration permit, mining law 621/2011	Extension applied	20.49		
Laiva 15	Exploration permit, mining law 621/2011	Extension applied	18.97		
Laiva 16	Exploration permit, mining law 621/2011	Extension applied	99.77		Combined licence 16-33 & 41, will likely be granted in 2019
Laiva 17	Exploration permit, mining law 621/2011	Extension applied	54.05		Combined licence 16-33 & 41, will likely be granted in 2019
Laiva 18	Exploration permit, mining law 621/2011	Extension applied	99.46		Combined licence 16-33 & 41, will likely be granted in 2019
Laiva 19	Exploration permit, mining law 621/2011	Extension applied	63.87		Combined licence 16-33 & 41, will likely be granted in 2019
Laiva 20	Exploration permit, mining law 621/2011	Extension applied	58.85		Combined licence 16-33 & 41, will likely be granted in 2019
Laiva 21	Exploration permit, mining law 621/2011	Extension applied	57.61		Combined licence 16-33 & 41, will likely be granted in 2019
Laiva 22	Exploration permit, mining law 621/2011	Extension applied	83.69		Combined licence 16-33 & 41, will likely be granted in 2019
Laiva 23	Exploration permit, mining law 621/2011	Extension applied	70.00		Combined licence 16-33 & 41, will likely be granted in 2019
Laiva 24	Exploration permit, mining law 621/2011	Extension applied	96.87		Combined licence 16-33 & 41, will likely be granted in 2019
Laiva 25	Exploration permit, mining law 621/2011	Extension applied	25.75		Combined licence 16-33 & 41, will likely be granted in 2019
Laiva 26	Exploration permit, mining law 621/2011	Extension applied	20.36		Combined licence 16-33 & 41, will likely be granted in 2019
Laiva 27	Exploration permit, mining law 621/2011	Extension applied	56.04		Combined licence 16-33 & 41, will likely be granted in 2019
Laiva 28	Exploration permit, mining law 621/2011	Extension applied	49.00		Combined licence 16-33 & 41, will likely be granted in 2019
Laiva 29	Exploration permit, mining law 621/2011	Extension applied	39.11		Combined licence 16-33 & 41, will likely be granted in 2019
Laiva 30	Exploration permit, mining law 621/2011	Extension applied	98.46		Combined licence 16-33 & 41, will likely be granted in 2019
Laiva 31	Exploration permit, mining law 621/2011	Extension applied	99.78		Combined licence 16-33 & 41, will likely be granted in 2019
Laiva 32	Exploration permit, mining law 621/2011	Extension applied	62.63		Combined licence 16-33 & 41, will likely be granted in 2019
Laiva 33	Exploration permit, mining law 621/2011	Extension applied	72.67		Combined licence 16-33 & 41, will likely be granted in 2019
Laiva 34	Claim, mining law 503/1965	Extension applied	79.47		
Laiva 35	Claim, mining law 503/1965	Extension applied	96.09		
Laiva 36	Claim, mining law 503/1965	Extension applied	69.66		
Laiva 37	Claim, mining law 503/1965	Extension applied	98.17		
Laiva 38	Claim, mining law 503/1965	Extension applied	99.53		
Laiva 39	Claim, mining law 503/1965	Extension applied	57.86		
Laiva 40	Claim, mining law 503/1965	Extension applied	64.52		
Laiva 41	Exploration permit, mining law 621/2011	Extension applied	50.89		Combined licence 16-33 & 41, will likely be granted in 2019
Oltava 1	Exploration permit, mining law 621/2011	Extension applied	2.00		
Oltava 2	Exploration permit, mining law 621/2011	Extension applied	100.00		
Oltava 3	Exploration permit, mining law 621/2011	Extension applied	100.00		
Oltava 4	Exploration permit, mining law 621/2011	Extension applied	100.00		
Oltava 5	Exploration permit, mining law 621/2011	Extension applied	100.00		
Oltava 6	Exploration permit, mining law 621/2011	Extension applied	566.99		Licence boundaries to confirm (Tukes)
Tormua 1	Exploration permit, mining law 621/2011	Extension applied	100.00		Natura 2000 -assessment required - decision needed
Tormua 2	Exploration permit, mining law 621/2011	Extension applied	98.97		Natura 2000 -assessment required - decision needed
Tormua 3	Exploration permit, mining law 621/2011	Extension applied	98.96		Natura 2000 -assessment required - decision needed
Tormua 4	Exploration permit, mining law 621/2011	Extension applied	97.97		Natura 2000 -assessment required - decision needed
Tormua 5	Exploration permit, mining law 621/2011	Extension applied	98.16		Natura 2000 -assessment required - decision needed
Tormua 6	Exploration permit, mining law 621/2011	Extension applied	97.47		Natura 2000 -assessment required - decision needed
Tormua 7	Exploration permit, mining law 621/2011	Extension applied	97.47		Natura 2000 -assessment required - decision needed

Source: Nordic Gold

Exploration licences are valid for an initial period of four years and can be extended for three-year periods up to a maximum of 15 years. An annual report must be submitted to the mining authority detailing the exploration activity and results at each exploration property, as well as payment of an annual exploration fee to each landowner.

The exploration fee is calculated as a rate per hectare (ha), which varies depending on the age of the exploration licence, as follows:

- Years 1 to 4: €20/ ha/ year
- Years 5 to 7: €30/ ha/ year
- Years 8 to 10: €40/ ha/ year
- Years 11 to 15: €50/ ha/ year

The Laiva Mining Lease licence was granted on 31st October 2008 and is valid until 31st October 2023. The holder of the Mining Lease is obliged to submit an annual report to the mining authority on the extent and results of the exploitation of the

deposit and to inform of any essential changes in the information on mineral resources. The term of the mining lease can be extended either for an additional fixed term of 10 years, or until further notice in order to exploit the deposit. An annual fee of €50/ ha is payable to landowners within the mining permit and a rehabilitation fee is payable to the mining authority at the following rates:

- High grade tailings pond: €50/ square metre (m^2)
- Sulphide rich waste dump: €2.5/ m^2
- Low Grade Tailings Storage Facility: €1.7 /m^2

Nordic Gold is a junior mining company with ownership of the Laiva Gold Mine in Finland. Laiva Gold Mine is fully built, fully permitted and was previously (2018) financed to production via a gold forward sale agreement provided by Pandion Mine Finance. The Laiva Gold Mine is currently not in production and is on 'care and maintenance'.

Nordic Gold has entered into a services agreement with both Lionsbridge and Westech under which Lionsbridge will provide the Company with corporate management services. Westech will provide the Company with technical services to return the Company's Laiva Gold Mine project back to production.

Nordic OY owns 900 ha of the surface area within the mining licence lease area. The remainder of the surface rights at Laiva within the mining and exploration licences are held by private landowners and forestry companies. The mining licence lease permits Nordic OY to conduct mining related activities and the surface rights are considered sufficient for mining operations. The area of the mining licence is uninhabited with limited commercial logging near the project area.

In addition to the annual exploration fees, compensation is payable to landowners within the exploration licence in the event that exploration activity such as drilling causes damage (for example, removal of trees). The compensation must be approved by the mining authority prior to commencement of the activities.

A 0.15% royalty is payable to landowners within the mining lease and is paid pro rata depending on the area of land they own within the mining lease area. The royalty is based on the average annual value of metal produced in the subject period. It was stated that the property is not subject to other royalties, back-in rights, payments or other agreements and encumbrances.

Coffey is not qualified to provide any opinion of a legal nature, but based on our review, we understand that Nordic OY has sufficient rights and title in order to conduct exploration at the Laiva Project and mining at the Laiva Gold Mine. The mining lease and mining lease help area (area surrounding the mine, used for tailings storage facility and other mining related work) are valid until end of 2023. Extensions to all exploration licences at Laiva and Oltava have been applied for and are likely to be granted during 2019. Licence renewal approvals will be required from the mining authority in order to maintain these licences in good standing. No other significant factors or risks that may affect title or the right or ability to perform work on the property have been identified by Coffey. Though Coffey has not performed detailed examination of rights and title held by Nordic OY, it has no reason to doubt the validity of these mining rights.

A compulsory 24% value added tax (VAT) is to be paid to the Government for all rehabilitation.

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

The project area is generally flat with gentle topography within the forest. The broad shallow depressions have peat bogs. There are some shallow streams in the forest. Surface elevation varies from 30 to 100 metres above sea level (masl). The mine site varies from 50 to 60 masl.

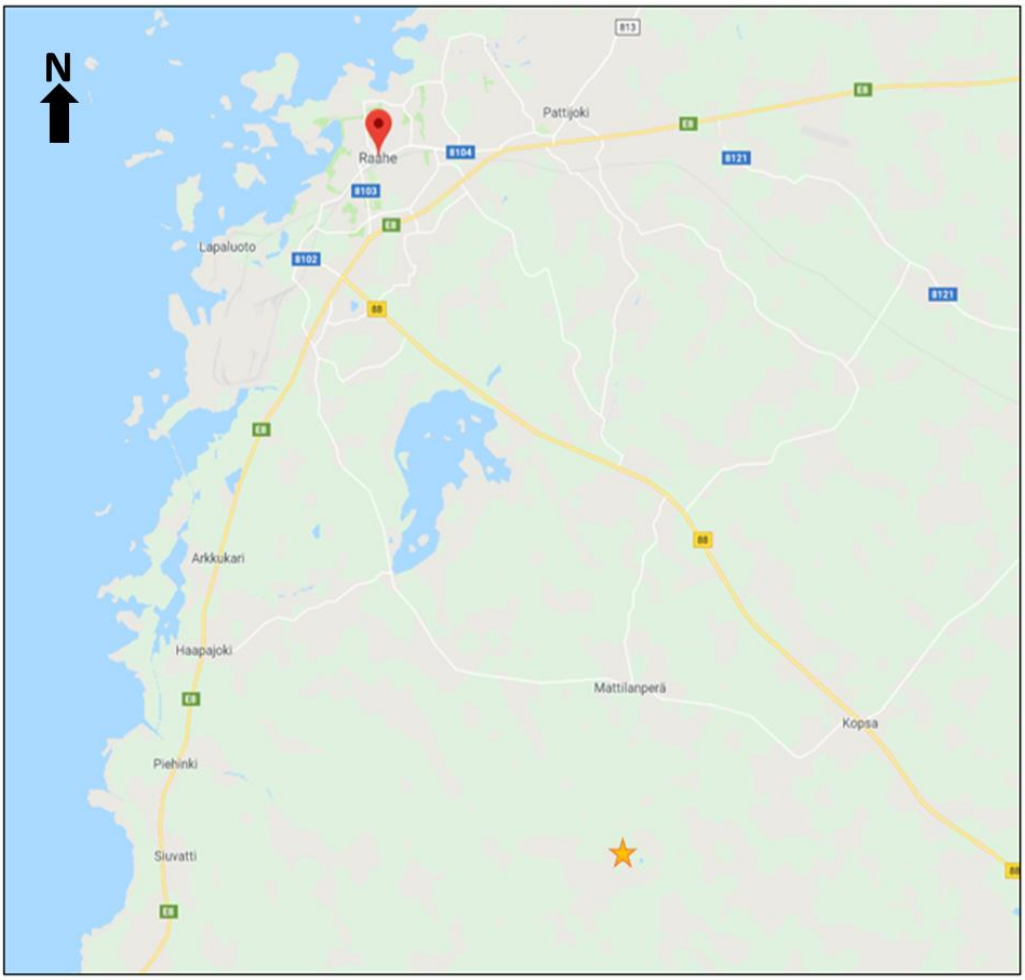
Pine, spruce and birch trees make up the forest. There are also some grassy clearings and boggy areas.

Figure 5.1 View of Laiva Project Area

Source: Nordic Gold

Access to the area is from the town of Raahe (population approx. 20,000), 20 km northwest of the mine. Raahe is located on highway E8. A port is located at Raahe as well as a steel plant. The closest airport is 70 km north at Oulu, with direct flights to Helsinki. The mine is reached by public roads from Raahe (Road 88) to Kopsa village, followed by a paved road from Kopsa, and a 4 km gravel access road to the entrance of the mine site and offices. Access is possible all year-round. The core storage facility (CSF) is located 6 km east of the Laiva mine site along gravel roads. The CSF can also be accessed directly from Raahe by paved road.

Figure 5.2 Road Map Showing Location of Project (orange star) and Access Route Discussed in Text



Source: Google maps 2019

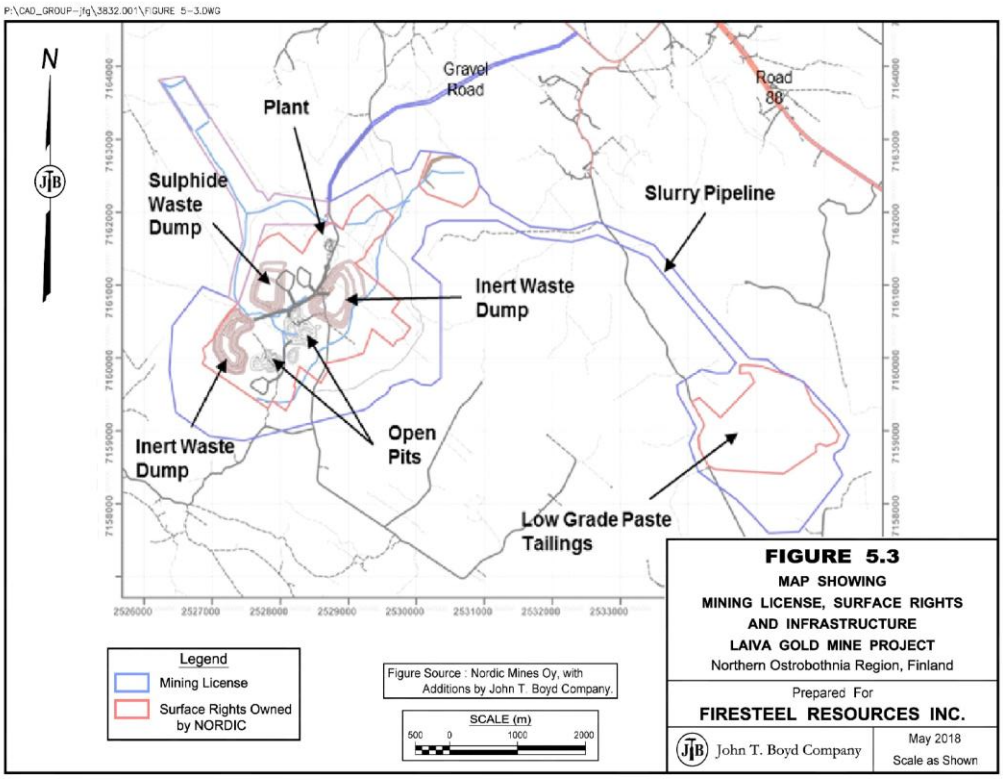
Access across the Laiva property is via gravel tracks constructed by Nordic OY, as well as by existing forestry and public gravel roads. Temporary access routes are required for exploration drill sites located within forested areas, but generally access is good. The main restriction to access is in areas with peat bogs, where preparation is needed to provide vehicular access and stable drill platforms.

The region has a sub-arctic climate, with mild summers and cold winters, with average temperatures of -9°C in winter and 15°C in summer. Extreme temperatures of -35°C in winter and 30°C in summer are rare. Annual precipitation is relatively low, with an average of 300 to 600 millimetres (mm), the majority of which occurs in the summer. The ground is snow covered for most of winter, although the snow rarely exceeds 1 m deep and has not affected the operating season for exploration or mining activities.

Existing facilities at the Laiva Project include an open-pit mine under care and maintenance. The mine consists of two pits and a 6,000-tonne-per-day (tpd) mill and processing plant, including an autogenous mill, flash flotation concentrator, gravity circuit with spiral concentrator, and high- and low-grade cyanide leach circuits. Tailings facilities include a lined high-grade tailings pond located adjacent to the cyanide plant, and a low-grade tailings paste deposit with pipeline located 7 km east

of the mine. Separate waste dumps are used for inert and sulphide-rich material, proximal to the open-pits.

Figure 5.3 Plan of Existing Facilities at the Laiva Project



Source: Boyd 2018 report

Nordic OY reports sufficient surface rights and water resources for mining and processing operations. Groundwater from the open pit and waste water filtered from the paste tailings are pumped and stored in a purpose-built reservoir, providing process water for the plant. Excess water in the dam is discharged through an 18 km long pipe into the Gulf of Bothnia.

The mine site has access to two lines of grid power; 110 kilovolts (kV) is supplied from the main grid to the east and 20 kV is supplied from the village of Mattilanpera to the north. A diesel storage area to supply fuel to the mine fleet is located at the mine site.

6.0 HISTORY

Boulder sampling by an amateur prospector in 1980 lead to the discovery of the Laiva Project. Outokumpo OY (Outokumpo) then acquired the area in 1981 and explored it until 1986. Endomines OY (Endomines) acquired the area in 1999 and carried out exploration until acquisition by Nordic OY in 2005.

Several mineral resource and reserve estimates were commissioned by Nordic OY between 2008 and 2018. Nordic OY released two mineral resource estimates and a mineral reserve estimate prepared in accordance with Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy (JORC) (2012) by SRK Consulting (SRK) in 2013, 2015 and 2016, respectively. Before this, CSA Global UK Ltd (CSA) completed five resource estimates to JORC standard. Boyd prepared a resource update in 2018 in accordance with NI 43-101 guidelines. These estimates, CSA, SRK and Boyd, all used Measured, Indicated, and Inferred category resources and Proven and Probable Reserves, which are equivalent to the categories defined under NI 43-101 and consistent with the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Definition Standards relevant to the time of publication.

As stated in Boyd (2018), the Laiva Mine initially commenced production in January 2012 and mining ceased in December 2013. The mill continued to operate, processing low-grade stockpile material until March 2014. Plant availability averaged approximately 80% throughout the operating period. Mining was conducted from two open pits: North Pit and South Pit. Total gold production was 72,000 ounces from 2.8 Mt of mineralised material processed. This equates to an average life-of-mine (LOM) head grade of 0.9 g/t gold and a gold recovery of between approximately 79% and 85%. In total, 7.7 Mt of waste material, including 2.3 Mt of sulphide-rich waste, was produced. The resulting average strip ratio was 1:2-8 (tonne mineralised material: average number of tonnes of waste). The mine operated at an average all-in cost of approximately American dollars (US $)1,760 per oz gold. This was caused partially by the mine being staffed for 2 Mt/year capacity but only running at 56% capacity for two years. Poor mining techniques were evident as well as bulk mining of low-grade material and low throughput to the mill.

Through a Joint Venture agreement, Firesteel, now known as Nordic Gold, acquired the project management of Nordic OY in 2018, followed by releasing a NI 43-101 Resource Update in 2018 prior to restart of production.

The second mine operation start-up was in August 2018, continuing to March 2019 when the operation was put into care and maintenance. Mining was from both North Pit and South Pit. Total gold production was 8,056 oz from 0.33 Mt of material processed. This is an average LOM head grade of 0.76 g/t gold and gold recovery of 77.0% to 89.5%. In total, 4.09 Mt of waste material was mined, of which 0.77 Mt was placed on the sulphide-rich waste rock dump. The average strip ratio was 1:4-11 (tonnes mineralised material: average tonnes of waste). Sulphide rich material made up 19% of the waste material. Current management has carried out a review of the 2018 restart and is of the opinion that it was driven by the company running out of money, resulting in no detailed mine planning or mapping being completed. Also, senior staff were not experienced in open pit narrow vein mining and financial

pressure pushed for a winter start-up with an inexperienced contractor. The mill did not operate at full capacity and mainly processed low grade stock piles, resulting in low grade and high costs.

6.1 HISTORICAL EXPLORATION

Geological Survey of Finland (GTK) collected regional airborne magnetic, radiometric and electromagnetic data between 1982 and 1983 at Laiva as part of the National Aerogeophysical Mapping Programme. The data is a useful tool for regional mapping and structural interpretation but is too coarse for delineation of deposit scale features.

In the 1980's, Outokumpo carried out boulder and till sampling and top of bedrock percussion drilling on a 100 m by 50 m grid at Laiva. Gold anomalies were followed up with a diamond core drilling campaign totalling 6,926 m which defined mineralisation at Laiva North Pit over an area of approximately 400 m by 400 m and Laiva South Pit over an area of 250 m by 200 m. Their exploration work was used in several historical mineral resource estimates.

Outokumpo also carried out geophysical surveys in the 1980's including ground magnetic, Bouger gravity, and induced polarisation (IP) over a maximum area of 3 km by 2 km. The results demonstrated that metavolcanic rocks gave a more intense magnetic response relative to the quartz diorite and granitoids. Results from IP (chargeability and resistivity) were inconclusive and were not conducted over the main body of mineralisation.

Two shallow pits were excavated after this sampling programme in what is now the North Pit to expose the bedrock and collect bulk samples for metallurgical test work. Outokumpo extracted 5,000 t of material in total, with a grade of 2.6 g/t gold. Details regarding the test work and results are not known.

Endomines drilled 10 diamond holes totalling 772 m at Laiva in 1999. The holes were largely drilled as infill to the Outokumpo holes. Results of the drilling were used for historical mineral resource estimation.

6.2 HISTORICAL RESOURCE AND RESERVE ESTIMATES

Many historical mineral resource and reserve estimates have been completed by the previous operators at the Laiva Gold Mine. These estimates are considered to be historical and should no longer be relied upon; they are superseded by the current mineral resource estimate documented in this report. The results and main parameters used for each historical resource estimate for the Laiva Gold Mine are summarised in Table 6.1. Summaries of the previous resource estimates can be found in Boyd (2018) and further details can be found in the original reports.

Table 6.1 Laiva Gold Mine, Historical Resource Estimates

Date	Company	Million Tonnes	Gold g/t	Gold Oz	Cut-off	Top Cut	Block Size	Notes
1984	Outokumpo	0.74	4.41	104,971	2.0			now extracted
1985	Outokumpo	0.05	9.20	15,412	3.0			now extracted, south only
2005	Endomines	1.15	3.46	128,007	2.0		10 x 3 x 10	partially extracted
2008	Nordic OY (Dowd)	19.84	1.87	1,194,000	0.8		25 x 10 x 20	as mined topo
2008	Nordic OY (CSA)	20.18	1.79	1,161,000	0.5, 0.8, 1.0	30.0		as mined topo
2009	Nordic OY (CSA)	23.73	1.52	1,161,000	0.5, 0.8, 1.0	30.0		as mined topo
2011	Nordic OY (CSA)	23.70	1.79	1,362,000	0.5, 0.8, 1.0	30.0		as mined topo
2012	Nordic OY (CSA)	29.55	1.69	1,607,000	0.8	30.0	SMU	as mined topo
2012	Nordic OY (CSA)	28.50	1.69	1,553,000	0.8	30.0	SMU	as mined topo
2013	Nordic OY (SRK)	18.57	1.62	970,000	0.6	30.0	20 x 20 x 10 SB 4 x 4 x 5	as mined topo
2015	Nordic OY (SRK)	19.19	1.61	995,000	0.6	30.0	4 x 4 x 5	as mined topo
2016	Nordic OY (SRK)	28.69	1.21	1,116,000	0.3	30.0	4 x 4 x 5	as mined topo
2018	Boyd	12.83	1.45	596,000	0.4		9 x 9 x 9 3 x 3 x 3	as mined topo, new drilling

Note: Nordic OY 2009 (CSA) estimate used three different cut-offs to test the effect of low-grade material on the overall ounces. 2018 Boyd estimate is prior to the second mine start-up in 2018.

Key: SMU – selective mining unit, SB – sub-block, topo - topography

The estimates prepared by Outokumpo in 1984 and 1985 are considered unreliable as the reporting code is not known and the polygonal estimation methodology used is considered inappropriate by Coffey. Also, the area on which the estimate was based has since been mined out, so the data is not relevant to current estimates.

Endomines produced an estimate in 2005, but as with previous estimates, the reporting code is not known and the estimation methodology used is considered inappropriate by Coffey. The area in the resource estimate has also been partially mined.

Nordic OY commissioned several mineral resource and reserve estimates between 2008 and 2012 (Dowd and CSA), reporting in accordance with JORC (2008) and Canadian Institute of Mining, Metallurgy and Petroleum (CIM) (2005), which use Measured, Indicated and Inferred resource categories and Proven and Probable

reserve categories, equivalent to categories in NI 43-101 standard. However, these estimates are historical and not considered a reliable comparison to the current estimate.

Nordic OY also commissioned two mineral resource estimates in 2013 and 2015, and one mineral reserve estimate in 2016. These were all completed in accordance with JORC (2012) by SRK. The categories used are equivalent to categories in NI 43-101.

Nordic Gold (Firesteel) commissioned Boyd to complete a resource estimate in 2018 in accordance with NI 43-101. This estimate included new data from drilling completed since the previous estimates.

7.0 GEOLOGICAL SETTING AND MINERALISATION

Mineralisation at the Laiva Project is hosted in shear zones within a structurally complex domain. This is confirmed by a Master of Science (MSc) thesis by Merja Makela in 1984, from outcrop mapping when no drill core was available. It has also since been confirmed with structural work by Pratt (2010), SRK (2014) and Boyd (2018).

All of the rocks in the area have undergone low grade metamorphism and should therefore be prefixed by 'meta', however, for simplicity the rocks are referred to in this report as 'quartz diorite' instead. This is also consistent with the terminology used in logging, sampling and mapping.

7.1 GEOLOGICAL SETTING

Finland is part of the Archean-Paleoproterozoic Fennoscandian Shield, which comprises the Archean Karelian and Kola cratons flanked by the Paleoproterozoic Caledonide and Svecofennian orogenic belts to the west and southwest. Phanerozoic sedimentary rocks are juxtaposed against the shield to the east.

The Laiva gold deposit is located in the Svecofennian orogenic belt, which formed during northeast vergent collision between multiple calc-alkaline volcanic arc complexes and microcontinents with the foreland Karelian Craton approximately 1900 Ma. The contact between the Karelian Craton and the Svecofennian orogenic belt is marked by the deep, crustal scale, northwest trending Raahe-Ladoga suture, which is located approximately 50 km north of the Laiva gold deposit and can be traced through Finland into Sweden.

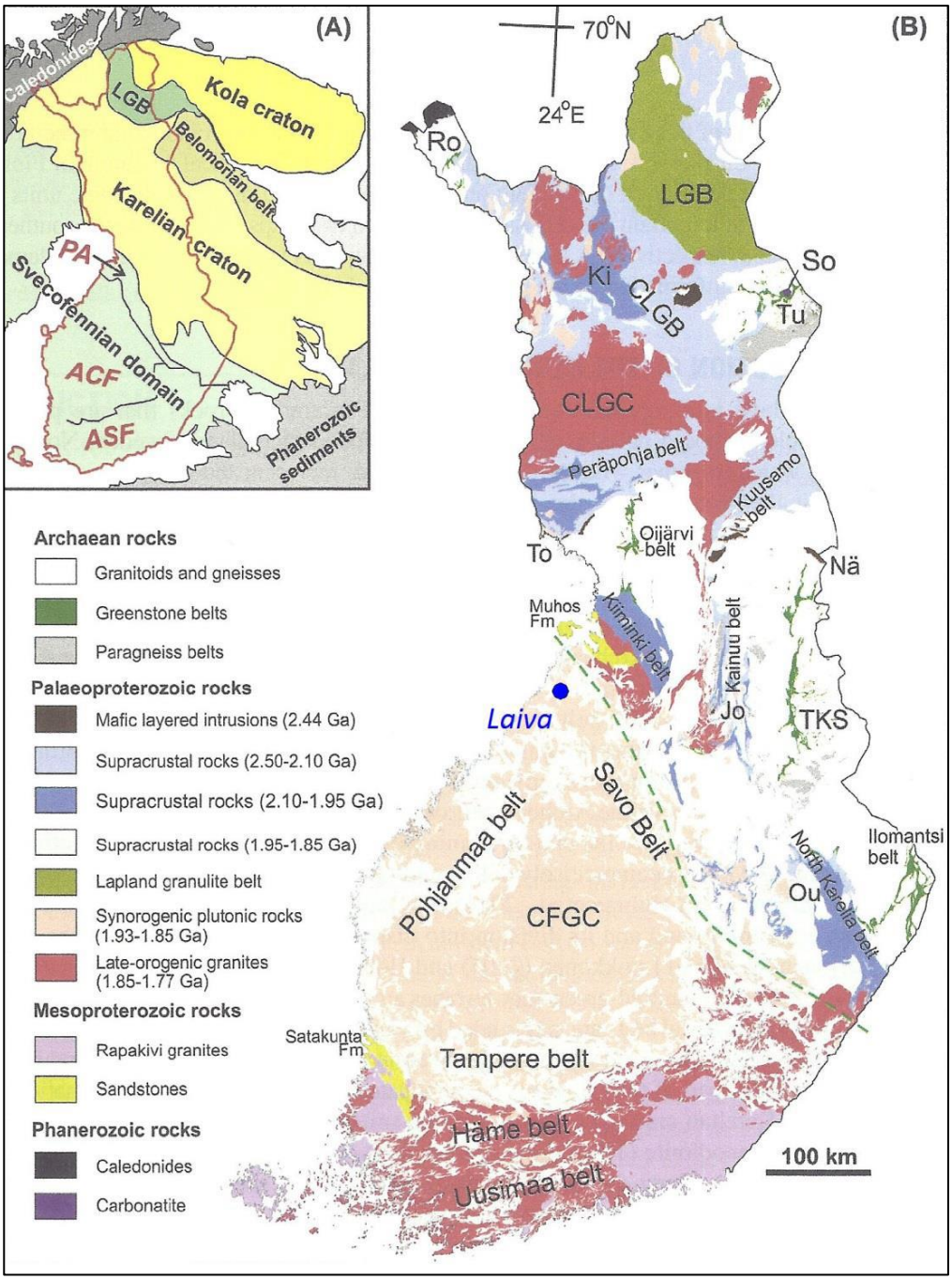
The accretionary history of the Svecofennian orogenic belt is complex and comprises microcontinent accretion, continental extension, continent-continent collision, orogenic collapse and then stabilisation at circa. 1770 Ma (Nironen, 2017). Several stages of Svecofennian granitic magmatism are recognised, comprising syn-orogenic (1930 to 1850 Ma) and late-orogenic (1850 to 1770 Ma) stages (Hanski, 2015).

Between 1860 and 1890 Ma an orogen-parallel shear regime was initiated resulting in bimodal volcanism and intrusion of associated plutons. This stage of the Svecofennian orogeny is recognised as the most important in terms of regional orogenic gold mineralisation (Eilu et al., 2003).

The region experienced relative tectonic quiescence until rifting associated with formation of the Iapetus Ocean between 560 and 400 Ma, followed by exhumation, weathering and erosion of the Fennoscandian Shield between 300 and 60 Ma.

Pleistocene glacial till covers much of the low-lying areas of the shield (Eilu et al., 2003).

Figure 7.1 Map A: Main Bedrock Units of the Eastern Part of the Fennoscandian Shield; Map B: Geological Map of Finland



Source: Hanski, 2015

Map (A) Legend: PA - Primitive arc complex of central Finland, ACF - Accretionary arc complex of central and western Finland, ASF - Accretionary arc complex of southern Finland.

Map (B) legend: CFGC - Central Finland Granitoid Complex; CLGB - Central Lapland greenstone belt; CLGC - Central Lapland Granitoid Complex; Tipasjärvi–Kuhmo–Suomussalmi greenstone complex; LGB - Lapland greenstone belt; Ou - Outokumpo; Jo - Jormua ophiolite; Ki - Kittilä greenstone complex; Ro - Rommaeno complex; So - Sokli carbonatite; TKS - Tipasjarvi-Kuhmo-Suomussalmi belt; To - Tornio; Tu - Tulppio, Nä – Näränkävaara.

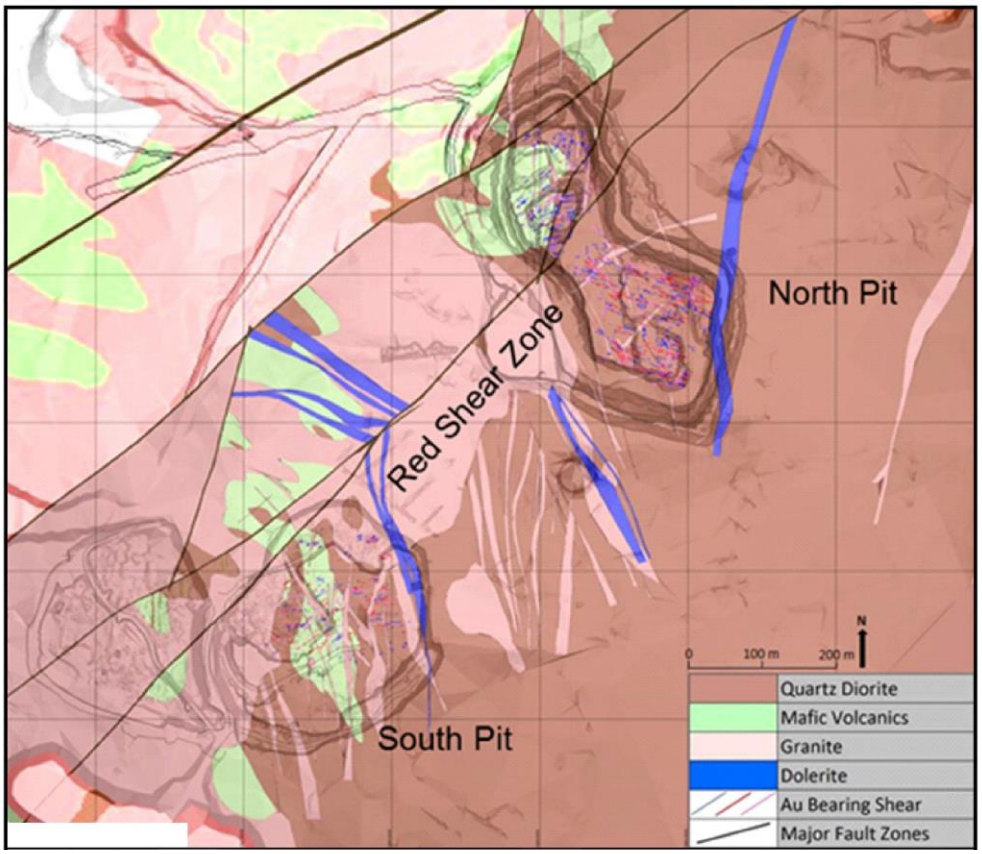
7.1.1 REGIONAL GEOLOGY

The Svecofennian orogenic belt is divided into three arc complexes: the Savo Belt, central Svecofennia, and southern Svecofennia. The Laiva gold deposit is located in the 450 km long Savo Belt, immediately adjacent on the southwest of the Raahe-Ladoga suture. The Savo Belt comprises supracrustal mafic-ultramafic volcanic and volcanosedimentary rocks as well as accretionary prism nappe complexes (Luukas et al., 2017), which have been intruded by mafic plutons and several generations of granitoid stocks and dykes. These Svecofennian units are variably folded and faulted and display lower greenschist through to amphibolite facies metamorphism. Younger mafic dykes and sills formed during a later period of extension and cross cut the Svecofennian stratigraphy.

Gold mineralisation in the Savo Belt occurred post-peak metamorphism and resulted in the formation of two main gold districts; the Raahe-Haapajärvi district in the northwest in which the Laiva gold deposit is located, and the Savo District in the southeast. The Savo Belt also hosts younger major Volcanic Massive Sulphide (VMS) (copper [Cu], nickel [Ni], lead [Pb] and zinc [Zn]) deposits hosted in the supracrustal sequences.

The Raahe-Haapajärvi gold district is a northwest-southeast oriented belt comprising meta-volcanic and meta-sedimentary units, intruded by intermediate plutons and late-orogenic granitoids. The district is situated on a north-south trending fault located between two major, sub-parallel, northeast trending shear zones, and has been subject to regional shearing and ductile deformation.

Figure 7.2 Structural Geology of the Laiva Project Area



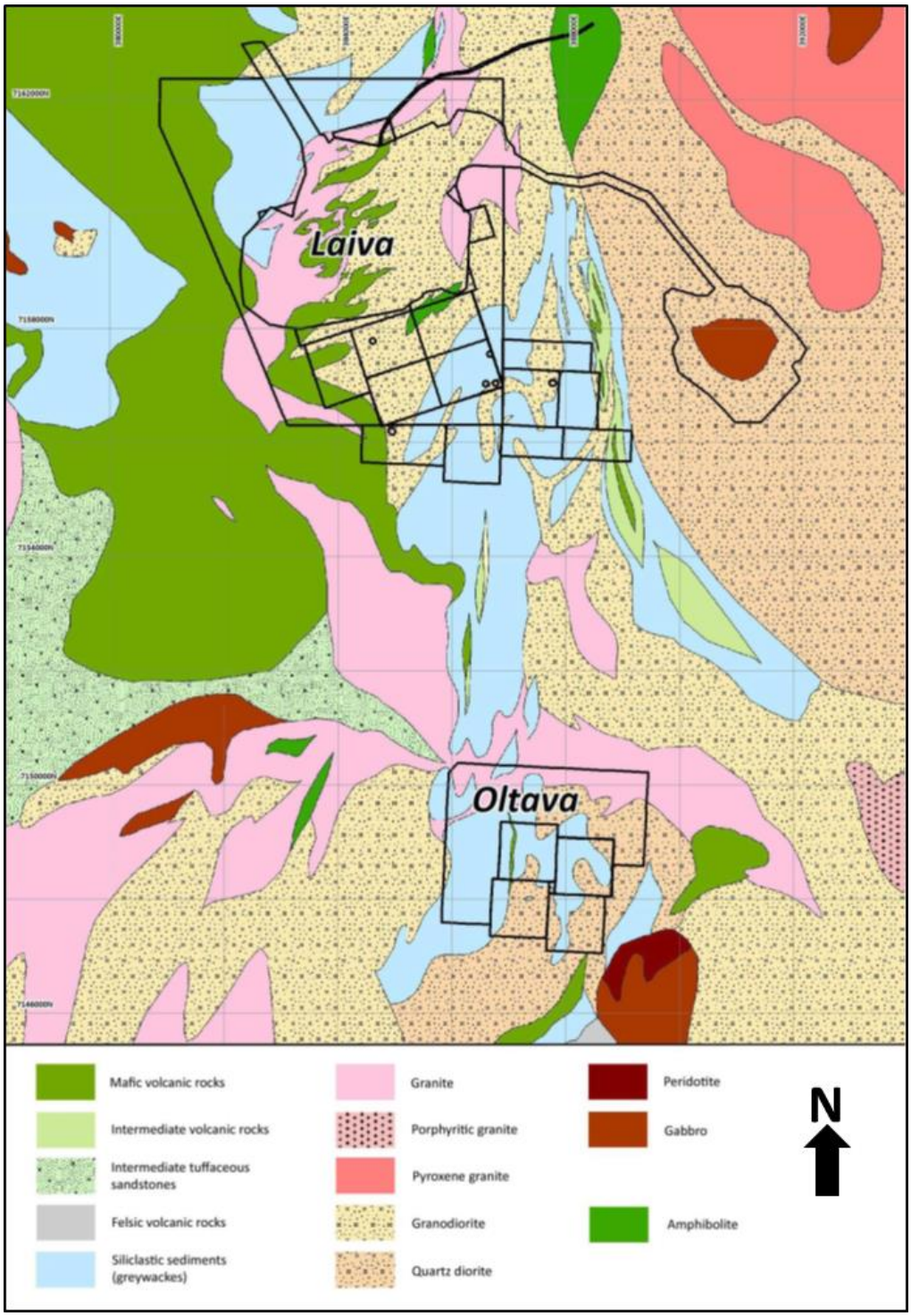
Source: Boyd 2018

7.1.2 LOCAL GEOLOGY

LITHOSTRATIGRAPHY

The Laiva-Oltava project area comprises lozenges of mafic metavolcanic rocks (termed Uralite Porphyrite) with intercalated meta-volcanosedimentary horizons, located primarily in the north-western parts of the project area. Metagreywackes occur as boudins and slivers to the east and west of the metavolcanic units. These supracrustal units typically strike north-south, sub-parallel to the regional structural fabric. Quartz diorite to granodiorite plutons intrude the supracrustal strata and occupy the central and eastern part of the project area. Together, the metavolcanic and quartz diorite are the main host to mineralisation. All units are intruded by granitic plutons mainly to the west and dykes and later mafic (dolerite) dykes are more widely distributed (Figure 7.3).

Figure 7.3 1:200k Bedrock Geology of the Laiva Area (modified from Geological Survey of Finland, 2013)



Source: Modified from Geological Survey of Finland, 2013

Note: The MRE of this report is situated in the Laiva area polygon.

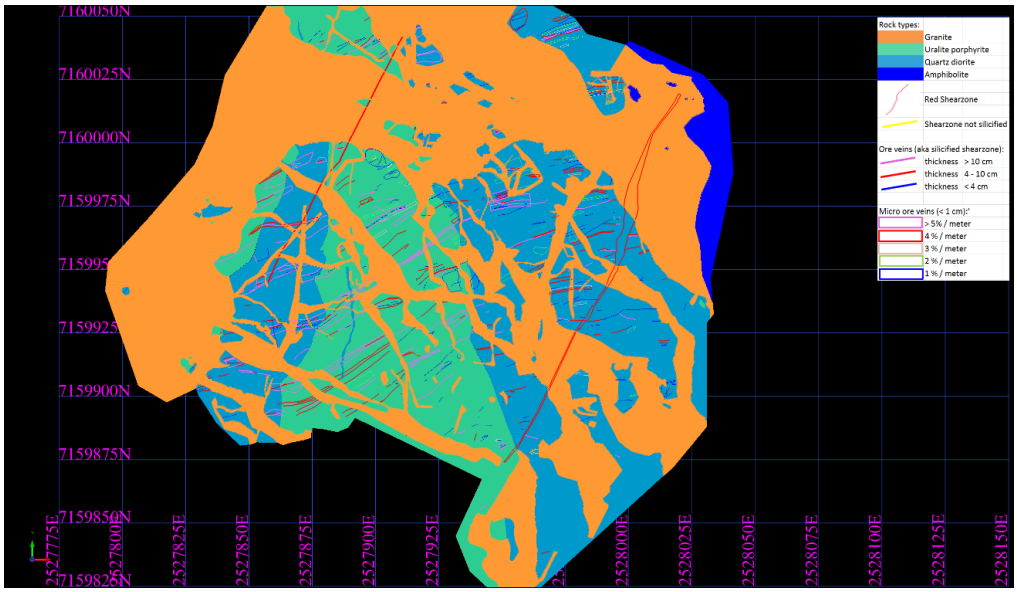
The entire project area is overlain by glacial till and sand deposits between 3 m and 15 m thick. The glacial flow direction is inferred as approximately southeast and is of importance in assessing regional geochemical data.

Mafic metavolcanic rocks are typically massive, fine-grained, equigranular with weak localised foliation. Quartz diorite is typically massive, medium-grained, and equigranular, with transitional contacts into medium-grained, porphyritic quartz diorite and medium-grained, equigranular granodiorite. The quartz diorite and metavolcanic rocks are weakly magnetic and display a weak localised schistose fabric associated with regional scale deformation.

Several stages of granitoid magmatism are observed intruding the mafic metavolcanics and quartz diorite rocks. The majority of granite is post-mineral and occurs as granite dykes, sills and plutons; however, relatively minor narrow (<2 m thick) pre-mineral pegmatite dykes are also observed. A north-south trending granite pluton dominates the western part of the project area. In the western part of the North Pit, the granite pluton dips shallowly northeast and based on drilling investigation it is seen to truncate mineralisation at depth.

Granite dykes and sills typically occur proximal and sub-parallel or perpendicular to the contact between the granite pluton and metavolcanic rocks. The granitic dykes and sills vary in thickness between <1 m to >4 m and form a conjugate pattern. In the South Pit area, the granite dykes form a dense network, encapsulating xenoliths of mineralised metavolcanic rocks (Figure 7.4).

Figure 7.4 Granitic Dykes and Sills (orange) Encapsulating Xenoliths of Mineralised Metavolcanic Rocks (blue and green)



Source: Nordic Gold

STRUCTURE

Structure has been mapped during grade control in previous production campaigns and drill core logging, as well as being inferred from ground magnetic data. Much of the recent structural understanding of the Laiva Gold Mine has been developed by Pratt (2010), SRK (2014), and Boyd (2018).

The structural geology of Laiva is complex, with poorly-defined large-scale folding of schists, weak localised schistosity in mafic metavolcanic and quartz diorite units, and localised development of foliation in some granite dykes. Parasitic folding of granite dykes, especially within meta-volcanic rocks is commonly observed. Several

generations of faults are recognised, comprising mylonitic shear zones which are inferred to be synchronous with mineralisation and later strike-slip and reverse faults which offset mineralisation. Veins associated with most stages of deformation are observed at Laiva, however vein paragenesis still requires further investigation.

Mylonitic shear zones are the main host to mineralisation. The mylonitic shear zones display variable strike due to late ductile deformation associated with a northeast trending strike-slip fault (the Red Shear Zone), but in general strike approximately east-west. The mylonitic shear zones are hosted in quartz diorite and mafic volcanic rocks, post-date pegmatite dykes and are cross cut by granite and diorite dykes. They are typically 1 centimetre (cm) to 20 cm wide, steeply south dipping (75° to 85°) and planar. They occur as sub-parallel lineaments with weak foliation recognised between closely spaced shear zones.

Several post-mineral, northeast trending brittle-ductile strike-slip faults are observed or inferred cross cutting the mylonitic shear zones. The faults post-date granitic intrusions but their paragenetic relationship with dolerite dykes has not been observed. The faults strike northeast and dip steeply southeast. The Red Shear Zone is the best defined of these faults which displays a dextral shear sense, strikes northeast and dips steeply southeast. Lateral displacement in the order of 10 m is observed.

The Red Shear Zone displays late brittle deformation in the form of cataclastic monomict breccia with a carbonate matrix and strong hematite staining. The Red Shear Zone is typically barren of gold mineralisation, with occasional low grades reported from drilling intercepts. It is thought that these isolated gold values are associated with clasts of mineralised host rock within the fault, rather than the Red Shear Zone itself being mineralised.

The distinctive hematite staining associated with the Red Shear Zone is also observed in faults in the South Pit. The exact relationship between these faults in the North and South Pits requires further investigation, as the Red Shear Zone is known to locally modify the orientation of mineralisation in the North Pit and therefore is likely to have a similar influence on the orientation of mineralisation in the South Pit.

North-northeast striking, sub-vertical structures are observed in the eastern part of the North Pit. These faults display a reverse sense of movement, with a displacement of 1 m to 2 m. These faults have not been mapped in detail as they were only observed during mapping of the pits during grade control and were not recognised in drill core. Their influence on mineralisation in terms of offset is minimal and their exclusion as a plane in the geological modelling should not have a material impact on mineral resource estimation. However, continued mapping of these structures will be required during grade control work.

Shallow thrust faults with cm-scale displacement are observed in the eastern part of the North Pit. Their paragenetic relationship to other faults has not been determined. Pratt (2010) postulated that the presence of shallowly dipping S1 schistosity may represent the presence of regional scale, relatively flat lying thrusts or shear zones adjacent to or underlying the Laiva project area.

7.2 MINERALISATION

7.2.1 QUARTZ VEINS

Veins occur as pre-mineral bucky quartz, syn-mineral blue-grey quartz-sulphide veins hosted within mylonitic shear zones, and post-mineral white-grey quartz-carbonate veins.

Pre-mineral bucky quartz veins show folding and offset by faulting, and cross cut metavolcanics, quartz diorite and pegmatite. These veins strike sub-parallel to mineralised shears but also occur in other orientations and have been folded and boudinaged. These veins dip 70° to 80° to the south.

Syn-mineral quartz-sulphide veins occupy mylonitic shear zones with a steep dip (75° to 85° to the south) and have a general east-northeast to east-southeast trend either side of the Red Shear Zone. En-echelon vein sets occur oblique to mylonitic shear zones, as well as tension gashes which occur at high angles to the mylonitic shear zones.

Post mineral medium to coarse-grained, quartz-carbonate veins cross cut most units, occurring at high angles to the mineralised shear zones.

7.2.2 GRANITE AND DOLERITE DYKES

Granite dykes and sheets, or sills, occur with highly variable dip and strike, but usually strike north-south and dip east to east-northeast with varying steepness. Dykes with roughly east-west strike and north dip, also with variable steepness, are less common in the North and South Pits.

Granite dykes appear to locally offset mineralisation by up to 25 m. It is not clear from drill core observations whether the offset is a faulted displacement or a fault drag causing parasitic folding of the mineralised zones proximal to dykes. Small scale fault drag of mineralised zones at the contacts with granite dykes is seen in the South Pit and is evidence that the mineralised zones are locally folded close to granite contacts.

7.2.3 ALTERATION

Alteration at Laiva is weak. There are rare, narrow (mm-scale) sericite-pyrite selvedges to mineralised shear zones. Rare moderate albite-epidote-pyrite alteration occurs as selvedges to mineralised shear zones in some metavolcanics units, in association with volcano-sedimentary protoliths. Mafic phenocrysts show a localised magnetite destructive chlorite alteration proximal to mineralised zones.

A weak, pervasive secondary biotite and trace pyrite-chlorite alteration occurs throughout the metavolcanic rocks and is possibly a metamorphic assemblage.

7.2.4 MINERALISATION DETAILS

Mineralisation occurs as sheeted quartz-sulphide vein arrays within multiple, sub-parallel, mylonitic shear zones, hosted in metavolcanic and quartz diorite rocks.

Mineralisation occurs in two main bodies, the North Pit with Eastern Extension in the north and the South Pit in the south.

At the North Pit, mineralised shear zones can be traced over a strike length of up to 600 m, with the mineralised zone (including the Eastern Extension) occurring over an area of 1,300 m by 450 m. In the South Pit area, mineralisation occurs over an area of 500 m by 400 m. Mineralisation has been intercepted at depths of up to 250 m below surface and is open down dip, apart from the western part of the North Pit where mineralisation is truncated by the granite pluton. In both the North and South Pits, the mineralised shear zones vary in width between <1 m to >10 m.

The mineralised shear zones display distinct structural trends in different parts of the deposit, with orientation dependent on proximity to the Red Shear Zone. West of the Red Shear Zone, mineralised shear zones strike east-northeast and dip steeply (78° to 85°) south-southeast. Immediately east of the Red Shear Zone, mineralised shear zones strike east-southeast and dip steeply west-southwest, transitioning to an almost easterly strike with southerly, steep dip progressively to the east.

Within the mineralised shear zones, vein density varies between one and 29 veins per metre. Generally, there is a positive correlation between vein density and gold grade within these shear zones. Mineralised shear zones display sharp contacts with the host rocks and there is no gold grade associated with the narrow selvedges. In general, veins are more closely spaced in the metavolcanic rocks compared to the veins hosted in quartz diorite. The increased vein density and gold grade in metavolcanic rocks compared to quartz diorite could be due to contrasting rheology and/or chemical composition of the host rocks.

Individual veins are planar, narrow (2 mm to 5 mm, rarely 2 cm to 5 cm) and display localised pinching and swelling, although the mineralised structure can be continuous over tens of metres.

Quartz veins are composed of very fine-grained, massive, blue-grey quartz with variable, disseminated and blebby, fine to medium-grained pyrite, arsenopyrite, pyrrhotite, and chalcopyrite. Molybdenite is rare, but sometimes observed in the Eastern Extension mineralisation. Other gangue minerals including lollingite, epidote, tremolite, and scheelite have been identified from petrology studies (Titley and Fourie, 2009).

Gold mineralisation principally occurs as fine-grained (sub 10 micron [µm], Titley and Fourie, 2009), free grains and displays a positive correlation with arsenic (As), bismuth (Bi), and telluride (Te). Gold rarely occurs as Maldonite (Au_2Bi) and as inclusions within arsenopyrite. Structural continuity and mineralisation are continuous along strike and down dip, elevated grades of >1 g/t gold are localised. Gold grade continuity is variable along strike and down dip. Higher grades of >5 g/t gold are relatively common but dispersed within the mineralised structure. There are also elevated gold grades at the contacts with granite dykes, potentially indicating gold remobilisation during emplacement of granitoids. Further research could be carried out into localised controls on higher gold grades to identify potential for high grade ore shoots, and to better define and constrain occurrences of elevated grade for exploration and resource estimation purposes.

Mineralisation is cross cut by granite and dolerite intrusives and locally offset by faults. Intrusive units stope out mineralisation rather than offset it, but some small-

scale shearing and parasitic folding of mineralisation at granite contacts has been mentioned in previous reports. The Red Shear Zone is inferred to have caused fault drag folding and dextral offset of mineralisation.

8.0 DEPOSIT TYPES

Gold mineralisation is hosted by shear zones, formed by crustal scale orogenic deformation and can be classified as an orogenic gold deposit. The gold in these deposits is thought to originate from metamorphic fluids rather than igneous intrusions. More studies are required to determine the exact involvement of magmatic hydrothermal fluids. It is scavenged from a great thickness of rocks, generally of sedimentary and/or volcanic origin and transported to the site of deposition (usually higher in the crust). The gold commonly occurs in planar quartz veins with foliated fragments of wall rock (crack/seal type veins). Total sulphide content is generally low. Saddle reefs, in the hinges of folds, are widespread in orogenic gold deposits (e.g. Bendigo-Ballarat Gold Province, Victoria Australia; Raub, peninsular Malaysia).

However, Laiva is different to the standard shear zone hosted or orogenic gold deposit. Much of the gold is in quartz-rich mylonites or in boudinaged and sheared quartz veins. Furthermore, orogenic gold deposits typically have high arsenic, as arsenopyrite, but few other anomalous elements. Laiva has unusual geochemistry for a classic orogenic gold deposit. It has anomalous metals such as tungsten (W), tellurium, bismuth and molybdenum (Mo), generally associated with granites. The fact that the granite intrusion at Laiva occurred before, and during shearing (with no obvious post-mineral granites) suggests that the metals, including gold, were derived from granites, suggesting a hydrothermal fluid source. This would make it an unusual type of shear zone gold deposit, perhaps allied to the ‘intrusion-related gold’ deposits of Alaska (Lang et al., 2000; Thompson et al., 1999). Deposits such as Bjorkdal, in northern Sweden, have been interpreted as such recently.

9.0 EXPLORATION

Nordic OY carried out a phased regional geochemical sampling programme in 2005, including an initial assessment of historic regional geochemical and geophysical data obtained from previous operators, followed up by Nordic OY with surficial till sampling, base of till and bedrock sampling of anomalous zones identified from surficial till sampling, and then channel sampling at Mussuneva of anomalous zones identified from bedrock sampling and drilling of the prospect.

In 2010, Nordic OY commissioned a detailed mapping and structural geology interpretation, conducted by Specialised Geological Mapping Ltd (Pratt, 2010). In 2016, Nordic OY conducted a trial GPR survey at the Laiva gold deposit.

The methodology and results of the exploration conducted by Nordic OY and the previous operators are summarised below.

9.1 ROCK-CHIP SAMPLING

A database from GTK with 475 historic surface boulder samples collected by Outokumpo and GTK was used by Nordic OY as a regional vector to areas worthy of surficial till sampling. The historic boulder samples were collected as rock chips from mineralised boulders observed at surface and were highly selective. However, this regional prospecting method led to the discovery of the Laiva gold deposit (by an amateur prospector) and generation of exploration targets at Mussuneva and Kaukainen. The survey method used for the sample location of boulder samples is unknown.

Boulder samples were analysed for gold, arsenic, copper and zinc. The laboratory, sample preparation and analysis methodologies are not known owing to the historical nature of the samples. Although reliability of the sample results cannot be guaranteed, the results are a useful guide to exploration and were used by Nordic OY to assist with planning exploration programmes.

9.2 SURFICIAL TILL SAMPLING

Nordic OY collected 2,841 surface till samples over an area of approximately 46 km by 4 km. Samples were collected on an initial approximate 1 km grid pattern, with sample spacing dependent on ease of access and ground conditions. Follow up surface till sampling was carried out on an approximately 80 m to 50 m grid on priority areas at Laiva, Mussuneva, and Kaukainen. Follow up grids of approximately 400 m to 200 m grid spacing were conducted at Oltava and other unnamed prospects.

Samples weighing approximately 1 kg each were collected from hand dug pits to approximately 30 cm deep. Hand held Global Positioning System (GPS) was used to record sample locations. Results demonstrate low-grade gold and arsenic anomalism overlying the Laiva, Mussuneva and Kaukainen prospects, and clearly define distinct zones of gold anomalism at each prospect. The south-easterly glacial flow direction is

represented by sporadic gold in soil anomalism southeast of the South Pit and Eastern Extension areas at Laiva, and up to 3.5 km southeast of the Mussuneva and Kaukainen prospects. A dispersed gold in soil anomaly immediately north of Laiva was also observed in the geochemical data.

9.3 BASE OF TILL AND TOP OF BEDROCK SAMPLING

Base of till and bedrock sampling work was conducted by Nordic OY purely for regional geochemical exploration purposes and has not been used in mineral resource estimation work.

Base of till and top of bedrock sampling was conducted simultaneously using continuous percussion drilling as follow up on anomalous areas identified from the surficial till geochemistry at Laiva, Mussuneva, Kaukainen and Oltava. The sampling was performed on various grids of 200 m by 25 m, 100 m by 50 m, 50 m by 50 m and occasionally 25 m by 25 m spacing, with samples collected from the bottom metre of till and the first 2 m of bedrock. Holes were drilled to 2 m into bedrock to ensure it was bedrock as opposed to a boulder within the glacial till. Holes were vertical. The lithology, depth, thickness and sample number were recorded, and the collar coordinate was surveyed using hand held GPS.

9.3.1 LAIVA AREA

The bedrock sampling programme identified gold, arsenic, and molybdenum anomalies to the east, north, and west of the Laiva North Pit. Between 200 m and 400 m north of the North Pit, two sub-parallel, 500 m long, east-southeast trending gold anomalies 150 m apart were observed. The western part of this zone displays elevated concentrations of arsenic and lesser copper. The anomaly was partially tested with six diamond drill holes; however, the area still requires further exploration.

The Eastern Extension prospect comprises a 750 m by 180 m, east-southeast trending gold anomaly with coincident but low-grade molybdenum. Arsenic and copper are not associated with the mineralisation here. This area was followed up with extensive diamond drilling by Nordic OY.

The New Hope prospect is located 300 m west of the current North Pit and comprises a 150 m by 50 m gold-arsenic-copper anomaly. The prospect was followed up with two channel samples and three exploration drill holes. Results returned a maximum assay of 1 m at 4 g/t gold.

It is inferred that elevated arsenic and copper is more strongly associated with gold mineralisation hosted in metavolcanic rocks, and that gold mineralisation hosted in quartz diorite generally contains lower concentrations of arsenic and copper.

9.4 CHANNEL SAMPLING

Nordic OY conducted stripping of surficial glacial till deposits at the Mussuneva prospect over an approximately 50 m by 50 m area to expose the bedrock. Sheeted quartz veins were exposed and channel sampled using a hand-held rock saw. The channels were cut approximately 5 cm wide and 5 cm deep and sampled at 1 m intervals.

Nordic OY also conducted channel sampling of exposures in the open pits during grade control, using the same methodology described above. The aim of this was as an aid to mapping and determination of gold bearing structures. The channel sampling was not used for resource estimation purposes or grade control purposes, as the channel samples were targeted to specific structures and were not placed at regular spacing or orientations and did not always test the entire width of mineralised structures. The results from these channel samples are therefore considered useful for mapping but are not sufficiently reliable or adequate for mineral resource estimation or grade control purposes.

9.5 GEOPHYSICAL SURVEYS

In the 1980s airborne geophysical surveys were flown over the Laiva area by GTK, and between 1981 and 1985 Outokumpo commissioned Bouger gravity, magnetic and IP surveys.

In 2006, Nordic OY commissioned Astrock Geophysics to compile, process, and interpret geophysical data available from the GTK and Outokumpo datasets. In 2010, Nordic OY commissioned a trial GPR survey at the Laiva gold deposit.

The results of the Astrock (2006) interpretation, 2010 GPR trial and Boyd (2018) observations are summarised below.

9.5.1 GTK AIRBORNE SURVEYS

Regional magnetic, radiometric and electromagnetic surveys were flown across the entire Laiva and Oltava project areas between 1982 and 1983 on east-west oriented lines at a spacing of 200 m. Laiva is located in an area of weak, flat magnetic intensity bound to the east and west by north-south striking magnetic highs. These were inferred to represent metavolcanic rocks to the west and metasediments to the east. Weakly elevated apparent resistivity is coincident with metavolcanic rocks, and strongly elevated apparent resistivity is associated with the metasedimentary rocks to the east of the Laiva Project.

The GTK airborne data provides a useful source of information for regional interpretation of bedrock lithology and structure but do not have enough resolution for defining geology and mineralisation at the prospect scale. Nordic OY has used this data in exploration planning. Further work on the geophysical data could allow definition of more exploration targets in the area.

9.5.2 BOUGER GRAVITY DATA

Outokumpo commissioned a 2.4 km^2 ground gravity survey located coincident with the North Pit and South Pit at Laiva. There is a weak correlation between positive residual gravity anomalies and magnetic highs. A north trending positive residual gravity anomaly to the north of the North Pit could represent a dyke or other structure not associated with mineralisation.

9.5.3 GROUND MAGNETIC DATA

Three ground magnetic surveys were commissioned by Outokumpo. The magnetic data displays positive magnetic anomalies associated with metavolcanics rocks,

however the highest peak values are around 750 nanotesla (nT) above the base level and the magnetic anomalies are therefore relatively weak (Lehtonen, 2006). SRK (2014) conducted an initial structural interpretation using the magnetic data, and further detailed interpretation of the magnetic data was recommended by Boyd (2018).

9.5.4 Induced Polarisation Data

Dipole-dipole array IP surveys were conducted on north-south oriented lines with a line separation of 100 m, 50 m or 25 m, with a constant station interval of 20 m. The areas covered by the IP surveys were not ideally placed and only a wide (100 m) spacing was used over the North and South pits. Results were inconclusive.

9.5.5 Ground Penetrating Radar Data

Nordic OY commissioned a trial GPR survey in 2016, conducted by Terravision Radar Ltd. The survey was carried out over nine profiles with a total line length of 4 km and used two antennae spacing of 10 m and 6 m to yield maximum depths of penetration of 200 m and 100 m, respectively. The aim was to test the viability of GPR for mapping structures (faults), differentiating between mineralised and non-mineralised rock, and differentiating between granite and quartz diorite. Terravision were provided with drill hole data and geological maps and models to assist with their interpretation.

Results demonstrated peaks in deeper sections of the profiles which were inferred by Terravision as shadows underlying conductive mineralised bodies. Xenoliths of metavolcanic rock within granite are represented by featureless, low amplitude signals and sub-horizontal reflectors are observed in the presence of shallow dipping granite dykes. Late faults are also inferred from the offset of the GPR signal in profile.

9.5.6 Ground Magnetic Survey, 2018

A ground magnetic survey was conducted at Laiva by Nordic Gold in 2018 using a Gem Systems (GSM) 19 base station set to 15 second acquire and a GSM19W mobile until with inbuilt digital GPS set at 0.2 second acquire. The programme was designed to assist with structural interpretation and distinction of mafic-rich lithologies which typically host the highest-grade mineralisation.

Results picked out possible northeast trending dykes in the southwest part of the coverage area. It was also noted that there is a complex underlying structural texture to the area. The vertical differential method showed secondary cross-cutting Northwest-Southeast structures. A series of discrete magnetic highs were noted in the central and north part of the coverage area through the analytical signal method. A possible edge of an intruding body has been noted extending to depth in the southwest.

9.6 Structural Geology Interpretation

In 2010 Nordic OY commissioned Specialised Geological Mapping Ltd to conduct detailed geological mapping of exposures in the North Pit, determine the controls on mineralisation, and make recommendations for near-mine and regional exploration (Pratt, 2010). Mapping was conducted by hand on 1:50 and 1:100 scale base maps

and digitised by Nordic OY staff, using surveyed reference points. Twenty channel samples were also collected and submitted for gold by fire assay and multi-element Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES) analysis.

Pratt (2010) made some important observations relating to controls on gold mineralisation at Laiva:

- Some of the multiple phases of granitic magmatism were syn-tectonic and possibly a source of metal, with a gold, bismuth, tungsten, tellurium, and molybdenum geochemical signature recognised at Laiva.
- Drag folding deformed the mineralised zones and is principally associated with a dextral shear sense along the Red Shear Zone.
- Mineralisation is hosted within mylonitic shear zones, and whilst the principle orientation of mineralised zones varies between east-southeast and east-northeast, some small-scale north-northeast trending quartz veins (the Blue Shear Zone) returned assays of up to 10 g/t gold.

9.7 CONCLUSIONS

The exploration work programmes conducted to date by previous operators demonstrate that top of bedrock sampling is an effective exploration tool for the mineralisation styles observed in the Laiva area.

Further studies into the gold grain size distribution, metal associations, structural geology, and timing of granite magmatism relative to mineralisation have been recommended by previous studies in order to improve gold recovery, refine the geological model and potentially develop additional areas of exploration potential.

10.0 DRILLING

10.1 INTRODUCTION

Several phases of drilling have been conducted at Laiva by Outokumpo, Endomines, and Nordic OY between 1981 and 2014. The majority of drilling has been conducted at the Laiva gold deposit, with a limited number of historic exploratory holes drilled at Mussuneva, Kaukainen, and Oltava. In 2018-19 RC drilling was carried out as well as in-pit blast hole sampling for grade control.

Table 10.1 Laiva Property Drilling History

Operator	Period	Series	Type	No of holes	Meterage	NOTES
Outokumpo	*1981-1987*	*3A101-3A117*	*Channel*	*17*	*96.4*	*H*
Outokumpo	*1981-1987*	*HO1-HO5*	*Diamond*	*5*	*489.0*	*H*
Outokumpo	*1981-1987*	*LAI01-LAI95*	*Diamond*	*95*	*6,926.0*	*H*
Endomines	*1991-2005*	*CH1-CH3*	*Channel*	*3*	*50.2*	*H*
Endomines	*1991-2005*	*LAD1-LAD12*	*Diamond*	*10*	*772.2*	*H*
				130	***8,333.8***	
Nordic OY	*2010*	*CH4-CH7*	*Channel*	*6*	*95.0*	
Nordic OY	*2010*	*Jyl1-Jyl6*	*Channel*	*6*	*8.2*	
				12	***103.2***	
Nordic OY	2005-2011	LAN501-LAN906	Diamond	208	42,525.7	EXP
Nordic OY	2007-2008	LAN703-LAN953	RC	93	13,494.8	EXP
Nordic OY	2010	1100001-1100040	Diamond	35	5,075.1	EXP
Nordic OY	2011	LAN11001-1-LAN11044	Diamond	30	8,801.8	EXP
Nordic OY	2012	LAN12011-LAN12053	Diamond	28	3,532.5	EXP
Nordic OY	2018	10001-10050	RC	47	3,036.0	EXP
				441	**76,465.9**	
Nordic OY	2008	LAG1-LAG4	Diamond	4	606.7	GT
Nordic OY	2010	AGMILL1-AGMILL11	Diamond	11	181.1	GT
Nordic OY	2010	K200-K206	Diamond	5	92.9	GT
Nordic OY	2010	PMILL22-PMILL24	Diamond	3	49.0	GT
				23	**929.6**	
Nordic OY	2011	511001-5110572	RC	413	8,148.0	GC
Nordic OY	2011-2012	51188001-51299434	GC-RC	1479	32,845.3	GC
Nordic OY	2012	512SA891-512SA893E	GC-RC	7	161.0	GC
Nordic OY	2012-2013	12S001-13S364	GC-RC	170	4,087.0	GC
Nordic OY	2013	5130007-5131058	GC-RC	722	16,869.0	GC
Nordic OY	2013	5130774-5131055	GC-DH	99	2,840.6	GC
Nordic OY	2013	LS1-LS119	GC-DH	104	4,086.0	GC
				2,994	**69,036.9**	
					Table Continues…	

Operator	Period	Series	Type	No of holes	Meterage	NOTES
Nordic OY	2014	RCN00001-RCN00098	GC-RC	86	2,125.0	GC
Nordic OY	2014	RCS00001-RCS00109	GC-RC	89	1,941.0	GC
				6,697	**223,500.8**	
Nordic OY	*2018*	*N0001-N0424*	*GC-BH*	*388*	*2,458.3*	GC
Nordic OY	*2018*	*N180827-1 - N181208-271*	*GC-BH*	*3339*	*21,537.7*	GC
Nordic OY	*2018*	*NP5004-1106 - NP5004-3808*	*GC-BH*	*265*	*1,138.8*	GC
Nordic OY	*2018*	*BHS0400 - BHS2782*	*GC-BH*	*939*	*3,778.8*	GC
Nordic OY	*2018*	*S180828-1 - S181227-GR9*	*GC-BH*	*5187*	*30,182.1*	GC
Nordic OY	*2018*	*SP2001-1 - SP3009-PS9*	*GC-BH*	*340*	*2,277.3*	GC
Nordic OY	*2019*	*SP2002-1 - SP3012-Y11*	*GC-BH*	*2069*	*11,274.8*	GC
Nordic OY	*2019*	*NP0011-1 - NP0011-99*	*GC-BH*	*285*	*1,596.5*	GC
Nordic OY	*2019*	*NP0012-1 - NP0012-99*	*GC-BH*	*277*	*1,742.1*	GC
Nordic OY	*2019*	*NP0501-1_Old - NP0501-92_Old*	*GC-BH*	*92*	*500.6*	GC
Nordic OY	*2019*	*NP1003-1 - NP1003-99*	*GC-BH*	*376*	*2,791.2*	GC
Nordic OY	*2019*	*NP4002-1 - NP4002-99*	*GC-BH*	*282*	*1,472.6*	GC
Nordic OY	*2019*	*NP4201-1 - NP4201-X274*	*GC-BH*	*341*	*2,698.9*	GC
Nordic OY	*2019*	*NP4503ME-1 - NP4505-99*	*GC-BH*	*385*	*2,451.2*	GC
Nordic OY	*2019*	*NP5003-1 - NP5006-99*	*GC-BH*	*678*	*3,681.9*	GC
				15,243	***89,582.6***	

Note: Drilling in italics has been omitted from this resource estimate, figures may vary from previous reports due to rounding.

Key: EXP – Exploration, GC - Grade Control, GT – Geotechnical, H – Historical.

For the purposes of mineral resource estimation, only the holes drilled by Nordic OY have been considered by Coffey. The drilling conducted by Outokumpo and Endomines is considered to be historical (pre-2000) and the data cannot be verified under NI 43-101 requirements. The data from these historic programmes are, however, a useful tool in exploration planning. Channel samples and blast hole samples have been omitted from the resource estimate owing to reduced sample quality.

In total, 527 diamond drill holes totalling 67,791 m and 3,106 RC drill holes totalling 82,707 m were used for the resource estimate.

No drilling was being performed at the time of Coffey's site visit; therefore, the operating procedures have not been observed first hand by the authors. The drilling database contains exploration, geotechnical, grade control and blasthole data. The exploration and grade control data were used for mineral resource estimation. Only the drilling conducted by Nordic OY and which pertains to the mineral resource estimate at Laiva is discussed in the following sections.

10.2 EXPLORATION AND GRADE CONTROL DRILLING

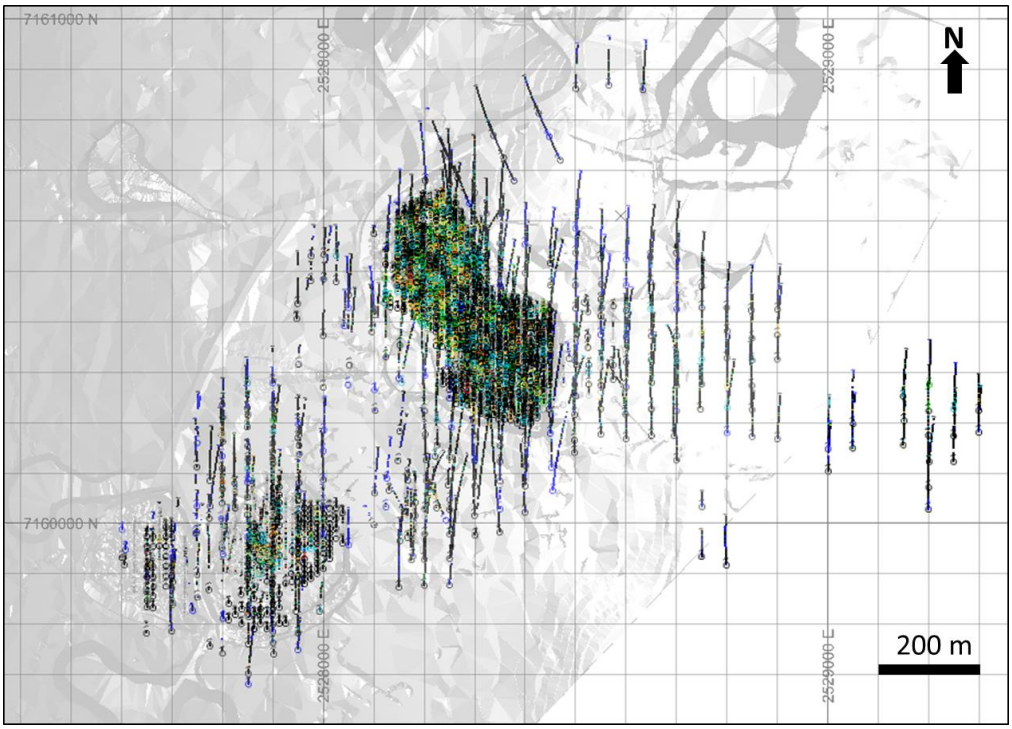
The drilling conducted by Nordic OY at Laiva was generally inclined at -45° with a northerly azimuth (000 degrees). Some holes were oriented northwest for exploration north of North Pit, and four geotechnical holes were oriented at variable azimuths for pit design purposes.

Exploration drilling was conducted by Nordic OY on an approximately 50 m by 50 m grid, closing to 25 m by 25 m in some areas of the North and South Pits. Exploration drilling was carried out using both diamond core holes (60,864 m) and RC holes (16,531 m).

Grade control drilling was completed on a 12.5 m by 6.5 m grid pattern, inclined at -45° and oriented north, totalling 66,176 m of RC drilling and 6,927 m of diamond drilling.

Exploration and grade control hole collars and drill traces used in the Coffey mineral resource estimate are shown in Figure 10.1.

Figure 10.1 Plan View of Drilling used in Resource Estimate



Source: Datamine, Coffey

10.3 DIAMOND DRILLING PROCEDURES

Diamond drilling was conducted by contractors using wireline double tube barrels and produced two core sizes over the course of the Nordic OY drilling programme. Holes LAN501-510 produced a core diameter of 42 mm with the remainder of diamond core drilled by Nordic using a diameter of 50 mm (NQ2). Run lengths were typically 3 m.

At the end of each run, drill core was placed by the driller into core boxes marked with a box number. The driller inserted a block marked with the run depth at the end of each run.

The geologist transported the drill core to the company core logging facility, where each run was fitted on a core rack, marked with an orientation line and measured for Rock Quality Designation (RQD) and recovery calculations. The RQD could therefore be underestimated due to mechanical fracturing during transportation. The core was placed back into the core box, photographed, geologically logged and marked up for sampling prior to cutting in half with a core saw. After sampling was complete, the core boxes containing half core were stacked in a covered and locked storage facility owned by Nordic OY.

Specific gravity measurements were taken from 1 m sections of whole drill core using the Archimedes water displacement method, whereby the whole core sample was weighed in air and then weighed in water in order to calculate the mass. This is considered appropriate for the style of mineralisation, alteration, and host rock at Laiva as the rocks are competent and non-porous. Samples were selected to represent the rock type and mineralisation per drill hole.

Samples of half core were collected over 1 m intervals downhole, regardless of lithological contacts or changes in alteration or mineralisation. Samples were typically only collected from visually mineralised intervals as well as several metres into the wall rock either side of the mineralised interval. Samples were individually numbered, and a sample number tag was inserted into the core box. The sample was then placed into a numbered plastic bag prior to submission to the laboratory and stored securely at Nordic OY's logging facility prior to dispatch.

At the end of hole, collars were cemented with a plug and a Polyvinyl Chloride (PVC) pipe, which was labelled with the hole number.

10.4 REVERSE CIRCULATION DRILLING PROCEDURES

Exploration RC drilling was conducted by a contractor (Järvsö Borr) with a hole diameter of 112 mm. Grade control RC drilling was carried out using a hole diameter of 127 mm. Chips were split using a rig mounted riffle splitter with a ratio of 70:30 and samples were collected every 1 m downhole. Rock chips were sieved per sample and retained in a chip tray for logging. Samples were collected in cloth bags and labelled with a sample number by the geologist and stored on a pallet at the rig before being transported to Nordic OY's secure logging facility prior to dispatch to the laboratory.

10.5 SAMPLE RECOVERY

Diamond drill core recovery was routinely measured during core logging and recorded in the detailed descriptions of the lithology database. Core recoveries are typically greater than 95% and often 100%, with no bias observed between core recovery and gold grade. A visual inspection of core and core photos by Coffey confirmed the excellent diamond drill core recovery.

Recovery during both exploration and grade control RC drilling was not routinely measured or recorded; however, the geologist was reported to be on site during drilling and would note where loss was suspected. No significant zones of core loss

are reported within mineralised intervals and there is no bias between RC chip recovery and gold grade.

10.6 COLLAR SURVEYS

For exploration drill holes, planned hole coordinates were provided to the surveyor and the collar was located by GPS. A backsight and foresight was also marked by the surveyor. Following completion of each exploration hole, the collar was typically surveyed by Virtual Reference Station (VRS) GPS to a high degree (mm scale) of accuracy and occasionally by total station survey.

Planned grade control collars were located in the pit by surveyors using differential GPS and checked following completion of the hole. The accuracy of drill hole collar surveys is considered sufficient for mineral resource estimation purposes.

10.7 DOWNHOLE DEVIATION SURVEYS

Downhole deviation surveys were conducted on exploration drill holes using Reflex equipment and were typically performed following completion of the hole with measurements taken at 3 m to 5 m intervals as well as at the end of the hole.

Downhole deviation surveys were only rarely conducted on grade control drill holes; however, the results demonstrate that the deviation is minor for grade control holes owing to the relatively short (<30 m) downhole depth. Downhole deviation surveys were conducted using Reflex equipment with measurements taken at 3-m intervals as well as at the end of the hole.

10.8 CORE ORIENTATION SURVEYS

Core orientation surveys were conducted sporadically throughout the exploration diamond drill programme using the spear method. The core record is largely unoriented. Orientation measurements recorded the downhole depth, alpha and beta angle, and description of each feature. The quality of orientation measurements is reported by Nordic OY and SRK (2014) to be low due to the use of the spear method.

Four geotechnical holes (LAG1 to LAG4) were drilled for pit design and were oriented.

10.9 LOGGING

The diamond drill core was geologically logged to record lithology, colour, grain size, texture, alteration and mineralisation, structure, and quartz vein density. Intervals greater than 20 cm were generally recorded as a separate unit. RC chips were logged to record lithology, colour, grain size, texture, alteration, and mineralisation.

Exploration drill core (301 holes, 59,935 m) was also geotechnically logged to measure the RQD and estimate the Rock Tunnelling Quality Index (Q-value).

Logging was conducted directly into a digital database and there are no hard copies of logging sheets.

10.10 DATABASE

Nordic OY's drill data is maintained in a Microsoft Access database, which is administered by the Exploration Manager. Geologists enter the collar, survey, sample location, geotechnical and geological logging data into a copy of the database, which is then appended to the master database by the Exploration Manager. Assay results returned from the laboratory are imported to the Access database by automatically matching the sample numbers.

10.11 TWIN HOLES

No twin holes were specifically conducted by Nordic OY to compare results between diamond core and RC drilling. In order to assess the reliability of RC grade control data, Boyd (2018) selected RC grade control holes that had been drilled within 5 m of a diamond exploration hole and compared the width and gold grade of mineralised intervals for each pair. Eight pairs were selected and demonstrated good correlation, with no evidence of bias in interval width or gold grade between the two drilling methods. The results (as reported in Boyd, 2018) did demonstrate local variability in gold grade, which is to be expected with the style of mineralisation observed at Laiva and has been taken into account in the mineral resource estimation methodology and mineral resource classification.

In 2009, CSA conducted a statistical analysis of 1,102 exploration RC results versus 1,085 exploration diamond hole results and concluded that the results were comparable and that results from both drilling techniques were equally suitable for mineral resource estimation purposes. Following a review of the data, Coffey concurs with this assessment.

10.12 TRIAL GRADE CONTROL PROGRAMME, 2014

In 2014, Nordic OY undertook a trial grade control programme under the supervision of SRK (UK). The aim was to evaluate the optimum sample spacing for grade control purposes and to compare the results between RC chip sampling and blasthole sampling.

Grade control drilling between 2012 and 2013 was conducted at a line spacing of 12.5 m with 10 m between holes on each section. The 2014 trial programme infilled the historic grade control drilling to a spacing of 6.25 by 5 m in two areas, one in the North Pit and one in the South Pit. A total of 85 holes for 2,121 m were drilled in the North Pit trial area, and 89 holes for 1,941 m were drilled in the South Pit trial area. Blastholes were also drilled in the same trial locations at a nominal spacing of approximately 3 m by 3 m, totalling 264 holes for 2,640 m in the North Pit and 364 holes for 3,640 m in the South Pit.

SRK compared the results from the above RC and blasthole infill drilling with results from the earlier wider-spaced grade control drilling by modelling the results and interpolating grade using several methods:

- Modelling of veins to create wireframes using Leapfrog software.
- Modelling of grade shells using Leapfrog software.

- Interpolation of grade into (1) a single domain and (2) separate grade domains of <0.6 g/t and >0.6 g/t gold, combined to give a percent weighted block gold grade.

The above methods were applied to results obtained from RC and blasthole sample data for comparison as well as against the mineral resource estimate. Results demonstrated that blasthole data allowed for more accurate estimations of grade and tonnage compared to the wider spaced RC drilling, and that the previous grade control spacing of 12.5 m by 10 m was inappropriate. Coffey agrees with Boyd's opinion, that this is indicative of local gold grade variability and reinforces the interpretation that mineralisation occurs in discrete, relatively narrow mineralised shear zones. This interpretation therefore necessitates a more tightly constrained geological model for mining, although the current model is sufficient for the resource estimate.

10.13 Results of Drilling Programmes

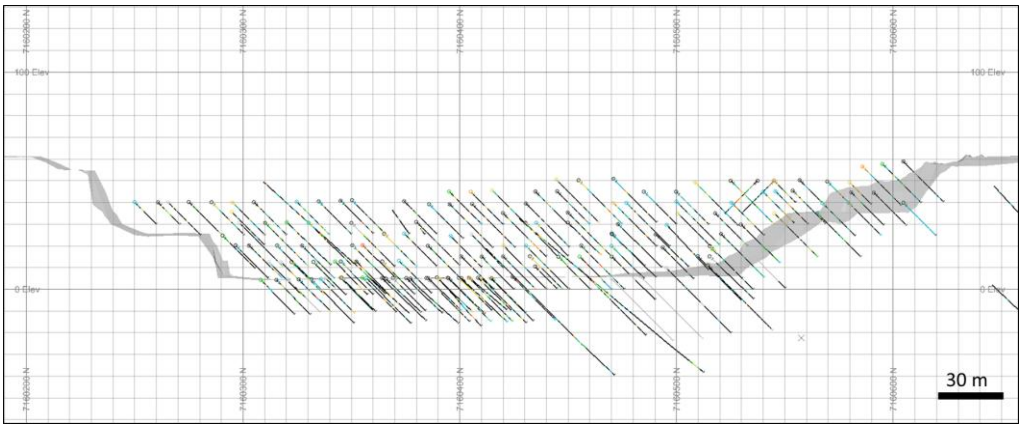
Drilling by Nordic OY has defined gold mineralisation at the Laiva Gold Mine over an area of 1,300 m by 600 m and to a maximum depth of 250 m below surface. The drilling and sampling procedures have been conducted to a good standard and the results of the drilling programme are considered adequate for mineral resource estimation purposes.

10.14 Comments on Drilling

Overall the drilling, logging and sampling procedures as well as the database provided by Nordic OY are considered reliable and adequate for mineral resource estimation purposes. Whilst a nominal sample length of 1 m is generally acceptable, the sample interval should be further determined by the geologist, where a sample is terminated at a lithological contact or change in mineralisation or alteration. This would allow better granularity in assessment of assay results and provide for a more accurate estimate of gold grade and mineralised interval width in proximity to post-mineral intrusive units.

Oriented core should be obtained as regularly as possible for infill drill holes in order to better define the structural controls on mineralisation and provide for more accurate geological modelling of the mineralised zones, dykes, and faults.

Figure 10.2 Representative Cross Section of Drilling Looking West



Source: Datamine, Coffey

11.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

Sample preparation and analysis for all exploration samples, including channel samples, diamond drill core and RC chips were carried out at the Labtium Oy (Labtium), Finland (formally GTK Geolaboratory) and ALS Chemex (Sweden) (ALS) laboratories. Both laboratories are independent of Nordic OY and are certified under the following schemes:

- GTK Geolaboratory/Labtium OY: T025 (EN ISO/IEC 17025), Finnish Accreditation Service (FINAS).
- ALS Chemex (Sweden): ISO/IEC 17025, SWEDAC Ackreditering.

Nordic OY's un-certified onsite laboratory, managed by independent contractors (CRS), was used to prepare and analyse grade control samples.

11.1 SAMPLING METHODS

This section summarises current sampling methods and approaches undertaken by the company.

11.1.1 DRILL CORE / REVERSE CIRCULATION SAMPLE PROTOCOL

See Sections 10.2 and 10.3.

11.1.2 GRADE CONTROL PROTOCOL

Nordic OY applied the following methodology when using blast holes for grade control sampling. Appendix B has the full procedure.

- The drill rig is positioned over the painted hole marker and collars the hole.
- The sampler places a wooden board under the cyclone. The driller signals at the 2.5 m mark and drops the sample (which has been circulating in the cyclone) onto the wooden board.
- The sampler uses a tube (metal or PVC) with a nominal diameter equal to NQ diamond core, pushes the tube through the base of the sample pile to the other side and empties into a sample bag. The sampler then moves the tube perpendicular to the first sample and repeats. Nominal sample weight is 1 kg.
- Repeat for the 2.5 m to 5.0 m sample.
- Plastic sample bag for the A (0 m to 2.5 m) sub-sample is left blank, the B (2.5 m to 5.0 m) sub-sample bag has one green spray-painted dot.
- Clear the board of material and move onto the next hole.
- When safe to do so place the two sample bags next to the drill hole, ready for collection by surveyors and geologist.

As the sample quality is irreparably compromised in wet samples, Nordic policy includes not to sample those blast holes.

Internal Nordic OY quality assurance / quality control (QA/QC) on grade control samples is limited to one duplicate sample taken every 20 samples (or closest sample with available material). A duplicate sample is a grade control sample, sampled twice, providing two 500 gram (g) samples.

The duplicate sample is given a discrete sample number e.g. N180926-Z20, Z40, Z60 etc. and is recorded on the 'duplicate tab' on the digital grade control log sheet.

The geologist reviews the grade control duplicate sampling results on a simple scatter plot on an at least quarterly basis to assess the repeatability of the assay method.

11.1.3 Down Hole Directional Survey Methodology

See Section 10.7.

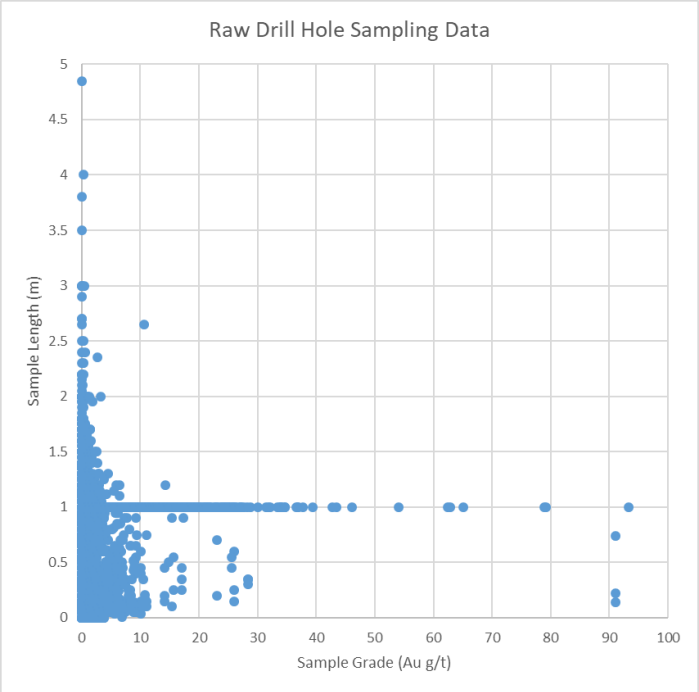
11.1.4 Survey Methodology

See Section 10.6.

11.2 Sampling Discussion

There is no bias between sample length and sample grade, therefore the samples are considered to be representative. The most common sample length was 1 m. Sampling did not take into account lithological changes or mineralisation boundaries.

Figure 11.1 Graph of Sample Length versus Sample Grade



11.3 QUALITY CONTROL MEASURES

11.3.1 QA/QC PROTOCOL

Blanks and Certified Reference Material (CRM) material selected by the laboratory were inserted into the sample stream for QA/QC of exploration samples. The insertion rate was also selected by the laboratory.

Nordic OY did not insert independent, blind blank or CRM into exploration sample submissions. They relied on the QA/QC procedures of the analytical laboratories. Nordic OY carried out field duplicate analysis on selected half drill core samples as well as an umpire test between the Labtium and ALS laboratories on mineralised half core samples.

CRS carried out the QA/QC of grade control samples and inserted two pulp duplicate samples and two CRM samples per 52 samples. Nordic OY did not include any additional blind blank or CRM samples. Between 2011 and 2013 Nordic did not carry out duplicate analysis. Nordic OY inserted two duplicate samples, two CRM samples and one blank sample per 52 samples in a 2014 trial RC grade control programme.

The results of the QA/QC programmes are summarised below.

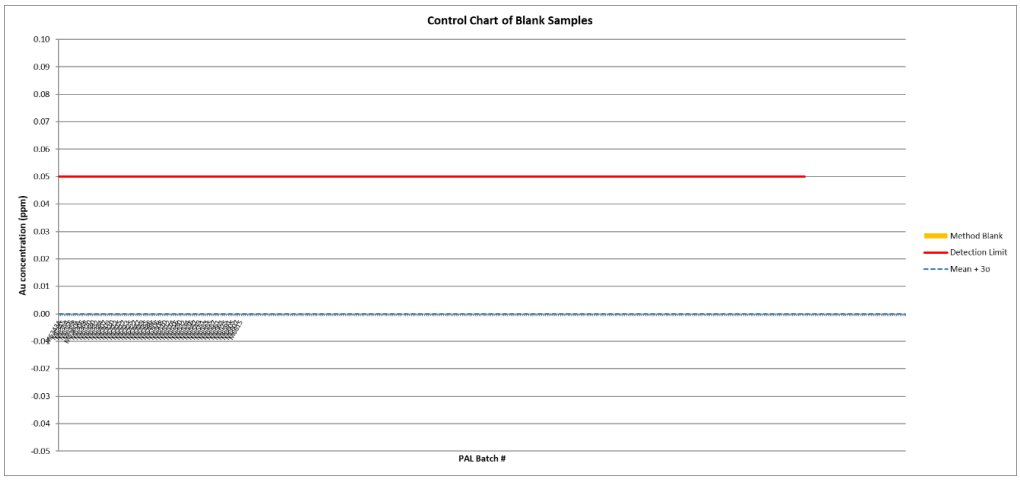
BLANKS

A total of 1,708 blank samples were analysed for gold by Labtium and 381 samples were analysed for gold by ALS. The maximum blank assay is 0.3 g/t and 0.003 g/t gold respectively for Labtium and ALS. Overall, 97% and 98% of blank samples assayed at Labtium and ALS, respectively, assayed below detection limit or within two times the detection limit.

The results show that there was no significant contamination during sample preparation. However, as Boyd (2018) also suggested, the batch containing a blank sample with 0.3 g/t gold should have been re-assayed to determine the potential for contamination of other samples in that batch. It is recommended that in future sampling programmes the operator inserts blind blank samples after suspected high grade gold samples, to assess the potential for contamination during sample preparation, instead of the laboratory inserting blanks systematically.

Between 2011 and 2013, no blanks were analysed by CRS during the grade control sampling. In 2014, 205 blank samples were analysed by CRS and all results were below detection limit (0.1 g/t gold). In 2018 and 2019 grade control and drilling samples 448 blanks were inserted by CRS.

Figure 11.2 Graph of CRS Blank Samples



Certified Reference Material

Labtium, ALS, and CRS used a mix of internal gold CRM and external, commercially available gold and base metal CRM. Only the gold CRM results have been assessed historically and in this study.

Labtium CRM

Labtium used 9 different CRM during the course of the exploration programme. The internal gold CRM assayed by Labtium are reported by Labtium with the sample assay results. Only the data mean and data standard deviations are reported for the CRM, and the certificate details of the CRM are unknown to the author.

Without certified mean and standard deviations of the CRM, it is not possible to assess the accuracy of the Labtium assay results, only the precision. The accuracy of the Labtium results could be studied through assessment of laboratory mean, umpire assays and verification sampling of sample pulps at an independent laboratory.

Results of the Labtium CRM assays show that there is not a significant bias and that assay results have a high level of precision. The majority of results fall within plus or minus (±) 2 standard deviations from the mean.

From a total 1,713 CRM assays, 11 (0.6%) assayed outside of ±3 standard deviations from the mean. This indicates sample mis-numbering, contamination or analytical error. Usually it is recommended that the whole batch is re-assayed if the CRM is outside of ±3 standard deviations from the mean, to ensure reliability of the batch.

The range of mean gold grade in the CRM used by Labtium is small, ranging between 0.98 and 2.12 g/t gold. This approximately reflects the average grades observed at Laiva, however it does not allow a direct correlation for higher grade samples that are also commonly seen in the deposit. CRM of 5 to 10 g/t gold may be beneficial in future programmes.

ALS CRM

ALS used 27 different gold CRM during the exploration programme, analysing 1,128 gold CRM samples in total. Coffey considers the CRMs used are representative as

they had a large range of mean gold grade, between 0.04 and 14.9 g/t gold, relating to all grades observed commonly in the Laiva deposit.

The certified mean and standard deviation were only available to Coffey for 11 of the 27 CRM analysed by ALS, equating to 655 CRM samples. Of these, 23 of the CRM samples (3.5%) fell outside of ±2 standard deviations from the mean and seven (1%) fell outside of ±3 standard deviations from the mean. This is indicative of a high degree of accuracy and precision in the results obtained from ALS. Assay results for CRM OXP50, PGMS13 and ST252 display a weak negative bias to results when compared with the certified mean assay value, however, the results are typically well within ±2 standard deviations from the mean.

Of the 473 CRM samples without a certified mean and standard deviation, 5 samples (1.1%) fell outside of ±3 standard deviations from the mean and 7 (1.4%) fell outside of ±2 standard deviations from the mean. This is indicative of a high degree of precision in the results obtained from ALS.

CRS CRM

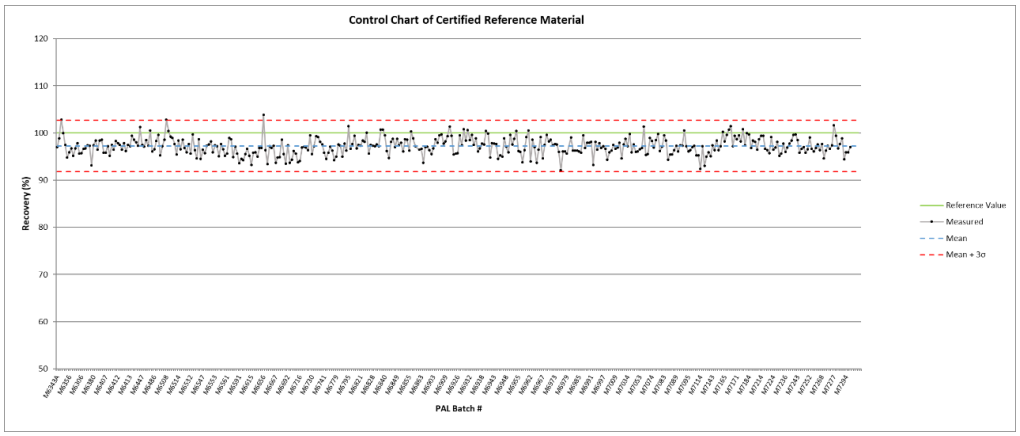
As described by Boyd (2018), from 2011 to 2013, CRS created their own internal, hybrid CRM prepared by mixing barren sand with CRM sourced from Geostats International Pty and Rocklabs. The CRM from Rocklabs and Geostats had certified mean values of 24.88 g/t gold and 48.53 g/t gold, respectively. CRS created their hybrid CRMs by adding 10 g of CRM to 490 g of barren sand to create material with approximate grades of 0.50 and 0.97 g/t gold, respectively.

The size fraction(s) of the barren sand and the source of the barren sand is not known to Coffey. Coffey considers the practice of producing an internal standard from diluting a commercially available CRM to be improper, as the method of homogenisation and size fraction(s) of the barren sand is not known. Also, a standard deviation for the hybrid CRM is not given and the estimated mean value was derived from a basic formula rather than analysis of the material. In addition, the original CRM selected were only certified for analysis by 50 g fire assay or aqua regia digest, not cyanide leach tests.

Results from the analyses of both hybrid CRM show inconsistent results, which is most likely due to inadequate homogenisation of the CRM sample by CRS and intended analysis by fire assay or aqua regia. For the hybrid CRM derived from the Rocklabs material and using the standard deviation of the CRS analytical results, 24% of the CRM samples were within ±1 standard deviation, 93% were within ±2 standard deviation and 98% were within ±3 standard deviation. For the hybrid CRM derived from the Geostats material and using the standard deviation of the CRS analytical results, 61% of the CRM samples were within ±1 standard deviation, 93% were within ±2 standard deviation and 99% were within ±3 standard deviation.

From 2018 to 2019 CRS inserted 1,106 CRM, all of which performed to within ±3 standard deviation.

Figure 11.3 Graph of CRM Performance at CRS 2018-19



Duplicate Samples

Laboratory duplicate samples assayed for gold demonstrate a strong correlation in all of the Labtium, ALS, and CRS datasets, with R^2 (R squared, coefficient of determination) values of 0.9978, 0.9969, and 0.9945, respectively. This demonstrates good repeatability, as expected in a homogenised sample.

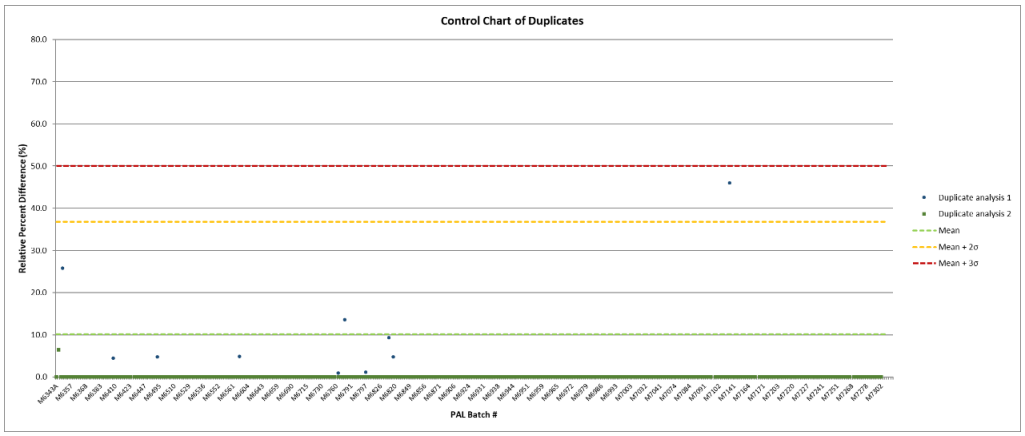
Nordic OY conducted a re-assay programme of 523 crush reject samples that had been stored at the exploration office. Samples were re-assayed by fire assay and bottle roll cyanide leach at Labtium. Results from the fire assay and bottle roll duplicate samples show excellent repeatability with R^2 values of 0.9749 and 0.9654, respectively.

Nordic OY conducted field duplicate analysis of 56 half cut drill core samples. Results show a moderate correlation with a R value of 0.7916. The limited data and very low, sub-economic grade of field duplicate samples are not considered meaningful for determination of gold grade repeatability, and the data is not considered representative of mineralisation at Laiva. The average grade of the field duplicate samples is 0.19 g/t gold and only two samples assayed greater than 1 g/t gold.

During the 2014 RC grade control trial programme, 213 field duplicate samples were analysed by CRS. Results demonstrated excellent repeatability.

From 2018 to 2019 CRS inserted 1,106 duplicates, all of which performed to within ±3 standard deviation. The majority performed to within ±1 standard deviation.

Figure 11.4 Graph of Duplicate Performance at CRS 2018-19



CHECK ASSAYS

Nordic OY implemented a check assay programme sending 103 pulp rejects originally assayed at ALS to Labtium, and 110 samples originally assayed at Labtium to ALS for re-assaying. All samples were analysed by 50 g fire assay. The check assays by Labtium on ALS original assays shows a strong correlation and all samples assayed within 10% of the original gold grade reported by ALS. The check assays by ALS on Labtium original assays also show a strong correlation in the lower range of gold grades (up to 2 g/t gold). There is poorer correlation for samples greater than 2 g/t gold, although only 5 samples are in this range.

11.3.2 LABORATORIES

Coffey has not visited the laboratories or preparation facilities used for the project samples but are satisfied with the historical use of Labtium and ALS, and more recent use of CRS.

Nordic OY grade control samples were sent to the CRS Laboratory, Kempele, Oulu where they were assayed using the PAL1000 (Pulverise and Leach) method. It is expected that the on-site mine /mill laboratory will be operational and will follow the current assay method for grade control samples, as described here:

- The PAL1000 machine contains 52 steel pots, each having the maximum capacity of 1,000 g of sample, 1,000 millilitres (mL) of water and grinding media (steel balls). Normally 500 g samples are leached. Samples are completely pulverised (typically to better than 90% passing 75 µm) and simultaneously leached with cyanide. The solution is analysed for gold by Atomic Absorption Spectroscopy (AAS) with a lower detection limit of 0.05 g/t Au. Nordic OY samples are processed on the PAL1000 machine for a period of 30 minutes.
- The Nordic OY grade control samples are consumed in their entirety during the assay process. It is not considered necessary to keep coarse rejects of Run of Mill (ROM) grade control samples.
- The CRS laboratory has a nominal monthly capacity of 20,000 PAL1000 samples at a 30-minute run time.

11.4 NORDIC OY PROTOCOLS

11.4.1 SAMPLE SECURITY

Exploration samples were reportedly held in custody of the site geologist until return to the exploration office, where samples were stored in locked sheds until dispatch to the preparation laboratory by courier. Upon delivery to the preparation laboratory, samples were receipted, and a report was sent to Nordic OY by electronic mail confirming the sample numbers and safe receipt of samples.

Grade control samples were retained in custody of the grade control geologist on-site and samples were transported by company vehicle to CRS for sample preparation and analysis. A dispatch sheet was submitted to CRS and the sample numbers were checked by CRS upon sample receipt.

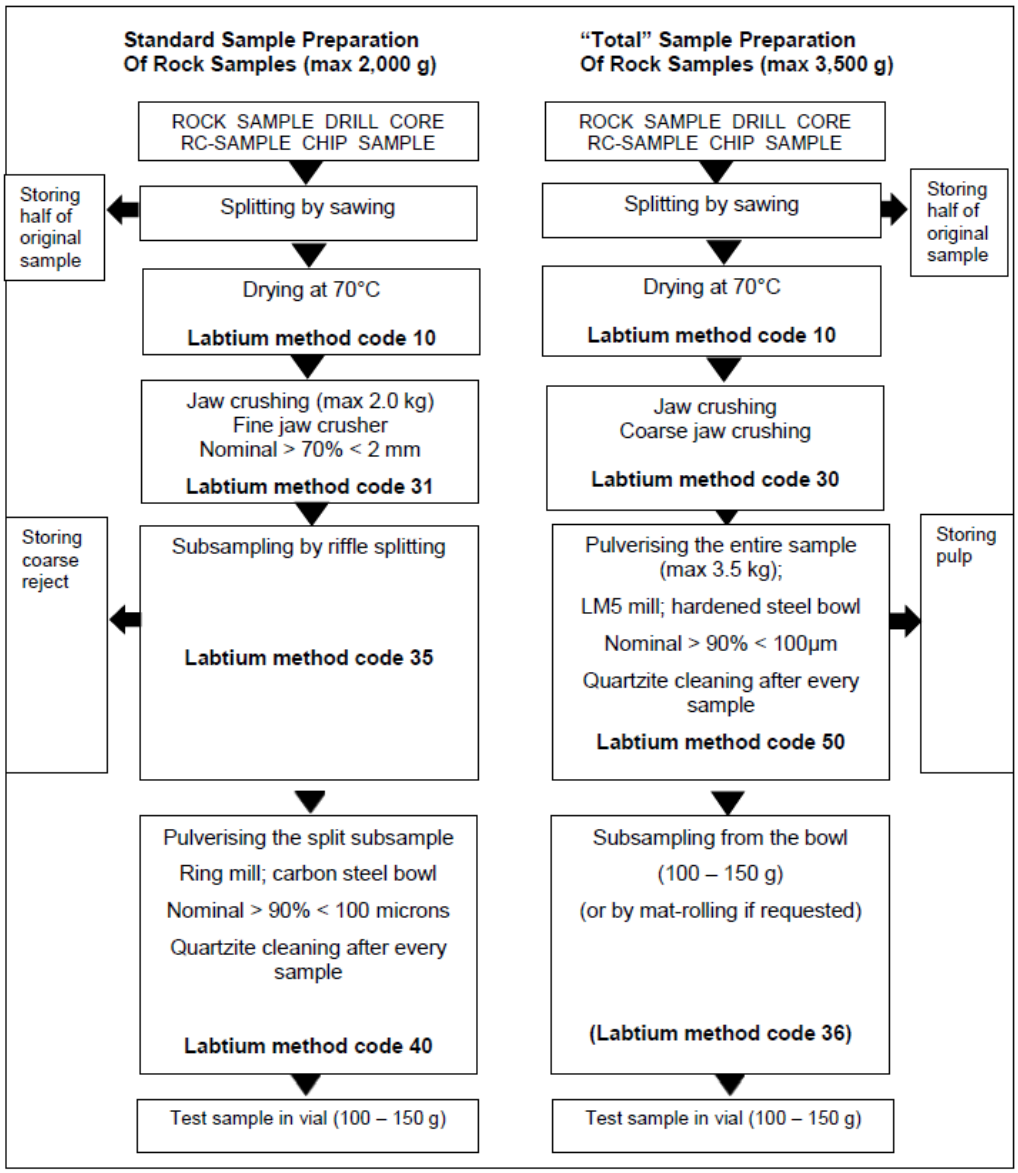
Samples were submitted to the laboratories in batches of variable quantities, rather than in batches of a standard number of samples.

The above chain of custody maintained the validity and integrity of samples prior to analysis.

11.4.2 SAMPLE PREPARATION AND HANDLING (LABTIUM AND ALS)

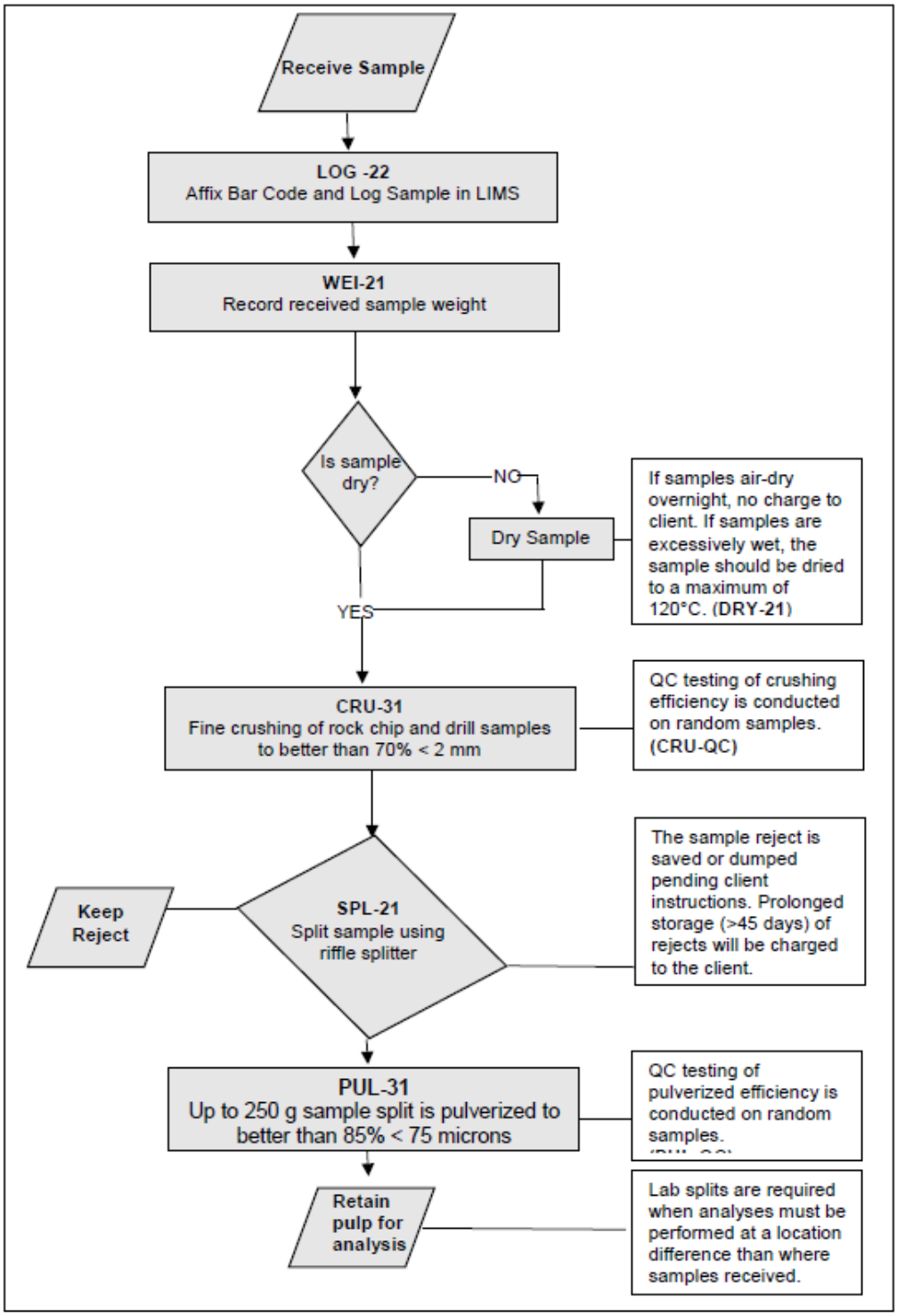
Labtium and ALS prepare samples using similar, industry standard methods, comprising drying, jaw crushing, sub-sampling using a riffle splitter, pulverising the split sample and retention of sub-samples for analyses. Grade control samples are dried at 105°C, with a 500 g sub-sample collected by mat rolling and channel cutting of the chip sample. Grade control samples were not crushed or pulverised prior to analysis.

Figure 11.5 Labtium Sample Preparation Flowsheet



Source: Boyd, 2018

Figure 11.6 ALS Chemex Sample Preparation Flowsheet



Source: Boyd, 2018

11.4.3 Analytical Method (Labtium, ALS and CRS)

Exploration samples were routinely analysed for gold by 50 g fire assay and multi-element ICP/AES. The codes, methods and elements analysed at Labtium and ALS Chemex are summarised as follows:

Table 11.1 Analytical Methods Applied by Labtium and ALS Chemex.

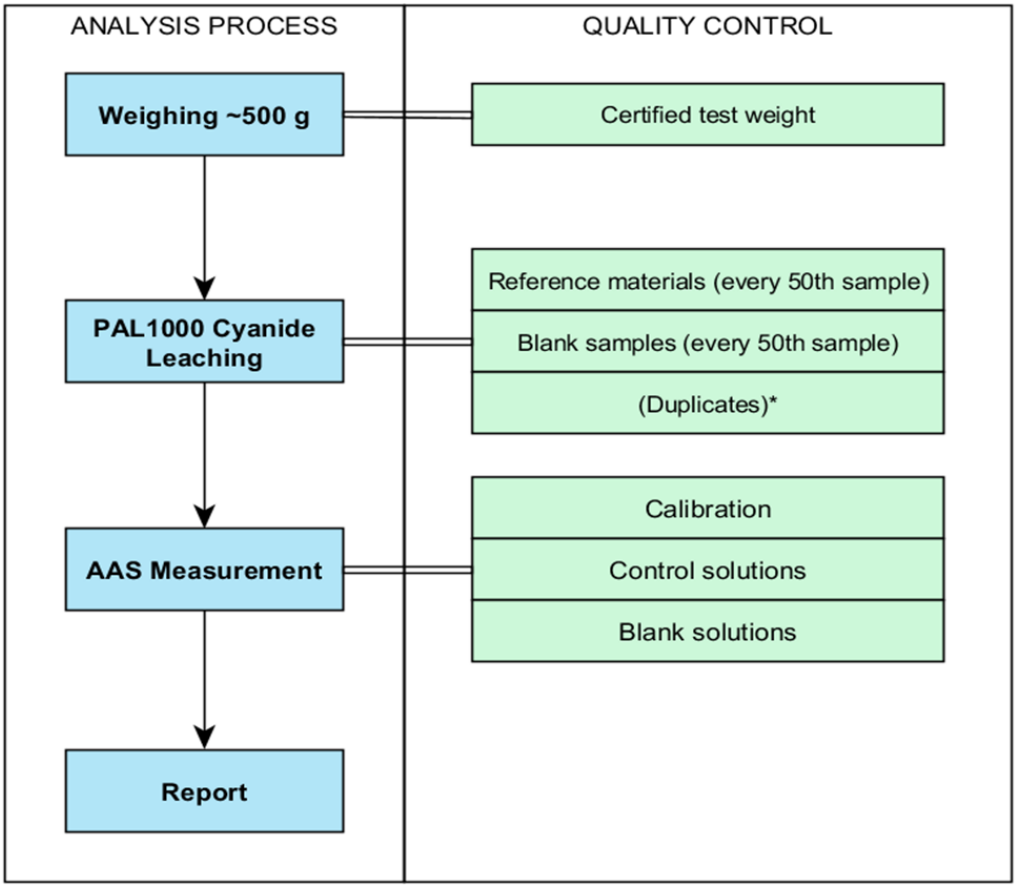
Analytical Methods and Codes for Exploration Samples			
Laboratory	**Analytical Code**	**Analytical Method**	**Elements**
Labtium Oy/GTK	510 P	Four-acid digest ICP-AES	Ag, As, Cd, Co, Cr, Cu, Fe, Mn, Mo, Ni, Pb, S, Sb, Zn
	705 P	50 g Fire Assay with ICP-AES finish	Au
ALS Chemex	ME-ICP61	Four-acid digest ICP-AES	Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cu, Fe, Ga, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Sc, Sr, Th, Ti, Tl, U, V, W, Zn
	Au-ICP22	50 g Fire Assay with ICP-AES finish	Au

Source: Modified from Boyd, 2018

Key: Ag – Silver, Al, Aluminium, Ba – Barium, Be – Beryllium, Ca – Calcium, Cd – Cadmium, Co – Cobalt, Cr – Chromium, Fe – Iron, Ga – Gallium, K – Potassium, La – Lanthanum, Mg – Magnesium, Mn – Manganese, Na – Sodium, P – Phosphorous, Pb – Lead, S – Sulphur, Sb – Antimony, Sc – Scandium, Sr – Strontium, Th – Thorium, Ti – Titanium, Tl – Thallium, U – Uranium, V – Vanadium.

Grade control samples were assayed for gold only, using a pulverise and leach machine (PAL1000). The PAL1000 contains 52 steel pots. Each pot was filled with a 500 g sample split, 2.6 kg of grinding media and 500 mL of water with 7.5 g sodium cyanide, LeachWELL and sodium hydroxide. The samples were simultaneously leached and pulverised for 2.5 hours at 60 revs per minute (rpm). The solution was then analysed for gold by AAS. The steel pots were washed and the grinding media replaced for the next sample. CRS used an analysis process as shown in Figure 11.7.

Figure 11.7 Analysis Process used by CRS



*Duplicates were performed in each PAL run if sample material was sufficient

Source: CRS laboratories

11.4.4 QC Tolerance Limits

The sample preparation, security and analyses are reported to be conducted to a high standard and the data are adequate for use in this mineral resource estimation.

However, as Boyd (2018) stated, the QA/QC programme implemented by Nordic OY has some deficiencies in that blind, external blanks and CRM have not been added to the sample stream, and sample batches of variable sizes were dispatched. Also, the selection, frequency and location within a batch of samples for, laboratory blanks, CRM and pulp duplicate samples were determined by the laboratory and not Nordic OY. Therefore, duplicate samples were not routinely taken of mineralised samples and blank samples were not inserted following suspected elevated gold mineralised samples.

In addition, the field duplicate samples selected from half cut drill core were of a very low grade (average 0.19 g/t gold from 52 samples) and therefore the results are of limited use in characterising the mineralisation.

Currently, no QC tolerance limits have been set. However, Coffey recommends the following improvements, also suggested by Boyd (2018), to future QA/QC programmes:

- Dispatch samples in batches containing a standard number of samples: e.g. 20 samples composed of 16 field (core or RC chip) samples, one CRM, one blank, one field duplicate, and a pulp (laboratory) duplicate.
- The CRM and blank material should be selected by the operator and inserted blind to the laboratory.
- Blank samples should be inserted immediately following suspected elevated gold mineralised samples to assess the potential for contamination during sample preparation.
- Field and pulp duplicate samples should be selected from a range of mineralised samples to assess repeatability.
- The use of external CRM material inserted blind to the laboratory to give more control over the analysis of accuracy and precision at the laboratory, and greater confidence in the results used for mineral resource estimation purposes.
- Control limits for blanks and CRM should be set to pass or fail a batch of samples. Batches that fail should be immediately re-assayed, and the results should only be accepted when all QA/QC samples in a batch have passed.
- More rigorous use of external CRM at gold grades between 2 and 5 g/t is recommended if Labtium is used in the future. This will better assess the accuracy of Labtium when reporting higher grade (>2 g/t gold) samples.
- CRS must be instructed to use a CRM which is certified for cyanide leach analysis with a mean grade appropriate to mineralisation at Laiva.
- External umpire lab verification of all routine analyses.

12.0 DATA VERIFICATION

Coffey undertook various aspects of data verification both during and subsequent to the August 2019 site visit.

Verification activities during the site visit included:

- Site visit to the North and South pits within the Laiva Mine Lease and Exploration Licence area. Inspection of host rocks and mineralisation in outcrop in the pits and in the surrounding area.
- Inspection of core logging (lithology and mineralisation) of selected diamond and RC holes at the core storage facility.
- Observation of core storage at the core store, 6 km from the mine.

Verification activities subsequent to the site visit included:

- Checking of drilling database (logs and samples).
- Checking of assays and QA/QC.
- Checking core photo database for completeness and quality.

Overall it is concluded by Coffey that appropriate care and attention in data entry and validation have been applied by Nordic OY / the mine team in their data compilation work, particularly with regards to the implementation of Access Databases for different types of drilling (e.g. grade control or diamond drilling).

Coffey has not carried out any independent exploration work, drilled any holes or carried out any programme of sampling and assaying on the property. During the field visit Coffey did not collect any samples for analysis. Coffey is, however, satisfied as to the presence of gold mineralisation in the project area with visible gold in a hand sample in the pit and also in the drill core.

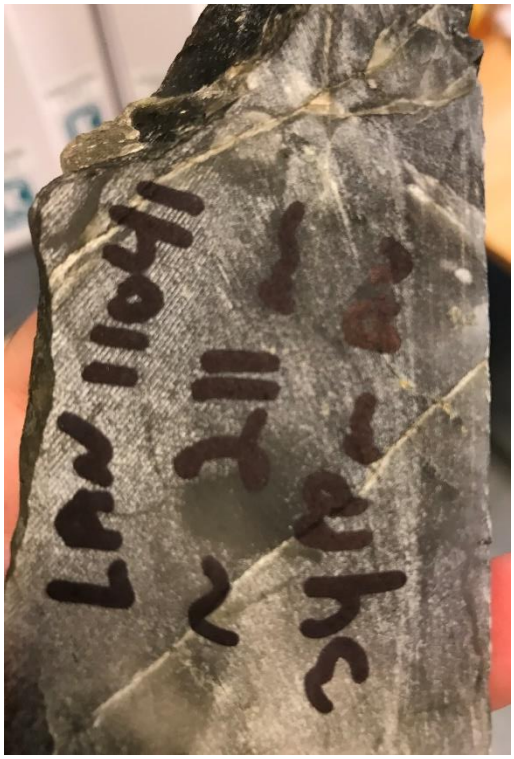
Figure 12.1 Photos of the Core Storage Facility and gold in Drill Core

Lab reference samples

RC Representative chip storage

Recent drilling core storage

Historical Drill core storage



34 g/t Au from LAN11041, @ 211 m

Visible gold in circle, from LAN11041 @ 211 m

13.0 MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 SUMMARY

This section of the report provides a summary of Coffey's observations and conclusions in relation to the mineral processing aspects of the project with specific focus on establishing an appropriate Metallurgical recovery for the purpose of resource estimation.

A high-level summary of all related test work is presented along with the key results and conclusions.

The estimated metallurgical recovery is 86.5% which is comparable to the feasibility study (CSA, 2010) recovery of 85.6% and an average recovery of 85% based on the available operating data.

13.2 REVIEWED DOCUMENTS

- MLA study on Laiva performance trial samples, 16/08/18.
- Knelson tests on Laivakangas Au flotation tailings, Geological survey of Finland, 29/10/18, C/MT/2018/32.
- Laboratory flash flotation testwork on Laivakangas Gold ore, Geological survey of Finland,20/08/18, C/MT/2018/27.
- Gold Leaching testwork, Laiva, 2008.
- Production figures 2018 - 19, spreadsheet.

13.3 MINERALOGY

Preliminary mineralogical investigations, using a Mineral liberation Analyser (MLA) was conducted on four separate mineralogical samples (spiral concentrate, Knelson concentrate, flotation concentrate and mill feed) derived from Laiva ore. The primary objective of the study was to measure and understand the occurrence of gold and Maldonite (Au_2Bi). It was reported that the flotation concentrate contained more gold and maldonite grains compared to the other samples tested.

The study also looked at some of the basic aspects related to grain size distributions and liberation of gold and Maldonite. However, considering the level of the study and the limited data available, Coffey has not considered them for the purpose of estimating the metallurgical recovery.

13.4 FLOTATION TEST WORK

Seven bags of crushed aggregate samples, from Laivakangas ore with a total mass of 110 kg was used for the flotation test work. The samples were dried, crushed to 1.5 mm top size and split into two separate samples, namely sample 1 (high gold) and Sample 2 (average gold).

Samples were then homogenised and divided into 1.5 kg sub samples for flotation test work. The head assays of the samples are shown in Table 13.1.

Table 13.1 Head Assays

Sample ID	Au (g/t)	Ag (g/t)	S (total) (%)
Sample 1	5.77	8.76	0.59
Sample 2	1.04	0.83	0.03

A total of 18 flotation tests (9 tests for each sample) were conducted in a laboratory flash flotation cell at 38% pulp density. The tests were conducted at different grinds (P_{80} = 100 µm, 400 µm, 600 µm and 800 µm) and reagent consumptions with the objective of optimising conditions in order to maximise the gold recovery. The results are summarised in Table 13.2.

Table 13.2 Summary of Flotation Results

Sample	Test Reference	Grind P_{80} (µm)	Mass (%)	Recovery (%)		Concentrate Grade (g/t)	
				Au	Ag	Au	Ag
1	F1	600	0.70	29	29	214	329
	F2	100	2.20	59	66	180	278
	F2 Repeat	100	2.70	74	73	156	239
	F3	400	1.40	50	53	207	325
	F4	600	1.20	39	36	166	266
	F5	800	0.80	10	14	63	160
	F6	600	1.40	33	35	131	217
	F7	600	1.30	31	34	152	229
	F8	600	1.40	41	39	193	263
	F9	600	1.20	30	34	147	254
2	F10	600	0.60	31	19	62	28
	F11	100	1.50	71	34	46	23
	F12	400	0.80	49	30	58	25
	F13	600	0.80	33	21	51	22
	F14	800	0.40	11	14	28	27
	F15	600	1.10	39	20	35	17
	F16	600	0.80	35	25	41	21
	F17	600	0.90	36	27	46	21
	F18	600	1.00	44	19	35	18

The results indicate that the 100 µm grind provided higher gold recoveries (74% and 71%) for both samples. These recoveries along with the corresponding concentrate grades were for the overall metallurgical recovery calculation for the purpose of this report.

However, Coffey notes that the completed test work is preliminary, with several parameters, such as grind and reagent suite changed at the same time. It is also interesting to note that sulphide flotation was conducted at coarser particle sizes above 250 µm[1]. In this context, Coffey discounts all of the coarser flotation results (except 100 µm grind). Thus, firm conclusions (such as expected plant recoveries) cannot be made based on this test work and further studies including locked cycle flotation work is required.

13.5 GRAVITY TEST WORK

Flash flotation tails from the 600 µm grind tests were combined to make two samples grading 3.7 g/t gold and 0.7 g/t gold to be used as feeds for laboratory Knelson concentrator tests. The objective of the test work was to optimise the parameters (pulp density, fluidisation water pressure and rpm of the concentrator cone) at a constant flow rate. The results of the flotation test work are summarised in Table 13.3.

Table 13.3 Gravity Concentration Results

Sample	Test Reference	Mass (%)	Recovery (%)		Concentrate Grade (g/t)	
			Au	Ag	Au	Ag
1	K1	16.80	45.5	42.6	10.20	12.10
	K2	17.20	13.0	37.0	9.10	10.20
	K3	16.80	39.6	40.9	8.80	15.10
	K4	18.60	35.5	39.6	6.80	10.60
	K5	16.30	40.8	31.9	9.00	9.60
	K6	16.20	45.6	35.4	10.90	8.80
	K7	17.40	42.9	37.0	8.50	10.30
2	K8	16.60	44.4	42.3	1.96	1.10
	K9	16.70	30.5	34.9	1.31	0.80
	K10	16.80	42.4	35.1	2.00	0.80
	K11	17.40	37.0	33.0	1.53	0.70
	K12	15.70	30.8	30.3	1.24	0.70
	K13	15.10	22.7	20.0	1.22	0.70
	K14	16.60	37.6	37.4	1.48	0.90

[1] The norm of metalliferous flotation is to focus the grind sizes below 250 µm.

The results indicate that the gravity concentration of flotation tails has shown marginal benefit in terms of making a gold rich concentrate. The concentration ratios were below 3 for all of the tests, but reasonable gold recoveries were observed. Average value of these recoveries will be used for the overall metallurgical recovery calculation for the purpose of this report, but the data is not sufficient to make a judgement about the suitability of gravity concentration for the processing of the Laivakangas ore.

13.6 LEACH TEST WORK

Flash flotation concentrates and gravity concentrates, at a mass ratio of 35% to 65%, were combined in order to make a feed sample for leach tests. The head assays of the leach feed sample are shown in Table 13.4. Coffey understands that these concentrates were produced from a pilot plant operation at the GTK laboratory at Outokumpu Finland on 14th November 2017. However, Coffey was not able to see or review any other data related to the pilot plant operation.

Table 13.4 Head Assays of Leach Feed

Au (g/t)	Ag (g/t)	S (total) (%)	As (%)
122	23	6.72	1.42

Direct leach and Carbon in Leach (CIL) tests were conducted on this sample at three target grinds (P80 = 45 µm, 20 µm and 10 µm). The test work also included optimisation of some other leach parameters such as dissolved oxygen level, cyanide concentration and agitation speed but Coffey[2] has only reviewed the results that are available. The summary of the key results is shown in Table 13.5.

Table 13.5 Summary of Leach Results

Grind Size (P_{80} - µm)	Extraction (Au - %)	
	Direct Leach	CIL
45	80.5	75.7
20	60.0	N/A
10	96.0	N/A

The results indicated that excellent extraction (96%) could be achieved with the fine grinding (P80 = 10 µm) of concentrates. The higher extraction could possibly be as a result of the liberation of gold from the sulphide concentrates at finer grinds. The higher extraction has been used for concentrate leaching in the overall metallurgical recovery calculation.

It appears the leach extraction at 20 µm grind is anomalous, compared to the 10 µm and 45 µm grinds. It is generally expected that the extraction increases with finer grind as a result of increased liberation. However, the test work was preliminary, in which many parameters (such as Dissolved oxygen, cyanide concentration and agitator speed) were changed at the same time with the grind size. This could potentially explain the unexpectedly lower extraction at 20 µm.

[2] Coffey has not reviewed the full report but key sections only.

Coffey has not reviewed any data related to the tails leach tests. In this context, a standard tails leach extraction of 50% (at a P80 = 100 µm grind) will be assumed for the tails leaching part of the overall metallurgical recovery calculation.

13.7 RECOVERY ESTIMATE

Metallurgical recovery was estimated by assuming the feasibility study flowsheet, that incorporated, flash flotation and gravity concentration followed by two separate agitated tank leach circuits for concentrates and tails. The recovery estimate is shown in Table 13.6.

Table 13.6 Recovery Estimate

Description	Au (%)
Recovery to Flotation Concentrate	72.5
Recovery to Flotation Tails (Gravity Feed)	27.5
Recovery to Gravity Concentrate	38.5
Overall recovery to Gravity Concentrate	10.6
Total recovery to Concentrates	**83.1**
Recovery to Gravity Tails	16.9
Extraction - Intensive Cyanidation	96.0
Extraction - Tails leach	50.0
Overall Extraction	**88.2**
Adsorption efficiency	99.0
Elution efficiency	99.0
Overall recovery	**86.5**

The estimated overall metallurgical gold recovery is 86.5%. This is comparable to the feasibility study recovery, which ranged from 73.3% to 87.2% with an average value of 85.6%.

The estimated recovery is also comparable to the limited operating data, which varied between 77% to 89.5% with an average of 85%.

14.0 MINERAL RESOURCE ESTIMATES

14.1 MINERAL RESOURCES SUMMARY

Coffey was requested by Nordic Gold to provide a mineral resource estimate for its Laiva Gold Deposit located near Raahe, Western Finland. There have been many previous mineral resource estimates completed on the deposit in accordance with JORC and NI 43-101 reporting standards. This mineral resource estimate was completed by Ruth Bektas (BSc) of Coffey and reviewed by Tetra Tech peer, James Barr (PGeo). The Mineral Resource Estimate for the Laiva Project is a global estimate prepared in September 2019, with the effective date of 18th September 2019.

14.1.1 ESTIMATION PROCEDURE

An overall summary of the estimation procedure for the Laiva Deposit mineral resource estimate is as follows:

- Validation of drilling database.
- Preparation of database in a format accepted by Datamine software.
- Importing of data into Datamine.
- Previous mapping and current drill hole database used to determine domains.
- Statistics ran on raw drill hole data and separately on each domain.
- Compositing and lower cut-off applied to data set.
- 3D model constructed from composited data using parameters defined from statistics and mapping to show >0.3 g/t Au grade isoshells.
- Prototype model created to include all drilling data and area of interest.
- Prototype coded with waste (111), air (222) and mineralisation (333) zones from topography and mineralisation isoshells. Density coded into model as 2.7 tonnes per cubic metre (t/m^3) and 2.83 t/m^3 for waste and mineralisation, respectively.
- Variography completed for each domain separately, using Snowden Supervisor™ software resulting in major, semi-major, minor and downhole variograms.
- Estimation of grades carried out separately for each domain to avoid smearing of grade across domains.
- All separate domain models combined into full model.
- Block model visually checked against composites and drilling data for any discrepancies.
- Statistics completed for block model versus composite sample data.

- Model exported in format suitable for client.

All data (coordinates, block sizes, tonnages, grades) used in the estimate are expressed in metric units. The estimation results also contain the gold content as troy ounces, using a conversion of 1 ounce to 31.1035 g.

Four domains have been determined from lithology drilling and geological mapping data. Statistics were carried out on each domain separately and the data as a whole. The estimate was tested with various cut-off grades and the total ounces of gold do not appear to be affected greatly by cut-off grades below 0.9 g/t Au. Consideration of a 0.3 g/t gold cut-off was requested by the client as they intend to develop lower grade resources as part of the re-development plan. The initial estimate was completed using un-mined topography to make the estimate comparable to previous estimates, blocks modelled above the current mined out topography were removed for the purpose of volumetric and resource reporting.

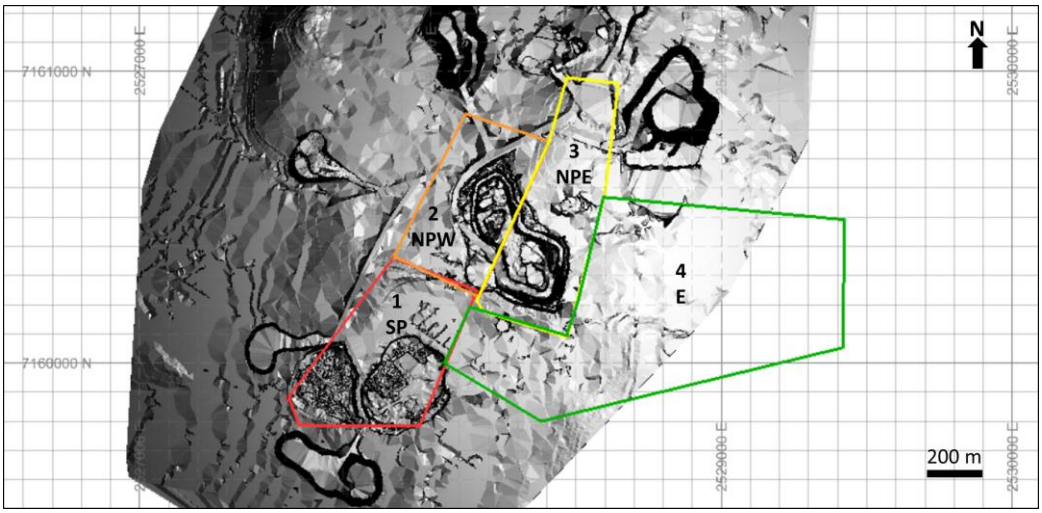
A mineral resource classification scheme consistent with NI 43-101 (2011) and CIM Best Practice Guidelines was applied. The estimate is categorised in the Measured, Indicated and Inferred mineral resource categories and reported above a grade cut-off grade that is appropriate for a deposit mineable by open pit mining methods. A minimum thickness of 2 m was generally assumed in the geological modelling stage. A long-term gold price of US $1,300 /oz was used in determining an in-situ resource cut-off grade. Mine planning and metallurgical test work described elsewhere in this report support this resource estimate and demonstrate that the deposit has reasonable prospects for economic extraction at the cut-off grade given.

14.2 GEOLOGICAL INTERPRETATION

Owing to the complex style of mineralisation and distribution of drilling data, manual delineation of individual mineralised shoots has previously been unreliable and this approach was not undertaken for this estimate, however, opportunity exists to refine the grade model to support trade off studies for selective mining. Manual wireframing results in some high-grade material being missed, and some intercepts being ‘forced’ to join, with too much dilution in-between. Therefore, isoshells were created with a 0.3 g/t gold cut-off separately for each domain using search parameters suitable to the specific mineralisation characteristics of that domain (dip, strike, direction of grade continuity).

An average dip and azimuth of the dominant mineralised trends were determined for each domain. The south pit was kept as a separate domain. The north pit was split into two domains based on distinct differences in vein orientations in the west and east of the pit. A fourth domain was created for the east of the Red Shear Zone.

Figure 14.1 Map of Domains used in the Resource Estimate



Source: Datamine, Coffey.

Table 14.1 Details of Domains

Domain	Details	Average Orientation of Gold Mineralised Trend
South Pit	West of RSZ	076/80SE
North Pit (west)	West of RSZ	072/80SE
North Pit (east)	West of RSZ	115/80S
East	East of RSZ	095/80SW

14.3 EXPLORATORY DATA ANALYSIS

The client provided a drill hole database, as discussed in Section 10 of this report. Descriptive statistics were completed on both the raw data and the composited data with a 0.3 g/t Au cut-off applied (Table 14.1 and Table 14.2, respectively).

Table 14.2 Global Data Statistics for Raw Data (Au ppm) as a Whole and by Domain

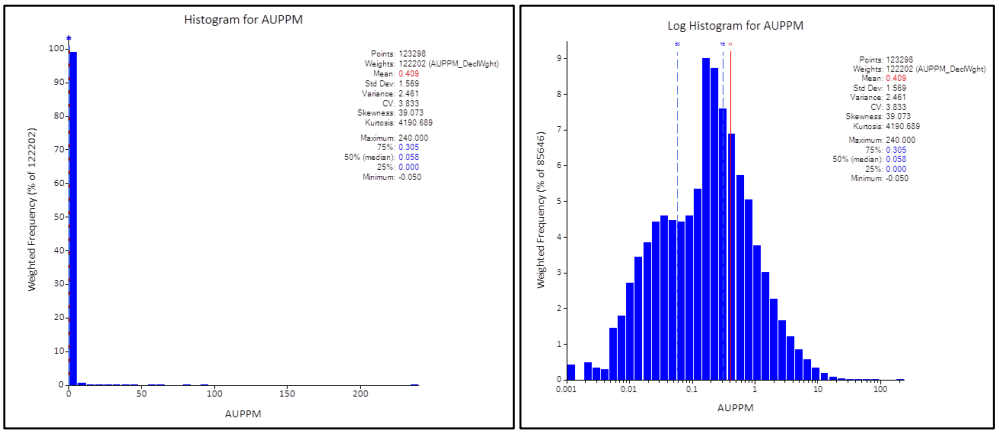
Raw data	All	D1	D2	D3	D4
No of records	125471	18603	38500	58427	15713
No of samples	123298	18043	38013	57422	15571
Minimum Au ppm	0.05	0.05	0.05	0.05	0.05
Maximum Au ppm	240.0	91.0	46.1	93.3	240.0
Range ppm	239.95	90.95	46.05	93.25	239.95
Mean ppm	0.4398	0.4539	0.5472	0.4126	0.202
Variance ppm	2.755	4.478	2.141	2.067	4.105
Std Deviation ppm	1.660	2.116	1.463	1.438	2.026
Std Error ppm	0.004727	0.015750	0.007504	0.006000	0.016240
Coefficient of Variation	377.5	466.2	267.4	348.5	1003.0
Skewness	38.47	20.79	9.62	19.26	106.90
Geometric Mean ppm	0.1724	0.1129	0.2709	0.1996	0.0573

Table 14.3 Global Data Statistics for Composited Data (Au ppm) with a 0.3 g/t Au Lower Cut-off, as a Whole and by Domain

Composite data	All	D1	D2	D3	D4
No of records	31246	3750	13193	13940	1154
No of samples	31246	3750	13193	13940	1154
Minimum Au ppm	0.3	0.3	0.3	0.3	0.3
Maximum Au ppm	240.0	91.0	46.1	93.3	240.0
Range ppm	239.7	90.7	45.8	93.0	239.7
Mean ppm	1.4682	1.7373	1.4086	1.4447	1.4742
Variance ppm	8.476	12.87	4.829	6.948	52.52
Std Deviation ppm	2.911	3.587	2.198	2.636	7.247
Std Error ppm	0.016470	0.058570	0.019130	0.022330	0.213300
Coefficient of Variation	198.3	206.5	156.0	182.4	491.6
Skewness	24.9	10.07	6.854	11.61	30.97
Geometric Mean ppm	0.8805	0.9503	0.8837	0.8599	0.8352

The overall raw data histogram indicates a possibility of two populations of data, which suggests at least two distinct phases of mineralisation.

Figure 14.2 Raw Data Histograms (normal and log)



The composite histograms and log histograms plotted by domain show a large proportion of the material in the lower grade categories, as would be expected in this type of lower grade high tonnage deposit.

The composite histograms show a significant increase of samples in the low-grade range compared to the raw data, owing to the inclusion of many unsampled intervals which are assigned a value of zero. This confirms that detailed constraining to grade domains has not been conducted as this would lead to significant smearing of data in areas with less dense drilling. It also describes the visible change to the histogram and descriptive statistics imposed by the compositing process.

Figure 14.3 Histogram and Log Histogram of Composited Data with 0.3 g/t Au cut-off for Domain 1 (SP)

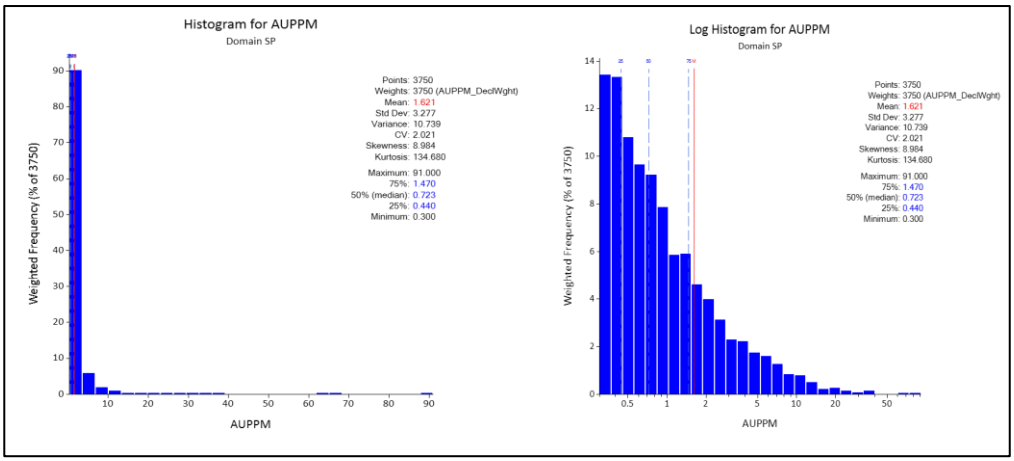


Figure 14.4 Histogram and Log Histogram of Composited Data with 0.3 g/t Au cut-off for Domain 2 (NPW)

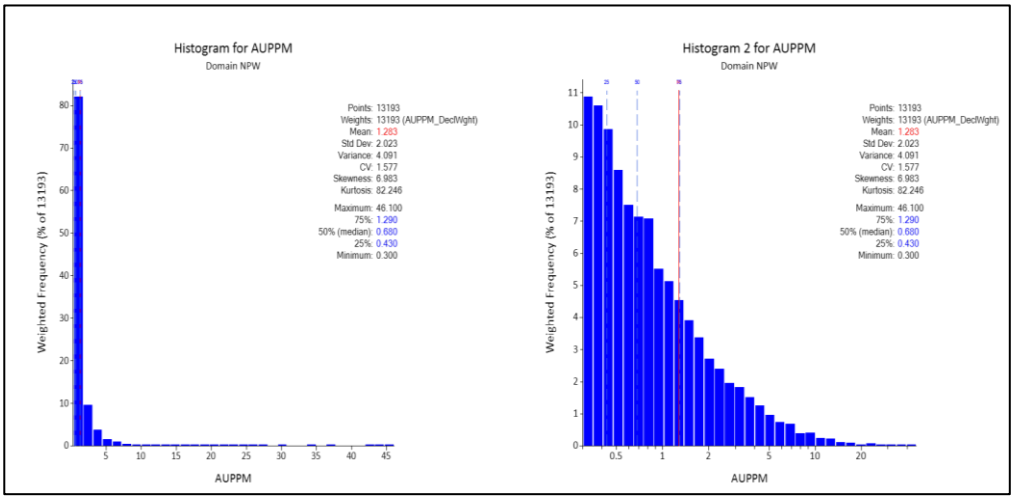


Figure 14.5 Histogram and Log Histogram of Composited Data with 0.3 g/t Au cut-off for Domain 3 (NPE)

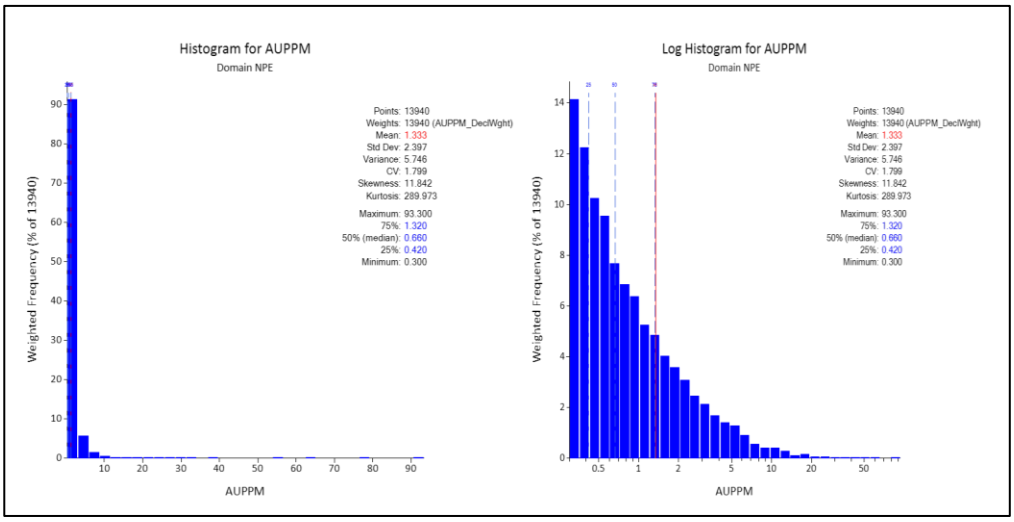
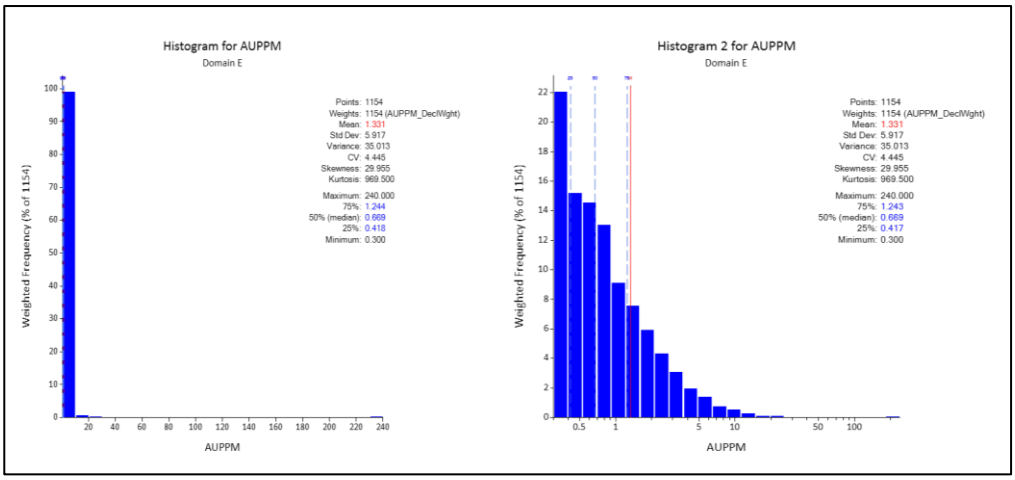
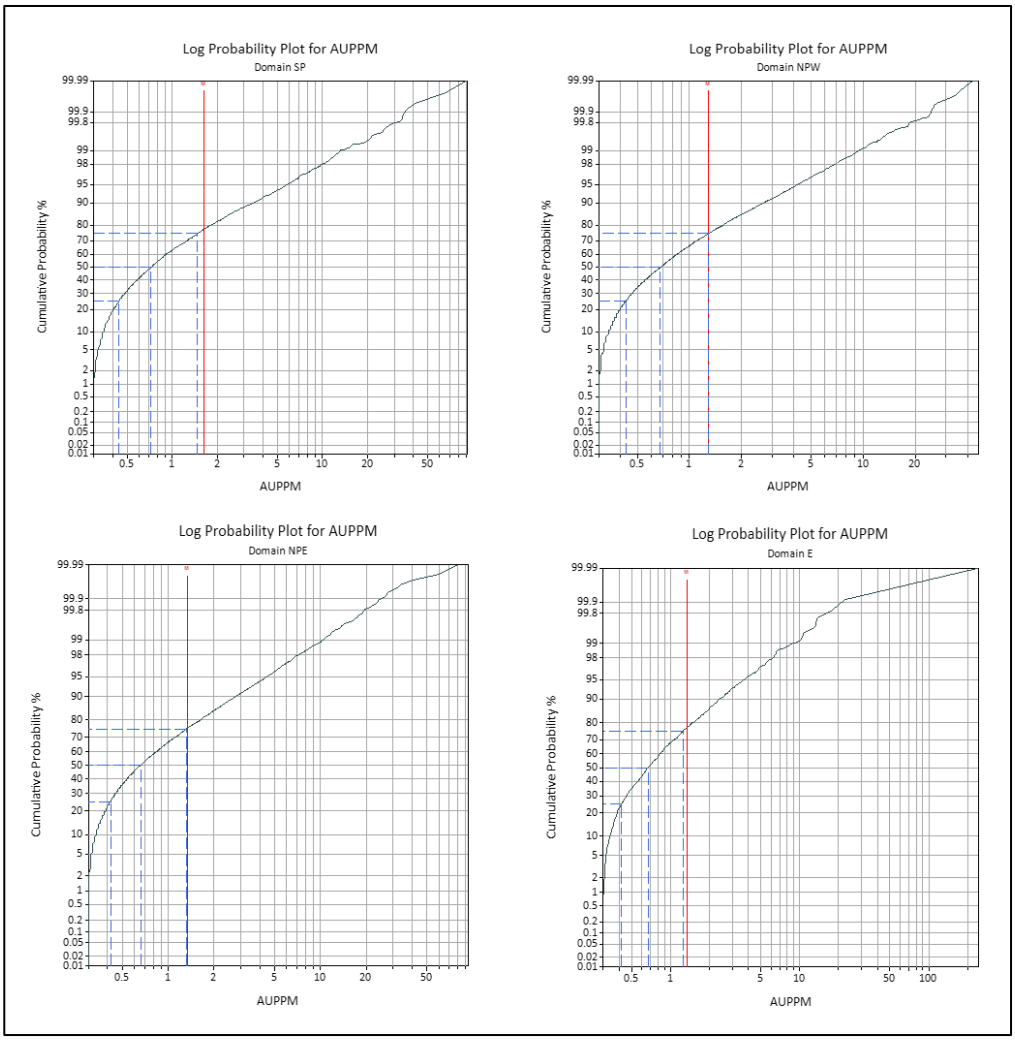


Figure 14.6 Histogram and Log Histogram of Composited Data with 0.3 g/t Au cut-off for Domain 4 (E)



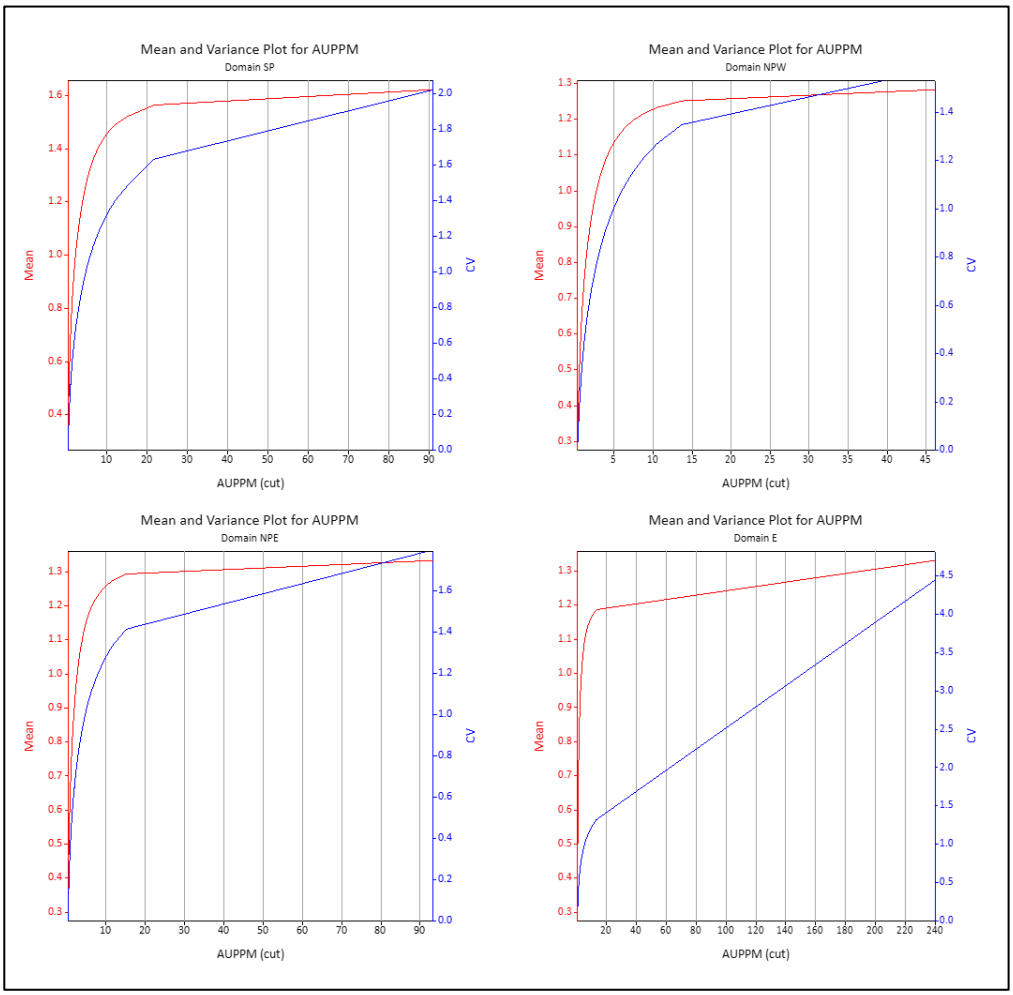
Log probability plots were created separately for each domain. These show similar distributions of gold grade across all domains.

Figure 14.7 Log Probability Plots by Domain using Composited Data with 0.3 g/t Au Cut-off Applied



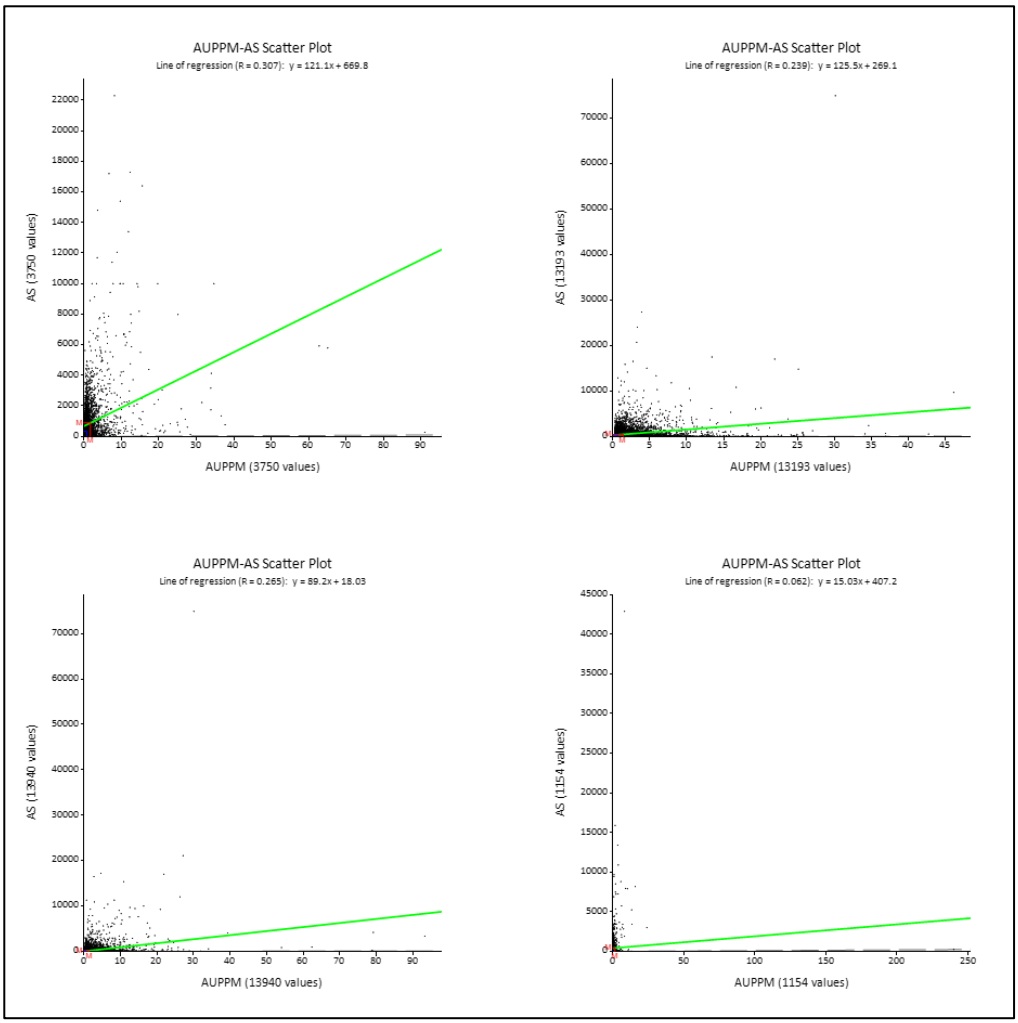
Mean and variance plots were created for each domain for gold grade. These did not show any unexpected characteristics to the data.

Figure 14.8 Mean and Variance Plots for Gold Grade from Composited Data with 0.3 g/t Au Cut off Applied



The correlation between gold and arsenic was also checked with scatter plots for each domain, with no apparent correlation. Arsenic grades could be used as part of the grade control procedure if there was clear correlation with gold. The lack of a strong correlation also supports the notion that the gold is particulate as opposed to sub-micron or solid solution in arsenopyrite.

Figure 14.9 Scatter Plots of Arsenic and Gold Grade by Domain



14.3.1 Drill Holes and Assays

The drilling data included in the estimate is discussed in Section 10. Historical data and channel samples have been omitted from the estimate, as well as blast hole data as they were considered unsuitable for the NI 43-101 standard.

All assays available from the included drilling were used in the estimate. Absent data and unsampled intervals were set to 0.00 g/t Au. Gold grade was estimated using the fire assay gold results from the database (AUPPM).

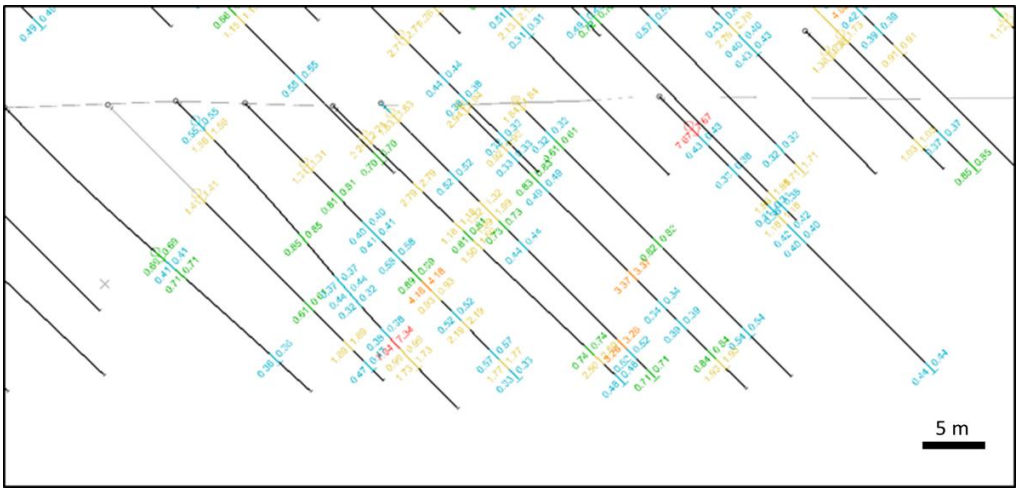
14.3.2 Capping

For comparison purposes a 30.0 g/t gold top-cut was applied to a duplicate set of the data with a 0.3 g/t gold cut-off. The value was selected based on probability plot disintegration. The difference between the estimates with and without a top-cut applied was minimal (+/- 0.1 Mt) and the uncut version of the model is thought to be geologically more correct.

14.3.3 COMPOSITES

The most common sample length was 1 metre. Compositing was carried out to 1 metre intervals and a lower cut-off of 0.3 g/t Au was applied to define the initial isoshells.

Figure 14.10 North-south Cross section Showing Drilling and Composites, Looking West



Source: Datamine, Coffey.

14.4 BULK DENSITY

Densities from previous studies were maintained (2.7 t/m^3 waste, 2.83 t/m^3 ore). These figures were based on 5,722 water displacement density measurements completed on the Laiva deposit across 1,355 different drill holes.

14.5 SPATIAL ANALYSIS

Variography was completed separately for each of the four domains using Snowden Supervisor^{TM}. The variograms are inconclusive but were considered sufficient to use for Ordinary Kriging as a comparison to Inverse Distance Squared method of estimation.

14.6 RESOURCE BLOCK MODEL

A block size of 3 m x 3 m x 5 m (XYZ) was selected as the drill spacing is sufficient for small blocks, whilst larger blocks are not suitable as the mineralisation is considered too variable. The selected block size provides enough detail for mining and minimises dilution.

Table 14.4 Block Model Extent

	Block size (m)	Origin	Maximum	Number of cells
X	3	2537287	2529324	679
Y	3	7159599	7161024	475
Z	5	-250	100	70

Table 14.5 Block Model Items

Item	Description
AUID	Estimated gold grade (inverse distance squared)
AUOK	Estimated gold grade (ordinary kriging)
ZONE	Mineralisation (333), air (222) or waste (111)
DENSITY	Mineralisation density (2.83), waste density (2.7)
CAT	Category (1 = Measured, 2 = Indicated, 3 = Inferred)
IJK	Index value of parent cell
XC	Block centroid X
YC	Block centroid Y
ZC	Block centroid Z
XINC	Block dimension X
YINC	Block dimension Y
ZINC	Block dimension Z
XMORIG	Origin X
YMORIG	Origin Y
ZMORIG	Origin Z
NX	number of parent cells in X direction
NY	number of parent cells in Y direction
NZ	number of parent cells in Z direction

Table 14.6 Domain Search Parameters

INFERRED			Search (m)			Rotation (degrees)		
Domain	**Details**	**Average Orientation**	**X**	**Y**	**Z**	**Z (azi)**	**X (dip)**	**Y (plunge)**
South Pit	West of RSZ	076/80SE	5	60	35	76	80	0
North Pit (west)	West of RSZ	072/80SE	5	64	48	72	80	0
North Pit (east)	West of RSZ	115/80S	5	53	32	115	80	0
East	East of RSZ	095/80SW	5	50	50	95	80	0

Note: azi - azimuth

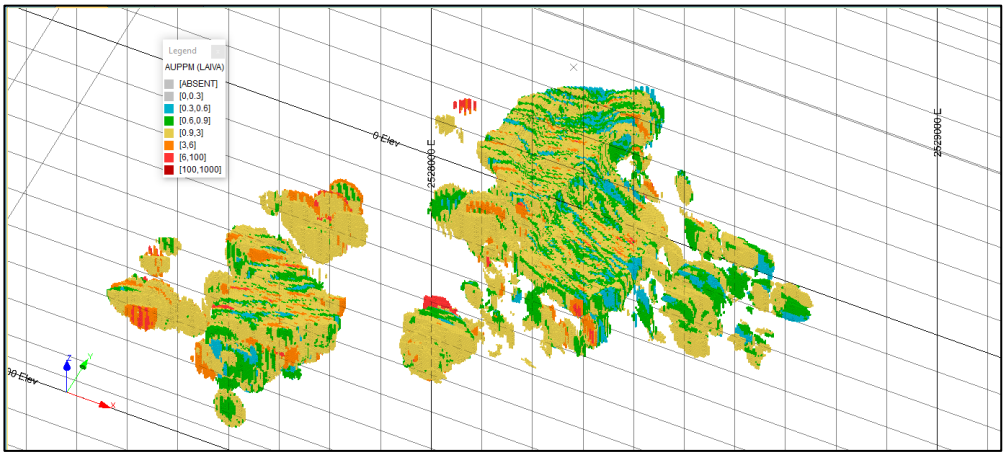
Table 14.7 Other Input Parameters Used in the Estimate

Item	Input
Method	Inverse power of distance squared
Sample grade	AU PPM
Minimum samples	8
Maximum samples	15

Table 14.8 Domain Variography Parameters

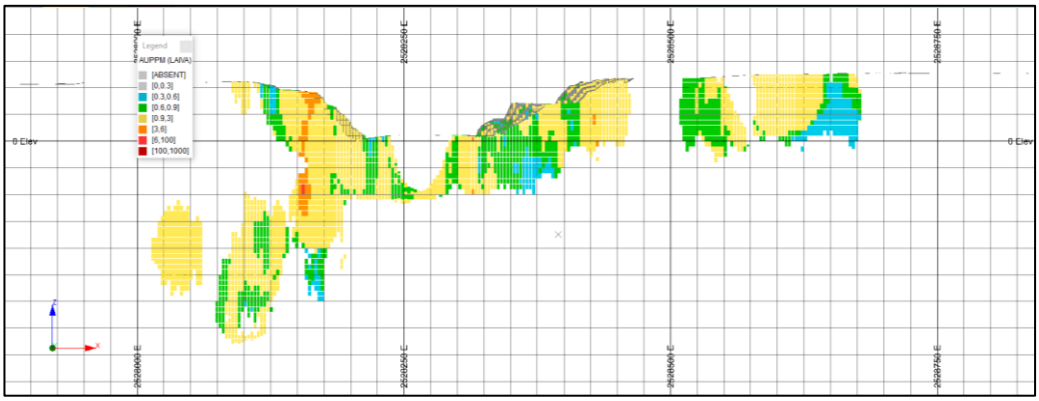
DOMAIN	VREFNUM	VANGLE1	VANGLE2	VANGLE3	VAXIS1	VAXIS2	VAXIS3	NUGGET	ST1PAR1	ST1PAR2	ST1PAR3	ST1PAR4
SP (1)	1	140	75	60	3	1	3	0.54	1	112	125	21
NPW (2)	1	155	50	-90	3	1	3	0.47	1	1	10	16
NPE (3)	1	30	30	0	3	1	3	0.77	1	10	11	8
E (4)	1	231	122	145	3	1	3	0.90	1	42	27	2

Figure 14.11 Screen Shot of Model Looking North west, Showing Gold Grade



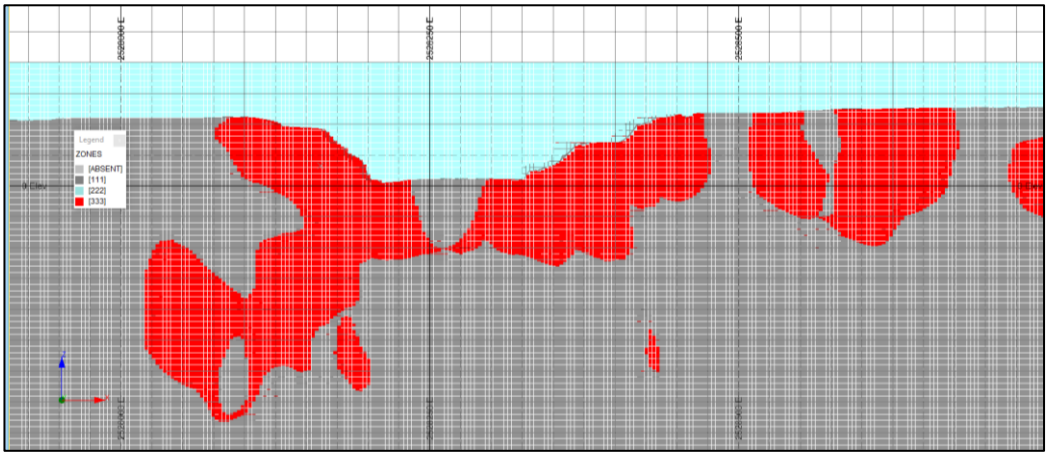
Source: Datamine, Coffey

Figure 14.12 Cross Section of Block Model Looking North



Source: Datamine, Coffey

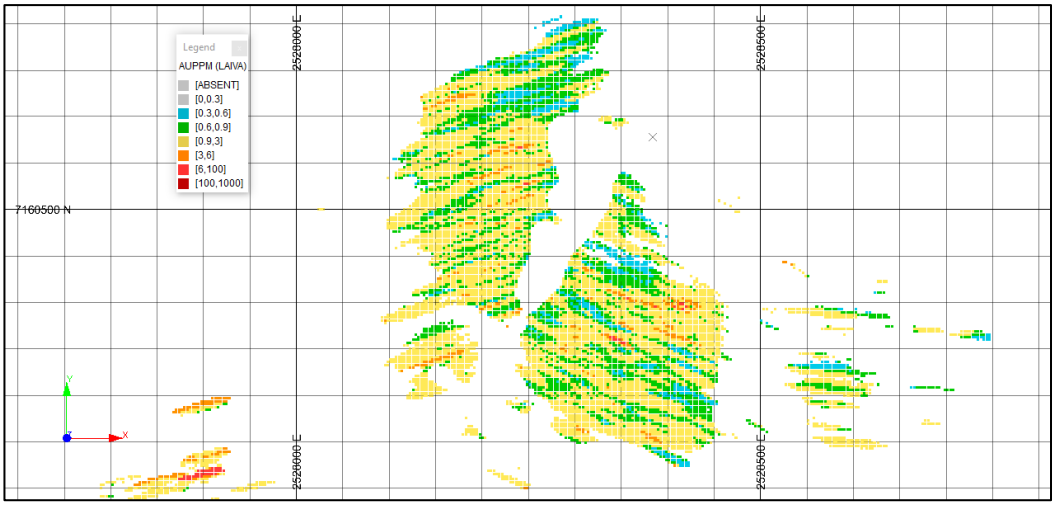
Figure 14.13 Cross Section Looking North of Block Model Zones



Source: Datamine, Coffey

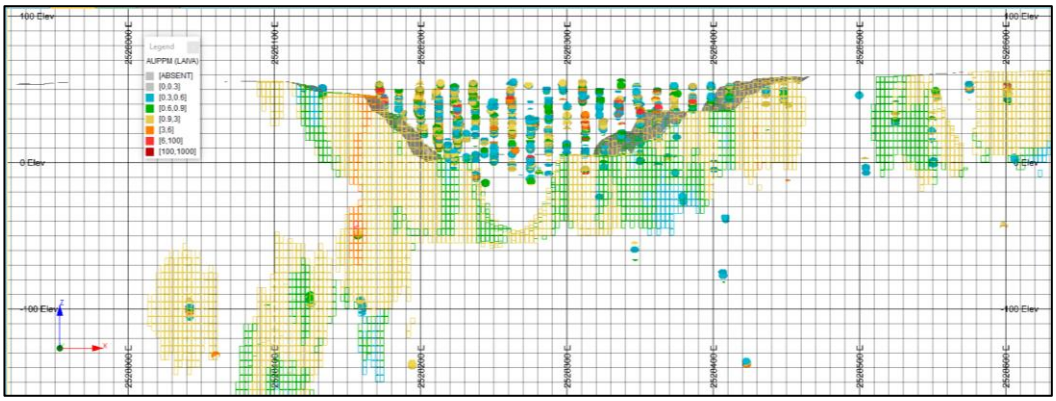
Key: blue - air, grey - waste, red – mineralisation (blocks with >0.3 g/t Au)

Figure 14.14 Plan View of Block Model at Base of North Pit Level (-12 m reduced level)



Source: Datamine, Coffey

Figure 14.15 Cross Section Showing Drilling and Block Model



Source: Datamine, Coffey

14.7 INTERPOLATION PLAN

The original model was created with a 0.3 g/t gold cut-off and was constrained using the topography from 2011 to obtain results comparable to previous estimates. This was then repeated using the current topography to estimate the remaining resource following previous production. This cut-off had previously been used in the 2016 SRK estimate.

A variety of sensitivity analyses were conducted using different interpolation or cut-off parameters to test potential modelling scenarios. The same method of Inverse Distance Squared (ID^2) was used with each of the sensitivity estimates. The comparisons completed are summarised below.

Table 14.9 Summary of the Different Parameters Applied to the Estimates for the Purpose of Comparison

Parameter	New Topography	Old Topography
0.3 g/t Au cut-off	Remaining resource	Base-line model for comparison to previous estimates
0.3 g/t Au cut-off, 30 g/t Au Top-cut	Testing the effect of top-cut	
0.2 g/t Au Low-cut	Testing the effect of lower cut-off grade, which may be possible with increased gold price or different processing methods	
0.5 g/t Au Low-cut	Testing the effect of a higher cut-off grade, which may be required with a drop in the gold price	
0.9 g/t Au Low-cut	Testing the effect of a higher cut-off grade, which may be required with a drop in the gold price	

The results of the model parameter sensitivities estimates using 0.3 g/t gold cut-off are shown in Tables 14.10 to Table 14.15 and illustrated by a graph in Figure 14.16.

Table 14.10 Baseline Estimate Results from Model Using Old Topography.

Old Topography, Grade Range (Au g/t) 0.3 g/t cut-off	Density t/m³	Tonnes t	Au g/t	Au oz
[0.3,0.6]	2.83	1,753,991	0.54	30,276
[0.6,0.9]	2.83	7,265,539	0.76	176,793
[0.9,3]	2.83	22,677,668	1.56	1,135,392
[3,6]	2.83	2,161,309	3.88	269,899
[6,100]	2.83	352,928	11.60	131,631
Total		**34,211,435**	**1.59**	**1,743,990**

Table 14.11 Baseline Estimate Results from the Model Using New Topography

Current Topography, Grade Range (Au g/t) 0.3 g/t cut-off	Density t/m³	Tonnes t	Au g/t	Au oz
[0.3,0.6]	2.83	1,473,597	0.54	25,424
[0.6,0.9]	2.83	6,255,205	0.76	152,353
[0.9,3]	2.83	20,141,196	1.56	1,012,133
[3,6]	2.83	1,956,581	3.89	244,597
[6,100]	2.83	336,380	11.78	127,445
Total		**30,162,958**	**1.61**	**1,561,952**

Table 14.12 Estimate Results from Model Using New Topography, with 30 g/t Au Top-cut

Current Topography, Grade Range (Au g/t), 30 g/t Au Top-cut	Density t/m³	Tonnes t	Au g/t	Au oz
[0.3,0.6]	2.83	1,506,365	0.54	25,919
[0.6,0.9]	2.83	6,272,696	0.76	152,772
[0.9,3]	2.83	20,431,457	1.56	1,027,060
[3,6]	2.83	1,771,534	3.81	216,906
[6,100]	2.83	70,854	7.09	16,149
Total		**30,052,906**	**1.49**	**1,438,805**

Table 14.13 Estimate Results from Model Using New Topography, with 0.2 g/t Au Low-cut

Current Topography, Grade Range (Au g/t) 0.2 g/t Au Low-cut	Density t/m³	Tonnes t	Au g/t	Au oz
[0.3,0.6]	2.83	6,916,915	0.48	107,519
[0.6,0.9]	2.83	9,633,022	0.74	230,672
[0.9,3]	2.83	20,357,633	1.50	979,999
[3,6]	2.83	1,547,979	3.89	193,440
[6,100]	2.83	351,517	11.60	131,125
Total		**38,807,066**	**1.32**	**1,642,755**

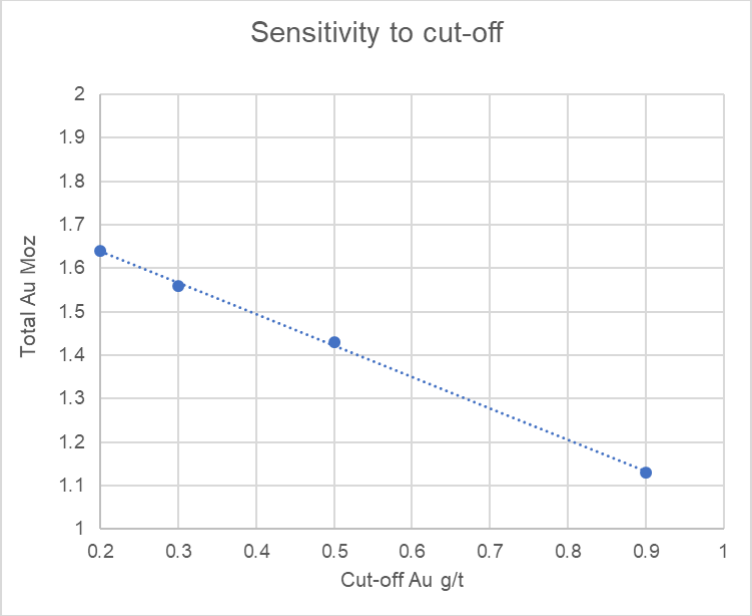
Table 14.14 Estimate Results from Model Using New Topography, with 0.5 g/t Au Low-cut

Current Topography, Grade Range (Au g/t) 0.5 g/t Au Low-cut	Density t/m³	Tonnes t	Au g/t	Au oz
[0.3,0.6]	2.83	42	0.59	1
[0.6,0.9]	2.83	984,644	0.81	25,800
[0.9,3]	2.83	16,620,203	1.73	921,766
[3,6]	2.83	2,760,544	3.88	344,694
[6,100]	2.83	364,229	11.53	134,996
Total		**20,729,661**	**2.14**	**1,427,256**

Table 14.15 Estimate Results from Model Using New Topography, with 0.9 g/t Low-cut

Current Topography, Grade Range (Au g/t) 0.9 g/t Au Low-cut	Density t/m³	Tonnes t	Au g/t	Au oz
[0.3,0.6]	2.83	-	-	-
[0.6,0.9]	2.83	-	-	-
[0.9,3]	2.83	7,364,736	2.19	518,410
[3,6]	2.83	3,853,624	3.95	489,250
[6,100]	2.83	416,045	9.45	126,339
Total		**11,634,405**	**3.03**	**1,134,000**

Figure 14.16 Sensitivity of estimate to cut-off



The difference between the old topography and new topography model was compared to production data from 2012-13 and 2018-19, and the results are shown in Table 14.16.

Table 14.16 Difference Between Old and New Topography Model Estimates, Compared to Production Data

Difference (Old topography – New topography) Grade Range (Au g/t)	Density t/m^3	Tonnes t	Au g/t	Au oz
[0.3,0.6]	2.83	280,394	0.54	4,852
[0.6,0.9]	2.83	1,010,334	0.75	24,440
[0.9,3]	2.83	2,536,472	1.51	123,259
[3,6]	2.83	204,727	3.84	25,302
[6,100]	2.83	16,549	7.87	4,185
Total		**4,048,477**	**1.40**	**182,038**

Production		Tonnes	Au g/t	Au oz
2012-13, 2018-19		**3,130,000**	**0.80**	**80,106**

Note: Production figures are tonnes milled and gold ounces produced. The difference between the model difference and production figures are contained in stockpiles, sulphidic material piles and tailings.

Stockpiles were surveyed by ground-based methods using DGPS after the production ceased, and grade was estimated by Nordic OY, based on mining grades and stockpile control figures. These estimates are provided in Tables 14.17 and 14.18. The QP has not verified the sampling procedures nor conducted independent sampling of the stockpiles; these tables represent estimates and cannot be relied upon for accuracy nor should they be considered as mineral resource estimates.

Table 14.17 Material Remaining in Stockpiles Based on Figures Provided by Nordic Gold

	Tonnes	Au g/t	Au oz
Stockpiles	67,334	0.58	1,256

The volume of the sulphidic rock dump has been surveyed, however grade is calculated, not assayed. It has been calculated from differences in production figures, block model differences and tails.

Table 14.18 Material Remaining in Sulphidic Rock Dump Based on Figures Provided by Nordic Gold.

	Tonnes	Au g/t	Au oz
Sulphidic rock dump	2,038,035	0.39	25,708

14.8 MINERAL RESOURCE CLASSIFICATION

The Laiva resource model was classified in accordance with NI 43-101 and in accordance with the Definition Standards of the Canadian Institute of Mining and Metallurgy:

*A **Measured Mineral Resource** is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application*

of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough to confirm both geological and grade continuity.

*An **Indicated Mineral Resource** is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough for geological and grade continuity to be reasonably assumed.*

*An **Inferred Mineral Resource** is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes.*

Direct evidence for “reasonable prospect for eventual economic extraction” is that the deposit has previously been mined, processed and produced gold. The 0.3 g/t gold cut-off grade is assumed based on estimated mining cost of [$6/t], processing cost of [$8.10 /t], maintenance cost of [$0.42 /t], general & administrative (G&A) cost of [$0.83 /t] and a three-year trailing gold price of US $1,350 /oz. The deposit is defined near surface and extends to at least 250 m depth. Since previous mining, the mineralisation now outcrops at surface, and the tonnage and grade calculated indicates a low strip ratio open pit mining project.

The problems encountered during previous production at this deposit are known, defined and quantifiable. With improved mine planning, grade control, mining efficiency and less dilution, metallurgical recoveries and reduced costs, the historical costs of US $1,750 /oz may be reduced greatly.

Following the studies, it has become clear that although the shear-controlled quartz veining mineralisation is generally continuous, with predictable offsets and deformation by local faults, the gold grade is less continuous. The main criteria used to define measured, indicated and inferred resource categories were the search radii used in the estimation stage. At each category, the radii were doubled.

Table 14.19 Search Parameters Used for Classification of Estimate in Each Domain

Domain	Measured (X Y Z)	Indicated (X Y Z)	Inferred (X Y Z)
SP (1)	5 x 15 x 8.75 m	5 x 30 x 17.5 m	5 x 60 x 35 m
NPW (2)	5 x 16 x 12 m	5 x 32 x 24 m	5 x 64 x 48 m
NPE (3)	5 x 13.25 x 8 m	5 x 26.5 x 16 m	5 x 53 x 32 m
E (4)	5 x 12.5 x 12.5 m	5 x 25 x 25 m	5 x 50 x 50 m

The material remaining in the low-grade stockpile will be added to the indicated category as it is ready to be fed to the mill at start-up. It is not added to the measured category as the values are calculated, not assayed.

The sulphidic waste rock dump (potentially acid forming) dump will be included in the inferred category of the estimate as it is now considered to be above the planned cut-off grade of 0.3 g/t Au.

14.9 MINERAL RESOURCE TABULATION

Details of the classified mineral resource estimate, effective as of 18th September 2019, are as follows. Tables 14.20 and 14.21 are for the block model only. Stockpiles and sulphidic material have been included in the final figures of Table 14.22.

Table 14.20 Detailed Breakdown of the Resource Estimate in Measured, Indicated and Inferred Categories (Block model only)

MEASURED Grade Range (Au g/t)	Density t/m³	Tonnes t	Au g/t	Au oz
[0.3,0.6]	2.83	121,267	0.53	2,064
[0.6,0.9]	2.83	372,574	0.75	9,019
[0.9,3]	2.83	1,157,060	1.59	59,060
[3,6]	2.83	116,913	3.91	14,682
[6,100]	2.83	12,638	7.72	3,136
Total		**1,780,452**	**1.54**	**87,963**

INDICATED Grade Range (Au g/t)	Density t/m³	Tonnes t	Au g/t	Au oz
[0.3,0.6]	2.83	343,884	0.53	5,871
[0.6,0.9]	2.83	1,237,894	0.75	30,009
[0.9,3]	2.83	3,713,535	1.60	190,850
[3,6]	2.83	400,411	3.91	50,287
[6,100]	2.83	47,720	8.63	13,242
Total		**5,743,443**	**1.57**	**290,259**

INFERRED Grade Range (Au g/t)	Density t/m³	Tonnes t	Au g/t	Au oz
[0.3,0.6]	2.83	1,008,445	0.54	17,488
[0.6,0.9]	2.83	4,644,737	0.76	113,325
[0.9,3]	2.83	15,270,601	1.55	762,223
[3,6]	2.83	1,439,258	3.88	179,628
[6,100]	2.83	276,022	12.52	111,067
Total		**22,639,063**	**1.63**	**1,183,730**

TOTAL		**30,162,958**	**1.61**	**1,561,952**

Table 14.21 Summary Table of Classified Resource Estimate (Block Model Only)

	Tonnes t	Au g/t	Au oz
Measured	1,780,452	1.54	87,963
Indicated	5,743,443	1.57	290,259
Measured + Indicated	**7,523,895**	1.56	**378,222**
Inferred	22,639,063	1.63	1,183,730
Total	**30,162,958**	**1.61**	**1,561,952**

Table 14.22 Summary Table of Classified Resource Estimate (Low-Grade Stockpile and Sulphidic Rock Dump Included)

	Tonnes t	Au g/t	Au oz
Measured	1,780,452	1.54	87,963
Indicated	5,810,777	1.56	291,515
Measured + Indicated	**7,591,229**	**1.55**	**379,478**
Inferred	24,677,098	1.52	1,209,438
Total	**32,268,327**	**1.53**	**1,588,916**

14.10 BLOCK MODEL VALIDATION

Validation steps were completed as described in the following sub-sections.

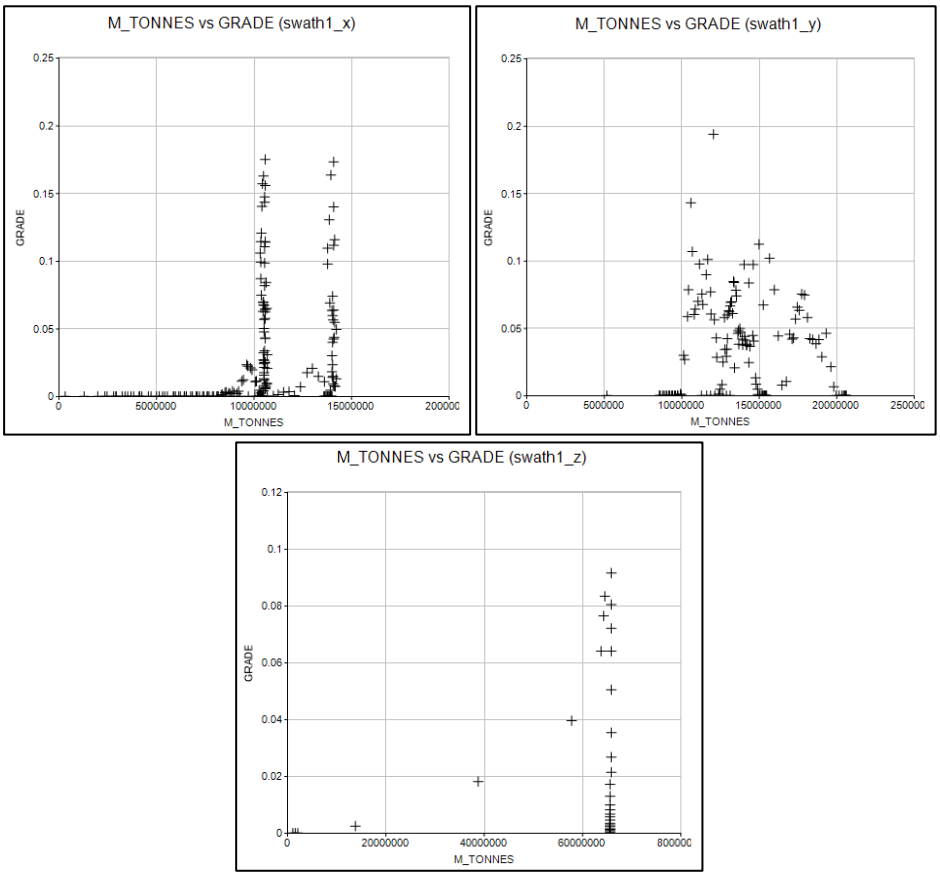
14.10.1 VISUAL COMPARISON OF BLOCK AND INFORMING SAMPLES

A visual inspection of informing samples versus estimated block grades gave satisfactory results.

14.10.2 GRAPHICAL COMPARISON OF BLOCK MODEL AND SAMPLES

Swath plots were completed to compare the grade of the block model to the grade of the samples.

Figure 14.17 Swath Plots in X, Y and Z Directions



14.10.3 CHECK ESTIMATES

Coffey's estimation methodology includes the making of a check estimate using Ordinary Kriging for comparison with the ID^2 estimate. The estimation strategy used is the same as for the inverse distance estimate. Variography figures from the graphs described in Section 14.5 were also used in the kriging (Table 14.8). The results of the check estimate are given in Table 14.23.

Table 14.23 Ordinary Kriging Estimate Results with New Topography, For Comparison

New Topography, Grade Range (Au g/t) Ordinary Kriging	Density t/m³	Tonnes t	Au g/t	Au oz
[0.3,0.6]	2.83	1,272,313	0.54	22,144
[0.6,0.9]	2.83	6,163,199	0.76	150,607
[0.9,3]	2.83	20,661,585	1.55	1,032,299
[3,6]	2.83	1,778,645	3.82	218,431
[6,100]	2.83	287,216	12.83	118,435
Total		**30,162,958**	**1.59**	**1,541,917**

14.10.4 CONCLUSION

There are no known legal, political, environmental, or other risks that could materially affect the potential development of the mineral resources calculated in this report.

An updated mineral resource estimate has been completed for the Laiva Project which Coffey believes is appropriate and suitable for Mine Planning and Financial analysis required for the next stages of the project, starting with a Feasibility Study. The following observations and/or processes were utilised in the construction of the updated resource estimate:

- Mineralisation at the Laiva Project occurs within fresh mafic volcanic and quartz diorites with little to no oxidation.
- Post mineralisation barren dolerite dykes intrude in the east and the area is bounded by granite to the west. In some areas, mineralisation occurs at depth below the granite. Further drilling is required to evaluate the mineralisation potential of this area.
- Statistical analysis was completed for the potential mineralised down hole drill samples at various gold cut-off grades (0.2, 0.3, 0.5 and 0.9 g/t Au). The gold population displayed a log normal distribution, with very few extreme high-grade outliers.
- A top cut of 30 g/t Au was applied as a test to reduce the local estimation bias produced by outliers. As the affect was minimal and the high grades are a true character of the deposit, a top-cut was not applied to the main estimate.
- Compositing of drill hole data was carried out to generate composites above a specified gold grade cut-off of 0.3 g/t Au, while maintaining a composite length of 1 metre.
- Mineralisation was modelled through isoshells using a 0.3 g/t Au cut-off.
- Variography was conducted to produce semi-variograms describing the orientation and range of grade continuity. The variogram parameters were used in the Ordinary Kriging estimate as a comparison to the base line estimate.
- The quality, density and nature of the sample data used in the estimation of the Laiva resource is represented in the classification of the resource estimate.
- The QA/QC review of the sample data shows that adequate procedures have been followed, ensuring suitable drill hole sample quality.
- Mining extraction assumptions, such as minimum mining width, which the author believes are reasonable for this style of mineralisation, have been applied to the resource estimation process.
- Suitable in-situ dry bulk density samples obtained from drill core samples had previously been used to estimate the in-situ dry resource bulk tonnage. These figures were not changed.
- The updated resource model compares favourably with previous estimates for the same project which used alternate geostatistical resource estimation processes.

The updated mineral resource for the Laiva Project has resulted in the following:

- An updated resource model suitable for detailed mine planning analysis, which will be required for input into a Feasibility Study.

- A resource model including the additional drilling data from 2018 and deduction of material already mined from the pit.

The resource estimate has been classified according NI 43-101 guidelines and standards.

14.11 COMPARISON WITH PREVIOUS ESTIMATES

More drilling has been completed since previous estimates as well as more mining being carried out. This has added data to the estimate, but also removed material from the total resource. For this reason, this updated estimate was initially carried out using the old topography to enable a more direct comparison with previous estimates.

A qualified person has not done sufficient work to classify the historical estimates as current mineral resources or mineral reserves; and the issuer is not treating the historical estimates as current mineral resources or mineral reserves.

Table 14.24 Table of Final Estimate Using Old Topography and New Topography in Comparison to Historical Estimates

Year	Completed by	Tonnes t	Au g/t	Au oz	Cut-off Applied (Au g/t)
1985	Outokumpo	52,100	9.20	15,412	3.0
1984	Outokumpo	740,000	4.41	104,971	2.0
2005	Endomines	1,150,000	3.46	128,007	2.0
2018	Nordic Gold (Boyd)	12,827,000	1.45	596,000	0.4
2013	Nordic OY (SRK)	18,570,000	1.62	970,000	0.6
2015	Nordic OY (SRK)	19,190,000	1.61	995,000	0.6
2008	Nordic OY (Dowd)	19,840,000	1.87	1,194,000	0.8
2008	Nordic OY (CSA)	20,180,000	1.79	1,161,000	0.5, 0.8, 1.0
2011	Nordic OY (CSA)	23,700,000	1.79	1,362,000	0.5, 0.8, 1.0
2009	Nordic OY (CSA)	23,730,000	1.52	1,161,000	0.5, 0.8, 1.0
2012	Nordic OY (CSA)	28,500,000	1.69	1,553,000	0.8
2016	Nordic OY (SRK)	28,690,000	1.21	1,116,000	0.3
2012	Nordic OY (CSA)	29,550,000	1.69	1,607,000	0.8
2019	**New topography**	**30,162,958**	**1.61**	**1,561,952**	**0.3**
2019	**Old topography**	**34,211,435**	**1.59**	**1,743,990**	**0.3**

Figure 14.18 Bar Graph of Final Estimate Using Old Topography and New Topography in Comparison to Historical Estimates (tonnes on left, gold ounces on right)

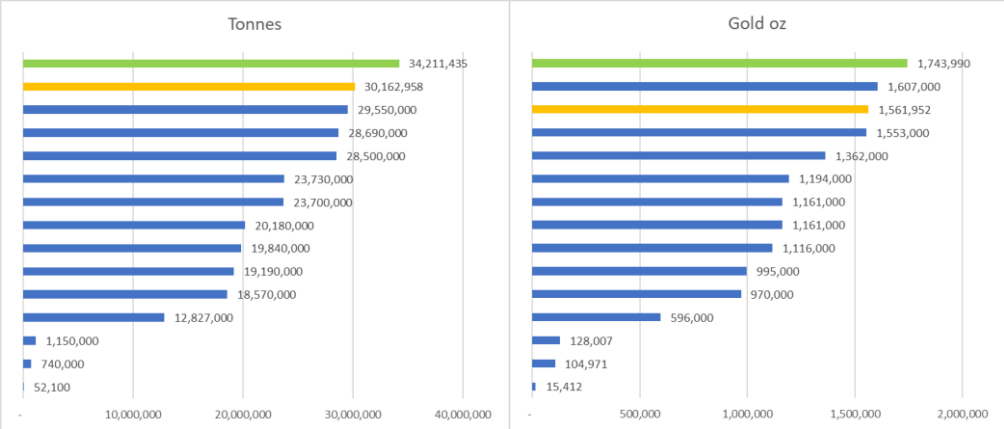
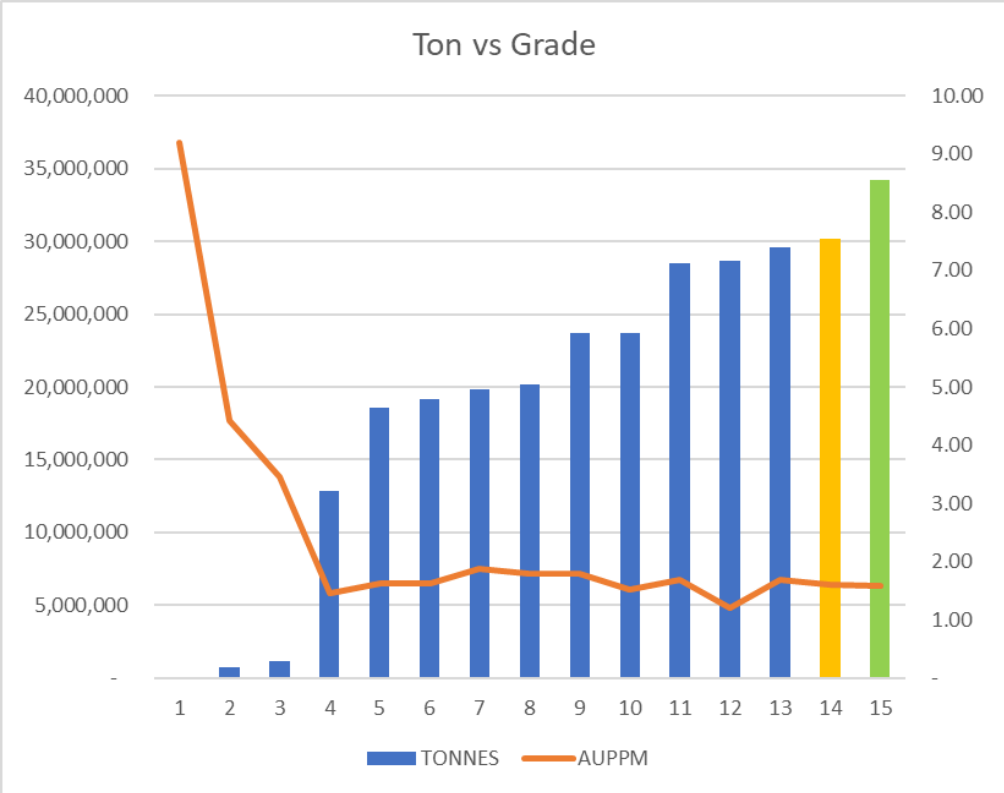


Figure 14.19 Tonnage Versus Grade Variation Between Historical Estimates



14.12 CATEGORISATION OF MINERAL RESOURCE ESTIMATE BY GRADE

The block model resource estimate has been considered in terms of the process that may be used to extract the gold. Considering a twin stream process, a head grade of 0.7 g/t Au, with cut-off grade of 0.3 g/t Au was considered suitable for Heap Leach (HL) processing. Any material above 0.9 g/t Au was deemed more suitable for CIL processing rather than heap leaching. The total figures when the resource is split this way is given in Table 14.25.

Table 14.25 Classification of Resource by End Process of CIL or HL

H/L Grade Range (Au g/t)	Density t/m^3	Tonnes t	Au g/t	Au oz
[0.3,0.6]	2.83	1,473,597	0.54	25,424
[0.6,0.9]	2.83	6,255,205	0.76	152,353
Total		**7,728,801**	**0.72**	**177,776**
CIL Grade Range (Au g/t)	**Density t/m^3**	**Tonnes t**	**Au g/t**	**Au oz**
[0.9,3]	2.83	20,141,196	1.56	1,012,133
[3,6]	2.83	1,956,581	3.89	244,597
[6,100]	2.83	336,380	11.78	127,445
Total		**22,434,157**	**1.92**	**1,384,175**

15.0 MINERAL RESERVE ESTIMATES

Not applicable to this Technical Report.

16.0 MINING METHODS

This section is not applicable to this report.

17.0 RECOVERY METHODS

This section is not applicable to this report.

18.0 PROJECT INFRASTRUCTURE

This section is not applicable to this report.

19.0 MARKET STUDIES AND CONTRACTS

This section is not applicable to this report.

20.0 ENVIRONMENTAL STUDIES, PERMITTING AND SOCIAL OR COMMUNITY IMPACT

This section is not applicable to this report.

21.0 CAPITAL AND OPERATING COSTS

This section is not applicable to this report.

22.0 ECONOMIC ANALYSIS

This section is not applicable to this report.

23.0 ADJACENT PROPERTIES

There are no adjacent properties.

24.0 OTHER RELEVANT DATA AND INFORMATION

There is no other relevant data and information.

25.0 INTERPRETATION AND CONCLUSIONS

Coffey is of the opinion that the Mineral Resource Estimate is suitable for public reporting and is a fair representation of the in-situ gold mineralisation and contained metal for the Laiva Project.

The new resource of 32.27 Mt grading 1.53 g/t gold (1.59 Moz) is reported using a 0.3 g/t cut-off and is based on a geological and mineralisation interpretation of the deposit. The model has incorporated four mineralised domains, included recent drilling and has been cut by current topography. The deposit remains open in the north, south, east and to depth. It is cut by a granite pluton in the west of the current North Pit.

Compared with the most recent previous estimate by Boyd (2018), the current reported Mineral Resource has an overall higher category of geological and mineralisation confidence. Amongst historical estimates the most comparable is the 2012 CSA estimate that stated 29.55 Mt grading 1.69 g/t gold (1.61 Moz).

Although the geology and mineralisation of the area is structurally complex, this has no bearing on the estimated figure. The estimate is for a historically producing mine that had difficulties with operation, not with the presence of gold in the ground. Drill hole density and total metres drilled is sufficient for the resource classification in Section 14. As would be expected, drill density decreases with depth, resulting in the inferred classification of this part of the resource.

26.0 RECOMMENDATIONS

The recommendations for the Laiva Project are focussed on plans and trial runs of grade control programmes to ensure the best method is selected for use in mining. The method needs to be reliable, efficient and provide enough clarity to mine the ore with minimal dilution.

26.1 GENERAL RECOMMENDATIONS

- Implementation of better internal QA/QC protocols.
- Evaluation of coarse / nuggety gold via screen metallics testing.
- Further evaluation of geochemical relationships between Au and As, Sb, Bi, Te and other indicator elements, for aid with rapid in pit grade control (for example hand held X-Ray Fluorescence).
- Verification of stockpile grades by sampling and surveying.
- Refinement of the high-grade gold mineralisation model and conducting a trade-off study for selective in pit mining of these high-grade domains.
- Acid Rock Drainage and Metal Leaching assessment of the sulphide stockpile if it is not intended to be processed immediately.

26.2 GRADE CONTROL AND MINING RECOMMENDATIONS

- Operate three pits simultaneously to allow more time for sampling, assay results, blasting and mining.
- Sulphide dump and low-grade ore dump should be sorted and dumped systematically to allow access to low grade ore as or when the gold price allows.
- Regular training by geologist of spotters and operators.
- Always a spotter or geologist to be present when working on or near to ore.
- To the extent possible, ore should be mined during the day and waste material at night. Use of good lighting in the darker winter months and at night time is very important.
- Blast offset direction should be along strike to minimise dilution.
- Use of old drill rods to monitor blast movement.
- Blast ore and waste separately where possible.
- Blast ore as 5 m benches, but mine ore in 2.5 m sub-benches.

- Mine ore from hanging wall towards footwall.
- Use coloured cards for trucks and spotters and operators. Use markup tape and spray paints with the same colour coding.
- Graders and dozers should move material along strike of mineralisation, not smearing ore across waste rock or visa versa.
- Do not bring waste material back into the pit to level the surface as this contaminates the ore. Instead, improve blasting techniques.

26.3 EXPLORATION RECOMMENDATIONS

Owing to the advanced nature of the planned pit areas of the project, the exploration recommendations are for the surrounding area, with the prospect of further mineralisation being defined and extending the current mine life.

- Drilling between the north pit and mine offices to investigate the different style of mineralisation intercepted by one drill hole at that locality (Petrol Pump). The metavolcanic rock appears to be carrying gold grade even in the absence of visible sulphides, contrary to the mineralisation seen elsewhere in the area.
- Further exploration should be continued on current targets, such as “New Hope”.
- Further drilling to upgrade inferred resources to indicated classification.
- Following up of geochemical anomalies from historic soil sample and till-rock boundary samples.

26.4 METALLURGY AND PROCESSING RECOMMENDATIONS

The test work reported is preliminary and focused on optimising basic test work parameters. A feasibility study for a potential restart of the mining operation would require a comprehensive metallurgical test work programme to be completed in order to demonstrate and confirm the proposed flowsheet. Coffey recommends that, technical and economic trade-off studies (such as grinding options, processing options) will need to be completed based on the test work results followed by a review, revision and modification of the existing flowsheet.

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28.0 CERTIFICATE OF QUALIFIED PERSON

I, Andrew Carter, of Salisbury, Wiltshire, United Kingdom do hereby certify that as the author of this **TECHNICAL REPORT ON LAIVA; NI 43-101 RESOURCE UPDATE**, with an effective date of 18th September 2019, I hereby make the following statements:

- I am a Technical Director with Coffey Geotechnics Ltd, a Tetra Tech Company, with a business address at Unit 2, Apple Walk, Kembrey Park, Swindon, SN2 8BL, United Kingdom.
- I am a graduate of The University of Leeds, (BSc Minerals Processing, 1980).
- I am a Professional Member and Chartered Engineer (MIMMM) CEng of the Institute of Materials, Minerals and Mining (IMMM) membership # 46421 and registration # 378467.
- I am a Registered Member of The Society for Mining, Metallurgy and Exploration, Inc. (SME) membership # 4112502.
- I have practiced my profession continuously since graduation.
- I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that, by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be a "qualified person" for the purpose of NI 43-101.
- My relevant experience with respect to the Laiva project includes the evaluation, design, development, construction and operation of gold projects in Australia, Russia, South Africa, Turkey, USA and Zimbabwe. I have also managed and contributed to numerous base and precious metals projects and studies in Brazil, Canada, Chile, Côte d'Ivoire, Ghana, Kazakhstan, Mexico, Namibia, Peru, Sierra Leone and Tanzania.
- I am responsible for the authorisation of all portions of this technical report titled "TECHNICAL REPORT ON LAIVA; NI 43-101 RESOURCE UPDATE", with an effective date of 18th September 2019. In addition, I visited the Property during the period 14th to 16th August 2019.
- I have no prior involvement with the Property that is the subject of the Technical Report.
- As of the date of this Certificate, to my knowledge, information and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.
- I am independent of the Issuer as defined by Section 1.4 of the Instrument.
- I have read NI 43-101 and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

Signed and dated this 18th Day of November**,** 2019 at *Swindon, United Kingdom.*

"Original Document, Revision C signed by EUR ING Andrew Carter, BSc, CEng, MIMMM, MSAIMM, SME"

Signature