**CURRICULUM VITAE**

**DAVID RUDI HEBERLEIN**

325-210 West 2nd Street

North Vancouver, BC,

Canada. V7M 1C6

Telephone: (778) 340 0098

Mobile: (604) 716 4161

E-mail: [dave@hebgeoconsulting.com](mailto:dave@hebgeoconsulting.com)

Website: [www.hebgeoconsulting.com](http://www.hebgeoconsulting.com)

**Summary of Qualifications:**

* Registered Professional Geoscientist (P.Geo.) in British Columbia.
* Thirty years of experience in mineral exploration in full time, contract and consulting roles.
* Specialist in Exploration Geochemistry.
* Experience in partial extraction geochemistry in a wide variety of environments.
* Experience as General Manager, Exploration Manager and Technical Specialist for a major gold company.
* Extensive experience in advanced project management, budgeting, project generation, regional and property exploration and project evaluation.
* Experience with porphyry (Cu, Cu-Mo and Cu-Au), epithermal gold and silver (high, intermediate and low sulphidation) systems, alkalic epithermal, VMS, SEDEX, Archean shear hosted deposits, BIF Au, Carlin deposits, Intrusive Related Au systems and IOCG systems.
* Experience in the Canadian Cordillera, Western Canadian Shield, Spain, Turkey, Bolivia, Chile, Argentina, Mexico, Peru, Brazil, Australia, Tanzania, Mali, Burkina Faso, USA (Nevada and Alaska).

**Education:**

M. Sc. Geology, 1985: The University of British Columbia, Vancouver, B.C.

Thesis Title:

Lithogeochemistry and Hydrothermal Alteration at the Berg Porphyry Copper-Molybdenum Deposit, North-Central British Columbia.

Special Interests:

Exploration geochemistry, partial leach and sequential extraction geochemistry, lithogeochemistry, alteration and metasomatic processes.

B.Sc. (Hons.) Geology, 1980: The University of Southampton, Southampton, England.

Thesis Title:

Lithogeochemistry of the El Cura Volcanogenic Massive Sulphide Deposit, Valo Permit, Southwest Spain.

1971 to 1976:Brighton College, Brighton, England. “O” and “A” levels.

Computer Skills: Experienced user of the following software: Windows, MS Office Suite, ArcGIS, Geosoft Target, ioGAS, Datashed and QAQCR.

**Work Experience:**

01-2009 to Present **Heberlein Geoconsulting**

Consulting Exploration Geochemist specializing in partial leach geochemistry, QAQC, geochemical data interpretation, orientation survey design, training workshops and seminars for global mining and exploration companies.

03-2007 to 12-2008: **Calibre Mining Corp.** (formerly TLC Ventures Corp.)

Vice President – Exploration

Responsible for development and supervision of Calibre’s exploration portfolio in North America and Australia. Other responsibilities included: implementation and management of a corporate OH&S system, development of an exploration database system and QAQC.

References: Rob Brown – President and CEO; Doug Forster – Chairman of the Board.

01-2003 to 03-2007: **Barrick Gold Corporation**

Chief Geochemist – Exploration

Responsible for supervision of the Barrick’s global geochemical activities including: design and interpretation of geochemical surveys, orientation surveys, QAQC, laboratory auditing, personnel training through seminars and workshops and new method development. Areas of activity included: Australia (WA, NSW), USA (Nevada, Alaska), South America(Chile, Argentina, Peru), Tanzania, West Africa, Dominican Republic and Eastern Europe. Important contributions include the development of a soil pH technique to see through transported overburden in a wide range of climatic and physiographic environments. Also tested and implemented partial leach methods in a wide range of environments.

Supervisor: Jay Hodgson - Chief Geologist (retired) 01-2003 to 12-2005.

Francois Robert – Chief Geologist – 12-2005 to 03-2007.

07-1997 to 01-2003: **Barrick Exploraciónes Argentina S.A**.

General Manager - Argentina & Chile Exploration.

Responsible for all aspects of gold exploration in Chile and Argentina including resource delineation projects at Pascua-Lama and Veladero as well as mine exploration at the El Indio and Tambo District, Chile. Major achievements include the addition of over 25 million ounces of gold and 560 million ounces of silver resources at Pascua-Lama and addition of three years of additional reserves at the El Indio Mine.

Supervisor: Alex Davidson – Senior VP Exploration, Barrick Gold Corporation.

08-1995 to 07-1997 **Barrick Exploraciónes Argentina S.A**.

Exploration Manager.

Responsible for all aspects of gold exploration in Argentina including resource delineation drilling at the Diablillos high sulphidation epithermal deposit in Salta, and Manantiel Espejo in Santa Cruz Provinces. Major achievements include the identification of 110 million ounces of silver and over 900,000 ounces of gold at Diablillos and acquisition of a key land package, which now contains the Argentinean portion of the Pascua-Lama deposit and key infrastructure sites.

Supervisor: Alex Davidson – Senior VP Exploration

04-1994 to 07-1995 **Barrick Chile Ltda.**

Senior Geologist – South America.

Responsible for project generation throughout South America, with particular emphasis on high sulphidation epithermal Au-Ag systems in the northern cordillera of Chile and Argentina and low sulphidation epithermal systems in Patagonia. Important contributions include the acquisition of the Diablillos high sulphidation project in Salta, Argentina.

Supervisors: Luis Baertl (Senior VP, Corporate Development, South America), Walter Espinosa (General Manager, Chile and Argentina) and Alex Davidson (VP Exploration)

05-1993 to 03-1994 **Metall Mining Corporation** (formerly Minnova Inc)

Senior Project Geologist. Responsible for epithermal gold and porphyry Cu and Cu-Au exploration programs in western Canada.

Supervisor: Frank Balint (Exploration Manager – Western Canada)

05-1990 to 05-1993 **Minnova Inc**.

Senior Project Geologist. Responsible for gold and porphyry exploration projects in the Canadian Cordillera. Specific duties included: property evaluations, design and implementation of exploration programs, technical supervision of field geologists, geological interpretation, resource estimation, preparation of technical reports, presentations, and liaison with government agencies and other companies.

References: Ian Pirie (District Geologist) and Alexander Davidson (VP Exploration).

02-1989 to 05-1990 **Minnova Inc**.

Project Geologist. Responsible for district exploration for volcanogenic massive sulphide targets around the Samatosum Mine, near Barriere, B.C. Specific duties included: supervision of exploration and resource delineation drilling, supervision of district-wide mapping and sampling programs, property evaluations, project planning and implementation, , geological interpretation, technical report preparation and presentations.

Supervisors: Alex Davidson (Exploration Manager- Western Canada and International) and Ian Pirie (District Geologist)

04-1985 to 02-1989 **Esso Minerals Canada**

Project Geologist. Responsible for planning and implementation of property and regional exploration programs for massive sulphides and gold in the Cordillera and Western Shield. Duties included: project generation, budgeting, mapping, core logging, geological interpretation and technical report preparation.

Supervisors: John McDonald (Exploration Manager Western Canada) and Jack Marr (District Geologist).

04-1984 to 12-1984 **BP Resources Canada Limited – Selco Division**

Contract Geologist working on alkaline Cu-Au project in North Central BC. Duties included: supervision of field crews, regional and property mapping, geological interpretation and technical report preparation.

Supervisor: Mark Rebagliatti (District Geologist)

## **Contract Geologist**

Contracts included petrographic and SEM studies of ore samples from epithermal Au deposits in B.C. and the U.S.

04-1982 to 12-1982 **Archer Cathro and Associates (1981) Ltd.**

### Party Chief, Wernecke Joint Venture. Responsible for the management of a helicopter supported diamond drilling project and regional exploration program for diatreme hosted U and SEDEX Pb-Zn deposits in the northern Yukon. Other duties included: geological mapping, core logging, report preparation and drafting.

05-1981 to 09-1981 **Archer Cathro and Associates (1981) Ltd.**

#### Contract Geologist, Wernecke Joint Venture. Duties included: property and regional geological mapping, technical report preparation and drafting.

06-1980 to 09-1980 **Placer Development Ltd**.

Term Geologist working on the Berg porphyry Cu-Mo deposit in north-central B.C. Duties included: core logging, mapping and rock sampling. Work was part of M.Sc thesis.

Supervisor: Peter Bradshaw, Ian Thomson

05-1979 to 10-1979 **Phelps Dodge Exploración, Español S.A**.

Geologist, Iberian Pyrite Belt massive sulphide exploration program. Duties included: regional and detailed geological mapping of exploration permit areas and lithogeochemical investigations of individual deposits in the Rio Tinto District.

Supervisor: Tim Coates (Exploration Manager), Nick Badham (University of Southampton)

##### **Professional Associations**

* Registered Professional Geoscientist (P.Geo) of the Province of British Columbia.
* Associate Member of the Association of Applied Geochemists.

##### **Publications and Presentations**

**Heberlein, D. R., 2010:** An Assessment of Soil Geochemical Methods for Detecting Copper-Gold Porphyry Mineralization through Quaternary Glaciofluvial Sediments at the WBX-MBX and 66 Zones, Mt. Milligan, North-Central British Columbia. Geoscience Report 2010-8, April 2010, 68pp.

**Heberlein, D. R. And Samson, H., 2010:** Geochemical Exploration through Thick Glacial Cover: a Case History from Kwanika, North-Central BC. Presentation at Roundup 2010, Vancouver BC, January 19th, 2010.

**Heberlein, D.R. and Samson, H., 2010:** An Assessment of Soil Geochemical Methods for Detecting Copper-Gold Porphyry Mineralization through Quaternary Glaciofluvial Sediments at the Kwanika Central Zone, North-Central British Columbia. Geoscience BC Report 2010-3, January 2010, 89 pp.

**Heberlein, D.R, 2010:** Comparative Study of Partial and Selective Extractions of Soils over Blind Porphyry Copper-Gold Mineralization at Kwanika and Mount Milligan, British Columbia (NTS 093N/01, /19): Fieldwork, Soil Conductivity and pH Results. Geoscience BC Summary of Activities Report, 2009. Report 2010-1, p. 11-24.

**Heberlein, D.R., 2008:** Spatial and Temporal Zonation at the El Indio Cu-Au-Ag deposit, Chile: Evidence for an Evolving High Sulphidation Epithermal System: Presented at the Terry Leach Symposium, Sydney Australia, October, 2008

**Heberlein, D. R., 1986.** Geology and Supergene Processes at the Berg Porphyry Copper-Molybdenum Deposit, North-Central B.C. In preparation for CIM Special Volume 44: Porphyry Deposits of the Northwestern Cordillera of North America.

**Godwin, C. I., Champigny, N., Heberlein, D. R., Gorzynsky, G. A. and Blanchet, T., 1984**: Enhancements to Sampling using the GEOLOG System, in Assoc. Expl. Geochem: Short Course on Geochemical Exploration Program Design, Reno , Nevada.

**Heberlein, D.R. and Godwin, C.I., 1984:** Hypogene Alteration at the Berg Porphyry Copper-Molybdenum Deposit, North-Central British Columbia: Econ. Geol. v.79, Nº 5, p. 902 – 918.

**Heberlein, D.R., Fletcher, W.K. and Godwin, C.I., 1983:** Lithogeochemistry of Hypogene, Supergene and Leached Cap Samples at the Berg Porphyry Copper-Molybdenum Deposit, North-Central British Columbia. Jour. Geochem. Explor.: v.19, p.595-609.