DEPARTMENT OF MINES
SOUTH AUSTRALIA.

First Report on

BARYTES DEPOSIT M.C.2285

OUTSIDE COUNTIES APPROXIMATELY 1 MILE S.W. OF MT. JAMES H.S.

(R. A. Fergusson)

by

L. G. Nixon
Geologist,

MINERAL RESOURCES SECTION.

CONTENTS.

Map Reference	Title	Scale
57-247	Barytes Deposit M.C. 2285, Outside Counties Approx. 1 mile S.W. of Mt. James H.S. - R.A. Fergusson -	1" = 100 ft.

H.O. Report No. Refer 45

G.S. Report No. Refer 746

D.M. 1106/57

18th July, 1957.

D.M. 1106/57.

DEPARTMENT OF MINES
SOUTH AUSTRALIA.

First Report on

BARYTES DEPOSIT

Outside Counties Approximately 1 Mile S.W. of Mt.James H.S.

- R. A. Fergusson -

1. ABSTRACT.

Dolomites and silty dolomitic slates of the Marinoan Series in the Adelaide System rocks of Pre-Cambrian age outcrop in the southern portion of the above Claim. Ore bearing veins occupy shear and tension fractures in the silty dolomitic slates. Reserves for the northern vein are estimated at about 150 tons per vertical foot. Further developmental work including costeaning and shaft sinking is recommended.

2. INTRODUCTION.

Following a request by Mr. R. A. Fergusson for the hire of departmental equipment to enable him to open up a barytes deposit, a geological inspection and pace and compass survey was carried out over the above claim on 10/7/57.

3. LOCATION.

The claim is situated approximately 15 miles from Warrioota railway siding on the newly constructed 4'8½" gauge railway line, connecting with Port Augusta about 180 miles to the south. The road from the siding to the deposit is unsurfaced and would probably be difficult to negotiate after heavy rain. On the lease itself no timber useful for mining purposes exists. Good water is reported to be obtainable within a mile of the prospect.

The country in the vicinity of the lease is fairly flat rising towards the south western boundary. Differences in elevation in the lease are estimated to be about 15 feet.

4. GEOLOGY.

The area inspected is on the western limb of a broad south pitching syncline. The axis of the syncline is just east of the Mt. James trig and trends approximately 25° east of north.

Sediments which outcrop in the south western portion of the lease are dolomites and silty dolomitic slates of the Marinoan Series in the Adelaide System rocks of Pre-Cambrian age. In the north eastern portion of the lease outcrop is poor, most of the area being covered with a mantle of red sandy soil and floaters of sand polished gibber stones.

The strike of the beds is between 10°-15° east of north, the angel of dip varies between 5°-60°E. The general dip is estimated to be between 15°-30°E. Within the lease boundary the dolomites and silty dolomitic slate horizons are about 100' thick.

LODES.

It is thought that the lodes mapped occupy both tension and shear fractures.

(i) Lodes in tension fractures strike approximately 25°E of north and occur as a series of lenticular veins arranged in an en echelon pattern, dipping about 65°W. Two small pits near the south western boundary (See Map No. 57-247) are thought to be located on this type of lode. These lodes are estimated to average approximately 4 feet in width.

(ii) Lodes in shear fractures - Lodes approximating the strike of the beds are inferred to have occupied shear fractures. Three pits in the north eastern part of the section are thought to be located on this type of lode. The veins strike about 10°-15° east of north and dip steeply west. None of the existing workings have exposed the lode fully, although one pit has exposed about 6 feet of ore. The veins in shear fractures appear to be of greater length than those in the tension fractures.

ORE CONTROLS.

From the sketch map and field evidence it is inferred that the ore filled fractures occur only in silty dolomitic slates, interbedded in flaggy and massive dolomites. These silty dolomitic slates are considered to have been more competent than the dolomites and to have failed by fracturing under shearing stress caused by relative differential movement between two horizons of massive and flaggy dolomite as illustrated in the sketch below.

The pattern as seen in the sketch can be applied to a plan or section, and from it, it is inferred that there could be a repetition of the ore at depth along the same horizon.

It is stressed here, that since the veins are thought to be contained in the silty dolomitic slates only, the angle of dip of the beds would be a very important factor in determining the depth to which a particular bein can persist. If, for instance, the angle of dip of the beds was only 5° the depth to which a vein would be likely to extend would be less than if the dip were 50°. The barytes where seen in the pits at the northern part of the vein system is massive, coarsely crystalline and of variable colour from white to pinkish. The pinkish colour is the colour of the barytes crystals and is not due to iron staining. There does not appear to be any reason why the barytes should not be of marketable grade at depth.

5. DEVELOPMENT.

A few pits have been dug on various veins within the claim; none of these exceed about 5 ft. in depth, andnone have been cut entirely across a vein. It is suggested that future developmental work be directed towards proving the width, extent and depth of the northernmost vein which on present indications is the best proposition for opening up for mining purposes. It is thought that this could best be done by cutting four costeans across the strike of the vein in the positions marked on the accompanying sketch map, and that a shaft be sunk in about the centre of the length of the vein to a depth of 100 feet or to the bottom of the vein, whichever is the less.

6. RESERVES.

Reserves are estimated to be about 150 tons per vertical foot assuming a vein width averaging 4' over a length of 300 feet. (Tonnage factor 8 cu. ft. per ton).

7. CONCLUSIONS AND RECOMMENDATIONS.

Sediments in the lease area consist of dolomites and silty dolomitic slates of the Marinoan Series in the Adelaide System rocks of Pre Cambrian age.

The lodes occur in the silty dolomitic slates occupying en echelon tension fractures and shear fractures. The lateral and vertical extension of the veins is controlled by the proximity of the underlying and overlying dolomite horizons.

Reserves are estimated to be about 150 tons per vertical foot assuming a 4' lode over a length of 300 ft.

On surface indications, the deposit, though not a large one could be profitably exploited by a small syndicate.

It is possible that other veins occur at depth along the same horizon.

Lack of suitable timber on the lease, useful in mining, will aid to the cost of mining. The country rock in which the ore veins occur appears to be poor standing ground.

It is recommended that further prospecting work be carried out without delay to expose the northern vein. This work should include four conteans as marked on Map No.57-247 and a shaft sunk on the lode, to the bottom of the lode or to 100 ft. which-ever is the shallower.

.....

L. G.Nixon.
GEOLOGIST

MINERAL RESOURCES SECTION.

LGN:AGK
18/7/57.

M.C. 2285

Proposed Costean

Proposed Costean

6' Vein exposed

Recommended Location of shaft.

4!? Vein

Proposed Costean.

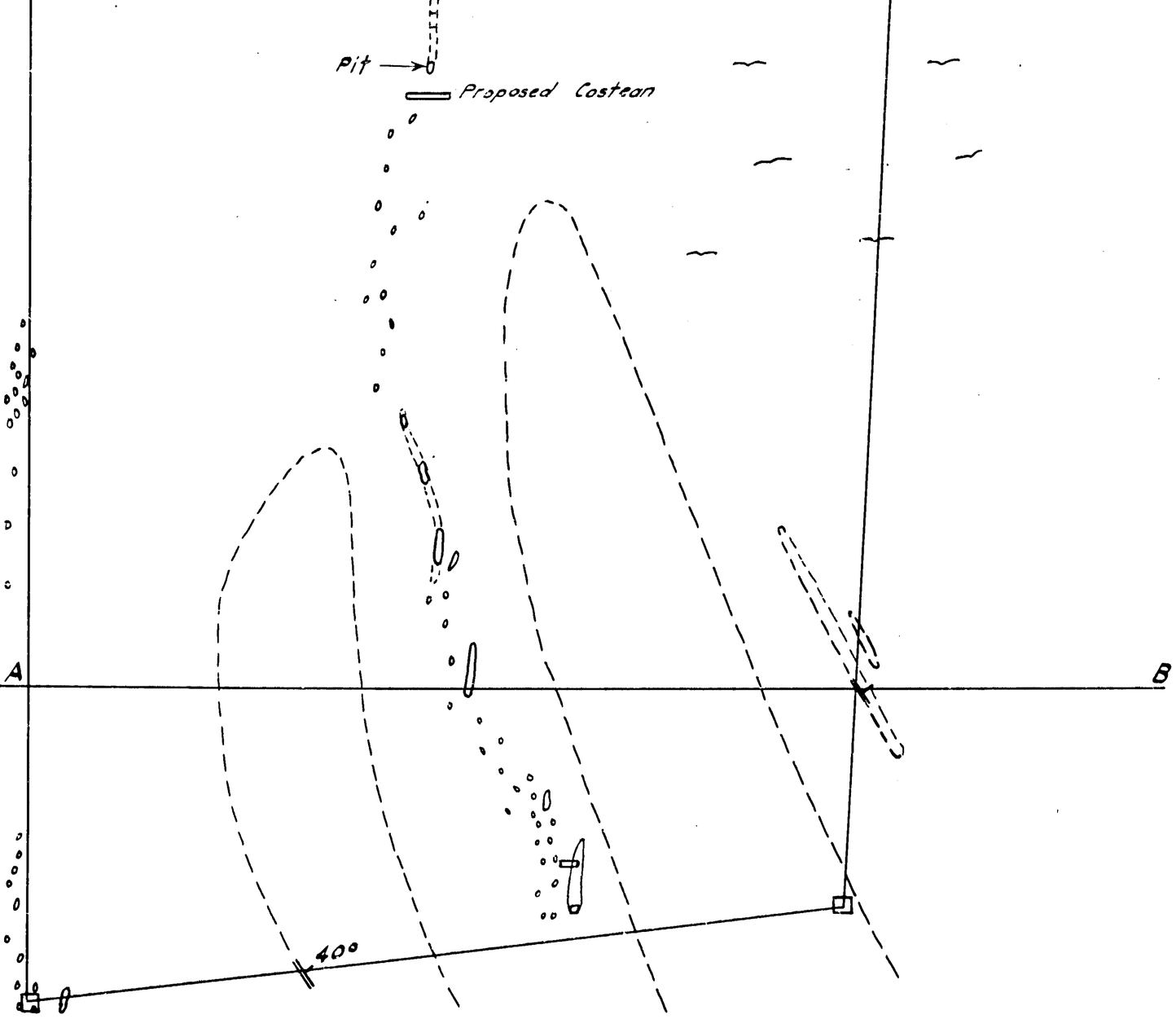
Pit

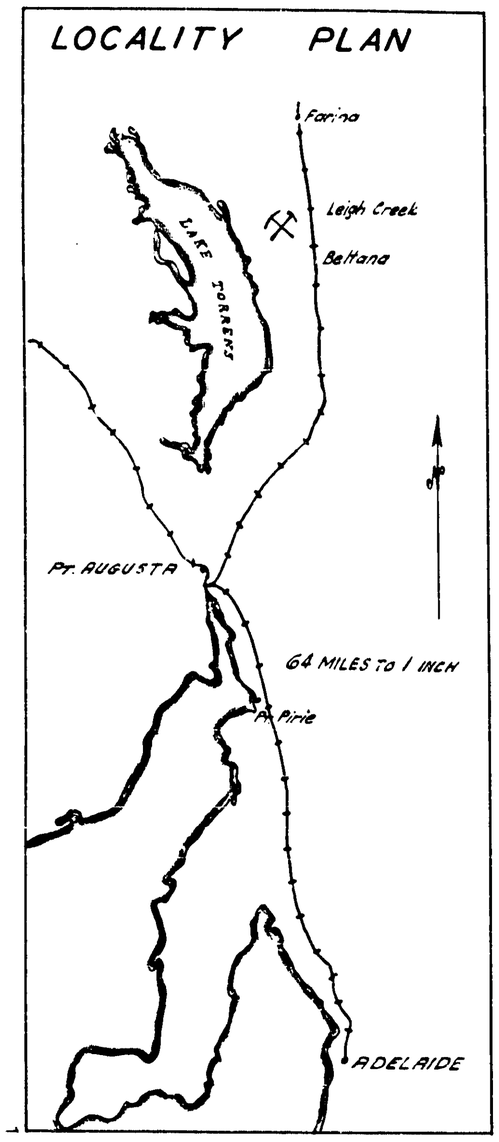
Proposed Costean

A

B

40°





LEGEND

Silty dolomitic slates (v.poor outcrop) Extent inferred....

Dolomite outcrop.....

Soil Mantle of sand.....

Barytes vein exposed.....

Barytes vein inferred.....

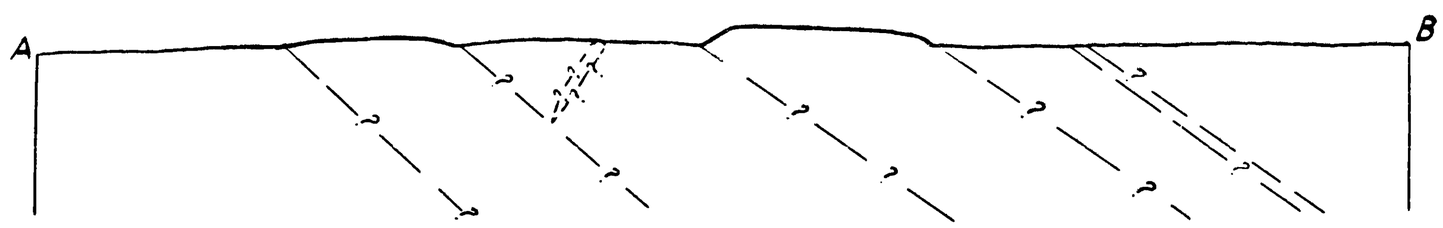
Barytes floaters.....

Existing workings.....

Recommended work Proposed Costean.....

Claim Bounderies.....

Strike & dip of Beds.....



SCALE IN FEET

100 0 100 200 300 400 500

50 0 50 100 150

SCALE IN METRES

8

To accompany report by L.G.Nixon Geologist
Pace and Compass traverse

S.A. DEPARTMENT OF MINES

BARYTES DEPOSIT

Approved | Passed | Drn. L.N. | Scale 100' to 1"

57-247