Province of
British Columbia

Ministry of
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GEOLOGY OF THE ANYOX AREA

The Anyox area is located inside the eastern edge of the Coast Plutonic Complex on what is known as the Anyox pendant. The pendant is comprised of a succession of volcanic and sedimentary rocks which correlate with the Upper Triassic Karmutsen Formation.

The basal portion of a Anyox pendent is a volcanic sequence which consists predominantly of pillowed tholeiitic basalt flows with fragmental and tuffaceous layers. The tuffaceous layers are preserved as chlorite schists. Pelitic rocks are locally interbedded with the volcanics which tend to be chloritic.

Immediately above the volcanic sequence is the "ore horizon" chert. The chert occurs as thin to thick bedded, foliated, saccharoidal, and outcrops along the volcanic-sedimentary contact throughout the Anyox area. Adjacent to the Hidden Creek deposit, the chert is an average of 30 metres thick and commonly is interbedded with tuffs and clastic sedimentary rocks.

The sedimentary sequence is at least 700 metres thick and contains fine-grained, thin to medium bedded shales and siltstones with minor carbonate and coarse clastic units. Thin, interbedded carbonaceous phyllite to graphitic schist layers occur in the basal portion of the sedimentary sequence. In the Hidden Creek deposit, thin, dark grey to black limestone beds are preserved within the hanging wall rocks. Higher in the sequence are dark grey to black, thin-bedded to massive limestone beds, lenses and nodules containing no macrofossils. The sedimentary sequence exhibits structures such as graded beds, ripple marks and truncated cross-beds.

Two types of quartz veins occur in the Anyox area. The first type, massive, white, bull quartz up to 5 metres wide, occurs along bedding and fractures in the sedimentary sequence. The second type is quartz vein networks or swarms which are localized near fold axes in the basal sedimentary strata. Silica for these veins was likely remobilized during deformation and recrystallization of the chert unit. The quartz stockworks may contain dieseminated pyrite, pyrrhotite and base metals.

In the Hidden Creek deposit massive sulphide lenses occur within the chert unit at the volcanic-sedimentary contact. Mineralization consists predominantly of massive banded sulphides including pyrite, pyrrhotite and chalcopyrite. Gangue includes quartz, calcite, epidote and altered wallrock.

The Hidden Creek Mine was in operation from 1914 to 1936, producing 22 million tonnes of ore grading 1.4% Cu, 0.17 g/t Au and 9.59 g/t Ag. Recent open-pittable reserves for the quartz vein stockwork in the basal sedimentary strata are 45 million tonnes grading 0.6% Cu.

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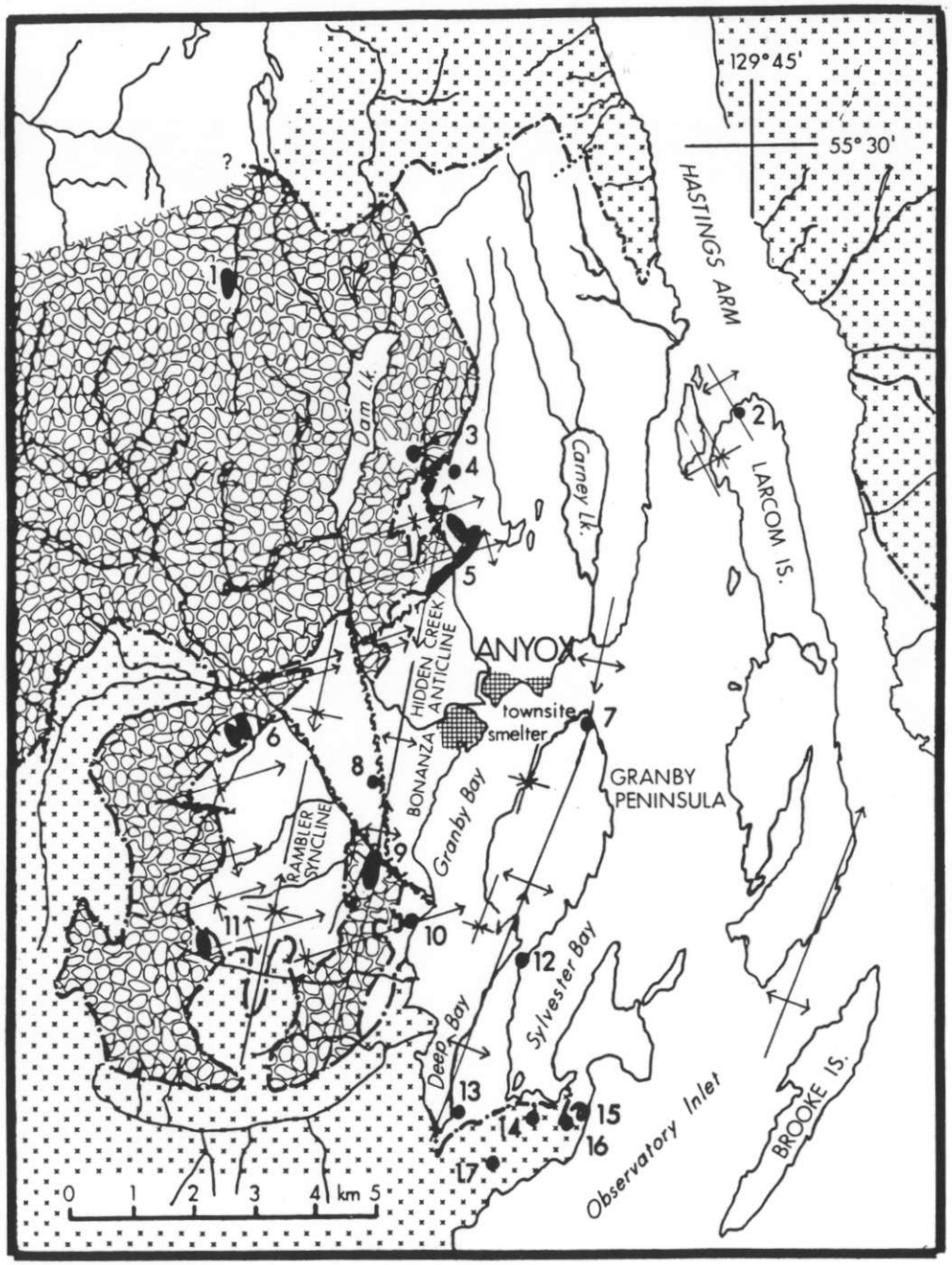
03/90



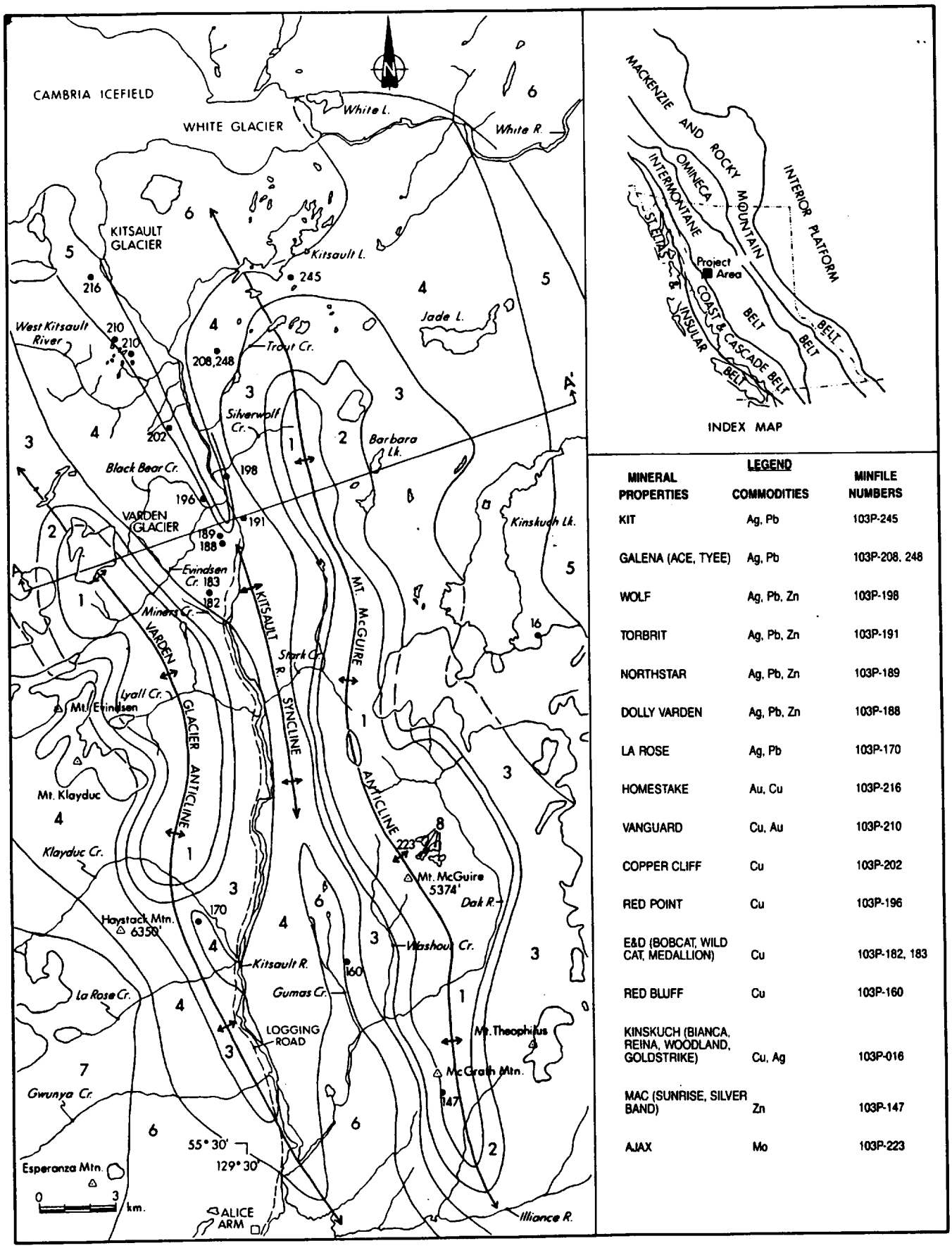
LEGEND

- COAST RANGE BATHOLITH
- SEDIMENTARY SEQUENCE
- PILLOW BASALTS SEQUENCE

SYMBOLS

	MINERAL OCCURRENCES	COMMODITIES	MINFILE NUMBERS
1	EDEN	Cu, Zn	103P-026
2	LARCOM ISLAND QUARTZ	Si	103P-227
3	DEADWOOD QUARTZ	Si	103P-243
4	QUARTZ	Si	
5	HIDDEN CREEK MINE	Cu, Zn, Pb, Co	103P-021
6	DOUBLE ED	Cu, Zn	103P-025
7	GRANBY POINT QUARTZ	Si, Au	103P-022
8	RAMBLER QUARTZ	Si	103P-226
9	BONANZA MINE	Cu, Zn, Pb	103P-023
10	BLACK BEAR	Si	
11	REDWING	Cu, Zn, Pb	103P-024
12	GOLDLEAF	Au, Si	103P-028
13	GOLSKEISH	Si, Au	103P-027
14	MOLLY MAY — WEST ZONE	Mo	103P-228
15	MOLLY MACK	Mo	103P-228
16	MOLLY MAY — EAST ZONE	Mo	103P-228
17	MOLLY MAY — SOUTH ZONE	Mo	103P-228

Figure 29-1. Geology of the eastern Anyox pendant (with compilation from Sharp, 1980 and Grove, 1983).



LEGEND

MINERAL PROPERTIES	COMMODITIES	MINFILE NUMBERS
KIT	Ag, Pb	103P-245
GALENA (ACE, TYEE)	Ag, Pb	103P-208, 248
WOLF	Ag, Pb, Zn	103P-198
TORBRIT	Ag, Pb, Zn	103P-191
NORTHSTAR	Ag, Pb, Zn	103P-189
DOLLY VARDEN	Ag, Pb, Zn	103P-188
LA ROSE	Ag, Pb	103P-170
HOMESTAKE	Au, Cu	103P-216
VANGUARD	Cu, Au	103P-210
COPPER CLIFF	Cu	103P-202
RED POINT	Cu	103P-196
E&D (BOBCAT, WILD CAT, MEDALLION)	Cu	103P-182, 183
RED BLUFF	Cu	103P-160
KINSKUCH (BIANCA, REINA, WOODLAND, GOLDSTRIKE)	Cu, Ag	103P-016
MAC (SUNRISE, SILVER BAND)	Zn	103P-147
AJAX	Mo	103P-223

Figure 31-1. Geology and major mineral occurrences in the Kitsault valley (for legend *see* Fig. 31-2).

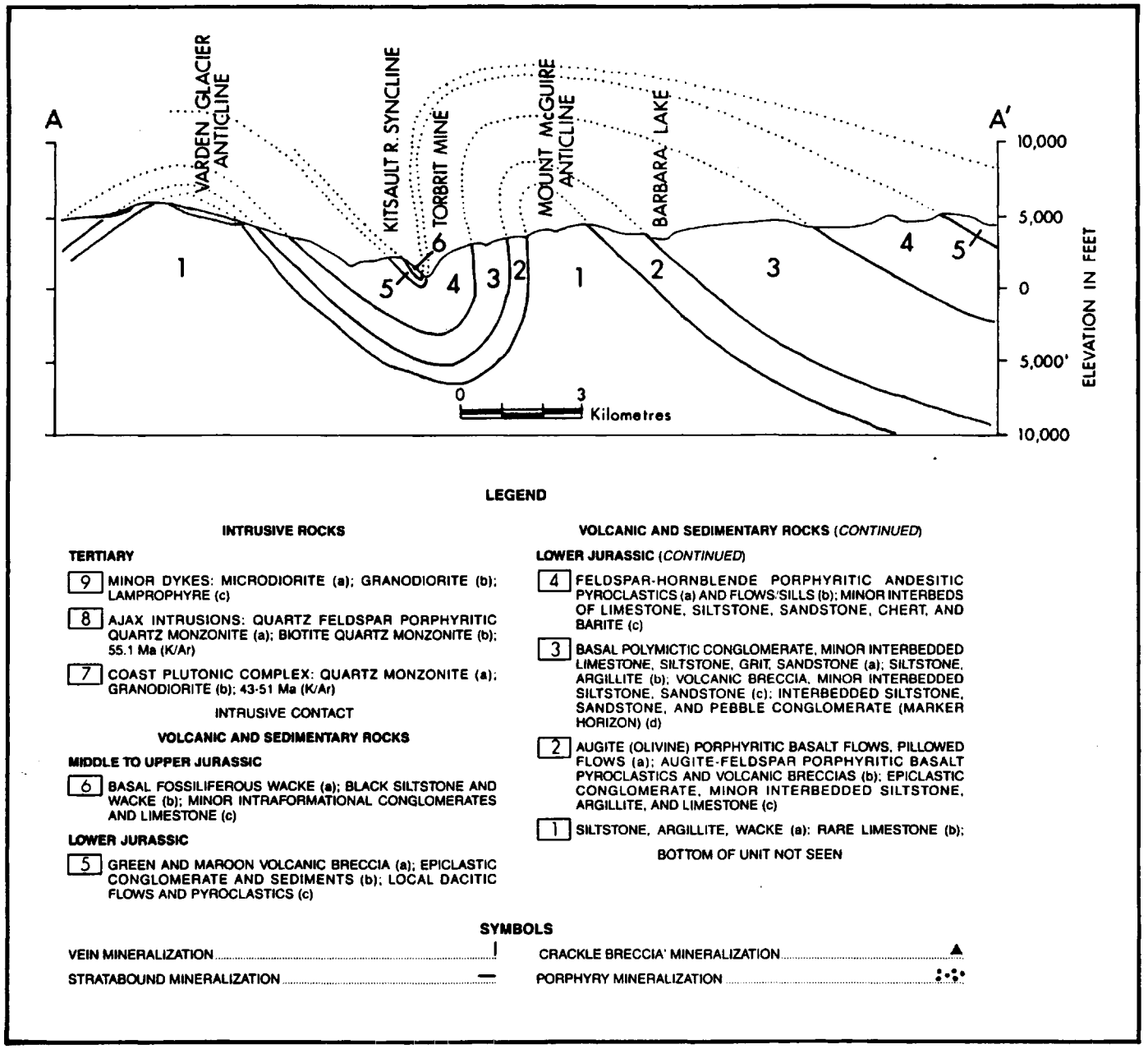


Figure 31-2. Geological cross-section, Kitsault valley (for location *see* Fig. 31-1).

GEOLOGY OF THE BELL MOLY AND KITSAULT (B.C. MOLY) DEPOSITS

The Bell and B.C.Moly (Kitsault) deposits occur 6 to 10 km southeast of the head of Alice Arm Eocene Alice Arm Intrusions which intrude Middle Jurassic Spatsizi Group siltstones and greywackes. The sediments are contact metamorphosed to biotite hornfels, and are overlain by discontinuous outliers of Pleistocene olivine basalts. The intrusive rocks are cut by alaskite dykes, and both the intrusives and sediments are cut by lamprophyre dykes.

The intrusive rocks at B.C. Moly consist of quartz monzonite to quartz diorite. The plagioclase has been altered potassically, as well as sericitically and argillically near faults and shears. At Bell Moly, three phases of the intrusive stock have been recognized. The core consists of the main phase of leucocratic porphyritic quartz monzonite grading to porphyritic granodiorite to quartz diorite at the margins. A later post-mineralization quartz-eye porphyritic quartz monzonite cuts the southwest part of the stock. Potassic alteration is confined to the lecocratic porphyryitic quartz monzonite, while other intrusive phases have biotite altered to sericite/chlorite.

In the B.C.Moly (Kitsault) deposit, the molybdenum mineralization occurs in a zone surrounding a largely barren core of quartz monzonite. Molybdenite occurs along fractures and on margins of quartz veinlets. These veinlets are cut by later quartz veins containing pyrite, galena, sphalerite, scheelite, chalcopyrite, tetrahedrite, pyrrhotite, fluorite and gypsum. Disseminated molybdenite is only found in the alaskite dykes.

At Bell Moly, the molybdenite occurs primarily as selvages in quartz veinlets. Four stages of veining have been identified, with 1) early barren quartz veins, 2) quartz-molybdenite-pyrite veins 3) quartz-molybdenite veins and fractures, and 4.) late stage quartz-carbonate veins with pyrite, pyrrhotite, galena and sphalerite.

The B.C. Moly (Kitsault) Mine operated from 1967 to 1972, produeing 9.3 million tonnes of ore grading 0.112% Mo. In 1981 and 1982, 4 million tonnes of ore grading 0.076% Mo was stockpiled. Remaining reserves of 95 million tonnes grade 0.115% Mo. At the Bell Moly deposit, reserves of 96 million tonnes averaging 0.054% Mo have been outlined, with 51 million tonnes of 0.06% Mo occurring in one open-pit configuration.

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GEOLOGY OF THE KITSAULT VALLEY

The Kitsault Valley is underlain by a sequence of volcanic and sedimentary rocks which correlate with the Lower to Middle Jurasaeic Hazelton Group. The basal unit of the volcanic-sedimentary sequence is comprised of siltstone argillite, wacke and rare limestone. The sharp upper contact for this unit is marked by black limestone. This is overlain by augite (olivine) porphyritic basalt flows and pillows which grade upward into a basal polymictic conglomerate with minor interbedded limestone, siltstone and sandstone. These sediments are overlain by feldspar-hornblende porphyritic andesite pyroclastics which grade upwards into a green and maroon volcanic breccia at the top of the sequence. This breccia only outcrops along the north and east edges of the valley.

Disconformably above the Hazelton Group volcanics and sediments is a Middle Jurassic sedimentary sequence. This sequence consists of a basal fossiliferous wacke, black siltstone, minor conglomerates and limestone.

Intruding the sedimentary and volcanic rocks are the Ajax quartz monzonite, the Coast Range monzonite to granodiorite, and numerous microdiorite to lamprophyre dykes. All the intrusives are of Tertiary age.

The main type of mineralization in the Kitsault Valley is silver-rich quartz-barite lenses, such as the Wolf, Torbrit and Dolly Varden deposits. Until recently the mineralization was interpreted to occur in mesothermal to epithermal veins, deposited during folding, within fractures and faults developed parallel to ths fold axes. Within the veins, varying amounts of galena, sphalerite, pyrite, chalcopyrite, tetrahedrite, pyrargyrite and native silver occur as disseminations and pods. (Pyrargyrite is the principal ore mineral at Torbrit). Gangue includes quartz, barite, jasper and minor carbonate. The veins show open vugs, banding and colloform structures. Close to the mineralized zones, the host rocks show chlorite and silica alteration. Recent work by B.D. Devlin interprets these lenses as syngenetic deposits produced by seafloor depositional processes.

The Dolly Varden Mine produced 33,434 tonnes of ore, grading 1269 g/t Ag, 0.09% Cu and 0.46% Pb, from 1919 to 1940. Recent inferred reserves contein 1.1 million tonnes averaging 325 g/t Ag, 0.8% Zn and 0.5% Pb.

Between 1949 and 1959, the Torbrit Mine produced 1.2 million tonnes ef ore, grading 463 g/t Ag, 0.005 g/t Au, 0.39% Pb and 0.04% Zn. Remaining reserves are believed to be 777,000 tonnes grading 336 g/t Ag.

The Wolf prospect has undergone extensive drilling and underground development between 1960 and 1980. Reserves are estimated to be 485,320 tonnes grading 336 g/t Ag, 0.59% Pb and 0.12% Zn.

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03/90

MINERAL DEPOSITS

HIDDEN CREEK, ANYOX MINFILE: 103P-021
COMMODITIES: Cu, Au, Ag, Zn
DEPOSIT TYPE: VOLCANOGENIC MASSIVE SULPHIDE AND EPITHERMAL VEINS

TIDEWATER, ALICE ARM MINFILE: 103P-111
COMMODITIES: Mo, Ag, Au, Pb, Zn, Cu, W
DEPOSIT TYPE: PORPHYRY AND EPITHERMAL VEINS

BELL MOLY, ALICE ARM MINFILE: 103P-234
COMMODITIES: Mo, Pb, Zn
DEPOSIT TYPE: PORPHYRY AND VEINS

B.C. MOLY (KITSAULT), ALICE ARM MINFILE: 103P-120
COMMODITIES: Mo, Pb, Zn, Cu
DEPOSIT TYPE: PORPHYRY AND VEINS

DOLLY VARDEN, KITSAULT VALLEY MINFILE: 103P-188
COMMODITIES: Ag, Zn, Pb, Cu, Au
DEPOSIT TYPE: VOLCANOGENIC MASSIVE SULPHIDE

TOBRIT, KITSAULT VALLEY MINFILE: 103P-191
COMMODITIES: Ag, Pb, Zn, Au, Cu
DEPOSIT TYPE: VOLCANOGENIC MASSIVE SULPHIDE

WOLF, KITSAULT VALLEY MINFILE: 103P-198
COMMODITIES: Ag, Zn, Pb, Cu
DEPOSIT TYPE: EPITHERMAL VEINS

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