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CONTENTS ENVELOPE 1616 DM 469/71

TENENEMT: S.M.L. 570

TENEMENT HOLDER: CONSOLIDATED GOLD MINING AREAS N.L.
C.G.M.A. INVESTMENTS LTD.
NICKEL AND MINERAL SEARCH N.L.

REPORTS:

SHACKLETON, W.G. and SMITH, P.C. 1971
Special Mining Leases No. 570
Tarcoola (Wynbring) Area
South Australia
Geological Report (pgs. 3-11)

Plans:

570-1 Geological Reconnassance map with aeromagnetics. (1616-1)

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CONSOLIDATED GOLD MINING AREAS N.L.,
C.G.M.A. INVESTMENTS LTD.,
NICKEL AND MINERAL SEARCH N.L..

Special Mining Lease Number 570

Tarcoola (Wynbring) Area

South Australia

Geological Report

by

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of

MINOIL SERVICES PTY. LTD.

JUNE 1971.

CONTENTS

PLAN REFERENCE

Plan No.	Title	Scale
570-1	Geological Reconnaissance map with aeromagnetic data	1" = 1 mile

SUMMARY

After a preliminary literature search and appraisal of Mines Department drill cuttings from holes in the area, the S.M.L. was investigated by a reconnaissance field survey.

No evidence for nickel mineralization of any grade was found.

However, as there is some confusion as to the exact locality of the drill hole viz. approximately 70 miles from Tarcoola, the area E of Tarcoola could feasibly provide nickel mineralization. Known ultrabasics occur to the east together with nickel mineralization.

No further work is warranted on this S.M.L. therefore it is recommended that the area be surrendered.

1. INTRODUCTION

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1.1. GENERAL

The 858 square miles of Special Mining Lease (S.M.L.) Number 570, held by a consortium consisting of Consolidated Gold Mining Areas N.L., C.G.M.A. Investments Ltd., and Nickel and Mineral Search N.L., straddles the Trans-Australian railway line between Lyons and Wynbring sidings in South Australia.

The eastern boundary of the S.M.L. is about 40 road miles west of Tarcoola which itself is approximately 450 miles north-west of Adelaide.

The lease was taken up after a specimen of nickel-copper ore was obtained from a driller who claimed to have had it in his possession since pre-Kambalda times (circa 1965). He also claimed to have taken it from the cuttings of a water bore south of the railway line, and approximately 70 miles from Tarcoola. The validity of these claims appears to be in doubt after reconnaissance inspection of the alleged area.

Attempts to locate the driller have met with little success. However, a Mr.Thomas of Jamestown may have had a drilling rig working south of the railway line, 70 miles east of Tarcoola in 1965. He is kindly checking his information and will advise Minoil Services Pty. Ltd., as soon as possible.

1.2. PHYSIOGRAPHY

Topography of the area is generally flat and about 500' above sea level. Several relatively small shallow depressions, probably topographic lows in Pre-Cambrian basement rocks have caused the formation of salt lakes between Lyons and Wynbring sidings (Plan 570-1). North of the

railway line alluvial plains with scattered areas of duri-crust and granitic outcrop is the main land form whilst from 5-10 miles south of the line non-migrating sand dunes dominate the topography.

The few streams which occur in the area are of the ephemeral type with flow directions generally toward the salt lakes.

Vegetation is generally low sheoak type scrub with salt and blue bush undergrowth. Around the salt lakes vegetation is of a different type, consisting of gum trees and blue bush.

1.3. ACCESS

North of the railway line, access to old bore holes, etc., is good along fence lines and graded tracks. The Tarcoola 4 mile topographic map shows most fences, tracks and gates and is quite reliable. However, along the vermin-proof fence, gates are infrequent, consequently some cross country treking is inevitable.

South of the railway line and particularly in the south-west section of the lease, movement is severly restricted by west-north-west - east-south-east trending sand hills. The few tracks which do occur are old wood cutters tracks and in general do not penetrate very far into the sand hill country. Whitten (1960,p5) goes so far as stating the need for camels and/or helicopters in exploration of this area.

2. PREVIOUS INVESTIGATIONS

All previous geological work in the area covered by S.M.L. 570 has been done by various S.A. Mines Dept. workers. Ward (1940) reported the occurrence of lignite material near Malbooma which led to a reconnaissance survey of Mulgathing Station by Hillwood (1959).

Whitten (1960) conducted a reconnaissance survey over the Tarcoola 4 mile sheet and reported outcrop and sub-outcrop of jaspillite, limonitic chert, feldspathic quartzite and granitic rock types. Several aeromagnetic anomaly areas were visited but no ultrabasics were reported with which a high grade nickel ore could be associated.

3. PRESENT INVESTIGATION

This investigation took the form of a brief reconnaissance survey aimed at locating the water bore from which the nickel-copper specimen reputedly came. At the same time most areas of outcrop which proved accessible were visited so as to ascertain the local geological environment. S. A. Dept. of Mines Wynbring and Belaming 1 mile aeromagnetic maps were used in defining areas of anomalous magnetic intensity.

4. REGIONAL GEOLOGY

The regional geology of the area is well summarised by Hillwood (1959) and Whitten (1960) but a brief account is given below.

Essentially all outcrop within the S.M.L. is restricted to the area in proximity to, and north of the railway line.

The Pre-Cambrian rocks include granite and granite-gneiss as definite outcrop together with areas of jaspillite float. The jaspillites are often found in association with granitic rock types and are therefore thought to be Pre-Cambrian. No mineralization was found associated with these rock types.

Unconformably above the basement rocks lie the Recent areas of duricrust (as outcrop on float) with limited areas of surface gypsum (kopi) near the lakes in the centre of the S.M.L.

All these rock types are covered by a blanket of Recent sands and clays.

Exposure is limited, therefore, to topographic highs in the former erosion surface of the Pre-Cambrian basement.

Because no accessible outcrop occurs south of the railway line the few known water bore holes were inspected. According to Mr W. Robins, who is the only person to have bored south of the railway line in this area, all holes drilled by him ceased in granitic type rocks or lacustrine sediments. No ultrabasics were intersected. Inspection of several accessible bore sites supported this statement.

5. GEOPHYSICS

Aeromagnetic data from the S.A. Dept. of Mines Wynbring and Belaming 1 mile aeromagnetic maps were used in this survey. Data from the Edoldeh and Mowling 1 mile maps which cover the Western section of the area were not available at the time the survey was carried out.

Several anomalies were noted and investigated but there are in general, no surface expressions of the anomalies. One exception is the area about Wynbring Siding on the Wynbring 1 mile map where a region of randomly orientated magnetic highs correspond to the development of a siliceous ferruginous duricrust.

In the centre of the S.M.L. a series of north-east trending magnetic lineaments correspond roughly with a topographic low in the Pre-Cambrian basement which has caused the development of salt lakes.

The southern part of the area is completely masked by sand hills thus no surface expression of anomalies is feasible.

6. DRILLING

Drilling within the area defined by the S.M.L. has been carried out by South Aust. Dept. of Mines, Commonwealth Railways and persons holding pastoral leases. Most holes drilled were for water, either

for stock or human consumption (on the railway line) but several Mines Dept. holes sought lignite which is known to occur in the area.

Those cuttings from holes drilled and stored by the Mines Dept. were inspected. No rock type which could be associated with a high grade nickel ore was found, and no anomalous radioactivity was detected.

In the field, most accessible holes were visited. All holes ceased in either Pre-Cambrian granitic basement or in lacustrine sediments. Ultrabasics are unknown from all holes drilled in the area.

7. RESULTS

The results of this reconnaissance survey are completely negative as far as locating the site of the reputed nickel occurrence. The geological environment coupled with the lack of drill hole cuttings which could possibly suggest the presence of ultrabasics in the southern part of the S.M.L. negate the need for any further exploration for nickel.

Lignite occurring in a number of Mines Department drill holes just north of the railway line on Mulgathing Station is the only material of any possible economic value. However, Ward (1940) states that both the quality of the lignite and transport difficulties prohibit its commercial exploitation.

8. CONCLUSIONS AND RECOMMENDATIONS

As the results of the reconnaissance survey were negative it is recommended that no further work be done on the S.M.L. and that the area be surrendered.

The lignite occurrence according to Mines Department workers holds little chance of becoming a viable economic proposition. Therefore there is no reason for further expenditure on this S.M.L..

P. C. Smith
Geologist
Minoil Services Pty. Ltd.

REFERENCES

Hillwood, E.R. (1959) Mining Review 110 pp 145-148

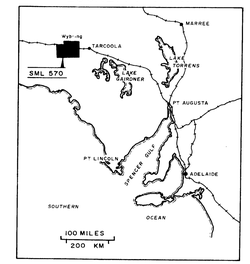
Ward, L.K. (1940) Mining Review 71 pp 90-91

Whitten, G. (1960) S.A.D.M. Report 50/162

137° 27'
137° 32'
137° 37'
30° 30'
30° 52'

Alluvium with minor sandhills
SALT LAKES
Alluvium with minor sandhills
Barton station 52 M
WYNBRING ROCKS (GRANITE)
WYNBRING
VERMIN PROOF FENCE
PICNIC
Areas of siliceous ironstone duricrust
Sandhills trending E-W
Pre Cambrian granite
W1
W7
DH 4,3
W4
W2,3
Fe-OXIDE QUARTZ
DH 44
W8
W9
GRANITE GNEISS
FERROCRETE
QUARTZITE
TRANS AUSTRALIAN RAILWAY
W10
Alluvium
Alluvium
DH
ALTERED GRANITE
LYONS
WELL
ALTERED TALCY GRANITE
OUTSTATION
Tarcoola approx 40M
To disused waterbore - granite basement
Sandhills trending E-W
SALT LAKES
Sandhills trending WNW-ESE
Randomly oriented sandhills
Sandhills trending WNW — ESE
POOTHING R.H
Sandhills trending WNW — ENE
BRING R.H
Ill defined sandhill orientation
Sandhills trending WNW — ESE
Sandhills trending WNW — ESE
BELAMING ROCK
ROCKHOLE
Sandhills trending WNW — ESE
Sandhills trending NW — SE

LOCALITY PLAN



LEGEND

- AREA OF OUTCROP OR ROCK SCREE
- +W8 ROCK SAMPLE POINT (NO ANALYSES WARRANTED)
- ODH7 MINES DEPT. DRILL HOLE (with number)
- AEROMAGNETIC TREND (Not necessary anomalous)
- AEROMAGNETIC ANOMALY
- ROAD
- TRACK
- RAILWAY
- FENCE WITH GATE
- WELL
- TANK
- TRIG POINT
- SALT LAKE
- EPHEMERAL STREAM

SCALE

1 0 0 1 2 3 MILES
1 0 1 2 3 4 KILOMETERS

NOTE TOPOGRAPHICAL DATA OBTAINED FROM WYNBRING, BELAMING, MOULING, AND EDOLDEM 1 MILE MOZAIC AERIAL PHOTOGRAPHS, TARCOOLA AND BARTON 1:250 000 TOPO MAPS.

AEROMAGNETIC DATA OBTAINED FROM S.A. DEPT. OF MINES WYNBRING AEROMAG. MAPS.

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CONSOLIDATED GOLD MINING AREAS N.L.
C.G.M.A. INVESTMENTS LTD.
NICKEL AND MINERAL SEARCH N.L.

SML 570 TARCOOLA (WYNBRING) AREA

PLAN OF SML SHOWING GEOLOGICAL RECONNAISSANCE AND AEROMAGNETIC DATA

GEOLOGIST P.C. SMITH	SOUTH AUSTRALIA	MINOIL SERVICES PTY. LTD.
DATE JUNE 1971		ADELAIDE S.A.

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