# CONTENTS ENVELOPE 1284

TENEMENT: S.M.L. 400

TENEMENT HOLDER: Altarama Search Pty. Ltd.



PLANS: NONE

ENV 1284.

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ALTARAMA SEARCH PTY. LIMITED.

# SPECIAL MINING LEASE APPLICATION IN THE ISLAND LAGOON AREA, S.A.

## BRIEF REPORT OF A RECONNAISSANCE VISIT AND LITERATURE SEARCH.

by

I. R. Plimer, B.Sc.(Hons.) (UNSW).

# INDEX.

# INTRODUCTION.

## LOCATION.

The Island Lagoon area (Special Mining Lease No.390) is 287 road miles NW. from Adelaide and 25 miles SSW. from Woomera. It extends from longitude 136°30' to 136°45' and from latitude 31°30' to 31°45' and covers an area of 250 square miles. The area is on the SW. portion of Island Lagoon and one third of the area is covered by the Lagoon. The area is covered by the 1:250,000 Torrens geological sheet.

## PHYSICAL FEATURES.

Topography:

The north eastern and northern portions of the area are covered by Island Lagoon. Part of the south western portion of the area is covered by Lake Macfarlane. The area is flat lying to gently undulating with very little relief.

Drainage:

Drainage is into Island Lagoon and Lake Macfarlane via a number of small non perennial watercourses.

Climate:

The climate in the area is arid with seasonal rainfall mainly in August and an average rainfall of less than 10 inches per annum.

Vegetation:

Vegetation is sparse to non existant.

Access:

A major highway (Highway 87) passes through Woocalla Railway Station (243 feet above sea level) where tracks passing through South Oakden Hill to Bryant Dam in the SW. corner of the area. A number of minor tracks in the area provide the only access. The remaining portion of the area can only be covered with four wheel drive vehicles.

## HISTORY OF THE AREA.

The records of the South Australian Department of Mines show that there are no known mines in the Special Mining Lease area.

## REGIONAL GEOLOGY.

The area comprises Upper Proterozoic of the Sturtian Series in the Adelaide Geosyncline covered by sand dunes, clay pans, alluvium and salt lakes.

## STRATIGRAPHY.

Proterozoic:

The Proterozoic Sturtian Series crops out over only one third of the area. The Sturtian Series (Umberatana Group equivalents) comprising grits, felspathic sandstones, quartzites, pebbly quartzites etc.

Cainozoic:

Quaternery sand plains, sand dunes, and clay pans overlie the Proterozoic sequences.

## IGNEOUS AND METAMORPHIC ROCKS.

No igneous and metamorphic rocks crop out in the area and the Proterozoic sequences have been regionally metamorphosed to a very low grade.

## STRUCTURE.

The Proterozoic sequence dips 0 - $2^{o}$ to the NW. and is overlain by horizontal Quaternary sequences.

# GEOLOGICAL HISTORY.

The Upper Proterozoic horizontal unaltered sequences were deposited on the Sturt Stable Shelf.

The Woocalla Dolomite Member of the Sturtian Series overlay the Sturtian Series in the Island Lagoon area. The Woocalla Member contain high trace contents of copper, silver and manganese and it is believed that upon weathering, the copper etc. was deposited in favourable structural environments around a salt lake e.g. Mt. Gunson over a long period of time.

The area was chosen because of the similarities with the Mt. Gunson - Pernatty Lagoon area.

## OUTLINE OF EXPLORATION PROGRAM.

A detailed geological examination of the area will be undertaken to locate the contact between red quartzite and lithic sandstone of the Sturtian Series and other lithological contacts.

The palaeodrainage and joint pattern obtained from aerial photographs will be correlated with magnetic highs (structural lows indicating possible high permeability) to delineate environments similar to those at Pernatty Lagoon.

Detailed work will involve aerial near infa red photography to determine the lake wet spots (under which there is ore at Pernatty Lagoon). The metal factor in induced polarisation surveys is affected by chloride concentration in the area and it has been shown in the area that the frequency factor of induced polarisation surveys can be used to detect sulphide zones. Chloride masking makes geochemical sampling unsuitable.

## CONCLUSIONS.

The area warrants detailed geological investigation before the potential of the area can be determined. The area was pegged on geological theory and its similarities with Pernatty Lagoon and the theory has to be substantiated by field work.

REFERENCES.

Dickinson,S.B., and Sprigg,R.C. 1953. Geological structure of South Australia in relation to mineralisation, in Geology of Australian Ore Deposits, 1st.Edition,(Ed.A.B.Edwards) p.426 - 448, (5th Emp.Min. Met.Congr: Melbourne)

Johns, R.K., 1965, Copper and manganese deposits of Pernatty Lagoon - Mt. Gunson District in Geology of Australian Ore Deposits, 2nd.Edition, (Ed. J. McAndrew), 297 - 300, (8th Comm. Min. Met, Congr: Melbourne.)

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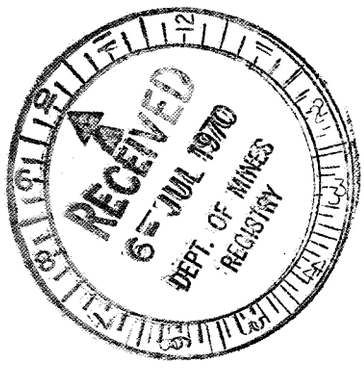


ALTARAMA SEARCH PTY. LIMITED

# SPECIAL MINING LEASE NO. 400

# ISLAND LAGOON AREA

# QUARTERLY REPORT

BY

I.R. Plimer, B.Sc(Hons.) (U.N.S.W.)

25th June, 1970.

# SPECIAL MINING LEASE NO. 400

## ISLAND LAGOON AREA.

## SOUTH AUSTRALIA.

PERSONNEL: A field crew comprising Mr. R.A. Creelman and Mr. D.N. Camiller, B.A., was in the area from 9th-14th May, 1970.

EQUIPMENT: Vehicle: Toyota Land Cruiser
Registration No. BBO 065.

SUMMARY OF WORK: A reconnaisance trip was made in the area to determine whether the Island Lagoon S.M.L. No. 400 had any similarities with the Mt. Gunson area. The following features were recognised as controls at Mt. Gunson and were searched for at Island Lagoon:

a) Structural lows and tight jointing
b) Lithological contacts between rock units
   i.e. Lithic Sandstone member
   dolomite member
   red quartzite unit.

From a study of air photos of the Island Lagoon area no lithogical contacts were observed.

The area was traversed in the Bryant Dam, Collins Bay, Scrubby Dam and Thomas Bore areas and the north western corner ($31^{\circ}30'$, $136^{\circ}30'$) In excess of 75% of the lease area is covered by sand and alluvium, and as a result, lithology and structural features are unobtainable in these areas.

The outcrops showed a marked similarity to members of the Tent Hill Formation, in particular a white porous sandstone member referred to as the Corraberra sandstone and in some areas a quartzite, probably the Simmens Quartzite. The Woocalla Dolomite, the lithic sandstone, and the Pandurra Formation (marked by a red quartzite member) were not observed.

Where exposed the sequences were flat bedded and no structural lows or radial joint pattern were observed.

It appears that with the absence of the Woocalla Dolomite and the Pandurra Formation and any structural features and that the major controls to mineralisation of the Mt. Gunson-type as the disconformities between the Tent Hill Formation and the Pandurra Formation are absent.

No mineralisation, copper or any other nature was observed.

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ALTARAMA SEARCH PTY.LIMITED

# SPECIAL MINING LEASE NO. 400

ISLAND LAGOON AREA, S.A.

## QUARTERLY REPORT

BY

I.R.PLIMER,B.Sc.(Hons) U.N.S.W.


28th September,1970.

SPECIAL MINING LEASE NO.400

ISLAND LAGOON AREA, S.A.

No personnel have been in the area and the planned aerial colour infra red surveys by Adastra Airways Pty.Limited at this stage is hampered because no stocks of aerial infra red film are at present available in Australia.

Stocks of this film are being imported by Adastra for the survey.

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ALTARAMA SEARCH PTY.LIMITED

# SPECIAL MINING LEASE NO.400

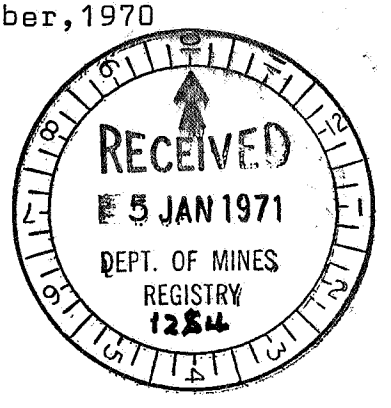
# ISLAND LAGOON AREA, S.A.

## QUARTERLY REPORT

BY

I.R.PLIMER,B.Sc.(Hons) U.N.S.W.

22nd December,1970



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SPECIAL MINING LEASE NO.400

ISLAND LAGOON AREA,S.A.

No geological field crews have been in the area.

Since our last Quarterly report the aerial colour infra red survey film has been received and Adastra Airways Pty.Limited have taken the photographs and are now processing them.

As soon as we receive the results of this survey we will be in contact with you.

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ALTARAMA SEARCH PTY. LIMITED

# SPECIAL MINING LEASE NO. 400

# ISLAND LAGOON AREA, S.A.

## QUARTERLY REPORT

BY

D.N. CAMILLER B.A. (Hons)(Geol.) Macq. Uni


24th March, 1971

# SPECIAL MINING LEASE NO. 400

## ISLAND LAGOON AREA, S.A.

### SUMMARY OF WORK

During the past 12 months the work on the area has involved a reconnaissance visit to the area during which a determination of the lithologies present was made and same compared to those present in the Mt. Gunson Mine area.
Subsequent to this and other studies it was decided to institute on aerial "false-colour" infra-red survey of the area covered by the lease, at a scale of 1:10,000. The reason for this survey was to enable areas of low infra-red reflectivity and high infra-red reflectivity (equivalent to possible wet spots and dry spots and/or lithological changes) to be delineated and contoured. In the Mt. Gunson area, mineralisation is reported (verbal communication R. Creelman) to be associated with wet spots on the lakes surface, where these occur around appropriate lithologies, viz Lithic sandstone member, dolomite member, and red quartzite member.

Adastra Airways Pty. Limited were commissioned to make the"false-colour"aerial infra-red survey over the S.M.L. 400 area. After some difficulty in obtaining the film from the U.S., the survey was completed, the film processed, prints made and the results returned to us during this quarter.
Owing to technical difficulties, this being Adastra's first large scale "false-colour" infra-red survey, the results have proved somewhat difficult to interpret and contour. Much discussion involving Altarama, Kodak and Adastra has been and is in progress with, we hope a meaningful result in sight.
Subsequent to the technical difficulties being finally resolved and photos of sufficient uniformity, in colour at least if not hue, then areas of interest will be outlined and a programme of exploration of these areas will be carried out by a team in the field.