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95-3742

OPEN FILE

**A compilation of unpublished
reconnaissance mineral
exploration data for the
Cygnet area, undertaken
by BHP**

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95-3742

COMPILATION DATA CYGNET
AREA - BHP - BOTTRILL, R

Compiled by R. Bottrill, 31/08/95

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Report on Reconnaissance

Cygnet Alkaline Intrusive Complex, S.E. Tasmania

Unpublished Report for BHP

Rick Hine, BHP

Hobart, 1979

a. R. Hine

789004

REPORT OF RECONNAISSANCE - CYCLOT ALKALINE
INTRUSIVE COMPLEX, SOUTHERN TASMANIA.

R. Hine

Hobart July 1979.

Introduction:

The Alkaline Intrusive Complex of the Cygnet area has been known since the turn of the century. The present investigation was undertaken to determine whether or not the area offered possibilities for carbonatite type NiFe or Cu mineralization.

Work Completed:

Five days were spent in research, visits to the area, and report presentation. Several rock chip samples have been despatched for assay.

Titles:

The Company has no titles in the area examined, and the main zones of interest are not held by other parties. Much of the area is densely populated for its rural setting, although the zones of interest are generally on wooded, moderately steep hills held under freehold title.

Historical Summary:

- 1881 Thureau noted the occurrence of gold at Lyminster whilst reporting on the coal measures in the Sandfly area.
- 1898-9 Twelvetrees & Petherick presented a paper on "Haunye Trachyte" and allied rocks of the Port Cygnet and Oyster Cove areas.
- 1902 Twelvetrees noted the presence of "Jacupiransite" at Cygnet.
- 1907 " reported the presence of gold at Port Cygnet and Wheatley's Bay.
- 1917 Skersta demonstrated that the alkaline rocks were intrusive into dolerite.
- 1922 Reid made further references to the intrusive relations of the alkaline rocks.
- 1927 Scott made the last report on the Mount Mary gold mine.
- 1947 Edwards described rocks of the Cygnet area in the best account of their petrology to date.
- 1953 Carey proposed that the dolerite was emplaced as a cone-sheet with a vent close to Cygnet; he further suggested that the alkaline rocks were the product of limestone contamination of a dolerite magma.

- 1962 Robertson & Hastie, on the basis of a palaeomagnetic study, concluded the syenite and dolerite were of comparable age.
- 1965 Richards determined K-Ar ages of the syenite in the range 99 to 109 m.y. (Cretaceous); compare with Red Hill dolerite 143-167 m.y.
- 1965 Leaman conducted gravity and magnetic surveys of the area (Hons. thesis) and concluded: 1) that the data supported the presence of a dolerite cone-sheet with asymmetrically developed limbs centred on a vent in the Cygnet area 2) that the alkaline rocks were emplaced separately as a laccolith and dyke swarm through the same conduit.
- 1966 Naqvi studied the geology of the Cygnet Peninsula (Hons. thesis), placing emphasis on the Permian and Triassic sedimentary sequences which were demonstrated to have been domed up over the dolerite cone-sheet.
- 1971 Pochincy Aust (Quilko Mining) carried out a stream sediment sampling programme which delineated Cu anomalies of low order (to 115 ppm) in stream SW of Cygnet township; a wide range of elements were determined by qualitative emission spectrographic analysis - results were not very useful in view of the lack of precision.

Geology - General:

The oldest rocks exposed in the Cygnet area are Permian in age. The sequence is 850m thick, and consists of gently dipping tillite, siltstone, mudstone and sandstone. The Permian rocks are here overlain by 450m of Triassic sandstone. The sedimentary sequence has been intruded by sills and dykes of Jurassic dolerite. Emplacement of the dolerite as a cone-sheet, centred just west of the Cygnet township has domed up the overlying sediments. Radial and concentric faulting about the "vent" area has been demonstrated. During the Cretaceous, a suite of alkaline rocks were emplaced as dykes and a laccolith, the vent of which probably coincided with that of the dolerite cone sheet.

Alkaline Complex:

The main body of syenite porphyry is in the form of a partly unroofed asymmetrical laccolith centred NW of Cygnet. The syenite reaches maximum

development in thickness at Mt. Windsor, near the apex of the dome of sedimentary rocks. The intrusives are of extremely variable composition, and consist generally of large laths of orthoclase or sanidine, plagioclase and rare mafics (biotite, amphibole) in a fine quartzo-feldspathic groundmass. The average porphyry in the area consists of 12% plagioclase, 8% sanidine, 5% hornblende as phenocrysts to 2cm in a quartzo-feldspathic groundmass. Accessories include magnetite, sphene, zircon and apatite.

Dykes are of extremely variable composition: most are syenite porphyries, though haunyne-sanidine-garnet porphyry, sanidine-garnet porphyry, garnet-orthoclase porphyry and sanidine tinguite have been recorded from the area. The alkaline rocks form a coherent, differentiated petrochemical series.

The available geophysical evidence suggests that the bulk of the syenite was emplaced through a feeder and that the complex does not represent a differentiated stock. Carbonate rich rocks of doubtful origin which could be classed as carbonatites have not been located in the area.

At Regatta Pt. south of Cymet, the dolerite-syenite contact is marked by a complex zone of so-called "hybrid" rocks, presumably formed by the partial assimilation of dolerite fragments in the felsic syenite magma. Biotite alteration, in the form of coarse selvages to dykes or fine stringers, is strongly developed in this area. Two generations of late-stage magmatism represented by dyke swarms of differing composition were noted. The geology is consistent with the interpretation that this region is close to the conduit occupied by first, the dolerite, and second, the syenite.

Mineralization:

The only metal of note concentrated in the Cymet area is gold. Lode mines were first established at Cymet in 1898 and mining apparently continued to 1927. Production reports have not been sighted.

Mt. Mary Mine:

- located 1km SE of Cymet township;
- the workings extend over an area of approx. 450m x 60m and consist of 10 shafts, 2 drives and several trenches;
- the main shaft was 60m deep: all workings have now collapsed;
- the country rocks are Permian tillites intruded by syenite porphyry dykes;

- mineralization consists of disseminated and thin stringers of pyrite in tillite and porphyry with some Au bearing quartz veins a few inches to several feet in thickness; quartz is not evident on the surface; Au was also present in iron rich, brecciated rocks close to intrusive contacts;
- workings in the form of pits and diggings extend along a ridge SW of the mine for over 1km; rocks here consist of syenite porphyry, intrusive breccia and siliceous rocks of unknown origin, all carrying disseminated pyrite and pyrite stringers associated with chlorite and biotite alteration;
- Twelvemass notes analyses of rocks from this area going 4dwt/ton (~6ppm);
- if Au is present in the intrusive rocks to the SW of the mine it is most likely associated with the disseminated and veinlet controlled pyrite and as such, could offer a large tonnage potential.

Livingston Mine:

- located 3km NE of Cygnet on the NE side of Livingston Hill;
- a 20m shaft was sunk in 1890 on quartz veins in syenite porphyry near its contact with mudstone;
- minor arsenopyrite, pyrite, chalcopyrite and galena were associated with the Au which was reported in 1890 at concentrations of 3 ozs and 1½ ozs/ton;
- a 120m tunnel driven to intersect the lode 20m below the shaft apparently did not reach its target;
- this mine was not visited during this evaluation.

Regatta Point:

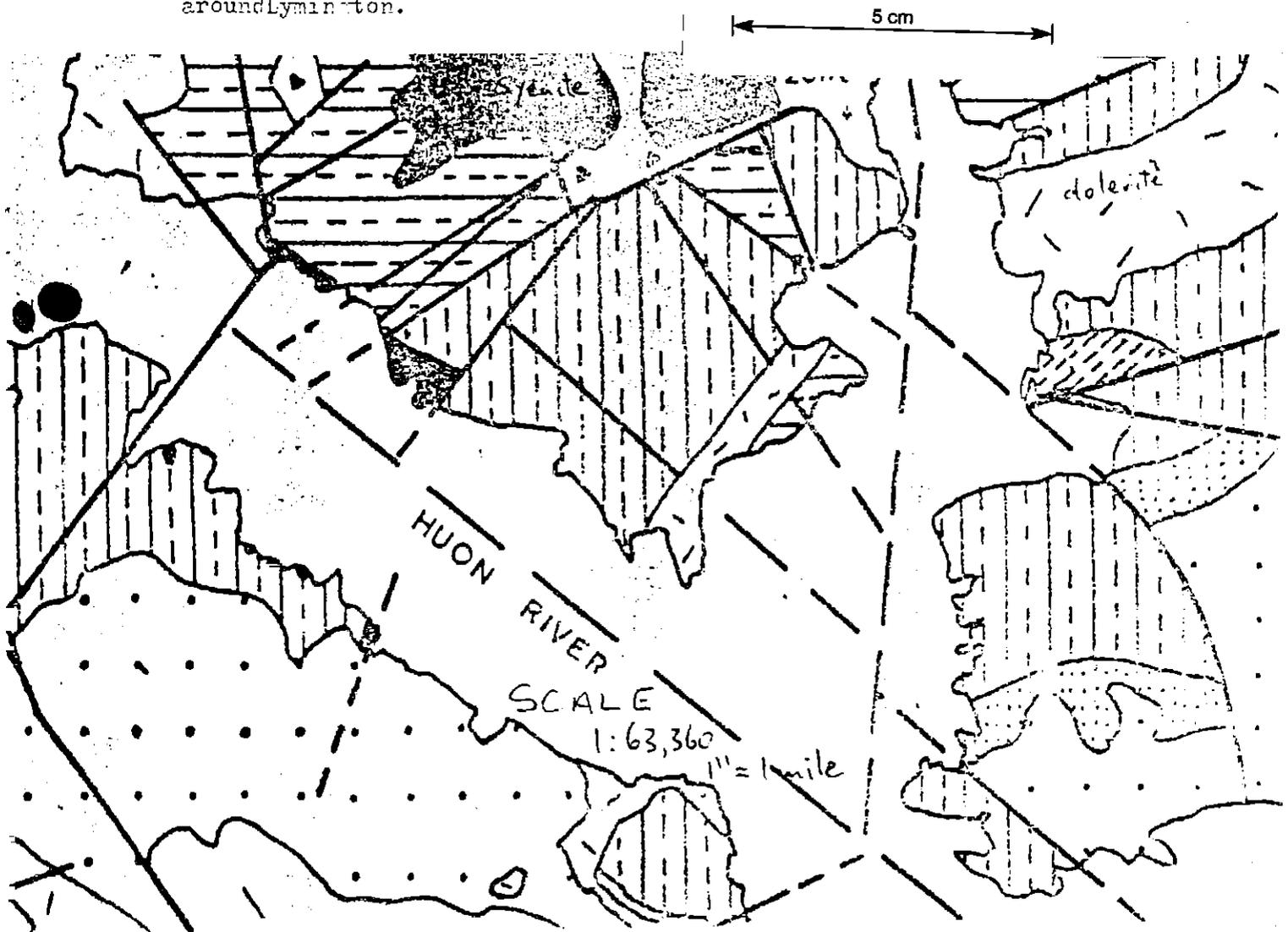
- disseminated pyrite and pyrrhotite were noted in syenite porphyry in this area;
- there are reports that gold has been sighted in syenite in this area; the gold may have been mistaken for chalcopyrite which occurs in minute quantities in some rocks;
- the sulphide mineralization is in the form of disseminated grains, fine stringers blebs and is associated with biotite, feldspar alteration and silicification;

Gardener's Bay:

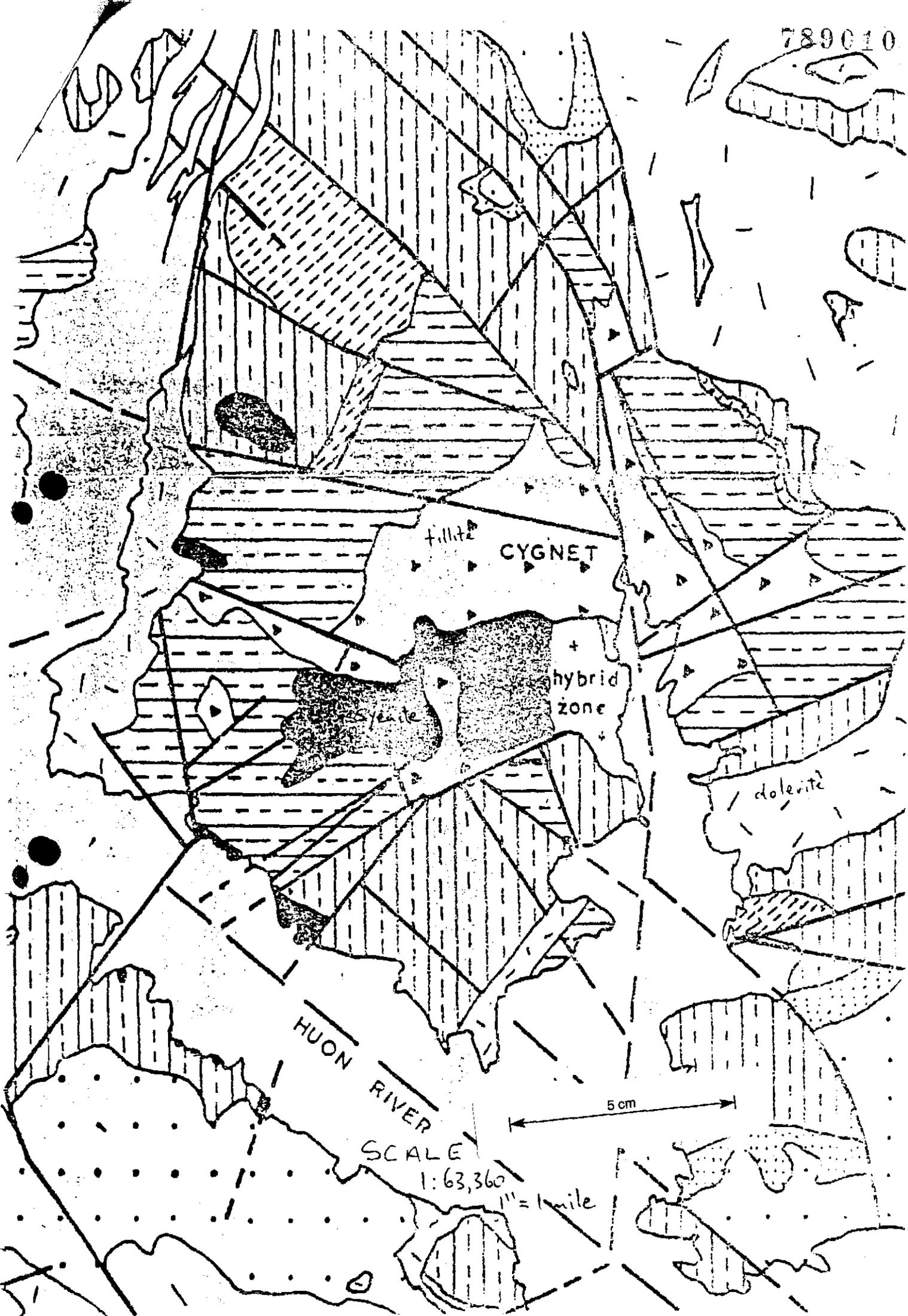
- blebs of pyrrhotite and stringers bearing pyrrhotite were noted in a road cut 1km north of Gardner's Bay;
- the host rock is a dark grey green chert cut by veinlets (to 100/m) with bleached envelopes which occasionally develop into larger blebs of pyrrhotite with round, bleached haloes;
- tourmaline and possibly wolastonite were noted in some of the blebs;
- the cherty zone passes laterally into unaltered Permian tillite to the south;
- deeply weathered syenite dykes are present in this area

Lyminston Mine Area:

- 1km west of Lyminston;
- a minor occurrence of sulphide in a silicified mudstone; mineralization is in the form of disseminated pyrite with minor galena and chalcocopyrite, reported by the previous workers;
- no sulphides other than pyrite were seen during this inspection; copper staining was not noted;
- 3000 ozs of gold were reported to have been produced from the flats around Lyminston.



789010



CYGNET

hybrid zone

dolerite

HUON RIVER

5 cm

SCALE
1:63,360
1" = 1 mile

7890115

Hill - Port Cygnet

syenite

dolerite

hybrid

PORT CYGNET

tillite

S HILL

MT MARY

Section 683N

Diagram indicates formations ab

U

hybrid zone

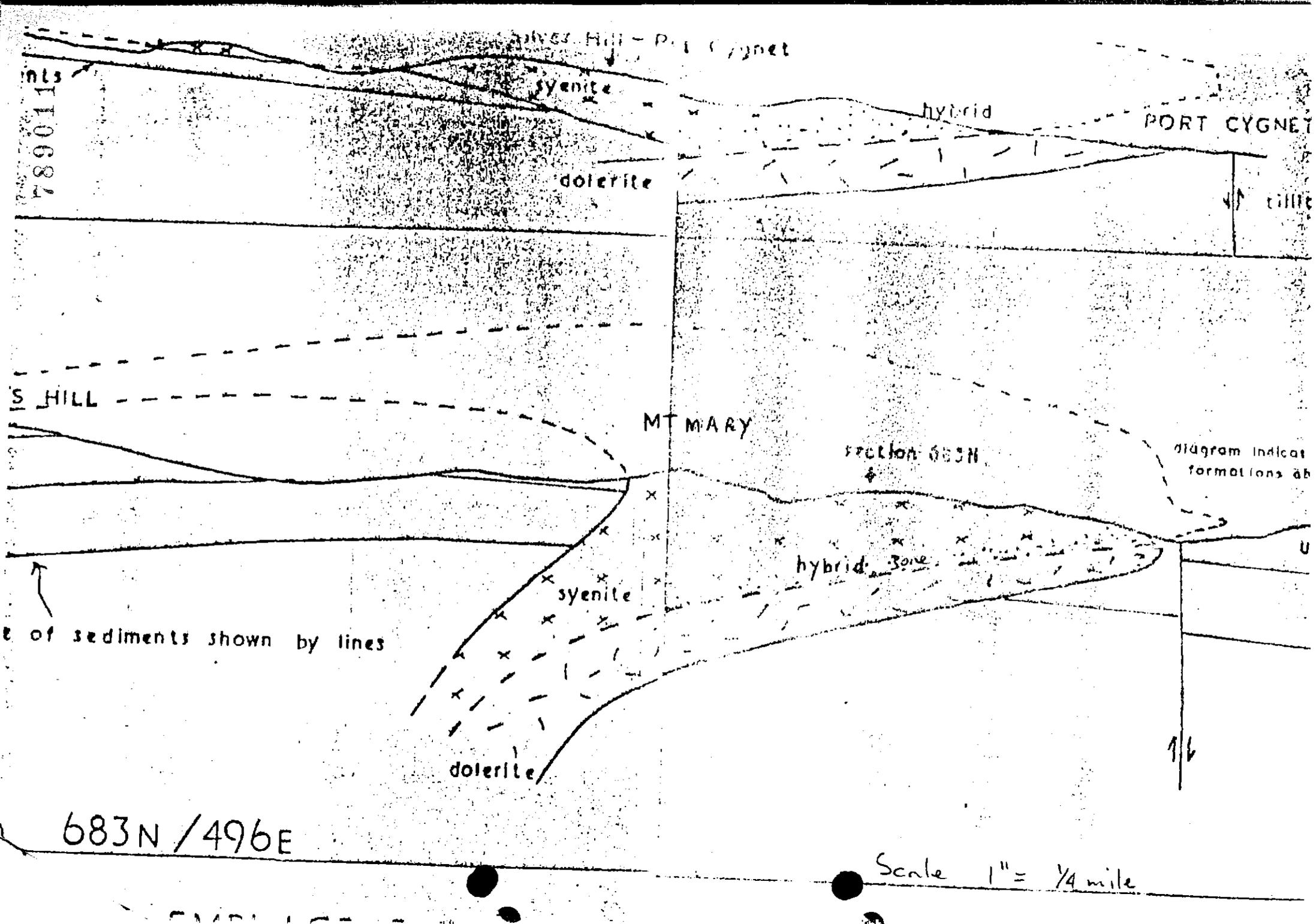
syenite

dolerite

↑
of sediments shown by lines

683N / 496E

Scale 1" = 1/4 mile



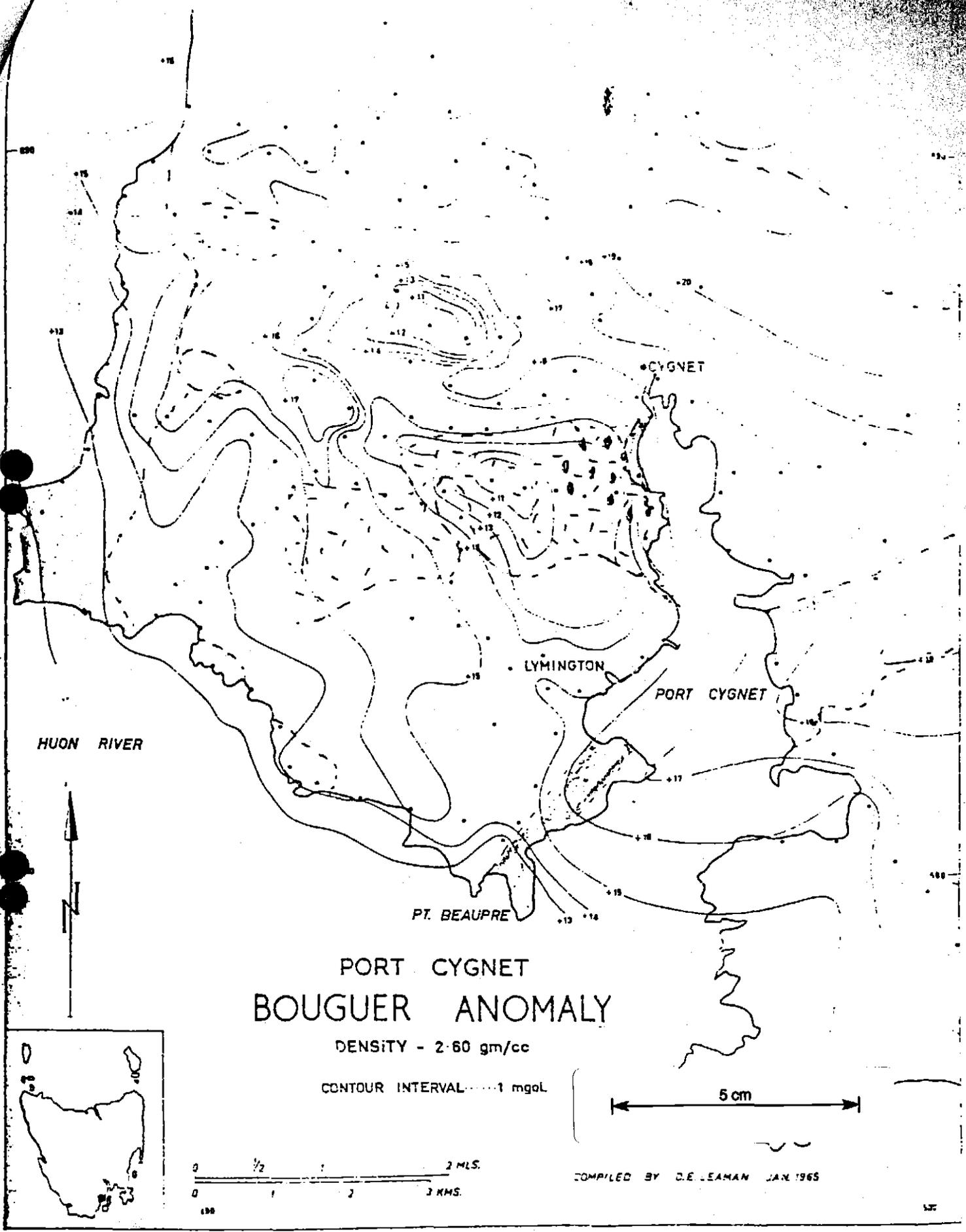


PORT CYGNET
 MAGNETIC FIELD INTENSITY
 FIELD IN GAMMAS

CONTOUR INTERVAL ... 250 gammas (250γ)

—•—•—•—
 —x—x—x—x—





PORT CYGNET
BOUGUER ANOMALY

DENSITY - 2.60 gm/cc

CONTOUR INTERVAL - 1 mgal

5 cm

COMPILED BY D.E. LEAMAN JAN 1965

0 1/2 1 2 MILES
0 1 2 3 KMS

DOLERITE
SYENITE PORPHYRY
HYBRID ZONE



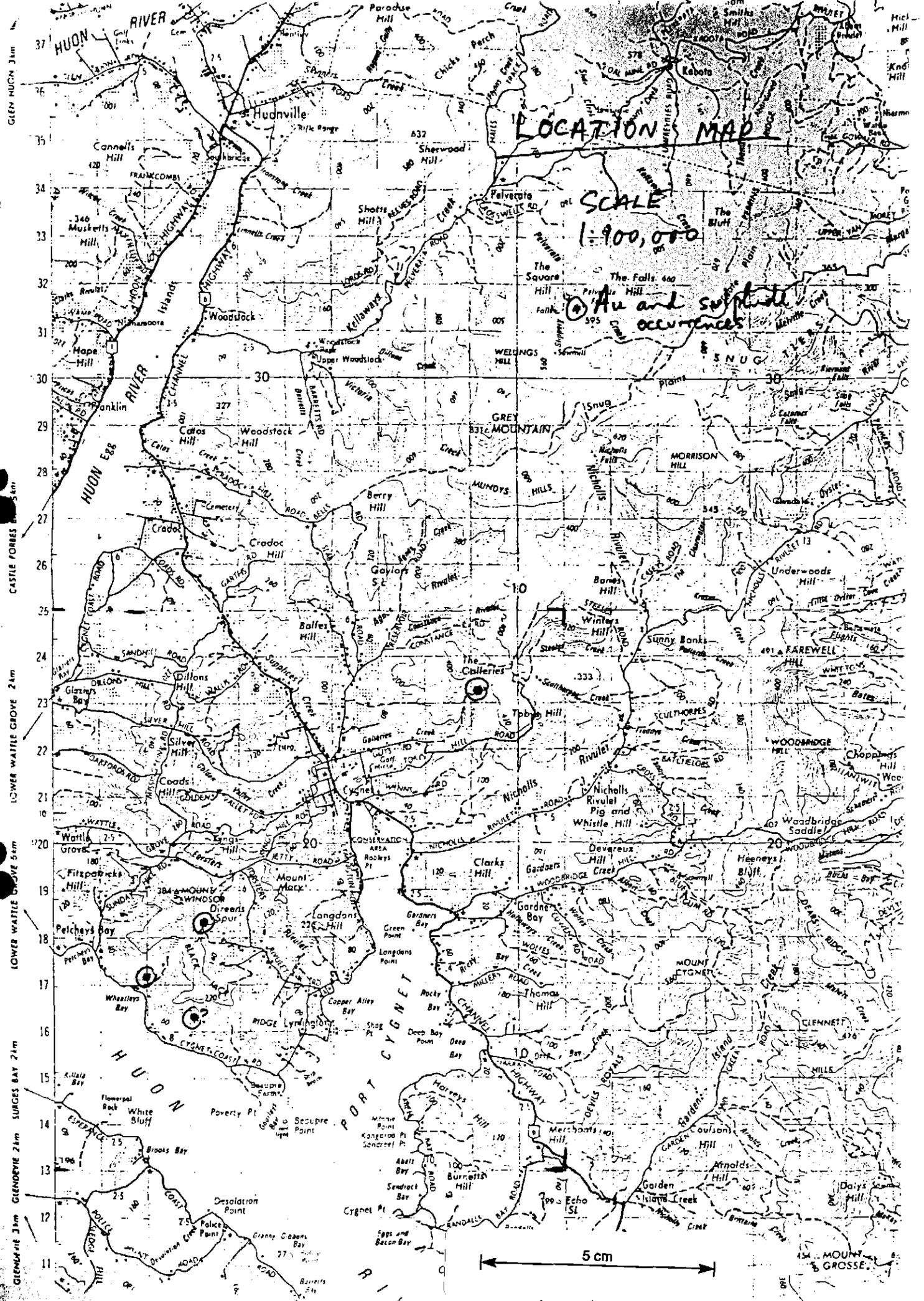
Fig. 56.
BOUGUER ANOMALY
MAGNETIC FIELD

789014

LOCATION MAP

SCALE
1:900,000

As and sulphate occurrences



37
36
35
34
33
32
31
30
29
28
27
26
25
24
23
22
21
20
19
18
17
16
15
14
13
12
11

GLEN HUON 31m
CASTLE FORBES 24m
LOWER WATTLE GROVE 24m
LOWER WATTLE GROVE 5m
SURGES BAY 24m
GLENORFIE 31m

5 cm

Cygnets Gold Prospect - Southern Tasmania

A.R. Hope

BHP

August, 1979

28th August, 1979

BHP

CYGNET GOLD PROSPECT, SOUTHERN TASMANIA1. Introduction

At Mt. Mary, Livingstone and Lymington, small amounts of gold (totalling 3,000 ozs) were mined from lode and alluvial workings, the lodes being associated with syenite sills intruding Permian glacio-marine sediments.

Following some research and visits to the area by R. Hine, the area was recommended to the Gold Group Eastern Australia as having some potential for the existence of a bulk low grade gold deposit. In addition to visiting the area with R. Hine on August 22, useful discussions were held with N. Farmer of the Tasmanian Department of Mines.

The town of Cygnet is located 36km SSW of Hobart. Access roads exist in the area of main interest.

In early August, an area of 103 square kilometres centred at Cygnet was applied for under Exploration Licence.

2. Geology (Summary)

Permian age glacio-marine tillites and lesser mudstones have been extensively intruded by an alkaline intrusive complex at Cygnet. The attitude of the sediments indicate a broad asymmetrical dome with a maximum diameter of 7-8km. Faults are numerous.

The basal tillite is reported to be of variable thickness. At Cygnet a Mines Department borehole intersected 300 metres of tillite without reaching basement. The tillite is massive, dark grey and pebbly. A dark grey to green cherty unit with nodules of pyrrhotite was observed in a quarry near Gardeners Bay. Overlying the tillite is a buff-weathering light to dark grey massive siltstone and mudstone containing rare quartzite pebbles believed to be dropstones from icebergs. Small pyrite and large calcite concretions are common. Bryozoa and brachiopod fossils are plentiful. A 100 metre thickness of siltstone and mudstone was also encountered in a Mines Department borehole.

Syenite dykes and sills of Cretaceous age are extensive in the area of interest. Major syenite bodies (usually porphyritic) form concordant sills up to 100 metres thick and intruded at various stratigraphic levels. Syenite dykes which vary greatly in character and appearance are widespread.

Leaman and Naqvi report that petrologically the syenite occurs in two fairly distinct units :-

- (i) A near undersaturated group with $< 8\%$ alkalis, high Al_2O_3 , SiO_2 , Ba, moderately high Ca and low Mg.
- (ii) An undersaturated group of shoshonitic rocks high in potash.

Metamorphism in areas of syenite intrusion may be intense with the formation of reaction haloes around pebbles and conversion of pyrite to pyrrhotite.

There is little evidence at surface of widespread hydrothermal alteration. Some alteration associated with syenite intruding dolerite was observed at Regatta Point where pyrite-magnetite is relatively abundant and occasionally secondary (?) biotite.

3. Mineralisation

With the exception of pyrite which is frequently found in the syenite intrusives and in metamorphosed sediments in contact with the syenite, there is little visible evidence of mineralisation in the area visited. Pyrrhotite is occasionally observed in altered rock nodules in the sediments and is believed to have formed from thermal effects on pyrite.

Rare and minor occurrences of chalcopyrite, galena and arsenopyrite have been reported at the Livingstone mine and in sediments exposed in a road quarry near Lymington (without arsenopyrite).

Only limited information is available on the gold occurrences in the area.

- Smith (1899) reported fine specks of gold in a sample from Mt. Mary which assayed 6 g/t. Other samples assayed a trace of gold or none at all. - Scott (1927) reported assays in the Mt. Mary mine up to 5 ozs gold per ton. In addition to a gold-quartz association, gold was also apparently present in iron-rich brecciated rocks close to intrusive contacts.

- gold which was mostly honeycombed and coarse was reported in alluvial wash in Riseleys Creek in the Wheatley Bay area which drains the western side of the Port Cygnet alkaline intrusives.

- gold values at the Livingstone mine are unknown. Gold apparently occurred within closely spaced parallel quartz veinlets in a syenite porphyry.

Hine, R. 1978 Report on reconnaissance - Cygnet alkaline intrusive complex, Southern Tasmania.

Leaman, D.E., Naqui, I.H. 1968. Geology and Geophysics of the Cygnet district. Bull. Geol. Surv. Tasman. 49.

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Smith, J.H. 1899. Discovery of gold at Port Cygnet. Ann. Rep. Sec. Min. Tas. for 1898-99, pp. xiii-xv.

Thureau, G. 1881. Port Cygnet, Oyster Cove and Sandfly. Tas. House Assembly Pap. (for 1881), 108.

Twelvetrees, W.H. 1902. Report on gold and coal at Port Cygnet. Ann. Rep. Sec. Min-Tas for 1901-2, pp. 269-268.
1907 Report on gold at Port Cygnet and Wheatleys Bay, huon River - Dep. Mine. Tas. Publ.

In addition to the above references, N. Farmer is arranging for some copies of his recently completed, but as yet unpublished, detailed geological map of the area to be furnished to us. A set of aerial photographs has also been obtained.


A.R. HOPE

ARH:JF

Report on Orientation Geochemical Sampling

Cygnets Alkaline Intrusive Complex, S.E. Tasmania

Unpublished Report for BHP

Rick Hine, BHP

Hobart, 1979

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TABLES

Table 1. Summary of Results of Soil Sampling at the Mount Mary Mine

Table 2. Summary of Rock Chip Sample Results

APPENDICES

Appendix 1: Geochemical Results (from Analabs)

Appendix 2: Sample Locations, R. Ford, Univ. Tasm.

Appendix 3: Geochemical Results, Cygneta rea (R. Ford Samples)

Appendix 4: Geochemical Results, ALS

PLANS

Plan 1: Sample Locations, Sheet 1 (1:15840)

Plan 2: Sample Locations, Sheet 2 (1:15840)

Plan 3: Soil sample locations, Mt Mary & Livingstone Mines

Plan 4: Bouger Anomaly (from D. Leaman)

Plan 5: Magnetic Field Intensity (from D. Leaman)

INTRODUCTION & RATIONALE

The presence of gold associated with the alkaline intrusive complex at Port Cygnet has been known since the turn of the century. An estimated 3000 oz of gold has been won from small alluvial mines in the area and gold has been located in the silicified contact zones between syenite porphyry and mudstone or tillite host rocks.

Old reports also noted that gold, to 6 gm /tonne, and sulphides were present in some syenite intrusives of the area. This raised the possibility that a large tonnage of low grade gold may be present in the district, and the present investigation was undertaken to test this hypothesis. To date, systematic sampling has only been on an orientation basis and no attempt at blanket coverage of the area has been made.

WORK COMPLETED

The following work has been completed:

- 1) Research and compilation of previous relevant data;
- 2) Collection of 42 rock chip samples with analysis for Au, Ag, As, Cu, Pb, Zn and Sb;
- 3) Analysis of 54 rock powders, provided by Mr Ramsay Ford of the Geology Dept., University of Tasmania, for the elements as above;
- 4) Collection of 80 soil samples from known mineral occurrences;
- 5) Petrographic study of 15 samples submitted to AMDEL.

GEOLOGY

a) *Sedimentary Rocks*

The sedimentary units within the area range in age from Permian to Triassic. The basal Permian unit at Cygnet is a tillite which has a thickness in excess of 300m. This unit is overlain paraconformably by a sequence of fossiliferous, marine sandstones and siltstones, which passes upwards into upper Permian sandstones and coal measures (Cygnet Coal Measures). The Permian rocks are overlain in turn by Triassic sandstone. The sediments form a gently dipping sequence which lies unconformably on a basement which presumably includes Ordovician limestone and associated sediments.

b) *Intrusive Rocks*

i) Dolerite: Some bodies of Jurassic dolerite crop out within the area, as well as on surrounding hills. At Regatta Point, the dolerite has been intruded by syenite and has undergone locally intense potassium metasomatism.

ii) Alkaline Intrusives: Numerous bodies of syenite/monzonite are scattered throughout the area. Farmer (pers comm.) considers most of the larger bodies to be sills or remnants of sills, an observation which is consistent with outcrop pattern and with the results of a ground magnetic survey (Leaman, 1968). Ford (pers. comm.) on the other hand considers the main mass (at Farewell Hill) to be a stock. Numerous dykes and dyke swarms are also present.

The alkaline rocks intrude Permian sediments and Jurassic dolerite, but nowhere have been found in Triassic rocks, despite K/Ar age determinations in the range 99-100m.y. (Cretaceous).

According to Ford, the syenites can be divided chemically into two groups:

1) Syenite porphyries with phenocrysts of oligoclase, potassium feldspar (minor), amphibole and rarer sodic pyroxene in a fine felspathic groundmass consisting mostly of potassium feldspar.

2) Potash rich porphyries with sanidine phenocrysts, often in a groundmass with a trachytic texture. Sodic pyroxene and melanite garnet also for, phenocryst phases. Sanidine - pyrite rocks, sanidine -feldspathoid rocks and sanidine - melanite (± scapolite) rocks also fall into this category. Rocks in this group are nepheline normative. Heavily embayed quartz is a minor phase in some porphyries.

The alkaline rocks range in SiO₂ content from 55 to 70% and in K₂O content from 2 to 10%. Ba results of up to 4000ppm have been obtained although the rocks are apparently low in REE, having about 3 ppm La and Ce. One dyke rock was found to have high Pb and Zn (0.2-0.4%; Ford speculates that the magma may have assimilated fragments of a Zeehan - type ore body on ascent.).

K/Rb ratios of 200 to 300 and high initial ⁸⁷Sr / ⁸⁶Sr (about 0.72) suggest a crustal source for the magmas. Sulphur isotopic ratios are in the range of 0‰

Accessory carbonate has been found in only one alkaline rock in the district, and as a group the syenite porphyries do not appear to have any close links with carbonatites

STRUCTURE

On a broad scale, the structure of the area is dominated by a large dome-centred near Mt Mary and measuring 10-15 km in diameter. Generally speaking, the sedimentary units dip gently away from the centre of the dome at angles of 5 to 20 degrees. However, extensive faulting and attendant tilting of strata has complicated the structure at a local level. Dykes of syenite porphyry are distributed in a radial pattern across the area, although a strong N-S trend is evident in the Cygnet - Regatta Point area.

The origin of the dome remains the subject of speculation. Some suggest the dome was formed by the emplacement of a large dolerite cone sheet, and that alkaline rocks were emplaced along the same conduit and played only a minor role. However, the coincidence of what are apparently unique dome structures in Tasmanian (eg. at Cygnet and nearby Oyster Cove),

and the petrologically distinct alkaline intrusive suggests a stronger generative link between the two.

GEOPHYSICS

Over the past fifteen years, gravity, ground magnetic, high level aeromagnetic and reconnaissance scintillometer surveys have been carried out in the area of interest.

Results of the groundmagnetic and gravity surveys were reported by Leaman Naqvi (1968). A large magnetic anomaly centred in Port Cygnet, east of Regatta Point, was attributed to thermal metamorphism of dolerite.

In 1975, Leaman carried out a marine-borne magnetic survey of Port Cygnet for the Tas. Mines Dept. which resolved the large anomaly into two broad anomalies of 3500 and 2000 nT, superimposed on a broad anomaly swell of about 1000nT. Only one of the sources could be attributed to dolerite as above; the other is possibly due to the development of disseminated pyrrhotite in thermally metamorphosed sedimentary rocks which host a syenite dyke swarm.

A ground radiometric survey with an SRAT SPP2 scintillometer was carried out by Pechiney (Hourdin, 1971). No significant anomalies were detected.

MINERALIZATION

Several small lode and alluvial gold deposits have been worked in the district since 1898. Most of the gold production, estimated by Twelevetrees (1902) at 3000 ozs, has come from alluvial deposits. The largest of these were at Lymington (Foresters Rivulet) and Wheatleys Bay (Riseleys Creek).

Small bodies were prospected by adits and shafts at the Mount Mary and Livingstone Mines near Cygnet, and prospect pits were sunk at other localities where pyrite and other sulphides had developed in syenite and adjacent host rocks (eg on the slopes of Mt Windsor).

a) **MOUNT MARY MINE**

The Mt Mary mine is located 1 km SW of Cygnet and consists of 10 shafts (up to 60m) and one adit in an area measuring 450 × 60m. There is no record of any production from the mine and most of the work appears to have been of an exploratory nature. The workings are no longer accessible and exposure around the mine area is poor. There are apparently two lodes, to 1.5m wide at 30m separation, that have been driven on. Gold values have been patchy, from trace to 11 dwt and the highest value reported by Twelevetrees (1907), from a brecciated, iron stained rock in a syenite porphyry contact zone, was 3 ozs.

The gold mineralisation is apparently restricted to narrow "lodes" at 245° and 345° reflectively, on or near the contact zone between syenite porphyry and silicified tillite. Quartz is not present in large quantities and pyrite is the most abundant sulphide occurring within the "lodes" and as stringers in the country rock. Small amounts of cinnabar (?) have been found in association with the sulphides. Results of rock chip sampling of dumps, float and exposures around the mine are summarised in Table 2.

b) **LIVINGSTONE MINE**

The Livingstone mine is located 3 km NE of Cygnet and consists of one 20m shaft and one 120m adit. Gold is present in narrow (to several cm) quartz veins along with arsenopyrite, pyrite, minor chalcopyrite and galena, which transect a syenite porphyry dyke. The adit was driven to intersect the lode beneath the crest of a scree covered ridge, but apparently did not reach its target. Reports of values between 1.5 and 3ozs/ton Au (Smith, 1898) are unconfirmed, and there has been no production from the mine. Twelevetrees (1902) reported that a 1 ton bulk sample carried 3 dwt. Au.

c) REGATTA POINT

At Regatta Point, minute amounts of pyrite, pyrrhotite, chalcopyrite and possibly gold have been recorded in K-metasomatised dolerite and syenite. Magnetite is also locally abundant.

d) GARDNERS BAY

Blebs of pyrrhotite and stringers with pyrrhotite and pyrite occur in a road cut 1 km north of Gardners Bay. The host rock is a dark, grey-green chert which may originally have been a calcareous mudstone. Bleached envelopes occur about the stringers and blebs of sulphides. A sample of this work was anomalous only with respect to As (9ppm).

e) LYMINGTON AREA

A minor occurrence of sulphide in a silicified mudstone was sampled in the Lymington area. Pyrite was the only sulphide seen and samples were only weakly anomalous with respect to As (to 4ppm), Cu (to 80ppm) and Zn (to 125ppm).

f) MT WINDSOR AREA

Pyrite with minor chalcopyrite and gold (in creeks) has been located on the eastern and south eastern slopes of Mt Windsor. Mineralisation here is again associated with a sub- horizontal (?) syenite porphyry - mudstone contact.

MINES DEPT BORE HOLES

Several stratigraphic holes have been drilled in the area by the Tas. Mines Dept. One hole was drilled to a depth of 219m in Permian tillite NW of Cygnet. The hole was sited in an attempt to drill out basement. however the programme was interrupted and the hole stopped prematurely. Several thin syenite bodies (to 7.5m thick) with irregular, horizontal (?) contacts were intersected, along with two zones of anastomosing calcite veinlets in tillite.

GEOCHEMISTRY

a) *Previous Work*

Apart from the work undertaken during this study there has been little systematic sampling of the area. Pechiney (Hourdin, 1971) carried out a stream sampling programme in 1970 and a range of elements were sought by qualitative emission spectrographic analysis. Anomalous Zr (5000 ppm +), Cu (50-500ppm), Mo (50-500) and Pb(50-500) was detected in several samples, although there was no concerted follow-up. Quantitative results were later reported for Cu only. Anomalous Cu values to 275 ppm were found in streams draining Mt Windsor, and values to 115 ppm in streams draining the Mt Mary mine area.

b) *Soil Sample Results*

As part of this orientation programme 47 soil samples were collected from traverses over the Mt Mary mine and surrounds at 25m intervals. 37 samples were analysed by Analabs of Perth and 10 by ALS of Brisbane. Samples were sieved out to -80 mesh and analysed for Au, Ag, As, Cu, Pb, Zn and Sb. Au values in samples analysed by Analabs ranged from 0.030 ppm to 6.12 ppm (MMC7) with most being less than 0.1 ppm. Ag values were all less than 0.5 ppm with the exception of one sample which returned 8.5 ppm (MMC7). As values ranged from 2 to 240 ppm (MMC7) with most being less than 20 ppm. A positive correlation between Au and As was obtained. Faults are summarised in Table 1. A low order An, As, Cu, Pb and Zn anomaly was partially outlined with dimensions of 475m by up to 150m. One traverse (c) was open at both ends.

30 soil samples were also collected from traverses over the Livingstone mine and forwarded to ALS for analysis.

3 soil samples and 2 stream samples (-80 mesh) collected in the Riseleys Creek area were not anomalous with respect to Cu, Pb, Zn, Sb or Ag, although the stream samples were weakly anomalous with respect to Au (to 0.06 ppm) and As (to 14 ppm).

Table 1. Summary of Results of Soil Sampling at the Mount Mary Mine**Analyst: Analabs**

Element	Overall Range (ppm)	Anomalous Samples (No.)	Others (No.)
Au	0.030-6.12	0.06-6.12 (18)	0.030-0.06 (19)
Ag	<0.5-8.5	-8.5 (1)	<0.5 (36)
As	2-240	4 -240 (24)	0-4 (13)
Cu	5 -235	50 -235 (2)	0-50 (35)
Pb	5-3450	100 3450 (2)	0 -100 (35)
Zn	30 -7100	200 -7100 (6)	0 -200 (31)
Sb	< 1		

c) Rock Chip Sample Results (CYT Series)

Rock chip sample results for samples collected in and around the Mt Mary and Livingstone mine areas are summarised in Table 2. The highest Au value of 6.8 ppm was obtained from a red- brown cherty capping enclosing massive pyrite (2.94 ppm Au) at the Mt Mary mine. The highest silver value (56.5 ppm) was obtained from a felsic syenite porphyry with 2-3% disseminated pyrite, minor limonite and chloritized mafics. Most samples from the Mt Mary mine were anomalous in As, Cu, Pb, Zn and Sb, as well as Au and Ag. A positive correlation between Au, As and Zn is evident. Results from the Livingstone mine were not encouraging and values for all elements were considerably lower than those of the Mt Mary mine samples. With the exception of some very low order As (to 13 ppm), Zn (to 200 ppm) and Au values (to 0.08 ppm), no other rock chip results of significance for samples collected from other areas were obtained.

Table 2. Summary of Rock Chip Sample Results**a) Mount Mary Mine: CYT 19-27 5,6**

Element	Overall Range	Anomalous	
		Sample (No.)	Others (No.)
Au	0.07 - 6.80	0.10 - 6.80 (10)	0.07 - 0.10 (1)
Ag	<0.5 - 56.5	4.0 - 56.5 (3)	<0.5 - 4.0 (8)
As	6 - 720	4 - 720 (11)	0 - 4 (0)
Cu	35 - 4050	100 - 4050 (4)	0 - 100 (7)
Pb	20 - 1550	100 - 1550 (5)	0 - 100 (6)
Zn	135 - 4450	100 - 4450 (10)	0 - 100 (1)
Sb	<1 - 5	1 - 5 (5)	0 - 1 (6)

b) Livingstone Mine: CYT 10-18

Element	Overall Range	Anomalous	
		Sample	Others
Au	0.02 - 0.20	0.10 - 0.20(2)	0.02 - 0.10(6)
Ag	<0.5 - 1.0	1.0 - (2)	<1.0(6)
As	4 - 32	4 - 32 (8)	0 - 4 (0)
Cu	10 - 100	100 - (1)	0 - 100 (7)
Pb	5 - 365	100 - 365 (5)	0 - 100 (3)
Zn	40 - 250	100 - 250 (5)	0 - 100 (3)
Sb	<1		

d) **Cy Series - Rock Powders**

The Cy Series rock samples were collected by Mr Ramsay Ford of the Geology Department, University of Tasmania, as part of his documentation of the petrology and geochemistry of the syenite/monzonite intrusive complex. The samples are biased against mineralisation and alteration, since only the most unaltered material was selected for analysis. It was hoped that the detection of low levels of gold of in the intrusive could have been interpreted as a favourable indicator of gold mineralisation within syenite. This did not prove to be the case.

Gold was not detected above the limit of 0.005 ppm in these samples, although several samples were weakly anomalous in Ag, Cu, Pb and Zn. The highest Zn value obtained (375 ppm) was in a rock collected from the Mt Mary Mine area.

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T.M.D Rept 1978/23
4. Farmer, N, 1979a: A diamond drill hole at Deep Bay, Cygnet, TMD
Rept. No 1979/29
5. Farmer, N, 1979b A diamond drill hole at Silver hill, Cygnet, TMD
Rept. No 1979/29
6. Farmer, N, 1979c A diamond drill hole at Palmers Road, TMD
Rept. No 1979/29
7. Farmer, N, 1979d A diamond drill hole at Snug Tiers, Oyster
Cove. TMD Rept. No. 1979/29
8. Farmer, N., 1979e A diamond drill hole at Mt Cygnet, TMD Rept.
No 1979/29
9. Finney, W.A. Shelley, L.P, 1966 Tasmania Aeromagnetic Survey.
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10. Henderson, Q.J., 1930 North on Gold Prospect between Petchey's
Bay and Lymington. TMD Unpub Report 1936, p9-

- 12 Leaman, D.E, 1971 Magnetic Survey, Port Cygnet, TMD Rept. No 1975/1
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Appendix 1:

Geochemical Results

(from Analabs)

789035

GEOCHEMICAL RESULTS

(Re-typed from Analabs & ALS
PPM. Reports)

S.A. No.	Au	Ag	As	Cu	Pb	Zn	Sb	
MMA1	.135	bld	6	5	30	60	bld	Soil -80# ANALABS
2	.050	"	12	5	55	75	"	
3	.020	"	6	5	20	60	"	
4	.030	"	6	5	20	70	"	
5	.060	"	8	5	55	75	"	
6	.040	"	5	5	15	95	"	
7	.063	"	6	5	20	95	"	
8	.050	"	bld	5	10	45	"	
9	.040	"	2	5	10	60	"	
10	.032	"	2	5	10	35	"	
11	.060	"	bld	5	5	30	"	
12 _s	.030	"	6	5	5	50	"	
MMB1	.050	"	10	5	45	95	"	
2	.110	"	30	5	40	155	"	
3	.030	"	8	5	35	110	"	
4	.085	"	6	5	25	135	"	
5	.050	"	7	5	50	155	"	
6	.048	"	6	15	15	255	"	
7	.193	"	18	50	30	430	"	
8	.052	"	2	5	5	105	"	
9	.098	"	6	10	15	90	"	
10	.049	"	2	10	10	85	"	
11	.074	"	6	10	15	80	"	
MMC1	.613	"	14	10	35	240	"	
2	.040	"	6	10	15	190	1	
3	.068	"	12	5	15	140	1	
4	.050	"	24	25	55	290	bld	
5	.081	"	6	15	30	150	"	
6	.202	"	8	15	135	370	1	
7	6.12	8.5	240	235	3450	7100	1	
8	.073	"	2	15	40	175	bld	
9	.238	bld	4	15	25	175	"	Soil -80# ANALABS
10	.185	"	bld	5	20	60	"	

S.A. No.	Au	Ag	As	Cu	Pb	Zn	Sb
MMD1	.045	bld	2	5	35	85	bld
2	.065	"	4	5	10	100	"
3	.026	"	2	5	15	105	"
4	.049	"	4	10	15	75	"

LIVA1-1

Soil -80#
ALS

" 2-2

" 3-3

" 4-4

" 5-5

" 6-6

" 7-7

" 8-8

See ALS results

LIVA1-9

" 2-10

" 3-11

" 4-12

" 5-13

" 6-14

" 7-15

" 8-16

LIVC1-17

" 2-18

" 3-19

" 4-20

" 5-21

LIVD1-22

" 2-23

" 3-24

" 4-25

" 5-26

" 6-27

" 7-28

" 8-29

" 9-30

(MME1) 31

" 2) 32

" 3) 33

S.A. No.	Au	Ag	As	Cu	Pb	Zn	Sb		
(MME4) 34									
" 5) 35									
" 6) 36									
" 7) 37									
" 8) 38									
" 9) 39									
"10) 40									
CYS 1	0.012	bld	14	15	20	65	bld	Stream -80# ANALABS	
2	0.060	"	12	35	20	85	"	W.B.	
WBS 1	0.006	"	4	5	5	10	"	Soil -80# ANALABS	
2	bld	"	2	5	5	5	"		
5	0.020	"	6	5	5	15	"	W.B.	
CYT 1	<u>Ba</u> XRF. 1100	bld	N.D.	2	185	20	20	N.D.	Rock, ALS
2	1000	"	"	6	85	20	50	"	silic'd syenite
3	1200	"	"	2	50	20	20	"	porphyry, Fings Rd area.
4	1400	"	"	1	80	15	30	"	W Mt. Mine?
5	760	0.80	"	9	40	35	480	"	wthd tillite, Mt. Mary Mine
6	1800	0.70	"	9	60	70	155	"	wthd syenite Mt. Mary Mine
7	1300	bld	"	2	85	20	15	"	Syenite, pry, Kings Road
8	830	"	"	2	155	15	30	"	Chert Kings Road
9	790	"	"	9	90	20	50	"	Wilson's Yd, black cher
10	0.034	0.5	6	20	105	215	bld	Rock, ANALABS	
11	0.041	bld	6	25	165	240	"	metstones, Irvingstone	
12	0.043	"	6	20	100	210	"	Mine adit spoil	
13	0.200	1.0	30	100	365	250	"	dump sample, Irv. M.	
14	0.029	bld	10	10	10	60	"	" " " "	
15	0.112	1.0	32	70	180	125	"	Quartz chips Irv. M.	
16	0.055	bld	4	15	5	50	"	Syenite, pry, Irv. M.	
17	0.025	"	9	10	5	40	"	" " " "	
18	0.020	"	3	5	15	70	"	" " " "	
19	0.072	"	6	15	30	275	"	" " " " " " " "	

Risaley's
ck.
Stream.Soil
vicinity
Risaley's ck.Rock, ALS
silic'd syenite
porphyry, Fings
Rd area.
W Mt. Mine?
wthd tillite,
Mt. Mary Mine
wthd syenite
Mt. Mary Mine
Syenite, pry,
Kings Road
Chert Kings Road
Wilson's Yd, black cherRock, ANALABS
metstones, Irvingstone
Mine adit spoil
dump sample, Irv. M.
" " " "
Quartz chips Irv. M.
Syenite, pry, Irv. M.
" " " "
" " " "
" " " " " " " "

S.A. No.	Au	Ag	As	Cu	Pb	Zn	Sb			
20	0.221	bl'd	18	55	800	655	1	tillite	Mt. Mary Mine	
21	0.160	"	8	35	20	500	bl'd	"		
22	0.214	0.5	9	65	65	275	"	syenite		
23	0.687	bl'd	30	100	2050	1300	1	sy/til		
24	0.892	4.0	80	205	1250	4450	5	" / "		
25	6.80	39.0	720	1250	1550	2100	5	cherty cap.		
26	2.94	bl'd	220	95	10	135	5	pyrite		
27	0.152	56.5	12	4050	420	1000	bl'd	sy, pry		
28	0.043	bl'd	2	200	15	30	"	sy, pry, upper		Kings Rd
29	0.015	"	4	80	5	125	"	silic'd qtz		near Lymington
30	0.009	"	2	25	15	40	"	" "		
31	0.063	"	11	20	10	20	"	" "		
32	0.038	"	13	30	45	125	"	mudstone		
33	0.041	"	10	25	30	175	"	"		
34	0.029	"	2	30	40	205	"	"		
35	0.028	"	11	15	5	145	"	siltstone		
36	0.030	"	4	15	bl'd	85	"	"		
37	0.050	"	5	15	15	75	"	"		
38	0.093	"	4	10	5	40	"	chert		
39	0.042	"	6	15	5	55	"	mudstone		
40	0.036	"	10	20	10	35	"	"		
41	0.055	"	4	20	10	25	"	chert		
42	0.055	"	8	25	10	115	"	mudstone		

Rock Powders ex R Ford.	Based toward Unaltered rocks.							
CY 7A	bl'd	bl'd	3	75	5	95	bl'd	ANALABS
8	"	"	bl'd	15	5	25	"	
11	"	"	"	15	5	50	"	
13	"	"	1	55	20	65	"	
14	"	0.5	bl'd	10	5	5	"	
15	"	bl'd	3	55	280	170	"	
18	"	"	bl'd	20	10	30	"	
19	"	"	2	10	20	95	"	
21	"	"	bl'd	40	5	30	"	
22	"	"	"	95	5	15	"	
23	"	"	"	55	bl'd	50	"	
26	"	"	"	150	5	50	"	
29	"	"	"	100	5	55	"	
30	"	"	"	120	80	345	"	
31	"	"	"	35	bl'd	20	"	

S.A. No.	Au	Ag	As	Cu	Pb	Zn	Sb
32	<i>bld</i>	<i>bld</i>		65	10	80	<i>bld</i>
36	"	"	"	205	5	90	"
38	"	"	"	N.D.	10	75	"
40	"	"	"	135	25	80	"
44	"	"	"	15	45	245	"
46	"	"	"	25	5	85	"
47	"	"	"	10	65	375	"
48	"	"	"	70	5	10	"
49	"	"	"	10	<i>bld</i>	10	"
53	"	"	"	5	5	50	"
60	"	"	"	25	5	35	"
61	"	"	"	N.D.	10	40	"
62	"	"	"	"	25	90	"
64	"	"	"	20	5	15	"
67	"	"	"	50	<i>bld</i>	105	"
69	"	"	"	10	10	85	"
70	"	"	"	20	5	30	"
71	"	"	"	N.D.	5	30	"
73	"	"	"	15	25	65	"
74	"	"	"	40	20	70	"
75	"	"	"	5	40	75	"
76	"	"	"	5	25	65	"
78	"	"	2	5	5	50	"
80	"	0.5	<i>bld</i>	95	5	100	"
83	"	<i>bld</i>	"	<i>bld</i>	<i>bld</i>	40	"
85A	"	0.5	"	10	40	115	"
87	"	<i>bld</i>	"	<i>bld</i>	5	140	"
88	"	"	"	"	<i>bld</i>	40	"
89	"	"	"	5	5	165	"
90	"	"	"	20	10	60	"
91	"	"	2	50	15	80	"
99	"	"	<i>bld</i>	5	10	30	"
103	"	"	"	15	5	40	"
105	"	"	"	115	5	35	"
106P	"	"	"	40	10	45	"
109	"	"	"	55	5	45	"
114P	"	"	"	60	5	35	"
116	"	"	"	10	5	15	"
118	"	"	"	110	10	35	"

Appendix 2:

Sample Locations,

R. Ford, Univ. Tasm.

CYGNET AREA - Pulverized Rock Samples Provided
By R. Ford, Univ. of Tasci

Sample No.	Location	No	Location
CY 7a		CY 71	
8		73	
11		74	
13		75	
14		76	
18		78	
19		80	
21		83	
22		85a	
23		87	
26		88	
29		89	
(RP) 30		90	
31		91	
32		99	
36		103	
38		105	
40		106 ^{1/2} kic	
44		109	
45		114 ^{1/2} kic	
46		116	
47c		118	
48			
49			
53			
60			
61			
62			
64			
67			
69			
70			

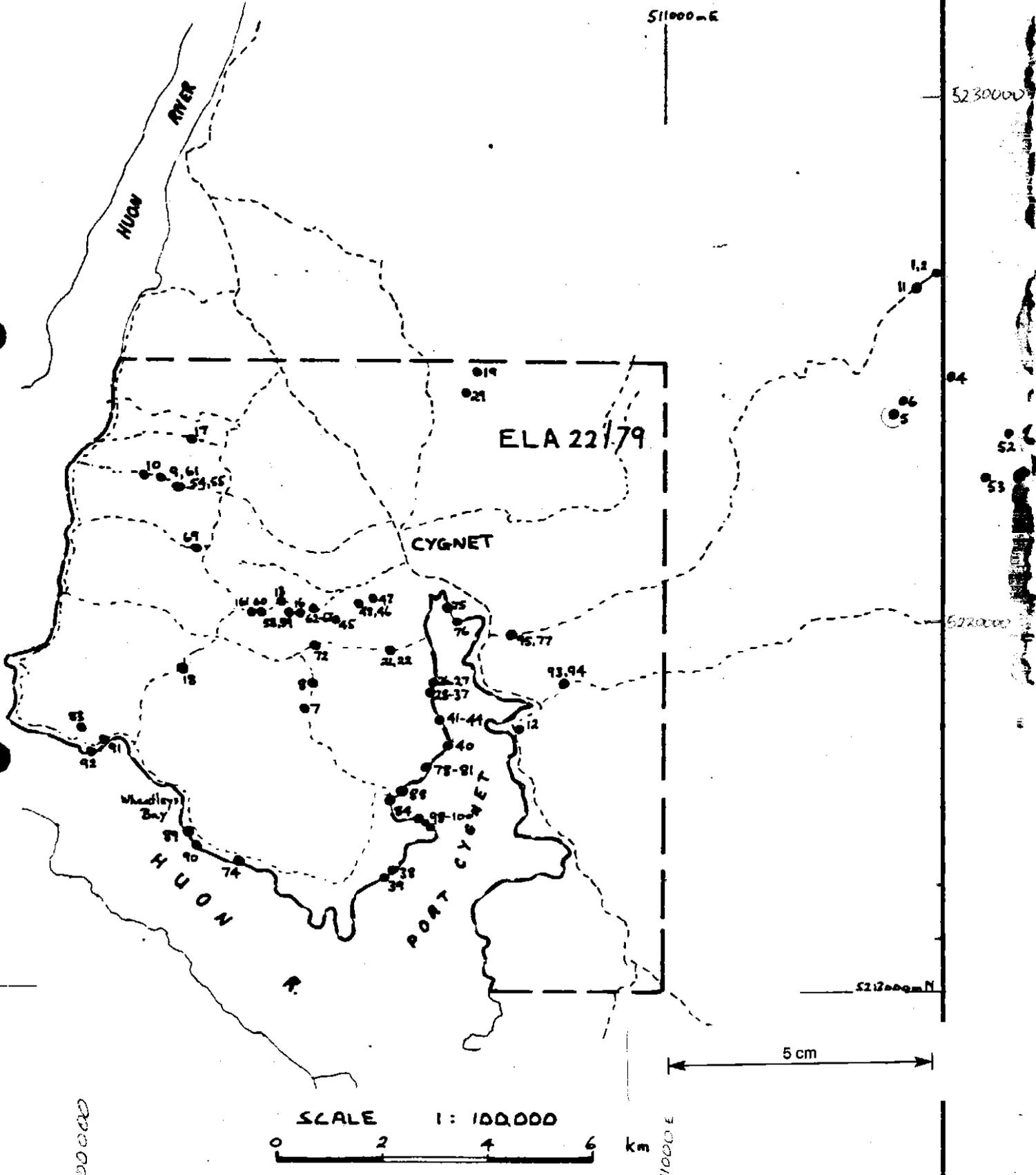
3-11-72

Dolan
Rignall

BHP

789042

Fig.



SCALE 1: 100,000

0 2 4 6 km

Centre
HBT

Date
17-10-79

THE BROKEN HILL PROPRIETARY CO. LTD.

LOCATION

CY SERIES ROCK SAMPLES — R. FORD (Univ. of Tas.)

Project No.
G250

Drawing No.
A4-

Oyster Cove area CY 11 157 265

Woodbridge area CY 23, 24, 25 Hellwells Pt.
51, 52, 53 ~~220230~~ 200230

Regatta Pt CY 96, 97 — str of Judges Box

Oyster Cove area CY 1, 2, 3

Kelkenny: -- CY 47, 48, 49, 50
46, 45 188245

Appendix 3:

Geochemical Results,

Cygnets area

(R. Ford Samples)

789046

BHP

MEMO TO: Mr. A. Eope

FROM: R. Hine

DATE: 17th September 1979

SUBJECT: Geochemical Results - Cygnet Area

Tony,

Please find enclosed sample description sheets and analysis sheets for rock samples CYT 1-9. Samples CYT 5 and 6 were collected from the dumps at the Mt. Mary mine. CYT 6 was a weathered, oxidized syenite porphyry, which judging from its high Ba content must have been fairly felsic. Anomalous Pb, Zn and As accompanied the higher gold values; these elements should prove useful pathfinders. The preliminary follow-up work will be carried out early in the week commencing 17th September.

Noah Farmer's regional map has been copied and will be adapted for inclusion in subsequent reports. An approach is also to be made to Mr. Ramsay Ford of the University of Tasmania, who has carried out detailed work, as yet unpublished, on the petrology and geochemistry of the syenites.

A collection of sulphide bearing samples has been forwarded to AMDEL for thin and polished section description.

With Regards,

RICK

3-993

REGION.....
 PROJECT No.....

THE BROKEN HILL PROPRIETARY CO. LTD.

HEADERSHEET No.												
1	2	3	4	5	6	7	8	9	10	11	12	13
8	4	2										0
PUNCH IN EVERY CARD												

ANALYSIS

SAMPLE NUMBER	Cu			Pb			Zn			Au			As			Rb			Ba			Zr																									
	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71
CYT	185			20			20			<0.1			2			215			1100			225																									
	35			20			50			<0.1			6			245			1000			245																									
789048	50			20			20			<0.1			2			225			1200			245																									
	80			15			30			<0.1			1			180			1400			255																									
789048	40			35			480			0.8			9			240			760			205																									
	10			70			155			0.7			9			230			1800			265																									

ANALYST
 Year
 20

DATE ANALYSED
 21 22 23 24 25 26 27 28 29

H.M. M
 W.P. W

SAMPLING METHOD

1	2	3
31	32	33

SAMPLE PREPARATION

2
35

ANALYSIS SCHEME

36	37
----	----

FRACTION SCHEME

38	39
----	----

REGION..... 62 715
 PROJECT No..... 6250
 LINE/ZONE.....



THE BROKEN HILL PROPRIETARY CO. LTD.

1 2 3			HEADER SHEET No.					10 11 12 13 14				
8 3 5			4	5	6	7	8	9				
PUNCH IN EVERY CARD												

GENERAL SAMPLE DESCRIPTION

SAMPLE NUMBER										EASTING					NORTHING					REDUCED LEVEL OF SAMPLE					FOR CHANNEL SAMPLES ETC.					ROCK TYPE	SAMPLE DESCRIPTION					
ALPHA PREFIX			NUMERICAL VALUE				LONGITUDE					LATITUDE					ORIENTATION					SAMPLE LENGTH	Information available	Duplicate samples												
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46				47	48	49	50	51			52	53	54	55	56
CYT			7																										Silicid. granite porph. 1-2% pyro us disse. gns. aggregated to fine vults. qtz, chloritoides Pale green chert, 5-50%. fine white vults.							
789049																													qtz, fsp, pyrite, minor oxidation; iron mag Dk brown to black chert 100% fine vults. fsp (?), chlorite pyrochite black sand outwards to white-pinkish							

Date..... 10/1/74
 Logged or sampled by.....

REGION.....
PROJECT No.....



THE BROKEN HILL PROPRIETARY CO. LTD.

FEARIS SET No.												
1	2	3	4	5	6	7	8	9	10	11	12	13
8	4	2										0

PUNCT IN EVERY CARD

ANALYSIS

SAMPLE NUMBER	Cu			Method of Analysis			Pb			Method of Analysis			Zn			Method of Analysis			Au			Method of Analysis			As			Method of Analysis			Rb			Method of Analysis			Ba			Method of Analysis			Zr			Method of Analysis		
	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
7	85			20			15			<0.1			2			220			1300			245																										
8	135			15			30			<0.1			2			230			830			230																										
9	90			20			50			<0.1			9			200			790			215																										

78988

FULL ANALYSED											
31	32	33	34	35	36	37	38	39	40	41	42

PPM M
W% W



SAMPLING
METHOD

1	2	3
31	32	33

SAMPLE

2	
34	35

ANALYSIS

36	37
----	----

38	39
----	----

Appendix 4:

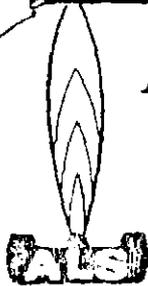
Geochemical Results,

ALS

Australian Laboratory Services PTY. LTD.

CONSULTING CHEMISTS & ANALYSTS

789052



OFFICE & LABORATORY
44 BALACLAVA ST., WOOL LOUNGBARRIA 4102
Phone (071) 391 0993 & 391 0776
TELEX AUSTRAL 422344

LABORATORY REPORT

R. W. YERRERY
DIRECTOR

WATER No. 95K CLIENT B.H.P. CO., LTD. - EXPLORATION DEPT.
 ORDER No. G250/500 AREA: DATE RECEIVED 11.10.79
 SAMPLE TYPE SOIL, ROCK No. 41 DATE COMPLETED 7.11.79
 ADDRESS DR. R. HINE

SAMPLE No	Cu ppm	Pb ppm	Zn ppm	Ag ppm	As ppm	Sb ppm	Au ppb			
1	10	40	50	-1	10	-10	125			
2	10	50	35	-1	10	-10	10			
3 LVA	10	30	30	-1	6	-10	10			
4 1-8	10	30	35	1	5	-10	10			
5	10	25	25	-1	2	-10	5			
6	10	20	30	1	2	-10	-3			
7	10	20	15	-1	3	-10	3			
8	15	20	20	1	6	-10	5			
9	5	10	5	1	-1	-10	3			
10	5	10	55	1	1	-10	5			
11	5	10	10	1	-1	-10	10			
12 LVA	10	20	15	1	5	-10	10			
13 1-8	10	20	15	1	3	-10	10			
14	5	10	5	1	4	-10	10			
15	15	40	30	1	9	-10	15			
16	15	40	30	1	6	-10	10			
17	5	20	30	1	3	-10	5			
18	10	30	20	1	14	-10	5			
19 LVA	10	15	20	1	-1	-10	-3			
20 1-8	10	10	15	1	3	-10	5			
21	10	20	20	1	2	-10	10			
22	5	270	115	2	12	-10	20			
23	40	30	45	2	8	-10	10			
24	25	20	40	1	7	-10	5			
25	30	20	65	2	10	-10	10			
26 LVA	20	25	70	1	12	-10	5			
27 1-9	10	30	40	1	1	-10	35			
28	50	80	165	2	16	-10	10			
29	55	85	55	2	50	-10	3			
30	10	15	10	1	5	-10	3			



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METHODS: Cu, Pb, Zn, Ag BY METHOD 1; Au BY METHOD 120
 As BY METHOD 5-B; Sn, W BY METHOD 9-A (X)
 Sb BY METHOD 8

Signature *E. Quinn*

789053

OFFICE & LABORATORY
44 BALACLAVA ST., WOOD LUNGABRA 4102
Phone (07) 311 6086 A.H. 350 0776
TELEX ALSLV 42344

LABORATORY REPORT

- 2 -

R. W. YERRURY
DIRECTOR

BATCH No. 95K CLIENT B.H.P. CO. LTD. - EXPLORATION DEPT.
 ORDER No. _____ AREA: _____ DATE RECEIVED _____
 QUOTE TYPE: _____ No: _____ DATE COMPLETED _____
 REFERENCE: _____

SAMPLE No	Cu ppm	Pb ppm	Zn ppm	Ag ppm	As ppm	Sb ppm	Au ppb	Sn ppm	W ppm
31 ?	30	50	85	1	1	-10	20		
32	25	140	130	1	3	-10	15		
33	15	60	115	1	5	-10	10		
34	10	40	55	1	3	-10	5		
35	15	35	45	1	3	-10	10		
36	15	15	20	1	2	-10	50		
37	15	15	15	1	-1	-10	-3		
38	5	20	5	1	-1	-10	3		
39	15	20	20	1	3	-10	-3		
40	5	10	5	1	-1	-10	3		

MINE
1-10

C U L T
 AAS
 XRF
 SPEC
 COL
 CHR
 TTN
 CHEM
 MISC



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METHODS:

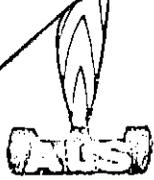
Signatory

G. Quinn

Australian Laboratory Services LTD.

CONSULTING CHEMISTS & ANALYSTS

789054



OFFICE & LABORATORY
44 BALACLAVA ST. WAVERLEY, N.S.W. 4100
Phone (02) 311 6516 A.M. 05 01 45
TELEX AUSTRAL 40114

LABORATORY REPORT

R. W. YERBURY
DIRECTOR

BATCH No. 5H CLIENT B.H.P. CO. PTY. LTD.
ORDER No. _____ AREA: TASMANIA DATE RECEIVED: 1.8.
SAMPLE TYPE ROCK CHIP No. 9 DATE COMPLETED: 31.8.
ATTENTION: DR. R. HINE

SAMPLE No.	Cu ppm	Pb ppm	Zn ppm	P %	Au ppm	Rb ppm	Ba ppm	As ppm	Zr ppm
CYT 1	185	20	20	0.06	-0.1	215	0.11%	2	225
2	85	20	50	0.05	-0.1	245	0.10%	6	245
3	50	20	20	0.05	-0.1	225	0.12%	2	245
4	80	15	30	0.06	-0.1	180	0.14%	1	255
CYT 5	40	35	480	0.02	0.8	240	760	9	205
6	60	70	155	0.06	0.7	230	0.18%	9	265
7	85	20	15	0.05	-0.1	220	0.13%	2	245
8	155	15	30	0.06	-0.1	230	830	2	230
CYT 9	90	20	50	0.07	-0.1	200	790	9	215

"-" SIGN MEANS LESS THAN



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METHODS:

Cu, Pb, Zn BY METHOD 1
Rb, Ba, As, Zr BY METHOD 9-A (X.R.F.)
P BY METHOD 14
Au BY METHOD 120

Signatory

G. Quinn

1
0
2

AAB
XRF
SPEC
COL
CHR
TTN
CHEM
MISC

52 Murray Road, Welshpool, W.A. 6106 Phone (09) 458 7999
 44 Lane Street, Kalgoorlie, W.A. 6430 Phone (090) 21 1416

GEOCHEMICAL ANALYTICAL REPORT

789055

This report must be read in conjunction with the results given for JOB No. 14.2 01 9832

Client: B.H.P. Exploration;
 (1) G.P.O. Box 1140L, HOBART, TAS.
 Order No. 000602 Date Received 3.10.79
 Reference Results Required
 Delivered by Total No. of Samples

(2) SAMPLE NUMBERS	STATE OF SAMPLES		Average Weight	PRETREATMENT							ANALYSIS			
	Refer to section (5) for terminology			Dry	Crush	Split	Pulverize	Sieve	Evaporate	Leach (residue)	None	Other	Refer to section (5) for terminology	Preparation
MMA 1-12	SO	-80	1				2				As, Cu, Pb, Zn, Ag	A1	AAS	
MMA 1-11											Au		ICSS	
MC 1-10											Sb	ALL	AAS	
MMA 1-4														
CYS 1-2														

(3) Number of pages of results: 3
 Date Reported: 11 10 79
 Results to: (1) as above (2) Mr. A. Hope
 B.H.P. Exploration
 P.O. Box 86A
 MELBOURNE
 Per:
 Number of Copies: 3

(4) Remarks:

(5) STATE OF SAMPLES	ANALYSIS - PREPARATION			ANALYSIS - METHOD			
whole core	WC	perchloric acid	A1	cold acid	CA	atomic absorption	AAS
split core	SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting	CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock	Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil	SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
pulp	PU	HF mixture	A6	ignition	IG	titration	TTN
water	WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemical means	CHEM
slag	TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	MISC

ALABS PTY. LTD.

100 Road, Welshpool, W.A. 6108
 100 Street, Kalgoorlie, W.A. 6430
 100 Andersons Way Mt. Isa, Qld. 4825

(ALIST.)

Phone (09) 458 7999
 Phone (090) 21 1416
 Phone (077) 43 6837

Code No. 442019832
 Rack No. M/SB 3
 Page No. 1
 Order No. 112

789056

GEOCHEMICAL RESULT SHEET ppm

TUBE No.	SAMPLE No.	As	Ag	Cu	Pb	Zn	Sb
1	MMA	6	X	5	30	60	.
2		12	X	5	55	75	.
3		6	X	5	20	60	.
4		6	X	5	20	70	.
5		8	X	5	55	75	.
6		5	X	5	15	95	.
7		6	X	5	20	95	.
8		.	X	5	10	45	.
9		2	X	5	10	60	.
10		2	X	5	10	35	.
11		.	X	5	5	30	.
12		6	X	5	5	50	.
13	MMA	10	X	5	45	95	.
14		30	X	5	40	155	.
15		18	X	5	35	110	.
16		6	X	5	25	135	.
17		7	X	5	50	155	.
18		6	X	15	15	255	.
19		18	X	50	30	430	.
20		2	X	5	5	105	.
21		6	X	10	15	90	.
22		2	X	10	10	85	.
23		6	X	10	15	80	.
24	MMA	14	X	10	35	240	.
25		6	X	10	15	190	1
26		12	X	5	15	140	1
27		24	X	25	55	290	.
28		6	X	15	30	150	.
29		8	X	15	135	370	1
30		240	85	235	3450	7100	1
31		2	X	15	40	175	.
32		4	X	15	25	175	.
33		10	X	5	20	60	.
34	MMA	2	X	5	35	85	.
35		4	X	5	10	100	.
36		2	X	5	15	105	.
37		4	X	10	15	75	.
38	CYS	14	X	15	20	65	.
39		12	X	35	20	85	.
40							
Detection		1	0.5	5	5	5	1
Standard	FSS	12	1.5	100	15	110	130
Repeat -	MMA	6	X	5	30	60	.
Repeat -	MMA	6	X	5	10	100	.
Method							

RESPO... OFFICER
 10 791

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 . = element not determined

207
 5-10-11
 -80

52 Murray Road, Welshpool, W.A. 6106 (AUST.) Phone (09) 458 7999
 44 Lane Street, Kalgoorlie, W.A. 6430 Phone (090) 21 1416
 16 Traders Way Mt. Isa, Qld. 4825 Phone (077) 43 6837

789057
 Code No. 14-2-01 9832
 Rack No. _____
 Page No. 2
 Order No. 602

GEOCHEMICAL RESULT SHEET

TUBE No.	SAMPLE No.								
1	MMA	1	0.135						
2		2	0.050						
3		3	0.020						
4		4	0.070						
5		5	0.060						
6		6	0.040						
7		7	0.062						
8		8	0.050						
9		9	0.040						
10		10	0.032						
11		11	0.060						
12		12	0.070						
13	MMA	1	0.05						
14		2	0.11						
15		3	0.030						
16		4	0.085						
17		5	0.055						
18		6	0.048						
19		7	0.192						
20		8	0.052						
21		9	0.058						
22		10	0.049						
23		11	0.074						
24	MMA	1	0.613						
25		2	0.040						
26		3	0.061						
27		4	0.050						
28		5	0.081						
29		6	0.202						
30		7	6.12						
31		8	0.072						
32		9	0.238						
33		10	0.165						
34	MMA	1	0.045						
35		2	0.065						
36		3	0.026						
37		4	0.045						
38	CYS	1	0.012						
39		2	0.060						
40									
Detection			0.005						
Standard	2.0		0.600						
Repeat-									
Repeat-									
Method			1990						

Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

RESPONSIBLE OFFICER
 [Signature]
 17/10/78

S
F
C
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R
N
E
M
S
C

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 44 Lane Street, Kalgoorlie, W.A. 6430

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 Phone (090) 21 1416

789058

ANALABS (AUST.) PTY. LTD. ANALYTICAL REPORT

This report must be read in conjunction with the results given for JOB No. 14.2 01 9783

Client.....B.H.P. Exploration,
 (1)G.P.O. Box 11401
HOBART.....TAS.
Attn: R. Hine

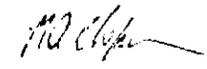
Order No.....000601..... Date Received 1.10.79
 Reference..... Results Required.....
 Delivered by..... Total No. of Samples.....

(2) SAMPLE NUMBERS	STATE OF SAMPLES		PRETREATMENT								ANALYSIS			
	Refer to section (5) for terminology	Average Weight	Dry	Crush	Split	Pulverize	Sieve	Evaporate	Other (See remarks)	None	Refer to section (5) for terminology	Preparation	Method	Coefficient of variation (%)
CYT 10-CYT 42	RO			1		2					Au		IG50	
WBS 1-WBS 3	SO	-80					1				As, Cu, Pb, Zn,	A1	AAS	
CY 7a-CY 118	PU								1		Sb	A11	AAS	

(3) Number of pages of results: ~~11~~ 10
 Date Reported: 11.10.79
 Results to: (1) as above (2) Mr. A. Hope
 P.O. Box 86A,
 MELBOURNE
 Per:
 Number of Copies: 3

(4) Remarks:

(5) STATE OF SAMPLES	ANALYSIS - PREPARATION				ANALYSIS - METHOD	
whole core WC	perchloric acid	A1	cold acid	CA	atomic absorption	AAS
split core SC	hydrochloric acid	A2	specific sulphide	SS	x-ray fluorescence	XRF
cutting CU	nitric acid	A3	other mixed acids	Ma	spectrophotometry	SPEC
rock Ro	aqua regia	A4	alkaline attack	AA	colorimetry	COL
soil SO	nitric-perchloric	A5	volatilization	VO	chromatography	CHR
dulp PU	HF mixture	A6	ignition	JG	titration	TTN
water WA	HF under pressure	A7	pressed powder (XRF)	PP	other chemical means	CHEM
tissue TI	fusion	A8	glass fusion (XRF)	GF	miscellaneous	M SC

Authorized


SPONSORING OFFICER
 X - element concentration is below detection limit

Murray Road, Welshpool, W.A. 6106
 44 Lane Street, Kalgoorlie, W.A. 6430
 15 Traders Way Mt. Isa, Qld. 4825

(AUST.)

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 Phone (090) 21 1416
 Phone (077) 43 6837

Code No. 112 01 9783
 Rack No. W 17a
 Page No. 1
 Order No. 112 01 9783

GEOCHEMICAL RESULT SHEET

TUBE No.	SAMPLE No.		NS	Sn	Ag	Cu	Pb	Zn		
1	CYT	10	6							
2		11	8							
3		12	6							
4		13	30							
5		14	10							
6		15	32							
7		16	4							
8		17	9							
9		18	2							
10		19	6							
11		20	18							
12		21	8							
13		22	9							
14		23	30							
15		24	80							
16		25	720							
17		26	220							
18		27	12							
19		28	2							
20	CYT	29	4							
21		30	2							
22		31	11							
23		32	13							
24		33	10							
25		34	2							
26		35	11							
27		36	4							
28		37	5							
29		38	4							
30		39	6							
31		40	10							
32		41	4							
33	CYT	42	8							
34	WBS	1		*	X	5	5	10		
35		2		*	X	5	5	5		
36		3		*	X	5	5	15		
37	CYT	7A		*	X	75	5	95		
38		8		*	X	15	5	25		
39		4		*	X	15	5	50		
40		13		*	X	55	20	65		
Detection			1		0.5	5	5	5		
Standard	F25		52	120	15	155	15	110		
Repeat -	CYT	10	6							
Repeat -	CYT	29	4							
Method			AI/VO	All	AI/AS					

POSSIBLE ICER
 4/10/79
 X = element concentration is below detection limit
 - = element not determined

GEOCHEMICAL RESULT SHEET

TUBE No.	SAMPLE No.		Sb	Ag	Cu	Pb	Zn		
1	CYT	10	>	0.5	20	105	215		
2		11	>	X	25	165	240		
3		12	>	X	20	100	210		
4		13	>	10	100	365	250		
5		14	>	X	10	10	60		
6		15	>	10	70	180	125		
7		16	>	X	15	5	50		
8		17	>	X	10	5	40		
9		18	>	X	5	15	70		
10		19	>	X	15	30	175		
11	CYT	20	1	X	55	800	655		
12		21	=	X	35	20	500		
13		22	>	0.5	65	65	275		
14		23	1	X	100	2050	1300		
15		24	5	4.0	205	1250	4450		
16		25	5	39.0	1250	1550	2100		
17		26	5	X	95	10	135		
18		27	>	56.5	4050	420	1000		
19		28	>	X	200	15	30		
20		29	>	X	80	5	125		
21	CYT	30	>	X	25	15	40		
22		31	>	X	20	10	20		
23		32	>	X	30	45	125		
24		33	>	X	25	30	175		
25		34	>	X	30	40	205		
26		35	>	X	15	5	145		
27		36	>	X	15	X	85		
28		37	>	X	15	15	75		
29		38	>	X	10	5	40		
30		39	>	X	15	5	55		
31	CYT	40	>	X	20	10	35		
32		41	>	X	20	10	25		
33		42	>	X	25	10	115		
34									
35									
36									
37									
38									
39									
			1	0.5	5	5	5		
		5	195	0.5	155	10	110		
		10	>	X	20	105	220		
		29	>	X	70	5	125		
			AN	AN/AN					

RESPONSIBILITY OFFICER
 [Signature]
 10.10.79
 wise specified concentration too low to measure
 in is below detection limit
 ined

12 Murray Road, Welshpool, W.A. 6106
 44 Lane Street, Kalgoorlie, W.A. 6430
 15 Traders Way Mt. Isa, Qld. 4825

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 Phone (077) 43 6837

Code No. 142 01 9723
 Rack No. 31/30 60
 Page No. 2
 Order No. 1001

GEOCHEMICAL RESULT SHEET

TUBE No.	SAMPLE No.		St	Pb	Zn				
1	C4	14	*	0.5	5	5			
2		15	*	X	280	170			
3		18	*	X	10	90			
4		19	*	X	20	95			
5		21	*	X	5	30			
6		22	*	X	5	15			
7		23	*	X	X	50			
8		26	*	X	5	65			
9		29	*	X	5	55			
10		30	*	X	60	345			
11		31	*	X	X	20			
12		32	*	X	10	80			
13		36	*	X	5	90			
14		38	*	X	10	75			
15		40	*	X	25	80			
16		44	*	X	45	245			
17		46	*	X	5	85			
18		47	*	X	65	375			
19		48	*	X	5	10			
20	C4	49	*	X	X	10			
21		53	*	X	5	50			
22		60	*	X	5	35			
23		61	*	X	10	40			
24		62	*	X	25	90			
25		64	*	X	5	15			
26		67	*	X	X	105			
27		69	*	X	10	85			
28		70	*	X	5	30			
29		71	*	X	5	30			
30		73	*	X	25	65			
31		74	*	X	20	70			
32		75	*	X	40	75			
33		76	*	X	25	65			
34		78	*	X	5	50			
35		80	*	0.5	5	100			
36		83	*	X	X	40			
37		85a	*	0.5	40	115			
38		87	*	X	5	140			
39		88	*	X	X	40			
40	C4	89	*	X	5	165			
Detection			1	0.5	5	5			
Standard	P03		120	1.0	15	105			
Repeat	C4	49	*	X	5	5			
Repeat	C4	49	*	X	X	10			
Method			All	All	AMS				

RESPONSIBLE OFFICER
 4/10/79
 Results in ppm unless otherwise specified
 T = element present; but concentration too low to measure
 X = element; concentration is below detection limit
 - = element; not determined

GEOCHEMICAL RESULT SHEET

TUBE No.	SAMPLE No.		AS						
1	CY	78	2						
2	CY	80	>						
3		83	>						
4		85A	>						
5		87	>						
6		88	>						
7		89	>						
8	CY	90	>						
9		91	2						
10		99	>						
11	CY	103	>						
12		105	>						
13		106 f	>						
14		109	>						
15		114 f	>						
16		116	>						
17	CY	118	>						
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									
Detection			1						
Standard	FS	5	50						
Repeat -	CY	78	2						
Repeat -									
Method			Al3						

RESPONSIBLE OFFICER
 T - element present; but concentration too low to measure
 X - element concentration is below detection limit
 - - - element not determined

GEOCHEMICAL RESULT SHEET

TUBE No.	SAMPLE No.	Sb	Ag	Cu	Pb	Zn			
1	C490	.	X	20	10	60			
2	91	.	X	50	15	20			
3	99	.	X	5	10	30			
4	103	.	X	15	5	40			
5	105	.	X	115	5	35			
6	106F	.	X	40	10	45			
7	109	.	X	55	5	45			
8	114F	.	X	60	5	35			
9	116	.	X	10	5	15			
10	118	.	X	110	10	35			
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
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29									
30									
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									
Detection		1	0.5	5	5	5			
Standard	PS 6	120	0.5	145	15	110			
Repeat	C490	.	X	15	15	60			
Repeat									
Method		ALL	ALL/MS						

element present, but concentration is below detection limit
 X = element concentration is below detection limit
 - = element not determined

Highway Road, Welshpool, W.A. 6106
 Street, Kalgoorlie, W.A. 6430
 Leaders Way Mt. Isa, Qld. 4825

(AUST.)

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 Phone (077) 43 6837

Code No. _____
 Rack No. 2
 Page No. 1
 Order No. 789064

GEOCHEMICAL RESULT SHEET

TUBE No.	SAMPLE No.		As						
1	WBS	1	4						
2		2	2						
3		3	6						
4	CY	7A	3						
5		8	7						
6		11	7						
7		13	1						
8		14	7						
9		15	3						
10		18	7						
11		19	2						
12	CY	21	7						
13		22	7						
14		23	7						
15		26	7						
16		29	7						
17	CY	30	7						
18		31	7						
19		32	7						
20		36	7						
21		38	7						
22	CY	40	7						
23		44	7						
24		46	7						
25		47c	7						
26		48	7						
27		49	7						
28	CY	53	7						
29	CY	60	7						
30		61	7						
31		62	7						
32		64	7						
33		67	7						
34		69	7						
35	CY	70	7						
36		71	7						
37		73	7						
38		74	7						
39		75	7						
40		76	7						
Detection			1						
Standard	FSS		50						
Repeat -	WBS	1	4						
Repeat -	CY	36	7						
Method			A13						

10/10/79
 10/10/79

- = element not determined
 - = element not determined

789064

GEOCHEMICAL RESULT SHEET

789065

5, 10, X

TUBE No.	SAMPLE No.		AN						
1	CYT	10	0.034						
2		11	0.041						
3		12	0.043						
4		13	0.200						
5		14	0.025						
6		15	0.112						
7		16	0.053						
8		17	0.020						
9		18	0.020						
10		19	0.072						
11		20	0.221						
12		21	0.160						
13		22	0.214						
14		23	0.687						
15		24	0.892						
16		25	6.80						
17		26	2.94						
18		27	0.152						
19		28	0.043						
20		29	0.015						
21		30	0.009						
22		31	0.063						
23		32	0.038						
24		33	0.041						
25		34	0.029						
26		35	0.018						
27		36	0.030						
28		37	0.050						
29		38	0.083						
30		39	0.042						
31		40	0.036						
32		41	0.055						
33		42	0.055						
34									
35									
36									
37									
38									
39									
40									
Detection			0.005						
Standard	LOW		0.550						
Repeat -	CYT	22	0.203						
Repeat -		25	6.30						
Method			18.50						

element not determined

789066

Code No. 14-2-01 9783
 Rack No. _____
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 Order No. _____

GEOCHEMICAL RESULT SHEET

TUBE No.	SAMPLE No.									
1	Cy	7a	+							
2		8	+							
3		11	+							
4		13	+							
5		14	+							
6		10	+							
7		18	+							
8		19	+							
9		21	+							
10		22	+							
11		23	+							
12		26	+							
13		29	+							
14		30	+							
15		31	+							
16		32	+							
17		36	+							
18		38	+							
19	Cy	40	+							
20		44	+							
21		46	+							
22		47	+							
23		48	+							
24		49	+							
25		53	+							
26		60	+							
27		61	+							
28		62	+							
29		64	+							
30		67	+							
31		69	+							
32		70	+							
33		71	+							
34		73	+							
35		74	+							
36		75	+							
37		76	+							
38		78	+							
39		80	+							
40		83	+							
Detection			0.05							
Standard	SM7		2.0							
Repeat -	Cy	73	+							
Repeat -	Cy	83	+							
Method			2810							

Continuation of

- AAS
- XRF
- SPEC
- COL
- CHR
- ITN
- CHEM
- MISC

789067

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Code No. 142 01972
 Rack No. _____
 Page No. _____
 Order No. 142 01972

GEOCHEMICAL RESULT SHEET

TUBE No.	SAMPLE No.	Pr							
1	CY 85n	+							
2	87	+							
3	88	+							
4	89	+							
5	90	+							
6	91	+							
7	99	+							
8	CY 103	+							
9	05	+							
10	06p	+							
11	09	+							
12	14p	+							
13	16	+							
14	18	+							
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									
Section			0.01						
Standard									
Sub-									
at-									
Method			1510						

near Unsibl PFCER

Concentration is below detection limit
not determined

CONTINUED
ANALYSIS (N)

- METHOD
- AAS
 - XRF
 - SPEC
 - COL
 - CHR
 - TTN
 - CHEM
 - MISC

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 44 Lane Street, Kalgoorlie, W.A. 6430
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Code No. 142015713

Rack No. _____

Page No. _____

Order No. 100 270/100

GEOCHEMICAL RESULT SHEET

TUBE No.	SAMPLE No.								
1	L85	1	0.006						
2		2	X						
3		3	0.020						
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									
Detection			0.00						
Standard	L06		0.670						
Repeat -									
Repeat -									
Method			L850						

RESPONSIBLE OFFICER
 11.10.88

If concentration is below detection limit
 element not determined

ANALABS PTY. LTD.

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 15 Traders Way Mt. Isa, Qld. 4825

Phone (09) 458 7999
 Phone (090) 21 1416
 Phone (077) 43 6837

Code No. 14-2-01-9783
 Rack No. W2
 Page No. 1
 Order No. 5/10/1983

GEOCHEMICAL RESULT SHEET

TUBE No.	SAMPLE No.		Cu						
1	CY	14	10						
2		15	55						
3		18	20						
4		19	10						
5		21	40						
6		22	95						
7		23	55						
8		26	130						
9		29	100						
10	CY	30	120						
11		31	35						
12		32	65						
13		36	205						
14		38	INSUFFICIENT SAMPLE						
15		40	135						
16		44	15						
17		46	25						
18		47C	10						
19		48	70						
20	CY	49	10						
21	CY	53	5						
22		60	25						
23		61	I.S.						
24		62	I.S.						
25		64	20						
26		67	50						
27		69	10						
28	CY	70	20						
29		71	I.S.						
30		73	15						
31		74	40						
32		75	5						
33		76	5						
34		78	5						
35	CY	80	95						
36		83	x						
37		85a	10						
38		87	x						
39		88	x						
40	CY	89	5						
Detection			5						
Standard	FS	5	150						
Repeat -	CY	14	10						
Repeat -	CY	49	10						
Method			AI/MA						

RESA... OFFICE...
 element present, but concentration too low to measure
 X = element concentration is below detection limit
 - = element not determined

789069

PLANS

Plan 1: Sample Locations, Sheet 1 (1:15840)

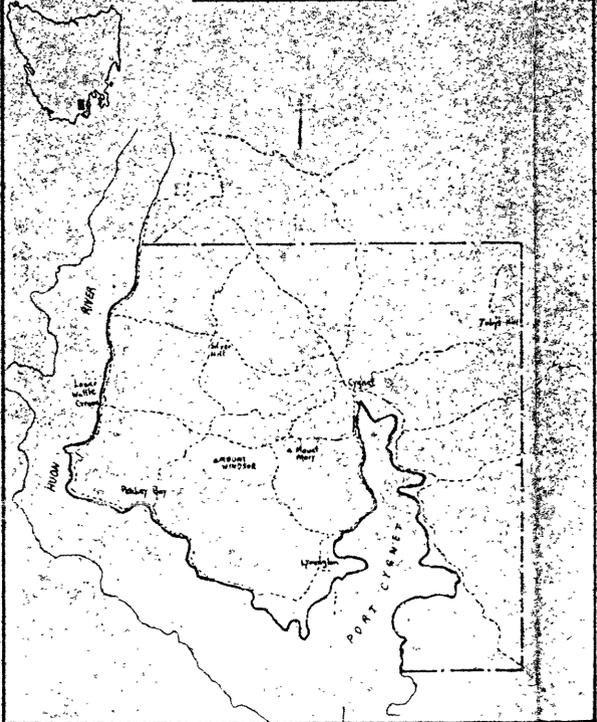
Plan 2: Sample Locations, Sheet 2 (1:15840)

Plan 3: Soil sample locations, Mt Mary & Livingstone Mines

Plan 4: Bouger Anomaly(from D. Leaman)

Plan 5: Magnetic Field Intensity (from D. Leaman)

LOCATION MAP



Fig

SHEET 1
SHEET 2

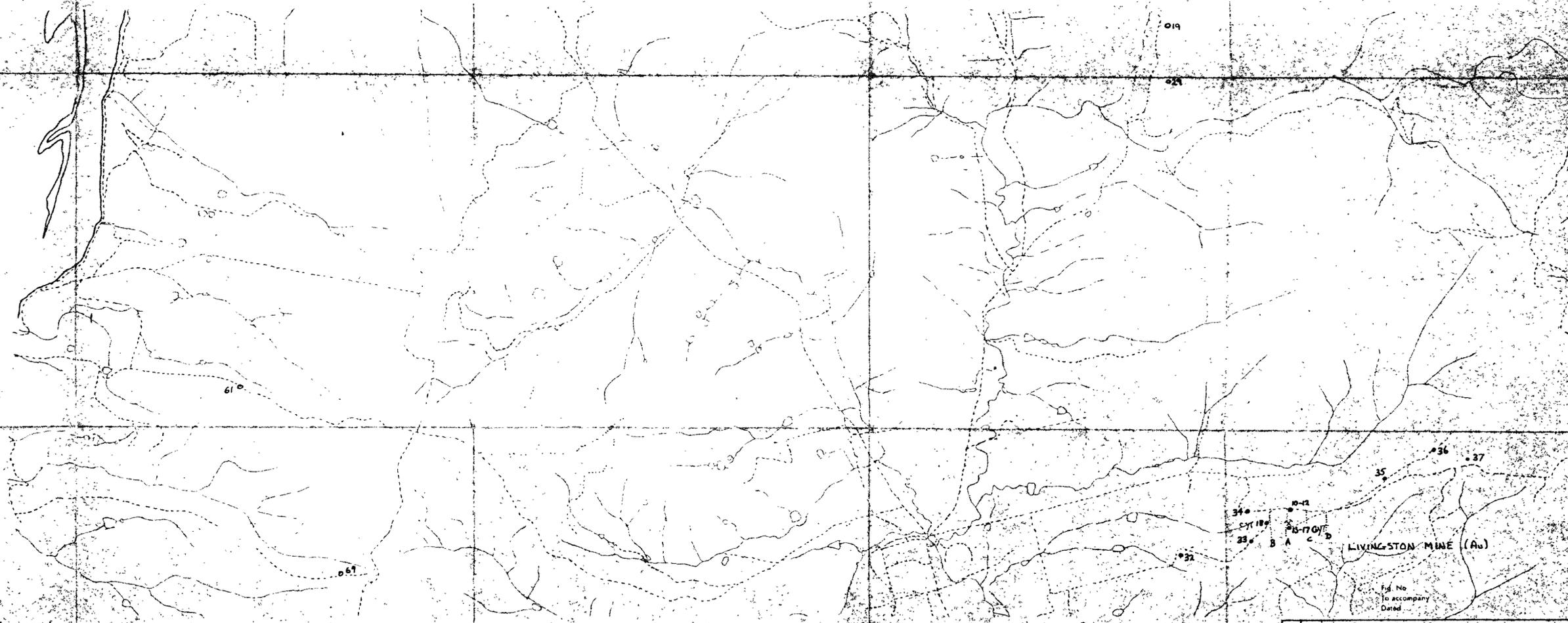


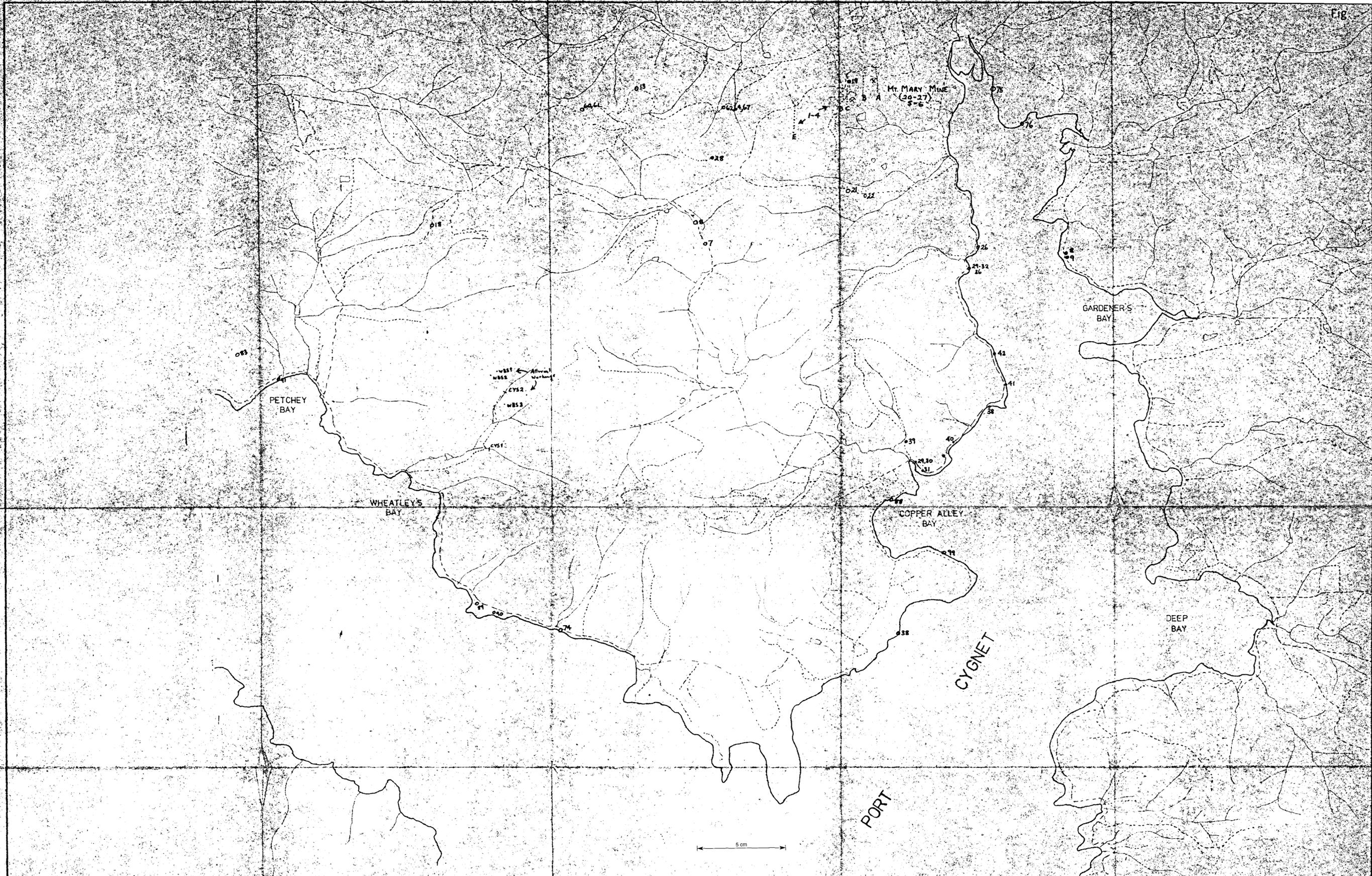
Fig. No.
To accompany
Dated

THE BROKEN HILL PROPRIETARY CO. LTD. EXPLORATION DEPARTMENT			
CYGNET ELA 52/79 TASMANIA			
ROCK & SOIL SAMPLE LOCATIONS			
Sheet 1			
Drawn: R.M.	Date: 19-10-79	Centre: HBT	
Checked:	Project No:	Drawing No:	
ATC	G-250	A1-	

BHP

Plan 3.

95 3742



5 cm

SCALE 1:15840

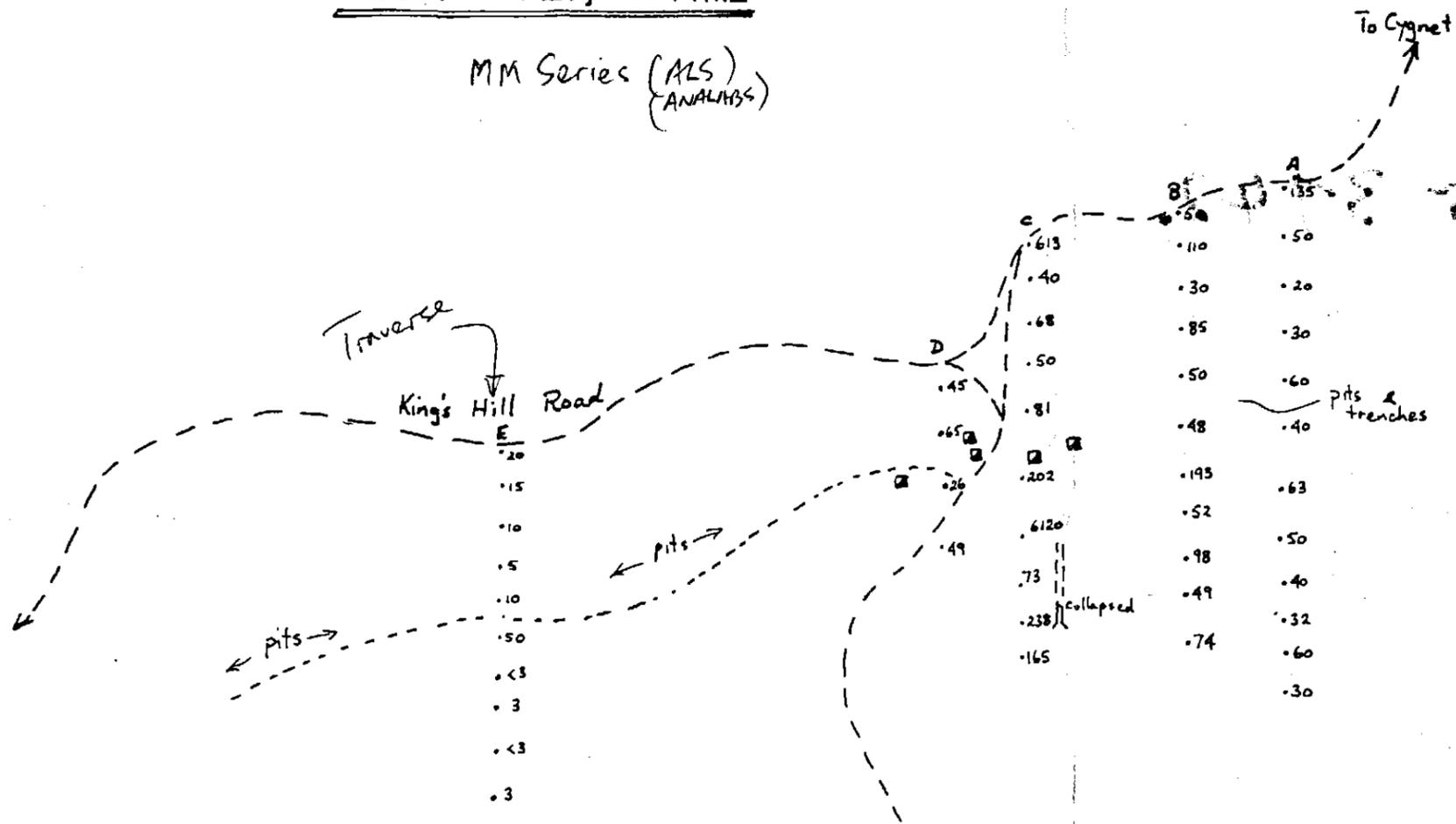
Fig. No.
To accompany
Dated

THE BROKEN HILL PROPRIETARY CO. LTD. EXPLORATION DEPARTMENT		
CYGNET ELA 2279 TASMANIA		
ROCK & SOIL SAMPLE LOCATIONS (Sheet 2)		
Drawn: P.H.	Date: 19-10-79	Centre: HBT
Traced:	Project No:	Drawing No:
Checked: DTC	G250	A1-

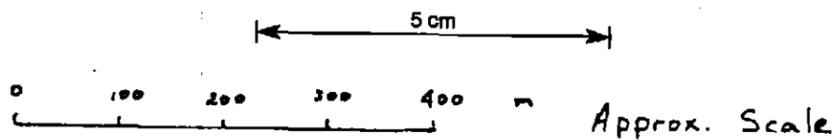
Sketch Map - Soil Sample Results

Mount Mary Mine

MM Series (ALS)
(ANALYSIS)



Au in ppb - 80* soil samples

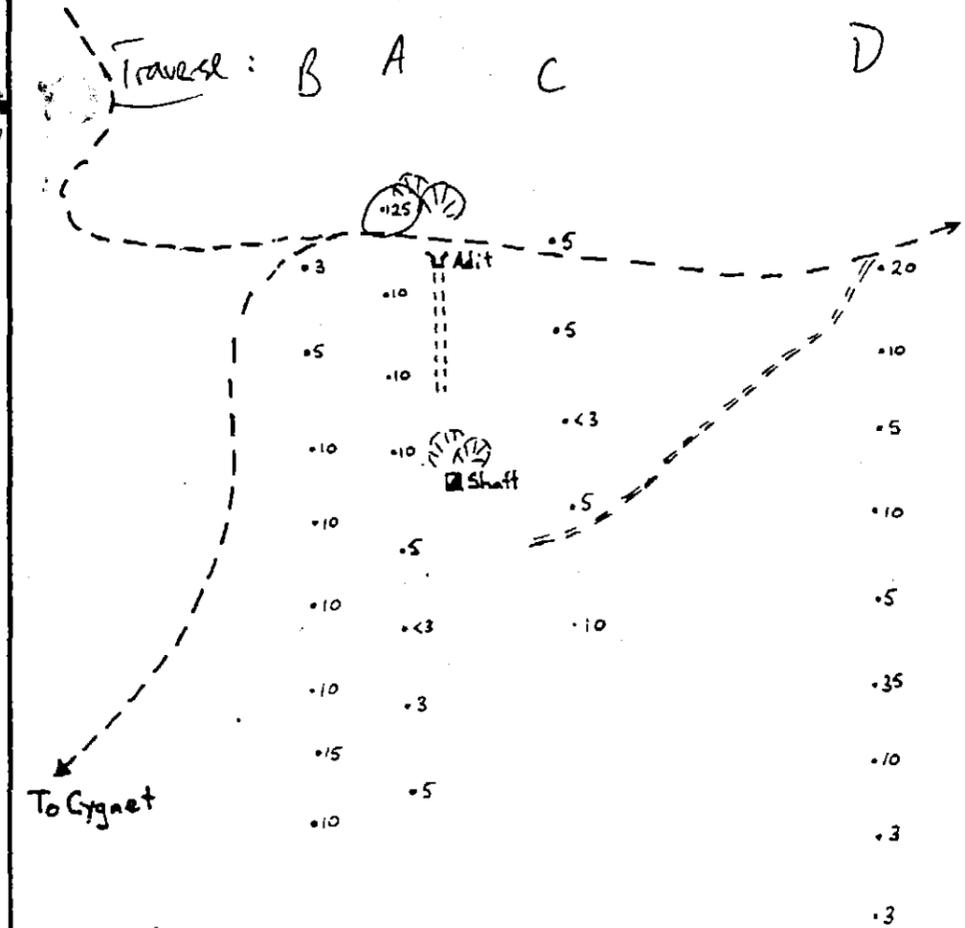


TN ↑

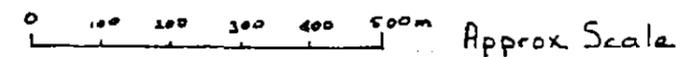
Sketch Map - Soil Sample Results,

Livingston Mine

LIV Series samples (ALS)



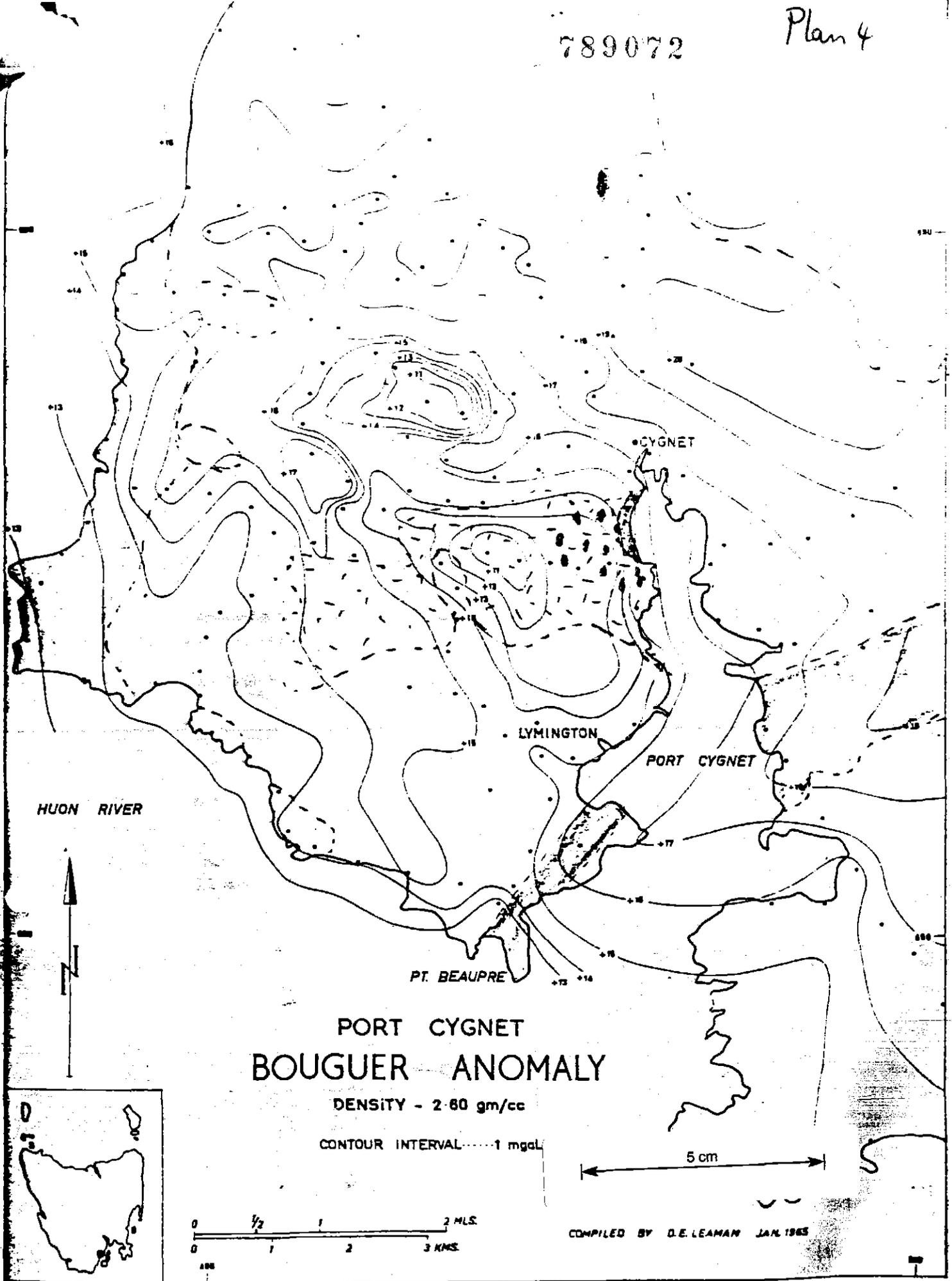
Au in ppb - 80* soil samples



TN ↑

789071

THE BROKEN HILL PROPRIETARY CO. LTD.			
EXPLORATION DEPARTMENT			
CYGNET ELA. SE Tas.			
Orientation Soil Sample Results - Au			
Prepared by:	R. H.	Centre:	HOBART
Date:	12/11/79	Project No.:	G 250
Drawn:		Drawing No.:	A3-

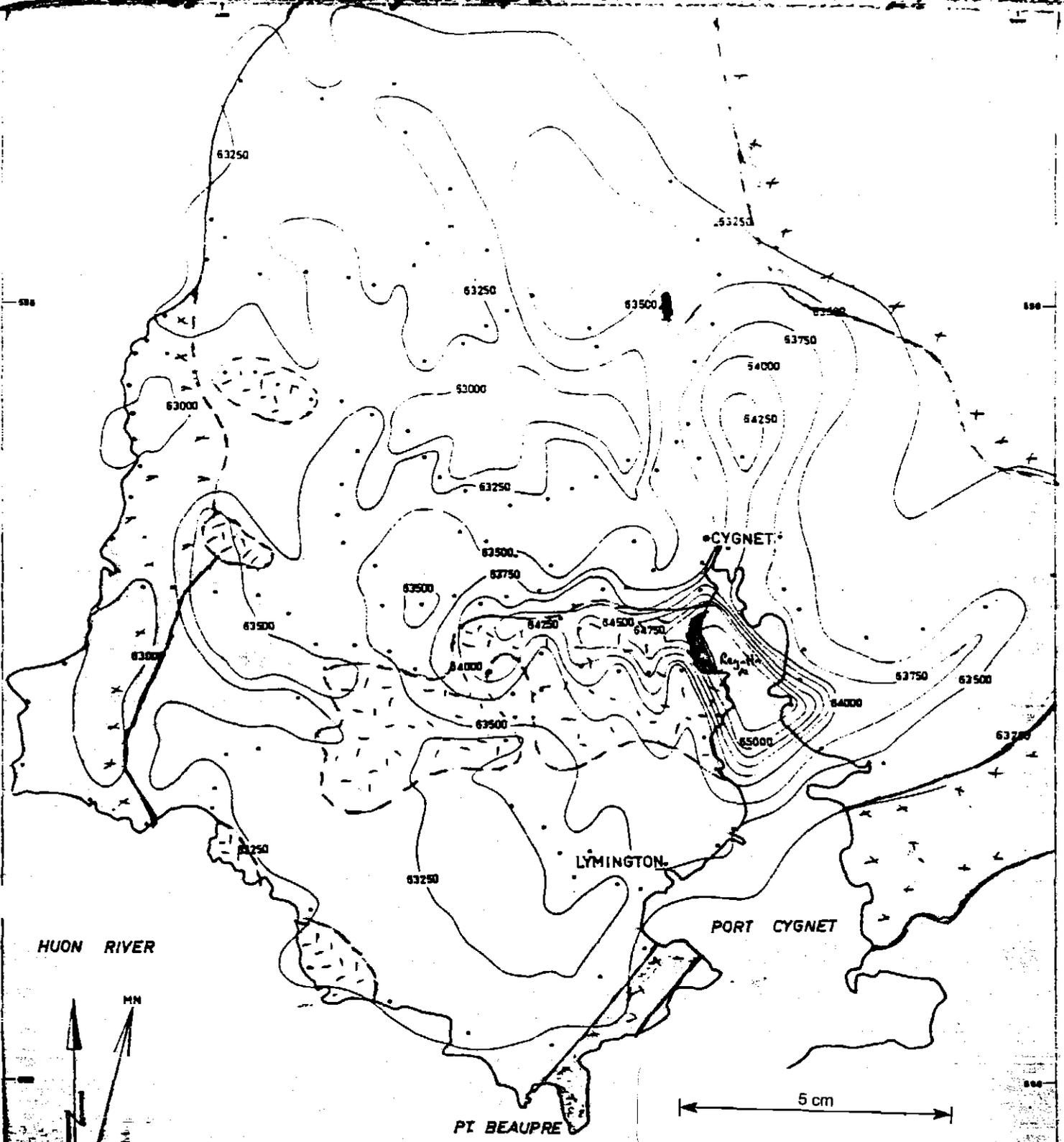


DOLERITE
 SYENITE PORPHYRY
 HYBRID ZONE



Fig. 66.

BOUGUER ANOMALY
 &
 MAGNETIC FIELD
 SHOWING LOCATION OF



HUON RIVER



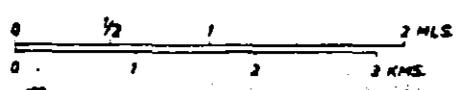
PT BEAUPRE

5 cm

PORT CYGNET
 MAGNETIC FIELD INTENSITY
 FIELD IN GAMMAS

CONTOUR INTERVAL.....250 gammas (250 G)

granite
 dolomite



COMPILED BY D.E. LEAMAN JAN 1968



F7