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## **NICK A. GARDNER – PEng., MEng.**

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Nick is a professional mining engineer, mineral economist, computer programmer and blockchain enthusiast with over 15+ years of experience in open pit and underground mining. He has worked as a consultant and in mine operations as well. He has been involved in various Due Diligence, Preliminary Economic Assessment, Scoping, Pre-Feasibility and Feasibility studies for many mining companies ranging from Newmont, Vale, Arcelor Mittal, and Kinross etc. He has worked in operations for AngloGold Ashanti, Newmont, Teck Resources, Rio Tinto and Kinross Gold Corporation.

Besides his mining engineering and mineral economist background, he has 20+ years in computer programming skills, Linux Distro and Ethical Hacking. Nick is knowledgeable in Qt C++, Python and Solidity, and Haskell. He is an entrepreneur (Gardner & Associates Consulting Inc. and 3DMine Software Canada Inc.) and a software developer that has supported and developed mining software packages and open source development (UBports, Ubuntu, Libre Office).

He has a bachelor's degree in Mining from Kwame Nkrumah University of Science and Technology School of Mines, Kumasi, Ghana, and a master's degree in Mining Engineering (Mineral Economics) from McGill University, Montreal, Canada. He is currently studying MSc. Digital Currencies and Blockchain at University of Nicosia, Cyprus

He enjoys travelling, camping, skiing, and golfing in his spare time with his family.

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### **Professional qualifications / Critical skills**

- 15+ years of technical and operational experience within the mining sector, both in a consultant and operational capacity
- 20+ years in software development and entrepreneurship
- Blockchain enthusiast with knowledge of Smart Contracts, DeFi, NFT, Solidity development
- Sponsor and developer of opensource projects (UBports)
- Specialised in Project Evaluation, Due Diligence Cost Estimation, Financial Modelling, Risk Analysis and Real Options
- Proven track record in mining operations, consulting, and due diligence for M&A/JV (lead multiple deals for mid to large size mining companies)
- Teamwork oriented & results-driven, as well as practical & efficient problem-solving abilities and agile decision-making skills
- Good communicator and fast learner

### **Work Experience**

#### **Global Manager Mine Engineering & Technology – Vale Base Metals, Toronto**

December '19- Present

- Technical lead due diligence for potential merger & acquisition
- Bottom-up cost analysis (OPEX & CAPEX)
- Incharge of Base Metals Cut-off grade policy
- Technical Assurance for Base Metals projects and LoM globally
- Risk Management and Governance for Base Metals standards
- Technical consulting and strategic mine planning for Vale Base Metals globally
- Manage and mentor 12 direct reports
- Lead Technology Roadmap for Vale Base Metals
- Lead technical aspect of Base Metals project commercial agreement

### **Global Manager Mining Engineering, Vale Base Metals, Toronto Office**

July '19-December'19

- Technical lead due diligence for potential merger & acquisition
- Bottom-up cost analysis (OPEX & CAPEX)
- Incharge of Base Metals Cut-off grade policy
- Technical Assurance for Base Metals projects and LoM globally
- Risk Management and Governance for Base Metals standards
- Technical consulting and strategic mine planning for Vale Base Metals globally
- Manage and mentor 5 direct reports

### **Manager Project Evaluation, Kinross Gold Corporation, Toronto Office**

July '18-June '19

- Due Diligence for potential Merger & Acquisition
- Bottom-up cost analysis (OPEX & CAPEX)
- Cut-off grade analysis
- Economic evaluation and Risk Analysis (@Risk, Crystal Ball)
- Project Valuation
- Strategic mine planning and scheduling (NPV Scheduler, EPS, MineMax Planner, SimSched, COSMO Suite, Vulcan & Datamine MSO)
- Manage and mentor the project evaluation team
- Communicate and present evaluation findings to Director's and VP's

### **Mine Planning Manager, Kinross Gold Corporation, Toronto Office**

May '16-July '18

- Due Diligence for potential Merger & Acquisition
- Pit Optimisation (NPVS, Whittle, SimSched)
- Underground Optimisation – MSO(Datamine, Vulcan) and PCSLC
- Long-term Planning and review for various sites
- Cut-off grade analysis
- Economic evaluation and Productivity Analysis
- Strategic mine planning and scheduling (NPV Scheduler, EPS, MineMax Planner, SimSched, COSMO Suite)
- OPEX and CAPEX review (Xeras)

### **Senior Mine Planning Specialist, AMEC, Oakville Office**

May '13- May '16

- Scoping, Pre-feasibility, Feasibility Studies for different commodities
- Pit Optimisation- LG, NPV, etc
- Underground Optimisation – MSO(Datamine, Vulcan, Deswik) and AFW Stope Optimiser
- Economic evaluation and Productivity Analysis
- Mine design(pit, dump, road etc.) and mine sequence
- Strategic mine planning and scheduling(NPV Scheduler, COMET, Whittle)
- OPEX and CAPEX estimation
- Consulting projects completed:
  - Conceptual studies for Labrador Iron Mines(Scheduling, OPEX and CAPEX Estimation, Report)
  - Pre-Feasibility Studies for Arcelor Mittal(Pit Optimisation, Pit Design, Strategic Mine Planning, Scheduling, OPEX and CAPEX Estimation, Report)
  - FEL 3 mining lead for Vale Post Ovoid Pit (Block Modelling, Cut-off Value Optimisation, Mine Planning and Scheduling, Equipment Selection, OPEX and CAPEX Estimation)
  - General reviewer for Newmont Ahafo operation (Pit Optimisation, Block Modelling, Design, Schedule and final report)
  - Technical report writing for Vale IPO for all the Sudbury operations

- Various confidential due diligence for Kinross Gold Corporation
- Reconciliation work Vale Creighton Mine, Sudbury
- Technical report writing for Goldcorp Redlake and Elenore sites
- Review of Technical Report for Kinross Gold Corporation (Tasiast Mine)

### **Senior Strategic Mine Planner, Rio Tinto Iron Ore of Canada**

May '10 –May '13

- Mine Strategic Planning
- Pit Optimisation- LG, NPV, etc
- Economic evaluation and Productivity Analysis
- Mine design and scheduling(COMET)
- Auditing, Feasibility studies, Fleet selection and Operational Support
- Supervising junior engineers

### **Long Range Planning Engineer-Special Projects, Teck Coal Limited - Elkview Operations**

October '08 -May '10

- Develop an Automated Coal Blender using Excel VBA and Microsoft Solver Foundation (OML programming)
- Liaison with Medium range and Long-range planners on coal volume and quality input for coal blender.
- Reconciliation of both long term, medium-term and short term mine plan based on coal quality results

### **Geotechnical Engineer, Teck Coal Limited- Coal Mountain Operations**

- Responsible for monitoring and reading spoil dump movements
- Analysing spoil monitor readings for spoil dumps from the foreman
- Dump and Lagoon designs
- Compaction testing for Dumps and Lagoons
- Monitoring and reading highwall slope movement of the slope face
- Analyse blasting seismograph data within the conveyor tunnel
- Design of Pit walls and footwalls
- Project Engineer for coal conveyor tunnel project
- Project Engineer for Lagoon Lift and Coal Coarse Refuse Dump

### **Short Range Planner, Teck Coal Limited- Coal Mountain Operations**

- Responsible for putting together weekly and monthly plans for mining
- Build weekly and monthly plans for coal quality and shipment. Monitored spoils dumps and mining sequence within the pit
- Worked alongside Pit Superintendent, Plant Superintendent and Engineering Superintendent to monitor safety concerns
- Organise weekly safety, pre-planning and planning meetings
- Designed weekly and end of month plans and reports
- Designing and planning for Coal Refuse Dump

### **GIJMAAST Americas Inc. - Sudbury, ON - Mining Consultant (Open pit and Underground)**

July '07 – October '08

- Implementation, training, and client support of Mine2-4D, EPS and mineCAD software
- Mine design, layout, Planning and scheduling using the Mine2-4D suite of products
- Consulting projects completed:

- Vale Inco Copper Cliff Deep Feasibility Project, Sudbury, Ontario, Canada: Responsible for stope and underground infrastructure designs. Evaluated block model against stope design. Scheduled life of mine plan using EPS and Microsoft Excel.
- Redlake Mine Feasibility Project, RedLake, Ontario, Canada - Responsible for stope design (Cut & Fill method and long-hole stoping method) and underground infrastructure designs. Evaluated block model against stope design. Scheduled life of mine plan using EPS. Scheduled their 18month to 5years plan using EPS and EPS Blend.
- St Ann Bauxite, Jamaica - I was responsible for implementing and training Mine2-4D, EPS, mineHaul and mine CAD and analysing haul distances and trucks selection.
- Barrick Gold, Helmo Mine, Marathon, Ontario, Canada: I was responsible for implementing and training EPS VIZ and EPS.
- Xstrata Copper, Kidd Creek Mine, Timmins, Ontario, Canada: I was responsible for implementing and training EPS VIZ and EPS.
- Vale Inco Creighton Phase 3 Project, Sudbury, Ontario, Canada: Responsible for stope and underground infrastructure designs. Evaluated block model against stope design. Scheduled life of mine plan using EPS. Scheduled their 18month to 5years plan using EPS and EPS Blend.

**CSA CONSULTING INTERNATIONAL LIMITED – Crawley, United Kingdom -Mining Consultant (Open pit and Underground)**

October '06 – July '07

- Responsible for planning and developing programs for geological data acquisition
- Help with planning and coordinating mine exploration projects. Helped with developing Geological Models and evaluation using Datamine
- Open Pit design and Planning using Datamine
- Planning and scheduling Development of geological maps using MapInfo
- Developed a geological database. I travelled to the various mine site to collect and analyse data
- Prepare reports with analysis and recommendations for the construction of mines
- Cashflow and Sensitivity Analysis
- Consulting projects completed:
  - SLDC Alluvial Diamond Feasibility Study, Sierra Leone: Responsible for fleet selection, long and short-range plan
  - New Liberty Gold Limited (Mano River Resources), Liberia: Responsible for the underground scoping study
  - Due diligence reports for World Bank (IFC) for small-scale mining projects in Senegal, Mali and Tanzania
  - Due diligence on exploration concession formerly owned by Newmont Gold at Laos

**Altona Resources Plc – London, United Kingdom - Technical Assistant to the CEO (Open Pit)**

April '06 – September '06

- Designed the Coal geological model from the corrected and formatted data with SurpacMinex
- A final Model and Report were made and analysed by the VP of SurpacMinex-Gemcom (Jon Barber) before submission
- Developed an in-house cash flow analysis for Altona Resources. Research into CO2 Sequestration around the world and created reports on my findings
- Researched Gas to Liquid Technologies and Coal to Liquids Technologies; worked closely with Jacobs Consultancy, United Kingdom
- In charge of administering Altona Share Point Service Database
- Plan and develop programs of geological data acquisition

**African Mining Services (Newmont Ghana Gold) - Ghana -Junior Mining Engineer (Drill & Blast) and Data Entry Engineer (Open Pit)**

November '05 – March '06

- Evaluation of bidding/Tender Documents submitted by Contractors; included checking and assessing the bill of quantities presented and contractors' responsiveness to the project requirements
- Visiting project sites with the Area Manager and inspecting works on the mine site
- Ensured that contractors built by the contract drawings and specifications
- Plan and coordinate mine exploration projects: supervised RC drilling and Grade control
- Monitoring and forecasting on cost, including cash flow forecast and analysis and preparing the quarterly estimates
- Cost control and cost monitoring of labour and plant resources, indirect cost (general running cost) and site operations
- Prepare monthly cost reports and Invoices for the Contractor Company
- Supervised Drillers and Blasters. Making of Reports from the Drilled and blast working sites
- Working closely with the Drill and Blast Engineers of the Contractor Company for Planning and design

**AngloGold Ashanti Limited- Underground Supervisor, Obuasi Ghana**

November '04 – November '05

- Visiting project sites with the engineer's representative and inspecting works carried out by the shift workers.
- Supervised geologists and Surveyors underground.
- Making of Reports for the Mine captain after shift hours.
- Taking measurements and ensuring that the proper markings are done to drill pilot holes and blast holes. Supervising underground survey markings and making reports.
- I analysed the underground environment for the right type of Ventilation System.
- I supervised the hanging of ducting and auxiliary Fans for ventilation underground.

**Education**

- Master of Science, Digital Currencies and Blockchain, University of Nicosia, Cyprus – **Ongoing**
- Master of Engineering, Mining Engineering (Mineral Economics), McGill University, Montreal, Quebec, Canada - **2016**
- Bachelor of Science (Hons), Mining Engineering, University of Mines and Technology formerly Kwame Nkrumah University of Science and Technology School of Mines, Ghana – **2005**

**Short Courses**

- Mineral Project Evaluation: From conventional to Real Options Certificate - McGill University
- Using Dynamic DCF and Real Options to Value and Manage Mining and Petroleum Projects – Colorado School of Mines
- Financial Modeling & Valuation Analyst (FMVA) Certification – Corporate Finance Institute (Ongoing)
- Oxford Entrepreneurship: Venture Finance Programme – University of Oxford (Said Business School)
- Advanced Interpersonal Business Communications through McGill Executive Institute
- Marquee Group Mining Financial Modelling Training
- Engineering Leadership Certificate – Cornell University (eCornell)

- Solidity Development (UDemy)
- Learn Python & Ethical Hacking from Scratch (UDemy)
- Mastering Etheruem & Solidity Programming From Scratch (UDemy)

### **Software Skills**

Microsoft Office, Visual Basic 6, VBA-Microsoft Excel, Linux, Visual Basic.NET, C#, C++ (Qt), Xeras, @Risk, Crystal Ball, Risk Simulator, Python, Solidity, Haskell

### **Languages**

- English
- French-Basic

### **References**

Referees provided upon request