



# ASTERISK MINING SERVICES LTD.

## RICHARD GOODWIN, P.Eng (BC/YT)

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## SUMMARY OF WORK EXPERIENCE

Richard is a senior mining professional with over 30 years of varied experience, summarized as follows:

- Seven years of **Executive Management** experience, including **President and COO** of a producing gold company, **VP Mining and COO** for a mining company constructing a \$250 M mine build project, and **VP Mining** for junior mining company that built a \$200 M mine build project.
- Ten years of **Project Management** and **Principal Consulting** at two premier consulting firms, in which he managed or participated in over 50 studies.
- Ten years of **Operational Experience** as a project engineer, mining engineer, and geotechnical engineer, as well as three years of working hands-on underground as a production miner and mining trainee.

Richard has worked as an **Independent Executive Consultant** for the past six years.

## EDUCATION AND CERTIFICATION

B.Sc. (Mining Engineering), University of British Columbia, 1984  
Professional Engineer, APEGBC (1990) and APEY (2005)

## DETAILED CAREER HISTORY

Aug 12 - **ASTERISK MINING SERVICES LTD.**  
**President, Owner**

- *Work performed for JDS Energy & Mining Inc., Vancouver, BC*
  - Victoria Gold (Nov – Dec 2019) Project Manager assembling a Technical Report and Updated Feasibility Study for the Victoria Gold Project in Yukon.
  - Cameo Industries (Sept – Octo 2019) Project Manager authoring an NI 43-101 technical report for the formerly producing Max Moly Mine in BC.
  - First Mining Gold (Aug – Nov 2019) Principal Engineer for a high level scoping study, evaluating an underground gold mine in Ontario with custom milling.
  - Benz Capital (Aug 2019) Principal engineer for a High Level Scoping Study evaluating a small scale underground gold mine in Quebec with custom milling.
  - Royal Gold (Nov – Dec 2018)



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- Principal Mining Engineer evaluating a potential investment in an underground base metal mine in South America.
  - Principal Mining Engineer evaluating a potential investment in an underground base metal mine in Canada.
- Island Gold (Dec 2018 – Apr 2019) Principal Engineer on Technical Committee evaluating company's plans to continue mining to depth. Conducted a trade-off evaluation for shaft vs. conveying.
- NRG Lithium (Nov. 2018 – Apr.2019)
  - Project Manager for a PEA Study evaluating the extraction and sales of 5,000 t/a of Lithium Carbonate from a salt flat in Northern Argentina.
- Dominion Diamonds Mines. (Sep. 2018 – May.2019)
  - Project Manager for a re-scoping study for a caving operation in a kimberlite pipe located beneath a complete open pit mine at Ekati. The study considers multiple caving methods.
- Constantine Metal Resources Ltd. (Sep. 2018 – Apr.2019)
  - Project Manager for a 3500 t/d base metal underground mining operation in Alaska.
- Xiana Mining Inc., Yukon (Dec. 2017 – Feb. 2018)
  - Lead Mining Engineer for a due diligence exercise involving the purchase of an operating mine in Chile. Prepared a financial model demonstrating the potential of the property.
  - Authored a Technical Report (NI43-101) in support of the eventual purchase.
- Coeur Mining, Juneau, Alaska (Dec. 2017 – Feb. 2018)
  - Conducted operational audit of Jualin Mine for the purpose of productivity enhancement and to accelerate project timelines.
- Gran Colombia Gold, Marmato Project, Yukon
  - Project Manager for a high level review and PEA Study for an operating narrow vein gold mine in Columbia to assess its conversion to bulk mining.
- White Gold Corp. White Gold Project, Yukon
  - Project Manager for a high level review of a 3,500tpd combined open pit and underground gold mine in the Yukon.
- Generation Mining Ltd., Davidson Project, BC
  - Project Manager for the assessment of stand-alone and custom milling options for a 3,000 to 4,000tpd underground molybdenum mine near Smithers, BC.
- *Lorax Environmental Services Ltd. (2019-2020)* Review and adjustment of closure cost estimation for an underground gold project startup in Yukon.
- *Nevsun Resources Ltd., Vancouver, BC:* Data review and mining method selection for a massive underground copper/gold deposit located in Serbia. The final recommendation was for sublevel caving.
- *Mount Polley Mining Corporation, Vancouver, BC:* Management services for the completion and operation of the 1000 tpd Mount Polley Underground Mine near Likely, BC. Managed the successful transition from development project to full operations using longhole mining methods. Duties included selection of mining methods, ventilation and backfill system designs, staff



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selection and mentoring, equipment selection, government permitting and compliance communications, and contractor selection and management.

- *Lorax Environmental Services Ltd.:* Closure cost estimation services for an underground base metal mine in Yukon on temporary closure.
- *Yukon Zinc Corporation* - Senior Consultant assisting the company through mine closure and reclamation costing for temporary and permanent closure options.
- *Purcell Basin Minerals, Cranbrook, BC:* Project Management services to assist the company with permitting, engineering, and completing the construction of the 750 tpd underground Bull River Mine Project. This includes acting as Owner's representative for the preparation of a PEA by an outside consultant and acting as technical representative for fundraising.
- *Selkirk Mining Corp, Vancouver BC:* Project Manager and Mining Engineering for a Preliminary Economic Assessment (PEA) for the Ruddock Creek Mine Project near Revelstoke, BC. The study assumes a mining rate of 3000 tpd using longhole and drift-and-fill mining methods, paste backfill for void replacement, dense media separation prior to flotation, and both hydraulic and dry stack disposal of tailings.
- *Imperial Metals Corporation, Vancouver BC:* Operational enhancement study for the Sterling Gold mine near Las Vegas, Nevada. The study focused on the capability of the truck haulage fleet, including recommendations to reduce the cycle time and install a truck-loading chute.
- *Procon Mining and Tunneling, Burnaby, BC:* Independent Consultant for a project audit and valuation for a gold producer in Saskatchewan with three operating mines and a centrally located processing plant.

Mar 10- Jul 12

**FIRE RIVER GOLD CORP & MYSTERY CREEK RESOURCES INC.**  
**President and COO (Mar 11 to Jul 12)**  
**VP Mining (Mar 10 – Mar 11)**

- Directed the efforts of the company through the rebuilding of the Nixon Fork Mine, including improving all infrastructure, mine rehabilitation, completion of a partially built CIL leaching circuit, negotiating off-take agreements, establishing vendor contracts, and converting the tailings from wet impoundment to dry stack placement.
- Managed an onsite staff of 115 workers plus a corporate staff of 12
- Personally led all of the company's engineering and consulting efforts, including permitting and compliance. Secured the extension of operating permits and satisfied bonding requirements for leaching.
- Secured a \$7.5 M financing and subsequent \$13 M bridge loan and gold off-take agreement.
- Represented the Company to investors, brokers, analysts, and the public.

Mar 09 – Mar 10

**PACIFIC NORTH WEST CAPITAL CORP**  
**VP Mining**

- Managed three NI 43-101 Reports and two PEA studies completed both in-house and with an outside consultant.



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- Acted as technical representative to safeguard the company's interest in its Fire River Gold holdings.
- Acted as technical presenter and primary spokesperson for six private placements totaling \$7 M.

Aug 06 – Feb 09     **REDCORP VENTURES LTD**  
**VP Mining & COO**

- Managed a \$300 M mine build project for the construction of a 2000 tpd underground base metal operation in Northern BC. The most challenging aspect of the project is logistics, being a very remote site.
- Oversaw the efforts of the Construction Manager (Sandwell), engineering group (Wardrop), and several sub consultants.
- Hired and managed a project team of five area managers (Engineering, Procurement, Permitting, Safety, and Metallurgy) and fifteen employees.
- Managed a successful \$1.5 million feasibility study for the same project.
- Conceived and developed an innovative access methodology using Air Cushion Barges (ACBs), amphibious tractors, and shallow draft tugs for concentrate haulage and mine resupply on the Taku River.

*At approximately 30% completion the project was halted due to loss of funds in the Asset-Backed Commercial Paper (ABCP) financial crisis.*

Feb 05 -Aug 06     **YUKON ZINC CORP**  
**VP, Mining**

- Managed a \$10 million underground development program for the Wolverine Project. This included the establishing of a new portal and the excavation of 450 m of ramp and lateral development underground. The program was a success, as it achieved its basic objectives, including:
  - Establish access to the orebody safely through very soft ground
  - Obtain and ship a 5 tonne bulk sample from underground for metallurgical and dense media separation testwork
  - Establish surface facilities to support the program, including a water settling pond system, well, waste pad, dewatering system, and explosives storage site.
  - Obtain geotechnical data for mine design and costing purposes
  - Simulate the mining method selected for the feasibility study to assess dilution and recovery factors.
- Managed a \$3.0 million feasibility study for the same project. The study was coordinated by Hatch, with contributions from Klohn Krippen, Snowden, Gartner Lee, URS, Mine Ventilation Services, Mine Systems Design, Rockland Engineering, AXYS, CEMI, Amec and Lorax.

2001 - 2005     **SNOWDEN M.I.C.**  
**Manager, North America**

When Richard took over the Snowden Vancouver office, it had four employees providing resource geology services only with annual revenue of \$400K. Richard expanded the office to nine employees, annual revenue of \$1.2 M and the addition of underground and open pit engineering.



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- *Lappberget Mine, Boliden Mineral AB*: Study Manager and Senior Review for a design converting a drift and fill operation to bulk mining in Sweden, including stope design and sequencing. (2004)
- *Prairie Creek Project, Procon Mining and Tunneling*: Provided a conceptual mine plan for an advanced stage project to be used as the basis of a bid tender by an underground contractor. (2004)
- *Kensington Project, Coeur d'Alene Mines Corporation*: Project Manager and for a Feasibility study for an underground gold mine project in Alaska. The work was an update to my pre-feasibility study, prepared in 2003.(2004)
- *Lexington Projects, Gold City Industries Ltd*: Study Manager for conceptual mine design for historic underground gold mining operation. Provided guidance to design engineer and prepared capital cost estimate. (2004)
- *Kensington Project, Coeur d'Alene Mines Corporation*: Project Manager and Lead Mining Engineer for a pre-feasibility study for an underground gold mine project in Alaska. The study will analyse a lower tonnage alternative than all previous studies.(2004)
- *Rodeo Mine, Barrick Goldstrike*: Project Manager and Lead Mining Engineer for mine enhancement study. Work involved evaluation and selection of mining and access methods for operating underground mine in the soft ground of the Carlin trend. (2003)
- *Lexington and Golden Crown Projects, Procon Mining and Tunneling Ltd*: Mining Engineer for conceptual mine design for historic underground gold mining operation in support of bid for contract work. (2003)
- *Morrison Project, Pacific Booker Minerals*: Project Manager for coordination of Resource Evaluation and Pit Optimization Studies (2003).
- *Pogo Project, Teck Cominco Ltd.*: Mining Engineer on Feasibility Study for underground gold project in Alaska (2001-2003)
- *Kena Project, Sultan Minerals Inc.*: Mining Engineer for preliminary evaluation of exploration gold project. (2002)
- *Cikidang Mine, International Antam Resources Ltd, Vancouver, BC* (2002) Valuation of an operating underground narrow-vein gold mine and advanced project in Indonesia.

1995 - 2001

## **MRDI CANADA, an AMEC COMPANY** **Study Manager and Principal Consultant**

Richard began employment with H.A. Simons Ltd, from which MRDI was formed (1997). Simons was subsequently sold to Agra (2000) then Agra was taken over by Amec (2001). Richard regularly worked as Study Manager and/or Lead Mining Engineer on approximately 30 studies, as detailed below:

- *Birchtree Mine, Inco Ltd*: Mining engineer for CRF system enhancement and equipment selection for mine deepening project.
- *Boliden-Westmin Ltd., Confidential Client*: Provided due diligence, data review, and site inspection to assist client in potential capital investment in Myra Falls Operation (2000).
- *Duck Pond Project, Thundermin Resources Ltd.*: Lead Mining Engineer for a feasibility study for a copper/zinc deposit in Newfoundland (2000).
- *Gahcho Project, De Beers*: Mine Engineer for the estimating of capital and operating costs for all infrastructures to support one open pit and two underground mining options for a diamond project. (2000)
- *Nye Mine and East Boulder Project, Stillwater Mining Company*: Mining Engineer for a feasibility level ten-year mine plan involving an existing operation and a mine development program. (2000)



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- *Snap Lake Project, Winspear Resource Ltd.:* Mining Engineer for a prefeasibility study for an underground diamond mine, including designing a complex and unique mining method for maximizing extraction under a lake in a thin flat-lying deposit. (2000)
- *Kidd Creek Mine, Falconbridge Ltd.:* Lead Mining Engineer for a mining equipment evaluation and selection study, including the appropriate level of automation of all mining systems. (1999)
- *Ruttan Mine, Hudson Bay Mining & Smelting, MB:* Mining Engineer responsible for a trade-off study evaluating orepass rehabilitation or replacement options. (1999)
- *Don Mario, Orvana Minerals, Bolivia:* Lead Mining Engineer for the feasibility study of a greenfield underground and open-pit gold operation. (1999)
- *Copperstone, Asia Minerals, AZ:* Lead Mining Engineer for the scoping study of an underground gold operation developed from the bottom of a completed open pit. (1998-1999)
- *777, Hudson Bay Mining & Smelting, MB:* Lead Mining Engineer for the feasibility study of a high-volume copper-lead-zinc orebody in the Flin Flon region. Performed trade-off studies on mining methods selection, shaft location, shaft depth optimization, and shaft evaluation concepts. (1998 - 1999)
- *Elkhorn, Treminco Resource, MT:* Lead Mining Engineer for the prefeasibility study of an underground gold operation with previous workings, involving mining methods selection, reserve calculation, and capital and operating cost estimating. (1998)
- *Belnap Claims, MTB Project Management Consultants, NV:* Lead Engineer for an evaluation of a greenfield underground gold project adjacent to an operating mine. (1998)
- *Meliadine West, WMC International, NWT:* Engineering Manager for the prefeasibility study of a greenfield gold project, involving evaluation of different approaches to mine design, process engineering and site infrastructure. (1997 - 1998)
- *Thompson, Inco, MN:* Project Manager for trade-off studies on backfill system selection and hoisting plant alternatives for the 1-D nickel orebody. (1997 - 1998)
- *Boston Gold, BHP Minerals, NWT:* Principal Engineer for conceptual mine design, mine production scheduling, dilution and recovery analysis and other inputs into a feasibility study by the owner. (1997)
- *McCreedy East Expansion, Inco, ON:* Project Manager for the budget book preparation and Engineering Manager for home-office design work for the expansion of an existing mine, including the extension of a Kiruna truck haulage system. (1996 - 1997)
- *Grizzly Deposit, Anvil Range Mining, YT:* Principal Engineer for conceptual mine design and mining method selection for a moderately dipping, tabular, volcanogenic massive sulphide (VMS) lead-zinc deposit. (1996)
- *Lijiagou, Minco Mining and Metals, China:* Project Manager for a scoping study outlining an alternate proposal for the development and material handling system for a steeply dipping narrow-vein lead-zinc underground mine. (1996)
- *Meadowbank, Cumberland Resources, NWT:* Principal Engineer for the conceptual mine design of a steeply dipping narrow-vein gold deposit for a scoping study. (1996)
- *Jerritt Canyon, FMC Gold, NV:* Performed a due diligence audit of mining reserves for an existing gold producer with multiple open pit and underground mines. (1996)





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- *Pen Il Deposit, Hudson Bay Mining & Smelting, MB:* Principal Engineer for conceptual mine design and mining method selection for a steeply dipping narrow-vein copper-zinc orebody. (1996)
- *J&L, Weymin Resources, BC:* Principal Engineer for a review of previous studies, reserve estimates, and proposed production rates for a narrow-vein steeply dipping underground Pb/Zn property. Established order-of-magnitude capital and operating costs. (1996)
- *Creighton, Inco, ON:* Principal Engineer responsible for a review and evaluation of an existing feasibility report, and capital cost estimate for budget preparation. (1995)
- *Greens Creek, Kennecott, AK:* Principal Engineer responsible for assessment of the viability of a paste backfill system installation at an underground silver-gold-lead-zinc mine. (1995)
- *Casa Berardi, TVX Gold, QC:* Principal Engineer responsible for a review and optimization of longhole mining methods for an existing gold operation, with steeply dipping narrow to thick orebodies. (1995)
- *Cerattepe, Cominco, Turkey:* Principal Engineer responsible for a study of a paste fill option, and equipment selection for a feasibility study of an underground copper-open pit gold mine in Turkey. (1995)

1985 – 1995

## **WESTMIN RESOURCES LTD**

### **Mine Planning Engineer, Project Engineer, Geotechnical Engineer**

- *Myra Falls Mine, BC:* Mine Planning Engineer responsible for developing full scope computerized mine designs for this volcanogenic massive sulphide (VMS) deposit. Prepared drift and raise development layouts, sill and slot design, blast sequencing, longhole drill layouts, blast layouts, backfill layouts, ventilation management, profitability analysis, and stope reconciliations for a variety of mining methods. Also inspected underground workings; evaluated quality and progress of development; prepared a long range and short range planning schedule; and calculated reserves.
- Rock Mechanics Engineer responsible for the inspection of underground workings and advising the production department of ground control practices. Also consulted with planning engineers on the stability of their designs; approved layouts; and developed a new rockbolting system.
- *Kansas/West Kansas Property, BC:* Project Engineer for feasibility study of a shallow, low-grade gold deposit. Responsible for the design of an underground bulk mining method without replacement backfill. Also provided detailed capital development plans; geotechnical analysis; analysis of haulage options; equipment selection; cost estimates; and a schedule of activities.

Richard also spent approximately three years underground as a production miner and miner trainee.

1984

## **Fox Mine, Sherrit Gordon Mines Ltd., Lynn Lake, MB**

### **Mine Planning Engineer**

Blasthole Engineer, responsible for creating drill and blast layouts for 2" diameter sublevel open stopes for a massive and steeply dipping base metal orebody.