

Gold miner to use hi-tech to lower costs, boost production

METALS & MINING - GOLD



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Gorden Glenn is a very careful, prudent individual. The CEO of **Minnova Corp** (TSX: V.MCI, OTCQB: AGRDF, Forum) knew that the Company's PL Mine project boasted strong economics and low cap-ex costs to move to production. However, with the severe bear market conditions in mining which persisted from 2011 to the end of 2015, attempting to raise capital was a punitive exercise for those mining companies who made the attempt.

Dedicated to guarding shareholder capital and minimizing dilution, the Minnova CEO refused to go to capital markets under such circumstances. Instead, Glenn bided his time and in coordination with existing shareholders waited until market conditions improved so that the PL Mine could be financed to production under terms which would be advantageous for existing and new MCI shareholders.

As conditions in the mining sector thawed during 2016; Glenn saw his window of opportunity. Minnova is now committed to taking this project to production, and is presently involved in completing all preliminary steps prior to raising the capital necessary to finance the project.

Originally known as the Puffy Lake Mine, the PL Mine project is a past-producing mine, located in the highly prolific Flin Flon/Snow Lake greenstone belt in northern Manitoba. While the district is known to contain abundant natural resources, past mining activity in the region has mostly centered on base metals production.

Established mining giant HudBay Minerals has dominated mining in the Flin Flon/Snow Lake

Camp for 100 years. As primarily a base metals miner, HudBay has focused its operations on base metals production in Manitoba, and especially copper and zinc production. While gold mineralization has been identified in the district, because of its significant base metal processing infrastructure HudBay devoted little or no resources to exploring for structurally hosted gold mineralization in the camp.

Discovered in the 1960's, the Puffy Lake property was acquired in the 1980's by Pioneer Metals. In 1986 Pioneer made the decision to move to production with a high-grade gold deposit averaging over 7 g/t, and the first gold was poured at the Puffy Lake Mine shortly before the end of 1987.

However, in addition to weak gold prices, the Puffy Lake Mine suffered from a serious operational issue. The original feasibility study of project economics recommended a 500 tpd mill and commensurate production rate. Instead, Pioneer's management opted to construct a 1,000 tpd facility, and attempted to mine Puffy Lake at close to full capacity.

The reason that this created operational difficulties is due to the geology of this gold mineralization. Like many prospective gold deposits, the PL Mine project is a narrow vein/high grade ore deposit. With narrow-vein geology, efficient mine production must be careful and methodical in order to avoid extracting excessive waste rock along with the mineralized ore.

Extracting too much waste rock causes overall mine grades to decline significantly, destroying

profit margins. Many otherwise economical mines have been forced to shut down for precisely this reason.

Eventually, this operational mistake caught up with Pioneer Metals and mining operations ceased in April 1989. The mine was placed on care and maintenance at that point and has remained closed ever since. In May 2010, the project was acquired by Auriga Gold Corp along with Pioneer's 54% interest in the adjacent Nokomis property. In May 2014, Auriga changed its name to Minnova Corp., and the Company now holds a 100% interest in Nokomis.

Minnova has since updated the resource estimate in order to comply with NI 43-101 standards. The latest resource estimate was produced in 2014. The current, total resource base in the PL Deposit and Nokomis property (underground and pit) is 327,900 oz's of gold in the Measured and Indicated categories, plus an additional 438,600 oz's in the Inferred category.


The Company also produced a revised PEA in 2014 to update the economics of the project using more current prices. That report recommended a 600 tpd underground operation, with an initial 10-year mine life and forecast annual production averaging roughly 45,000 oz's of gold.

Because of the cold climate, both the mill and mine infrastructure are well-preserved. This translates into very low cap-ex costs to bring the mine back into production. The 2014 PEA pegged capital costs at approximately \$25 million (CAD). This translates into an IRR of greater than 40%.

However, these robust economics are only the starting point for investors considering acquiring shares in Minnova. Because of the lack of emphasis on gold mining in the district, the Flin Flon/Snow Lake greenstone belt remains extremely under-explored with respect to gold mineralization.

Even on the PL Mine property itself, very little historical exploration has occurred other than in the immediate vicinity of the mine, and previous exploration has gone no deeper than 300 meters depth. The Company strongly believes that there is excellent potential to expand the gold deposit(s) in the land package, and notes that the mineralization at both the PL Mine deposit and Nokomis deposit is open down-dip and along strike. High grades. Robust economics. Excellent exploration poten-


Exceptional Relative Value Proposition



CANADIAN GOLD PROJECTS	<ul style="list-style-type: none"> 100% owned past producing, permitted PL Gold Mine 100% owned satellite Nokomis gold deposit
NEAR TERM GOLD PRODUCTION ¹	<ul style="list-style-type: none"> Forecast 40-50k oz. Au per year for 10 years Average LOM diluted grade 7.2g/t (underground only) Low capex – Forecast C\$25 million Low AISC (~US\$1000/oz), Low C1 cash costs (~US\$800/oz) High NPV (~C\$130 min) and IRR (>40%)
KEY INFRASTRUCTURE IN PLACE	<ul style="list-style-type: none"> 1,000 tpd mill Access decline and 7,000 m of underground development
RESOURCE EXPANSION / EXPLORATION POTENTIAL	<ul style="list-style-type: none"> Measured & Indicated - 208,600 oz grading 5.93g/t (PL) Inferred – 412,000 oz grading 6.01g/t (PL) PL and Nokomis Deposits still open to expansion Regional exploration "Blue Sky"
INVESTOR ALIGNMENT	<ul style="list-style-type: none"> Significant insider ownership - aligned with shareholders Focused on profit and shareholder returns

1) See July 2014 PEA
2) Assumed US\$1200/oz Au and C\$1050/g/t

PL Deposit Longitudinal Section Mining Blocks





- 7000 m of existing underground development
- In-fill drilling programs in support of new reserve and resource estimates
- Develop new mine plan focused on minimizing dilution
- Planned underground test mining

Significant Underground Development = On Ore Immediately, Reduced Capex

PL and Nokomis Gold Deposits

Demonstrated Expansion Potential



PL and Nokomis Deposits: Independent* NI 43-101 Mineral Resource Estimates

- Measured & Indicated Resource of 327,900 oz Au
- Inferred Resource of 438,600 oz Au

Deposit	Cut-off Grade (Au g/t)	Resource Category	Tonnes (t)	Au Grade (g/t)	Au Ounces
Open Pit Mineral Resources					
PL Deposit In Pit	0.6g/t	Measured	123,000	4.41	17,400
	0.6g/t	Indicated	445,000	4.40	63,000
Nokomis Deposit	0.6g/t	Indicated	371,000	3.41	40,700
Total PL and Nokomis In Pit	0.6g/t	Measured & Indicated	939,000	4.01	121,100
PL Deposit In Pit	0.6g/t	Inferred	45,000	4.87	7,000
Nokomis Deposit	0.6g/t	Inferred	247,000	2.41	19,100
Total PL and Nokomis In Pit	0.6g/t	Inferred	292,000	2.78	26,100
Shallow Underground Mineral Resources					
PL Deposit Underground	2.5g/t	Measured	27,000	5.12	4,500
	2.5g/t	Indicated	1,057,000	5.95	202,300
Total PL Underground	2.5g/t	Measured & Indicated	1,084,000	5.93	206,800
PL Deposit Underground	2.5g/t	Inferred	2,135,000	6.01	412,500
Total In Pit and Shallow Underground Mineral Resources					
Total In Pit and Underground	0.6/2.5g/t	Measured & Indicated	2,023,000	5.04	327,900
Total In Pit and Underground	0.6/2.5g/t	Inferred	2,427,000	5.62	438,600

Both PL and Nokomis deposits are open down dip + along strike

tial. Many mining companies would be content to rely upon those positive fundamentals. However, CEO Glenn was still not satisfied.

Having learned from the error of the previous mine operator, Minnova's corporate head was driven by the desire to improve the potential economics of the project still further. Glenn's commitment to efficiency is a product of his background. He started his career as a geologist and spent 9 years in that field. During that time, Glenn worked with industry veterans who would go on to stellar careers with such household names in mining as Falconbridge, Barrick Gold, Cyprus Amax Minerals and Inmet Mining.

While that experience provided Glenn with a solid foundation on the operations side of gold mining, he was driven to become equally conversant with the business side of the industry. Glenn moved on to accumulate another 15 years of financial experience as a mining analyst and mining investment banker. Pouring over the balance sheets, crunching numbers for countless mining companies, and providing strategic advice on M+A and financing helped to educate the Minnova CEO on the do's and don'ts in the business end of mining.

With those lessons in mind, Glenn focused on one additional factor as he planned moving the PL Mine to production: technology, specifically innovative technology. With his experience as a geologist, the CEO knew that a new generation of innovative mining equipment was being engineered, to bring mining technology into the 21st century. In fact he named the company to reflect this core strategy of Mining + Innovation = Minnova.

With Minnova's commitment to efficiency, management went on the hunt for equipment which could be tailored to its own operations in order to further enhance the economics of the PL Mine project. The result of that search was the identification of an assortment of hi-tech mining equipment which boasted several advantages over older, lower tech machinery.

Because much of this equipment is remote-controlled, using such machinery will reduce labour costs and improve mine efficiency. Among other advantages, using remote-controlled equipment reduces down-time due to blasting. But this is only the beginning of the efficiencies which the Company seeks to incorporate into its mining operations.

Creating a Modern Mine with Equipment Suitable for Narrow-Vein Mining



Commercial Equipment Selection Criteria

Small size (ULP/XLP) equipment to achieve:

- minimal mine openings
- targeted narrow stope heights
- safely and efficiently in moving ore out of the stope

Electric/battery powered to:

- capitalize on Manitoba's low industrial power costs

Proven operational performance:

- emphasis on equipment used in comparable shallow dipping-narrow vein mine settings

Other considerations:

- maintenance and safety factors
- operate remotely/autonomously



Small, Mechanized Narrow Vein Development - Shallow Dip Mining is Feasible

PL Mine Infrastructure In Place



Regional Infrastructure

- All weather access
- Railroad
- Regional airport
- Grid electricity
- Water
- All mining and processing support services

1000 tpd mill

- Crusher
- Fine Ore bin (3 Compartment)
- Ball Mill
- Rod Mill
- Flotation tanks
- Leach Tanks
- CIL
- Gold furnace
- Laboratory
- Office

Underground Development

- Access portal/decline
- 7000 m underground development



Investment Highlights



- Permitted to re-start underground mining operations
 - Ragged TMF (to be listed on Schedule 2 of MMER)
- Near-term gold production, with excellent exploration upside
- Major infrastructure already in place
 - 1,000 tpd mill, ancillary facilities, Access ramp and 7,000 m of underground workings
 - All weather road access, grid power, railway
- M+I Rsc 327,900 oz Au and Inf Rsc of 438,600 oz - **still open to expansion**
- Production rate from underground operation at 600 tpd grading over 7g/t
- Average annual production of over 43,000 ounces of gold
- Mine life 10 years, producing over 400,000 ounces of gold

Upcoming Milestones and Catalysts

Reduce minimum mining width to <1.5 m

Maximize +70% Gold recovery from gravity

Drill - exploration and expansion targeting >1 m oz

A lower risk VALUE PROPOSITION with Exceptional Opportunities to Optimize the Development Plan and Expand Gold Resource

Another advantage of this state-of-the-art equipment is a significant reduction in the amount of operating space required. This translates into the ability to reduce the dimensions of access ramps and drifts. In turn, reducing the dimensions decreases the volume of waste rock extracted in mining operations.

This improved mine efficiency will translate into improved performance on Minnova's bottom line in two related ways. First, reducing mine development dimensions has a corresponding benefit of decreasing the amount of waste rock extracted and in turn can boost average grades.

In conventional mining, typically the minimum mining width is approximately 2 meters. With the low profile, remote-controlled equipment which Minnova plans on utilizing, minimum mining widths can potentially be reduced to as little as 1.5 meters diameter. Reducing the total volume of rock extracted by 25% (while extracting the same quantities of gold) translates into a commensurate improvement in the average grade that is mined.

Using conventional mining equipment and a minimum mining width of 2 meters, the average diluted grade of the PL Mine deposit was estimated at over 7 g/t. Upgrading to low-profile, remote-controlled equipment has the potential to boost average grades closer to 10 g/t. Increasing the average grades of the ore that is mined directly implies significantly lower cash costs.

However, because these higher grades can be achieved without any reduction in the rate of production, using this hi-tech machinery will also translate into a higher gold production rate. The previous PEA produced in 2014 was modeled on the use of conventional mine machinery. Through upgrading the Company's technology in operations at the PL Mine, those economics can be significantly improved.

As a further element of efficiency, all of this state-of-the-art mine equipment is electric powered. In addition to the PL Mine Project boasting excellent infrastructure, Minnova will also benefit from the low rates for electricity in Manitoba due to the abundance of hydroelectric power.

With MCI's operational strategy in place, all that remains for management is execution. Minnova has initiated a program

of exploration and infill drilling, in preparation for compiling a new resource estimate which it anticipates will be finished by mid-2017. The Company is confident that it can boost the total resources in the project above 1 million ounces.

Minnova recently completed a financing of over \$4 million, with the final tranche [closing on December 2, 2016](#). The Company presently sits with approximately \$2.5 million in cash, sufficient to fund upcoming exploration and the new resource estimate. With less than 35 million shares fully diluted, Minnova's capital structure is very attractive.

Once the new resource estimate is in place, management will go to the capital markets for the \$25 million necessary to finance the project to production. While the Company is willing to consider bringing in a partner for the project, it would only go that route if the terms were clearly advantageous to MCI's shareholders.

Patience is a virtue. That has been Gordon Glenn's mantra as he waited for the opportunity to move this prospective gold project to production.

The time is right. This is the new mantra for Minnova's CEO as he looks to take the PL Mine back into production, and maximize shareholder value. [Further information can be found here.](#)

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