WEST–CENTRAL AND NORTHWEST BRITISH COLUMBIA

SELECTED MINERAL PROPERTY EXAMINATIONS

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CAPOOSE LAKE (93F/6)

During 1979 Granges Exploration Aktiebolag, as operators, carried out drilling programs on its Ned molybdenum prospect and its E zone silver prospect, both situated near Fawnie Nose, approximately 110 kilometres south of Burns Lake.

Traces of molybdenite coating dry fractures in quartz monzonite were encountered in three diamond-drill holes totalling 352.7 metres on the Ned claims.

On the D and E claims, approximately 6 kilometres east of the Ned claim, the company drilled 25 percussion holes and nine diamond-drill holes totalling 1 434.4 metres. Galena, pyrite, pyrrhotite, chalcopyrite, and sphalerite occur as disseminations and as fracture fillings in fine-grained rhyolite tuffs and flows. Tetrahedrite, pyrargyrite, electrum, and trace amounts of arsenopyrite have also been identified. Within the host rhyolites, pisolitic bands occur with pisolites up to 8 centimetres in diameter, and garnet is locally disseminated and/or banded. Significant jointing has an attitude of north 70 degrees east/85 degrees east. Flow banding in rhyolite strikes north 56 degrees east and dips 35 degrees west. Fairly consistent low grades of silver and minor gold assays have been obtained over a large area. Steel grey to black hematite is a common accessory.

The following character samples were collected:

Sample No. Location	Description	Au ppm	Ag ppm	Cu ppm	Pb ppm	Zn ppm
CAP–1 (east pit)	rhyolite	0.7	130	153	250	30
79–CAP–4 (237 ft.)	rhyolite	1	10	260	0.21%	348
79–CAP–3 (221 ft.)	rhyolite, highly oxidized	9	747	295	1.73%	348
79–CAP–2 (325 ft.)	rhyolite	0.7	1	0.23%	500	233
79–CAP–4 (502 ft.)	rhyolite	*	368	0.35%	0.26%	1.06%
79–CAP–5 (350 ft.)	rhyolite	trace	trace	0.03%	0.25%	0.3%
					Plus Mo	0.03%
					W	0.03%

*A small speck of gold was observed, but was lost during sample splitting.

SAM GOOSLY (93L/1E)

The Sam Goosly silver-copper-gold-antimony deposit is situated approximately 35 kilometres southeast of Houston. Exploration work to date included numerous geochemical and geophysical surveys, mapping, 3 500 metres of trenching, 32 000 metres of diamond drilling [Kennco Explorations, (Western) Limited, 1 to 62; Equity Mining Corporation, 63 to 207; Placer Development Limited, 208 to 229], and 177 metres of underground workings. Mineable reserves are 27 970 000 tonnes grading 106.3 grams silver, 0.384 per cent copper, 0.96 gram gold per tonne, and 0.084 per cent antimony. The property is being prepared for production by Equity Mining, controlled by Placer Development.

During January and February 1979, Placer Development completed six diamond-drill holes totalling approximately 1 067 metres in the proposed tailings impoundment basin, northwest of the Main ore zone. All holes encountered a hangingwall sequence of intermixed pyroclastics (ash, lapilli, dust tuffs), and volcanic conglomerate and dacite porphyry flows with abundant pyrite plus tourmaline alteration. Only minor veinlets of sphalerite and galena were noted.

During the summer of 1979 Placer Development drilled a further 10 short holes in the area of the tailings dam. Most of the holes encountered unmineralized Goosly Lake volcanic rocks.

The copper-silver-gold-antimony deposits occur within a window of rocks thought to be Cretaceous in age which are surrounded by younger flat-lying Tertiary andesitic to basaltic flows (Goosly Lake volcanic rocks and Buck Flats volcanic rocks). The Cretaceous rocks are intruded by two stocks along the flanks of the host units. The stratigraphy strikes about 015 degrees and dips about 45 degrees to the west. The mineral deposits are grossly conformable to the pyroclastic host horizon.

Four major stratigraphic units have been recognized: Upper volcanic flow division; sedimentary-volcanic division; pyroclastic division; and clastic division.

The clastic division, composed of a lower polymictic conglomerate and an upper chert pebble conglomerate, is lowermost and is thought to be correlative with the Skeena Group. The overlying pyroclastic division consists of a heterogeneous sequence of tuff (dust, ash, lapilli), breccia, and reworked pyroclastic debris. This unit hosts the Main zone and Southern Tail zone deposits and may be correlative with the Kasalka Group (Cretaceous). The sedimentary-volcanic division consists of tuff, sandstone, and conglomerate with well-defined bedding. The uppermost unit, the volcanic flow division, is composed of andesitic and dacitic flows.

Principal ore minerals, which include pyrite, chalcopyrite, tetrahedrite, arsenopyrite, sphalerite, and galena, are associated with tourmaline, andalusite, scorzalite, and corundum (only in the Main zone). Ore zones occur within the pyroclastic division and are controlled mainly by structure and to a lesser extent by stratigraphy. Other zones of mineralization at Sam Goosly include a zone of copper-molybdenum mineralization in a quartz stockwork in and adjacent to the quartz monzonite stock to the west of the ore zones, and a large zone of tourmaline-pyrite breccia located to the west and northwest of the Main zone.

During mill construction in the summer of 1979, a new zone (WTR zone, Fig. 37) was located on the water tower right-of-way, approximately 300 metres to the north and on strike with the Main zone. This zone consists of massive to brecciated stringer sulphide ore in the pyroclastic division and was exposed in a trench over a width of 23 metres. The mineralization has been traced on the surface for over a 60-metre length and other occurrences were noted in the adjacent hangingwall. The location of the zone is approximately 60 metres north of diamond-drill hole 35. The zone trends north-south and appears to dip steeply to the west. Mineralization consists of chalcopyrite, sphalerite, pyrite, plus minor galena, molybdenite, and an unidentified tungsten mineral. Scorzalite alteration was noted. The following chip samples were taken across intervals of 4.5 metres by the writer (*see* Fig. 37).

Sample No.	Au	Ag	Cu	Pb	Zn	MoS_2	WO_3	Sn
	ppm	*ppm*	*per cent*	*per cent*	*per cent*	*ppm*	*per cent*	*per cent*
SG–79–15	3.6	68	.73	.03	2.77	10 - 30	.02	trace
SG–79–16	4.3	267	1.16	.15	1.24	10	.04	trace
SG–79–17	4.8	210	2.05	.05	.72	12	.03	.015
SG–79–18	0.5	27	.28	0.01	.1	10	------	------
SG–79–19	7	380	6.37	0.07	1.28	10	.04	.02

Plant fossils (reeds) were located in the area of the junction of the water tower right-of-way (western end) and the Bessemer Creek diversion ditch within the sedimentary-volcanic division (Fig. 37). In the Bessemer Creek diversion ditch, quartz veinlets with pyrite, sphalerite, and minor chalcopyrite occur within pyroclastic rocks and pyritized sedimentary rocks.

The diversion dam on Lu Creek (west end) is underlain by pyritized volcanic sedimentary rocks and tuffs. The starter dam on Lu Creek (east end) is underlain by grey to maroon-coloured andesitic Goosly Lake rocks.

Construction of the millsite exposed numerous sub-outcrops of well-bedded intermixed pyroclastics and welded tuffs with abundant tourmaline-pyrite alteration and later dykes. Dumortierite was observed in the foundation for the coarse ore storage. A 7.6-centimetre vein of massive chalcopyrite and tetrahedrite was observed in the same foundation.

Three new K/Ar age determinations were obtained during a thesis study completed during the summer of 1978 and winter of 1979 by Dennis Wetherell at the University of British Columbia and are reported as follows:

Location	Minerals	Type	Age (Ma)
Tourmaline-breccia alteration, DDH 54 (250 m)	sericite-tourmaline-pyrite-chlorite	whole rock	58.5±2.0
Southern Tail alteration, DDH 61 (19.2 m)	sericite-quartz	whole rock	58.1±2.0
Main zone alteration, DDH 28 (77.4 m)	sericite-quartz-chlorite	whole rock	48.3±1.7

These dates point to a correlative mineralizing event with the quartz monzonite stock (57.2±2.3 Ma). The apparent age of alteration in the Main zone is identical to that of the gabbroic pluton and suggests that the age has been reset by contact metamorphism.

REFERENCES

B.C. Ministry of Energy, Mines & Pet. Res., GEM, 1969, pp. 142-148; 1970, pp. 126-129; 1973, pp. 333-338; 1974, p. 255; Geology in B.C., 1975, p. G13; Geological Fieldwork, 1974, p. 79; 1976, pp. 55, 56; 1978, Paper 79-1, pp. 133-137.

Wetherell, D. G. (1979): unpublished M.Sc. thesis, *University of British Columbia,* 208 pp.

Wetherell, D. G., Sinclair, A. J., Holt, E. S., Schroeter, T. G. (1979): Sam Goosly Copper-Silver-Antimony Deposit, Central British Columbia, Abstract, *CIM,* District 6 Meeting, Vancouver, 1979.

LUCKY GOLD (93L/10E)

The Lucky Gold (Free Gold) property is approximately 40 kilometres east of Smithers. During 1979 Kryco Mines Ltd. constructed a 2.5-kilometre access road from the Fulton Lake main logging road south to the property and the old workings were rehabilitated. The company continued drifting along vein 3 to hook up with the workings below shaft 2. Approximately 45 tonnes of ore mined in the 1930's are stockpiled outside the portal (main dump) and another 45 tonnes of newly broken ore has been stockpiled (new