UNCLASSIFIED.

D.M. 1059/50

RB 37/107

DEPARTMENT OF MINES.

SOUTH AUSTRALIA.

RECONNAISSANCE OF "CRYSTAL" BARITE MINE - HD. KUITPO.

In response to a request by S. N. Rodda & Co., an inspection was made of the "Crystal" barite mine, on Waterworks Reserve, Mount Bold Reservoir, to assess the value of the property as a potential producer, such assessment to be presented in approaching the Engineer for Water Supply with a view to opening portion of the reserve to permit access to the mine.

For the purposes of the present report, a short reconnaissance only, was made by A. A. Gibson (Geologist) and the writer. A full survey and report on the mine will probably be undertaken at a later date.

SITUATION.

The mine is in the extreme south-eastern corner of former M.L. 2744, on section 379, Hundred of Kuitpo. The lease is now part of the Mount Bold reservoir reserve (Crown Lands) and as such has been closed to mining. The mine is reached by two miles of earth road, branching from the main Adelaide - Echunga road at 18 miles from Adelaide. The last quarter-mile of road is not suitable for heavy transport. An alternative track from the mouth of the adit, along which ore would probably be carted, is in need of extensive re-forming and surfacing.

The open cut is near the crest of a steep hill approximately 150 feet high and drainage from the mine area could be readily arranged into a dam to avoid pollution of the catchment area - however, as a farm occupies the opposite hill-slope, also draining into the reserve, the pollution risk would not be materially increased by mining operations. It is suggested that former M.L. 2744 of 40 acres be discarded and a new area pegged closely about the mine. A block 10 chains square (10 acres) would be sufficient.

WORKINGS.

The following is an extract from Report by Inspector of Mines and Quarries in Mining Review No. 59 (1933):-

"The development of this mine was first started by open cut; this work proved the lode to be striking on a bearing of 65°, and dipping steeply to the north-west; at 15 ft. deep, at the north-eastern end of the cut it is 8 ft. wide, at a few feet below the surface 50 ft. south-west, it is 25 ft. wide.

A vertical shaft was put down on the lode near the eastern end of the cut. This is now 90 ft. deep, and is in barytes for the whole distance, the lode being almost vertical, dipping north-west at an angle of 85°. A tunnel driven on a bearing of 170° from the northern slope of the hill cut the lode, and connected with the bottom of the vertical shaft 277 ft. from the portal. The ore, where traversed by the tunnel, is 25 ft. wide. A drive was started on the hanging wall side of the formation, and when 12 ft. north-west from the tunnel cut country rock, striking at 110° and dipping north-east at an angle of 60°. At the opposite side of the tunnel the country rock cuts towards the lode at the same angle. On the surface in the open cut, a similar variation in strike of portion of the hanging wall can be seen where the lode forms a wide bulge, beyond which to the south-west, it appears to resume its normal course. It is therefore to be expected that what appears to cut off the lode at the western side at the 90 ft. level, is the continuation of the bulged hanging wall noted at the surface, and that by driving along its course, the extension of the formation would be again picked up. At the eastern drive now 8 ft. from the shaft, the whole face is in barytes. This end, in my opinion, will narrow down to 5 or 6 ft. wide, as the hanging wall pinches into the narrower portion exposed in the eastern end of the open cut. The lode formation is not parallel to the strike of the country, which is about 355°, but pitches eastward at about the same dip as the country. At the surface the formation can be traced for a stance of approximately 300 ft. south-west.

At 200 ft. from the shaft a cross or spur lode bearing 300° can be traced down the hillside for a few chains, and at about 300 ft. south-west a similar cross vein can be seen striking on a bearing of 320°. These veins could be tested later to determine the widths and grade of ore.

As before stated, the lode was exposed in shaft sinking from the surface to bottom, 90 ft. deep. The barytes varies considerably in color, most of the jointings being much discolored by iron stain, the latter being more pronounced at the 90 ft. level, where veins of ferruginous material, 2 in. wide, can be seen traversing the barytes parallel to the cross jointing. As the main pitch of the lode is north-east the shaft in cutting through these layers exposed barytes of different values. As far as color is concerned, some of the layers show fair first-grade material, but the greater portion is seconds or thirds."

The present inspection substantially confirmed these observations. At present the 90-feet (adit) level extends 8 feet north-east and approximately 20 feet south-west, and a shallow winze has been sunk below the level. A small amount of further work has been done on the open cut and a shallow shaft (not inspected) has been sunk a short distance to the north-east of the cut. This shaft appears to be off the lode.

Most of the workings are in good condition. The shaft, which is not timbered, will require scaling and the 90-foot level is heaped with rubbish near the shaft.

PRODUCTION.

Recorded production to date is as follows:-

1933	115 tons,	value	£310
1934	47 tons,	value	£125
1939	90 tons,	value	£191
1940	324 tons,	value	£741
	576 tons,	value	£1367.

Most of this appears to have been second-grade material.

The volume of the open-cut, shaft and drive on lode are

estimated at 13,000 cubic feet, equivalent to 1300 tons of barite, and only about 150 tons of discarded barite can be seen about the mine. It must be assumed therefore that about 90% of the production was of saleable grade, probably seconds, and that a large proportion of the sales was not recorded.

The walls of the lode are not distinct and small horses of country (shale) can be seen in several places. If jigging and/or tabling be undertaken, the recoverable reserve of barite, and the grade, would be substantially increased. Quite possibly the dumps of third-grade barite could also be processed.

SUMMARY AND CONCLUSIONS.

The lode has been proved in costeens to extend 300 feet south-west from the open cut. Extension north-east is likely, but no exposures are available. Drives on the 90-foot (adit) level could be extended to the limits of the ore-body, both longitudinally and laterally, bearing in mind the fact that some patches of lean lode may be encountered, as has been the experience in other barite mines. Gravity concentration of the ore should permit full exploitation of the mine.

Second-grade barite can be assumed to persist to a depth of 150 feet (lowest available horizon for mining by adit) and should maintain an average width of 8 feet. About 90% of the production should be saleable.

300 feet x 150 feet x 8 feet @ 10 c. ft. per ton

= 36,000 tons Less 10% = 32,000 tons.

Reserves are therefore estimated at 16,000 tons Probable, and 16,000 tons Possible, all "second-grade, iron-stained".

C.J.R. KINGSBURY
(Assistant Geologist)

ENGINEERING GEOLOGY AND MINERAL RESOURCES SECTION.

CJRK:AGK
10/5/54.

REFERENCES: Mining Review No. 58 (1933) P. 58.

Mining Review No. 59 (1933) P. 83.

Mining Review No. 72 (1940) P. 92.

Mining Review No. 76 (1942) P. 96.

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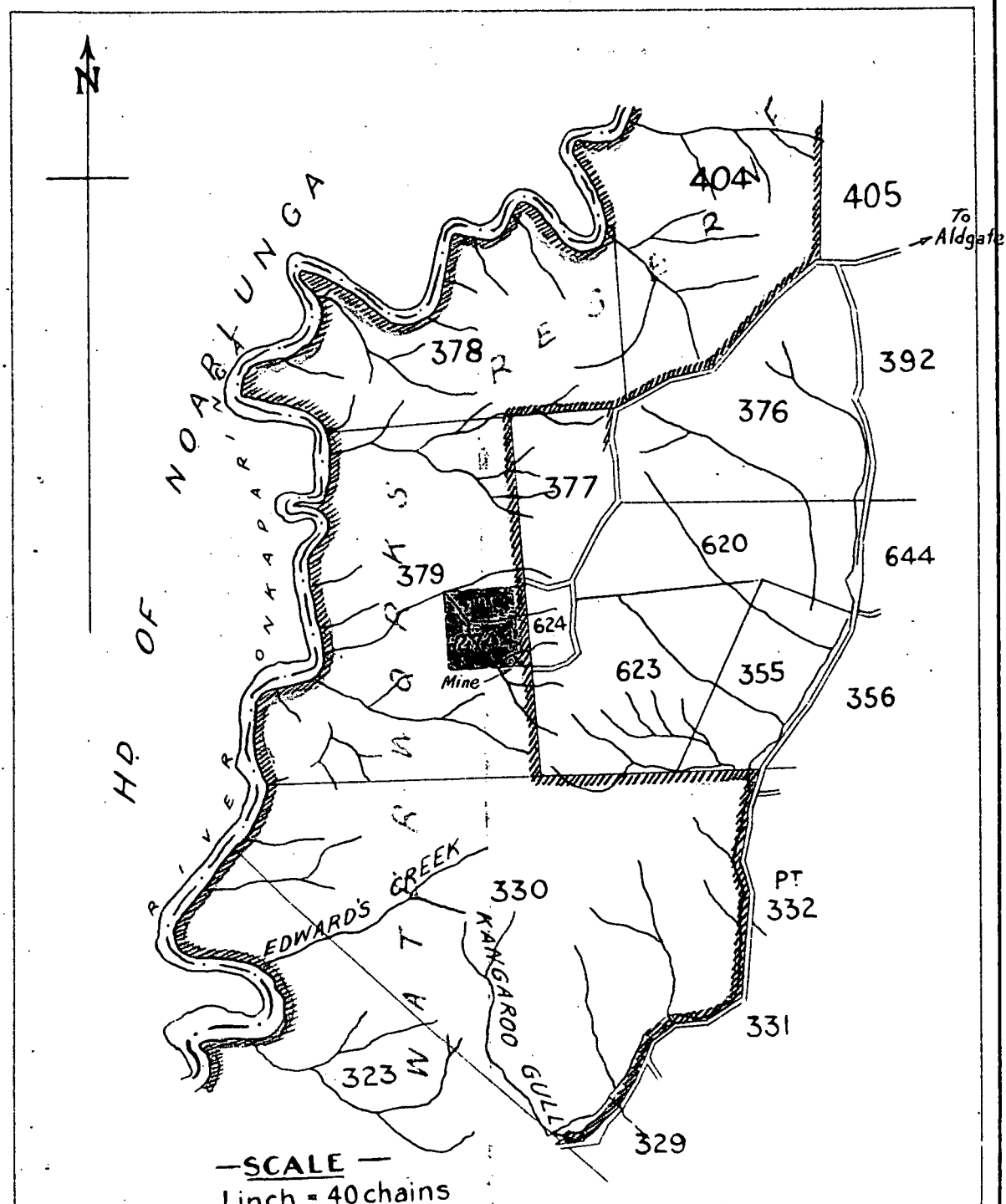
Docket E.W.S. 1495/40

Record of Mines Summary Card - Barite - No. 4.

DEPT. OF MINES

HD. OF KUITPO

PLAN SHOWING APPROXIMATE POSITION OF M.L. 2744



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