Driftpile 882453

Geochemical Methods for Sedex Deposits in the Gataga District, NE British Columbia

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Paleozoic basinal sediments host significant sedex Pb-Ag-Zn sulphide mineral occurrences (e.g., Bear, Driftpile Creek) in the Gataga District of north eastern British Columbia. There is potential for new, large base metal deposits throughout the Kechika Trough, but exploration is challenged by the geochemistry of the shale host rocks. Devonian and Silurian carbonaceous shales typically contain high Ag, Zn, Co, Ni, Mo, As, Se, U and Cu levels. Secondary iron oxides, commonly deposited around groundwater springs, are also enriched in these metals. As result, high element backgrounds in iron oxide deposits, soils and stream sediments often mask the geochemical expression of Ag-Pb-Zn mineralization. Geochemical studies of the Driftpile Creek-Bear region reveal that pathfinder elements (e.g., Pb) in the spring waters and the distribution of metals in secondary iron oxides spring deposits can help distinguish between mineralized and barren areas.

Gataga Multidisciplinary Project

J. Nelson, F. Ferri, B.C. Geological Survey Branch, S. Paradis, Geological Survey of Canada

The British Columbia Ministry of Energy, Mines and Petroleum Resources began a multi-disciplinary examination of the northern Kechika basin during the summer of 1994. This is a cooperative project with the Geological Survey of Canada and is funded, in part by the second Mineral Development Agreement between the governments of British Columbia and Canada. This program included a detailed study of the Driftpile deposits, a characterization of the geochemical signature of these occurrences and a regional mapping project along the central part of the basin, north of Gataga River.

The stratigraphy of the Earn Group at the Driftpile deposit shows at least two cycles of exhalative activity. Each is preceded by euxinic, starved sedimentation and followed by an influx of distal turbidites. This event stratigraphy may represent an interplay of tectonics and mineralization whereby discrete episodes of faulting first triggered the release of mineralized brines and then, shortly afterwards, sediment transport along newly steepened slopes.

Mapping along the lower Gataga River has extended the belt of Devono-Mississippian Earn lithologies further north and has recognized several new horizons of barite-pyrite stratiform mineralization along the northern end of the map area. Several other horizons of barite mineralization were encountered within basal Cambro-Ordovician Kechika rocks and within Ordovician slates of the Road River Group. The later occurrence is traceable for over 1 kilometre and is associated with tuffaceous lithologies.

Cretaceous stock and subvolcanic felsic intrusions at the Capoose prospect (~64-70 Ma. Whole Rock and Biotite; K. Dunn, 1988) contain either porphyry copper or disseminated silver mineralization. The youngest deposits of Eocene are, comprise epithermal precious metals (Wolf; K-Ar: ~47-50Ma., Whole Rock: K. Dunn, 1988) and molybdenum porphyry (CH; K-Ar: 49 Ma. Biotite, 52 Ma. Hornblende).

Blackwater-Davidson Epithermal/Transitional Au/Ag prospect, Nechako Plateau
Granges Mining Ltd.

The Blackwater Davidson property was located as a result of Granges' Tahtsa regional silt survey conducted in 1973. Through successive follow up surveys Au and Ag mineralization was identified through drill programs in 1985-1986. Cumulative drilling to the end of 1994 includes 41 diamond and 34 reverse circulation holes.

Mineralization is hosted in mid-Jurassic Hazelton group Naglico formation rhyolite and ande-basalt, is structurally controlled and has a close spatial association with central splaying massive to flowbanded subvolcanic rhyolite dikes. Alteration manifests as silicifation, sericitization and kaolinization. Mineralization is comprised primarily of sphalerite, galena, pyrite, pyrrhotite, with lesser sulphosalts and native wire silver. Assays are low grade generally falling in the range 1.27-4.86 g/t Au for significant intervals. Au:Ag ratios vary from roughly 1:1 to 1:10 for high and low Au values respectively.

Thursday, February 9, 1995 and Friday, February 10, 1995 - Afternoon

SPOTLIGHT SESSION - POSTER DISPLAYS
VOLCANOGENIC MASSIVE SULPHIDES - Pacific Ballroom

Organizer: Donald McInnes, President, Western Keltic Mines Ltd.

Geology of the Driftpile Ba-Zn-Pb Sedex Deposit, Gataga District, Northeastern British Columbia
S. Paradis, Geological Survey of Canada, J.L. Nelson, British Columbia, Ministry of Energy, Mines and Petroleum Resources, Geological Survey Branch, R. Farmer, Teck Exploration Ltd.

The stratiform Driftpile deposit consists of two mineralized lithofacies - a restricted sulphide-carbonate facies and a laterally extensive barite ± sulphide (mostly pyrite) facies, hosted by fine-grained siliciclastic rocks of the Middle to Late Devonian Lower Earn Group. The sulphide-carbonate facies may be stratigraphically lower than the baritic facies or the latter may form an apron outboard to the sulphide-carbonate facies. The sulphide-carbonate facies consists of massive and laminated spheroidal and framboidal pyrite with subordinate sphalerite and carbonaceous siliceous mudstone

and chert. The barite ± sulphide facies consists of beds of blebby and laminated barite and laminated pyrite (minor sphalerite and galena) interbedded with siliceous black argillite.

The Sullivan Deposit and its Geologic Environment

The Sullivan Project Group (Project leader: John W. Lydon, Geological Survey of Canada

The Sullivan Project is led by the Geological Survey of Canada in collaboration with Cominco Ltd. and involves researches from the B.C. Geological Survey, U.S. Geological Survey and a number of universities. The purpose of the Sullivan Project is to document the geological and geochemical details of the Sullivan deposit for the public record, and to enhance understanding of its geological environment pertinent to mineral exploration models. Studies focus on the tectonic setting and basinal environment of the host Aldridge Formation, controls on siting of the Sullivan deposit, timing of mineralization and its relationship to gabbro sill emplacement, the nature and source of hydrothermal fluids, and the processes of ore formation within the Sullivan orebody. The compiled results of the Sullivan Project will be published as a GSC volume "The Sullivan deposit and its Geological Environment" in 1996.

The Kutcho VMS Deposit, British Columbia

John F.H. Thompson, T.J. Barret, R.L. Sherlock, F. Childe, Mineral Deposit Research Unit, Department of Geological Sciences, University of British Columbia, P. Holbek, Princeton Mining Corp.

The Kutcho deposit is located within the King Salmon allochthon, a discrete thrust and fault-bounded block of uncertain terrane affiliation, in northwestern British Columbia. The allochthon comprises an assemblage of volcanic and intrusive rocks overlain by a sedimentary package. The lower part of the volcanic assemblage consists of intercalated rhyolite and basalt of mixed flow and fragmental character and minor sediments, intruded by an equigranular trondhjemite and several quartz-plagioclase porphyritic bodies of rhyolite composition. The upper part of the assemblage is dominated by felsic fragmental rocks of probable mass flow and pyroclastic origin, which are divided into a lower plagioclase-quartz porphyritic unit, an overlying fine grained tuffaceous unit, and an upper coarse quartz-plagioclase porphyritic unit. The volcanic assemblage is overlain by locally well graded siltstones and argillites, capped by a conglomeratic unit containing locally derived volcanic clasts. Several thick plagioclase-augite porphyritic gabbro sills intrude both the siltstone-argillite package and the upper part of the underlying volcanic assemblage.

Massive sulphide mineralization occurs in several lenses at the base of the upper quartz-plagioclase porphyritic fragmental unit. The adit across the Kutcho lens exposes massive chalcopyrite-sphalerite-pyrite mineralization locally cross-cut by bornite-rich veins, and a finely laminated dolomite-sulphide unit that may represent a primary carbonate-rich exhalite. Alteration in both footwall and hanging wall is