

PRODUCT IRON
PRODUIT

PROVINCE OR PROVINCE OU
TERRITORY TERRITOIRE British Columbia

N.T.S. AREA 103 C/16
RÉGION DU S.N.R.C.

REF. FE 1
RÉF.

NAME OF PROPERTY
NOM DE LA PROPRIÉTÉ TASU (TASSOO) (WARWICK)

OBJECT LOCATED - No. 1 ore zone.
OBJET LOCALISÉ

UNCERTAINTY 50 m FACTEUR D'INCERTITUDE	Lat. 52°45'40" Lat.	Long. 132°02'40" Long.
Mining Division Skeena Division minière	District District	Queen Charlotte
County Comté	Township or Parish Canton ou paroisse	
Lot Lot	Concession or Range Concession ou rang	
Sec Sect.	Tp. Ct.	R. R.

OWNER OR OPERATOR/PROPRIÉTAIRE OU EXPLOITANT

DESCRIPTION OF DEPOSIT/DESCRIPTION DU GISEMENT

The property is underlain by Triassic and Jurassic stratified rocks of the Karmutsen and Kunga Formations, surrounded and underlain in part by the northern termination of the San Christoval Batholith of Jurassic ? age. The Karmutsen Formation is largely composed of massive amygdaloidal greenstones that have been subjected to varying degrees of metamorphism or metasomatism. The overlying Kunga Formation is represented by a basal massive grey limestone member which in No. 3 zone approaches its maximum thickness of about 600 feet. The essential structure is this panel of folded and tilted stratified rocks which was repeatedly intruded by igneous rocks from its initial formation to late in the geological history of the area. First, Karmutsen basalts were cut by minor related sills. Next, a complex laccolith of diorite porphyry of considerable importance was emplaced principally between the Karmutsen and the Kunga Formations. Then the San Christoval Batholith was emplaced, followed by skarnification and mineralization. Finally two volumetrically important post-ore dyke swarms, the earlier andesitic and the later basaltic, were intruded. The Batholith is formed principally of foliated hornblende diorite and quartz diorite, see Card 2

Associated minerals or products - Copper, silver, gold.
Minéraux ou produits associés

HISTORY OF EXPLORATION AND DEVELOPMENT
HISTORIQUE DE L'EXPLORATION ET DE LA MISE EN VALEUR

The property is located on the south side of Tasu Sound, west coast of Moresby Island, Queen Charlotte Islands. The Nos. 1, 2, 3, and 4 ore zones, respectively, extend up the north slope of the mountain between elevations of 300 and 1,500 feet. The concentrator is located at the shoreline just west of Gowing Island.

The magnetite occurrence was discovered by the Haida Indians in the latter part of the eighteenth century. In 1908 a prospector named Gowing, of Grand Forks, was sent by lumberman J.E. Corlett, of Seattle, to investigate the rumour of the occurrence of an unknown mineral. He was guided to Tasu Sound by Henry Moody and his father, both prominent Haida's of Skidgate Mission on Graham Island, who not only knew of the original discovery but had prospected the hillside and found magnetite-copper outcrops. Gowing was made wait on the island, which now bears his name, while his guides sampled the showings and staked 4 claims, one of which was later Crown-granted as the Tassoo claim. Gowing agreed to purchase the 4 claims for \$2,000.00. Mr. Moody, Senior, sent word to Albert Jones, son of a close friend, to come and stake adjacent claims in order to share in the discovery. Albert Jones' arrival was delayed and Henry Moody returned to stake additional claims surrounding the original four.

On Gowing's return a partnership was formed, including himself, J.E. Corlett and F.C. Elliott of Revelstoke, to acquire and develop the 20 claim property, now known as the Warwick group. Trenching during 1908, and 200 feet of adit driven in 1909, was carried out under the names Elliott Mining Company and Tassoo Mining and Smelting Company, respectively; there is no record of these as Canadian incorporations. The property was subsequently optioned to R.R. Hedley and associates, of Vancouver, who incorporated the Tassoo Syndicate, Limited, in December 1913. A tramline was built to the shore and ore shipments began in 1914. Exploration and development work included driving a 300 foot long adit at 1,180 feet on the Tassoo claim and sinking a 40 foot deep winze. Production was from two stopes in the adit. A lower adit at elevation 1,060 feet was driven 200 feet, but not far enough to encounter the ore. J.E. Corlett obtained Crown-grants on 24 claims (Lots 600-623) including the Tassoo (Lot 604) and

see Card 2

HISTORY OF PRODUCTION/HISTORIQUE DE LA PRODUCTION

In 1914, 5,180 tons of ore were shipped. From this ore 94 ounces of gold, 1,408 ounces of silver, and 165,566 pounds of copper were recovered.

From the start of production in 1967 to the end of 1974, 13,689,690 tons of ore were milled. From this ore 28,552 ozs gold, 995,331 ozs silver, 76,009,062 lbs copper and 7,159,789 tons of iron concentrate were recovered.

Production for the period 1975-78 inclusive totals 5 105 728 tonnes milled. From this ore 131.544 Kg gold, 5 407.090 Kg silver, 10 020 856 Kg copper, and 2 723 255 tonnes of iron concentrate were recovered.

Production for 1979-81 inclusive totals 3,326,000 tons of ore milled. From this ore 18,284,000 lbs of copper and 1,862,000 tons of iron concentrate were recovered.

Production for 1979 and until closure in October 1983 totalled 5 052 303 tonnes milled. From this ore 353 012 g gold, 13 985 364 g silver and 15 248 369 Kg copper were recovered; iron concentrate totalled 2 842 688 tonnes.

MAP REFERENCES/RÉFÉRENCES CARTOGRAPHIQUES

#Geology of the Queen Charlotte Islands, Sc. 1":2 miles, Fig. 5, Sheets A & B, and Fig. 37, Geological Plan and Sections of Tasu Mine, Sc. 1":400 feet - accomp. Report by Brown, 1968.

*Map 103 C/16 E, Moore Channel, (Topo.), Sc. 1:50,000.

REMARKS/REMARQUES

Comp./Rev. By Comp./rév. par			DMacR	DMacR	DMacR		
Date Date	07-73	12-76	07-81	09-83	05-87		

REFERENCES/BIBLIOGRAPHIE

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PRODUCT PRODUIT	IRON	PROVINCE OR TERRITORY	PROVINCE OU TERRITOIRE	British Columbia	N.T.S. AREA 103 C/16 RÉGION DU S.N.R.C.	REF. FE 1 RÉF.
NAME OF PROPERTY NOM DE LA PROPRIÉTÉ		TASU (TASSOO) (WARWICK)			HISTORY OF EXPLORATION AND DEVELOPMENT (continued) HISTORIQUE DE L'EXPLORATION ET DE LA MISE EN VALEUR	
DESCRIPTION OF DEPOSIT/DESCRIPTION DU GISEMENT (continued)		Warwick (Lot 615) claims, in 1915. The mine operated intermittently until 1917.				
<p>The panel of Karmutsen and Kunga Formations that forms the locus of the ore deposits has been moderately compressed into a synclorium with two subsidiary anticlines, all with axes striking north 30 degrees west and plunging about 25 degrees northwest. The Tasu ore zones occur along the crest of the eastern subsidiary anticline and extend down the west limb toward the synclinal axis. The diorite porphyry has essentially the same general distribution as the ore. It forms a complex body of dykes and sills which have the over-all form of a flat Christmas tree laccolith with the base along the Karmutsen-Kunga contact.</p>		<p>All that remained of the property in later years was two key claims, the Tassoo and Warwick Crown-grants. In 1952 Albert Jones returned with son Cliff, and George Brown, to stake 6 claims adjoining the two Crown-grants. In 1953 Dr. Alex Smith acquired the two Crown-grants at a tax sale and in 1955 optioned the 6 claims from Albert Jones.</p>				
<p>The Tasu orebodies and their skarn envelope form a tabular panel some 100 to 400 feet thick which conforms to the bedding attitude of the top of the Karmutsen Formation, although it replaces diorite porphyry sills as well as Kunga limestone. This panel extends over a horizontal area at least 3,500 by 4,000 feet. Within the panel there are areas of greater and lesser development of skarn and magnetite, but no area is entirely free from some metasomatism. In effect the major orebodies form linear lenses in plan within the over-all panel. From these ore "build-ups" planar sheets of skarn and ore extend into the less intensely replaced areas. The linear ore "build-ups" occur along pre-ore fault lines.</p>		<p>Frobisher Limited, which was controlled by Ventures Limited, incorporated Wesfrob Mines Limited in February 1956 to acquire, explore and develop the property, then comprising 21 Crown-granted and 11 recorded claims. During 1956-1957 some 22,000 feet of diamond drilling was done on No. 3 zone. No further work was done until 1961 when geological and magnetometer surveys were carried out and 16,308 feet of diamond drilling in 70 holes. Falconbridge Nickel Mines Limited, through a merger with Ventures Limited in 1962 acquired Wesfrob Mines as a wholly owned subsidiary. Diamond drilling continued and to the end of 1964 totalled some 132,000 feet. Proven ore reserves at that time were 25,000,000 tons averaging 41.33% iron; of this the No. 3 zone contained about 6,800,000 tons averaging 47.65% iron and 0.66% copper.</p>				
<p>The various ore zones 1 to 5, used for convenient reference, each largely represent one central "build-up" and fringe area. This is true of all but No. 5 zone, which is a conglomeration of all the areas to the west. The orebodies of No. 3 zone replace limestone, are relatively free of skarn, are copper-rich, and are concentrated just above the contact of the Karmutsen Formation. The orebodies of No. 1 zone replace porphyry, are skarny and on the average less pure, are copper-poor, extend through a greater thickness, and are less concentrated at the Karmutsen contact. No. 2 zone is intermediate in space and characteristics, between No. 1 and No. 3 zones. No. 4 zone is undrilled and is, as far as known, a small zone south of No. 3 with characteristics similar to it. No. 5 zone is not adequately explored but seems to include the continuations of No. 1 and No. 2 zones. No. 2 and No. 3 zones trend about north 65 degrees west, whereas No. 1 zone trends north 20 degrees east.</p>		<p>The 8,000 ton per day mill was put into production in June 1967 with ore from the No. 3 zone open pit. Open pits were subsequently established on the No. 2 and No. 1 zones. Ore passes were driven from No. 2 and No. 3 (upper) zones to a haulage adit driven at the 650' level. In 1973 this level was extended 215' and a crosscut driven to No. 3 zone.</p>				
p.t.o.		<p>The Della-Blujay group, comprising Crown-grant Nos. 2995, 2996, 2999, 3004, and 3007, and several recorded claims, lies west of the No. 2 and 3 zones and apparently covers No. 5 zone, which is in part a down faulted extension of No. 2 and 3 zones. During 1970-1971 the Della-Blujay adit was driven from a point on the shoreline some 3,500 feet southwest of the concentrator for a distance of 2,596 feet. Exploratory diamond drilling included 14,079 feet underground and 11,678 feet on surface. No further underground development was done on the Della-Blujay until 1974 when a decline was sunk from the 220' elevation in No. 1 zone open pit. Underground develop-</p>				
p.t.o.		p.t.o.				

DESCRIPTION OF DEPOSIT/DESCRIPTION DU GISEMENT (continued)

Skarn is more widespread than magnetite ore and in general forms an envelope that surrounds individual orebodies and may extend well beyond them. The skarn is somewhat selective, affecting massive limestone less than greenstone or flaggy limestone, and these less than porphyry.

The oxide and sulphide minerals have distribution and textures indicating they are the latest in the metasomatic sequence. Magnetite replaces all earlier minerals and is found principally in the core of the skarn areas and as central bands in skarn replacement veinlets. Still younger are the sulphide minerals, pyrite, pyrrhotite, chalcopyrite, and rare sphalerite. Sulphur content of orebodies is fairly uniform at 2 to 3 per cent, regardless whether chalcopyrite is the main sulphide, as in No. 3 zone, or pyrite and pyrrhotite, as in No. 1 and No. 2 zones. The sulphide minerals generally occur as blebs and small masses in magnetite but are also common as veinlets.

The ore zones are transected by a very large number of post-ore dykes of the two swarms, and this seriously diluted the grade. In some areas as much as 30 per cent of the ore zones are occupied by post-ore dykes.

HISTORY OF EXPLORATION AND DEVELOPMENT (continued)
HISTORIQUE DE L'EXPLORATION ET DE LA MISE EN VALEUR

ment was completed in 1977 and with the exhaustion of ore in the open pits the switch to underground mining was made during the year. Reserves (proven) as of January 1, 1980 were 2,628,715 tons at 0.275% copper (Canadian Reserves as of January 1, 1980, MR 189, p. 20, Energy, Mines and Resources, Ottawa).

Wesfrob Mines Limited was dissolved in January 1980 and the mine became the Wesfrob Mining Division of Falconbridge Nickel Mines Limited. Ore reserves of 7,000,000 tons at the end of 1980 were sufficient to continue the operation through 1987. Due to lower copper prices and other economic factors some 4,000,000 tons of low-grade material were deleted from reserves in 1981-82. Economic reserves were depleted and the mine closed permanently on October 5th, 1983. Lumberton Mills Ltd subsequently acquired the property and equipment from Falconbridge Limited; Lumberton was placed in receivership in 1987.