# Technical Report for the True North Mine, Bissett, Manitoba, Canada



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EFFECTIVE DATE:
MARCH 31, 2018

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MAY 8, 2018

Page ii Havilah Mining Corporation

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## **Date and Signature Page**

The undersigned prepared this Technical Report (Technical Report) report, titled: Technical Report for the True North Mine, Bissett, Manitoba, Canada, dated the 8th day of May 2018, with an effective date of March 31, 2018, in support of the public disclosure of Mineral Resource estimates for the True North Project. The format and content of the Technical Report have been prepared in accordance with Form 43-101F1 of National Instrument 43-101 – Standards of Disclosure for Mineral Projects of the Canadian Securities Administrators.

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# **Table of Contents**

Date an	nd Signature Page	ii
Table o	of Contents	v
List of	Tables	Х
List of	Figures	X
List of	Abbreviations	xiv
1. Su	ımmary	15
1.1.	Introduction	15
1.2.	Property	15
1.3.	Environmental and Permitting	16
1.4.	Geology	16
1.5.	History	17
1.6.	Underground Mineral Resources	18
1.7.	Tailings Mineral Resources	20
1.8.	Conclusions	21
1.9.	Recommendations	21
2. Int	troduction	24
2.1.	Terms of Reference and Purpose of this Technical Report	24
2.2.	Qualification of the Authors	24
2.3.	Sources of Information	25
2.4.	Units of Measure	25
2.5.	Glossary	26
3. Re	eliance on Other Experts	34
4. Pr	operty Description and Location	35
4.1.	Property Location	35
4.2.	Property Description	37
4.3.	Liabilities and Permits	39
4.3	3.1. Summary	39
4.3	3.2. Information Review and Assessment	39

5.	I	Accessi	bility, Climate, Vegetation, Physiography, Local Resources and Infrastructure	49
	5.1	. Acc	cess to Project	49
	5.2	. Cli	mate	49
	5.3	. Ve	getation	49
	5.4	. Phy	siography	49
	5.5	. Loc	eal Resources and Infrastructure	49
	5	5.5.1.	Accommodations and Camp Facilities	52
	5	5.5.2.	Electrical Power and On-Site Distribution	52
	5	5.5.3.	Water Supply and Reticulation	53
	4	5.5.4.	Air Compressors	53
	5	5.5.5.	Diesel Fuel and On-Site Storage Facility	53
	4	5.5.6.	Warehousing and Material Handling	53
	5	5.5.7.	Security	53
	5	5.5.8.	Communication	53
	5	5.5.9.	On-Site Transport and Infrastructure	54
	5	5.5.10.	Solid Waste Disposal	54
	4	5.5.11.	Parts and Mine Supply Freight	54
	4	5.5.12.	Mobile and Fixed Equipment Maintenance Facility	54
	5	5.5.13.	First Aid and Ambulance	54
	5	5.5.14.	Office and Administration Buildings	54
	5	5.5.15.	Tailings Storage	54
	5	5.5.16.	Stockpiles	55
6.	I	History		56
	6.1	. Eve	ents Prior to 1989	56
	6.2	. Eve	ents 1989 Through 2001	58
	6.3	. Wi	ldcat and San Gold 2001 - 2015	59
	6.4	. Klo	ondex Mines Ltd. 2016 - 2017	62
7.	(	Geolog	ical Setting and Mineralization	64
	7.1	. Reg	gional Geology	64
	7.2	. Loc	cal Geology	66

12. Data V	erification	103
12.1. Dr	ill Data Review	103
12.1.1.	Collar Location Checks	103
12.1.2.	Down Hole Survey Checks	103
12.1.3.	Core Assay Checks	103
12.1.4.	Geology Checks	104
12.2. Ch	annel Chip Data Review	104
12.2.1.	Collar Location and Channel Bearing Checks	104
12.2.2.	Assay Check	104
12.2.3.	Geology Check	104
12.3. Co	onclusions to Data Verification	105
13. Minera	l Processing and Metallurgical Testing	106
14. Minera	l Resource Estimates	111
14.1. Int	roduction	111
14.2. Ur	derground Resources	112
14.2.1.	Data Supplied	112
14.2.2.	Bulk Density	112
14.2.3.	Vein Modelling	113
14.2.4.	Assay Data	115
14.2.5.	Compositing	119
14.2.6.	Treatment of Extreme Values	121
14.2.7.	Au Grade Estimation, Classification and Minimum Width	122
14.2.8.	Block Model Validation	123
14.2.9.	Underground Mineral Resource Estimate	131
14.3. Ta	ilings Resources	134
14.3.1.	Tailings Mineral Resource Model	134
14.3.2.	Tailings Data Supplied	134
14.3.3.	Tailings Dry Bulk Density	135
14.3.4.	Deposit Modelling	135
14.3.5.	Assay Data	136

Havilah Mir Corporation		Page ix
14.3.6.	Compositing	137
14.3.7.	Spatial Analysis	137
14.3.8.	Treatment of Extreme Values	138
14.3.9.	Block Model Extents	139
14.3.10.	Gold Tailings Grade Estimation & Classification	139
14.3.11.	Tailings Block Model Validation	140
14.3.12.	Tailings Mineral Resource Estimate	143
23. Adjace	ent Properties	145
23.1. G	olden Pocket Resources	145
23.1. B	ison Gold Resources Inc.	145
24. Other	Relevant Data and Information	147
24.1. U	nderground Mine	147
24.1.1.	Access Development	147
24.1.2.	Geotechnical	147
24.1.3.	Ground Support	147
24.1.4.	Ventilation and Secondary Egress	150
24.1.5.	Power Distribution and Dewatering	150
24.1.6.	Mining Methods	152
24.1.7.	Captive Sub Level Long hole Stoping	155
24.1.8.	Equipment Fleet Underground	156
24.1.9.	Tailings Reprocessing	157
24.2. R	ecovery Methods	158
24.2.1.	Mined Ore	158
24.2.1.	Tailings Reprocessing.	159
25. Interpr	retation and Conclusions	161
26. Recom	nmendations	162
27. Refere	nces	164
Certificates o	f Qualified Persons	166
Appendix A	True North Claims Information	175

# **List of Tables**

Table 1-1 Chronology of Ownership and Major Events of the True North Project	17
Table 1-2 Underground Mineral Resources as of March 31, 2018	19
Table 1-3 Tailings Mineral Resources as of March 31, 2018	20
Table 2-1 Qualified Professionals	25
Table 2-2 Units of Measure	26
Table 4-1 Summary of True North Mineral Property Holdings and Surface Areas	37
Table 4-2 Obtained Licenses and Key Permits and Approvals	40
Table 4-3 Potential Significant Environmental Impacts and Current Status / Mitigative Me	asures
	45
Table 6-1 Historic Production at Rice Lake Mine: 1927-1968	57
Table 6-2 Historic Production at Rice Lake Mine: 1980-2001	59
Table 6-3 Historic Production at Rice Lake Mine: 2007-2015	61
Table 6-4 KDX True North Underground Production 2016 - 2017	62
Table 6-5 True North Tailings Reprocessing	62
Table 6-6 In-situ Mineral Resource Statement as of March 31, 2017	63
Table 6-7 Tailings Mineral Resource as of March 31, 2017	63
Table 6-8 True North Mineral Reserves as of March 31, 2016	63
Table 10-1 Summary of Surface Exploration on the True North Mine	78
Table 10-2 Summary of Tailings Drilling at True North Mine	80
Table 11-1 DDH Standard Assay Summary	87
Table 11-2 2017 Channel Sample Standard and Blank Assay Summary	92
Table 11-3 Tailings Blank and Standard Assay Summary	97
Table 13-1 Harmony Gold – Rice Lake Deposit Metallurgical Results	106
Table 13-2 Hinge Zone Metallurgical results	107
Table 13-3 007 Zone Metallurgical Results	107
Table 13-4 SGS Lakefield And Starkey Associates Sag Mill Testing Results	107
Table 13-5 JKTech Drop-Weight Test Summary	107
Table 13-6 More SGS Lakefield And Starkey & Associates Sag Mill Testing Results	108
Table 13-7 Results Leaching Flotation Tails for 24 Hours at 2.5 gpl NaCN Concentration	108
Table 13-8 Results Leaching Flotation Tails for 24 Hours at 0.5 gpl NaCN Concentration	109
Table 13-9 Results from Leaching Samples from Tailings Storage Facility	110
Table 14-1 True North Database Records	
Table 14-2 Bulk Density Sample Statistics	113
Table 14-3 Modelled Veins	114
Table 14-4 Summary Drill-hole Assay Statistics	115

Havilah Mining Corporation.	Technical Report for the True North Mine, Bissett, Manitoba, Canada	Page xi
Table 14-5 Summar	ry Channel Sample Assay Statistics	117
	ry Composite Statistics by Vein	
	ite Capping Levels	
<del>-</del>	Iodel Validation Grades	
Table 14-9 Volume	Comparison	130
Table 14-10 Total M	Mineral Resources as of March 31, 2018	132
Table 14-11 Detail o	of the Resource by Vein	132
Table 14-12 Tailing	s Dry Bulk Density Results	135
Table 14-13 Summa	ary Tailings Sampling Assay Statistics	136
Table 14-14 Summa	ary Tailings Composite Statistics	137
Table 14-15 Tailing	s Block Model Orientation	139
Table 14-16 Tailing	s Mineral Resources as of March 31, 2018	143
Table 24-1 Undergr	ound Mobile Equipment Fleet	157
List of Figures		
Figure 4-1 Location	of the True North Mine, Bissett, Manitoba	36
Figure 4-2 Regional	Mining Claim and Lease Holdings	38
Figure 4-3 True Noi	rth Gold Mine Site Plan	42
Figure 4-4 TMA Sit	e Plan	43
Figure 4-5 Aerial V	iew of the Mine, Plant Site and TMA	44
Figure 5-1 Photogra	ph of the True North Gold Mine Looking South	50
Figure 5-2 Tailings	Management Area at the True North Gold Mine	51
Figure 5-3 Surface I	Infrastructure Plan View	52
Figure 7-1 Regional	Geologic Map showing the Location of True North Gold Mine	in the Archean
Uchi Subprovince, I	Manitoba	65
Figure 7-2 Geologic	e Map showing the Location of Gold Deposits and Lithotectoni	c Assemblages
	Mine Area	
Figure 7-3 Local Ge	eology of True North Gold Mine Area	67
Figure 7-4 The Stru	ctural Geological Setting of Gold Mineralization at True North	Gold Mine 68
Figure 7-5 Shear Zo	ones and Quartz Veins	70
Figure 7-6 Example	of 16-Type Shear and 38-Type Breccia Gold Mineralized Quant	rtz Veins in the
	North	
Figure 7-7 Controls	on Gold Mineralization in the 007 Zone	73
Figure 7-8 Interprete	ed Cross-Sections of 007 and L10 Zones Looking West	74
Figure 7-9 Level Pla	an of the 710 Zone showing the Location of the 710 and 711 V	eins74

Figure 8-1 Schematic Cross-Section Representation of the Geometry and Structural	Setting of
Shear Zone Hosted Gold-Bearing Quartz Vein Networks in Greenstone Belt Terrains	s like True
North Gold Mine	75
Figure 11-1 Flow Chart for Surface and Underground Core Sampling Methods	83
Figure 11-2 Assay Results of Standard CDN-GS-1P5C	88
Figure 11-3 Assay Results for Standard CDN-GS-6B	88
Figure 11-4 Assay Results for Standard CDN-GS-13A	89
Figure 11-5 Assay Results for Standard CDN-GS-22	89
Figure 11-6 San Gold Blank Assays	90
Figure 11-7 KDX Blank Assays	91
Figure 11-8 San Gold and KDX Duplicate Assay Results	92
Figure 11-9 Channel Sample Standard CDN-GS-22	93
Figure 11-10 Channel Sample Standard CDN-GS-13A	93
Figure 11-11 Channel Sample Standard CDN-GS-6B	94
Figure 11-12 Channel Sample Standard CDN-GS-1P5C	95
Figure 11-13 Channel Sample Blanks	
Figure 11-14 Assay Results for Chip Sample Duplicates	97
Figure 11-15 Tailings Assay Results for Standard GS-1P5C	98
Figure 11-16 Tailings Assay Results for Standard GS-1L	
Figure 11-17 Tailings Assay Results for Standard GS-P6	100
Figure 11-18 Tailings Assay Results for Blanks	101
Figure 14-1	123
Figure 14-2 Vein 710 Longsection	124
Figure 14-3 Vein 711 Longsection	125
Figure 14-4 710 Vein Swath Plot X	126
Figure 14-5 710 Vein Swath Plot Z	126
Figure 14-6 711 Vein Swath Plot X	127
Figure 14-7 711 Vein Swath Plot Z	127
Figure 14-8 Vein 710 Grade Tonnage Curve	129
Figure 14-9 711 Vein Grade Tonnage Curve	130
Figure 14-10 Nearest Pair Plot of Pit Samples	135
Figure 14-11 Experimental Semi Variogram	138
Figure 14-12 Histogram and Probability Plots for Uncapped Tailings Composites	139
Figure 14-13 Model and Composite Comparisons	
Figure 14-14 Comparison of Estimation Results	
Figure 14-15 Tailings Swath Plot	
Figure 23-1 Adjacent Properties to the True North Gold Mine	
Figure 24-1 Longitudinal Section	

Havilah Mining Corporation.	Technical Report for the True North Mine, Bissett, Manitoba, Canada	Page xiii
Figure 24-2 True Nort	th Gold Mine 710 Complex - Ventilation System	151
Figure 24-3 Long hole	e Open Stope Sill Development	152
Figure 24-4 Long hole	e Open Stope Raise and Drilling	153
Figure 24-5 Long hole	e Open Stope Blasting	153
Figure 24-6 Long hole	e Open Stope Backfilling	154
Figure 24-7 Overcut a	nd Undercut Plan View	154
Figure 24-8 True Nort	th Gold Mine Typical Longhole Drill Section	155
Figure 24-9 True Nort	th Gold Mine Sub-Level Captive Long hole Stope	156
Figure 24-10 Aerial V	iew of Tailings Recovery Site	157
Figure 24-11 True Go	ld Mine Process Plant Flowsheet	159

# **List of Abbreviations**

A	Ampere	kA	kiloamperes
AA	atomic absorption	kCFM	thousand cubic feet per minute
$A/m^2$	amperes per square meter	Kg	Kilograms
AGP	Acid Generation Potential	km	kilometer
Ag	Silver	km2	square kilometer
ANFO	ammonium nitrate fuel oil	kWh/t	kilowatt-hour per ton
ANP	Acid Neutralization Potential	LOI	Loss On Ignition
Au	Gold	LoM	Life-of-Mine
AuEq	gold equivalent	m	meter
btu	British Thermal Unit	$m^2$	square meter
°C	degrees Celsius	$m^3$	cubic meter
CCD	counter-current decantation	masl	meters above sea level
CIL	carbon-in-leach	mg/L	milligrams/liter
CoG	cut-off grade	mm	millimeter
cm	centimeter	$mm^2$	square millimeter
cm <sup>2</sup>	square centimeter	$mm^3$	cubic millimeter
cm <sup>3</sup>	cubic centimeter	MME	Mine & Mill Engineering
cfm	cubic feet per minute	Moz	million troy ounces
ConfC	confidence code	Mt	million tonnes
CRec	core recovery	MTW	measured true width
CSS	closed-side setting	MW	million watts
CTW	calculated true width	m.y.	million years
0	degree (degrees)	NGO	non-governmental organization
dia.	diameter	NI 43-101	Canadian National Instrument 43-101
EIS	Environmental Impact Statement	OZ	Troy Ounce
EMP	Environmental Management Plan	opt	Troy Ounce per short ton
FA	fire assay	%	percent
Ft	Foot	PLC	Programmable Logic Controller
Ft <sup>2</sup>	Square foot	PLS	Pregnant Leach Solution
Ft <sup>3</sup>	Cubic foot	PMF	probable maximum flood
g	Gram	POO	Plan of Operations
g/L	gram per liter	ppb	parts per billion
g-mol	gram-mole	ppm	parts per million
g/t	grams per tonne	QAQC	Quality Assurance/Quality Control
ha	hectares	RC	reverse circulation drilling
HDPE	Height Density Polyethylene	ROM	Run-of-Mine
HTW	horizontal true width	RQD	Rock Quality Description
ICP	induced couple plasma	SEC	U.S. Securities & Exchange Commission
$ID^2$	inverse-distance squared	Sec	second
$ID^3$	inverse-distance cubed	SG	specific gravity
ILS	Intermediate Leach Solution	SPT	Standard penetration test

## 1. Summary

Practical Mining LLC (PM) and P&E Mining Consultants Inc. (P&E) were engaged by Klondex Mines Ltd.(KDX), to prepare a Technical Report (TR) in accordance with National Instrument 43-101 (NI 43-101) of the Canadian Securities Administrators. PM's and P&E's evaluation of the True North Mine (True North Project, True North, or the Project), located in Bissett, Manitoba, Canada, is presented herein. This TR, dated the 8th day of May 2018, with an effective date of March 31, 2018 provides the initial Mineral Resource Estimate for the Project.

#### 1.1. Introduction

True North is located in southeast Manitoba, Canada at the edge of Bissett township on the north shore of Rice Lake. It lies approximately 100 miles (162 kilometers) northeast of Winnipeg, roughly 150 driving miles (234 kilometers) via all-weather Provincial highways. The town of Bissett is a long-established mining community with a fluctuating population which is currently approximately 340 people.

The mine accesses quartz vein gold mineralization using shafts and underground mining methods. The Project has an on-site processing facility comprising crushing, grinding, gravity concentration and flotation. A Carbon-in-Pulp (CIP) circuit treats the tailings from the gravity circuit.

Klondex Canada Limited (KC) acquired the property from San Gold Corporation in early 2016 for total consideration of US\$31.1M. Mining and processing operations began later that year. KC also implemented an underground drilling program to expand the mineral resource. Klondex Canada is a wholly owned subsidiary of Klondex Mines Ltd. (KDX). (Klondex 2018)

On March 19, 2018 KDX and Hecla Mining Company (Hecla) announced the latter's purchase of KDX. Coincident to the purchase, the Canadian assets of KDX including Klondex Canada and the True North Project is to be part of Havilah Mining Corporation (HMC or the Company) under a plan of arrangement. HMC is a newly formed entity independent of KDX and Hecla. The True North Project will be the only material asset of HMC and this TR provides the initial estimate of Mineral Resources for the Project prior to the ownership by HMC.

#### 1.2. Property

Land holdings at True North were acquired by KDX through bankruptcy proceedings of the San Gold assets in early 2016. The former San Gold property includes the True North Project, and regional land package consisting of 18 patented mining claims, 262 unpatented mining claims and 2 mineral leases totaling 97,282-acres (39,369 ha).

Additionally, the land package includes a 50% interest in 27 unpatented mining claims, through a jointly heldwith Greenbelt Gold Mines Inc. covering 1,013-acres (410 ha).

For the purposes of this initial Resource Estimate, all resource data is strictly contained in the footprint of the Mineral Leases (2,695 ac) (1,091 ha); and not from the broader land package.

#### 1.3. Environmental and Permitting

KC revised the existing Environmental Act License (License) for True North which includes approvals for minor alternations required for operation. The San Gold Mine Closure Plan (2012) (Closure Plan) and the pledged fixed-asset financial security for mine closure were transferred to KDX in January 2016.

KC collected all required environmental monitoring data including but not limited to: water quality sampling, environmental effects monitoring, final effluent release reporting, and forms part of the True North procedures for the sites environmental management system. KC engaged local stakeholders and indigenous communities, and supports the regional economy by practicing the procurement of local goods, services and employment opportunities.

#### 1.4. **Geology**

All the major gold occurrences in the True North area occur as quartz veins or quartz vein systems formed during structural deformation of the host rocks. At the Project, gold mineralization is controlled by quartz-carbonate veins and vein systems in brittle-ductile structures with related hydrothermal alteration halos within or at the margin of particular host rock units.

All of the gold mineralized zones at the Project are hosted in rocks of the Bidou Lake Assemblage which forms a north-facing stratigraphic sequence of tholeitic basalt to intermediate volcanic flows, dacite crystal tuffs and breccias overlain by well stratified felsic epiclastic rock interpreted to be of pyroclastic and sedimentary origins. The stratigraphic sequence is intruded by tholeitic gabbro sills and dykes, and felsic porphyry dykes.

The best-known gabbro sill is the San Antonio Unit, which is host rock for much of the gold mineralization the True North. The Bidou Lake Assemblage is unconformably overlain by feldspathic sandstone of the San Antonio Assemblage.

The gold mineralized veins show a high degree of structural control and are best developed in competent mafic host rock ranging from intermediate to gabbroic in composition.

# 1.5. **History**

Table 1-1 Chronology of Ownership and Major Events of the True North Project

Dates	Company	Details
1911		Initial discovery at shore of Rice Lake
1927-1931	Mining syndicate	Exploration shafts and lateral test mining
1913-1968	San Antonio Gold Mines Ltd.	New company established, power lines and process facilities built
1932-1968	San Antonio Gold Mines Ltd.	Continuous production beginning at 150 tpd and increasing to 500 tpd using shrinkage stoping.
July 1968	San Antonio Gold Mines Ltd.	No. 1 Shaft surface hoist destroyed by fire, production ceased, San Antonio declared bankruptcy.
1968	New Forty-Four Mines	Acquired assets
1980	New Forty-Four Mines	Process plant destroyed by fire
1980-1983	Brinco Mining Limited JV	Brinco Mining underground exploration drilling, mined 100,000 tons, earned 100% interest but completed no further work
1987-1988	Agreement with Subsidiary of Inco Ltd.	Agreement with Brinco, drilled over 20,000 ft, then opted out.
1989-1994	Rea Gold Corp.	Acquired property, carried out engineering studies
1994-1997	Rea Gold Corp.	Underground rehab and exploration, feasibility studies, shaft extension, new process facility, then placed into receivership.
1998-2001	Harmony Gold (Canada) Inc.	Purchased project, installed ramp system in lower D-shaft area and attempted long hole mining. Grade was too low, project put on care and maintenance in August 2001.
2002	Option agreement with Wildcat Exploration Ltd.	Engineering studies based on shrinkage stope mining methods yielded positive results but Wildcat was unable to complete the acquisition.
2004	Rice Lake Joint Venture Inc.	San Gold Resources Corporation (Old San Gold) and Gold City Industries Ltd. JV to acquire Harmony through RLJV.
June 30, 2005	San Gold Corporation	Old San Gold and Gold City amalgamated, formed San Gold Corporation
2005-May 2015	San Gold Corporation	Exploration drilling, LiDAR survey, drove ramps, produced from three mineral trends, modernized process plant. Placed on care and maintenance.
June 2015	San Gold Corporation	Declared bankruptcy
2016-2017	Klondex Mines Ltd.	Acquired 100% of the Rice Lake Mine, process plant complex and 400 km <sup>2</sup> exploration land package. Began underground rehab and started test mining. Commenced tailings reprocessing analysis. Prepared to process stockpiles. Changed mine name to True North. Sept. 2016 announced formal decision to resume production.
Jan 2018	Klondex Mines Ltd.	Mine placed on care and maintenance status.

Gold was originally discovered on the Project in 1911, however, it was not until the 1920s that the construction of A-Shaft to a depth of 725 feet (221 meters) and approximately 2,000 feet (600 meters) of underground lateral development confirmed the presence of an economically viable mineral resource.

Small scale production from underground mining commenced in 1932 and production increased to about 500 tons per day (450 tonnes per day) in 1948. A fire destroyed some of the surface facilities in 1968, and as a result production was suspended. Beginning from the late 1990s, production was intermittent under various ownerships, until 2016 when KDX acquired a 100% interest of the assets through bankruptcy proceedings.

True North includes six underground mines (i.e. Cohiba Zone, SG-1, 710/711 Zone, 007 Zone, Hinge Zone, Rice Lake), a vertical shaft, two decline ramps, a mill, an ore feed pad, mill feed crushing and conveying, a waste rock management area, and a tailings management area ("TMA").

A-Shaft provides primary access from surface to the 26-level located 4,000 feet below the surface. Three internal winzes and extensive underground drifting connects the A-Shaft to the mineralized veins. Access to the Hinge, Cohiba and 007 mineralization is via two portals and internal ramp systems. Mineralization mined at True North since 1927 has contained approximately 1.86 million ounces of gold.

During 2016 – 2017 the True North Mine recovered 33,000 gold ounces from 292 ktons of mineralization grading 0.127 opt. The project also initiated the reprocessing of tailings material and 113 ktons of tailings were treated at an average grade of 0.05 opt. Tailings metallurgical recovery during this period averaged 91% and yielded 5,100 gold ounces. The mine was placed on care and maintenance status in January 2018.

#### 1.6. Underground Mineral Resources

The mineral resource estimate is based on data from 4,678 surface and underground drill-holes, completed through February 1, 2018. This estimate also includes 30,202 channel samples obtained from underground drifting.

Wire frame models were constructed for 73 vein sets. The vein models were constructed by creating wireframes of the hanging and footwall contacts, obtained from the drill hole database. Each relevant contact is identified as either the hanging wall or footwall of the vein. Software is used to wireframe the contacts separately. Assay values were composited to the vein width and truncated to 10-foot lengths. Only composites flagged as representing vein material were used in

the grade estimation. A grade capping scheme based on resource category and vein was employed. Grades were assigned to individual blocks using the Inverse Distance Cubed method (ID<sup>3</sup>).

Vein models were developed by KDX based on a scripted grid modelling workflow using Maptek Vulcan software. Grid modelling is applicable to modelling narrow, continuous geological features such as precious metal veins and coal seams and creates a surface by interpolating a regular grid of points over a modelling area. These grid points are combined with the input intercepts to create output triangulated surfaces that represent the vein hanging wall and footwall contacts. The contacts are combined to create a valid solid triangulation for use in building the resource block model.

The 73 veins were each assigned a specific search orientation based on their respective approximate dip and dip direction. Measured blocks require a minimum of four composite samples within an average anisotropic search radius of 50 feet. Indicated blocks required three drill hole intercepts within 100 feet. Inferred blocks required two drill intercepts within 500 feet. Grades were estimated only for blocks contained within the modeled veins.

Mineral resources were estimated only for blocks within the modeled vein wireframes. In all cases, the vein boundary was treated as a "hard" boundary and mineralization is not modelled outside of those boundaries.

Underground Mineral Resources include sufficient barren waste dilution to achieve a minimum mining width of four feet or the vein thickness plus two feet whichever is greater plus an additional 10% unplanned dilution. Additional parameters used in the estimation of Underground Mineral Resources are as follows;

- Mining processing and administrative costs of US\$130 per ton;
- Metallurgical gold recovery of 93%;
- Gold price of US\$1,400 per ounce, and;
- Cut-off grade of 0.10 Au opt.

Table 1-2 Underground Mineral Resources as of March 31, 2018

Measured				Indicated			Measured and Indicated			Inferred		
Cut-off	Tons		Au oz	Tons		Au oz	Tons		Au oz	Tons		Au oz
Au opt	(000's)	Au opt	(000's)	(000's)	Au opt	(000's)	(000's)	Au opt	(000's)	(000's)	Au opt	(000's)
0.090	676	0.195	132	1,589	0.204	324	2,264	0.201	456	4,301	0.155	668
0.100	599	0.209	125	1,409	0.219	308	2,007	0.216	433	3,586	0.169	605
0.110	534	0.222	118	1,259	0.233	293	1,793	0.230	411	3,058	0.181	553
0.120	479	0.235	112	1,117	0.249	278	1,596	0.244	390	2,647	0.192	509

Notes:

- 1. Mineral resources which are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, marketing, or other relevant issues.
- 2. Mineral resources were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), CIM Standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council.
- 3. The quantity and grade of reported Inferred resources in this estimation are uncertain in nature and there has been insufficient exploration to define these inferred resources as an Indicated or Measured mineral resources.
- 4. Contained metal may differ due to rounding.

#### 1.7. Tailings Mineral Resources

Assay results from 138 augur and percussion drill-holes spaced approximately 200 feet by 100 feet were used to model the tailings resource. Blocks were estimated using inverse distance cubed (ID<sup>3</sup>) methods. Blocks were classified as indicated if there is a minimum of three drill-holes within 250 feet and inferred if at least one Drill-hole is present within 250 feet. The tailings mineral resource is constrained to a Lerch Grossman optimized pit shell created with the following parameters:

- Gold price of US\$1400 per ounce;
- Metallurgical gold recovery of 89%,
- Wall slope 30 degrees;
- Mining Cost of US\$2.40 per ton; and;
- Processing and overhead costs of US\$16.84 per ton.

Table 1-3 Tailings Mineral Resources as of March 31, 2018

		Grade	Grade	_
Class	Tons (000's)	Au opt	Au g/t	Au oz (000's)
Measured	-	-	-	-
Indicated	1,971	0.0243	0.83	48
Measured and	1,971	0.0243	0.83	48
Indicated	1,971	0.0243	0.83	40
Inferred	31	0.0235	0.81	0.7

Notes:

- 1. Tailings Mineral resources have been calculated at a Au cut-off grade of 0.015 opt;
- 2. Mineral resources, which are not mineral reserves, do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, title, sociopolitical, marketing, or other relevant factors; and
- 3. The quantity and grade of reported inferred mineral resources in this estimation are uncertain in nature and there is insufficient exploration to define these inferred mineral resources as an indicated or measured mineral resources.

#### 1.8. Conclusions

PM is of the opinion that the core, channel chip and tailings sample assay data have been adequately verified for the purposes of a mineral resource estimate. All data included in the resource estimate appear to be of adequate quality.

The mining and processing methods in use at True North have been proven effective by the history of previous operators. Geotechnical risks are limited as shown by the large extent of underground workings.

With longhole mining there is increased risk hanging wall dilution along foliation planes and jointing as excavation size increases. The dilution encountered may be greater than the dilution included in the estimation of Mineral Resources and may have a negative impact on the quantity and quality of the Mineral Resources. In these areas alternative more selective and higher cost mining methods may be required.

The pre-existing mine closure plan that estimated closure costs at US3.25M (C\$4.4M) was transferred to KC in January 2016 along with an assignment of fixed-assets as financial security. It may be beneficial for HMC to review the technical basis of the TMA closure approach presented in the 2012 mine closure plan and update the associated closure costs.

HMC is aware of the importance of an effective community engagement process to the Project. HMC should continue to enhance community engagement activities with local Indigenous communities, the Town of Bissett, other interested stakeholders, and regulatory agencies; on a priority basis.

The True North infrastructure is capable of supporting long term mining operations. HMC should explore for additional opportunities in the surrounding area which can supplement future operations.

#### 1.9. Recommendations

It is recommended that HMC take the following actions to maximize the value of the Project. The work programs described should occur concurrently with an integrated decision on proceeding with development made at the conclusion of all the work programs listed below.

#### Geology

1. Technical Database: All True North project data collected is stored and archived in a permanent and reliably retrieval manner. The database is currently administered by KDX

- corporate personnel. HMC should engage a full-time database administrator to continue this function.
- Quality Assurance/Quality Control: Timely follow-up for all QA/QC assay deviations and re-assay requests should be performed in a timely manner. The process should be automated.
- 3. Sample Storage and Retrieval: Half-core remaining from sample assays should be retained for reference and check assay purposes. All assay sample rejects and pulps should be stored in a safe, secure and sheltered manner and properly catalogued to ease retrieval.
- 4. Project Assay Lab: Standard operating procedures should be updated, particularly in regard to assay data generation, storage and retrieval.

#### **Exploration**

- The True North geological model which targets major structures as identified in surface lidar, drill core and geological mapping within favorable host rock conditions has proven successful in identifying new vein systems. HMC should continue to develop this existing model to target near mine ore sources as well as apply its principals to the regional land package.
- 2. Future exploration programs should focus on regional scale data compilation followed by target generation by prediction and evaluation.
- 3. Further examination for the potential of Timiskaming type gold mineralization at the unconformity at the base of the San Antonio formation.
- 4. Evaluation of the historic Gunnar Mine and the presence of neighboring quartz carbonate vein systems.

Exploration activities are estimated to cost between US\$500,000 and \$800,000 (\$C625,000 and \$1,000,000) and should proceed over the next one to two years.

#### Environmental and Mine Closure

It is recommended that HMC review the technical basis of the TMA closure approach presented in the 2012 mine closure plan and update the associated closure costs. A provisional amount for a US\$250,000 (C\$325,000) study that would be carried out over four years commencing in 2018 is recommended. This exercise will review and confirm the technical basis of the proposed TMA closure plan and estimated costs and possibly identify opportunities to improve upon the currently proposed approach.

Havilah Mining Technical Report for the True North Mine, Bissett, Corporation. Manitoba, Canada

Page 23

#### Mine Operations and Planning

Complete a detailed engineering study and optimized mine plan. Specific elements to include are:

- 1. Prepare accurate dilution estimates by geotechnical domain for each mining method and hanging wall dip;
- 2. Estimate variable and fixed costs for each mining method;
- 3. Cost benefit analysis for a mine backfill system;
- 4. Produce individual stope designs using the most economic mining method included diluting material and the parameters developed above;
- 5. Create a mine production and development schedule and perform sensitivity analysis to determine the optimal production rate;
- 6. Continue processing the historic tailings material to offset the mine standby costs.

A detailed engineering study is anticipated to cost between US\$200,000 and \$250,000 (C\$250,000 and \$312,500) and should require approximately one year to complete.

#### 2. Introduction

#### 2.1. Terms of Reference and Purpose of this Technical Report

As a result of the purchase of Klondex Mines Ltd.(KDX) by Hecla Mining Corporation, the Canadian assets of KDX including the True North Mine will be the material asset of Halivah Mining Corporation (HMC), the Issuer. This Technical Report has been prepared in support of the Tier II Initial Listing Requirement of the TSX Venture Exchange for (HMC).

This TR provides a statement of Mineral Resources for the True North Mine, contained within the collective mineral lease footprint of 2,695 ac (1,091 ha). The evaluation includes measured, indicated, and inferred mineral resources, and contained metal from historic mill tailings. This TR was prepared in accordance with the disclosure requirements of NI 43-101 and Form 43-101F1 (43-101F1) for technical reports.

Mineral resource definitions are set forth at the end of this Section in accordance with the companion policy to NI 43-101 (43-101CP) of the Canadian Securities Administrators and "Canadian Institute of Mining, Metallurgy and Petroleum (CIM) – Definition Standards for Mineral Resources and Mineral Reserves adopted by CIM Council on May 10, 2014."

#### 2.2. Qualification of the Authors

This TR includes evaluations from five independent consultants. The consultants are specialists in the fields of underground mining and mineral processing.

None of the authors has any beneficial interest in HMC or any of its subsidiaries or in the assets of HMC or any of its subsidiaries. The authors also do not have any beneficial interest in KDX or Hecla or in any of their subsidiaries or assets. The authors will be paid a fee for this work in accordance with normal professional consulting practices.

The individuals who have provided input to the current TR are cited as "author" and are listed below in Table 2-1. These authors have extensive experience in the mining industry and are members in good standing of appropriate professional institutions.

**Table 2-1 Qualified Professionals** 

Company	Name	Title	Discipline	<b>Personal Inspection</b>	<b>Contributing Sections</b>
Practical Mining LLC	Sarah Bull	P.E.	Mining	March 8-9, 2017	1, 5, 24-26
Practical Mining LLC	Mark Odell	P.E.	Mining	None	1-6, 11, 14, 23-26
Practical Mining LLC	Laura Symmes	Reg. Prof.	Geology	None	1, 7-12, 14, 25-26
P&E Mining Consultants	Alfred S. Hayden	P. Geo.	Metallurgy	September 20-21, 2016	1, 13, 24, 25-26
P&E Mining Consultants	David Orava	P. Eng.	Mining	None	1, 24, 25-26

#### 2.3. **Sources of Information**

The sources of information include data and reports supplied by KDX and the True North staff.

Additional information is included in the TR which is based on discussions with KDX and True North staff as it relates to their field of expertise at the Project. Operating and financial statistics were also provided by KDX.

This TR report is based in part on internal company technical reports and maps, published government technical reports, published scientific papers, company letters and memoranda, and public information listed in Section 27.

Sections from reports authored by other consultants have been directly quoted or summarized in this Technical Report and are indicated as such within the appropriate sections. PM and P&E held discussions with technical personnel from KC regarding pertinent aspects of the Project. PM and P&E have not conducted detailed land status evaluations, and has relied on previous qualified reports, public documents and statements by KDX management and legal counsel, regarding the status and legal title to True North.

Information sources are documented either within the text and cited in references, or are cited in references only. The authors believe the information provided by KDX staff to be accurate based on their work at the Project. The authors asked detailed questions of specific KDX staff to help verify contributions included in this document. These contributions are clearly stated within the text.

#### **Units of Measure** 2.4.

The units of measure used in this report are shown in Table 2-2 below. U.S. Imperial units of measure are used throughout this document unless otherwise noted.

Currency is expressed in US dollars unless stated otherwise. An exchange of one Canadian dollar equals US\$0.8 is used throughout this TR.

**Table 2-2 Units of Measure** 

US Imperial to Metric conversions				
Linear Measure				
1 inch = 2.54 cm				
1  foot = 0.3048  m				
1 yard = 0.9144 m				
1 mile = 1.6 km				
Area Measure				
1 acre = 0.4047 ha				
1 square mile = $640 \text{ acres} = 259 \text{ ha}$				
Weight				
1 short ton (st) = $2,000$ lbs = $0.9071$ metric tons				
1  lb = 0.454  kg = 14.5833  troy oz				
Assay Values				
1 oz per short ton = $34.2857$ g/t				
1  troy oz = 31.1036  g				
1 part per billion = 0.0000292 oz/ton				
1 part per million = $0.0292$ oz/ton = $1$ g/t				

#### 2.5. Glossary

**Assay**: The chemical analysis of mineral samples to determine the metal content.

**Asbuilt**: (plural asbuilts), a field survey, construction drawing, 3D model, or other descriptive representation of an engineered design for underground workings.

**Composite**: Combining more than one sample result to give an average result over a larger distance.

**Concentrate**: A metal-rich product resulting from a mineral enrichment process such as gravity concentration or flotation, in which most of the desired mineral has been separated from the waste material in the ore.

**Crushing**: Initial process of reducing material size to render it more amenable for further processing.

**Cut-off Grade (CoG)**: The grade of mineralized rock, which determines if it is economic to recover its gold content by further concentration.

**Dilution**: Waste, which is unavoidably mined with ore.

**Dip**: Angle of inclination of a geological feature/rock from the horizontal.

**Fault**: The surface of a fracture along which movement has occurred.

**Footwall**: The underlying side of a mineralized body or stope.

**Gangue**: Non-valuable components of the ore.

**Grade**: The measure of concentration of valuable minerals within mineralized rock.

**Hanging wall**: The overlying side of a mineralized body or stope.

**Haulage**: A horizontal underground excavation which is used to transport mined rock.

**Igneous**: Primary crystalline rock formed by the solidification of magma.

**Kriging**: A weighted, moving average interpolation method in which the set of weights assigned to samples minimizes the estimation variance.

Level: A main underground roadway or passage driven along a level course to afford access to stopes or workings and to provide ventilation and a haulage way for the removal of broken rock.

**Lithological**: Geological description pertaining to different rock types.

Milling: A general term used to describe the process in which the ore is crushed, ground and subjected to physical or chemical treatment to extract the valuable minerals in a concentrate or finished product.

Mineral/Mining Lease: Issued through the Manitoba Government, a mineral lease grants exclusive right to Crown minerals, and mineral access rights which include the right to work, mine and erect buildings as required for the efficient mining and production of minerals.

Mining Assets: The Material Properties and Significant Exploration Properties.

Patented Mining Claim: Patents were historically issued by the Federal Government, whereby title was passed to the claimant, making it private land. A mineral patent provides exclusive title to locatable minerals, and includes title to the surface and other resources (unless otherwise legally conveyed).

**Sedimentary**: Pertaining to rocks formed by the accumulation of sediments, formed by the erosion of other rocks.

Sill: 1. A thin, tabular, horizontal to sub-horizontal body of igneous rock formed by the injection of magma into planar zones of weakness. 2. The floor of a mine passage way.

**Stope**: An underground excavation from which ore has been removed.

**Stratigraphy**: The study of stratified rocks in terms of time and space.

**Strike**: Direction of line formed by the intersection of strata surfaces with the horizontal plane, always perpendicular to the dip direction.

Sulfide: A sulfur bearing mineral.

**Tailings**: Finely ground waste rock from which valuable minerals or metals have been extracted.

**Thickening**: The process of concentrating solid particles in suspension.

**Total Expenditure**: All expenditures including those of an operating and capital nature.

**Unpatented Mining Claim:** A parcel of Crown mineral land that is staked out, acquired or held as a claim for the purpose of mineral exploration and development under Part 5 of the Mines and Minerals Act of Manitoba.

**Variogram**: A plot of the variance of paired sample measurements as a function of distance and/or direction.

#### **Mineral Resources**

Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories. An Inferred Mineral Resource has a lower level of confidence than that applied to an Indicated Mineral Resource. An Indicated Mineral Resource has a higher level of confidence than an Inferred Mineral Resource but has a lower level of confidence than a Measured Mineral Resource.

A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction.

The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling.

Material of economic interest refers to diamonds, natural solid inorganic material, or natural solid fossilized organic material including base and precious metals, coal, and industrial minerals.

The term Mineral Resource covers mineralization and natural material of intrinsic economic interest which has been identified and estimated through exploration and sampling and within which Mineral Reserves may subsequently be defined by the consideration and application of Modifying Factors. The phrase 'reasonable prospects for eventual economic extraction' implies a judgment by the Qualified Person in respect of the technical and economic factors likely to influence the prospect of economic extraction. The Qualified Person should consider and clearly state the basis for determining that the material has reasonable prospects for eventual economic extraction. Assumptions should include estimates of cut-off grade and geological continuity at the selected cut-off, metallurgical recovery, smelter payments, commodity price or product value, mining and processing method and mining, processing and general and administrative costs. The Qualified Person should state if the assessment is based on any direct evidence and testing.

Interpretation of the word 'eventual' in this context may vary depending on the commodity or mineral involved. For example, for some coal, iron, potash deposits and other bulk minerals or commodities, it may be reasonable to envisage 'eventual economic extraction' as covering time periods in excess of 50 years. However, for many gold deposits, application of the concept would normally be restricted to perhaps 10 to 15 years, and frequently to much shorter periods of time.

#### **Inferred Mineral Resource**

An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity.

An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

An Inferred Mineral Resource is based on limited information and sampling gathered through appropriate sampling techniques from locations such as outcrops, trenches, pits, workings and drill-holes. Inferred Mineral Resources must not be included in the economic analysis, production schedules, or estimated mine life in publicly disclosed Pre-Feasibility or Feasibility Studies, or in the Life of Mine plans and cash flow models of developed mines. Inferred Mineral Resources can only be used in economic studies as provided under NI 43-101.

There may be circumstances, where appropriate sampling, testing, and other measurements are sufficient to demonstrate data integrity, geological and grade/quality continuity of a Measured or Indicated Mineral Resource, however, quality assurance and quality control, or other information may not meet all industry norms for the disclosure of an Indicated or Measured Mineral Resource.

Under these circumstances, it may be reasonable for the Qualified Person to report an Inferred Mineral Resource if the Qualified Person has taken steps to verify the information meets the requirements of an Inferred Mineral Resource

#### **Indicated Mineral Resource**

An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit.

Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation.

An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve.

Mineralization may be classified as an Indicated Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such as to allow confident interpretation of the geological framework and to reasonably assume the continuity of mineralization. The Qualified Person must recognize the importance of the Indicated Mineral Resource category to the advancement of the feasibility of the project. An Indicated Mineral Resource estimate is of sufficient quality to support a Pre-Feasibility Study which can serve as the basis for major development decisions.

#### **Measured Mineral Resource**

A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit.

Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation.

A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proven Mineral Reserve or to a Probable Mineral Reserve.

Mineralization or other natural material of economic interest may be classified as a Measured Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such that the tonnage and grade or quality of the mineralization can be estimated to within close limits and that variation from the estimate would not significantly affect potential economic viability of the deposit. This category requires a high level of confidence in, and understanding of, the geology and controls of the mineral deposit.

'Modifying Factors' are considerations used to convert Mineral Resources to Mineral Reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors.

#### **Mineral Reserve**

Mineral Reserves are sub-divided in order of increasing confidence into Probable Mineral Reserves and Proven Mineral Reserves. A Probable Mineral Reserve has a lower level of confidence than a Proven Mineral Reserve.

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

The reference point at which Mineral Reserves are defined, usually the point where the ore is delivered to the processing plant, must be stated. It is important that, in all situations where the reference point is different, such as for a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported.

The public disclosure of a Mineral Reserve must be demonstrated by a Pre-Feasibility Study or Feasibility Study.

Mineral Reserves are those parts of Mineral Resources which, after the application of all mining factors, result in an estimated tonnage and grade which, in the opinion of the Qualified Person(s) making the estimates, is the basis of an economically viable project after taking account of all relevant Modifying Factors. Mineral Reserves are inclusive of diluting material that will be mined in conjunction with the Mineral Reserves and delivered to the treatment plant or equivalent facility. The term 'Mineral Reserve' need not necessarily signify that extraction facilities are in place or operative or that all governmental approvals have been received. It does signify that there are reasonable expectations of such approvals.

'Reference point' refers to the mining or process point at which the Qualified Person prepares a Mineral Reserve. For example, most metal deposits disclose mineral reserves with a "mill feed" reference point. In these cases, reserves are reported as mined ore delivered to the plant and do not include reductions attributed to anticipated plant losses. In contrast, coal reserves have traditionally been reported as tonnes of "clean coal". In this coal example, reserves are reported as a "saleable product" reference point and include reductions for plant yield (recovery). The Qualified Person must clearly state the 'reference point' used in the Mineral Reserve estimate.

#### **Probable Mineral Reserve**

A Probable Mineral Reserve is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the Modifying Factors applying to a Probable Mineral Reserve is lower than that applying to a Proven Mineral Reserve.

The Qualified Person(s) may elect, to convert Measured Mineral Resources to Probable Mineral Reserves if the confidence in the Modifying Factors is lower than that applied to a Proven Mineral Reserve. Probable Mineral Reserve estimates must be demonstrated to be economic, at the time of reporting, by at least a Pre-Feasibility Study.

#### **Proven Mineral Reserve (Proved Mineral Reserve)**

A Proven Mineral Reserve is the economically mineable part of a Measured Mineral Resource. A Proven Mineral Reserve implies a high degree of confidence in the Modifying Factors.

Application of the Proven Mineral Reserve category implies that the Qualified Person has the highest degree of confidence in the estimate with the consequent expectation in the minds of the readers of the report. The term should be restricted to that part of the deposit where production planning is taking place and for which any variation in the estimate would not significantly affect the potential economic viability of the deposit. Proven Mineral Reserve estimates must be demonstrated to be economic, at the time of reporting, by at least a Pre-Feasibility Study. Within the CIM Definition standards the term Proved Mineral Reserve is an equivalent term to a Proven Mineral Reserve.

#### **Pre-Feasibility Study (Preliminary Feasibility Study)**

The CIM Definition Standards requires the completion of a Pre-Feasibility Study as the minimum prerequisite for the conversion of Mineral Resources to Mineral Reserves.

A Pre-Feasibility Study is a comprehensive study of a range of options for the technical and economic viability of a mineral project that has advanced to a stage where a preferred mining method, in the case of underground mining, or the pit configuration, in the case of an open pit, is

established and an effective method of mineral processing is determined. It includes a financial analysis based on reasonable assumptions on the Modifying Factors and the evaluation of any other relevant factors which are sufficient for a Qualified Person, acting reasonably, to determine if all or part of the Mineral Resource may be converted to a Mineral Reserve at the time of reporting. A Pre-Feasibility Study is at a lower confidence level than a Feasibility Study.

#### **Feasibility Study**

A Feasibility Study is a comprehensive technical and economic study of the selected development option for a mineral project that includes appropriately detailed assessments of applicable Modifying Factors together with any other relevant operational factors and detailed financial analysis that are necessary to demonstrate, at the time of reporting, that extraction is reasonably justified (economically mineable). The results of the study may reasonably serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project. The confidence level of the study will be higher than that of a Pre-Feasibility Study.

The term proponent captures issuers who may finance a project without using traditional financial institutions. In these cases, the technical and economic confidence of the Feasibility Study is equivalent to that required by a financial institution.

# 3. Reliance on Other Experts

Statements in this Technical Report regarding the status and legal title of the Project, are reliant on information provided by KDX and its legal counsel.

The status of the Klondex environmental program and the permitting process was provided by the Environmental Superintendent for the Project. The corporate Manager of Metallurgy provided information regarding metallurgical testing and process operating statistics. These contributions have been reviewed, edited and accepted by the Authors of this report and are accurate portrayals of True North, as of the effective date of this Technical Report.

A draft copy of this Technical Report has been reviewed for factual errors by KDX and HMC and this Technical Report is based in part on KDX's historical and current knowledge of the True North Project.

# 4. Property Description and Location

## 4.1. Property Location

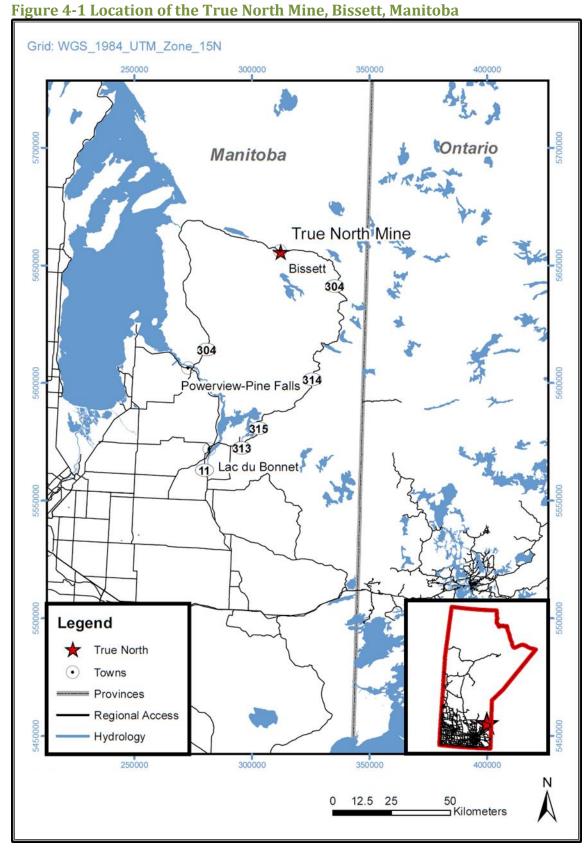
The Project is located adjacent to the township of Bissett on the north shore of Rice Lake in southeastern Manitoba, 100 miles (160 km) northeast of the city of Winnipeg (Figure 4-1). The Project includes the mine, mill, and tailings management area (TMA), located on the footprint of mineral lease ML-063. The property holdings in Manitoba, Canada include a larger regional exploration boundary as outlined in Figure 4-2 of this Technical Report.

Bissett can be accessed from Winnipeg via all-weather provincial highways. A small emergency gravel airstrip is located 12 miles (19 km) east of Bissett. Rice Lake serves as a base for float-equipped aircraft during the ice-free months.

The geographical co-ordinates of the project are:

latitude 51° 01' 19.6" N longitude 95° 40' 44.9" W

TM WGS84 Zone 15U 312,110 m E 5,655,700 m N



The locations of all mineralized zones, mineral resources, mine workings, TMA, and waste rock disposal areas are shown on various figures in other sections of this Technical Report.

The boundaries of the original mining lease footprint of (ML-063) and of the patented mining claims have been surveyed, whereas the boundaries of other, un-surveyed unpatented mining claims, are sourced from government claim maps.

#### 4.2. Property Description

The Project consists 100% interest in unpatented claims, patents and mineral leases (Figure 4-2). The total area covered by the Project inclusive of the Joint Venture Mining claims is 98,294 acres (39,779 ha) (Table 4-1).

Table 4-1 Summary of True North Mineral Property Holdings and Surface Areas

Item	Claims, Patents, Leases	Acres	Hectares
True North Project			
Unpatented Mining Claims	289	94,868	38,392
Patented Mining Claims	18	731	296
Mineral Lease	2	2,695	1,091
TOTAL	309	98,294	39,779

The True North property is comprised of a 100% recorded interest in mineral lease ML-063 ("ML-063") and ML-13433 ("ML-13433"). Collectively, the leases cover 2,695 acres (1091 ha) and, are subject to annual payments at a rate of C\$10.50/ha per year for a producing lease or C\$12/ha per year, for a non-producing lease. The lease term expires April 1, 2034 however, an option exists to apply to extend the term.

In addition to ML-063 and ML-13433, a 100% interest is held in (18) Patented Mining Claims covering an area of 731 acres (296 ha), and 262 Mining Claims covering an area of 93,855 acres (37,982 ha).

The unpatented mineral claims are subject to annual work commitments of either C\$12.50/ha or C\$25/ha (commencing on their 11th anniversary date) and filing fees of C\$12/claim per year, which must be submitted with a renewal application. Exploration activities carried out may be reported to the provincial government (Manitoba Mines Branch) for eligible assessment credits. Assessment credits can be applied towards the annual work commitment of any claim, providing that the distribution does not exceed a contiguous area of 3,200 ha (in the case of an unpatented claim) or 1,600 ha (in the case of a mineral lease) from where the original work was performed. There is no limit on the number of years a claim may be renewed, provided adequate assessment

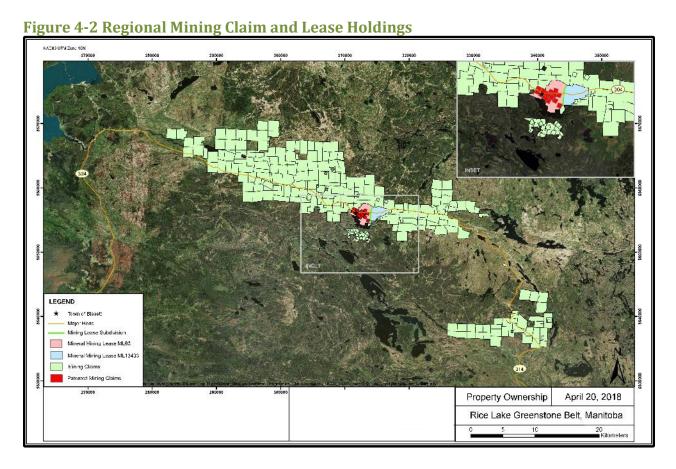
credits exist. The collective True North land package presently maintains assessment credits in excess of C\$68.0M.

The patented claims are subject to an annual mineral tax that must be paid on or before December 31<sup>st</sup>, to the provincial government (Manitoba Mines Branch). Additionally, the patented claims are subject to annual municipal taxes payments, in connection with surface ownership.

An additional 1,013 acres (410 ha) are jointly held jointly with Greenbelt Gold Mines Inc., whereby each party retains a 50% in 27 unpatented mining claims. The jointly held land package is situated south of the True North mine.

The Authors are not aware of any significant risks that might affect title, access to the property or the ability to perform work on the property.

## (See Appendix A for a detailed listing of tenure information).



## 4.3. Liabilities and Permits

#### 4.3.1. **Summary**

The previous mine operator San Gold held an Environmental Act License covering mining, processing and the tailings management area for the Project. San Gold also held an accepted Mine Closure Plan and had pledged certain fixed assets to provide financial security for closure. KC has since obtained a revised Environmental Act License for the Project and subsequent approvals of minor alternations required for operations. The San Gold Mine Closure Plan (2012), and the pledged fixed-asset financial security for the mine closure plan were transferred to KC in January 2016.

KC continues to conduct environmental monitoring activities, including but not limited to; water quality sampling and environmental effects monitoring work; as part of the True North's environmental management system.

In consideration of the historic activities and planned activities at this Project, the Author has reviewed historic and current information on the Project including: current legislation affecting mine permitting, operations and closure in Manitoba; the revised Environment Act License for mining, processing and tailings management recently issued to KC; relevant reports prepared as part of a harmonized federal-provincial environmental assessment for a tailings management expansion project approved in 2013, including public comments and indigenous community consultation conducted at that time; and other information. The Author also contacted the Author of the metallurgical components of this report in regard to the process plant complex and the Project's Environmental Superintendent about the current environmental–social status of the Project.

Based on the available information, P&E is of the opinion that there do not appear to be any insurmountable environmental and/or social barriers to the Project.

#### 4.3.2. Information Review and Assessment

#### a) Documentation Reviewed

The documentation reviewed by the Author included:

The regulatory regime affecting mine permitting, operations and mine closure in Manitoba.

Revised Environment Act License 2628 RRR issued to KC for the "True North Gold Mine" on September 16, 2016, and KC's April 2016 request for a minor alteration to allow early discharge from the East Tailings Pond and tailings re-processing – the latter document provides East Tailings Pond water quality data for a February 18, 2016 water sampling event. The QP also reviewed

historical Environment Act License 2628 R which applied to Rice Lake Gold Corporation's "Bissett Gold Mine" operations in 2004.

Relevant parts of the Environmental Assessment Proposal (EAP) filed in 2012 for a Class 2 development comprised of the expansion and operation of the TMA. That development included the construction of an additional main tailings pond, a polishing pond and three access roads. Treated water from the new polishing pond would be pumped to the existing polishing pond for discharge to No Name Creek from June 15 to November 30. The Author also reviewed comments on the EAP received from:

- Environment Canada, the Canadian Environmental Assessment Agency and Health Canada;
- Manitoba departments and branches including Manitoba Conservation & Water Stewardship, Climate change and Environmental Protection Division, Mines Branch, Community Planning Services, Sustainable Resource and Policy Management Branch, Aboriginal Relations, Workplace Safety and Health Division;
- The Kookum's of Hollow Water First Nation and a trapper from the Hollow Water First Nation; and
- The Wanipigow Lake East End Cottager's Association.

Environmental Act License 2628 RR issued in 2012 allowed for the construction and operation of the East TMA. Stage 1 of the East TMA was completed in November 2014 and provided a year of tailings storage capacity based on a process plant throughput of 2,500 tons per day (2,268 tonnes per day).

A 2010 Notice of Alteration for San Gold's Cartwright Mine and Hinge Zone Bulk Sample Collection submitted to Manitoba Conservation. It included an assessment of environmental impacts and proposed mitigation measures in regard to air, noise, runoff and wastewater.

Other information describing the existing infrastructure, environment, and the Project.

## b) Licenses, Permits and Approvals

The licenses, permits and approvals obtained to operate the Project are shown in Table 4-2.

**Table 4-2 Obtained Licenses and Key Permits and Approvals** 

License/Permit/Approval		Act/Regulation	Description	Issued to
License 2628 RRR. Minor alteration.	Manitoba			
	Sustainable		Environmental	Klondex
	Development	Environment Act.	Act License –	(September
	Environmental		main license.	2016)
	Approvals			

License/Permit/Approval		Act/Regulation	Description	Issued to
Minor alteration.	Manitoba Sustainable Development Environmental Approvals	Environment Act.	Tailings reprocessing – trucking tailings.	Klondex (August 2016)
Water Rights License 2016 – 003.	Manitoba Sustainable Development Water Licensing	Water Rights Act, Water Rights Regulation.	License to use water from lake.	Klondex
Hazardous Waste registration.	Manitoba Sustainable Development Environmental Services	Hazardous Waste Regulation, Dangerous Goods Handling & Transportation Regulation.	Hazardous waste registration.	Klondex.
Petroleum Storage Facility Permit.	Manifoha		Above ground storage tanks with a capacity of 5,000 L or more.	Penner Oil
Crown Lands Permit Crown Lands GP0003073. Property Age		Crown Lands Act.	Ventilation raise building situated within the Town of Bissett	Klondex Canada Ltd.
Crown Lands Permit GP0005737.	Crown Lands and Property Agency	Crown Lands Act.	TMA	Klondex Canada Ltd.

#### c) Revised Environmental License and Minor Alterations

#### Revised Environmental Act License 2628 RRR

The Environmental Stewardship Division, Environmental Approvals Branch of Manitoba Sustainable Development issued a revised Environmental Act License No. 2628 RRR to KC on September 16, 2016 for the operation of the "Development" being a 2,273 tonnes per day (2,500 tons per day) gold and silver mining, processing and refining operation known as the True North Gold Mine; inclusive of the existing and expanded TMA. Plans of mine, process plant, and the TMA are shown in Figure 4-3and Figure 4-4. Figure 4-5 provides an aerial view of the mine, process plant and TMA.

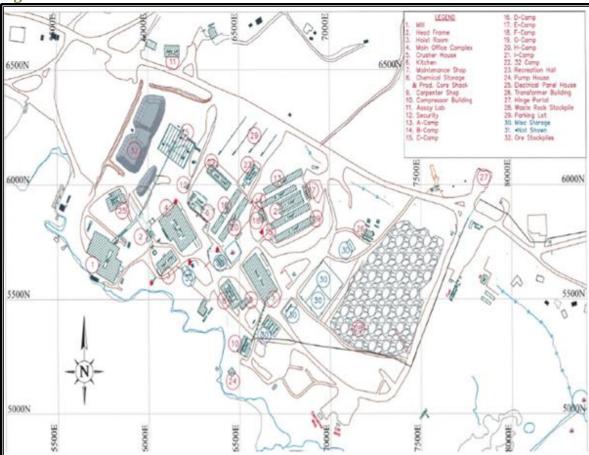
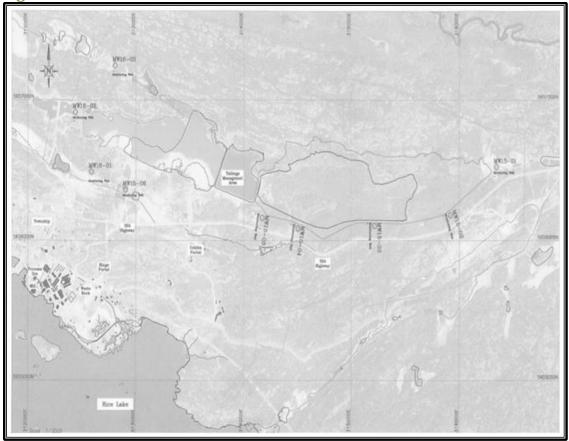


Figure 4-3 True North Gold Mine Site Plan

Source: Revised Environmental Act License No. 2628 RRR for the True North Gold Mine, Appendix B

Figure 4-4 TMA Site Plan



Revised Environmental Act License No. 2628 RRR for the True North Gold Mine, Appendix A



Figure 4-5 Aerial View of the Mine, Plant Site and TMA

Source: Google Maps

#### Minor Alterations

Section 14 of The Environment Act requires notification and approval for alterations to a licensed Development. A notice of alteration submitted by a License holder is assessed by the Director as either minor, having insignificant environmental effects, or major, having significant environmental effects. Minor alterations may be approved through a revised Environment Act License or by a letter from the Director for Class 1 and 2 projects. Recent examples of requested alterations and approvals are provided below.

In March 2016, the Director of Manitoba Mineral Resources approved KC's notice to recommence mining and processing operations. Subsequent to receiving approval, KC undertook a range of preparatory works such as; shaft guide replacement, underground track repair, narrow vein long hole layout testing, development of a new underground shop, mining gear storage cut-outs, and metallurgical test work on historical tailings based on using the existing flow sheet.

In April 2016 KC issued a notice of alteration to the Development as licensed for early discharge of effluent (to commence on May 9, 2016) from the East TMA, and the implementation of a tailings re-processing project. The ETP contained about 780,000 m<sup>3</sup> of water which met effluent

Corporation

discharge criterion. The proposed tailings re-processing alteration included the construction and operation of a tailings dredging system, a pumping station, booster pumps and a pipe line to be used to pump the tailings slurry to the existing process plant for re-processing. It was projected that 80,000 m<sup>3</sup> to 150,000 m<sup>3</sup> of tailings would be dredged in 2016 commencing on June 1st. The regulator determined that the potential effect of the proposed alteration would be minor in accordance with the Environment Act and approved the proposed alteration.

In May 2016 KC issued a notice of alteration for a one-year temporary increase in the ore stockpile limit from 10,000 tons to 50,000 tons (9,000 tonnes to 45,000 tonnes). The regulator determined that the potential effect request was a minor alteration in accordance with the Environment Act, and approved the alteration.

#### d) Current Status / Mitigative Measures

On January 9, 2018 KC announced that the Project will be placed on care and maintenance status, after developed underground areas are mined. KC plans to continue processing tailings to help offset expected care and maintenance costs.

The current status of the Project as well as associated environmental aspects and mitigative measures are summarized in Table 4-3 based on the information obtained and P&E's experience at other mine properties internationally.

Table 4-3 Potential Significant Environmental Impacts and Current Status / Mitigative **Measures** 

Area	Current Status / Mitigative Measures
Environmental	The revised Environmental Act License requires Klondex Canada to establish and
Management System	implement an Environmental Management System ("EMS"). An EMS is a comprehensive
	system that would be expected to require without being limited to the development and
	communication of an environmental policy, the identification of significant
	environmental aspects, the identification of legal and other requirements, procedures,
	training, records, change management, consultation and complaint response, monitoring,
	EMS and compliance reviews, a corrective and preventative measures procedure to deal
	with a non-conformance, and emergency preparedness and response planning.
	As part of other conditions of the environmental license it is expected that the EMS would
	also include solid waste reduction and recycling efforts; contingency plans for spills,
	ruptures and unexpected TMA seepage losses; and require spill recovery equipment. In
	addition, solid waste and hazardous wastes are to be disposed of in accordance with
	regulatory requirements; petroleum products are to be stored in accordance with
	regulatory requirements; and the sewage management system is subject to the Onsite
	Wastewater Management Systems Regulation.
Acid Rock Drainage	Test results included in the documentation reviewed by the Author indicate that waste
	rock and tailings are not acid generating. The revised environmental license requires
	ongoing scheduled acid:base account testing.

Area	Current Status / Mitigative Measures
Final effluent	Klondex Canada is to reclaim as much water as possible from the TMA to supply the
	process water demands of the mill.
	Mine water is directed to the TMA. Treated effluent can only be released from the TMA
	polishing pond to No Name Creek and subsequently to the Wanipigow River between
	June 15 and November 30 each year at a rate not to exceed 0.20 m <sup>3</sup> /sec. Treated effluent
	cannot be released if the quality or toxicity of the effluent results in, or is likely to directly
	or cumulatively results in, a downstream water quality degradation beyond a maximum
	10% mixing zone (by volume) within No Name Creek and/or the Wanipigow River
	relative to the Manitoba Water Quality Standards, Objectives and Guidelines Regulation under the Water Protection Act.
	Elevated levels of ammonia in mine water / polishing pond water occurred in years past
	possibly in part as a result of the dissolution of mine explosives and blasting agents. Best
	practices including improved blasting practices and reducing / avoiding ANFO use are
	now used to help avoid this potential issue.
Air emissions	Klondex Canada would maintain its diesel-powered equipment and mine air heater.
	As required by the environmental license: distinct plume forming fugitive emissions are
	not to exceed 5% opacity whilst non-plume forming fugitive emissions are to be not
	visible. Downwind off Project, point of impingement suspended particle matter ground
	level concentrations are not to exceed a 24 hour average of 120 μg/m <sup>3</sup> or an annual
Cyanide	geometric mean of 70 µg/m <sup>3</sup> .  Cyanide transfer, storage and mixing activities would be conducted in conformance with
transportation and	regulatory requirements and Klondex's procedures and EMS requirements.
storage	regulatory requirements and Krondex's procedures and Elvis requirements.
Tailings management	Tailings from the original San Antonio Gold Mine were discharged into Rice Lake from
	about 1932 to 1968. Tailings produced when the mine was reopened in 1981 to 1983 were
	placed in a containment constructed over the previously disposed tailings. The TMA is
	located north north-east of the mine and plant site and includes a tailings pond and a
	polishing pond. The final treated effluent is pumped and annually released to No Name
	Creek which flows to the Wanipigow River. The historic tailings that are being re-
	processed as part of the Project are located in the TMA. The revised Environmental Act
	License 2628 RRR requires Klondex to engage the services of licensed professional
	geotechnical engineers for engineering and quality control during dyke construction and
	submit a construction performance and quality control report to the Director for approval.  Klondex's Environmental Superintendent would monitor dykes and assess conditions /
	geotechnical monitoring data with input from competent geotechnical engineers.
Waste rock storage	New waste rock is to be stockpiled in the designated "waste rock stockpile area". Ore is
abto rook biorage	to be stored in the designated "ore rock stockpile area". The License also requires the
	company to conduct acid:base accounting testing as indicated above.
Environmental	Klondex uses the existing TMA and the water polishing ponds to manage surface water
monitoring	storage / release. An Inco SO2-air process and natural degradation continue to be used for
	cyanide destruction. TMA water management controls include polishing pond levels,
	water quality monitoring and a surface water management program.
	Surface water samples (i.e. mine water samples to be collected from the tailings ponds,
	polishing pond, treated effluent, downstream receiving water quality sampling stations)

Area	Current Status / Mitigative Measures
	are to be sampled at frequencies and for parameters specified in the License while groundwater quality is to be monitored at specified groundwater wells and at additional wells as may be requested by the Director. Treated effluent toxicity testing is also required. Sediment core samples are to be collected at two downstream water quality sampling station locations and analyzed for total metals, total organic carbon, moisture content and pH.  Klondex will continue to conduct scheduled downstream water quality sampling, sediment sampling, and environmental effects monitoring. Klondex has undertaken two environmental effects monitoring studies and has scheduled a third.
Solid waste	Solid non-hazardous waste that is not re-used / recycled would be disposed in an off-site licensed solid waste landfill.
Hazardous waste	Hazardous waste would be disposed of in accordance with regulatory requirements. Klondex is currently working to confirm that there are no electrical transformers that contain PCB in use or stored on the Project and that asbestos had been removed several years ago from all surface buildings with the exception of one secured unused old building.
Terrestrial and avian wildlife	Klondex is aware of its responsibilities to protect wildlife. It is expected that this would be reflected in the EMS procedures.
Social consultation	Klondex to support community engagement activities with indigenous communities, the Town of Bissett, other interested stakeholders, and regulatory agencies.

## e) Community Engagement

As part of 2012 TMA expansion project EAP, the Manitoba Mines Branch requested that Indigenous communities whose traditional activities may be impacted, be identified and engaged and that community issues be incorporated into the environmental assessment for the TMA. Winsor (2013) reported on the outcome of that consultation process and reported that:

Most of the concerns from constituents were a result of misinformation.

The Manitoba Mines Branch had determined that there are three Anishinaabe (Ojibwa) First Nations situated within an 80-mile (130 km) radius of the mine: the Hollow Water First Nation, the Little Black River First Nation, and the Sagkeeng First Nation. The Hollow Water First Nation is situated downstream of the confluence of No Name Creek and the Wanipigow River which flows to Lake Winnipeg.

It was recommended that an Environment Act License be issued to San Gold in 2013 for the proposed TMA expansion subject to it accommodating community concerns and issues. As such, the draft License included a clause requiring the operator to submit an environmental monitoring report to the Hollow Water First Nation after each effluent discharge campaign summarizing monitoring data and impacts on the receiving waterways.

The Hollow Water Chief and Council encouraged direct negotiations between San Gold and two trappers. San Gold negotiated a confidential compensation settlement with one of the trappers (Trap Line #11) for loss of opportunity to trap in the proposed TMA expansion area, and at the time of reporting was negotiating a settlement with the second trapper (Trap Line #12).

San Gold had met with Hollow Water First Nation residents in June 2012 and discussed the potential impacts of the proposed TMA expansion. San Gold participated in the Hollow Water First Nation's Traditional Area Advisory Committee (TAAC). The Kookom's who opposed the TMA expansion did not have official standing in the community. San Gold had attempted to arrange an information meeting with the Little Black River First Nation situated in the O'Hanley and Black Rivers area on the eastern shore of Lake Winnipeg.

KC continues to engage local stakeholders and indigenous communities, and supports the regional economy by practicing the procurement of local goods, services and employment opportunities. The Town of Bissett is also kept informed of environmental matters that may potentially impact residents or community services. KC participates in Town of Bissett council meetings, and has held community information sessions.

## f) Mine Closure

Mine closure planning and financial security provisions that apply to advanced exploration and mining projects are described in the Mine Closure Regulation (MR 67/99) under The Mines and Minerals Act (C.C.S.M. c.M162).

Responsibility for the accepted San Gold Corporation Mine Closure Plan (2012) for Mineral Lease ML-63 which includes pledged fixed assets financial security was transferred to KC on January 13, 2016 by the Mines Branch Director (Manitoba, 2016). The Author reviewed sections of the Mine Closure Plan (2012) and the estimated mine reclamation and rehabilitation costs presented by Gibson (2015). The estimated reclamation and rehabilitation costs amounted to US\$3.5M (C\$4.4M). There is a possibility that the Mines Branch may require an alternate form of financial security at some point in the future when the closure plan is updated.

As indicated in Section 10 "Expected Site Conditions" of the closure plan, the Project would be rehabilitated to a pre-development state, as a wilderness area with primarily conservation and recreational value. An additional crown pillar assessment would be completed at close-out to assure surface stability. The surface of the tailings in the TMA would be revegetated at closure. Pond water quality would continue to be monitored and excess water would be pumped / released to No Name Creek until the pond water quality is shown to improve to a level whereby a weir system could be used to direct excess run-off to No Name Creek. Environmental monitoring would continue to be conducted through each stage of closure to ensure that the mine remains compliant with environmental and safety requirements.

# 5. Accessibility, Climate, Vegetation, Physiography, Local Resources and Infrastructure

#### 5.1. Access to Project

Bissett can be accessed from Winnipeg via all-weather provincial highways. A small emergency gravel airstrip is located 12 miles (19 km) east of Bissett. Rice Lake itself serves as a base for float-equipped aircraft during the ice-free months.

#### 5.2. Climate

This area of eastern Manitoba has average annual precipitation of approximately 17 inches (430 mm) of rain. Winter snow accumulations of up to 57 inches (145 cm) occur between October and March. Average winter temperature is 3°F (-16°C) with extended periods of -4°F to -13°F (-20°C to -25°C). Average summer temperature is 61°F (16°C).

#### 5.3. Vegetation

The vegetation consists of typical Canadian Shield boreal forest. Poplar, balsam, spruce, and pine are the main tree species. Rock outcrop exposure is abundant in most areas, although there is a thin cover of organics and lichen growth that can restrict detailed observation.

#### 5.4. Physiography

Average relief in the Project area is approximately 130 feet to 200 feet (40m to 60m), with elongated outcrop ridges separated by low lying ground with swamps, rivers and lakes. Ground elevation of the surface facilities is roughly 840 feet and the tailings pond lies at roughly 905 feet.

#### 5.5. Local Resources and Infrastructure

Bissett is an established mining community, located adjacent to the mine, with a fluctuating population of approximately 340 people. The township was established to service the emerging mines that developed after 1911, but has remained home to permanent residents during periods of mine closure and now provides a healthy recreational sport base as well as servicing the Project.

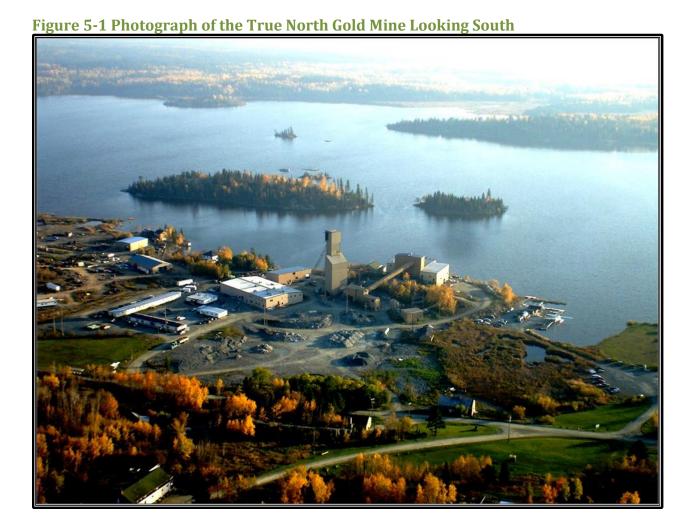
Mining supplies, equipment, services and a skilled mining and mineral exploration workforce are readily available in southern Manitoba and across the border to the established mining communities in northeast Ontario. The Project has a long history of mining, which helps to attract employees and contractors from throughout the area.

Manitoba Hydro provides electrical power to site via twin 66 kv transmission lines. Fuel is trucked in from Winnipeg and the area is well serviced by access roads.

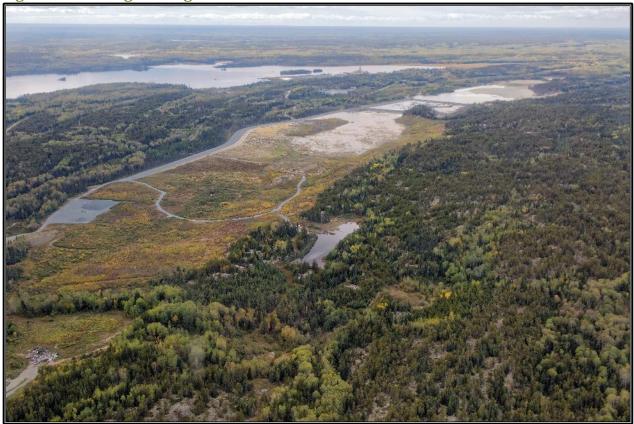
KC owns 100% of the mine shaft, declines, mobile and crushing equipment, mineral processing mill, storage areas (Figure 5-1) and TMA (Figure 5-2).

The process plant is licensed to operate at up to 2,500 tons (2,268 tonnes) per day. Sufficient onsite accommodations exist for all personnel, and provides cafeteria services for employees housed in the Project's bunkhouse accommodation.

A small school provides education up to grade six. A bar, hotel, restaurant, and convenience store provide services for residents and visitors to the town. The township has recreational infrastructure such as a curling rink, outdoor ice skating rink and a baseball diamond.







True North has been an active mine for almost 90 years except for some periods of inactivity. During this timeframe, the onsite infrastructure has been updated, upgraded and improved continuously by its respective historic owners. Figure 5-3 illustrates the current layout of the surface infrastructure.

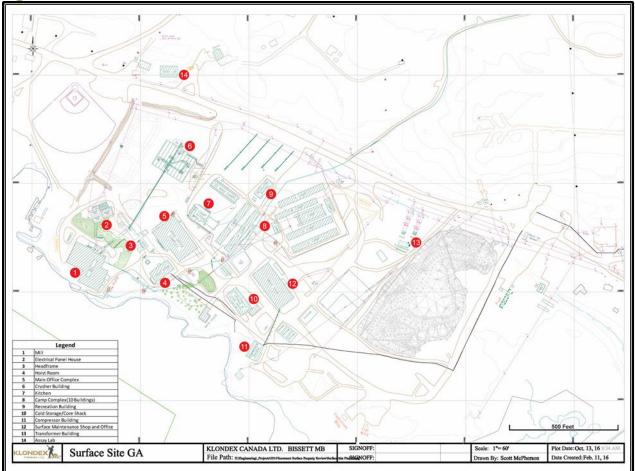


Figure 5-3 Surface Infrastructure Plan View

#### 5.5.1. Accommodations and Camp Facilities

The Project has a 300 room camp facility located near the main administration offices which includes a kitchen and dining facility, recreation and fitness facilities. The majority of employees and contractors working on site are currently accommodated at this facility during shift rotations. In addition, the town of Bissett offers options for employee room and board.

#### 5.5.2. Electrical Power and On-Site Distribution

The Project is supplied with power by the Manitoba Hydro grid through two power lines which provides 20 MW to the Project transformer station. The twin power line provides a redundancy such that in the event of a single line power outage, the mine, process plant and surface facilities can still function in a limited capacity on 10 MW.

## 5.5.3. Water Supply and Reticulation

Potable water is supplied from the town of Bissett's water supply.

Process water for the mine is reclaimed from the tailings pond and water recovered from the underground workings.

#### 5.5.4. **Air Compressors**

Compressed air for the underground workings is provided by five 300 HP (224kW) and two 150 HP (122kW) compressors located in a central compressor house. The compressed air is distributed throughout the Project through a network of 10-inch and smaller airlines.

## 5.5.5. Diesel Fuel and On-Site Storage Facility

Diesel fuel is supplied to the onsite storage tanks by commercial road tanker from a major fuel supplier's central depot in Winnipeg. The diesel fuel for the underground machinery is transported from the onsite storage tanks to the underground SasStat fuel storage facility via fuel cars on the mine cage.

### 5.5.6. Warehousing and Material Handling

The Project is serviced from a two-story, heated, 4,800 ft<sup>2</sup> (445 m<sup>2</sup>) warehouse building, a 223 m<sup>2</sup> 2,400 ft<sup>2</sup> (223 m<sup>2</sup>) cold storage area, as well as three cold storage tents and a 100,000 ft<sup>2</sup> (9,290 m<sup>2</sup>) secured yard storage. Site Security

#### **5.5.7. Security**

An external security contractor is employed to monitor the Project from a central security outpost at the main gate, in addition to roaming security personnel. Currently, the Project is surrounded by chain link fencing.

#### 5.5.8. Communication

Voice and data communications are routed through the Bissett Manitoba Telephone System microwave tower. This tower also provides cell phone coverage for the Project and town site. Onsite and underground communications is via a radio over leaky feeder network which is maintained and extended as required by the Project personnel.

#### 5.5.9. **On-Site Transport and Infrastructure**

Bus transportation from Winnipeg to site on scheduled shift rotations is provided. Light vehicles and pickups are provided on-site to transport mine workers from accommodations to their respective work areas.

#### 5.5.10. Solid Waste Disposal

Waste is managed in dumpsters and other appropriate waste containers. Waste and materials for recycling are disposed of off-site by an external contractor located in Pine Falls. Additionally, the external contractor removes waste hydrocarbons for disposal or recycling.

#### 5.5.11. Parts and Mine Supply Freight

All supplies and other consumables required to operate the mine, process plant and surface facilities are brought in via all season access road from Winnipeg, Manitoba by various freightforwarding contractors.

#### 5.5.12. Mobile and Fixed Equipment Maintenance Facility

There are 5 maintenance bays, welding and tire facilities at the Project which have been upgraded by the previous owner to accommodate and provide an enclosed facility for all maintenance activities. This is especially useful during winter season when temperature can plunge as low as -30°F (-35 °C).

#### 5.5.13. First Aid and Ambulance

The Project has a first-aid clinic, ambulance and trained personnel on stand-by for any medical attention or emergency that may arise. An air ambulance service is readily available from the nearby Winnipeg Emergency Rescue Service.

#### 5.5.14. Office and Administration Buildings

The Project hosts a recently constructed (by the previous operator) modern office and administration facility that can accommodate the necessary engineering, geological, accounting, safety, environmental, and administrative personnel.

#### 5.5.15. Tailings Storage

The Tailings Management Area (TMA) is located approximately 1-mile (1.6 km) north of the process plant in an area naturally defined by bedrock ridges around the perimeter of a previously flat boggy area. The original ground surface of the bog was near elevation 889 feet above sea level

(asl) (271 m asl) (geodetic) with bedrock ridges on the south and west sides up to 920 feet above sea level (asl) (280 m asl) and bounded to the north by bedrock up to elevation 985 feet asl (300 m asl).

Since the development of the TMA, tailings have been pumped from the process plant to the TMA via an approximate 1-mile (1.6 km) pipeline. It is understood that during mine operation, the tailings are transported as slurry, with 34% (approx.) solids by weight. The TMA currently consists of eight dykes with a number of the embankments separated by bedrock outcroppings such that they follow an A/B nomenclature. The embankments have been designed and constructed in various stages and phases from 1997 onwards to the most recent raises and improvements completed from 2012 to 2014. The current configuration of the TMA consists of a tailings pond and polishing pond, separated by dyke 7. The west half (approx.) of the tailings pond has reached its capacity, with tailings placed up to the crest of dykes 1, 2, 8, and a portion of dyke 3, while the east half of the tailings pond contains tailings submerged beneath water ranging in depth from less than 3 feet (1m) to several feet (meters). No spillway or low-level outlet structures are present in the TMA. It is understood that the TMA has been designed to safely retain water from the mill discharge, runoff, and storm events.

In order to increase the capacity to retain tailings, the former Operator began development of a new area termed the East Tailings Management Area (ETMA). The ETMA is located directly east of the TMA and currently consists of dyke 9 along its south perimeter, with dyke 6 of the TMA forming the containment along the west side. The natural contours to the north and east provide containment of the remainder of the ETMA.

Dyke 9 has an overall length of nearly 5,000 feet (1,500 m) and at its current constructed elevation, has a height of 10 feet to 13 feet (3m to 4 m). No spillway or low-level outlet structures are present in the ETMA. It is understood that the TMA has been designed to safely retain water from the process plant discharge, runoff, and storm events.

A dam safety review was conducted by Stantec Consulting Ltd. geotechnical engineers in 2015.

#### **5.5.16. Stockpiles**

The True North site has an existing waste rock stockpile which currently contains approximately 200,000 tons (180,000 tonnes) on an area of 4.6 acres (1.9 ha). This waste material is utilized to construct the tailings containment berms.

The site is permitted to stockpile up to 10,000 tons (9,000 tonnes) of ore permanently.

## 6. History

#### 6.1. **Events Prior to 1989**

Gold was originally discovered at the shore of Rice Lake in 1911. The first attempt at underground development was undertaken by a syndicate in 1927, when No.1 exploration shaft was sunk to 164 feet (50 m) and No.2 Shaft was sunk to 300 feet (91 m). Approximately 2,000 feet (610 m) of lateral development was completed in 1927, but results failed to meet expectations. Nevertheless, during 1928 the syndicate proceeded to deepen the No.2 Shaft to 600 feet (183 m) and the No. 1 Vein was discovered on that level. However, it was not until 1929, with discovery of the No. 9 Vein on the 725-foot (221 m) level, that the deposits became economically viable.

Sufficiently encouraging underground results were obtained by 1931, and the newly formed San Antonio Gold Mines Ltd. ("San Antonio") commenced construction of a process plant and power line. Production began in May 1932 at a rate of 150 tons (136 tonnes) per day, increasing to 350 tons (318 tonnes) per day in 1935, and subsequently increased to 550 tons (500 tonnes) per day by 1948. Access to the mine was primarily through the No.1 Shaft (now called the A-Shaft) and three internal winzes; 3A, 3B, and 3C (now called B-Shaft, C-Shaft, and D-Shaft).

Underground development was carried out by driving footwall drifts on each level. Flat exploration drill-holes on 50-foot (15 m) centers were used to establish the location of veins on the level prior to establishing drifts along the full length of ore zones. Shrinkage mining was used with a minimum mining width of 4 feet (1.2 m).

The 550-ton (500-tonne) per day process plant consisted of a crushing plant adjacent to the collar of No.1 Shaft with a conveyor to the process plant building. After grinding, concentrating, and blanket tables, an amalgam table recovered approximately 12% of the total gold. Then the material from the gravity circuit passed through a Merrill Crowe cyanide plant to recover the balance of the gold.

The No.1 Shaft surface hoist was destroyed by fire in July 1968 and production ceased. Historic production at Rice Lake Mine through 1968 is summarized in Table 6-1. San Antonio declared bankruptcy and the assets were acquired by New Forty-Four Mines ("New Forty-Four"). In 1980, the process plant was destroyed by fire.

In 1980, Brinco Mining Limited ("Brinco") entered into a Joint Venture with New Forty-Four. Brinco undertook a program of underground exploration drilling during the period 1980 through 1983 and approximately 100,000 ore tons (91,000 tonnes) were mined and trucked to Hudson Bay Mining & Smelting Co Ltd. in Flin Flon, Manitoba, for processing. Brinco earned a 100% interest in the project, however, after 1983 did no significant work.

In 1987, a subsidiary of Inco Ltd. ("Inco") entered into an agreement with Brinco and completed over 20,000 feet. (6,096m) of drilling. Inco opted out of the venture in 1988.

Table 6-1 Historic Production at Rice Lake Mine: 1927-1968

				l Throughput			: 1927-1968
			14111				
		% Rec	overy of	Process Plant		Head	
	Gold	Head	Stope	Feed	Average	Grade	Notes
YEAR	ozs	Grade	Grade	tons	tons/day	opt	
1927	27,008	181%	169%	30,419	83	0.49	Process Plant starts May 1932
1933	22,720	95%	94%	55,677	153	0.43	
1934	21,638	93%	90%	64,294	176	0.36	Gold fixed at \$35/oz from \$20/oz
1935	32,250	92%	96%	102,712	281	0.34	
1936	29,040	96%	86%	112,416	308	0.27	
1937	30,035	93%	93%	115,765	317	0.28	Discovered 38 vein
1938	31,257	95%	96%	117,376	322	0.28	
1939	34,242	94%	94%	117,787	323	0.31	Start of World War 2
1940	36,745	94%	93%	122,365	335	0.32	
1941	43,121	95%	94%	138,097	378	0.33	
1942	58,869	95%	95%	199,203	546	0.31	
1943	48,568	95%	97%	164,307	450	0.31	
1944	40,669	97%	96%	140,085	384	0.30	
1945	38,326	98%	97%	135,000	370	0.29	End of World War 2
1946	43,819	97%	98%	149,875	411	0.30	
1947	42,326	99%	100%	137,867	378	0.31	
1948	52,764	114%	113%	154,953	425	0.30	Emergency Gold Mining Assistance started
1949	53,201	105%	104%	188,000	515	0.27	5 , 5
1950	51,822	101%	102%	182,397	500	0.28	
1951	50,735	96%	96%	195,000	534	0.27	
1952	53,120	95%	95%	200,000	548	0.28	
1953	40,993	98%	99%	174,904	479	0.24	Gold free market ends
1954	43,868	97%	98%	180,599	495	0.25	
1955	41,211	98%	99%	174,631	478	0.24	First operating loss
1956	33,462	98%	99%	155,595	426	0.22	
1957	33,339	98%	98%	136,616	374	0.25	
1958	34,300	98%	98%	124,597	341	0.28	
1959	28,570	98%	98%	116,666	320	0.25	
1960	31,136	96%	95%	135,642	372	0.24	
1961	31,009	98%	99%	149,942	411	0.21	
1962	30,339	99%	98%	133,000	364	0.23	
1963	24,017	94%	94%	127,575	350	0.20	
1964	28,773	98%	98%	133,764	366	0.22	
1965	24,969	98%	97%	111,295	305	0.23	
1703	21,505	7070	21/0	111,273	303	0.23	

			Mil	l Throughput			
		% Rec	overy of	Process Plant		Head	
	Gold	Head	Stope	Feed	Average	Grade	Notes
YEAR	ozs	Grade	Grade	tons	tons/day	opt	
1966	21,630	98%	97%	85,258	234	0.26	
1967	13,394	98%	98%	71,673	196	0.19	
1968	6,066	87%	93%	30,218	166	0.23	Fire destroys surface hoist; production ends July 1968.

#### 6.2. Events 1989 Through 2001

In 1989, Rea Gold Corp. ("Rea Gold") acquired the Property from Brinco. Wright Engineers and Dolmage Campbell completed a due diligence study for Rea Gold prior to their acquisition of the Project in 1989. A Pre-Feasibility study by Kilborn Engineering Ltd. (Kilborn) in 1993 recommended that the resource base be increased prior to a production decision.

In 1994, Rea Gold undertook a \$3.1 million underground rehabilitation and exploration program to gain access to the lower levels of the mine and delineate additional Mineral Resources.

A Feasibility Study was completed by Rea Gold and Simmons Engineering Inc. in 1995, and construction and development of a 1,000 ton (907 tonne) per day mining operation was initiated. Rea Gold established a new mine access system that significantly streamlined the mining operation. Previously, the mine was accessed by A-Shaft and three internal winzes (B-Shaft, C-Shaft, and D-Shaft). Ore from the D-Shaft area had to be trammed and hoisted via four shafts in order to transport it to surface. Rea Gold deepened the principal A-Shaft to link the surface directly with the upper level of the D-Shaft area, thereby eliminating two cycles of tramming and hoisting.

By 1997, Rea Gold had established a modern 1,000 ton (907 tonne) per day gold mining and processing facility at a total cost of approximately \$90 million. Prior to the start of production, Rea Gold was placed into receivership and the receiver put the assets up for sale. Harmony Gold (Canada) Inc. ("Harmony") was the successful bidder and took over the project in 1998.

After acquiring the assets from the receiver, Harmony invested approximately \$30 million to build a ramp system in the lower part of the D-Shaft area, in order to establish a long hole mining operation. Harmony operated the mine for three years, and subsequently put the project on care and maintenance in August 2001. Compared to the previously employed shrinkage mining operation, the Harmony operation produced fewer ounces of gold from more tons processed per day and failed to achieve the corporate objectives set by Harmony's parent company, Harmony

Gold Mines Limited of South Africa. Historic production at Rice Lake Mine from 1980 through 2001 is summarized in Table 6-2.

Table 6-2 Historic Production at Rice Lake Mine: 1980-2001

			Mill	Throughput			
Year	Gold	% Reco	overy of Stope	Process Plant Feed	Average	Head Grade	Notes
	ozs	Grade	Grade	tons	tons/day	opt	
1980-83	13,954	100%		104,135		0.13	New Forty-Four/ Brinco Joint Venture formed
	Mill destro	yed by fire in	n 1980. Produ	action ends May 27	, 1983, drilling	continues at	depth
1984	Lathwell/B	Brinco JV con	ducts limited	l program			
1985	Brinco cha	nges name to	Cassiar Mir	ing Corporation			
1986	Inco subsic	diary drills 20	0,008 ft to tes	t depth			
1987	Inco opts o	out. Cassiar o	wnership 100	)%			
1988	Kilborn rev	views reactiv	ation progran	n for Mandor Gold			
1989	Rea Gold (	Corp. acquire	s project from	n Cassiar.			
1990	Wright Eng	gineers and I	Oolmage Can	npbell complete due	diligence on be	ehalf of Rea	Gold
1993	Pre-Feasib	ility of Kilbo	rn and Tonto	recommends mine	able reserves be	increased	
1994	Rehab, exp	oloration and	development	in lower levels of r	nine		
1995	Feasibility	studies by R	ea Gold and	Simmons completed	d. Drilling and o	development	underground.
1996	Construction	on and develo	opment towar	rds 1,000 tons per d	ay operation		
1997	9,000			60,000		0.15	
1998	Rea Gold Corp. bankrupt. Receiver puts 2,875 40,035 0.07 assets up for sale. Harmony Gold (Canada) Inc. acquires mining assets of Rea Gold.						
1999	33,238			231,898		0.14	
2000	39,476			257,605		0.15	
2001	29,341	85%	79%	203,868		0.17	Project placed on care and maintenance August, 2001

#### 6.3. Wildcat and San Gold 2001 - 2015

In January 2002, Harmony entered into an option agreement with Wildcat Exploration Ltd. of Winnipeg, Manitoba ("Wildcat"). Wildcat's objective was to re-establish the mine as a smaller scale shrinkage stope operation delivering ore to a surface stock pile to feed the 1,250-ton (1,136 tonne) process plant which operated on a two week-on two week-off cycle.

In April 2002, A. C. A. Howe International ("Howe") (Titaro et al 2002) completed a report on the Harmony assets on behalf of Wildcat. The report included an audit of the mineral resources and mineral reserves, a review of the operating and capital costs, and preparation of a financial evaluation of the economic feasibility of reopening the mine. Howe concluded that a viable shrinkage mining operation could be operated at a mining rate of 550 tons (500 tonnes) per day was feasible. Ore was delivered to a surface stockpile to feed the 1,250 ton (1,136 tonne) per day process plant operating on a two-week on, two-week off cycle. Gold at that time was US\$300/oz.

Howe further concluded that based on well-founded historical estimation practices at the Rice Lake Mine (as it was then called), that as of April 2001, the mine, had a historical Measured and

Indicated Mineral Resource of 1,267,000 tons (1,149,000 tonnes) grading 0.26 opt Au (8.9 g/t Au) plus Inferred Mineral Resource of 735,000 tons (668,000 tonnes) grading 0.31 opt Au (10.6 g/t Au). All of the above mentioned Mineral Resources were situated above the 4,630 Level (5,370 feet or 1,637 m below the collar of A-Shaft) in the C and D-Shaft areas of the Rice Lake Mine.

Within the Measured and Indicated Mineral Resources, Howe concluded that the Rice Lake Mine had Proven and Probable Mineral Reserves of 901,800 tons (820,000 tonnes) with an average grade of 0.27 opt Au (9.3 g/t Au). In determining this reserve, Howe used dilution, cutting, and cut-off practices which were based on over 38 years of mining experience at the Rice Lake Mine (now True North Gold Mine). All of these mineral reserves had existing development drifts and were accessible on levels within the C-Shaft and D-Shaft areas.

The Qualified Persons from either PM and P&E have not done sufficient work to classify the historical estimates as a current Mineral Resource or Mineral Reserve, and PM, and P&E are not treating these historical estimates as current Mineral Resources or Mineral Reserves. The historical estimates cannot be fully verified. These values cannot and should not be relied upon and are only referred to herein as an indication of previously defined gold mineralization. The relevance of the historical estimates is not known. Key assumptions, parameters and methods used to estimate these Mineral Resources and Mineral Reserves are not known. The historical Mineral Resource and Mineral Reserve estimates described in this Technical Report section have been superseded by the Mineral Resource estimates described in Section 14 of this Technical Report.

Despite this work by Howe, Wildcat was unable to complete the acquisition of the Rice Lake Mine.

On March 5, 2004, San Gold Resources Corporation ("Old San Gold") and Gold City Industries Ltd. ("Gold City"), entered into a joint venture agreement to acquire 100% of the issued and outstanding shares of Harmony through a newly formed corporation, Rice Lake Joint Venture Inc. ("RLJV"). RLJV was owned and controlled jointly by Gold City (50%) and Old San Gold (50%). Effective March 17, 2004, RLJV acquired the shares of Rice Lake Gold Corporation (formerly Harmony Gold Corporation (Canada) Inc.) from Harmony Gold Mining Company Limited of South Africa. The purchase price was \$7,757,961, including \$3,632,961 in cash and \$4,125,000 in shares and warrants of Gold City and Old San Gold. On June 30, 2005 Old San Gold and Gold City amalgamated to form a new corporation called San Gold Corporation.

The exploration drilling completed between the period from 2005 to 2013, (is summarized below and more fully described in Section 10 of this Technical Report). As part of San Gold's exploration program, a Light Detection and Ranging (LiDAR) survey was flown over the Rice Lake greenstone belt in 2009. From this a second mining trend called the Shoreline Basalt unit, which hosts the Hinge and 007 Zones, was recognized

A ramp to explore and develop the new, separate SG1 deposit commenced in the winter of 2005. Production from that deposit continued until mid-2008 when workings had reached a depth of 640 feet (195m) below surface. Work was suspended in 2008 due to diminishing economics and the mobile equipment was needed elsewhere to develop the recently discovered Hinge Zone.

A new surface ramp to explore and develop the Hinge Zone commenced in 2008 and reached the deposit in March 2009. Production started almost immediately as definition drilling continued.

In early 2010, a new internal ramp was started from a vertical depth of 800 feet (244m) in the Hinge Zone workings to access the 007 deposit. The ramp reached the 007 deposit in July 2010, and production started while definition drilling continued.

A second surface ramp was started near the old Wingold shaft in the second half of 2010. This ramp was to provide top access to the 007 deposit and provide access to develop the Cohiba deposit. The ramp reached the Cohiba mineralization at a vertical depth of 108 feet (33m) below surface.

Under the San Gold operations, ore was mined along three active underground mining trends. The Rice Lake Mine (as the Project was previously named), formed the core of mining operations. Access is provided by A-Shaft which extends 4,060 feet (1,249 m) below surface and extensive workings to access these deposits situated within the mineralized host system.

The second mining trend, the Shoreline Basalt mining unit, focused on the 007 deposit, began commercial production in 2010. The 007 mine portal is located 2,000 feet (600 m) from the process plant and provided the main access to San Gold's operations along the Shoreline Basalt mining unit and the Hinge Zone. The Hinge zone is hosted in intermediate rocks, is the third mining trend host and its portal also provides access to the 007 deposit.

After investing approximately C\$375 million in capital since 2007, including the extensive underground development and modernizing the process plant, San Gold ceased mining in May 2015, and placed the operation on care and maintenance. San Gold declared bankruptcy and announced sale of all of its assets to secured creditors in June 2015. Historic Production from the Rice Lake Mine from 2007 through 2015 is summarized in Table 6-3.

Table 6-3 Historic Production at Rice Lake Mine: 2007-2015

		Head G	rade	Gold
Year	<b>Tons Processed</b>	opt	g/t	OZ
2007	96,653	0.13	4.35	9,193
2008	116,835	0.09	3.20	13,845
2009	164,424	0.23	8.00	35,154

		Head G	rade	Gold
Year	<b>Tons Processed</b>	opt	g/t	oz
2010	275,860	0.17	5.85	47,082
2011	461,150	0.17	5.93	79,802
2012	629,279	0.15	5.07	93,233
2013	641,711	0.13	4.32	80,828
2014	390,564	0.12	4.03	41,890
2015 (Q1)	81,427	0.11	3.91	9,261

#### 6.4. Klondex Mines Ltd. 2016 - 2017

In early 2016, Klondex Mines Ltd. (KDX) announced acquisition of 100% of the Rice Lake Mine, process plant complex and a 400 km2 exploration land package from the creditors of San Gold Corporation. In the first half of 2016, KDX commenced refurbishment of the underground infrastructure and trial mining of readily accessible ore.

Following sampling of the historic tailings storage facility, KDX also commenced a tailings reprocessing project. Reprocessing of the tailings was carried out concurrently with processing of underground ore when weather allowed. Processing of stockpiled ROM ore commenced in fourth quarter 2016.

A name change to True North Gold Mine was announced in May 2016. In September 2016, KDX announced the formal decision to resume production at True North. Underground Mine production and tailings reprocessing activity for 2016 and 2017 is shown in Table 6-4 and Table 6-5.

Table 6-4 KDX True North Underground Production 2016 - 2017

	Mineralization	Gold Grade	Contained	Metallurgical	Gold Recovered	Gold Sales
	Mined (kt)	(opt)	Gold (koz)	Recovery	(koz)	(koz)
2016	64	0.140	9	93%	8	7
2017	228	0.123	28	93%	25	23
Total	292	0.127	37	93%	33	30

**Table 6-5 True North Tailings Reprocessing** 

	Tailings	Gold Grade	Contained	Metallurgical	Gold Recovered	Gold Sales
	Processed (kt)	(opt)	Gold (koz)	Rec%	(koz)	(koz)
2016	32	0.060	2.0	89%	1.8	1.0
2017	80.8	0.045	3.6	91%	3.3	3.2
Total	113	0.050	5.6	91%	5.1	4.2

In May 2017 KDX released a NI 43-101 Technical Report updating Mineral Resources and Mineral Reserves at the True North Mine (Odell et al 2017). These Mineral Resources and Mineral Reserves are presented in Table 6-6 through Table 6-8. Cut-off grades of 0.090 Au opt and 0.015 Au opt were used to estimate in-situ and tailings Mineral Resources respectively. For Mineral Reserves, cut-off grades of 0.15 Au opt and 0.016 Au opt were used for in-situ and tailings Mineral Reserves respectively. These estimates were based on gold prices of US\$1,200 and US\$1,400 per ounce for Mineral Reserves and Mineral Resources respectively. These Mineral Resources and Mineral Reserves are historic in nature. The authors and KC do not consider them to be current Mineral Resources and Mineral Reserves. These Mineral Resources have been superseded by those stated elsewhere in this report. Sufficient work has not been done to estimate Mineral Reserves as of the effective date of this Technical Report.

Table 6-6 In-situ Mineral Resource Statement as of March 31, 2017

	Grade	Grade		
Class	Au opt	Au g/t	Tons	Au oz
Measured	0.220	7.54	521,000	115,000
Indicated	0.214	7.34	1,276,000	273,000
Meas + Ind	0.216	7.40	1,797,000	388,000
Inferred	0.182	6.24	3,676,000	668,000

Table 6-7 Tailings Mineral Resource as of March 31, 2017

Class	Grade Au opt	Grade Au g/t	Tons (k)	Au (k) oz	
Indicated	0.024	0.82	2,138	51.0	
Inferred	0.022	0.75	47	1.1	

Table 6-8 True North Mineral Reserves as of March 31, 2016

							Proven and Probable		
	Proven Reserves		Probable Reserves			Reserves			
	Tons		Au oz.	Tons		Au Oz.	Tons		Au Oz.
	(000's)	Au opt	(000's)	(000's)	Au opt	(000's)	(000's)	Au opt	(000's)
UG	128	0.218	27.9	306	0.251	76.9	434	0.242	104.7
Tailings				1,950	0.022	43.2	1,950	0.022	43.2
Total	128	0.218	27.9	2,256	0.053	120.1	2,384	0.062	147.9

## 7. Geological Setting and Mineralization

## 7.1. Regional Geology

True North is underlain by the Archean Rice Lake greenstone belt located at the west end of the Uchi Volcanic-Plutonic Subprovince of the Superior Province (Figure 7-1 and Figure 7-2). The Rice Lake greenstone belt is bound to the north and south by the Wanipigow Shear Zone and the Manigotagan Shear Zone, respectively.

The Wanipigow Shear Zone is marked at True North by regional-scale fault structures and elsewhere by increasing metamorphic grade into the metamorphic-plutonic terrain of the Wanipigow (Manitoba) Subprovinces and Berens River (Ontario). The Wanipigow River Plutonic Complex, which forms the northern boundary of the Rice Lake greenstone belt, is composed mainly of hornblende and biotite-bearing quartz diorite, granodiorite and locally quartz monzonite intrusions and gneisses. Several large gabbro intrusions are also present.

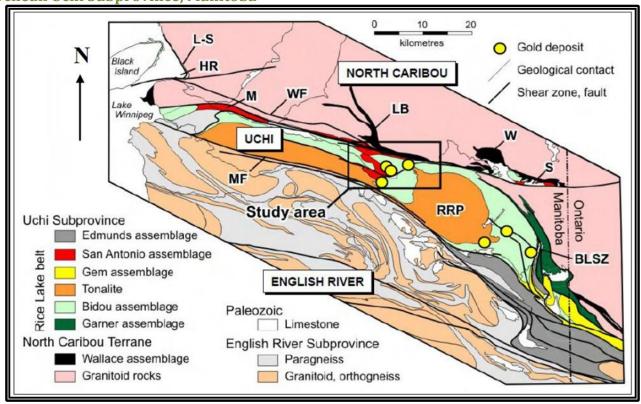
The Manigotagan Shear Zone is marked by a regionally continuous zone of faults (Manigotagan-Lake St. Joseph Fault) which separates the volcanic-plutonic terrain of the Uchi Subprovince from the English River (Ontario) - Manigotagan (Manitoba) gneissic belts. The Manigotagan gneissic belt, which occurs immediately south of the Rice Lake greenstone belt, consists of a lithologic gradation from low-grade metavolcanic and metasedimentary rocks, through paragneiss and migmatite, to quartz diorite and granodiorite gneiss.

The rocks in the True North area were affected by at least three and possibly four major periods of deformation (Anderson, 2008). The resulting fold pattern is complex with overturned, doubly-plunging folds in the Rice Lake Group rocks. The late Archean San Antonio Formation sedimentary rocks may have been affected by only the last major period of deformation.

Many major regional fault structures are present in the True North area. The most prominent are the major structures that trend generally east-west. Movement along these structures formed conjugate shear zones which splay off to the north and south. Thrust faulting likely occurred in the early stages of the deformation, but these structures are difficult to identify.

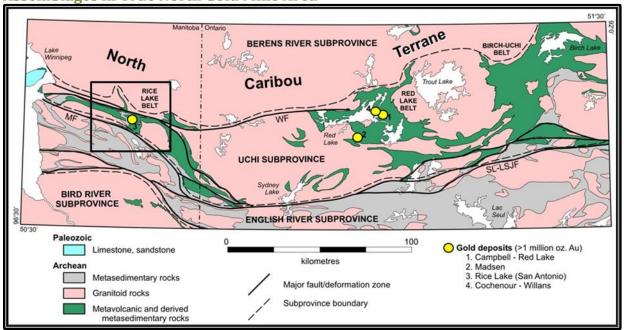
All the major gold occurrences in the Project area occur as quartz veins or quartz vein systems formed during structural deformation of the host rocks. Significant gold production has occurred from the Uchi Subprovince in the Rice Lake area to the west in Manitoba and in the Red Lake, Birch-Uchi Lake and Pickle-Dona Lake areas to the east in Ontario (Figure 7-2).

Figure 7-1 Regional Geologic Map showing the Location of True North Gold Mine in the Archean Uchi Subprovince, Manitoba



<sup>\*(</sup>Anderson, 2008). Abbreviations: MSZ, Manigotagan Shear Zone; SL–LSJF, Sydney Lake–Lake St. Joseph Fault; WSZ, Wanipigow Shear Zone

Figure 7-2 Geologic Map showing the Location of Gold Deposits and Lithotectonic Assemblages in True North Gold Mine Area



## 7.2. Local Geology

All of the gold mineralized zones at True North are hosted in rocks of the Bidou Lake Assemblage (Figure 7-3). The Bidou Lake Assemblage forms a north-facing stratigraphic sequence of tholeitic basalt to intermediate volcanic flows, dacite crystal tuffs and breccias overlain by well stratified felsic epiclastic rock interpreted to be of pyroclastic and sedimentary origin. The stratigraphic sequence is intruded by tholeitic gabbro sills and dykes and felsic porphyry dykes.

The best known gabbro sill is the San Antonio Unit, which is host rock for much of the gold mineralization at the True North deposit. The Bidou Lake Assemblage is unconformably overlain by feldspathic sandstone of the San Antonio Assemblage.

In the Project area, gold mineralization is controlled by quartz-carbonate veins and vein systems in brittle- ductile structures with related hydrothermal alteration halos within or at the margin of particular host rock units (Figure 7-4).

#### 7.2.1. Host Rock Units

The gold mineralized veins show a high degree of structural control and are best developed in competent host rock units. Since 2009, three main host units have produced the most gold ore at True North (Figure 7-3):

- 1) The SAM, a gabbro sill from which gold has been mined for more than 80 years from the True North deposit;
- 2) The Shoreline Basalt unit, which hosts the 007, L10 and SG zones; and
- 3) The Intermediate Volcanic unit, which hosts the Hinge, L13, L08 and Cohiba Zones.

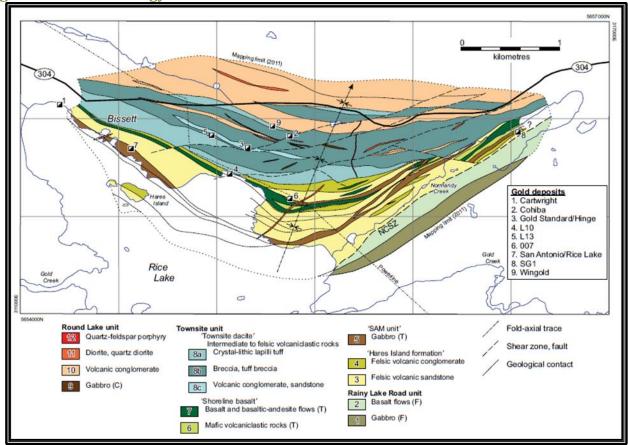
The SAM unit is a layered tholeitic gabbro sill which intrudes the Bidou Lake Assemblage and dips moderately to the north. The SAM has been interpreted to be a subvolcanic feeder for the overlying mafic volcanic rocks. SAM hosted all the gold mineralization mined prior to 2004 in the True North Mine and the Cartwright zone, for a total of 1.5 million oz.

The Shoreline Basalt is a steeply dipping mafic volcanic rock unit that is geologically similar and subparallel to the SAM unit, and hosts the 007, L10 and possibly the SG gold zones (Figure 7-4).

The Intermediate Volcanic Unit occurs to the north of the Shoreline Basalt and hosts the Hinge and Cohiba Zones.

In addition to these three rock units, an unnamed intermediate to mafic volcanic unit situated in the footwall to the Shoreline Basalt unit hosts the 710 Zone which was discovered in 2013.

Figure 7-3 Local Geology of True North Gold Mine Area



(Anderson, 2008, 2011). Deposits of the True North Mine Area are hosted in three main geologic units of the Bidou Lake Assemblage: 1) San Antonio Mafics (SAM) Unit; 2) Shoreline Basalt; and 3) Intermediate volcanic unit.

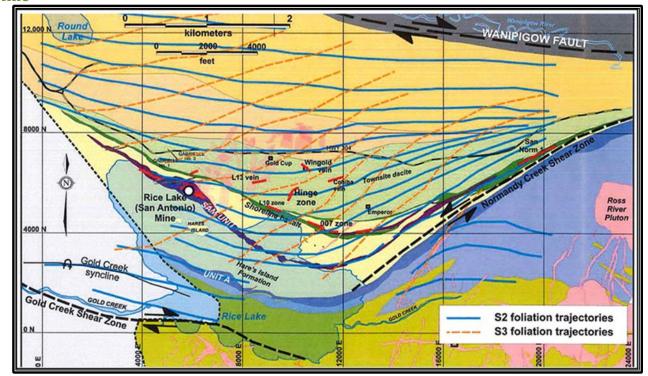


Figure 7-4 The Structural Geological Setting of Gold Mineralization at True North Gold Mine

The mine area is bound by the Wanipigow Fault Zone to the north; the Normandy Creek Sheer Zone to the east and the Gold Creek Shear Zone to the south. The general north-northeast shortening of the True North Mine area rocks produced a conjugate set of northeast-trending and northwest-trending shear and tensional brittle-ductile structures.

#### 7.2.2. **Structure**

The structures that control the gold mineralization are brittle-ductile shear zones which strike from parallel to transverse to the host rock units and dip steeply northwest or northeast. The shear zones are marked by intensely foliated and lineated interlayered sericite and chlorite schists, which range from <100m to 6 km long and from 1m to >10m thick (Figure 7-5A).

Structures trending east-northeast have kinematic features indicative of sinistral-reverse movement, whereas those trending northwest have kinematic features indicative of dextral-normal movement.

The sinistral and dextral structures are interpreted to have been generated during a single protracted areal deformation event – D3 (Anderson, 2011; SRK, 2013). Stretching lineation and fold plunges tend to be orthogonal to movement on the host shear zone (SRK, 2013). The structures contain a main, banded (laminated) quartz vein and subsidiary veins in the schist on either side (Figure 7-5B). The main vein can be situated anywhere in the structure.

#### 7.2.3. **Veins**

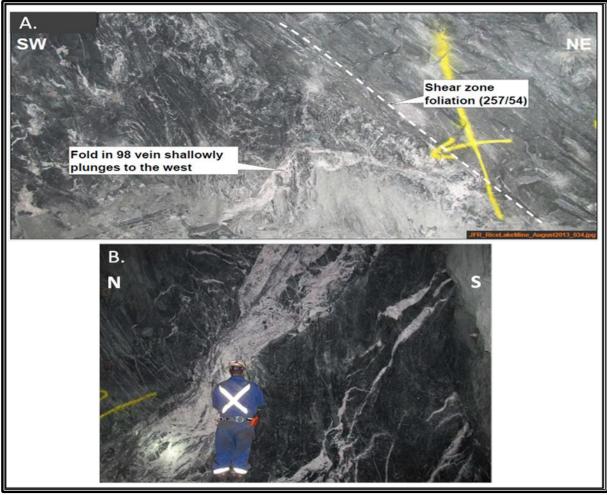
According to Anderson (2008), shear-hosted veins include massive, laminated and brecciated varieties, commonly within the same vein, and typically pinch and swell along strike and down-dip. Thicker veins are associated with inflection points in the host shear zones, which suggests hydrothermal infill of dilational jogs.

Most of the shear zones are associated with fringing arrays of kinematically linked extension and oblique-extension quartz veins, which locally intensify into complex peripheral stockwork-breccia systems. Considered with the geometry of the vein arrays, the vein textures indicate synkinematic emplacement under brittle-ductile conditions. Most deposits are arrays of sub-horizontal extension veins, which suggests emplacement accompanied by transiently supralithostatic fluid pressures.

In the True North deposit, the gold-bearing quartz veins occur mainly as either "16-type" shear zone veins or "38-type" tensional fracture stockwork veins or, where they intersect, as a combination of the two vein types. The 16-type appear to be fault fill veins with generally higher grades and more continuity, which are laminated with pressure solution seams (stylolites) and trend north-northeast. Examples of both vein types are shown in Figure 7-5 and Figure 7-6.

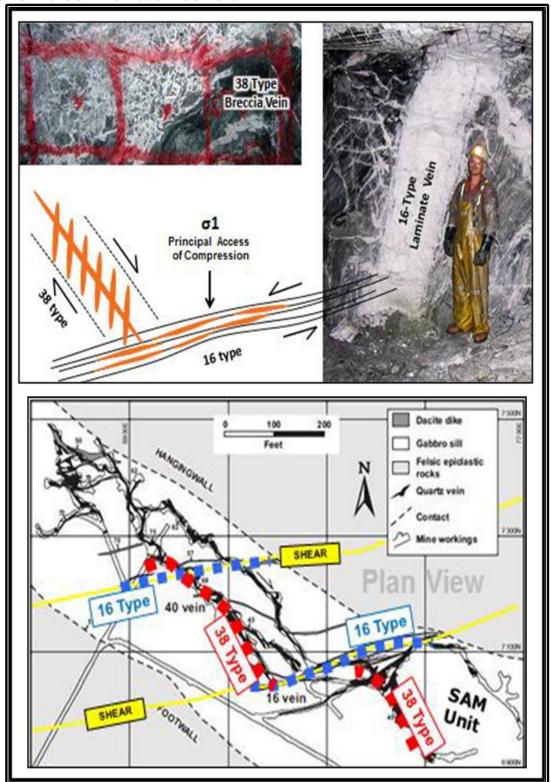
The stylolites consist of intergrown pyrite-chlorite-tourmaline-muscovite. Compared to the 16-type, the 38-type are stockwork breccia veins that are wider and arranged in an en-echelon pattern along the strike and down the dip of the host gabbro unit, but gold mineralization is more irregular and grades difficult to predict. In some deposits, for example SG-1 and SG-3, the gold mineralized veins were intensely transposed during ductile deformation (Anderson, 2008), and presumably later in the D3 deposit.

Figure 7-5 Shear Zones and Quartz Veins



(SRK, 2013), A) East-NE trending shear zone foliation at the 98 vein (16-type) in the True North Mine. B) The main laminated (16-type) 84 vein and subsidiary veins in the True North Mine.

Figure 7-6 Example of 16-Type Shear and 38-Type Breccia Gold Mineralized Quartz Veins in the SAM Unit at True North



(San Gold Corporation, 2015)

In addition to quartz, the veins contain subordinate carbonate, minor albite, chlorite and sericite, and rare tourmaline and fuchsite (a.k.a. mariposite). The carbonate is dolomite-ankerite in composition (Ross & Rhys, 2010). Sulfide minerals consist of pyrite with minor chalcopyrite and rare sphalerite, galena and gold-silver telluride minerals. Pyrite generally comprises <5% of individual veins and occurs as scattered grains and irregular blebs within and along vein margins, and is concentrated along planar slip surfaces or stylolites.

Gold typically occurs as free grains associated with or as inclusions in pyrite. Gold grades tend to be highly erratic within individual quartz veins. The gold ores have high Au/Ag ratios of >5:1 and low concentrations of copper, lead, zinc, arsenic, bismuth, boron, antimony and tungsten, as is typical for Archean lode-gold deposits.

#### 7.2.4. Alteration

Wall rock alteration spatially associated with the quartz veins varies from minor to intense and is generally zoned outward from proximal albite + ankerite + sericite + quartz +pyrite through medial chlorite + ankerite ± sericite to distal chlorite + calcite (Anderson, 2008). These alteration mineral assemblages overprint the regional greenschist facies metamorphic mineral assemblage (Ames et al., 1991). Many veins show evidence of wall rock sulphidization in the form of coarse euhedral pyrite grains.

In the True North deposit, thick zones of altered and sulphidized wall rock with minor vein quartz contain ore grade gold. Complex and antithetic distribution patterns of phengitic white mica and muscovite-paragonite are reported by SRK (2013), and appear to be controlled by second order faults and near-mine shear zones. Figure 7-7 shows typical shear orientations and general alteration assemblages.

The True North and SG-1 deposits show close spatial relationship with laterally continuous zones of ankerite-sericite phyllite and phyllonite, which represent reliable guides to ore. Deformation structures in the phyllonite preserve evidence of a complex deformation history, increments of which pre-date and post-date vein formation.

Despite vertical extents of up to >2 km, the True North deposit shows only minor variation in vein mineralogy, texture and structure.

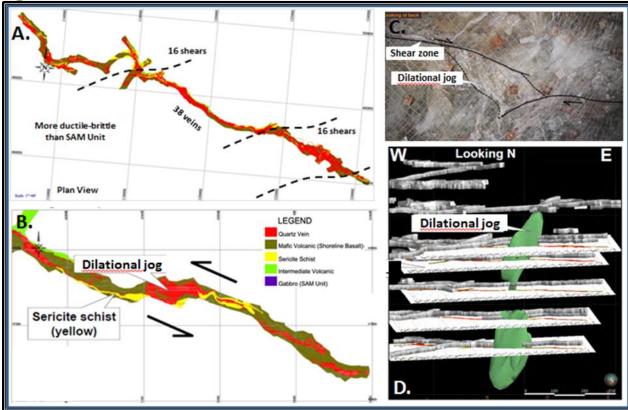


Figure 7-7 Controls on Gold Mineralization in the 007 Zone

(SRK, 2013; San Gold Corp., 2015). A) and B). Level plan geologic maps showing the distribution of veins and alteration, relationship to 16-type shear zones and 38-type breccia zones, and formation of high-grade dilational jogs. C) Photograph of a dilational jog at the L10 zone. D) Three-dimensional image showing the steep north-northwest plunge of the dilational jog.

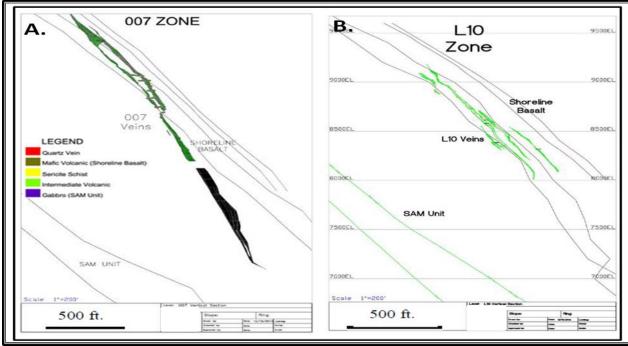


Figure 7-8 Interpreted Cross-Sections of 007 and L10 Zones Looking West

A) cross-section of 007 zone. Note that the 007 veins crosscut stratigraphy. B) Cross-section of the L10 zone. The veins here appear to be largely confined to the Shoreline Basalt

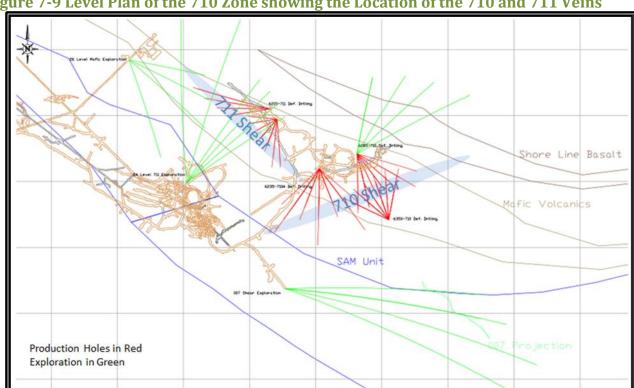


Figure 7-9 Level Plan of the 710 Zone showing the Location of the 710 and 711 Veins

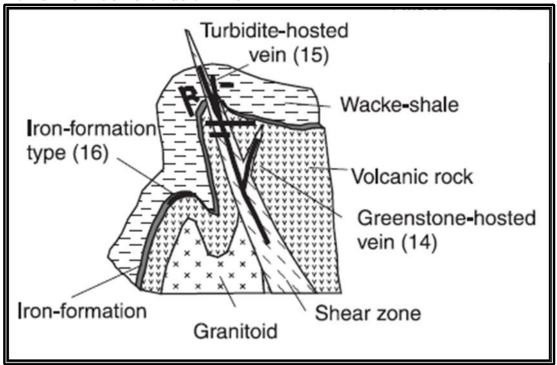
Note the near-orthogonal orientation of the two veins and the host intermediate-mafic volcanic unit between the SAM unit to the south and the Shoreline Basalt unit to the north.

# 8. Deposit Types

The association of gold at True North with quartz-carbonate veins in brittle-ductile shear zones and laterally extensive hydrothermal alteration zones indicates that the deposits represent epigenetic mesothermal lode gold-type (Poulsen et al., 2000) or orogenic-type gold mineralization (Groves et al., 1998).

Such gold deposits form from metal-bearing fluids generated during accretionary processes and prograde regional metamorphism at depth in greenstone belt terrains. In this model (Figure 8-1), the resulting fluids migrate and are channeled upward along transcrustal fault systems to subsidiary shear and fracture structures developed in the middle to upper crust. Gold is deposited in quartz carbonate veins as a result of pressure-temperature, pH, and other physiochemical changes, phase separation and fluid-rock reactions. The reactions commonly involve sulphidization of precursor oxide, carbonate and silicate minerals and mineral assemblages.

Figure 8-1 Schematic Cross-Section Representation of the Geometry and Structural Setting of Shear Zone Hosted Gold-Bearing Quartz Vein Networks in Greenstone Belt Terrains like True North Gold Mine



# 9. Exploration

KC has yet to commence near mine and regional exploration work at True North. Limited underground diamond drilling has been completed for ore definition. Most of the exploration work at the Project was completed previously during the San Gold ownership.

Based on the orogenic gold model (Figure 8-1), exploration targets at True North are areas or zones selected based on the criteria listed below:

- Presence of gold;
- Favorable structure (shear zones and breccia zones);
- Significant quartz vein material;
- Hydrothermal alteration minerals and assemblages;
- Proximity to unconformities and disconformities; and
- Proximity to oxidation/reduction boundaries of regional scale.

On surface, favorable structures are identified utilizing the 2009 LiDAR survey and the 2011 airborne magnetometer survey. The LiDAR survey products include a high-resolution digital elevation model which has been used to map geological contacts, bedding planes, faults, shears, lineations and joints. Follow-up ground geological mapping is employed to identify fabrics, offsets and abrupt changes in rock types that indicate structure.

Mineral prospecting is used to identify indicative mineral alteration, particularly sericite and carbonate minerals and mineral assemblages. Many surface targets meeting some or all of the relevant criteria remain to be tested by drilling.

Underground exploration has been guided by drilling mineralized structures along strike and updip and down-dip from mine workings, and development, particularly within the SAM unit, Shoreline Basalt unit, Intermediate Volcanic Unit, and the 710host mafic unit. At least seven underground targets have been identified by KDX for exploration drilling.

# 10. **Drilling and Sampling Methodology**

Drilling at True North has been completed both on surface and underground. The majority of the drilling was done previously by San Gold. KDX commenced drilling underground and sampling the historic tailings in the spring of 2016.

# 10.1. **Diamond Core Drilling**

Underground drill-holes were planned by the Geology Department using three-dimensional Amine software applying length, dip, and anticipated deviation. The front and back sights are setup by the survey department and on completion of the hole, the collar location is surveyed.

Downhole survey measurements are taken at 70 feet (20 m) from the collar, and then every 100 feet (30m) for underground drill-holes and 200 feet (60 m) for surface drill-holes. For infill drilling, the typical hole spacing is 50 feet (15 m).

Underground air diamond drills produce AQ size core and underground electric diamond drills produce BQTK and NQ size core. Surface diamond drills produce NQ size core, except for the first 500 feet (150 m) of some of the deeper holes, for which HQ size core is produced to minimize Drill-hole deviation.

Underground exploration and definition drilling completed by previous owners along the SAM unit was for near and mid-term production planning purposes. Definition drilling also continued at the 007 and L10 zones within the Shoreline Basalt unit and at the L13 and Hinge Zones in order to advance Mineral Resources from Inferred to Measured and Indicated categories and to increase the Mineral Reserve.

In 2011, the L08 zone was discovered to the northwest of the Hinge Zone. The L08 zone was traced vertically in drilling from 1,000 feet to 2,300 feet below surface and is in close proximity to the Hinge Zone and True North workings at the 16 Level. In 2013, the 710 Zone was discovered as part of underground drilling of an unnamed intermediate mafic volcanic unit between the SAM unit to the south and the Shoreline Basalt unit to the north. Underground drilling of the 710 Zone and other zones continued in 2014 through the spring of 2015.

KDX commenced underground diamond drilling which, in early 2016, was focused on the 710 Zone. By January 5, 2017 approximately 5,760 underground exploration holes were drilled collectively by San Gold and KDX, for an approximate total of 2,516,000 feet (767,200 m).

Surface diamond drilling has occurred at the Project since 1912, which includes more than 2,190 holes and 2,605,000 feet (794,000 m) Table 10-1). San Gold's largest surface drilling exploration program was in 2011-2012 and included drilling approximately 1,024,000 feet (336,000 m) in 602

surface holes. The exploration drill program focused on the SAM unit, Shoreline Basalt unit, and Intermediate Volcanic Rock unit.

**Table 10-1 Summary of Surface Exploration on the True North Mine** 

Year	Company	Property	Type of Work	Holes Drilled	Footage
1912	B. Thordarson	Original Sannorm	discovery by prospecting		
1934	Normandy Mines Ltd.	Original Sannorm	prospecting, drilling	12	3,000
1945	Sannorm Mines Limited	Original Sannorm	magnetometer survey		
1946	Sannorm Mines Limited	Original Sannorm	diamond drilling	37	20,000
1947	Sannorm Mines Limited	Original Sannorm	25' shaft; surface facilities		
1949	Sannorm Mines Limited	Original Sannorm	diamond drilling	11	3,923
1961	Sannorm Mines Limited	Original Sannorm	magnetometer survey		
1974	Wynne Gold Mines Ltd.	Original Sannorm	diamond drilling	5	3,923
1978	Wynne Gold Mines Ltd.	Original Sannorm	diamond drilling	3	2,177
1985	Orenda Resources Ltd.	Original Sannorm	magnetometer survey		
1986	Orenda Resources Ltd.	Original Sannorm	mapping; diamond drilling	7	1,803
1987	Orenda Resources Ltd.	Original Sannorm	VLF EM; IP; diamond drilling	10	2,803
1988	Bakra Resources	Original Sannorm	diamond drilling	8	2,999
1989	Bakra Resources	Original Sannorm	diamond drilling	12	4,292
1992	Partnership	Original Sannorm	diamond drilling	12	5,429
1993	Partnership	Original Sannorm	diamond drilling	4	1,000
1994	Partnership	Original Sannorm	diamond drilling	27	6,859
1996	Partnership	Original Sannorm	diamond drilling	22	4,927
1997	Harmony Inc.	Original Sannorm	diamond drilling	12	6,988
1998	Harmony Inc.	Original Sannorm	diamond drilling	33	28,411
2000	Harmony Inc.	Original Sannorm	RC drilling		
2003	Harmony Inc.	Original Sannorm	diamond drilling	17	11,496
2004	Rice Lake Joint Venture	Incl. Mine Lease	diamond drilling	47	28,347
2005	San Gold Corporation	Incl. Mine Lease	diamond drilling	101	67,094
2006	San Gold Corporation	Incl. Mine Lease	drilling on Mine Lease	152	160,276
2007	San Gold Corporation	Incl. Mine Lease	drilling on Mine Lease	186	147,333
2008	San Gold Corporation	Incl. Mine Lease	drilling on Mine Lease	191	191,808
2009	San Gold Corporation	Incl. Mine Lease	drilling on Mine Lease; LiDAR	161	192,474
2010	San Gold Corporation	Incl. Mine Lease	drilling on Mine Lease	352	367,688
2011	San Gold Corporation	Incl. Mine Lease	drilling on Mine Lease; AirMag	382	585,931
2011	San dolu Corporation	Cougar Option	diamond drilling	3	3,266
		Incl. Mine Lease	drilling on Mine Lease	188	385,816
2012	San Gold Corporation	Cougar Option	diamond drilling	3	5,800
		Wildcat Option	diamond drilling	26	43,165
2013	San Gold Corporation	Incl. Mine Lease	diamond drilling	170	316,901
2014	San Gold Corporation	Incl. Mine Lease	diamond drilling	0	

Year	Company	Property	Property Type of Work		Footage
2015	San Gold Corporation	Incl. mine lease	diamond drilling	0	
2016	KDX	Incl. Mine Lease	diamond drilling	139	80,731
2017	KDX	Incl. Mine Lease	diamond drilling	222	138,484
			TOTAL	2,555	2,825.144

# 10.2. **Channel Chip Sampling**

The face sampling procedure described below is used for grade control at the Project and is derived from a 2016 document provided by KDX. The sampling procedure consists of the following steps:

- Ensure that the face to be sampled is secure and safe prior to chipping;
- Wash the face thoroughly to remove loose material and expose rock type boundaries;
- Delineate sample intervals using a measuring stick and paint. The sample line should be perpendicular to the orebody dip and run from left to right;
- Sample widths should not exceed 3 feet (1 m) in waste and 2 feet (0.6 m) in ore, with a minimum sample width of 0.5 foot (0.15 m);
- Sample intervals should not cross lithologic boundaries; and
- Cumulative sample intervals should encompass the entire width of the face.

Samples are collected by chipping rock from the interval utilizing a sharp rock hammer pick. Rock chips are placed in a clean plastic 12-inch by 12-inch sample bag. The bag is filled to an approximate ¼ capacity. Sample information is recorded on a sample tag and the numbered end placed in the corresponding sample bag.

On a chip sample face sheet, a scaled picture is drawn of the face and the sampled intervals. In addition, the date, sampler, heading, dimension, orientation, position relative to the nearest survey station, samples, sampled intervals, and materials (host rock or vein) are all recorded.

The channel chip sample information is entered into the database and stored as pseudo drill-holes with collar, survey and assay values.

# 10.3. Historic Tailings Pond Drilling/Sampling

Prior to committing to a trial of the re-processing of the historic tailings, an extensive sampling program was undertaken to determine the distribution of recoverable gold within the tailings mass.

In the spring and summer of 2016, KDX drilled 138 holes and hand dug 214 holes on the historic tailings for a total of 352 holes with a total footage of 3,714 feet (1,132 m) (Table 10-2). The holes range in depth from <5 feet at the margins up to 35 feet in the center.

On the historic tailings, two phases of drilling have been completed using a 200-foot by 100-foot grid. Phase 1 drilling was completed using a hollow stem auger. The hollow stem auger sampling method employed by San Gold is not well documented. Brief descriptions indicate that the holes were drilled and sampled in 5-foot (1.5 m) increments through a hollow stem auger.

Phase 2 drilling was performed with a percussion probe (Geo Probe). Holes were planned, located, and staked with a differential global positioning system (GPS), and drilled with a dual tube system. An outer tube is pushed down inside the drill rod by percussion, and then an inner tube with a sampling polyvinyl chloride (PVC) cylinder is pushed down inside of the tube. A continuous 5–foot (1.5 m) sample is collected within the PVC cylinder. The inner PVC cylinder and the sample are retrieved through the outer tube, which remains in place. When drilling resumes, the drill pushes down an additional 5-foot (1.5 m) section of outer tube, and the processes is repeated in continuous 5-foot (1.5 m) intervals until the total depth of the hole is reached.

In addition to the drilling, samples were also collected from hand dug holes. Holes were planned on a grid spacing of 50-foot by 50-foot (15 m by 15m) and staked and located with a differential GPS. The holes were dug to the diameter of the shovel blade and to a depth at which the hole is stable. The geologist logs lithologic units that are >0.5-foot (0.15 m) in thickness, based on grain size (sand, clay, or mixed). Hand dug hole collars are imported into the database as pseudo drillholes with an azimuth of 0 degrees and dip of -90 degrees.

Table 10-2 Summary of Tailings Drilling at True North Mine

Hole Type	Grid Spacing	No. Holes	Footage	Assay Lab
Stem Auger	200 ft X 100 ft	39	818.8	Acme Labs
Geo Probe	200 ft X 100 ft	99	2351.5	TSL Lab
Hand Dug	50 ft X 50 ft	214	543.5	Site Lab

# 11. Sample Preparation, Analysis, and Security

This section of the report summarizes the sampling methods, sample preparation, assay analysis, and security procedures for surface and underground drill core, underground face sampling, and historic tailings sampling.

For core and face sampling, the procedures developed and documented by the previous operators San Gold and KDX are discussed herein. Any changes made by KDX are noted within this Technical Report. The procedures for tailings sampling were developed entirely by KDX.

# 11.1. Core Sampling Methods

Surface and underground drilling at the Project is completed by contractors. Diamond drill core is placed in labelled wooden trays and depth marker blocks are inserted by drilling contractor personnel prior to the removal of the core from the drill site by the project geologist. Upon arrival at the secure core logging facility, the core boxes are sequentially placed in a core rack and the spatial information on each box of core is checked for accuracy and consistency. If necessary, remedial action is undertaken to correct deficiencies and errors in the spatial information prior to entry into the database. The drill core is digitally photographed prior to logging and marked for sampling.

# 11.1.1. Surface Core Sampling Methods

Exploration geologists log the core and record observations in a digital drill log database prior to sample selection for assay analyses (Figure 11-1). Core intervals are selected for sampling based on the following: presence of mineralization, favorable structure, and quartz veining. They are then marked and measured for sampling and identified with one part of a three-part assay tag placed at the end of the sample interval.

Samples are taken by sawing the core perpendicular to the core axis, with one-half of the core returned to the core box and the other half placed in a clean plastic bag along with part two of the three-part assay tag. Information on the third part of the assay tag is entered into the database and the drill log, at which time accuracy and consistency are checked again and corrected for discrepancies.

San Gold submitted core samples for assay analysis to TSL Laboratories Inc. in Saskatoon, Saskatchewan. Check assays were performed at Accurassay Laboratories Ltd. in Thunder Bay, Ontario. Both labs are independent of the True North Project.

# 11.1.1. Underground Core Sampling Methods

Drill programs planned by the geology department are typically underground definition drilling of known zones rather than exploration. The core sampling method differs from that for the surface exploration holes.

The interval to be sampled is determined and marked by the geologist logging the core (Figure 11-1). Most samples, particularly those from known zones, range between 0.5-foot (0.15 m) and 4.0-foot (1.2 m) in length. Every sample is bracketed by a minimum of 1.0-foot (300 mm) for small veins and structures and 6-feet (1.8 m) in each of the footwall and hanging wall of known zones.

The entire core sample is placed in a bag by the geologist and identified with an assay tag, which has a copy that remains in the sample book, and the sample number is recorded in the database. One hole from each set up is cut and kept. If core is to be cut, the sampling procedure is the same as the surface exploration procedure. Approximately 10-feet (3.05 m) of core above and below the sampled portion is kept to ensure that sufficient material remains if a re-bracket is required. The remainder of the core is stored at the Project.

Underground core samples are submitted to TSL Laboratories Inc. (TSL) in Saskatoon, Saskatchewan. The check assay laboratory was ALS Global (ALS) in Vancouver, British Columbia. San Gold also submitted core samples to the Project's Assay Lab, in which case check assays were performed by TSL. KC submitted underground core samples to TSL. Their check assay lab was ALS. Both labs are independent of KC.

Surface Underground ! Drill Drill CORE SHACK Logged by exploration/mine geologist Sampled Tagged Insert blanks and standards Packaged to be sent for analysis **Surface** Underground Core Core Whole core sample: Split core samples Rice Lake **TSL** Assay Lab Laboratories

Figure 11-1 Flow Chart for Surface and Underground Core Sampling Methods

In general, all sections with quartz veining and/or alteration are sampled. Sample lengths in mineralized core, characterized by silicification, carbonate alteration, sulfide minerals, quartz veins, and visible gold, are variable and based on geological considerations.

Blind standards are routinely inserted every 25 samples into the sample sequence prior to delivery to the assay laboratory. Blanks are routinely inserted every 50 samples and after all noted visible gold.

Sealed sample bags are placed in rice bags with security seals and are transported to the assay laboratory in a timely manner. Upon arrival at the assay lab, samples are received by laboratory personnel and transferred to the laboratory's chain of custody procedures and protocols. KDX kept a chain of custody as well which is updated throughout the process.

# 11.2. Face Sampling Methods

The face sample preparation methodology is outlined below:

- Channel chip samples are bagged on-site at the face as described in Section 10.2;
- The samples are delivered to the Project's assay lab for analysis; and
- The internal lab inserts their own QA/QC into the chip sample stream.

# 11.3. Tailings Sampling Methods

The tailings samples and QA/QC samples are placed in rice bags and sealed with security tags and zap-straps. Each sample bag has a sample ID and a bag number written on it. There is one sample shipment ID per hole. Each rice bag weighs approximately 30 pounds.

Security tags are recorded in an Excel tracking spreadsheet separate from the Chain of Custody. Phase 1 samples were sent to Acme Analytical Labs Ltd ("Acme") in Vancouver, British Columbia for assay. Phase 2 samples went to TSL.

The assay lab breaks open, dries and screens the sample at 80 mesh. Approximately 1,000 grams are riffle split, pulverized to minus 200 mesh. Thirty grams are taken for fire assay. The reject and pulp portions are returned to the Project and stored in the QA/QC compound at the SG1 Zone compressor building or retained at TSL.

Preparation of the hand dug hole samples from the tailings pond is as follows. The samples are delivered to the Project's Assay Lab where the lab inserts their own QA/QC into the tailings sample stream. The samples then are dried and subsequently rolled with a steel rolling pin to break down any lumps. The samples are then split to size in a Jones riffle. After reducing the size of the sample to between 200 and 250 grams, they are pulverized for 30 seconds in a ring pulverizer, rolled and placed in a pulp bag for assaying. Forty grams are taken for fusion.

#### 11.4. Sample Quality, Representativeness and Sample Bias

- The sampling methods used by KC are consistent with industry standards for mineralization of this type.
- PM consider that the sampling methods utilized to be consistent with CIM Best Practices.

Sample Preparation, Analysis and Security

# orporation .

11.5.

# 11.5.1. Core Sample Preparation and Analysis

The primary independent assay laboratory used by San Gold and KC is TSL. When pulps and rejects are returned by TSL, selected samples are sent by the KC to ALS to cross check the TSL assay results. TSL and ALS are each ISO/IEC 17025 certified laboratories and have long histories within the Canadian mining industry. Each laboratory uses similar sample preparation, analytical methods, and QA/QC procedures.

On receipt by TSL, samples are sorted and verified according to the sample submittal form shipped with the samples by the KC. Security ties on the sample bags are checked with records sent electronically to TSL and the shipment is assigned a TSL reference number and worksheet. Sample labels are produced with the client sample number and the TSL reference number. Sample preparation procedures involve oscillating jaw crushing to 75% minus 10-mesh. A 1,000-gram sub-sample is riffle split from the minus10-mesh sample and pulverized to 95% minus 150-mesh in a ring mill pulverizer. Between each sample, the crushers, rifflers, and pans are cleaned with compressed air. Pulverizing pots and rings are brushed, hand cleaned and air blown.

Samples without visible gold are subject to normal fire assay analytical procedures. The gold concentration is determined for a homogenized 30-gram sample using a fire assay collector and atomic absorption finish. Samples are assayed in batches of 24, comprised of 20 client samples, two duplicate client samples, one TSL standard and one TSL blank.

Each sample with visible gold is subject to total metallic and fire assay procedures. The whole sample is crushed and pulverized to 95% passing 150-mesh. The plus 150-mesh fraction (including the sieve cloth) is assayed for the coarse gold content and two 30-gram samples of the minus 150 mesh are assayed. The weighted average of the three assays determines the reported assay grade for the sample.

# 11.5.2. Channel Chip Sample Preparation and Analysis

Channel chip samples are analyzed by the Project's Assay Lab at True North. When chip samples are received in the laboratory, they are sorted and placed into numerical order and the sample tag number written on the outside of the plastic bag. Wet samples are dried. All information on the samples received is entered into the logbook.

All dry samples are put through a Rhino Crusher. The crusher reduces the size of the sample to 50% passing 10-mesh. Crushed samples are reduced in size to approximately 200 grams by splitting, utilizing the sample riffle until one side contains the 200-gram sample to be pulverized. The remaining sample (reject) is returned to the original sample bag and stored for 6 months.

All crushed samples are pulverized for 90 seconds in a ring pulverizer to 90% passing 150-mesh. The sample pulps are rolled to ensure that they are homogenous and then placed in pulp bags for assay.

Pulp samples are subject to normal lead fire assay analytical procedures. A 20-gram sample is placed with 60 milliliters flux in a 30-gram crucible for fusion and fire assay of gold. The Mine geologists will insert one blank sample per 12-hour batch of chip samples, and a standard is inserted at every 25th sample collected in a 12-hour period. The standards and blanks inserted by the mine geologist are then entered into an Excel based QA/QC database, similar to the core sample QA/QC database. The same deviation limits apply to the chip QA/QC samples as does the core QA/QC samples. If a standard or blank fall outside of the acceptable limits, the entire chip sample batch is re-assayed.

The past production of greater than 1.8-million oz of gold from the True North Gold Mine supports the validity of the channel sampling and assay procedures. PM consider the assays to be accurate. The Project's Assay Lab inserts a standard with every set of samples and the results are checked and tracked internally. The Project's Assay Lab also runs check assays with each batch of chip samples.

# 11.5.3. Tailings Sample Preparation and Analysis

The sample cylinders are split by the driller for the geologist. The geologist wearing latex gloves photographs the sample, and then scoops it from the cylinder into a doubled sample bag using a spoon. The sample is tagged, the inner bag is rolled down and the outer bag is sealed. After each hole is completed, the geologist changes gloves and washes the spoon with distilled water.

#### 11.6. Core Quality Assurance and Quality Control

A QA/QC program was implemented by San Gold and adopted by KC to monitor the contamination, precision and accuracy at the various stages of core sample analysis. KC systematically inserted sample standards, blanks and duplicates into its sampling stream.

After every 25th sample, KC inserts a QA/QC control sample alternating between a standard, a field duplicate and a blank. (Standards are every 25th sample, Blanks are every 50th sample or after any noted visual gold, Duplicates are inserted every 20 samples). When assays are received, the data are plotted to ensure that all the results are within acceptable limits and any remediation, if required, is carried out.

# 11.6.1. Sample Standards

Under KDX procedures all exploration core is subject to data verification procedures through the insertion of four blind sample standards at regular intervals in every one-hundred samples.

Standards consist of Standard Reference Material (SRM) purchased from CDN Resource Laboratory Ltd. located in British Columbia, Canada. Four different standards are employed with contents of gold ranging from low grade to high grade (Table 11-1).

Assay results for the standards are illustrated in Figure 11-2 to Figure 11-5. Results are routinely reviewed. If the results plot outside the acceptable limits for standards or blanks, the sample batch is rerun.

**Table 11-1 DDH Standard Assay Summary** 

				_ ,	Ref.	Ref.
				Ref.	Lower	Upper
		Lab Mean	Lab Std.	Value	95% CI	95% CI
ID	Count	(opt)	Dev (opt)	(opt)	(opt)	(opt)
CDN-GS-13A	1509	0.381	0.031	0.385	0.364	0.406
CDN-GS-1P5C	1574	0.047	0.008	0.045	0.042	0.049
CDN-GS-22	1726	0.666	0.035	0.669	0.636	0.702
CDN-GS-6B	1911	0.187	0.011	0.188	0.178	0.198

PM considers that all potential gold mineralized zones in drill core have been sampled. Security of the samples at the core logging facility and at the analytical lab appear to be adequate to ensure the integrity of the samples and assays.



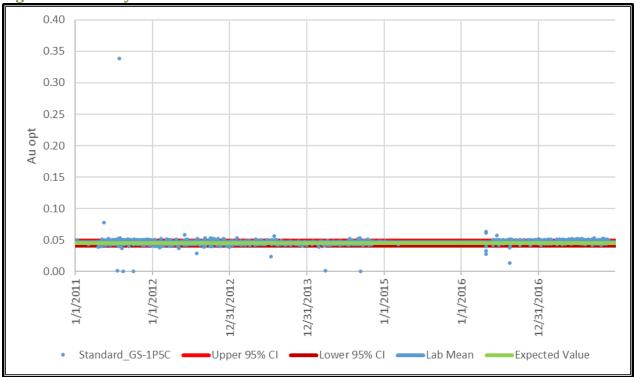


Figure 11-3 Assay Results for Standard CDN-GS-6B

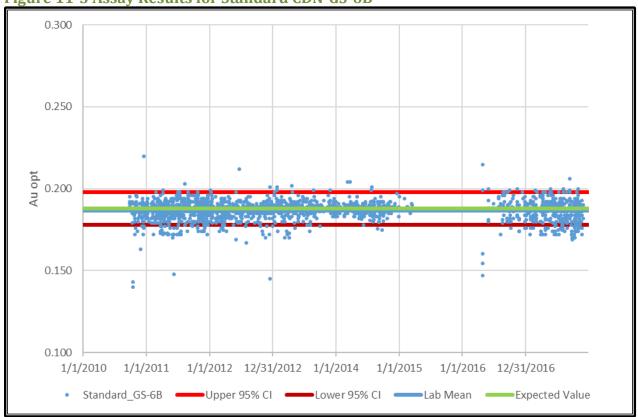


Figure 11-4 Assay Results for Standard CDN-GS-13A

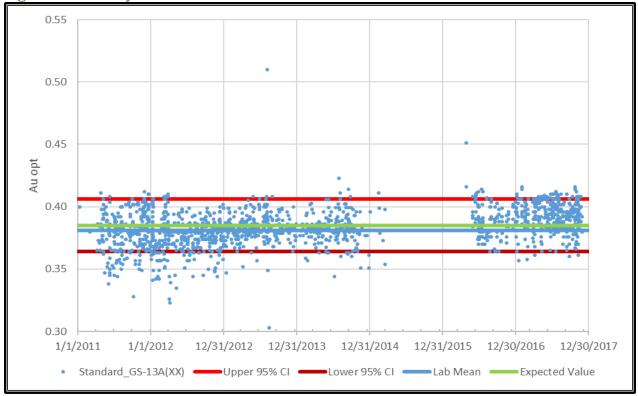
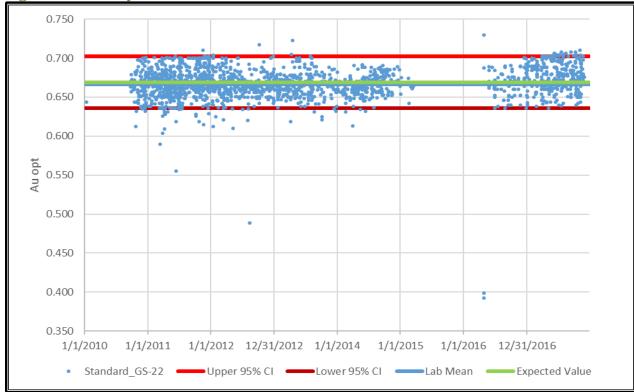


Figure 11-5 Assay Results for Standard CDN-GS-22



# 11.6.2. Core Sample Blanks and Duplicates

Sample blanks consist of un-mineralized, unaltered and un-deformed drill core from True North. Two blanks are inserted at regular intervals for every 100 samples. Additional blanks are inserted after each sample with visible gold. The blanks are employed to monitor contamination during the sample preparation step in the assay lab.

Review of assay results for 7,325 San Gold blanks indicates that 503 (6.9%) exceed the upper threshold assay value set by San Gold of 0.05 opt Au (Figure 11-6). None (0%) of the 1,036 KC blanks (Figure 11-7) exceeded the upper threshold assay value of 0.02 opt Au utilized by KC.

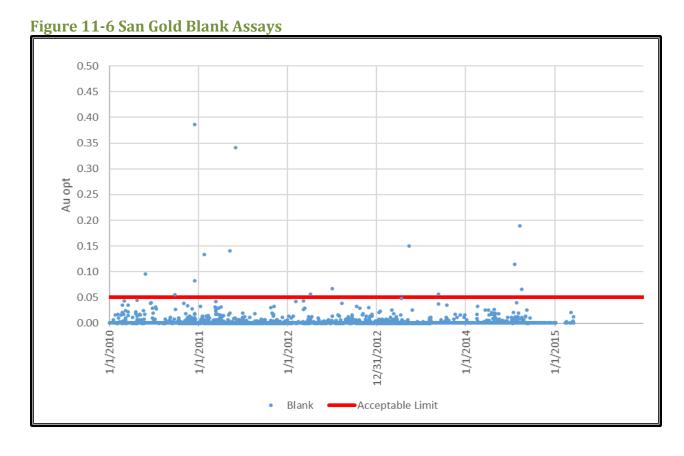
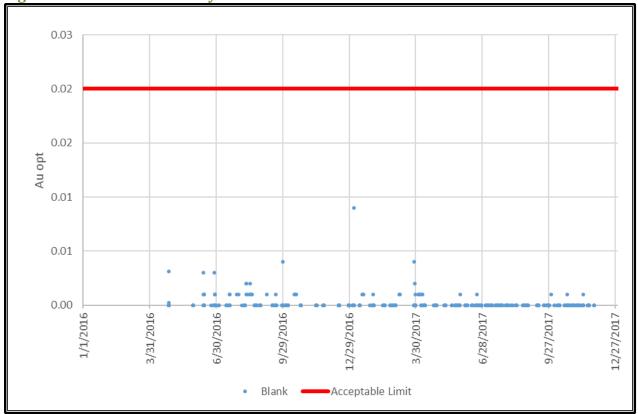


Figure 11-7 KDX Blank Assays



Duplicate samples are inserted by cutting un-mineralized core intervals in half. Lab duplicates are also inserted from pulps or sample rejects which may be sent to a second lab for analysis. The results of 1,574 duplicate assay checks performed since 2010 are shown in Figure 11-8.

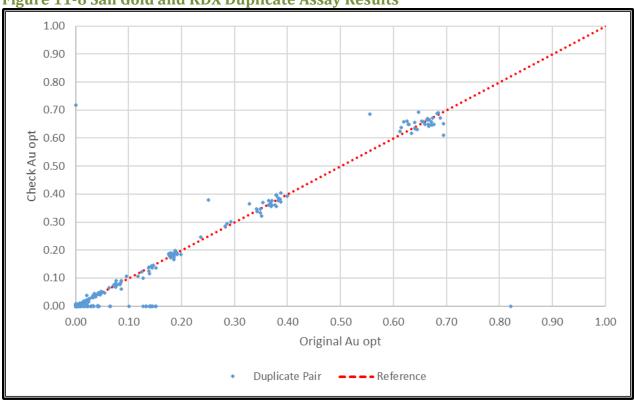


Figure 11-8 San Gold and KDX Duplicate Assay Results

# 11.7. Channel Sample Quality Assurance and Quality Control

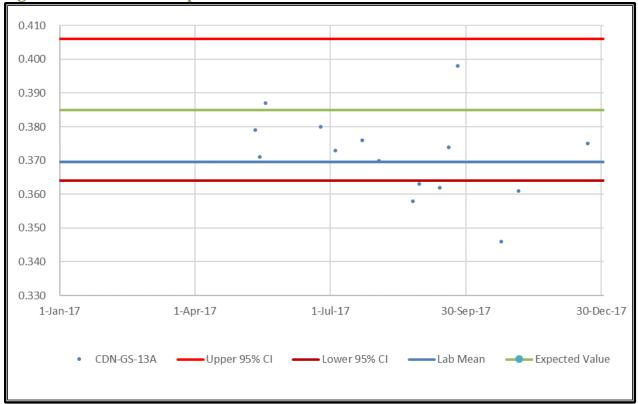
# 11.7.1. Sample Standards

The results of channel sample QA/QC assays are summarized in Table 11-2 and shown graphically in Figure 11-9 through Figure 11-13.

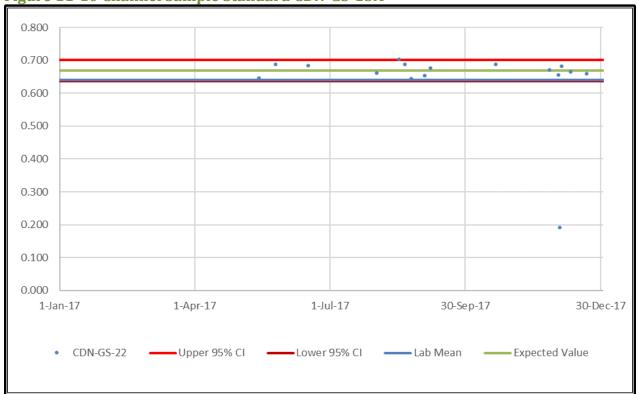
Table 11-2 2017 Channel Sample Standard and Blank Assay Summary

					Ref.	Ref.
				Ref.	Lower	Upper
		Lab Mean	Lab Std.	Value	95% CI	95% CI
ID	Count	(opt)	Dev (opt)	(opt)	(opt)	(opt)
CDN-GS-13A	16	0.370	0.014	0.385	0.364	0.406
CDN-GS-1P5C	17	0.044	0.011	0.045	0.042	0.049
CDN-GS-22	16	0.641	0.121	0.669	0.636	0.702
CDN-GS-6B	18	0.188	0.005	0.188	0.178	0.198
Blank	219	0.004	0.011			0.02

Figure 11-9 Channel Sample Standard CDN-GS-22









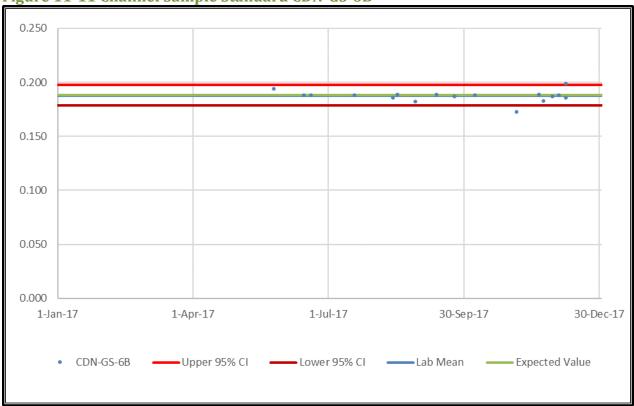
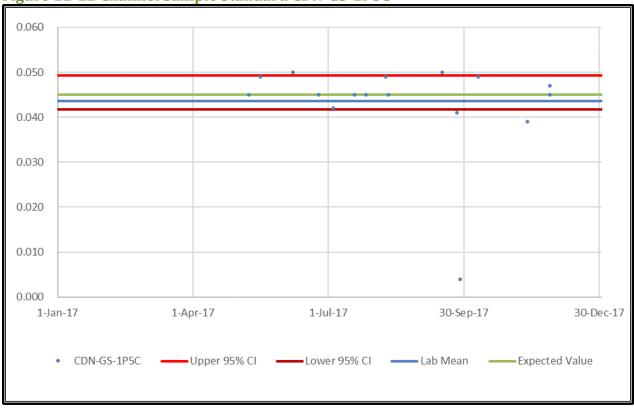


Figure 11-12 Channel Sample Standard CDN-GS-1P5C



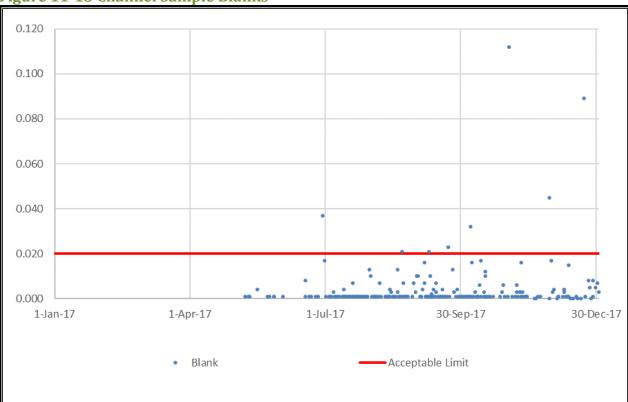


Figure 11-13 Channel Sample Blanks

# 11.7.2. Chip Sample Duplicates

Duplicate assays are run with every set of chip samples. Assay results for the original samples versus duplicates are illustrated in Figure 11-14. Results are routinely reviewed by the Project's Assay Lab.

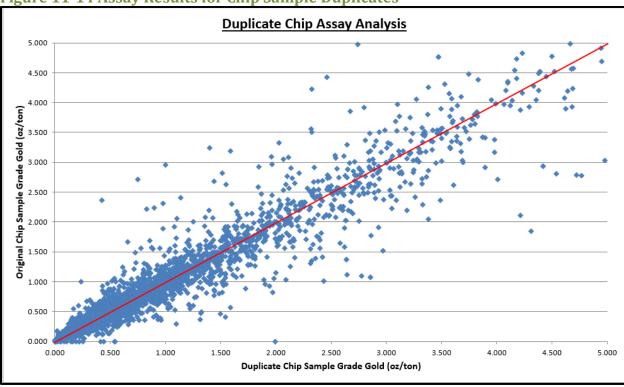


Figure 11-14 Assay Results for Chip Sample Duplicates

# 11.8. Tailings Quality Assurance-Quality Control

#### 11.8.1. Standards and Blanks

Tailings QA/QC results are summarized in Table 11-3. For QA/QC of the historic tailings samples, blind standards are inserted every 25th sample. The standards utilized are Canadian Research Lab standards GS-1L, GS-1P5C, and GS-P6. Assay results for the standards are illustrated in Figure 11-15 through Figure 11-17. Results are routinely reviewed. If the results plot outside the acceptable limits for standards and for blanks, the sample batch is rerun.

Sand blanks are inserted at the sample numbers ending in 40 and 90. The blanks are composed of beach sand, which has been prepared and assay tested at the Project's Assay Lab. Assay results for the blank are illustrated in Figure 11-18.

**Table 11-3 Tailings Blank and Standard Assay Summary** 

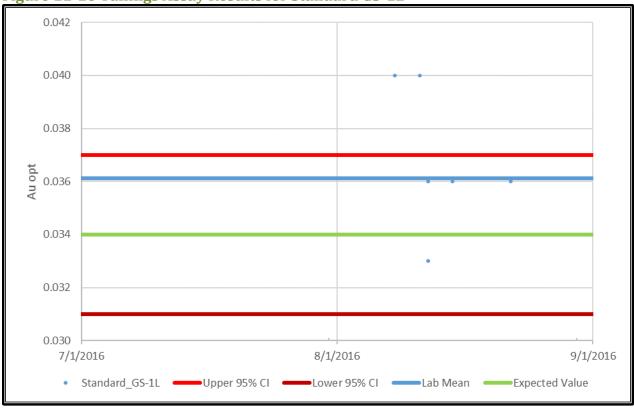
					Ref.	Ref.
				Ref.	Lower	Upper
		Lab Mean	Lab Std.	Value	95% CI	95% CI
ID	Count	(opt)	Dev (opt)	(opt)	(opt)	(opt)
Blanks	10	0.001	0.000	0		0.02
CDN-GS-1P5C	12	0.045	0.011	0.045	0.042	0.049
CDN-GS-1L	8	0.036	0.003	0.034	0.031	0.037

ID					Ref.	Ref.
				Ref.	Lower	Upper
		Lab Mean	Lab Std.	Value	95% CI	95% CI
ID	Count	(opt)	Dev (opt)	(opt)	(opt)	(opt)
CDN GS-P6	5	0.020	0.002	0.018	0.016	0.020

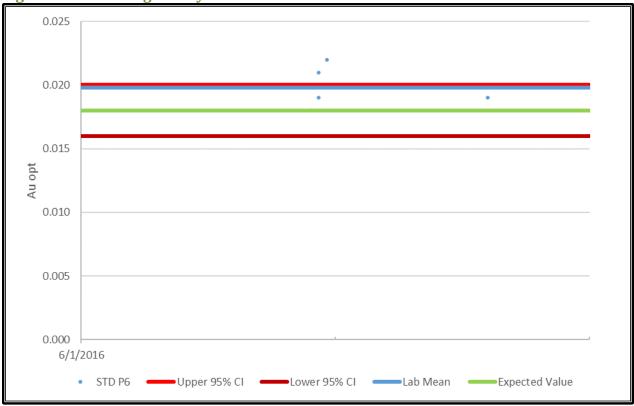




Figure 11-16 Tailings Assay Results for Standard GS-1L







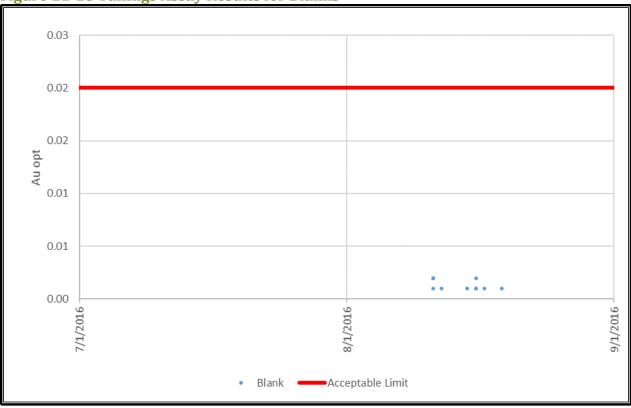


Figure 11-18 Tailings Assay Results for Blanks

#### 11.9. **Recommendations and Conclusions**

PM is of the opinion that the core, channel and tailings sample assay data have been adequately verified for the purposes of a mineral resource estimate. All data included in the resource estimate appear to be of adequate quality.

#### Recommendations are as follows:

- 1) Technical Database: All Project data collected needs to be stored and archived in a permanent and reliable retrieval manner. A full-time database administrator is recommended.
- 2) Quality Assurance/Quality Control: Timely follow-up for any and all QA/QC assay deviations and re-assay requests should be performed in a timely manner. The process should be automated when the database is up and running.
- 3) Sample Storage and Retrieval: Half-core remaining from sample assays should be retained for reference and check assay purposes. All assay sample rejects and pulps should be stored in a safe, secure and sheltered manner and properly catalogued to ease retrieval.

4) Project Assay Lab: Standard operating procedures should be updated, particularly in regard to assay data generation, storage and retrieval.

#### 12. **Data Verification**

P&E examined the True North drill and channel sampling data sets compiled from 2009 through early 2017. Practical Mining examined newly generated data compiled through March 2018. Review of the data demonstrates suitability for use in resource estimation. In addition, P&E retrieved check samples from True North's sample archive and independently submitted them for assay, with results similar to the True North primary samples. P&E also examined data from the True North tailings sampling program. P&E's data verification work is detailed in the May 2017 Technical Report (Odell et al 2017).

Practical Mining requested copies of original raw data reports for five percent of the sample data generated since the effective date of the 2016 Technical Report, including assay lab certificates, surveyor reports and geology logs. Ten drill-holes and 65 channels were selected to represent the data sets spatially and temporally. Mr. Allan Kathler, True North Senior Geologist, provided copies of the data to Practical Mining. The categories of data reviewed include collar location surveys, down-hole surveys, assay results and geology.

#### 12.1. **Drill Data Review**

#### 12.1.1. Collar Location Checks

Collar location survey data match database fields for easting, northing and elevation for eight of the holes. The other two holes did not receive collar surveys due to logistical difficulties. Collars for those holes were placed by geologists based on known survey points. The authors observed the holes in relation to mine survey asbuilts and consider collar locations to be reliable.

#### 12.1.2. Down Hole Survey Checks

All holes reviewed by PM were surveyed for down-hole deviation using Reflex EZ-SHOT survey instruments. A total of 70 survey shot records were reviewed, and 69 matched the database values for depth, azimuth and dip. One shot was excluded from the database due to excessive deviation in the dip, which is standard industry practice. The authors find the survey data to be reliable.

# 12.1.3. Core Assay Checks

All holes reviewed by PM were assayed by TSL Laboratories. A total of 1,728 Au assays of drill samples were checked by comparing the database to lab certificates. All values matched. The authors find the assay data to be reliable. In addition, assay results for 116 standard and blank samples which were submitted as QAQC with the drill samples were checked by comparing the lab certificates with KC's QAQC tables. All values matched, supporting the reliability of the raw data analyzed in Section 11.

# 12.1.4. Geology Checks

Practical Mining viewed each of the ten drill-holes against the modeled veins to confirm that the vein model extents coincide with the drill hole sample interval, and that the estimation flag assigned to each sample interval matches the vein model name. A total of 95 sample intervals with estimation flags were reviewed, and all matched. One sample interval which intersects a vein was missing an estimation flag. Because the unflagged interval has moderate gold grade, it would not be expected to have a significant positive or negative affect on the resource estimation. The interval has been flagged for subsequent estimations. The error of omission reflects only two percent of the data, and the authors find the vein data to be suitable for use in the estimation.

# 12.2. Channel Chip Data Review

# 12.2.1. Collar Location and Channel Bearing Checks

Channels are not routinely surveyed, but are assigned reasonably close spatial locations by the geologist who collects the sample. The locations are based on mine survey asbuilts and measurements collected by the geologist. Channels are collected perpendicular to the direction of mining for a face sample, or parallel to the direction of mining for a rib sample. The authors observed the channels in relation to the mine survey asbuilt using Vulcan software, and also checked the geologist's measurement notes to confirm accurate placement. The channels align well with the asbuilt, and the authors consider the channel location data to be reliable. While the authors observed both face and rib channels, only face channels were used in the resource estimate.

#### 12.2.2. Assay Check

All channels reviewed by PM were assayed by the Project's lab. A total of 255 Au assays of chip samples were checked by comparing the database to lab certificates. Nine mismatches were observed, representing about 4% of the data. This reflects sub-optimal handling of the channel assay data, and the authors recommend that the data manager undertake a thorough review of the channel assays. Because mine production data concur with channel assay data, and the large volume of channel samples, the authors find the channel assay data to be suitable for the current estimation.

# 12.2.3. Geology Check

Practical Mining viewed each of the 65 channels against the modeled veins to confirm that the vein model extents coincide with the channel sample interval, and that the estimation flag assigned to each sample interval matches the vein model name. A total of 175 sample intervals with estimation flags were reviewed, and all matched. The authors find the vein data to be suitable for use in the estimation.

# 12.3. **Conclusions to Data Verification**

The authors conclude the data is suitable for use in this resource estimation.

# 13. Mineral Processing and Metallurgical Testing

Mining and ore processing has been carried out at True North intermittently since the early 1930's. The original process used a gravity concentration step and whole-ore cyanidation using Merrill Crowe gold precipitation. Recoveries with this original plant and process were generally 96%.

In 1980, the original process plant was destroyed by fire except for the crushing plant and fine ore bin feed conveyor. A new process plant was constructed with the same throughput as the original; however, the process was changed to incorporate gravity concentration and a bulk sulfide flotation process.

It was found that by floating the sulfides, a "throwaway tail" could be achieved. The concentrate was reground and upgraded through a cleaner circuit and filtered. The high-grade concentrate was then shipped to a local smelter. Recovery using this process was generally 93%.

In the mid-1990's, the mine was restarted and the process plant was expanded by adding a larger 12-foot by 14-foot (3.8 m x 4.3 m) grinding mill and a cyanide leach circuit for concentrate leaching. The operation was short lived.

In 1998, the operation was restarted again and this time ran for three years at a rate of 1,000 tons (907 tonnes) per day. The process used two-stage crushing followed by grinding, concentration using a centrifugal concentrator, and a bulk sulfide flotation process. This flotation concentrate was reground and sent to a leach/CIP gold recovery plant. The carbon was eluted using a conventional pressure strip followed by electrowinning and subsequent refining. Recovery for the period was calculated as generally 92% (Table 13-1).

**Table 13-1 Harmony Gold - Rice Lake Deposit Metallurgical Results** 

Tons Milled 1990's	Gravity (oz. Au)	EW	Gold Prod'n (oz. Au)	Overall Loss (oz. Au)	Calc. Grade (opt Au)	Gravity Recovery	Overall Recovery
		(oz. Au)					
994,830	58,198	91,297	149,496	13,304	0.164	35.75%	91.83%

When the Hinge Zone was developed, a 3,700-ton (3,357-tonne) bulk sample was treated through the process circuit with no changes having been made to that process. Recovery from this bulk sample was generally 92%. Subsequent samples were processed in May and June of 2009 with recoveries at 96.6% and 97.2% respectively, not shown.

**Table 13-2 Hinge Zone Metallurgical results** 

Tons Milled	Gravity (oz. Au)	EW (oz. Au)	Gold Prod'n (oz. Au)	Overall Loss (oz. Au)	Calc. Grade (opt Au)	Gravity Recovery	Overall Recovery
154,229	6,712	16,608	23,320	1,826	.163	27.30%	92.74%
27,543	742	3,385	4,127	348	.162	16.59%	92.23%
258,469	10,462	21,418	31,880	2,605	.133	27.61%	92.45%

In August 2010, the first bulk sample from the 007 Zone ore was processed. This represented 6,245 tons (5,667 tonnes) grading 0.139 opt Au (4.77 g/t Au) gold with a general recovery of 92%. Additional samples in the months of September and October of 2010 yielded recoveries between 95% and 92%, not shown. Current process plant recovery from all ore is 93.3%, not shown.

**Table 13-3 007 Zone Metallurgical Results** 

Tons Processed	Gravity (oz. Au)	EW	Gold Prod'n (oz. Au)	Overall Loss (oz. Au)	Calc. Grade (opt Au)	Gravity Recovery	Overall Recovery
		(oz. Au)					
24,734	1,015	1,944	2,959	270	0.131	65.78%	91.65%
248,475	17,782	27,716	45,498	3,026	0.195	36.65%	93.76%

Although current operations employ a conventional ball mill as a primary grinding unit, the potential of Semi-Autogenous Grinding (SAG) milling was investigated. Samples of both True North and Hinge Zone mineralized material were sent to both SGS Mineral Services' Lakefield Laboratory (SGS Lakefield) and Starkey & Associates Inc. (Starkey Associates) for testing. Results are listed in Table 13-4 and Table 13-5.

Table 13-4 SGS Lakefield And Starkey Associates Sag Mill Testing Results

Sample Name	Relative Density	JK Parameters		MacPherson Test		Work Indices (kWh/t)		
		Axb	ta	(kg/h)	(kWh/t)	AWI	RWI	BWI
Rice Lake Ore	2.77	74.5	0.34	9.7	8.2	13.9	15.7	14.9
Hinge Ore	2.71	64.4	.038	10.9	7.5	14.5	13.2	16.7

Table 13-5 IKTech Drop-Weight Test Summary

Sample Name	A	b	Axb	Hardness Percentile	ta	Hardness Percentile	Relative Density
Rice Lake Ore	61.7	0.77	47.5	50	0.34	73	2.77
Hinge Ore	91.9	1.04	64.4	30	0.38	65	2.71

Table 13-6 shows additional SGS Lakefield and Starkey & Associates SAG Mill Testing Results.

Table 13-6 More SGS Lakefield And Starkey & Associates Sag Mill Testing Results

Project Identification		SAG Mill Data from SAG Design Test					Ball Mill Data from SAG Design Test							Total
Project Sampl e No.	Client Sampl e Info	Initial Weight grams	No. of Revs	Bulk SG g/cc	SG Solids g/cc	Calc SAG W to 1.7mm kWh/t	Initial Weight grams	Test Feed F80µ	Test Produc t F80 μ	Gpb (Avg last 3 cycles)	SAG Dis. Bond BWI kWh/t	Macro/ Micro Ratio	Calc BMW to P80 kWh/t	Pinion W to P80 kWg/t
1	Zone 1 - Hinge	7715	1123	1.71	2.71	7.72	1303	1409.7	1163	1.516	16.67	0.46	12.23	19.94
2	Zone 2 Rice	7650	1306	1.70	2.84	9.03	1294	1348.4	112.6	1.705	14.93	0.60	10.95	19.97
Averag		7682	1214	1.71	2.78	8.37	1298	1379.0	114.4	1.610	15.80	0.53	11.59	19.96
Std. deviati		46	130	0.01	0.09	0.93	7	43.3	2.7	0.134	1.23	0.10	0.90	.002
Design data											16.67	0.54	12.23	21.25
		SAGDesign Equation for Pinion Energy:					Bond Equation for Pinion Energy:							
		W = Revolutions * (grams+16000)/(447.3*grams)  Note: Calc SAG pinion kWh/t equation calibrated					W = (10*Wi/P80^0.5)*fines factor Note: Calc BM pinion kWh/t is based on P80 105μm							
		for feed					Fines Factor = $(P80 + 10.3)/(1.145*P80)$ 1.00							
		F80 152mm and transfer size T80 170mm					Note: Bond BM Wi test closing Screen 150 μm							

In 2012 several flotation tails samples were leached in cyanide to understand the potential need for building a flotation tails leach circuit at the Project. The samples were tested during two test programs with both programs employing a 24-hour leach on as-received samples at a pH above 10.0. The first program used a cyanide concentration of 2.5 grams per litre cyanide (gpl NaCN) and the second program a concentration of 0.5 gpl NaCN. The results of these two programs are summarized in the Table 13-7 and Table 13-8

Table 13-7 Results Leaching Flotation Tails for 24 Hours at 2.5 gpl NaCN Concentration

<b>Date Sampled</b>	Calc. Head, opt Au	% Recovery	opt Recoverable Gold
10/09/12	0.0100	90.04%	0.0090
10/10/12	0.0062	84.00%	0.0052
10/11/12	0.0074	86.52%	0.0064
10/12/12	0.0071	85.96%	0.0061
10/13/12	0.0100	90.04%	0.0090
10/14/12	0.0086	88.35%	0.0076
10/15/12	0.0119	66.31%	0.0079
10/16/12	0.0157	55.55%	0.0087
10/17/12	0.0071	85.96%	0.0061
10/18/12	0.0081	75.38%	0.0061

10/19/12	0.0083	87.94%	0.0073
10/20/12	0.0092	89.09%	0.0082
10/21/12	0.0095	89.43%	0.0085
10/22/12	0.0077	87.03%	0.0067
10/23/12	0.0077	87.03%	0.0067
10/24/12	0.0083	87.94%	0.0073
10/25/12	0.0105	85.77%	0.0090
10/26/12	0.0271	87.10%	0.0236
10/27/12	0.0103	90.32%	0.0093
10/28/12	0.0095	94.76%	0.0090
10/30/12	0.0071	85.96%	0.0061
10/31/12	0.0088	82.94%	0.0073
11/01/12	0.0065	76.77%	0.0050
11/02/12	0.0097	89.74%	0.0087
Avg.	0.0097	84.58%	0.0081

Table 13-8 Results Leaching Flotation Tails for 24 Hours at 0.5 gpl NaCN Concentration

<b>Date Sampled</b>	Calc. Head, opt Au	% Recovery	opt Recoverable Gold
11/08/12	0.0060	83.22%	0.0050
11/09/12	0.0045	77.78%	0.0035
11/12/12	0.0054	81.39%	0.0044
11/14/12	0.0060	83.22%	0.0050
11/15/12	0.0067	70.00%	0.0047
11/16/12	0.0070	71.25%	0.0050
11/17/12	0.0093	78.47%	0.0073
11/18/12	0.0065	84.71%	0.0055
11/19/12	0.0080	87.50%	0.0070
11/20/12	0.0092	89.09%	0.0082
11/21/12	0.0068	85.36%	0.0058
11/22/12	0.0086	88.35%	0.0076
11/23/12	0.0080	87.50%	0.0070
11/24/12	0.0080	87.50%	0.0070
11/25/12	0.0092	89.09%	0.0082
11/26/12	0.0092	89.09%	0.0082
11/29/12	0.0118	91.52%	0.0108
11/29/12	0.0210	57.05%	0.0120
11/29/12	0.0117	74.47%	0.0087
11/30/12	0.0176	94.33%	0.0166
12/01/12	0.0060	83.22%	0.0050
12/02/12	0.0085	58.62%	0.0050
12/03/12	0.0068	85.36%	0.0058
12/04/12	0.0089	88.73%	0.0079

<b>Date Sampled</b>	Calc. Head, opt Au	% Recovery	opt Recoverable Gold
12/13/12	0.0071	85.96%	0.0061
12/14/12	0.0071	85.96%	0.0061
12/15/12	0.0054	81.39%	0.0044
12/16/12	0.0097	89.74%	0.0087
12/17/12	0.0100	90.04%	0.0090
12/18/12	0.0089	88.73%	0.0079
12/19/12	0.0092	89.09%	0.0082
12/20/12	0.0083	87.94%	0.0073
12/21/12	0.0080	87.50%	0.0070
12/22/12	0.0086	71.01%	0.0061
12/23/12	0.0146	89.74%	0.0131
12/24/12	0.0124	91.92%	0.0114
12/27/12	0.0074	86.52%	0.0064
12/28/12	0.0065	84.71%	0.0055
12/29/12	0.0074	86.52%	0.0064
12/30/12	0.0098	59.32%	0.0058
12/31/12	0.0067	85.05%	0.0057
Avg.	0.0087	82.91%	0.0072

Solid samples have been collected from the tailings storage facility and leached to document potential recoverable gold. Three as-received samples were leached for 72 hours with 1.0 gpl NaCN concentration at a pH of above 10.0. Table 13-9 show the results for these three tests.

**Table 13-9 Results from Leaching Samples from Tailings Storage Facility** 

Sample	Calc. Head, opt Au	% Recovery, 24 hr test	
1	0.0408	80.1%	85.4% 72.4% 85.8%
2	0.0204	67.7%	72.4%
3	0.0408	78.1%	85.8%

Currently, material from the tailings storage facility is being re-processed for gold recovery. Gold recovery from 113,000-tons (103,000 tonnes) of tailings material reprocessed during the period 2016-2017 has averaged 91% at an average head grade of 0.05 opt (1.7 g/t).

#### 14. Mineral Resource Estimates

#### 14.1. **Introduction**

The mineral resource estimate presented herein has been prepared following "CIM Estimation of Mineral Resource and Mineral Reserves Best Practices" guidelines (CIM 2014). Mineral resources have been classified in accordance with the "CIM Standards on Mineral Resources and Reserves: Definition and Guidelines":

- Measured Mineral Resource: "A 'Measured Mineral Resource' is that part of a mineral resource for which quantity, grade or quality, densities, shape, and 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."
- Indicated Mineral Resource: "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."
- Inferred Mineral Resource: "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."

Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no guarantee that all or any part of the mineral resource will be converted into mineral reserve. Confidence in the estimate of Inferred Mineral Resources is insufficient to allow the meaningful application of technical and economic parameters or to enable an evaluation of economic viability worthy of public disclosure.

All mineral resource estimation work reported herein was carried out by Allan Kathler, Senior Geologist at True North, and Anthony Bottrill, Corporate Resource Manager for KDX and reviewed by the authors of this TR. Section 14 is an update of the previous technical report, there were no material changes to the methodologies or assumptions within the estimation process from the previous Technical Report.

Mineral resource modelling and estimation was carried out using Maptek Vulcan software version 10.1. The effective date of this mineral resource estimate is March 31, 2018.

## 14.2. **Underground Resources**

#### 14.2.1. Data Supplied

The cut-off date for the drilling database used for this updated mineral resource estimate is March 31, 2018. The updated database encompasses records for 371,487 assay samples from 7,678 diamond drill-holes and 114,756 assay samples for 30,302 channel strings (Table 14-1). Distance units are reported in feet, and assay grade units are reported as ounce per short ton (opt).

**Table 14-1 True North Database Records** 

Data Type	Record Count	Total Footage
Drill-hole Samples	371,487	760,894
Channel Samples	114,756	262,093
Total Samples	486,243	1,022,987

Industry standard validation checks were completed on the supplied databases, and minor corrections made where necessary. Validations performed included checking for inconsistencies in naming conventions or analytical units, duplicate entries, interval, length or distance values less than or equal to zero, blank or zero-value assay results, out-of-sequence intervals, intervals or distances greater than the reported drill hole length, inappropriate collar locations, and missing interval and coordinate fields. No significant discrepancies with the supplied data were noted.

#### 14.2.2. Bulk Density

There are a total of 7,586 bulk density measurements, with an average value of 2.76 tonnes per cubic meter (0.086 short tons per cubic foot) (Table 14-2). Bulk density was determined by immersion of dried core samples in distilled water.

The average reported bulk density of 2.76 tonnes per cubic meter (0.086 short tons per cubic foot; 11.7 cubic feet per short ton) was used for mineral resource estimation.

**Table 14-2 Bulk Density Sample Statistics** 

	<b>Tonnes per cubic meter</b>	Short tons per cubic foot
Minimum	2.30	0.072
Maximum	4.14	0.129
Average	2.76	0.086
Median	2.77	0.086
Mode	2.75	0.086
Standard Deviation	0.07	0.002
Number of Samples	7,:	586

#### 14.2.3. **Vein Modelling**

The updated mineral resource estimate is based on 73 modelled veins. Of the 73 modelled veins reported herein, 25 modelled veins are unchanged from the 2017 mineral resource, 22 of the newly modeled veins have had depletion applied, 36 modeled veins have been updated with additional information, and 12 modelled veins have been added to the 2018 mineral resource estimate.

Vein models were developed based on a scripted grid modelling workflow using Maptek Vulcan software. Grid modelling is applicable to modelling narrow, continuous geological features such as precious metal veins and coal seams and creates a surface by interpolating a regular grid of points over a modelling area. These grid points are combined with the input intercepts to create output triangulated surfaces that represent the vein hanging wall and footwall contacts. The contacts are combined to create a valid solid triangulation for use in building the resource block model.

The modelling methodology can be summarized as follows:

- 1. Set the vein to be modelled, its overall dip and dip direction, and the Drill-hole and channel databases to be used.
- 2. Extract the hanging wall (HW) and footwall (FW) vein intercepts from the Drill-hole and channel databases.
- 3. Combine interpreted or surveyed HW and FW points to control the vein model interpretation where required.
- 4. Use the dip and dip direction settings to rotate the intercepts to a local flat plane.
- 5. Use inverse distance to contour HW and FW grid surfaces from the input data and perform grid mathematics to ensure HW grid points are always above FW grid.
- 6. Create a triangulation of the HW contact that combines the grid model points with the input intercepts to ensure the final surface is snapped to the input data. Repeat this process for the FW contact. Model specific settings are attached as attributes to the triangulations and also written to a text file for future auditing. Where channel samples are present, channel sampling may override Drill-hole sampling in generating the vein model as Drill-hole

- intercepts may be found to be locally inaccurate. Drill-holes to be ignored are flagged to allow channel samples will take precedence over drilling.
- 7. Produce boundary polygons of the vein contact surfaces to create a boundary triangulation that can be appended to the vein contacts to create a valid solid triangulation.
- 8. Un-rotate the triangulations and intercepts back to their true spatial location.
- 9. Clip the solid vein triangulation to the topography and other vein surfaces as required.
- 10. Build the vein block model. The block model specifications are read directly from the vein extents and overall dip and dip direction used in the vein model creation process. Block sizes along strike and down dip are set to 5.0 ft. x 5.0 ft. to represent local variations in orientation of the vein. Block sizes across the thickness of the vein are designated as a single block across the true width of the vein to a minimum thickness resolution of 0.2 ft. This ensures the local vein orientations and volumes are representative but also rationalizes the size of the final block model.

The modelling technique produces a series of valid triangulated wireframes oriented to the plane of the vein, as well as a corresponding rotated and plunging block model for each vein. The block model corresponding to the vein has constant strike and dip dimensions of 5.0-feet and a variable vein thickness perpendicular to strike.

The vein wireframes were used for volumetrics, sample coding, statistical analysis and compositing limits (Table 14-3).

Table 14-3 Modelled Veins

		Wireframe				Wireframe	-
Model	Vein	Volume (cubic feet)	Wireframe Tons	Model	Vein	Volume (cubic feet)	Wireframe Tons
2018 Update	v1320	1,710,834	147,132	2018 Update	v710	16,117,541	1,386,109
2018 New	V1325	958,866	82,462	2018 Update	v750	3,545,848	304,943
2018 Update	v1330	721,198	62,023	2018 Update	v751	466,414	40,112
2018 Update	v1331	448,807	38,597	2018 Update	v755	1,868,851	160,721
2018 Update	v91	1,831,445	157,504	2018 Update	v756	968,801	83,317
2018 New	V920	123,368	10,610	2018 Update	v757	319,095	27,442
2018 New	V930	500,017	43,001	2018 New	V758	117,837	10,134
2018 New	V940	1,178,173	101,323	2018 New	V759	2,348,981	202,012
2018 Update	v400	6,795,419	584,406	2018 Update	v770	3,868,093	332,656
2018 New	V410	851,715	73,247	2018 New	V780	1,745,998	150,156
2018 Update	v1010	18,277,360	1,571,853	2018 New	V790	34,203	2,941
2018 Update	v1011	1,559,125	134,085	2017	v04	8,614,068	740,810
2018 Update	v1012	1,195,817	102,840	2017	v62	695,815	59,840
2018 Update	v1020	7,316,974	629,260	2016	v63	3,330,105	286,389

2018 Update	v1030	8,675,685	746,109	2017	v072	4,388,856	377,442
2018 Update	v1040	1,456,288	125,241	2017	v84	6,724,538	578,310
2018 Update	v500	1,411,570	121,395	2016	v86	3,981,750	342,431
2018 New	V502	1,129,164	97,108	2017	v98	1,155,709	99,391
2018 Update	v505	2,536,044	218,100	2017	v100	1,856,915	159,695
2018 Update	v507	1,764,908	151,782	2017	v101	1,337,231	115,002
2018 Update	v510	1,878,668	161,565	2016	v200	23,078,214	1,984,726
2018 Update	v511	1,647,144	141,654	2016	v210	9,920,635	853,175
2018 Update	v512	1,565,830	134,661	2017	v700	12,000,717	1,032,062
2018 Update	v513	1,470,615	126,473	2017	v730	12,317,510	1,059,306
2018 Update	v515	3,094,631	266,138	2016	v731	2,482,877	213,527
2018 Update	v520	2,523,743	217,042	2016	v732	1,115,265	95,913
2018 Update	v522	2,441,944	210,007	2017	v800	5,977,515	514,066
2018 Update	v530	645,025	55,472	2017	v810	7,311,945	628,827
2018 Update	v707	1,688,008	145,169	2016	v820	2,103,755	180,923
2018 Update	v708	2,830,909	243,458	2016	vCW2	5,575,025	479,452
2018 New	V709	1,980,918	170,359	2016	vCW3	6,303,789	542,126
2018 Update	v711	6,475,227	556,870	2016	vCW4	9,005,981	774,514
2018 Update	v712	2,432,775	209,219	2017	vSG1	54,522,427	4,688,929
2018 Update	v713	5,065,378	435,623	2016	v1300	4,288,995	368,854
2018 Update	v714	4,428,540	380,854	2016	v1305	1,115,260	95,912
2018 Update	v715	3,578,406	307,743	2017	v1310	2,079,285	178,819
2018 New	V717	1,362,097	117,140				

## 14.2.4. Assay Data

Summary assay statistics were calculated separately by vein for Drill-hole assay samples (Table 14-4) and channel assay samples (Table 14-5).

**Table 14-4 Summary Drill-hole Assay Statistics** 

		7				
Vein Count	Minimum	Maximum	Mean	Std.	CV	
veiii	Count	opt	opt	opt	Deviation	CV
v1011	130	0.001	4.295	0.263	0.51	1.96
v1012	35	0.0011	2.265	0.366	0.52	1.41
v1040	80	0	13.684	0.447	1.82	4.08
v1300	258	0.0001	1.826	0.123	0.19	1.55
v1305	42	0.0001	0.438	0.073	0.08	1.13
v1320	45	0.001	0.45	0.096	0.12	1.21
v1325	53	0	0.688	0.062	0.12	1.96
v1330	48	0	2.623	0.176	0.40	2.29

	G .	Minimum	Maximum	Mean	Std.	OF.
Vein	Count	opt	opt	opt	Deviation	CV
v200	192	0.0001	1.569	0.093	0.21	2.26
v210	112	0.0001	1.988	0.084	0.21	2.55
v63	415	0.0001	2.732	0.174	0.30	1.75
v731	98	0.0001	2.825	0.152	0.41	2.73
v732	127	0.0001	5.229	0.159	0.54	3.36
v820	81	0.001	2.284	0.132	0.33	2.52
v86	338	0.0001	2.22	0.174	0.31	1.76
vCW2	262	0.0001	1.356	0.086	0.17	1.97
vCW3	350	0.0001	6.948	0.149	0.56	3.76
vCW4	331	0.0001	1.632	0.103	0.17	1.68
v04	1,198	0.0001	9.283	0.14	0.51	3.66
v100	97	0.001	1.803	0.154	0.33	2.14
v101	155	0.001	0.365	0.102	0.32	3.17
v500	83	0.001	3.63	0.199	0.48	2.41
v502	56	0.001	3.288	0.144	0.43	3.01
v505	82	0.001	1.709	0.153	0.21	1.39
v507	45	0	2.114	0.154	0.35	2.27
v510	119	0	2.4	0.138	0.27	1.94
v511	72	0	1.66	0.153	0.27	1.78
v512	79	0	2.76	0.133	0.35	2.61
v513	39	0.02	1.306	0.175	0.25	1.43
v515	45	0.001	2.535	0.309	0.53	1.73
v520	53	0	6.713	0.274	0.98	3.59
v522	42	0	7.869	0.341	1.19	3.50
v530	93	0.001	1.19	0.139	0.16	1.18
v707	72	0.0001	1.077	0.065	0.14	2.13
v708	149	0.001	3.67	0.207	0.46	2.23
v709	75	0.001	3.827	0.265	0.65	2.46
v712	139	0	1.353	0.105	0.21	2.00
v715	120	0	0.689	0.053	0.10	1.77
v750	296	0	3.789	0.139	0.27	1.97
v751	83	0	1.93	0.148	0.28	1.89
v755	115	0.001	3.376	0.259	0.50	1.93
v756	43	0.008	4.267	0.675	0.96	1.42
v757	296	0	3.789	0.139	0.27	1.97
v758	0	0	0	0	0.00	0.00
v759	74	0	17.814	0.678	2.35	3.46
v770	276	0	8.271	0.137	0.57	4.11

<b>T</b> 7. •	G 4	Minimum	Maximum	Mean	Std.	CV
Vein	Count	opt	opt	opt	Deviation	CV
v780	14	0.0001	2.598	0.5	0.83	1.66
v790	6	0.036	1.014	0.485	0.42	0.87
v98	255	0.001	3.649	0.127	0.42	3.29
v072	426	0.0001	4.051	0.195	0.40	2.06
v1010	1,018	0	49.673	0.338	2.47	7.29
v1030	293	0	35.062	0.356	2.09	5.86
v1310	183	0.0001	24.701	0.374	1.88	5.03
v1331	40	0	0.989	0.119	0.20	1.65
v62	69	0.0009	2.76	0.313	0.61	1.96
v700	1,986	0.0001	188.785	0.286	4.51	15.75
v730	2,562	0.0001	47.662	0.223	1.29	5.77
v800	700	0.0001	2.574	0.145	0.29	2.01
v810	453	0.0001	3.9	0.173	0.43	2.51
v84	732	0.0001	17.29	0.149	0.70	4.70
v91	337	0	6.58	0.205	0.46	2.25
v920	11	0	1.9	0.426	0.59	1.39
v930	34	0.01	1	0.169	0.22	1.32
v940	43	0	1.32	0.19	0.26	1.37
vSG1	1,632	0.0001	1.209	0.061	0.13	2.07
v1020	499	0.0001	3.459	0.161	0.37	2.30
v400	643	0	13.9	0.213	0.87	4.10
v410	58	0.001	2.368	0.168	0.34	2.01
v710	1,618	0	25.547	0.272	0.96	3.54
v711	442	0	4.842	0.192	0.50	2.58
v713	412	0	2.669	0.187	0.33	1.77
v714	199	0	1.781	0.151	0.30	1.97
v717	73	0	1.958	0.124	0.29	2.29

**Table 14-5 Summary Channel Sample Assay Statistics** 

		Minimum	Maximum	Mean	Std.	
Vein	Count	opt	opt	opt	Deviation	CV
v04	990	0.001	23.142	0.425	1.31	3.09
v072	833	0.0001	23.02	0.485	1.37	2.82
v100	119	0.001	2.7	0.221	0.48	2.17
v101	125	0.001	3.5	0.222	0.46	2.06
v1010	241	0.001	45.835	0.445	3.01	6.76
v1011	97	0.001	3.477	0.245	0.46	1.89

		Minimum	Maximum	Mean	Std.	
Vein	Count	opt	opt	opt	Deviation	CV
v1020	337	0.001	7.753	0.208	0.53	2.54
v1030	391	0.001	5.188	0.254	0.51	2.01
v1300	17	0.02	0.51	0.158	0.14	0.87
v1310	468	0.001	48.038	0.754	3.40	4.51
v400	1,060	0	28.044	0.295	1.26	4.26
v410	10	0.059	1.166	0.384	0.34	0.87
v500	17	0.001	0.192	0.067	0.06	0.84
v62	5	0.001	0.17	0.046	0.07	1.51
v63	83	0.0001	3.78	0.32	0.63	1.97
v700	293	0.001	9.436	0.215	0.77	3.60
v710	1,743	0.001	30.42	0.354	1.30	3.66
v711	261	0.001	14.122	0.575	1.36	2.37
v712	27	0.001	2.714	0.362	0.56	1.54
v713	158	0	6.947	0.307	0.72	2.35
v714	7	0.059	0.886	0.316	0.30	0.95
v717	64	0.001	1.72	0.19	0.34	1.77
v730	201	0.0001	25.83	0.254	1.85	7.27
v732	3	0.017	0.046	0.029	0.02	0.53
v750	108	0.003	0.734	0.133	0.15	1.11
v751	64	0.001	3.829	0.171	0.48	2.78
v756	9	0.013	6.088	1.665	1.99	1.19
v757	64	0.001	7.565	0.511	1.04	2.03
v758	37	0.005	2.316	0.282	0.47	1.65
v770	9	0.047	3.546	0.493	1.08	2.19
v780	84	0.001	1.555	0.231	0.32	1.38
v790	33	0.001	19.454	1.127	3.33	2.96
v800	341	0.001	19.269	0.334	1.24	3.73
v810	257	0.001	7.527	0.286	0.71	2.48
v84	556	0.001	60.5	0.748	4.22	5.63
v86	293	0.001	16.81	0.401	1.06	2.63
v91	175	0.001	2.343	0.236	0.34	1.43
V920	18	0.052	1.562	0.381	0.41	1.09
V930	14	0.045	0.74	0.241	0.19	0.81
V940	31	0.001	1.965	0.423	0.52	1.22
vSG1	3,202	0.0001	3.89	0.12	0.21	1.73

#### 14.2.5. Compositing

Drill-hole assay sample lengths within the updated veins range from 0.1-foot to 10.0-feet with an average sample length of 1.6-feet. Channel assay sample lengths within the defined veins range from 0.3-feet to 10.0-feet with an average sample length of 2.3-feet. A maximum length of 10.0-feet was selected for compositing in order to generate single intercept composites across the width of the vein. Drill-hole assay samples were capped at 10.0 opt prior to compositing

Where drill-holes were oriented sub-parallel to the strike of a particular vein, they may not representative of local mineralization. In these cases the drill-holes were excluded from the compositing process for that vein.

Length-weighted composites were calculated within the defined vein. Missing sample intervals or zero-grade assay intervals were assigned a value of 0.001 opt. The compositing process started at the first point of intersection between the Drill-hole and the vein intersected, and halted on exit from the vein wireframe. All residual composites were retained. The wireframes that represent the interpreted veins were also used to back-tag a rock code field into the assay and composite workspaces. The resulting composite data were visually validated against vein wireframes. Summary statistics were calculated separately by vein for the composite samples (Table 14-6).

**Table 14-6 Summary Composite Statistics by Vein** 

		Minimum	Maximum	Mean	Std.	
Vein	Count	opt	opt	opt	Deviation	CV
v1320	24	0.001	0.237	0.056	0.07	1.26
V1325	33	0.001	0.252	0.029	0.06	1.94
v1330	21	0.001	1.348	0.140	0.24	1.72
v1331	22	0.001	0.532	0.084	0.11	1.28
v91	262	0.001	2.632	0.127	0.19	1.46
V920	30	0.001	0.963	0.367	0.32	0.87
V930	52	0.001	1.000	0.107	0.13	1.22
V940	79	0.001	1.172	0.146	0.24	1.63
v400	859	0.000	10.000	0.166	0.46	2.78
V410	102	0.000	1.166	0.081	0.18	2.17
v1010	1099	0.000	10.000	0.109	0.38	3.44
v1011	198	0.000	1.629	0.075	0.17	2.32
v1012	21	0.000	0.857	0.176	0.28	1.58
v1020	446	0.000	2.894	0.082	0.25	3.02
v1030	638	0.000	3.407	0.077	0.20	2.62
v1040	64	0.000	3.368	0.138	0.39	2.82
v500	53	0.001	0.870	0.115	0.17	1.44
V502	47	0.000	1.249	0.055	0.12	2.15

		Minimum	Maximum	Mean	Std.	
Vein	Count	opt	opt	opt	Deviation	CV
v505	45	0.001	0.428	0.089	0.10	1.11
v507	30	0.001	0.671	0.094	0.11	1.19
v510	140	0.001	1.012	0.053	0.10	1.97
v511	114	0.001	1.307	0.045	0.15	3.28
v512	86	0.001	1.478	0.055	0.14	2.62
v513	30	0.000	0.297	0.055	0.09	1.61
v515	52	0.001	1.214	0.060	0.18	2.93
v520	38	0.000	1.669	0.127	0.35	2.79
v522	29	0.001	1.976	0.189	0.44	2.32
v530	107	0.001	0.625	0.043	0.08	1.77
v707	42	0.000	0.388	0.020	0.04	1.97
v708	50	0.001	1.060	0.122	0.25	2.02
V709	39	0.001	10.000	1.255	2.76	2.20
v711	394	0.000	6.867	0.215	0.80	3.70
v712	181	0.000	1.033	0.048	0.14	2.95
v713	328	0.000	2.843	0.107	0.20	1.85
v714	229	0.000	0.841	0.063	0.14	2.14
v715	52	0.001	1.214	0.060	0.18	2.93
V717	112	0.000	0.972	0.065	0.15	2.33
v710	1530	0.000	7.565	0.178	0.39	2.17
v750	212	0.000	0.931	0.068	0.15	2.13
v751	96	0.000	1.300	0.092	0.21	2.26
v755	42	0.000	0.226	0.045	0.06	1.29
v756	131	0.000	6.929	0.345	0.98	2.85
v757	91	0.000	7.565	0.346	0.96	2.78
V758	39	0.001	1.749	0.140	0.29	2.08
V759	38	0.000	10.000	0.399	1.56	3.91
v770	295	0.000	4.284	0.063	0.26	4.08
V780	114	0.000	3.754	0.134	0.31	2.29
V790	39	0.001	10.000	1.255	2.76	2.20
v04	1168	0.000	6.419	0.198	0.54	2.70
v62	35	0.001	2.760	0.265	0.59	2.23
v63	171	0.001	2.000	0.178	0.24	1.35
v072	447	0.000	6.451	0.417	0.64	1.53
v84	390	0.001	10.000	0.357	0.99	2.78
v86	433	0.001	16.810	0.239	0.92	3.82
v98	939	0.000	10.000	0.415	0.85	2.06
v100	95	0.000	2.340	0.182	0.35	1.91
v101	156	0.000	1.450	0.107	0.23	2.18
v200	99	0.000	0.896	0.053	0.11	2.05

		Minimum	Maximum	Mean	Std.	
Vein	Count	opt	opt	opt	Deviation	CV
v210	31	0.000	1.988	0.139	0.36	2.57
v700	646	0.000	4.719	0.135	0.37	2.77
v730	634	0.001	25.830	0.218	1.11	5.07
v731	40	0.000	0.670	0.080	0.15	1.81
v732	30	0.000	0.721	0.105	0.17	1.65
v800	410	0.001	19.269	0.236	1.04	4.40
v810	240	0.000	3.900	0.163	0.39	2.39
v820	56	0.001	0.793	0.054	0.13	2.39
vCW2	114	0.000	0.675	0.070	0.10	1.48
vCW3	162	0.000	6.948	0.139	0.56	4.06
vCW4	161	0.000	0.868	0.073	0.12	1.61
vSG1	1656	0.001	1.639	0.101	0.13	1.30
v1300	163	0.001	0.709	0.078	0.11	1.44
v1305	35	0.000	0.168	0.040	0.05	1.26
v1310	457	0.000	48.038	0.633	2.87	4.52

#### 14.2.6. Treatment of Extreme Values

Grade capping analysis was conducted on the vein-coded and composited grade data in order to evaluate the potential influence of extreme values during Au grade estimation. The presence of high-grade outliers was identified by examination of histograms and log-probability plots. Composites were capped to the selected value prior to estimation.

In addition, due to the highly channelized nature of the mineralization a 25.0-foot high yield range restriction on samples greater than the 97.5th percentile of the local vein composite data set was used during the first Au grade estimation pass for the updated veins (Table 14-7).

**Table 14-7 Composite Capping Levels** 

Vein	Cap (opt)	High Yield (opt)	Vein	Cap (opt)	High Yield (opt)
V1320	1	0.5	V710	2.8	1.378
V1325	1	0.5	V750	1	0.436
V1330	1	1	V751	1.1	0.665
V1331	1	0.5	V755	1	0.5
V91	3	0.762	V756	4	2.463
V920	1	1	V757	2.748	1.263
V930	1	0.65	V758	1.25	1.25
V940	1	0.9	V759	4.5	4.5
V400	6	1.36	V770	3	0.5
V410	1	0.627	V780	1.5	1.25

Vein	Cap (opt)	High Yield (opt)	Vein	Cap (opt)	High Yield (opt)
V1010	5	1.184	V790	2.7	1.554
V1011	1.4	0.994	V04	3	1.529
V1012	5	0.857	V62	5	0.5
V1020	2	0.6	V63	5	0.5
V1030	2	0.839	V072	5	1.67
V1040	5	0.6	V84	7	0.889
V500	1	0.87	V86	5	1.35
V502	1	0.453	V98	8	2.85
V505	1	0.415	V100	2	1.209
V507	1	0.5	V101	1	0.782
V510	1	0.34	V200	5	0.304
V511	2	0.456	V210	5	0.6
V512	2	0.616	V700	2.4	0.93
V513	1	0.5	V730	4	1.254
V515	1	0.5	V731	5	0.667
V520	1	0.5	V732	5	0.65
V522	1	0.79	V800	3	0.991
V530	1	0.323	V810	2	0.976
V707	1	0.5	V820	5	0.361
V708	1	1	VCW2	5	0.462
V709	1	1	VCW3	2	0.512
V711	2.5	1.822	VCW4	5	0.352
V712	1	0.511	VSG1	1	0.426
V713	1.4	0.976	V1300	5	0.382
V714	1	0.585	V1305	5	5
V715	1	0.5	V1310	9	3.476
V717	1	0.817			

### 14.2.7. Au Grade Estimation, Classification and Minimum Width

The mineral resource estimate reported herein was constrained by vein wireframes that form hard boundaries between their respective composite sample extents. All Au block grades were estimated using a triple pass Inverse Distance cubed ("ID3") weighting of between four and twelve capped composite grades from two or more drill-holes. In addition, due to the varying sample spacing supports of the data, a declustering weighting factor was applied during Au grade estimation. A discretization level of 4 x 4 x 1 was used for the updated veins.

During the first pass, Drill-hole and channel samples were selected using an anisotropic search with a radius of 50.0 ft x 50.0 ft x 25.0 ft. All blocks estimated during the first pass were algorithmically assigned a classification of Measured.

During the second pass, Drill-hole samples were selected using an anisotropic search with a radius of 100.0 ft x 100 ft x 50 ft. For the second pass, estimation was implemented using a 25.0 ft. by 25.0 ft. parent block size. All blocks estimated during the second pass were algorithmically assigned a classification of Indicated.

During the third pass, Drill-hole samples were selected using an anisotropic search with a radius of 500.0 ft x 500 ft x 150 ft. For the third pass, estimation was implemented using a 50.0 ft. by 50.0 ft. parent block size. All blocks estimated during the third pass were algorithmically assigned a classification of Inferred.

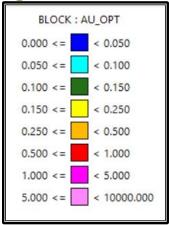
Blocks that did not meet the minimum sample requirements were not estimated.

A Nearest Neighbor model ("NN") was also generated simultaneously for use in validation reporting.

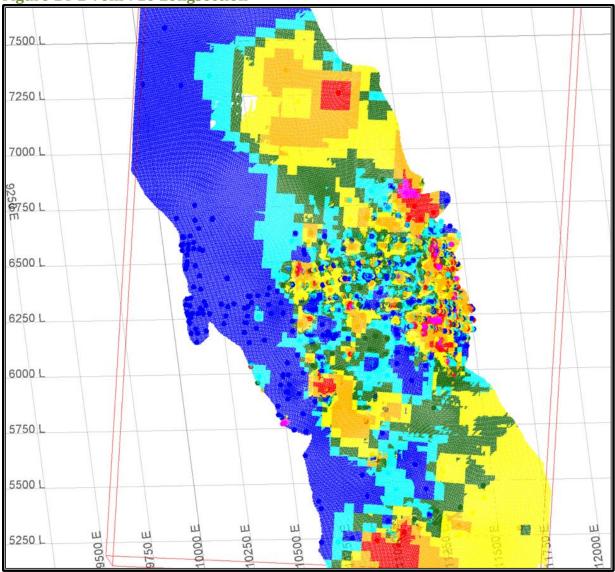
#### 14.2.8. Block Model Validation

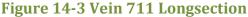
The block models were validated visually in long section in order to confirm that the block models correctly reflect the distribution of high-grade and low-grade values. Long section plots of V710 and V711 for gold estimates are compared in Figure 14-2 and Figure 14-3 and the color legend represented in Figure 14-1.

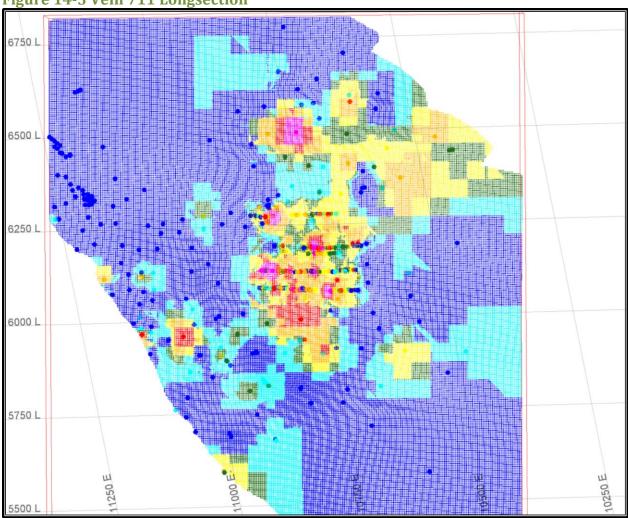
**Figure 14-1** 











Drift analysis plots were created for all modelled veins to compare the average grade of ID3 estimate to a nearest neighbor estimate spatially through the models. Plots were created for swaths along strike (X) and down dip (Z) and examples for V710 and V711 are plotted in Figure 14-4 through Figure 14-7 for Measured and Indicated resources.

Figure 14-4 710 Vein Swath Plot X

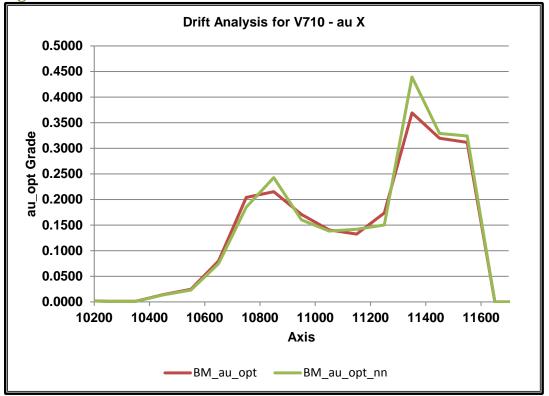


Figure 14-5 710 Vein Swath Plot Z

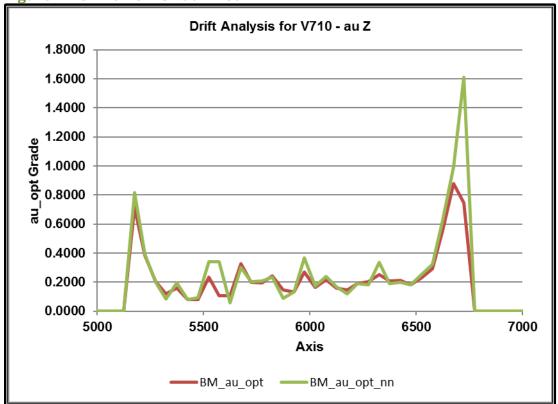


Figure 14-6 711 Vein Swath Plot X

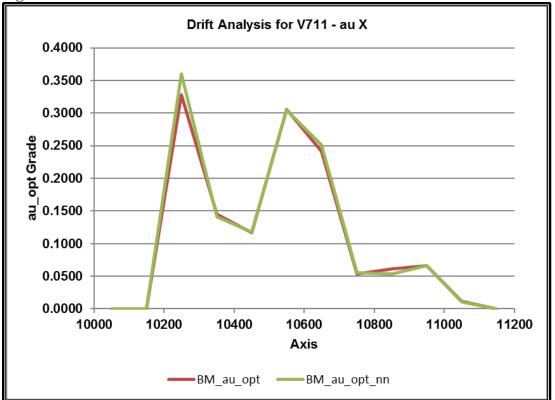
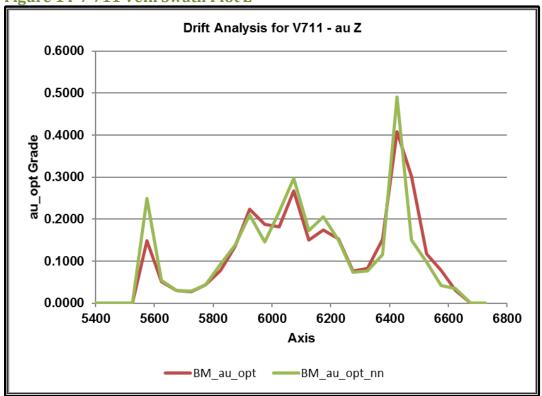


Figure 14-7 711 Vein Swath Plot Z



Comparative raw statistics comparing the resource estimates with the nearest neighbor were generated and compared in Table 14-8.

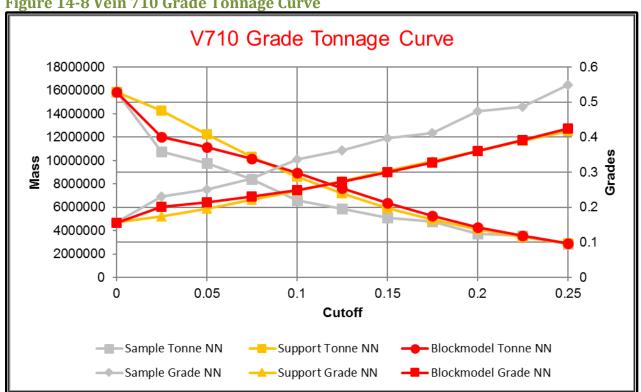
**Table 14-8 Block Model Validation Grades** 

<b>T</b> 7 •	ID3 Mean	NN Mean		<b>T</b> 7 •	ID3 Mean	NN Mean	
Vein	opt	opt		Vein	opt	opt	
V1320	0.061	0.053		V710	0.130	0.129	
V1325	0.028	0.027		V750	0.098	0.101	
V1330	0.105	0.096		V751	0.076	0.070	
V1331	0.091	0.104		V755	0.047	0.043	
V91	0.110	0.109		V756	0.218	0.152	
V920	0.312	0.267		V757	0.166	0.143	
V930	0.087	0.078		V758	0.157	0.228	
V940	0.082	0.075		V759	0.303	0.203	
V400	0.140	0.117		V770	0.085	0.086	
V410	0.112	0.123		V780	0.109	0.088	
V1010	0.078	0.076		V790	0.314	0.292	
V1011	0.056	0.060		V04	0.070	0.074	
V1012	0.189	0.178		V62	0.090	0.188	
V1020	0.065	0.067		V63	0.129	0.104	
V1030	0.058	0.060		V072	0.152	0.163	
V1040	0.181	0.166		V84	0.072	0.135	
V500	0.127	0.141		V86	0.075	0.090	
V502	0.060	0.058		V98	0.099	0.100	
V505	0.093	0.090		V100	0.129	0.123	
V507	0.086	0.063		V101	0.071	0.056	
V510	0.045	0.050		V200	0.048	0.053	
V511	0.051	0.048		V210	0.083	0.127	
V512	0.042	0.039		V700	0.074	0.071	
V513	0.057	0.057		V730	0.066	0.067	
V515	0.051	0.049		V731	0.122	0.104	
V520	0.091	0.081		V732	0.112	0.109	
V522	0.195	0.182		V800	0.089	0.089	
V530	0.066	0.076		V810	0.071	0.069	
V707	0.022	0.019		V820	0.042	0.030	
V708	0.088	0.057		VCW2	0.071	0.061	
V709	0.154	0.188		VCW3	0.081	0.086	
V711	0.083	0.078		VCW4	0.061	0.056	
V712	0.036	0.036		VSG1	0.052	0.049	

Vein	ID3 Mean opt	NN Mean opt	Vein	ID3 Mean opt	NN Mean opt
V713	0.081	0.074	V1300	0.054	0.058
V714	0.050	0.048	V1305	0.041	0.040
V715	0.024	0.028	V1310	0.176	0.151
V717	0.079	0.069			

Smoothing checks were created using Discrete Gaussian change of support to compare the block estimates to a theoretical grade tonnage curve based on the nearest neighbor data distribution, a variogram representing the grade continuity of the vein, and a block size for selectivity. The theoretical tons and grade is a spatial estimate that serves as a general comparison tool to ensure there is no significant over or under estimation of the tons and grade and subsequent metal above a cutoff. The Sample grade tonnage curve shows the curve at maximum ore/waste selectivity as the upper, but unrealistic, end member. For V710, the block estimated tons and grade compares very well to the theoretical support tons and grade across a range of cutoffs that encompass the typical range of production cutoff grades for this deposit (Figure 14-8). The subsequent metal remains within 5% for all cutoffs.





For the V711, the theoretical tons and grade are smoother than the block estimated tons and grade across the range of cutoffs that encompass the typical range of production cutoff grades for this deposit but the results are within acceptable limits and the metal above cutoff remains within 5% (Figure 14-9).

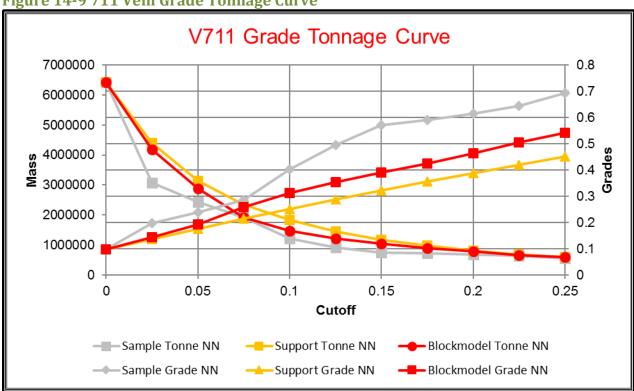


Figure 14-9 711 Vein Grade Tonnage Curve

As a further check of the mineral resource model the total volume reported at zero Au cut-off was compared by vein with the calculated volume of the defining mineralization wireframe (Table 14-9). All reported volumes fall within acceptable tolerances.

**Table 14-9 Volume Comparison** 

Vein	Wireframe Volume (cubic feet)	Block Volume (cubic feet)		Vein	Wireframe Volume (cubic feet)	Block Volume (cubic feet)
V1320	1,710,834	1,690,363		V513	1,470,615	1,460,748
V1325	958,866	947,101		V515	3,094,631	3,067,980
V1330	721,198	720,474		V520	2,523,743	2,519,079
V1331	448,807	442,584		V522	2,441,944	2,415,401
V91	1,831,445	1,769,572		V530	645,025	645,772
V920	123,368	134,265		V1010	18,277,360	18,184,565
V930	500,017	499,648		V1011	1,559,125	1,542,574

	Wireframe				Wireframe	
	Volume (cubic	Block Volume			Volume (cubic	Block Volume
Vein	feet)	(cubic feet)		Vein	feet)	(cubic feet)
V940	1,178,173	1,142,014		V1012	1,195,817	1,183,829
V400	6,795,419	6,790,420		V1020	7,316,974	7,265,988
V410	851,715	856,436		V1030	8,675,685	8,628,650
V707	1,688,008	1,667,216		V1040	1,456,288	1,434,025
V708	2,830,909	2,802,408		V04	8,614,068	8,433,816
V709	1,980,918	1,983,928		V62	695,815	696,313
V711	6,475,227	6,429,786		V63	3,330,105	3,425,009
V712	2,432,775	2,435,736		V072	4,388,856	4,388,991
V713	5,065,378	5,096,918		V84	6,724,538	5,863,299
V714	4,428,540	4,429,086		V86	3,981,750	3,988,093
V715	3,578,406	3,559,784		V98	1,155,709	1,175,592
V717	1,362,097	1,372,616		V100	1,856,915	1,826,021
V710	16,117,541	16,147,174		V101	1,337,231	1,316,472
V750	3,545,848	3,537,781		V200	23,078,214	25,549,080
V751	466,414	469,417		V210	9,920,635	11,320,757
V755	1,868,851	1,865,991		V700	12,000,717	12,088,160
V756	968,801	964,818		V730	12,317,510	12,526,653
V757	319,095	358,295		V731	2,482,877	2,482,616
V758	117,837	115,988		V732	1,115,265	1,115,264
V759	2,348,981	2,324,809		V800	5,977,515	5,977,193
V770	3,868,093	3,827,122		V810	7,311,945	7,359,619
V780	1,745,998	1,755,889		V820	2,103,755	2,105,643
V790	34,203	49,206		VCW2	5,575,025	6,389,382
V500	1,411,570	1,404,006		VCW3	6,303,789	7,081,996
V502	1,129,164	1,103,299		VCW4	9,005,981	11,431,644
V505	2,536,044	2,484,945		VSG1	54,522,427	64,501,083
V507	1,764,908	1,740,941		V1300	4,288,995	4,291,264
V510	1,878,668	1,852,069		V1305	1,115,260	1,115,306
V511	1,647,144	1,638,104		V1310	2,079,285	2,079,014
V512	1,565,830	1,541,021				

# 14.2.9. Underground Mineral Resource Estimate

Underground Mineral Resources are presented in Table 14-10 and Table 14-11. Underground Mineral Resources include sufficient barren waste dilution to achieve a minimum mining width of four feet or the vein thickness plus two feet whichever is greater and an additional 10% unplanned

dilution. Additional parameters used in the estimation of Underground Mineral Resources are as follows;

- Mining processing and administrative costs of US\$130 per ton;
- Metallurgical gold recovery of 93%;
- Gold price of US\$1,400 per ounce, and;
- Cut-off grade of 0.100 Au opt.

Table 14-10 Total Mineral Resources as of March 31, 2018

		Measured	l		Indicated			Measured and Indicated			Inferred			
Cut-off	Tons		Au oz	Tons		Au oz	Tons		Au oz	Tons		Au oz		
Au opt	(000's)	Au opt	(000's)	(000's)	Au opt	(000's)	(000's)	Au opt	(000's)	(000's)	Au opt	(000's)		
0.090	676	0.195	132	1,589	0.204	324	2,264	0.201	456	4,301	0.155	668		
0.100	599	0.209	125	1,409	0.219	308	2,007	0.216	433	3,586	0.169	605		
0.110	534	0.222	118	1,259	0.233	293	1,793	0.230	411	3,058	0.181	553		
0.120	479	0.235	112	1,117	0.249	278	1,596	0.244	390	2,647	0.192	509		

Notes

- 1. Mineral resources which are not mineral reserves do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, marketing, or other relevant issues.
- 2. Mineral resources were estimated using the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), CIM Standards on Mineral Resources and Reserves, Definitions and Guidelines prepared by the CIM Standing Committee on Reserve Definitions and adopted by CIM Council.
- 3. The quantity and grade of reported Inferred resources in this estimation are uncertain in nature and there has been insufficient exploration to define these inferred resources as an Indicated or Measured mineral resources.
- 4. Contained metal may differ due to rounding.

Table 14-11 Detail of the Resource by Vein

		Meas	sured			Indic	ated		Me	asured a	nd Indica	ted	Inferred			
	Vein				Vein				Vein				Vein	_		
Vein	Width ft	Tons 000's	Au ont	Au oz 000's	Width ft	Tons 000's	Au ont	Au oz 000's	Width ft	Tons 000's	Anont	Au oz 000's	Width ft	Tons 000's	Anomt	Au oz 000's
veiii	п	000 8	Au opt	000 S	11	000 8	Au opt	000 S	п	000 S	Au opt	000 S	It	000 8	Au opt	000 S
v710	9.8	95	0.195	19	8.6	150	0.239	36	9.1	245	0.222	54	5.2	490	0.158	77
v1010	12.7	17	0.330	6	7.4	76	0.214	16	8.9	38	0.790	30	6.8	259	0.180	47
v759	4.3	0	0.682	0	8.9	38	0.791	30	6.8	83	0.273	23	5.3	73	0.240	17
v400	5.8	18	0.161	3	5.1	27	0.240	6	8.5	93	0.236	22	6.1	132	0.245	32
v1020	6.2	9	0.115	1	14.5	65	0.126	8	12.8	109	0.186	20	16.0	242	0.129	31
v210	8.1	10	0.180	2	8.7	37	0.327	12	5.6	80	0.222	18	6.6	103	0.213	22
v522	10.6	0	0.112	0	9.0	9	0.197	2	7.3	94	0.187	18	6.6	176	0.182	32
v750	6.7	12	0.135	2	6.6	25	0.179	5	8.6	48	0.294	14	6.4	109	0.246	27
v709					5.1	8	0.217	2	4.7	31	0.405	12	4.1	137	0.220	30
v700	10.7	10	0.165	2	10.4	14	0.129	2	6.6	67	0.176	12	10.9	180	0.155	28
vsg1	3.9	2	0.147	0	5.1	12	0.284	3	4.4	44	0.253	11	5.0	95	0.286	27
v711	6.5	12	0.198	2	7.4	82	0.186	15	7.8	59	0.165	10	6.9	72	0.127	9

	Measured				Indic	cated		Ме	asured a	nd Indica	ted		Infe	erred		
	Vein	2.2040	-		Vein				Vein				Vein	2		
Vein	Width ft	Tons 000's	Au opt	Au oz 000's	Width ft	Tons 000's	Au opt	Au oz 000's	Width ft	Tons 000's	Au opt	Au oz 000's	Width ft	Tons 000's	Au opt	Au oz 000's
v730	14.0	17	0.220	4	12.6	92	0.180	17	7.8	46	0.202	9	11.0	50	0.117	6
v713	6.2	16	0.226	4	7.0	66	0.284	19	5.4	45	0.209	9	4.2	16	0.131	2
v86	6.6	37	0.177	7	6.7	30	0.176	5	13.5	75	0.124	9	5.8	92	0.131	12
v63	5.7	40	0.227	9	5.5	40	0.217	9	4.2	29	0.316	9	2.9	16	0.371	6
v756	3.1	4	0.242	1	4.9	26	0.432	11	10.0	32	0.241	8	5.0	37	0.221	8
vcw4	4.9	1	0.142	0	5.0	40	0.164	7	4.9	41	0.163	7	5.1	79	0.164	13
v1030	9.5	10	0.262	3	7.3	36	0.187	7	11.8	26	0.253	7	19.6	62	0.149	9
v770	15.7	4	0.287	1	14.4	7	0.255	2	3.6	26	0.258	7	7.4	109	0.139	15
v200	10.0	3	0.186	1	8.2	20	0.192	4	6.6	37	0.165	6	7.0	94	0.132	12
v84	2.9	2	0.428	1	2.5	14	0.229	3	4.9	37	0.163	6	3.2	85	0.150	13
v1310	4.4	25	0.343	8	3.1	4	0.163	1	6.0	27	0.216	6	2.6	43	0.162	7
v731	4.7	31	0.284	9	3.3	13	0.181	2	7.5	34	0.165	6	3.5	21	0.218	5
vcw3	8.8	4	0.132	0	4.4	34	0.167	6	6.1	38	0.142	5	4.5	63	0.145	9
v1012	2.8	0	0.119	0	3.7	6	0.136	1	5.7	26	0.200	5	3.3	100	0.137	14
v810	4.5	1	0.180	0	3.8	16	0.193	3	5.7	18	0.253	5	2.9	57	0.178	10
vcw2	5.8	5	0.223	1	6.0	22	0.214	5	8.5	24	0.191	5	5.0	44	0.166	7
v100	3.6	15	0.227	3	3.6	11	0.299	3	8.5	24	0.178	4	3.5	51	0.125	6
v500	5.4	2	0.111	0	6.4	19	0.122	2	2.6	16	0.251	4	9.5	75	0.137	10
v91	4.3	5	0.121	1	5.5	14	0.165	2	5.7	19	0.196	4	4.3	45	0.185	8
v072	5.9	8	0.307	2	5.6	10	0.214	2	4.9	13	0.267	4	4.0	55	0.117	6
v505	9.4	27	0.165	5	5.9	31	0.165	5	3.4	20	0.173	3	3.8	7		1
v780	8.9	16	0.263	4	11.2	15	0.218	3	10.5	23	0.144	3	13.1	13	0.201	3
v708	13.2	14	0.193	3	9.8	12	0.323	4	3.9	17	0.191	3	4.3	25	0.127	3
v520	5.3	0	0.129	0	4.5	13	0.207	3	7.2	21	0.152	3	5.3	45	0.153	7
v714	9.9	3	0.188	1	7.2	30	0.163	5	4.6	15	0.206	3	4.2	20	0.117	2
v1300	6.0		0.124	2	_		0.151	4	14.9		0.266	3	3.9		0.149	2
v732	9.1		0.233	1	8.3		0.160	3	3.8		0.249	3	8.6		0.107	3
v1011	5.3		0.190	3	6.3		0.218	2	5.2	19		3	3.3		0.307	0
v511	4.2		0.138	0	4.6		0.219	3	4.3		0.151	3	3.5		0.163	2
v717	4.5		0.141	0	4.2		0.152	2	6.5	18	0.161	3	3.9		0.117	2
v410	13.4 4.5	4		0	9.8		0.124	2	4.5		0.207	3	5.8		0.122 0.130	3
v513 v800	3.1	4	0.217 0.137	0	6.0 2.6		0.191	3 1	4.2 6.2		0.216 0.121	3	2.7		0.130	3
v712	4.3		0.137	0	3.6	9	0.165	1	8.1		0.121	2	3.5		0.18	2
v62	4.5	4		1	3.0	16	0.136	3	7.6	11		2	2.6		0.118	0
v757	4.8	4		1	3.8		0.177	2	10.6		0.205	2	4.5		0.159	1
v820	7.6	6		1	7.1		0.200	2	9.0	9		2	6.6		0.108	0
v1330	4.0	8		2	3.0		0.133	1	5.1	8		2	4.1		0.100	0
v502	4.0		0.202	0			0.216	0			0.163	2	6.1		0.230	2
V002	7.7		0.023	U	0.0	-	0.100	U	5.0	- 11	0.103		0.1	13	0.140	

	Measured				Indic	cated		Me	asured a	nd Indica	ted		Infe	rred		
	Vein Width	Tons		Au oz	Vein Width	Tons		Au oz	Vein Width	Tons		Au oz	Vein Width	Tons		Au oz
Vein	ft		Au opt		ft	000's	Au opt	000's	ft	000's	Au opt	000's	ft	000's	Au opt	000's
v04					3.3	6	0.154	1	3.6	10	0.156	1	6.0	16	0.127	2
v98	6.8	15	0.168	3	4.1	3	0.118	0	2.7	9	0.160	1				
v101	8.0	11	0.154	2	8.5	6	0.121	1	3.1	9	0.153	1	4.9	0	0.108	0
v515	8.9	2	0.123	0	7.3	9	0.222	2	4.3	5	0.210	1	4.6	1	0.110	0
v920	2.8	6	0.171	1	3.9	2	0.107	0	4.5	8	0.137	1	8.0	9	0.101	1
v715	8.5	4	0.194	1	6.3	0	0.209	0	3.5	6	0.156	1	3.6	7	0.189	1
v512	1.3	0	0.094	0	5.1	11	0.164	2	3.3	6	0.149	1	5.9	2	0.112	0
v751	4.4	0	0.102	0	4.2	6	0.143	1	3.3	6	0.154	1	6.5	9	0.126	1
v940	4.1	1	0.145	0	4.6	7	0.136	1	7.7	3	0.267	1	5.6	4	0.102	0
v507	4.2	2	0.207	0	4.4	3	0.212	1	4.2	6	0.142	1	1.4	1	0.117	0
v930					3.5	6	0.156	1	3.6	6	0.135	1	2.8	2	0.114	0
v790	3.5	3	0.151	0	3.2	4	0.148	1	8.3	4	0.195	1	4.1	1	0.158	0
v510	7.7	3	0.267	1					6.2	5	0.150	1				
v1040	3.7	0	0.201	0	4.4	4	0.141	1	4.3	4	0.148	1	1.8	0	0.094	0
v1331	1.5	0	0.118	0	2.0	2	0.125	0	2.0	2	0.124	0	7.5	2	0.177	0
Total	7.9	599	0.209	125	7.7	1,409	0.219	308	7.8	2,007	0.216	433	7.2	3,586	0.169	605

### 14.3. **Tailings Resources**

### 14.3.1. Tailings Mineral Resource Model

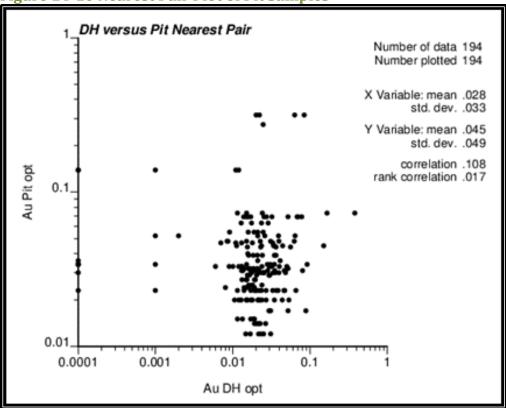
Mineral Resource modelling and estimation reported in this section were carried out using Gemcom GEMS (version 5.4.1) and Snowden Supervisor (version 7.10.11) software programs.

### 14.3.2. Tailings Data Supplied

Sample data were provided electronically by KDX. Distance units are reported in feet, and Au assay grade units are reported opt. The supplied drilling database contains records for 138 drill-holes, of which 39 are stem auger drill-holes and 99 are percussion probe drill-holes. The drilling grid as completed is on the order of 200 feet by 100 feet (60m x 30m).

The supplied database also included results for 210 pit samples recovered from hand-dug excavations. Pit samples were examined visually during modelling, but were not used for estimation due to differences in support size, sample quality and assay results compared with adjacent Drill-hole samples (Figure 14-10).

Figure 14-10 Nearest Pair Plot of Pit Samples



### 14.3.3. Tailings Dry Bulk Density

KDX submitted two samples to ALS Environmental Laboratories for dry bulk density measurements, with an average value of 0.044 tons per cubic foot (1.395 tonnes per cubic meter) (Table 14-12). The average dry bulk density value of 0.044 tons per cubic foot was used for Mineral Resource estimation.

**Table 14-12 Tailings Dry Bulk Density Results** 

Test	Units	Sample 1	Sample 2	Average
% Moisture	%	42.0	40.5	41.3
Dry Weight	g	427.6	262.1	344.9
Total Sample Weight	g	738	440	589.0
Dry Bulk Density	t/m <sup>3</sup>	1.260	1.530	1.395

### 14.3.4. **Deposit Modelling**

KDX supplied a three-dimensional AutoCAD format drawing file of the tailings. The upper surface of the tailings volume was constructed from collar elevations and the lower surface was

defined by Drill-hole intersection of the underlying clay/peat horizon. The modeled tailings volume is on the order of 30 feet (9m) thick.

### **14.3.5. Assay Data**

Summary assay statistics were calculated from the drilling assay grades (Table 14-13). The difference in mean grade between the auger and percussion sample populations is due to the smaller area associated with the auger drilling.

**Table 14-13 Summary Tailings Sampling Assay Statistics** 

CTEM ALICED	_	A == (a == 4)	
STEM AUGER	Length (ft)	· <b>-</b> /	
Mean	4.20	0.029	
Median	4.00	0.021	
Mode	4.00	0.015	
Standard Deviation	0.68	0.032	
CV	0.16	1.104	
Minimum	2.00	0.0001	
Maximum	5.00	0.379	
Count	194	194	
PERCUSSION	Length (ft)	Au (opt)	
Mean	4.94	0.019	
Median	5.00	0.016	
Mode	5.00	0.013	
Standard Deviation	0.41	0.015	
CV	0.08	0.782	
Minimum	0.50	0.0000	
Maximum	5.00	0.211	
Count	476	476	
TOTAL	Length (ft)	Au (opt)	
Mean	4.73	0.022	
Median	5.00	0.017	
Mode	5.00	0.013	
Standard Deviation	0.60	0.022	
CV	0.13	0.997	
Minimum	0.50	0.0001	
Maximum	5.00	0.379	
Count	670	670	

#### 14.3.6. Compositing

Drill-hole assay sample lengths within the defined tailings volume range from 0.5 feet to 5.0 feet, (0.15m to 1.52m) with an average sample length of 4.73 feet (1.44m). A compositing length of 10.0 feet (3.05m) was selected for compositing, equivalent to the model block height. Residual sample lengths less than 5.0 feet (1.52m) were merged with the preceding composite interval. The resulting composite lengths range from 5.0 feet to 14.0 feet (1.52m to 4.27m) with an average length of 9.4 feet (2.87m).

The resulting composite data were visually validated and summary statistics were calculated for the resulting composite samples (Table 14-14).

**Table 14-14 Summary Tailings Composite Statistics** 

	Length (ft)	Au (opt)
Mean	9.37	0.021
Median	10.0	0.018
Mode	10.0	0.018
Standard Deviation	2.02	0.016
CV	0.22	0.747
Minimum	5.00	0.0001
Maximum	14.00	0.206
Count	338	338

#### 14.3.7. Spatial Analysis

A horizontal experimental semi-variogram was modeled from uncapped composite samples. Standardized spherical models were used to model the experimental semi-variogram in normal-score transformed space (Figure 14-11), and the modeled variance contributions were then backtransformed to:

### 0.17 + 0.30 Spherical 50 + 0.60 Spherical 750

The resulting semi-variogram suggests a maximum range on the order of 750 feet (230m) (Figure 14-11).

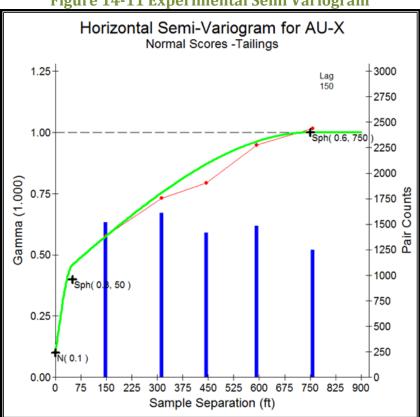


Figure 14-11 Experimental Semi Variogram

#### 14.3.8. Treatment of Extreme Values

Grade capping analysis was conducted on the composited grade data in order to evaluate the potential influence of extreme values during grade estimation. The presence of high-grade outliers was identified by examination of histograms and log-probability plots (Figure 14-12). Composites were capped to the selected threshold value prior to estimation:

- Capping Threshold: 0.060 opt (2.06 g/t)
- Average Uncapped Au Grade: 0.021 opt (0.72 g/t)
- Maximum Au Grade: 0.206 opt (7.06 g/t)
- Number Capped: 5
- Average Au Capped Grade: 0.020 opt (0.69 g/t)
- Percent Change: 4.8%

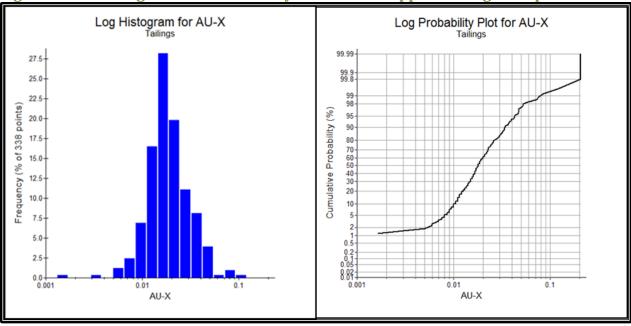


Figure 14-12 Histogram and Probability Plots for Uncapped Tailings Composites

### 14.3.9. Block Model Extents

A rotated block model was established across the Project with the block model limits selected so as to cover the extent of the defined volume and reflect the generally general dimensions of the drilling grid (Table 14-15). The block model consists of separate models for estimated grades, rock code, percent, density and classification attributes. A percent block model was used to accurately represent the volume and tonnage contained within the constraining tailings volume.

**Table 14-15 Tailings Block Model Orientation** 

Dimension	Origin	Count	Size (ft)
X	6,800	90	50
Y	9,000	60	50
Z	10,000	6	10
Rotation	-20° counter-	-clockwise fro	om the origin.

#### 14.3.10. Gold Tailings Grade Estimation & Classification

The tailings mineral resource estimate was constrained within the extents of the modeled tailings volume. Au block grades were estimated using a single pass Inverse Distance Cubed ("ID<sup>3</sup>") weighting of between three and twelve capped composite grades from two or more drill-holes. A NN model was also generated simultaneously using the same search parameters.

Blocks within 250 feet (76m) of a Drill-hole sample were classified as Inferred, and blocks within 250 feet (76m) of at least three Drill-hole samples were classified as Indicated. This ensures that blocks classified as Indicated were largely interpolated between drill-holes, while Inferred blocks were not extrapolated beyond a reasonable limit and that all block estimates are within the spatial range defined by the experimental semi-variogram. Approximately 25% of the blocks contained by the tailings volume are outside these limits and remain un-estimated.

#### 14.3.11. Tailings Block Model Validation

The block models were validated visually by the inspection of successive cross sections in order to confirm that the block model correctly reflects the distribution of high-grade and low-grade values (Figure 14-13). An additional validation check was completed by comparing the average grade of the informing composites to the model block grade estimates at zero cut-off. Block grades were also compared to the NN model generated using the same search criteria as that used for the ID<sup>3</sup> Mineral Resource estimate:

- Avg. Capped Au Composite Grade: 0.02 opt Au (0.69 g/t Au);
- Avg. Au ID<sup>3</sup> Block Grade: 0.02 opt Au (0.69 g/t Au); and
- Avg. Au NN Block Grade: 0.02 opt Au (0.69 g/t Au)

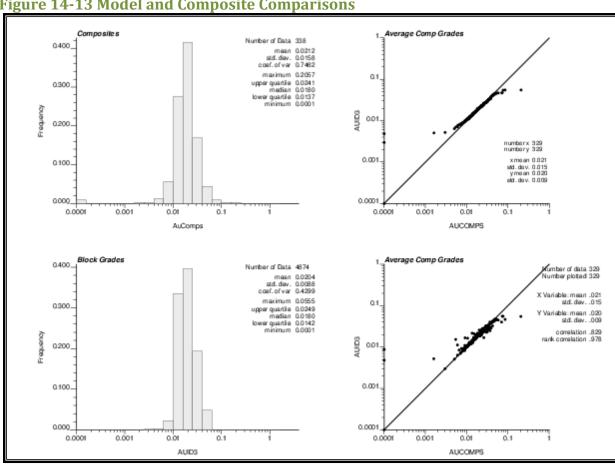
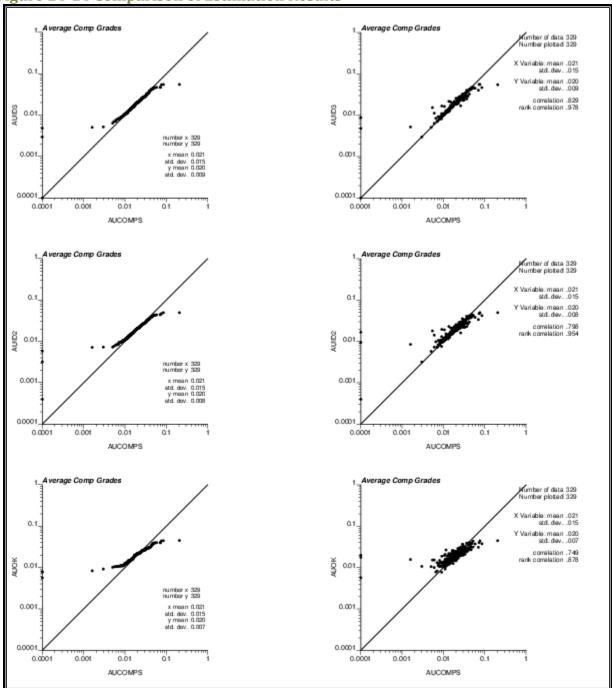


Figure 14-13 Model and Composite Comparisons

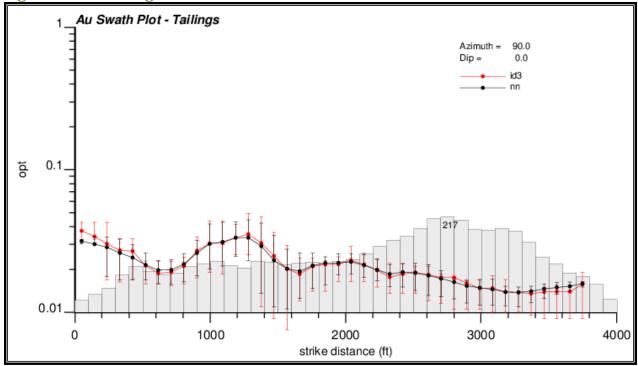
As a check on the selected methodology, the results were also generated by Ordinary Kriging (OK) and Inverse Distance Squared (ID<sup>2</sup>) estimation. In both cases, it was noted that the ID<sup>3</sup> estimates compared better with regards to the average block composite grade (Figure 14-14).





Swath plots were generated to check the block model estimate for global bias by comparing the NN block estimate to the ID<sup>3</sup> estimate (Figure 14-15).

Figure 14-15 Tailings Swath Plot



### 14.3.12. Tailings Mineral Resource Estimate

Tailings Mineral Resources are contained within A Lerch Grossman optimized pit shell constructed on the tailings mineralization model and using the following parameters;

- Gold price of US\$1400 per ounce;
- Metallurgical gold recovery of 89%,
- Wall slope 30 degrees;
- Mining cost of US\$2.40 per ton; and;
- Processing and overhead costs of US\$16.84 per ton.

Table 14-16 Tailings Mineral Resources as of March 31, 2018

	Grade	Grade		
Class	Au opt	Au g/t	Tons (000's)	Au oz (000's)
Measured	-	-	-	-
Indicated	0.0243	0.83	1,971	48
Measured and	0.0243	0.83	1,971	48
Indicated	0.0243	0.63	1,9/1	40
Inferred	0.0235	0.81	31	0.7

#### Notes:

- 1. Tailings Mineral resources have been calculated at a Au cut-off grade of 0.015 opt;
- 2. Mineral resources, which are not mineral reserves, do not have demonstrated economic viability. The estimate of mineral resources may be materially affected by environmental, permitting, legal, title, sociopolitical, marketing, or other relevant factors; and
- 3. The quantity and grade of reported inferred mineral resources in this estimation are uncertain in nature and there is insufficient exploration to define these inferred mineral resources as an indicated or measured mineral resources.

#### 23. Adjacent Properties

There are several mineral exploration properties adjacent to Havilah's True North Project (Figure 23-1) however, most appear to be inactive. The properties discussed in Section 23 are not part of the True North Project. The information presented herein has been publicly disclosed by Golden Pocket Resources and Bison Gold Resources Inc. The Authors have not verified this information and it is not indicative of the quality or quantity of mineralization at the True North Project.

#### 23.1. **Golden Pocket Resources**

Golden Pocket Resources Ltd. (GPR) owns the Bissett Project exploration property south and adjacent to True North. GPR's land position includes 71 unpatented claims, 7 patented mining claims and 1 mining lease totaling approximately 10,845 acres (4,389 hectares). GPR's Bissett project is adjacent to the True North mine, and is contiguous with the unpatented claims held jointly with Greenbelt Gold Mines.

Maps on their website show numerous gold mineralized zones, drill-hole collar locations, and historic shafts. In 1998, Golden Pocket drilled 131 diamond holes, for a total of 68,652 feet (20,925 m). The drilling returned high grade gold intersects, particularly from the Nevada Zone. Currently, Golden Pocket has sufficient assessment credits to keep the Bissett Property in good standing (Golden Pocket Resources, 2018).

#### 23.1. **Bison Gold Resources Inc.**

Bison Gold Resources Inc (Bison) owns the Cryderman Central property about 15 miles (25 km) to the southeast of True North, but adjacent to KC owned ground in that area. Bison also retains a 100% interest in the Ogama-Rockland property 19 miles (30 km) southeast from True North.

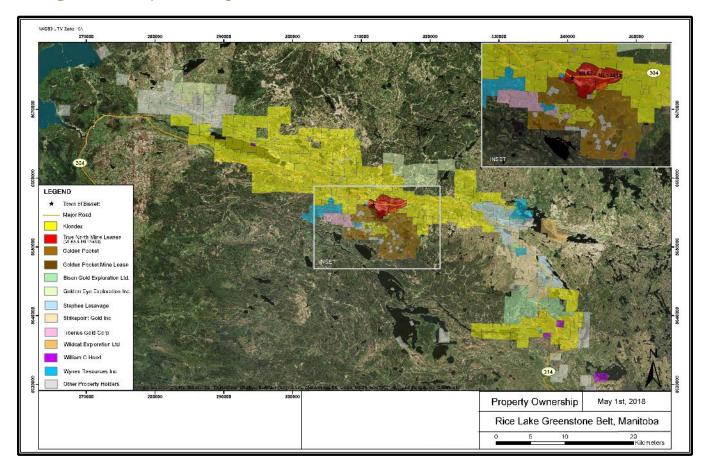
A NI 43-101 technical report dated November 15, 2013 for the Ogama-Rockland Property, issued to Bison, states an Inferred Mineral resource of 1.28 million tons (1.16 million tonnes) grading 0.24 opt Au (8.17 g/t Au). The style of gold mineralization is dominated by gold-bearing quartz-carbonate veins associated with shear zones in granite host rocks. (Chater et al, 2013)

On October 19, 2017 KDX completed the acquisition of Bison for US\$7.3 M (Klondex 2018). The Bison properties are not included in the True North Project.

The Qualified Persons have not done sufficient work to classify the historical estimates as a current Mineral Resource or Mineral Reserve, and PM, and P&E are not treating these historical estimates as current Mineral Resources or Mineral Reserves. The historical estimates cannot be fully verified. These values cannot and should not be relied upon and are only referred to herein as an indication of previously defined gold mineralization. The relevance of the historical estimates is

not known. Key assumptions, parameters and methods used to estimate these Mineral Resources and Mineral Reserves are not known.

Figure 23-1 Adjacent Properties to the True North Gold Mine



#### 24. Other Relevant Data and Information

#### 24.1. Underground Mine

#### 24.1.1. Access Development

True North is an underground mining operation that has operated since the early 20th century. Over the years, the mine has employed many mining methods including shrinkage, sublevel stoping, cut and fill and panel stoping.

Currently, the Project has two main production levels, namely 16L and 26L, which are accessed via a 4,060-foot (1,238 m) two compartment shaft (A-Shaft). The 710 Zone mining complex is the main mining area and is located approximately 6,600-feet (2,000 m) from A-Shaft along the 26L access level.

The main haulage track drift on 26L is used to access the 710 Vein. In order to access above and below the 26L, the 710 Vein has a 12-foot by 12-foot (3.7 m x 3.7 m) incline and decline driven at a maximum gradient of +/-15% with access cross-cuts into the ore body every 60-feet (18 m) vertically. Additional infrastructure along the incline includes a vertical ventilation and escape raise and an ore and waste pass system.

A longitudinal section through the mine is provided in Figure 24-1.

#### 24.1.2. Geotechnical

Rock characteristics at True North are typical northern Canadian shield conditions with very little water and very competent with Rock Mass Ratings (RMR) ranging from 65% to 85%. In large areas and stopes all necessary joint sets are mapped and ground support requirements are examined using Roc Science Unwedge computer program.

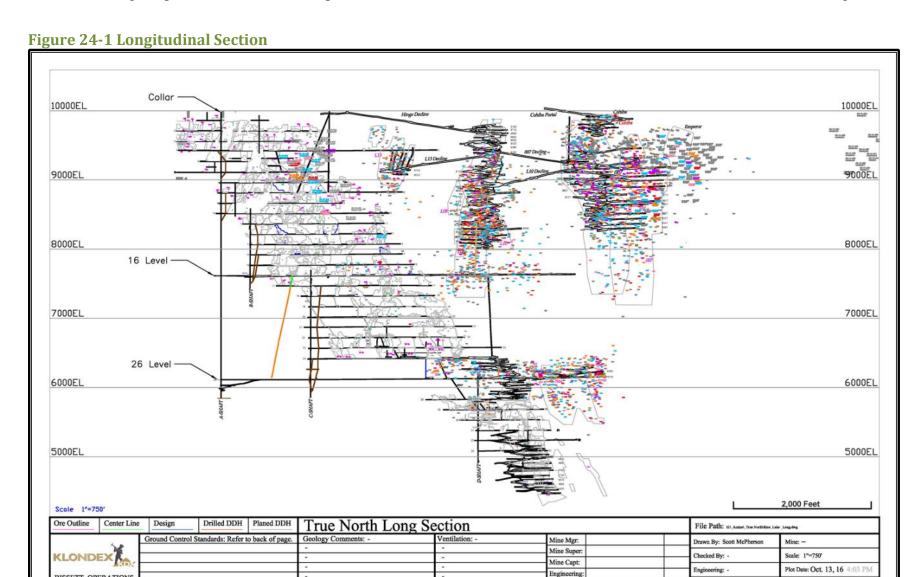
The Uniaxial Compressive Strength (UCS) of the rock is 29,000 psi (200 million pascal MPa). Due to the depth of the 710 mining area, vertical stress will range from 4,350 psi (30 MPa) to 5,800 psi (40 MPa) with maximum horizontal stress being 1.3 times the vertical stress.

#### 24.1.3. **Ground Support**

The ground conditions at True North are typical of those found elsewhere in the northern shield, with typically dry and very competent conditions. The main ground support system is resin encapsulated 6-ft (1.8 m) #6 rebar bolted in a 4-foot by 4-foot (1.2 m by 1.2 m) pattern, supporting 4-inch (0.1 m) welded wire mesh. In areas wider than 18-feet (5.5 m), 8-feet (2.4 m) #6 rebar bolts replace the 6-foot (1.8 m) rebar bolts.

Where more adverse conditions are encountered in long hole stopes, 20-feet (6 m) and 30-feet (9 m) long grout encapsulated cable bolts are installed as well as in intersections with spans between 20-feet and 30-feet (6 m to 9 m). The cable bolt pattern is determined from the specific conditions and are drilled with a long hole drill and then fully grouted.

Date Created: Oct. 13, 16



Practical Mining LLC May 8, 2018

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#### 24.1.4. Ventilation and Secondary Egress

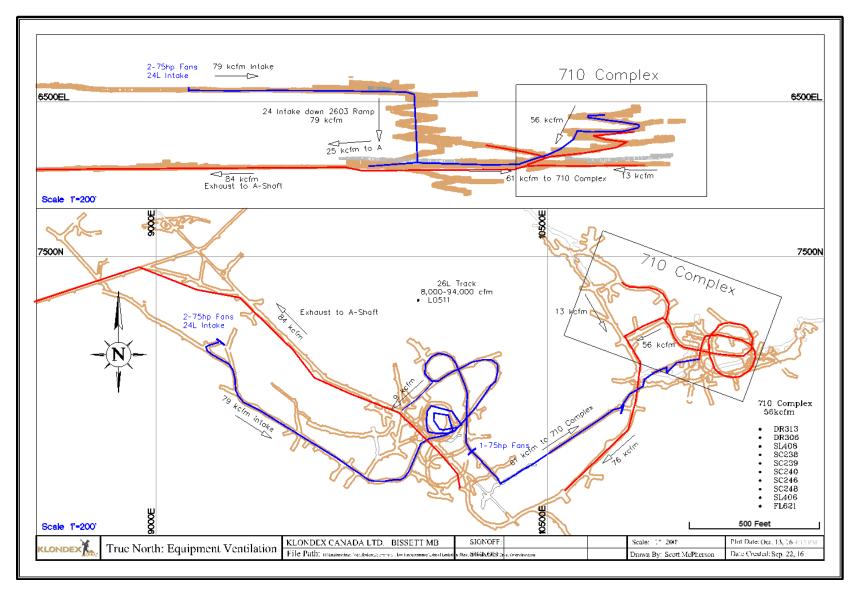
Underground mining relies on diesel equipment in the process to extract the mineralized material and waste rock and to transport backfill to the stopes. The Project is ventilated through an intake connection to surface. This air route includes travel through historic mining areas and from there, it is directed to the 24L and distributed to the main 710 Zone mining horizon via horizontal and vertical openings. All the air eventually exhausts out through A-Shaft. Auxiliary fans located in development headings ventilate working faces via ducting. The surface intake fans are two 150 horsepower (HP) (110 kilo Watt [kW]) fans and the 24L main ventilation fans deliver 75,000 cubic feet per minute (cfm) (5.7 m³/sec) to the 710 Zone. A ventilation schematic is provided in Figure 24-2.

Two means of secondary egress are available at the project. These include a man-way with ladders and landings in A-Shaft and a second man-way connection to surface is via a timbered raise from 26L to 16L, which continues on to a man-way up B shaft to 8L and then on to a series of other raises from 8L to surface.

#### 24.1.5. Power Distribution and Dewatering

Electrical power to the mine is provided by a 4,160-volt feeder connection which is stepped down to 600 volts for distribution. Step down transformers and circuit protection are provided by 22 load centers located throughout the mine. Excess mine water is dewatered from 26L to 16L to 10L and then to the process plant where is it sent to tailings. The mine purges water at a rate of approximately 340-gallon (1.36 m³) per week, however, most water is recycled and inflow from the surrounding rock is minimal.

Figure 24-2 True North Gold Mine 710 Complex - Ventilation System



#### 24.1.6. Mining Methods

The primary mining method at the Project is long hole stoping which is a cost-effective method to mine the complex geology at the Project, and benefits from a quick stope cycle time. In areas where mineralization does not warrant the development of a ramp access system, the mine employs captive sublevel stoping methods

#### g) Long Hole Stoping

Long hole stoping is the lowest cost method used at the Project and generally also provides the lowest total cost per ounce of gold produced.

Level accesses are driven perpendicular towards the ore body every 60-feet (18 m) vertical. From these access drifts, 8-foot x 9-foot (2.4 m x 2.7 m) sills are developed along the strike of the mineralized zone (Figure 24-3).

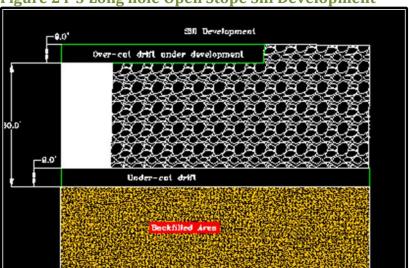
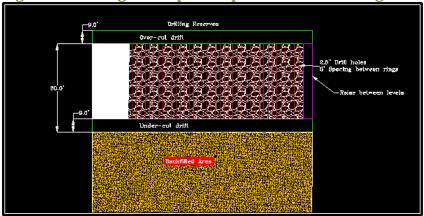


Figure 24-3 Long hole Open Stope Sill Development

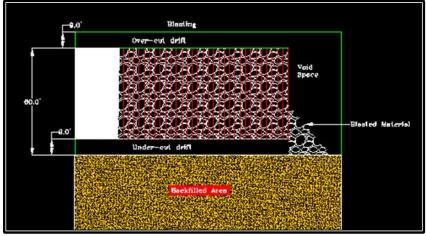
Once the levels are developed, a slot raise is driven between the levels which provides the free face necessary for long hole blasting. Subsequently, long hole drilling is carried out with 2.5 inch (64 mm) holes on a 3-foot (0.9 m) ring burden. The actual drill pattern is determined by the stope shape. (Figure 24-4).

Figure 24-4 Long hole Open Stope Raise and Drilling



Once all long hole drilling is completed, the stope is loaded with explosives and blasted. A diesel powered load-haul-dump machine (LHD) is used to move the blasted material from the under-cut. The LHD is equipped with line-of-sight remote control to allow the removal of all blasted rock without exposing operating personnel to the open stope and the potential risk of ground falls (Figure 24-5).

Figure 24-5 Long hole Open Stope Blasting



After all blasted material has been extracted, the remaining void may be backfilled with waste rock (Figure 24-6).

Figure 24-6 Long hole Open Stope Backfilling

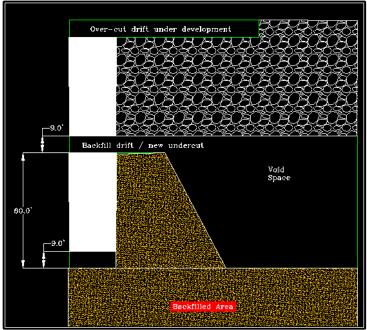
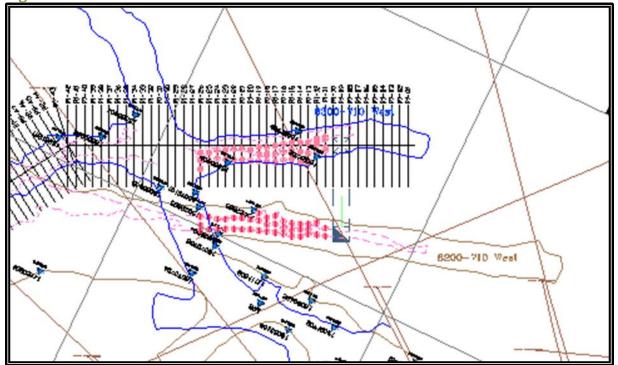


Figure 24-7 shows a typical over-cut and undercut access and sill in plan view, and Figure 24-8 shows a typical drill ring section.





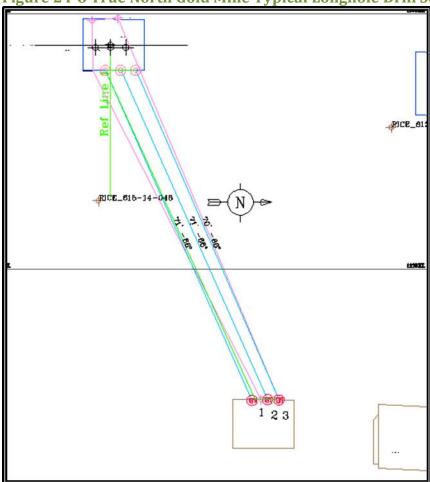


Figure 24-8 True North Gold Mine Typical Longhole Drill Section

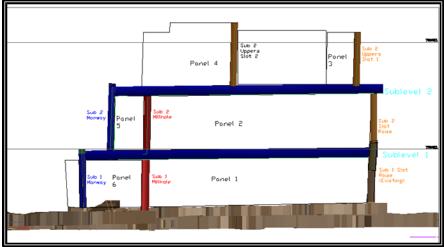
#### 24.1.7. Captive Sub Level Long hole Stoping

Captive sub level long hole stoping is used in situations where an up-ramp access cannot be economically justified. This mining method uses three 6 foot by 6 foot (1.8m by 1.8m) raises up to 60 feet (18m) in length. One raise acts as a slot raise for the long hole blasts to slash into; the second raise acts as a mill-hole for muck from the sublevel where broken ore is slushed into; and the last is an access man-way. At the top of the raises an 8 foot by 9 foot (2.4m by 2.7m) sublevel is driven along the strike of the ore body. An air slusher is used to move the development muck from the sublevel over to and down the mill hole. If the mineralization warrants, another series of raises and a sublevel are developed along strike.

After all of the raises and sublevels are developed, long hole drilling is carried out with an air drill capable of drilling 2.5-inch (64 mm) holes on a 3-foot (0.9 m) ring burden. These rings are blasted into the slot raises. The material drops to the bottom level and a remote controlled LHD removes the blasted ore without exposing the operator to the open stope and the potential risk of ground falls.

Figure 24-9 shows an arrangement of two sub-levels of a sub level captive long hole stope.

Figure 24-9 True North Gold Mine Sub-Level Captive Long hole Stope



#### h) Haulage

Ore and waste rock generated from the incline of the 710 Zone mining complex is hauled with LHDs to the vertical ore and waste chute system which connects to the 26L haulage drift. The material is then loaded into rail cars and hauled from the rock passes along the haulage drift with a diesel locomotive and 5-ton (4.5-tonne) rail cars. The cars are dumped at a grizzly equipped with a rock breaker and the material is sent to the loading pocket below 26L, from where it is hoisted in the shaft to surface in a 5-ton (4.5-tonne) capacity skip.

In the 710 Zone mining complex decline, ore and waste are hauled to the 26L haulage drift via two 13-ton (12-tonne) rubber tired underground mining haul trucks. These haul trucks deliver the ore and waste rock to the 710 ore and waste bins. From these ore bins, the follows the same route as described in the above paragraph.

#### i) Backfill

Waste rock is moved from development to stoping whenever possible and major fill zones are created in the mining through the down hole long hole method on the 710-incline. The decline will not create fill void and will require sill pillars at certain level intervals. With mining in the incline is being filled, a percentage of waste rock will need to be removed from the mine but there will be sufficient material to fill the void created.

#### 24.1.8. Equipment Fleet Underground

A summary of all underground mining equipment fleet is listed in Table 24-1.

Table 24-1 Underground Mobile Equipment Fleet

	Description	Quantity
	3.5yd <sup>3</sup> (2.7m <sup>3</sup> ) scoop	4
	2.5yd <sup>3</sup> (1.9 m <sup>3</sup> ) scoop	1
Development	Single boom jumbo	3
	Scissor decks	2
	13-ton (12 tonne) haul trucks	2
Production	Air powered long hole drill	2
Troduction	2.5yd <sup>3</sup> (1.9m <sup>3</sup> ) remote controlled scoop	4
Tramming	Locomotive	4
Trainining	5-ton (4.5 tonne) rail cars	20
	Scissor lift	1
	Boom truck	1
Ancillary	Grease truck	1
	Telehandler	1
	Kubota RTV or Toyota Land Cruiser	3

#### 24.1.9. Tailings Reprocessing

This seasonal reprocessing operation will be conducted at 1,200 to 1,400 tpd (1,190 to 1,270 tonnes per day). Dry tailings material will be excavated and trucked 2.3 miles (3.8 km) to the processing plant. Material feed into the plant is through the secondary crusher.

Figure 24-10 Aerial View of Tailings Recovery Site



#### 24.2. **Recovery Methods**

#### **24.2.1.** Mined Ore

In 2011, the process crushing plant was expanded by adding a new primary 30-inch by 42-inch (760 mm by 1067 mm) jaw crusher, a GP300 gyratory crusher as a secondary breaker and a Barmac B8000 VSI (vertical shaft impact) crusher as a tertiary unit. There units are all in line with a 7-foot by 20-foot (2.1 m by 6.1 m) triple deck vibrating screen (Figure 24-11).

The process plant feed is ground in an Allis Chalmers 12 ½-foot by 14-foot (3.8 m by 4.3 m), 1,250 HP (933 kW) ball mill to 67% passing Tyler 200 mesh (74 microns). A portion of the process plant circulating load is passed through one of two 20inch (500 mm) gravity concentrators. Concentrate from these units is upgraded on an 8-foot (2.4 m) shaking table. The table concentrate is direct smelted. Tails from the concentrators and the shaking table are returned to the head end of the grinding mill. The fines from the grinding circuit are fed to one of two rows of 10 m³ OUTOTEC tank cells producing both a rougher concentrate grading between 5 and 10 opt (171 and 343 g/t Au) and a scavenger concentrate that is very low grade. The scavenger concentrate is circulated to the main grinding circuit. Rougher concentrate is collected and reground through an 8-foot by 6-foot (2.4 m by 1.8 m) ball mill to 98% passing Tyler 400 mesh (37 microns), thickened and leached in a three-stage leach circuit of 12-foot by 24-foot (3.6 m by 7.2 m) tanks. Dissolved gold is recovered using a six-stage carbon-in-pulp circuit using 12-foot by 14-foot (3.6 m x 4.3 m) vessels. The carbon is then eluted in a stainless-steel pressure strip vessel. The elution liquor is passed through an electrowinning cell fitted with stainless steel anodes and cathodes. Gold sludge from this cell is then smelted in an electric induction furnace.

Process plant recovery is name plated at 93.5% based on a feed grade of 0.16 opt (5.5 g/t). This recovery is grade dependent and has been as high as 96.5% with higher feed grades.

Past processing analyses have shown that the process plant feed is clean displaying no evidence of any deleterious constituents such as arsenic, mercury or antimony that would otherwise affect gold recovery in the leach circuit. Copper in solution is sometimes high.

The process plant operates on a 14-day on, 14-day off, 12-hour per day schedule utilizing four crews.

Figure 24-11 True Gold Mine Process Plant Flowsheet

#### 24.2.1. **Tailings Reprocessing.**

The existing flotation concentrate leach circuit remains intact with flotation tails reporting to a new pre-leach thickener. The flotation tails and trash screen undersize is combined and thickened using the new thickener. The thickener underflow is pumped to a series of six CIL tanks for cyanide leaching. The CIP tails from the flotation concentrate leach circuit is pumped to the new CIL circuit. Carbon would be transferred counter current from the slurry with the carbon from the first CIL tank being pumped either to the acid wash vessel or to the flotation concentrate CIP circuit depending upon operational conditions. Material from the tailings storage facility would be pumped back to the process plant for processing as weather allows. It is estimated that the tailings pumping would operate approximately six months of the year. During the winter months only, the flotation underflow alone would report to the new thickener and then pumped to the new CIL circuit. The CIP tails from the flotation concentrate leach would continue to be pumped to the new CIL circuit.

### 25. **Interpretation and Conclusions**

PM is of the opinion that the core, channel chip and tailings sample assay data have been adequately verified for the purposes of a mineral resource estimate. All data included in the resource estimate appear to be of adequate quality.

The mining and processing methods in use at True North have been proven effective by the history of previous operations. Geotechnical risks are limited as shown by the large extent of underground workings.

With longhole mining there is increased risk hanging wall dilution along foliation planes and jointing as excavation size increases. The dilution encountered may be greater than the dilution included in the estimation of Mineral Resources and may have a negative impact on the quantity and quality of the Mineral Resources. In these areas alternative more selective and higher cost mining methods may be required.

The pre-existing mine closure plan that estimated closure costs at US\$3.5M (C\$4.4M) was transferred to KC in January 2016 along with an assignment of fixed-assets as financial security. It may be beneficial for Havilah to review the technical basis of the TMA closure approach presented in the 2012 mine closure plan and update the associated closure costs.

HMC is aware of the importance of an effective community engagement process to the Project. HMC should continue to enhance community engagement activities with local Indigenous communities, the Town of Bissett, other interested stakeholders, and regulatory agencies; on a priority basis.

The True North infrastructure is capable of supporting long term mining operations. HMC should optimize extraction of the existing mineral resource while exploring for additional opportunities in the surrounding area which can utilize the True North infrastructure.

#### 26. **Recommendations**

It is recommended that HMC take the following actions to maximize the value of the Project. The work programs described should occur concurrently with an integrated decision on proceeding with development made at the conclusion of all the work programs listed below.

#### Geology

- 1. Technical Database: All True North project data collected is stored and archived in a permanent and reliably retrieval manner. The database is currently administered by KDX corporate personnel. A full-time database administrator will be required to fill this position.
- 2. Quality Assurance/Quality Control: Timely follow-up for any and all QA/QC assay deviations and re-assay requests should be performed in a timely manner. The process should be automated when the database is up and running.
- 3. Sample Storage and Retrieval: Half-core remaining from sample assays should be retained for reference and check assay purposes. All assay sample rejects and pulps should be stored in a safe, secure and sheltered manner and properly catalogued to ease retrieval.
- 4. Project Assay Lab: Standard operating procedures should be updated, particularly in regard to assay data generation, storage and retrieval.

#### **Exploration**

- The True North geological model which targets major structures as identified in surface lidar, drill core and geological mapping within favorable host rock conditions has proven successful in identifying new vein systems. HMC should continue to develop this existing model to target near mine ore sources as well as apply its principals to the regional land package.
- 2. Future exploration programs should focus on regional scale data compilation followed by target generation by prediction and evaluation.
- 3. Further examination for the potential of Timiskaming type gold mineralization at the unconformity at the base of the San Antonio formation.
- 4. Evaluation of the historic Gunnar Mine and the presence of neighboring quartz carbonate vein systems.

Exploration activities are estimated to cost between US\$500,000 and \$800,000 (C\$625,000 and \$1,000,000). These activities should proceed over the next one to two years.

#### Environmental and Mine Closure

It is recommended that HMC review the technical basis of the TMA closure approach presented in the 2012 mine closure plan and update the associated closure costs. A provisional amount for a US\$250,000 (C\$325,000) study that would be carried out over four years commencing in 2018 is recommended. This exercise will review and confirm the technical basis of the proposed TMA closure plan and estimated costs and possibly identify opportunities to improve upon the currently proposed approach.

#### Mine Operations and Planning

Complete a detailed engineering study and optimized mine plan. Specific elements to include are:

- 1. Prepare accurate dilution estimates by geotechnical domain for each mining method and hanging wall dip;
- 2. Estimate variable and fixed costs for each mining method;
- 3. Cost benefit analysis for a mine backfill system;
- 4. Produce individual stope designs using the most economic mining method included diluting material and the parameters developed above;
- 5. Create a mine production and development schedule and perform sensitivity analysis to determine the optimal production rate;
- 6. Continue processing the historic tailings material to offset the mine standby costs.

A detailed engineering study is anticipated to cost between US\$200,000 and \$250,000 (C\$250,000 and \$312.500) and will require approximately one year to complete.

#### 27. References

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- Poulsen, K.H., Robert, F. and Dube, B. 2000. Geological classification of Canadian gold deposits. Geological Survey of Canada Bulletin 540. 106p.

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- Winsor, Jennifer, 2013. Summary of Comments/Recommendations for the San Gold Tailings Management Area Expansion. File No. 2435.40. Available at www.gov.mb.ca. July 9, 2013.

**Certificates of Qualified Persons** 



#### CERTIFICATE of QUALIFIED PERSON

Re: *Technical Report for the True North Mine, Bissett, Manitoba, Canada*, dated the 8th day of May 2018, with an effective date of March 31, 2018 (the "Technical Report").

I, Sarah M Bull, P.E., do hereby certify that:

As of May 8, 2018, I am a consulting mining engineer at:

Practical Mining LLC 495 Idaho Street, Suite 205 Elko, Nevada 89801 775-345-3718

- 1) I am a Registered Professional Mining Engineer in the State of Nevada (# 22797).
- 2) I am a graduate of The University of Alaska Fairbanks, Fairbanks, Alaska with a Bachelor of Science Degree in Mining Engineering in 2006.
- 3) Since my graduation from university I have been employed as a Mine Engineer at an underground gold mining operation and as Senior Mine Engineer for a consulting engineering firm. My responsibilities have included mine ventilation engineering, stope design and mine planning.
- 4) 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 experience and qualifications and good standing with proper designation within a recognized professional organization I fully meet the criteria as a Qualified Person as defined under NI 43-101.
- 5) I am a contract consulting engineer for the issuer and project owner: Havilah Mining Corporation.
- 6) I am responsible for preparation of sections 5 and portions of Section 24, along with those parts of sections 1, 25 and 26 pertaining thereto of this Technical Report.
- 7) I last visited the True North Project on March 8 and 9, 2017.
- 8) I am independent of Havilah Mining Corporation within the meaning of Section 1.5 of NI 43-101.
- 9) I am independent of Klondex Mines Ltd and Hecla Mining Corporation within the meaning of Section 1.5 of NI 43-101.
- 10) I was paid a daily rate for engineering consulting services performed in evaluation of The True North Project for Havilah Mining Corporation and do not have any other interests relating to the True North Project. I do not have any interest in adjoining properties in True North Project area.
- 11) I have read NI 43-101 and Form 43-101F1, and the sections of the Technical Report for which I am responsible have been prepared in accordance with that instrument and form.



12) As at the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all the scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 8th day of May 2018.

"Signed" Sarah Bull

Sarah M Bull, P.E.

Practical Mining LLC 495 Idaho Street, Suite 205 Elko, Nevada 89801 775-304-5836 sarahbull@practicalmining.com



#### CERTIFICATE of QUALIFIED PERSON

Re: *Technical Report for the True North Mine, Bissett, Manitoba, Canada*, dated the 8th day of May 2018, with an effective date of March 31, 2018 (the "Technical Report"):

I, Mark A. Odell, P.E., do hereby certify that:

As of May 8, 2018, I am a consulting mining engineer at: Practical Mining LLC 495 Idaho Street, Suite 205 Elko, Nevada 89801 775-345-3718

- 1) I am a Registered Professional Mining Engineer in the State of Nevada (# 13708), and a Registered Member (#2402150) of the Society for Mining, Metallurgy and Exploration (SME).
- 2) I graduated from The Colorado School of Mines, Golden, Colorado with a Bachelor of Science Degree in Mining Engineering in 1985. I have practiced my profession continuously since 1985.
- 3) Since 1985, I have held the positions of mine engineer, chief engineer, mine superintendent, technical services manager and mine manager at underground and surface metal and coal mines in the western United States. The past 9 years, I have worked as a self-employed mining consultant with clients located in North America, Asia and Africa. My responsibilities have included the preparation of detailed mine plans, geotechnical engineering, reserve and resource estimation, preparation of capital and operating budgets and the economic evaluation of mineral deposits.
- 4) 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 experience and qualifications and good standing with proper designation within a recognized professional organization fully meet the criteria as a Qualified Person as defined under NI 43-101.
- 5) I am a contract consulting engineer for the issuer and project owner, Havilah Mining Corporation (the "Issuer"). I have not visited the True North Mine.
- 6) I am responsible for sections 2-6, 11, 14, 23 and portions of Section 24 along with those parts of sections 1, 25 and 26 pertaining thereto of this Technical Report.
- 7) I am independent of the Issuer within the meaning of Section 1.5 of NI 43-101.
- 8) I am independent of Klondex Mines Ltd and Hecla Mining Corporation within the meaning of Section 1.5 of NI 43-101.
- 9) I was paid a daily rate for consulting services performed in evaluation of the True North Mine for the Issuer and do not have any other interests relating to the True North Mine. I do not have any interest in adjoining properties in the True North area.



- 10) I have read NI 43-101 and Form 43-101F1, and the sections of the Technical Report for which I am responsible have been prepared in accordance with that instrument and form.
- 11) As at the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all the scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 8th day of May 2018.

"Signed" Mark A. Odell

Mark A. Odell, P.E. Practical Mining LLC markodell@practicalmining.com



#### CERTIFICATE of QUALIFIED PERSON

Re: *Technical Report for the True North Mine, Bissett, Manitoba, Canada*, dated the 8th day of May 2018, with an effective date of March 31, 2018 (the "Technical Report"):

I, Laura M. Symmes, SME, do hereby certify that:

As of May 8, 2018, I am a geologist at: Practical Mining, LLC 495 Idaho Street, Suite 205 Elko, NV 89801

- 1) I graduated with a Bachelor of Science degree in Geology from Utah State University in 2003.
- 2) I am a registered member of the Society for Mining, Metallurgy & Exploration (SME) #4196936.
- 3) I have worked as a geologist for a total of 14 years since my 2003 graduation from university. My experience has been focused on exploration and production of gold deposits, including planning and supervision of drill projects, generating data from drilled materials and making geologic interpretations, data organization, geologic mapping, building digital models of geologic features and mineral resources, and grade control of deposits in production.
- 4) 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 fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
- 5) I am responsible for sections 7-12 and related portions of sections 1, 25 and 26 of the Technical Report.
- 6) I have not visited the True North Mine.
- 7) I have not had prior involvement with the property that is the subject of the Technical Report.
- 8) I am independent of Havilah Mining Corporation within the meaning of Section 1.5 of NI 43-101.
- 9) I am independent of Klondex Mines Ltd and Hecla Mining Corporation within the meaning of Section 1.5 of NI 43-101.
- 10) I was paid a daily rate for consulting services performed in evaluation of the True North Mine and do not have any other interests relating to the True North Mine. I do not have any interest in adjoining properties in the True North area.
- 11) I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
- 12) As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all the scientific and technical information that is required to be disclosed to make the Technical Report not misleading.



Dated this 8th day of May 2018.

"Signed" Laura M. Symmes

Laura M. Symmes, SME

**SME No. 4196936** 

Practical Mining LLC 495 Idaho Street, Suite 205 Elko, NV 89801 laurasymmes@practicalmining.com

#### **CERTIFICATE of QUALIFIED PERSON**

#### ALFRED S. HAYDEN, P. ENG

I, Alfred S. Hayden, P. Eng., residing at 284 Rushbrook Drive, Ontario, L3X 2C9, do hereby certify that:

1. I am currently President of:

EHA Engineering Ltd., Consulting Metallurgical Engineers Box 2711, Postal Stn. B. Richmond Hill, Ontario, L4E 1A7

- 2. This certificate applies to the technical report titled "Technical Report for the True North Mine, Bissett, Manitoba, Canada" (the "Technical Report"), with an effective date of March 31, 2017.
- 3. I graduated from the University of British Columbia, Vancouver, B.C. in 1967 with a Bachelor of Applied Science in Metallurgical Engineering. I am a member of the Canadian Institute of Mining, Metallurgy and Petroleum and a Professional Engineer and Designated Consulting Engineer registered with Professional Engineers Ontario. I have worked as a metallurgical engineer for over 40 years since my graduation from university.
- 4. 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 fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

My summarized career experience is as follows:

•	EHA Engineering Ltd: (President)	1990-Present
•	EH Associates: (Partner)	1985-1990
•	A.H. Ross & Associates Ltd. (Senior Associate)	1976-1985
•	Eldorado Nuclear Limited ( <i>Chief Metallurgist/Mill Engineer</i> )	1966-1976

- 5. I visited the Property that is the subject of this report on September 20 and 21, 2016.
- 6. I am responsible for authoring Sections 13 and portions of Section 24 of this Technical Report along with those parts of the Executive Summary, and Sections 25 and 26 pertaining thereto.
- 7. I am independent of Havilah Mining Corporation applying the test in Section 1.5 of NI 43-101
- 8. I am independent of Klondex Mines Ltd and Hecla Mining Corporation within the meaning of Section 1.5 of NI 43-101.
- 9. I was previously involved with the project as a coauthor of the technical report "Amended and Restated Technical Report and Pre-Feasibility Study on the True North Gold Mine, Bissett, Manitoba, Canada", with an effective date of March 31, 2017.
- 10. I have read NI 43-101 and Form 43-101F1 and the Technical Report has been prepared in compliance therewith.
- 11. As at the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Effective Date: March 31, 2018 Signed Date: May 8, 2018

*{SIGNED AND SEALED} [Alfred Hayden]*Alfred S. Hayden, P.Eng.

#### **CERTIFICATE of QUALIFIED PERSON**

#### DAVID A. ORAVA, P. ENG.

I, David A. Orava, M. Eng., P. Eng., residing at 19 Boulding Drive, Aurora, Ontario, L4G 2V9, do hereby certify that:

- 1. I am an Associate Mining Engineer at P&E Mining Consultants Inc. and President of Orava Mine Projects Ltd.
- 2. This certificate applies to the technical report titled "Technical Report for the True North Mine, Bissett, Manitoba, Canada" (the "Technical Report"), with an effective date of March 31, 2018.
- 3. I am a graduate of McGill University located in Montreal, Quebec, Canada at which I earned my Bachelor Degree in Mining Engineering (B.Eng. 1979) and Masters in Engineering (Mining Mineral Economics Option B) in 1981. I have practiced my profession continuously since graduation. I am licensed by the Professional Engineers of Ontario (License No. 34834119).
- 4. 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 fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

My summarized career experience is as follows:

•	Mining Engineer – Iron Ore Company of Canada.	1979-1980
•	Mining Engineer – J.S Redpath Limited / J.S. Redpath Engineering.	1981-1986
•	Mining Engineer & Manager Contract Development – Dynatec Mining Ltd.	1986-1990
•	Vice President – Eagle Mine Contractors	1990
•	Senior Mining Engineer – UMA Engineering Ltd.	1991
•	General Manager - Dennis Netherton Engineering	1992-1993
•	Senior Mining Engineer – SENES Consultants Ltd.	1993-2003
•	President – Orava Mine Projects Ltd.	2003 to present
•	Associate Mining Engineer – P&E Mining Consultants Inc.	2006 to present

- 5. I have not visited the Property that is the subject of this report.
- 6. I am responsible for authoring portions of Section 24 of the Technical Report along with those parts of the Executive Summary, and Sections 25 and 26 pertaining thereto.
- 7. I am independent of Havilah Mining Corporation applying all of the tests in Section 1.5 of NI 43-101.
- 8. I am independent of Klondex Mines Ltd and Hecla Mining Corporation within the meaning of Section 1.5 of NI 43-101.
- 9. I was previously involved with the project as a coauthor of the technical report "Amended and Restated Technical Report and Pre-Feasibility Study on the True North Gold Mine, Bissett, Manitoba, Canada", with an effective date of March 31, 2017.
- 10. I have read NI 43-101 and Form 43-101F1 and the Technical Report has been prepared in compliance therewith.
- 11. As at the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Effective Date: March 31, 2018 Signed Date: May 8, 2018

*{SIGNED AND SEALED}* 

[David Orava]

David Orava, M. Eng., P. Eng.

### **Appendix A True North Claims Information**

Disposition Number	Disposition Name	Holder	Disposition Type	Man Number	Term Expiry Date	Area (ha)
		1101000	Disposition Type	Map Number	Date	Area (ha)
(262) Unpatente	ed Mining Claims 100% Inte					
CB8043		100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M03SW, 52M04SE	2026-09-09	65
MB11576	SAN 70	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NW	2020-08-17	202
MB11577	SAN 71	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NW	2020-08-17	210
MB11579	SAN 73	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NW	2020-08-17	256
MB11580	SAN 74	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NW	2020-08-17	231
MB1296	GOLD HORSE 3	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2025-05-18	173
MB1327	GOLD HORSE 1	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2024-02-14	96
MB1328	GOLD HORSE 2	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2025-02-14	39
MB1354	GOLD HORSE 4	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2023-05-18	96
MB1357	GEO 3	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M03SW, 52M04SE	2020-05-18	144
MB1756	REX 4	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2040-07-27	16
MB1846	JADE 3	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2021-09-11	16
MB1847	JADE 4	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2021-09-11	16
MB1915	GEO 4	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2021-02-14	32
MB1922	GOLD PERCULATOR 1	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-06-12	56
MB1924	SANANTONIO JR 1	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE, 52M04SW	2020-04-26	239
MB1925	SANANTONIO JR 2	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE, 52M04SW	2020-04-26	240
MB1926	SANANTONIO JR 3	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE, 52M04SW	2020-04-26	144
MB1927	GOLDEN CANYONS 1	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-04-26	256
MB1928	SANANTONIO JR 4	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2021-04-27	212
MB1930	GOLD CANYON 3	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-04-26	64
MB1931	GOLD CANYON 4	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-04-26	256
MB1932	GEO 5	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-03-25	16
MB1934	GOLD CANYON 5	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-04-26	256
MB1935	GOLDEN CANYONS 2	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-04-26	256
MB1936	GOLDEN CANYONS 3	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-04-26	224
MB1937	GOLD PERCULATOR 2	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-06-12	136
MB1943	GOLD CANYON 1	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-04-26	256
MB1944	GOLD CANYON 6	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-04-26	16

Disposition Number	Disposition Name	Holder	Disposition Type	Map Number	Term Expiry Date	Area (ha)
MB1945	MOTHERLOAD 1	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-04-26	256
MB1946	GOLD TWINS 1	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-04-26	252
MB1947	GOLD TWINS 2	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-04-26	66
MB1948	GOLD TWINS 3	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2022-04-27	256
MB1949	GOLD TWINS 4	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2022-04-27	256
MB1950	GOLD TWINS 5	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2022-04-27	256
MB1951	OLD PROSPECTOR 2	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-06-06	248
MB1979	OLD PROSPECTOR 3	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-06-06	248
MB2002	GEO 7	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M03SW	2020-06-08	32
MB2004	GEO 9	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M03SW	2021-06-21	96
MB2005	GEO 10	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M03SW	2020-06-21	96
MB2067	MARLEEN	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-05-23	129
MB2101	BUB 1	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-01-21	128
MB2102	BUB 2	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2021-01-21	128
MB2103	BUB 3	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2021-01-21	192
MB2104	BUB 4	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M03SW, 52M04SE	2021-01-21	128
MB2105	BUB 5	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M03SW, 52M04SE	2021-01-21	192
MB2106	BUB 6	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M03SW	2021-01-21	192
MB2109	JONA	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-10-15	75
MB2115	MALIBU 1	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M03SW, 52M04SE	2020-03-04	256
MB2116	MALIBU 2	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M03SW, 52M04SE	2020-03-04	256
MB2118	MALIBU FR.	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-03-04	12
MB2120	JADE	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-03-17	61
MB2175	PAULA 5	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-09-02	192
MB2180	KIM 10	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE, 52M04SW	2020-09-19	96
MB2181	KIM 1	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2040-09-24	108
MB2378	PAULA 2378	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2021-02-11	252
MB2379	PAULA 2379	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2021-02-11	166
MB2380	PAULA 2380	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2021-02-11	250
MB2381	PAULA 2381	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2023-02-11	56
MB2707	KIM 8	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2040-09-24	60

Appendix A True North Claims Information

Disposition Number	Disposition Name	Holder	Disposition Type	Map Number	Term Expiry Date	Area (ha)
MB2710	PAULA 10	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-09-19	226
MB2712	PAULA 12	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-09-19	113
MB2753	LOOK OUT	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-03-23	16
MB2755	PAULA 13	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2022-10-13	240
MB2787	SABINA 5	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2022-10-07	131
MB2791	SABINA 1	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-11-19	89
MB2792	SABINA 2	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2022-11-19	87
MB2798	LAURALEE 8	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-09-29	224
MB2799	KIM 9	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-10-20	124
MB2801	LAURALEE 1	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-09-29	130
MB2802	LAURALEE 2	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-09-29	189
MB2945	MONA 2945	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M03SW	2020-03-24	256
MB2949	MONA 2949	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M03SW	2020-03-24	128
MB2975	KIM 2975	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE, 52M04SW	2041-02-11	150
MB2978	LAURALEE	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-05-01	128
MB2979	LAURALEE 2979	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-07-08	232
MB2980	LAURALEE 2980	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-07-08	170
MB2981	LAURALEE 2981	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-07-08	244
MB2982	LAURALEE 2982	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2021-07-08	135
MB2983	LAURALEE 2983	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2021-07-08	181
MB2984	LAURALEE 2984	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE, 52M04SW	2021-07-08	140
MB2987	OX 2987	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-07-14	57
MB2991	YORK	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-11-03	20
MB2998	MONA 2998	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M03SW	2020-04-26	75
MB3000	MONA 3000	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M03SW	2020-03-24	256
MB3001	MONA 3001	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M03SW	2020-04-26	214
MB3028	MONA 3028	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-06-01	80
MB3029	MONA 3029	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-06-01	248
MB3030	RACHELLE 3030	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-06-25	182
MB3031	MONA 3031	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-05-25	114
MB3032	RACHELLE 3032	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-07-06	210
MB3033	RACHELLE 3033	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-06-25	161

Disposition Number	Disposition Name	Holder	Disposition Type	Map Number	Term Expiry Date	Area (ha)
MB3035	LAURALEE 3035	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE, 52M04SW	2021-07-08	143
MB3036	DEB 36	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-10-13	80
MB3038	JACQUIE 3038	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-07-13	213
MB3227	KIM 3227	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-04-19	58
MB3229	DEB 3229	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-04-19	167
MB3261	SABINA 3	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2022-01-11	159
MB3433	BERE 6	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NW, 52L14SW	2020-05-27	36
MB3593	KIM 3593	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE, 52M04SW	2040-06-13	194
MB3596	REO 3596	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M03SW	2020-06-29	80
MB3737	BILL 100	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14SW	2021-01-21	176
MB3893	REO 3893	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04NW, 52M04SW	2022-04-06	230
MB3895	REO 3895	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2021-04-06	252
MB3897	REO 3897	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04NW, 52M04SW	2020-04-05	241
MB3949	HURON #1	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-07-12	16
MB3950	BILL 90	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NW, 52L14SW	2020-12-23	131
MB3951	BILL 91	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NW, 52L14SW	2020-12-23	141
MB3952	BILL 92	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NW, 52L14SW	2020-12-23	135
MB3953	BILL 93	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NW, 52L14SW	2020-12-23	192
MB3954	BILL 94	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NW, 52L14SW	2020-12-23	192
MB3955	BILL 95	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14SW	2020-12-23	160
MB3956	BILL 96	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14SW	2020-12-23	160
MB3957	BILL 97	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14SW	2020-12-23	120
MB3960	BILL 98	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14SW	2020-12-23	168
MB3961	BILL 99	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14SW	2020-12-23	100
MB4423	SAN 6	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NW, 52L14SW	2020-04-06	128
MB4425	SAN 8	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14SW	2020-04-06	256
MB4498	SAN 9	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-04-28	192
MB4563	VAN	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2021-08-07	93
MB4604	OLD EDKE	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-11-21	46

Disposition Number	Disposition Name	Holder	Disposition Type	Map Number	Term Expiry Date	Area (ha)
MB4605	OLD EDKE 1	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-11-21	217
MB4606	OLD EDKE 3	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-11-21	247
MB4607	OLD EDKE 4	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-11-21	160
MB4611	JARY 1	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-08-20	110
MB4612	JARY 2	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-08-20	90
MB4781	SABINA 7	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-12-15	154
MB4782	SABINA 6	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-12-15	214
MB4783	SABINA 4	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2022-12-15	149
MB4942	SAN 16	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14SW	2022-12-15	92
MB5006	ROBERT PETER	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M03SW	2023-08-20	36
MB5007	TATONGA 1	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M03SW	2020-08-20	138
MB5035	GOLDRIDGE 1	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04NW, 52M04SW	2020-03-06	256
MB5036	GOLDRIDGE 2	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2022-03-07	240
MB5037	GOLDRIDGE 3	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-03-06	256
MB5038	GOLDRIDGE 4	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04NW, 52M04SW	2019-03-07	256
MB5039	GOLDRIDGE 5	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04NW, 52M04SW, 62P01NE, 62P01SE	2019-03-07	256
MB5040	GOLDRIDGE 6	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW, 62P01SE	2020-03-06	256
MB5272	PFG	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE, 52M04SE	2020-05-18	235
MB5277	PFG 5	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M03SW, 52M04SE	2020-10-19	256
MB5280	PFG 8	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M03SW	2020-10-19	194
MB5281	PFG 9	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NW, 52M03SW	2020-11-27	256
MB5455	GOLDRIDGE 15	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	62P01NE, 62P01SE	2019-06-01	256
MB5457	GOLDRIDGE 14	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	62P01NE, 62P01SE	2019-06-01	256
MB5465	AAA	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2021-01-28	89
MB5568	WANI 1	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW, 62P01SE	2020-07-16	256
MB5569	WANI 2	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW, 62P01SE	2020-07-16	246
MB5589	CONTACT 1	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-07-04	227

Disposition				l	Term Expiry	
Number	Disposition Name	Holder	Disposition Type	Map Number	Date	Area (ha)
MB5694	MARA	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE, 52M04SW	2021-12-04	115
MB5931	ROSS FR	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2023-06-19	3
MB5932	JILL FRACTION	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2022-10-23	1
MB5935	SAN 18	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-07-08	96
MB6112	JARY 6112	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2022-10-07	40
MB6113	JARY 6113	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2021-10-07	18
MB6115	RIO 5F	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04NW	2020-10-04	10
MB6116	RIO 4	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04NW	2020-10-04	20
MB6117	RIO 3	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04NW	2020-10-04	173
MB6118	RIO 2	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04NW	2020-10-04	255
MB6119	RIO 1	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04NW	2020-10-04	256
MB6122	AUDREY 6122	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M03SW	2020-12-11	256
MB6123	AUDREY 6123	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M03SW, 52M04SE	2020-12-11	238
MB6134	SAN 21	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14SW	2022-03-27	207
MB6135	SAN 20	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NW	2021-03-27	168
MB6136	SAN 22 FR	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NW	2020-03-26	8
MB632	PAULA 632	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2022-02-11	249
MB633	PAULA 633	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2022-02-11	99
MB6645	RICK FR.	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE, 52M04SE	2019-09-09	6
MB6646	SAN 31	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14SW	2021-02-13	108
MB7168	BBB	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	62P01SE	2020-10-01	176
MB7506	ULTRA 24	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	62P01SE	2020-06-24	208
MB7507	ULTRA 26	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	62P01SE	2020-06-24	128
MB7508	ULTRA 25	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	62P01SE	2020-06-24	256
MB7509	ULTRA 21	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	62P01SE	2020-06-24	256
MB8111	CUD 3	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2023-03-16	84
MB8377	SAN 22	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NW	2020-05-03	109
MB8378	SAN 23	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NW	2020-05-03	225
MB8379	SAN 24	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14SW	2020-05-03	180
MB8380	SAN 25	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14SW	2020-05-03	228
MB8381	SAN 26	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14SW	2020-05-03	164
MB8382	SAN 27	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NW	2020-05-12	196

Disposition Number	Disposition Name	Holder	Disposition Type	Map Number	Term Expiry Date	Area (ha)
MB8384	ROSS 1 FR.	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2022-06-20	5
MB9150	TOM 4	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-10-25	256
MB9151	TOM 3	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-10-25	136
MB9152	TOM 5	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-10-25	256
MB9154	TOM 6	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-10-25	256
MB9155	TOM 7	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-10-25	220
MB9162	TOM 8	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2021-11-28	248
MB9231	BILL 31	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE, 52M04SE	2020-05-01	192
MB9232	BILL 32	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-05-01	192
MB9233	BILL 33	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-05-01	64
MB9378	BILL 34	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-07-10	93
MB9379	ROSS 2	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE, 52M04SE	2019-09-05	36
MB9383	SAN 28	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14SW	2020-12-08	192
MB9433	SAN 29	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NW, 52L14SW	2021-01-30	188
MB9434	SAN 30	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NW, 52L14SW	2022-01-30	161
MB9521	GOLD HORSE 7	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-04-24	64
MB9522	GOLD HORSE 10	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-04-24	256
MB9523	GOLD HORSE 6	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-04-24	150
MB9524	GOLD HORSE 9	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-04-24	256
MB9525	GOLD HORSE 11	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-04-24	140
MB9526	GOLD HORSE 5	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-04-24	240
MB9527	GOLD HORSE 8	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-04-24	256
MB9538	SAN 54	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NW	2020-09-15	77
MB9540	SAN 50	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NW	2020-09-15	57
MB9575	BILL 31 FR	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-06-13	54
MB9600	SGR	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NW, 52L14SW	2019-12-23	26
MB9732	SAN 2 FR	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-09-02	2
P2169F	SAN 11	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2040-05-16	144
P2170F	SAN 12	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2040-05-16	32
W44497	NUPIC 2 FR.	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-03-29	15
W44498	NUPIC 3	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-03-29	17

Disposition Number	Disposition Name	Holder	Disposition Type	Map Number	Term Expiry Date	Area (ha)
W44500	NUPIC 5	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-03-29	9
W44501	NUPIC 6	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-03-29	16
W44502	NUPIC 7	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-03-29	19
W44509	NUPIC 14	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-04-12	19
W44512	NUPIC 17 FR.	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-04-12	7
W44513	NUPIC 18	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-04-12	9
W44514	NUPIC 19	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-04-12	17
W44515	NUPIC 20	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-04-12	17
W45949		100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SW	2020-02-12	17
W46385	RICE NO 5	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2021-06-24	17
W47000	GOLD CREEK #5	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2040-12-26	102
W48116	ALIX	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-04-03	121
W48245	KAREN	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-01-28	80
W48337	LUANA # EXT	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2021-04-09	52
W48442	LUANA	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2021-04-09	255
W48765	BISSETT 1	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-12-14	64
W48796	BISSETT	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-12-14	240
W48797	RICE 45	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2022-04-01	126
W49083	ODESSA	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2021-05-08	242
W49440	JADE	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2026-05-24	219
W49441	JADE 2	100% (258875) Havilah Mining Corporation	Unpatented Mining Claim	52M04SE	2021-05-24	195
W49444	SHARON	100% (258875) Havilah Mining Corporation	Unpatented Mining Claim	52M04SE	2021-05-05	187
W49445	WAWA	100% (258875) Havilah Mining Corporation	Unpatented Mining Claim	52M04SE	2021-05-05	29
W49605	NUG 1	100% (258875) Havilah Mining Corporation	Unpatented Mining Claim	52L14SW	2021-01-24	16
W50355	JADE #1	100% (258875) Havilah Mining Corporation	Unpatented Mining Claim	52M04SE	2021-06-01	222
W51793	DANCER	100% (258875) Havilah Mining Corporation	Unpatented Mining Claim	52M04SE	2021-10-27	48
W51799	LUANA FR.	100% (258875) Havilah Mining Corporation	Unpatented Mining Claim	52M04SE	2021-12-22	6
W52076	FLORA	100% (258875) Havilah Mining Corporation	Unpatented Mining Claim	52M04SE	2022-07-01	182
W52077	LODE	100% (258875) Havilah Mining Corporation	Unpatented Mining Claim	52M04SE	2021-07-01	104
W52779	ERIC	100% (258875) Havilah Mining Corporation	Unpatented Mining Claim	52M04SE	2020-04-22	95
W52780	HENRIKSON	100% (258875) Havilah Mining Corporation	Unpatented Mining Claim	52M04SE	2020-04-22	95
W52781	SCUD	100% (258875) Havilah Mining Corporation	Unpatented Mining Claim	52M04SE	2021-03-28	78
W52840	FLASH	100% (258875) Havilah Mining Corporation	Unpatented Mining Claim	52M04SE	2020-05-31	205

Disposition Number	Disposition Name	Holder	Disposition Type	Map Number	Term Expiry Date	Area (ha)
W52841	FRUM	100% (258875) Havilah Mining Corporation	Unpatented Mining Claim	52M04SE	2021-05-31	16
W52842	BEAR	100% (258875) Havilah Mining Corporation	Unpatented Mining Claim	52M04SE	2021-08-21	16
W52843	SPIDER	100% (258875) Havilah Mining Corporation	Unpatented Mining Claim	52M04SE	2021-12-15	162
W52844	FLY	100% (258875) Havilah Mining Corporation	Unpatented Mining Claim	52M04SE	2021-12-15	104
W52845	WEB FRACTION	100% (258875) Havilah Mining Corporation	Unpatented Mining Claim	52M04SE	2021-12-15	12
W53116	PATRIOT	100% (258875) Havilah Mining Corporation	Unpatented Mining Claim	52M04SE	2022-04-29	195
W53314	SAN 1	100% (258875) Havilah Mining Corporation	Unpatented Mining Claim	52M04SE	2020-10-17	137
W53340	ORE 1	100% (258875) Havilah Mining Corporation	Unpatented Mining Claim	52L14NE, 52L14NW	2023-02-04	50
W53341	NUG 2	100% (258875) Havilah Mining Corporation	Unpatented Mining Claim	52L14SW	2021-02-03	228
W53391	BEA	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2021-06-09	47
W53405	CHCALA 1	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-06-30	48
W53447	ORO	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NE, 52L14NW	2022-02-04	16
W53619	GLORIA	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2021-02-07	201
W53803	SAN 4	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-03-10	240
W53846	SAN 2	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-03-10	192
W53847	SAN 3	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52M04SE	2020-03-10	192
W53930	BERE 5	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14SW	2020-06-25	144
W54255	BERE 1	100% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L14NE, 52L14NW, 52L14SE, 52L14SW	2020-06-22	238

(2) Mineral Leases 100% Interest [1091 ha]							
ML13433		100% (258875) Klondex Canada Ltd.	Mineral Lease	52M04SE	2034-04-01	395	
ML63		100% (258875) Klondex Canada Ltd.	Mineral Lease	52M04SE	2034-04-01	696	

(18) Patented Mining Claims 100% Interest [296 ha]							
P10_8	Emma	100% (258875) Klondex Canada Ltd.	Patent Mining Claims	52M04SE	2018-12-31		
P12_227	Gabrielle	100% (258875) Klondex Canada Ltd.	Patent Mining Claims	52M04SE	2018-12-31		

Disposition Number	Disposition Name	Holder	Disposition Type	Map Number	Term Expiry Date	Area (ha)	
P15_64	Goldcup	100% (258875) Klondex Canada Ltd.	Patent Mining Claims	52M04SE	2018-12-31		
P16_65	Gold Cup No. 2 Fr.	100% (258875) Klondex Canada Ltd.	Patent Mining Claims	52M04SE 2018-12-31			
P20_7	Goldfield	100% (258875) Klondex Canada Ltd.	Patent Mining Claims	52M04SE	2018-12-31		
P26_15	Jumping Cat	100% (258875) Klondex Canada Ltd.	Patent Mining Claims	52M04SE	2018-12-31	2018-12-31	
P2_11	Annex	100% (258875) Klondex Canada Ltd.	Patent Mining Claims	52M04SE	2018-12-31		
P32_14	Mite Fr.	100% (258875) Klondex Canada Ltd.	Patent Mining Claims	52M04SE	2018-12-31		
P35_47	Rachel	100% (258875) Klondex Canada Ltd.	Patent Mining Claims	52M04SE	2018-12-31		
P38_951	Ross Fr.	100% (258875) Klondex Canada Ltd.	Patent Mining Claims	52M04SE	2018-12-31		
P39_12A	Ross Fr. (N200)	100% (258875) Klondex Canada Ltd.	Patent Mining Claims	52M04SE	2018-12-31		
P3_66	Big Four Fr.	100% (258875) Klondex Canada Ltd.	Patent Mining Claims	52M04SE	2018-12-31		
P41_46	San Antonio	100% (258875) Klondex Canada Ltd.	Patent Mining Claims	52M04SE	2018-12-31		
P42_9	Scarabe	100% (258875) Klondex Canada Ltd.	Patent Mining Claims	52M04SE	2018-12-31		
P47_10	West Scarabe	100% (258875) Klondex Canada Ltd.	Patent Mining Claims	52M04SE	2018-12-31		
P48_45	Island Fr.	100% (258875) Klondex Canada Ltd.	Patent Mining Claims	52M04SE	2018-12-31		
P4_6	Cartwright	100% (258875) Klondex Canada Ltd.	Patent Mining Claims	52M04SE	2018-12-31		
P9_13	Deluxe	100% (258875) Klondex Canada Ltd.	Patent Mining Claims	52M04SE	2018-12-31		

(27) Unpatent	ted Mining Claims 50% / 5	0% JV with Greenbelt Gold Mines Inc. [410 ha]				
W5856	I.X.L. FR.	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2019-06-12	6
W89	LOON	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2019-07-05	21
W90	WHITE	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2019-07-05	13
W1097	I.X.L.	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2019-12-16	13
W14003	A.B. NO 1	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2020-04-27	22
W14004	A.B. NO 2	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2020-04-27	23
W14005	A.B. NO 3	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2020-04-27	20
W14006	A.B. NO 4	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2020-04-27	19
W14007	A.B. NO 5	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2020-04-27	21
W14008	A.B. NO 6	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2020-04-27	15

W232	SOUTH SIDE #1	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2019-10-23	17
W233	SOUTH SIDE	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2019-10-23	15
W44240	PAYUK	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2019-11-18	17
W44242	MARQUIS	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE, 52M04SE	2019-11-18	9
W44243	PRIME	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE, 52M04SE	2019-11-18	11
15876	GOLDSTONE	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2019-08-31	8
15922	FOX	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2019-11-29	17
25885	WOLF	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2019-09-17	20
25896	FISHER	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2019-09-28	21
27506	GOLDEN STAR 1	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2020-03-20	12
27508	MARIGOLD	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2020-03-20	18
27510	GOLD FLY	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2020-03-20	12
28950	WOLVERINE FRACTIONAL	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2019-06-29	5
29940	LISGAR	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2019-12-12	18
31682	GOLDEN TRUTH FR	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2019-12-05	7
W4464	GOLDZONE NO 12	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2019-10-20	17
W46424	GOLDZONE FRAC	50% (10019) GREENBELT GOLD MINES INC., 50% (258875) Klondex Canada Ltd.	Unpatented Mining Claim	52L13NE	2019-09-30	13