000

76-1175

449001

PART OF E.L. 2/70

PROGRESS REPORT

EXPLORATION LICENCE ~~5/74~~,

MAYDAY CREEK

for six months ending May 30, 1976

76-1175

G. Boyle

COMINCO EXPLORATION PTY. LTD.

June, 1976.

1. SUMMARY

A stream and road geological mapping programme was carried out in the northern portion of the Mayday Creek Exploration Licence 5/74, to evaluate the potential of this area.

The area is almost entirely underlain by Tertiary basalt. A sequence of micaceous greywacke and minor siltstone overlain by rhyolitic to dacitic tuffs and lavas is exposed in the extreme east of the licence along the Leven River valley. Minor Ordovician conglomerate was located in the southern portion of the licence.

Regional studies, assisted by the Cambrian outcrops located, indicate that the licence may cover ground of interest. The applicability of geophysical techniques to aid in definition of basalt thickness will be considered, together with possible contingent short hole drilling for stratigraphy.

2. INTRODUCTION

a) History

The property history was described by Rabone, in Cominco Exploration's Progress Report on Exploration Licence 5/74, Mayday Creek, Tasmania, for period ending May 30, 1975.

b) Ownership

Exploration Licence 5/74, Mayday Creek, was granted in May, 1974 and is held by Cominco Exploration Pty. Ltd. on behalf of the Abex joint venture. Paringa Mining and Exploration Company Limited has a 20% interest. The E.L. expires on May 30, 1976 and is renewable at six monthly intervals.

c) Location

The approximate centre of the area investigated is at 41°30'S, 145°45'E. The licence is located in the central north west of Tasmania, approximately 10km south east of Guilford. E.L. 5/74 covers an area of 148 sq. km and lies between E.L.'s 15/73 and 10/74, held by Cominco Exploration Pty. Ltd. and Union Oil Development Corp. respectively.

d) Previous Exploration

Early 1970's: Paringa reconnaissance stream geochemistry in the Romulus Pup area.

1972: CEPL airborne EM survey over northern and western sections of the area when held as E.L. 2/70.

1975: Geological mapping and follow up stream geochemistry in the Romulus Pup area. Airborne EM survey over part of the southern portion of E.L. 5/74.

e) Objectives

The objective of the present programme was to map and interpret the geology of the E.L. in order to evaluate its potential for Que River type ore bodies. In particular, this requires the identification of altered andesitic and dacitic pyroclastics.

3. EXPLORATION

A programme of geological mapping of streams and roads in the area was carried out in March and April, 1976 followed by some regional interpretation based on published and unpublished data. CEPL 1:25,000 scale aerial photographs were used for locating outcrop geology. Field mapping was supplemented by thin sections of the fine grained, less readily identified rock types; petrological descriptions are appended.

4. GEOLOGY

The Tertiary basalt cover is inferred to be at least 80m thick, measured from its base in the Leven River. Since the latter is interpreted as a lateral stream on the east margin of the basalt sheet, thickness of this cover may be substantially greater to the west. However, outcrops of Cambrian rocks are known to occur on the upper slopes of some of the highest hills near the Leven River, so that a highly irregular base to the basalt is probable.

Fact geology is presented on Plate MDC 11. The exposed Cambrian belt appears to strike NNE - SSW dipping generally eastward. The apparent lowest member of the sequence is a section of grey micaceous greywackes with minor grey siltstone. This is overlain by a sequence of

rhyolitic to dacitic tuff, ranging from crystal to lithic tuff in character but generally fine grained. Lithic fragments rarely exceed 0.5cm in size and are typically smaller. The finer tuffs appear to grade into siltstone, and are sometimes cherty. Rare shales have been observed. These, plus the siltstones of the greywacke sequence, are the only bedded rocks. Overlying this fine grained sequence are quartz rhyolite porphyries, probably lavas since flow banding has been observed. No macroscopically visible sulphides were observed in any rocks.

An inlier of Ordovician conglomerate was located in the southern portion of the area investigated; no dips could be obtained. The aerial extent of this Ordovician is unknown, requiring traverses over an area of difficult access and low relief.

The east dipping Cambrian sediments and tuffs parallel the attitude of the Ordovician sediments at Mt. Cattley. Examination of Ordovician structures reveals a series of broad folds or domes and troughs. Of significance is a domal feature with the northern closure near the "Hummocks" and a southern closure (?) at the watershed of the Medway and Southwell Rivers. This dome is on 'strike' from a similar structure in Cambrian volcanics at Que River - Mt. Charter.

Although there is evidence in the Que River - Mt. Charter area demonstrating a more severe style of folding in the Cambrian, there appears to be a crude similarity in structures between Cambrian and Ordovician rocks.

Published information supports this view with folding occurring in the Cambrian being accentuated by folding during the Tabberabberan Orogeny of the Devonian. These two episodes were characterised by broad folds with axes trending north to north-east. A later Tabberabberan folding episode imprinted a series of north-west trending folds.

Since the Leven River Cambrian sandstones and siltstones are similar to sediments overlying the andesitic pyroclastics of Que River, it is possible that favourable andesites may occur beneath the Tertiary basalt west of the Leven River.

5. GEOPHYSICS

An earlier report (Webster, 1975) concerning the results of an airborne electromagnetic survey, flown in 1975, indicated that two anomalies of interest occurred within E.L. 5/74 and that ground follow-up would be undertaken during the report period. Two attempts were made to locate these anomalies, via ground e.m. traverses, but the results are inconclusive due to equipment malfunction on one occasion, and adverse conditions on the other attempt. Survey lines have been cut and pegged in the assumed areas of interest, but full assessment awaits confirmation of location by geophysical measurements. This work is deferred until more suitable weather conditions prevail.

6. FINANCE

During the six months ended May 30, 1976, the following amounts were expended on exploration of Exploration Licence 5/74:

Geology	$2,890
Survey	181
Geophysics	635
Geochemistry	87
Tenure	176
	$3,969

7. CONCLUSIONS AND RECOMMENDATIONS

It is concluded that any prospective altered andesitic volcanics in the Leven River - Medway River area are obscured by Tertiary basalt and possibly by later Cambrian sediments.

Exploration techniques which can identify the base of the Tertiary basalt are required. Accordingly, electrical and seismic geophysical techniques will be evaluated to ascertain if it is possible to map the base of the Tertiary basalt. If cover is minimal a programme will then be considered to evaluate the basement mineral potential.

Consideration may also be given to diamond drilling for stratigraphic information.

Extended reconnaissance mapping, southwards, is recommended as access through logging activities improves.

8. ATTACHMENTS

Petrological descriptions.

Plate MDC 11 Fact Geology map Scale 1:50,000

9. REFERENCES

Rabone, G. 1975 Progress Report on E.L. 5/74, Mayday Creek, for period ending May 30, 1975. Cominco Exploration unpublished report.

Williams, E. and Turner, N.L. Geological Survey Explanatory Report, Geological Atlas 1:250,000 Series, Sheet No. SK 5513: Burnie.

Tasmanian Dept. of Mines Geological Atlas 1:250,000 Series: Burnie sheet, and 1" to 1 mile Mackintosh sheet.

Webster, S.S. 1975 Airborne Geophysical Survey of E.L. 5/74, E.L. 2/70, E.L. 15/73. Cominco Exploration unpublished report.

Submitted by: G.O. Boyle per

G.O. Boyle
Geologist.

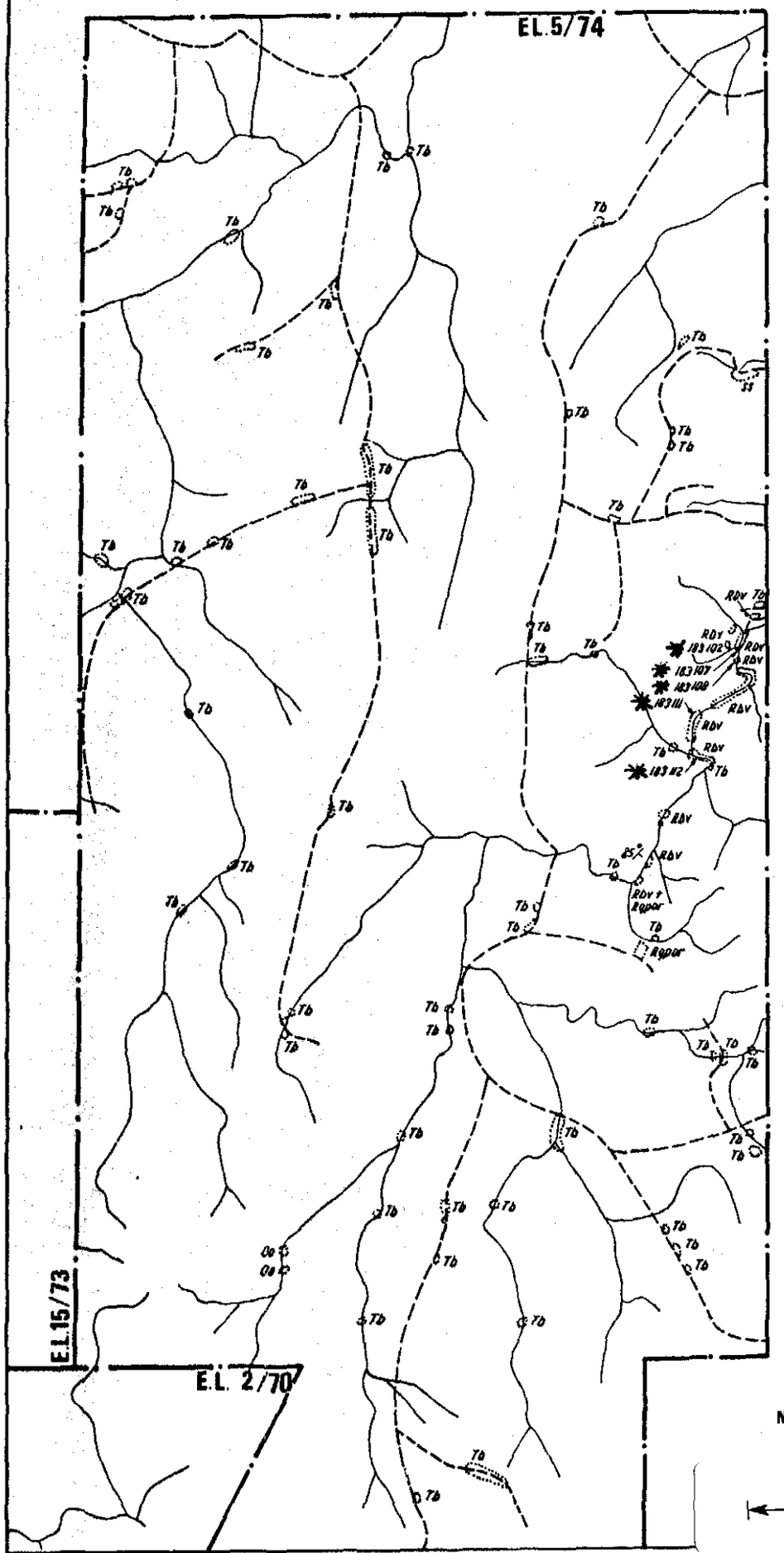
Endorsed by:

L.V. Gentle
Chief Geologist.

GOB:KMW
9/6/76.

006

449007



LEGEND

183112	Rock Description No.
	Road
	Stream
	E.L. Boundary
Tb	Tertiary Basalt
Oo	Ordovician Conglomerate
Rqpor	Rhyolite Quartz Porphyry
RDv	Rhyolite - Dacite Composition Tuffs
ss	Micaceous Greywacke

NOTE: FIELD MAPPING DURING SUMMER SEASON 1976.

5 cm

COMINCO EXPLORATION PTY. LTD.

Drawn G.O.B.	NORTH WEST TASMANIA	Location code
Traced E.D.	DUNDAS TROUGH	Scale 1: 50000
Checked	MAYDAY E.L. 5/74	Date June 1976
Revised Date	SURFACE OUTCROP GEOLOGY	Plate No. MDC II

APPENDIX

to

MAYDAY CREEK PROGRESS REPORT -

PETROLOGICAL DESCRIPTIONS

008

449009

183102: mass of ultra fine quartz and illite (?altered potassic glass)

Field comment : massive white siltstone

This is a massive, extremely fine grained, white rock, quite homogeneous, apparently bleached and/or leached. The stained offcut indicates that it is strongly potassic.

In thin section it is also seen to consist of a homogeneous mass of ultra fine "clay-like" material, and probable quartz too fine to positively resolve under the microscope.

Accessory silt-size quartz grains are dispersed. Ultra fine, clouded grains of high relief almost certainly have a leucoxenitic composition. These are dispersed through the "clay" and locally outline a vague, relict, spherulitic texture. There is no evidence of bedding.

An irregular patchy segregation defined by variation in concentration of the components listed occurs in the centre of the section.

In an effort to define this interpretation the major phase forming this rock was analysed by XRD and found to be quartz and illite. The mode of occurrence of these components, considered in the context of the whole suite, suggests that they may well have derived from a potassic-silicic volcanic glass. There are no relict textures to confirm this however.

183107: devitrified, weakly vesicular, rhyodacitic to rhyolitic volcanic glass; with minor scattered carbonate crystals

Field comment: buff, white-speckled ?dacite

Most of this rock consists of a cryptocrystalline mass of potassic material (indicated largely by staining), intimately admixed with apparently minor to subordinate cryptocrystalline silica. Almost certainly it is devitrified siliceous potassic glass, however there are no relict textures to confirm this.

Minor (7-10%) small patches of carbonate crystals are randomly scattered; these do not appear to replace a pre-existing mineral. Minor (10-12%) equally small patches and/or subrounded grains of spherulitic quartz are also scattered, and these are almost certainly vesicle fillings.

Trace angular, very fine grains (or broken crystals) of quartz and rare plagioclase are also scattered. Trace fine limonite pseudomorphs after carbonate crystals are present.

The rock is interpreted to be a mass of volcanic exhalative siliceous-potassic material, and may best be considered as a devitrified, weakly vesicular, rhyodacitic to rhyolitic volcanic glass.

183108: potash-rich, felspar crystal lithic, vitric tuff or possible glassy tuff lava; extensively devitrified and argillised

Field comment: cream, fine lithic tuff or porphyry

This rock has a fairly homogeneous, argillaceous matrix with fairly abundant, extremely fine shredded sericite indicating a superimposed metamorphism.

Locally the clay alteration products, and/or patchy limonite staining, outline vague relict glass textures, including aggregates of glass shards, microspherulitic and perlitic texture, and pumice texture. The discontinuity of these textures throughout the section suggests that the matrix represents a fused aggregate of lithic glass components, of related origin, i.e. a lithic vitric tuff or possible glassy tuff lava. Staining indicates an essential potassic content.

Minor fine plagioclase crystals and lesser potash felspar crystals are randomly scattered, they are stressed, bent and microfissured, but generally not hydrothermall altered. Only rare traces of fine quartz crystals are present.

The size and mode of occurrence of these felspar crystals is rather more characteristic of a lava rather than a tuff.

The rock is interpreted to be a potash rich, felspar crystal, lithic, vitric tuff or glassy tuff lava extensively devitrified and argillised.

183111: lithic crystal tuff of gross dacitic composition; extensive chloritic alteration of mafic glass fragments, lesser clay-sericite (and potassic) alteration of plagioclase crystals

Field comment : cream and green crystal tuff

This rock consists largely of a random, fairly loosely packed aggregate of mainly felspar and minor quartz crystals, average and fairly consistent size of about 1.3 mm. They are represented as follows:-

subhedral to euhedral plagioclase crystals "veined" by a network of potash felspar, and clouded by clay-sericite alteration patches	30%
angular to subrounded and embayed quartz crystals	10-12%
fragments of fine felspar aggregate	7-10%
fragments of micaceous siltstone	3-5%
apparent fragments of chlorite alteration	3-5%
discontinuous carbonate veins and patches	3-5%

The areas filling between the aggregate (40-50%) consists predominantly of chloritic material in which relict streaky, spherulitic, rare shard and lava textures are poorly preserved. These grade into the chloritic fragments listed above. Almost certainly this material represents altered mafic glass; it may have been deposited as fragments and plastically deformed within the aggregate to form

183111 contd:

essentially an intergranular matrix; or it may represent selective, later chloritic alteration of glass fragments associated with clay-sericite alteration of plagioclase crystals.

Trace fine grains of pyrite are present.

183112: extremely fine vitric tuff, with minor patches of carbonate and carbonated felsic lava

Field comment: massive grey siltstone

This rock consists mainly of a fairly homogeneous mass of clays with minor extremely fine sericite fairly evenly disposed along a vague foliation. Trace fine quartz "silt" is scattered. Thus most of the rock is similar to 183102, however it shows relatively weaker reaction to the potash stain test. Also the rock contains fine dispersed opaque dust, including some minute spheroids which may be oxidised pyrite, and minute ?felspar microlites or possible shards replaced by clays and/or cryptocrystalline silica.

Small (0.08 mm) irregular patches of clouded carbonate, and several aggregates of these, up to 10 mm, locally stained by limonite, are randomly scattered. One such patch contains relict textures of microlitic lava groundmass.

The evidence indicates that this is an extremely fine tuff composed of alteration end products of volcanic glass with minor carbonated volcanic rock fragments.