Open File Envelope No. 1499

SML 475

WADNAMINGA

PROGRESS REPORT TO LICENCE EXPIRY/SURRENDER, FOR THE PERIOD 1/10/1970 TO 31/12/1970

Submitted by
Burbank Explorations NL
1971

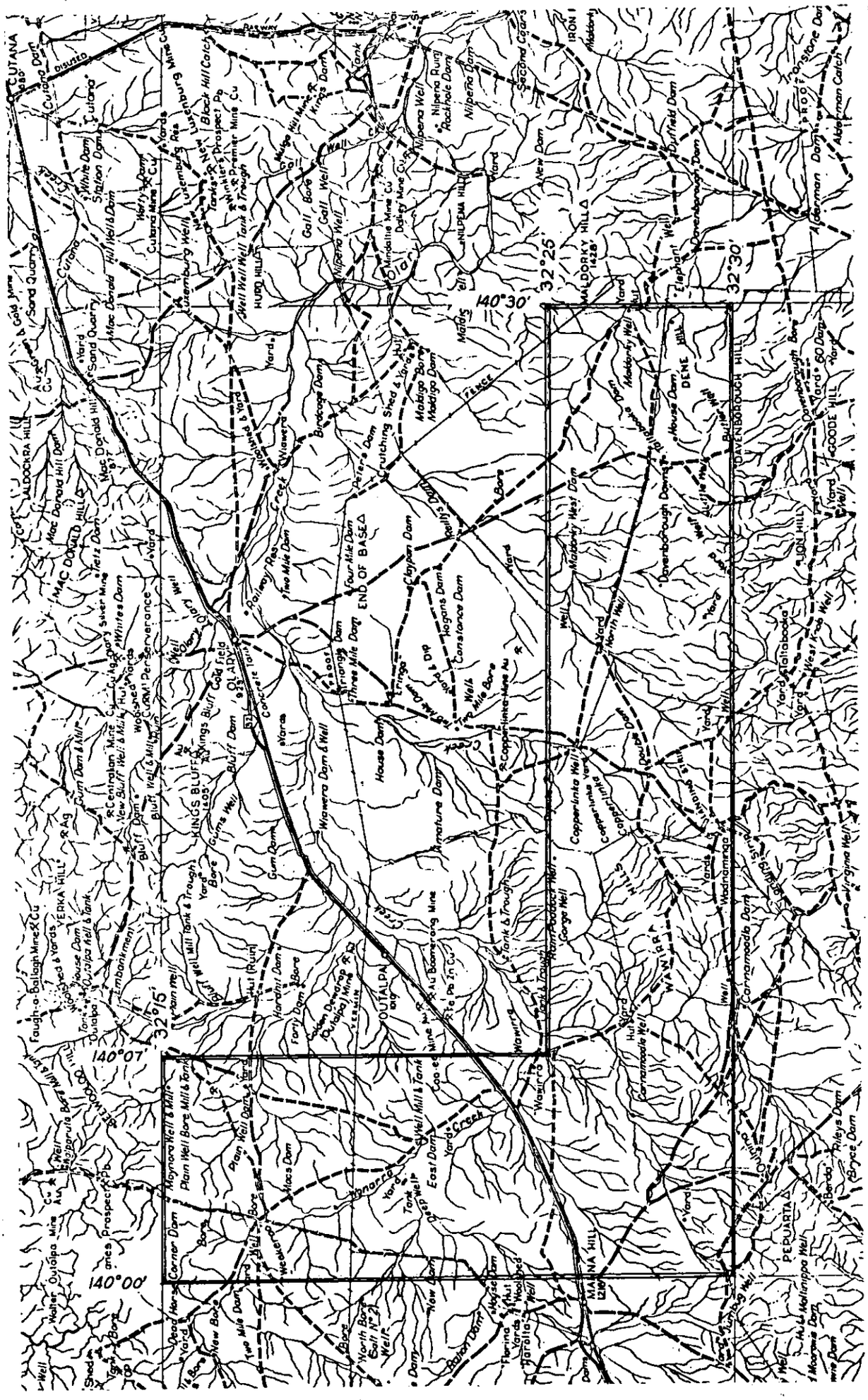
© 20/1/1977

This report was supplied as part of the requirement to hold a mineral or petroleum exploration tenement in the State of South Australia. DMITRE accepts no responsibility for statements made, or conclusions drawn, in the report or for the quality of text or drawings. This report is subject to copyright. Apart from fair dealing for the purposes of study, research, criticism or review as permitted under the Copyright Act, no part may be reproduced without written permission of the Chief Executive of Department for Manufacturing, Trade, Resources and Energy GPO Box 1264, Adelaide, SA 5001.

Enquiries: Customer Services Branch
Minerals and Energy Resources
7th Floor
101 Grenfell Street, Adelaide 5000

Telephone: (08) 8463 3000
Facsimile: (08) 8204 1880

Government of South Australia
Department for Manufacturing, Innovation, Trade, Resources and Energy



SCALE 1:250,000

BURBANK EXPLORATIONS N. L.

DOCKET DM 1073/70 AREA 243 SQ MILES

1:250000 PLANS .OLARY

LOCALITY

S.M.L. No. 475 EXPIRY DATE 30.9.71

770
475
535
EB. 579
648

CONTENTS ENVELOPE 1499

TENEMENT: S.M.L. 475

TENEMENT HOLDER: Burbank Exploration N.L.

BURBANK EXPLORATIONS N.L.

Special Mining Lease No. 475

Wadnaminga Area
SOUTH AUSTRALIA

3 Monthly Report to 31.12.70

By

W.G. Shackleton M.Sc.
of
MINOIL SERVICES PTY. LTD.

RECEIVED
21 JAN 1971
DEPT. OF MINES
REGISTRY
1499

CONTENTS

FIGURE REFERENCE

1. INTRODUCTION

This report, which is not a prospectus report, summarizes a complete literature survey of previous geological, geophysical and geochemical work carried out in the area of the Special Mining Lease (S.M.L.) Number 475 held by Burbank Explorations N.L., near Wadnaminga Station, South Australia and is preliminary to physical exploration for copper, gold and all other minerals. The approximately 250 square miles of the S.M.L. covers the western and southern portions of the Olary 1 mile military sheet and is thus in the Olary Province. The township of Mannahill (214 road miles from Adelaide) lies approximately one mile to the west of the S.M.L. on the main Adelaide-Broken Hill road and railway which traverses the S.M.L.

2. REGIONAL GEOLOGY

The S.M.L. lies within the Olary Province of South Australia, the majority of the rocks consisting of the Sturtian Inter-Glacial Sequence which is overlain by the Upper Glacial Sequence. Small areas of outcrop of the underlying Lower Glacial Sequence occur in the Dene Hill area in the east and near Weekeroo Station Homestead in the north.

The main structure of the area is an elongated basin whose major axis trends west-south-west and which passes through the south-west corner of the S.M.L.

In the north, the Lower Glacial Sequence is folded into a fairly tight anticline whose axis trends east-north-east and plunges to the south.

In the extreme north-west corner of the S.M.L., a portion of a large granitized metasedimentary mass outcrops.

3. DETAILED GEOLOGY

The lithologies within the S.M.L. range from the basal conglomerate of the Torrensian Series up to the Sturtian Upper Glacial Sequence and consist mainly of slates and siltstones with minor tillitic, quartzitic and dolomite beds. These rocks are unconformable on undifferentiated Proterozoic-Archaean metasediments, a portion of which outcrops in the extreme north-west of the S.M.L., and whose dominant lithologies are quartzites, schists, amphibolites and intrusive granite pegmatites. In the S.M.L. the unconformity between these metasediments and the overlying basal conglomerate is generally covered by talus, pediment and alluvial deposits of creek channels and flood plains. Fig. 1 summarizes the stratigraphy of the S.M.L. Regional metamorphism is generally of the biotite zone.

The dominant structural feature is the basin traversing the area. However, there are a series of associated drag folds on the north flank in the vicinity of Wawirra siding. No faulting is indicated on the published geological map of the area. (Campana, 1955)

4. ECONOMIC GEOLOGY

Campana and King (1958) is the authoratative work on the Olary Province and much of what follows is extracted from their work, and also from Brown (1908).

No mines or mineral prospects are shown in the area covered by the S.M.L. except for a pyrite prospect approximately one mile north-west of Copperlinka Well. However, there are several small gold mines adjacent to the north-east borders of the S.M.L. - e.g. Golden Dewdrop or Outalpa, ~~Loose~~ Coorie, Boomerang or Rock Boulder, and Copperlinka or Trinkaleena Mines. All these mines occur in the Inter Glacial Sequence with the exception of the Copperlinka Mine which is in the Upper Glacial Sequence. Gold was the principal metal recovered from these mines although argentiferous galena occurs in the Boomerang Mine. Galena also occurs in sparse quantities in the Copperlinka Mine, and is widespread in the Wadnaminga Field.

FIG. 1

STRATIGRAPHY OF S.M.L. NUMBER 475.

PROTEROZOIC	ADELAIDE SYSTEM	Sturtian Series	Upper Glacial Sequence Inter Glacial Sequence Lower Glacial Sequence Tapley Hill Formation Wilyerpa Quartzite (Unconformity) Benda Siltstone Appila Tillite (Unconformity)
		Torrensian Series	Burra Group Grand Angular Unconformity
PROTEROZOIC-ARCHAEAN			Undifferentiated Granitized metasediments with granitic and pegmatitic intrusives

From Campana and King (1958)
and
Forbes (1970)

Several mines occur associated with the Proterozoic-Archaean metasediments in the north e.g. Walter Outalpa (gold), Walparuta (copper in drag-folded epidote-actmolite-quartzite), and the Weekeroo barite deposit seven miles north-east of Weekeroo Station Homestead.

Vranes Lead Prospect, four miles north-north-east of Weekeroo H.S. is considered to consist of post-Proterozoic epithermal veins and occurs as narrow and discontinuous seams of galena, associated with iron oxides and gold, in bedding plane features in dolomitic slates which immediately overlie the basal conglomerate of the Adelaide System.

5. GEOPHYSICS

The area was covered by an airborne magnetic and radiometric survey by the Bureau of Mineral Resources in 1953. The aeromagnetic plan covering the S.M.L. is featureless except for a 500 gamma anomaly in the extreme north which was considered to be related to the basal Adelaidian conglomerate.

Two third order radiometric anomalies were located in the north of the area and four in the central part of the area.

Mines Administration, the previous leasees, have not as yet submitted a final report on the area but a radiometric survey carried out for them located four small anomalies in an area approximately eight miles south east of Mannahill.

6. CONCLUSIONS

Although no mineral occurrences are shown in the area covered by the S.M.L. the presence of several mines of different genetic types in the immediate vicinity combined with the radiometric anomalies previously located in the area suggest that the area has a promising economic potential.

7. RECOMMENDATIONS

1. A reconnaissance geological survey of the area should be undertaken to check the conclusions stated above and to determine the feasibility of stream sediment sampling.

2. Mines Administration carried out a reconnaissance airborne scintillometer survey over the area in an attempt to locate an anomaly discovered whilst their plane was in transit over the S.M.L. but was unsuccessful. It is recommended that a low level airborne scintillometer or other remote sensing technique survey be carried out over the whole area.

3. The Proterozoic-Archaean metasediments in the north together with the basal Adelaidian conglomerate and overlying dolomitic slates should be intensively prospected by geophysical and geochemical surveys.

W Shackleton

15/1/71

W. G. Shackleton M.Sc.
Geologist
Minoil Services Pty. Ltd.

REFERENCES

Brown, H.Y.L. 1908 Record of the Mines of South Australia 4th Edition. S.A. Department of Mines.

Campana, B. 1955 Olary Province Geological Atlas Special Series, scale 1:170,000. S.A. Geol. Survey.

Campana, B. & King, D. 1958 Regional Geology and Mineral Resources of the Olary Province S.A. Geol. Survey Bu. No. 34.

Forbes, B.G. 1970 Benda Siltstones Quart. Geol.Notes, pp. 1-2 S.A. Geol. Survey.

OLARY

GEOLOGICAL SURVEY OF SOUTH AUSTRALIA
DEPARTMENT OF MINES ADELAIDE

FIRST EDITION 1954

GEOLOGICAL ATLAS 1 MILE SERIES
MAP REFERENCE No. 713 ZONE 6.

S.M.L. 475

REFERENCE

CAINOZOIC ERA — QUATERNARY

- Qrt — Talus, rock waste, clays, gravels and residual soil deposits of the pediment.
- Qrs — Alluvial deposits of the creek channels and flood plains.

PROTEROZOIC ERA — ADELAIDEAN SERIES — TORRENSIAN SERIES

- Ptu — UPPER GLACIAL SEQUENCE. Glacio-fluvial slates with occasional pebbles. Ulupa quartzites and sandstones. Ulupa boulder tillite and glacio-fluvial slates with thin quartzite bands.
- Pti — INTER GLACIAL SEQUENCE. Blue to greenish laminated slates with thin bedded quartzites, thindolomitic limestones and buff coloured dolomite, frequently masked by thin soil veneer.
- Ptl — LOWER GLACIAL SEQUENCE. Glacio-fluvial slates with occasional erratics, grading in places to a coarse tillite. Maldorky boulder tillite, with abundant quartzite, granite and gneissic erratics.
- Dolomites with occasional pebbles, grading to tillite with a dolomitic matrix.
- Buff coloured dolomites.
- Maldorky quartzites.
- Pt — Phyllites and dolomitic phyllites with magnesite lenses, minor chert bands and quartzites. Brown to buff coloured dolomites.
- Sandstone with heavy mineral lamination.

ARCHAEOZOIC ERA

- A — Schists, gneisses, migmatites passing into granite.

IGNEOUS ROCKS

- Qtz — Main quartz reefs.
- Amphibolitic dykes.

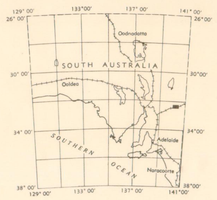
GEOLOGICAL BOUNDARIES
OBSERVED
APPROXIMATE
INFERRED

FAULTS
OBSERVED
APPROXIMATE
INFERRED

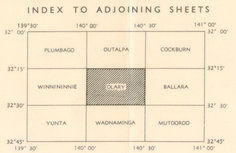
BEDDING
STRIKE AND DIP
VERTICAL
HORIZONTAL
STRUCTURE FORM LINES
CLEAVAGE
GNEISSOSITY SCHISTOSITY
SYNCLINE
ANTICLINE
MAIN ROAD
SECONDARY ROAD
TRACK
RAILWAY
TRIANGULATION STATION
MINE
QUARRY
RIVER OR CREEK
GOLD — Au
COPPER — Cu

RECEIVED
21 JAN 1971
DEPT. OF MINES
REGISTRY
1499

LOCALITY



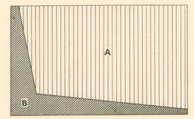
INDEX TO ADJOINING SHEETS



SCALE 1/63,360 OR 1 INCH TO 1 MILE

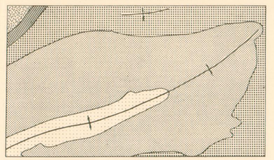
Chains 80 60 40 20 0 — 1 2 3 4 5 6 7 Miles

RELIABILITY DIAGRAM



A Vertical photography
B Oblique photography

TECTONIC SKETCH



Sturtian Series:
Upper glacial Sequence
Interglacial Sequence
Lower glacial Sequence
Torrensian Series
Archaean crystalline Complex
Syncline
Anticline

Geology By B. CAMPANA, D.Sc.
Assistant Geologist K. SUMMERS B.Sc.

B. Campana, D.Sc., Geologist in charge of regional map preparation.

Base maps and cartography by Geological Drafting Section, Dept. Mines, S.A.

Compiled under the direction of S. B. Dickinson, M.Sc., Government Geologist.

Issued under the authority of the Hon Sir A. Lyell McEwin, M.L.C., Minister of Mines.

Published 1954
Photo. Litho.: S. R. Delmont Ltd.
Printed by Government Photolithographer, Adelaide.

SML 475
1499-1