NI 43-101 TECHNICAL REPORT on the Preliminary Economic Assessment

For the Madsen Gold Project, Pure Gold Mining Inc.

Red Lake Area, Ontario, Canada

Located at:

93°54'58" W Longitude

50°57'58" N Latitude

PREPARED BY:

Mr. Glen Cole, P.Geo.

Mr. Kevin Niemela, P.Eng.

Mr. John Folinsbee, P.Eng.

Effective Date: April 20, 2016

Signing Date: June 03,2016

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1. Executive Summary

Nordmin Engineering Ltd. (Nordmin) was commissioned by Pure Gold to perform a Preliminary Economic Assessment on the Madsen Gold Project located in the Red Lake district of Northwestern Ontario, approximately 440 km Northwest of Thunder Bay, Ontario, 260 km east-northeast of Winnipeg, Manitoba and 10 km south-southwest via provincial highway ON-618 S from the Municipality of Red Lake. The Project is adjacent to the town of Madsen and centred at approximately 93.91 degrees longitude west and 50.97 degrees latitude north. Access to the Project site is via the Mine Road off ON-168 S and access to Red Lake is via ON-105 N from the Trans-Canada Highway/ON-17 and via commercial airline flying into the Red Lake Municipal Airport.

The Madsen Gold Project has existing permitted surface infrastructure, which includes a mill and tailings facility. The Madsen Mine was a previously producing mine for over 30 years, most recently operated by Claude Resources. Pure Gold purchased and consolidated the Madsen Gold Project in 2014 and owns 100% interest.

This PEA was prepared by independent consultants Glen Cole, P. Geo., of SRK Consulting (Canada) Inc., Kevin Niemela, P. Eng., of Nordmin Engineering Ltd., and John Folinsbee, P. Eng., of Heads Ore Tails Metallurgical Consulting Inc.

1.1 Mineral Resource Estimate

The Madsen mineral resource estimate, prepared by SRK Consulting (Canada) Inc., is based upon a geostatistical block model that incorporated over 550,000 individual assays from 13,624 core boreholes (816,367 metres), 4,446 historic underground stope chip samples, and 27 levels of geologic mapping and sampling. Historic underground boreholes were typically drilled perpendicular to development drifts on all levels of the mine, usually at 25 feet (7.6 metres) spacing. Historic drilling was validated by 764 boreholes completed since 1999 by modern operators following best practices guidelines. Table 1.1 summarizes the mineral resources.

Table 1.1 Mineral Resource Statement for Madsen Gold Project*

Resource Classification	Tonnes	Grade (Au g/t)	Contained Gold (oz.)
Indicated	3,236,000	8.93	928,000
Inferred	788,000	11.74	297,000

**Mineral resources are not mineral reserves and do not have demonstrated economic viability. All figures have been rounded to reflect the relative accuracy of the estimates. Mineral resources are reported at a cut-off grade of 5.0 g/t gold based on US$1,000 per troy ounce gold and gold metallurgical recoveries of 94 percent.*

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1.2 Preliminary Economic Assessment

The potentially mineable underground resource considered for this study is estimated to be approximately 1,063,000 tonnes at a grade of 8.3 g/t Au. The Preliminary Economic Assessment includes both Indicated Mineral Resource (82% of the total tonnes) and Inferred Mineral Resource. Table 1.2 shows a breakdown of the potentially mineable resource. This is a subset of the current mineral resources for the Madsen Gold Project.

Table 1.2 Mineral Resource (Mine Diluted) Included in PEA Mine Plan*

Resource Classification	Tonnes	Grade (Au g/t)	Recoverable Gold (oz.)
Indicated	868,773	8.55	219,826
Inferred	194,485	6.91	39,726

**Mineral resources are not mineral reserves and do not have demonstrated economic viability. All figures have been rounded to reflect the relative accuracy of the estimates. Initial disclosure of mineral resources are reported at a cut-off grade of 5.0 g/t gold based on US$1,000 per troy ounce gold and gold metallurgical recoveries of 94 percent. For the purpose of the PEA, mine diluted mineral resources are reported with a variable cut-off grade dependent on individual stoping areas, a US$1,175 per troy ounce gold, and gold metallurgical recoveries of 92 percent.*

Mill recovery rates are estimated at 92%, which results in 259,500 ounces of recoverable gold based on the current estimated potentially mineable resource.

It should be noted that Inferred Mineral Resources are considered too speculative geologically to have economic considerations applied to them that would enable them to be categorized as Mineral Reserves. For the PEA, the metallurgical recovery is based on early stage test work and historic production records. In addition, the cost projections range in accuracy from PEA to Feasibility level. Therefore, there is no guarantee that the economic projections contained in this Preliminary Economic Assessment would be realized.

The PEA as envisioned includes an underground mining operation relying heavily on the existing mining, milling and tailings management infrastructure at the Madsen Gold Project. Primary access will be via the existing McVeigh portal, which is located approximately one kilometre from the existing mill, and provides ramp access to the top 150 vertical metres of the mine workings. The PEA mine plan includes further development of the ramp to a depth of 600 metres to access the upper 12 levels of the mine. The existing Madsen shaft would be used primarily for ventilation and as a second means of egress via the manway located in the shaft.

Table 1.3 shows the key economic parameters used for the Preliminary Economic Assessment and Table 1.4 demonstrates the PEA Sensitivity to the price of gold.

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Table 1.3 PEA Parameters

Parameters	Units
Gold Price	US$1,175/oz.
Exchange Rate (US$ to C$)	0.80
Total Resource Tonnes Mined / Milled	1.063 million
Processing Rate	550 t/d
Diluted Head Grade	8.3 g/t
Gold Recovery Rate	92%
Mine Life	6.5 years
Total Gold Ounces Recovered	**259,551 oz.**
Average Annual Gold Production	47,191 oz.
Peak Annual Gold Production	57,958 oz.
Pre-production Capital Cost	$20.1 million
Sustaining Capital Cost (Life of Mine)	$39.2 million
Unit Operating Costs (per tonne processed)	
Mining Costs	$104/tonne
Processing Costs	$31/tonne
G&A	$40/tonne
LOM Average Cash Cost(1)	US$571/oz.
LOM Cash Cost plus Sustaining Cost	US$692/oz.
Royalties	None
Corporate Income Tax / Ontario Mining Tax	25% / 10%

(1) Cash cost includes mining cost, mine-level G&A, mill and refining cost

Table 1.4 PEA Sensitivities

Gold Price (US$/oz.)	$1,025	$1,075	$1,125	$1,175	$1,225	$1,275	$1,325
Pre-Tax NPV5% (C$ million)	$65	$78	$91	$104	$118	$131	$144
After-Tax NPV5% (C$ million)	$49	$58	$67	$76	$86	$95	$104
Pre-Tax IRR	49%	58%	66%	74%	83%	91%	99%
After-Tax IRR	42%	49%	56%	62%	69%	75%	82%

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1.3 Capital and Operating Costs

The capital costs were prepared from first principles and using information and costs of recent projects of similar scale and magnitude. Pre-production capital costs are estimated at $20.1 million with the majority of the costs being associated with mill refurbishment as well as ramp and surface development. Additional capital cost requirements include surface installations and a new ventilation and pumping system that will utilize the existing shaft. Pre-production capital will be minimized by utilizing existing infrastructure, including a 500 tonne per day mill with carbon-in-pulp (CIP) circuit and tailings management facility. The existing McVeigh portal will be further developed from its current access of 150 vertical metres, down to a total depth of 600 metres. Existing workings would be rehabilitated and used as access development.

Underground mining and haulage is anticipated to be accomplished by contract mining companies using their own equipment, conducted 365 days per year. Electrical grid power will provide power to the project over the life of the mine. The site is currently serviced by 44 kV power.

LOM sustaining capital costs are estimated at $39.2 million with the majority of the costs being associated with ramp development, slashing existing workings, and new access development. Table 1.5 summarizes the Capital Costs estimated for the PEA.

Table 1.5 Capital Costs (millions of dollars)

Capital Costs	Pre-Production	Sustaining	Total
Surface Infrastructure	$4.7	-	$4.7
Mining Infrastructure	$5.5	$0.5	$5.9
Mobile Equipment	$1.4	$1.4	$2.8
Development and Capitalized Operating Costs	$2.4	$32.6	$35.1
Electrical	$1.3	-	$1.3
Mill and Tailings Management Refurbishment	$2.0	$0.6	$2.7
Diamond Drilling	$0.5	$2.3	$2.7
Subtotal	**$17.8**	**$37.4**	**$55.3**
Contingency %	15%	5%	7%
Contingency	$2.3	$1.9	$4.1
Total Capital Costs	**$20.1**	**$39.2**	**$59.3**

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Table 1.6 summarizes the estimated operating costs for the PEA.

Table 1.6 Operating Costs

Operating Costs	$/t processed	$/oz.	US$/oz.
Mining Cost	$104	$424	$339
Processing Cost	$31	$126	$100
G&A Cost	$40	$164	$132
Total Cash Cost(1)	**$174**	**$714**	**$571**
Sustaining Capital	$37	$151	$121
Cash Cost plus Sustaining Capital	**$211**	**$865**	**$692**

(1) Cash cost includes mining cost, mine-level G&A, mill and refining cost

1.4 Mining and Processing

The PEA is based on all ramp and level waste development being performed by a mining contractor using two boom electric hydraulic drill jumbos, 2.7m^3 bucket LHDs, 20 tonne haul trucks, scissor lifts/bolters and other rubber tired diesel-powered support equipment. The total LOM waste development is summarized below in Table 1.7.

Table 1.7 Waste Development in PEA Mine Plan

Waste Development	Metres	Tonnes
Ramp	2,968	128,237
Slash	5,759	159,221
Ventilation Raise	223	1,985
Access Development	3,768	162,788
Total		**452,231**

The PEA mine plan envisages that mechanized cut & fill, shrinkage, and long-hole mining methods would be employed to extract the mineralized material. All three of these methods have been historically used with success at the Madsen Gold Project. Table 1.8 displays a breakdown of the mining methods used in the PEA mine plan.

Table 1.8 Mining Methods

Mining Method	Tonnes	% Total Tonnes	% Mining Dilution
Cut & Fill	533,008	50.1%	5%
Shrinkage	390,880	36.8%	15%
Longhole	139,370	13.1%	20%
Total	1,063,258		

The PEA considers refurbishing the existing mill and tailings management facility which have been on care and maintenance since 1999. Mill production of 550 tonnes per day is assumed achievable by modernizing controls and instrumentation of the reagent and grinding circuits. Mill and tailings dam refurbishment is estimated to be $3.1 million, of which $2.3 million is included as a pre-production capital cost item and the remainder is sustaining capital.

The mill consists of a single stage crushing circuit and a two stage grinding circuit, which is then followed by cyanide leaching. The leached gold is collected in a CIP circuit, and is subsequently stripped using mild caustic, then collected on stainless steel mesh cathodes by electrowinning. The product from electrowinning is refined into doré bars in an induction furnace.

A 92% gold recovery was assumed for the PEA, based on the historical average recovery rate of the mill when it operated intermittently from 1997 to 1999. The Company's existing permits, including the Environmental Compliance Approval, allow for operation of a 1,089 tonne per day mill and CIP circuit with discharge of treated tailings to the existing tailings facility. Further work is required to determine optimum processing rates.

1.5 Conclusions

The Madsen Gold Project provides positive economic returns. Significant capital cost savings are achieved from the permitted processing infrastructure that currently exists on site. Table 1.9 summarizes the estimated returns for the Madsen Gold Project.

Table 1.9 PEA Highlights

Pre-Tax $NPV_{5\%}$	$104 million
Pre-Tax IRR	74%
Payback Period	1.5 Years
After-tax $NPV_{5\%}$	$76 million
After-tax IRR	62%
Payback Period	1.5 years

1.6 Recommendations

The PEA supports that the Madsen Gold Project has the potential to be economically viable. Since the PEA only considers the extraction of approximately 25% of the existing mineral resource tonnes, opportunities exist to expand the base case scenario through project exploration and resource growth. The results of the PEA warrant additional exploration and expansion of the potentially mineable resource including conversion of inferred resources to measured and indicated, although there is no certainty that further drilling will enable resources to be converted. With continued positive drill results at the Madsen Gold Project, it is recommended that a Preliminary Feasibility Study be performed that includes current and new drilling information.

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Additional opportunities also include optimizing the mine plan to consider mineral resources outside the scope of this PEA, optimizing the mill and CIP circuit processing rate including the potential to increase the mill throughput rate to 1,089 tonnes per day allowed for under the existing Environmental Compliance Approval and optimizing gold recovery.

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2. Introduction

2.1 Terms of Reference

This technical report was prepared by Nordmin for Pure Gold to summarize the results of the Preliminary Economic Assessment on the Madsen property. This report was prepared in accordance with the National Instrument 43-101 guidelines set out by the Canadian Securities Administrators and is considered effective April 20, 2016.

Pure Gold is a junior mineral exploration company listed on the TSX-Venture Exchange (PGM) with their head office at:

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Vancouver, BC
Canada, V6E 2E9
Phone: 604-646-8000

This PEA report is intended to be used by Pure Gold subject to the terms and conditions of their contract with Nordmin and SRK. This permits Pure Gold to file this report on SEDAR as an NI 43-101 Technical Report with the Canadian Securities Regulatory Authorities pursuant to provincial securities legislation. Nordmin understands that Pure Gold may use the report for a variety of corporate purposes. Except for the purposes legislated under provincial securities laws, any other use of this report, by any third party, is at that party's sole risk.

2.2 Sources of Information

This PEA has been prepared by independent consultants who are Qualified Persons under NI 43-101 definitions. Subject to the conditions and limitations set forth herein, the independent consultants believe that the qualifications, assumptions and the information used by them is reliable and efforts have been made to confirm this to the extent practicable. However, none of the consultants involved in this study can guarantee the accuracy of all information in this report.

This report is based, in part, on internal company technical reports, and maps, published government reports, company letters and memoranda, and public information as listed in Section 27 references. Several sections from reports authored by other consultants have been directly quoted or summarized in this Report, and are so indicated where appropriate.

A draft copy of this Report has been reviewed for factual errors by Pure Gold regarding the company and history of the property, and the geological resource estimate dated February 18, 2014 prepared by SRK. Nordmin has relied on Pure Gold's historical and current knowledge of the Madsen Gold Project and work performed thereon. Any statements and opinions expressed in this document are given in good faith and in the belief that such statements and opinions are not false and misleading at the date of this report.

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2.3 Resources

This PEA is based on both Indicated Mineral Resource (82% of the total resource tonnes) and Inferred Mineral Resource. Inferred Mineral Resources are considered too speculative geologically to have economic considerations applied to them that would enable them to be categorized as Mineral Reserves. There is no certainty that the results predicted by this PEA would be realized. The resources considered for this study are a subset of the total current resource for the Madsen Gold Project.

2.4 Site Visits

Mr. Kevin Niemela, P. Eng., of Nordmin Engineering Ltd. visited the Madsen Gold Project site on September 17, 2015. Mr. Glen Cole, P. Geo., of SRK Consulting (Canada) Inc., visited the project site on three separate occasions from January to August 2009. Mr. John Folinsbee, P. Eng., of Heads Ore Tails Metallurgical Consulting visited the site in early 2013.

2.5 Currency

All dollar values are in Canadian dollars ($CAD) unless otherwise stated. An exchange rate of $1USD = $1.25CAD was used for the financial analysis.

2.6 Glossary of Terms

Abbreviation	Meaning
°C	Degrees Celsius
$ and CAD$	Currency of Canada
AA	Atomic Absorption (assay method to measure metal content)
Ag	Silver
Au	Gold
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
Cu	Copper
CPUE	Catch-per-unit-effort
DDH or ddh	Diamond Drill Hole
DMS	Dense Media Separation
EA	Environmental Assessment
EIS	Environmental Impact Statement
el	elevation
EM	Electromagnetic
EPR	Environmental Permitting Regulations
g	gram
g/t	grams per tonne
GRG	Gravity Recoverable Gold
ha	hectare
hp	Horesepower
HMY	High Mass Yield
ICP	Inductively Coupled Plasma (geochemical test method)

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Abbreviation	Meaning
IK	Indicator Kriging (block model type)
IP	Induced Polarization (geological survey method)
IRR	Internal rate of return
JV	Joint Venture
km	kilometre
kg	kilogram
kg/t	kilograms per tonne
LCS	Local Coordinate System
LOI	Letter of Intent
LOM	Life of Mine
m	metre
mm	millimetre
µm	micrometre
Ma	millions of years
Mt	millions of tonnes
N	North
NN	Nearest neighbour (block model type)
NPV	Net Present Value
NSR	Net Smelter Return
NTS	National Topographic System
NW	Northwest
oz.	Troy Ounces (1 troy oz. = 31.1034 g)
P. Eng.	Professional Engineer
P. Geo.	Professional Geoscientist
PEA	Preliminary Economic Assessment
PMA	Particle Mineral Analysis
PMR	Potential Minable Resource
ppm	parts per million
QP	Qualified Person
S	South
SE	Southeast
SG	Specific Gravity
SMU	Smallest Mining Unit
SW	Southwest
t	tonne (metric)
TMF	Tailings Management Facility
UTM	Universal Transverse Mercator
VLF-EM	Very Low Frequency Electromagnetic Survey
W	West
WCS	World Coordinate System

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3. Reliance on Other Experts

This technical report was prepared for Pure Gold Mining Inc. (TSX Venture: PGM) for the 100% owned Madsen Gold Project ("Madsen") in the Red Lake mining district of Ontario Canada.

Nordmin has assumed, and relied on the fact, that all the information and existing technical documents listed in the References Section 27 of this Report are accurate and complete in all material aspects. While Nordmin carefully reviewed all the available information presented, we cannot guarantee its accuracy and completeness. We reserve the right, but will not be obligated, to revise the Report and conclusions, if additional information becomes known subsequent to the date of this Report.

Although copies of the tenure documents, operating licenses, permits, and work contracts were reviewed, an independent verification of land title and tenure was not performed. Nordmin did not independently verify the legality of any underlying agreement(s) that may exist concerning the licenses or other agreement(s) between third parties but has relied on the client's solicitor to have conducted the proper legal due diligence – see Appendix A.

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Table 3.1 Sections for Which Each Author Takes Responsibility For*

Section	Title	Qualified Person	Company
01	Summary	Kevin Niemela, P.Eng	Nordmin Engineering
02	Introduction	Kevin Niemela, P.Eng	Nordmin Engineering
03	Reliance on Other Experts	Kevin Niemela, P.Eng	Nordmin Engineering
04	Property Description and Location	Glen Cole, P.Geo	SRK
05	Accessibility, Climate, Local Resources, Infrastructure and Physiography	Glen Cole, P.Geo	SRK
06	History	Glen Cole, P.Geo	SRK
07	Geological Settings and Mineralization	Glen Cole, P.Geo	SRK
08	Deposit Types	Glen Cole, P.Geo	SRK
09	Exploration	Glen Cole, P.Geo	SRK
10	Drilling	Glen Cole, P.Geo	SRK
11	Sample Preparation, Analyses and Security	Glen Cole, P.Geo	SRK
12	Data Verification	Glen Cole, P.Geo	SRK
13	Mineral Processing and Metallurgical Testing	Glen Cole, P.Geo John Folinsbee, P.Eng.	SRK Heads Ore Tails Metallurgical Consulting
14	Mineral Resource Estimate	Glen Cole, P.Geo	SRK
15	Mineral Reserve Estimate	Kevin Niemela, P.Eng	Nordmin Engineering
16	Mining Methods	Kevin Niemela, P.Eng	Nordmin Engineering
17	Recovery Methods	John Folinsbee, P.Eng.	Heads Ore Tails Metallurgical Consulting
18	Project Infrastructure	Kevin Niemela, P.Eng	Nordmin Engineering
19	Market Studies and Contracts	Kevin Niemela, P.Eng	Nordmin Engineering
20	Environmental Studies, Permitting and Social or Community Impact	Kevin Niemela, P.Eng	Nordmin Engineering
21	Capital and Operating Costs	Kevin Niemela, P.Eng	Nordmin Engineering
22	Economic Analysis	Kevin Niemela, P.Eng	Nordmin Engineering
23	Adjacent Properties	Glen Cole, P.Geo	SRK
24	Other Relevant Data and Information	Kevin Niemela, P.Eng	Nordmin Engineering
25	Interpretation and Conclusion	Kevin Niemela, P.Eng	Nordmin Engineering
26	Recommendation	Kevin Niemela, P.Eng	Nordmin Engineering
27	References		

**Sections 1, 25 and 27 are compiled by the author (Nordmin) but the other report contributors listed within the table have contributed to these sections.*

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4. Property Description and Location

The Madsen gold project is located approximately 440 kilometres northwest of Thunder Bay, Ontario and 260 kilometres east-northeast of Winnipeg, Manitoba. The Madsen project is located within the Baird, Heyson, and Dome Townships of the Red Lake Mining District of north-western Ontario, 10 kilometres south-southwest of the Municipality of Red Lake (Figure 4.1). The centroid of the project area is located approximately at 93.91 degrees longitude west and 50.97 degrees latitude north. The elevation measured at the collar of the Madsen shaft is 389 metres above mean sea level.

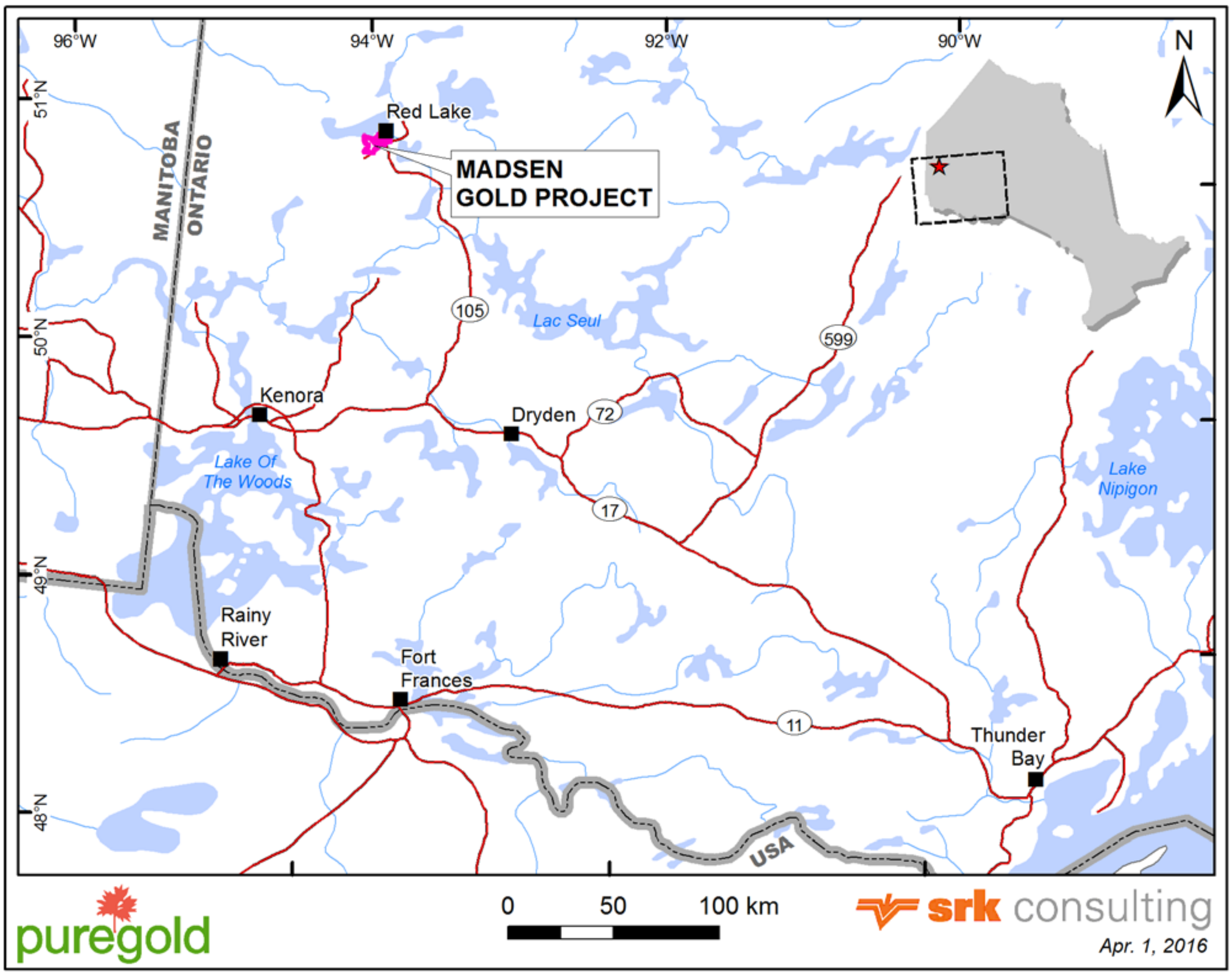

Figure 4.1: Location of the Madsen Gold Project

4.1 Mineral Tenure

The larger Madsen project area previously comprised the Madsen and the Newman-Madsen project areas. The latter was created in 2004 from an aggregation of three historical land packages including the My-Ritt, Nova Co, and Newman-Heyson properties. After the acquisition of both project areas, Pure Gold considers these claims part of the Madsen project; as such the use of the term Newman-Madsen project has been discontinued in general use except where appropriate for historical reference.

The land tenure of the Madsen gold project consists of a contiguous group of 246 patented, leased and unpatented mining claims covering an aggregate area of 4,382 hectares (Table 4.1 and Figure 4.2). All of the 226 patented claims and 17 leased mining claims have accompanying surface rights. The outside boundary of the patented claims has been legally surveyed as part of the patent process. The claims are divided into 11 claim groupings based on associated royalty agreements; the groups are the Madsen mine, Starratt-Olsen, Russet, Aiken, Mills, Ava, Killoran, Hager, Franco-Nevada, My-Ritt Red Lake, and the Camp McMann.

Pure Gold acquired the Madsen property in March 2014 in a cash and share transaction between Pure Gold (then Laurentian Goldfields Ltd.) and Claude Resources Inc. At the time the property consisted of 237 patented and leased mining claims. In June 2014 Pure Gold acquired the Newman-Madsen property from Sabina Gold & Silver Corp. in a share transaction, effectively consolidating the Madsen and Newman-Madsen properties into a new, larger Madsen property. In December 2015, Pure Gold sold 26 claims, known as the Buffalo Claims, as well as two adjoining claims to Premier Gold Mines Ltd. in a cash and share transaction.

The Madsen mine claim grouping contains the Madsen mine, the No. 1 and Madsen (also known as No. 2) shafts, a mill and tailings impoundment area and the Madsen town site. The Faulkenham and Starratt shaft, both of which are located in the Starratt-Olsen claim grouping, also fall within the project area.

Under the Ontario Mining Act, Ontario Crown Lands can be staked by licensed individuals. The Act is administered by the Provincial Mining Recorder and Mining Lands divisions of the Ontario Ministry of Northern Development and Mines (MNDM). Patented mining claims are subject to a mining tax of 4 dollars per hectare per year, whereas mining leases are subject to a rental fee of 3 dollars per hectare per year payable to the MNDM.

Pure Gold's solicitors McMillan LLP of Toronto have investigated the title relating to the Madsen properties by searching the title of land at the Land Titles Office of Kenora. The title search from McMillan dated February 20, 2015 without its appendices is appended to this report in Appendix A. McMillan identified a number of encumbrances listed in Schedules C and E of the title search. The main encumbrance listed by McMillan relating to the Madsen gold project is that the Community of Madsen is allowed to drain sewage effluent or storm waters into the Madsen tailings pond; however, it has been noted that a provincial ruling exists absolving the company of any liability with respect to the sewage works.

Table 4.1 Madsen Gold Project Land Tenure

Claim No.	No. of Claims	Area* (Ha)	Type		Claim No.	No. of Claims	Area* (Ha)	Type
Madsen Mine					Aiken**			
11502 – 11509	8	158	Patented		19367-19368	2	32	Patented
11509A	1	17	Patented		19719-19720	2	35	Patented
12521 – 12529	9	158	Patented		21316 – 21318	3	55	Patented
12527A	1	19	Patented		21316A	1	25	Patented
12601 – 12605	5	99	Patented		19684 – 19688	5	94	Patented
12638 – 12641	4	97	Patented		19278 – 19281	4	90	Patented
12658 – 12663	6	115	Patented		20169 – 20171	3	64	Patented
12664 – 12669	6	108	Patented		18728 – 18729	2	58	Patented
12673 – 12684	12	229	Patented		18778	1	23	Patented
12836 – 12838	3	81	Patented		20585 – 20588	4	86	Patented
12921 – 12922	2	17	Patented		20585A – 20587A	3	63	Patented
13024	1	20	Patented		21378	1	24	Patented
36016 – 36019	4	66	Patented		19788	1	7	Patented
38091 – 38094	4	58	Patented		21273 – 21278	6	51	Patented
Grouping Total	66	1,242			21280 – 21281	2	25	Patented
Starratt - Olsen					Grouping Total	40	732	
12963 – 12965	3	55	Patented		Ava			
12704 – 12706	3	51	Patented		19247 – 19254	8	127	Patented
12642 – 12648	7	129	Patented		19306 – 19313	8	104	Patented
12730	1	24	Patented		19428 – 19430	3	61	Patented
12642A – 12644	3	56	Patented		Grouping Total	19	292	
12953 – 12955	3	89	Patented		Killoran			
12858 – 12866	9	112	Patented		47990 – 47996	7	108	Leased
12875 – 12883	9	154	Patented		50992 – 50993	2	27	Leased
12881A – 12882A	2	30	Patented		51018 – 51021	4	68	Leased
Grouping Total	40	700			Grouping Total	13	203	
Russet**					Hager			
19235 – 19238	4	80	Patented		1184229	1	26	Unpatented
19181 – 19182	2	46	Patented		1184231	1	21	Unpatented
12820 – 12824	5	70	Patented		1184902	1	19	Unpatented
12726 – 12728	3	63	Patented		51287 – 51290	4	52	Leased
Grouping Total	14	259			Grouping Total	7	118	
Mills					My-Ritt			
19223 – 19226	4	52	Patented		KRL-456	1	16	Patented
12758 – 12760	3	49	Patented		KRL-407 - KRL-408	2	40	Patented
12764 – 12766	3	37	Patented		KRL-457 - KRL-461	5	82	Patented
16672 – 16673	2	39	Patented		Grouping Total	8	137	
Grouping Total	12	177			Nova Co			
Newman-Heyson					K-1445 - K-1451	7	121	Patented
KRL-13060 - KRL-13062	3	54	Patented		KRL-1452	1	21	Patented
KRL-13068 - KRL-13069	2	40	Patented		Grouping Total	8	142	
KRL-13241 - KRL-13244	4	87	Patented					
KRL-13254 - KRL-13255	2	41	Patented					
KRL-13082 - KRL-13084	3	64	Patented					
KRL-13475 - KRL-13477	3	57	Patented					
KRL-13659 - KRL-13660	2	36	Patented					
Grouping Total	19	380						

** Rounded to the closest integer value*

*** The Aiken and Russet blocks are subject to a 2 percent net smelter return royalty, to a maximum of C$2.0 million. See text for discussion.*

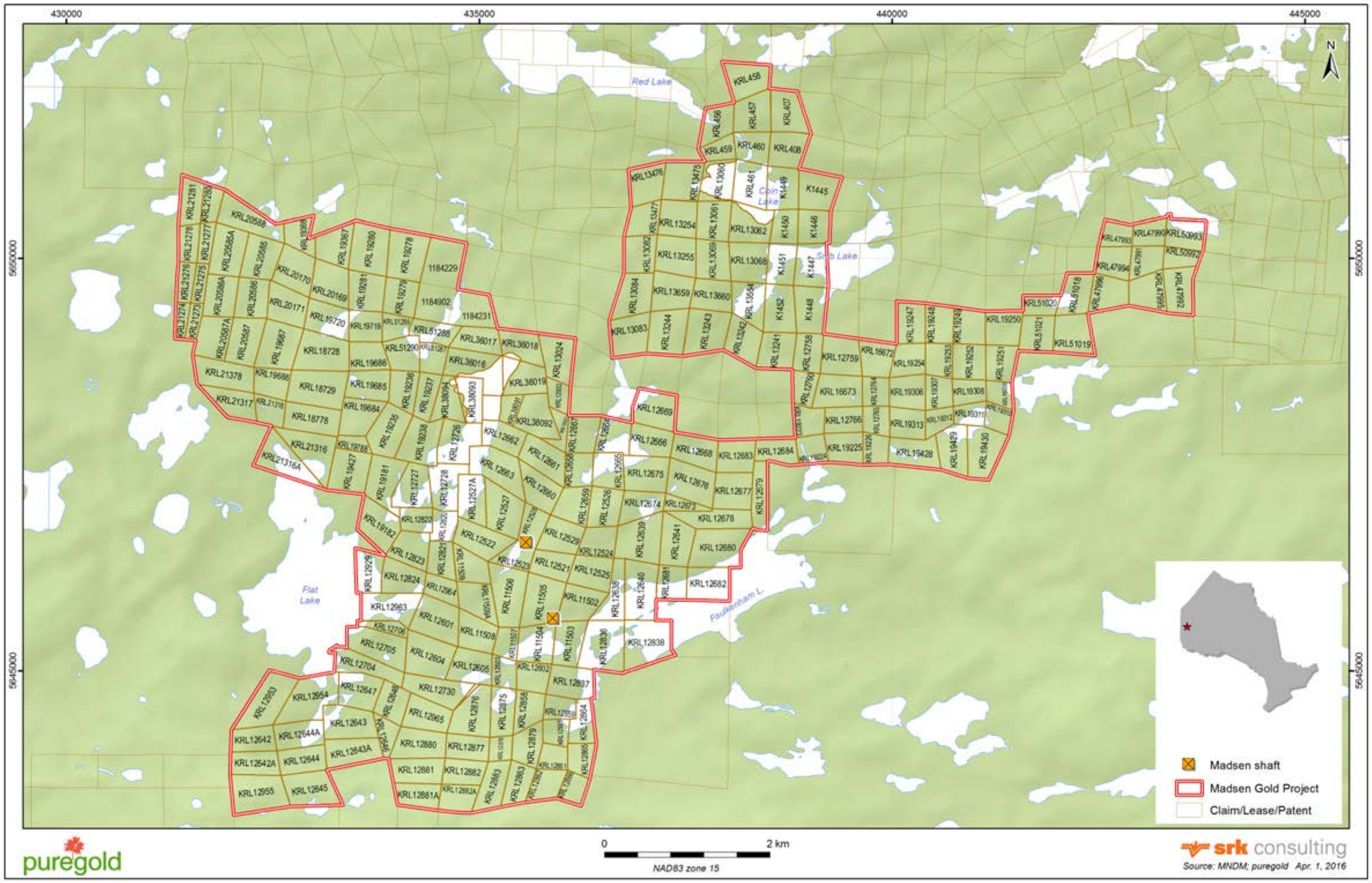

Figure 4.2 Land Tenure Map of the Madsen Gold Project

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4.2 Underlying Agreements

For a summary of royalty agreements affecting claims of the Madsen property see Table 4.2. Pure Gold owns 100 percent of the Madsen gold project. The Aiken and Russet blocks of patented claims are subject to a two percent (1% to Franco-Nevada, 1% to Canhorn) net smelter return royalty to a maximum of C$2 million. The agreement is between Pure Gold and Franco-Nevada Corporation, who purchased the royalties from New Klondike Exploration Ltd. (formerly United Reef Ltd., the previous owner of the property). An additional historical royalty agreement between Claude and Canhorn Mining Corporation regarding the same claim blocks has not been confirmed by Pure Gold. This underlying agreement does not affect the mineral resources stated in this technical report which are located in the Madsen mine grouping of patented claims.

SRK has not researched underlying agreements related to the Madsen gold project and accepts that the information provided by Pure Gold is accurate and complete.

On December 19, 2013 Pure Gold (formerly Laurentian Goldfields Ltd.) announced in a news release that it had entered into a definitive agreement with Claude to acquire 100 percent of the Madsen gold project. Consideration paid by Laurentian consisted of an initial cash payment of C$3.75 million, share consideration at closing representing 19.9 percent of Laurentian's shares outstanding following completion of the acquisition, and an initial C$7.50 million financing, a second cash consideration of C$2.50 million payable three months following closing was paid immediately upon closing, and a final cash payment of C$2.50 million was made six months after the closing of the agreement. The Madsen transaction was completed on March 4, 2014.

In addition to the agreement with Claude, Laurentian acquired the Newman-Madsen project from Sabina on June 25, 2014 for shares representing 9.9 percent of Laurentian's shares outstanding.

The 38 tenements acquired from Sabina are subject to a royalty agreement with Sandstorm Gold Ltd. (Sandstorm) after acquiring Premier Royalty Corporation (Royalty) who held the royalties previously. Under the agreement, Sandstorm is entitled to a 0.5 percent net smelter return (NSR). A total of 20 tenements are subject to a royalty agreement with Franco-Nevada Corporation (Franco-Nevada); under this agreement Franco-Nevada receives 1.5 percent on the production of the first one million ounces of gold equivalent and two percent on all production thereafter. A further eight tenements are subject to a royalty agreement with My-Ritt Red Lake Gold Mines Ltd. (My-Ritt). Under this agreement, My-Ritt has the right to a three percent NSR. The remaining eight tenements are subject to a royalty agreement with Camp McMann Red Lake Gold Mine Ltd. (Camp McMann) under which Camp McMann is entitled to a three percent NSR.

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Table 4.2: Summary of Royalty Agreements Affecting Madsen Tenements

Claim No.	No. Claims	Royalty Holder	Royalty
KRL18728, KRL18729, KRL19367, KRL19368, KRL19687, KRL19688, KRL19720, KRL20169 - KRL20171, KRL20585 - KRL20588, KRL20585A - KRL20588A, KRL21273, KRL21274, KRL21275 - KRL21278, KRL21280, KRL21281, KRL21316 - KRL21318, KRL21316A, KRL21378, KRL12726 - KRL12728, KRL12820 - KRL12824, KRL19181, KRL19182, KRL19235 - KRL19237, KRL19328	44	Franco-Nevada Corporation	1% NSR to a maximum of C$1 million
KRL18728, KRL18729, KRL19367, KRL19368, KRL19687, KRL19688, KRL19720, KRL20169 - KRL20171, KRL20585 - KRL20588, KRL20585A - KRL20588A, KRL21273, KRL21274, KRL21275 - KRL21278, KRL21280, KRL21281, KRL21316 - KRL21318, KRL21316A, KRL21378, KRL12726 - KRL12728, KRL12820 - KRL12824, KRL19181, KRL19182, KRL19235 - KRL19237, KRL19328	44	Canhorn Mining Corporation*	1% NSR to a maximum of C$1 million
KRL 13060 to 13062 – MR & SR, KRL 13069 – MR & SR, KRL 13241 to 13244 – MR & SR, KRL 13255 – MR & SR, KRL 13554 – MR & SR, KRL 13659 – MR & SR, KRL 13660 – MR & SR, KRL 13068 – MR & SR, KRL 13082 to 13084- MR & SR, KRL 13254 – MR & SR, KRL 13475 to 13477 – MR & SR, KRL 407 – MR & SR, KRL 408 – MRO, KRL 456 – MRO, KRL 457 – MR & SR, KRL 458 to 461- MRO, KRL 1444 to 1452 – MR & SR, KRL 1476 – MR & SR	38	Sandstorm Gold Ltd.	0.5% NSR
KRL 13060 to 13062 – MR & SR, KRL 13069 – MR & SR, KRL 13241 to 13244 – MR & SR, KRL 13255 – MR & SR, KRL 13554 – MR & SR, KRL 13659 – MR & SR, KRL 13660 – MR & SR, KRL 13068 – MR & SR, KRL 13082 to 13084- MR & SR, KRL 13254 – MR & SR, KRL 13475 to 13477 – MR & SR	20	Franco-Nevada Corporation	1.5% on first 1M oz-equiv; 2% on production beyond first 1M oz-equiv
KRL 407 – MR & SR, KRL 408 – MRO, KRL 456 – MRO, KRL 457 – MR & SR, KRL 458 to 461- MRO	8	My-Ritt Red Lake Gold Mines Ltd	3% NSR
K 1445 to 1452 – MR & SR	8	Camp McMann Red Lake Gold Mine Ltd.	3% NSR
* This agreement has not been confirmed by Pure Gold			

4.3 Permits and Authorizations

Pure Gold holds all permits and certifications as listed above from governmental agencies for the Madsen gold project so as to allow for surface core drilling, underground core drilling, mine dewatering, discharge from the polishing pond to the environment, mine rehabilitation, and moderate amounts of excavation. Some of these existing permits would require updates if Pure Gold advances the project.

4.3.1 Environmental and Social Conditions

An analysis of the hydrology of the Madsen Project was completed by Trow Associates in 2009. Water flow through the project area is generally in a north to northeasterly direction passing through several wetlands, creeks, and lakes and ultimately into St. Paul's Bay of Red Lake.

The property is located in the October 1873 Treaty #3 area. Signatories to the treaty currently engaged by Pure Gold include Treaty #3 Grand Council, Wabauskang First Nation, Lac Seul First Nation, Wabaseemoong First Nation, Grassy Narrows First Nation, Naotkamegwanning First Nation, and the Métis Nation of Ontario.

Historical mining on the property has resulted in remnants on surface from past underground mining, ore processing, waste rock disposal, and tailings disposal. As was normal practice at the time, early mine operations on the Madsen gold project disposed of tailings directly into the receiving waters without a containment system. As practices changed, an embankment was constructed on old tailings south of Derlak Lake to contain tailings in the 1940s and 1950s. Another containment dam was constructed further upstream in 1997 and was used to contain tailings from ore processing of approximately 300 tonnes per day from 1997 to 1999. A total of 150,000 tonnes of tailings were deposited in this upper impoundment; there is space for storage of an additional approximately one million tonnes within the existing dam.

Impounded water within the containment dams is now considered the polishing pond and is the last point of control before the approved discharge. Water can be discharged from the polishing pond by a high-capacity pumping system dependent on the copper concentration and flow at the Coin Creek culvert. The pumping system replaced a siphon system that had a limited capacity and was not sufficient to deal with significant flooding events. The pump was installed to increase the discharge rate when allowed in order to reduce the polishing pond water level and subsequently reduce seepages.

Snib Lake is considered to be the first fish habitat downstream of the discharge point. The fish have not been tested for metals levels or other contaminants.

Since 1977, the community of Madsen has operated a two-compartment septic system from which grey water and sewage decants into the Madsen tailings facility. This plant discharges an average of 50 cubic metres of sewage per day into the tailings facility at the southwest corner. This sewage facility was authorized by the provincial government without the consent of Madsen Gold Corp. A legal settlement included a requirement for fencing and a comfort letter assuring Madsen Gold Corp. that it would hold no future liability with respect to the sewage outflow.

Northern Water Works operates the sewage facility on behalf of the municipality.

4.3.2 Environmental Management

Environmental aspects of the Madsen mine are managed by Pure Gold. The existing environmental monitoring program is summarized in Table 4.3. Monitored discharges take place on an annual basis during ice free months. At the request of Pure Gold, monitoring requirements were reviewed and a Provincial Order was issued in April 2016 reducing sampling requirements during these annual discharge periods while the project remains in a state of temporary suspension.

The order documents the sampling requirements as follows:

Table 4.3: Current Environmental Monitoring Program

Parameter	Monitoring Frequency	Daily Concentration Limit (*mg/l)	Monthly Average Concentration Limit (mg/l)
Total Cyanide	-	-	-
Total Suspended Solids	W	30.0	15.0
Copper	W	0.6	0.3
Lead	W	0.4	0.2
Nickel	W	1.0	0.5
Zinc	W	1.0	0.5
Arsenic	W	1.0	0.5

As required by the Certificate of Approval from the Ministry of the Environment, the quantity of effluent that can be discharged from the polishing pond is dependent upon two conditions. The first condition is the copper concentration of the polish effluent, as determined by the two most recent copper results from weekly samples. The second condition is the flow rate of Upper Coin Creek, as determined by the water flow at the Coin Creek culvert at Highway 618.

Annual reports are submitted to the Ministry of the Environment under the current Certificate of Approval.

A spillway was constructed in 2010 and inspected by the MNDM in 2012. Annual monitoring inspections of the dam and TMF are completed by engineering consultants on behalf of Pure Gold with the most recent by Knight Piesold (2014) and DST Engineering (2015).

4.3.3 Environmental Liabilities

The property covers a large area and has existing environmental liabilities as a result of historical mining activity and activities from local residents. The liabilities identified here are a result of a review of government and company reports. This information is not a result of an exhaustive ground surveying.

The sewage overflow from Madsen is not considered a liability because of the aforementioned settlement. Liabilities along the power line and road right-of-ways are also not the responsibility of Pure Gold as land titles lie with Ontario Hydro and the Crown. In the community of Madsen, there was a transfer of easements for the Madsen Community Association Inc. for the land under private residences. At the community of Starratt-Olsen the deed to surface rights for a parcel of land that a number of private residences are located on is held by a resident. The deed holder and the other residents have an agreement between themselves regarding where the bounds of their individual lots are located within the parcel of land for which they hold surface rights. The Township of Red Lake is apparently aware of this informal arrangement between the primary landowner and the other residents.

There are six key areas of previous mining activity on the Madsen gold project. Details of the mine workings and their status, based on government and company reviews, are presented in Appendix B.

Historical mine workings have resulted in residual liabilities from mine openings, old buildings, and waste rock and tailings disposal as summarized in Appendix B. Many of the shafts and raises are not yet capped, but have been temporary fenced and signed for public safety. At shafts and raises that have been capped, the quality of the caps varies and they have not been checked recently by an independent engineer. Potential un-capped or poorly capped shafts and raises present a serious potential liability on the property.

Various types of waste rock were tested during past exploration drilling and all were recorded to have less than one percent sulphur content. Past testing of ore indicated that the ore contained approximately five percent sulphur. All testing to date indicates that the Madsen tailings are not acid generating. Waste rock contains some widely distributed sulphides in the dumps, but there is no visual evidence of acid rock drainage from the dumps. In 2010 Claude collected rock samples from various sites and subjected them to screening level acid base accounting (ABA) testing (ABA level 5). Results show that generally acid rock drainage from waste rock is not expected to be an issue at the mine or around the town site. Localised areas of mineralized rock did exhibit the possibility of acid rock drainage, but results suggested there is sufficient buffering capacity in the overall fill to mitigate any acid rock drainage potential. However, mineralized material should not be used as additional underground fill (MNDM, 2013).

The use of hazardous materials on site ceased in 1999. No known underground storage tanks are located on site. Used oil generated from the present exploration activity is regularly removed from site. There are currently no process reagents stored or used on site.

Illegal garbage dumping was prevalent in several areas of the property historically. Certain remedial actions were taken by Claude that improved the situations. According to Pure Gold, illegal dumping still occurs from time to time, but the rate of occurrence has decreased with increased exploration activity and personnel present on site.

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4.3.4 Madsen Mine Re-opening

Environmental considerations should be taken into account if the Madsen mine were to re-open. There may also be additional environmental regulations to be considered with the potential re-opening of the mine such as the Metal Mining Effluent Regulations from 2002 and amended in 2006. These regulations would require environmental effects monitoring beyond the current permit compliance monitoring.

4.3.5 Closure Plan

The original closure plan was completed prior to Pure Gold's involvement in the property by V.B. Cook Co. Limited (1995). This plan was amended in September 1995. A second amendment was submitted in July 2011. This amendment addressed all deficiencies identified by the Ontario Ministry of Environment. As a result, SRK is not aware of any outstanding issues related to the closure plan of the Madsen mine and related facilities. A third amendment was submitted by Pure Gold in 2014, including an updated payment schedule for financial assurances.

4.4 Mining Rights in Ontario

The Madsen gold project is located in Ontario, a province that has a well understood permitting process in place and one that is coordinated with the federal regulatory agencies. As is the case for similar mine developments in Canada, the project may be subject to federal and provincial environmental assessment processes based on certain project triggers. Due to the complexity and size of such projects, various federal and provincial agencies have jurisdiction to either provide authorizations or permits that enable project construction to proceed.

Federal agencies that have significant regulatory involvement at the pre-production phase include the Canadian Environmental Assessment Agency, Environment Canada, Natural Resources Canada as well as Fisheries and Oceans Canada. On the provincial agency side, the Ontario Ministry of Northern Development and Mines, Ministry of Environment, Ministry of Transportation as well as the Ministry of Natural Resources each have key project development permit responsibilities.

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

5.1 Accessibility

The Madsen gold project is centred within the Red Lake area of north-western Ontario, approximately 565 kilometres by road (430 kilometres direct) northwest of Thunder Bay and approximately 475 kilometres by road (260 kilometres direct) east-northeast of Winnipeg, Manitoba. Red Lake can be reached via Highway 105, which branches off the Trans-Canada Highway 17 some 170 kilometres south. Red Lake is also serviced with daily flights from Thunder Bay and Winnipeg by Bearskin Airlines.

The Madsen gold project is accessible from Red Lake via Highway 618, a paved secondary road maintained year round by the Ministry of Transportation of Ontario (MTO). The Madsen mine site is 10 kilometres southwest of Red Lake. A series of intermittently maintained logging roads and winter trails branching from Highway 618 provide further access to other portions of the property.

5.2 Local Resources and Infrastructure

The Red Lake Municipality comprises six communities: Red Lake, Balmertown, Cochenour, Madsen, McKenzie Island, and Starratt Olsen. The latest Canada Census of 2011 measured the population of the municipality at 4,366. Mining is the primary industry and employer in the area. Other industries include small scale logging and tourism focused in hunting and fishing.

The Madsen mine site is serviced by a 6,000 kilovolt-ampere Ontario Hydro transmission line. Water is supplied via a municipal treatment facility in nearby Russet Lake. A permitted tailings management facility is also located at the project.

5.3 Climate

The climate in this portion of north-western Ontario is considered subarctic with temperature extremes generally ranging from winter lows of approximately -45 degrees centigrade (ºC) to summer highs of roughly 30ºC. Average winter temperatures are in the range of -15ºC to -20ºC and average summer temperatures are in the range of 15ºC to 20ºC.

Between 1981 and 2010, annual average precipitation was measured at 69 centimetres with 52 centimetres of rain and 214 centimetres of snow. Average winter snow depths in the region range from 40 to 50 centimetres.

5.4 Physiography

The topography within much of the project is mildly to moderately rugged with a maximum relief of 30 metres in the southern part of the Madsen gold project. The elevation varies from 360 metres above mean sea level to about 430 metres, averaging about 390 metres above mean sea level over the project area.

Topography is dominated by glacially scoured southwest trending ridges, typically covered with jack pine and mature poplar trees. Swamps, marshes, small streams, and small to moderate-size lakes are common. Rock exposure varies locally, but rarely exceeds 15 percent and averages between 5 and 10 percent. Glacial overburden depth is generally shallow, rarely exceeding 20 metres, and primarily consists of ablation till, minor basal till, minor outwash sand and gravel, and silty-clay glaciolacustrine sediments.

Vegetation consists of thick boreal forest composed of black spruce, jack pine, trembling aspen, and white birch. Figure 5.1 illustrates the typical landscape around the Madsen gold project and the associated vegetation.

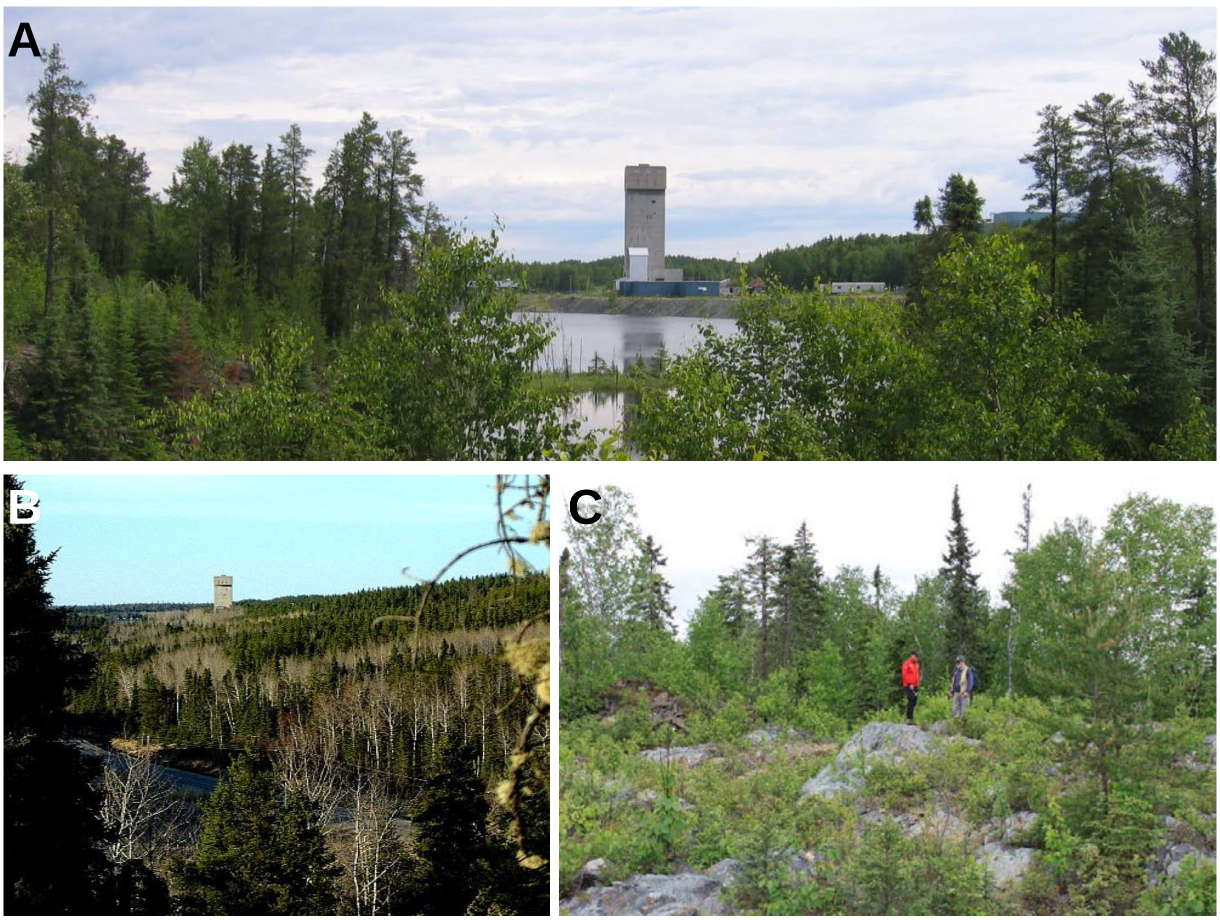

Figure 5.1: Typical Landscape in the Vicinity of the Madsen Gold Project

A and B: Head frame of the Madsen shaft. C: Outcrop exposure and vegetation cover.

6. History

Gold was originally reported in the Red Lake area in 1897 by R.J. Gilbert of the North Western Ontario Development Company (Parrot, 1995, from ACA Howe, 1999). The exploration and mining history of the Red Lake Mining district dates back to 1925, when significant gold was first discovered by prospector L.B. Howey. The gold bearing veins he discovered were developed into Red Lake's first producing mine, the Howey mine.

Since 1925, a total of 28 mines have operated in the district producing approximately 28 million ounces of gold at an average grade of 15.6 g/t Au. Over 85 percent of this gold was produced from three mines; Campbell mine, Dickenson/Red Lake mine, and Madsen mine (Lichtblau et al., 2015). Highlights of the exploration and mining history of the Madsen gold project within the Red Lake area are tabulated in Table 6.1.

The history of the Madsen mine can be sub-divided into six main periods: the operation of the Madsen mine between 1935 and 1974; the acquisition of the project by Claude and exploration and mining work during the period 1998 and 2000; the work completed by Placer Dome Ltd. (Placer Dome) under an option from Claude between 2001 and 2005; the work completed by Claude between 2006 and 2013; and the purchase of the property by Laurentian (subsequently renamed Pure Gold) at the end of 2013 and exploration work completed since then.

The sections below describe the exploration and mining work for each period.

Table 6.1: Exploration and Mining History of the Madsen Gold Project within the Red Lake Mining District

Year	Activity
1925	Gold discovered at Red Lake.
1934	Madsen area staked.
1935	Madsen Red Lake Gold Mines incorporated, No. 1 shaft sunk to 163 metres.
1936	Austin zone discovered.
1936	My-Ritt property acquired, following exploration work that includes 22 core boreholes.
1937	No. 2 shaft (now referred to as Madsen shaft) sunk. Ultimately reaches to 1275 metres with 24 levels.
1938	Mill facility opens with production for next 36 years.
1943	Central Patricia Gold Mines Ltd. completes 14 boreholes on My-Ritt property.
1948	The Starratt-Olsen Gold Mine opened, production ceased in 1956.
1959	Mineralization discovered on south shore of Coin Lake.
1969	Discovery of Zone 8 located between levels 22 and 27 between 1969 and 1974.
1971	Cochenour-Willans Gold Mines Ltd obtain My-Ritt property and carry out exploration including three core boreholes.
1974	Production halted at Madsen mine. Total production of 8,372,632 tons at a grade of 0.289 ounces of gold per ton.
1974	Operation sold to Bulora Corporation.
1976	Bulora Corporation files for bankruptcy.
1980	E.R. Rowland acquires property.
1980	Noranda options property between 1980 -1982, conducts geological mapping and trenching on Madsen and Starratt-Olsen property.
1991	Red Lake Buffalo Resources acquired property from Rowland estate, changed name to Madsen Gold Corp.
1998	Claude becomes the owner of the Madsen mine and accompanying properties by acquiring 100% of the shares of Madsen Gold Corp. in April 1998. At the time of the purchase, the mine water level was at the level 7. Claude completed a geological compilation, surface exploration, 123 kilometres of grid cutting, geological mapping, and trenching at the #1 and De Villiers zones.

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Year	Activity
1998	Mine dewatered to level 12, 230 surface and underground core boreholes drilled for 21,000 metres.
1999	Claude mined and milled until October 1999. Mill shut down October 17, 1999 and final mill discharge on November 14, 1999.
2000	Dewatering and rehabilitation of the Madsen hoisting facility and shaft continue to level 16.
2001	Placer Dome options property and completes two phases of surface core drilling. January-March: Up-dip of Zone 8 drilled (3,431 metres). October: 11 holes (9,339 metres). Dewatering, shutdown.
2002	Wolfden acquires My-Ritt property and carries out exploration on My-Ritt and in a joint venture on Newman-Heyson property, including six boreholes (1,786 metres).
2002	Placer Dome drills 17 surface boreholes totalling 10,641 metres.
2003	Placer Dome drills 49 surface boreholes totalling 29,049 metres, geophysics, and Datamine modelling.
2003	Wolfden joint venture completes 11 boreholes (2,407 metres) on Newman-Hyson property.
2004	Placer Dome commences phase 3 drilling on the Treasure Box target, completing 14 core boreholes totalling 5,315 metres – total expenditures incurred C$8.6 million.
2004	Wolfden creates Newman-Madsen project by amalgamation of three smaller properties; exploration in joint venture with Sabina Resources Ltd.
2004	Wolfden joint venture completes 31 boreholes (9,531 metres) on Newman-Madsen property.
2006	Claude reacquires operatorship of the Madsen gold project from Placer in September, 2006.
2006	Wolfden joint venture completes four boreholes (2,964 metres) on Newman-Madsen property.
2007	Ongoing surface exploration, drilling, and data compilation. Began dewatering of the Madsen mine from level 6.
2008	Drilling of 102 surface boreholes for 47,210 metres. Dewatering continued to level 11. Underground drilling commenced from level 10.
2009	Additional drilling of 38 core boreholes for 23,772 metres from underground and surface locations. Completion of a Mineral Resource Statement. Ongoing dewatering.
2009	Premier Gold Mines Ltd. (formerly Wolfden) and Sabina Silver Corp. (formally Sabina Resources Ltd.) option eight claims on the northeast corner of the Newman-Madsen project to Mega Precious Metals Inc. (Mega, formerly Mega Silver Inc.), basis for East My-Ritt property.
2010	Completion of 36 surface core boreholes (20,199 metres). Dewatering continued to level 16.
2010	Sabina becomes operator of Newman-Madsen project, completes four boreholes (3,183 metres).
2011	Completion of 17 core boreholes (18,043 metres) from the level 16testing down-dip extension of the Zone 8 mineralization.
2011	Sabina completes nine core boreholes (3.006 metres) on Newman-Madsen property.
2012	Completion of 17 core boreholes (17,296 metres) from the level 16 testing down-dip extension of the Zone 8 mineralization. In addition, Claude completed five surface core boreholes (10728 metres) to test mineralization in the Austin Deep area.
2012	Sabina acquires 100% interest in Newman-Madsen project and issues 0.5 percent NSR to Premier.
2012	Sabina completes 13 core boreholes (4,332 metres) on Newman-Madsen project.
2013	Abandonment of all exploration activities and dewatering efforts of the Madsen mine and sale of the property to Laurentian.
2014	Renaming of Laurentian to Pure Gold Mining Inc. and ongoing exploration work.
2014	Pure Gold purchases of Newman-Madsen project from Sabina, amalgamates Madsen and Newman-Madsen projects.
2015	Pure Gold divests Buffalo claims to Premier Gold Mines Limited

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6.1 Madsen Gold Project

6.1.1 Historical Exploration and Mining – 1927 to 1997

This section has been re-produced predominantly from Panagapko (1998).

6.1.1.1 Madsen Mine

The first claims staked in the Madsen area date back to 1927, but no work from this period is recorded. Marius Madsen staked part of the property in 1934 and Madsen Red Lake Gold Mines was incorporated in 1935. Early prospecting uncovered several gold showings in the area. Initially, the work focused on an auriferous quartz vein that intrudes felsic volcanic rock on claim KRL 11505 near High Lake. The No. 1 shaft was sunk to a depth of 175 metres, and four levels were developed. In 1936, Austin McVeigh located a gold-bearing zone on the northern shore of Beaverdam Lake. Drilling on this zone carried out in late 1936 delineated the important Austin zone. The underground development of the No. 2 Madsen shaft commenced in 1937 with the sinking of a three-compartment shaft to a depth of 163 metres. The shaft eventually reached a depth of 1,273 metres with 24 underground levels (Figure 6.1).The mill began operating in August 1938 and operated continuously until 1974. Between 1941 and 1963, the company acquired the Rouge d'Or, New Redwood, Mills, and Ava claim blocks to the northeast of the mine.

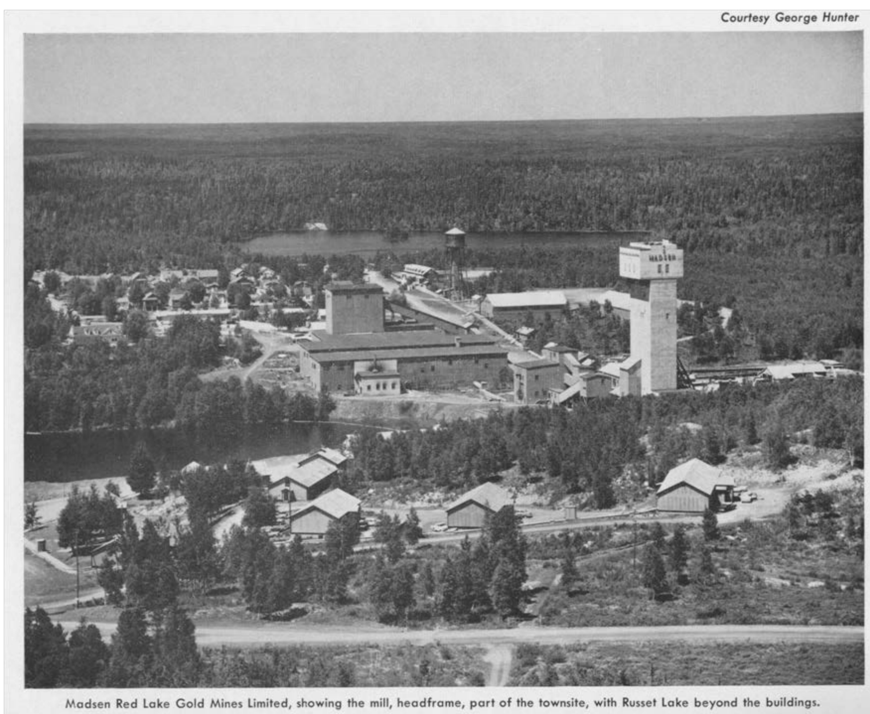

Figure 6.1: Madsen Mine Site in 1960s

Total recorded production from 1938 to 1974 at the Madsen shaft is 7,593,906 metric tonnes at an average grade of 9.91 grams of gold per tonne (g/t gold) (8,371,631 tons at an average grade of 0.289 ounces of gold per ton). Annual production for this period is summarized in Table 6.2 (excludes data from certain periods). This production accounted for 2,416,609 ounces of gold.

Table 6.2: Gold Production for Madsen Mine from 1938 to 1976

Year	Gold Production (ounces)	Tonnage Milled (tons)		Year	Gold Production (ounces)	Tonnage Milled (tons)
1938	n/a	n/a		1958	123,489	302,200
1939	13,909	65,460		1959	118,805	301,999
1940	25,716	140,674		1960	119,084	306,377
1941	30,088	141,109		1961	106,096	301,031
1942	30,971	145,534		1962	100,878	311,705
1943	39,195	146,346		1963	107,131	306,247
1944	33,733	144,179		1964	n/a	n/a
1945	36,825	127,870		1964	94,869	305,823
1946	25,438	98,472		1965	87,632	94,869
1947	34,977	143,371		1967	70,033	277,566
1948	32,421	143,391		1968	56,196	265,268
1949	35,579	150,779		1969	60,579	238,473
1950	65,444	282,050		1970	40,569	184,530
1951	61,687	302,227		1971	44,497	146,162
1952	67,337	304,251		1972	37,696	138,250
1953	82,596	285,018		1973	29,163	126,070
1954	82,333	286,246		1974	2,102	11,112
1955	104,874	295,713		1975	n/a	n/a
1956	100,995	294,913		1976	2,196	12,840
1957	103,181	305,300		Total	2,208,313	7,433,425
Note: Production figures extracted from available Madsen mine annual reports, 1938-1976. n/a = data not available.						

The operation was sold to Bulora Corporation in 1974, but the company went bankrupt in 1976. E.R. Rowland controlled the property from 1980 to 1988 when Red Lake Buffalo Resources acquired the ground. Under an option agreement, Noranda Exploration carried out mapping and core drilling on the Madsen and adjoining Starratt-Olsen ground between 1980 and 1982. Red Lake Buffalo Resources was reorganized into Madsen Gold Corp. in 1991.

6.1.1.2 Starratt-Olsen

The Starratt Olsen mine, located approximately 2.2 kilometres southwest of the Madsen mine, operated from 1948 through 1956 and produced approximately 163,990 ounces of gold from 823,554 metric tonnes at an average recovered grade of 6.17 g/t gold (907,813 tons at an average recovered grade of 0.18 ounces gold per ton).

The original staking and prospecting in the area of the Starratt-Olsen property dates back to 1926 and 1927, soon after gold was discovered in Red Lake by L.B. Howey. Only minor work was completed at the time, and the claims were allowed to lapse. In 1933, activity was renewed with an increase in the price of gold from US$20 to US$35 per ounce. Claims were staked by David Olsen in 1934, and further staking was carried out by R.W. Starratt. Both properties were then optioned by Val d'Or Mineral Holdings (Val d'Or) in 1935. The early exploration focused on three showings termed the Olsen, De Villiers, and Starratt showings. Trenching and core drilling were performed on the De Villiers and Starratt showings during 1936 and 1937. In 1938, New Faulkenham Mines optioned the property and sank a three-compartment shaft to a depth of 53 metres but did not complete any further work. In 1939, Val d'Or continued exploration underground on the 53 metre level and outlined four mineralized shoots.

The property remained idle during the war years 1940 to 1944, after which exploration resumed. A drilling campaign in 1945 was sufficient to outline an ore reserve, and Starratt-Olsen Gold Mines Limited was incorporated. Sinking of the Starratt shaft to a depth of 450 metres and level drifting were completed between 1945 and 1947. Mining operations were carried out at the Starratt shaft between 1948 and 1956 (Figure 6.2).

Figure 6.2: Aerial View of Starratt Olsen Mine in 1949

During the last year of operation, the 597 metre level was driven west for 462 metres to allow for underground exploration in the western area of the mine. No new ore reserves were delineated. In 1957, the company name was changed to Starratt Nickel Mines Limited.

The New Faulkenham Mines property is located immediately east of the Starratt-Olsen claim group and consists of 18 patented claims that were originally staked by the Faulkenham Lake Gold Syndicate in 1935. Some surface exploration was carried out between 1935 and 1938, mostly on Claim KRL 12881. During this time, a three-compartment shaft was sunk to a depth of

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105 metres and three levels were established. No historic production data were located for the Faulkenham shaft. The property remained idle until 1948. Exploration commenced again in 1958 with the completion of 11 surface boreholes. The property was acquired by Starratt Nickel Mines Limited in 1963. In 1965, Starratt Nickel itself was acquired by Dickenson Mines Limited.

Further core drilling was conducted by Dickenson Mines in 1963 and 1964 mainly in the De Villiers zone. The zone consists of a high-grade quartz vein system hosted in mafic volcanic rocks. Three boreholes also explored to the west of the Olsen zone. E.R. Rowland acquired the property in 1980. Noranda Exploration optioned the property in 1981 and 1982 and conducted geological mapping and core drilling (11 boreholes). The Noranda drilling focused on the down-dip extension of the De Villiers vein. Three of these boreholes hit significant gold mineralization such as a 16.46 g/t gold over a 1.55 metres intersection.

Drilling by Madsen Gold Corp. in 1998 consisted of 29 boreholes totalling 2,480 metres. Limited drilling has permitted the delineation of a historical (not National Instrument 43-101 compliant) near-surface, Indicated resource of 17,040 tonnes at a grade of 5.79 g/t gold (18,786 tons at 0.169 ounces gold per ton). The vein system is thought to extend to at least 130 metres in depth.

6.1.1.3 Aiken-Russet

The Russet Red Lake Syndicate was formed in 1936 and acquired eight claims in the southern part of Russet Lake. A limited amount of prospecting work was reported during this time. Russet Red Lake Gold Mines was incorporated in 1943 and acquired the Syndicate's claims and six other claims. Initial exploration commenced in 1944 with trenching and 24 short boreholes on Claims 19181 and 19235 just west of Russet Lake. This work focused on a complexly folded zone of interflow iron formation hosted by mafic volcanic rock that outcrops on Claim 19235. Work then shifted about 350 metres to the east to explore another zone of gold mineralization hosted by altered mafic volcanic rock near the western contact of the Russet Lake ultramafic sequence. In 1946 and 1947, a total of 105 boreholes tested both the Main zone and the No. 3 zone near Russet Lake, after which the property remained idle until it was amalgamated with the Aiken ground to the west in 1965.

Aiken Red Lake Gold Mines Limited was incorporated in 1945 to acquire claims previously held by several smaller prospecting syndicates. Work in 1945 consisted of prospecting, trenching, and core drilling on the No. 1 and No. 2 veins located on Claims 18728 and 20585, respectively. No work was conducted on the property until it was merged with the Russet ground to the east in 1965.

International Mine Services carried out a small three borehole program in the No.3 zone area in 1966. A further 21 boreholes were completed on the Russet mineralized zones in 1968, based on a geological and structural re-interpretation of available data.

Five boreholes were completed in 1969 to test the stratigraphy south of the No.3 zone. During the winter of 1974, a 22 borehole program was completed in the No.3 zone area. This work was followed by a small surface stripping program. One borehole was drilled in the northern part of the property in 1977 to test an EM conductor.

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United Reef Petroleums carried out an ambitious exploration program on the property between 1987 and 1988, which included airborne and ground geophysical surveys and a 78-borehole drill program. The bulk of the drilling focused on the Russet Main and No.3 zones, but drilling was also directed to various other targets on the property.

6.1.2 Claude Exploration and Mining – 1998 to 2000

After the acquisition of the Madsen mine and surrounding property in April 1998, Claude embarked on an exploration program focused on property-scale data acquisition and detailed evaluation of several near surface targets including the West McVeigh, De Villiers, and No. 1 shaft zones (Olson et al., 1999). This exploration occurred during production at the Madsen mine.

Claude initiated a compilation of all historic geophysical, geological, geochemical, and drilling data on the Madsen gold project. Claude also completed 7.3 line miles of gradient array IP survey covering the Austin and McVeigh zones between eastings 11,600 E and 13,000 E on the Madsen imperial mine grid. The survey successfully outlined a chargeability anomaly related to sulphide mineralization associated with the auriferous tuff intervals and was also helpful in delineating silica alteration hosted in the basaltic sequence.

6.1.2.1 Madsen Mine

6.1.2.1.1 Production

From 1998 to 1999, Claude began mining portions of the McVeigh and Austin zones from the Madsen shaft.

In 1998, Claude extracted 85,417 tonnes, of which 81,740 tonnes were milled for a total production of 8,929 ounces of gold at an average recovered grade of 3.43 g/t gold (0.10 ounces per ton gold). Mill recovery was estimated to be 86.75 percent, suggesting a head grade of approximately 3.91 g/t gold (0.114 ounces per ton gold). The predicted grade from previous historical estimates was 6.72 g/t gold (0.196 ounces per ton gold). Stoping occurred within the Austin zone between levels 2 and 5 of the mine and in the McVeigh zone.

Information available for the final seven months ending October 1999 indicate a mill throughput of 99,726 tonnes at 4.39 g/t gold (0.128 ounces per ton) for a total of 13,260 ounces of gold. Reconciliation between milled and mined data revealed a significant grade variance. Olson et al. (1999) concluded that mining included excessive dilution. Olson et al. suggested that with tighter mining controls, a grade of 5.83 to 6.17 g/t gold (0.17-0.18 ounces per ton) could have been achievable. The quality of the predicted grade estimate is unknown to SRK. SRK did not verify this information.

After 15 months, the Madsen mine and mill complex was put on care and maintenance status in October of 1999.

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Total recorded production for the Madsen mine property, inclusive of that produced by Claude, during the periods 1938 to1974 and 1998 to 1999, is 7,872,679 metric tonnes at an average recovered grade of 0.283 ounces per ton for a production of 2,452,388 ounces of gold.

6.1.2.1.2 West McVeigh

At the West McVeigh area, which is located about 750 metres west of the Madsen shaft, a total of 80 surface boreholes (6,417 metres) explored several new zones of gold mineralization extending to at least 90 metres below surface. The area was stripped, mapped, and trenched. Exploration drilling in the 2-11N and 2-13N raise areas of the McVeigh zone confirmed the presence of gold-bearing lenses above the known workings on the second level.

6.1.2.1.3 West Austin

The area underlain by the western extension of the main Austin Tuff horizon was termed the West Austin zone. During 1998, five boreholes were completed over a 600-metre strike length in the West Austin area. The Austin zone horizon was intersected in three of these boreholes. None of the boreholes returned any significant gold values. The last borehole located on easting 10,400E of the Madsen imperial mine grid, aimed to test the Austin horizon between two previous boreholes. A 75-metre sequence of tuff was intersected with no significant values. The drilling suggested that the Austin-type alteration persists to the west, albeit barren where tested.

6.1.2.1.4 No. 1 Shaft Area

No. 1 shaft area is underlain by rocks of the Confederation Assemblage comprising a mixture of mafic volcanic flows and mafic to intermediate intrusive rocks. The majority of the area is underlain by a massive, medium-grained gabbro that forms an extensive sill up to 365 metres in apparent thickness at the shaft. Intruding this gabbro is a light pink, fine-grained felsic dike that is 3 to 5.5 metres thick, oriented at 072 degrees, and dipping to the southeast at 60degrees. The felsic dike has been exposed on surface for a distance of 120 metres as part of a surface stripping and sampling program (see next section for a more detailed description). Intruding the dike at or near its contact with the enclosing gabbro is a quartz vein and veinlet system that extends more or less continuously for 130 metres. It has been delineated a further 120 metres in trenches.

The surface expression of the gold mineralization was stripped, mapped in detail, and channel sampled. Four individual shoots were delineated on surface. Information on these gold mineralized trends is presented in Table 6.3.

Table 6.3: Surface Channel Sampling from the No. 1 Shaft Area

Channel	Width (m)	Grade (g/t Au)	Strike Length (m)
Ch 22-31	0.86	10.73	46
Ch 32-36	0.86	6.17	14
Ch 12-37	1.05	30.51	9
Ch 43-48	0.88	7.20	18

Based on the results of the sampling, it was decided to extract a bulk sample from the surface of the vein. Three benches were mined for approximately 7,920 metric tonnes of vein and wallrock. An additional waste stockpile of 5,440 metric tonnes was generated with a reported average grade of 4.83 g/t gold.

Fifteen boreholes (1,296 metres) were completed in two phases of drilling on the No. 1 shaft vein shoots. Drilling intercepted several decimetre-scale zones of gold mineralization; however, most boreholes intercepted either minor or no veining at all.

6.1.2.2 Starratt-Olsen and De Villiers

Claude also targeted the De Villiers zone on the Starratt-Olsen property about 2.5 kilometres southwest of the Madsen shaft. The area consists of altered basalts, ultramafic rocks, and tuffs that host the Starratt-Olsen mine and represent the south-western extensions of the Madsen ore bodies. The De Villiers vein is located about 140 metres north of the northernmost tuff horizon and is represented by discontinuous quartz veins and stringers. The surface expression of the veined area was stripped, mapped in detail, and sampled.

Over a 34-metre interval, 38 grab samples returned an average of 10.56 g/t gold (0.308 ounces per ton). Drilling consisted of 29 boreholes in two programs, 12 testing Madsen-style tuff and 17 testing the De Villiers vein. Of the De Villiers vein drill targets, 16 intersected veins and/or silicification. The best intercept was 9.94 g/t gold over 2.8 metres (0.29 ounces per ton over 9.2 feet).

To evaluate in more detail the continuity, grade, and economic viability of the De Villiers vein, two benches were mined out for a total of 2,667 metric tonnes. The benching suggested that the vein is faulted off approximately 1 metre below the surface. However, a north-dipping series of quartz veins and stringers was exposed on the north wall of the trench.

Face samples averaged 2.49 metres at 7.13 g/t gold. Waste was slashed out of the north wall and the north-dipping vein was centered on the second bench. Based on the benching and drilling results, the zone was estimated to contain 21,200 metric tonnes at 4.63 g/t gold (diluted). This historical resource estimate has not been reviewed by a qualified person and is not compliant with National Instrument 43-101 guidelines. It is reported here for information purposes only and should not be relied upon.

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6.1.2.2.1 Creek Zone

The Creek zone is located between 7,000E and 7,200E at 6,100N on the Starratt imperial mine grid, about 350 metres west of the De Villiers zone. Following the delineation of a gold-bearing quartz vein system at the De Villiers zone, more detailed work was deemed necessary to understand better the Creek zone. Forest cover was cleared in an area 75 metres by 10 to 20 metres to enable this work.

Detailed mapping was completed over the stripped area. The predominant lithology in the area is massive to pillowed basalt that is locally altered to biotite and chlorite. The outcrop shows intrusions of narrow, coarse-grained gabbro sills and of late granodiorite and diorite dikes. Throughout the stripped area, several narrow, strongly altered felsic dikes cut the basalt sequence. These dikes are typically cream-coloured, soft, and strongly sericitized. They exhibit a strong penetrative fabric and contain disseminated pyrite. A more massive feldspar porphyry dike occurs in the southwest part of the area.

Two major shear zones were mapped, one on the eastern end of the outcrop at 065 degrees, the other in the central and western parts of the outcrop, at 070 degrees. Both zones of shearing are associated with the felsic dikes. Quartz veining constitutes only a minor component of the stripped area and is restricted to the eastern and western ends of the outcrop. The most continuous vein on the outcrop is centered at easting 6,980E to 6,130N on the Starratt imperial grid and strikes 290 degrees. The vein is 6 metres long and up to 30 centimetres wide. This vein was exposed in the old trench and hosted the high gold values in earlier sampling.

A total of 34 grab and channel samples were collected. Nine selected grab samples of vein material from the west end of the area averaged 42.27 g/t gold (uncut). Four boreholes were drilled on the target; however, only one zone of weakly anomalous mineralization was returned (1.41 g/t gold). High-grade quartz veins exposed at surface do not appear to have depth continuity.

6.1.3 Placer Dome Exploration – 2001 to 2006

After a brief period of exploration and mining, an option to earn 55 percent of the Madsen mine and 4,046 hectares was granted to Placer Dome in consideration for C$8.2 million in exploration expenditures and producing a bankable feasibility study by 2004. Subsequent negotiations extended the deadline for work commitment until December 2006.

Placer Dome fulfilled the exploration expenditure requirement, however, no bankable feasible study was produced and as such the property was returned to Claude in September 2006.

The information compiled in this section was taken from Placer Dome's bi-annual exploration reports (Dobrotin and Landry, 2001; Dobrotin, 2002; Crick et al, 2003; Dobrotin and McKenzie, 2003; Dobrotin, 2003; Dobrotin, 2004a and 2004b).

6.1.3.1 Madsen Mine

From 2001 to 2004, Placer Dome tested the footwall stratigraphy of the main Madsen tuffs auriferous zones within a mafic-ultramafic sequence up-dip of Zone 8. Placer Dome drilled a total of 115 core boreholes totalling 60,725 metres. Deep core boreholes reached final lengths of up to 1,500 metres. Several zones of anomalous gold mineralization were encountered; however, the potential up-dip continuation of the high-grade Zone 8 was not delineated.

In 2001 Placer Dome drilled four deep core boreholes from surface (3,431 metres). Wide spaced drilling on 305-metre (1,000 feet) spacings tested and evaluated the stratigraphic footwall to the main Madsen trend within a mafic-ultramafic sequence up-dip of Zone 8. The drilling tested over 975 metres of strike at a depth of 760 metres on dip.

An additional 5,200 metres were drilled up-dip from Zone 8 in 2001. This drilling outlined four new gold zones and returned a best intercept of 2.8 metres at 5.1 g/t gold. Two of the zones, named AP and MV, are hosted by mafic volcanic rocks and are located, respectively, on the upper and lower contacts of the broad ultramafic unit. The PG zone is located within the ultramafic unit. It is hosted in alteration similar to samples of Zone 8 and was interpreted to be on the same structure. The MB zone was located immediately on the footwall to the Madsen trend and returned the 2.8 metres at 5.1 g/t gold intercept.

Four boreholes (2,533 metres) were drilled up-dip of Zone 8 in 2003 as a follow-up to the AP, PG, MB, and MV intersections in 2001. Although similar mineralization, lithological units, and structures were intercepted, there was a lack of continuity along strike and dip, and the grades were disappointing. The best intercept was 1.8 g/t gold over 1.3 metres.

Additional boreholes were completed in 2004 on Zone 8 up-dip targets. One borehole was drilled to 826 metres to test the intersection of the mafic-ultramafic contact, the plunge line of Zone 8, and a potential hinge of an F2 fold in the ultramafic unit. The borehole intersected a 24-metre wide zone of highly altered basalts that yielded 0.13 g/t gold with highly anomalous concentrations of arsenic and copper. Several other zones of anomalous gold mineralization were also intersected.

In the Austin East area three boreholes (3,254 metres) were drilled in 2003. They were planned to test across the Balmer/Confederation Assemblage unconformity, to delineate the Austin zone along strike of old mine workings "and to assess the deep potential between the Russet North area and north-eastern flank of the Madsen mine trend". Madsen style gold mineralization was intersected as well as banded iron formation (BIF), basalt, talc schist, komatiite, and pyroxenite units. The best intercept reported was 5.92 g/t gold over 0.8 metres.

6.1.3.2 Russett Lake and Treasure Box

In 2001, mobile metal ion and conventional soil sampling, re-sampling, and logging of historic boreholes, and reconnaissance traversing was carried out on the area to the north, west, and around Russet Lake. Soil sampling outlined five relatively small and low magnitude anomalies.

Compilation of all historic geochemical and geophysical data, and the creation of a historic borehole database was completed.

Follow-up work in 2002 included drilling on the northern shore of Russet Lake, now referred to as Treasure Box, and consisted of eight boreholes (5,028 metres) at a 244 metres (800 feet) spacing. Of these eight boreholes, three intersected visible gold, and all eight intersected gold grades ranging from 1 to 48 g/t gold with a best intercept of 3.17 g/t gold over 7.05 metres.

Gold mineralization was interpreted to be associated with east-west trending splay faults of a major northeast-trending structure. Moderate to strong quartz-carbonate-tourmaline veining, mineralization, and alteration were logged over large intervals in the boreholes drilled within the area.

Further drilling in 2003 in the Treasure Box area included 12,100 metres of core in 21 boreholes, and was followed by a later phase of infill drilling at 25- to 30 metres spacing that included six boreholes for a total of 1,913 metres. The drilling returned numerous significant intercepts of visible gold with grades ranging from 1 to 116 g/t gold, in discrete quartz-tourmaline veins typically larger than 30 centimetres wide. Mineralized veins are situated in swarms typically from 10 to 70 metres in width; however, intervening wallrock shows only anomalous gold values between approximately 100 to 1,000 parts per billion.

The vein system remained open in all directions and was interpreted to be controlled by a northeast trending deep structure and a folded mafic-ultramafic contact. Results from core orientation show that quartz-tourmaline veins have a variety of orientations; gold-bearing veins, however, seem to strike northwest-southeast. Due to the drill results, a program of surface stripping (0.5 hectare), detailed trenching (1,603 samples), and mapping was completed.

Drilling continued on the Treasure Box area in 2004 with 14 boreholes (5,315 metres), with results between 1 and 189 g/t gold, typically over 0.3 metres intervals. Some of the composites included 9.6 metres at 4.58 g/t gold, 4.9 metres at 10.6 g/t gold, and 4.2 metres at 17.9 g/t gold. Trenching returned similar values.

Drilling on the western shore of Russet Lake in 2002, an area referred to at the time as Anomaly 2, consisted of five boreholes (2,664 metres) with a spacing ranging from 244 to 457 metres (800-1,500 feet) . Two boreholes targeted mineralization and alteration associated with the historic Russet-Aiken occurrence, two targeted an under-explored area 750 metres to the northwest of the Russet-Aiken occurrence, and one tested a regional northwest trending structure.

All boreholes, with the exception of the one testing the northwest trending structure, intersected gold values ranging from 1 to 14.5 g/t gold with a best intercept of 10.6 g/t gold over 1.22 metres. These intersections can possibly be correlated with the MV zone encountered in the 2001 program.

In 2003 three boreholes (2,356 metres) were completed on the western shore of Russet Lake. Boreholes were designed to delineate further mineralized structures encountered during 2002 drilling. Assays outlined a broad corridor of ductile deformation, hosting gold values from 1 to 8.83 g/t gold over 0.3 to 1.2 metre widths. Complex geology and the development of tuff horizons in association with a mafic-ultramafic contact were considered highly prospective.

6.1.3.3 Fork Zone

In 2003 Placer Dome also completed two surface boreholes (1,671 metres) on a target termed the Fork zone. They tested the flexure point at the convergence of the Starratt-Olsen trend (southwest) and the Madsen mine trend (northeast). The boreholes intersected highly altered and deformed basalts and ultramafic rocks. The best intercept was 4.0 g/t gold over 1.2 metres.

The West Fork zone (WF zone) was tested by five boreholes(1,529 metres) in 2004 and returned two significant intercepts of 6.1 g/t gold over 2.8 metres and 7.5 g/t gold over 1.5 metres.

The area southeast of the Fork zone was tested with seven boreholes totalling 2,043 metres. This drill program discovered two new zones named AD and BC on the eastern mafic-ultramafic contact and the WC zone on the western contact. The AD and BC zones are characterized by brecciated, veined, and strongly altered (silica, biotite, chlorite) basalt with 1 to 3 percent pyrite, chalcopyrite, sphalerite, and visible gold.

Assays from the AD zone range from 1.1 g/t gold over 4.2 metres to 47.0 g/t gold over 1.3 metres. Assays from the BC zone returned similar values. Drilling in this area also intersected a mineralized zone interpreted to represent an extension to the McVeigh horizon, situated less than 500 metres along strike to the northeast.

Two other boreholes (917 metres) were drilled in the vicinity of the Fork zone. They intersected basalt, komatiite, and lesser pyroxenite and sediments. Several intervals of anomalous gold values (0.1 to 0.7 g/t gold) in association with pathfinder elements were encountered.

6.1.3.4 Starratt-Olsen

In 2003 Placer Dome completed nine boreholes (4,830 metres) within the Starratt-Olsen area. The intention was to test the gold-bearing structures identified during the trenching and drilling program carried out by Claude in the late 1990s (previous De Villiers and Creek trenches).

Boreholes intersected numerous quartz-chlorite-epidote altered veining structures, some with visible gold; however, widths were generally narrow and the continuity was irregular. The best intercept was 5.97 g/t gold over 1.2 metres. This intersection, hosted in Madsen style tuff, was a new discovery and was only tested with two of the nine boreholes.

Mineralization in the Starratt-Olsen area is interpreted to be controlled by a mafic-ultramafic contact; a hypothesis not noted in historic descriptions of the deposit.

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6.1.3.5 Polymetallic area

Historic drilling by Placer Dome on the Polymetallic target during 2002 and 2003 returned elevated values of tungsten, molybdenum, copper, and gold.

6.1.3.6 Killala Ultramafic

The Russett Shoots target is located along the footwall contact of the main Killala ultramafic unit, directly beneath Russett Lake. It relates to the dip continuity of the historic Russett Iron Formation zones. Placer Dome tested this area in a widely spaced regional drilling program, with results returning highly anomalous gold and arsenic in basalt over a 100 metre interval.

6.1.3.7 NW Corner of Madsen Claim Block

Work on the northwest corner of the Madsen claim block consisted of four boreholes (2,949 metres) with a spacing of 244 metres (800 feet) completed in 2002. The boreholes aimed to investigate a large underexplored gold in soil anomaly. Intense alteration, mineralization, and veining were logged in each of the boreholes drilled, although only nominal gold values were returned.

6.1.3.8 Geophysics and 3D Modelling

Other exploration work completed by Placer Dome in 2003 included:

i. Airborne magnetic and a gravity survey covering 45 square kilometres.
ii. Detailed orthophoto mosaic.
iii. Geochemical and geochronological study of the Phase 3 granitic magmatism.
iv. Metamorphic study of the Red Lake Greenstone Belt.
v. Ongoing data compilation and modelling to build a 3D geological model for the property in Datamine.

This work led to the creation of a 3D model of the entire Madsen gold project, which included lithology, structure, metamorphic grade, gold distribution, drilling, underground workings, magnetic and gravity data, and a digital terrain model.

Placer Dome produced a final report that outlined 19 targets prioritized into four categories. These targets range from conceptual grass roots through to definition drilling stage targets.

6.1.4 Claude Exploration – 2007 to 2013

Exploration work conducted by Claude on the Madsen gold project following re-acquisition of the property from Placer Dome in 2006 focused mainly on drilling, historical data compilation, and dewatering and rehabilitation of the Madsen mine. In excess of 320 core boreholes were completed to define further exploration targets and expand the mineral resources.

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6.1.4.1 Madsen Mine

In December 2008, Claude commenced drilling from an underground platform on level 10 (467 metres below surface) to test the down-dip extension of Zone 8. Up to September 27, 2009 a total of nine core boreholes had been drilled (8,062 metres).

Claude continued to test for mineralization in the immediate mine area after the completion of the SRK (2010) technical report. The main focus of the drilling was Zone 8, the McVeigh target near the western end of known mineralization (Figure 6.3), near-surface mineralization in the Austin zone in an area known as Apple, and its down-plunge extension referred to as Austin East (Figure 6.3).

Claude completed 69 core boreholes (47,816 metres) to test for mineralization in the Madsen mine area. A total of 22 core boreholes (23,489 metres) were drilled from two underground platforms on level 16 (765 metres below surface) to test down-plunge extensions of Zone 8 mineralization. The remaining 47 core boreholes (24,326 metres) were drilled from surface.

New boreholes targeting an area immediately down-dip of known Zone 8 mineralization failed to intercept significant gold mineralization. However, several boreholes intersected gold mineralization down-hole, demonstrating the potential for further gold mineralization parallel to and in the footwall of the currently modelled Zone 8.

Mineralized intersections in the McVeigh, Apple, and Austin East target areas confirm the continuation of modelled gold mineralization in these areas. SRK is however of the opinion that this new drilling information does not materially impact the Mineral Resource Statement.

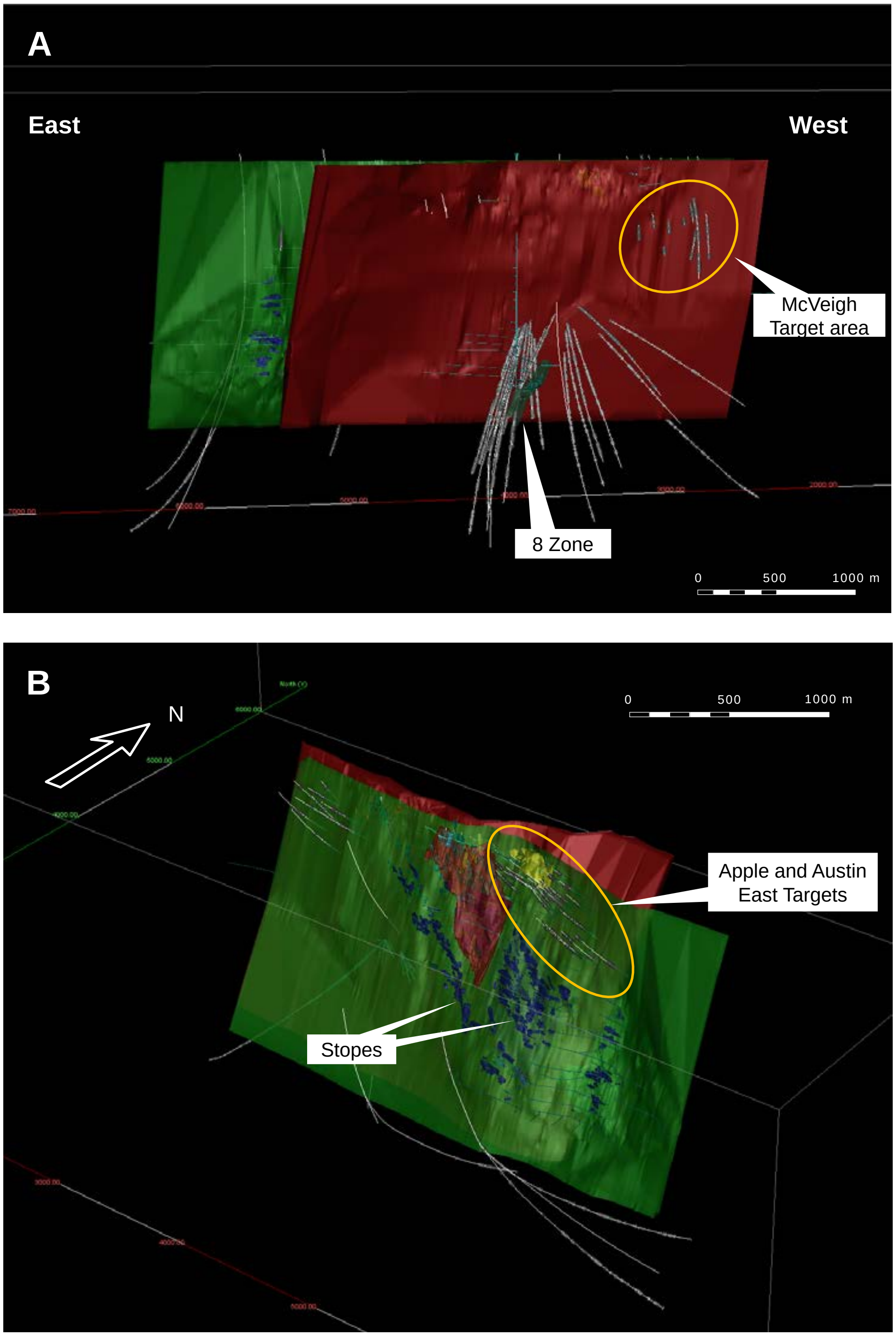

Figure 6.3: Extent and Targets of Claude Drilling Between 2010 and 2013

A. View to the south showing Zone 8 and the surface drilling near the western end of known McVeigh mineralization (modelled red wireframe);
B. Oblique view to the northwest showing the Apple and Austin East target areas in relation to stoped-out areas (Austin mineralization is the modelled green wireframe).

Between 2007 and 2009, Claude completed 202 surface boreholes (84,831 metres) on other targets within the Madsen gold project. Work was focused on the Fork zone (105 boreholes, 45,179 metres), Treasure Box (51 boreholes, 13,573 metres), the Starratt-Olsen footwall (31 boreholes drilled, 15,506 metres), the Polymetallic area (7 boreholes, 3,574 metres), the Hasaga area (2 boreholes, 1,945 metres) and the Killala Ultramafic area (6 boreholes, 5,041 metres) (Figure 6.4).

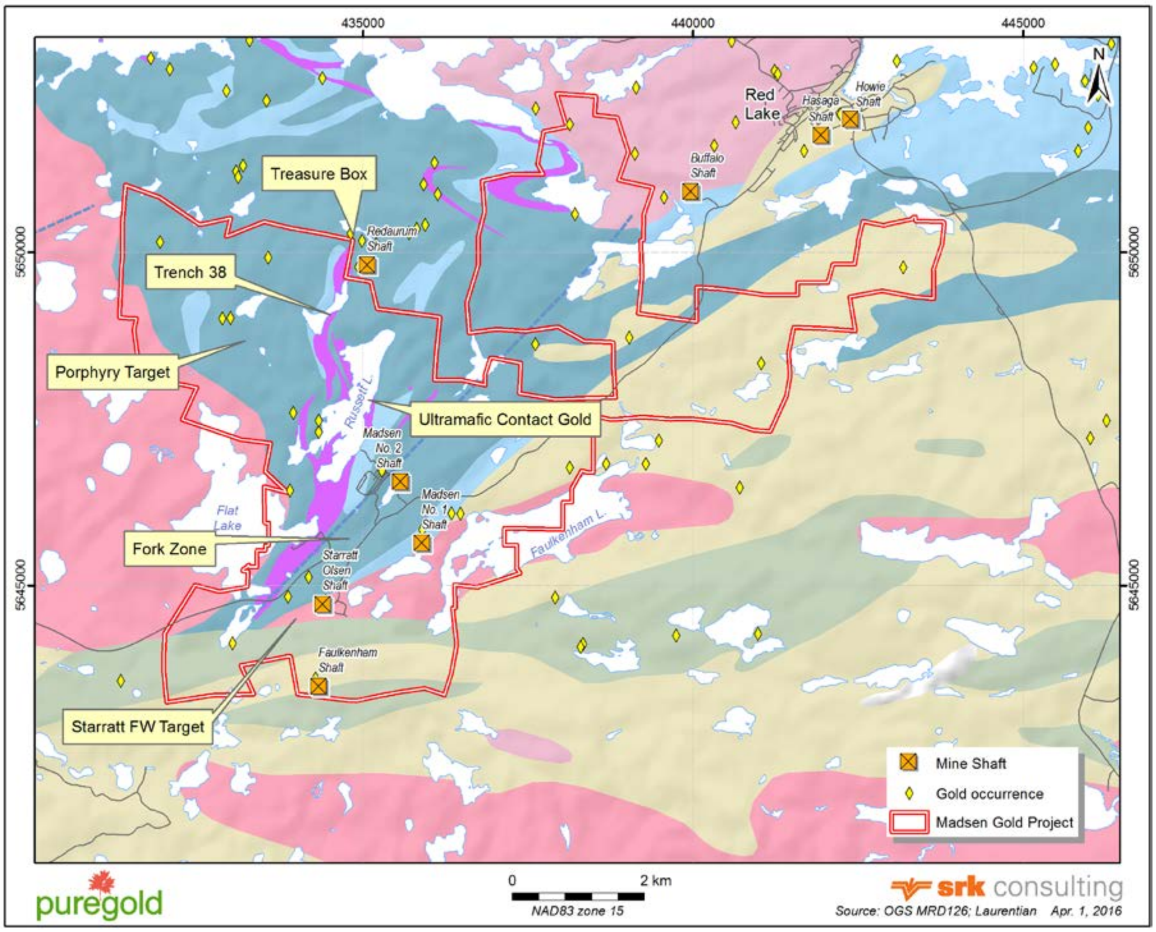

Figure 6.4: Location of Selected Historic Exploration Targets on the Madsen Gold Project. Note that the Property Outline shows the current Status of the Property.

6.1.4.2 Fork Zone

Drilling in 2008 focused on infilling to 30- to 40-metre spacing and indicated that the target hosts two subparallel southeast-dipping shear systems hosting narrow discontinuous visible gold-bearing vein systems over a strike length in excess of 400 metres.

In 2009, several more infill boreholes were completed in an attempt to demonstrate continuity in the mineralized structure and further define the limits of the known mineralization. Significant intersections are shown in Table 6.4.

Table 6.4: Significant Mineralized Intersection of the Fork Zone

Borehole ID	From (m)	To (m)	Length (m)	Au (g/t)
RUM-07-26	160.00	166.00	6.00	4.76
RUM-08-46	134.72	138.70	3.98	7.93
RUM-08-49	106.50	114.89	8.39	13.91
RUM-08-49	118.45	120.70	2.25	28.59
RUM-08-52	73.40	80.10	6.70	13.40
RUM-08-61	489.09	496.29	7.20	2.82
RUM-08-68	95.00	97.00	2.00	33.00
RUM-08-78	227.57	232.50	4.93	8.53
RUM-08-81	240.42	246.00	5.58	4.64
RUM-08-81	251.30	260.50	9.20	3.02
RUM-08-82	256.81	274.00	17.19	5.43
RUM-08-86	47.00	55.50	8.50	2.52
PDM04-318	128.10	129.40	1.30	46.97
SUR-S-10700-na	62.48	64.01	1.53	32.23
SUR-S-11200-nc	76.20	80.77	4.57	4.79
SUR-S-11200-ne	99.06	100.58	1.52	15.09
SUR-S-11400-nc	68.58	76.20	7.62	15.77

6.1.4.3 Treasure Box

In early 2007, a detailed drill program was initiated at the Treasure Box area north of Russett Lake some 2.4 kilometres north of the Madsen mine complex. Claude completed 51 boreholes testing the system to depths in excess of 350 metres. Results returned anomalous gold values throughout with several narrow high grade zones associated with the quartz-tourmaline veining (Table 6.5). The mineralized vein system was intercepted over a strike length of 165 metres, although high-grade intercepts appear to have relatively limited continuity.

Table 6.5: Significant Mineralized Intersection of the Treasure Box Area

Borehole ID	From (m)	To (m)	Length (m)	Au (g/t)
TB-06-02	192.65	194.45	1.80	13.46
TB-07-18	21.65	25.20	3.55	12.00
TB-07-29	143.25	149.30	6.05	12.94
TB-07-33	206.65	209.70	3.05	6.83
PDM02-13	620.36	627.80	7.44	3.94
PDM02-18	682.66	691.47	8.81	3.84
PDM03-29	80.68	86.14	5.46	14.05
PDM03-30	344.39	345.95	1.56	22.70
PDM03-902	292.91	294.13	1.22	19.99
PDM03-902	412.39	420.32	7.93	5.93
PDM04-908	136.25	141.43	5.18	4.41
PDM04-908	226.16	227.38	1.22	38.47
SUR-S-20825-NA	124.54	129.54	5.00	9.87

6.1.4.4 Starratt-Olsen

Compilation of historic results and geologic modelling revealed the potential for high-grade mineralization associated with the mafic-ultramafic trend in the footwall of the Starratt Olsen mine. During the first half of 2008, Claude completed 18 boreholes, testing the prospective structures along 1,500 metres of strike. Borehole ST-08-03 intersected high grade, shear-hosted vein systems associated with the footwall contact of the ultramafic trend.
In order to follow up on significant mineralized intercepts, an additional 13-borehole program was completed at Starratt-Olsen during the remainder of 2008 focusing on close-spaced follow up boreholes. Drilling in the Starratt-Olsen footwall has defined two narrow, yet significant zones of gold mineralization.

In 2010 Claude completed four core boreholes (3,838 metres) to follow up on the 2008 exploration results. All four boreholes intersected gold mineralization of 1.0 to 8.6 g/t gold, albeit over narrow widths of 1.5 to 3.5 metres.

6.1.4.5 Polymetallic area

In 2008, Claude completed seven boreholes for 3,574 metres, testing an area of 1,200 metres by 700 metres. This new drilling intercepted brecciated, veined, and chlorite-epidote altered basalt in the contacts of a feldspar porphyry sill complex. Mineralization consists of disseminated and vein-hosted molybdenite, chalcopyrite, scheelite, and pyrrhotite.

6.1.4.6 Killala Ultramafic

Drilling by Claude in 2008 included the completion of six boreholes for 5,053 metres testing a strike length of 600 metres on 150-metre centres. Final assay results identified several distinct intervals of anomalous gold values associated with biotite-silica-carbonate altered basalt. Further drilling would be required to assess the potential of this gold-bearing zone.

6.1.4.7 Data Compilation

Data compilations, sorting, and digitising of an extensive historical library of hardcopy files was largely complete by the end of 2009. Level plans and cross-sections containing lithological contacts, boundaries for the auriferous zones and mine workings were scanned to assist in developing a 3D geological model of the deposit. Level plans are available from level 1 to 27 at 10-, 20-, 50-, and 200-feet to 1-inch scales. Cross-sections are available at 20-, 30-, and 100-feet to 1-inch scales through the strike length of the deposit for a coverage of approximately 7,000 feet (2.1 kilometres), at 25-feet (7.62 metres) spacing. Level plans at 50-feet to 1-inch scale and cross sections at 30- and 100-feet to 1-inch scales were georeferenced.

Plans and maps were georeferenced according to the local mine grid that is rotated 60 degrees west relative to true north. Thus, mine grid north is oriented at an azimuth of 300 degrees. In addition, the coordinates were converted from the original imperial system into the metric system. For example, a cross-section labelled 13,100E according to the original imperial mine grid easting was converted and georeferenced to metric mine grid which equates to easting 3,992.88 metres. The northings, eastings, and elevations were similarly converted for all data considered for resource evaluation. Historical borehole data (surface and underground) were originally recorded on paper logs. Over 13,000 boreholes were digitized, verified, and entered into a digital database.

6.1.4.8 Dewatering

Dewatering of the Madsen mine was ongoing until sometime in late-2013 when pumps were turned off and the water level within the mine was allowed to rise again. During the dewatering, selected areas of the workings were being rehabilitated, allowing drill testing of mineralization of Zone 8 during 2009 from underground drill platforms established on level 10, 467 metres below the surface, and in 2011 and 2012 from level 16, 765 metres below the surface.

6.2 Newman-Madsen Project

This property was acquired recently by Pure Gold and now forms part of the new Madsen property. Prior to the acquisition of this property, the history of the Newman-Madsen project occurred separately from that of the Madsen property. Hence, the history of the Newman-Madsen project is described separately in this section.

Coin Lake Gold Mines Ltd. (Coin Lake) acquired the property historically referred to as the My-Ritt from Red Lake Bay Mines Ltd. in 1936. Coin Lake completed an intensive program of stripping and trenching from 1936 to 1939. During this time a magnetometer survey was completed and a minimum of 22 core boreholes were completed (Durocher, 1987). Information about the total length of the boreholes is unavailable.

Between 1943 and 1946 Cockeram Red Lake Gold Mines completed a total of 35 core boreholes (5,674 metres), primarily testing for gold mineralization along strike from the Madsen mine. Results from these drilling programs are not available. Additional drilling in this area was completed in 1943 by Central Patricia Gold Mines Ltd., who completed 14 core boreholes of unknown type and length.

The only record of this work is a borehole plan map filed with the MNDM, showing the location of holes 9 to 14.

An area south of Coin Lake was held as part of a large land package owned by Rajah Red Lake Gold Mines Ltd in the mid-1950. In 1957, the company's charter was cancelled and ownership of the Heyson Township claims was transferred to H.A. Newman. The only recorded work on the Heyson Township claims consists of geological and magnetometer surveys completed in 1959. This work resulted in documentation of a mineral occurrence on the south shore of Coin Lake, known as the Newman Rajah Red Lake occurrence, which has been described as quartz veins occurring in a narrow, easterly-trending, mineralized shear zone. Gold occurs in association with a significant amount of chalcopyrite. The only reported assay from the occurrence is 0.02 ounces of gold per ton (0.69 g/t Au) from a grab sample.

Mespi Mines Ltd. completed an aeromagnetic survey over the area in 1959.

Assessment file records are scarce for the time period between 1959 and 1971. It is known that My-Ritt Gold Mines Ltd. held the property at some point during this time period (Durocher, 1987).

In 1971, Cochenour-Willans Gold Mines Ltd. obtained the property from My-Ritt Gold Mines Ltd. and completed a Very Low Frequency (VLF)-electromagnetic survey, an induced polarization survey, and a soil geochemical survey on the property, followed by three core boreholes totalling 527.65 metres. However, the exact location of these boreholes is unknown and results are unavailable. Between 1981 and 1982 Noranda Inc. appears to have completed four core boreholes of unknown length. Drilling tested mineralization in the central part of the current Newman-Madsen project. Their location and the assay results are unavailable. After 1982 the property seems to have not experienced additional exploration work until 2002, when the property was acquired by Wolfden.

The Newman-Heyson property was explored under a joint venture between Wolfden and Kinross Gold Corporation (Kinross) in 2002 and 2003, whereby Kinross had the option to earn a 51 percent interest in the property. In 2002, the joint venture completed line-cutting, ground magnetometer, and soil geochemical surveys, over the property, as well as the My-Ritt and Nova Co. properties. Follow-up work consisted of six core boreholes totalling 1,786 metres testing targets in the Dome stock. Assay results yielded mixed results with rare high grade intersections, including borehole KRL-02-05, which intersected 9.25 g/t gold over 3.55 metres.. (Klatt, 2003a).

In 2003, the joint venture completed a follow-up drill program on the Newman-Hyson property comprising 11 core boreholes (2,407 metres). Widely spaced targets were tested in this drill program based on compiled geological, geochemical and geophysical information, but no gold mineralization was encountered (Klatt, 2003b).

In 2004, Wolfden created the Newman-Madsen project by amalgamation of three smaller properties, including My-Ritt, Nova Co, and Newman-Heyson. Exploration on this property was completed under a joint venture between Wolfden and Sabina Resources Ltd. (Sabina Resources), whereby Sabina Resources earned a 50 percent interest in the property. In 2004, the joint venture completed a drill program comprising 31 core boreholes (9,531 metres) with Wolfden as the operator. Drilling intersected abundant gold mineralization, primarily along a regional D_2 structure. In this area mineralization is spatially associated with an arsenic soil geochemical anomaly, which is also located in the Dome stock granodiorite. This mineralized zone subsequently has been called the Evade zone (Toole, 2005).

In 2006 the joint venture partners completed an additional drill program comprising four core boreholes (2,964 metres). These boreholes were designed to test targets along or near the Balmer-Confederation unconformity. All boreholes intersected anomalous gold values; an economically significant intercept of 22.57 g/t gold over 2 metres was encountered in borehole DDH NM06-02 (Long, 2007).

In 2009, Premier Gold Mines Ltd. (Premier, formerly Wolfden) and Sabina Silver Corp. (formally Sabina Resources Ltd.) optioned eight claims on the northeast corner of the Newman-Madsen project to Mega Precious Metals Inc. (Mega; formerly Mega Silver Inc.). Mega earned 100 percent interest in these claims in 2013, which form the basis of their East My-Ritt property.

In 2010, Sabina Gold & Silver Corp. (Sabina, formally Sabina Silver Corp.) re-negotiated the Newman-Madsen joint venture conditions with Premier to become operator of the project. Following the completion of the agreement, Sabina completed four core boreholes (3,183 metres) to test the northeast extension of the Madsen mine trend stratigraphy at levels significantly deeper than previously explored. Drilling was successful in intersecting the targeted stratigraphy and delineating an area of hydrothermal alteration deemed highly prospective, where significant gold was encountered, including a high-grade intercept of 43.51 g/t gold over 0.65 metres in borehole NM-10-02.

In 2011, Sabina continued their exploration efforts on the Newman-Madsen project and completed a drill program consisting of nine core boreholes (3,006 metres). The program was designed to test targets interpreted to comprise folded mafic and ultramafic rock sequences of

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the Balmer assemblage where they are coincident with favourable D_2 structures, geochemical signatures, and resistivity anomalies. These targets were selected to present opportunities to intersect mineralization similar to that of the Red Lake Mine High-Grade zone style and returned a series of anomalous and significant gold values that helped direct further exploration on the property.

In January 2012 Sabina acquired 100 percent interest in the Newman-Madsen project for a cash payment of C$500,000 and issuing of a 0.5 percent net smelter return royalty to Premier. Following this transaction, Sabina commenced a drilling program comprising 13 core boreholes (4,332 metres) aimed at evaluating the stratigraphy and structure of the property in a broad exploration sense. Sabina focused on higher priority areas including extensions of the Buffalo mine trend, the Dome Stock contact, and the Balmer assemblage. Results of the program were combines with new information from surface mapping in efforts to build robust three dimensional exploration models.

In March 2013 Sabina contracted SJ Geophysics Ltd. of Delta, British Columbia to conduct 37.4 line-kilometres of ground induced polarization using a Volterra-3DIP instrument array in an attempt to delineate the extent of the Buffalo and Madsen trends, and potentially outline the contact between the Dome stock and adjacent volcanic rocks of the Balmer assemblage.

In October 2013 Sabina mobilized a four-person mapping crew to the Newman-Madsen project to renew surface observations of stratigraphy and structure that would be tied to previous drill efforts in creating 3D exploration models.

Table 6.6 and Figure 6.5 provide a summary of historical drilling on the former Newman-Madsen Project.

Table 6.6: Summary of Drilling on Former Newman-Madsen Project

Operator	Year	No. of Boreholes	Total Length (m)
Coin Lake Gold Mines Ltd	1930s	22*	unknown
Cockeram Red Lake Gold Mines	1943 – 1946	35	5,674
Cochenour-Willans Gold Mines Ltd.	1971	3	528
Noranda Inc.	1981 – 1982	4	unknown
Wolfden Resources Ltd./Kinross Gold Corporation	2002 – 2003	17	4.193
Wolfden Resources Ltd. / Sabina Resources Ltd	2004 – 2006	35	12,495
Premier Gold Mines Ltd / Sabina Gold & Silver Corp.	2010 – 2011	13	6,189
Sabina Gold & Silver Corp.	2012	13	4,332
Total		142	29,222
* Approximate number of core boreholes			

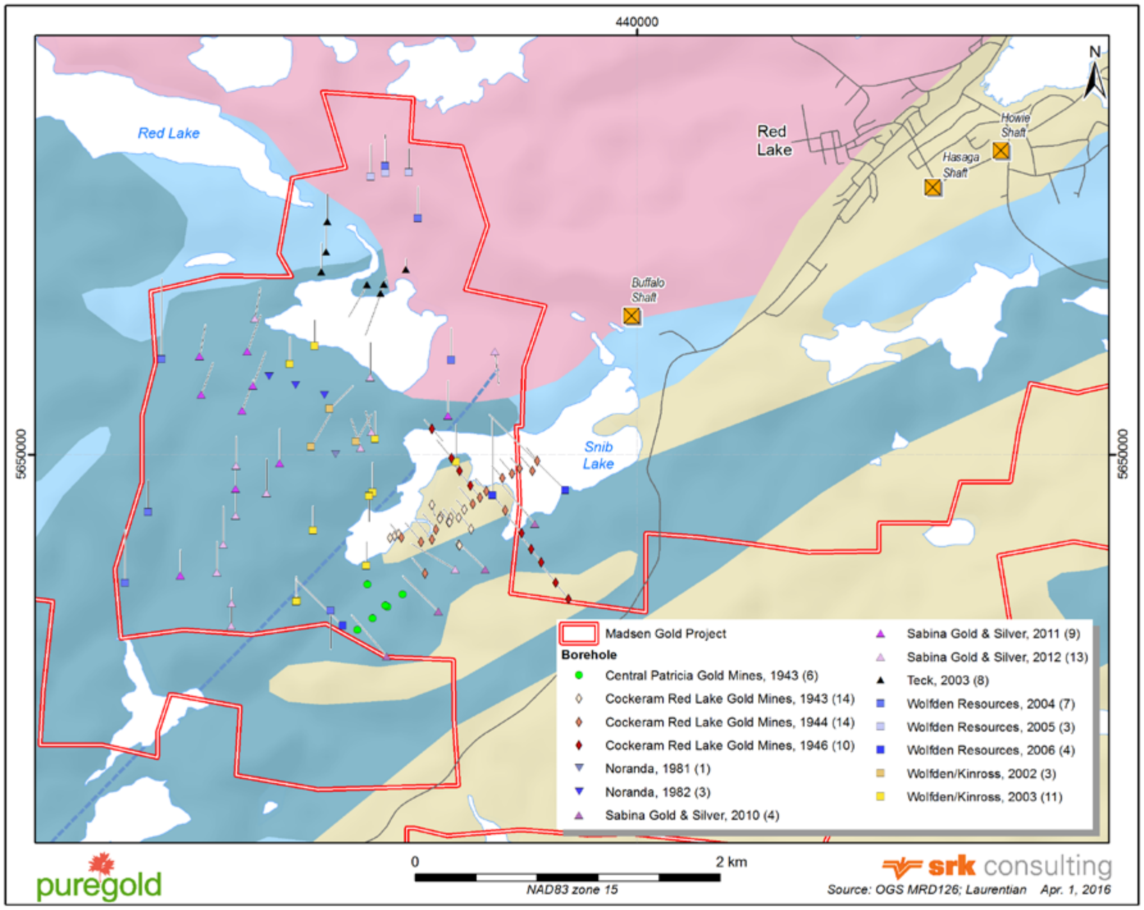

Figure 6.5: Spatial Distribution of Drilling on the Former Newman-Madsen Project. Note that the Property Outline shows the current Status of the Property.

6.3 Previous Mineral Resource Estimates

The reader is cautioned that the historical mineral resource and mineral reserve estimates discussed in this section were prepared before the development of National Instrument 43-101. A qualified person has not done sufficient work to classify the historical estimate as current mineral resource or mineral reserve. Hence, the reader is cautioned that the figures should not be relied upon. The historical mineral resource and mineral reserve estimates are superseded by the Mineral Resource Statement reported in Section 14 of this document.

Annual estimates of mineral resource and mineral reserves inventories for the Madsen mine were undertaken internally by mine staff using various sampling data. Typically, sampling from exposed development and stoping was used to estimate proven reserves, whereas closely spaced core drilling data were used for estimating probable reserves. Indicated and Inferred resources were extrapolated from widely spaced boreholes only. Independent audits were undertaken by ACA Howe in 1998 and 1999. Aspects of the last audit performed in 1999 (ACA Howe, 1999) are described in this section.

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Mineral reserves for the Austin and McVeigh zones above level 6 were estimated by Madsen mine staff using a polygonal methodology and the following parameters:

i. Assays were capped at 1 ounce of gold per ton (34.2857 g/t gold);
ii. Minimum geological width of 4 feet (1.22 metres);
iii. Minimum mining width of 6 feet (3 metres);
iv. A 15 percent dilution factor at 0.34 g/t gold for shrinkage mining, and a 20 percent dilution factor at 0.34 g/t gold for longhole stoping mining methods;
v. The tonnage factor of 2.85 tonnes per cubic metre;
vi. Area of influence around a drill intersection is defined as a rectangular block with horizontal and vertical sides tangential to a 7.62 metres (25 feet) radius around the drill pierce point on a vertical longitudinal projection;
vii. Reported at a cut-off grade of 4.85 g/t gold derived from a gold price of US$325/oz. and a mill gold recovery of 95 percent.

Based on the above criteria, historical mineral resources and reserves were classified into the following categories:

i. **Inferred Resources** included blocks above the cut-off grade estimated from drill intersections with pierce points that were further apart than 22.86 metres (75 feet). Confidence level 10 to 30 percent;
ii. **Indicated Resources** were blocks above the cut-off grade defined by three or more drill intersections with pierce points less than 22.86 metres apart (75 feet). Confidence level 30 to 60 percent;
iii. **Probable Reserves** were restricted to 7.62 metres (25feet) above and below a drill intersection when grouped together in sets of four or less. Confidence level 75 percent;
iv. **Proven Reserves** lay adjacent to sampled mine openings, usually supported by drill intersections. The spatial characteristics, size, and mineral content of ore blocks were well established and ore blocks were at or above the mine cut-off grade. Proven reserves were extended to a maximum of 7.62 metres (25 feet) beyond a sampled development if core or other sampling information supported the extension. Confidence level 85-90 percent.

An additional 76,245 tonnes at a grade of 11.71 g/t gold in proven pillar reserves above level 6 were not considered mineable at the time by the mine staff. ACA Howe included this material in the proven reserve category as they considered this material to represent a future reserve.

Although Madsen mine staff did not process any data below level 6, ACA Howe considered it prudent to define all the material previously identified by previous operators as undiluted reserves below level 6 as Indicated resources. In addition, ACA Howe also identified additional Inferred resources for the Austin and McVeigh mineralized zones below level 6. A table summarizing the historical Madsen reserve and resource inventory as reported by ACA Howe (1999) is provided in Table 6.7. The reader is cautioned that the historical mineral resource and mineral reserve estimate was prepared before the development of National Instrument 43-101 guidelines, and that the figures reported in this table should not be relied upon. This historical mineral resource and mineral reserve estimate is superseded by the Mineral Resource

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Table 6.7: Historical Resource and Reserve Inventory* for the Madsen Mine (modified from ACA Howe 1999)

Classification	Quantity	Grade	Contained Metal	Quantity	Grade	Contained Metal
	Tonnes	Au g/t	Au oz.	Tonnes	Au g/t	Au oz.
	Above Level 6			Below Level 6		
Reserves						
Proven						
Austin	72,153	10.97	25,451			
McVeigh	49.867	11.66	18,689			
No 1 Shaft	5,418	5.83	1,015			
Total	127,438	11.02	45,156			
Probable						
Austin	57,373	11.31	20,870			
McVeigh	130,407	6.86	28,750			
No 1 Shaft						
Total	**187,780**	**8.22**	**49,620**			
Resources						
Indicated						
Austin	63,286	8.57	17,440	565,331	12.38	225,086
McVeigh	36,108	8.91	10,349			
No 1 Shaft				801	7.89	203
Total	99,394	8.70	27,789	566,132	12.38	225,289
Inferred						
Austin	21,135	7.54	5,126	136,065	7.54	32,997
McVeigh	23,585	7.54	5,719	181,420	7.54	43,996
No 1 Shaft						
Total	**44,720**	**7.54**	**10,845**	**317,485**	**7.54**	**76,993**

**The reader is cautioned that the historical mineral resource and mineral reserve estimates were prepared before the development of National Instrument 43-101. A qualified person has not done sufficient work to classify the historical estimate as current mineral resources or reserves. Hence, the figures reported in this table should not be relied upon. The historical mineral resource and mineral reserve estimates are superseded by the Mineral Resource Statement reported in Section 14 of this report.*
The resource and reserve inventory reported in this table has been converted to metric system.
Reported at a cut-off grade of 4.85 g/t gold considering a gold price of US$325 per troy ounce gold and metallurgical recoveries of 95%. Estimates include pillar reserves.

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7. Geological Setting and Mineralization

7.1 Regional Geology

The following description of the geology of the Red Lake Greenstone Belt was modified from Sanborn-Barrie et al. (2004) and the references therein.

The Madsen gold project is located in the Uchi Subprovince of the Superior Province of the Canadian Precambrian Shield. Within the Uchi Subprovince, the Red Lake Greenstone Belt is host to one of Canada's preeminent gold producing district with over 28 million ounces of gold produced since the 1930s.

The belt is interpreted to have evolved on the south side of the North Caribou terrain, an ancient continental block originating approximately 3 billion years before present (Figure 7.1). The terrain evolved from extensive magmatic and sedimentary activity which occurred from 3,000 to 2,700 million years (Ma) with multiple events of intense deformation, metamorphism, hydrothermal alteration, and gold mineralization. Regional metamorphic assemblages range from greenschist to amphibolite facies.

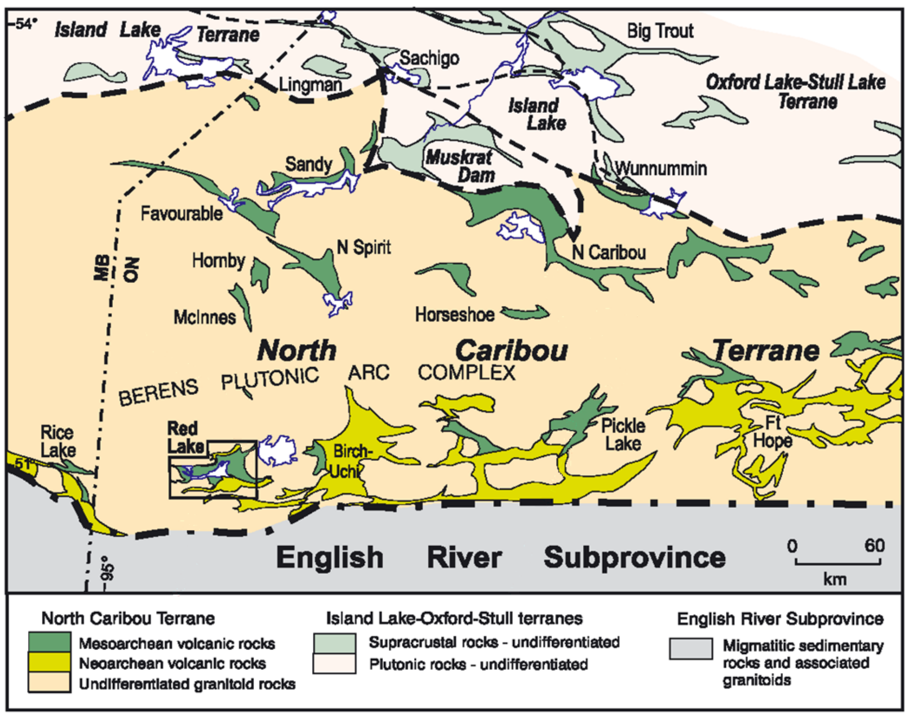

Figure 7.1: Geology of the North Caribou Terrain of the Superior Province (modified from Sanborn-Barrie et al., 2004)

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The tholeiitic and komatiitic metabasalts of the Balmer assemblage, dated approximately between 3,000 and 2,988 Ma, are the oldest volcanic rocks in the greenstone belt and host the major lode gold deposits in the Red Lake district. The assemblage consists of lower, middle, and upper massive to pillowed tholeiitic metabasalt sequences separated by distinctive felsic and ultramafic metavolcanic rocks. Metasedimentary rocks also occur within the assemblage, mainly as thinly bedded magnetite-chert ironstone.

Underlying the northwestern portion of the Red Lake Greenstone Belt is the Ball assemblage (approximately 2,940 to 2,925 Ma), consisting of a thick sequence of metamorphosed intermediate to felsic calc-alkaline flows and pyroclastic rocks.

The Slate Bay assemblage (approximately 2,903 to 2,850 Ma) extends the length of the belt and consists of clastic rocks of three main lithological facies varying from conglomerates, quartzose arenites, wackes, and mudstones. The contact of the Slate Bay assemblage with the Ball and Balmer assemblages represents an unconformity (Figure 7.2).

A thin sequence of calc-alkaline dacitic to rhyodacitic pyroclastic rocks of the Bruce Channel assemblage (approximately 2,894 Ma) was deposited and overlain with clastic sediments and a chert-magnetite iron formation. Enriched LREE trace element profiles relative to the Balmer assemblage are interpreted to indicate crustal growth at a juvenile continental margin.

The Trout Bay assemblage (approximately 2,853 Ma) is exposed in the southwest portion of the Red Lake Greenstone Belt. It is a volcano-sedimentary sequence consisting of a lower tholeiitic basalt unit overlain by clastic rocks and interbedded with an intermediate tuff and a chert-magnetite-iron formation.

Following a lull in volcanic activity for approximately 100 million years, the Confederation assemblage represents a time of widespread calc-alkaline volcanism (approximately 2,748 to 2,739 Ma). The approximately 2,744 Ma quartz-feldspar-porphyritic lapilli tuff of the Confederation assemblage forms the hanging wall at the Madsen mine.

Overlying the McNeely sequence in the Confederation assemblage is the Heyson sequence of tholeiitic basalts and felsic volcanics. Isotopic and geochemical data suggest the McNeely rocks were formed during a shallow marine to subaerial arc on the existing continental margin with later intra-arc extension and eruption forming the Heyson sequence. In the Madsen area, the strata of the Confederation and Balmer assemblages depict an angular unconformity with opposing facing directions. The Balmer assemblage was, thus, at least tilted and possibly overturned prior to the deposition of the Confederation assemblage.

Following the Confederation assemblage, the Huston assemblage (approximately between 2,742 and 2,733 Ma) records a time of clastic sedimentary deposition varying from immature conglomerates to wackes. The Huston assemblage has been compared to the Timiskaming conglomerates commonly associated with gold mineralization in the Timmins camp of the Abitibi greenstone belt (Dubé et al., 2003). The Huston was followed by the Graves assemblage (approximately 2,733 Ma) of calc-alkaline volcanism dominated by andesitic to dacitic pyroclastic tuff, syn-volcanic diorite, and tonalite.

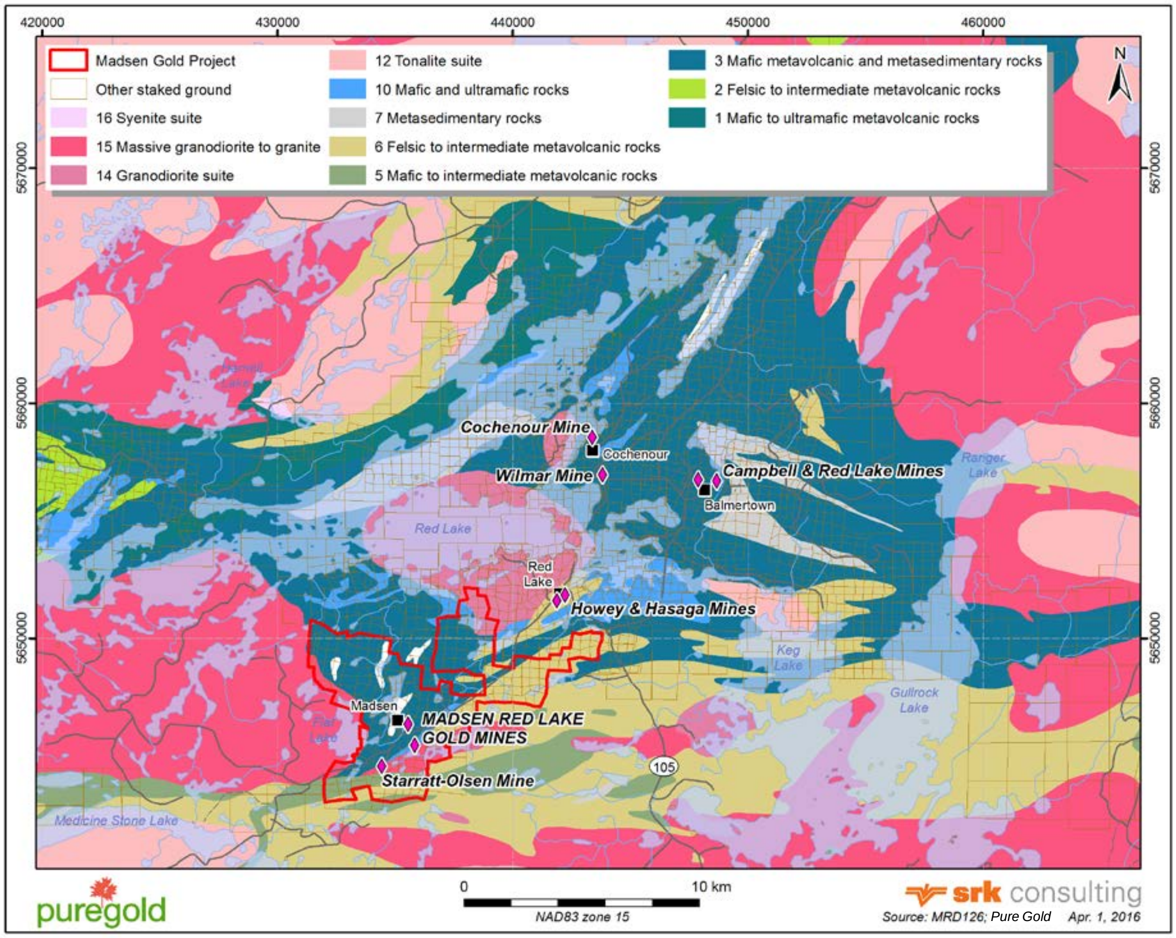

Figure 7.2: Simplified Geology of the Red Lake Greenstone Belt

Plutonic rocks found in the Red Lake Greenstone Belt correlate with various stages of volcanism. These rocks include mafic to ultramafic intrusions during Balmer and Ball time periods, gabbroic sills related to Trout Bay volcanism, felsic dikes and diorite intrusions during the Confederation assemblage, as well as, intermediate to felsic plutons, batholiths, and stocks of Graves assemblage age.

Post-volcanism plutonic activity is also evident from granitoid rocks such as the McKenzie Island stock, Dome Stock, and Abino granodiorite (2,720 and 2,718 Ma), which were host to past producing gold mines. The last magmatic event recorded in the belt is from about 2,700 Ma with a series of potassium-feldspar megacrystic granodiorite batholiths, plutons and dikes, including the Killala-Baird batholith.

Structurally, the belt displays evidence of several deformational events with associated hydrothermal activity and gold mineralization. The most widely-recognized first episode of penetrative deformation occurred after Confederation volcanism 2,740 Ma. This D_1 deformation event resulted in the formation of northerly trending south-plunging F_1 folds and associated fabrics.

A second important deformational event is superimposed on D_1 structures. East to northeast trending D_2 structures occur in western and central Red Lake, and southeast trending folds and fabric are present in eastern Red Lake such as at the Campbell and Red Lake mines. The onset of penetrative D_2 strain across the belt from 2,720 Ma is interpreted to document the collision of the North Caribou Terrain and the Winnipeg River Subprovince to the south.

The juxtaposition of opposing facing directions across the Balmer-Confederation unconformity provides strong evidence for a pre-D_1, or 'D_0', episode of deformation. Whether this early deformation was simply responsible for minor tilting, or the wholesale overturning, of the Balmer stratigraphy prior to erosion and deposition of the Confederation Assemblage is unknown, but some of the more complicated aspects of the regional architecture may be partly due to the presence of undefined cryptic D_0 structures.

7.2 Geology of the Madsen Gold Project Area

The following description of the geology of the Madsen gold project was modified from Dubé et al. (2000) and the references therein.

Structural measurements in the following sections are given following the Canadian right hand rule.

Rocks in the Madsen mine area have been metamorphosed to amphibolite facies. The area is positioned within the contact aureole of the Neoarchean Killala-Baird batholith situated directly west and dated at approximately 2,704 Ma.

The Madsen mine is located on the southeast-facing, southern limb of a large fold or domal structure. The mine is located near the contact of the Balmer assemblage to the northwest and Confederation assemblage to the southeast. This contact represents an angular unconformity with both assemblages.

The deformed unconformity extends across the southeast portion of the Red Lake Greenstone Belt through much of the Madsen gold project and more specifically the Madsen and the Starratt Olsen mines, and is locally known as the Flat Lake-Howey Bay deformation zone (Figure 7.3).

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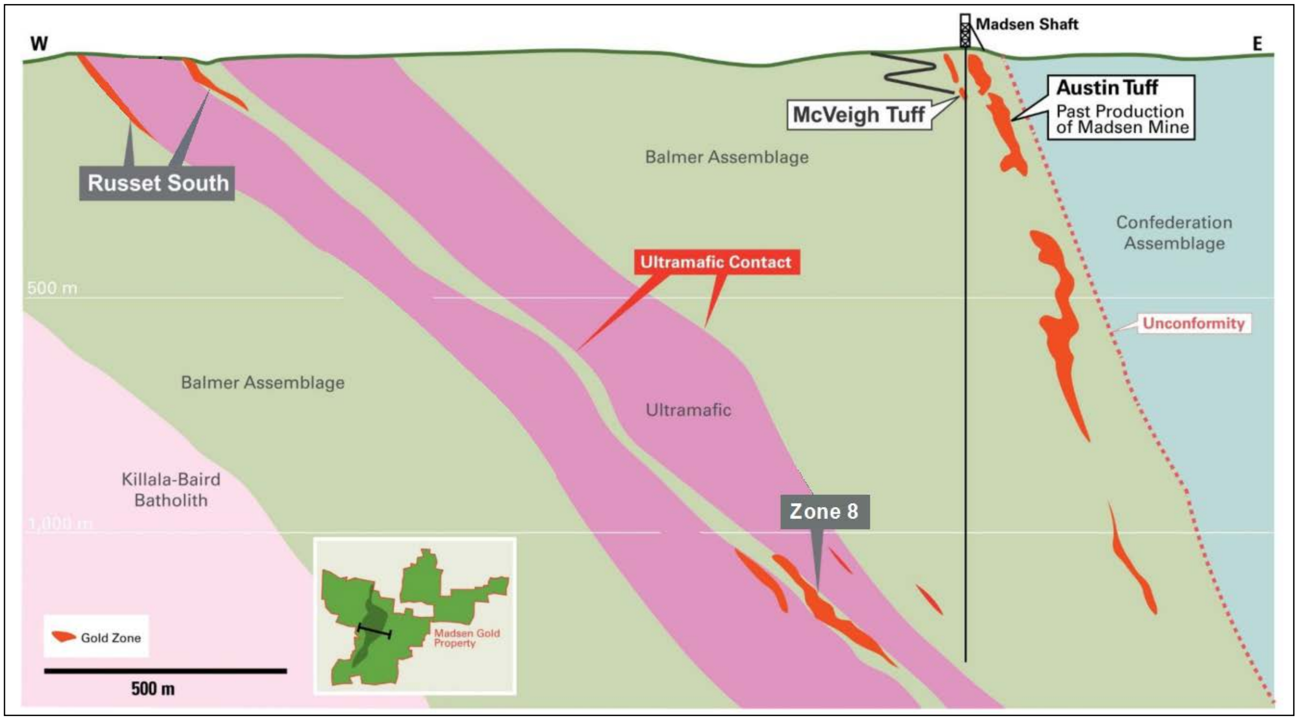

Figure 7.3: Schematic Composite Vertical Cross-section through the Madsen Gold Project - Looking North (modified from Pure Gold)

Gold mineralization at Madsen is hosted by three sheared and altered units within the Balmer assemblage historically named the Austin, South Austin, and McVeigh tuffs, which strike on average 030 degrees (º) and dip between 60º and 70º to the southeast. These assemblages were originally interpreted to be altered dacitic pyroclastic rocks, hydrothermally altered and deformed mafic rocks, and intermediate to felsic pyroclastic rocks.

Surface mapping indicates that the McVeigh tuff corresponds to hydrothermally altered and heterogeneously deformed massive and pillowed basalt. The South Austin and Austin tuffs are best described as a composite unit of hydrothermally altered and heterogeneously deformed mafic volcaniclastic, epiclastic (wackes and conglomerates), and local mafic volcanic rocks, which are interpreted to be hydrothermally altered fragmental rocks that mark the unconformity between the Balmer and Confederation assemblages.

The historical Starratt-Olsen mine is located just over one kilometre further southwest along the Flat Lake-Howey Bay deformation zone. The gold mineralization comprises quartz-sulphide veins hosted by mafic and ultramafic volcanic rock of the Balmer assemblage intruded by diorite and feldspar porphyry dikes (Harris et al., 2006).

The Balmer assemblage represents the footwall of the Madsen deposit. It consists mainly of tholeiitic pillowed basalt and gabbro interbedded with thin peridotitic and basaltic komatiite units. The immediate hanging wall of the McVeigh tuff is an intrusive complex composed of peridotite, pyroxenite, and gabbro. Thin units of talc schist are found on the hanging wall contact of the McVeigh zone and also separate the Austin from the South Austin zone.

The Confederation assemblage corresponds to the hanging wall of the Madsen deposit. Immediately adjacent to the Austin tuff lies a quartz-feldspar-porphyry, lapilli-crystal tuff (QFP). This unit represents the basal portion of the assemblage. It contains two to three percent lithic fragments mainly concentrated near the base defining pre-existing centimetre-scale bedding. Of note is the presence of a tuff unit within the QFP which mainly contains hydrothermally altered metamorphosed sediments with no important gold intercepts.

Many northwest striking and shallow to steeply dipping diorite-granodiorite dikes cut through all lithological units, including the gold mineralization. These are centimetre to metre scale, unaltered, usually unstrained and locally zoned. They have been dated at approximately 2,699 Ma, which places them marginally younger than the Killala-Baird batholith and of similar age to the Faulkenham Lake granodiorite stock southeast of Madsen, to which they may be related.

7.2.1 Structural Geology

The intensity of the deformation is heterogeneous in the rocks at Madsen but is typically low to medium with local high strain zones up to a metre wide. Similar to the belt-scale deformational history, the D_1 and D_2 are the two main structural events recorded. D_1 is shown as a weakly developed foliation S_0—S_1 parallel to bedding generally striking north-northeast and dipping southeast, on average at 012/62º (Figure 7.4). Although generally weak, this foliation can be more intense locally such as in the talc schist adjacent to the ore zones.

The main deformation event is D_2 which is typified by a moderately developed east-northeast striking S_2 foliation that dips to the southeast on average at 063/65º. Though generally moderate, locally the foliation reaches penetrative schistosity intensity, especially within the Austin and McVeigh tuffs. Local D_2 shear zones oriented on average at 060/70º appear to increase in intensity towards, and overprint the ore zones at Madsen. The shear zones display a sinistral component of motion and weak stretching lineations plunging east within the Austin horizon

At the deposit level, there appears to be a spatial relationship between the mineralized zones and the thickness of the tuff units at Madsen mine. The Austin tuff thickness is related to what was historically referred to as 'rolls'. These so-called 'rolls' may correspond to F_2 folds and shear zones which reduce the width of the tuffs, or they may be related to pre-D_2 structures that influenced the distribution of the mineralization pathways. Mineralized ore lenses are boudinaged and folded along the S_2 fabric within zones of the thickened tuff, indicating a pre- to early/syn-D_2 timing of gold emplacement, similar to the Goldcorp Red Lake mine.

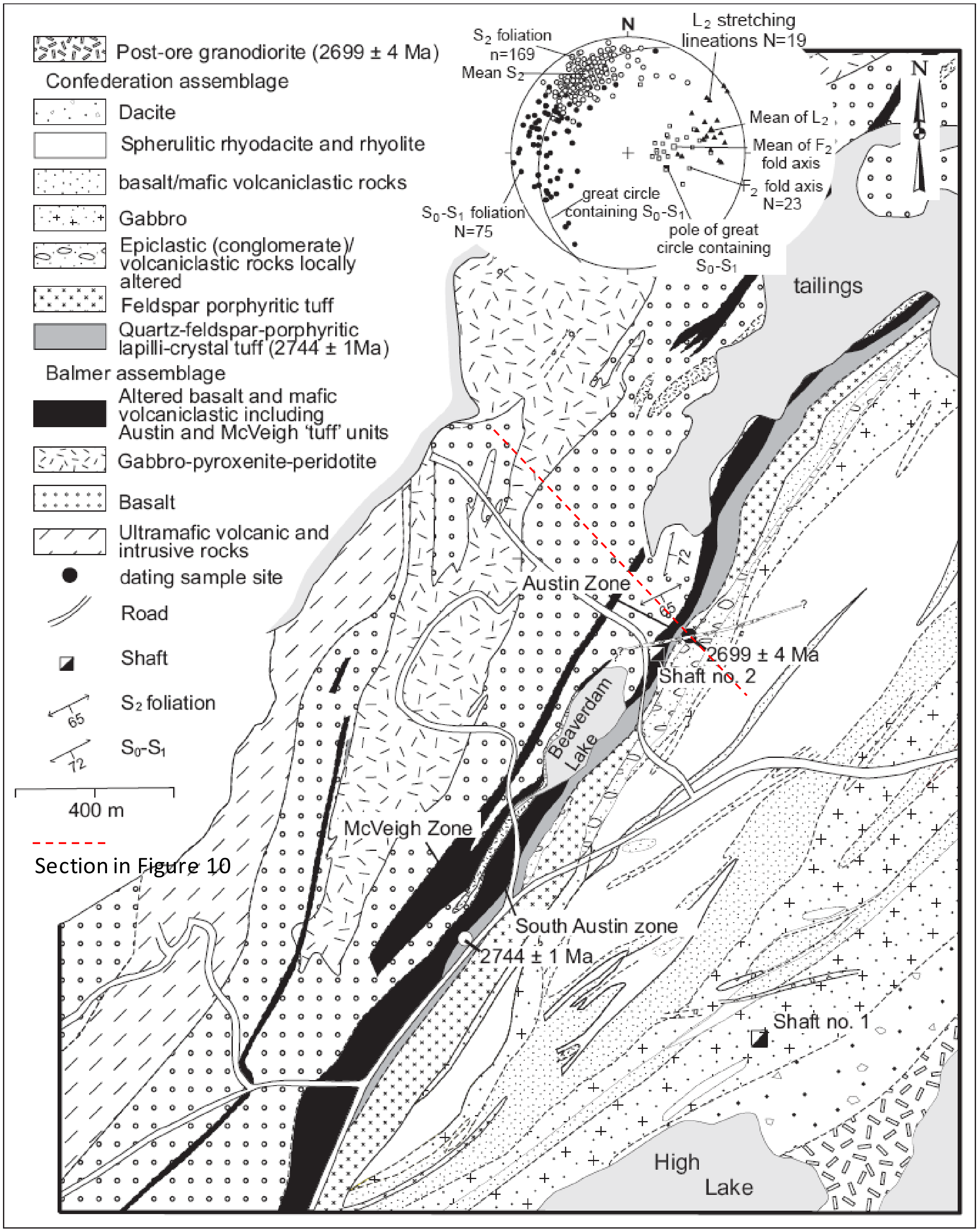

Figure 7.4: Geology of the Madsen Mine Area - Stereonets are Equal Area Projections (lower hemisphere) (Dubé et al. 2000)

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7.3 Mineralization

Several gold mineralization zones have been identified, explored, and mined on the Madsen gold project. The Madsen mine comprises four main gold zones: Austin, South Austin, McVeigh, and Zone 8, which are the principal topic of this technical report. This section describes briefly the various gold zones found within the Madsen gold project with emphasis on the Madsen mine.

7.3.1 Mineralization at the Madsen Mine

Historical gold production from the Madsen mine came primarily from four main zones of gold mineralization: Austin, South Austin, McVeigh and Zone 8.

7.3.1.1 Austin, South Austin, and McVeigh Gold Zones

The South Austin and Austin zones (Figure 7.5C to F) are interpreted to be hydrothermally altered fragmental rocks that mark the unconformity between the Balmer and Confederation assemblages. They are a composite unit of hydrothermally altered and heterogeneously deformed mafic volcaniclastic, epiclastic wacke, and conglomerate, and local mafic volcanic rock. The McVeigh zone (Figure 7.5 A and B) on the other hand is described as hydrothermally altered and heterogeneously deformed massive and pillowed basalt (Dubé et al, 2000).

All three zones strike on average at 030º and dip between 60º and 70º to the southeast. The Austin zone modelled as part of the present study has a strike length of approximately 3,150 metres, a depth extent of 1,700 metres with a thickness varying from 5 to over 120 metres. The Austin zone is open along strike and has been observed in the Starratt-Olsen mine area.

The South Austin zone was modelled over a strike length of 2,400 metres and extends 1,300 metres down dip. Its thickness varies from 5 to 70 metres. The South Austin zone is closed along strike to the northeast but remains open to the southwest beyond the extent of borehole information.

The McVeigh zone was modelled over a strike length of 2,600 metres with a depth extent of 1,750 metres. It varies between 5 and 80 metres in thickness. The McVeigh tuff is open along strike. According to ACA Howe (1999) the Austin and McVeigh zones have been traced at surface over at least 4,500 metres.

Dubé et al. (2000) describe the hydrothermal alteration associated with gold mineralization in the auriferous zones as consisting of an outer, non-mineralized to anomalously gold mineralized, aluminous assemblage containing andalusite, garnet, biotite, staurolite, and amphibole and an inner zone characterized by potassic, metasomatic layering producing a banded texture. The gold is most typically found within the inner potassic alteration zone in its native state as micrometre-sized inclusions in silicate minerals, and also as coatings on sulphide minerals (Ferguson, 1965). The metallic signature is characterized by high gold, silver, and arsenic with minor zinc, antimony, copper, and mercury values. Dubé et al. (2000) concluded that the Madsen deposit is not a typical greenstone gold deposit, but rather an early manto-style replacement mineralization, which was deformed by D_2 and metamorphosed by the Killala-Baird batholith.

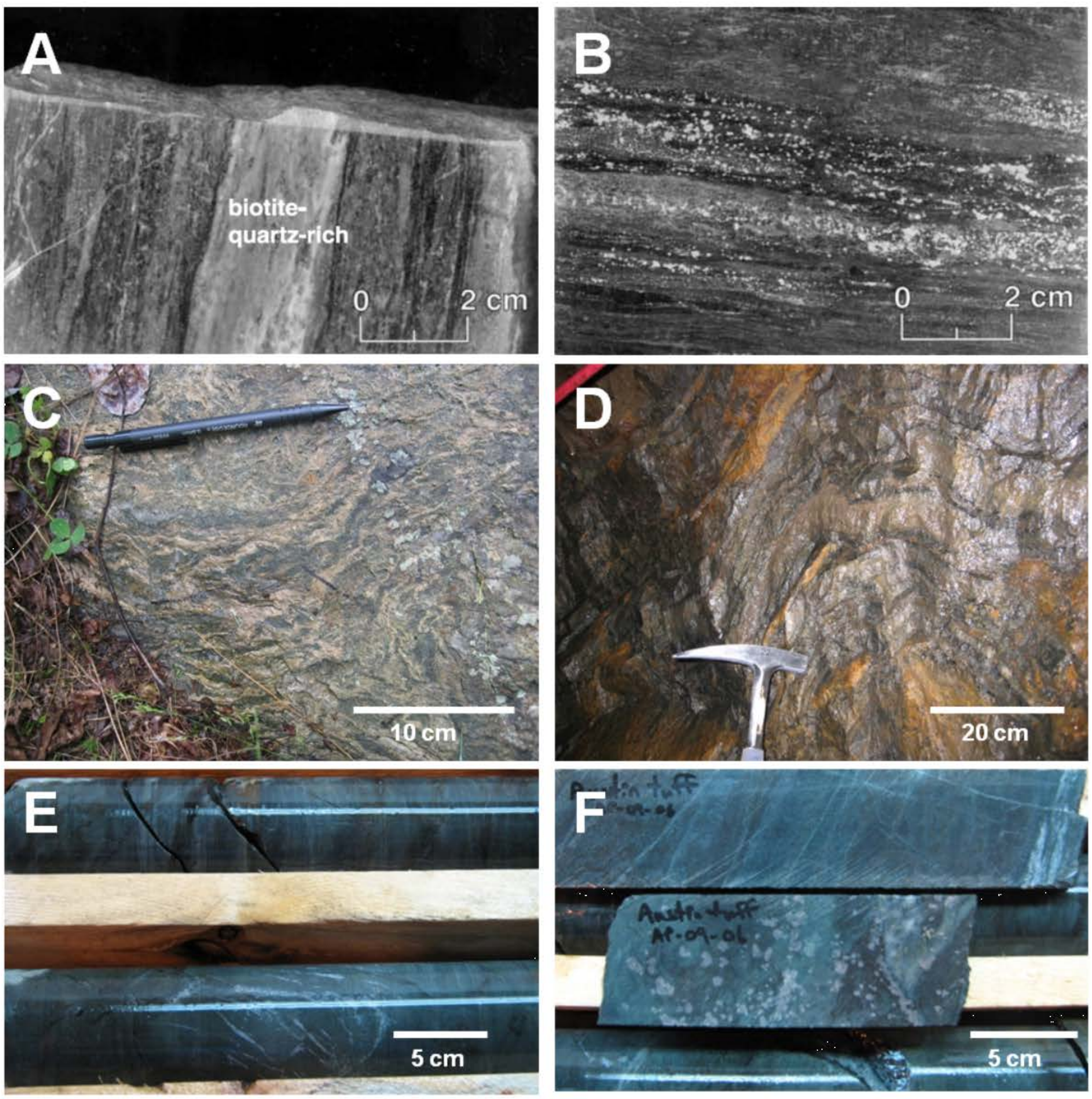

Figure 7.5: Gold Mineralization from McVeigh and Austin Zones, Madsen Mine

A. McVeigh ore zone: Layered textures with biotite-quartz-rich and amphibolite band (black and white photograph from Dubé et al., 2000);
B. McVeigh ore zone: Sulphide-rich laminated and highly foliated (black and white photograph from Dubé et al., 2000);
C. Austin tuff on surface contorted and sheared;
D. Austin tuff, folded and hydrothermally altered, underground on level 2;
E. Austin tuff, borehole AP-09-07;
F. Austin tuff, borehole AP-09-06.

Dubé et al. (2000) also interpret that the strain within the gold zones was relatively moderate with no indications of a regional scale major shear zone or mylonite related to D_2, suggesting that the so called tuffs are lithotectonic units within the Balmer assemblage. Conversely, from surface and underground observations SRK sees evidence of strong mylonitization, foliation development, strongly contorted overprinting styles of folding, and strain gradients suggesting that the so called tuffs units represent deformation zones.

It is Pure Gold's belief that the 'tuffs' are a composite but distinct unit that has been variably deformed during D_1 and D_2. Although mineralization is of a replacement style and strongly transposed, the mineralized lenses can be shown to transect the tuff stratigraphy, suggesting the presence and control of some cryptic structure that is itself transposed by D_2.

7.3.1.2 Zone 8

The fourth auriferous zone (Zone 8) is hosted in quartz-carbonate veins with common visible gold located close to the contact between ultramafic and mafic units of the Balmer assemblage (Figure 7.6 C and D). The known extent and mining of Zone 8 was originally limited to levels 22 to 27, or approximately 1,061 to 1,321 metres below surface. Further drilling from Claude expanded the known extent of the Zone 8 vein down-dip. The new Zone 8 model used in resource estimation strikes 030º dips 40º to the southeast and is 100 metres wide and 500 metres deep. Mineralization in Zone 8 is slightly discordant to the other three gold mineralized zones at Madsen. A projection of Zone 8 onto the Austin tuff forms a line of intersection that is parallel to the main plunge of the Austin and South Austin mineralized zones, suggesting the possibility of a common structural link between all of the zones, despite their unique settings. Up-dip projections to the north and west along this same stratigraphic horizon coincide with the Russett South and Fork zones – two high priority targets in Pure Gold's exploration strategy.

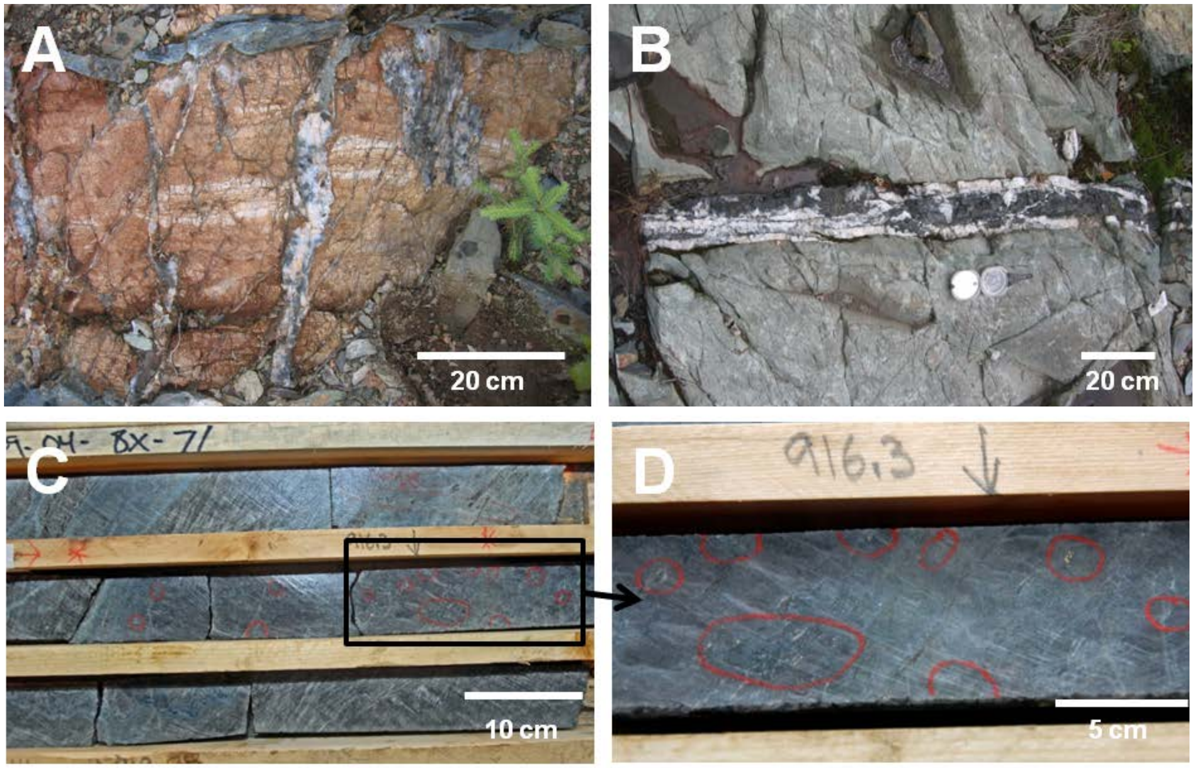

Figure 7.6: Gold Mineralization from Treasure Box and Zone 8

A. Treasure Box: Crustiform iron carbonate vein crosscut by extensional quartz-tourmaline veins;
B. Treasure Box: Extensional quartz-tourmaline veins;
C. 8 Zone: quartz-carbonate vein with visible gold. Borehole MUG-09_04a;
D. 8 Zone: quartz-carbonate vein with close-up of visible gold. Borehole MUG-09_04a.

7.3.2 Mineralization in Other Gold Zones

The Madsen property hosts numerous mineral occurrences at various levels of investigation. A variety of alteration and structural settings host gold at these occurrences. Most of these mineralized zones are described in the history section. Mineralization at the historic Starratt-Olsen Mine is of a similar style and setting to that of the Madsen Mine with replacement-style, disseminated gold mineralization documented within three auriferous zones termed the South tuff, North tuff, and Creek tuff zones. Other styles of mineralization important on the property include bonanza-grade extensional quartz-tourmaline veins, such as at the Treasure Box target; and high-grade silicified replacement zones and quartz vein zones emplaced at the contact between basalt and ultramafic units such as at Russet South and the Fork Zone. The Fork and Russet South mineralized zones occur on the same lithologic contact up-dip from the 8 Zone deposit. These active targets are more fully described in the drilling and exploration targets sections.

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8. Deposit Types

The Red Lake district is a world-class gold mining district located in the Red Lake Greenstone Belt, which is host to various styles of gold deposits. Twenty-eight mines have operated in the district since 1930, producing 22.9 million ounces of gold from three main producing mines: Campbell Mine, Dickenson/Red Lake Mine, and Madsen mine.

Most of the gold production from Red Lake is derived from high grade quartz-carbonate veins associated with deformation and folding in Balmer assemblage metamorphosed volcanic, sedimentary, and granitoid rocks (Sanborn-Barrie et al., 2004). At the Campbell-Red Lake mine, the main source of gold is found within quartz-carbonate veins associated with the Campbell and Dickenson fault zones and locally controlled by F_2 folding (Dubé et al., 2001). Gold in Zone 8 at the Madsen mine and at Starratt-Olsen mine are from similar quartz-carbonate veins.

A second type of gold deposit in the Red Lake district is replacement-style, disseminated gold, which corresponds to the main source of historical production at Madsen mine in three main zones: the Austin, South Austin, and McVeigh tuffs (Dubé et al., 2000). The hydrothermal alteration consists of a changing distribution of andalusite, staurolite, garnet, chloritoid, biotite, and quartz (Andrews et al., 1986). The replacement-style disseminated gold mineralization at Madsen has been compared by Dubé et al. (2001) to the East South C ore zone of the Campbell-Red Lake mine, which corresponds to a strongly foliated sulphide-rich replacement zone hosted in the Dickenson fault zone.

A third deposit type also present on the Madsen gold project is polymetallic stockwork-style mineralization. These are typically sulphide-rich quartz-carbonate veins hosted in sedimentary or intermediate to felsic volcanic rocks. They are frequently associated with dikes following the same structural weaknesses. In general, these systems develop as narrow, steeply dipping, tabular or splayed veins that are in parallel and offset geometries. Veins can grade into large zones of stockwork or even breccia. Sulphides such as galena, sphalerite, argentite, molybdenite, arsenopyrite, and sulphosalt minerals are often coarse-grained in pods or patches with finer-grained dissemination throughout the vein system.

9. Exploration

Since acquiring the Madsen gold project in 2014, Pure Gold has focused exploration activities, primarily mapping and sampling, on a number of exploration targets outside the immediate Madsen mine area. In 2015 Pure Gold stripped parts of the Russet South target area to aid in local mapping and sampling. In addition, Pure Gold completed a property-wide airborne geophysical survey in 2014 to aid in structural interpretation and targeting efforts. In order to maintain and improve the borehole database, Pure Gold surveyed a number of historical collar locations. A summary of exploration activities carried out by Pure Gold between 2014 and 2015 is shown in Table 9.1.

Table 9.1: Summary of Exploration Carried Out by Pure Gold on the Madsen Gold Project during 2014 and 2015

Exploration Technique	Target or prospect	Quantity
Airborne magnetic survey	Property-wide	1,702.8 line km
Drill collar location survey	Property-wide	221 drill collars
Geological mapping, rock sampling	Madsen deposit/unconformity, Fork, Madsen North	123 rock
Geological mapping, rock and soil sampling	Property-wide & Russet South grid sampling	37 rock 117 B horizon soil 505 MMI soil 123 lithogeochem
Geological mapping, rock sampling	Durlak Lk towards Red Lk, Buffalo	79 rock
Geological mapping, rock and soil sampling	Mapping at Russet South and No. 1 Shaft; MMI sampling at Madsen South, Pumphouse, SPfold and Dev grids	29 rock 2,021 MMI soil 8 lithogeochem
Geological mapping, rock sampling	Flat Lake, Dev, Hasaga, Buffalo, DEVillier, Snib Lake, McVeigh, Coin Lake, Fork, Shore	410 rock, most analyzed by portable XRF only
Mechanical stripping, geological mapping, rock sampling	Russet South (Alpha, Beta, Kappa trenches), Dev, Russet North	202 rock, 72 chip/channel, 3,234 MMI soil
Petrography	Russet South, Madsen	33 thin polished sections
Mechanical stripping, rock sampling	Russet South	78 rock

9.1 Airborne Geophysics

In May 2014 Pure Gold commissioned CGG Canada Services, Ltd (CGG) of Mississauga, Ontario to carry out a high resolution magnetic airborne geophysical survey over the entire Madsen Property. The purpose of the survey was to provide geophysical support for detailed mapping of the geology and structure of the property.

The survey consisted of 1,702.8 line kilometers: 1,543.6 kilometres of traverse lines were flown in an east-west direction with individual lines spaced 50 metres apart, and 159.2 kilometres of tie lines were flown orthogonal at 500 metre line spacing. Nominal ground clearance was 20 metres. A GPS electronic navigation system and laser altimeter ensured accurate positioning of the geophysical data. Data were acquired using a MIDAS magnetic system with two helicopter boom-mounted high-sensitivity cesium vapour magnetometers in a horizontal gradient configuration.

Survey data were post processed by Zion Geophysics, Inc. (Zion) to extract as much information as possible. Zion provided processed images to Pure Gold that define subtle lithologic and structural details previously not recognized.

9.2 Collar Location Survey

During 2014 Pure Gold completed a property-wide program to survey a selection of historical borehole locations to improve confidence in data acquired from historical boreholes Location data were collected with a Trimble ProXRT differential GPS receiver with Omnistar real-time correction, which achieved sub-metre precision. In all, 221 collars were surveyed from across the property. Many historical collars could not be located.

9.3 Geological Mapping and Sampling

To gain a better understanding of the timing and location of gold mineralization, Pure Gold in 2014 and 2015 carried out both property wide and detailed prospect-scale geological mapping and sampling programs. The work focused on gold-prospective regions particularly along the unconformity between the Confederation and Balmer assemblages along major lithologic contacts within the Balmer Formation and at the Russet South and Fork Zone prospects.

GPS-enabled field computers were used to map locations and shapes of outcrop exposures and to collect data on lithology, alteration, and structure. The work resulted in a database containing information of nearly 3,200 individual outcrops over an area of 31 square kilometres. In addition, approximately 1,160 surface samples were collected for whole rock geochemical analysis to characterize the local lithology more accurately.

A series of six outcrops were stripped with an excavator by Pure Gold in 2015 to provide bedrock exposure over key areas where previous drilling had intersected gold mineralization. Stripped areas were mapped and sampled in detail. The exposure revealed several structural relations and indications of the timing of gold mineralization that are not apparent in drill core (Baker and Swanton, 2016).

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Pure Gold undertook a petrographic study of 33 thin section samples to characterize timing of mineralization and alteration phases (Ross, 2015).

Combining existing information with the new data has resulted in a new property-wide geological map. Identified structures such as foliations and folds have been correlated to different deformation events, which aided in constraining the timing of gold mineralization relative to these events.

9.4 Soil Geochemistry

Pure Gold carried out extensive soil sampling programs to help identify previously unrecognized gold anomalies. After an initial trial of conventional B-horizon versus mobile metal ion (MMI) sampling, Pure Gold elected to carry out soil sampling for MMI surveying because the MMI technique was deemed to be the most appropriate for the majority of the sample sites (Arne, 2014).

During the initial, property-wide soil sampling program, sample locations were spaced about 1 kilometre to 500 metres apart. For subsequent, follow-up programs MMI samples were collected along east-west grid lines spaced 100 metres apart. Sample spacing along these lines was approximately 25 metres depending on the suitability of individual sampling sites.

In all, Pure Gold collected 5,760 MMI soil samples covering approximately 75 percent of the property that is underlain by Balmer assemblage rocks. Several regions of anomalous gold were identified, warranting follow up work.

9.5 Exploration Targets

In addition to the Madsen mine, several exploration targets have been identified by Pure Gold across the Madsen property (Figure 9.1) which are summarized in Table 9.2.

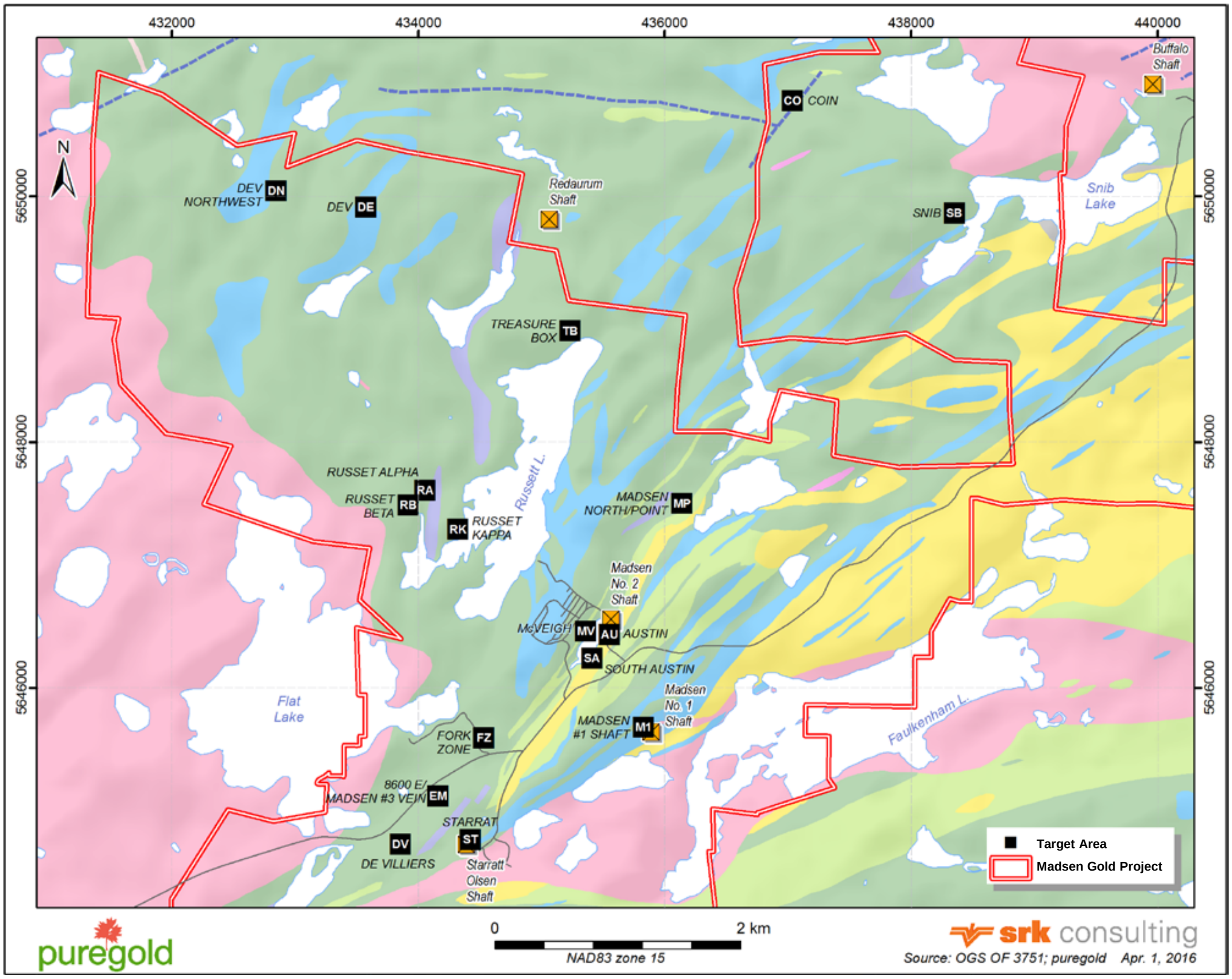

Figure 9.1: Location of Exploration Targets

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Table 9.2: Summary of Exploration Targets

Exploration Target	Description	Pure Gold Comment
Dev Northwest	700 metres long gold in soil anomaly Quartz veining and silicification in iron carbonate and banded amphibole-biotite altered basalt Anomalous gold values in surface grab samples	Follow up work required, including additional soil and rock sampling and geologic mapping
Dev	Significant multi-element, gold associated anomaly over 1,500 metres associated with axial planar shear zones in large F2 fold, possible F1/F2 interference Intense iron carbonate alteration, zones of strong silicification throughout the area Historical prospect (Aiken #1) yielded 3.4 to 8.6 g/t gold in the 1940s	Low gold values in initial Pure Gold rock samples, Further work required
Russet South	1,500 metres west of Madsen mine Historically known as the Main or No. 3 zone Mineralization hosted in rocks similar to the brown tuffs in the Madsen mine Mineralized areas within are commonly silicified; disseminated pyrite, pyrrhotite, and visible gold are common Interpretations suggest target is up-dip continuation of Zone 8 (Madsen mine)	2015 drilling returned significant high grade intercepts at Alpha, Beta, and Kappa zones
Coin	Strongly carbonate-altered ultramafic unit along an interpreted D_2 Ultramafic unit returned 0.25 g/t gold in one outcrop sample Weakly anomalous gold in soil values	
Snib	Historically part of Newman-Madsen property Anomalous gold in soil values at the northern and southern limits of Snib Lake, associated with quartz veining at the contact of folded ultramafic units Shearing, strong carbonate alteration north of the lake Historical core boreholes testing unconformity: 22.56 g/t gold over 2.0 m, 43.51 g/t gold over 0.65 m Anomalous gold associated with disseminated pyrrhotite and pyrite	Historic compilation in progress
Madsen North/Point	Highly anomalous gold in soil values, believed to be related to drainage from historical Madsen tailings	Limited drilling returned only weakly anomalous gold up to 0.4 g/t over 8.0 metres
Starrat Mine	Starrat mine mineralization open at depth and down plunge Re-logging and sampling of several boreholes drilled by Claude and Placer Dome completed by Pure Gold	Low level compilation work is ongoing in anticipation of a future drilling program to test for extensions to the historical zones
De Villiers	Near the Starratt-Olsen mine ca. 2,400 metres southwest of the Madsen mill complex Gold-bearing quartz veins hosted by Balmer assemblage basalt	Additional mapping and sampling planned

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Exploration Target	Description	Pure Gold Comment
	Stripped, bulk sampled and drilled (29 historical boreholes, 2,480 m) in 1998 Results indicate a north-dipping quartz vein system that is at least 60 by 90 metres	
Fork	1,300 m southwest of Madsen shaft Replacement-style and vein-hosted mineralization follow shallow southeast plunge Three phases of folding recognized, the latter two correspond to more widely recognized F_1 and F_2	Pure Gold borehole PG15-037 tested southern limit of the Fork zone and intersected 3.9 g/t gold over 12.1 metres. Further drilling required to delineate limits of mineralization
8600E/Madsen #3Vein	Historical stripping and limited channel sampling; only low gold values Pure Gold mapping suggests 8600E target may represent southern extension of Fork zone 1935 channel samples yielded average 36.3 g/t gold over a width of 0.3 metres 8600E: Pure Gold limited sampling of iron formation (banded magnetite, pyrrhotite, and amphibole) returned 0.3 g/t gold	Historical gold occurrence (Madsen #3 Zone) on strike between Fork and 8600E targets; described as a quartz vein 0.15 to 0.50 metres wide, 45.75 metres long. Mapping and sampling planned
No. 1 Shaft	Old prospect, discovery predates Madsen deposit Shaft approximately 1 km south-southeast of Madsen mill and immediately south of steeply southeast-dipping No. 1 vein; five levels of workings on 1930s plans 1998 work by Claude, includes stripping, mapping, rock sampling (61 channels and 13 grabs), and 15 boreholes (1,296 m), narrow veins intersected	Recent detailed mapping indicates mine targeted 30-70 centimetres wide quartz vein within layer-concordant sinistral shear zone Vein with strike length of 110 metres, shear zone at least 1,700 metres long New grab samples confirm local high grade mineralization (up to 24.1 g/t Au) in vein and wall rock and warrant low level follow-up
Treasure Box	Near the north end of Russet Lake Extensional quartz-tourmaline veins and stockwork veins with common visible gold Vein swarms (10 – 70 metres wide); gold mineralization in the host rock is minimal Extensive drilling (Placer Dome, Claude) delineated mineralized veins over 165 metres High-grades appear to have limited extents	Veins preferentially formed during boudinage of pre-existing barren iron-carbonate veins, possibly during a regional folding event. Low-level work to assess viability of deeper target at ultramafic contact

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10. Drilling

Detailed information about historical drilling is given in Section 5 of this report.

10.1 Drilling Considered for Mineral Resource Modelling

The Mineral Resource Statement reported herein for the Madsen gold project is based on historical and recent drilling data. The complete historical database consists of 13,615 surface and underground core boreholes totalling 808,304 metres (Table 10.1). Claude completed a total of 326 surface and underground core boreholes at the Madsen mine and other exploration targets within the Madsen gold project (Table 10.1).

Table 10.1: Summary of Drilling Between 1936 and 2013 at the Madsen Gold Project

Area	Number of Boreholes	Total Length	Considered for Resource Modelling
Drilling by Claude (2007-2009)			
Treasure Box	51	13,573	No
Starratt-Olsen	31	15,506	No
Fork Zone	105	45,179	No
Killala Ultramafic	7	6,000	No
Underground Zone 8	21	18,380	No
Polymetallic Zone	8	3,891	No
Hasaga Area	2	1,945	No
Underground Madsen Mine	9	8,062	Yes
Drilling by Claude (2009 – 2013)			
Underground Zone 8	22	23,489	Yes
Surface Zone 8	1	1,528	Yes
Apple Zone	13	4,376	No
Austin Deep	3	6,231	No
Austin East	13	5,695	No
McVeigh	10	6,175	No
Crown Pillar	6	161	No
Twinned Core Boreholes	1	403	No
Aiken Russet	5	3,121	No
Austin Deep	5	10,728	No
McVeigh	9	5,741	No
Starratt-Olsen	4	3,838	No
Historic Drilling Madsen Mine only (before 2006)			
Placer (2001 - 2004)	115	60,724	Yes
Madsen Mine Surface	438	59,894	Yes
Madsen Mine Underground*	13,062	687,687	Yes
**Approximately 4,000 short definition/condemnation and in-stope drilling boreholes were not digitized from paper logs.*			

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A total of 83 of these core boreholes were completed after 2009 and the completion of the most recent Mineral Resource Statement. A total of 13,624 boreholes (816,367 metres) were considered for the mineral resource estimation.

The azimuth of boreholes is generally perpendicular to the strike of the mineralization; the majority of boreholes were drilled towards the west northwest. Boreholes drilled from surface intersect mineralization with angles between approximately 45 and 60 degrees. These intersection angles suggest that the true thickness of mineralization is approximately 70 to 80 percent of core lengths.

Low grade mineralization of the Austin zone has a thickness of approximately 40 to 100 metres, while low grade mineralization of the McVeigh zone has a thickness of approximately 10 to 90 metres.

The distribution of the drilling data relative to underground workings is depicted in Figure 10.1. Historical drilling before 2006 investigating other exploration targets within the Madsen gold project are described in Section 5 and were not compiled for this report.

Several drilling contractors have been used on the Madsen gold project over the years. Known drilling contractors used by the Madsen mine include Newmac, Centaur, Morissette, and Boart Longyear. From 2001 to 2004 Placer Dome contracted Major Dominik Drilling of Val D'Or, Quebec to perform surface drilling. For surface drilling in 2007 and 2008 and underground drilling in 2009, Claude hired CorePro Drilling of Tisdale, Saskatchewan. In 2009, Bradley Brothers of Rouyn-Noranda, Quebec were contracted to perform surface drilling on the project. In September 2011, Bradley Brothers were bought by Major Drilling Group International Inc. (Major). Claude continued to contract all drilling to the former Bradley Brothers, now Major, until 2012 after which Claude did not complete further drilling. Pure Gold's drilling in 2014 and 2015 was completed by Major Drilling and Hy-Tech Drilling.

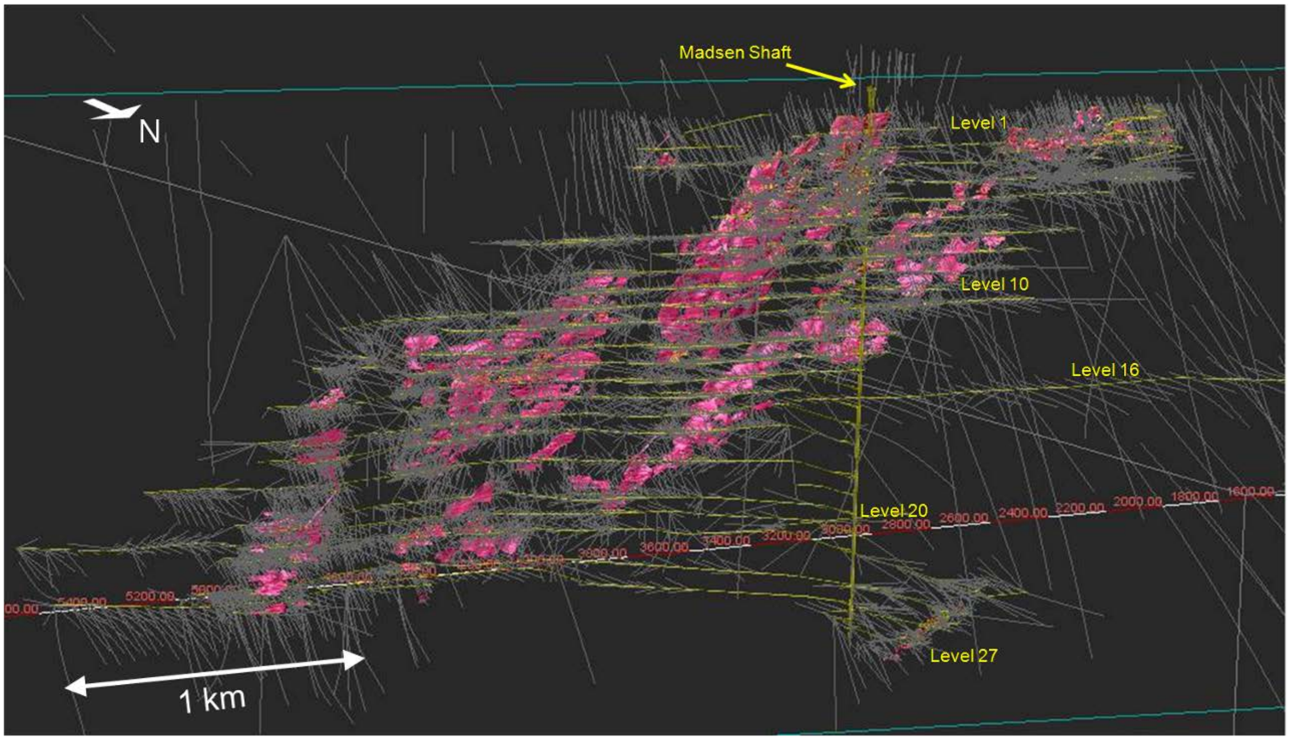

Figure 10.1: Distribution of Underground and Surface Drilling at Madsen Mine

Historical mine shaft and drifts in yellow, stopes depicted in pink.

10.2 Drilling by Pure Gold 2014 to 2015

10.2.1 Madsen Mine

Drilling by Pure Gold within the Madsen mine area (Figure 10.2) was aimed at characterizing the historically mined material using modern methodologies and on extending the strike and dip extents of known mineralization. Drilling occurred within the northeastern extension of the mapped Austin alteration footprint, known as Point target, the Austin target near the mill complex, and the McVeigh West target. A summary of boreholes completed by Pure Gold in the Madsen mine area is shown in Table 10.2.

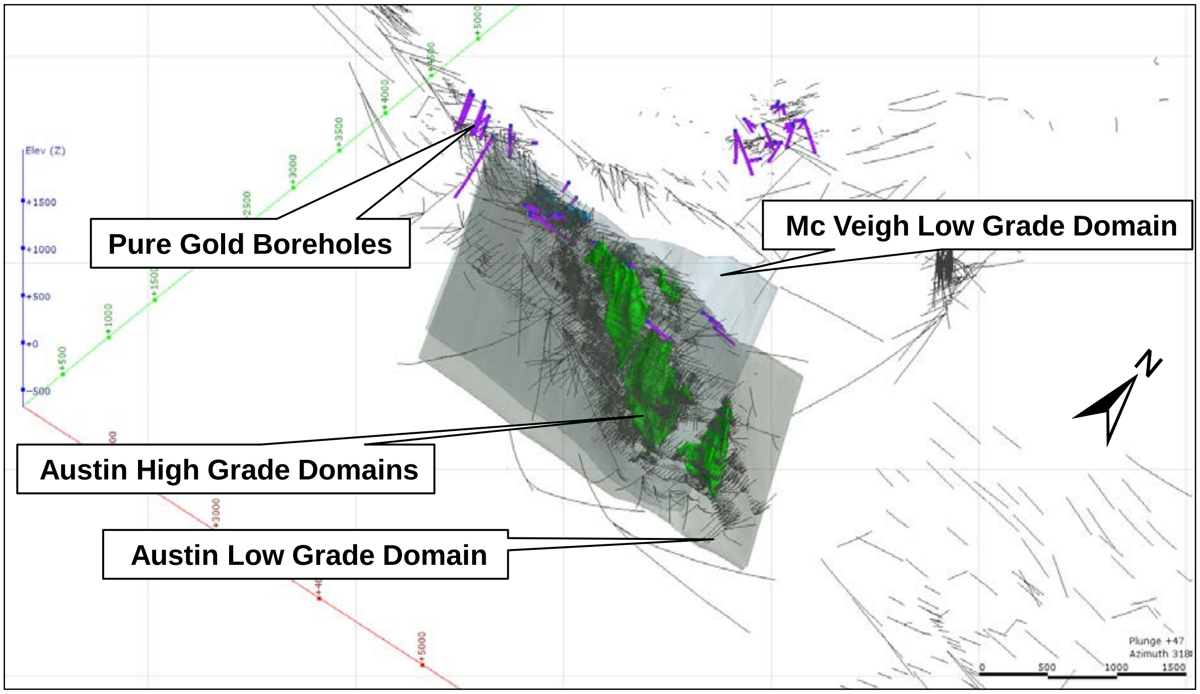

Figure 10.2: Oblique View of the Madsen Mine Area Showing Boreholes Completed by Pure Gold as Thick Purple Traces (Previous Boreholes Shown as Thin Gray Traces) - View to the Northwest

Table 10.2: Madsen Mine Area Drilling by Pure Gold in 2014 and 2015

Target	No. of Boreholes	Metres Drilled
Point	3	564
Austin	7	1,328
McVeigh West	8	2,742

Geological mapping northeast of the Madsen mine in 2014 defined an alteration envelope characterized by abundant biotite and garnet. The type and local of the alteration suggests that it is associated with the mineralizing event at Madsen, subsequently this area has been called the Point target by Pure Gold. Limited historical drilling occurred in this area. Pure Gold completed three boreholes in this area across the defined alteration corridor.

Boreholes completed on the Austin target confirmed data contained in the historical mine compilation and allowed a thorough study of the structural geology, geochemistry, and alteration of this mineralized zone. Information acquired through the latest drilling is consistent with interpretations that the gold mineralization at Madsen developed early in the tectonic history of the belt, and that mineralization has been deformed and folded by at least two deformational events.

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At McVeigh West, Pure Gold aimed to test for extensions of the McVeigh mineralized zone at shallow depths below historical mine workings. This initial drilling was challenged by borehole deviations that resulted in targets not being tested to the planned extent.

Significant mineralized intersections encountered by Pure Gold are summarized in Table 10.3.

Table 10.3: Significant Mineralized Intersections Pure Gold Drilling at the Madsen Mine

Borehole ID	From (m)	To (m)	Length (m)	Au (g/t)	Target
PG14-002	70.0	72.0	2.0	8.2	Austin
PG14-014	279.0	280.0	1.0	15.5	McVeigh
PG14-015	344.0	348.0	4.0	5.2	McVeigh
PG14-024	40.0	49.0	9.0	7.0	Austin
PG14-025	50.0	52.0	2.0	7.0	Austin
PG14-026	134.2	140.3	6.1	2.9	McVeigh

10.2.2 Other Targets

In addition to drilling at the Madsen mine area, Pure Gold completed 12 core boreholes (3,349 metres) on the Fork zone target and 23 boreholes (4,822 metres) on the Russet South target.

10.2.2.1 Fork Zone

The Fork zone target area is located 1,300 metres southwest of the Madsen mill complex and is host to replacement style gold mineralization associated with folded lithological contacts. Current geological based on recent drilling by Pure Gold suggests that the thickest and highest grade gold mineralization is located within a flat southwest plunging zone controlled by a roll in the contact between pillowed Balmer assemblage basalt and the Russet Lake ultramafic unit. Discordant, steeply dipping north trending zones of silicification control high grade mineralization with the highest grades developed where these structures cut lithologic contacts.

Drilling by Pure Gold at the Fork zone in 2014 and 2015 intersected several narrow, high-grade gold-bearing intervals associated with newly recognized iron formation units. Significant intersections are shown in Table 10.4.

Table 10.4: Significant Mineralized Intersections Pure Gold Drilling at the Fork Zone

Borehole ID	From (m)	To (m)	Length (m)	Au (g/t)
PG14-006	85.0	86.8	1.8	14.6
PG14-009	118.0	120.0	2.0	6.76
PG14-011	152.5	156.0	3.5	17.18
PG15-037	133.9	146.0	12.1	3.9

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10.2.2.2 Russett South

The Russet South prospect is located on the west side of Russet Lake, approximately 2,000 metres from the Madsen mill complex. Three targets (Alpha, Beta, and Kappa) occur at Russet South over an area of approximately 500 by 200 metres. Gold at Russet South is hosted within deformed quartz veins hosted at the contact between an iron formation and Balmer assemblage basalt and by Balmer assemblage basalt proximal to a contact with the Russet Lake ultramafic body. Drilling in 2014 and 2015 has focused on delineating the geometry of regions containing these early veins. Significant intersections from Russet South are shown in Table 10.5

Table 10.5: Significant Mineralized Intersections by Pure Gold Drilling at Russet South

Borehole ID	From (m)	To (m)	Length (m)	Au (g/t)	Target
PG15-027	96.0	99.5	3.5	9.5	Alpha
incl.	98.0	99.5	1.5	18.8	
PG15-028	75.0	86.0	11.0	8.2	Alpha
incl.	77.0	82.0	5.0	15.0	
PG15-031	13.2	16.1	2.9	39.1	Beta
incl.	13.2	14.9	1.7	34.4	
PG15-032	47.3	49.0	1.7	37.5	Beta
incl.	47.3	48.0	0.7	83.8	
PG15-045	216.0	236.0	20.0	2.3	Kappa
incl.	222.0	230.0	8.0	5.4	
incl.	225.1	228.0	2.9	12.3	
PG15-052	19.0	24.8	5.8	0.7	Beta
	82.2	121.0	38.8	1.1	

10.3 Surveying

The collar location of historical boreholes at Madsen mine was surveyed and spotted according to survey stations during mining operations. Although historical underground drilling was not surveyed down-hole, down-hole deviation is expected to be minimal, with an average drill length of approximately only 50 metres.

Survey protocols adopted by Placer Dome have not been documented. Collars for surface boreholes drilled by Claude were spotted and surveyed with a Leica GS50 differential GPS with sub-metre accuracy. Down-hole deviation was monitored at 30-metre intervals with a Reflex or FlexIt instrument during drilling. In addition, a few boreholes were also surveyed after completion using a DeviFlex tool that is not susceptible to magnetic properties of rocks.

Underground boreholes drilled by Claude at Madsen were spotted and surveyed using the survey stations established by the historical mine. Down-hole surveying was performed every 30 metres with a magnetic FlexIt instrument. When using a DeviDrill directional drilling unit to steer the borehole, surveys were taken every 3 metres with a Devico Peewee magnetic survey instrument, which is small enough to fit through the DeviDrill drilling unit.

Starting in 2012, Claude started using a DeviFlex tool exclusively due to issues with magnetic rocks and resulting erroneous readings when using Reflex or FlexIt survey tools.

Pure Gold surveyed borehole collar locations using a Trimble ProXRT differential GPS receiver with Omnistar real-time correction, which achieved sub-metre precision. Down-hole surveys were completed with a Reflex Easy Shot tool every 20 to 30 metres. The majority of boreholes were re-surveyed at completion with a Reflex Gyro down-hole survey tool. Starting azimuths for the gyro instrument and drill alignments were determined with an azimuth pointing system (APS) GPS compass.

No information exists regarding surveying methods used by operators on the former Newman-Madsen Project, prior to the involvement of Wolfden and Sabina.

Sabina surveyed borehole locations using a hand-held GPS receiver. Down-hole surveys were conducted using a single shot survey instrument measuring azimuth and dip of the borehole. Measurements were taken 6 metres past the casing and every 50 metres thereafter.

10.4 Drilling Pattern and Density

The distribution of the drilling considered for geology and mineral resource modelling (13,624 boreholes for 816,367 metres) is depicted on Figure 10.2. These boreholes are the product of historical and more recent drilling both from surface and underground.

The majority of the historical underground boreholes (13,062 holes) was drilled along development drifts often on 25 feet (7.6 metres) spacing. Underground drilling by Claude to test the down-dip extension of Zone 8 was designed at approximately 50-metre centres. Historical surface drilling was designed to intersect specific targets at a variety of spacings (delineation and infill). Drilling around underground workings was usually completed at close spacing of less than 10 metres with drill density rapidly decreasing away from stoped-out areas.

Additional drilling by Pure Gold has not changed the drilling density materially. In addition, too few boreholes have been completed at Pure Gold's other targets to determine a drilling pattern or borehole density.

Drilling at the former Newman-Madsen project was completed over the course of several decades by numerous operators testing various exploration targets. As such, no uniform or systematic drilling pattern and drilling density exist over the property.

10.5 Field Procedures

Field procedures for drill data collected during historical mining operations can only be inferred from the available data. The procedures are not documented. All field data were recorded on paper logs. Level plans and cross-section maps of the mine development were meticulously recorded at various scales. Level plans were mapped at 10-, 20-, 50- and 200-feet per inch scales, whereas cross-sections were recorded at 20, 30 and 100 feet per inch scales. Detailed historical lithological information mapped and recorded on plan and section has been integrated with drilling information during 3D modelling by Claude and SRK.

All exploration data collected on the Madsen gold project by Claude were collected by Claude personnel using comprehensive field procedures designed to ensure the reliability of exploration data and minimize voluntary and inadvertent tampering.

Field procedures have not been documented for any of the operators of the former Newman-Madsen project.

All exploration data collected on the Madsen gold project since January 2014 were collected by Pure Gold personnel and consultants using comprehensive field procedures designed to ensure the reliability of exploration data and minimize voluntary and inadvertent tampering. Field data from Pure Gold's drilling programs are recorded directly into a digital logging application supported by the Reflex HUB database management service. All new and historical drill data are contained within this cloud-based repository. Pure Gold has followed the following drill core handling procedures:

i. Drillers deliver core in wooden core trays to the onsite core logging facility (in the mill building in 2014 but at a dedicated building near the shaft for 2015 drilling) twice daily at shift change.
ii. Trays are sorted and lids removed, and the logging geologist completes a quick log summarizing the main lithological breaks and key mineralized intervals.
iii. Geotechnicians re-fit core pieces together, measure core recovery, rock quality designation (RQD), magnetic susceptibility, and place marks on core at metre intervals.
iv. Pure Gold employed Reflex ACT II core orientation devices on all boreholes in 2014 and 2015 in order to allow for capture of detailed structural measurements on the drill core. Within intervals of oriented core and as directed by the logging geologist, geotechnicians will align core and draw the "bottom mark" orientation line directly on the core using a piece of angle iron or other straight edge.
v. Geologists log the core noting alteration, structure, lithology, and mineralization. Intervals for sampling are demarcated by logging geologists based on geological features.
vi. Core is photographed (dry and wet) before being placed in racks in the core shack for sampling.
vii. Core is sawn in half in such a way as to preserve the orientation line. Within un-oriented core, a "cut line" is drawn on the core before sawing.

10.6 Core and Underground Sampling

10.6.1 Historical Sampling (1936-1997)

During the operation of the Madsen mine gold mineralization samples were collected from core and channels chipped along sampling lines in underground workings. There are no written records of the sampling approach and methodology used for that period.

Surface and underground drilling would have been logged and sampled by a mine geologist, before being sent to the mine laboratory for assaying. Assay results were recorded and plotted on drill sections which were used for mine planning purposes. SRK cannot verify historical protocols.

Underground chip samples were collected along advancing faces of excavations on regular intervals. The sampling lines are recorded on paper maps and sections. From those records, sampling lines were cut typically perpendicular to the gold mineralization.

Wolfden sampled core in its entirety with sample lengths of typically 1 metre. Sample intervals did not bridge lithological boundaries. Core was sawn in half lengthwise with one half being submitted for assaying, while the other half was retained for future reference in a core box. Sample tags were affixed in core boxes at the beginning of individual sample intervals.

According to Sabina, core from this time frame is available in cross-piled stack in a long-term core storage facility at Esker Logging in Red Lake.

During the drilling programs operated by Sabina, a project geologist marked up the core for sampling during the course of the logging process. Core samples were cut lengthwise using a diamond core saw. One half of each sample was placed in a plastic sample bag for assay, while the other half was returned to the core box as a permanent record of the interval drilled.

10.6.1.1 Sampling by Placer Dome (2001-2004)

The sampling procedures used by Placer Dome are not specifically documented. Review of available records suggest that core samples were collected from half core split lengthwise over intervals varying between 0.20 and 2.0 metres. Outside sampling intervals, composite samples were collected by small 5- to 8-centimetre core pieces every nine metres of barren intervals.

10.6.1.2 Sampling by Claude (2006 to 2013)

Core recovered from surface and underground drilling by Claude is placed in clean wooden core boxes, visually inspected for consistency and appropriately labelled and sealed for transfer to the core shack located in the Madsen mill building. Rock quality designation (RQD) and total core recovery are routinely measured after each drilling run directly. Core recovery is measured as actual recovered core length against drill run length and recorded as a percentage. Core recovery is generally very good (greater than 95 percent).

Upon delivery of core boxes to the core shack, core boxes are opened and placed in sequential order for description by an appropriately qualified geologist. The description procedure involves collecting elaborate information about colour, lithology, alteration, weathering, structure and mineralization. Data are captured directly into a standardized computerized database. Many different rock codes have been used on Madsen over time. Rock code legends have been simplified and standardized for current use.

Core sampling intervals are marked by an appropriately qualified geologist considering geology. Core assay samples were collected from half core sawed lengthwise with a diamond saw. Sampling intervals of mineralized zones is set at a standard 1-metre length. Interesting lithologies that are not recognized as auriferous zones, but with significant structures, alteration or sulphides are sampled at 1.5- or 2-metre intervals. Logged intervals without evidence of mineralization are sampled at composite 8-metre intervals consisting of one 10-centimetre piece of core per metre.

10.6.1.3 Sampling by Pure Gold (2014 to 2015)

During the 2014 and 2015 drilling campaigns, Pure Gold sampled nearly all recovered core. Samples range in length from 0.2 to 3.2 metres (average 1.8 metres) and weigh between 0.7 and 8.1 kilograms (average 4.3 kilograms). Sample intervals and numbers were entered and validated by the Reflex HUB software. Sample numbers were recorded from uniquely numbered multi-part tag books. Two parts of these tags were stapled into the core box with one remaining for long term archival purposes and the other was removed by core cutters and placed into plastic sample bags with the sample for laboratory submission.

10.6.1.4 SRK Comment

Historical sampling methods and approach are difficult to assess retrospectively. The historical core and chip sampling data were meticulously recorded on extensive paper records. Review of such records suggests that the historical sampling was completed in a suitable manner. SRK considers that the sampling approach used by the historical mine did not introduce a sampling bias.

In the opinion of SRK, Claude, Placer Dome, and Pure Gold personnel used industry best practices in the collection of assay samples from drilling. There is no evidence that the sampling approach and methodology used by Claude or Placer Dome introduce any sampling bias.

11. Sample Preparation, Analyses and Security

11.1 Historical Sampling

11.1.1 Historical Sampling (1936 to 1982)

Sample preparation, analyses and security procedures for historical samples taken during the operation of the Madsen mine (core and chip samples) are not specifically documented and therefore difficult to review. SRK understands that samples were assayed for gold at the mine laboratory. No information exists regarding lab certifications. ISO 9000 series standards were first published in 1987, and the ISO 17025 standard was first published in 1999 and as such could not have been applied. The preparation and assaying technique is not documented. Assay records are preserved on paper logs, level maps and sections.

Sample preparation, analyses and security procedures for historical samples taken by Central Patricia Gold Mines and Cockeram Red Lake Gold Mines between 1943 and 1946 and by Noranda Inc. in 1981 and 1982 are unknown. No information exists regarding lab certifications. ISO 9000 series standards were first published in 1987, and the ISO 17025 standard was first published in 1999 and as such could not have been applied. The preparation and assaying technique is not documented.

11.1.2 Placer Dome (2001 to 2006)

Between 2001 and 2006 all samples collected by Placer Dome were sent to either XRAL Laboratory in Toronto, Ontario or ALS Chemex Laboratory in Vancouver, British Columbia.

Placer Dome used two primary laboratories for assaying samples collected from the Madsen gold project. All samples from 2001 to 2006 were assayed by XRAL Laboratories or ALS Chemex Laboratories. Upon the receipt of the samples at the laboratories, samples were organized in numerical order and subdivided into batches. SRK is of the opinion that the sampling information collected by Placer Dome was conducted using procedures generally meeting industry best practices, and that the assaying results are sufficiently reliable to support mineral resource estimation.

11.1.3 Teck Cominco (2003)

Sample preparation, analyses and security procedures for historical samples taken by Teck Cominco Ltd. in 2003 are unknown. No information exists regarding lab certifications.

11.1.4 Wolfden and Sabina (2003 to 2012)

Wolfden submitted samples to Accurassay Laboratories in Thunder Bay, Ontario. Accurassay received ISO 17025 accreditation in 2002 from the Standards Council of Canada. SRK was not able to identify which analytical methods were covered under this accreditation.

At Accurassay, samples were prepared using a standard rock preparation procedure consisting of drying, weighing, crushing, splitting, and pulverization. Prepared samples were assayed for gold, platinum, palladium, and rhodium using inductively coupled mass spectroscopy (ICP-MS) as well as for a suit of base metals using ICP-MS.

Procedures followed by Sabina are known in more detail. During 2010 and 2011 Sabina submitted samples to SGS Laboratories (SGS) in Red Lake for sample preparation and analysis. SGS was accredited by the Standard Council of Canada (SCC) to ISO 17025:2005 (accredited laboratory number 598) for gold analysis by fire assay.

All samples were delivered by Sabina personnel to SGS. Sample preparation and assay analysis included crush to passing to 75 percent passing 2 millimetres and then pulverizing a 250-gram split to 85 percent passing 75 micrometres. Samples were assayed by fire assay with an atomic absorption spectroscopy (AAS) finish on 50-gram aliquots. A duplicate sample was assayed by SGS as part of their assaying procedures.

In 2012, Sabina submitted samples to Activation Laboratories Ltd. (Actlabs) in Red Lake for sample preparation and analysis. Actlabs was accredited to ISO 9001:2008 by Kiwa International Cert GmbH (certificate number 1109125). Samples were crushed to 90 percent passing 2 millimetres after which a 250 gram split was pulverize to 95 percent passing 105 micrometres. Samples were assayed by fire assay with AAS finish using a 30-gram aliquot.

As far as SRK was able to determine, the sample preparation and analyses procedures used by Wolfden and Sabina met generally accepted industry practices

11.1.5 Claude (2006 to 2013)

Claude used four primary laboratories between 2006 and 2012. SGS Laboratory in Red Lake, TSL Laboratory located in Saskatoon, Saskatchewan were used from 2006 to May 2008, until Claude identified performance issues with samples submitted to the SGS Laboratory in Red Lake and as a result stopped submitting samples to this laboratory. Starting in 2009 Claude submitted samples to Accurassay Laboratories in Thunder Bay, Ontario but experienced lengthy delays in receiving assay results. Starting in 2010 Claude submitted all samples to ALS Limited (ALS) in Thunder Bay for sample preparation and to ALS Vancouver for assaying. All these laboratories are accredited ISO/IEC Guideline 17025 by the Standards Council of Canada for conducting certain testing procedures, including the procedures used for assaying samples submitted by Claude. These laboratories also participate in proficiency testing programs.

These laboratories all used standard rock sample preparation procedures involving coarse crushing dried sample, pulverization of 500 gram subsamples to 90 percent passing 150 mesh screens (105 microns).

All core samples were assayed for gold using a standard fire assay procedure on pulverized subsamples with an atomic absorption finish. Samples assaying more than 1.0 g/t gold were re-analyzed by fire assay with a gravimetric finish. Samples assaying greater than 5.0 g/t gold were re-analyzed using screen metallic fire assay procedures.

SRK is of the opinion that the sampling information collected by Claude was conducted using procedures generally meeting industry best practices, and that the assaying results are sufficiently reliable to support mineral resource estimation.

11.2 Pure Gold (2014 to 2015)

During 2014 and 2015 Pure Gold submitted all samples to ALS Minerals (ALS) Laboratory in Thunder Bay and Vancouver for sample preparation and analysis, respectively. Pure Gold submitted pulp duplicate samples to SGS Laboratory in Burnaby, British Columbia for check assay testing. The ALS laboratory in Vancouver is ISO 9001:2008 and CAN-P-1579 and CAN-P-4E (ISO/IEC 17025:2005) certified by the Standards Council of Canada (SCC) for the analytical methods used on the Madsen samples (accredited lab 579). The SGS laboratory is Can-P-159, CAN-P-1578, and CAN-P-4E (ISO/IEC 17025:2005) certified by the SCC for the analytical methods used on the Madsen samples (accredited lab 744).

Samples were dried and crushed to 70 percent of the sample passing a 2 millimetres screen (method CRU-31). Initial crushing was followed by a Boyd rotary split of a 1 kilogram subsample (method SPL-22Y), and pulverization of the split in a ring mill to better than 85 percent of the ground material passing through a 75 micron screen (method PUL32).

Sample pulps were shipped to the ALS laboratory in Vancouver. Assays for gold were by a 30-gram aliquot fire assay followed by aqua regia (HNO_3-HCl) digestion and measurement by atomic absorption spectroscopy (AAS). Samples in which the gold concentration exceeded 5 ppm were re-assayed from the same pulp by method Au-GRA21, fire assay of a 30-gram aliquot, parting with nitric acid (HNO_3) followed by gravimetric gold determination. In cases of significant visible gold in samples, the complete interval was re-assayed by method Au-SCR24, screened fire assay (metallic screen). In addition to the gold assays, multi-element geochemical trace level analyses were completed by method ME-ICP61, induction coupled plasma-atomic emission spectroscopy (ICP-AES) following digestion by hydrofluoric (HF), nitric (HNO_3) and perchloric ($HClO_4$) acids followed by a hydrochloric (HCl) acid leach.

As routine external quality control methods for the samples re-assayed by method Au-SCR24 were not practical, for this method Pure Gold relied on the internal quality control performed by ALS and a comparison with the initial assays by methods Au-AA23 and Au-GRA21.

SRK is of the opinion that the sampling information collected by Pure Gold was conducted using procedures generally meeting industry best practices.

11.3 Sample Security

11.3.1 Historical Sample Security (2001 to 2013)

All drilling assay samples were taken by Claude or Placer Dome personnel. If sampled at the drill site, assay samples were transported to the Madsen mine site where they were placed temporarily into double-sealed rice bags, and then stored and prepared for pickup. Assay samples were collected and sealed on shipping pallets by appropriately qualified staff and transported to the assay laboratory with a transport company. Claude contracted sample shipping to Manitoulin Transport Trucking Services LTL based in Winnipeg, Manitoba.

Sample security involved two aspects: maintaining the chain of custody of samples to prevent inadvertent contamination or mixing of samples, and rendering active tampering as difficult as possible. Chain-of-custody forms listing all samples contained in the shipment were completed and faxed to the laboratory for verification. On receipt of the shipment the laboratory confirmed that all samples listed on the chain-of-custody form were received.

No specific security safeguards were put in place to maintain the chain of custody during the transfer of core between drilling sites and core shack. Some SRK site visits were during periods of active drilling. SRK witnessed how core boxes were transferred between the drilling sites to a fenced and locked enclosure at the core shack. Assay samples remained in the custody of appropriately qualified staff under the direct supervision of field personnel. In the opinion of SRK sample security were adequate and met industry standards.

Core and rejects from assay sample preparation are archived in secured facilities and remain available for future testing.

During the site visits SRK found no evidence of active tampering or inadvertent contamination of assay samples collected on the Madsen gold project.

11.3.2 Pure Gold (2014 to 2015)

During the 2014 and 2015 drilling programs, Pure Gold's personnel employed the following security and chain of custody procedures:

i. Core was placed in wooden core boxes by drilling contractors, covered with wooden lids, and sealed with fiber tape.
ii. These boxes were delivered to the locked and fenced logging facility by drill crew members twice daily at shift changes using pickup trucks or snowmobiles.
iii. Core shack personnel opened core boxes in the morning and sorted boxes for logging as described above.
iv. Core awaiting sawing (sampling) was stored in a rack in the core shack.
v. Core was sawn and bagged into pre-labelled sample bags by samplers under the supervision of the senior sampler and project geologist.
vi. Sample bags were placed inside pre-labelled rice bags.
vii. Rice sacks containing bagged samples were sealed and palletized within the core shack.

viii. Shrink-wrapped pallets of rice sacks were shipped directly from the core shack via Manitoulin Transport Trucking Services LTL of Winnipeg, Manitoba to ALS Minerals laboratory in Thunder Bay, Ontario for sample preparation.
ix. Unauthorized people were not permitted to enter the core logging facility.
x. Hardcopy chain of custody forms and sample analytical instructions were included with each shipment. ALS Minerals reported all shipments were received intact.

11.4 Quality Assurance and Quality Control Programs

Quality control measures are typically set in place to ensure the reliability and trustworthiness of exploration data. These measures include written field procedures and independent verifications of aspects such as drilling, surveying, sampling and assaying, data management and database integrity. Appropriate documentation of quality control measures and regular analysis of quality control data are important as a safeguard for project data and form the basis for the quality assurance program implemented during exploration.

Analytical control measures typically involve internal and external laboratory control measures implemented to monitor the precision and accuracy of the sampling, preparation and assaying processes. They are also important to prevent sample mix-up and monitor the voluntary or inadvertent contamination of samples. Assaying protocols typically involve regular duplicate and replicate assays and insertion of quality control samples. Check assaying is typically performed as an additional reliability test of assaying results. This typically involves re-assaying a set number of sample rejects and pulps at a secondary umpire laboratory.

11.4.1 Historical Period (1927 to 2000)

There are no records to indicate if specific analytical quality control measures were implemented by any operator during early exploration activities or at the mine laboratory during the operation of the Madsen mine (1936-1976). Neither is there any information regarding analytical quality control measures implemented by Claude between 1998 and 2000.

11.4.2 Placer Dome (2001 to 2006)

Placer Dome annual reports indicate that analytical quality control measures were implemented, however the details of these measures and the analytical quality control data were not transferred to Claude in 2006.

11.4.3 Wolfden and Sabina (2003 to 2012)

Wolfden and Sabina implemented external analytical quality control measures on core sampling. The exact extent of the implemented program is unknown, and data prior to 2006 are unavailable. Implemented measures included using control samples (blank and standard reference material). Quality control samples were inserted into the sample stream on regular intervals. A sample blank was inserted every 25 samples, and a standard inserted every 75 samples.

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The material used as blanks was what was termed a quartz-crystal tuff and amphibole mafic intrusive and was sourced from an outcrop in the southwest corner of Wolfden's Bonanza/Follansbee property. These samples were assayed by Accurassay Laboratories to ensure suitability. The performance of the blank material is unknown.

A 2006 drilling report noted that two different standards were used, SK21 that had a certified assay of 4.048 g/t gold and SN16 that had a certified assay of 8.367 g/t gold. Certificates were not made available to SRK and the source of the standards in unknown. The report suggests performance issues with standard SK21 as the average assay value was approximately 10 percent higher than the expected value. However, only 21 assay results are available. This number is too low to extract meaningful statistical information from the results.

Sabina submitted blank and standard material in the sample stream of at a rate of one quality control sample type in 20 samples. No information was available detailing the type and source of the reference material and whether it was from a commercial vendor or produced by Sabina in-house.

Further information regarding quality control programs during 2003 to 2012 was not available to SRK.

11.4.4 Claude (2007 to 2013)

The exploration work conducted by Claude since 2006 was carried out using a quality assurance and quality control program in line with industry best practices. Standardized procedures were used in all aspects of exploration data acquisition and management including mapping, surveying, drilling, sampling, sample security, assaying, and database management.

Claude relied partly on the internal analytical quality control measures implemented by the primary laboratories. Assay results for quality control samples inserted by the primary laboratories were submitted with routine assaying results and reviewed for consistency by Claude personnel.

In addition, Claude implemented comprehensive external analytical quality control measures to monitor the reliability of the assaying results delivered by the primary laboratories. External control samples (blanks, field or certified reference material samples or field duplicate) were inserted at a rate of approximately thirteen percent within each batch of samples submitted for preparation and assaying.

For the drilling program in 2009, Claude used four reference control samples purchased from Rocklabs in New Zealand (Table 11.1). The silica sand blank material was sourced from Accurassay.

Field duplicate samples were inserted at a rate of one in 50 in all batches of drilling samples submitted for assaying. Duplicate core samples were collected by splitting in half the remaining split core over the same length.

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Table 11.1: Specification for the Control Samples Used on the Madsen Gold Project in 2009

Standard	Source	Gold Assays			
		Mean	SD	+2 SD	-2 SD
SE29	Rocklabs	0.597	0.016	0.629	0.565
SH35	Rocklabs	1.323	0.044	1.411	1.235
SL46	Rocklabs	5.867	0.34	6.207	5.527
SQ36	Rocklabs	30.04	1.20	31.24	28.84

SRK reviewed the field procedures and quality control measures used by Claude in 2009. The analysis of the analytical quality control data is presented in Section 13 below. In the opinion of SRK, Claude personnel used care in the collection and management of field and assaying exploration data.

The quality control program developed by Claude was overseen by appropriately qualified geologists. In the opinion of SRK, the Madsen gold project exploration data sourced from Claude were acquired using adequate quality control procedures that generally meet industry best practices for an advanced exploration stage property.

Starting in 2010, Claude changed some of the standard reference material that was used during the drill programs. A total of seven gold standards were used during sampling (Table 11.2). Certified blank material was a mixture of material from Rocklabs and Canadian Resource Laboratories.

A blank and a standard were inserted every 20 samples. The inserted standard typically alternated between three medium to low grade standards (SG40, SL46 and SH41). In addition, a high grade standard and a blank were inserted after any sample containing visible gold.

No independent laboratory check assay tests were performed. Field duplicate samples were collected at a rate of one in 50 samples. Laboratory duplicate samples were not collected or assayed.

Table 11.2: Specification of Control Samples Used on the Madsen Gold Project Between 2010 and 2013

Certified Reference Material and Blanks	Source	Certified Value (Au ppm)	Standard Deviation (ppm)	Number of Samples
SG40	Rocklabs Ltd	0.976	0.022	472
SL46	Rocklabs Ltd	5.867	0.17	423
SH41	Rocklabs Ltd	1.344	0.041	421
SH55	Rocklabs Ltd	1.375	0.045	44
SL61	Rocklabs Ltd	5.931	0.057	36
SQ36	Rocklabs Ltd	30.04	0.024	10
SN38	Rocklabs Ltd	8.573	0.158	8
Blanks (mix of CDN-BL-10 and AuBlank42)				1232
CDN-BL-10	CDN Resource Laboratories Ltd	<0.01	-	-
AuBlank42	Rocklabs Ltd	<0.003	-	-

11.4.5 Pure Gold (2014 to 2015)

During exploration, Pure Gold used standardized procedures in all aspects of exploration data acquisition and management including mapping, surveying, drilling, sampling, sample security, assaying, and database management.

For analytical quality control, Pure Gold relied partly on the internal control measures implemented by the primary laboratory. Assay results of quality control samples inserted by the primary laboratory were submitted with routine assaying results and reviewed for consistency by Pure Gold personnel.

Additionally, Pure Gold implemented external analytical quality control measures to monitor the reliability of the assaying results delivered by the primary laboratory. External control samples (blank samples, field or preparatory duplicate samples, and certified reference material samples) were inserted into the core sample stream and comprise approximately 15 percent of each batch of core samples.

During the drilling programs in 2014 and 2015, Pure Gold inserted blank sample material consisting of coarse, clean marble landscape rock purchased commercially in 18 kilogram bags. Random samples from individual bags were collected and sent for assay to confirm that the material is devoid of gold and other elements of interest. An average weight of approximately 2 kilograms was used for each blank sample.

Field duplicate and preparation duplicate samples were alternately inserted at a ratio of one to every 20 samples. Field duplicates were obtained by quartering the core with the opposite one-quarter considered the original sample. The duplicate was assigned the higher sample number of the sample pair. Preparation duplicates consisted of a second split of the coarse reject of the selected sample and were collected by the laboratory during the sample crushing stage. Preparation duplicates were assigned the sample number immediately succeeding the original and in shipping were represented by a labeled empty bag containing the assigned sample tag. A list of preparation duplicates and instructions for preparation were included in each completed sample submittal form.

Pure Gold submitted a range of standard reference material samples (Table 11.3) with the sample stream. These standards were selected to cover all potential analytical gold methods. Generally, three primary standards were inserted on a rotating basis in roughly equal proportions, and a fourth, high-grade standard (SQ 36) was inserted occasionally when visible gold was identified in core.

Pure Gold requested extra cleaning of both crusher and pulverizer (ALS Codes: WSH-21 and WSH-22) during sample preparation of samples collected from within mineralized intervals (including shoulder samples)

Pulps from a selection of variably mineralized samples were submitted to SGS Canada Inc. in Burnaby for umpire assaying.

Table 11.3: Specification of Control Samples Used on the Madsen Gold Project Between 2014 and 2015

Certified Reference Material and Blanks	Source	Certified Value (Au ppm)	Standard Deviation (ppm)	Number of Samples
Oreas 6Pc	Ore Research	1.520	0.070	
Oreas 17c	Ore Research	3.040	0.080	
CDN-GS-5F	CDN Labs	5.300	0.180	
SG 40	Rocklabs	0.976	0.022	
SG56	Rocklabs	1.027	0.033	
SH55	Rocklabs	1.375	0.045	
SL61	Rocklabs	5.931	0.177	
SQ 36	Rocklabs	30.04	0.600	

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11.5 Specific Gravity Data

Historically, the Madsen mine used a tonnage factor of 11.25 cubic feet per ton to convert volumes into tonnages. This factor was determined from a bulk sample of the Austin zone in 1938 and proven to be adequate by forty years of production. This tonnage factor is equivalent to a specific gravity of 2.84.

The specific gravity database for the Madsen gold project includes 620 specific gravity measurements taken on core samples using a water displacement method.

Specific gravity was measured for 256 split core samples from three surface boreholes drilled by Claude to twin historical boreholes within the Austin zone. The measurements were taken on a variety of rock types for auriferous and barren material. The specific gravity data for the Austin zone are summarized in Table 11.4. SRK notes that specific gravity does not vary much between rock types or between auriferous and barren rock.

Table 11.4: Summary of Specific Gravity Data for the Austin Zone

Specific Gravity	1	2	3	4
Mean	2.90	2.90	2.91	2.91
Standard Error	0.01	0.01	0.01	0.01
Standard Deviation	0.11	0.10	0.10	0.11
Sample Variance	0.01	0.01	0.01	0.01
Kurtosis	1.63	-0.85	-0.32	1.38
Skewness	0.92	0.27	0.32	0.83
Range	0.66	0.41	0.53	0.66
Minimum	2.71	2.71	2.71	2.71
Maximum	3.37	3.12	3.24	3.37
COV	0.04	0.03	0.03	0.04
Count	227	188	217	256

1 = All material within modelled Austin solid
2 = Only “tuffaceous material” within modelled Austin solid
3 = All “tuffaceous material” (not modelled)
4 = All drill samples undifferentiated (all material types)

Specific gravity was also measured on core samples from the 2008-09 drilling program investigating Zone 8. This database comprises 364 measurements on auriferous and barren rock within Zone 8 and adjacent wallrock. Twenty-one measurements from core pieces inside the modelled Zone 8 domain yield a mean specific gravity value of 2.83.

SRK used a constant specific gravity of 2.84 to convert volumes into tonnages in each resource domain in this study.

After completion of the Mineral Resource Statement at the end of 2009, Claude continued to collect specific gravity data. One measurement was taken per lithology and borehole on uncut core samples ranging in length between approximately 2 and 6 inches in length. The samples were uncoated, and Claude continued to employ a water displacement method.

Claude continued to collect specific gravity data from core until approximately mid-2012. At the end of the data collection, a total of 3,010 specific gravity determinations were completed on core from all areas of the Madsen mine as well as form a number of other exploration targets. The average specific gravity has a value of 2.91, which is within 3 percent of the constant value used by SRK for resource estimation purposes.

Pure Gold has begun a program of specific gravity determinations on selected intervals of core using ALS method OA-GRA08 at the analytical preparation stage in 2016.

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12. Data Verification

12.1 Verifications by Placer-Dome

It is unclear to SRK if Placer Dome conducted any verification of historical exploration and mining data. If such verifications were conducted they are not documented.

12.2 Verification by Claude

Claude conducted extensive verifications of historical exploration and mine production data available for the Madsen mine and the Madsen gold project.

Claude began capturing historical borehole and underground chip sampling data for the Madsen mine into a digital database in 1998. Placer Dome continued this process between 2002 and 2006.

The process was completed in 2009 resulting in the construction of a validated and verified historical database comprising 13,617 boreholes and 550,687 gold assays. The construction of this historical database was an enduring process that involved meticulous investigative work, data entry, and verifications over several months. The chronological steps involved are summarized in Table 12.1.

Table 12.1: Summary of Steps Leading to the Creation of the Final Historical Borehole Database at Madsen

Date	Activity	Results
1998-2001	Initial database creation	3,834 boreholes digitized from paper logs
2002-2006	Data entry by Placer Dome	4,031 boreholes, expanded from previous database
Feb-Nov 2008	Data entry	13,042 boreholes, expanded from previous database
Nov-Dec 2008	Database validation	Logical data checks and 3D graphical checks of 4% of data Discovery of 24 significant errors on average per borehole
Dec-Apr 2009	Numerical data check/correction	Record by record verification and correction of header, survey and assay tables
Feb-Apr 2009	Initial 5% validation	Identification of collar coordinate and survey issues Conversion issues of original orientations recorded in quadrant degrees Prevalent assay table errors identified in area with visible gold or no samples
Apr- May 2009	Lithology table	Systematic re-entry of lithology with standardized code
Apr-May 2009	Additional data entry	731 new paper logs found and digitized 705 additional “stope definition” logs digitized 115 Placer Dome drill logs digitized
May 2009	Final 5% validation	No major error detected Validation of all assays greater than 2 ounces of gold per ton Final count of 13,617 boreholes after validation
Jun 2009	Drillhole renaming	New standardized naming convention
Jun 2009	Lithology table validation	3D graphical validation Errors checked, verified and corrected in GEMS

12.2.1 Historical Database

In 1998, Claude initiated an exploration data compilation program for the Madsen gold project (Panagapko, 1998). Information was assembled for all known exploration areas including Madsen, Starratt-Olsen, Aiken-Russet, and Buffalo. For each property there are a large number of reports, drill logs, sections, and plans. An initial MS Excel database was created with 1,026 boreholes. Each borehole was plotted in relation to interpreted geological boundaries on a 1 inch to 400 feet scale plan map. The database contained 3,834 boreholes.

In 2002, Placer Dome continued to expand the initial Claude database. Placer Dome converted certain drill logs and geology information into UTM coordinates and initiated data transfer into MapInfo. A large number of AutoCAD files containing long sections, cross-sections, and plans of the area were located and sorted by Placer Dome.

Placer Dome encountered several issues during their data compilation. As a result of the numerous individuals and methods involved in the collecting of data over time, formatting discrepancies and data entry errors, the data were extremely disorganised. Another issue was the use of three separate local coordinate systems within the study area. Historical borehole co-ordinates had been plotted using the Buffalo, Starratt-Olsen, and Madsen mine grids, whereas more recent work had used UTM co-ordinates. A number of steps were taken to ensure the accuracy and integrity of the historical data. Madsen maps, plans, sections, and all relevant analogue data were digitized, and any original digital format data were verified. Historical data that could not be verified were discarded.

12.2.2 Madsen Database Completion and Validation

In preparation for a new resource evaluation of the Madsen mine, a team was assembled by Claude in February 2008 to digitize the balance of the underground borehole dataset. By November 2008, the historical Madsen database included 13,042 boreholes. SRK was intimately involved in the data capture process undertaken by Claude between 2008 and 2009. During this period SRK visited the site on several occasions to review and audit the compilation work.

Database validation checks and 3D graphical checks in November 2008 revealed significant problems. In December 2008, a checking and correction program was initiated. In mid-January of 2009 Claude retained a database manager to oversee the data capture and validation process. A series of checks and corrections were undertaken on all digital values. Using a systematic approach batch flow and tracking protocols were refined, and the existing error tracking workbooks and batch tracking workbooks were combined into a single master tracking system.

Between February and April 2009, an error checking program was designed and implemented to verify the numeric data quality. A randomly selected sample of 5 percent of the completed boreholes was selected. To avoid bias this checking was completed by geologists rather than the original data entry clerks. The 5 percent check also highlighted collar and survey data issues, requiring systematic re-checking of all collar and down-hole surveys. This check stage was completed for all of the original database batches as re-entry batches were completed. The assay table was also inspected for logical errors such as missing intervals and long samples possibly representing combined samples.

In May 2009, a final 5 percent check was performed by Claude on the dataset to be used for resource estimation. All numerical data were validated on a cell by cell basis for 684 boreholes. 731 associated survey records and 26,084 assay records were validated. No significant errors were detected.

The final historical Madsen borehole database contains:

i. 13,617 validated boreholes.
ii. 24,582 survey points.
iii. 182,197 lithological intervals.
iv. 550,687 assay results.

The database represents 808,344 metres of drilling undertaken during more than 40 years of production.

12.2.3 Twinning Program

In 2009, Claude drilled three shallow core boreholes in the Austin zone to attempt to replicate three specific historical boreholes that are included in the historical database. The paired assay data were composited to equal 1 metre intervals and are illustrated in Figure 12.1.

The Claude boreholes failed to replicate historical grades. SRK is uncertain whether this variance is due to inherent variability in Austin gold grades or due to the inability to duplicate the exact historical drill trace.

12.2.4 Verification of Claude Drilling

The Placer Dome exploration data are not completely documented. The exploration data collected by Placer Dome were transferred as paper logs and digital files to Claude in 2006.

Claude implemented a series of routine verifications to ensure the collection of reliable exploration data. All work was conducted by appropriately qualified personnel under the supervision of qualified geologists.

Field data were recorded on paper and subsequently transferred to digital support and verified for consistency. Descriptive and assaying drilling data were organized into a single Gemcom database. The database was organized and validated by a database manager located at the Madsen mine. All graphical information was subsequently verified by a qualified geologist.

Sample shipments and assay deliveries from the assaying laboratory were routinely monitored. Upon receipt of digital assay certificates, assay results for control samples were extracted from the certificates, compiled into an MS Access quality control database and thoroughly analyzed visually and with bias and various precision plots.

Failures and potential failures were examined and depending on the nature of the failure, re-assaying was requested from the primary laboratory. Analysis of quality control data was documented in the quality control spreadsheet along with relevant comments or actions undertaken either to investigate or mitigate problematic sample batches containing the problematic control samples.

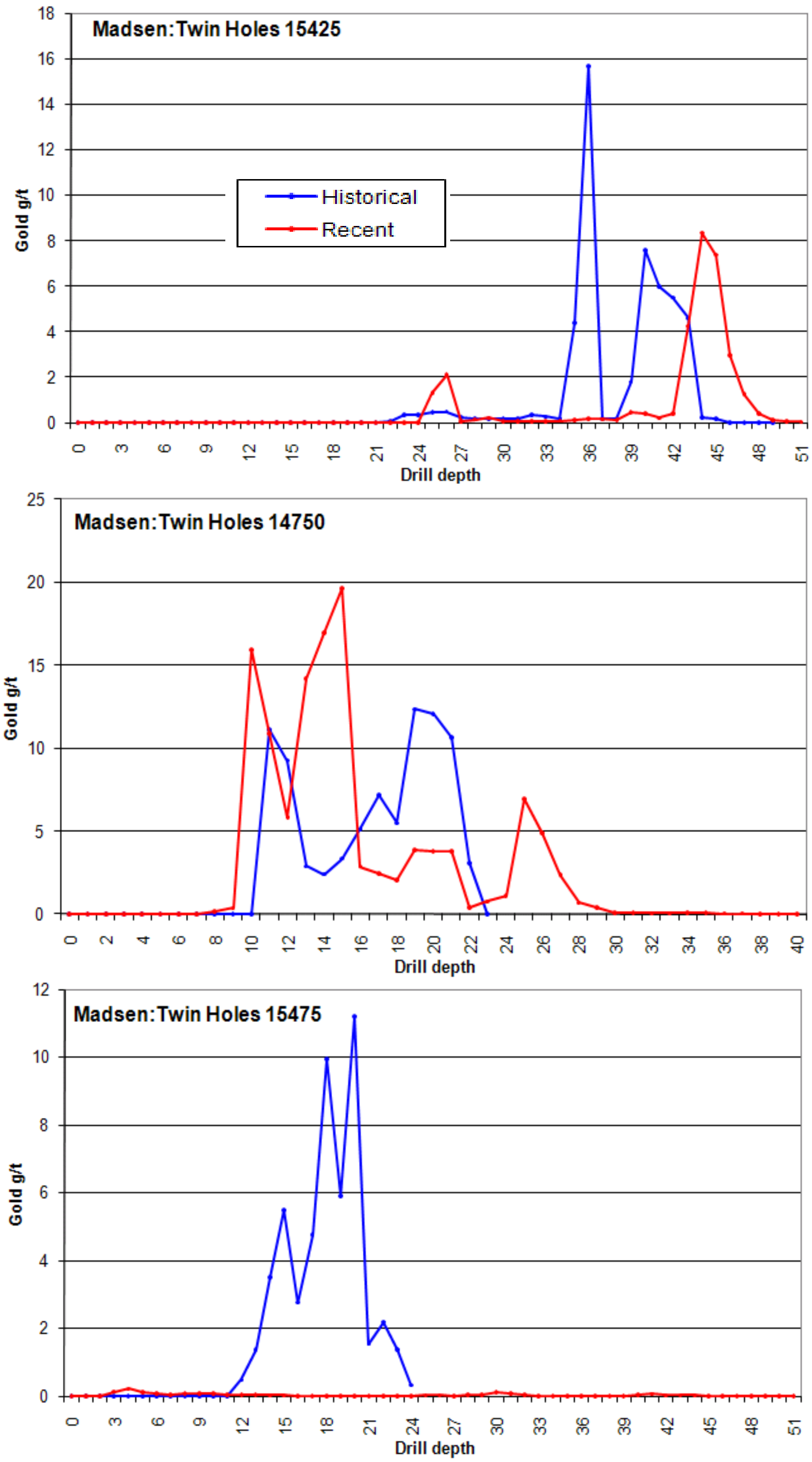

Figure 12.1: Comparative Gold Assay Results for Three Historical Boreholes Twinned by Claude in 2009

12.3 Verification by Pure Gold

During and immediately after drilling programs, Pure Gold conducted ongoing continuous and independent monitoring of analytical quality control data. As part of this monitoring, Pure Gold maintained a table detailing failures of analytical quality control samples (standards, blanks, and duplicate samples) and corrective action taken where necessary. All outstanding analytical quality control issues have been resolved.

12.4 Verification by SRK

SRK was commissioned in 2008 to aid with the construction of a 3D geological and mineral resource model. As part of this work SRK routinely verified historical records. SRK was intimately involved in the data capture process undertaken by Claude between 2008 and 2009. During this period SRK visited the site on several occasions to review and audit the compilation work. Furthermore, SRK reviewed all underground maps and cross-sections as part of a validation of the digital data delivered by Claude.

12.4.1 Site Visit

In accordance with National Instrument 43-101 guidelines, SRK visited the Madsen gold project on three separate occasions between January and August 2009. The main purpose of these site visits was to review historical database capturing and validation procedures. Other objectives were to define geological modelling procedures, to examine core, audit project technical data, and to interview project personnel. SRK also collected relevant information for the preparation of a revised mineral resource model and the compilation of a technical report. Furthermore, SRK investigated the geological and structural controls on the distribution of the gold mineralization in order to identify criteria for the construction of 3D gold mineralization domains.

SRK was given full access to relevant data and conducted interviews of Claude personnel to obtain information on the past exploration work, and to understand procedures used to collect, record, store, and analyze exploration data. All project data were stored and maintained in a well-structured Access database. The project database was under the supervision of one database manager who had the knowledge and authority to ensure database integrity. The data entry process followed a well-defined procedure.

SRK reviewed core from several boreholes intersecting gold mineralization from various zones at Madsen and found the logging information to reflect accurately actual core. The lithology and sulphide mineralization contacts checked by SRK match the information reported in the drill logs. Generally, the boundaries of the gold zones examined in core match the boundaries determined from assay results. SRK also visited accessible underground workings.

SRK returned to the Madsen gold project for a fourth site visit from January 27 to 29, 2014 to meet National Instrument 43-101 guidelines for the current technical report. The main purpose of this site visit was to examine core from boreholes completed between 2009 and 2014 and after the last technical report, and to gauge the impact the additional borehole information would have on the mineral resource model.

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12.4.2 Verification of Analytical Quality Control Data up to 2009

There are no analytical quality control data available for review for the historical and Placer Dome sampling.

Claude made available to SRK external analytical quality control data collected by Claude in 2009. The data were contained in an Access database that aggregated the assay results for the quality control samples, which were accompanied by comments by Claude personnel. These data represent a very small percentage of the sampling database considered for resource estimation.

SRK aggregated the assay results for the external quality control samples for further analysis. Blanks and certified standards data were summarized on time series plots to highlight the performance of the control samples. Paired field duplicate data were analyzed using bias charts, quantile-quantile and relative precision plots. The analytical quality control data generated by Claude in 2009 are summarized in Table 12.2. Analytical quality control data are summarized in graphical format in Appendix C.

Table 12.2: Summary of Analytical Quality Control Data Produced by Claude in 2009

	DDH Samples	(%)	Comment
Sample Count	2,495		
Field Blanks	143	5.7	Provided by Accurassay
Certified Reference Materials:	142	5.7%	
SE29	46		Rocklabs (0.597 g/t)
SH35	46		Rocklabs (1.32 g/t)
SL46	44		Rocklabs (5.867 g/t)
SQ36	6		Rocklabs (30.04 g/t)
Field Duplicates	39		Quarter core samples
Total QC Samples	**324**	**13.0%**	

In general, the performance of the control samples inserted with samples submitted for assaying was acceptable. Blank samples did not show evidence of contamination in the sample preparation process.

The performance for the certified Rocklabs reference materials was also acceptable. Although, the few samples assayed using the screen fire assay method reported gold concentrations greater than the expected value, which was interpreted by SRK to suggest contamination in the sample preparation. In the specific case of the failures, the three Rocklabs SQ36 reference material failures occurred within samples assayed by screen fire assay and/or in a sample stream containing gold concentrations varying between 4 and 58 g/t gold. The exact cause for failure was difficult to ascertain. SRK recommended Claude to investigate with the laboratory.

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Field duplicate data that were generated by Accurassay and examined by SRK suggested that gold grades were difficult to reproduce by standard fire assay. Rank half absolute difference (HARD) plots suggested that only forty-one percent of the quarter-core duplicate samples had HARD below ten percent. However, this trend is not uncommon in gold deposits with highly variable grades.

In the opinion of SRK, the analytical results delivered by Accurassay were sufficiently reliable for the purpose of resource estimation.

In the opinion of SRK Claude used industry best practices in the collection, handling, management, and verification of exploration data collected on the Madsen gold project.

SRK was also of the opinion that Claude used best efforts to digitize, verify, and validate the large historical sampling and mining records available for the Madsen mine. Although by nature these data are hard to validate, SRK believes that the historical data are sufficiently reliable for resource evaluation because they are supported by more than forty years of sustained production.

SRK concluded that the Madsen mine sampling database compiled and verified by Claude was sufficiently reliable for the purpose of resource estimation.

12.4.3 Verification of Analytical Quality Control Data 2010 to 2013

Pure Gold made available to SRK external analytical quality control data collected by Claude between 2010 and 2012 when all exploration efforts ceased. The data were contained in Excel spreadsheets. Assay results from standard reference material were recorded and plotted in template provided by Rocklabs, manufacturer of the standard reference material used by Claude.

Standard reference material performed reasonably well with 6 and 7 percent of samples outside of the expected range for standards SH 41 and SG 40, respectively.

Blank samples performed well with no assays exceeding the expected range.

According to Pure Gold, Claude re-assayed batches with failed standards if samples in the affected batch were from mineralized zones.

SRK analyzed the analytical quality control data accumulated by Claude for the Madsen gold project for all core drilling between 2010 and 2013.

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Claude provided SRK with external analytical control data containing the assay results for the quality control samples for the Madsen gold project. All data were provided in Microsoft Excel spreadsheets. SRK aggregated the assay results of the external analytical control samples for further analysis. Control samples (field blanks and certified reference materials) were summarized on time series plots to highlight the performance of the control samples. Paired data (umpire check assays and duplicate analyses) were not collected by Claude, and therefore could not be analyzed.

The external analytical quality control data produced for the Madsen gold project are summarized in Table 12.3 and presented in graphical format in Appendix C. The external quality control data produced on this project represents 15.56 percent of the total number of samples assayed.

Table 12.3: Summary of Analytical Quality Control Data Produced By Claude on the Madsen Gold Project Between 2010 and 2013

	Samples	(%)	Comment
Sample Count	22,375		
Blanks*	1,232	5.51%	
Standards	1,414	6.32%	
SG40	472		Rocklabs (0.976 g/t)
SL46	423		Rocklabs (5.867 g/t)
SH41	421		Rocklabs (1.344 g/t)
SH55	44		Rocklabs (1.375 g/t)
SL61	36		Rocklabs (5.931 g/t)
SQ36	10		Rocklabs (30.040 g/t)
SN38	8		Rocklabs (8.573 g/t)
Field Duplicates	1,058	4.73%	
Total QC Samples	**2,646**	**15.56%**	
**Blank samples include a mix of CDN-BL-10 prepared by CDN Resource Laboratories (<0.01 g/t) and AuBlank42 prepared by Rocklabs (<0.003 g/t).*			

Analyses of all blank samples are below the warning line of 0.05 ppm gold. The warning line is defined as ten times the lower detection limit. Blank samples comprise a mixture of two certified pulp blanks: CDN-BL-10 prepared by CDN Resource Laboratories, and AuBlank42 prepared by Rocklabs. Prior to 2012, CDN-BL-10 was the predominant blank used, after which it was typically substituted for AuBlank42. However, both blanks were used interchangeably throughout the assaying process.

A total of seven standards were employed throughout the sampling process. Three of these standards (SG40, Sl46, and SH41) were used at least 395 times, while the remaining four (SH55, SL61, SQ36, SN38) were used less than 50 times.

Analyses of standards are commonly outside two standard deviations of the expected value (for example greater than 30 percent of analyses of standards SH41, SH55 and SL61 are outside two standard deviations). Furthermore, numerous analyses of the two commonly used standards (SG40 and SL46) yield values equivalent or nearly equivalent to other standard or blank material. These results suggest that numerous standards and blanks were mislabelled during the assaying process.

Paired assay data examined by SRK show that assay results can be reproduced by TSL and ALS laboratories from field duplicates with confidence. The combined correlation coefficient is 0.83. Half absolute ranked difference (HARD) plots show that 57.1 percent of the samples have HARD below 10 percent. Bias and precision plots indicate that the majority of the variation in paired analyses occurs at low gold concentrations of approximately 0.02 g/t gold and below.

Pulp duplicate assays, and check assays were not performed for any samples.

The data sets examined by SRK do not present obvious evidence of analytical bias. However, no duplicate or check assays were performed. In addition, analyses of standards are mediocre, and show evidence of multiple samples being mislabelled.

12.4.4 Verification of Analytical Quality Control Data 2014 to 2015

Pure Gold made available to SRK analytical quality control data for sampling conducted between 2014 and 2015. The data and their analysis were provided by G.N. Lustig Consulting Ltd. (Lustig) and were presented in Excel format and in a MS Word document, respectively (Lustig, 2015). The data include assays for six types of certified standard reference material, blanks, as well as field, coarse reject (preparation), pulp, and umpire duplicate samples.

SRK reviewed Lustig's data analysis provided by Pure Gold but did not perform additional analyses on the data provided because the additional core drilling and sampling conducted by Pure Gold did not impact the current mineral resources reported herein.

Pure Gold submitted a total of 410 blank samples as part of the regular sample streams. Blank samples performed well with five out of 2,734 samples (approximately 0.2 percent) yielding more than five times the detection limit.

Pure Gold submitted a total of 405 standard reference samples; the material performed well overall; no bias was detected in any of the material submitted for analysis, and no instrument drift was apparent. In total 15 standard samples exceed a ±3 standard deviation envelope. Of those, ten failures were identified as being mislabelled, four standard failures required no corrective actions as they were gravimetric analyses in batches that had no core samples analysed by the same method, and one group of samples was re-assayed due to a standard failure, with the re-assays having the standard within acceptable limits.

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The performance of duplicate samples was analyzed by Pure Gold using a number of statistical measures including the average relative error and the absolute relative difference (ARD). Overall the precision of duplicate samples increases from field (200 samples), over preparation (206 samples), to pulp duplicate pairs (318 samples) as expected. To take into account the strong impact high grade values have on statistical distributions, Pure Gold separated assays into two group with assay values less and more than 15 times the laboratory detection limit. The percent of sample pairs with absolute relative deviation below 10 percent ranges from approximately 12 for high grade core duplicates to approximately 75 percent for high grade pulp duplicate samples. The relatively poor reproducibility of duplicate core samples is expected and a typical feature of gold deposits with coarse-grained gold.

Pure Gold submitted a total of 83 randomly selected pulp samples to SGS for umpire testing. Analysis of the results does not indicate obvious analytical bias; the correlation coefficient for sample pairs analyzed by the primary and umpire laboratory is 0.97, indicating good reproducibility.

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13. Mineral Processing and Metallurgical Testing

Historic records of gold recovery for the Madsen mine are incomplete. For about 40 years of operation the mill nominal capacity ranged from 350 to 700 tons per day. Madsen Red Lake Gold Mines Limited's annual report for 1951 reports yearly average gold recoveries as follows: 96.15 percent for 1949, 95.44 percent for 1950, and 94.58 percent for 1951.

A report by the Ontario Department of Mines (Ferguson, 1965) states that "Gold recovery in the (Madsen) mill has averaged 94.00 percent during the time that the mill has been in operation. During 1962 the milling operation recovered 92.7 percent of the gold contained in the ore."

The early Madsen mill used the Merrill-Crowe process as the separation technique for removing gold from a cyanide solution. The historic Madsen mill was decommissioned in the 1970s. The present Madsen mill was purchased from Placer Dome and relocated from the Dona Lake mine site in Pickle Lake, Ontario in the 1990s. The present mill uses the more efficient carbon-in-pulp (CIP) gold recovery process and has a nominal capacity of 500 tons per day. Mill records from Madsen Gold Corp and Claude during 1998-1999 show average monthly mill throughput of 14,840 tons at an average head grade of 0.190 ounces per ton (6.51 g/t) gold and average recoveries of 90.09 percent. Claude believe that the relatively low recoveries achieved during the 1990s are attributable to fluctuations in tonnage of daily feed available, feed grades consistently lower than plan, and financial constraints on mill commissioning and mill operations.

One of the objectives of a prior underground exploration program was to collect additional samples of the gold mineralization of the various gold zones of the Madsen mine for further metallurgical testing. This study was never started and the historic information described above remain the only metallurgical data available. While metallurgical testing has not been completed to establish the design criteria for this PEA study, the assumptions that have been made regarding mill recovery have been derived from actual operating data from the plant. Future work by Pure Gold should include further metallurgical testing to confirm grade-recovery relationships.

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14. Mineral Resource Estimate

14.1 Introduction

In March 2008, SRK was commissioned by Claude to prepare a Mineral Resource Statement for the Madsen gold project. That Mineral Resource Statement presented herein represented the second mineral resource evaluation prepared for the Madsen gold project since 1999. It has not been updated, although certain exploration work was completed on the property since that time as described herein. SRK is of the opinion that the results from the additional exploration work completed on the Madsen gold project do not impact the mineral resources materially for those zones of gold mineralization reported by Claude on December 7, 2009. Hence, SRK is of the opinion that the Mineral Resource Statement remains current as of April 20, 2016.

The evaluation of mineral resources for the Madsen mine was an enduring process involving a team of Claude and SRK personnel. This work involved digitization of a large volume of historical exploration and mining data, extensive validations, geological modelling, and resource estimation over a period of 20 months.

The mineral resource evaluation work was completed by a team of four resource geologists under the supervision Glen Cole, PGeo (APGO #1416), a full time employee of SRK. Mr. Cole has sufficient experience, which is relevant to the style of mineralization and type of deposit under consideration to qualify as a qualified person as defined by National Instrument 43-101. Resource evaluation was undertaken for four separate auriferous zones (Austin, South Austin, McVeigh, and Zone 8) of the Madsen mine within the Madsen gold project. Other auriferous zones were not considered in this resource evaluation. The mineral resource model for the Austin zone was completed by G. David Keller, PGeo (APGO#1235). The resource models for the South Austin and Zone 8 were created by Sébastien Bernier, PGeo. (OGQ#1034). Dorota El Rassi, PEng (APEO #100012348) constructed the resource model for the McVeigh zone.

In the opinion of SRK, the resource evaluation reported herein is a reasonable representation of the gold mineral resources found in the four modelled auriferous zones of the Madsen mine at the current level of sampling. The mineral resources reported herein have been estimated in conformity with generally accepted CIM Estimation of Mineral Resource and Mineral Reserves Best Practices Guidelines (November 2003) and are reported in accordance with Canadian Securities Administrators' National Instrument 43-101.

Mineral resources are not mineral reserves and have not demonstrated economic viability. There is no certainty that all or any part of the mineral resources will be converted into mineral reserves. No mineral reserves have been estimated as part of the present study.

Mineral resource estimation was completed using various modelling software packages including, GEMS (version 6.0.2), Datamine Studio 3, Leapfrog, GoCad, and Isatis. The final block model and related wireframe files were delivered to Claude as a single GEMS project covering the entire Madsen mine area.

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Resource modelling around historical underground mines is a challenging process as some of the modelled gold zones have seen previous underground mining, and the underground workings have been inactive for a long period of time. The resource domains modelled represent extensions of mined out areas. At present there is limited information available about the geotechnical stability of the rock mass around the historical excavations. This uncertainty will require specific geotechnical investigations that will be conducted as the underground workings are being rehabilitated.

SRK developed a conservative resource modelling strategy. Resource domains were defined and modelled from existing sampling data. Excavation wireframes were also constructed from available paper survey records. The mineral resources reported herein represent the gold mineralization situated in intact rock outside the excavation wireframes. In order to account for the possible instability of the rock mass surrounding mined out areas, SRK developed a series of geotechnical buffer zones around mined out areas by inflating the excavation wireframes by a certain distance. Two geotechnical buffer sizes were considered based on discussions with Claude and SRK mine engineers.

Four grade block models were constructed. The block models for Austin, South Austin, and Zone 8 were constructed in Datamine Studio 3 using the sub-blocking function. The block model for McVeigh was constructed in GEMS as a percentage block model. Each block model was populated with a gold grade during the estimation process.

The Datamine block models were subsequently recoded to remove the blocks within the excavation models whereas for the GEMS block model a volume percentage was recorded for each block by simply intersecting the blocks with the mineralization and excavation wireframe boundaries. For each block model a geotechnical code was subsequently populated depending on the location of each block relative to geotechnical buffer (10 or 15 feet). This process allows reporting resource blocks differently to evaluate the sensitivity of the block model estimates to various geotechnical buffer zones (no buffer zone, 10-, or 15-feet buffer zones).

Finally, the Datamine block models were converted into a GEMS percentage block model using the regmod function of Datamine, so that the final mineral resource block models could be delivered to Claude as a single GEMS block model with relevant other wireframe files.

This section describes the resource estimation methodology used by SRK and summarizes the key assumptions and parameters used to prepare the Mineral Resource Statement for the Madsen gold project.

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14.2 Resource Database

14.2.1 Austin, South Austin, and McVeigh Zones

Exploration data available to evaluate the mineral resources for the Austin, South Austin, and McVeigh zones encompass historical underground and surface drilling data digitized by Claude. Historical data were captured in the original imperial mine grid system and converted to the metric system to conform to recent underground drilling data. The database does not contain underground chip samples, short test boreholes, or condemnation boreholes. Additional results of limited drilling completed by Claude after completion of the mineral resource model and results of limited drilling by Pure Gold on the periphery of the zone were not considered. The final historical resource database contains:

i. 13,617 surface and underground core boreholes (808,344 metres).
ii. 550,687 gold assay results.

The database for the three auriferous zones is current as at September 27, 2009.

14.2.2 Zone 8

Exploration data available to evaluate the mineral resources for Zone 8 include:

i. Historical underground boreholes (subset of total 13,614 core borehole database).
ii. 4,446 stope chip samples digitized by SRK.
iii. 647 Stope boreholes digitized by SRK.
iv. Six core boreholes drilled by Claude from level 10 in 2008-09.

Stope drilling data were considered for modelling the boundaries of the gold mineralization of Zone 8, but were not considered for block grade estimation. The database for Zone 8 is current at July 7, 2009.

14.2.3 Mine Excavations

SRK constructed wireframes for all underground excavations of the Madsen mine from digital information provided by Claude (stope plans, sections, wireframes and additional information). This model was used to deplete the resource model.

14.2.4 Specific Gravity Data

Historically, a tonnage factor of 11.25 cubic feet per ton was used to convert volumes into tonnage during the operation of the Madsen mine. That factor corresponds to a specific gravity of 2.84.

The resource database also includes 620 specific gravity measurements collected by Claude on core samples from the Austin zone and Zone 8.

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14.2.5 SRK Comments

SRK considers that Claude used best efforts to digitize and validate historical exploration and mining data.

SRK is of the opinion that the drilling, underground sampling, and mapping information is sufficiently reliable to interpret the outlines of the lithologies and gold mineralization with reasonable confidence, and that the assay data are sufficiently reliable to support mineral resource estimation.

Geological, mineralization and excavation wireframes were constructed using a combination of GEMS, GoCad, Leapfrog, and Datamine modelling software. Geostatistical analysis and variography were completed with Isatis. Resource block models were constructed using Datamine and GEMS, and the final block model and associated files were delivered to Claude as a GEMS project.

14.3 Solid Body Modelling

14.3.1 Resource Domains

The definition of resource domains and construction of wireframes involved an interactive process between Claude and SRK personnel. The strategy involved interpretation and modelling of the outer boundaries for the gold mineralization in each of the four resource areas (Austin, South Austin, McVeigh, and Zone 8) based on geology and grade data.

Each resource domain was subsequently evaluated to determine if higher grade sub-domains could be modelled to improve the evaluation of the higher grade areas. The resulting resource domains for the Austin, South Austin, and McVeigh zones comprise a series of outer low grade envelopes containing a series of higher grade sub-domains defined at a higher grade threshold. The resource domain for Zone 8 was not sub-divided.

The outer limits of the Austin, South Austin, and McVeigh zones were modelled by Claude using GEMS. Polylines were digitized on vertical sections with a 25-foot spacing and on mine levels at approximately 150-foot spacing.

Wireframing involved a two-step process. An initial series of polylines were constructed and snapped to borehole data. The interpretation was inspired from georeferenced hard copy geological interpretation. During this process minor inconsistencies in the borehole database were corrected.

Polylines were subsequently adjusted to interpolate the extent of each zone across the Madsen mine area. Polylines were extended to above the surface and down to zero elevation (sea level). Polylines were drawn on vertical section and plan views, and nodes were adjusted to ensure both sets of polylines matched.

The boundaries for the gold mineralization for Zone 8 were created by Claude. The controls on the distribution of the gold mineralization at Zone 8 are uncertain and geological information is limited. Accordingly, the boundaries were modelled based primarily on gold grade data. The Zone 8 gold wireframe interpretation was derived from polylines spaced at 20 metres and extended away from stopes (5 metres along strike and 25 metres in the dip direction) and 25 metres away from boreholes. The final shapes and extents of the gold mineralization wireframes were a collaborative effort between Claude and SRK staff.

Leapfrog was used to investigate gold grade distribution in each of the zones at various grade thresholds. After review, a grade threshold of 2.5 g/t gold was selected to separate areas of higher grade gold from lower grade material. Conventional wireframes were then constructed for these zones guided by the Leapfrog grade shells, structural trends, and stope outlines. No obvious gold grade trends could be defined for Zone 8. Accordingly, no sub-domains were created.

Sixteen resource domains were constructed and considered separately for geostatistical analysis, variography, and grade estimation (Table 14.1). The high grade domains are shown in Figure 14.1. Three-dimensional views for each domain are presented in Appendix D.

Table 14.1: Resource Domains Defined for Each Gold Zone Modelled at Madsen

Zone	Domains		
	High Grade	Low Grade	Undifferentiated
Austin	HG1, HG2, HG3, HG4	LG	
South Austin	HG1, HG2, HG3, FW1, FW2, Finger	Main	
McVeigh	HG1, HG2	LG	
Zone 8			Z8

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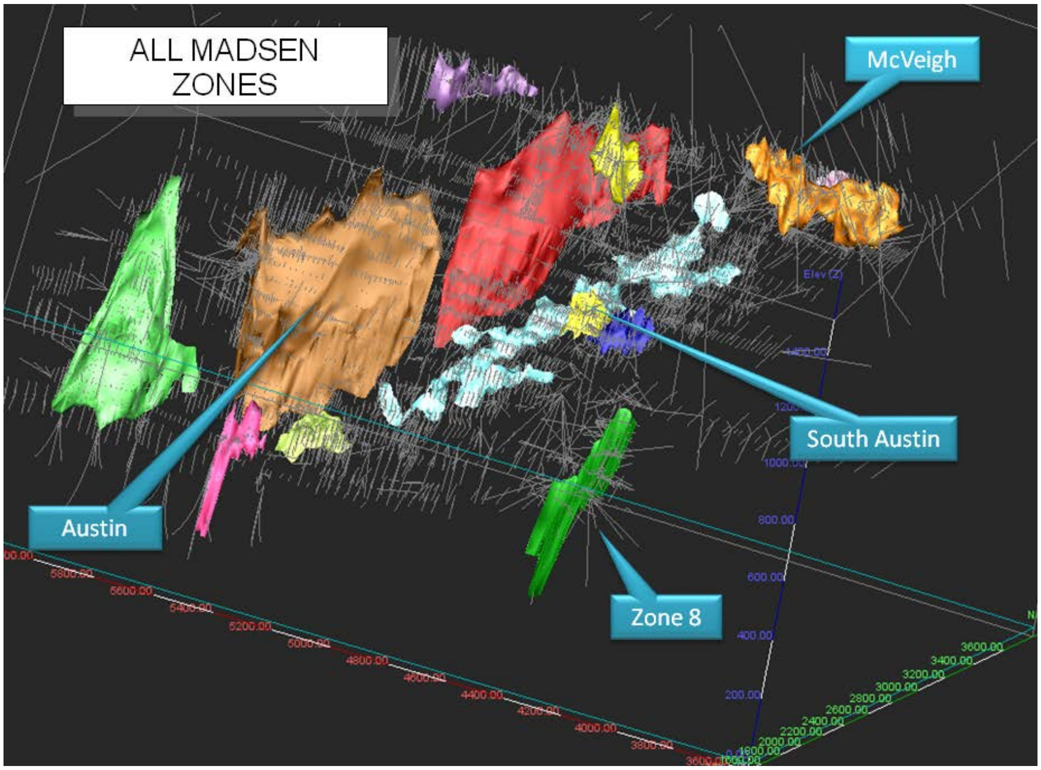

Figure 14.1: Perspective View of the Madsen Mine Showing High Grade Resource Domains and Zone 8 in Relation to Informing Boreholes (Looking Southwest)

14.3.2 Underground Excavations

SRK constructed wireframes for all underground excavations (drift, raise, stopes, etc.) from existing wireframes and all available underground survey historical records (Figure 14.1). The excavation wireframes were inflated by 10 and 15 feet to create geotechnical buffer zones around mined out areas and aid resource reporting.

14.4 Data Preparation and Compositing

The source assay data for the Austin, South Austin, and McVeigh zones are from historical boreholes. Source assay data for Zone 8 include historical and Claude assay data. Assay data within each of the resource domains were evaluated separately.

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14.4.1 Austin, South Austin and McVeigh

Original samples within the Austin, South Austin, and McVeigh zones are summarized in Table 14.2.

Table 14.2: Sample Length Statistics Within the Austin, South Austin and McVeigh Zones

Statistic	Austin	South Austin	McVeigh
Count	250,059	64,660	88,108
Maximum (m)	91.44	23.78	10.00
Minimum (m)	0.01	0.01	0.03
Mean (m)	1.16	1.10	1.20
Standard Deviation	0.88	0.57	0.93
Sample Variance	0.77	0.32	0.87
COV	0.79	0.52	0.78

The Austin zone contains the most samples. A sample length histogram for the Austin zone is presented in Figure 14.2. Histograms for sample lengths for other zones show similar relationships and are not presented here. Approximately 98 percent of all sample intervals with the Austin zone are 2 metres or less in length.

After review of sample length statistics, SRK chose to composite all assay samples from the Austin, South Austin, and McVeigh zones to 2 metre length.

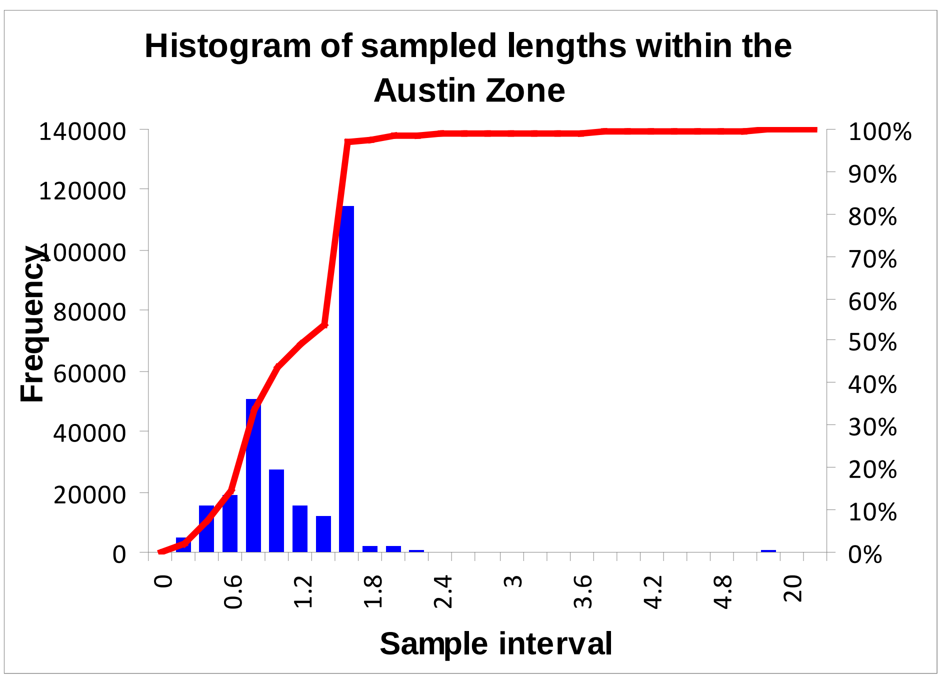

Figure 14.2: Sample Length Histogram for the Austin Zone

Two composite files were created for the Austin, South Austin, and McVeigh zones to evaluate the impact of internal dike dilution. An undiluted composite file was created by removing internal dikes from the dataset and not compositing dike intervals inside the zones. A diluted composite file was created by compositing over dikes. Unsampled dike intervals were assigned zero grade.

14.4.2 Zone 8

Sampling intervals in the historical assay data (chip samples and historical boreholes) vary significantly as summarized in Table 14.3.

Table 14.3: Sample Length Statistics within Zone 8

	Historical		Recent
	Boreholes	Chip Samples	Boreholes
Count	3,683	4,405	72
Maximum (m)	28.22	5.88	2.00
Minimum (m)	0.03	0.03	0.02
Mean (m)	0.57	0.77	0.42
Standard Deviation	0.82	0.46	0.46
Sample Variance	0.67	0.21	0.21
COV	1.44	0.59	1.10

After review of assay length statistics, a composite length of 1 metre was selected for Zone 8. No minimum or maximum composite length was imposed on the compositing process to ensure that short intervals where the gold mineralization accounts for less than 0.5 metre (50 percent of the composite length) were included. The original 8,160 assay samples were reduced to 5,502 composites.

There are no internal waste dikes inside Zone 8; hence, only one composite file was created.

Out of the 4,405 composite chip samples, 318 samples are coded VG for visible gold, and no assays were taken for these intervals. The 3,329 samples for which the location and grade are known with confidence were used to assign a gold grade to unsampled VG intervals using the following procedure.

i. The 3,329 sample database was filtered to retain samples grading more than 1.00 g/t gold (n = 2,627).
ii. A cumulative probability plot was then generated to rank the population in percentiles.
iii. Percentiles are: 80th percentile = 30 g/t gold, 85th percentile = 40 g/t gold, 90th percentile = 60 g/t gold.
iv. After review the gold value at the 85th percentile (40 g/t gold) was assigned to unsampled VG composites.

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The Zone 8 data set is also characterized by samples collected at highly variable spacing (closely spaced chip samples and wider-spaced borehole samples). SRK declustered the composite dataset using a simple block averaging process to reduce the sample variance and to provide equitable support for all the data.

A block size sensitivity study showed that the average gold grades are insensitive to all block sizes less than cubes 10 metres in size. Declustering was completed using cubic blocks 2 metres in size. The number of composites was reduced to 2,961 from the original 5,502 composites.

14.5 Evaluation of Outlier Composites

Considering the nature of the extracted statistical distributions, SRK is of the opinion that it is necessary to cap high-grade values to limit their influence during grade estimation. Composite grade data were investigated using cumulative probability curves that were plotted for each resource domain. Cumulative probability plots for the high grade domains in the Austin zone are shown in Figure 14.3. Cumulative probability plots for other resource domains are not presented.

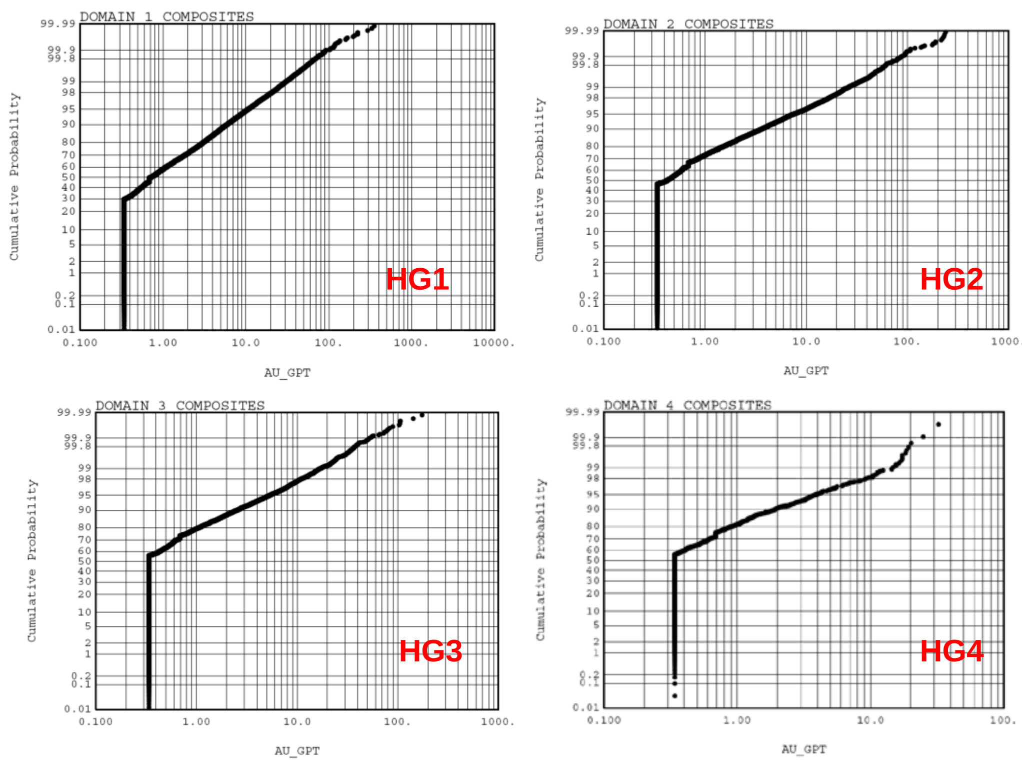

Figure 14.3: Cumulative Probability Plots for the High Grade Resource Domains of the Austin Zone (HG1 to HG4)

The impact of capping was analyzed and capping levels were adjusted for each resource domain. Capping affects a low number of composites. Capping levels applied to composites from each resource domain are summarized in Table 14.4.

Table 14.4: Summary of Capping Values for Each Resource Domain

Domain	Cap Value g/t Au	No. Caps	Domain	Cap Value g/t Au	No. Caps
Austin			**South Austin**		
HG1	100	30	HG1	25	16
HG2	70	51	HG2	60	72
HG3	60	16	HG3	28	31
HG4	16	12	FW1	125	8
LG	30	21	FW2	30	35
McVeigh			**Finger**	12	16
HG1	150	3	**Main**	35	55
HG2	70	4	**Zone 8**	55	153
LG	8	17			

14.6 Statistical Analysis

Statistical analysis for the Austin, South Austin, and McVeigh zones was completed on the undiluted composite file. There is only one composite file for Zone 8. Comparative basic statistics for original assay, composites, and capped composites gold data for the various resource domains within the four gold zones are summarized in Table 14.5 to Table 14.8.

Table 14.5: Basic Gold Statistics for Austin Zone (original, composites and capped composites)

Domain	Data	Mean	Minimum	Maximum	Standard Deviation	Sample Variance	COV	Count
HG1	Original	3.54	0.02	4395.43	24.85	617.70	7.02	55,857
	Composite	2.84	0.34	1056.00	11.43	130.70	4.02	29,542
	Capped Composite	2.72	0.34	100.00	6.64	44.06	2.44	29,542
HG2	Original	2.94	0.02	2534.74	21.21	450.00	7.20	51,403
	Composite	2.02	0.34	937.54	9.20	84.64	4.56	31,071
	Capped Composite	1.90	0.34	70.00	5.47	29.91	2.88	31,071
HG3	Original	2.17	0.02	1309.37	14.51	210.70	6.70	34,093
	Composite	1.39	0.34	210.25	4.64	21.55	3.33	20,020
	Capped Composite	1.36	0.34	60.00	3.71	13.73	2.73	20,020
HG4	Original	1.31	0.01	128.40	5.43	29.44	4.16	2,976
	Composite	1.07	0.34	32.43	2.38	5.63	2.22	1,551
	Capped Composite	1.04	0.34	16.00	2.13	4.54	2.05	1,551
LG	Original	0.49	0.01	550.29	3.44	11.82	7.07	105,730
	Composite	0.56	0.34	171.84	1.45	2.09	2.58	70,897
	Capped Composite	0.55	0.34	30.00	1.11	1.23	2.00	70,897

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Table 14.6: Basic Gold Statistics for South Austin Zone (original, composites and capped composites)

Domain	Data	Mean	Minimum	Maximum	Standard Deviation	Sample Variance	COV	Count
HG1	Original	3.32	0.00	231.09	11.80	139.30	3.55	2,093
	Composite	2.45	0.34	113.41	6.46	41.73	1.97	1,057
	Capped Composite	2.21	0.34	25.00	4.35	18.96	1.97	1.057
HG2	Original	6.52	0.00	2,063.31	38.44	1,477.00	5.89	16,649
	Composite	4.52	0.34	788.36	18.44	339.90	2.32	8.392
	Capped Composite	3.89	0.34	60.00	9.02	81.33	2.32	8,392
HG3	Original	9.59	0.00	2,390.74	73.62	5,420.00	7.68	1,894
	Composite	7.18	0.34	1,168.06	51.87	2,691.00	1.73	879
	Capped Composite	3.97	0.34	28.00	6.86	47.09	1.73	879
FW1	Original	10.95	0.00	977.14	40.89	1,672.00	3.73	2,849
	Composite	8.22	0.34	307.29	22.00	484.00	2.21	1,239
	Capped Composite	7.72	0.34	125.00	17.08	291.70	2.21	1,239
FW2	Original	8.42	0.00	857.83	39.01	1,522.00	4.63	1,277
	Composite	7.01	0.34	196.58	20.40	416.10	1.86	529
	Capped Composite	4.56	0.34	30.00	8.47	71.76	1.86	529
Finger	Original	3.76	0.00	85.71	9.95	99.03	2.65	580
	Composite	2.89	0.34	77.76	7.71	59.40	1.66	274
	Capped Composite	2.05	0.34	12.00	3.42	11.68	1.66	274
Main	Original	1.12	0.00	582.17	7.87	61.92	7.03	39,313
	Composite	0.92	0.34	174.96	3.87	14.98	3.10	22,961
	Capped Composite	0.87	0.34	35.00	2.70	7.29	3.10	22,961

Table 14.7: Basic Gold Statistics for McVeigh Zone (original, composites and capped composites)

Domain	Data	Mean	Minimum	Maximum	Standard Deviation	Sample Variance	COV	Count
HG1	Original	1.70	0.00	2,406.79	24.92	621.09	14.64	13,910
	Composite	1.35	0.34	368.62	7.39	133.56	5,49	6,667
	Capped Composite	1.29	0.34	150.00	5.39	29.13	4.19	6.667
HG2	Original	2.44	0.00	3,884.57	46.56	2,168.27	19.11	7,395
	Composite	1.78	0.34	609.34	11.56	54.54	6.49	3,956
	Capped Composite	1.56	0.34	70.00	4,12	16.98	2.64	3,956
LG	Original	0.23	0.00	51.43	0.78	0.61	3.48	28,523
	Composite	0.41	0.34	23.27	0.39	0.15	0.96	17,689
	Capped Composite	0.41	0.34	8.00	0.32	0.10	0.79	17,689

Table 14.8: Basic Gold Statistics for Zone 8 (original, composites and capped composites)

Domain	Data	Mean	Minimum	Maximum	Standard Deviation	Sample Variance	COV	Count
Zone 8	Original	12.83	0.00	6,661.03	106.80	11,410.00	8.46	8,087
	Composite	15.84	0.34	2,405.39	81.70	6,675.00	5.16	5,502
	Capped Composite	8.87	0.34	55.00	15.11	228.40	1.70	2,961

14.7 Internal Dilution and Geotechnical Buffers

The gold mineralization at the Madsen mine is commonly cut by various late stage barren dikes. SRK estimates approximately 8 percent of the modelled mineralization comprises barren dike material (Figure 14.4) that must be considered as internal waste for resource modelling. The impact is most important for the Austin, South Austin, and McVeigh zones. Zone 8 does not appear to contain significant internal dike dilution.

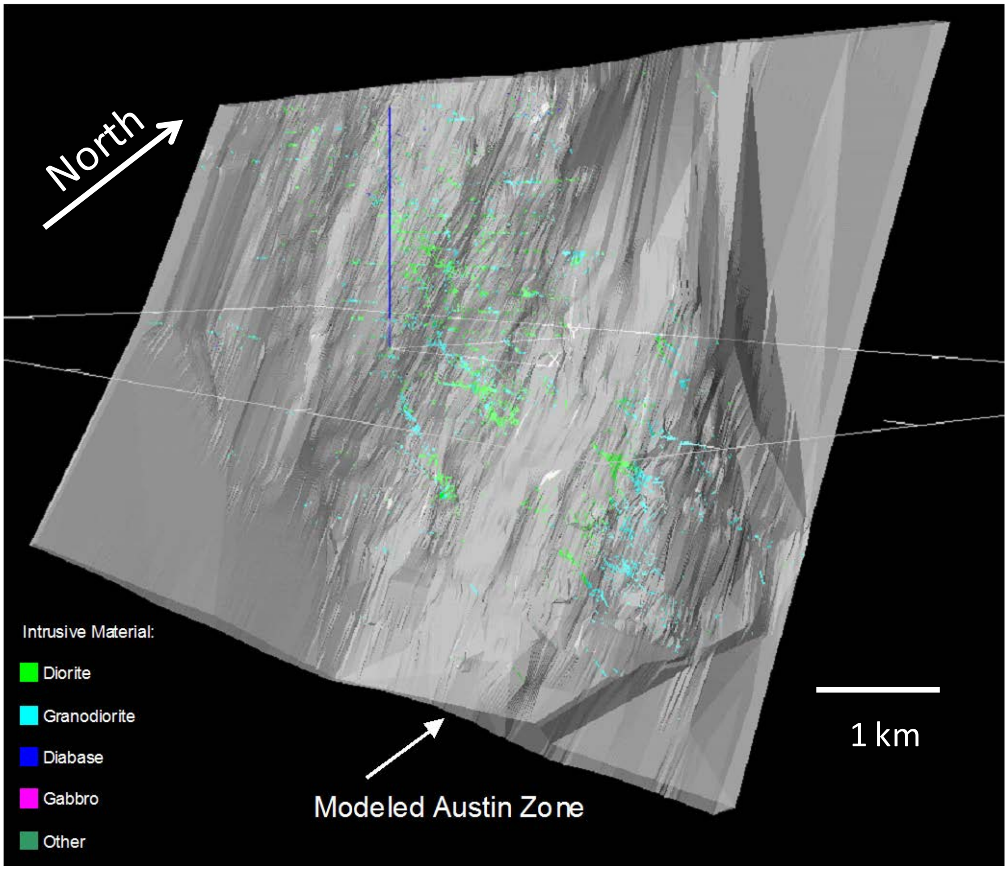

Figure 14.4: Distribution of Barren Dikes Crosscutting the Austin Zone

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Most dikes are relatively small, discontinuous, and cannot be modelled with confidence with the present level of information. SRK estimated the dike percentage in each resource block using a geostatistical approach. An inverse distance estimator (power of two) and search criteria derived from variography of the dike material were used to assign a percentage dike dilution to each resource block.

SRK developed two resource models for each of the Austin, South Austin, and McVeigh zones, primarily to evaluate the sensitivity of the resource to modelled dike dilution. An undiluted model contains gold grades informed by the undiluted composite file whereas a diluted model contains gold grades estimated using the same parameters but informed from the diluted composite file.

Most of the gold zones are located around historical stopes. The quality of the rock mass around mined out areas cannot be assessed. In order to account for the possible instability of the rock mass surrounding mined out areas, SRK developed a series of geotechnical buffer zones around mined out areas by inflating the excavation wireframes by a certain distance. These geotechnical buffers are only considered for resource reporting.

14.8 Variography

Variography was completed using Isatis software (version 9.03) to characterize the spatial continuity of the gold grade data in all resource domains.

Variography for the Austin, South Austin, and McVeigh zones was completed on the undiluted composite files. The resulting variogram parameters were then used for the construction of the diluted resource model.

Aspects considered for variography include:

i. Statistical and geostatistical investigations were performed on composited data within each modelled domain.
ii. Basic statistics on the raw and composited data sets.
iii. Capping values based on review of composite cumulative probability plots.
iv. Base maps plotted to investigate spatial distribution of composite data noting borehole spacing to adjust optimal lag length and tolerance.
v. Composite data were inspected for non-stationarity (i.e., drift). Non-stationarity appears not to pose an estimation problem except for Zone 8. Variogram maps were used to test all domains for anisotropy.
vi. More aggressive masking of outliers was employed in order to stabilize the variograms.
vii. Stable variograms can be modelled for all composite data sets.
viii. Variography was also performed on Gaussian transforms as a check and to increase confidence in the variograms modelled on the untransformed data.

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Variography results are summarized in Table 14.9.

For the **Austin** domains, two structure spherical anisotropic variograms were modelled. The strike/down plunge directions yields the longest range. The dip direction show the next longest range and the across strike direction exhibits the shortest range. As expected, the range for the low grade domain is larger than that for the high grade domains (Table 14.9).

Depending on the domain the plane variogram is optimal along a strike of between 084 and 095°. The optimal dip for each domain varies from 57 to 67° to the south. The grade trends within the high grade domains plunges from 10 to 40° to the east-southeast. All low grade envelopes plunge sub-horizontally.

Table 14.9: Variogram Parameters for All Resource Domains

Zone	Domains	Variance			Range						Nugget	Rotation		
		C0	C1	C2	R1x	R1y	R1z	R2x	R2y	R2z		Z Axis	Y Axis	X Axis
Austin	HG1	5	3.85	2.35	5	10	8	12	27	18	44.60%	84	67	40
	HG2	1.7	2	1.5	5	10	8	14	25	22	32.70%	91	57	30
	HG3	1.2	0.77	1.46	6	10	7	12	22	18	35.00%	91	64	10
	HG4	0.36	0.13	0.46	5	20	14	14	40	25	37.90%	95	57	30
	LG	0.06	0.03	0.07	5	20	12	12	75	20	40.00%	93	58	0
S Austin	HG1	5	5.1	n/a	58	36	12	n/a	n/a	n/a	49.50%	101	20	30
	HG2	12	7	11.5	5	5	5	30	20	16	39.30%	114	24	25
	HG3	10	4.5	12.3	10	10	10	24	14	10	26.80%	96	26	40
	FW1	30	45	42	4	4	4	40	40	15	25.60%	122	14	38
	FW2	37	26	18	5	5	5	20	20	15	45.70%	106	12	42
	Finger	8	5.2	3.95	6	6	6	40	40	10	46.60%	96	22	0
	Main	5	5.1	n/a	58	36	12	n/a	n/a	n/a	49.50%	98	23	0
McVeigh	HG1	1.1	0.53	0.25	6	6	6	25	25	20	58.50%	94	66	0
	HG2	2.7	1.5	2.3	5	5	5	20	20	15	41.50%	94	67	0
	LG	0.04	0.02	0.02	10	10	10	60	60	20	53.90%	85	82	0
Zone 8*	All	0.45	0.47	0.3	7	7	7	12	20	10	1.22%	0	0	0

**Gaussian variogram. There is some low level non stationarity; therefore the variogram has been modelled to above the sill.*

For the **South Austin** domains, two structure spherical variograms were modelled in most cases (excepted for the HG1 sub-domain that was modelled as a single structure exponential anisotropic variogram). Anisotropic variograms were calculated for HG2 and HG3 sub-domains while omni-directional variograms were calculated for the Main, FW1, FW2, and Finger sub-domains. The strike/down plunge directions yield the longest range. The dip direction (semi-major direction normal to the strike/down plunge direction) show the next longest range and the across strike direction exhibits the shortest range.

Depending on the domain the plane of variograms is optimal along a strike of between 096 and 122°. The optimal dip of each sub-domain varies from 12 to 26° to the south. The grade trends in the HG and FW sub-domains plunge from 25 to 42° to the east-southeast. All low-grade sub-domains and the Finger and Main sub-domains plunge sub-horizontally.

Two structure spherical isotropic variograms were modelled for the **McVeigh** domains. Depending on the sub-domain the plane of the variograms is optimal along a strike of between 85 and 94°. The optimal dip of each sub-domain varies from 66 to 82° to the south.

Declustered composite gold data were used for **Zone 8** variography. Due to the high variance in the data, normal scores were applied to produce smoother variograms. The nugget percentage was obtained from down-hole variograms, whereas spherical two structure anisotropic variograms were fitted to the data. The data (dominated by closely spaced stope chip samples) suggest a maximum range of 20 metres. Omni-directional variography suggest similar ranges.

Variograms for the Austin Domain HG1, South Austin Domain HG1, McVeigh Domain HG1, and Zone 8 are presented in Appendix E.

14.9 Block Modelling

Separate block models were constructed for each of the four auriferous zones. Block Models for Austin, South Austin, and Zone 8 were constructed in Datamine Studio 3 using cubic parent blocks 5 metres in size with two levels of sub-blocks. The block model for the McVeigh zone was constructed in GEMS using a cubic block size of 5 metres and a percent block function. For Austin, South Austin, and McVeigh zones, two identical block models were created to allow estimating gold grades using undiluted and diluted composite files.

Criteria used in the selection of block size include the borehole spacing, composite assay length, consideration of the potential size of smallest mining unit, and the geometry of the modelled sulphide mineralized zones. The characteristics of the four block models created are summarized in Table 14.10.

Table 14.10: Madsen Gold Project Block Model Parameters

Model	Axis	Block Size (m)	Origin (m)	Extent (m)	Number of Cells
Austin	X	5	3,250	6,600	670
(Datamine)	Y	5	1,500	3,250	350
	Z	5	1,600	1,600	330
South Austin	X	5	3,250	6,600	670
(Datamine)	Y	5	1,500	3,250	350
	Z	5	1,600	1,600	330
McVeigh	X	5	2,500	6,500	800
(GEMS)	Y	5	1,500	3,500	400
	Z	5	100	1,700	360
Zone 8	X	5	4,450	4,700	50
(Datamine)	Y	5	2,400	3,100	140
	Z	2	(-) 25	525	275

14.10 Grade Interpolation

A gold grade was estimated in each resource block using ordinary kriging as the principal estimator. Kriging parameters were derived from variography results.

For the Austin, South Austin, and McVeigh zones, gold grades were estimated into two block models with kriging parameters derived from variography on undiluted composite files. An undiluted model was informed from undiluted capped composites, while the diluted model was informed from diluted capped composites.

Grade estimation was completed in two successive passes, considering estimation parameters summarized in Table 14.11 and search neighbourhood sizing summarized in Table 14.12.

The first estimation pass generally considered a search neighbourhood adjusted to full variogram ranges, whereas the second estimation pass considered a search neighbourhood adjusted at two times full variogram ranges.

For Zone 8, however, the first estimation pass considered a search neighbourhood adjusted to twice full variogram ranges and the second estimation pass considered a search neighbourhood adjusted to five times full variogram ranges.

Table 14.11: Summary of Gold Grade Estimation Parameters

Gold Interpolation Parameters	First Pass	Second Pass
Austin Zone		
Interpolation method	Ordinary Kriging	Ordinary Kriging
Octant search	No	No
Minimum number of composites	2	1
Maximum number of composites	12	12
Maximum number of composite per borehole	Not restricted	Not restricted
South Austin Zone		
Interpolation method	Ordinary Kriging	Ordinary Kriging
Octant search	No	No
Minimum number of composites	2	1
Maximum number of composites	12	12
Maximum number of composite per borehole	Not restricted	Not restricted
McVeigh Zone		
Interpolation method	Ordinary Kriging	Ordinary Kriging
Octant search	No	No
Minimum number of composites	2	1
Maximum number of composites	10	12
Maximum number of composite per borehole	Not restricted	Not restricted
Zone 8		
Interpolation method	Ordinary Kriging	Ordinary Kriging
Octant search	No	No
Minimum number of composites	2	1
Maximum number of composites	10	10
Maximum number of composite per borehole	Not restricted	Not restricted

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Table 14.12: Summary of Search Neighbourhood Parameters

Domain	First Pass Search Distance (metre)			Second Pass Search Distance (metre)		
	X	Y	Z	X	Y	Z
Austin Zone						
HG1	12	27	18	24	54	36
HG2	14	25	22	28	50	44
HG3	12	22	18	24	44	36
HG4	14	40	25	28	80	50
LG	12	75	20	24	150	40
South Austin Zone						
HG1	12	58	36	24	116	72
HG2	16	30	20	32	60	40
HG3	10	24	14	20	48	28
FW1	15	40	40	30	80	80
FW2	15	20	20	30	40	40
Finger	10	40	40	20	80	80
Main	25	45	25	50	90	50
McVeigh Zone						
HG1	25	25	20	50	50	40
HG2	20	20	15	40	40	30
LG	60	60	20	120	120	40
Zone 8	**24**	**40**	**20**	**60**	**100**	**50**

14.11 Estimation Validation

The mineral resource models prepared by SRK were validated by visually comparing block and composite borehole data on section by section and elevation by elevation basis. Composite borehole data compare well with estimated block grades. A series of 14 vertical cross-sections, comparing block grades to informing composite borehole data is provided in Appendix F.

Ordinary kriging was used as the primary estimator. For comparison, gold grades were also estimated using inverse distance and nearest neighbour estimators and compared with kriging estimates. The three estimators yield similar results. Comparison between the three estimators for Zone 8 is summarized in Table 14.13 at various cut-off grades.

Table 14.13: Zone 8 Tonnage and Grade Estimates Using Three Estimators

Class	Cut-off	Quantity '000 tonnes			Grade Au (g/t)		
	g/t gold	OK	ID2	NN	OK	ID2	NN
Indicated	3	421	421	421	10.50	10.43	10.38
	4	367	367	367	11.49	11.40	11.45
	5	335	335	335	12.21	12.10	12.32
Inferred	3	321	321	321	17.93	16.63	22.13
	4	320	320	320	17.98	16.68	22.21
	5	317	317	317	18.14	16.83	22.45
Estimator: OK = Ordinary kriging, ID2=Inverse distance squared, NN=Nearest neighbour							

The block models for the Austin, South Austin, and Zone 8 gold zones were constructed in Datamine Studio 3, expect for the McVeigh zone, which was built using GEMS. As a validation test, parallel estimates for the Austin, South Austin, and Zone 8, were run in GEMS using the same Datamine estimation parameters. The GEMS estimates are similar to the Datamine estimates with less than 1 percent variance.

Quantile-quantile plots comparing resource block and capped composite data were also constructed. These plots show the usual smoothing effect of kriging, particularly at higher grades, but suggest that the block models are representative of the informing data.

To evaluate the sensitivity of the resource models to the presence of internal waste dikes, SRK developed two separate resource models for the Austin, South Austin, and McVeigh zones where barren dike abundance is greater. An undiluted model was created by excluding dike material from the grade estimation process. The waste dilution created by barren dikes crosscutting the gold zones is simply not considered. A diluted model was created by including barren dikes in the compositing process thereby diluting the gold mineralization. Both models yields comparable tonnage and grade estimates for cut-off grades greater than 3 g/t gold. In absence of significant differences, SRK chose to use the undiluted model for resource reporting.

The volume of the underground stopes model is 2,164,163 cubic metres. The volume of the development excavations is estimated at 517,977 cubic metres. The volume of the underground excavation model is 2,682,140 cubic metres. Applying the tonnage factor of 2.84 used at the mine, the underground excavation model constructed by SRK would have contained 7,617,277 tonnes of rock. This compares to a total production of 7,872,679 tonnes recorded for the Madsen mine between 1938 and 1999.

The gold grade within the modelled Madsen stopes can also be estimated. The estimated gold grade is, however, highly sensitive to the cut-off grade, varying from 9.89 g/t gold at a cut-off grade of 5.0 g/t gold to 5.80 g/t when no cut-off is applied. This compares very well with the estimated average recovered grade of 0.283 ounces of gold per ton (9.70 g/t gold) calculated from production records.

Although it is not certain if all historical mining voids have been digitized, SRK is satisfied that the modelled stopes and development excavations adequately represent historical mining. The excavation model was used to deplete the resource block models so that the reported resource blocks exclude all known mined out areas.

14.12 Mineral Resource Classification

Mineral resources were classified according to the CIM Definition Standards for Mineral Resources and Mineral Reserves (May 2014) under the supervision of Glen Cole, PGeo (APGO#1416). By virtue of his education, membership to a recognized professional association, and experience that is relevant to style of mineralization and type of deposit under consideration, Mr. Cole is an independent qualified persons as this term is defined by National Instrument 43-101.

Resource classification for deposits characterized with historical mining is usually based on factors such as the block distance from the nearest informing composites, variography results, proximity to historical mine workings, as well as on the confidence in the geological interpretation and reliability of the informing data. SRK is satisfied that Claude used best efforts to digitize and validate historical sampling data. However, uncertainty remains on the integrity of core sampling data (sampling and analytical protocols) and there are no documented records for any analytical quality control procedures, if any. As a result, SRK considers that no resource blocks can be assigned a Measured resource category.

Resource blocks were classified into Indicated and Inferred categories on the basis of several parameters. For the Austin, South Austin, and McVeigh zones, the classification scheme is based on variography results. Blocks estimated in the first estimation pass were assigned an Indicated classification, while those estimated during the second pass were classified as Inferred. Consideration was also given to kriging efficiency, a quantitative measure of the quality of the grade estimate. The classification parameters are summarized in Table 14.14.

For Zone 8, SRK used a simplistic classification based primarily on proximity to historical stopes. An Indicated classification was assigned to blocks located at elevations within 25 metres below the lowest stope (elevation of 190 metres), whereas an Inferred classification is assigned to all blocks below that elevation.

Table 14.14: Austin, South Austin and McVeigh Classification Parameters

Domain	Classification	
	Indicated	Inferred
Austin Zone		
HG1	entire domain	none
HG2	first estimation pass	second estimation pass
HG3	first estimation pass	second estimation pass
HG4	KE* greater than 0	all other grade estimates
LG	none	entire domain
South Austin Zone		
HG1	entire domain	none
HG2	entire domain	none
HG3	entire domain	none
FW1	entire domain	none
FW2	entire domain	none
Finger	>215m elevation	<215 elevation
Main	none	entire domain
McVeigh Zone		
HG1	first estimation pass	second estimation pass
HG2	entire domain	none
LG	none	entire domain
**KE = Kriging efficiency*		

14.13 Mineral Resource Statement

The mineral resources for the Madsen gold project are reported in accordance with Canadian Securities Administrators' National Instrument 43-101. Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the mineral resource will be converted into mineral reserve.

The Mineral Resource Statement was prepared under the supervision of Glen Cole, PGeo The effective date of this resource estimate is April 20, 2016.

CIM Definition Standards for Mineral Resources and Mineral Reserves (May 2014) defines a mineral resource as:

"[A] concentration or occurrence of diamonds, natural solid inorganic material, or natural solid fossilized organic material including base and precious metals, coal, and industrial minerals in or on the Earth's crust in such form and quantity and of such a grade or quality that it has reasonable prospects for eventual economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge."

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SRK considers that the gold mineralization of the Madsen mine is amenable for underground extraction. Most of the gold zones are located in close proximity to existing mine infrastructure (Figure 14.1).

A large percentage of gold mineralization in the four zones modelled by SRK is located in close proximity to historical mining areas. A series of geotechnical buffer zones around mined out areas was evaluated by SRK in consultation with Claude in order to account for the possible instability of the rock mass surrounding mined out areas. This analysis considered accessibility to resource blocks, future mining challenges, potential mining methods, and costs, as well as geotechnical considerations. The purpose of this evaluation was to select an appropriate buffer around mined out areas that would be removed from the Mineral Resource Statement, as it is uncertain whether that material demonstrate "reasonable prospect for eventual economic extraction." This approach is considered conservative as future geotechnical and mining investigations may demonstrate that portions of the material included within the geotechnical buffer zones may be recoverable.

Various parameters were also considered to assist the preparation of the Mineral Resource Statement reported herein. Parameters considered include cut-off grade, size of geotechnical buffer zones, internal waste dilution, etc. (Table 14.15).

Table 14.15: Mineral Resource Reporting Criteria

Zone	Cut-off Grade (g/t gold)	Resource Model	Geotechnical Buffer
Austin	5.00	Undiluted	15 feet (4.6 metres)
South Austin	5.00	Undiluted	10 feet (3.0 metres)
McVeigh	5.00	Undiluted	15 feet (4.6 metres)
Zone 8	5.00	Undiluted	No buffer

Mineral resources were estimated in conformity with generally accepted CIM Estimation of Mineral Resource and Mineral Reserve Best Practices Guidelines (November 2003). The mineral resources may be affected by further infill and exploration drilling that may result in increases or decreases in subsequent resource estimates. The mineral resources may also be affected by subsequent assessments of mining, environmental, processing, permitting, taxation, socio-economic, and other factors.

Mineral resources for the Madsen gold project are reported at a cut-off grade of 5.0 g/t gold considering that this material is amenable for underground extraction. The cut-off grade is based on a gold price of US$1,000 per ounce and assumes a metallurgical recovery of 94 percent.

The Mineral Resources Statement for the Madsen gold project contains 3.2 million tonnes grading 8.93 g/t gold in the Indicated category, with an additional 0.8 million tonnes grading 11.74 g/t gold in the Inferred category. The consolidated Mineral Resource Statement is presented in Table 14.16. Table 14.17 presents the mineral resources for all resource domains.

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Table 14.16: Consolidated Mineral Resource Statement* for the Madsen Gold Project, Ontario, SRK Consulting (Canada) Inc., April 20, 2016.

Class	Zone	Quantity ('000 t)	Grade Gold (g/t)	Contained Metal Gold ('000oz)
Indicated	Austin	1,677	7.92	427
	South Austin	850	9.32	254
	McVeigh	374	9.59	115
	Zone 8	335	12.21	132
	Total	3,236	8.93	928
Inferred	Austin	108	6.30	22
	South Austin	259	8.45	70
	McVeigh	104	6.11	20
	Zone 8	317	18.14	185
	Total	788	11.74	297

**Mineral resources are not mineral reserves and have not demonstrated economic viability. All figures have been rounded to reflect the relative accuracy of the estimates. Reported at a cut-off grade of 5.0 g/t gold based on US$1,000 per troy ounce gold and gold metallurgical recoveries of 94 percent.*

Table 14.17: Mineral Resource Statement, Madsen Gold Project, Ontario, SRK Consulting (Canada) Inc., April 20, 2016.

Classification	Zone	Domain	Quantity ('000 t)	Grade Gold (g/t)	Contained Metal Gold ('000 oz.)
Indicated	Austin	HG1	666	8.42	180
		HG2	678	7.74	169
		HG3	319	7.37	76
		HG4	15	6.08	3
		LG	-	-	-
		Subtotal	**1,677**	**7.92**	**427**
	South Austin	Main	-	-	-
		HG1	68	13.46	29
		HG2	586	8.65	163
		HG3	48	7.72	12
		FW1	115	11.63	43
		FW2	27	6.98	6
		Finger	5	5.96	1
		Subtotal	**850**	**9.32**	**254**
	McVeigh	HG1	307	10.05	99
		HG2	67	7.48	16
		LG	-	-	-
		Subtotal	**374**	**9.59**	**115**
	Zone 8	Combined	335	12.21	132
		Subtotal	**335**	**12.21**	**132**
		Total	**3,236**	**8.93**	**928**
Inferred	**Austin**	HG1	-	-	-
		HG2	8	8.75	2
		HG3	16	5.94	3
		HG4	8	6.4	2
		LG	76	6.11	15
		Subtotal	**108**	**6.30**	**22**
	South Austin	Main	232	8.50	63
		HG1	-	-	-
		HG2	-	-	-
		HG3	-	-	-
		FW1	-	-	-
		FW2	-	-	-
		Finger	27	8.01	7
		Subtotal	**259**	**8.45**	**70**
	McVeigh	HG1	46	6.72	10
		HG2	-	-	-
		LG	58	5.63	11
		Subtotal	**104**	**6.11**	**20**
	Zone 8	Combined	317	18.14	185
		Subtotal	**317**	**18.14**	**185**
		Total	**788**	**11.74**	**297**

**Mineral resources are not mineral reserves and have not demonstrated economic viability. All figures have been rounded to reflect the relative accuracy of the estimates. Reported at a cut-off grade of 5.0 g/t gold based on US$1,000 per troy ounce gold and gold metallurgical recoveries of 94 percent.*

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The mineral resources are sensitive to the selection of cut-off grade. The global quantities and grade estimates at three gold cut-off grades are presented in Table 14.18. The reader is cautioned that the figures presented in this table should not be misconstrued with the Mineral Resource Statement. The figures are only presented to show the sensitivity of the mineral resources to the selection of cut-off grade.

Table 14.18: Global Block Model Quantities and Grade Estimates* at Various Cut-off Grades

Class	Zone	Quantity			Grade			Contained Metal		
		Tonnage (000't)			Gold (g/t)			Gold (000'oz)		
	Cut-off (g/t Au)	3	4	5	3	4	5	3	4	5
Indicated	Austin‡	4,299	2,565	1,677	5.40	6.72	7.92	746	554	427
	South Austin#	1,553	1,140	850	6.85	8.08	9.32	342	296	254
	McVeigh‡	637	465	374	7.20	8.57	9.59	148	128	115
	Zone 8^	422	370	335	10.49	11.49	12.21	142	136	132
Inferred	Austin‡	782	288	108	4.04	5.12	6.30	101	47	22
	South Austin#	630	390	259	5.70	7.09	8.45	116	89	70
	McVeigh‡	155	105	104	5.33	6.09	6.11	27	21	20
	Zone 8^	321	320	317	17.93	17.98	18.14	185	185	185

**The reader is cautioned that the quantities and grade estimates in this table should not be misconstrued with a Mineral Resource Statement. The figures are presented to show the sensitivity of the block model estimates to the selection of cut-off grade.*
‡Reported considering a geotechnical buffer of 15 feet (4.6 metres).
#Reported considering a geotechnical buffer of 10 feet (3.0 metres).
^Reported with no geotechnical buffer.

The global quantities and grade estimates for gold mineralization located in buffer zones around mined out areas at various cut-off grades are presented in Table 14.19. It is uncertain if this material can be accessed. It is possible that engineering and geotechnical studies will determine that some parts of this material may be extracted. Accordingly, SRK believes that there is potential that some parts of the material in the geotechnical buffers may be included in the mineral resources for the Madsen gold project once underground investigations have been conducted.

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Table 14.19: Global Block Model Quantities and Grade Estimates* in the Buffer Zones Around Historical Workings at Various Cut-off Grades

Class	Zone	Quantity			Grade			Contained Metal		
		Tonnage ('000 t)			Gold (g/t)			Gold ('000 oz.)		
	Cut-off (g/t Au)	3	4	5	3	4	5	3	4	5
Pillar Zone	Austin‡	3,227	2,286	1,660	6.22	7.35	8.44	645	540	451
	South Austin#	1,044	865	711	8.04	8.97	9.95	270	249	228
	McVeigh‡	200	136	94	6.04	7.27	8.51	39	32	26

**The reader is cautioned that the quantities and grade estimates in this table should not be misconstrued with a Mineral Resource Statement. The figures are presented to show the material within buffer zones around historical workings. This material has been excluded from reported resources.*
‡Reported considering a geotechnical buffer of 15 feet (4.6 metres).
#Reported considering a geotechnical buffer of 10 feet (3.0 metres).

15. Mineral Reserve Estimate

This section is not applicable to this report.

16. Mining Methods

16.1 Introduction

The McVeigh Portal access is the focus of this Preliminary Economic Assessment. The existing McVeigh portal is approximately one kilometre from the existing mill, and currently provides ramp access to the top 150 vertical metres of the mine workings. The PEA mine plan includes further development of the ramp to a depth of 600 metres to access the top 12 levels of the mine. This will be a subset of the total resources of the Madsen Gold Project. The mine design and planning for the PEA is based on a resource model provided by SRK called Madsen_MMG_MOD dated November 21, 2015 which included levels 1 to 12 extended east and west of the Madsen Shaft. The mine plan and design are based on both indicated and inferred material. The majority of the PMR (82%) is indicated with the remainder of the material being in the inferred category.

Table 16.1 Mineral Resource (Mine Diluted) Included in PEA Mine Plan*

Resource Classification	Tonnes	Grade (Au g/t)	Recoverable Gold (oz.)
Indicated	868,773	8.55	219,826
Inferred	194,485	6.91	39,726

** Mineral resources are not mineral reserves and do not have demonstrated economic viability. All figures have been rounded to reflect the relative accuracy of the estimates. Initial disclosure of mineral resources are reported at a cut-off grade of 5.0 g/t gold based on US$1,000 per troy ounce gold and gold metallurgical recoveries of 94 percent. For the purpose of the PEA, mine diluted mineral resources are reported with a variable cut-off grade dependent on individual stoping areas, a US$1,175 per troy ounce gold, and gold metallurgical recoveries of 92 percent.*

Table 16.2 PMR by Mining Method

Mining Method	Tonnes	Contained Gold (oz.)
Cut & Fill	533,008	121,187
Longhole	139,370	44,334
Shrinkage	390,880	116,599
PMR Diluted	**1,063,258**	**282,120**

The underground resources comprise of three main zones - McVeigh, Austin and South Austin. The plan would be to use the existing ramp from the McVeigh portal to access the existing levels below. The McVeigh ramp would be extended from its current location down to Level 12. The existing levels below Level 3 were developed from the Madsen shaft during historical production. It is not envisioned within this study to use the existing shaft or hoist for any extraction of rock or movement of personnel and material. The shaft would be used mainly for ventilation and a second means of egress from the mine. The shaft manway would require inspection and possible rehabilitation. It is assumed that the water level in the shaft is below Level 14 and a monitoring device would be put into place to ensure future water levels are properly monitored.

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Based on reviewing the data from the SRK block model and running the parameters through the CAE Studio 5D® program, potentially mineable shapes were defined from levels 1 to 12. The three (3) mining methods defined from this exercise are cut and fill, shrinkage and long-hole. All three mining methods have been used historically at Madsen Gold Project and throughout the Red Lake mining camp.

Table 16.3 Mineral Resource Up To Level 12

Row Labels	Tonnes	Contained Au (oz.)	Weighted Average Au (g/t)
00SURFACE	**15,999**	**3,593**	**6.98**
01LEVEL	**36,804**	**8,991**	**7.60**
Austin	8,716	1,911	6.82
McVeigh	24,591	6,063	7.67
South Austin	3,497	1,017	9.05
02LEVEL	**119,102**	**33,963**	**8.87**
Austin	26,428	6,051	7.12
McVeigh	78,974	23,849	9.39
South Austin	13,701	4,062	9.22
03LEVEL	**211,710**	**70,876**	**10.41**
Austin	34,813	7,532	6.73
McVeigh	142,572	44,975	9.81
South Austin	34,324	18,369	16.64
04LEVEL	**210,779**	**58,899**	**8.69**
Austin	35,951	8,814	7.63
McVeigh	113,315	32,793	9.00
South Austin	61,512	17,292	8.74
05LEVEL	**63,048**	**16,898**	**8.34**
Austin	27,226	6,492	7.42
McVeigh	25,126	7,995	9.90
South Austin	10,697	2,411	7.01
06LEVEL	**82,183**	**19,722**	**7.46**
Austin	57,802	13,457	7.24
McVeigh	15,209	3,477	7.11
South Austin	9,172	2,788	9.45
07LEVEL	**93,354**	**22,912**	**7.63**
Austin	78,815	19,707	7.78
South Austin	14,540	3,205	6.86
08LEVEL	**117,257**	**31,836**	**8.44**
Austin	59,698	17,289	9.01
South Austin	57,560	14,547	7.86
09LEVEL	**160,552**	**43,165**	**8.36**
Austin	105,856	28,796	8.46
South Austin	54,697	14,369	8.17
10LEVEL	**88,621**	**22,760**	**7.99**
Austin	71,069	18,738	8.20
South Austin	17,552	4,021	7.13
11LEVEL	**134,192**	**36,747**	**8.52**
Austin	112,798	31,433	8.67
South Austin	21,394	5,314	7.73
12LEVEL	**204,884**	**56,228**	**8.54**
Austin	146,081	37,969	8.08
South Austin	58,803	18,259	9.66

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16.2 Underground Development

The Madsen Gold Project has an existing ramp with a dimension of 3.8mH x 4.0mW. It extends close to Level 3 and is approximately 1,080 meters in length. The new ramp starting from Level 2 is planned to be 4.0mH x 4.0mW to provide additional room for equipment, services and ventilation. Excluding level slashing, an additional 2,970 meters of new ramp excavation would be required to reach Level 12.

16.2.1 Geotechnical and Ground Support

Historically, mining in the upper levels has proven to be in competent ground. A recent site visual of the core that was drilled in the McVeigh zone in 2016 confirmed that the ground has shown to be competent.

Once the portal is opened, a field investigation would be conducted to collect data for mapping, rock mass quantification and ground water occurrence. It is assumed for this report that all long term openings would be supported with 1.8m long resin rebar and wire mesh screen placed on the back and shoulders. In other areas of the mine that are not deemed to be long-term openings, the support selected will be 1.8m long mechanical rock-bolts with wire mesh screen on the back. The support pattern for both options would be a 1.2m by 1.2m diamond shape pattern along the back. Split-set bolts varying in size from 1.2m to 1.8m would be installed in the walls where required.

Figure 16.1 and Figure 16.2 show the underground development design.

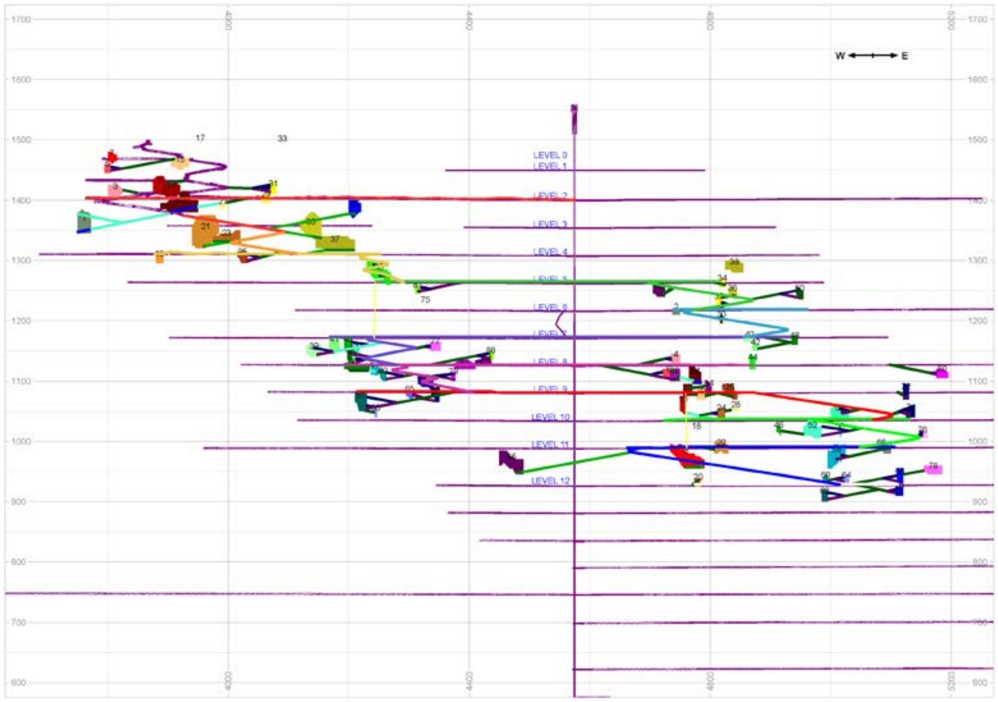

Figure 16.1 Mine Layout with Existing Development, Proposed Stopes and New Development

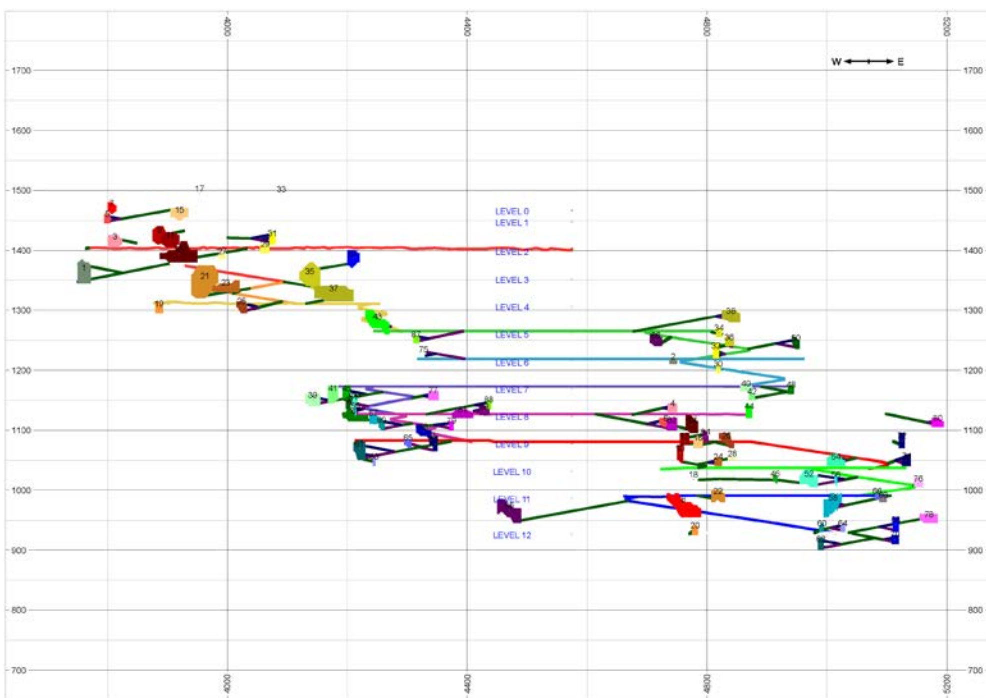

Figure 16.2 Mine Layout with Proposed Stopes and New Development

16.2.2 Pre-Production Activities

Activities such as surface setup, ventilation set-up, ramp cleaning, rehabilitation (where required) as well as installing mine services (process water, dewatering, compressed air, electrical cable and communication) will be priority for the first 6 months. The primary development emphasis during the pre-production period would be to slash Level 2 to the shaft for ventilation. This consists of slashing the existing drifts, which are assumed to be 2.4mH by 2.4mW in size, to a nominal 4.0mH by 4.0mW opening. This slashing would be realized by taking down the back and blasting one wall to allow ventilation to flow at an increased volume. Lower priority tasks such as early production development would be completed later in the pre-production phase. The main ramp will commence in the fourth quarter of year one of this pre-production period.

16.2.3 Ramp Excavation

The ramp would be completed using typical mechanized drifting methods. This proposed ramp would be excavated on the footwall side of the mineralized zone at a size of 4.0mH x 4.0mW, and grade of minus 15%. Wherever possible, existing development would be used as remucks and collection sumps for the ramp. The remucks would range from 140 to 180 meters in distance from the advancing face with sumps being approximately 300 meters apart. The ramp would be supported using standard support, as mentioned in section 16.1.2.

16.2.4 Level and Access Development

A total of 3,768m of level and access development is anticipated for the life of the mine. Cut and fill access drifts account for the majority of the development meters shown in Table 16.4. All access development has been designed to be 4.0mH and 4.0mW and would be developed using single boom jumbos and 2.7m^3 LHD equipment. All waste development rock would be stored underground or on surface for future backfilling of the stopes.

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Table 16.4 Mine Development

Description	Metres
Ramp	2,968
Slash	5,759
Ventilation Raise	223
All Access Development (waste)	
Cut & Fill Access	1,693
Cut & Fill Under Cut	771
Cut & Fill Top Cut	395
Long hole Access	385
Shrinkage Access	524
Total	**3,768**
All Access Development (mineralized zone)	
Long hole Bottom Sill	82
Long hole Top Sill	20
Shrinkage Bottom Sill	136
Total	**238**

16.2.5 Rock Handling

PMR extracted from the stopes would be transported by LHD to a truck loading area where 20 tonne underground haul trucks would be loaded by LHD. The underground haul trucks would then transport the PMR up the ramp to surface. Once on surface, the PMR would be stockpiled and trucked as feed for the existing mill.

During initial development, waste rock would be stored underground or hauled up the ramp to surface. During production, trucks would dump waste rock directly into mined out stopes via push plate system (ejector box) and placed as part of the backfill. Table 16.5 below shows that there will be no requirement for external backfill material as the waste rock produced during development activities is greater than the backfill material required.

Table 16.5 Waste Rock Balance

Waste Rock Produced		Waste Fill Required	
Development Category	**Tonnes**	**Mining Method**	**Tonnes**
Ramp	128,236	Cut & Fill	333,130
Slash	159,221	Long hole	57,072
Raise	1,985	Shrinkage	0
All Access Development	162,788		
Total	**452,231**		**390,202**

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Table 16.6 Waste Rock Fill Tonnes Schedule

Description	Total Tonnes	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6	Yr. 7
Waste Rock Produced	**452,231**	67,523	227,298	157,410				
Fill Tonnes Required	**390,202**	8,253	88,515	105,332	3,877	51,776	105,841	26,608

16.3 Underground Mine Infrastructure

16.3.1 Maintenance Shop / Wash Bay

A maintenance shop used to repair broken mobile equipment and perform preventative maintenance will be located on surface. Allowances have been made to utilize an existing excavation underground for tire changes and washing equipment. It is envisioned that this will occur on Level 5 and Level 9 of the mine.

16.3.2 Refuge Stations

Portable self-contained refuge stations would be dispersed throughout the mine near the main and current work areas. The refuge stations are designed to withstand fire, extreme heat and prevent gas from entering the unit. They are equipped with potable water, a telephone line, lighting, compressed/fresh air, rations and clay to seal any cracks in openings to further prevent gases from entering. Using portable units decreases the amount of development required as they can be put in previously used headings.

16.3.3 Explosives and Detonator Storage

Explosives would be stored underground in permanent magazines, which are constructed in adherence to local requirements. Detonator supplies will be stored in a separate magazine a mandated distance away from the explosives. The explosives magazines would be located on Level 2 and Level 7.

16.3.4 Materials Storage

Designated storage areas, specifically for storing consumable mining supplies such as timber, pipe, fittings and rock bolts, will be constructed using existing excavations on Level 5 and Level 9. They would be designed to accommodate a piece of mobile equipment to drive in and pick up material.

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16.3.5 Latrines

Non-permanent toilet units would be located in appropriate active working areas and in close proximity to each refuge station. They would be of portable design and the catchment containers would be checked daily and exchanged as required. The used catchment containers would be transported to the sewage treatment area where they would be dumped and cleaned before they are returned into service.

16.4 Underground Mine Services

16.4.1 Mine Dewatering

Water collection sumps would be excavated on every level as the main ramp is excavated. They will be strategically located to collect water from the mining operations on that level while preventing such water from entering the ramp. Water from the level sumps would be pumped or drained using drill holes to the main collection sumps which would be located on Levels 2, 5, 9 and 12. Once at the main sump, water would be pumped to surface through 102mm schedule 40 steel pipe where it would be re-used for underground process water or sent to the tailings pond.

16.4.2 Process Water

Water used for underground operations will be drawn from the nearby Beaver Dam Lake. Pure Gold holds all permits associated with taking water from Beaver Dam Lake. The underground mine would require approximately 70 million litres of service water per year to be used for drilling, dust suppression etc. Process water will be transported down the ramp using 102 mm diameter steel piping. This would feed the main distribution lines on the levels, which would send water to the stope access crosscuts. Water pressures and volumes would be controlled by pressure reducing valves as required.

16.4.3 Compressed Air

Compressed air would be required for some underground tasks such as operating pneumatic tools, operating water pumps and cleaning drill holes. As such, a permanent compressor and a backup compressor will be installed on surface near the McVeigh portal. New 102 mm diameter piping will be installed in the ramp as development and drift rehabilitation progresses. The two compressed air systems will provide air at 0.71m^3/s (1,500 cfm) and 7.58 bar (110 psi) to the underground workings.

16.4.4 Electrical Power

Electrical grid power for the underground operations will be provided by Hydro One via a transformer on surface. The site is currently serviced by 44 kV power.

Electrical cable would be installed in the main ramp as it advances. Main substations would be installed near the main portal while other substations would be installed where required as the power losses become too great. Junction boxes would be used to distribute the power to working areas as needed.

16.5 Ventilation

The ventilation to support the proposed mining equipment fleet would require air volumes of approximately 118 cu. metres per second (250,000 cfm). The ventilation system would be a push-pull system utilizing the existing Madsen shaft, ventilation raises within the mine workings and the main ramp as exhaust. The proposed underground ventilation system was designed to dilute gases that are created during mining operations. The emergency stench gas system would be installed at the main fresh air fans on surface, and at the start of the compressed air system.

Table 16.7 Ventilation Standards in Ontario for an Underground Mine

Description	Unit	Value
Ventilation air requirements per kW	m^3/s	0.06
Ventilation air requirements per kW	cfm	127.13
Ventilation air requirements per hp	m^3/s	0.05
Ventilation air requirements per hp	cfm	100.00
Minimum air velocity (haulage)	m/s	0.25
Maximum air velocity (haulage)	m/s	6.00
Maximum air velocity (Ventilation shaft)	m/s	12.00
Maximum air velocity (Hoisting shaft)	m/s	8.00

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Table 16.8 Madsen Gold Project Ventilation Requirements

Equipment Detail	Units	Qty	HP	kW	Utilization	Total HP	Total kW	m^3/s	cfm Required
Jumbo (2 boom)	ea.	2	99	74	10%	20	15	0.89	1,877
Production Drill	ea.	1	74	55	20%	15	11	0.66	1,403
Scoop 2.7m^3 (3.5 yd.)	ea.	4	183	136	50%	366	273	16.38	34,698
Construction Scoop 1.53m^3 (2 yd.)	ea.	1	96	72	50%	48	36	2.15	4,551
Truck 20t	ea.	3	300	224	70%	630	470	28.19	59,726
Grader	ea.	1	100	75	30%	30	22	1.34	2,844
Service Geology	ea.	1	128	95	30%	38	29	1.72	3,640
Personnel Carrier	ea.	2	150	112	50%	180	134	8.05	17,065
Mech. and Elect. Carrier	ea.	2	128	95	25%	64	48	2.86	6,067
Scissor Lift	ea.	3	150	112	25%	128	95	5.70	12,087
Supervisor/Engineering Vehicle	ea.	3	128	95	20%	77	57	3.44	7,281
Mech./Elect. Vehicle	ea.	1	128	95	25%	32	24	1.43	3,034
Total						**1,627**	**1,213**	**73**	**154,273**
Losses (Shaft / Level)	%	50						36	77,136
Total Ventilation Requirements								**109**	**231,409**

The data above were entered into an excel worksheet where the Ontario standard table (Table 16.7) was applied as parameters of where air is anticipated to flow in the mine and the volume required.

Table 16.8 lists the equipment required, rated horsepower and utilization to calculate the flow in cubic feet per minute required for the peak time in the mine. The losses were estimated to be 50% of the total flow when ventilation is flowing through the various areas.

There would be a staged approach to accomplish the objective of providing air to the active mining zones. The philosophy is to have the mine development done as quickly as possible to open all potential zones. This would allow flexibility in the potential mining horizons and reduce risk if challenges occur within a particular stoping area.

Stage 1 (Pre-production period), 2 x 100 hp fans would be set-up at the existing portal. This is a temporary set-up to allow the beginning of ramp rehabilitation and slashing of Level 2 to the existing shaft. While this is taking place, the main heating and ventilation system would be set-up over the shaft compartments. The Stage 1 ventilation system has been configured to provide air to the first 150 vertical meters of the mine by sending fresh air through 91.4 cm flexible vent ducting. This temporary set-up will be in place until Level 2 slashing is complete and the main shaft ventilation set-up is commissioned. This is estimated to take approximately 5 months to complete. Figure 16.3 shows Stage 1 ventilation.

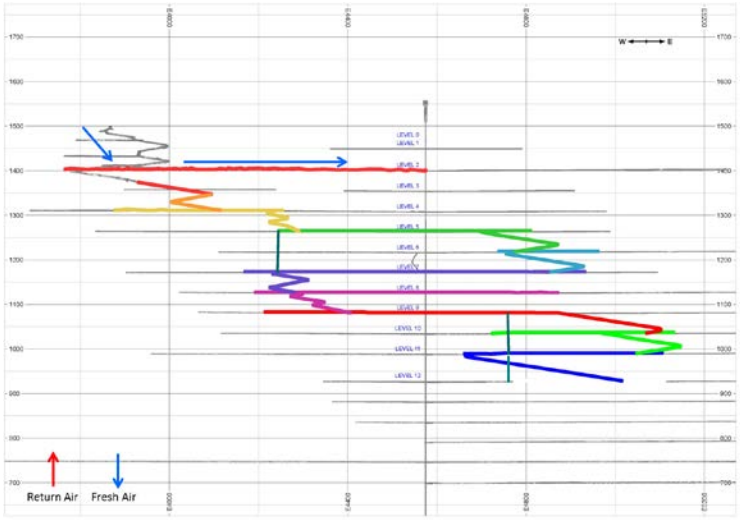

Figure 16.3 Stage 1 Ventilation

In Stage 2, the main surface set-up will be completed. This surface set-up would incorporate 4 x 200 hp. high-efficiency fans with a direct fire propane heating system (20 million BTU). The fresh air would be pushed via the shaft through slashed out Levels 2 and 5. Bulkheads would be installed where openings might exist along the slashed out fresh air drifts to prevent potential air losses. Another bulkhead would be installed as an air regulator at the end of Levels 2 and 5. Booster fans (75 to 100 hp) would be used to direct air volumes as needed to the different mining areas via various sizes of ventilation duct. The ramp would act as exhaust during this stage. Figure 16.4 shows Stage 2 ventilation.

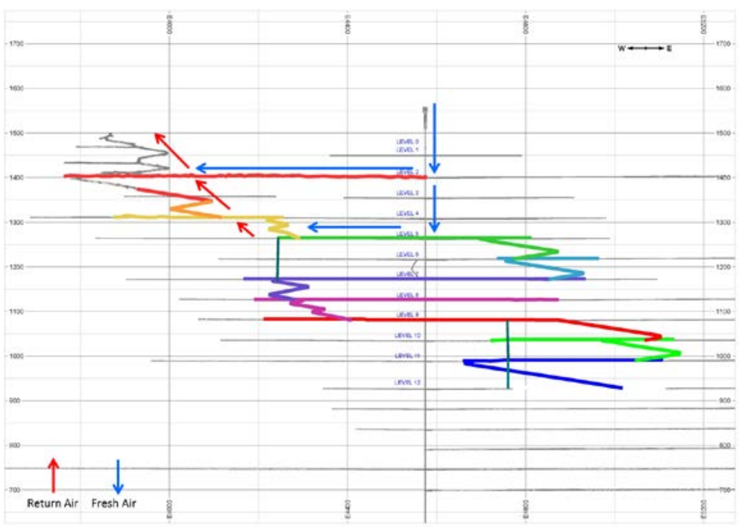

Figure 16.4 Stage 2 Ventilation

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Stage 3 would commence when the development and slashing are completed to Level 7. An Alimak raise would be completed from Level 7 to 5, with a bulkhead installed on the west side of the main shaft allowing fresh air to flow to the east on Level 7. On the west side of the mine, fresh air would come from Level 5 and down the raise. Exhaust will flow up the ramp sections on the East and West sides, eventually exhausting through the main portal. If required, low-pressure fans would be installed in the ramp just below the portal to assist air exhaust to surface. Figure 16.5 shows Stage 3 ventilation.

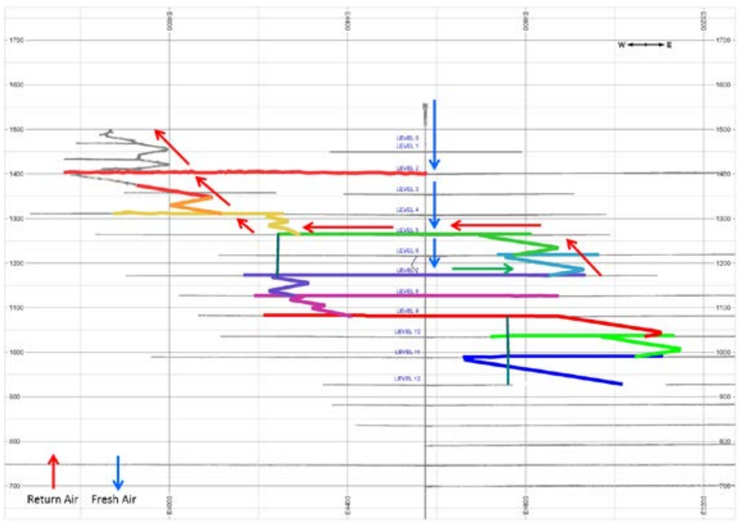

Figure 16.5 Stage 3 Ventilation

Stage 4 would commence when the development and slashing are completed to Level 11. The Alimak raise would be completed from Level 11 to 9, with a bulkhead installed on the east side of the main shaft allowing fresh air to flow east on Level 9. On the west side of the mine, fresh air would come from Level 5 and down the raise. Exhaust would flow up the ramp sections on the East and West. Figure 16.6 shows Stage 4 ventilation.

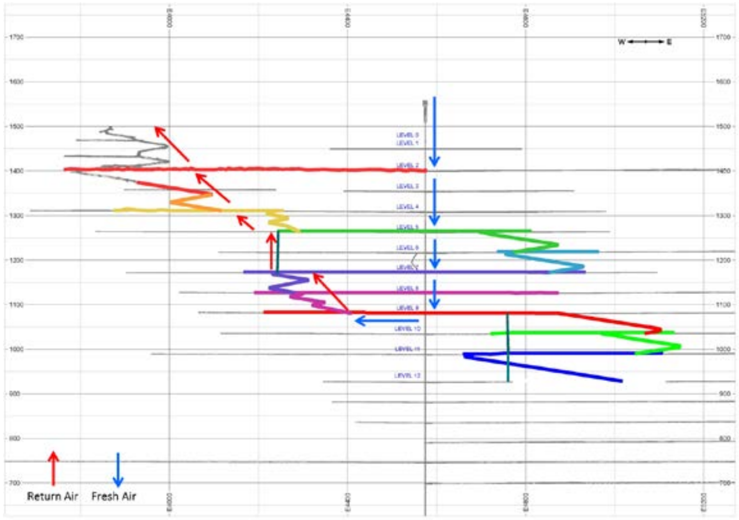

Figure 16.6 Stage 4 Ventilation

Stage 5 would be the final design as the main ramp development is completed. There would be continuous monitoring due to existing openings and raises that are not clearly identified that could impede or benefit the ventilation plan. The shaft would have escapeway access throughout the mine for emergency egress during any stage. The main airflow areas would be through levels 2, 5, 7, 9 and 11. Exhaust would flow up the ramp sections on the East and West part of the mine. There is an option to use the raise from Level 7 to 5 as exhaust due to the far west portion of the mine being completed as shown in Figure 16.7.

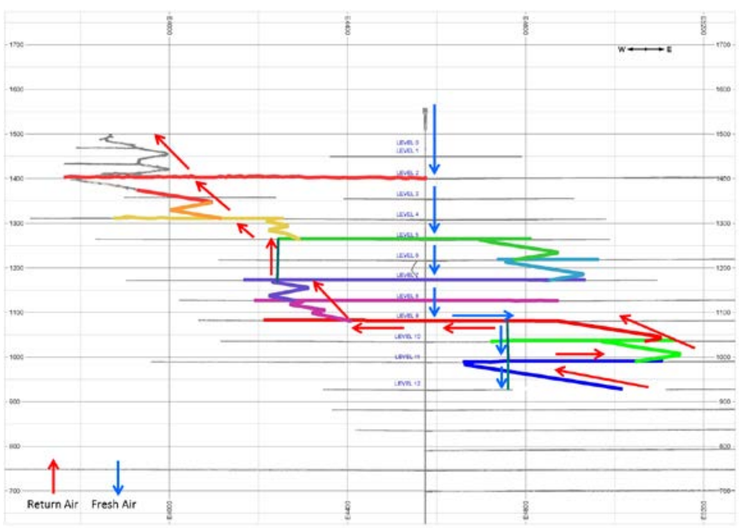

Figure 16.7 Stage 5 Ventilation

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16.6 Mining Method Selection

When selecting mining methods, the relevant characteristics of the Madsen Gold Project include potential mineralized zone width and pronounced level of variability in Au grade distribution. Potentially mineralized zones typically dip at 70°. Strike direction is uniform with some modest undulations on a stope mining scale.

Mineralized zone true width generally ranges from 5m to 30m (based on Block model cell size). On a small scale, the mineralized zone may be highly variable in width and geotechnical properties. Continuity of the mineralized zone itself is good based on historic mining results. Grade continuity appears to be good on a stope mining scale, although mining grades are variable across the mineralized zone on a large scale.

There is a high level of variability in gold grade distribution within the Madsen Gold Project. For this reason, mining methods were assessed independently for each stope. Mining production design particularly focused on the potentially mineable portions of the McVeigh Zone and upper sections of the Austin and South Austin Zones.

The predominant mining method planned is cut & fill with some limited applications for shrinkage stoping and longhole stoping. These options were chosen based on potential mineralization size, geometry of the mineralization and confidence level of the database. Table 16.9 shows a summary of the stopes planned for each mining method.

Table 16.9 Total Number of Stopes per Mining Method

Mining Method	Tonnes PMR	# Stopes
Cut & Fill	533,008	72
Longhole	139,370	6
Shrinkage	390,880	7
Total	**1,063,258**	**85**

Initially, 89 stopes were considered; however, four stopes have been removed due to their remote location and minimal size (tonnes of PMR).

16.6.1 Overall Stope Geometry

Stopes have been designed to encompass the width of the potentially mineralized zone. The current understanding of the mineralized zone indicates that only 4% of the stopes would need to be wider than 5 m. Cut and fill stopes that are wider than 5 m would require additional support while mining. For the three mining methods, dilution is estimated to be 5% for cut & fill, 15% for shrinkage and 20% for Long-hole. The mining recoveries for each method are stated as Recovery of (diluted) resource tonnes (RDT). The RDT values are expected to be in the range of 85% to 95% depending on the method. The mining losses could occur from inefficient drilling, hole deviation, blasting in stope corners and walls, difficult remote mucking in stope corners and edges, or abandoning a stope due to excessive dilution from wall failure. PMR would be mucked until the stope is empty or deemed uneconomical under geology control.

16.6.2 Cut & Fill Mining

The predominant mining method is Cut & Fill for the Madsen Gold Project. The majority (85%) of the potential mineralized zone would be mined using a cut and fill method. Individual stopes would be accessed by crosscuts that branch off from the existing and newly planned extensions of the footwall ramp. Most of the cut and fill stopes are independent of each other throughout the PMR. Drifts in the PMR would be 5.0m high and 5.0m wide and would follow the mineralized zone. These drifts would be bolted and screened with 1.8m long resin rebar on a 1.2mx1.2m pattern and #6 gauge screen. Once completed, the entire lift would be back filled with waste rock. A "*rammer jammer*" may be utilized to push the waste rock tight to the cut and fill drift back. Back fill would come from mined out lateral development. Figure 16.8 shows a typical access drift to the cut and fill drive.

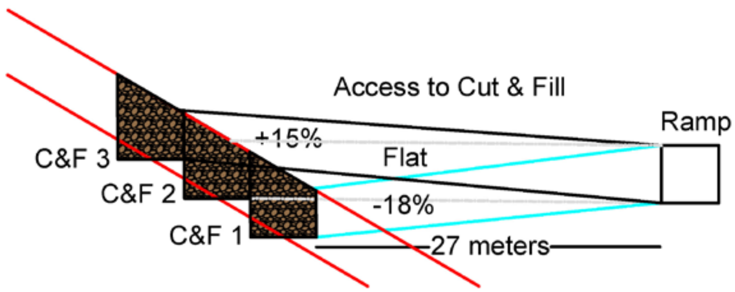

Figure 16.8 Typical Cut & Fill Section

Cut and Fill mining would be done from two horizons within the mine. Access drives into the cut and fill drift would be centrally located to allow for two mining faces in the cut and fill drift, one in each direction. A third horizon could be prepared to secure production if necessary.

Cut and fill dilution is expected to be approximately 5%. Selective mining and shotcrete pillar support would help control drift dilution if the span is greater than 5 m. Recovery of (diluted) PMR tonnes is expected to be 93% with cut and fill mining.

Access cross cut length is in the range of 15 to 35 m. The cross cuts are planned at dimensions of 4.0m high and 4.0m wide. A remuck has been planned at each intersection of a primary crosscut and the main access ramp. They are sized to allow a 2.7 m^3 LHD to load a 20 tonne underground truck. All muck generated from the stope would be transported to underground muck bays for truck loading to be hauled to surface for processing.

16.6.3 Shrinkage Mining

There are 7 potentially mineable shapes that contain an estimated 390,880 tonnes of PMR. These seven potentially mineable shapes are independent of each other. They all are captive potential shapes and require a longer period of production preparation before any PMR is realized. The estimated time per stope before consistent production is achieved is approximately 18 to 24 days. Increased diamond drilling around these shapes could convert them into longhole stopes as the mineralization is better defined.

Shrinkage stopes could extend 30m vertically above the existing level. These stopes are typically 3.0m to 5.0m wide and could extend to a length of 15 meters. In these areas, shrinkage mining is economic due to the cost of a footwall ramp or access drift being eliminated to reach the top sill. In addition, backfill is not anticipated due to the stope being captive and away from other potential mineable areas.

Mucking is undertaken after enough lifts have been mined. The broken material would be mucked out using 2.7m^3 LHD equipment. The broken material would be trammed to a nearby muck bay for loading into underground haul trucks (20 tonne). The muck would be removed in a manner that allows for a level working area in the stope (muck swell). After and/or during the mucking of each lift, additional support would be placed in the hanging wall and footwall of the stope.

The shrinkage mining dilution is estimated to be 15%. Lifts and round lengths would be under geological control to follow the contact. A ground support program of 1.8m long resin rebar on a 1.2m by 1.2m pattern would help control dilution. Recovery of (diluted) PMR tonnes is expected to be 87% for shrinkage mining.

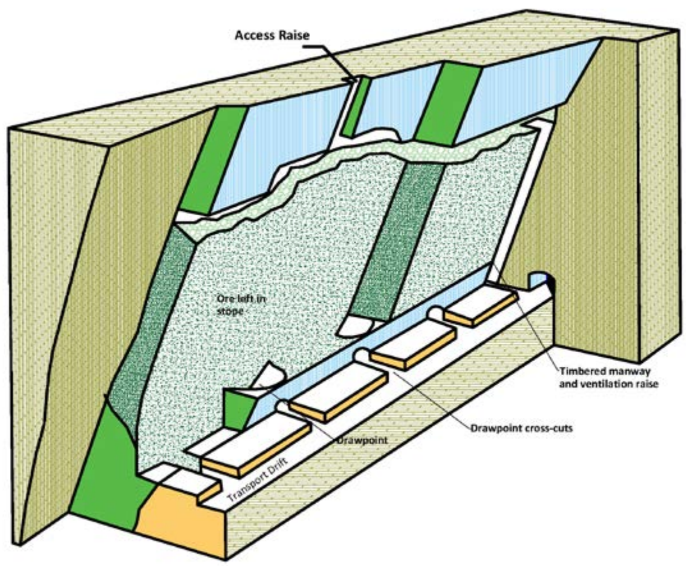

Figure 16.9 Shrinkage Mining Method

16.6.4 Longhole Mining

Longhole stoping requires an undercut and top sill drift to be developed for each stope. The undercut sill is the extraction level from which stopes are mucked out. The top sill is initially the drilling horizon. After a stope has been backfilled, the top sill could be used as a mucking horizon for the longhole stope directly above the backfilled stope.

Wherever economically feasible and safe, stopes would be silled out to the full stope width. The silling out of the stopes would allow better stope wall control by permitting the Longhole drill to drill parallel to the final planned wall. This would aid in mitigating blast damage and minimising dilution.

Mucking and backfilling activities would be accomplished utilizing remote controlled LHD units. The longhole stopes would be mined from the bottom up with primary stopes being filled with rock or cemented rock fill as required. Secondary stopes would be filled with waste rock.

The maximum extent of hanging wall, footwall and sidewall slough into the stopes would be controlled by the short sub level interval. Backfill dilution could also come from mucking off the waste filled stope below. Emphasis would be placed on mucking operation to minimize this dilution. Dilution is estimated to be 20% for longhole mining. Recovery of (diluted) resource tonnes (RDT) is expected to be 95%. The losses can occur from inefficient drilling or hole deviation, blasting in stope corners and walls, difficult remote mucking in stope corners and edges, or abandoning a stope due to excessive dilution from wall failure. PMR would be mucked until the stope is empty or deemed uneconomical under geology control.

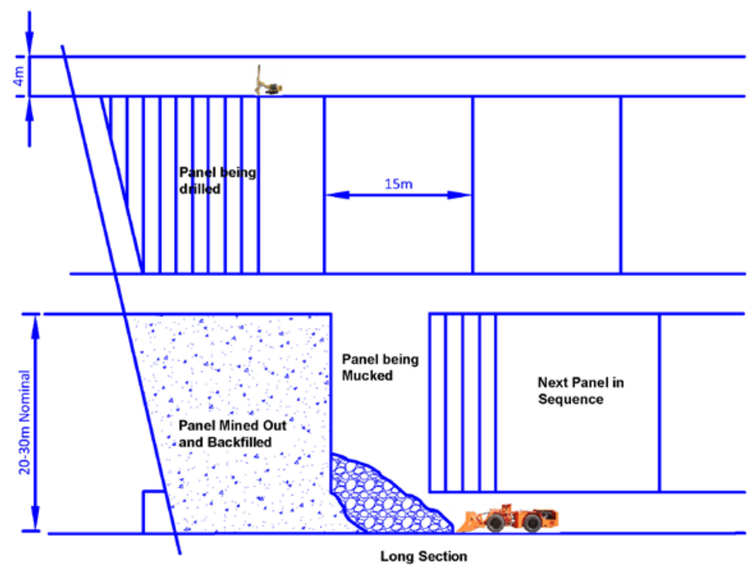

Figure 16.10 Longhole Stoping

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16.7 Backfill

16.7.1 Rock Fill

Waste rock would be used to fill longhole stopes that are not in close proximity to other stopes or to fill the bottom portion of a cut and fill lift. The waste rock would be produced by development blasting and may be stored underground where practicable. Otherwise, the waste rock would be stored on surface and back hauled by trucks to the areas where the rock is needed.

16.7.2 Cemented Rock Fill (CRF)

CRF would be used primarily in longhole stopes and for completing a lift in cut & fill mining. The process of creating CRF involves mixing waste rock with cement to create a coarse mixture where the waste rock is coated with cement and binds together.

When waste rock is available underground, a haul truck with an ejector box would be filled with waste rock. A cement mixture is pumped underground from the surface batch plant and sprayed on top of the rock in the box.

The majority of the waste rock stored on surface would be loaded into trucks and sent underground to be used as backfill.

16.8 Mine Equipment

All mobile mining equipment would be provided and maintained by the contractor. The underground mining fleet required to support a nominal mining rate of 550 t/d is outlined in Table 16.10.

Table 16.10 Underground Equipment List

Equipment Detail	Units	Qty
Jumbo (2 boom)	ea.	2
Production Drill	ea.	1
Scoop 2.7m^3 (3.5 yd.)	ea.	4
Construction Scoop 1.5m^3 (2 yd.)	ea.	1
Truck (20t)	ea.	3
Grader	ea.	1
Service Geology	ea.	1
Personnel Carrier	ea.	2
Mech. and Elect. Carrier	ea.	2
Scissor Lift	ea.	3
Supervisor/Engineering Vehicle	ea.	3
Mech./Elect. Vehicle	ea.	1
Total		**24**

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16.9 Mine Personnel

The mine will operate on two shifts 365 days per year. All personnel except technical staff would be employees of the selected contractor. Diamond drilling would be performed by a separate drilling contractor. Mining personnel requirements are summarized in Table 16.11.

Table 16.11 Mine Personnel

Personnel	#/day	#/night	Total	Schedule
Administration	2	0	2	Dayshift 5/2
Project manager	1	0	1	Dayshift 5/2
Engineering - Geology	4	2	12	day/night shift 14/14
Clerk/buyer	1	0	2	dayshift 14/14
Safety & Training Coordinator - contractor	1	0	2	dayshift 14/14
Security	1	1	3	day/night shift 14/7
Captain - contractor	1	0	2	dayshift 14/14
Supervisor - contractor	1	1	3	day/night shift 28/14
Sub Total			**27**	
Service - General				
Construction - Timber man - contractor	2	2	6	dayshift 28/14
Service personnel contractor	1	1	3	day/night shift 28/14
Sub Total			**9**	
U/G mechanical services and fixed equipment				
Master mechanic - contractor	1	0	2	dayshift 14/14
Mechanical - contractor	2	2	6	day/night shift 28/14
Machine doctor - contractor	1	0	1	dayshift 5/2
Sub Total			**9**	
U/G electrical services and fixed equipment				
Master electrician - contractor	1	0	2	dayshift 14/14
Electrician - contractor	1	1	3	day/night shift 28/14
Sub Total			**5**	
Underground Crews				
Dev Crew A - contractor				
Jumbo man	1	1	3	day/night shift 28/14
Miner	2	2	6	day/night shift 28/14
Mucker	1	1	3	day/night shift 28/14
Dev Crew B - (Dev. contractor)				
Jumbo man	1	1	3	day/night shift 28/14
Miner	2	2	6	day/night shift 28/14
Mucker	1	1	3	day/night shift 28/14
Truck Drivers	3	3	9	day/night shift 28/14

Personnel	#/day	#/night	Total	Schedule
Dev Crew C - (Prod. contractor)				
Miner	2	2	6	day/night shift 28/14
Mucker	1	1	3	day/night shift 28/14
Sub Total			**42**	
Production Crew - contractor				
Longhole Driller	1	1	3	day/night shift 28/14
Blasters	2	0	4	day/night shift 14/14
Muckers	1	1	3	day/night shift 28/14
Truck Drivers	3	3	9	day/night shift 28/14
Sub Total			**19**	
Other Crew - contractor				
Raise miners	2	2	6	day/night shift 28/14
Sub Total			**6**	
Total Mining			**117**	

There are an additional 27 personnel allocated to mill operations as per Table 17.2.

16.10 Life of Mine Plan

In order to create an accurate life-of-mine (LOM) schedule for the Madsen Gold Project, the period of ramp up to full planned production rate was scheduled in detail. Nordmin developed a schedule representing the mine tasks that must be completed during the pre-production period. Refer to Figure 16.11 for the major pre-production activities.

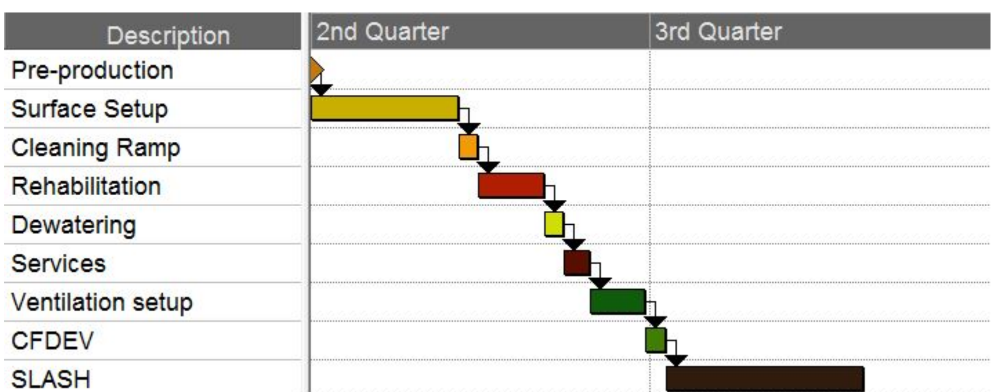

Figure 16.11 Pre-production Period (2nd and 3rd quarter of Year-1)

For the purpose of the mine plan, a 1 year pre-production period is assumed as the mill is being refurbished and commissioned.

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In creating the schedule (using EPS®), it is assumed that:

i. The planned lateral development advance rates generally do not exceed 5.5m single face per day and 14.4m multiple face per day.
ii. Initial mining would start in the Upper-West zone.

Nordmin prepared the LOM production schedule in EPS®. Refer to Table 16.12. Its purpose is to define the sequencing of each stoping block, respecting the dependencies among them, and to schedule the tonnage and grade mined for the life-of-mine.

A nominal production rate of 550 t/d would be expected from the entire Madsen mine.

Table 16.12 Production Schedule for Each Mining Method

Mining Method	Tonnes	Yr. -1	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5	Yr. 6
Cut & Fill	533,008	13,205	119,644	112,731	6,203	78,157	160,496	42,573
Longhole	139,370		33,548	85,165		7,150	13,507	
Shrinkage	390,880		43,860		191,491	113,017	17,816	24,695
Total Diluted Tonnes	1,063,258	13,205	197,052	197,896	197,694	198,324	191,819	67,268

The front end of this schedule was defined by the pre-production schedules. The schedules discussed above were based on continuous work, with two shifts per day, seven days per week.

Mine development and production were scheduled using EPS® (Version 2.24.49.0R) Development and production locations and rates were input based on the anticipated ramp-up schedule and coordinated with bidding contractors.

During pre-production, the main ramp would be developed to Level 4. At the same time, stope access drifts would be developed as areas become accessible. Development of the first few stopes is anticipated in the 4th quarter of the pre-production.

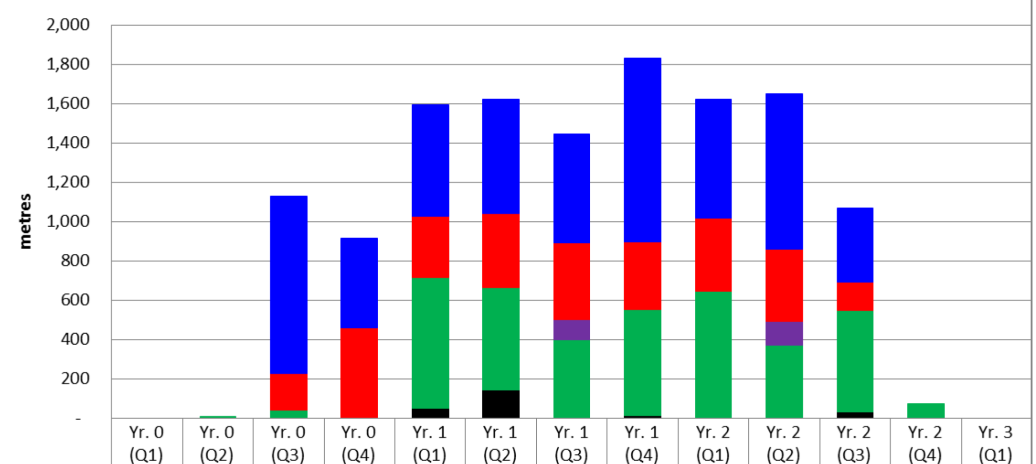
Production would start in Year 1, focusing on high-grade zones. Production would ramp up relatively quickly, allowing the processing of 550 tonnes per day.

16.10.1 Mine Development Schedule

Development designs and rates were entered into EPS®. Predecessors and successors were used to ensure that development was completed in a sequential manner. Table 16.13 shows typical development and advance rates. Figure 16.12 shows development schedule for the LOM.

Table 16.13 Development Rates

Single Heading	Rate
Ramp and lateral development Slashing	5.5m/d 184 m^3/day
Multiple Headings	
Cut and Fill development (2 crews D/S, 2 crews N/S)	14.4m/d (Production)
Cut and Fill backfilling	550t/d



	Yr. 0 (Q1)	Yr. 0 (Q2)	Yr. 0 (Q3)	Yr. 0 (Q4)	Yr. 1 (Q1)	Yr. 1 (Q2)	Yr. 1 (Q3)	Yr. 1 (Q4)	Yr. 2 (Q1)	Yr. 2 (Q2)	Yr. 2 (Q3)	Yr. 2 (Q4)	Yr. 3 (Q1)
Slash			900	454	565	581	554	937	604	789	376		
Ramp			190	460	312	377	393	346	373	370	148		
Ventilation Raise							101			122			
Access Dev. (waste)		8	39		667	520	399	538	644	368	513	70	
Access Dev. (ore)					49	145		13			32		

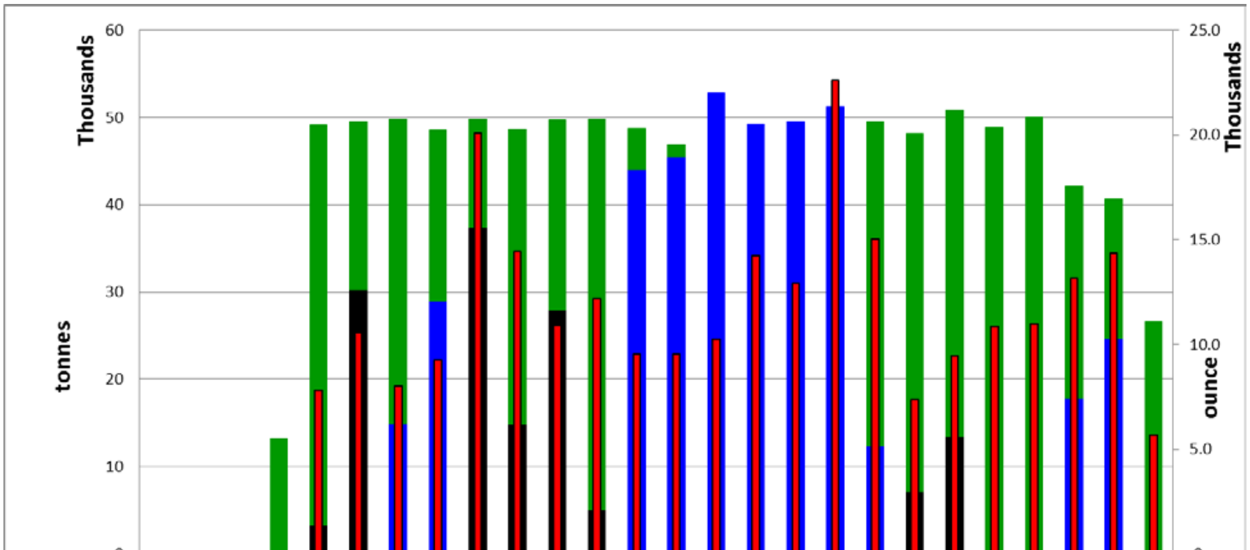
Figure 16.12 Development Schedule

16.10.2 Mine Production Schedule

Mine production was scheduled together with the development using EPS®. The ramps were prioritized to ensure that required development was completed before a mining location was scheduled. A total of 85 potential stopes were defined. Each stoping area was sequenced to mine from the bottom upward to represent the proper mining sequence.

Production rates were ramped up to 550 tonnes per day during the second quarter of year 1. A calendar of 365 days per year was applied, making the nominal annual production rate 200,000 tonnes per year.

Figure 16.13 below shows the yearly mine production. Stopes were ranked based on overall gold grade. Priorities were based on the ranking, providing higher-grade stopes increased priority over lower-grade stopes.



	Yr. 0 (Q1)	Yr. 0 (Q2)	Yr. 0 (Q3)	Yr. 0 (Q4)	Yr. 1 (Q1)	Yr. 1 (Q2)	Yr. 1 (Q3)	Yr. 1 (Q4)	Yr. 2 (Q1)	Yr. 2 (Q2)	Yr. 2 (Q3)	Yr. 2 (Q4)	Yr. 3 (Q1)	Yr. 3 (Q2)	Yr. 3 (Q3)	Yr. 3 (Q4)	Yr. 4 (Q1)	Yr. 4 (Q2)	Yr. 4 (Q3)	Yr. 4 (Q4)	Yr. 5 (Q1)	Yr. 5 (Q2)	Yr. 5 (Q3)	Yr. 5 (Q4)	Yr. 6 (Q1)	Yr. 6 (Q2)
Cut & Fill				13.2	45.8	19.3	34.9	19.6	12.4	33.8	21.8	44.7	4.8	1.5					37.2	41.0	37.4	48.9	50.0	24.3	16.0	26.6
Shrinkage							14.9	29.0					44.0	45.5	52.8	49.2	49.5	51.2	12.3					17.8	24.7	
Long hole					3.3	30.2			37.4	14.8	27.9	5.0								7.2	13.5					
Gold ounces					7.8	10.6	8.0	9.3	20.1	14.5	10.9	12.2	9.6	9.5	10.3	14.3	12.9	22.6	15.0	7.4	9.5	10.9	11.0	13.2	14.4	5.7

Figure 16.13 LOM Production

17. Recovery Methods

17.1 Conceptual Process Flowsheet Summary

PMR from the underground mining operations would be processed in an existing milling circuit that was previously in operation at the mine site in the late 1990's. The conceptual flowsheet for the mill process is presented in Figure 17.1.

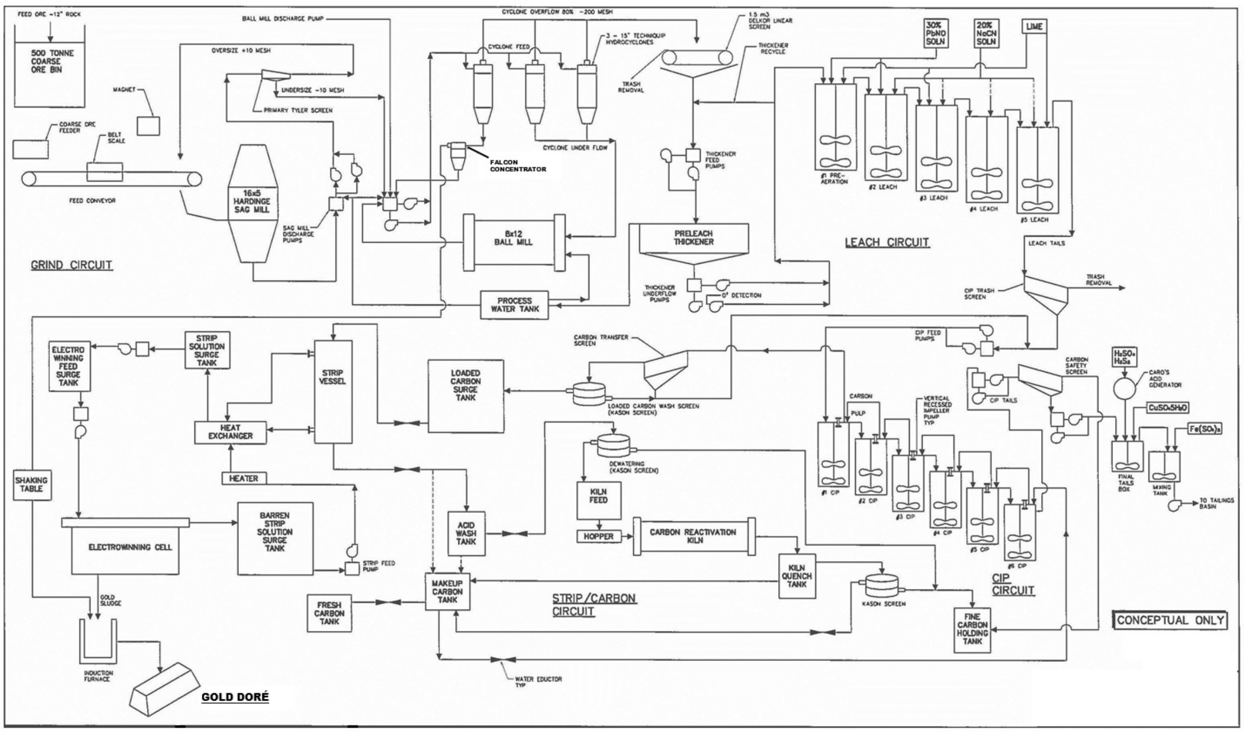


Figure 17.1 Mill Processing Flow Sheet

The PMR would be hauled from the McVeigh portal to a portable crusher unit near the headframe. The sized material would be delivered into the existing 500 tonne storage bin located in the existing headframe. The PMR from the 500 tonne storage bin would be transported to the SAG mill via the SAG mill feed conveyor.

PMR, typically with a maximum size of 15 cm will be reduced in the grinding circuit that consists of a primary SAG mill followed by a secondary Ball mill. PMR will be reduced from the top size of 15 cm down to 80% passing 100 microns in the grinding circuit. Provision has also been made to recover any coarse free gold from the mill feed through inclusion of a single Falcon concentrator in the underflow stream of one of the hydrocylcones in the grinding circuit.

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The ground feed is then pumped to a pre-leach thickener for water recovery prior to the cyanidation process. The cyclone overflow (ground feed) passes over a screen for wood and trash removal ahead of the gold recovery circuits. The slurry is thickened to about 50 percent solids in the pre-leach thickener and the water that is removed is recycled back into the grinding process. Thickened slurry is then pumped forward to the first tank in the cyanidation circuit.

The cyanidation circuit consists of a series of 5 agitated leach tanks with a residence time of about 10 hours per tank at a mill process rate of 550 tonnes per day. The first tank is a pre-aeration tank whereby air is injected into the tank to pacify any elements in the feed that are cyanide consuming species. The other four tanks are used to convert the gold from solid form into a gold derivative that exists in the solution phase of the slurry. Sodium Cyanide is used to facilitate the transformation while lime and lead nitrate are stage added into the leach tanks to facilitate the process.

The next step in the gold recovery process involves recovery of gold from the solution onto the surface of activated carbon particles. This step is completed in the CIP or Carbon in Pulp portion of the mill process. Slurry from the cyanidation tanks passes across a trash screen prior to being pumped to the CIP tanks. The CIP circuit consist of 6 agitated tanks with a residence time of about 1 hour for each tank at the anticipated mill feed rate. Gold is transported from the solution phase of the slurry onto the surface of activated carbon, contained in each of the CIP tanks. Carbon movement, in the CIP circuit, is counter flow to the slurry and so carbon is advanced from tank 6 to Tank 1 as opposed to the slurry, which moves from Tank 1 to Tank 6. Loaded carbon is removed from Tank #1 and is then advanced to the strip circuit for the next step in the gold recovery process. Slurry depleted of gold content, discharges from the last CIP tank (#6) and passes over a safety screen to capture any carbon that might escape from the CIP circuit. The CIP discharge is then pumped to the tailing storage area.

Gold would be recovered from the surface of the loaded carbon in the strip circuit. Loaded carbon is advanced from CIP into a 1 tonne strip vessel. Stripping is carried out under elevated temperature and pressure, on a batch basis, to remove gold from the surface of the carbon and bring it back into the solution phase. Loaded solution from the strip circuit is then advanced to the electrowinning circuit to recover the gold into a marketable form.

Gold is recovered, in the electrowinning cell, onto the surface of stainless steel wool cathodes using electrochemical principles. The gold would be washed from the surface of the steel wool into the bottom of the EW cell and is then recovered and dewatered and dried prior to being melted in the induction furnace.

Both the dried sludge from the electrowinning process and gravity product are melted at high temperature in the induction furnace to produce a high grade doré that can be sold directly for further upgrading to 99.9999 % gold. Typically gold bars from the site will contain mostly gold and the rest will be silver with other impurities.

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17.2 Process Description

17.2.1 Material Handling

The PMR from the 500 tonne storage bin would be transported to the SAG mill via the SAG mill feed conveyor, which runs from the existing shaft house to the existing mill building. The ore is discharged from the mine coarse ore bin using a coarse ore vibratory feeder which discharges the material onto the SAG mill feed conveyor. A weightometer is included on the SAG mill feed conveyor to measure the feed rate to the mill. Also included on the belt is a magnet to remove tramp steel from the mill feed and reduce the risk of damage to the feed conveyor.

17.2.2 Grinding and Thickening

Initial size reduction of the PMR is accomplished in a 4 meter diameter X 1.5 meter long SAG (semi-autogenous grinding) mill. The SAG mill is equipped with a 260 kW wound rotor induction motor. The SAG mill feed rate is 550 tonnes per day or 23 tonnes per hour. The SAG mill is a grate discharge mill with grate opening of about 1.3 cm. The SAG mill discharge is pumped across a 10 mesh sizing screen and any oversize reports back to the SAG mill. The – 10 mesh material reports to a pump box from which it is pumped to a set of 38 cm hydrocylcones. The cyclone underflow reports to a 2.4 m diameter by 3.6 m long overflow discharge ball mill equipped with a 340 kW motor. The ball mill discharge joins with the SAG mill undersize to feed the hydrocyclone bank. The cyclone overflow (final ground product at about 80% 100 microns sizing) is advanced to a 1.5 m^2 Delkor Linear Screen for trash (wood chip and plastic removal). The cyanidation feed is thickened to about 50 percent solids in the 15 meter diameter pre-leach thickener. Thickener overflow water is reclaimed and re-used in the grinding circuit. Thickened slurry is pumped to the #1 leach tank (pre-aeration) tank at approximately 55 % solids.

A Falcon concentrator, treats the cyclone underflow from one of the 38 cm cyclones, to facilitate the recovery of any free coarse gold from the mill feed. The Falcon concentrate reports to a concentrate surge tank which is then transported via pump to the refinery area. A gravity concentration table is used to further upgrade the Falcon Concentrate prior to processing in the induction furnace to produce bullion bars. The gravity concentrator tailing is returned to the cyclone feed pump box so that any gold remaining will be recovered and not lost to tailings.

17.2.3 Cyanidation/Carbon-in-Pulp

The #1 Leach tank is used as a pre-aeration tank to facilitate the passivation of any cyanide consuming species in the PMR prior to the addition of cyanide. Thickened slurry, from the pre-leach thickener, is pumped to the pre-aeration tank at about 55% solids. Lead nitrate and air injection passivate cyanide consuming species contained in the PMR. Control of pH to about 11 is facilitated by the addition of lime into the #1 cyanidation tank.

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At a processing rate of 550 tonnes per day the residence time in each of the 5 cyanidation tanks is about 10 hours per tank. Starting at the #2 leach tank, sodium cyanide is stage added to facilitate the dissolution of gold. In cyanidation, gold in solid form, is converted to a species that exists in the solution phase. This allows for the next step in the recovery process which involves recovering the gold from solution onto the surface of activated carbon. This process is accomplished in the CIP or Carbon-in Pulp portion of the process.

Leach Tailing passes over a carbon safety screen prior to being discharged into the #1 CIP tank. There are a total of 6 tanks in the CIP circuit with each tank having a slurry residence time of about 1 hour at the expected milling rate of 550 tonnes per day. Activated carbon is used to capture the gold from solution onto the surface of the activated carbon. Interstage screens in each of the CIP tanks allow for the carbon to remain captive while the slurry flows through the interstage screens by gravity. Carbon is advanced counter to the flow of the slurry and final exits from the # 1 CIP tank once fully loaded with gold. Slurry, depleted of gold, exits the # 6 CIP tank and reports across a carbon safety screen prior to being pumped to the tailing storage facility.

Loaded carbon is advanced from the #1 CIP tank to the carbon strip tank, the next step in the gold recovery process.

17.2.4 Elution/Carbon Regeneration

Loaded carbon, from the #1 CIP tank, is advanced to a 1 tonne carbon strip vessel to allow for the removal of gold from the surface of the carbon. The strip process is conducted on a batch basis with 1 tonne batches of loaded carbon being processed through the strip circuit every 24 hours. The strip process is conducted under elevated temperature and pressure. Loaded solution (the final product from stripping) is advanced to the gold room for gold recovery in the electrowinning cell.

Stripped or barren carbon is discharged from the strip vessel and is fed to a carbon re-activation kiln to burn off impurities from the surface of the carbon. The re-activation process restores the carbon activity prior to it being re-circulated back into the #6 CIP tank for re-use in the CIP process.

17.2.5 Electrowinning and Refinery

Gold is recovered from the loaded strip solution in an electrowinning cell equipped with stainless steel wool cathodes. Using electrochemical principles the gold from solution is deposited on the surface of the stainless steel wool. Once the loaded solution has been passed through the cell the gold is washed off the steel wool and then dried prior to being processed in the induction furnace. Both gold from the gravity circuit and electrowinning cell are melted in the induction furnace to produce bullion bars that are then sent to an external refiner for further upgrading.

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17.2.6 Cyanide Destruction

At this juncture it has not been confirmed if cyanide destruction will be required on this project. The assumption for this PEA is that the tailing will be pumped to the existing tailing storage. Residual cyanide and metals will dissipate in the liquid phase, by natural degradation, to levels that will allow for discharge to environment without further treatment. This item requires further confirmation and has been noted as an item requiring further modelling and or testing in the next phase of work.

17.2.7 Tailing Management

The TMF at the Madsen Gold Property site has been in operation since the late 1930's and has gone through several modifications. In the 1950's, containment structures were constructed using tailings in order to retain the tailings solids and provide retention before fluid effluent was discharged to the receiving waters. In 1997, two rock fill tailings dams were constructed in order to create a distinct tailings pond and a polishing pond. Subsequent to the 1997 construction period, modifications have been made to the tailings pond and polishing pond containment structures in order to address stability and flood routing issues. The existing TMF was designed to withstand a 100-year rain or snow event. The current available capacity is suspect for the tailings that are envisioned for this project. In section 26 there are recommendations around the TMF that should be strongly followed. There are three different reported numbers for the existing capacity and allowances have been made based on the Trow 2008 & 2010 reports. A summary of the plan for the TMF is outlined in Section 20 of the report.

17.2.8 Reagents

A number of consumables are required for the mill process and they represent a significant portion of the milling operations costs.

Grinding steel is required to reduce the ROM feed to final product size in the grinding circuit. The SAG and ball mills will require 4 and 2 inch steel grinding balls, respectively. The grinding steel will be delivered in bulk by transport truck and will be stored in grinding steel storage bins on site. From the storage bins the steel will be delivered by overhead crane and bucket to the respective mills.

Mill liners are a consumable item in both the SAG mill and Ball mill. Mill liners will be delivered to site by bulk transport and will be stored in the mill and used as required.

Sodium Cyanide (NaCN) is the principle reagent used for dissolution of gold in the cyanidation leach circuit. The sodium cyanide will be delivered in 1 tonne tote bags and will be mixed in the cyanide reagent mixing area of the existing mill.

Lime is used to modify the pH in the cyanidation circuit and to maintain the pH at about 11 in the leach tanks. Lime will be delivered in bulk by transport truck and will be transported into the onsite lime storage silo. From the silo the lime will augured into the mill building into the lime slaking area.

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Caustic is used in the pressure stripping process. It would be delivered to the site in drums and then mixed with water in a mix tank in the reagent mixing area. It would then be pumped to the barren strip solution tank on as required basis.

Lead Nitrate is used in the pre-aeration step of the cyanidation process. The main function of this reagent is to pacify components of the mill feed that are cyanide consuming and thus reduce the consumption of sodium cyanide. Lead nitrate would be delivered as a dry product, in drums, mixed with water to form a solution and then will be metered to the #1 leach tank.

Activated carbon is used to recover the gold from the solution phase in the CIP area. Activated carbon will be delivered to the mill in tote bags. The totes will be transported to the fresh carbon mix tank in the mill and the totes will be discharged into a hopper above the fresh carbon mix tank.

Hydrochloric acid is used to acid wash the carbon between carbon strips. It will be supplied in drums and will be pumped to the strip circuit from the acid storage tank located in the mill.

Reagent costs for the operation of the process facility are presented in Table 17.1.

Table 17.1 Mill Consumable Costs (Mill Rate: 550t/day or 16,775 tonnes per month)

Consumable Name	Consumption	Units	Unit Cost $/unit	Monthly $	Annual $	$ t/milled
Cyanide	1.00	kg/t	3.50	58,713	704,550	3.50
4 in. balls	0.8	kg/t	1.50	20,130	241,560	1.20
2 in. balls	0.6	kg/t	1.20	12,078	144,936	0.72
Mill liners	-	kg/t	-	7500	90,000	0.45
Lime	0.6	kg/t	0.20	2,013	24,156	0.12
Caustic	0.075	kg/t	0.55	692	8,304	0.04
Lead Nitrate	0.2	kg/t	2.50	8,388	100,650	0.50
Carbon	0.025	kg/t	2.50	1,048	12,581	0.06
Hydrochloric Acid	0.05	kg/t	3.50	2,936	35,228	0.18
Total				**113,497**	**1,361,964**	**6.77**

17.3 Utilities

Utilities required to operate the process plant include the following; power, process water, reclaim water and high and low pressure compressed air. There are no new utilities required beyond those already installed at the existing site. The existing mill has low pressure blowers for supplying air to the agitated cyanidation tanks. An air compressor is also available for suppling high pressure air for maintenance tools and instrumentation where required.

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The electricity in the existing mill building is fed from the power grid in the area and all necessary electrical equipment is also installed. All electrical equipment will require testing for serviceability as a next step in the process. The capital estimate for the mill includes an allowance for replacement and repair of electrical gear as required.

17.4 Design Criteria

Metallurgical testing has not been completed to establish the design criteria for this PEA study. The assumptions that have been made regarding reagent consumption and mill recovery have been derived from actual operating data from the plant. The existing mill was initially installed at the Dona Lake Mine in late 1989 – early 1990. It operated there for about 5 years before the Dona Lake Mine was closed. Claude Resources eventually purchased the mill and moved it from Pickle Lake to the Madsen site. The mill operated at the Madsen ore from the Madsen deposit from 1997 through 1999.

During the operating period noted, the mill was routinely able to achieve the 550 tonne throughput that has been assumed as the milling rate in this study. Mill recoveries ranged from 90 to 94 percent so it is possible with further work the recovery level could be established at a higher number but the 92 percent assumed in this study was routinely achieved during operation. Ore from the McVeigh deposit made up a portion of the mill feed during the period noted. The fact that the relatively low recoveries achieved during the 1990s are attributable to fluctuations in tonnage of daily feed available and the feed came from various deposits. This accounted for feed grades consistently lower than plan during this period. When consistent feed came from the McVeigh zone the historical data shown results higher than 92% recoveries.

17.5 Operating Costs

The main components of the mill operating costs are as follows;

i. Power
ii. Consumables
iii. Manpower
iv. Supplies

The mill operating cost has been generated using the following assumptions;

i. The electricity consumption is based on an overall power consumption of 30.0 kWhr per tonne of ore milled. The assumed power cost is $0.08 per kWhr.
ii. Consumable costs are based on the reagent schedule which is presented in Table 17.1.
iii. Manpower costs are estimated based on the manpower schedule which is shown in Table 17.2.
iv. Overall Mill operating cost is shown in
v. Table 17.3.

The overall mill operating cost is estimated at $31.00 per tonne.

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Table 17.2 Mill Manpower Costs, $15.27/tonne (total tonne 200,750)

	Number	Total $/yr.	Total $/mo.
Mill Administration			
Mill Superintendent	1	218,750	18,229
Maintenance Foreman	1	231,000	19,250
Electrical Foreman	0	-	-
Metallurgist / Supervisor	1	165,000	13,750
Assayer + Enviro Tech.	3	354,750	29,563
Clerk	1	98,400	8,200
Operations			
Lead Hand / Concentrator Operators	4	422,256	35,188
Crusher Operators / Loader	8	738,949	61,579
Leach/CIP Operator	4	369,474	30,790
Maintenance			
Millwrights	2	232,951	19,413
Electricians	2	232,951	19,413
Total	**27**	**3,064,484**	**255,374**

Table 17.3 Overall Mill Costs

Cost Center	$ Month	$ Year	$ t/milled
Reagents	113,497	1,361,964	6.77
Manpower	255,374	3,064,484	15.27
Power	39,600	475,200	2.36
Supplies*	60,900	730,800	3.63
Sub-Total	**469,371**	**5,632,448**	**28.02**
Contingency 5%	23,469	281,622	1.40
Total	**492,840**	**5,914,070**	**29.42**
Refining charge (selling cost) ($5.00/oz. x 15%)			**31.00**

**The supply estimate includes costs for safety, operations and maintenance supplies and an allowance for assaying costs.*

17.6 Capital Costs

The existing mill has been shut down since 1999 so it is reasonable to assume that there will be costs associated with refurbishment and restart. Care was taken when shutting the mill down in 1999 which could reduce the amount of expense to get it operational again. All the equipment was drained and thoroughly cleaned during the decommission process.

The capital costs to get the mill operational again are presented in Table 17.4 and Table 17.5. The estimated capital cost to bring the mill back on line again is $2,158,000. This capital estimate is based on a combination of estimates done in an earlier internal report for Claude Resources done by Stantec, and more recently by Nordmin Engineering in 2016. The 2300 Volt motors for the SAG and Ball mill drives would need to be rewound or replaced if the existing 2300 Volt site power supply and distribution is upgraded to 4160 Volts.

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Table 17.4 Mill Capital Estimate:

Mill Area	Item Description	Man Days	Rate ($/day)	Labour ($)	Materials ($)	Transport ($)	Total ($)	Comments
Grinding	Clean and Dress Mill Gears	10	1,086	10,860	-	-	10,860	Clean and Inspect both the SAG Mill and Ball Mill Gear and Pinion
	Spare Pinion - SAG Mill	-	1,000	-	40,000	3,000	43,000	Purchase a Spare SAG Mill Pinion
	Inspect Motors	5	1,086	5,430	20,000	5,000	30,430	Inspect All Electric Motors in Grinding Area- Replace 30 %
	Install Mill Liners	10	1,086	10,860	30,000	5,000	45,860	Install Mill Liners - Purchase Some Liners New
	Realign Mills	10	1,086	10,860	-	-	10,860	Take Mills Off Jacks and Realign Mill and Drive Components
	Assemble Mill Pumps	2	1,086	2,172	6,000	1,000	9,172	Reassemble Grind Area Pumps - Includes Cost for New Wear Parts/Hardware
	Delkor Screen	4	1,086	4,344	8,000	1,500	13,844	Purchase New Roller Bearings- New Cloth
	Piping	5	1,086	5,430	5,000	1,500	11,930	Inspect-Replace Piping - Pipe Insulation
	Sub-Total			49,956	109,000	17,000	175,956	
Leach	Inspect Motors	5	1,086	5,430	15,000	2,500	22,930	Inspect All Electric Motors in Leach Area- Replace 30 %
	Assemble Pumps	2	1,086	2,172	6,000	1,000	9,172	Reassemble Leach Area Pumps - Includes Cost for New Wear Parts/Hardware
	Inspect Commission-Mech.	7	1,086	7,602	15,000	2,500	25,102	Inspect Mechanical Equip- Allowance to Replace Gear Box
	Inspect Commission-Electrical	7	1,086	7,602	15,000	2,500	25,102	Inspect Electrical Equip - Allowance to Replace Some Motor Starters
	Sub-Total			22,806	51,000	8,500	82,306	
CIP	Inspect Motors	5	1,086	5,430	15,000	2,500	22,930	Inspect All Electric Motors in CIP Area- Replace 30 %
	Assemble Pumps	2	1,086	2,172	6,000	1,000	9,172	Reassemble CIP Area Pumps - Includes Cost for New Wear Parts/Hardware
	Inspect Commission-Mech.	5	1,086	5,430	20,000	3,500	28,930	Inspect Mechanical Equip- Allowance to Replace 2 Gear Boxes-Observed Missing
	Inspect Commission-Electrical	5	1,086	5,430	10,000	2,000	17,430	Inspect Electrical Equip - Allowance to Replace Some Motor Starters
	Sub-Total			18,462	51,000	9,000	78,462	
Stripping	Inspect Motors	5	1,086	5,430	5,000	2,500	12,930	Inspect All Electric Motors in Strip Area- Replace 30 %
	Assemble Pumps	2	1,086	2,172	6,000	1,000	9,172	Reassemble CIP Area Pumps - Includes Cost for New Wear Parts/Hardware
	Inspect Commission-	3	1,086	3,258	5,000	1,000	9,258	Inspect Mechanical Equip- Allowance to Replace Trash Screens

	Mech.							
	Inspect Commission-Electrical	3	1,086	3,258	2,500	1,000	6,758	Inspect Electrical Equip - Allowance to Replace Some Motor Starters
	Sub-Total			14,118	18,500	5,500	38,118	
Refinery	Inspect Motors	2	1,086	2,172	2,000	1,000	5,172	Inspect All Electric Motors in Refinery- Replace 30 %
	Assemble Pumps	2	1,086	2,172	6,000	1,000	9,172	Reassemble Refinery Area Pumps - Includes Cost for New Wear Parts/Hardware
	Inspect Commission-Mech.	2	1,086	2,172	10,000	2,000	14,172	Inspect Mechanical Equip- Allowance to replace some mechanical equipment
	Inspect Commission-Electrical	5	1,086	5,430	5,000	1,000	11,430	Inspect Electrical Equip - Allowance to Replace Some Motor Starters
	Sub-Total			11,946	23,000	5,000	39,946	
General	Inspect Motors	2	1,086	2,172	2,000	1,000	5,172	Inspect All Electric Motors in General Services Area- Replace 30 %
	Assemble Pumps	2	1,000	2,000	6,000	1,000	9,000	Reassemble General Services Area Pumps - Includes Cost for New Wear Parts/Hardware
	Inspect Commission-Mech.	5	1,000	5,000	10,000	2,000	17,000	Inspect Mechanical Equip- Allowance to replace some mechanical equipment
	Inspect Commission-Electrical	5	1,000	5,000	5,000	1,000	11,000	Inspect Electrical Equip - Allowance to Replace Some Motor Starters
	Sub-Total			14,172	23,000	5,000	42,172	
Mill	Total			131,460	275,500	50,000	456,960	

Table 17.5 Summary Mill Capital Estimate: Source

Source	Amount ($)	Contingency %	Contingency ($)	Total ($)
Report 2013 & Nordmin 2016	456,960	15	68,544	525,504
Cost Controls - Nordmin	325,000	15	48,750	373,750
Electrical-Nordmin	500,000	15	75,000	575,000
Assay Lab-Nordmin	350,000	15	52,500	402,500
Total	1,631,960			1,876,754
Contingency		15	281,513	
Grand Total				**2,158,267**

In the summary of the refurbishment plans in Table 17.5, a contingency of 15% has been applied to each of the individual cost areas to allow for uncertainty in the estimating for each. A contingency of 15 % has also been applied in the capital cost portion to the total costs associated with each of the areas to allow for any unexpected items that have not been considered in the estimates for each of the individual cost areas.

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18. Project Infrastructure

The Madsen Gold Project is a past producing mine and has existing surface infrastructure that can be utilized for the proposed mine. The surface infrastructure is easily accessible since it has year round road access to the town of Madsen situated approximately 10 km from the town of Red Lake, Ontario.

18.1 Headframe

There is a concrete headframe that was used for prior underground mining operations at the site. The headframe serviced a 1,275 meter deep, 5 compartment shaft and has an existing friction hoist mounted at the top. The shaft will be used primarily as a fresh air raise for the current Madsen Gold Project. New main ventilation fans and heaters will be installed in the existing headframe. These fans will provide ventilation to the mine workings from surface to a depth of 600 meters (Level 12). There is no planned rehabilitation of the headframe. The shaft manway would require inspection and possible rehabilitation as this would be the second means of egress for the mine. It is assumed all other shaft infrastructure would remain untouched.

18.2 Processing Plant (Mill)

The mill was purchased from Placer Dome (originally located at the Dona Lake Mine), and was reconstructed on site in the late 1990’s. The mill was in operation at the Madsen site from 1997 to 1999, at which time it was placed on care and maintenance. The mill consists of a single stage crushing circuit, a two stage grinding circuit and cyanide leaching. The mill refurbishing is based on a site inspection and estimate in 2013 and a recent site visit in early 2016. The detailed list of upgrades and refurbishing activities with costs is described in section 17. There has been monetary allowance allocated for electrical start up, as the equipment would need to be energized before a true assessment could be provided. Modernization of controls and instrumentation would be required for the reagent and grinding circuits. The 2300 Volt motors for the SAG and Ball mill drives would need to be rewound or replaced if the existing 2300 Volt site power supply and distribution is upgraded to 4160 Volts.

18.3 Tailings Management Facility (TMF)

The TMF at the Madsen Gold Project site has been in operation since the late 1930’s and has gone through several modifications. In the 1950’s, containment structures were constructed using tailings in order to retain the tailings solids and provide retention before fluid effluent was discharged to the receiving waters. In 1997, two rockfill tailings dams were constructed in order to create a distinct tailings pond and a polishing pond. Subsequent to the 1997 construction period, modifications were made to the tailings pond and polishing pond containment structures in order to address stability and flood routing issues. The existing TMF was designed to withstand a 100-year rain or snow event.

The current available capacity is questionable for the tailings that are envisioned for this project. There are 3 separate reported numbers for the existing capacity and allowances have been made based on the Trow 2008 and 2010 reports. A summary of the plan for the TMF is outlined in Section 20 of the report.

18.4 Maintenance Shop and Warehouse

The maintenance shop will be a steel building 12m x 30m in dimension and will service the underground and surface equipment. The warehouse will be a separate building with dimensions of 10m x 15m.

18.5 Mine Office and Dry

The mine offices would consist of a complex of four trailers for the mine and one trailer for the mill. All four mine office units will be located near the McVeigh Portal, two units for Pure Gold employees and two units supplied by the Contractor. The mill office unit will be located at the mill. The site dry complex will consist of modules which will be put together as one unit to sufficiently accommodate approximately 160 personnel, with an 8 person female section. Space will be allocated for mine rescue and first aid. This dry complex will be located close to the existing Mill where water and septic services are available.

18.6 Sewage Treatment Facility

A small sewage treatment facility would be required to service the entire mine site. There is an existing septic system near the existing Mill that would need to be recommissioned.

18.7 Electrical and Communications

18.7.1 Mine Site Power

Electrical grid power will provide the power to the project over the life of the mine. The existing site 2300 Volt power distribution switchgear is currently serviced by 44 kV power supplied by a Hydro One Distribution owned 44kV/2300 Volt transformer station. Increased operational power requirements are expected to be available from the 44kV supply network and power distribution for the mine site provided by a new or modified transformer station and refurbished power distribution system

18.7.2 Communications

Communication lines would be installed on the electrical pole line from the main road to the mine site. A radio system would be installed to establish mine site surface and underground communication. Typical landline telephones will be used for contact on and off site.

18.7.3 Propane

Propane storage tanks of a suitable size would be located close to the headframe area. Propane units would be used for the mine air heating system located just outside the headframe.

18.7.4 Fuel Storage

The fuel storage facility would consist of one double walled 45,000 litre capacity reservoir for diesel and one 5,000 litre reservoir for gasoline. A service fuel truck would deliver fuel underground to some mobile equipment where applicable.

18.8 Process Water

Underground Process water would be drawn directly from the nearby Beaver Dam Lake. The water flow breakdown is shown in Table 18.1.

Table 18.1 Process Water

Description	Flow
Mill	20 m^3/h
Mine	8 m^3/h
Office/Dry	1 m^3/h
Total	29 m^3/h

18.9 Compressed Air

There would be two compressed air systems at the McVeigh Portal used to provide air at 0.71m^3/s (1,500 cfm) and 7.58 bar (110 psi) to the underground workings and surface shop. These units will feed the underground areas via a 101 mm (4 inch) steel pipe to the ramp, and the surface maintenance shops via a 50mm (2 inch) steel line. The existing compressor at the Mill will provide compressed air for the process plant. A spare diesel compressor would also be on site as back up in the case of power outage.

18.10 Backfill Plant

The main cement slurry plant would be installed on surface and be located between the waste stockpile and the McVeigh Portal. The cement slurry would be distributed underground to specific backfill distribution areas.

18.11 Explosives and Detonators Storage

A 20,000 kg capacity explosive magazine and a detonator magazine would be installed on surface for the pre-production phase until construction of the underground storage magazines in specific underground openings is completed. The surface explosive magazines would be constructed according to the Ontario Health and Safety Act, and be heated during the winter months.

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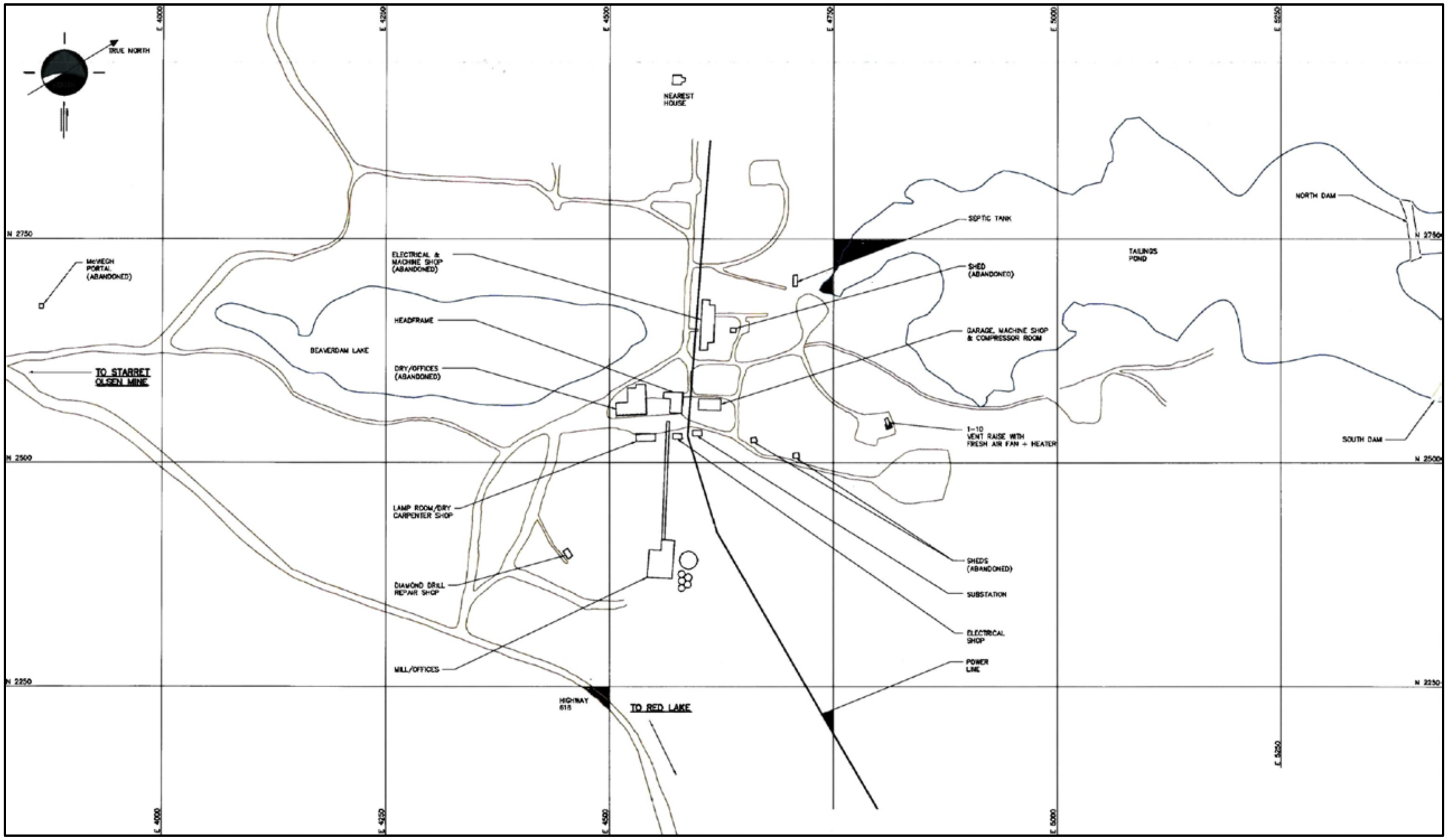

Figure 18.1 Conceptual Mine Site Layout

19. Market Studies and Contracts

Gold will be the only concentrate produced at the Madsen Gold Project. While a specific marketing study was not undertaken, gold is freely traded, at prices that are publicly known and the prospect for the sale of any gold production is virtually guaranteed. The price of gold is usually quoted in U.S. dollars per troy ounce. Figure 19.1 represents the gold price and the American dollar to the Canadian dollar exchange rate over the past 5 years. For the basis of this PEA, a gold price of $USD 1,175 per ounce and an exchange rate of $US 1 = $CAD 1.25 was used.

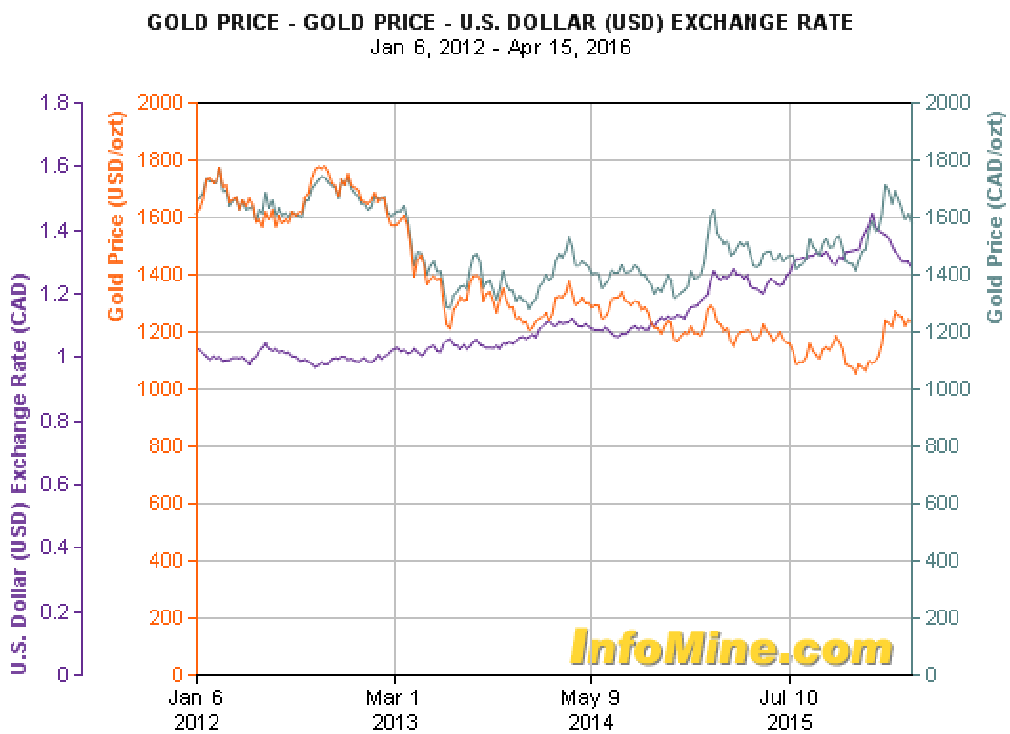

Figure 19.1 5 Year Gold Price Charts

Doré bars would be produced from the induction furnace as part of the existing milling process at the Madsen Gold Project. The doré would be transported via a contracted security company from the mill in Red Lake to a contracted refinery. An agreement would be required with a refinery to sell doré and produce gold bullion. A cost of $5/oz. was used in the economic analysis associated with doré transportation, insurance and refining.

It is expected the services of outside consultants knowledgeable in the areas of marketing, finance and law as well as logistics and contract management would be employed to guide the company in the process of selling the gold produced at the Madsen Gold Project.

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20. Environmental Studies, Permitting and Social Impact

20.1 Environmental Management

Environmental aspects of the Madsen Gold Project are managed by Pure Gold with support from DST Engineering of Kenora, Ontario. The current environmental monitoring program is summarized in Table 20.2 below excerpted from the 'Pure Gold Operations Manual during Temporary Suspension' dated May 26, 2016 that was developed based on MOECC requirements. Table 20.2 outlines the Madsen Gold Project TMF in an overview image that provides information on the TMF size, location, sample points and direction of flow.

Table 20.1 Environmental

Table 20.2 Environmental	Weekly-Not Discharging					Weekly- Discharging					Monthly-Discharging				
Station Code	**S1**	**S2**	**S3**	**S4**	**S5**	**S1**	**S2**	**S3**	**S4**	**S5**	**S1**	**S2**	**S3**	**S4**	**S5**
Water Temp. (^{o}C)		•				•	•						•		
Flow		•			•	•	•			•(3x)					
Arsenic		•				•	•						•		
Copper		•				•	•						•		
Iron		•				•	•						•		
Lead		•				•	•						•		
Nickel		•				•	•						•		
Zinc		•				•	•						•		
pH		•				•	•						•		
Total Ammonia						•							•		
Cyanide													•		
WAD Cyanide													•		
Alkalinity													•		
Hardness													•		
Calcium													•		
Magnesium													•		
Sodium													•		
Potassium													•		
Sulphate													•		
Chloride													•		
Bicarbonate													•		
Total Suspended Solids		•				•	•						•		
Turbidity													•		
Conductivity													•		
Mercury													•		
Oil and Grease											•				

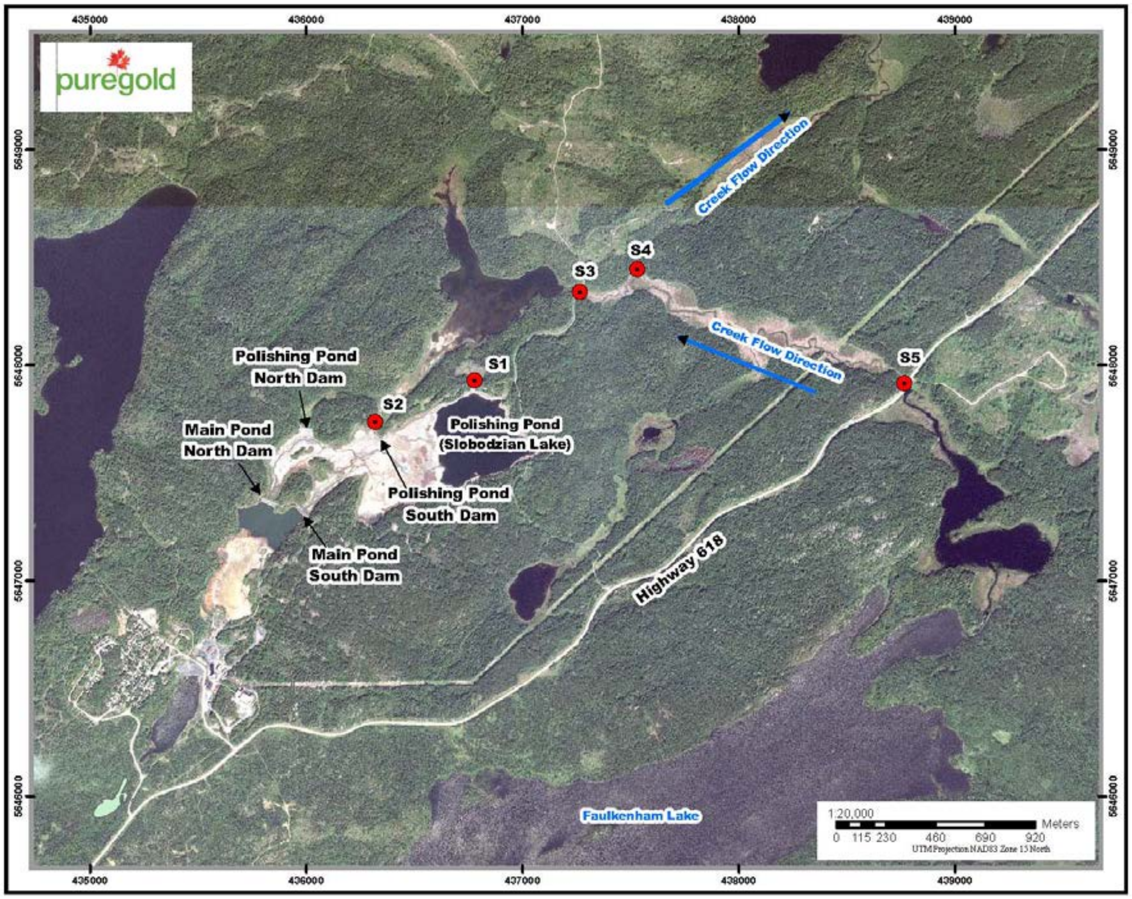

Figure 20.1 Madsen Gold Project TMF

As required by the Certificate of Approval (CoA) from the Ministry of the Environment and Climate Change (MOECC), the quantity of effluent that can be discharged from the polishing pond is dependent upon two conditions. The first condition is the copper concentration of the polish effluent, as determined by the two most recent copper results from weekly samples. The second condition is the flow rate of Upper Coin Creek, as determined by the water flow at the Coin Creek culvert at Highway 618.

Annual reports are submitted to the MOECC under the current CoA. To date, all discharged effluent is in compliance with Municipal/Industrial Strategy for Abatement (MISA), Ontario Regulation 560/94 Metal Mining Sector limits as specified in the CoA. Receiving water monitoring conducted in accordance with the CoA also demonstrates compliance with Provincial Water Quality Objectives (PWQO) for the majority of parameters, with occasional exceedances for iron and copper. However, these exceedances do not appear to be directly related to the current polishing pond discharge and are more likely a result of natural conditions or from historical waste rock and tailings disposal.

Current Madsen Permits:

Certificate of Approval for Industrial Sewage Works (# 4-0012-97-006)

- Ontario Water Resources Act, Ministry of Environment;
- Permit issued May 2, 1997;
- Provincial Officers Order dated April 22, 2016 outlines reduced sampling requirements.

Permit to take Water (# 6718-6XGRDW)

- Allows for taking up to 6,546,240 litres per day;
- Ontario Ministry of the Environment;
- Permit issued January 15, 2007, expires January 15, 2017.

Mine Closure Plan

- Ontario Ministry of Northern Development and Mines;
- Plan originally submitted May 24, 1995;
- Updated closure plan filed by Pure Gold and accepted by MNDM in 2014.

Various Permits to Begin Mining (requires an update)

- Ontario Ministry of Northern Development and Mines;
- Notice of Project Status received and acknowledged by MNDM on April 24, 2007;
- Allows for dewatering to 2900 feet (the 19th level).

Other environmental permits discussed include:

i. Environmental Compliance Approval (Air) required and issued under Section 9 of the *Environmental Protection Act*;
ii. Electricity transmission under Ontario Regulation 116/01;
iii. Mould and Designated Substances.

20.2 Permits and Authorizations

Pure Gold holds all permits and certifications as listed above from governmental agencies for the Madsen gold project so as to allow for surface core drilling, underground core drilling, mine dewatering, discharge from the polishing pond to the environment, mine rehabilitation, and moderate amounts of excavation. Some of these existing permits would require updates if Pure Gold advances the project.

20.2.1 Environmental and Social Conditions

An analysis of the hydrology of the Madsen Project was completed by Trow Associates in 2009. Water flow through the project area is generally in a north to northeasterly direction passing through several wetlands, creeks, and lakes and ultimately into St. Paul's Bay of Red Lake.

The property is located in the October 1873 Treaty #3 area. Signatories to the treaty currently engaged by Pure Gold include Treaty #3 Grand Council, Wabauskang First Nation, Lac Seul First Nation, Wabaseemoong First Nation, Grassy Narrows First Nation, Naotkamegwanning First Nation, and the Métis Nation of Ontario.

Historical mining on the property has resulted in remnants on surface from past underground mining, ore processing, waste rock disposal, and tailings disposal. As was normal practice at the time, early mine operations on the Madsen gold project disposed of tailings directly into the receiving waters without a containment system. As practices changed, an embankment was constructed on old tailings south of Derlak Lake to contain tailings in the 1940s and 1950s. Another containment dam was constructed further upstream in 1997 and was used to contain tailings from ore processing of approximately 300 tonnes per day from 1997 to 1999. A total of 150,000 tonnes of tailings were deposited in this upper impoundment; there is space for storage of an additional approximately one million tonnes within the existing dam.

Impounded water within the containment dams is now considered the polishing pond and is the last point of control before the approved discharge. Water can be discharged from the polishing pond by a high-capacity pumping system dependent on the copper concentration and flow at the Coin Creek culvert. The pumping system replaced a siphon system that had a limited capacity and was not sufficient to deal with significant flooding events. The pump was installed to increase the discharge rate when allowed in order to reduce the polishing pond water level and subsequently reduce seepages.

Snib Lake is considered to be the first fish habitat downstream of the discharge point. The fish have not been tested for metals levels or other contaminants.

Since 1977, the community of Madsen has operated a two-compartment septic system from which grey water and sewage decants into the Madsen tailings facility. This plant discharges an average of 50 cubic metres of sewage per day into the tailings facility at the southwest corner. This sewage facility was authorized by the provincial government without the consent of Madsen Gold Corp. A legal settlement included a requirement for fencing and a comfort letter assuring Madsen Gold Corp. that it would hold no future liability with respect to the sewage outflow.

Northern Water Works operates the sewage facility on behalf of the municipality.

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20.2.2 Environmental Management

Environmental aspects of the Madsen mine are managed by Pure Gold. The existing environmental monitoring program is summarized in Table 20.3. Monitored discharges take place on an annual basis during ice free months. At the request of Pure Gold, monitoring requirements were reviewed and a Provincial Order was issued in April 2016 reducing sampling requirements during these annual discharge periods while the project remains in a state of temporary suspension.

The order documents the sampling requirements as follows:

Table 20.3: Current Environmental Monitoring Program

Parameter	Monitoring Frequency	Daily Concentration Limit (*mg/l)	Monthly Average Concentration Limit (mg/l)
Total Cyanide	-	-	-
Total Suspended Solids	W	30.0	15.0
Copper	W	0.6	0.3
Lead	W	0.4	0.2
Nickel	W	1.0	0.5
Zinc	W	1.0	0.5
Arsenic	W	1.0	0.5

As required by the Certificate of Approval from the Ministry of the Environment, the quantity of effluent that can be discharged from the polishing pond is dependent upon two conditions. The first condition is the copper concentration of the polish effluent, as determined by the two most recent copper results from weekly samples. The second condition is the flow rate of Upper Coin Creek, as determined by the water flow at the Coin Creek culvert at Highway 618.

Annual reports are submitted to the Ministry of the Environment under the current Certificate of Approval.

A spillway was constructed in 2010 and inspected by the MNDM in 2012. Annual monitoring inspections of the dam and TMF are completed by engineering consultants on behalf of Pure Gold with the most recent by Knight Piesold (2014) and DST Engineering (2015).

20.2.3 Environmental Liabilities

The property covers a large area and has existing environmental liabilities as a result of historical mining activity and activities from local residents. The liabilities identified here are a result of a review of government and company reports. This information is not a result of an exhaustive ground survey.

The sewage overflow from Madsen is not considered a liability because of the aforementioned settlement. Liabilities along the power line and road right-of-ways are also not the responsibility of Pure Gold as land titles lie with Ontario Hydro and the Crown. In the community of Madsen, there was a transfer of easements for the Madsen Community Association Inc. for the land under private residences. At the community of Starratt-Olsen the deed to surface rights for a parcel of land that a number of private residences are located on is held by a resident. The deed holder and the other residents have an agreement between themselves regarding where the bounds of their individual lots are located within the parcel of land for which they hold surface rights. The Township of Red Lake is apparently aware of this informal arrangement between the primary landowner and the other residents.

There are six key areas of previous mining activity on the Madsen gold project. Details of the mine workings and their status, based on government and company reviews, are presented in Appendix B.

Historical mine workings have resulted in residual liabilities from mine openings, old buildings, and waste rock and tailings disposal as summarized in Appendix B. Many of the shafts and raises are not yet capped, but have been temporary fenced and signed for public safety. At shafts and raises that have been capped, the quality of the caps varies and they have not been checked recently by an independent engineer. Potential un-capped or poorly capped shafts and raises present a serious potential liability on the property.

Various types of waste rock were tested during past exploration drilling and all were recorded to have less than one percent sulphur content. Past testing of ore indicated that the ore contained approximately five percent sulphur. All testing to date indicates that the Madsen tailings are not acid generating. Waste rock contains some widely distributed sulphides in the dumps, but there is no visual evidence of acid rock drainage from the dumps. In 2010 Claude collected rock samples from various sites and subjected them to screening level acid base accounting (ABA) testing (ABA level 5). Results show that generally acid rock drainage from waste rock is not expected to be an issue at the mine or around the town site. Localised areas of mineralized rock did exhibit the possibility of acid rock drainage, but results suggested there is sufficient buffering capacity in the overall fill to mitigate any acid rock drainage potential. However, mineralized material should not be used as additional underground fill (MNDM, 2013).

The use of hazardous materials on site ceased in 1999. No known underground storage tanks are located on site. Used oil generated from the present exploration activity is regularly removed from site. There are currently no process reagents stored or used on site.

Illegal garbage dumping was prevalent in several areas of the property historically. Certain remedial actions were taken by Claude that improved the situations. According to Pure Gold, illegal dumping still occurs from time to time, but the rate of occurrence has decreased with increased exploration activity and personnel present on site.

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20.2.4 Madsen Mine Re-opening

Environmental considerations should be taken into account if the Madsen mine were to re-open. There may also be additional environmental regulations to be considered with the potential re-opening of the mine such as the Metal Mining Effluent Regulations from 2002 and amended in 2006. These regulations would require environmental effects monitoring beyond the current permit compliance monitoring.

20.2.5 Closure Plan

The original closure plan was completed prior to Pure Gold's involvement in the property by V.B. Cook Co. Limited (1995). This plan was amended in September 1995. A second amendment was submitted in July 2011. This amendment addressed all deficiencies identified by the Ontario Ministry of Environment. As a result, Nordmin is not aware of any outstanding issues related to the closure plan of the Madsen mine and related facilities. A third amendment was submitted by Pure Gold in 2014, including an updated payment schedule for financial assurances.

20.3 Mining Rights in Ontario

The Madsen gold project is located in Ontario, a province that has a well understood permitting process in place and one that is coordinated with the federal regulatory agencies. As is the case for similar mine developments in Canada, the project may be subject to federal and provincial environmental assessment processes based on certain project triggers. Due to the complexity and size of such projects, various federal and provincial agencies have jurisdiction to either provide authorizations or permits that enable project construction to proceed.

Federal agencies that have significant regulatory involvement at the pre-production phase include the Canadian Environmental Assessment Agency, Environment Canada, Natural Resources Canada as well as Fisheries and Oceans Canada. On the provincial agency side, the Ontario Ministry of Northern Development and Mines, Ministry of Environment, Ministry of Transportation as well as the Ministry of Natural Resources each have key project development permit responsibilities.

20.4 Stakeholder Engagement

The Aboriginal Engagement Assessment provides a review of the consultation program undertaken first by Claude Resources for the Madsen Gold Project Closure Plan Amendment. The report documents how interested and affected first nation communities and their representatives were consulted with regards to the development, design, and implementation of the Closure Plan Amendment and influenced outcomes

On November 1, 2012, significant changes were introduced to the Mining Act. Part VII of the Mining Act, regulating Closure Plans included clarifications to how mineral proponents should conduct consultation activities with potentially impacted First Nation and Métis communities. The property is located in the October 1873 Treaty #3 area. Signatories to the treaty currently

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engaged by Pure Gold include Treaty #3 Grand Council, Wabauskang First Nation, Lac Seul First Nation, Wabaseemoong First Nation, Grassy Narrows First Nation, Naotkamegwanning First Nation, and the Métis Nation of Ontario. Stakeholder consultation would continue to be an important component of any future Closure Plan Amendment. Pure Gold would need to continue to provide opportunities for information sharing and feedback throughout the development of a Closure Plan Amendment. Consultation activities and project communication are ongoing.

20.5 Future Environmental Management Plan

Nordmin recommends a further review of existing environmental permits and supporting technical documentation held by Pure Gold for the Madsen underground gold mine, mill and associated tailings management facilities. The purpose of this review is to identify any potential gaps and/or deficiencies in existing environmental permits and identify environmental permitting which is not currently in place. Table 20.3 lays out the sequence and path-forward. The first three tasks listed in the table in bold are studies strongly recommended to ensure delays are not encountered in future mine development.

Table 20.3 Environmental Management

Future Work Item	Description	Tasks	Field/Lab/Study Work	Effort	Duration	Cost	Nordmin Environmental Notes
Permitting Requirements	Review project and past operations, meet with Regulatory pre-consultation to clearly define permitting- prepare scopes and work plans.	**Environmental Task 1**	Study	Review project data, past operational records, meet with various ministries and define project permitting requirements and schedule. Develop work plans for technical studies to amend existing permits or apply for new ones.	1- 2 month	$15,000	Strongly recommend performing this as a FIRST task and increasing this budget to around $15-20 K. Undertake a thorough review of all existing permits and commercial operation permitting requirements, both federal and provincial. Then scope out technical studies to support permits. Nordmin can do this. Upon completion of this task, we will know if existing permits can be amended or if we need to apply for new ones and what technical studies will be required.
Water/Air Management Studies	Verify effluent criteria and appropriate water treatment strategy, review existing sewage works to determine adequacy to meet effluent limits.	**Environmental Task 2**	Field/Lab/Study Work	Review previous work, confirm site water balance, water management plan, and treatment strategy. Review work plan needed for Air ECA. Review existing sewage works operational data, determine adequacy to meet effluent limits and if not seek out technologies available to upgrade system.	1 month	$75,000	This work is likely going to be required. It is recommended to put this task off until the task above has been completed. Nordmin can scope and undertake all technical studies required to support permits but task above should be completed first. Watershed and Airshed studies may be required as well as Effluent Treatment technology evaluations to meet new effluent limits.

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Future Work Item	Description	Tasks	Field/Lab/Study Work	Effort	Duration	Cost	Nordmin Environmental Notes
Closure Plan Initiate Government Review	Support during Ministry technical review including aboriginal consultation on the development and closure plan	**Environmental Task 3**	N/A	Provide technical support during government review and consultation efforts	Ongoing	$50,000	Some of this scope can be addressed during regulatory pre-consultation phase (task 1). Budget seems a bit high but not sure of the duration and effort required. Nordmin can assist in preparing consultation plans. Budget seems adequate.
Baseline monitoring study proposed by BEAK	Assumes previous scope and effort including 8 stations water quality, sediment, benthos, and fish.	Environmental Task 4	Field Work – on going	Review previous work, implement. Add MMER requirements for effluent monitoring and Environmental Effects Monitoring Studies.			
Geochemical test program	Test fresh and existing tailings, and mine rock samples to verify if NAG or PAG and expected long term behaviour under closed conditions. Also provides data for operations' water management.	Environmental Task 5	Field/Lab/study work	Static and kinetic testing			
Prefeasibility level tailings design	PFS Level TMF design (or during trade-off studies) refine scoping level design based on studies completed above	Environmental Task 6	Field/Lab/Study Work	Site Visit, geotechnical analysis, integration of previous studies, refine costs, contractor quotes, geotechnical investigation			
Federal Environmental Assessment	Federal Environment Assessment may be required if gold mine produces 600 t/d or greater	Environmental Task 7	Federal EA	Preparation of an Environmental Impact Statement (EIS) that evaluates potential environmental impacts of mine (underground or open pit) including mine surface infrastructure components such as mill, waste rock and tailings area.			
Provincial Environmental Assessment	Provincial Environmental Assessment may be required by the province or Class EA s are required for	Environmental Task 8	Provincial Individual EA	Preparation of an Environmental Assessment Report that evaluates potential environmental impacts of mine (underground			

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Future Work Item	Description	Tasks	Field/Lab/Study Work	Effort	Duration	Cost	Nordmin Environmental Notes
	ancillary site activities			or open pit) including mine surface infrastructure components such as mill, waste rock, tailings area, power requirements, road or highway upgrades and any disposition of crown resources.			

As the table above outlines, and taking into account the recommendations made in Section 26, a thorough review of the site's existing permits and their conditions is required prior to moving forward into the commercial production phase.

Based on the scope of the project going forward into commercial production, an assessment can then be made on the applicability of the existing permits, other permits that may be required and a decision made to amend existing permits or go through the approvals process to obtain new approvals.

An assessment of EA obligations will also be completed as part of the tasks outlined in the above table.

The closure plan would also require amendments to update it with the new or amended permits and also to include consultation efforts with First Nations and other stakeholders.

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21. Capital and Operating Costs

Pre-production capital costs are estimated to be $20.1 million with the majority of the costs associated with mill refurbishment and ramp development. Additional capital cost requirements include surface installations and new ventilation and pumping systems, which will utilize the existing shaft. Pre-production capital would be minimized by utilizing existing infrastructure, including the 550 t/d mill with carbon-in-pulp (CIP) circuit and TMF. Preparation of the capital cost estimates are based on a Nordmin philosophy that emphasizes accuracy over contingency and uses defined and proven project execution strategies. The estimates were developed by using first principles, applying direct applicable project experience and by avoiding the use of general industry factors for major capital items. Essentially all of the estimate inputs are derived from engineers, contractors and suppliers who have provided similar services to existing operations and have demonstrated success in executing the plans as defined in the PEA.

The following cost estimates are detailed within this section:

i. Initial Capital Cost – Major costs incurred in constructing and refurbishing the Mill and Tailing Management Facilities (TMF).
ii. Sustaining Capital Cost – Expenditures incurred during operations for waste development, underground setup and underground infrastructure.

It is anticipated that contractors would perform preproduction activities and full production mining. The following costs are not included in the capital cost estimate:

i. HST;
ii. Schedule acceleration costs;
iii. Schedule delays and associated costs, such as those caused by:
    a. Unexpected site conditions;
    b. Latent ground conditions;
    c. Force majeure;
    d. Permit applications;
iv. Development fees and approval costs beyond those specifically identified;
v. Cost of any disruption to normal operations;
vi. Foreign currency changes from project exchange rates;
vii. Commodity specific escalation rates;
viii. Event risk;
ix. Cost associated with third party delays;
x. Sunk costs;
xi. Escalation – all cost data is presented in Canadian 2015 dollars;
xii. Owner's cost.

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Certain items within the operating costs begin during the pre-production phase and continue through the life of mine. All costs incurred during the pre-production phase have been capitalized and are part of the capital cost estimate under sustaining capital. Operating costs have been compiled in accordance with industry standards.

The pre-production capital expenditures have an internal contingency of 15%. The development portion of the capital costs have a contingency of 5% even though the mobilization of the proposed contractor will have a 15% contingency added to the cost. The estimates are based on budget pricing from suppliers for critical components, consultants, contractors and a review of other similar Canadian projects. Smaller equipment and facilities component costs were factored based on industry norms for the type of facility being constructed and, where possible, adjusted to reflect local conditions.

Table 21.1 Detailed Pre-Production Capital Expenditures

	Contingency (%)	Qtr.-1($)	Qtr. -2($)	Qtr. -3($)
Capital Expenditures				
Surface installations	15	2,969,300		
Rehab / slash / development	15	3,515,037		
Service vehicles	15	945,300	202,000	
Surface mobile equipment	15	431,250	50,000	
Ventilation	15	975,069	362,923	
Backfill plant	15	236,370	47,190	
Compressed air	15	386,400		
Mine water management	15	138,000	81,000	
Electrical	15	818,628		
Electrical - Hydro One	15	115,000	575,000	
Communication	15	174,800	2,000	
Safety	15	398,300	102,100	
Underground - Engineering Equipment	15	247,250	17,750	
Mobilization on site - contractor	15	172,500		
Miscellaneous	15	63,250		
Underground - explosives storage	15	34,500		
Spare parts	15	886,896	78,676	
Freight	15	665,172	59,007	
Mill (refurbish & lab)	15	462,875	1,695,392	
Tailings work	15	172,500		
Diamond drilling (apart from exploration)	15	172,500	172,500	172,500
Sustaining Capital Expenditures				
Ramp	5			707,234
Slash	5			1,695,520
Ventilation raise	5			
Sum of access dev. (waste)	5		29,224	132,785
All access dev. (ore)	5			
Sub Total ($)		**13,980,896**	**3,474,761**	**2,708,039**
Total ($)				**20,163,697**

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Table 21.2 Sustaining Capital Expenditures (millions of dollars)

Capital Item	Cost
Surface Infrastructure	
Mining Infrastructure	$0.5
Mobile Equipment	$1.4
Development and Capital Operating Costs	$32.6
Electrical	
Mill and Tailings Management Refurbishment	$0.6
Diamond Drilling	$2.3
Subtotal	**$37.4**
Contingency	5%
Contingency Amount	$1.9
Total Capital Costs	**$39.2**

The sustaining capital expenditures have 5% contingency. Included in these expenditures are the initial development for the underground mine (see Table 21.3).

Table 21.3 Capital and Sustaining Capital Costs (millions of dollars)

Capital Item	Pre-Production	Sustaining	Total
Surface Infrastructure	$4.7	$0	$4.7
Mining Infrastructure	$5.5	$0.5	$5.9
Mobile Equipment	$1.4	$1.4	$2.8
Development and Capital Operating Costs (5%)	$2.4	$32.6	$35.1
Electrical	$1.3	$0	$1.3
Mill and Tailings Management Refurbishment	$2.0	$0.6	$2.7
Diamond Drilling	$0.5	$2.3	$2.7
Subtotal	**$17.8**	**$37.4**	**$55.3**
Contingency	15%	5%	7%
Contingency Amount	$2.3	$1.9	$4.1
Total Capital Costs	**$20.1**	**$39.2**	**$59.3**

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21.1 Operating Costs Estimates

Operating costs are based on typical Canadian prices from suppliers and other comparable Canadian projects, for consumables and parts. The cost of power is based on rates charged by Hydro One for similar sized power consumers in the province.

Critical operating cost components are based on the following:

Table 21.4 Operating Cost Components

Cost Data	Unit	Rate
U.S. Gold price	$/oz.	$1,175
Gold recovery		92%
Exchange rate	CAD=US	$1.25
Capital contingency		15%
Development and mining contingency		5%
Diesel	$/L	$1.16
Power	$/kw/hr	$0.08
Propane	$/L	$0.593
Cement	$/t	$269
Freight materials		8%
Freight equipment		6%

All waste development would be performed by a mining contractor using two boom electric hydraulic drill jumbos, 2.7 cubic-meter bucket LHDs, 20 tonne haul trucks, scissor lift/bolters and other rubber tired diesel-powered support equipment. Total LOM waste development is summarized in Table 21.5 below.

Table 21.5 LOM Waste Development

Development Type	Metres	Tonnes
Ramp	2,968	128,237
Slash	5,759	159,221
Ventilation Raise	223	1,985
Access Development	3,768	162,788
Total		**452,231**

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Table 21.6 summarizes the unit rates used to estimate the development costs.

Table 21.6 Development Costs

Development Type	Unit Rate ($/m)
Ramp	3,727
Slash	1,883
Ventilation Raise	5,824
Access Dev. (waste)	3,438
Access Dev.(ore)	2,922

21.2 Mining

The PEA mine plan envisions that mechanized cut & fill, shrinkage, and long-hole mining methods would be utilized to extract the mineralized material. All three of these methods have been used historically with success at the Madsen mine.

Table 21.7 Mining Method Breakdown

Mining Method	Tonnes	% Total Tonnes	% Mining Dilution
Cut & Fill Stope	533,008	50.1%	5%
Shrinkage Stope	390,880	36.8%	15%
Long-Hole Stope	139,370	13.1%	20%
Total	**1,063,258**		

All Operating costs in Table 21.8 have a 5% contingency applied.

Table 21.8 Mining Operating Costs

Operating Cost	$/t
Cut & Fill Ore	88.23
Long hole Ore	54.93
Shrinkage Ore	97.83
Haulage- Upper Mine	13.28
Haulage - Lower Mine	23.15
Over-head and Indirects (G&A)	25.15
Power	7.44
Heating (Avg. Cost)	5.22
Ore transportation to mill	1.05
Milling	29.42

General and Administration (G&A) operating costs include costs and taxes for maintaining the property in good standing, land taxes, and resource usage fees (water, etc.). The G&A operating costs encompass all operating costs associated with operating the site offices and providing materials and supplies for staff. The cost of G&A within the report with 5% contingency added is estimated at $25.15/tonne. All G&A costs are summarized in the following tables.

Table 21.9 Project Salaried Personnel

Operating Personnel	Quantity	Total ($/Yr.)
Staff - Mine Operations		
Mine superintendent	1	254,800
Chief mining engineer	1	193,050
Chief geologist	1	178,750
Production geologist	1	136,500
Geological technician/sampler	4	464,100
Surveyor/mine technician	2	232,050
Mine rescue/safety/training officer	1	122,850
Sub Total	**11**	**1,582,100**
Staff – Mine Maintenance		
Maintenance superintendent	1	182,000
Mechanical	2	283,400
Electrician	1	134,615
Security	4	348,140
Sub Total	**8**	**948,155**
Total	**19**	**2,530,255**
Cost Per Tonne @550 t/d	**$/t**	**$12.60**

Table 21.10 Mine Construction Crew

Construction Personnel	Quantity	Total ($/Yr.)
Superintendent	1	177,125
Leader	1	136,500
Labourer	1	129,675
Helper	1	109,200
Total	**4**	**552,500**
Cost Per Tonne @550 t/d	**$/t**	**$2.75**

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Table 21.11 Services Operating Cost

Cost Description	Units	Equipment Op. Cost ($/hr)	Total Cost ($/yr.)
Ventilation			
Main Ventilation Fan	4	6.17	216,337
Auxiliary Ventilation Fan, 100 kW	2	0.97	16,970
Auxiliary Ventilation Fan, 75 kW	2	0.77	13,466
Auxiliary Ventilation Fan, 50kW	2	0.69	12,141
Air Heating			
Air Heater	1	1.50	13,140
Main Compressors	2	3.75	65,700
Transporting Men and Materials			
U.G Supervisor/Engineering Vehicle	4	8.04	126,775
Pick-up Trucks	4	3.60	24,995
Mine Maintenance			
Scissor Lift (piping, scaling, etc.)	1	8.04	35,215
Road Maintenance			
Grader	1	54.58	79,690
Mine Dewatering			
Main Dewatering Pump	4	3.28	114,791
Submersible Pump	2	0.28	3,642
Mine Dewatering Supplies			10,000
Underground Construction			120,000
Technical Supplies/Environment			10,000
Office & Misc. Supplies			10,000
Donations / Travel			50,000
Communications			10,000
Consultants /Environment			200,000
Total Services Cost ($)	**$/Yr.**		**1,132,862**
Site Taxes ($)	**cost/Yr.**		**300,000**
Closure Plan Costs ($) ($7.0 million @3%)	**cost/Yr.**		**210,000**
Services Cost per Tonne @550 t/d	**$/t**		**$8.18**

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Table 21.12 Mine Safety, Training, Mine Rescue & Security

Cost Description	Unit	Cost
Safety Equipment	$/Yr.	22,791
Safety Supplies	$/Yr.	24,750
Training	$/Yr.	36,095
Total Safety Cost per Year	**$/Yr.**	**83,636**
Mine Production Rate	t/Yr.	200,750
Underground Mine Personnel		89
Mine Safety Cost per Tonne @550t/d	**$/t**	**$0.42**

All mine personnel except for technical and support staff would be contracted employees. Total personnel onsite, including contractors, is estimated to be 150 people. This estimate includes mine and surface employees, mine site management, engineers and geology personnel. During the peak period, the direct mining personnel total approximately 89 people. Technical and support staff are expected to be based in the Red Lake area.

The PEA considers refurbishing the existing mill and tailings management facility which have been on care and maintenance since 1999. Mill production of 550 t/d is assumed to be achievable by modernizing controls and instrumentation of the reagent and grinding circuits. Mill and tailings dam refurbishment is estimated to be $3.1 million, of which $2.3 million is included as a pre-production capital cost item and the remainder is sustaining capital.

The mill consists of a single stage crushing circuit and a two stage grinding circuit, which is followed by cyanide leaching. The leached gold is collected in a CIP circuit which is subsequently stripped using mild caustic and collected on stainless steel mesh cathodes by electrowinning. The product from electrowinning is refined into doré bars in an induction furnace.

A 92% gold recovery was assumed for the PEA, based on the historical average recovery rate of the mill when it operated intermittently from 1997 to 1999.

Pure Gold’s existing permits, including the Environmental Compliance Approval, allows for operation of a 1,089 t/d mill and CIP circuit with discharge of treated tailings to the existing tailings facility. Further work is required to determine the optimum processing rates. Operating costs are summarized in Table 21.13 and Table 21.14.

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Table 21.13 Operating Costs

Cost Type (5% Contingency)	Rate	Total Cost ($)
Cut & Fill Ore	$88.23/t	47,028,996
Long hole Ore	$54.93/t	7,654,976
Shrinkage Ore	$97.83/t	38,239,184
Haulage- Upper Mine	$13.28/t	10,041,985
Haulage - Lower Mine	$23.15/t	7,113,066
Overhead and Indirects (G&A)	$25.15/t	27,301,757
Power	$7.44/t	8,397,974
Heating (Avg. Cost)	$5.22/t	5,873,022
Ore transportation to mill	$1.05/t	1,116,421
Milling	$29.42/t	31,283,162
Refining charge (selling cost)	$5.00/oz.	1,297,757
Total		**185,348,300**

Table 21.14 Overall Operating Costs

	$/t Processed	$/oz.	US$/oz.
Mining Cost	104	424	339
Processing Cost	31	126	100
G&A Cost	40	164	132
Total Cash Cost[(1)]	**174**	**714**	**571**
Sustaining Capital	37	151	121
Cash Cost + Sustaining Capital	**211**	**865**	**692**

(1) Cash cost includes mining cost, mine-level G&A, mill and refining cost; numbers may not add due to rounding

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22. Economic Analysis

The PEA is based on Indicated and Inferred Mineral Resources. The Inferred Resources are preliminary and generally considered to be too speculative to be categorized as Mineral Reserves beyond a Preliminary Economic Analysis. Due to the uncertainty that may be attached to Inferred Mineral Resources, it cannot be assumed that all or any part of an Inferred Mineral Resource will be upgraded to an Indicated or Measured Mineral Resource as a result of continued exploration. Confidence in the estimate is insufficient to allow the meaningful application of technical and economic parameters or to enable an evaluation of economic viability worthy of public disclosure.

An engineering economic model was developed to estimate annual cash flow and sensitivities. Pre-tax estimates of project values were prepared for comparative purposes, while after-tax estimates were developed to approximate the true investment value. It should be noted that tax estimates involve many complex variables that can only be accurately calculated during operations and, as such, the after-tax results are only approximations. For the cash flow, a gold price of US$1,175/oz., and exchange rate CADN$=US$1.25 were considered. The processing plant recovery for gold is 92% utilized throughout the project life.

Table 22.1 Mineral Resource (Mine Diluted) Included in PEA Mine Plan*

Resource Classification	Tonnes	Grade (Au g/t)	Recoverable Gold (oz.)
Indicated	868,773	8.55	219,826
Inferred	194,485	6.91	39,726

**Mineral resources are not mineral reserves and do not have demonstrated economic viability. All figures have been rounded to reflect the relative accuracy of the estimates. Mineral resources are reported with at a cut-off grade of 5.0 g/t gold based on US$1,000 per troy ounce gold and gold metallurgical recoveries of 94 percent.*

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Table 22.2 PEA Results

Gold Price	US$1,175/oz.
Exchange Rate (US$ to C$)	1.25
Total Resource Tonnes Mined / Milled	1.063 million
Processing Rate	550 t/d
Diluted Head Grade	8.3 g/t
Gold Recovery Rate	92%
Mine Life	6.5 years
Total Gold Ounces Recovered	**259,551 oz.**
Average Annual Gold Production	47,191 oz.
Peak Annual Gold Production	57,958 oz.
Pre-production Capital Cost	$20.1 million
Sustaining Capital Cost (Life of Mine)	$39.2 million
Unit Operating Cost (per tonne processed)	
Mining Cost	$104/tonne
Processing Cost	$31/tonne
G&A	$40/tonne
LOM Average Cash Cost(1)	US$571/oz.
LOM Cash Cost plus Sustaining Cost	US$692/oz.
Royalties	None
Corporate Income Tax / Ontario Mining Tax	25% / 10%

(1) Cash cost includes mining cost, mine-level G&A, mill and refining cost

Table 22.3 PEA Sensitivities (Gold Price)

Gold Price (US$/oz.)	**$1,025**	**$1,075**	**$1,125**	**$1,175***	**$1,225**	**$1,275**	**$1,325**
Pre-Tax $NPV_{5\%}$ (CAD$ millions)	$65	$78	$91	$104	$118	$131	$144
After-Tax $NPV_{5\%}$ (CAD$ millions)	$49	$58	$67	$76	$86	$95	$104
Pre-Tax IRR	49%	58%	66%	74%	83%	91%	99%
After-Tax IRR	42%	49%	56%	62%	69%	75%	82%

**Base case scenario*

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For the Madsen Gold Project, the expected investment and returns based on the expected cash flow parameters for the project are shown in Table 22.4.

Table 22.4 PEA Highlights

Pre-Tax $NPV_{5\%}$	$104 million
Pre-Tax IRR	74%
Payback Period	1.5 Years
After-tax $NPV_{5\%}$	$76 million
After-tax IRR	62%
Payback Period	1.5 years

The PEA confirms that Madsen has the potential to be economically viable. While the PEA only considers the extraction of approximately 25% of Pure Gold's existing mineral resource tonnes, opportunities exist to expand the base case scenario through project exploration and resource growth. Pure Gold has been successful in intersecting mineralization below the mine workings in the McVeigh horizon in close proximity to the proposed ramp development. Pure Gold is also pursuing other satellite target zones elsewhere on the Madsen property.

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23. Adjacent Properties

There are no other properties relevant to the Madsen Gold Project.

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24. Other Relevant Data and Information

Nordmin and SRK are not aware of any other relevant data.

To the best of the authors' knowledge, there is no other relevant data, additional information or explanation necessary to make the Report understandable and not misleading.

25. Interpretation and Conclusions

The mineral resource at the Madsen Gold Property contains an Indicated mineral resource of 3.236 million tonnes for 928,000 contained ounces of gold and an Inferred mineral resource of 0.78 million tonnes for 297,000 contained ounces of gold as shown in Table 25.1.

Table 25.1 Mineral Resource Statement for Madsen Gold Project*

Resource Classification	Tonnes	Grade (Au g/t)	Contained Gold (oz.)
Indicated	3,236,000	8.93	928,000
Inferred	788,000	11.74	297,000

**Mineral resources are not mineral reserves and do not have demonstrated economic viability. All figures have been rounded to reflect the relative accuracy of the estimates. Mineral resources are reported at a cut-off grade of 5.0 g/t gold based on US$1,000 per troy ounce gold and gold metallurgical recoveries of 94 percent.*

For this PEA, only mineral resources above 600m depth were considered. These resources could be accessed via the existing McVeigh portal and extending the existing decline. Indicated category mineralized material mined is estimated at 869,000 tonnes for 219,826 contained ounces of gold as per Table 25.2. An additional estimated 194,000 tonnes for 39,726 contained ounces of gold is mined from the Inferred category. The existing Madsen Shaft and headframe would be used for ventilation and second means of egress from the proposed mining areas.

Table 25.2 Mineral Resource (Mine Diluted) Included in PEA Mine Plan*

Resource Classification	Tonnes	Grade (Au g/t)	Recoverable Gold (oz.)
Indicated	868,773	8.55	219,826
Inferred	194,485	6.91	39,726

**Mineral resources are not mineral reserves and do not have demonstrated economic viability. All figures have been rounded to reflect the relative accuracy of the estimates. Initial disclosure of mineral resources are reported at a cut-off grade of 5.0 g/t gold based on US$1,000 per troy ounce gold and gold metallurgical recoveries of 94 percent. For the purpose of the PEA, mine diluted mineral resources are reported with a variable cut-off grade dependent on individual stoping areas, a US$1,175 per troy ounce gold, and gold metallurgical recoveries of 92 percent.*

The mine plan envisions the development and mining activities being performed by contractors. Rubber tired two boom electric hydraulic jumbo drills, 2.7 m^3 LHDs, 20 tonne haul trucks, scissor lifts and other utility equipment would be utilized during the mine life. Total LOM development is summarized in Table 25.3.

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Table 25.3 Waste Development in PEA Mine Plan

Waste Development	Metres	Tonnes
Ramp	2,968	128,237
Slash	5,759	159,221
Ventilation Raise	223	1,985
Access Development	3,768	162,788
Total		**452,231**

Extraction of the mineralized material will be done using cut-and-fill, shrinkage and longhole mining methods, which have all been used during the 38 year mining history at Madsen. Table 25.4 shows the breakdown of the potentially mineable resource per mining method.

Table 25.4 Mining Methods in PEA Mine Plan

Mining Method	Tonnes	Total Tonnes (%)	Mining Dilution (%)
Cut & Fill Stope	533,008	50.1	5
Shrinkage Stope	390,880	36.8	15
Long-Hole Stope	139,370	13.1	20
Total	**1,063,258**		

The existing mill at the Madsen Gold Project has been on care and maintenance since Claude Resources last used it in 1999. It is assumed that the mill would be capable of processing 550 tonnes per day by modernizing controls and instrumentation of the reagent and grinding circuits.

The existing tailings facility is permitted for operation of a 1,089 tonne per day mill and CIP circuit. Further work would be required to determine the optimum processing rates. There has been an estimated $2.3 million included as pre-production capital and $0.8 million in sustaining capital for the mill refurbishment and tailings facility upgrades.

Table 25.5 summarizes the estimated operating costs developed for the PEA.

Table 25.5 Operating Costs

Operating Costs	Processed ($/t)	$/oz.	US$/oz.
Mining Cost	104	424	339
Processing Cost	31	126	100
G&A Cost	40	164	132
Total Cash Cost(1)	**174**	**714**	**571**
Sustaining Capital	37	151	121
Cash Cost plus Sustaining Capital	**211**	**865**	**692**

(1) Cash cost includes mining cost, mine-level G&A, mill and refining cost

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Financial analysis yields positive economic returns for the project with a pre-production capital investment of $20.1 million and $39.2 million of sustaining capital investment. Table 25.6 shows the expected returns for the Madsen Project.

Table 25.6 PEA Highlights

Pre-Tax NPV5%	**$104 million**
Pre-Tax IRR	74%
Payback Period	1.5 Years
After-tax $NPV_{5\%}$	$76 million
After-tax IRR	62%
Payback Period	1.5 years

Based on the results of the PEA Study, the following conclusions can be made:

1. The Madsen Gold Project has significant potential to provide positive and robust returns.
2. Additional exploration and expansion of the potentially mineable resource are warranted including the potential conversion of inferred resources to measured and indicated.
3. The Madsen Gold Project is a brownfield site with existing infrastructure such as an existing mill, permitted tailings management facility, McVeigh Portal, decline and Madsen Shaft. This lowers the estimated capital required to advance the project into production.
4. The PEA considers only mining methods historically used in the past 38 years of production mining at Madsen.
5. The PEA considers approximately 25% of the existing mineral resource tonnes. Opportunities exist to expand the base case scenario in the study through continued exploration and resource growth.
6. Under the existing Environmental Compliance Approval, the mill and tailings management facility is permitted to run at 1,089 tonnes per day leaving capacity for increasing the processing and overall mining rates.
7. Further metallurgical testing and upgrading of reagent and grinding circuit controls could lead to increased gold recovery above the 92% used in the PEA.

25.1 Other Risks

The PEA does demonstrate that the Madsen Project has the potential to be technically and economically viable. There are risks that have been identified within the recommendations.

The McVeigh Zone is technically uncomplicated because of the near surface nature of the deposit and relatively simple ramp access to the underground mine. The processing plant uses well proven technologies to achieve excellent gold recoveries. Infrastructure requirements are also relatively risk free as the mine is in an area of other economic activity with many regional services.

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The main risks to project success would be:

- Adequate electricity supply from Hydro One is a concern in Northwestern Ontario and it is an area of uncertainty for the Madsen Gold Project;
- Until the mill is re-energized, there is some uncertainty with regards to the mill electrical components including the motors. Cost allowances have been made for refurbishing the mill motors;
- One of the greater concern areas identified in the recommendations are environmental. With recent changes in environmental regulations, further baseline work is recommended as well as studies into whether a cyanide destruction plant is required. The capacity of the TMF requires further study as well to confirm cost allowances in the PEA.

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26. Recommendations

The results of this PEA study demonstrate that the Madsen Gold Project has the potential to be technically and economically viable. Significant potential in the McVeigh horizon and satellite targets provide an opportunity for enhancement and optimization of the base case PEA under the existing Environmental Compliance Approval. Given the positive results of this study and the potential for enhancement, Nordmin recommends a two-phase approach to the advancement of the Madsen Gold Project which would reduce the upfront financial requirement. A phased approach allows confirmation of the initial recommended work, provides opportunity to make changes to the next phase if required, and possibly reduce schedule constraints for the project.

26.1 Phase 1

26.1.1 Geology and Exploration

1. Continue drilling the mineralized zones to increase confidence of the mineral resource.
2. Continue with the current surface drilling program targeting areas where additional mineralization is expected within, below and adjacent to the gold mineralization considered in this study.
3. Update the geological and mineral resource model to incorporate new understanding from exploration drilling.
4. Continue to advance satellite targets, including Russet South through additional exploration and drilling to potential resource definition.

26.1.2 Mining

1. Develop a plan and procedure to re-enter the existing McVeigh workings by removing rock from the McVeigh Portal entrance. This would enable underground access to examine the condition of the decline and previous mine workings prior to any underground work commencing.
2. Scope requirements for geotechnical/rock mechanics study to confirm ground support requirements for development headings and stoping areas.
3. In order to establish ventilation requirements, confirm actual drift sizes and condition of Level 2 from the McVeigh ramp to the Madsen Shaft.
4. Complete detailed surface and underground geological mapping to refine stratigraphy, structural setting and characterize mineralization.

26.1.3 Madsen Shaft

1. Establish a safe entry plan and procedure to access the existing manway in the Madsen Shaft.
2. Identify the water level in the shaft.

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26.1.4 Environmental and Permitting

1. Amend the mine closure plan in advance of opening of the McVeigh Portal.

26.1.5 Electrical Supply

1. Continue discussions with Hydro One with regards to electricity supply and costs.
2. Determine if a new substation and supply line to operate the mine and mill at Madsen would be more cost effective based on discussions with Hydro One.

26.2 Phase 2

26.2.1 Geology and Exploration

1. Set up underground diamond drilling stations to further explore and test drill proposed stoping areas.
2. Initiate underground drilling to infill and improve resource.
3. Expand surface drilling program targeting areas where additional mineralization is expected.
4. Revise the block model cell size to 3m x 3m x 3m blocks to enable improved definition of potential stoping areas.
5. Update the resource model to include new information derived from exploration and infill drilling.
6. Advance satellite targets including Russet South through additional exploration and drilling to potential resource definition.

26.2.2 Mining

1. Complete a geotechnical/rock mechanics study to confirm ground support requirements for development headings and stoping areas.
2. Rehab decline and portal if required and install services to level 2 with ventilation.
3. Ramp development, if required to provide access for underground exploration.

26.2.3 Madsen Shaft

1. Inspect the manway condition and confirm the estimated costs to utilize the existing manway as an escapeway for the proposed mining plan.
2. Confirm the shaft and headframe dimensions for the purpose of providing a means of fresh air for the proposed mining plan.
3. Identify the water level and potential obstructions in the shaft.

26.2.4 Environmental and Permitting

1. Amend the mine closure plan if required for ramp and development advancement.
2. Confirm baseline environmental work.
3. Perform a study to determine if a cyanide-destruction plant is required to meet current environmental discharge limits.
4. Confirm what other permits may be required or amended to continue with opening the mine and potential production mining.

26.2.5 Processing

1. Energize the mill, complete a detailed inspection of electrical, and control components.
2. Complete a new itemized inventory of all mill components on site.
3. Review and confirm arrangements for feeding PMR into the mill.
4. Complete new metallurgical testing of representative samples from the mining areas outlined in the PEA to confirm gold recovery.

26.2.6 Tailings Management Facility

1. Complete a detailed review of the TMF to confirm the volume available and confirm required dam lifts and improvements to the TMF for the life of mine.
2. Create a budget to operate the facility at the 1,089 t/d permitted for under the existing Environmental Compliance Approval.

26.2.7 Engineering and Pre-Feasibility

Upon completion of additional drilling and a subsequent update to the Madsen Gold Project resource model, Nordmin recommends initiation of a pre-feasibility study for the Madsen Gold Project.

Table 26.1 Phase 1 Budget and Price

Task	Estimated Cost (CAD$)
Geology & Exploration	$8,550,000
Mining	$200,000
Environmental & Permitting	$150,000
Electrical Supply	$25,000
Total	**$8,925,000**

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Table 26.2 Phase 2 Budget and Price

Task	Estimated Cost (CAD$)
Geology & Exploration	$7,200,000
Mining	$1,730,000
Environmental & Permitting	$555,000
Processing	$640,000
Tailings Management Facility	$240,000
Engineering and Pre-Feasibility	$450,000
Total	**$10,815,000**

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28. Certificates

CERTIFICATE OF QUALIFIED PERSON

To accompany the report entitled: "Technical Report on the Preliminary Economic Assessment for the Madsen Gold Project, Red Lake, Ontario, Canada" dated June 3, 2016.

I, Glen Cole, residing at 15 Langmaid Court, Whitby, Ontario do hereby certify that:

1) I am a Principal Resource Geologist with the firm of SRK Consulting (Canada) Inc. with an office at Suite 1300, 151 Yonge Street Toronto, Ontario, Canada;
2) I am a graduate of the University of Cape Town in South Africa with a B.Sc (Hons) in Geology in 1983; I obtained a M.Sc. (Geology) from the University of Johannesburg in South Africa in 1995 and an M.Eng. in Mineral Economics from the University of the Witwatersrand in South Africa in 1999. I have practiced my profession continuously since 1986. Between 1989 and 2005, I worked for Goldfields Ltd. at several underground and open pit mining operations in Africa and held positions of Mineral Resources Manager, Chief Mine Geologist, and Chief Evaluation Geologist, with the responsibility for the estimation of mineral resources and mineral reserves for development projects and operating mines. Since 2006, I have estimated and audited mineral resources for a variety of early and advanced international base and precious metals projects.
3) I am a Professional Geoscientist registered with the Association of Professional Geoscientists of the Province of Ontario (APGO#1416) and I am also registered as a Professional Geoscientist with the Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS#26003);
4) I have personally inspected the project area on three occasions during the period January to August, 2009;
5) I have read the definition of Qualified Person set out in National Instrument 43-101 and certify that by virtue of my education affiliation to a professional association and past relevant work experience. I fulfill the requirements to be a Qualified Person for the purposes of National Instrument 43-101 and this technical report has been prepared in compliance with National Instrument 43-101 and Form 43-101F1;
6) I. as a Qualified Person. I am independent of the issuer as defined in Section 1.5 of National Instrument 43-101;
7) I am responsible for sections 4-12, 14 and 23 of this technical report;
8) I have had prior involvement with the subject property, having contributed to previous technical reports on the property in 2009 and 2014;
9) I have read National Instrument 43-101 and confirm that this technical report has been prepared in compliance therewith;
10) I have not received, nor do I expect to receive, any interest, directly or indirectly, in the Madsen gold project or securities of Pure Gold Mining Inc.;
11) That, as of the date of this certificate, to the best of my knowledge, information and belief, this technical report contains all scientific and technical information that is required to be disclosed to make the technical report not misleading.

Toronto, Ontario
June 3, 2016

Glen Cole, PGeo (APGO#1416)
Principal Consultant

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CONSENT OF QUALIFIED PERSON

TO: British Columbia Securities Commission
Alberta Securities Commission

RE: Technical Report prepared for Pure Gold Inc. by Nordmin Engineering with an effective date of April 20, 2016 and an initial signing date of June 3rd, 2016 entitled "NI 43-101 TECHNICAL REPORT on the Preliminary Economic Assessment For the Madsen Gold Project, Pure Gold Mining Inc., Red Lake Area, Ontario" (the "Technical Report")

I, Glen Cole a Principal Consultant (Resource Geology) at SRK Consulting (Canada) Inc. hereby consent to the public filing of the Technical Report by way of SEDAR.

I also consent to any extracts from, or a summary of, the Technical Report in the news release titled, "Pure Gold Announces Positive Preliminary Economic Assessment for the Madsen Gold Project," dated April 20, 2016 (the "**News Release**").

I confirm that I have read the aforementioned News Release filed by the Company and that it fairly and accurately represents the information in the sections of the Technical Report for which I am responsible.

Dated the 3rd day of June, 2016

Glen Cole "signed and sealed"
Glen Cole, P.Geo (APGO#1416)
Principal Consultant (Resource Geology)

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CERTIFICATE OF QUALIFIED PERSON

I, Kevin A. Niemela, P. Eng., residing at 44 Tupper Drive, North Bay, Ontario, P1C 1N3, do hereby certify that:

1. I am the General Manager Sudbury Operations/Manager of Mining Services with Nordmin Engineering Ltd.
2. This certificate applies to the technical report titled NI 43-101 TECHNICAL REPORT on the Preliminary Economic Assessment For the Madsen Gold Project, Pure Gold Mining Inc., Red Lake Area, Ontario, Canada with an effective date of April 20, 2016.
3. I am a graduate of Queen's University, with a Bachelor of Science, Mining Engineering (1985).
4. I am currently a member in good standing of the Association of Professional Engineers of Ontario and the Association of Professional Engineers and Geoscientists of Saskatchewan. I have been practicing my profession continuously since 1986.
5. My summarized career experience is as follows:

General Manager/Manager of Mining Services	Nordmin Engineering	2014 - Present
Business Development Manager	Cementation Canada	2010 - 2014
Manager of Estimating	Cementation Canada	2008 - 2010
Senior Engineer/Estimator	Cementation Canada	2006 – 2008
Senior Engineer/Estimator	Redpath Ltd.	2004 – 2006
General Foreman/Safety Supervisor/Mine Supervisor	INCO Ltd.	1992 – 2004
Mine Planning Engineer	INCO Ltd.	1988 – 1992
Project Engineer/Surveyor – Dona Lake Mine	MacIssac Mining	1988
Miner – Kidd Creek Mines	Falconbridge Ltd.	1987 – 1988
Miner, narrow vein, Cluff Lake, Sask.	Thyssen Mining	1987 – 1988
Mine Engineer/Surveyor, Cluff Lake, Sask.	AMOK/Cluff Mining	1986

6. 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.
7. I visited the property on September 17, 2015 that is subject of this Technical Report.
8. I have authored, co-authored or supervised completion of section 1, 2, 3, 15, 16, 18, 19, 20, 21, 22, 24, 25 and 26.
9. I am independent of as defined by Chapter 5, Section 1.5 of NI 43-101.
10. I have read NI 43-101 and have reviewed the sections of the report dated and sections for which I supervised and reviewed work performed as noted in No. 8 above and the sections have been prepared in compliance with NI 43-101.
11. As of the date of this certificate, 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: April 20, 2016
Signed Date: June 3, 2016

LICENSED PROFESSIONAL ENGINEER
K. A. NIEMELA
PROVINCE OF ONTARIO

Kevin Niemela, P. Eng.

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CONSENT OF QUALIFIED PERSON

TO: British Columbia Securities Commission
Alberta Securities Commission

RE: Technical Report prepared for Pure Gold Inc. by Nordmin Engineering with an effective date of April 20, 2016 and an initial signing date of June 3rd, 2016 entitled "NI 43-101 TECHNICAL REPORT on the Preliminary Economic Assessment For the Madsen Gold Project, Pure Gold Mining Inc., Red Lake Area, Ontario" (the "Technical Report")

I, *Kevin A. Niemela, P. Eng.*, hereby consent to the public filing of the Technical Report by way of SEDAR.

I also consent to any extracts from, or a summary of, the Technical Report in the news release titled, "Pure Gold Announces Positive Preliminary Economic Assessment for the Madsen Gold Project," dated April 20, 2016 (the "**News Release**").

I confirm that I have read the aforementioned News Release filed by the Company and that it fairly and accurately represents the information in the sections of the Technical Report for which I am responsible.

DATED the 3rd day of June, 2016

Name: Kevin A. Niemela
Title: General Manager Sudbury Operations/Manager of Mining Services

50993950.2

CERTIFICATE OF QUALIFIED PERSON

I, John Folinsbee, do hereby certify that:

- I am the co-author of this technical report titled NI 43-101 TECHNICAL REPORT on the Preliminary Economic Assessment For the Madsen Gold Project, Pure Gold Mining Inc., Red Lake Area, Ontario, Canada with an effective date of April 20, 2016.
- I am currently a member in good standing of the Association of Professional Engineers of Ontario, the Association of Professional Engineers and Geoscientists of British Columbia
- 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.
- I visited the property in January 2013 that is subject of this Technical Report.
- I have authored, co-authored or supervised completion of section 13, 17
- I am independent of as defined by Chapter 5, Section 1.5 of NI 43-101.
- I have read NI 43-101 and have reviewed the sections of the report dated and sections for which I supervised and reviewed work performed as noted in No. 8 above and the sections have been prepared in compliance with NI 43-101.
- As of the date of this certificate, 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.
- The business address:

Heads or Tails Metallurgical Consulting Inc.
3726 Overlander Drive
Kamloops British Columbia
V2B 8M4

(Signed) (Sealed)

Effective Date: April 20, 2016
Signed Date: June 3, 2016

PROFESSIONAL
PROVINCE OF
J.A. FOLINSBEE
25634
BRITISH COLUMBIA
ENGINEER

John Folinsbee.
June 3, 2016

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(Heads Ore Tails Metallurgical Consulting Inc.)
CONSENT OF QUALIFIED PERSON

TO: British Columbia Securities Commission
Alberta Securities Commission

RE: Technical Report prepared for Pure Gold Inc. by Nordmin Engineering with an effective date of April 20, 2016 and an initial signing date of June 3rd, 2016 entitled "NI 43-101 TECHNICAL REPORT on the Preliminary Economic Assessment For the Madsen Gold Project, Pure Gold Mining Inc., Red Lake Area, Ontario" (the "Technical Report")

I, *(John Folinsbee - President*), hereby consent to the public filing of the Technical Report by way of SEDAR.

I also consent to any extracts from, or a summary of, the Technical Report in the news release titled, "Pure Gold Announces Positive Preliminary Economic Assessment for the Madsen Gold Project," dated April 20, 2016 (the "**News Release**").

I confirm that I have read the aforementioned News Release filed by the Company and that it fairly and accurately represents the information in the sections of the Technical Report for which I am responsible.

DATED the 3rd day of June, 2016

Name: John Folinsbee P.Eng
Title: President – Heads Ore Tails Metallurgical Consulting Inc.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J.A. FOLINSBEE
25634

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APPENDIX A

- **Land Titles of Pure Gold Mining Inc. by McMillan LLP**

Title of Pure Gold Mining Inc. to the Lands defined below

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Reply to:
Toronto Office

February 20, 2015

Macquarie Capital Markets Canada Ltd.
550 Burrard Street,
Bentall 5, Suite 2400,
Vancouver, BC V6C 2B5

Cormark Securities Inc.
Royal Bank Plaza, South Tower
200 Bay Street
Toronto, ON M5J 2J2

Canaccord Genuity Corp.
2200-609 Granville Street
Vancouver, BC V7Y 1H2

Cassels Brock & Blackwell LLP
Suite 2200, HSBC Building
885 West Georgia Street
Vancouver, BC V6C 3E8

Dear Sirs/Mesdames:

Re: Pure Gold Mining Inc.

We have acted as Ontario real estate counsel to Pure Gold Mining Inc. (the "**Corporation**") in connection with providing this title opinion for the brokered private placement of 12,857,143 flow-through common shares (the "**Flow-Through Shares**") and 2,857,143 common shares (the "**Common Shares**") from the Corporation at a price of C$0.35 per Flow-Through Share and C$0.28 per Common Share, for aggregate gross proceeds of C$5,300,000.00 to the Corporation (the "**Offering**").

This title opinion is being provided pursuant to Section 7.1(f) of the underwriting agreement dated February 20, 2015 between the Corporation and Macquarie Capital Markets Ltd., Cormark Securities Inc. and Canaccord Genuity Corp. and relates to certain properties located in the Townships of Baird and Heyson as further set out in Appendix "A" of this letter and referred to by the Corporation as the "Madsen Lands" and the "Jael Lands."

I. <u>FREEHOLD AND LEASEHOLD PROPERTIES</u>

In reviewing title to the patented freehold and leasehold properties owned by the Corporation and listed in Appendix "A" of this letter (the "**Properties**"), we have:

(a) subsearched title to the Properties and have relied upon the instruments of record available for public examination in the Land Registry Office of the Land Titles Division of Kenora;

(b) conducted searches to ascertain the subsistence of such corporate predecessors in title during their respective periods of ownership of the Properties or parts thereof necessary for providing the opinions hereinafter set forth; and

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(c) conducted searches for executions at the Sheriff of Territorial District of Kenora Office against the Corporation.

We have made no other searches, investigations or inquires with respect to the opinions expressed herein including, without limitation, any inquiries as to access and inquires of authorities regarding realty taxes, provincial land taxes, mining taxes, fees exigible as expressed on the Crown grant such as assurance fees, building and zoning compliance, utilities, unregistered easements, conservation or environmental matters. In addition, we have not examined any surveys of the Properties for the purposes of this opinion. In particular, we have not made any searches of adjoining lands to the Properties to confirm compliance with the *Planning Act* (Ontario).

In conducting the searches and in giving the opinions contained herein, we have assumed:

(a) that the persons purporting to execute the documents examined in the course of title examinations are, in fact, the same persons named therein and, when executed by a corporation, that the persons so executing on behalf of the corporation have been duly authorized as signing officers;

(b) that copies of documents examined are, in fact, true copies of documents in existence and that the original of such documents were properly executed;

(c) the accuracy and completeness of the records maintained by any office of public record; and

(d) that each corporation or company which is or has been a registered holder of any leasehold and/or freehold properties set out herein was, at the time it acquired, held or, as applicable, transferred such property (i) entitled to own, and had the corporate capacity to own, property or an interest in leasehold property and/or mining claims in the Province of Ontario, and (ii) not in default regarding any laws of the Province of Ontario.

Based solely on our examination of the registered title to the Properties and the qualifications expressed herein, we are of the opinion that the Corporation is the registered owner of the freehold or leasehold interests in the Properties noted herein with good and marketable title thereto, free and clear of all encumbrances, as of February 19, 2015, subject only to the specific encumbrances listed in the Encumbrance column of Appendix "A" and described in Appendix "C" and the title qualifications listed in Appendix "B" of this letter.

II. UNPATENTED MINING CLAIMS

In reviewing title to the mining claims of the Corporation, we have reviewed (i) uncertified copies of the Mining Recorder's electronic registers for the Corporation's Unpatented Claims set out in Appendix "D" (the "**Unpatented Claims**") developed and maintained by the Mines and Mineral Division of the Ministry of Northern Development and Mines ("**MNDM**")

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effective February 19, 2015 and (ii) Mining Licence of Occupation No. 13528 maintained in the register of Mining Licence of Occupation with MNDM (the "**Licence of Occupation**").

The opinions in this letter relating to the Unpatented Claims and the Licence of Occupation are subject to the following qualifications and restrictions:

(a) that no investigation has been made of the original application for filing and the location of the boundaries of the Unpatented Claims and the Licence of Occupation, or the existence of any other interests in the Unpatented Claims and the Licence of Occupation, or liens, charges or encumbrances in respect of the Unpatented Claims and the Licence of Occupation other than which may be noted in the records reviewed in the course of our online search;

(b) that the online documents examined are the only documents we have examined pertaining to title to the Unpatented Claims;

(c) that the persons purporting to execute the documents examined in the course of title examinations are, in fact, the same persons named therein and, when executed by a corporation, that the persons so executing on behalf of the corporation have been duly authorized as signing officers;

(d) that copies of documents examined are, in fact, true copies of documents in existence and that the original of such documents were properly executed;

(e) the accuracy and completeness of the records maintained by any office of public record.

(f) that no searches or other investigations were made with respect to tax or other charges assessed by applicable government authorities;

(g) that we have not made any enquiries or sought any evidence to determine if the Unpatented Claims have been staked in accordance with the *Mining Act* (Ontario) (the "**Act**") and Regulations nor whether any assessment work filed is in accordance with the Act and Regulations, nor whether the Unpatented Claims are otherwise in compliance with the Act;

(h) that the Unpatented Claims are subject to the filings and reservations shown in the online records of MNDM, copies of which are set out in Appendix "E"; and

(i) the Unpatented Claims and the Licence of Occupation may be subject to unregistered agreements, liens, charges, encumbrances, transfers or claims of aboriginal peoples.

As a result of the searches and examinations as described above and based on and subject to the qualifications herein described, we are of the opinion that:

1. The Corporation is the recorded holder of the Unpatented Claims and the Licence of Occupation; and

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2. The Unpatented Claims are listed in the online records of MNDM as Active.

We are solicitors qualified in the Province of Ontario, Canada and accordingly no opinion is expressed herein as to the laws of any jurisdiction other than Ontario and the laws of Canada applicable thereto.

This opinion relates solely to the Offering and is for the sole use and benefit of the addressees. It cannot be relied upon by other parties or in respect of other transactions without our prior written consent.

Yours truly,

McMillan LLP

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APPENDIX B

- **Environmental Liabilities - Historic and Abandoned Mine Workings and Status (Micon 2009)**

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Location	Description	AMIS Status[1]	Current Status and Comment
Madsen Mine		AMIS Site ID: 03879	
	Crown Pillar	-	Government Order to complete the crown pillar assessment recommended by AMEC in the 2003 preliminary study.
	Mine Openings	Shaft – 3-compartment, vertical shaft. Historical records indicate Madsen #2 shaft on KRL11505 to a depth of 573 ft. (1935-36). Five levels, first at 100 ft., remainder at 112-ft intervals. Total drifting 2,381 ft. and 675 ft. of crosscutting. The initial 3 compartment shaft was then slashed out to 5 compartments and deepened to a depth of 4,176 ft. with 24 levels, first at 200 ft. then at 150-ft intervals except between levels 11 and 12 which is 200 ft. and some other levels. Total drifting 169,860 ft. and crosscutting of 32,203 ft. 7 raises identified, either filled or capped.	Some raises have permanent concrete caps. Other caps are not permanent (i.e. timber caps inside utility buildings as the company envisions that they might be used if production was to re-start at the mine.
	Waste Rock	-	-
	Buildings and Foundations	Shaft and headframe buildings are in poor condition. Pits and trenches (non hazardous).	Shaft and headframe currently in use. The mill buildings, and mill equipment, are under care and maintenance and the building contains the current mine offices. Some utility building in use. Other buildings are in poor condition) and the company has plans to demolish them. Tailings pond in use for mine dewatering project. Pond is maintained and regularly samples, pits and trenches (non hazardous). One building is known to have ceiling tiles containing asbestos. The extent of asbestos in the various buildings is not known but will need to be considered for building removal.
	Sewage Effluent	Madsen town sewage is being dumped in the tailings.	-
	Tailings	Historical records indicate mill commenced operations with a 300 t/d mill, later increased to 800 t/d.	-
Madsen #1		AMIS Site ID: 03929	

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Location	Description	AMIS Status[1]	Current Status and Comment
	Mine Opening	Located on the east shore of High Lake on claims KRL11504 and KRL11505.	Shaft is capped and fenced. The shaft likely requires re-capping.
		The 1993 survey reports capped shaft and buried decline, concrete of cap is poor grade and deteriorating. 1993 survey - capped shaft reported to be 175 m deep. The shaft is well capped but overgrown. 1993 assessment - capped manway and vent raise. The concrete cap over the raise is of poor grade and deteriorating. Level plans indicate workings on 30 and 152 m level.	
	Trenching	27 trenches cut along No.1 vein for a length of 254 m, non-hazardous.	Trenching is backfilled with mine waste.
	Waste Rock	Waste rock pile blocks the entrance road.	Waste rock piles on slopes and at the boat launch on High Lake.
	Garbage	-	Garbage has been dumped at a few sites along the access roads.
Madsen #2 Vein		AMIS Site ID: 02884	
	Mine Openings	Shaft – 1-compartment, vertical shaft. Located approximately 200 m north of the Madsen No.1 Shaft on the east shore of High Lake, 1 km South of Hwy 618. 1993 survey - reports obliterated trenches and stripping. Shaft, waste rock dump, and underground lateral workings not reported in the 1993 survey.	-
Madsen #3 Vein		AMIS Site ID: 02891	
	Trenches	Old trenches have been buried by stripping; no significant hazard.	-
Madsen #Zone 8		AMIS Site ID: 03930	
	Lateral Workings	This site is located some 1,190 m under the town of Madsen. Access to this area would be obtained by travelling underground via the mine shaft. Mine workings begin over 1,000 m below surface; a talc zone in the access drift created ground control problems while mining; no stoping occurred in the talc zone, only drifting.	-
Starratt-Olsen		AMIS Site ID: 03882	
	Crown Pillar	-	-

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Location	Description	AMIS Status[1]	Current Status and Comment
	Mine Opening	Capped shaft, capped raises, capped vent raise at surface. Historical records indicate shaft to 2,129 ft. (1945-56) with intervals between 125 to 200 ft., 37,000 ft. of drifting and 950 ft. of crosscutting. Concrete capped shaft.	Shafts and raises capped.
	Waste Rock	Waste rock pile is located north of the crusher house foundation.	The waste rock dump contains the east end of the tailings impoundment area.
	Tailings	1993 assessment - reports tailings area being used as a recreational area for horses by locals. A 5 m high dam borders the western edge of the feature.	Tailings perimeter is approximately 1,400 m with a total area of approximately 71,953 m^2.
	Buildings and Foundations	Concrete foundations hazard. Water tower not reported during the 1993 survey. Assay office foundation. Refinery foundation. Hoist room foundation covered with rotten wood. Historical records indicate a 500 t/d mill (1945-56).	Concrete foundations for the mill and associated buildings with some scrap metal and timbers exposed. Some water filled openings in the concrete foundations.
	Garbage Dumps	The north side of the waste rock dump adjacent to the tailings site is being used as a garbage dump. Hazard	Garbage dumped on waste rock pile and on the tailings and in several areas around the mill foundations.
Faulkenham		AMIS Site ID: 03878	
	Mine Opening	The site is 1 km south of the village of Starratt Olsen. 1993 assessment - reports a 3-compartment open shaft with rotting timber collar in waste rock. Historical records indicate (1936-37) shaft to 344 ft. with levels at 125, 225, and 325 ft. 1,129 ft. of drifting and crosscutting.	The collar of the shaft is covered by rotting timbers and a metal screen across them. In August 2009 Claude has requested quotes from 2 engineering firms to design a permanent concrete shaft cap.
	Waste Rock	The site is built on the waste rock dump.	Entire site is located on top of ~3 m of waste rock.
	Building Foundations	Possible remnants of old buildings.	The wooden buildings have almost entirely rotted away to just the foundations and very little wood remains.
De Villiers Showing		AMIS Site ID: 02883	
	Mine Opening	Vertical exploration shaft. This 1-compartment exploration test shaft was sunk to a depth of 30 ft. on vein	The shaft is nearly completely filled with waste rock to a depth of approximately 1m.

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Location	Description	AMIS Status[1]	Current Status and Comment
		quartz during the summer of 1937. The vein was cut off at 15 ft. and was not located in a 30-ft crosscut put out to the northwest. The 1994 V.B. Cook site assessment indicates that this exploration shaft has been backfilled with muck.	
	Trenching	There are various overgrown or obliterated trenches and pits. The east section consists of various overgrown trenches in a forested area.	-
Olsen Showing		AMIS Site ID: 02943	
	Trenches	The showing is located on the SE shore of Flat Lake in a wooded area. The nearest community is Starratt Olsen, 1 km to the East, on claims KRL12643 and 12644. Trenching was conducted in 1934 and consisted of 34 trenches over a 850-ft length. 1993 survey - reports trenches, overgrown, the deepest of which is 1.6 m. No significant hazard.	-

[1] AMIS (Abandoned Mines Information System) status of the mine feature as noted in the government database.

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APPENDIX C

- **Analytical Control Sample Assay Results**
- **Claude Drilling**

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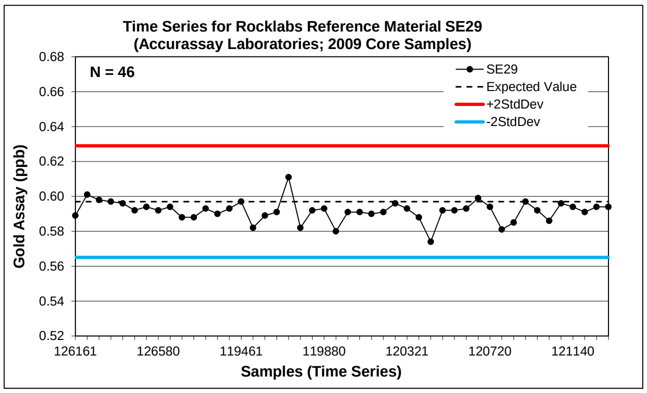
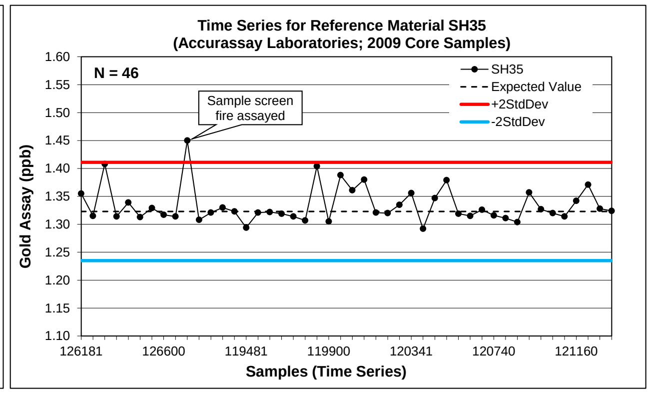
Assay Results for Certified Control Samples and Field Blank Samples Assayed by Accurassay.

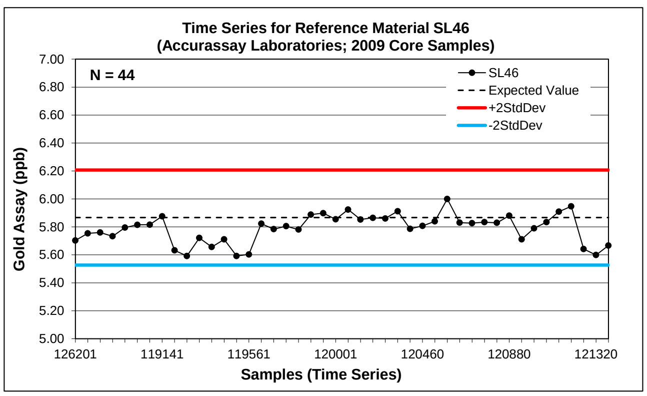
srk consulting

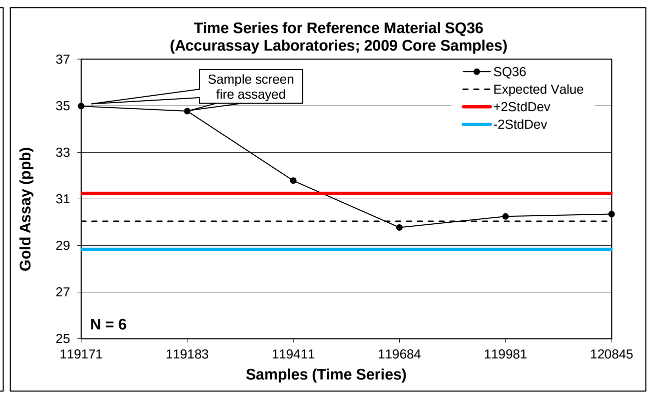
Project	Madsen Gold Project
Data Series	2009 Blanks and Standards
Data Type	Core Samples
Commodity	Au in gpt
Laboratory	Accurassay Laboratories
Analytical Method	Fire Assay
Detection Limit	0.005 gpt Au

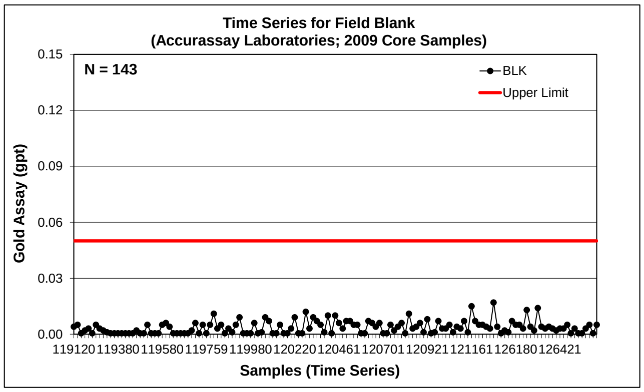
Statistics	BLK	SE29	SH35	SL46	SQ36
Sample Count	143	46	46	44	6
Expected Value	0.005	0.60	1.32	5.87	30.04
Standard Deviation	-	0.02	0.04	0.17	0.60
Data Mean	0.004	0.59	1.33	5.79	31.99
Outside 2StdDev/UL	0%	0%	2%	0%	50%
Below 2StdDev	-	0	0	0	0
Above 2StdDev	-	0	1	0	3







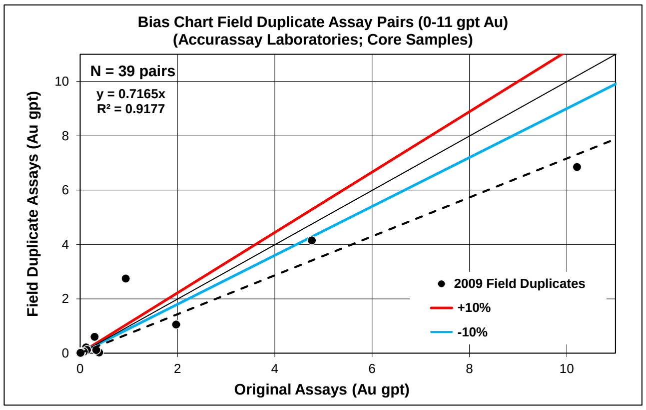


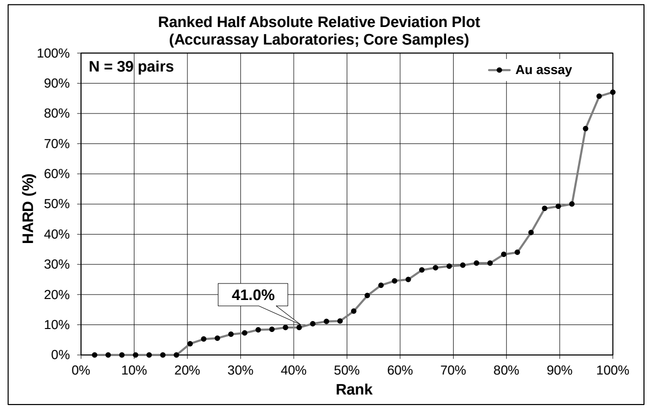


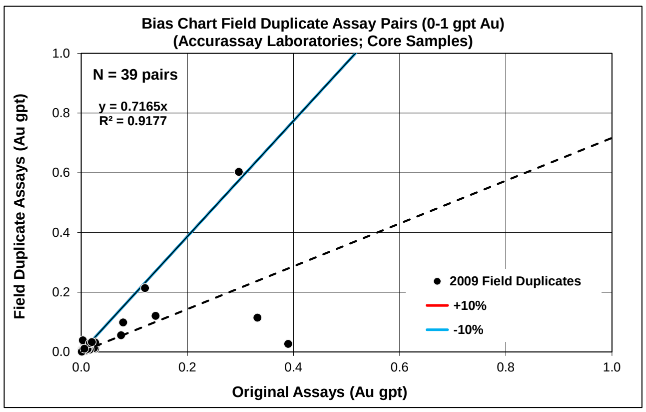
Bias Charts and Precision Plots for Field Duplicate Sample Pairs assayed by Accurassay.

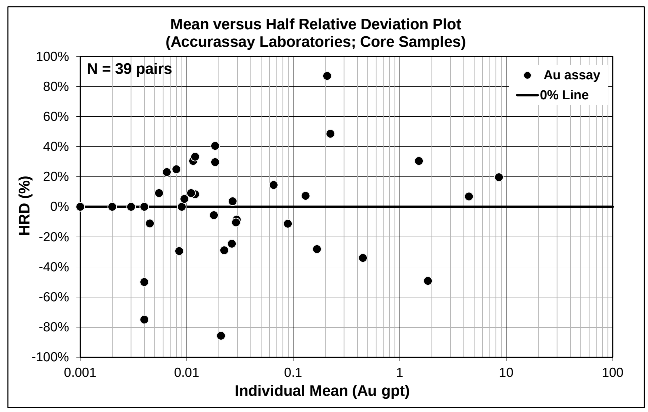
srk consulting

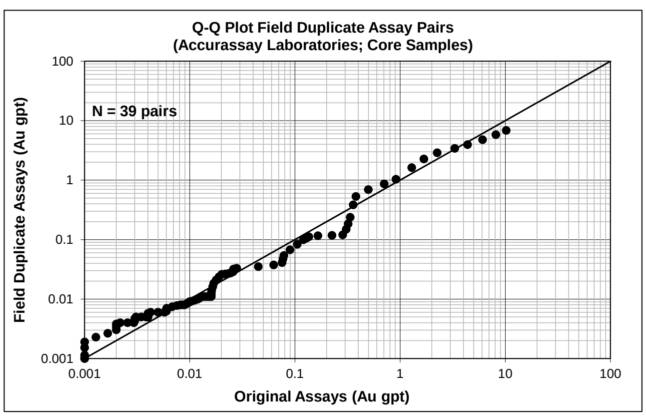
		Statistics	Original	Field Duplicate
		Sample Count	39	39
Project	Madsen Gold Project	Minimum Value	0.001	0.001
Data Series	2009 Field Duplicates	Maximum Value	10.21	6.85
Data Type	Core Samples	Mean	0.503	0.420
Commodity	Au in gpt	Median	0.016	0.011
Analytical Method	Fire Assay	Standard Error	0.287	0.212
Detection Limit	0.005 gpt Au	Standard Deviation	1.793	1.322
Original Dataset	Original Assays	Correlation Coefficient	0.9591	
Paired Dataset	Field Duplicate Assays	Pairs ≤ 10% HARD	41.0%	

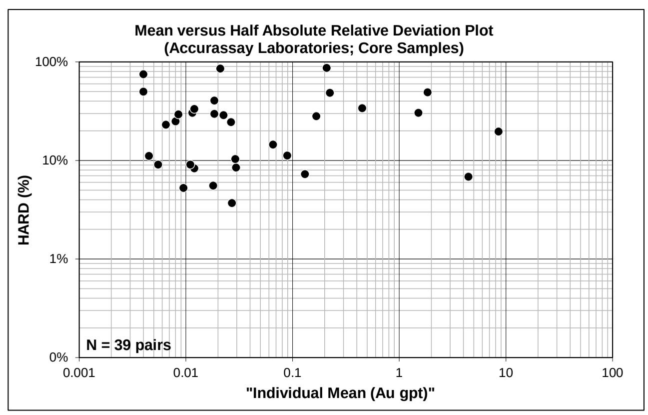

Bias Chart Field Duplicate Assay Pairs (0-11 gpt Au)
(Accurassay Laboratories; Core Samples)
N = 39 pairs
y = 0.7165x
R² = 0.9177
Field Duplicate Assays (Au gpt)
Original Assays (Au gpt)
2009 Field Duplicates
+10%
-10%


Ranked Half Absolute Relative Deviation Plot
(Accurassay Laboratories; Core Samples)
N = 39 pairs
Au assay
41.0%
HARD (%)
Rank


Bias Chart Field Duplicate Assay Pairs (0-1 gpt Au)
(Accurassay Laboratories; Core Samples)
N = 39 pairs
y = 0.7165x
R² = 0.9177
Field Duplicate Assays (Au gpt)
Original Assays (Au gpt)
2009 Field Duplicates
+10%
-10%


Mean versus Half Relative Deviation Plot
(Accurassay Laboratories; Core Samples)
N = 39 pairs
Au assay
0% Line
HRD (%)
Individual Mean (Au gpt)


Q-Q Plot Field Duplicate Assay Pairs
(Accurassay Laboratories; Core Samples)
N = 39 pairs
Field Duplicate Assays (Au gpt)
Original Assays (Au gpt)

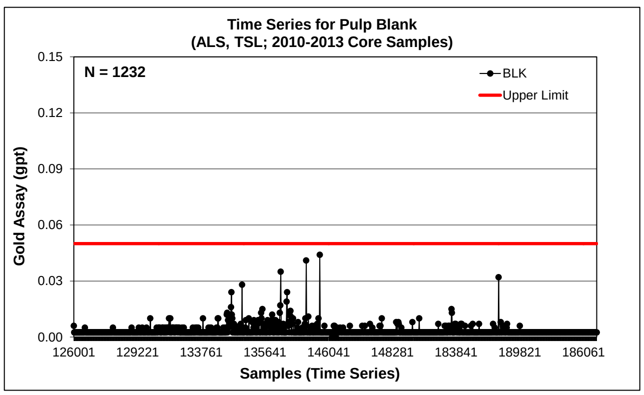

Mean versus Half Absolute Relative Deviation Plot
(Accurassay Laboratories; Core Samples)
N = 39 pairs
HARD (%)
"Individual Mean (Au gpt)"

Bias Charts and Precision Plots for Field Duplicate Sample Pairs assayed by TSL and ALS

srk consulting

Project	Madsen Gold Project
Data Series	2010-2013 Blanks
Data Type	Core Samples
Commodity	Au in gpt
Laboratory	ALS, TSL
Analytical Method	Fire Assay
Detection Limit	0.005 gpt Au

Statistics	BLK
Sample Count	1,232
Expected Value	0.005
Standard Deviation	-
Data Mean	0.003
Upper Limit (10xDL)	0%



Bias Charts and Precision Plots for Field Duplicate Sample Pairs assayed by TSL and ALS.

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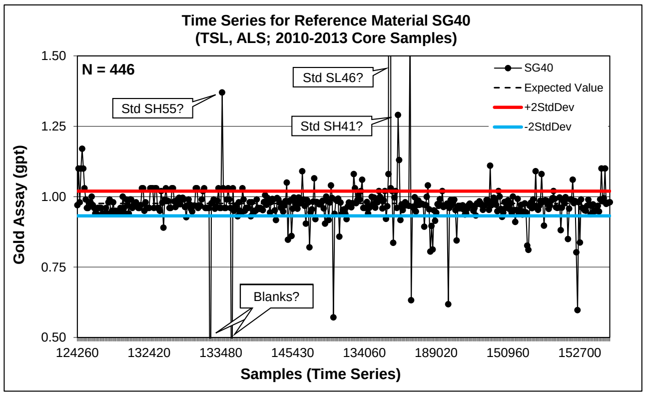
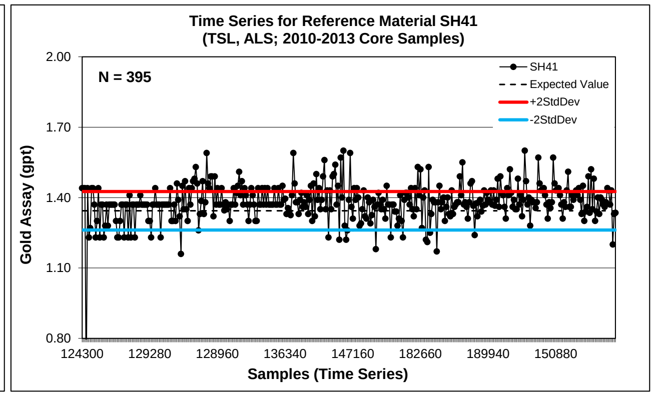
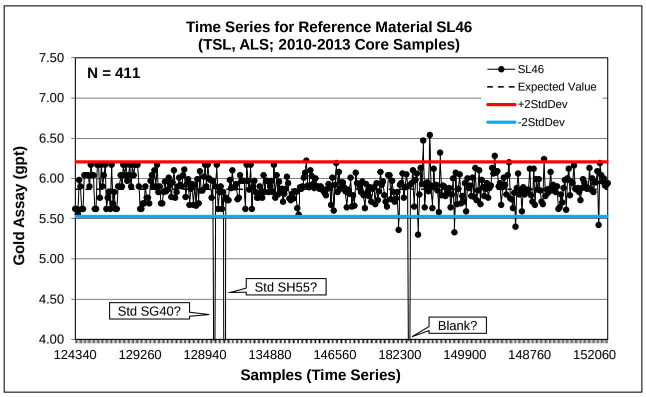
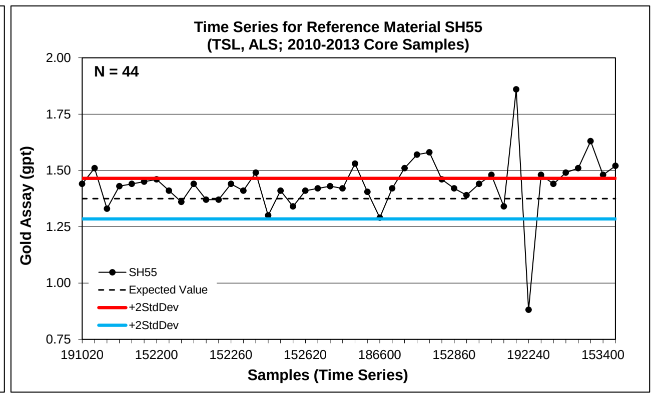
Project	Madsen Gold Project
Data Series	2010-2013 Standards
Data Type	Core Samples
Commodity	Au in gpt
Laboratory	TSL and ALS
Analytical Method	Fire Assay
Detection Limit	0.005 gpt

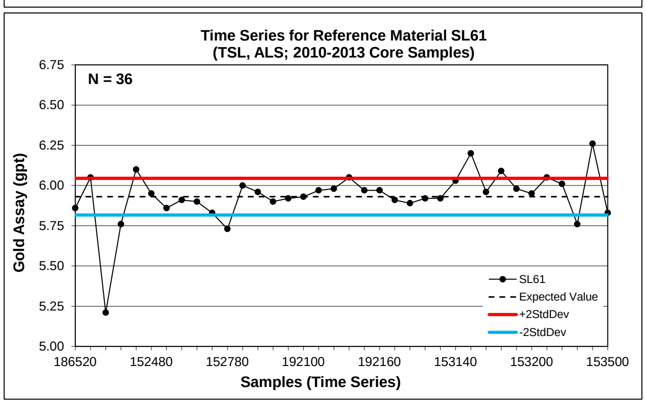
Statistics	SG40	SH41	SL46	SH55	SL61	SQ36
Sample Count	446	395	411	44	36	10
Expected Value	0.98	1.34	5.87	1.38	5.93	30.04
Standard Deviation	0.02	0.04	0.17	0.05	0.06	0.24
Data Mean	0.98	1.38	5.85	1.44	5.93	29.15
Outside 2StdDev	18%	33%	3%	34%	31%	20%
Below 2StdDev	38	28	8	1	4	1
Above 2StdDev	44	104	6	14	7	1

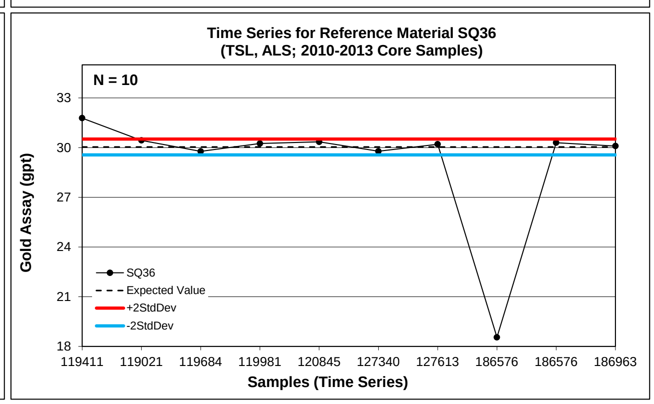












Bias Charts and Precision Plots for Field Duplicate Samples Assayed by TSL Saskatoon, Canada and ALS Vancouver, Canada between 2010 and 2013

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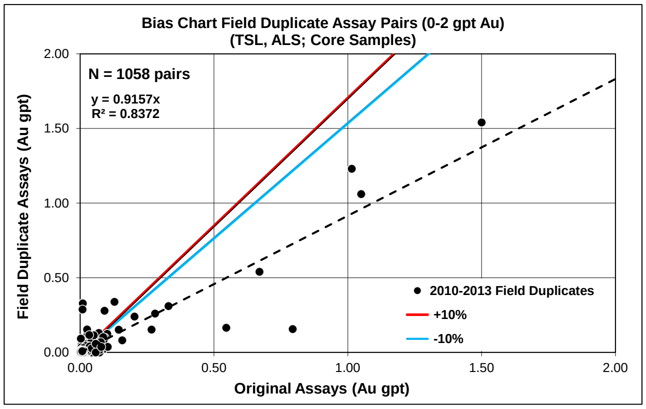
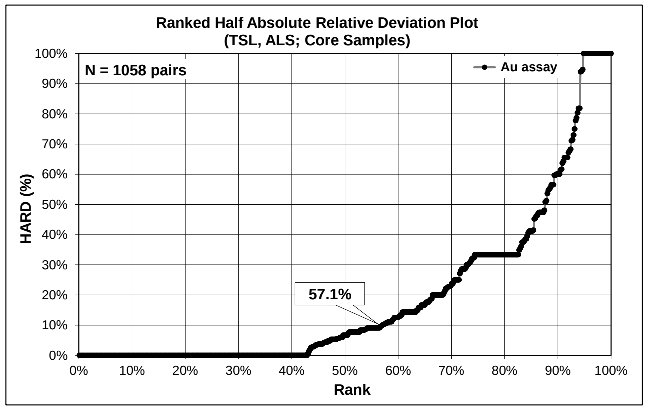
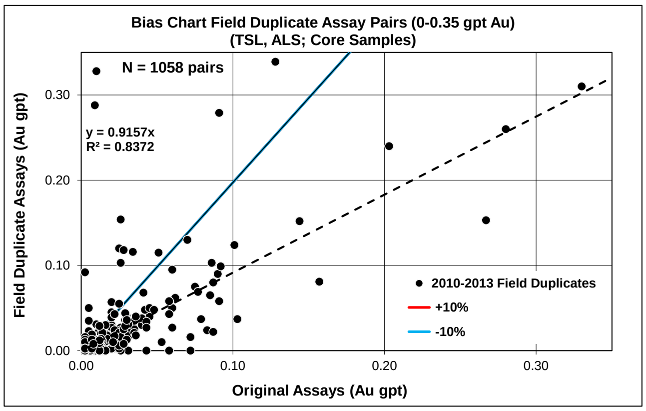
srk consulting

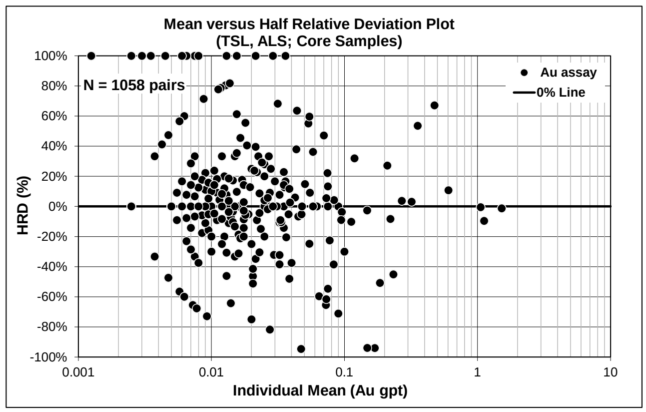
Project	Madsen Gold Project
Data Series	2010-2013 Field Duplicates
Data Type	Core Samples
Commodity	Au in gpt
Analytical Method	Fire Assay
Detection Limit	0.005 gpt Au
Original Dataset	Original Assays
Paired Dataset	Field Duplicate Assays

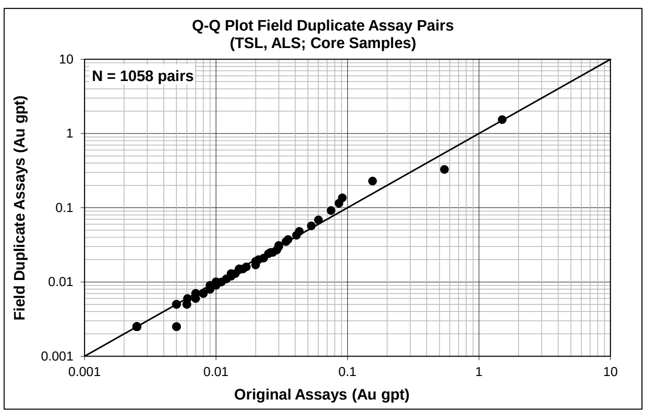
Statistics	**Original**	**Field Duplicate**
Sample Count	1,058	1,058
Minimum Value	0.003	0.000
Maximum Value	1.50	1.54
Mean	0.026	0.026
Median	0.006	0.005
Standard Error	0.003	0.003
Standard Deviation	0.107	0.106
Correlation Coefficient	0.9152	
Pairs ≤ 10% HARD	57.1%	

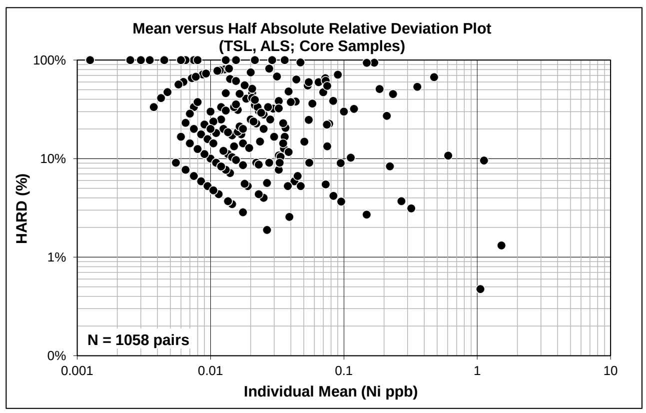












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APPENDIX D

- **3D Geological Modelling**

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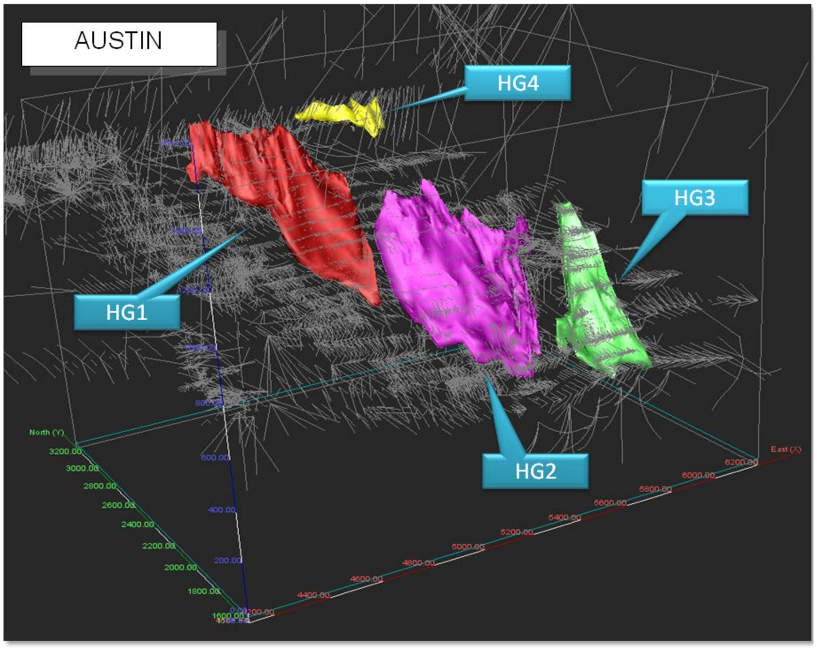
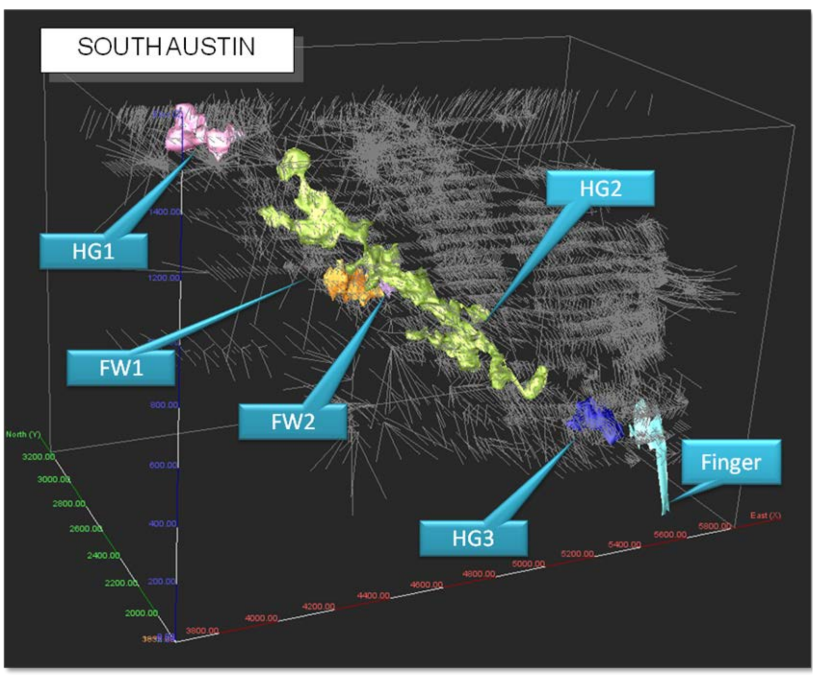
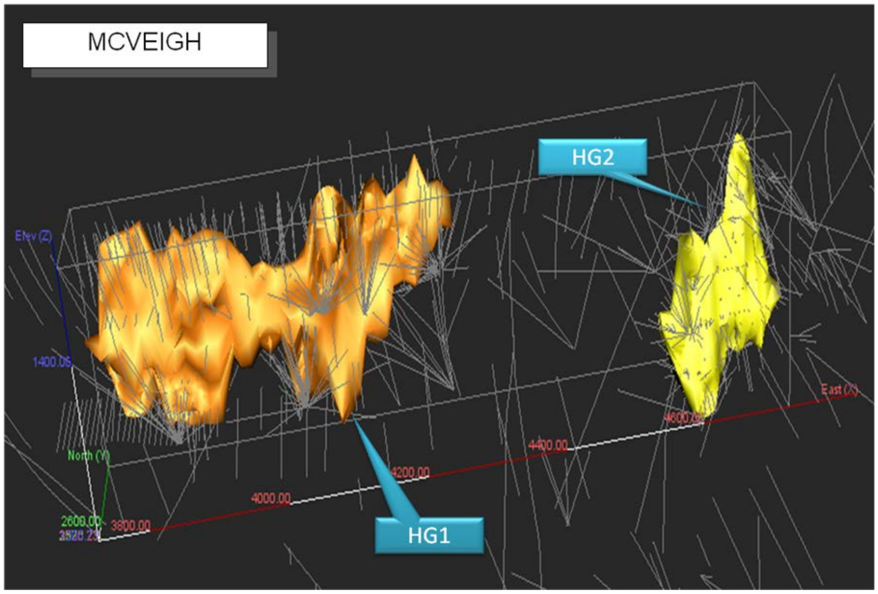
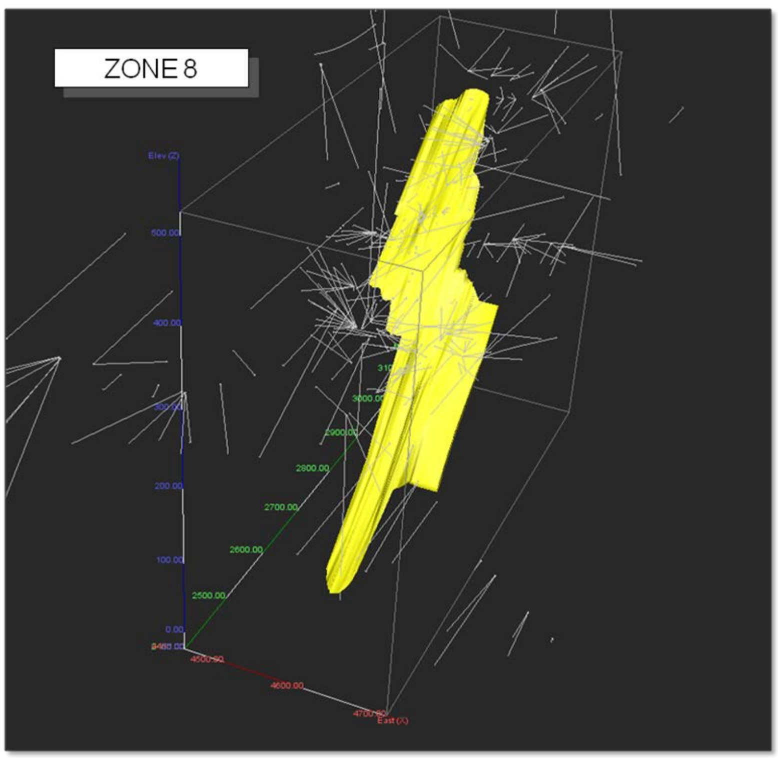
3D view of the modelled high grade zones within the Austin and South Austin gold mineralized zones in relation to informing boreholes (looking north).





3D view of the modelled high grade zones within the McVeigh and Zone 8 gold mineralized zones in relation to informing boreholes (looking north).





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APPENDIX E

- **Variography**

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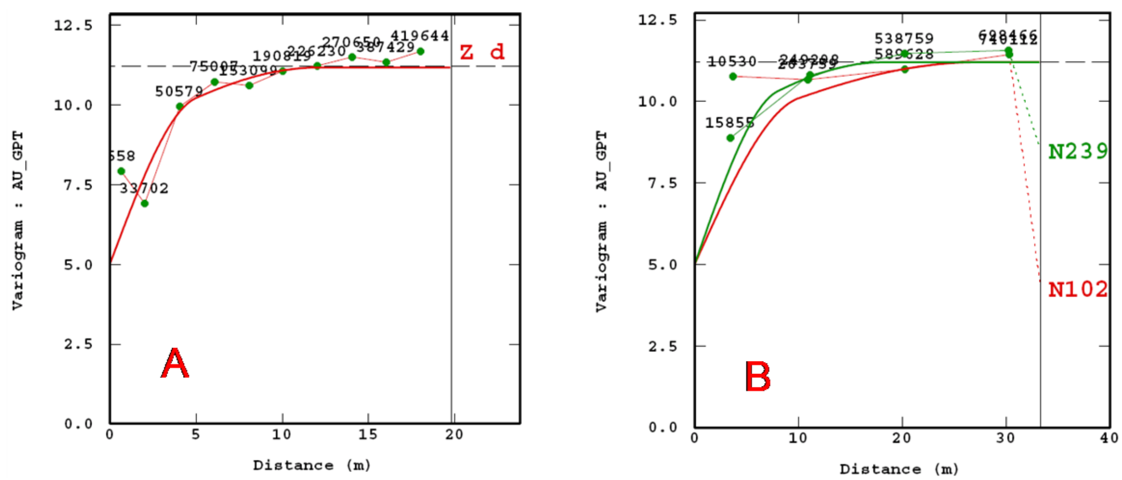
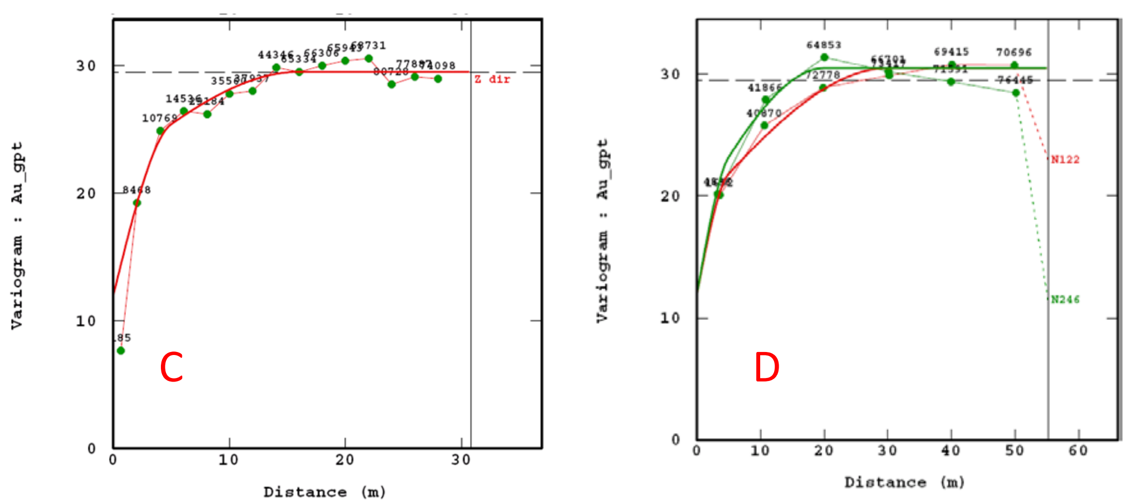
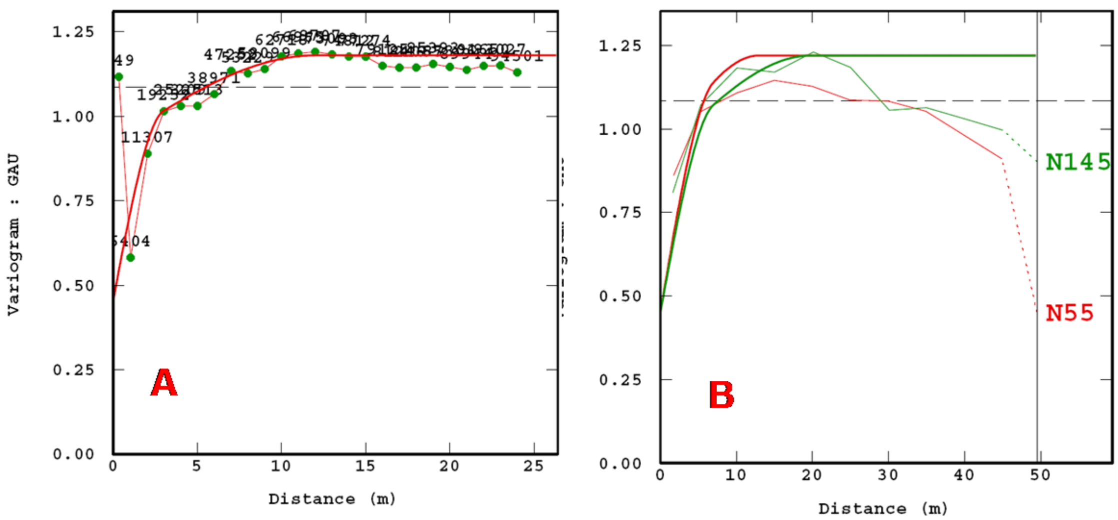
Variogram models for the Austin HG1 Domain. A = Down-hole variogram and B= Anisotropic variogram



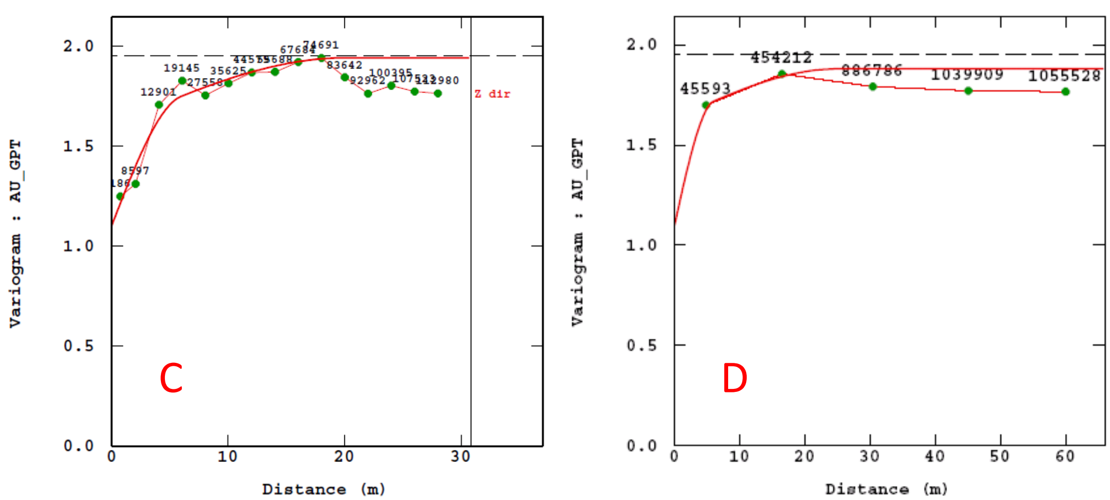
Variogram models for the South Austin HG1 Domain. C = Down-hole variogram and D= Anisotropic variogram



Variogram models for the Zone 8 Domain. A = Down-hole variogram and B= Anisotropic variogram



Variogram models for the McVeigh HG1 Domain. C = Down-hole variogram and D= Anisotropic variogram



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APPENDIX F

- **Block Model Cross-section**

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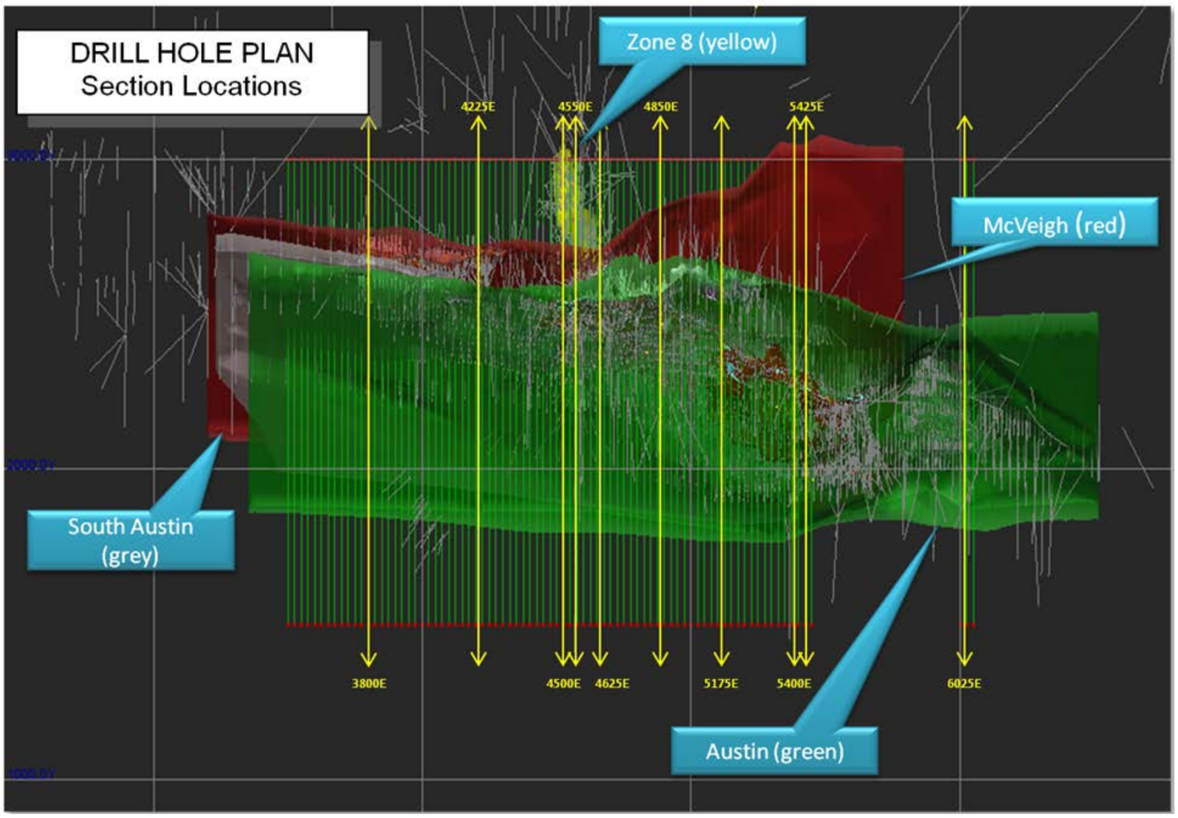
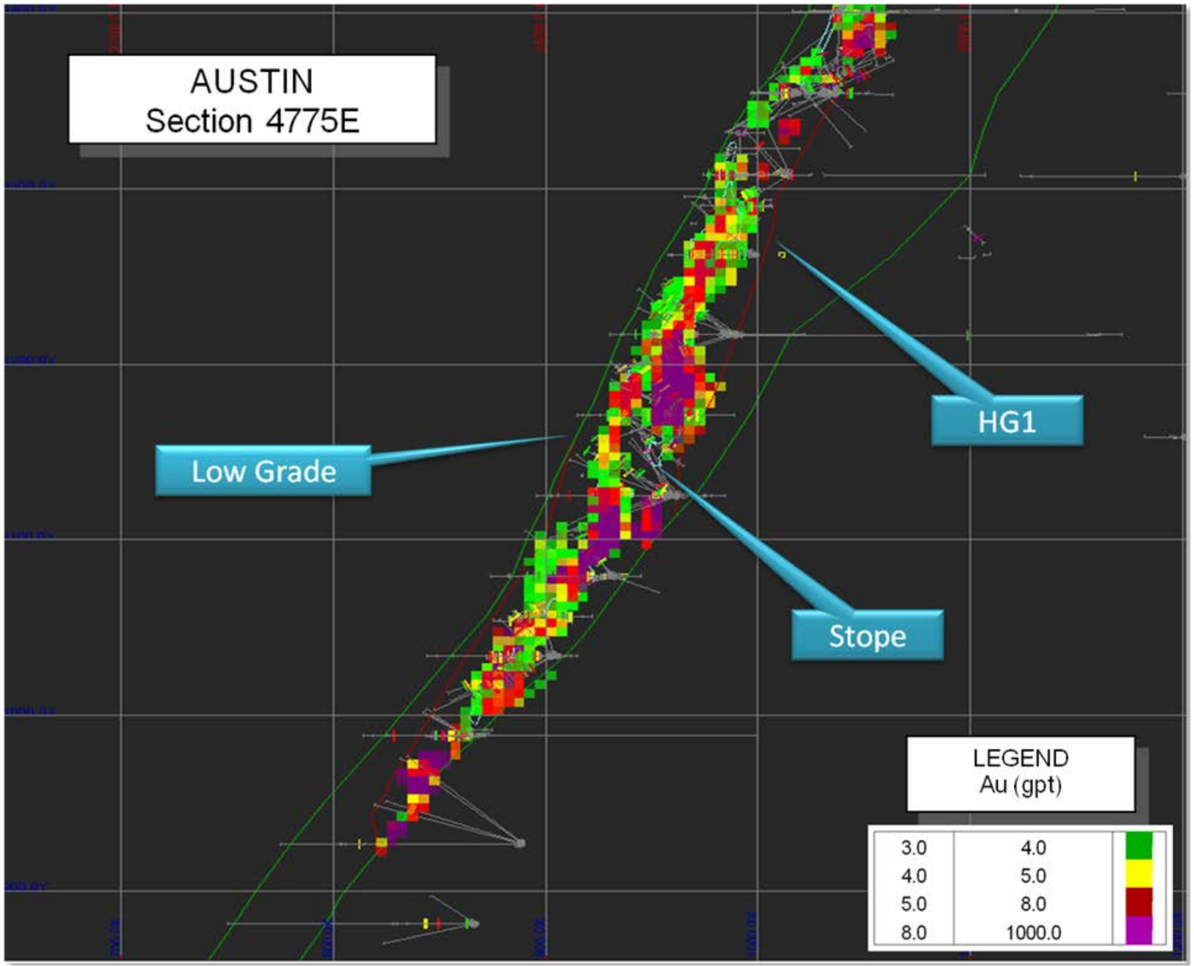
Plan view map depicting location of block model cross-sections. To prevent overlapping not all lines are shown.



Austin tuff cross-section at easting 4775E, Madsen mine Grid Metric, looking west.



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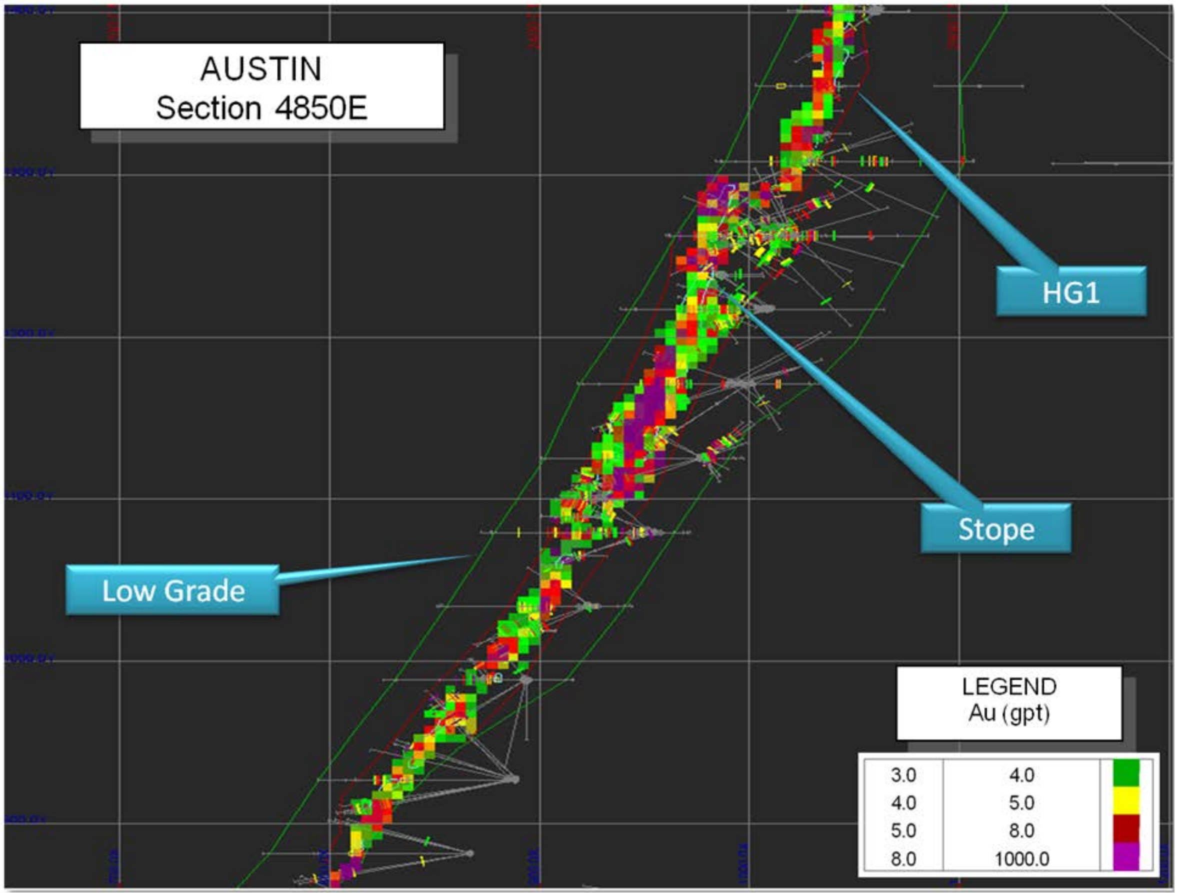
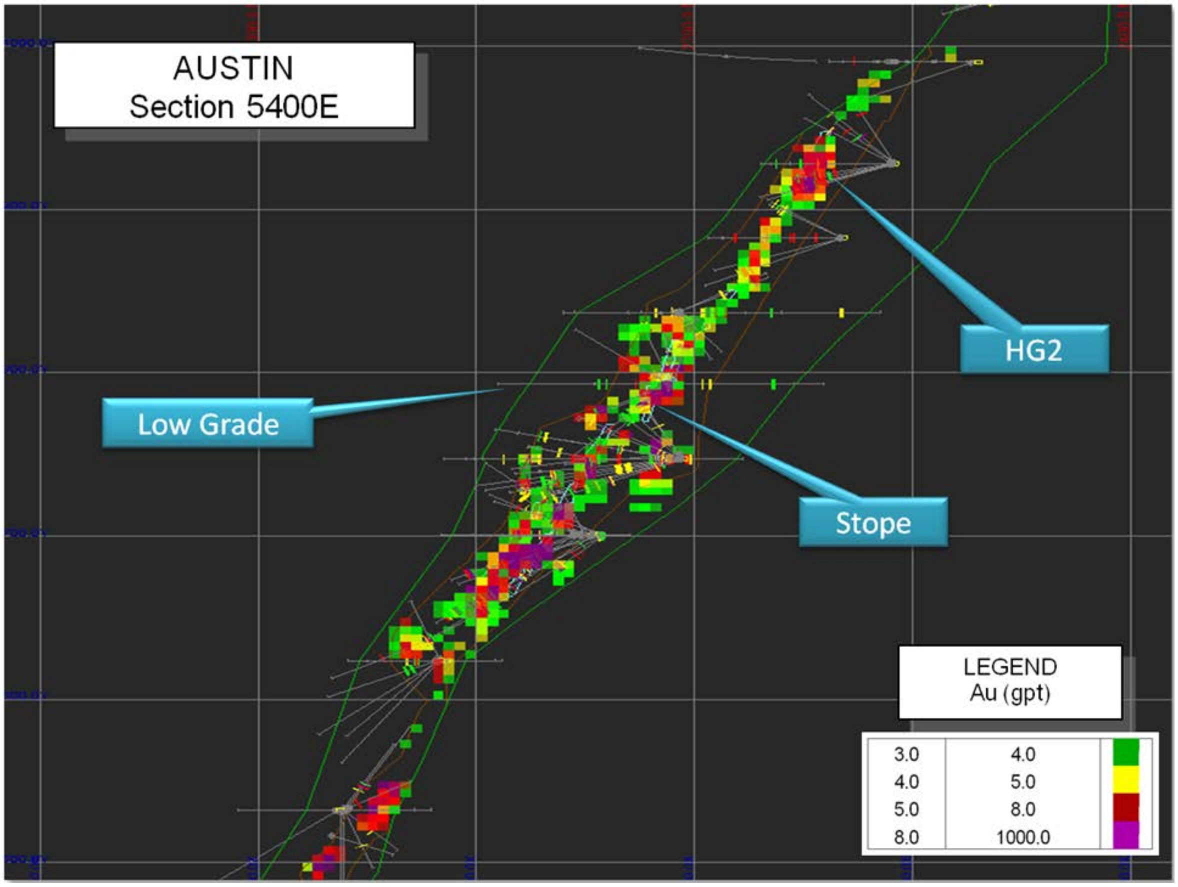
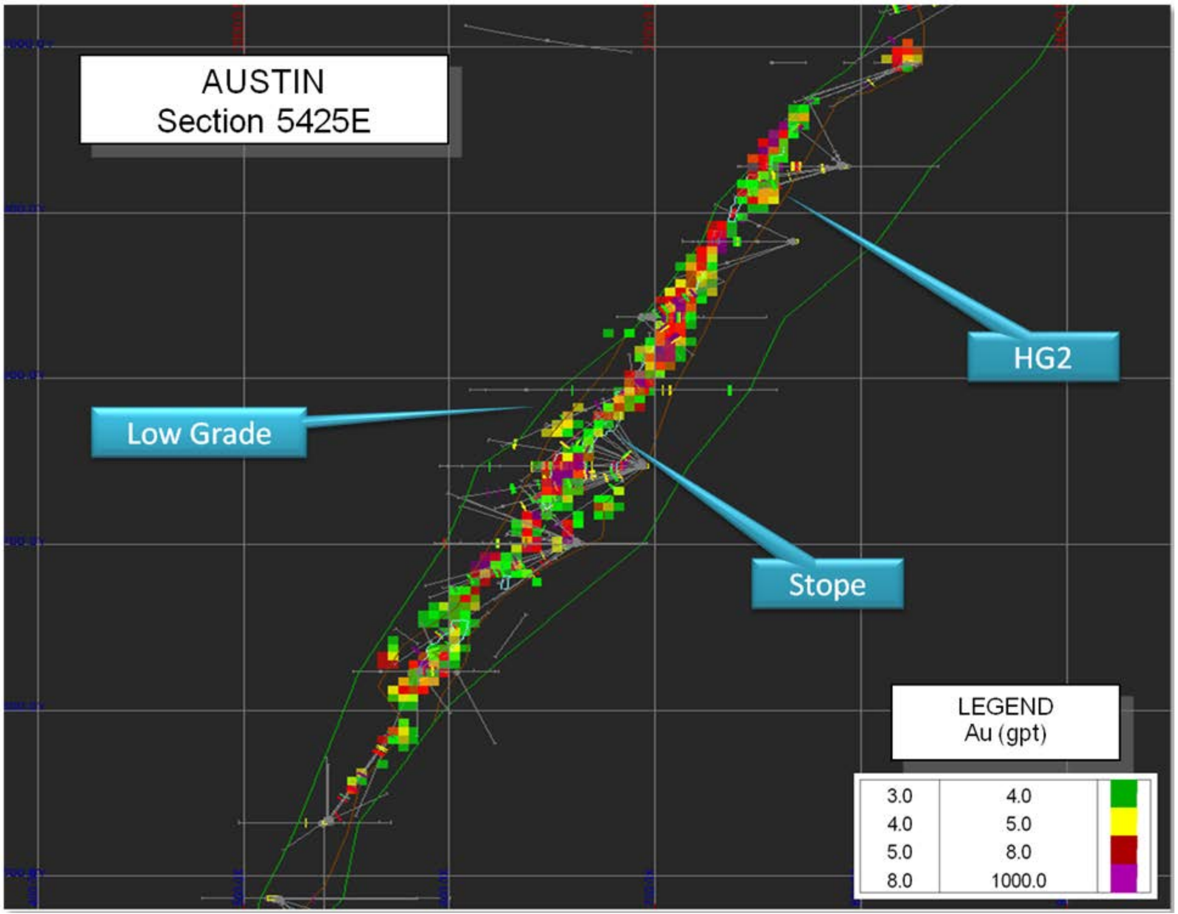
Austin tuff cross-section at easting 4850E, Madsen mine Grid Metric, looking west.



Austin tuff cross-section at easting 5400E, Madsen mine Grid Metric, looking west.



Austin tuff cross-section at easting 5425E, Madsen mine Grid Metric, looking west.



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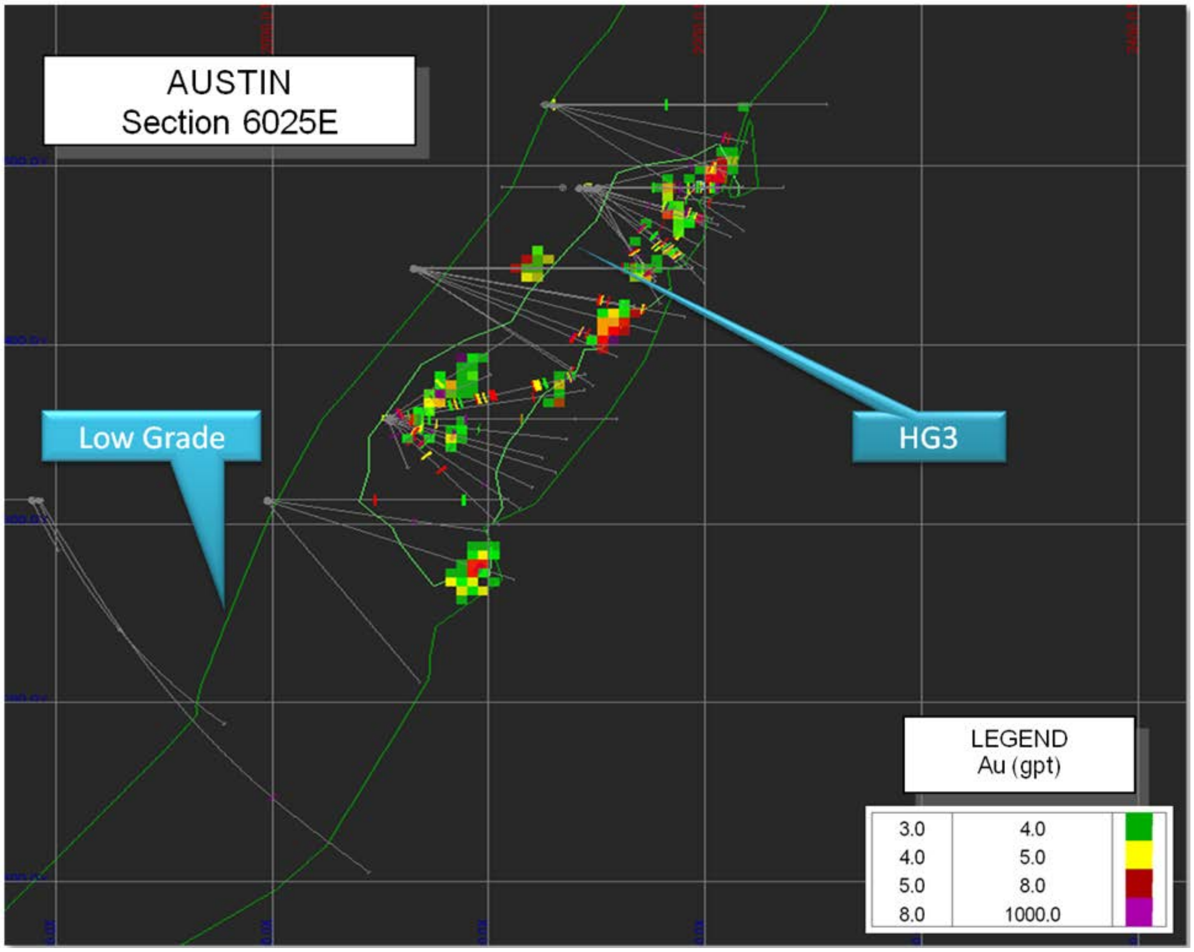
Austin tuff cross-section at easting 6025E, Madsen mine Grid Metric, looking west.



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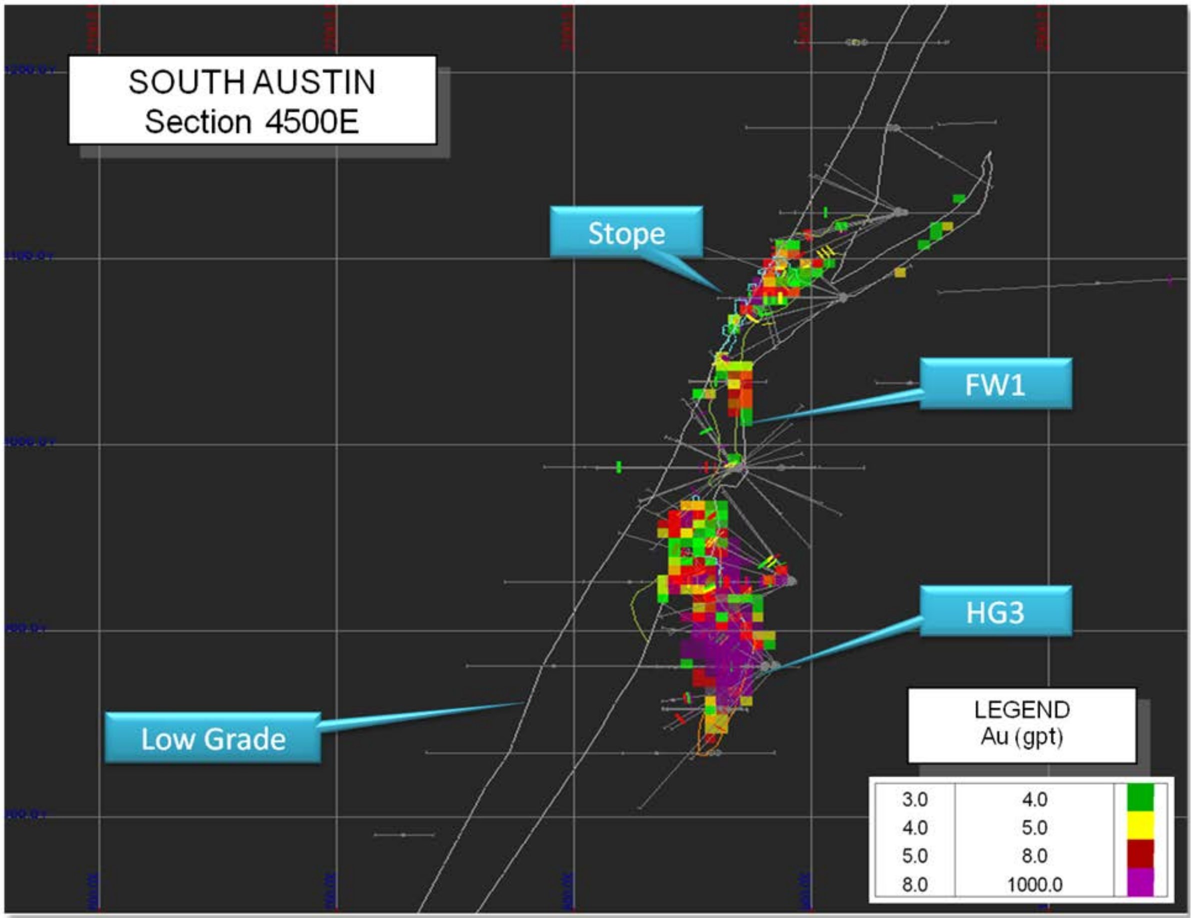
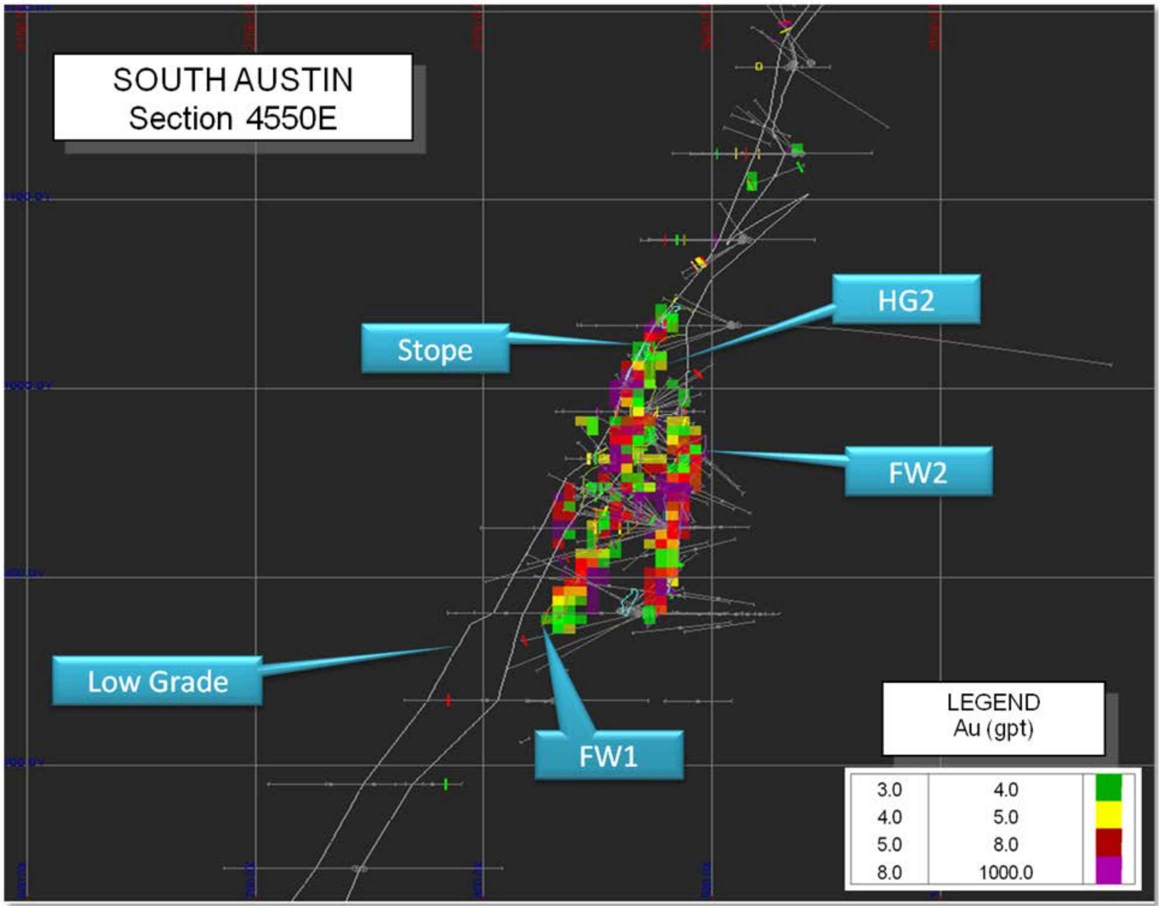
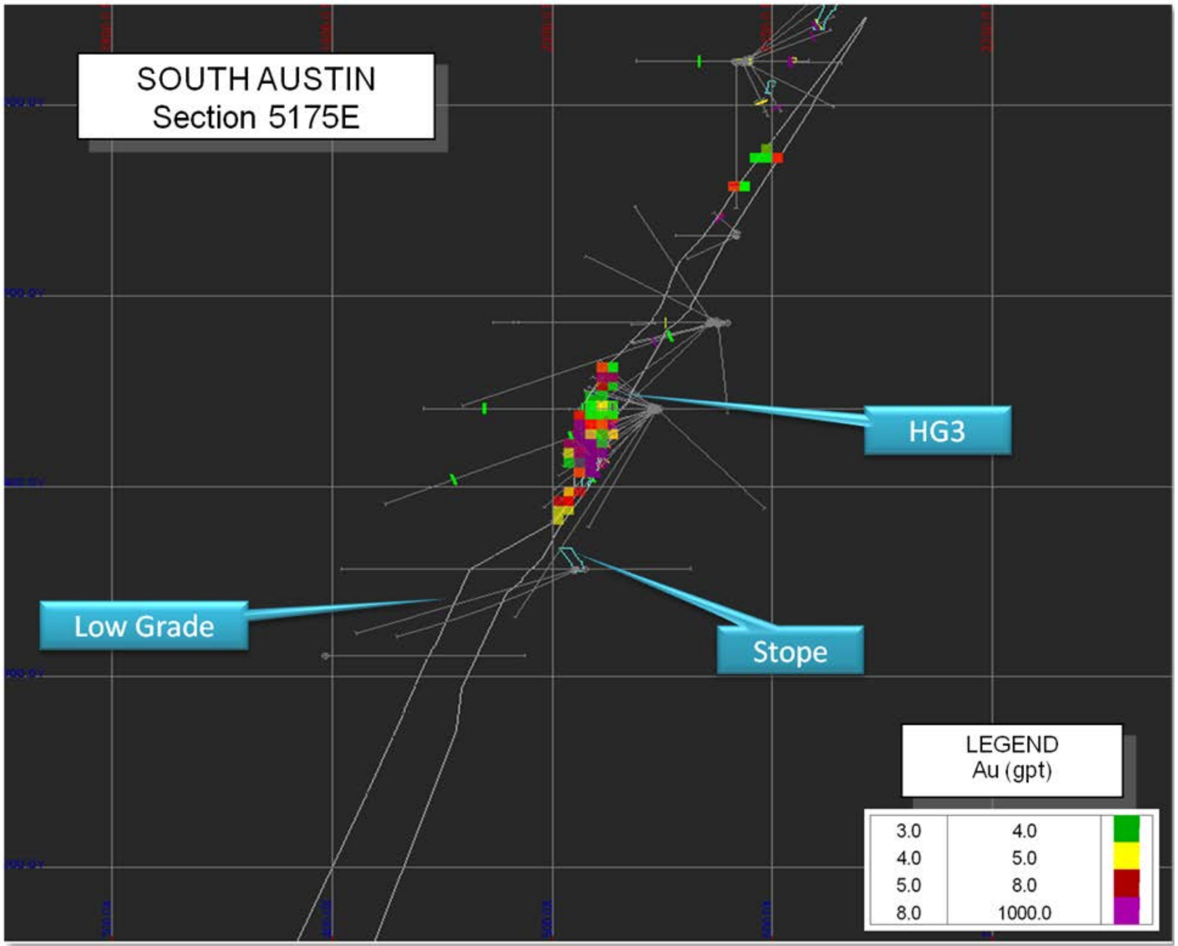
South Austin tuff cross-section at easting 4500E, Madsen mine Grid Metric, looking west.



South Austin tuff cross-section at easting 4550E, Madsen mine Grid Metric, looking west.



South Austin tuff cross-section at easting 5175E, Madsen mine Grid Metric, looking west.



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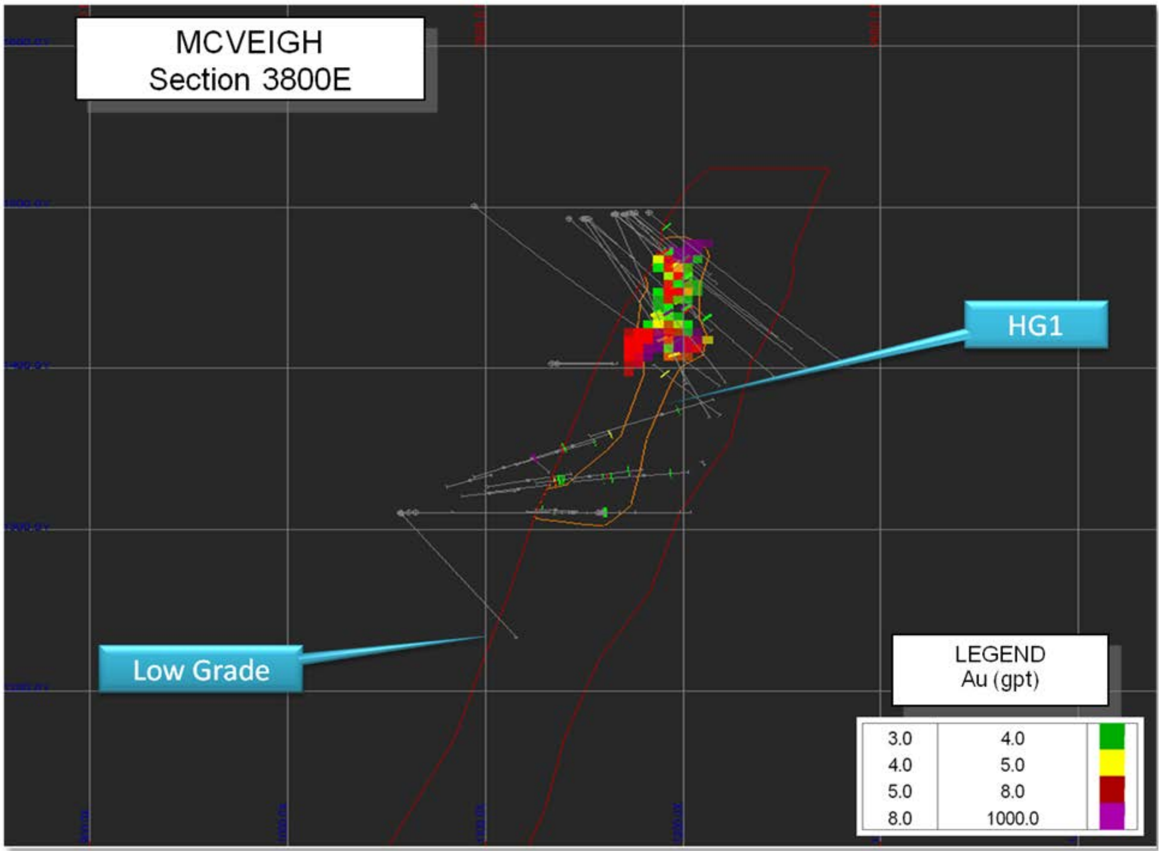
McVeigh tuff cross-section at easting 3800E, Madsen mine Grid Metric, looking west.



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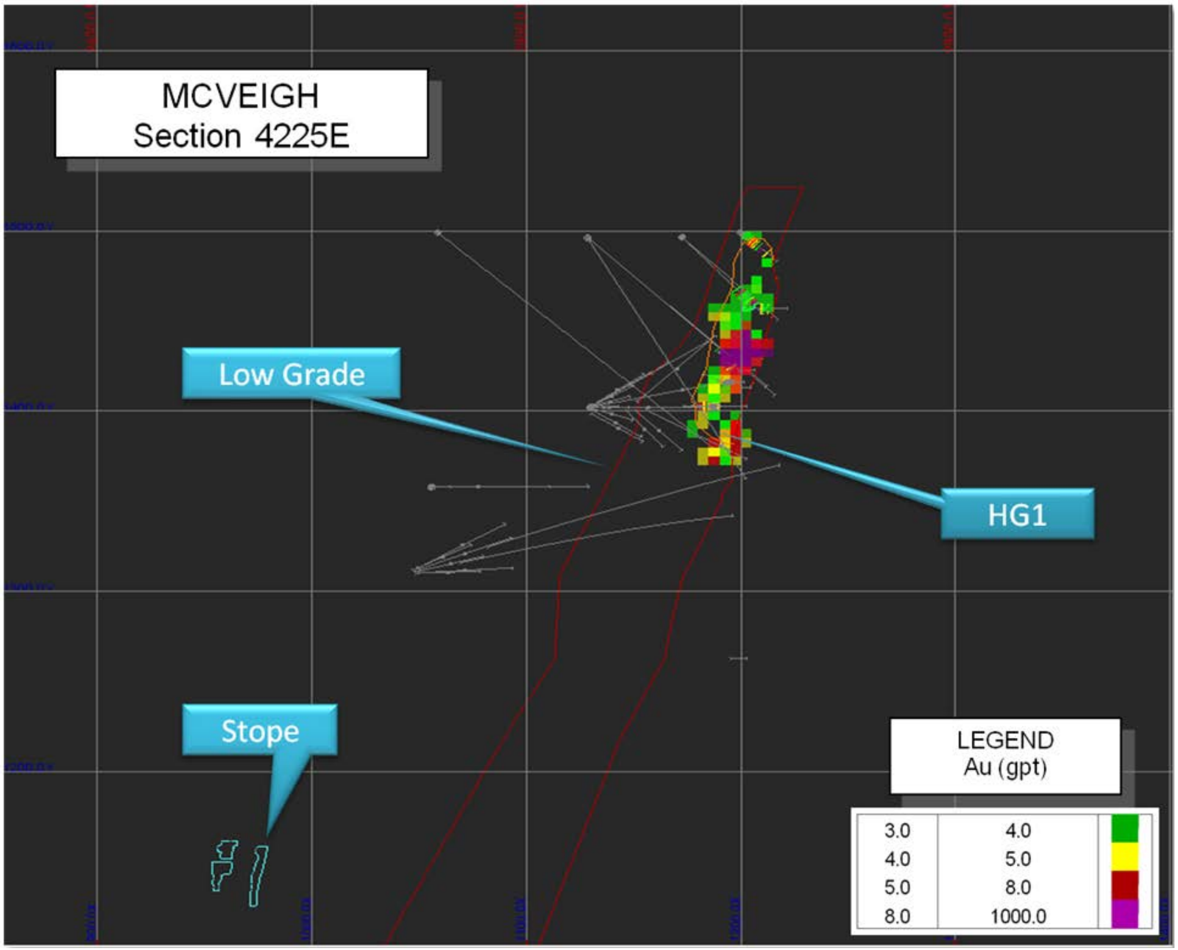
McVeigh tuff cross-section at easting 4225E, Madsen mine Grid Metric, looking west.



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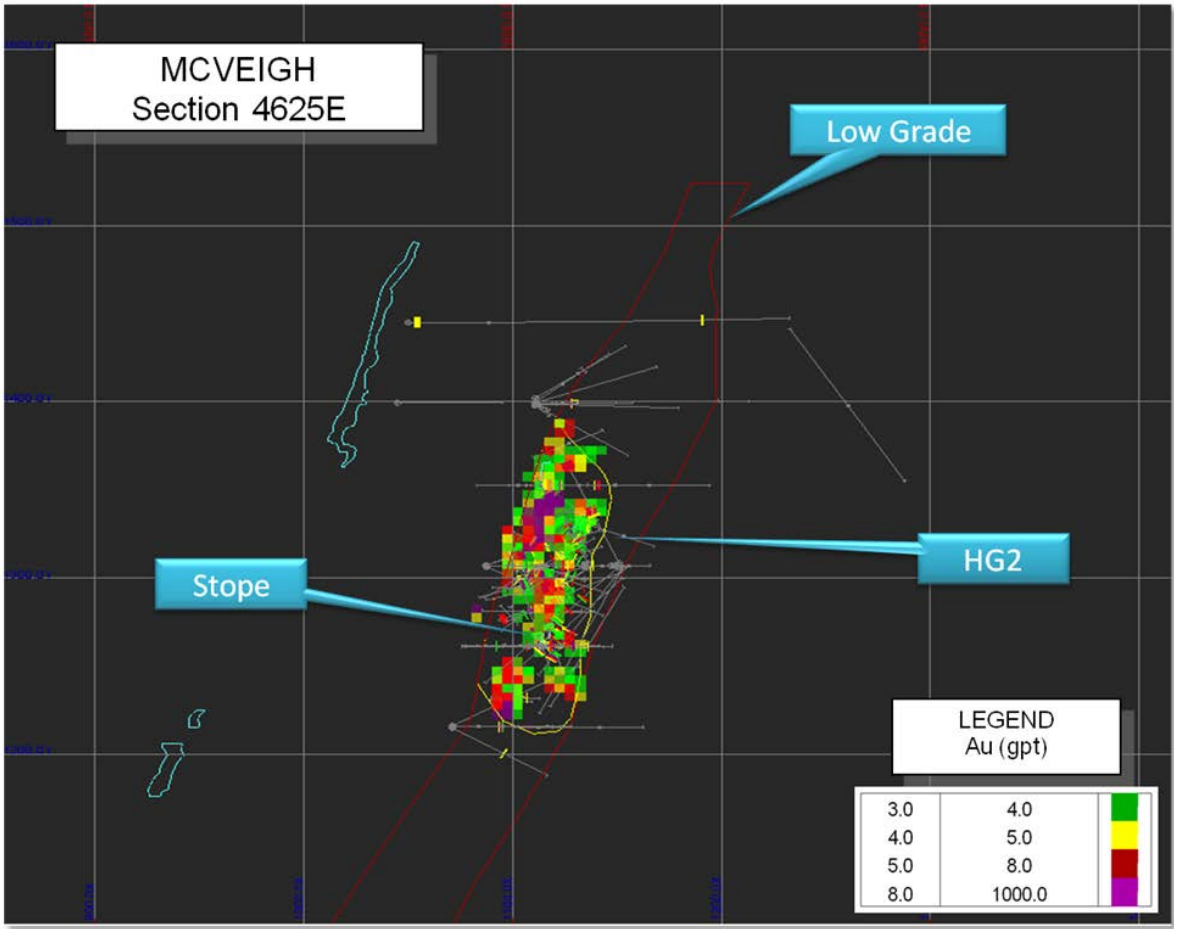
McVeigh tuff cross-section at easting 4625E, Madsen mine Grid Metric, looking west.



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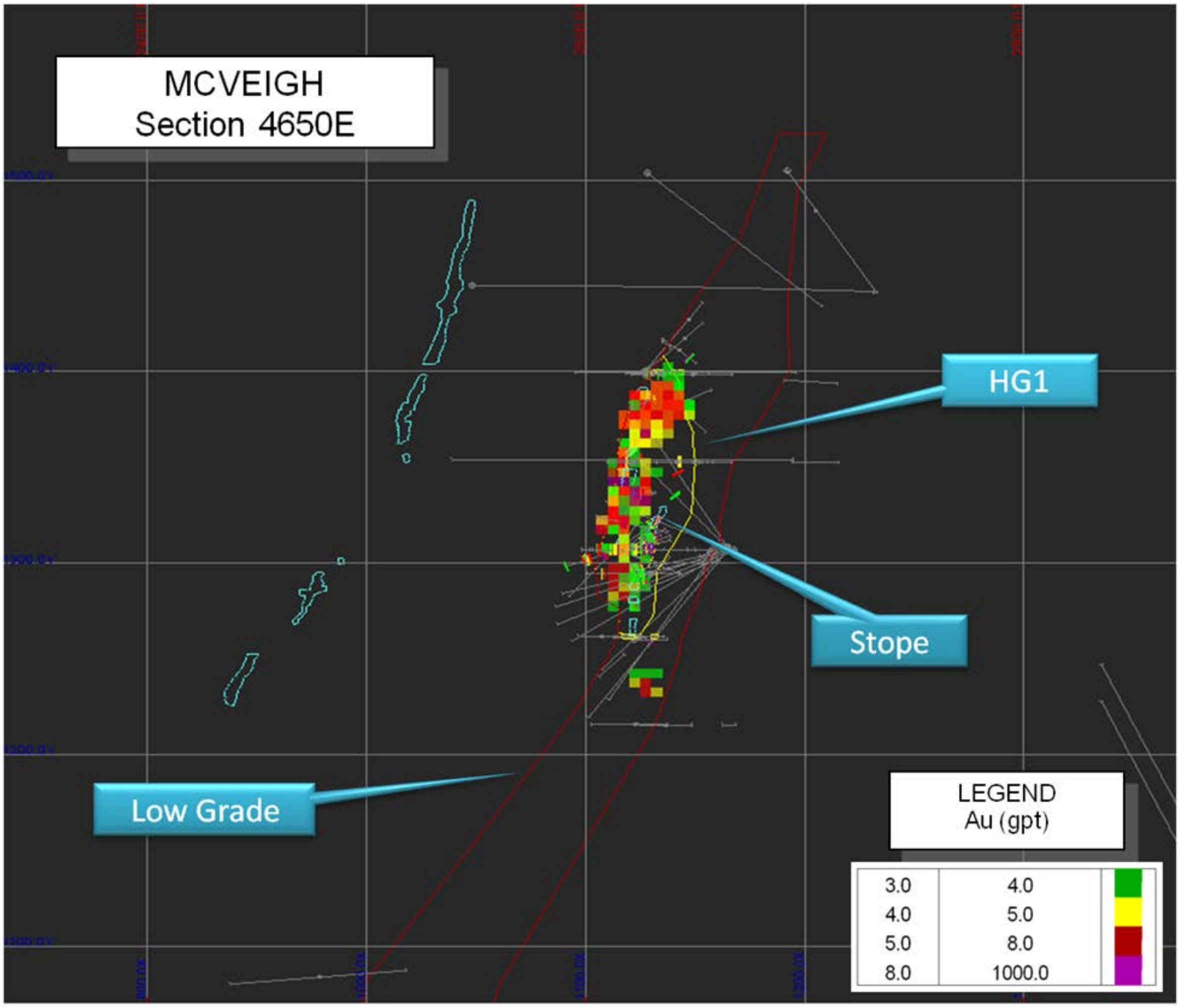
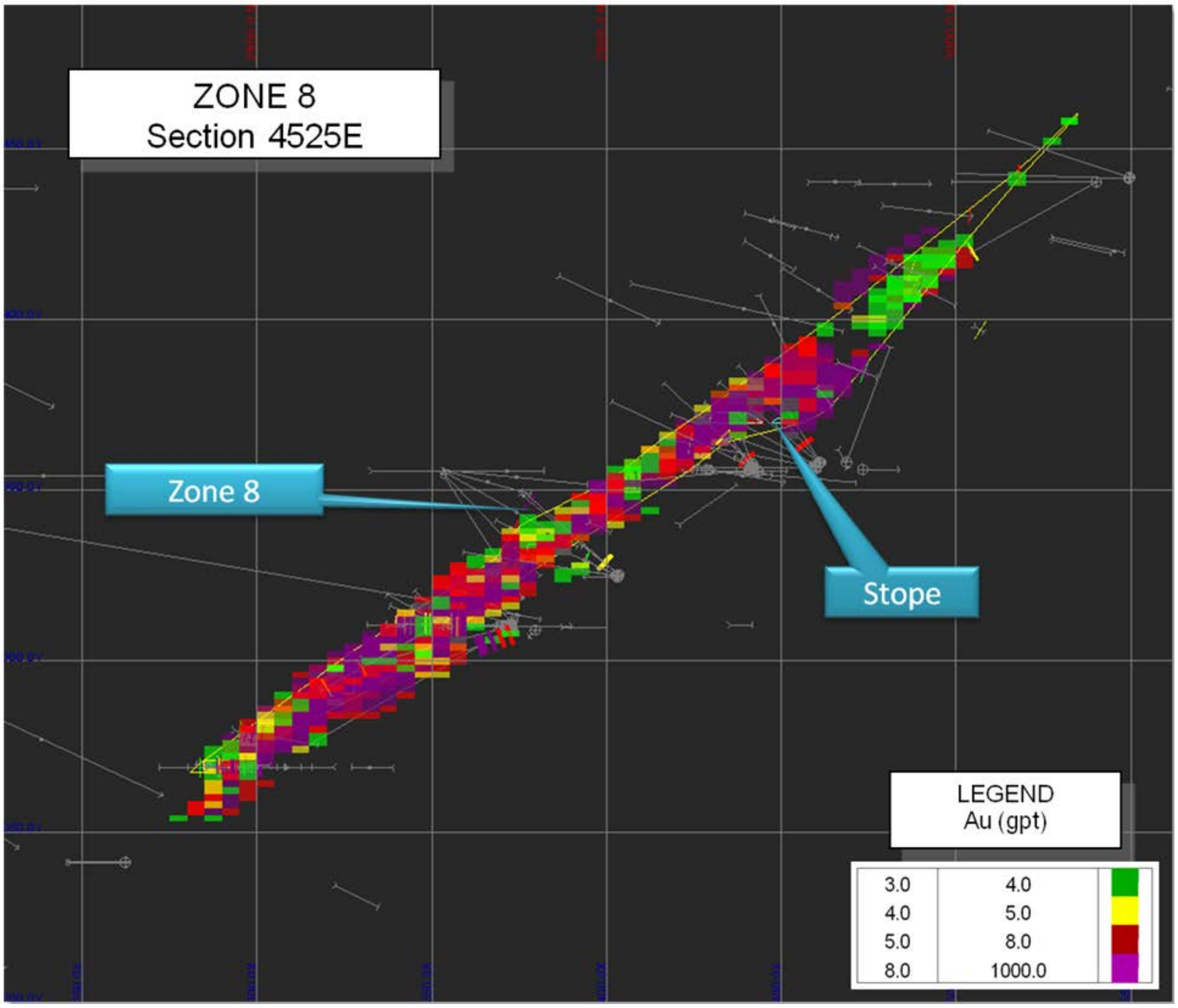
McVeigh tuff cross-section at easting 4650E, Madsen mine Grid Metric, looking west.



Zone 8 cross-section at easting 4525E, Madsen mine Grid Metric, looking west.



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Zone 8 cross-section at easting 4575E, Madsen mine Grid Metric, looking west.