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314 MARINE BUILDING
VANCOUVER 1, B.C.

Peso Silver Mines Ltd.

Interim Report #2

BROWN-McDADE MINES LTD.

Carmacks, Y. T.

March 10, 1965

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LIST OF ILLUSTRATIONS

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INTRODUCTION

In 1958 the writer examined the surface and underground workings of the Brown-McDade Mine and mapped the main crosscut underground. Early 1959 the writer undertook a detailed study of all the plans of the Brown-McDade Mine for Silver Standard Mines Ltd. Copies of this report have been made available to Peso Silver Mines Ltd. In July, 1964, the writer examined and check-mapped the new surface exposures of the Brown-McDade zone made in 1964 by extensive bulldozer stripping. (The results of this mapping is shown, with the underground workings, on the accompanying plan.) On August 10, 1964, the writer submitted a report to Peso Silver Mines Ltd. entitled "Mt. Nansen Mines Limited, Interim Report #1", in which a summary review of the pertinent geological information on the Brown-McDade Mine was included.

In February of this year the writer, in company with Mr. B. Imrie, Exploration Manager of Peso Silver Mines Ltd., re-examined the Brown-McDade underground workings to decide on possible avenues of further assessment of the mine. This present report very briefly reviews the geology of the mine and outlines the writer's recommendations for further investigation, presenting at the same time the reasons for such recommendations. Since work will be proceeding on this project this report is in essence the first of a series of Interim Reports.

SUMMARY AND CONCLUSIONS

The geological setting of the Mount Nansen area is complicated in that there are many rock formations of different ages present and they include at least four separate types and ages of intrusive rocks; however, in the vicinity of the Brown-McDade mine the wall rock geology is relatively simple, consisting of granodiorite at the mine and Yukon Group schists south of the mine. The structure of prime economic interest in the general area of the Nansen - Brown-McDade properties are five vein-fault zones which strike northwest to north and dip steeply to the west. The easternmost, and possibly the strongest, of these zones is the Brown-McDade Zone, which has been traced intermittently for a distance of nearly three miles, at the south end of which is Brown-McDade Mine. About 7,000 feet to the west is the parallel Webber Vein Zone on which underground drifting is presently exposing extensive gold-silver ore much the same in character as that in the Brown-McDade Zone.

SUMMARY AND CONCLUSIONS (cont'd):

The Brown-McDade Zone at the mine is a wide, strong fault zone with all the characteristics of a deep, regional structure. The rocks in the hanging wall of the zone have been extensively, intensively and complexly sheared, fractured, altered and mineralized to widths up to 100 feet. Medium to high grade gold-silver siliceous replacement ore occurs in a vaguely defined zone which lies in the hanging wall about 20 to 40 feet from the main fault. Some of this ore material assays several ounces in gold and over 100 ounces in silver, but the general grade appears to be about 0.7 oz Au and 8 oz Ag.

Surface opencuts expose strong vein zone and ore mineralization for a length of 1,800 feet, most of it south of the mine cross cut. The underground workings expose various parts of the vein-fault zone for a length of 500 feet north of the crosscut and 650 feet south of it. The underground drift veers back and forth along the main zone, alternately exposing the ore zone in some places and losing it in others. Thorough sampling of this drift by the previous operators indicates separate lengths of good grade ore sections interrupted by low grade to barren material. Averaging of all these samples indicates about 1,000 ft. length of ore grading about 0.40 oz Au, with some silver across an average width of 5 feet.

Repeated examinations of the workings have strengthened the writer's opinion that geological remapping of the mine may well reveal that the true ore zone has only been partially exposed and that it is in fact a continuous body. If this is the case then reassessing of the sampling should indicate an appreciable increase in both width and grade of the ore zone and consequently an increase in the ore potential of the Brown-McDade mine to the extent that as much as 200,000 tons of good grade ore could be very nearly proven by existing workings.

It is planned that a program of such remapping by the writer be done by the end of March and that resampling and check diamond drilling be initiated shortly thereafter.

GEOLOGICAL SETTING

The entire Brown-McDade mine lies within granitic rocks, the most widespread of which is granodiorite. Porphyritic granite is exposed near the portal of the mine, but is separated from the granodiorite by a fault. On the surface, 1,500 feet south of the portal, the granitic rocks are in contact with, and presumably intrusive into, schists of the Yukon Group, believed to be of Precambrian-Cambrian age. About 6,000 feet north of the portal the granitic rocks are in contact with massive basalts and diorite of the Mount Nansen Group of Jurassic age. The granitic rocks are presumably post-Jurassic in age and intrusive into the Mount Nansen Group rocks.

The Brown-McDade Zone is a complex, strong, north-northwest trending, west dipping fault structure along which the wall rocks have been locally intensively and extensively hydrothermally altered, sheared and fractured. The main fault zone itself has been locally mineralized by replacement and void-filling quartz, carbonate and hematite and sulphides, some of which are gold and silver bearing.

Both on the surface and underground at the mine the Brown-McDade Zone ranges in width from 25 to 75 feet and is accompanied by up to 100 feet of width of highly hematized and argillized rock in the hanging wall. To the south the zone pinches down in the Yukon Group schists and the adjacent alteration zone becomes less pronounced. To the north the zone was traced by an E-M survey 6,000 feet to the basalt-diorite rocks within which it becomes very constricted, broken and barren for a distance of 5,500 feet. Emerging from the greenstones into granitic rocks once more the zone widens to at least 50 feet and is extensively mineralized by quartz and hematite and is once again gold-bearing. From these observations it is evident that the favourable portions of the Brown-McDade zone for ore occurrences are those within the granitic rocks. Thus, at the mine approximately 1,800 feet of this favourable length of structure have been partially explored and have been found to be ore-bearing. A length of some 6,000 feet in granitic rocks remains to be explored to the north of the mine, but most of this is covered by the deep overburden in bottom of Pony Creek.

Some encouraging subsidary vein structures have been partially exposed in surface trenches to the north and west of the mine as well.

The Brown-McDade Zone exhibits a main footwall fault characterized by about 6 inches of dense gouge. This structure is persistent in the mine and consistent in attitude and bears

all the characteristics of a regional fault. The zone itself has been more or less traced for a distance of over three miles, certainly suggesting a major structure. In addition, the extensive and pronounced zones of hydrothermal rock alteration adjacent to the zone strongly suggest, in this environment, a major plumbing system with promising depth potential.

ORE ZONE

CHARACTER:

The Brown-McDade Zone as exposed underground, is divisible into three main parallel zones which merge with one another along their contacts. Adjacent to the main footwall fault mentioned above is a shear zone approximately 15 feet in width comprised principally of hematized fault gouge in shears bounding highly sericitized and mylonitic rock slices. In rather sharp contact with this shear zone is the ore zone which is from 5 to 30 feet in width and which is comprised principally of gray, limonitic silica - sericite - replacement rock within which drusy cavities are common. Nests, veinlets, pods and disseminations of finely crystalline sulphide minerals occur dispersed rather erratically through this siliceous rock and consist principally of pyrite and arsenopyrite with minor chalcopyrite, galena and tetrahedrite. A number of grab samples of this typical replacement sulphide material averaged about 0.70 oz. Au and 8 oz. Ag. (Interestingly enough, similar ore specimens taken from underground on the Webber Vein are almost identical in character and assay approximately the same as the Brown-McDade samples.) In some places underground the ore zone is separated from the shear zone by considerable thicknesses of alteration zone. The hanging wall of the ore zone is everywhere occupied by alteration zone which is about 75 feet in horizontal width and is comprised of intensely altered and sheared wall rock. It is a replacement zone of fractured, maroon-coloured rock comprised principally of argillized feldspar, hematite and quartz within which relicts of granodiorite are recognizable.

EXPOSURES:

Surface:

In the 1964 surface cuts the zone is well exposed and corresponds generally to the foregoing description. Hard fresh rock is not exposed in the trenches, but the various components of the zone are recognizable as rubble of distinctive colours and textures. As shown in the accompanying geology plan, sulphide bearing vein is exposed for a distance of 1,000 feet from Trench 00 to Trench 06, this probably represents the "ore zone" as exposed underground. As mapped on the surface the ore zone veers off from the main footwall apparently in en echelon slices

of hundreds of feet in length. At the north end of the surface exposures, between Trenches 01 and 00, the zone is displaced about 100 feet to the east. Exposures give no indication whether this deviation is caused by a cross fault or by a bend in the zone, but in either case the underground workings did not follow such a deflection and apparently actually turned somewhat in the opposite direction, thus probably becoming considerably separated from the main structure.

Unfortunately time did not permit the new surface cuts to be sampled before Winter, but this will be done as early as possible in the Spring. The few previous surface cuts returned exceptionally high gold and silver values from the zone over the mine.

Underground:

An examination of the outline of the underground workings on the accompanying geology plan give some indication that they are not following a particularly straight structure. From several examinations the writer is convinced that the underground headings criss-cross nearly the entire Brown-McDade Zone with some of their length being in the "shear zone", some in the "ore zone" and much in the "alteration zone". The exposures of the "ore zone" are distinct and in some places the drift turns and cuts across the zone and leaves it for many feet. The geological maps of the mine do not differentiate these zones but rather represent a rather haphazard mixture of structures and rock types that present an unnecessarily complex picture of the geology. The footwall fault, which is a major, strong, definite structure, is well exposed in the main crosscut, in the stub crosscut 150 feet south, and in the short drift 200 feet further south, yet it is not represented as such in the existing maps. The writer feels that this is the key feature to the structure with which the ore zone is related.

Drill Holes:

A series of eleven diamond drill holes were drilled from the surface prior to underground exploration, (see accompanying plan) and all but one intersected a definite structure with good ore values despite low core recovery. Interestingly these intersections are all below the present workings, yet the geology plans of the workings do not reveal such a definite zone as intersected in the holes some 25 feet below. This suggests again that the workings may not have been properly mapped.

Three holes drilled from the crosscut intersected ore of

slightly higher than average grade across average widths directly under the crosscut at depths of 160, 260 and 500 feet below surface.

Grade:

The 1,200 feet of underground drift and drive at Brown-McDade were completely and well channel sampled. Those samples cut from the "ore zone" sections of the drift returned medium to high grade assays in gold and silver, whereas those cut in the "sheer zone"and the "alteration zone" sections returned low to barren assays. When all of these sample results are averaged, excepting some sections of barren material, an ore length of about 1,000 feet is indicated, grading 0.40 oz. Au across 5 feet, with erratic silver values.

It is the writer's suspicion that if the "ore zone" can be visually differentiated from the surrounding barren zone and if, when it is traced through the workings, only those samples that were actually taken from it are averaged,then the grade of the ore, as well as the width, will be very appreciably increased, possibly by as much as 50 percent.

If the ore grade is about the same as a typical specimen recently assayed, it will run about 0.70 oz. Au and 8 oz. Ag for a gross value of $37 per ton, considerably better than the $20 previously assumed. Muck samples taken in the main crosscut across the "ore zone" averaged 0.38 oz. Au and 3 oz. Ag across 25 feet.

Remapping, perhaps some resampling, and check drilling will all strive to either prove or disprove this thesis of possible upgrading of the Brown-McDade ore. It is of interest that sampling from the five original surface pits returned a grade of 0.40 oz. Au across a width of 10 feet for an overall length of 1,000 feet.

Reserves:

Using present sampling and non-geological interpretations, the Brown-McDade orebody appears to be 1,000 feet in length and 5 feet in width. Taken to a depth of 200 feet from surface this will net a tonnage of:

$$\frac{1{,}000 \times 5 \times 200}{12} = 83{,}000 \text{ tons}$$

Assuming an increased width of 7.5 feet and possible productive length of 1,500 feet (as suggested by surface exposures,

EXPOSURES:
Reserves:
(cont'd)

drill results and reinterpretation of the underground geology), and a depth of 300 feet (from the deep drilling), a possible tonnage is indicated of

$$\frac{1,500 \times 7.5 \times 300}{12} = 280,000 \text{ tons}$$

This figure is conjecture at this stage, but the important fact is that with some success in remapping and sampling most of this tonnage is very nearly proven by the existing workings and would only require some raising, slashing and more drilling to confirm.

Such reserves of readily available ore of presumably the same character as the Webber Vein will represent welcome feed to a mill at Mount Nansen.

RECOMMENDATIONS

1. The mine is to be washed and the writer will remap it as soon as possible.

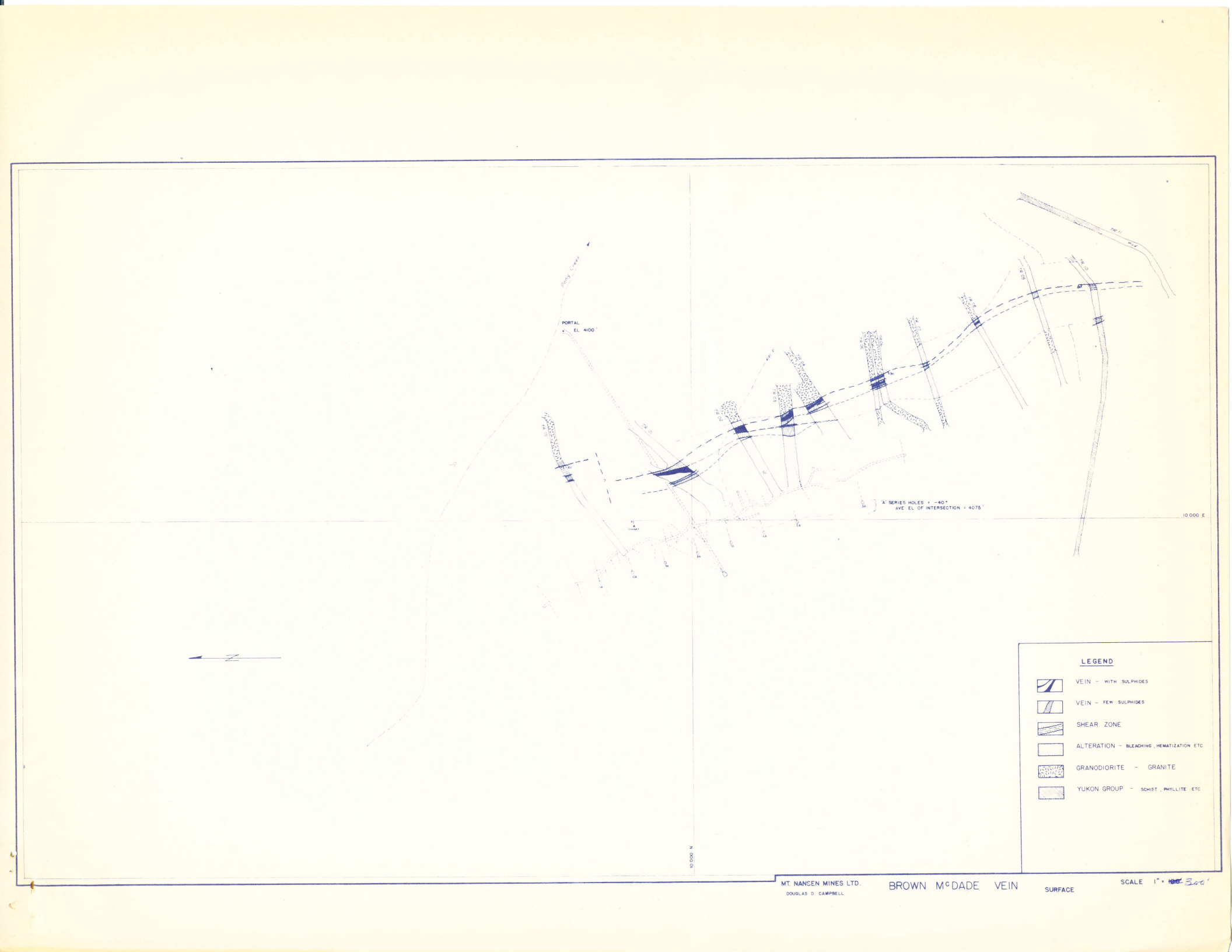
2. Some sections of the mine be resampled.

3. Select diamond drill holes and test holes be drilled in those parts of the mine indicated as promising by the remapping.

4. The surface trenches be sampled as soon as the frost leaves the ground enough.

5. Metallurgical tests should be made on a selected bulk sample of the Brown-McDade ore.

6. On assessment of the results of the above program, the mine should be rehabilitated and the next stage of development laid out.


PORTAL
EL 4100'
'A' SERIES HOLES = -40°
AVE EL OF INTERSECTION = 4075'
10 000 E
10 000 N
LEGEND
VEIN - WITH SULPHIDES
VEIN - FEW SULPHIDES
SHEAR ZONE
ALTERATION - BLEACHING, HEMATIZATION ETC.
GRANODIORITE - GRANITE
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SCALE 1" = 300'