

MONTANA SILVER LEAD MINE - ZEEHAN
(SECOND REPORT)

INTRODUCTION

Since the fieldwork was completed for the first report on this mine dated 16th November, 1951, ore extraction and developmental work at the mine have proceeded.

The Director of Mines issued instructions that a further investigation be made in order to bring the first report up to date. The investigation was carried out on 14th and 15th January, 1952, and this report details the state of affairs obtaining as at January 1952.

ADDITIONAL MINE DEVELOPMENT

Adit Level

- (1) The north drive has been taken 20 ft beyond No. 2 Prospect Shaft along the line of the lode towards the Eastern Adit. The mineralised zone widens abruptly and the width of the new portion of drive varies from 7 to 15 feet.
- (2) Eastern Adit is being cleaned out and rails laid into the drive on the lode. The intention is to make a connection with Adit Level drive and bring out all ore above Adit Level via the Eastern Adit.
- (3) Underhand stope has been lowered to the level of station A/14 and a north drive has been put into within 7 feet of the internal winze. A rise and two ore passes have been put in from Intermediate Level to the floor of this drive. A drive has been put in for 27 feet south of station A/14. The underhand stoping has ceased and it is intended to take out the remainder of the block of ore by normal stoping methods, the spoil going down the ore passes to Intermediate Level and thence to 100 feet Level.

100 Feet Level

- (1) At the time of the previous visit the south drive was blocked just beyond station B/37. This has now been cleaned up and it is found that the drive continues a further 84 feet beyond this point making the total length of the 100 feet Main Drive 599 feet.
- (2) At a point 45 feet along the South Drive from station B/12 a winze was commenced and temporarily abandoned at 8 feet. Directly above this winze a somewhat tortuous rise connection to the north end of Intermediate Level was made. From the top of this rise the Intermediate Level has been continued 24 feet north, an ore pass constructed on the north side of the rise, and stoping work is now in progress.
- (3) In the Bypass Drive the stope on the south side of the unsurveyed rise to the surface has been continued and the top of the stope is now an estimated depth of 60 feet below the surface.

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(4) The rise connection from 100 ft Level to Adit Level in No. 2 West Crosscut has been converted to an ore pass. The ore being won in the Adit Level north drive is divided into two portions. The firsts are trucked through the Adit to the old jig, while milling ore goes down the ore pass and thus to the mill.

150 Ft Level

- (1) The South Drive has been continued 50 ft past station C/16 and work in this drive has now ceased temporarily.
- (2) Stopes on north and south of rise connection to 100 ft Level have been continued to within 20 feet of the 100 Ft Level. Work in these stopes is actively proceeding.
- (3) Rails are being laid in North Drive in preparation for extending this drive.

GENERAL

The management are awaiting the arrival of a larger engine to drive the Pomona Pump. When this is installed within the next few weeks, the increased pumping capacity will hold the water below 300 feet. It is then intended to crosscut at 300 ft Level in order to explore the lode at this depth.

GEOLOGY OF ADDITIONAL MINE DEVELOPMENTS

Adit Level

- (1) Extension to north drive. A well mineralised zone up to fifteen feet wide has been exposed here. The hanging wall is fairly clearly defined and dips SE at 60° to 62°. Metal is well distributed over the face and back in large blebs and stringers. The western side of the cut carries particularly good metal. The eastern limit of the zone has not yet been reached. A number of "false walls" occur across the exposed portion of the lode. The sudden widening of the lode zone at this point and the presence of false walls confirms the statement on page 23 of the previous report that: "... the northern end of the Adit Level drive has just entered the (slide) zone."
- (2) In the underhand stope little additional information could be gained as the new ore passes and rise were full of mullock. The lode channel is about 6 (six) feet in width and on the present north wall of the stope over the drive there is 1½ ft of clean ore on the hanging wall followed by 2 feet of good milling ore. Good ore goes underfoot for almost the whole length of the stope. The hanging wall is clearly defined but the foot wall is comparatively vague.

To the south the width of the drive narrows to three feet but neither the hanging nor the footwalls have been reached. The lode as opened up shows three feet of barren lode filling with two inches of clean metal on the hanging wall side.

In this drive and in the Adit Level south drive above, the lode filling and country rock both become softer towards the south and the metal content drops abruptly.

100 Ft Level

- (1) The section of the drive south of station B/37 is characterised by highly shattered material. Hanging and foot walls are well defined and the country rock is highly contorted shale. At B/37 these walls practically form the walls of the drive but southward the distance between them narrows to 1 ft at 15 ft from the end of the drive after which it increases slightly. The dips of the walls vary from 39° to 52° to the SE. There is abundant fault-pug on both walls and this, combined with seepage of water has caused the recent sliding down of a considerable amount of lode material into the drive. More is likely to fall at any time and the section is considered to be unsafe. The lode consist of filling only and at no point south of B/37 was any metal seen.
- (2) The new winze south of B/12 was completely timbered over and could not be inspected. In the stope above metal occurs over a length of 18 feet north of the top of the rise. In the northern part of the stope the mineralization extends over an exposed width of 12 feet. It probably continues to the west. In this portion of the stope the hanging wall is exposed but nowhere has the footwall been intersected. South of the rise a faultplane occurs along the west wall dipping at 58° to the east. This probably joins the main hanging wall north of the rise.
- (3) The stopes in the Bypass Drive have now reached 40 ft above the level floor. The north stope has been closed down and the south stope is still being worked. This stope has been carried upwards between two well pronounced false walls about 12 ft apart. Metal has been found in blebs, stringers and large patches and there appears to be no diminution in quantity with increasing height. The pronounced walls, whilst persistent are not hanging and foot walls. Recent cuts through these walls have disclosed metal on either side. Thus the full width of the mineralized zone has not yet been determined.

This stope along with others is worked on the rill system. The rill is now 60 ft long and the system is becoming somewhat unwieldy.

150 Ft Level

- (1) In the South Drive there is a steady diminution in metal content going south. From C/16 for a distance of 30 ft clean metal occurring on the hanging wall gradually decreases from 1 ft to an inch or two. Beyond this point there is a slight widening and a patch of metal was encountered on the western side. The last ten feet of the drive is completely barren. The hanging wall is reasonably well pronounced and dips from 53° to 55° to the east. Several false walls are encountered but these tend to disappear towards the end of the drive. In the last ten feet of the drive a well pronounced plane dipping at 78° to west forms the west wall of the drive. It is

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considered that this drive has now penetrated through the slide zone. As on the 100 ft Level a blank in the lode occurs but it is to be expected that normal lode conditions will prevail as the drive goes south and that ore shoots will be encountered.

(2) In the stopes north and south of the rise there obtain very similar conditions to those encountered in the stopes above the Bypass Drive on the 100 Ft Level. The zone about 12 ft wide between two well pronounced false walls is being worked but it is known that metal occurs east and west of this zone. These stopes are worked on the rill system and have risen to within 20 ft of the 100 Ft Level. i.e. 30 ft above the floor of the 150 Ft Level.

ORE RESERVES

There has been insufficient work done since the previous investigation to warrant any recalculation of ore reserves.

CONCLUSIONS

- (1) Nothing has been seen in the present investigation to invalidate any of the conclusions given in the previous report.
- (2) The southern limit of the "slide zone" has been more clearly defined by recent workings. On the Adit Level it is at the floor of No. 2 Prospect Shaft and on the 150 Ft Level it is approximately at the present end of the South Drive. The northern limit has been approximately defined for the 100 Ft and 150 Ft Levels in the previous report. Since the Eastern Adit does not show "slide zone effects" it is deduced that the northern limit, at this level lies a little south of the Eastern Adit.

RECOMMENDATIONS

The following additional comments are offered on the recommendations made in the previous report:-

Lateral Development

- (1) This is being partially attended to.
- (2) This has been carried out.
- (3) In view of conditions obtaining at the south end of the 100 Ft Level it is now considered unlikely that a block of ore will be encountered between the end of the drive and the lease boundary.
- (4) Work on these lines is now proceeding.
- (5) Work on the 150 Ft Level South Drive has been temporarily abandoned, but the future continuation is still recommended.
- (6) Nothing has so far been done along this lines, but the recommendation still stands.

Development in Depth

The whole of this group of recommendations still stands. As detailed above the intention is to prospect on the 300 Ft Level as soon as pumping facilities permit. This is considered to be a sound idea.

Exploration beyond Mine Limits

Preparations are being made to carry out recommendation No. 1 at an early date. Nos. 2 and 3 still apply.

Mining Procedure

- (1) Mining procedure is about to be altered to give effect to this.
- (2) This is being partly carried out and full effect is intended to be given as conditions permit.
- (3) Shortly a technical assistant with survey experience will join the mine staff and it is intended to keep mine survey up to date.

ADDITIONAL RECOMMENDATIONS

It is considered that the previous recommendations practically cover the situation and it is pleasing to note that they are being followed by the Company as far as possible.

Only one additional recommendation can be made at present. The width of the mineralised zone within the slide is not known exactly No. 2 West Crosscut delimits it on the west.

It is recommended that an east crosscut be driven say from station B/10 to determine the eastern limit.

It is also recommended that east and west crosscuts be driven within the zone on the 150 Ft Level for the same purpose. This information will be of value in determining mining methods for extracting the whole of the mineralized material within the slide zone.

Zeehan, 18th January, 1952.

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