



NORTHWEST BRITISH COLUMBIA

LOGTUNG (1040/13E, 105B/4E)

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The Logtung tungsten-molybdenum property straddles the British Columbia-Yukon border about 66 kilometres southeast of Teslin, Yukon Territory. The British Columbia zone on the prospect was discovered in 1976 by Cordilleran Engineering Limited while prospecting for the source of a tungsten geochemical anomaly in the Logjam Creek—Two Ladder Creek area. The Jam 1 to 5 claims (98 units) and Camp 1 claim (2 units) in the Atlin Mining Division and 138 adjacent claims in the Yukon were staked to cover the prospect. The property was optioned to Amax Potash Limited in 1977. During 1977, Amax drilled 416.6 metres of NQ and 58.8 metres of BQ core in four holes on the B.C. zone (Fig. 15) and about 2 365 metres in the main zone (Central and Yukon zones, Schroeter, 1977). The main zone, a quartz vein stockwork deposit in the Yukon, subparallel to the border, was indicated to be of better grade and tonnage potential (214,000,000 tons grading 0.12 per cent WO_3 and 0.05 per cent MoS_2 , George Cross Newsletter, No. 64, 1978). During 1978 Amax concentrated on defining the Yukon zone.

The centre of the Jam claim block is 8 kilometres north of the Alaska Highway at latitude 59 degrees 59 minutes north and longitude 131 degrees 35 minutes west. Access to the camp and claims is via a 13-kilometre gravel road which leaves the Alaska Highway at Kilometre 1213.

GENERAL SETTING

The property is situated near the northern end of the Cassiar Mountain physiographic province, a glaciated terrain characterized by moderately rugged topography. The property has 1 040 metres of relief with elevations ranging from 1 892 metres to 852 metres in the Smart River valley. Previous studies of the regional geology are those of Gower (1952), Poole (1956), Poole *et al.* (1960), and Gabrielse (1969).

Figure 15 shows the general geology and setting of the Logtung property. Carboniferous sedimentary rocks (unit 1) of the Dorsey Group are part of the west limb of a major southeast-plunging syncline (Poole, 1956). Sedimentary rocks have been intruded and metamorphosed by dioritic rocks (unit 2) and by quartz monzonite and alaskite sills, dykes, and stocks (units 3 and 4) resulting in hornfelsing of argillaceous rocks and skarnification of limy rocks. Aplite dykelets and quartz veinlets are abundant in the alaskitic dykes and in contact metasomatized sedimentary rocks. Northerly and northeasterly trending faults are associated with mineralization and with some intrusive contacts.

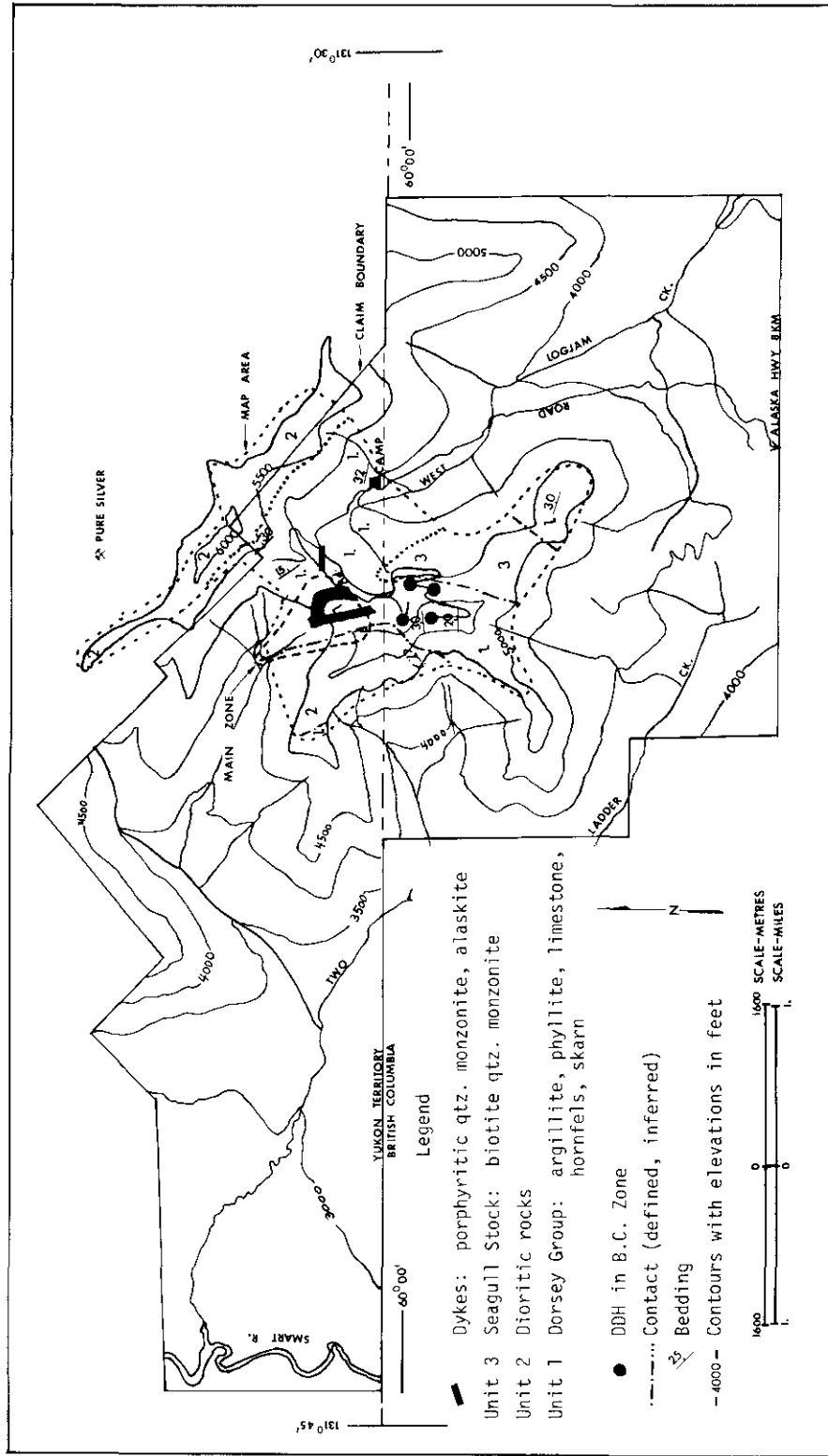


Figure 15. Geology of the Logtung (tungsten-molybdenum) property.

Unit 1

Sedimentary rocks consist mainly of argillite, phyllite, and limestone with contact metamorphism and metasomatism producing hornfels and skarn. Hornfels is light or dark grey or black with a grey-green variety that may reflect initially higher carbonate content. Skarn is often interbedded with hornfels in the B.C. zone but seldom exceeds 30 per cent of the rock for more than a metre. Limestone occurs on the ridge east of the main zone but lenses out into argillaceous sedimentary rocks.

Unit 2

Dioritic rocks of variable texture and composition occur as two main tabular sills or dyke-like bodies with numerous offshoots. The variable nature may be the product of metasomatic and metamorphic effects of younger granitic intrusion. Staining indicates potassium feldspar contents between 5 and 15 per cent with biotite developed in K-feldspar-rich varieties. Increase of K-feldspar near fractures suggests metasomatic addition of potassium. Epidote and quartz sulphide veinlets cut the diorite.

Unit 3

Biotite quartz monzonite that occurs as a stock at the south boundary of the showings is considered by Poole (1956, p. 171) to be satellitic to the Seagull batholith. The stock is medium grained, even or slightly porphyritic textured with miarolitic cavities, fluorite veinlets, quartz veinlets, and smoky quartz. Aplite, porphyritic quartz monzonite, and porphyritic alaskite dykes occur as offshoots.

Scintillometer readings between 4 000 cpm and 24 000 cpm (2 to 12 times background) obtained over the stock suggest that radiometric surveys may help in detecting similar stocks.

Unit 4

Porphyritic alaskite dykes and hornfelsed argillaceous sedimentary rocks are cut by a stockwork of scheelite and molybdenite-bearing quartz veins in the main zone. The alaskite contains fluorite as disseminations and veinlets. Outcrop patterns suggest a canoe-shape for dykes in the main zone.

MINERALIZATION

Scheelite and molybdenite mineralization occurs mainly in stockwork quartz veins in porphyritic alaskite, quartz monzonite, and contact hornfels and skarn. Minor disseminated mineralization occurs in garnet-diopside skarns, hornfels, and intrusive rocks. The iron sulphide content of the mineralized zones is insufficient for gossan production.

Bluish green beryl was found in the B.C. zone as cavity fillings and massive vein fillings with quartz. Purple fluorite is widespread on the property. Wolframite was identified by Poole (1956, p. 179) and the

occurrence of molybdenum, tungsten, and tin mineralization with fluorite and tourmaline in a stockwork was described by Mulligan (1968).

Lead-zinc-silver mineralization occurs about 100 metres northeast of the main zone and numerous showings can be traced toward the Pure Silver [lead-zinc-silver-gold-(tin)] property. A north-30-degree-east set of steeply dipping quartz veins that carry molybdenum is persistent and widespread in the area.

REFERENCES

- B.C. Ministry of Mines & Pet. Res.*, Assessment Report 6491.
- Gabrielse, H. (1969): Geology of Jennings River Map-Area, British Columbia (1040), *Geol. Surv., Canada*, Paper 68-55, p. 37.
- Gower, J. A. (1952): The Seagull Creek Batholith and its Metamorphic Aureole, unpubl. M.A.Sc. thesis, *University of British Columbia*.
- Mulligan, R. (1968): Geology of Canadian Beryllium Deposits, *Geol. Surv., Canada*, Econ. Geol. Rept. No. 23.
- Poole, W. H. (1956): Geology of the Cassiar Mountains in the Vicinity of the Yukon-British Columbia Boundary, unpubl. Ph.D. thesis, *Princeton University*.
- Poole, W. H., Roddick, J. A., and Green, L. H. (1960): Wolf Lake Map-Area, Yukon Territory, *Geol. Surv., Canada*, Map 10-1960.
- Schroeter, T. (1978): Logtung (1040/13E), *B.C. Ministry of Mines & Pet. Res.*, Geological Fieldwork, 1977, p. 70.