CONTENTS ENVELOPE 2401 E.L. NO. 115

TENEMENT: Exploration Licence No. 115

TENEMENT HOLDER: Nissho Iwai (Australia) Pty. Ltd.

003

FIRST QUARTERLY REPORT

OF

LARELA MOUND AREA

SOUTH AUSTRALIA

February 10,1974

CONTENTS

Illustrations

1. Introduction.

This Exploration Licence is bounded by the following four points, starting at a point being the intersection of latitude 30 02'S, and longitude 139 05'E, thence south to latitude 30 05'S, ~~east~~ west to longiyude 138 55E, north to latitude 30 02' east to point commencement.

This Exploration Licence No 41. consists of approximately 89 square kilometers and is adjacent to southern margin of E.L. 41.

This area is originally granted as part of M.L.660 on January 13, 1973by Department of Mines. Carnotite was discovered in the southern part of the lease after submission of ~~renewal~~ application of ~~the~~ new lease which was omitted northern and southern margin of the original lease. As it was required much more work around carnotite occurrence, the company was re-applied the Exploration Licence on this area.

The Licenced area is situated approximately 70 km, NE of Lyndhurst, and road to Mt.Fitton Talc mine and Murnpeowie Homestead is running through in the northwest corner of the lease area.

Topography in the area is divided into two distinguished physical features. one is low flat flood plain of Yerelina Creek flown from Mt.Painter, the other one is flat or gentle undulating table land covering higher gravel or duricrust. This table land is situated at northwest part of E.L. between Taylor Creek and Yerelina Creek, and at the north eastern corner of the area very small part of tableland between Yereli a and Tindlepina Creek may be included .

2. Summary of activity.

After approval of E.L.115 on December 10, 1973 enlarging aerophotograph for routemap and geological interpretation of aerophotograph, was performed. Field survey was started on January 25, 1974 after completion of the drilling work in E.L. 41. After three days performance, we had to stop working about three days due to unusual big rain in hot summer and ~~flowing the From Creek~~ we had to wait to stop running the From Creek about three days since rain stiopped.

Field work resumed on February 4, and camp closed on February 6 due to the information of more rain.

3. Stratigraphy

(i) Tanley Hill Formation.

This is the most widespread formation in the E.L.115.

This Formation extends E-W direction and dips to south about 10 - 35 degrees. Thickness have not yet confirmed. The characteristic lithology is yellow flaggy siltstone with thin arkose sandstone and quartz breccia bearing sandstone. Yellow ochre siltstone may be changed its colour from dark grey to yellow by limonite. Siltstone underlying younger sediments is heavily bleached and weathered to white, soft silt and clay. In that case it will be hard to recognize any lamination in the siltstone, and is undistinguishable ~~wo j~~ with younger sediments such as Marree Formation.

Gypsum sheets may be seen around of boundary area between younger sediments.

(ii) Lurnpeowie Formation

This Formation is exposed under duricrust of tableland and some of the isolated small hills on the flood plain.

The lithology of this formation is consisted of fine to medium sandstone, quartz pebble conglomerate in basal part, siltstone and claystone. The lower parts of t is formation in the ~~E.L.~~ E.L. area is ~~predomin nt~~ predominated by sandstone and conglomeratic ~~facies~~ facies, and upper part of the formation is formed by siltstone rich facies with sandstone sheets. The sandstone unit is mainly well sorted, white grey to white, quartzose to feldspathic fine to medium grained sandstone and in basal part thin (10 - 20 cm.) quartz pebble conglomerate occurred. Cross beddings are characteristic in the lower part of the sandstone unit and is dipping to north about 1 -20 degrees. Thin siltstone sheets interclalated in parts.

A few silicified thin sandstone sheets and conglomerate bed may be seen in this unit. Also gypsum sheets can be seen in basal part. (Refer Fig. 3.)

Siltstone unit consist of siltstone and thin sandstone sheets. This unit may be seen at the cliff of northern part of the E.L.115, No. 1 out crop (Refer Fig. 3.)

Thickness of this formation at the outcrop are 5.7m.at No.1 and 4.7 m. at Hol 2, sandstone unit is 3.2 and siltstone is 2.5 meter at No. 1 (Refer Fig. 1 and 3) It have been confirmed that ~~xxx~~ thickness of the formation will increase its thickness to north and northeast by drilling with in E.L.41.

This formation is presumed to be deposited on the lower part of palaeogeography of basement and incline to north to north east.

4. Radioactivity and discovery of uranium minerals.

Radiometric survey was performed with geological mapping between Jan. 25 - 27 and Feb. 4 & 5, two TCS-122 (Nihon Musen Irigaku Japan) scintillometer were used. Radioactivity of representative rocks are shown as follows, backgroun is 5 - 7 μr/hr.

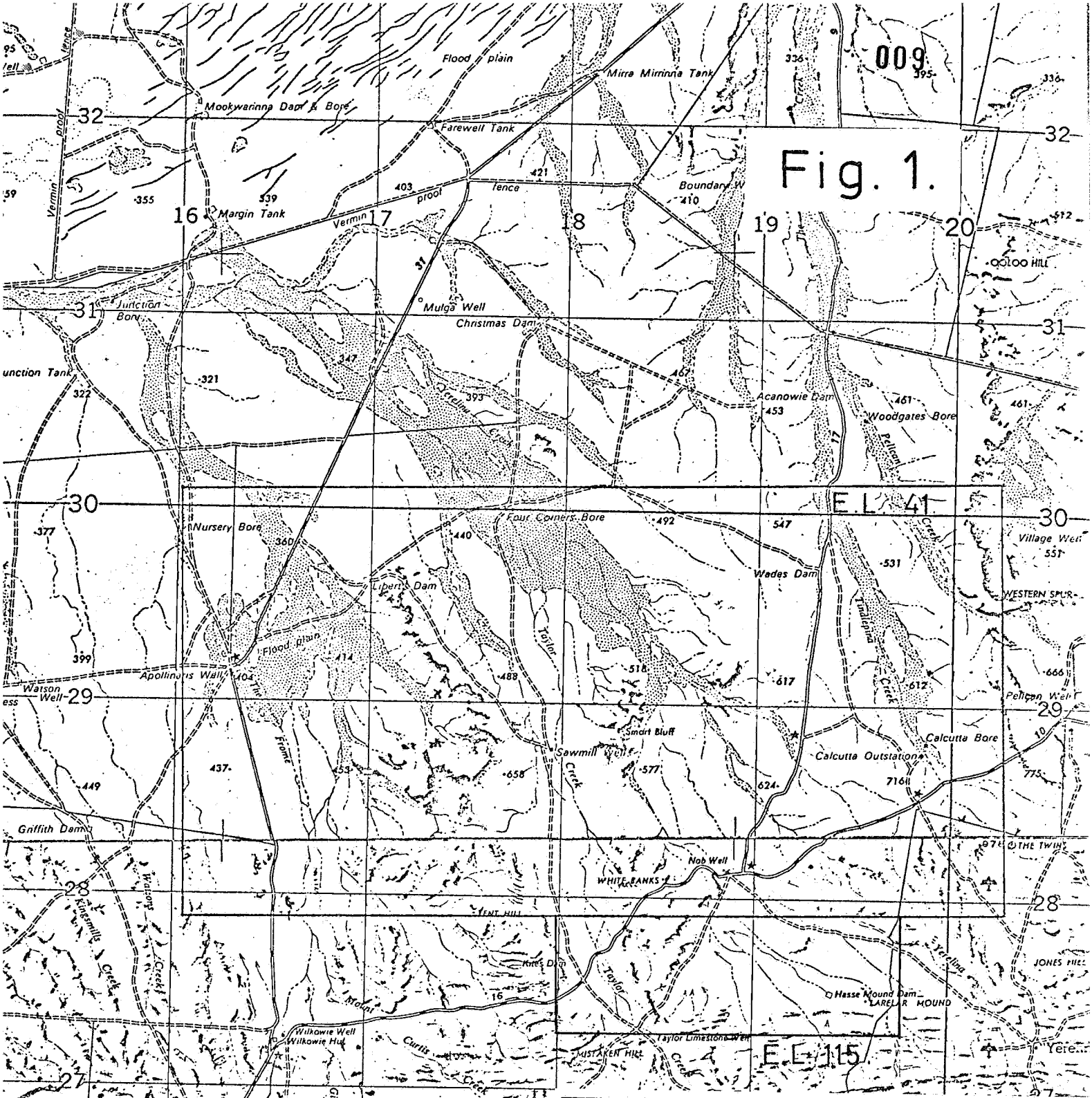
	μr/hr.
Higher gravel.	7 - 10
Out wash and lateritic soil	7 - 15
Siltstone unit in Murnpeowie F	5 - 10
Sandstone unit "	5 - 7
Pebble conglomerate "	10 - 17
Siltstone in Tapley Hill F.	10 - 35

Generally speaking the radioactivity in Chisarna ia very low especially white sandstone is the lowest, even the place carnotite discovered it was maximum 85 ur/hr .

No radioactivity was discovered in this survey, however, yellow minerals was discovered at 184278 on National Map Grid Reference, east of Kite Dam. It is anticipated ~~thgit~~ to be uranium-vanadium minerals which were discovered in E.L.41.

EXPLORATION EXPENDITURE

Geological costs:	A.$ 354.00
Enlargement of aerial photographs.	
Interpretation and preparation of aerial photographs.	
Geological & radiometric survey.	
Sampling and chemical analysis of samples.	
Salaries & Wages:	A.$2,341.00
Senior Geologist	
Field Assistant	
Driver	
Cook	
Logistics:	A.$ 389.00
Food & fuel supply.	
Telephone, telegrams & postage.	
Vehicle Repair & maintenance.	
Hire of 4 wheel drive vehicle.	
Report Cost:	A.$ 18.00
Depreciation:	A.$ 22.00
Total:	A.$3,124.00



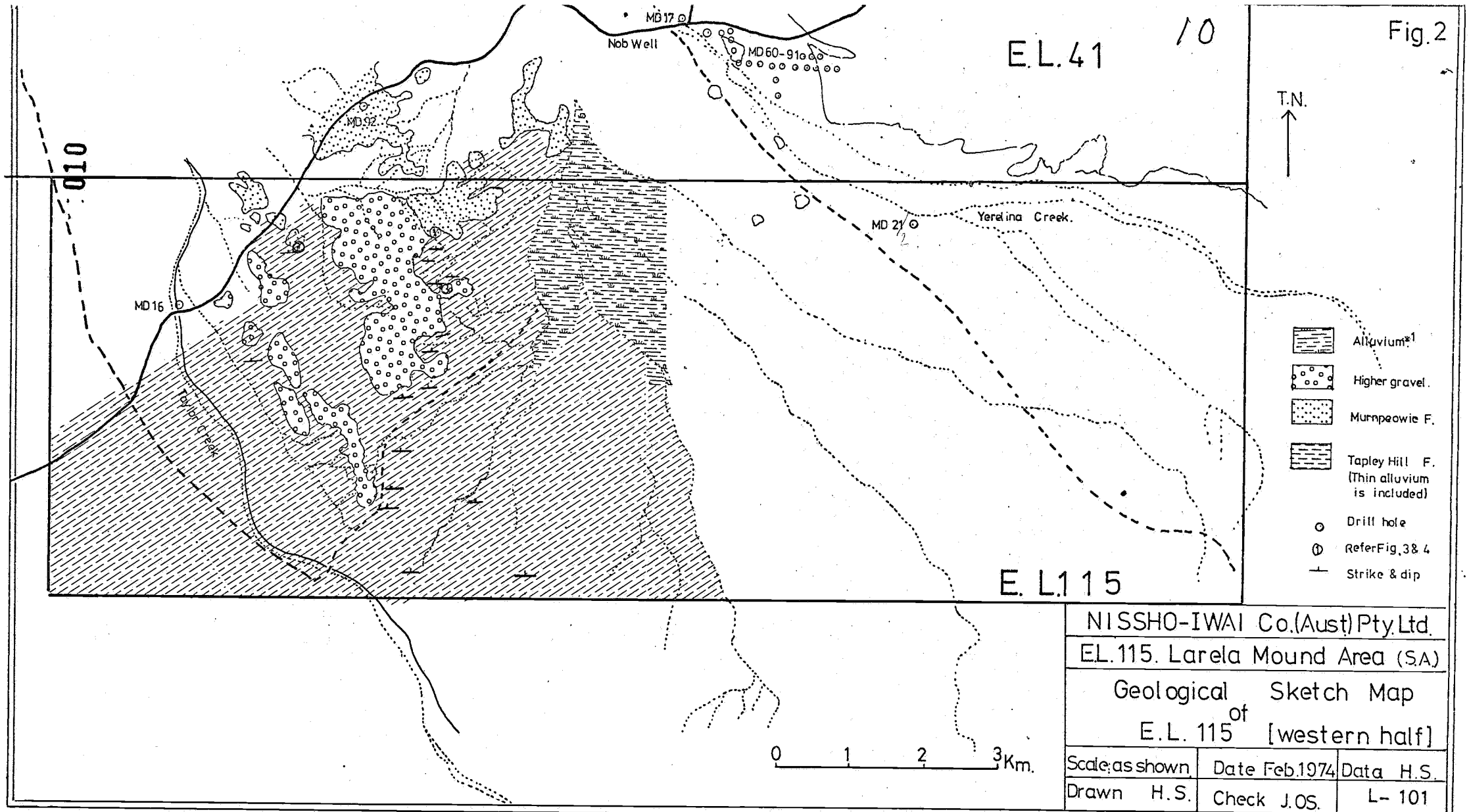
NISSHO-IWAI Co.(Aust) Pty. Ltd.

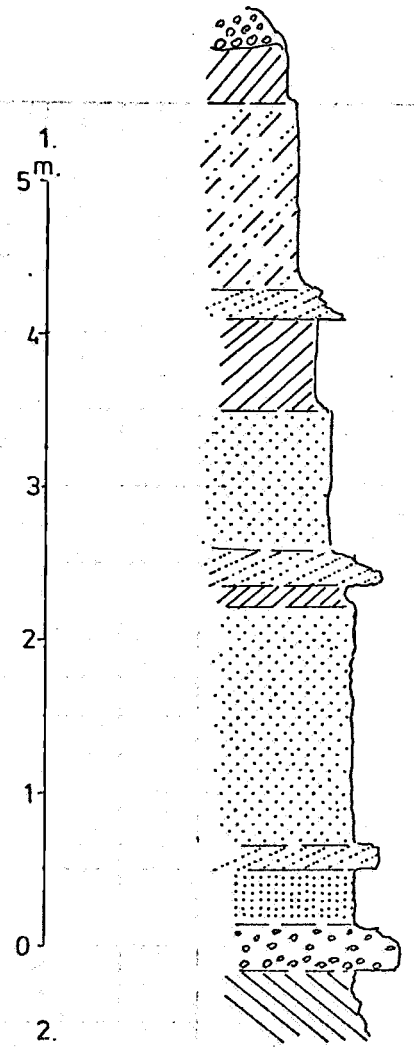
E.L. 115 Lar ela Mound Area

Locality Map of Larela Mound

Scale as shown Date Feb. 1974

Drawn by Y.T. Plan No. L-101


E.L.41
10
Fig.2
T.N.
MD17
Nob Well
MD60-91
MD92
MD16
MD21
Yerelina Creek
Tapley Creek
010
E.L115
Alluvium*1
Higher gravel.
Murnpeowie F.
Tapley Hill F.
(Thin alluvium is included)
Drill hole
ReferFig,3&4
Strike & dip
0 1 2 3Km.
NISSHO-IWAI Co.(Aust) Pty.Ltd.
E.L.115. Larela Mound Area (S.A)
Geological Sketch Map of E.L. 115 [western half]
Scale as shown
Date Feb.1974
Data H.S.
Drawn H.S.
Check J.OS.
L-101



Higher gravel calcreted Slate, quartz s.s. illsorting

Clay stone yellow ochre

Clayey s.s. whitgrey to yellow ochre

Hard feldspathic. fine s.s. gypsum veinlet.

Siltstone yellow ochre. laminated. 285 5/1

Qaurtz s.s.
fine, white, loose.

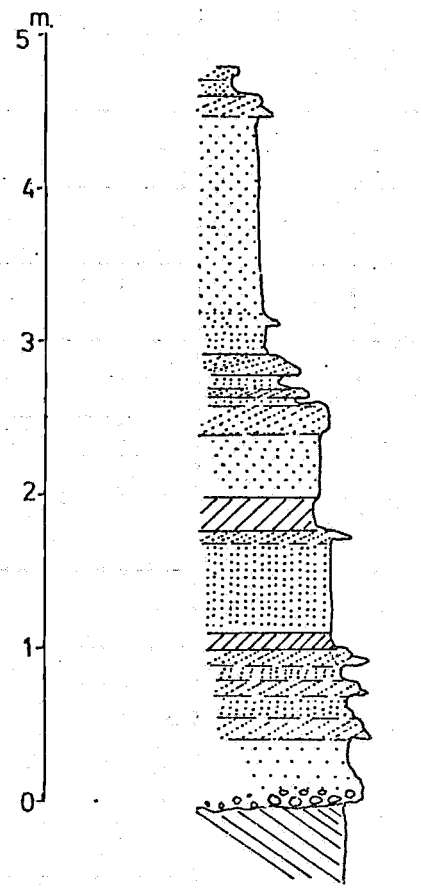
Hard siliceous ss
Kaolinic clay white.

Quartz sandstone fine, whitegrey partly limonitized.
loose nocementing matter.

Hard siliceous s.s.
Feldspathic S.S. fine grained

Pebble conglo quartz pebble 90% + shale, quartz s.s.

Siltstone palegrey. shaly.



Calcareous fine sandstone. hard

Quartz s.s. well sorted, loose,
fine sandstone, white,

Siliceous s.s. fine, whitegrey

Quartz sandstone whitegrey, fine

Siltstone lightbrown
Hard s.s.
Feldspathic fine sandstone

Siltstone creamyellow
Siliceous (?) hard sandstone

Fine quartz sandstone
Pebble-granule conglomerate (quartz pebble only).
Siltstone whitegrey

Fig 3 Sketch of representative outcrops

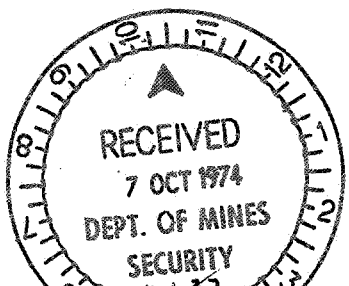
EXPIRY REPORT

012

OF

EXPLORATION LICENCE NO. 115

LARELA MOUND AREA



CONTENTS

ILLUSTRATION

INTRODUCTION [redacted]014

The exploration Licence No.115 consists of 89 square kilometre as described in a letter from the Department of Mines. E.L.115 is bounded by the following four points starting at a point being the intersection of latitude 30 02'South and longitude 139 05'East, then south to latitude 30 05'S, west to longitude 138 55'E, north to latitude 30 02'S and east to point commencement.

Area of E.L.115 was originally belonged to S.M.L.660, where was granted to the company on January 13, 1972 for a period of 1 year.

In accordance with the mining regulations, the company applied the extention of most of the area of S.M.L.660 except northern and southern boundaryzone about two month before expiry of the lease. Western half of southern boundaryzone became E.L.41. In S.M.L.660, end of December 1972, at that time application of extention has been submitted, carnotite was discovered at 3 outcrops along the Yerelina Creek near Nob Well where was located close to the southern boundary of reduced exploration area. After the granting of E.L.41, formerly S.M.L.660 investigation of secondary uranium deposits were concentrated around Nob Well in first half of second year.

As a results of investigation, the new uranium-vanadium minerals were found at various points in the E.L. After that it was found that extensive research should be performed to outward of E.L.41 especially to the south and southwest of E.L.41. The company decided to reapply the area formerly surrendered. Newly applied area was granted on December 1973 for 1 year period and preliminary survey was commenced in January and February 1974.

The activity of survey was reported in first quarterly report dated March 10, 1974.

Brief Explanation of Stratigraphy

1. Tapley Hill Formation and Marree Formation

Tapley Hill Formation is extensively distributed in central and southern parts of the E.L.. Lithology of the Tapley Hill Formation is yellow, flaggy siltstone with thin arkose sandstone and quartz breccia bearing sandstone. The formation extends E-W direction and dips into south about 10-35 degrees. Thickness have not yet confirmed.

Radioactivity of this formation is ranged 10-35 ur/hr. by TCS122 scintillometer.

Marree Formation is preserved under the lower parts of remaining tablelands, hills and mesas in central and northern parts of the E.L.115 Lithology of this formation is heavily bleached, and weathered light grey - white gypseous clay, siltstone and fine sandstone. Go to the downward, colour of these rocks may be changed into limonitized yellowish brown and further deeper it would be changed to its original darkgrey to black colour.

The boundary between Marree Formation and Tapley Hill Formation in this area is very difficult to define because of the similarity of heavily weathered facies of both formations.

The radioactivity of the Marree Formation is 15 μr/hr in average. The thickness of Marree Formation is not defined in this area, but to the northward in E.L.41 thickness would be excess 200 meters.

2. Murnpeowie Formation

This formation is exposed under duricrust of northern parts of the tableland, some of the small mesa and (small) hills on the flood plain. The formation consists of conglomerate containing polished pebbles of quartz, fine to medium quartz sandstone, siltstone and claystone.

The formation is only occupied in very small portion of northeastern and northwestern corner. Though this formation is widely distributed within southern part of E.L.41, where is bordered on the south by E.L.115, in the area the formation is distributed only remained marginal part.

By interpretation of aerophotograph, it was initially believed that this formation would be distributed under duricrust of whole tableland, mesa and hills as a southern extention of E.L.41. After a preliminary field trip, however, (it was found that the distribution of) the Formation was only remaining at northern part of the E.L. At northeastern corner of the E.L. anticipated distribution of sandstone Murnpeowie F was found to be claystone Marree Formation, because of difficulty of distinguish from sandstone to claystone by interpretation of aerophotograph.

Carnotite was recognized just north of northern boundary of E.L.115(outcrops and costean No.3). Lithology of carnotite bearing zone in costean No.3 is as follows.

Unconformably overlying Marree Formation, thin quartz pebble conglomerate (10-20 cm in thickness), arkose or quartzone sandstone (coarse to medium grained) with significant cross bedding, and intercalating thin hard cemented

quartz sandstone are occurred on basal part of Murnpeowie Formation. This Formation is slightly dipping to north against steep south dipping of Marree Formation.

There are some difference between carnotite bearing sandstone of E.L.41 and that of E.L.115.

1. grain size: Sandstone grain of clifs at northern margin of E.L.115 is finer than that of costean area of E.L.41.
2. Clay mineral contents: Contents of clay minerals in sandstone of Murnpeowie F. in E.L.115 is higher than that of costean area in E.L.41, and
3. Manganese minerals: No manganese minerals were found at any place in E.L.115.

New vanadium-uranium mineral was reported at 184278 on National Map Grid Reference, east of Kite Dam northwest corner of E.L.115, but it could not recognized another localities even under cautious investigation in and outside of E.L.115.

Chemical Analysis of Samples

Samples were collected at cliff of southern margin of Murnpeowie formation's tableland. List of rocks, radio-activity and results of chemical analysis of uranium and thorium are shown below.

Due to the analysis, contents of uranium in rocks are shown very low figures around lower detection limits. Contents of thorium on the other hand showed several times higher figures than uranium, especially content in conglomerates were shown higher values.

Table I

	U ppm	Th ppm	rock units	radioactivity μr/hr.
MD-0011	6	22	silstone of Marree F.	15
12	6	26	sandstone and conglomerate *1	10
13	4	14	siltstone of Marree F.	15
14	6	32	conglomerate *1	15
15	4	10	siltstone of Marree F.	15
16	4	16	conglomerate*1	10
17	4	4	siltstone	7
18	4	6	felspathic sandstone*1	7
19	6	28	siltstone, Marree F.	15
20	4	6	sandstone, conglomerate*1	7
21	10	26	siltstone of Marree F.	25
22	4	6	sandstone*1	10

these rocks are belonged to Murnpeowie F.

CONCLUSION

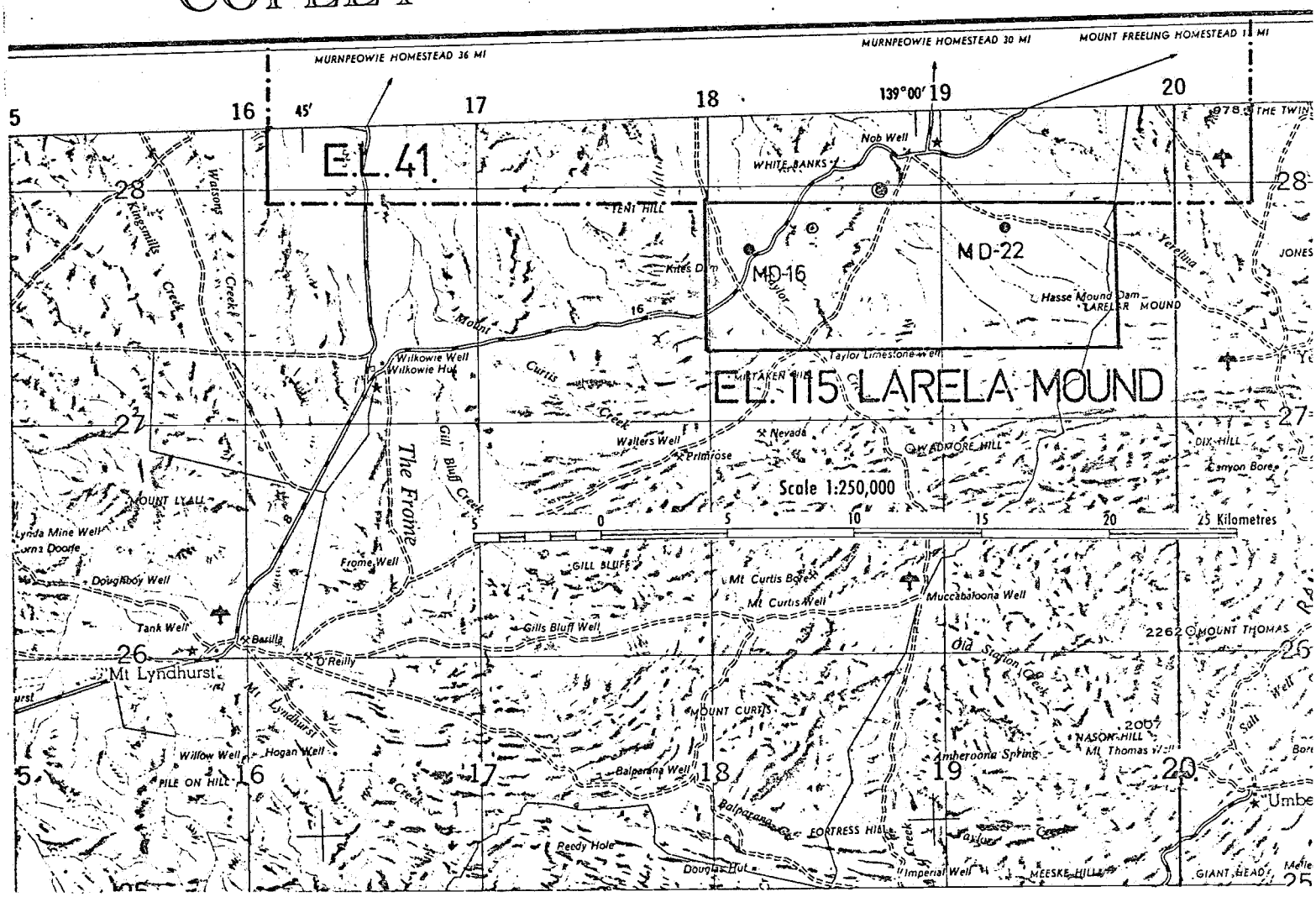
The following became clear after the investigation,

1. The Murnpeowie Formation, which was the most expected formation for uranium ore deposits, has been distributed to only very small portion of E.L.115. No favourable condition of uranium ore deposits exists in E.L.115. ie; carbonaceous matter, grain size, permeability, oxidized condition, etc.....
2. Concerning of Marree Formation, which was formerly target of uranium exploration within E.L.41, was unsuitable for uranium ore deposits, ie; finer grain size of rocks, heavily oxidized and weathered condition of strata.....

Accordingly it is not worthy to held the E.L.115 after surrender of principal Exploration Licence No.41.

COPLEY

EDITION 1 - DNM



⊙ Occurrence of uranium mineral.
● Drill hole (during 1972)
◉ Outcrop & costean No. 3

NISSHO-IWAI Co.(Aust.)Pty. Ltd		
E.L.115 LARELA MOUND		
Locality Map of E.L.115		
SOUTH AUSTRALIA		
scale: as shown		DATE: JUN. '7
drawn H.S.	check J.OS.	Plan No. 002

EL. 115

FINAL STATEMENT OF

EXPLORATION EXPENDITURE

Geological costs:	A.$ 354.00
Salaries & Wages:	2,341.00
Logistics:	389.00
Report Cost:	18.00
Depreciation:	22.00
Final Total:	A.$ 3,124.00