

## NAME OF PROPERTY

OX LAKE

OBJECT LOCATED - Mineralized zone.

UNCERTAINTY IN METRES 250. Lat. 53°40'30" Long. 127°03'20"

Mining Division Omineca District Coast, Range 4

County Township or Parish

Lot Concession or Range

Sec Tp. R.

## OWNER OR OPERATOR

## DESCRIPTION OF DEPOSIT

Volcanic and sedimentary rocks, comprising Jurassic felsic and andesitic tuffs, sandstone and siltstone of the Hazelton Group, are intruded by a small granodiorite porphyry plug, a larger diorite intrusion and several basic dykes. Mineralization is associated with the granodiorite porphyry plug, but is most intensely developed within adjacent felsic tuff and andesitic tuff. The felsic tuff unit is greater than 300 meters thick and is made up of about equal amounts of feldspar porphyries and pale grey siliceous tuffs with minor andesitic tuff.

The andesitic tuff unit overlying the felsic tuff is comprised of dark green tuffs and/or volcanic sedimentary strata. These rocks are of variable composition, but all contain less than 5 per cent potash, feldspar and abundant albite and chlorite.

The Ox Lake copper-molybdenum deposit is localized in the margin and contact zone of a Late Cretaceous granodiorite porphyry. The pluton is nearly circular in cross section, with  
see Card 2 ....

Associated minerals or products - Molybdenum.

## HISTORY OF EXPLORATION AND DEVELOPMENT

The property is located at Ox Lake, about 75 miles south of Smithers. Ox Lake is a small lake 1 mile south of Tahtsa Reach about 4 miles east of the mouth of Kasalka Creek, at an elevation of 3,080 feet.

The showing was discovered late in the summer of 1968 by prospectors for the Sweeney Syndicate, in which Silver Standard Mines Limited and American Smelting and Refining Company were equal partners. Attention was drawn to the area by a prominent gossan associated with a lead, zinc and silver vein on a bluff overlooking Ox Lake; a nearby granodiorite porphyry was recognized as being virtually identical to that of the Huckleberry porphyry deposit 8 kilometers to the west.

The Ox 1-64 claims were subsequently staked and geological, geophysical, and geochemical surveys, trenching, and 4,727 feet of diamond drilling in 11 holes was completed before the end of the year. Additional staking was done to a total of 128 claims. Further work during 1969 included a magnetometer survey (20 miles), a geochemical soil survey, trenching, and 11,110 feet of diamond drilling in 24 holes.

Open-pit reserves were calculated in 1970 to be 23.6 million tons of 0.35 per cent copper equivalent, which consists of 15.4 million tons of 0.43 per cent copper equivalent and 8.2 million tons of 0.19 per cent copper equivalent (CIM Spec Vol 15, p. 289).

By 1974 the property had been reduced to 34 claims, owned by Silver Standard Mines Limited (50%) and American Smelting and Refining Company (50%). The company name (American Smelting) was changed in 1975 to Asarco Inc. A wholly owned subsidiary, Asarco Exploration Company of Canada, Limited carried out an induced potential survey over 10.4 km in 1977. Interest in the property was subsequently divided as to Silver Standard (45%) and Asarco (55%). The Silver Standard name was changed in August 1984 to Consolidated Silver Standard Mines Limited. Prospecting by the Consolidated-Asarco joint venture in 1985 located gold-bearing veins peripheral to the porphyry. Geological reserves are reported at 19,000,000 tons grading 0.33% Cu and 0.06% MoS<sub>2</sub> with minor Au-Ag values (Consolidated Silver Standard Offering of Rights, 17/07/85).

# HISTORY OF PRODUCTION

# REFERENCES

<sup>†</sup>Richards, Gordon; Ox Lake; Porphyry Deposits of the Canadian Cordillera, The Canadian Institute of Mining and Metallurgy, Special Volume 15, pp. 289-298, 1976.

Report of Minister of Mines, British Columbia: 1968, p. 141.

Mineral Policy Sector; Corporation Files: "Silver Standard Mines Limited".

Geology, Exploration, and Mining; British Columbia Dept. of Mines: 1969, pp. 93-97 <sup>††</sup>; 1977, p. E 183.

Carter, N.C.; Porphyry Copper and Molybdenum deposits, West-Central British Columbia; Bulletin 64, p. 121, B.C. Dept. of Mines, 1981.

## MAP REFERENCES

Map 1064 A, Whitesail Lake, (Geol.), Sc. 1":4 miles - accomp. Memoir 299, Geol. Surv. of Canada.

#General Geology of the Ox Lake deposit, Sc. 1 cm:100 m (approx.), Fig. 1, CIM Spec Vol 15, p. 290.

Ox Lake Property, (Geol.), Sc. 1":580 ft. (approx.), Fig. 17, Geology, Exploration, and Mining, 1969.

\*Map 93 E/11, Troitsa Lake, (Topo.), Sc. 1:50,000.

General Geology West-Central British Columbia, Sc. 1":5 miles, Bulletin 64.

## REMARKS

Comp./Rev. By	DMacR	DMacR	DMacR				
Date	12-78	12-83	05-87				

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## DESCRIPTION OF DEPOSIT (continued)

a diameter of 450 meters and a 50-degree westerly plunge. Hazelton rocks overlying the western side of the intrusion form an anticline, the axis of which is aligned approximately parallel with the 50-degree westward plunge of the intrusion.

The granodiorite pluton has a well developed hornfels aureole surrounding it. Alteration within the intrusion is restricted to its contact with hornfels and is extensively developed only along its western contact, where alteration is up to 20 meters wide.

Intensity of veining is high along the western contact and adjacent hornfels and low along the eastern contact of the intrusion and adjacent hornfels. Intrusive breccias occur along the southwestern contact of the granodiorite. The shape of the breccias is not clear, but they appear to be associated with granodiorite dykes. The most common matrix appears to be pulverized hornfels and granodiorite porphyry.

Copper and molybdenum mineralization is most intense at the western intrusive contact and diminishes outward. Within andesite, chalcopyrite occurs in nearly equal amounts in veins and as disseminations in wall rock, but within feldspar porphyry about 80 per cent of the chalcopyrite occurs in veins. Chalcopyrite is rare within unaltered granodiorite. Within the well-altered western contact, about 80 per cent of the chalcopyrite occurs in veins.

The grades of both elements are highest in hornfels along the western contact of the intrusion (about 0.5% Cu and 0.02% Mo). Grades decline gradually outward from the intrusion, although the zone of molybdenum mineralization does not extend as far from the intrusion as does the zone of copper. Feldspar porphyry exerts a strong control on grades. Molybdenum content is 2 to 5 times as high and copper content about half as high in feldspar porphyry as in adjacent andesitic hornfels. An iron-bearing aureole consisting predominantly of magnetite with lesser pyrite and hematite exists on the west side of the intrusion beyond the 0.1 per cent copper contour.