

NAME *Geol. Rpt.*

SUBJECT

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82FNE020 MANITOBA

Primary File

82FNE015 HighLand

PROPERTY FILE

001730

82F/15W
82FINE-1415
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THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA LIMITED

GEOLOGICAL DIVISION

WESTERN DISTRICT

SUMMARY GEOLOGICAL REPORT OF HIGHLAND MINES

January 26, 1957

Property File
82FINE015

SUMMARY AND CONCLUSIONS

From 1890 to 1954 Highland Mines produced 98,300 tons of ore averaging 3.46 oz. silver per ton; 10.5% lead; and 0.4% zinc from three narrow, but persistent, fissure veins. There is probably little possibility of finding more commercial ore in these veins. However, good possibilities of finding commercial replacement ore bodies do exist where the Highland veins intersect, at depth, two prominent limestone members which cross the property.

A possible commercial replacement ore body is currently under development on Western Mines ground adjoining to the north. The ore body occurs where a steeply-dipping fracture system transects the lower of the two limestone members at a high angle. A similar fracture system with a small, but incompletely explored, replacement ore-shoot is known on Highland's Manitoba claim.

The chances of finding commercial replacement ore bodies in the limestone members on Highland Mines ground where the limestones are crossed by the Western Mines-type fracture system and the productive Highland Mine veins are considered to be good. The latter possibility could be initially explored by medium-length diamond drill holes from Highland's 7th level.

PROPERTY

The property consists of the following 10 Crown granted mineral claims and fractional claims:

<u>Name</u>	<u>Lot No.</u>	<u>Surface Rights</u>	<u>Acres</u>
Alberta	10700	-	19.58
Kather May	2347	-	40.06
Highland	258	Yes	15.26
I.L.L. Fr.	5045	-	16.20
Josephine	552	Yes	20.66
Last Fraction	12408	-	14.85
Libby	178	Yes	20.66
Maggie	2345	Yes	1.86
Manitoba	10699	-	44.25
No. 4 Fr.	10701	-	11.75
Total			205.13 acres

In addition, surface rights only are held on Lot 592 (Millsite) at the mouth of Cedar Creek and contiguous to the Alberta mineral claim.

Water licenses, which were held conditional upon use, have been revoked.

PROPERTY FILE

The Consolidated Mining and Smelting Company of Canada Limited holds complete title to the property.

LOCATION

The property is in the Slocan Mining Division. It is located on the west shore of Kootenay Lake about 3/4 mile north of the village of Ainsworth, B.C. The claims for the most part are along the north bank of Cedar Creek. Claims owned by Western Mines Limited adjoin Highland Mine on the north and Yale Lead and Zinc claims adjoin the property on the south. The Nelson-Kaslo highway and the City of Nelson power transmission line traverse the east side of the Alberta claim.

HISTORY AND PRODUCTION

The Highland veins were discovered about 1890 and ore shipments commenced that year. Mining was carried on intermittently from that date to 1926. From 1926 to 1954, the property was assigned to various lessees who made intermittent ore shipments. No mining has been done since 1954. The total production from 1890 to 1954 was 98,500 tons of ore averaging 3.46 oz. silver per ton; 10.5% lead; and 0.4% zinc. Much of the zinc ore was deliberately discarded in the early operations, hence the ratio of zinc to lead is much higher than the above-mentioned grades would indicate.

The Consolidated Mining and Smelting Company acquired some of the present claims by purchase in 1912 and erected a mill on the property in 1913. Cominco carried on mining and underground development work from 1912 to 1926. The ore was transported a distance of 4,500' from the mine to the mill by tram line. The tram line has been unserviceable for many years.

In 1956 Cominco drilled four holes on the Manitoba claim to test the Lower Ainsworth limestone for lead-zinc replacement deposits. This was the last work done on the property. *

MINE DEVELOPMENT

Over 11,000' of drifting and crosscutting was done on seven levels. The uppermost level (No. 1) is at an elevation of 3,180' and the lowest level (No. 7) is at an elevation of 2,600'. (See Mine Plan No. AR-63, 1" = 200').

In recent years, the lessees have reopened Levels Nos. 1, 2, 3 and 5 in part. No. 7 Level was open in 1954 for much of its length.

GEOLOGY

The Highland Mine property is underlain by a number of formations constituting the upper part of the Laramie series of Lower Palaeozoic age. The Princess formation, well exposed along the shore of Kootenay Lake, is the oldest. It is overlain to the west by the Ainsworth limestone formation and the Josephine formation. The Highland veins transect the latter formation at a large angle. The formations strike slightly west of north and dip to the west at angles ranging from 20° to 50°, the dips approaching the steeper angle in the western part of the property.

ORE

All of the production from Highland Mine came from three fissure veins occupying northwesterly striking faults dipping about 70° southwesterly. The faults are normal and show displacement to the left. The main vein occupies the west fault, and has been followed on all levels for distances up to about 1,500'. A parallel fissure 200' to the northeast forms the "footsill vein", and a third fissure, lying between the other two and striking more nearly west, forms the "middle vein".

Within each vein, the best ore-shoot occurred where the fault crossed and displaced the greenstone-sediment contact; i.e., over the short stretch where the hanging wall was greenstone schist and the footwall quartzite or limestone. These ore-shoots therefore raked west with the contact. The veins were followed into the greenstones for a considerable distance but with little success. Although the veins are fairly persistent, the ore-shoots are short, narrow and irregular. The ore is a silver-bearing galena with lesser amounts of sphalerite in a quartz gangue. A minor amount of replacement ore occurred where the fissures transected limestone beds. These beds, however, were narrow and the resulting ore-shoots small.

Less ore was developed on the 7th (lowest) level, than on any of the upper levels and this ore was of lower grade. Although new ore-shoots may be found in the veins it is unlikely that they would be large enough or rich enough to stand the high costs for their exploration and development.

However, good chances of finding commercial replacement ore bodies on Highland Mines property do exist. A search for such replacement ore bodies is well justified. On the adjoining property of Western Mines a possible commercial replacement ore body is currently under development. The ore body occurs in the lower of two limestone bands where a system of cross-fractures transects the limestone band at a high angle. Both limestone bands continue southerly from Western Mines on to and across Highland Mines claims, and a similar fracture system with a small, but as yet incompletely explored, replacement ore-shoot is known on Highland's Manitoba claim. X

Another locality where possible replacement ore bodies might occur is where the productive Highland veins cross the two limestone members mentioned above. These intersections occur at depth on Highland Mines ground. They could be initially explored by medium-length diamond drill holes from Highland's 7th level. The chances of finding significant replacement ore bodies at these intersections are considered to be good.

MINE EQUIPMENT

The only mine equipment remaining on the property when last visited in 1955 was air, water and rail lines in the mine workings.

SURFACE EQUIPMENT AND BUILDINGS

No surface equipment or buildings remain on the property. The mill was dismantled in 1952.

APPENDIX

Mine Plan, 1" = 300', Highland Mine. (A.R.63)

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