



Natural Resources Canada / Ressources naturelles Canada

Canada



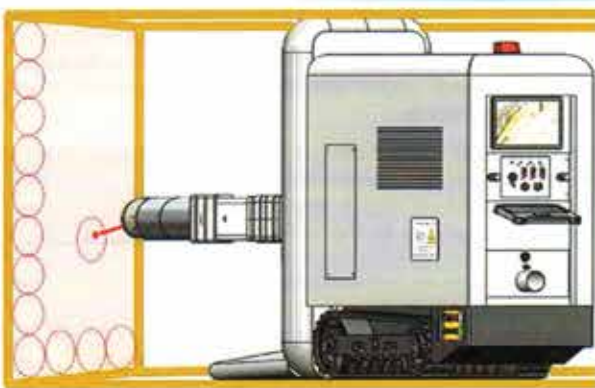
Semi-Finalist

CLEANTECH IMPACT

Crush It! Challenge



High Optical Power Laser Miner

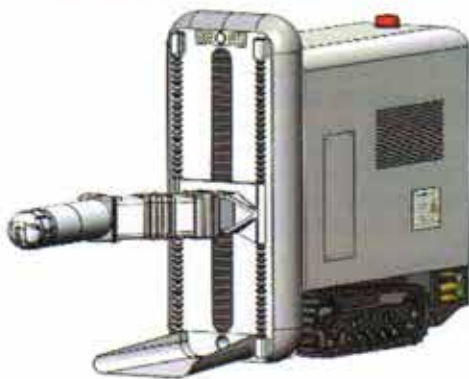


Direct Savings

- +30% power reduction**
- +10% CAPEX reduction**
- +18% OPEX reduction**

Based on actual case study with Goldcorp's the Coffee Gold Project, Yukon Territory, Canada

Direct Advantages



- + Eliminate drill & blast at the face.**
- + Eliminate crushing, along with supporting screening, material handling, etc.**
- + Environmental issues** – smaller footprint, less area needed for mine dumps, no risks for the drill & Blast and crushing.
- + Quality** – improved ore grade control.
- + Social** – improved health & safety with miners not working at the face, a 2 man crew could operate multiple mining faces. Reduced supervision, local community project buy-in.
- + Power** – considerably reduced power requirements due to elimination of crushing, reduced need for compressed air.
- + Capital Costs** – reduced CAPEX for drill & blast and crushing equipment, plant infrastructure, and environmental costs.
- + Operating Costs** – reduced OPEX for drill & blast materials, other consumables, manpower requirements, and environmental concerns, reduced need for compressed air.

Contact us:

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Crush It Challenge contest sponsored by Natural Resources of Canada, at the PDAC Mining Conference, Toronto, Canada. March 3, 2019.



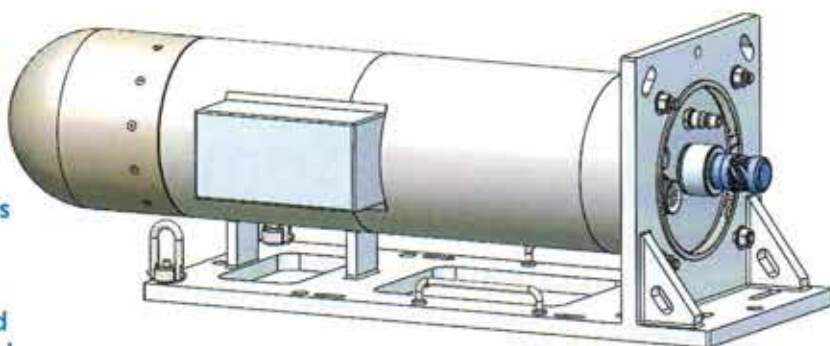
Lex Smith, Gary Mladjan, Ed Wipf, and Georgi Doundarov



Semifinalist competitors from the various categories of the competition.

Winning Formula

- + A consortium of partners, with a Project Lead, Georgi Doundarov, M.Sc., P.Eng., PMP, CCP, featuring members with decades of experience in mining, laser technology, environmental issues, project and risk management, as well as sales, financing, data analytics, grant writing experience.
- + Combination of modern technology and innovative thinking to conceptualize and create a new way of mining.



Strong EXPERIENCED Team

Over 200 years of diversified experience in mining, mineral processing and metallurgy, opto-mechanical and laser technology, environmental, complex projects management, risk management, financials, sales, data analytics and AI.



Georgi Doundarov, M.Sc., P.Eng., PMP, CCP – Project Lead

28 years of extensive managerial, operations, technical, project and financial experience in Canada, Europe and Asia, covering the whole life cycle of a mine from studies, engineering, construction, commissioning and operations to closure. In depth technical expertise in process engineering, plant design, construction, commissioning, operations management, plant evaluation and optimization, NI43-101 compliant feasibility studies, metallurgical testing, for base, precious, and ferrous metals and industrial minerals. Solid track in project management, project cost management and financial operations including M&A deals involvement. Professional Engineer of Ontario, certified as a Project Management Professional under the PMI, and a Certified Cost Professional under the AACEI. Qualified Person under the NI43-101 Standards.

Gary Mladjan – Opto-Mechanical and Laser Technology Expert

Over 50 years of opto-mechanical engineering experience with various defense contractors. Responsible team member in the development of a number of International Patents for those devices. He was the lead engineer in the advanced conceptual design, engineering costing, product design and manufacturing on many projects at Raytheon, Hughes Aircraft, Ernst Leitz, Canada (ELCAN), Northrop. Designated Raytheon corporate expert for Investment Castings and for Single Point Diamond Machining as well as a developer in the use of exotic materials and technologies for defense products. Mr. Mladjan has authored several published papers on New and Innovative Technology and Detail Design in Exotic Materials.



Lex Smith - Operations Lead

Mr. Smith entered the mining business in 1993 as the field manager and owner of multiple mining claims in Montana. Mr. Smith served as President and Director of Shoshone Silver/Gold Mining Company from 2003 to 2012, President and Director of the Silver Valley Mining Association from its inception in 2003 until 2009, and President and Director of Natural Resources Education Outreach (NREO). Additionally, in 2013, Mr. Smith served as a foreign legal consultant and mining law consultant for the LEHMAN, LEE & XU Law Firm in Beijing, China.

Edward Wipf – Comminution Expert

45 years of experience in comminution circuits. He occupied various senior technical positions at Allis Chalmers, Koppers, MPSI/Svedala, Aeration, Metso Minerals, Weir Minerals. He is the author of numerous technical papers related to mining and comminution, and has taught comminution classes at such schools as McGill University and the Colorado School of Mines. He was involved in the development of the Metso Vertimill in the late 1970s, and he developed the Vertimill slaker. He later started and sold the largest lime slaking system in the world. Mr. Wipf has a bachelor's degree in both Chemical Engineering and Energetics, and has attended Rauma's Business School for Senior Management and Product Management.



Maria Christova, MA, CFA, PMP, FRM, CSC, MEDA – Financials and Technology Expert

With over 14 years in technology and finance in Canada, Europe and Asia, Maria has held executive positions at small and large size companies spanning responsibilities including budget management, risk management, sales, product & project management, resource & vendor management. With unwavering focus on superior customer experience, she has designed and delivered innovative products and processes that delight stakeholders. Certified as a Project Management Professional under the PMI, Chartered Financial Analyst under the CFA Institute, Financial Risk Manager under GARP and in process of becoming a Chartered Professional Accountant with CPA. Holds Canadian Securities Course certification from Canadian Securities Institute and Management of Enterprise Data Analytics certifications from University of Toronto.

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