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EXPLORATION LICENCE 15/87 - TAKONE

FINAL REPORT

on behalf of

AUREOLE RESOURCES PTY. LTD.

AND

WINSTON RESOURCES PTY. LTD.

J.K. DAVIDSON

V. HOFTO

August 1988

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TENEMENT INFORMATION

EL 15/87 is a 243 km^2 tenement in the Takone area, NW Tasmania (Figure 1). The licence was granted on 20 September 1987 for a licence year covering the period 24 September 1987 to 23 September 1988.

The licence is owned by Aureole Resources Pty. Ltd. and Winston Resources Pty. Ltd.

EXPLORATION PHILOSOPHY

The Late Carboniferous unconformity marks a major erosional event in Tasmania. The west coast Mt Read Volcanic mineral belt was substantially denuded. A play exists therefore to test sedimentary mechanisms which might concentrate economic minerals in younger rocks.

There has been a long history of gold occurrences in the Arthur, Hellyer, Calder and Inglis Rivers, reported by various authors. Alluvial gold undoubtedly exists in sub-basaltic Tertiary sediments and Recent river deposits, and has been suspected from Lower Permian glacio-marine and glacio-fluvial sediments.

Aureole and Winston wanted to test the idea that economic gold has been concentrated in certain facies in Late Carboniferous/Early Permian glacio-fluvial tillites, and in particular in tidal flat environments now represented by the Tasmanite oil shale and equivalents. Recent work on the Colorado oil shale province has suggested very large, very rich concentrations of gold, platinum and base metals in these environments. The companies recognise that the Tasmanian oil shale is a cold rather than warm water deposit, and that it represents a marginal marine rather than lacustrine facies. Neverthless, although it has been extensively drilled and organically assayed, there are no available data on precious metal contents and the prospectivity of these rocks remains untested.

SUMMARY OF WORK COMPLETED

Further exploration for precious metals in the Colorado oil shale showed the metals to be in too low a concentration to be economic. The concept of concentrations of gold and PGMs in organic rich sediments is well known but it probably takes a period of metamorphism to remobilise the metals and deposit them in economically viable veins or porous zones. Possibly the Mathinna Group represents this type of play. Certainly the organic rich units on top of the Wynyard Tillite may contain small amounts of gold and PGMs but the play was abandoned. Rather, the tillite section was considered a play.

Figure 1. Location Map - EL 15/87, Takone.

Late in 1987 it was decided to undertake a study of the distribution of glacially derived conglomerates on EL 15/87. This decision was based on : -

(a) that gold had been recovered on ELs 24 & 41/86 from conglomeratic deposits formed by present marine erosion of the Wynyard Tillite conglomeratic sequences.

(b) gold had been reported on ELs 15 & 16/87 in rivers which drain only mapped Wynyard Tillite.

The literature indicated that in the Late Carboniferous ice moved in a generally northeasterly direction from the Zeehan area to Wynyard. The eroded material must therefore contain considerable volumes of Cambrian Mount Read Volcanics and Late Precambrian carbonates both of which are known to host gold in several parts of the western half of the state. At the leading edge of the glaciers or the edge of the ice-sheet, meltwater may have produced glacio-fluvial deposits rich in minerals such as gold, with the finer materials being transported in a northeasterly direction to a distant location.

It was assumed that a good picture of the palaeogeography of the ice masses and the environs was required in order to assess the stratigraphic distribution of the more significant conglomeratic zones.

REGIONAL SURVEYS

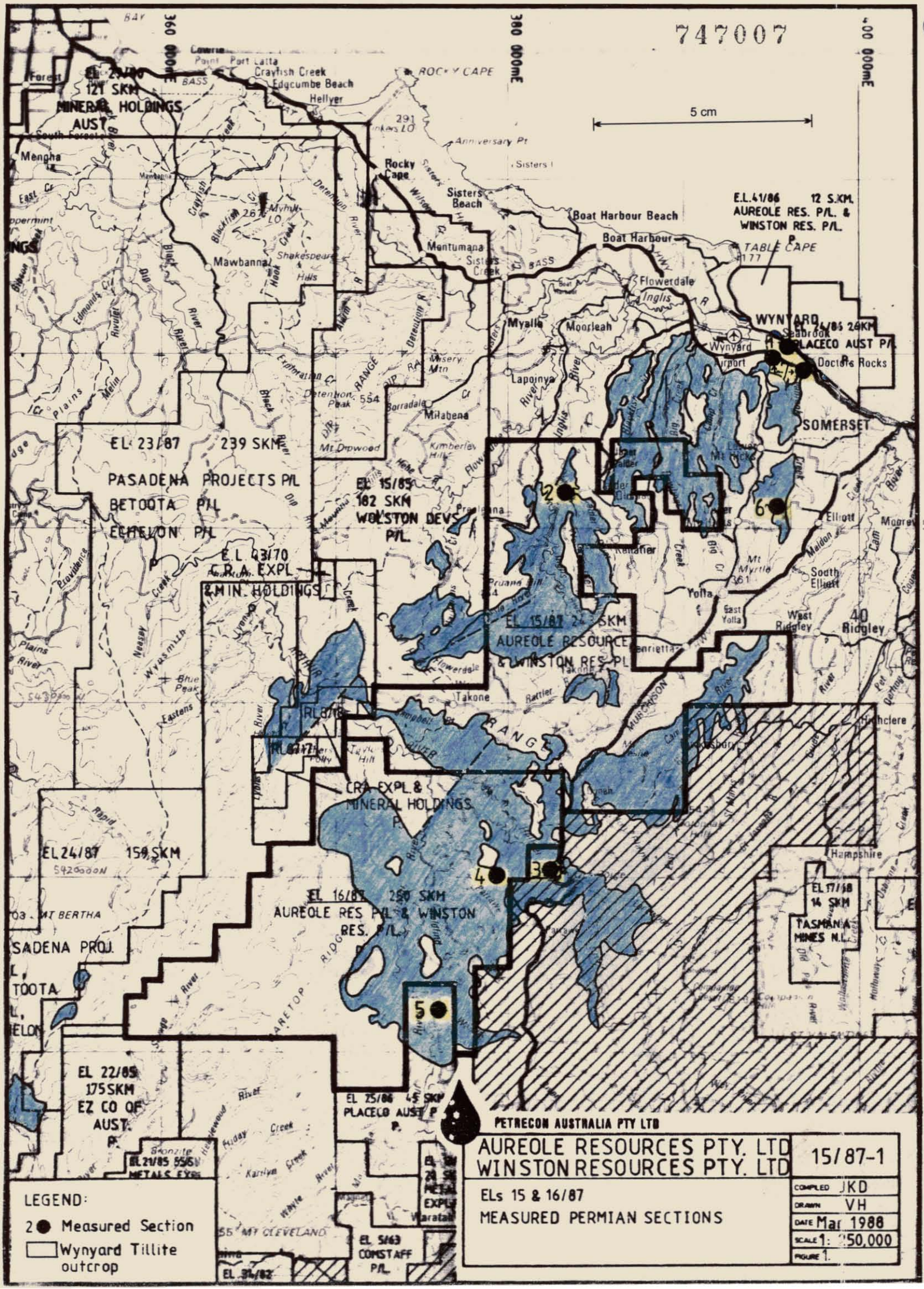
Dr M.R. Banks of the Geology Department, University of Tasmania, was approached. He felt that the project was ideal for a geology honours student. Mr Stephen Hand, a 1987 Geology III graduate, elected to undertake the project and his thesis is to be entitled *Palaeogeographic History of the Wynyard Tillite.* Mr Hand spent six weeks in the field from mid-January to early March 1988. He measured five sections, each in excess of two hundred metres, and visited several other localities. He has undertaken environmental studies, current direction studies of the conglomerates and clast orientation analyses of the tillites on the Doctors Rocks to Wynyard foreshore. He has also performed the latter analyses at other stations inland to the southwest.

* Thesis held in Geol. Dept. Library

The following localities shown on the accompanying map (Figure 2) were examined by Mr Hand in detail and to a lesser degree by Dr M.R. Banks and Mr J.K. Davidson : -

1. An approximate 400 metre section from Doctors Rocks to Wynyard comprised tillite, conglomerate derived from tillite and relatively minor fine-grained rhythmites. The base (or possible wall) of the Wynyard Tillite was seen to rest on Precambrian quartzites to the east and unconformably underlie Miocene clastics to the west.

2. An approximate 200 metre section of about equal proportions of tillite and rhythmite, two to four kilometres southwest of Calder.


747007
360 000mE
380 000mE
400 000mE
5 cm
EL 29/86
121 SKM
MINERAL HOLDINGS AUST
EL 41/86 12 S.KM.
AUREOLE RES. P/L. &
WINSTON RES. P/L.
EL 23/87 239 SKM
PASADENA PROJECTS P/L
BETOOTA P/L
ELHELON P/L
EL 43/70
C.R.A. EXPL
& MIN. HOLDINGS
EL 15/85
182 SKM
WOLSTON DEVS
P/L.
EL 15/87 24 SKM
AUREOLE RESOURCE
& WINSTON RES. P/L
CRA EXPL. &
MINERAL HOLDINGS
P/L
EL 24/87 159 SKM
EL 16/87 280 SKM
AUREOLE RES P/L & WINSTON
RES. P/L.
EL 17/88
14 SKM
TASMANIA
MINES N.L.
EL 22/85
175SKM
EZ CO OF
AUST.
P/L
EL 25/86 45 SKM
PLACECO AUST P/L
EL 24/85 24KM
PLACECO AUST P/L
WYNYARD
SOMERSET
Rocky Cape
Sisters Beach
Boat Harbour Beach
Boat Harbour
TABLE CAPE
Mawbanna
Montumana
Myalla
Moorleah
Flowerdale
Lapoinya
Milabena
Takone
Yolla
Elliott
Ridgley
Hampshire
Wynyard Airport
Doctors Rocks
Seabrook
Detention Peak 554
Mt Myrtle 361
Mt Dipwood
Mt Misery
Mt Cleveland
5440
54300
54200
LEGEND:
2 Measured Section
Wynyard Tillite outcrop
PETRECON AUSTRALIA PTY LTD
AUREOLE RESOURCES PTY. LTD
WINSTON RESOURCES PTY. LTD
15/87-1
ELs 15 & 16/87
MEASURED PERMIAN SECTIONS
COMPILED JKD
DRAWN VH
DATE Mar 1988
SCALE 1: 250,000
FIGURE 1.

3. An approximate 400 metre section of tillite and subordinate rhythmite in Hellyer Gorge.

4. The Blackwell Road section west of Hellyer Gorge is similar in thickness and composition to the Hellyer section with minor units of poorly sorted sandstone and very minor conglomerates.

5. The most southerly measured section is on the Wandle Road. It is in excess of 200 metres thick and is again dominantly tillite and rhythmite possibly resting unconformably on Cambrian metasediments.

6. Scattered outcrops were visited west of Elliot and were mainly rhythmites.

7. Two roadcuts two to three kilometres south of Wynyard of mainly poorly sorted sands, tillite and minor rhythmites. If the sandstones are a facies change from the galcio-fluvial conglomerates on the Wynyard foreshore, then this suggests an east-west to northwest-southeast strike to the facies change and a northerly source for the tillites.

The details of the stratigraphic sections, clast orientation measurements and the detailed environmental interpretation of the Wynyard conglomerates will appear in Mr Hand's thesis and it is inappropriate to speculate on his final interpretations which are some months away, possibly December. It suffices here to say that while there is probably minor gold in the tillites it does not afford an exploration target of the interest of fluvially winnowed tillites which produced conglomerates and concentrated heavy minerals and gold on the Wynyard foreshore.

CONCLUSIONS & RECOMMENDATIONS

The overwhelming conclusion from an exploration point of view is that the only fluvio-glacial conglomerates are on the Doctors Rocks/Wynyard foreshore and EL 15/87 is typified by two basic rock types; tillite and fine-grained rhythmites. Winnowing of the tillites to form potentially gold-richer conglomerates has not occurred on the EL so it is being relinquished.

The stratigraphic sections which support the relinquishment will be found in Mr Hand's Honours Thesis which should be available in December. It is anticipated that the suprising lack of conglomerates in the onshore Wynyard Tillite will encourage Mr Hand to speculate on the palaeogeography in the Late Carboniferous. This should assist other explorers in evaluating lag deposits on major unconformities.