

*Silver Standard
Mines Ltd (N.P.L.)*

801084

May 21, 1968

The President and Directors
Silver Standard Mines Limited (N.P.L.)
Suite 808 - 602 West Hastings Street
Vancouver 2, B.C.

Dear Sirs:

With this is a 'Consolidated Summary' of my full geological report on the E & L Nickel-Copper Deposits, dated November 15, 1968 and of Mr. H.B. Gilleland's 1967 Progress Report, dated January 16, 1968; this review has been prepared in accordance with your recent request and general directive. The writer has endeavoured to compile this in such manner as to present a balanced and accurate summary of the more essential facts relating to the property.

Along with this I have included my formal letter of consent, which is a usual requirement of the Securities Commission, to the use of the consolidated summary and/or full geological report for providing public information on the E & L nickel-copper property by Silver Standard Mines Limited (N.P.L.) and/or Nickel Mountain Mines Ltd. (N.P.L.)

Respectfully submitted,

W.M.S.

W. M. Sharp, P.Eng.

Encl.

May 21, 1968

British Columbia Securities Commission
Law Courts Building
Victoria, B.C.

Dear Sirs:

Re: Silver Standard Mines Limited (N.P.L.)
Nickel Mountain Mines Ltd. (N.P.L.)

With this, my formal consent to the use of my full geological report of November 15, 1966 and/or my consolidated summary of May 21, 1968 by either or both of the above Companies for the purpose of providing public information concerning their "E & L" nickel-copper prospect, located near Snippaker Creek in the Liard Mining Division of British Columbia.

Respectfully submitted,



W. M. Sharp, P.Eng.



May 21, 1968

The President & Directors
Nickel Mountain Mines Ltd. (N.P.L.)
c/o Silver Standard Mines Limited (N.P.L.)
Suite 808 - 602 West Hastings Street
Vancouver 2, B.C.

Gentlemen:

Consolidated Summary

Engineer's November 15, 1968 Report & Company's Progress Cost
Report, January 16, 1968, E & L Project

Introductory
The successive reports consider separate, but complementary aspects of the general mine exploration-development program.

PROPERTY
claims & location
The E & L property consists of one surveyed, 40-claim group situated in the Liard Mining Division at 70 miles north-northwest of Stewart, B.C. Locally, the property lies on the north side of the headwaters of Snippaker Creek, a tributary of the Iskut River; it comprises a 1.7 mile by 2 mile (W.N.W. by N.N.E.) rectangle extending northerly from East Fork, Snippaker Creek, and el. 2900 ft., upslope and over E & L ridge (el. 6000-6400 ft.,) where it overlaps the south margin of a permanent snow field.

principal showings
The main nickel and copper-bearing pyrrhotite zones outcrop on the crest and south slope of E & L ridge between elevations 6100-6300 ft.

HISTORY
general
The original property was acquired by the BIK Syndicate, in which Silver Standard Mines Ltd. (N.P.L.) held the controlling interest, and its partners, McIntyre Porcupine and Kerr Addison Mines, held subordinate interests. On February 16, 1967 a new company, Nickel Mountain Mines Ltd. (N.P.L.) was incorporated to establish the equity position of the present participants, and to facilitate financing for the exploration, evaluation and development of the known mineral deposits, their probable extensions, and other potentially mineralized areas within the current 40-claim group. Silver Standard's gross controlling interest in this new operating company is approximately 74 per cent.

Regional access and supply service is provided by fixed-wing aircraft out of Stewart, B.C., and other northern bases, to the Snippaker Creek airstrip at el. 1750 ft.; thence by 4 W.D. vehicle via some 5 miles of tote road, through the East Fork base camp (el. 2800 ft.) to the proposed tunnel portal at el. 5350 ft.

Transportation from the base camp to more distant exploration areas is provided by helicopter.

The principal showings were discovered, and E & L No's 1 and 2 mineral claims staked by E. and L. Freeze during 1958 for the BIK Syndicate. Additional staking by Silver Standard Mines, through 1966, provided the present claim group. The natural bedrock exposures were explored and sampled between 1958-65 via several shallow trenches, over the 'N.W.', 'Lower N.W.', and 'S.E.' zones. During 1965 seven pack-sack diamond drill holes, totalling 276 lin. ft., were put down to define and sample the near-surface portion of the N.W. zone; also, seven deeper rock trenches in weathered exposures of the N.W. zone were cut to provide suitable bulk samples for metallurgical tests. A reconnaissance-to-detailed geological examination of the property was made by W. M. Sharp, P.Eng. during a 3-week period in August-September, 1965.

History cont'd

During the 1966 season 5 diamond drill holes, totalling 1248 ft., tested depth extensions of the Ni-Cu mineralization in the N.W. and S.E. zones; also, a long trench, for sampling purposes, was excavated across the S.E. zone. In addition, a magnetic survey of the general mineralized area was accomplished. The 1966 exploration was directed by R. H. Seraphim, P.Eng.

During the summer of 1967 preparatory development work accomplished comprised the enlargement of the Snippaker Creek airstrip, and construction of the road from it to the proposed portal site. In addition, a legal (B.C.L.S.) survey of the claims was made and a system of permanent survey stations, for exploration-development control, was established. The selection of a portal site at 5350' el. will permit exploration-evaluation of the potential 'S.E.' and 'N.W.' orebodies at depths of 800-900 ft. below their respective outcrops via a 1400 foot adit bearing northwesterly. No previous underground exploration has been accomplished.

The E & L nickel-copper mineralization occurs within bodies of gabbroic rock related to a general E-W trending zone of dioritic to gabbroic rocks intermittently exposed over a distance of roughly one mile along the ridge south of the snowfield; from geologic observations of the disposition and trend of the general diorite-gabbro complex, it is inferred to extend for several hundreds, or a few thousands of feet into, and below the snowfield. The magnetic data indicate that pyrrhotite mineralization, at least, extends some 400 to 800 feet northeast of the currently-delimited 'N.W.' zone. The general E & L gabbro body is only fractionally exposed, but the mineralized part is inferred to measure at least 1600 by 2400 feet.

Geology general

The 'N.W.' and 'S.E.' Ni-Cu mineralization occurs within two sub-areas of altered diabasic and olivene gabbro. These are structurally separated by an inferred N-S fault occupying a similarly-trending steep draw; the main extent of the fault is concealed by thick talus deposits. The separate mineral zones are considered to occur within parts of one continuous, but cross-faulted gabbro pipe bounded by bedded cherts, slaty argillites, and rather massive volcanic breccias and tuffs. The highest grade mineralization, frequently with sections of massive sulphide, is found in both highly-fractured peripheral, and internal sections of the more basic phases of the gabbroic host rocks. E.N.E. to N.E. fracture trends appear to provide the major structural controls for intrusions and mineralization within the general discovery area.

detailed geology

From preliminary inferences of the ore-shoot geometry, observations over the significant vertical range of outcropping mineralization and, most specifically, from deep diamond drill intersections, it is assumed that the surface mineralization will continue to at least the 5350 foot horizon; on the additional bases of structure and mineralogy, its persistence to considerably greater depths is highly probable.

From weighted combinations of trench-short drill hole and deep drill hole assay sections the present ore reserve within the 'N.W.', 'Lower N.W.', and S.E. zones to an arbitrary, or geologically-indicated 700' minimum depth, is estimated as follows:

Indicated -----	1,911,000 tons @ 0.80% Ni; 0.62% Cu
Inferred -----	<u>1,316,000 tons @ 0.80% Ni; 0.62% Cu</u>
Indicated & Inferred =	3,227,000 tons @ 0.80% Ni; 0.62% Cu

A general improvement of grade with depth at less severely weathered horizons of the deposit, is suggested by the relatively higher grade mineralization intersected by the deeper diamond drill holes in the 'N.W.' zone; the computed average of these is 0.85% Ni; 0.67% Cu.

If the proposed exploration verifies present assumptions that all ore shoots extend below the 5350 foot horizon, and/or that indicated lateral extensions do occur, it is possible to foresee ore reserves of double, to triple the presently estimated total.

Preliminary metallurgical tests on bulk samples of appreciably weathered sulphides returned recoveries of 77% of the Ni, and 87% of the Cu content. From this, it may be reasonably assumed that 85% of the nickel, 90% of the copper, and a significant amount of platinum-group metal will be achieved via full-scale milling of relatively 'cleaner' sulphides. Also, on the expectation that reasonable mining costs would result from a large-scale operation, an operating profit in the order of \$4-\$5 per ton should be realized on the currently estimated grade of ore.

The principal recommendation is for the earliest feasible start on the proposed 1400-foot exploration adit, in order that underground diamond drilling might commence during 1968.

The following supplementary exploration is also recommended:

1. Investigate, by one or more 300'-400' drill holes, the depth extensions of the east ridge shear mineralization and gabbro.
2. Extend the magnetic survey to investigate possible westerly and southwesterly extensions of pyrrhotite mineralization and/or the favourable gabbro host rocks.

Mr. Gilleland's careful and detailed gross cost estimates of the proposed 1968 exploration project, which includes 1400 feet of tunnelling and 6000 feet of underground diamond drilling, total \$301,400.

May 21, 1968

The combination of geological features relating to the deposit are favourable for a persistence of ore well below presently contemplated depths, and for additional occurrences on extensions of the gabbro complex beyond the actual outcrop areas; additionally, deeper drill intersections suggest a significant improvement in ore grade with depth. The preceding features, in conjunction with the generally favourable outlook for nickel and copper, make it highly probable that vigorous and sustained exploration and development will result in a long-lived profitable mining operation.

Respectfully submitted,



W. M. Sharp, P.Eng.

Encl.

