

# Robert S. Dowdell

## Consulting Mining Engineer

---

B. Sc (Mining Engineer)  
*University of Newcastle upon Tyne 1965*  
Ph. D (Rock Mechanics)  
*University of Newcastle upon Tyne 1968*  
Chartered Engineer  
MIMM

HomeTel: ++44 1736 788 997  
St Just, Cornwall, England  
[contact form \(sorry, disabled temporarily\)](#)

A professional mining engineer of profound technical ability with more than 35 years experience in underground and open pit mining for zinc, lead, silver, copper, gold and diamonds. The first 19 years were spent with Cominco Ltd in Canada, Spain and London. An independent consultant since 1991, specialising in corporate and boardroom level strategic planning, long term mine planning, financial evaluations, and due diligence studies. Spanish speaking.

---

### CONSULTING MINING ENGINEER since 1991 .

- **Volcan Compañía Minera S.A.A., Peru (1997 to date)** In 1997 advised the Volcan board of directors in their successful purchase from Centromin of the San Cristobal and Andaychagua lead-zinc-silver mines for \$127M. Again in 1999, Volcan successfully acquired the Cerro de Pasco lead-zinc mines for \$ 62M. Formed a small group of engineers and geologists to undertake the internal 'due diligence' studies and subsequently to assist Volcan in the management and planning of these operations. In year 2000, Volcan privately acquired Chungar's Animon mine, and consequently became one of the largest zinc mining companies in the world. Volcan has 7 underground mines and 1 open pit (at Cerro de Pasco). Total ore treated is about 450,000 tonnes per month. Underground mining is mainly by mechanised cut-and-fill, over and underhand, in narrow vein and wider orebodies. For details on Volcan see <http://www.volcan.com.pe/>. Bob spends about 6 months a year with Volcan, mainly advising on planning, but also as a general consultant.
- **Black Angel Mining Ltd, Greenland (2005 to date)** Director and consulting mining engineer. 100% owned by Angus & Ross plc. The company intends to re-open the former lead-zinc mine and extract high grade pillars. New resources have been added in the Ark and Glacier satellite zones as a result of 2006's summer drilling programme. The company is planning a DMS circuit to produce a high grade pre-concentrate. See <http://www.blackangelmining.com/>.
- **Atacama Minerals Corp, Chile (2005 to date)** Atacama mines salts in the Atacama desert to produce Iodine. Together with Adam Wheeler, consulting mining engineer, have prepared resource and reserve statements conforming to NI 43-101 standards. Also prepared a financial model incorporating future sodium sulphate and potassium nitrate production, which was used for bank presentations.
- **Lundin Mining, Sweden (2004 to 2006) Formerly NAN Resources** Prepared detailed "life-of-mine" plans and production schedules for NAN's underground copper-zinc Storliden Mine in Northern Sweden. The mine planning studies were completed in Datamine with the assistance of Adam Wheeler, consulting mining engineer. The Storliden mine is small but high grade, and is mined by different variations of cut and fill mining. For details on Lundin see <http://www.lundinmining.com/>. In January 2005 a valuation of both the Zinkgruvan and Storliden

mines was completed for stockbrokers who were retained to give a 'fairness opinion' for the independent shareholders of NAN.

- **Compañía Minera Atacocha S.A., Peru (1997, 2000 and 2004)** Retained on three occasions to give advice on the mining operations, mine planning and other matters relating to the Atacocha lead-zinc-silver mine in Peru. Atacocha produces about 100,000 tonnes per month of copper-lead-zinc-silver ores from one underground mine.
- **Hambledon Mining Limited, Kazakhstan (2003)** Together with [Adam Wheeler](#), also a consulting mining engineer, designed and planned a new mine at Sekisovskoye. This comprised detailed mine planning and costing for a 500,000 tonne per year underground gold mine using cut-and-fill and skrinkage stoping.
- **Picobello, Spain (1998)**. Designed and calculated costs for open pit mining at this new andalucite deposit. Included selection of suitable tailings disposal sites.
- **ZCCM, Zambia (1997)**. Worked with MRDI in the valuation of the Nchanga and Nkana Divisions, comprising open pit and underground mining of copper-cobalt ores. Represented ZCCM in discussions with various parties to privatise these operations.
- **Bougrine Mine, Tunisia (1997)**. Completed an evaluation of this mothballed lead-zinc mine, however, the client failed to achieve a successful purchase.
- **Nelson Gold Corp, Tadjikistan (1995-1996)**. Manager, Taror Gold Project. Verification of Soviet geological data for a bankable feasibility study, requiring underground development and sampling. Underground and open pit mine planning, using Datamine. Later, represented Nelson Gold in the technical assessment of a bankable feasibility study undertaken by Bateman, for the Jilau heap leach project.
- **Lonrho Plc, former USSR. (1994)**. Valuation, with a view to purchase, of a producing antimony mine in Tadjikistan, and evaluation of potential gold mines in Kirgystan and Tadjikistan.
- **ZCCM, Zambia (1993-1994)**. Year long assignment for consultants MRDI (on behalf of the World Bank) in Zambia to plan the future of the Mufulira copper mine, which recommended a major change of mining methods from open stoping to mining with backfill. This was expected to solve the geotechnical problems at depth.
- **Glencar Explorations Ltd, Hungary (1991)**. Pre-investment financial evaluation and technical review of the Hungarian State Uranium Mining Company. The underground mines at Pecs required modernising and the assignment involved calculating the financial restructuring capital needed.
- **Renasa Exploration, Spain (1992)**. Evaluation and financial presentation of plans for the development of a new underground lead-zinc mine. In connection with this project, visited the Ukraine to evaluate the use of Russian shaft sinking contractors.
- **PT Panen Antam Emas, Indonesia (1991-1992)**. Relief General Manager of an underground gold mine under development on the Island of Java.

### **Technical Director, GEEVOR PLC 1988 - 1991**

Responsible for the technical management of the company's various metalliferous mining projects, (excluding the coal mining business, which eventually caused the company to be wound up). These included

- Re-opening the Geevor tin mine in Cornwall, UK, which operated successfully for two years from Jan 1988 to Feb 1990, producing approx. 60 tonnes tin per month at the lowest costs ever achieved. Eventually closure of the mine was inevitable, in the face of continuing low tin prices, and the dewatering pumps were turned off in May 1990.
- Construction of a gold treatment plant in Ecuador to treat run-of-mine ores and mill tailings. This project was later sold as part of the Geevor plan for survival in 1998.
- Norquest Resources (VSE), had acquired various properties in Canada, USA, and Costa Rica, and Geevor was appointed as operator. As technical director, became responsible for these projects, including the Crown gold mine in Arizona, which produced for about a year before closing due to a lack of reserves. The Canadian properties were all gold prospects, some of which were drilled but without a major success. Geevor bought into the Costa Rican venture, through funding

expenditures, see next.

- Exploration drilling of the San Martin open pit gold deposit in Costa Rica. This property was an exploration success and was subsequently acquired by Ariel Resources.

Resigned from Geevor to pursue a career as an independent consultant.

### **Managing Director, CAMBRIAN MINERAL DEVELOPMENTS LTD 1987 - 1988**

Established this newly formed joint venture, between the Robertson Group of the UK and SNC Engineering of Montreal, to provide mining and processing consultancy and plant construction services. Major projects included

- A potash - gypsum reaction process to make potassium sulphate and barium chloride on behalf of the New Brunswick government. Laboratory scale trials were successful and pilot trials were pending.
- Plans to build a concentrator for New Butte Mining Plc, who were re-opening the old copper lead zinc silver mines in Butte, Montana.
- Advising Geevor plc in its plans to re-open the Geevor tin mine in Cornwall.

Resigned from Cambrian to join Geevor.

### **COMINCO LTD 1968 - 1987**

#### In London 1980 - 1987

Cominco, headquartered in Vancouver, Canada, managed its international businesses through main subsidiary offices. London was one such office.

- As **Technical Director**, Cominco Europe Limited, was mainly responsible for the operational planning of the two mines in Spain, Rubiales and Troya (lead-zinc), the Black Angel mine in Greenland (lead-zinc) and the Hondeklip Bay alluvial mine in South Africa (diamonds), including the preparation of one, five and ten year business plans, forecasts and budgets.
- Negotiated the technical details for a \$25 million non-recourse, project loan for the Troya mine. Also co-ordinated a \$40 million guaranteed loan for the Rubiales mine. These were with Canadian banks.
- In conjunction with our joint venture partners (Trans Hex) planned and designed the successful South African alluvial diamond mine at Hondeklip Bay. Board Director.
- Deputised as **Mine Manager** of the Black Angel lead-zinc mine in Greenland during 1985. This was an underground trackless room and pillar operation and whilst there a photometric ore sorter was installed to upgrade feed to mill.
- Cominco's technical representative at the Tara lead zinc mine in Ireland and alternative board director.

Teck assumed control of Cominco in 1987 and closed the London office as part of the new management regime. Although offered another position in Vancouver, for family reasons it was decided to stay in the UK.

#### In Spain 1975 - 1979

Cominco Ltd had controlling ownership of the local Spanish company Exminesa

- **Senior Mining Engineer** at the Rubiales and Troya lead-zinc mines. Planned the successful introduction of VCR (vertical crater retreat) mining at Rubiales, the first 100% application in the world. Responsible for the implementation of the hydraulic backfill system and the design and

installation of the cable bolting support.

- Supervised the initial feasibility study for the Troya mine, with work at Bechtel's Montreal office.
- Supervised the initial underground ramp development at Troya, in order to test the ground conditions and obtain operating parameters for the final feasibility study.
- Evaluated several other mining opportunities for various commodities throughout Spain. Including a detailed assessment of the Riocin mine (lead zinc) and other assets held by Real Compañía Asturienne.

#### In Canada 1968 - 1974

- **Mining Analyst** (1972-1973) for the exploration division, Vancouver Head Office. Evaluated many possible mining opportunities including the Tara mine in Ireland, which was being delineated by diamond drilling, but Cominco's attempted hostile take-over only resulted in obtaining about 25% of the stock. Among many other interesting evaluations were porphyry copper mining opportunities in Chile and the lead zinc deposits of Bathurst Norse Mines in NWT, Canada.
- **Mining Engineer** (1971-1972) at the Polaris lead-zinc mine on Little Cornwallis Island in the very high Canadian arctic. Built the first mining camp and supervised the underground ramp development, contracted to J S Redpath, and diamond drilling etc to assess the practicality of mining in permafrost. The decline established a world record for the rate of advance of a -20% ramp, averaging 44 ft per day for 3 months, without missing a round. A +40% combined lead zinc sample of 5,000 tonnes was shipped to Montreal for metallurgical testing.
- **Mining Engineer** (1970-1971) at the Pinchi Lake mercury mine in BC, Canada. Open pit and underground mining (cut-and-fill) at 750 tpd, using hydraulic deslimed tailings as fill. The small open pit only operated in the summer.
- **Senior Rock Mechanics Engineer** (1968-1970) at the Sullivan lead-zinc mine, Kimberley, BC, Canada. Supervised a 5-man department, which measured pillar stresses to find the correct sequence of extraction and generally advise the mine planning engineers on geotechnical matters.

Job experience while at University included working as a miner at the Groverake fluorspar mine in Weardale, Co Durham, and working as a miner at a highly mechanised underground limestone mine in Norway. Post-graduate thesis was entitled "Strata Movements Above a Long wall face in the Vicinity of a Large Fault", and comprised taking many extensometer and stress measurements in old coal seams as a long wall face passed underneath. The site for this work was under the North Sea in the Vane Tempest colliery at Seaham Harbour, Co Durham.