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FINAL REPORT

ON EL 24/73

DIAL RANGE, TASMANIA

FOR: Geopeko, PO Box 217, Gordon, NSW, 2072

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AMG REFERENCE POINTS ADDED

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Figure 1

E.L.24/73 Dial Range Locality Diagram

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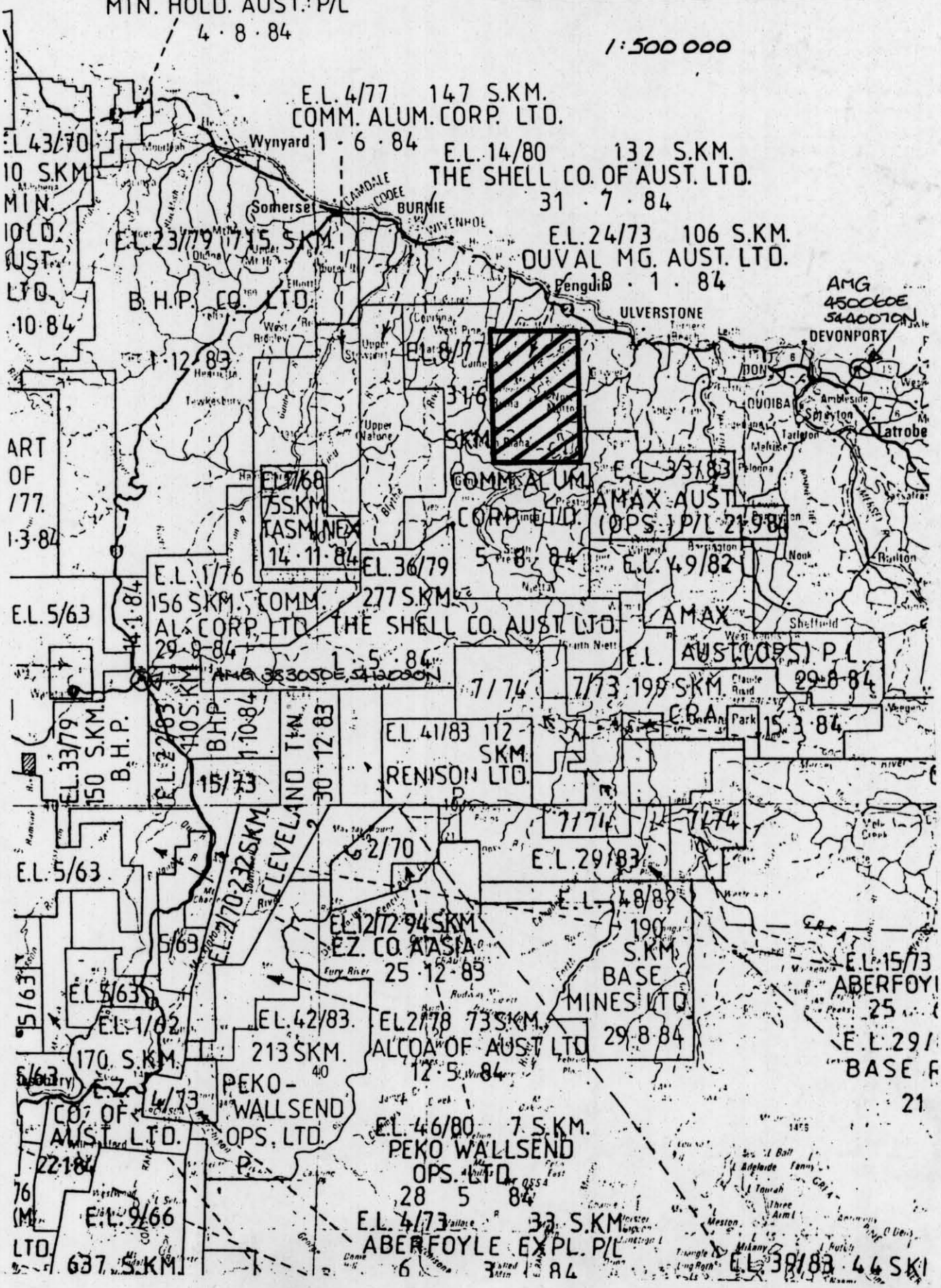

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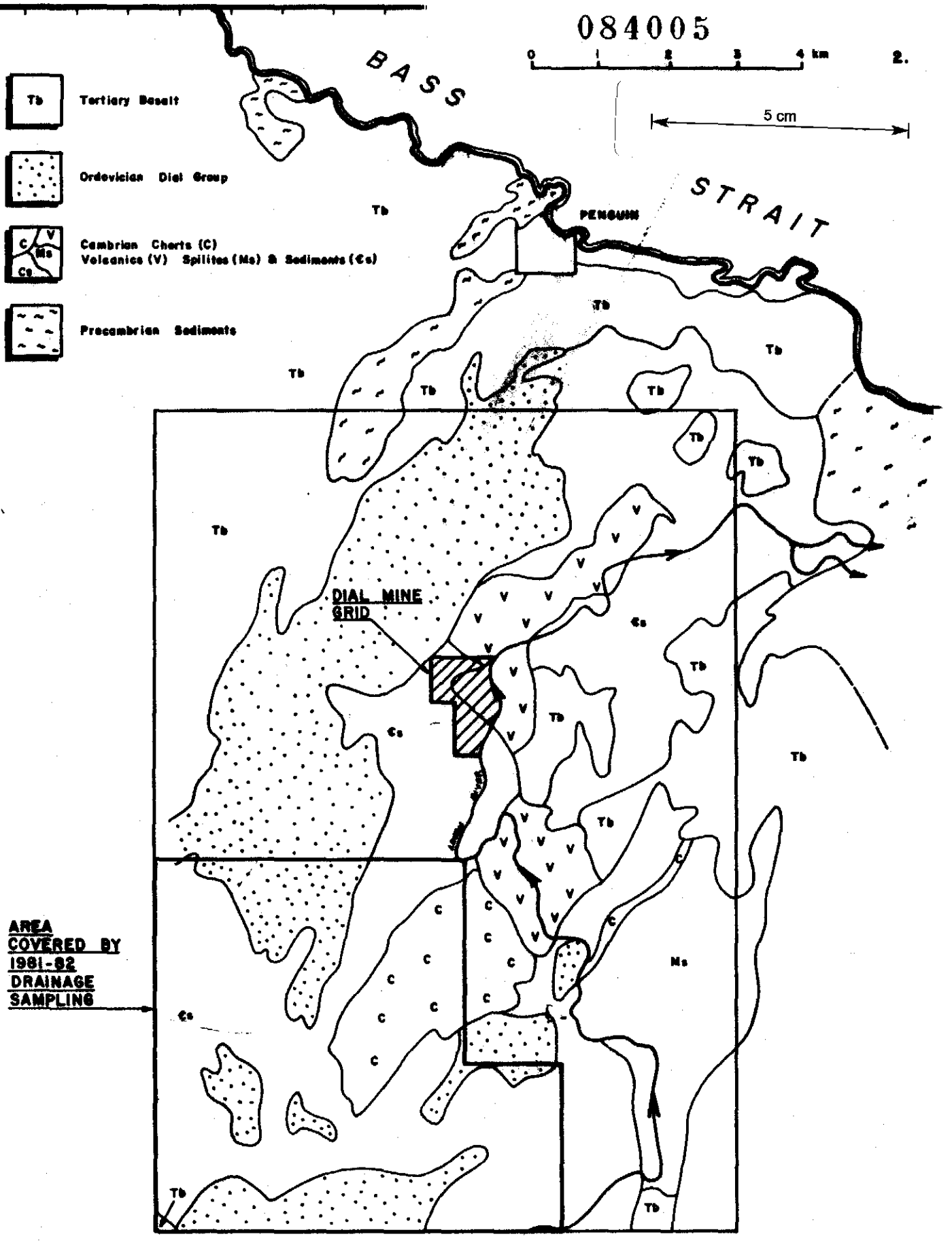

FIG. 2

GEOPEKO
A DIVISION OF PEKO-WALLSEND OPERATIONS LTD

DATE 2/8/82
GEOL P.A.W
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DIAL RANGE

LOCATION MAP WITH REGIONAL GEOLOGY AFTER BURNS (1964)

1. INTRODUCTION

This final report on EL 24/73 Dial Range summarises the concepts and results of somewhat sporadic mineral exploration carried out by Pennzoil and Geopeko during the licence's eleven year history.

This author has regrettably little first hand knowledge of most (particularly the early) work done and hence many of the conceptual notions and conclusions expressed herein are gleanings from documentary reports of the workers referred to.

2. SUMMARY

Mineral exploration of Exploration Licence 24/73 has spanned approximately eleven years.

The initial few years work was undertaken by Pennzoil of Australia in search of stratabound volcanogenic massive base metal sulphide deposits.

With the advent of a Pennzoil-Geopeko joint venture in 1978 the emphasis switched to exploration pyrrhotite-cassiterite replacement deposits of the Renison Bell type.

Approximately four-fifths of the exploration effort and expenditure by Pennzoil and Geopeko has been directed at investigation of the old Dial Mine area in the central north of the licence area. Methods applied have included grid cutting, outcrop/float mapping, soil geochemistry, VLF-EM, IP, MIP, TURAM, SP and magnetic geophysics and drilling of ten diamond drill holes into various geochemical/geophysical targets. Ferruginnous (pyritic) sedimentary breccias, locally anomalous in copper, tin and arsenic, are widespread in the complex mixed sedimentary-volcanic-intrusive (?) Cambrian rock assemblage of the Dial Mine area.

Encouraging but sub-economic levels of tin and copper were intersected in several of the drill holes.

Regional appraisal of the greater part of the exploration licence has included stream sediment sampling and reconnaissance geological mapping, brief examination of some old mineral prospects and an aeromagnetic survey with ground follow up of eighteen selected anomalies.

3. TENURE HISTORY

EL 24/73, of 106 sq km, was granted to Pennzoil of Australia (a subsidiary of Duval International Corp.) on 18/1/74 and was explored by that company on a summer seasonal basis until April of 1977.

In September 1978 Pennzoil entered a joint venture agreement with Geopeko (a division of Peko-Wallsend Operations Ltd) whereby the latter could earn a 52% interest in the licence upon the expenditure of $136,533 within three years.

Geopeko, conveniently based at Devonport, took over execution of exploration programmes. The work was of somewhat discontinuous nature restricted to short winter seasons in the period 1979 to 1982.

Essentially no exploration was carried out in the period September 1982 to November 1983 as Geopeko endeavoured to find a third partner to contribute to the joint venture.

This being unsuccessful, Geopeko and Pennzoil jointly sponsored an aeromagnetic survey and limited follow-up work during November 1983 to May 1984.

Pennzoil (Duval) withdraw from the joint venture on 2/10/84 and Geopeko (having itself withdrawn from active exploration in Tasmania in 1984 and unsuccessful in attracting a new partner) allowed the licence to lapse in January 1985.

4. EXPLORATION BY PENNZOIL 1973-1977

4.1 Concepts, Models and Methods

(1973-75)

A 1973 Pennzoil metallogenic study of western Tasmania identified the Dial Range Trough as a potentially favourable environment for occurrence of "stratabound or conformable base metal sulphide deposits of the volcanogenic style" (Graham, 1975).

Reconnaissance of the old Dial Mine area revealed extensive zones of gossanous coarse fragmental (volcanic?) rocks. Following the granting of the licence a metric grid (700 x 1200 metres) was cut over the Dial mine area.

Initial work on the grid included geological mapping, soil and rock chip geochemistry, VEM and gradient array IP with partial coverage by TURAM and pole-dipole IP. Mapping outlined a sequence of coarse breccias/agglomerates, lithic tuffs, lavas, mudstones and siliceous "tuffites". The coarse breccias, thought to be associated with a volcanic vent contained gossanous relicts indicating original sulphide content of up to 10% or greater. Analysis of these (oxidized) rocks indicated base metal values generally greater than 1000ppm Cu, 250ppm Pb and 200ppm Zn.

Soil geochemistry (horizon unspecified) with analysis for Hg, Cu, Pb, Zn produced anomalous patterns in Cu, Pb, Zn (peaks at 1000, 150 and 120 ppm respectively) with some "downslope displacement" but generally correlated with gossanous pyroclastic rocks.

A VEM survey failed to locate continuous conductors.

IP "indicated the existence of deeply leached surface layer below which occurred an extensive area of disseminated sulphides in which horizons of greater sulphide concentration were included".

TURAM detected very narrow zones of very high conductivity within a disseminated host.

During 1975 two diamond core holes were drilled to test combined soil geochemical/gradient IP/TURAM anomalies (H1 of 145.95m, H2 of 115.06m).

Both holes intersected pyrite mineralization (as disseminations, veins and reworked sulphide clasts) with minor copper but did not convincingly explain the geophysical target anomalies.

It was postulated that best potential existed in more quiescent environments at deeper stratigraphic levels or more distally-removed from the disruptive environs of the explosive vent.

Recommendations included flying of airborne TURAIR (EM) over the Dial Mine area and extensions to east and north west.

(1975-76)

During the 1975-76 year work on the Dial Mine grid was suspended to allow a regional appraisal of the exploration licence.

The work included:

- 1:10,000 geological mapping of Cambrian rocks
- Stream sediment geochemical sampling
- Soil geochemical sampling at random and along tracks and traverses
- A small grid was cut over the Whiskey Creek area (north of Dial Mine) and covered by mapping, soil geochemical sampling and a magnetic (fluxgate) survey.

The principal achievement in this programme was the delineation of the lower "volcanic" members of the Cateena Mudstone Group which were considered to be possibly contemporaneous with volcanism of the Mt Read "Volcanic Arc" and most favourable for massive sulphide mineralization.

Several additional geochemical anomalies within the volcanic rocks had been discovered by reconnaissance geochemistry.

Future plans included more detailed grid work on these new anomalous areas and anticipated diamond drilling any derived targets as well as further holes on the Dial Mine Grid (Chapman, 1976).

(1976-77)

Exploration during the 1976-77 summer comprised limited follow-up of two geochemically anomalous areas identified by the previous season's reconnaissance as well as an extensive geophysical survey and diamond drilling in the environs of the Dial Mine Grid (Scott and Chapman, 1977).

At Russell's Prospect, near the mouth of Hardstaff Creek, soil sampling on a small three line grid revealed weakly anomalous geochemical values, peaking at 170ppm Cu, 135ppm Pb and 164ppm Zn, associated with ferruginous sedimentary (fragmental) rocks. These values were considered insignificant and no further work was planned.

At the Walloa Creek anomaly in the southern part of the EL, soil sampling was carried out on three lines. Results were "non definitive"

although anomalous copper values (up to 350 ppm Cu) were encountered near the unconformable contact between Ordovician siliceous conglomerates and Cambrian volcanics and sediments. Further work was considered justified but not defined.

An extensive Magnetic Induced Polarization survey (by SCINTREX; ref: Howland-Rose 1977) was carried out over 18 lines on the Dial Mine Grid and extensions to north and south. The technique was applied in an endeavour to better define and assess the significance of "units" of high chargeability within broadly anomalous zones indicated by the previous Gradient Array IP survey.

Several significant MIP chargeability zones were identified with varying degrees of correlation or ambiguous lack of correspondence with chargeability/conductivity anomalies of previous geophysical surveys.

An additional four diamond drill holes, totallinng 683.6m, were drilled on several (mainly geophysical) targets.

Two of the holes (DDH 3, 5) intersected pyritic and pyritized agglomerates in the primary zone locally carrying minor copper (0.2 - 0.7% Cu) with minor supergene chalcocite mineralization (up to 1.3% Cu) near the limit of oxidation (at around 80-120 m depth). These results were seen as indications that the pyritic fragmental rocks (whilst containing up to 20% pyrite) contained minimal base metal concentrations. It was again suggested that the rocks accumulated in a near vent environment, too unstable to allow deposition of an extensive massive sulphide body.

DDH 4 (designed to test coincident gradient array, pole-dipole and MIP anomalies) intersected a sequence of laminated, partly carbonaceous siltstones underlain by a 5m thick porous pyritic (20-30% disseminated Py) cherty tuff containing minor chalcopyrite (0.37% Cu) associated with tuffaceous agglomerates and rhyolitic tuffs. This was interpreted as a more encouraging (quiescent) volcanic environment for massive sulphide mineralization.

DDH 6 was designed to test an MIP anomaly adjacent to an intrusive contact approximately 0.5 km north of the Dial Mine area. The hole intersected homogenous amphibole and feldspar porphyritic "keratophyre" and passed into a mixed acid tuffaceous/sedimentary sequence locally containing up to 5% disseminated pyrite and including some partly carbonaceous and calcareous siltstones.

4.2 Conclusions

The general conclusions from Pennzoil's work concentrated around the Dial Mine area were twofold:

1. Many of the electrical geophysical anomalies identified could be attributed to pyritic agglomerates thought to have accumulated in a near vent volcanic environment. Although minor copper mineralization was generally present it appeared that the environment of deposition was too unstable to allow formation of an extensive massive sulphide body. This realisation substantially downgraded the prospectivity of most of the Dial Mine area.

2. The rock types encountered in DDH 4 represented a more quiescent volcanic environment considered to be a very favourable environment for economic massive sulphide deposition. Recommendations for further work involved use of MIP and drilling to trace and test this favourable lithological assemblage.

Exploration elsewhere than the Dial Mine Grid had not been exhaustive but of the few geochemical anomalies/prospects investigated none had warranted further work beyond preliminary follow-up.

4.3 Access and Rehabilitation

Little is known about Pennzoil's exploration modus operandi.

It can be assumed that grid lines for geophysical/geochemical surveys were hand cut, flagged and probably pegged, would not require a great effort in environmental rehabilitation and probably received none.

As it is today the Dial Mine Grid area is fairly well dissected by a network of old vehicular tracks suitable for 4WD motor cars. Most of them appear to be old timber logging tracks.

Scott and Chapman, 1977, mention that the second phase of diamond drilling was carried out with a Longyear 38 drill rig. This machine would presumably have required some bulldozer support for access and drill site preparation. It is not known to what extent earthmoving equipment may have been used or what rehabilitation may have been carried out by Pennzoil during the period 1973-77.

5. EXPLORATION BY GEOPEKO 1978 - 1984

Geopeko's entry into the Dial Range exploration joint venture marked a change in target emphasis.

It was considered that Pennzoil's work had been an effective test for massive volcanogenic copper mineralization, at least in the Dial Mine grid area.

The possible presence of stockwork copper deposit and flanking stratabound lead-zinc was not denied but the new priority was to be exploration for cassiterite-sulphide replacement deposits.

The favourable indicators for this type of mineralization included:

(a) Recognition of metasomatically altered sediments in Dial drill core by H W Fander who reported fine grained tourmaline, phlogopite-sericite, Fe carbonate, pyrite, pyrhottite and arsenopyrite and commented on the similarity to contact tourmalinization assemblages in the NW Tasmanian tin province.

(b) Presence of anomalous tin (1500ppm Sn in semi-quantitative XRF analysis) in a core sample analysed by Geopeko during JV appraisal.

(c) Occurrences of calcareous sediments which could constitute favourable hosts for replacement mineralization.

(d) Major faulting which could provide access for mineralizing solutions.

(e) A granite diapir axis postulated by Carey (1978) runs through the southern part of the EL.

5.1 Concepts, Models and Methods

1978 - 1979 (Refer to Large and Herrmann, 1980)

Initial appraisal by Geopeko included re-analysis of Pennzoil's Dial drill core for the elements Sn, W, Mo, Cu, Pb, Zn, Ag, Mn, Bi and Fe. Tin values ranged from less than 20 to 400ppm Sn showing a rough correlation with copper. It was postulated that these anomalous levels of tin could reflect a high background "tin halo" in proximity to a "major tin-sulphide orebody".

Subsequent stream sediment sampling with analysis of panned concentrates (Sn, W, Au) and -80 mesh fractions (Cu, Pb, Zn) indicated anomalous tin values up to 1600 ppm in the region between Keddies Creek and Mt Duncan focussing on the Dial Mine area.

The Dial Mine Grid was re-established and significantly extended northwards and was then covered by geological mapping, B/C soil geochemical survey, ground magnetics, Self Potential and VLF-EM geophysics.

Soil geochemical analysis (-80 fraction for Sn, W, Cu, Pb, Zn) showed tin values in the range less than 5 to 1300ppm and identified three significant anomalous zones associated with gossanous pyritic sediment breccias.

Ground magnetics showed some ambiguous (high, low, no expression) magnetic character associated with some of the soil tin anomalies.

Self Potential measurements indicated some weak anomalies partly coincident with soil anomalies.

VLF-EM data showed a series of narrow NW striking conductors considered unlikely to relate to subsurface sulphides due to the known 80-120m depth of oxidation which would be beyond the sensitivity of the technique.

It was speculated that any of three styles of tin mineralization could be present:

i) stratiform lenses of "syngenetic" tin mineralization within pyritic breccias

ii) vein stockwork type associated with upper part of Lobster Creek "intrusive" microgranodiorite body

iii) Replacement mineralization related to major fault channelways.

Recommendations were put forward to test up to five of the identified geochemical-geophysical targets by percussion-diamond drilling following coverage by dipole-dipole IP to assist target definition.

Brief reconnaissance was also made of three other old mining prospects in the EL, namely:

Dial Iron Prospect (Mt Riana)
Kaines' (barite) Prospect
Badgers Pb-Ag and Iron Cliffs Prospect.

Although recommendations for further research into the Badgers-Iron Cliffs area were given, no further investigations appear to have been carried out.

1980 (Refer to Large, 1981)

During September-October 1980 four of the five targets defined, during the previous season, on the Dial Mine Gride, were tested for tin mineralization by four diamond drill holes (the proposed dipole-dipole IP survey apparently was not conducted).

Brief details of the nature of the targets and results obtained are as follows:

DDH 7: Designed to test coincident magnetic and tin geochemical anomalies on 3000N. Final depth 200m.

The hole commenced in a sequence of coarse altered "dacitic" lavas and tuffs (trachy basalts?) passed through a narrow (10m) zone of pyritic sediment breccias then through a unit (35m) of andesitic volcanics finally passing into an interbedded sequence dominated by dolomitic-pyritic siltstones with cherts, massive dolomite, limestone carbonaceous dolomite and greywacke. Analysis of core (approx. 1m intervals for Cu, Pb, Zn, Ag, Sn, W) failed to indicate significant mineralization.

The magnetic anomaly was explained by the andesitic volcanics but the surface tin geochemical anomaly remained unassigned.

The thick sequence of calcareous sediments were regarded as an excellent potential host rock for cassiterite-sulphide replacement style mineralization.

DDH 8: Targeted to test an SP anomaly near the contact of the Lobster Creek Volcanic and Cateena Cup Sediments. Total depth 61.5m.

Intersected pyritic cherty siltstones and siltstone breccias before passing into altered "dacite".

The breccias in the interval 46.6-48.0m, were strongly pyritic (5-40% Py), contained minor copper and tin (0.17% Cu, 290ppm Sn) and adequately explained the SP anomaly.

DDH 9: Drilled to test a strong SP anomaly near some old copper workings. Total depth 100m.

Hole intersected a sequence of siltstones, grits, greywackes and breccias with minor iron staining and gossanous zones but without significant copper or tin mineralization. Source of SP anomaly remained speculative.

DDH 10: Designed to test tin-copper soil geochemical anomaly over outcropping gossanous sediment breccias. Final depth 199.5m.

The hole intersected a sequence of heavily oxidised iron stained sediment breccias, passed through a zone of siltstone and sandstone and finished in sediment breccias.

Two separate zones of weak mineralization were recognised:

Depth 41-115m	Fine cassiterite in heavily oxidised (pyritic?) sediment breccias. (30-620ppm Sn averaging 210ppm over 74 metres).
Depth 117-137m	Disseminated stratiform and vein pyrite-chalcocite in silty grey/red sandstones. (0.07-7.28% Cu averaging 0.68% over 20m)

The copper mineralization was considered to be of syngenetic "Red Bed" sedimentary origin.

Results from the diamond drilling led to a reappraisal of the genetic model of mineralization. It was suggested that the copper and tin had separate origins:

Copper in syngenetic sedimentary Red Bed deposits.
Tin in sediment breccias and quartz-pyrite veins probably derived from hydrothermal activity related to Devonian Granite emplacement. (Nearest exposed granite is Mt Housetop at SW corner of EL).

Since suitable calcareous host rocks for replacement mineralization were known at the Dial Mine prospect it was considered that good potential for high grade replacement tin deposits existed at greater depths closer to the postulated granite source.

Recommendations for future work on the prospect included:

(1) Petrological study to enhance understanding of intersected tin and copper mineralization.

(2) Mapping, soil sampling and costeaning in attempt to trace surface expression of sedimentary copper mineralization.

(3) Grid extensions with mapping and soil geochemical survey northward of the Dial Mine Grid.

During November 1980 further drainage sampling was carried out on tributary streams of the Leven River in the eastern part of the area.

Two additional anomalous tin values were recorded in streams adjacent to the Dial Mine area.

Forward programme recommendations included extension of stream sediment sampling to cover the SW part of the EL adjacent to the Mt Housetop granite and reassessment of BMR gravity data to provide clues to granite emplacement.

1981-82 (Refer to Wilson, 1982)

Exploration during the 1981-82 year was confined to the months July and September 1981.

The programme included:

(1) Regional stream sediment sampling and geological reconnaissance over the southwest part of the licence aimed at assessing the potential for Sn/W minneralization associated with reported exposure of the (Devonian) Mt Housetop Granite.

The stream sediment survey (-80 mesh and Panned Concentrate samples) failed to indicate significant Sn-W anomalies but did however turn up a few interesting base metal anomalies.

Reconnaissance mapping failed to locate any exposure of granite or contact metamorphic effects.

(2) Detailed infill gridding and soil geochemical sampling (5m sample intervals on 50m spaced lines) was carried out over a small area around the DDH 10 area (Dial Mine Grid) which had intersected low grade tin in oxidized breccias overlying syngenetic copper mineralization in siltstones.

The infill sampling was intended to determine the effectiveness of soil geochemistry in tracing subsurface mineralization.

The results showed that the method was satisfactory for locating cupriferous siltstones and stanniferous breccias at surface but insufficient geological exposure limited the definition of lithological contacts and structural elements.

The recommendation was for a deeper hole to be drilled into the DDH 10 stratigraphic sequence to test for primary tin grades. (The recommendation does not give collar/target details of the proposed deep hole).

(3) Two reconnaissance grid lines were cut and covered by geochemical sampling and dipole-dipole IP over the area known as the MIP grid (immediately North of Dial Mine Grid in vicinity of DDH 6 which was targetted on a strong MIP chargeability anomaly. DDH 6 passed through contact of "Lobster Creek volcanics" into pyritic calcareous sediments).

The re-survey showed that the pyritic calcareous sediments could be clearly traced by dipole-dipole IP, producing strong chargeability anomalies.

The absence of anomalous soil geochemical values was attributed to talus cover derived from nearby (Ordovician) conglomerates.

1983-84 (Refer to Large & Sumpton, 1983, and Sumpton & Turley, 1984)

An airborne magnetic survey was flown over the greater part of EL 24/73 during November 1983.

The exploration rationale for this was constructed along the following lines:

It was proposed that the known biotite-tourmaline alteration and associated anomalous tin contents in sediment breccias at the Dial Mine Grid were expressions of hydrothermal solution movement and mineralization related to emplacement of (Devonian) granitic intrusives.

The "prime" exploration target within the licence area was considered to be the massive pyrrhotite-cassiterite replacement type deposit occurring in sedimentary breccias or carbonate horizons of the Cateena Group.

Such mineralization would be expected to be both magnetic and electrically conductive. Aeromagnetics was chosen as an inexpensive airborne geophysical technique for locating this type of deposit although it was recognised that depth of burial (and to a lesser degree the survey flight terrain clearance) would be important limitations.

The Aeromagnetic Survey (by Austirex) covered approximately 440 line kilometres flown in an east-west orientation with nominal line spacing of 250 metres and terrain clearance of 135 metres.

Magnetic conour maps were prepared at 1:25,000 scale.

Large and Sumpton identified a total of fourteen aeromagnetic anomalies considered to warrant ground follow-up.

Of these, three were considered to have high priority, five of medium priority and six of low priority.

During December 1983 and early 1984 twelve (of the fourteen recommended) aeromagnetic anomalies (codenamed Venture) were the subject of brief ground follow-up investigations. (Refer to Sumpton and Turley, 1984).

Results of their follow-up are very briefly summarised as follows:

Venture 5:	superficial features related to magneitc soil derived from weathering of (Tertiary?) Basalt. Anomalous Sn in soil.
Venture 6:	Tertiary Basalt.
Venture 7:	600nT anomaly sub-alluvium. Tested by vertical percussion/diamond core drill hole which intersected magnetic andesitic epiclastic sediments.
Venture 8:	Tertiary Basalt.
Venture 9:	Alkali Basalt Plug (Tertiary)
Venture 10:	Attributed to terrain clearance problems of inferred basalt.

Venture 11: Sub-alluvial, broad 300nT anomaly possibly due to so called "Lobster Creek Volcanics".

Venture 12: Noisy ground magnetic profiles implied Tertiary Basalt source.

Venture 13: Tertiary Basalt.

Venture 14: Tertiary Basalt.

Venture 15: Attributed to outcrop of (metabasaltic) "Motton Spilite" (Cambrian age).

Venture 18: Tertiary Basalt.

Sumpton and Turley (1984) concluded that the aeromagnetic survey and ground follow-up had not pointed the way to any promising new tin targets. They suggested that exploration should be re-focussed on the Dial Mine Grid and environs and that a deep penetrating EM system could be applied to search for conductive pyrrhotite-cassiterite bodies buried at depths beyond the sensitivity of magnetics and soil geochemistry.

5.2 Conclusions

The principal emphasis of Geopeko's exploration work has been re-investigation of the old Dial Mine area for replacement tin mineralization rather than the volcanogenic base metal deposits sought previously by Pennzoil.

Encouraging anomalous tin values associated with pyritic breccias were recorded in two of four diamond drill holes. Significant copper mienralization of an apparently sedimentary origin was discovered in one of the drill holes.

Stream sediment sampling confirmed that the Dial Mine area was the most prospective for tin mineralization in the licence area. Although several old base metal prospects were known and several weak base metal anomalies identified during stream sediment sampling no serious follow up investigations were carried out.

The Dial Mine area remained the focus but despite several recommendations for deeper drilling it was never attempted.

The subsequent 1983-84 aeromagnetic survey and follow-up work also led to the conclusion that there were no magnetically detectable (near surface) pyrrhotite-cassiterite deposits in the area flown and that the best potential might lie at depth below the Dial Mine area.

5.3 Access and Rehabilitation

Detailed prospect development of the Dial Mine Grid area was facilitated by 4WD access along numerous old (logging?) tracks.

Grid lines were hand cut (chainsaw and bush hook), pegged and flagged in traditional Tasmanian style. Most grid lines by this date would be difficult to trace being overgrown by natural re-vegetation.

Type of drilling machinery and method of establishment used in the 1980-81 drilling programme is not known.

Access for the greater part of the EL is expedited by the fairly extensive network of roads, tracks and footpaths.

An inflatable, two-person rubber raft was used in stream sediment sampling of tributaries of the Leven River.

6. POST GEOPEKO INVESTIGATIONS, 1984

6.1 Core Logging/Analysis by Shell Metals

Shell Metals as part of an appraisal of the Dial Range joint venture offer in August 1984 carried out some core logging, resampling and analysis of diamond drill core from the Dial Mine area to assess the potential for gold mineralization.

Forty eight samples from DDH's 7, 9 and 10 for Cu, Pb, Zn, Ag, As, Sb and Au.

The results, listed in Appendix I, failed to show encouragement with all gold values below the 0.01 g/t limit of detection.

6.2 Magnetic Reconnaissance by Amad NL

During late 1984, Amad NL entered an option agreement with Geopeko to enable the former to undertake reconnaissance investigations of some of the 1983 aeromagnetic anomalies with a view to progressing into a joint venture if encouraging results were obtained.

The methods and results of the nine day reconnaissance program are detailed in Herrmann, October 1984.

The work failed to identify any aeromagnetic anomalies with strong potential for the target pyrrhotite-cassiterite replacement mineralization and re-inforced the earlier conclusions of Sumpton and Turley, 1984.

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APPENDIX 1

DIAL MINE PROSPECT

EVALUATION OF GOLD POTENTIAL

RE-SPLIT AND ANALYSIS OF EXISTING DRILL CORE

(W Herrmann, 31/7/84)

Selected drill core from Dial DDH's 7, 9 and 10 has been split and will be submitted for analysis for: Au (Fire Assay/AAS)
Cu, Pb, Zn, Ag, As, Sb (AAS).

Much of the core, especially the finely laminated silty units and the oxidized sedimentary breccias was in poor condition, very broken and incline to shatter in the process of re-splitting.

To avoid extensive damage to the half core certain segments of the more broken material have been sampled by taking portions of Laboratory Pulps of the original Geopeko half core samples. These were mostly sawn in 1 metre segments (regardless of lithology or lithological boundaries) so not all would correspond exactly to the subdivision of the present sampling exercise.

However, where the metreage discrepancy did not exceed 10% of the sampled interval pulps from Batch K060 (DDH 7) have been substituted for quarter sawn core.

This complex procedure is simply set out in the following list:

Dial DDH 7

Depth Interval (m)	Shell Sample Nos	Geopeko Nos	1/4 Core	Pulp (ex K060)
24.3 - 25.0	12701		✓	
25.0 - 26.0	12702		✓	
26.0 - 27.0	12703		✓	
27.0 - 28.0	12704		✓	
28.0 - 29.0	12705		✓	
28.0 - 29.7	12706		✓	
83.0 - 84.0	12707		1/2 Core	
85.0 - 86.0	12708		1/2 Core	
91.0 - 92.0	12709		1/2 Core	
96.0 - 97.0	12710		1/2 Core	
100.1 - 102.0	12711		1/2 Core	
106.5 - 108.0	12712		1/2 Core	
115.0 - 116.0	12713	KR 6206		✓
116.0 - 117.0	12714	KR 6207		✓
117.0 - 118.0	12715	KR 6208		✓
118.0 - 119.0	12716	KR 6209		✓
119.0 - 120.0	12717	KR 6210		✓
120.0 - 121.0	12718	KR 6211		✓

Depth Interval (m)	Shell Sample Nos	Geopeko Nos	1/4 Core	Pulp (ex K060)
121.0 - 123.0*	12719	KR 6212 + 6213		✓
123.0 - 124.0	12720	KR 6214		✓
124.0 - 126.0*	12721	KR 6215 + 6216		✓
126.0 - 127.5	12722		✓	
127.5 - 127.8	12723		✓	
128.0 - 129.0	12724	KR 6219		✓
129.0 = 131.0*	12725	KR 6220 + 6221		✓
131.1 - 131.7	12726		✓	
131.7 - 132.0	12727		✓	
132.0 - 134.0*	12728	KR 6223 + 6224		✓
133.8 - 134.2	12729		✓	
134.2 - 135.8	12730		✓	
135.8 - 136.5	12731		✓	
157.1 - 158.3	12732		✓	

* NOTE: Samples Nos: 12719, 12721, 12725 and 12728 were prepared by combining aliquots of the respective KR pulps).

Dial DDH 9

Depth Interval (m)	Shell Sample Nos	1/4 Core
43.2 - 45.6	12733	✓
49.0 - 51.0	12734	✓
51.0 - 51.7	12735	✓
51.7 - 53.5	12736	✓
53.5 - 56.3	12737	✓
56.3 - 57.8	12738	✓

Dial DDH 10

Depth Interval (m)	Shell Sample Nos	1/4 Core
54.0 - 56.0	12739	✓
56.0 - 58.0	12740	✓
58.0 - 60.0	12741	✓
60.0 - 62.5	12742	✓
62.5 - 64.0	12743	✓
64.0 - 65.0	12744	✓
165.5 - 167.7	12745	✓
169.2 - 169.5	12746	✓
175.7 - 181.0	12747	✓
181.0 - 187.5	12748	✓

Split for Reassay

Gold (fire assay)
Copper, lead, zinc, silver, arsenic, antimony (AAS)

	m	
DDH 7	24.3 - 29.7	(part only - andesite breccia)
	81.8 - 115.1	
	115.1 - 118.0	
	118.0 - 127.5	
	127.5 - 136.5	
	157.5 - 158.3	
DDH 9	43.2 - 45.6	
	49.0 - 56.9	
DDH 10	54.4 - 65.0	
	163.2 - 181.5	(part only - representative sample of mineralised and chloritised breccia) (4-5 samples of less than or equal to 2m width across the breccia zone split on lithologies).
	181.5 - 188.0	

021

084022

COMLABS
305 SOUTH ROAD,
MILE END SOUTH, SA, 5031.

57 SAMPLES AS LISTED BELOW WERE DESPATCHED TO
YOU PER : ANSETT
DESPATCH REF A190529 DATE 1/8/84

PLEASE CARRY OUT THE SERVICES REQUESTED BELOW AND REPORT :
FIRST COPY OF RESULTS TO ORIGINATING OFFICE.
DUPLICATE COPY TO ADDRESS SHOWN OPPOSITE.

PLEASE DIRECT INVOICES AND CORRESPONDENCE TO ORIGINATING OFFICE AND QUOTE DESPATCH ORDER CODE.

The Shell Company of Australia Limited
METALS DIVISION
P.O. BOX 860,
DEVONPORT, TAS, 7310.

SAMPLE DESPATCH ORDER CODE 4352 / MT24 / MR / 1014
Number Loc. Code Originator Series No

DUPLICATE RESULTS TO :
The Shell Company of Australia Ltd.
METALS DIVISION

SAMPLE Nos	TYPE / No	PREPARATION	ANALYSIS / SERVICE	SERVICE CODE	REMARKS
12701 –	Drill core		Cu, Pb, Zn	AAS1	Gold assay
12757	/48		Ag	AAS3	–
	Rock/9		As, Sb	XRF1	fire assay prep
			Au ⟨ – Fire assay prep		plus AAS finish
			⟨ – AAS assay		assay.

FOR THE COMPANY FORM No. 34/3900 MRH DATE 1/8/84

SAMPLE RECORD

SAMPLE Nos	LOCATION / INTERVAL		REMARKS
12701			DIAL RANGE
↓	Drill Core (Capels)		Drill Core samples
12748			and Rock Chip traverse samples
12749	TRA1 to 9		
↓ AAS	Dial Mine Grid		
12757	Traverses Rock samples	KW/AR field	
Pulps	Samples		
	12715 &	12721	
	12724 – 12725		
	12728		

SAMPLE Nos	LOCATION / INTERVAL		REMARKS
			x57
Prep			
AAS1	$1.5		
AAS3	$1.1		
XRF1	$4.3		
Gold	$12 + Prep		
Process Charge			$ 20

Tony Holbrook,

Sample nos
12701 to 12757

(A) 12701 – 12748 drill core

– Pulp samples 12713 – 12721
12724 – 12725
12728 (12)

so 36 multi-prep.
12 pulped samples.

(B) 12749 – 12757

Rock samples
all multiprep.

023

084024

COMLABS Pty. Ltd.

COMPUTERISED ANALYTICAL LABORATORIES

Head Office and
Central Laboratory
305 SOUTH ROAD,
MILE END SOUTH
STH. AUST. 5031
TEL.: (08) 43 5722
TELEX: AA89323

NATA REGISTERED No. 1526

OUR REF.: COM 841657

YOUR REF.: 4352/MT24/PAR/1014

Mr. P. Ruxton,
The Shell Co. of Aust. Ltd.,
Metals Division,
P.O. Box 860,
DEVONPORT TAS 7310,

24.8.84

Dial Range
Volcanics

Dear Peter,

RE: JOB COM 841657

Enclosed are the assays for the samples delivered to our laboratory on the 2nd August 1984.

Yours sincerely,
COMLABS PTY LTD

per :

024

084025

COMLABS Pty. Ltd.
COMPUTERISED ANALYTICAL LABORATORIES

ANALYTICAL REPORT

JOB COM841657
O/N : 4352/MT24/PAR/1014

DDH7	(m)	SAMPLE	Cu	Pb	Zn	Ag	Rock Type.
	24.3-25	12701	180	4	70	1	Brecciated andesite
	25-26	12702	14	4	70	1	" "
	26-27	12703	48	4	90	1	" "
	27-28	12704	10	<4	75	2	" "
	28-29	12705	6	<4	100	2	" "
	29-29.7	12706	10	8	120	1	" "
	83-84	12707	75	6	55	1	f.g. andesitic breccia.
	85-86	12708	75	<4	60	1	f.g. + m.g. andesite.
	91-92	12709	170	4	70	1	Andesite + Qtz/Chl/Hem vein
	96-97	12710	180	<4	55	1	Brecciated andesite.
	100.1-102	12711	60	<4	80	1	Andesite.
	106.5-108	12712	200	<4	110	1	? Micro diorite
	115-116	12713	36	18	22	2	Laminated cherty siltstone
	116-117	12714	48	34	18	2	" " "
	117-118	12715	46	24	14	2	" " "
	118-119	12716	34	10	14	1	" " "
	119-120	12717	20	10	12	1	Pyritic breccia
	120-121	12718	24	10	12	1	Siliceous siltstone 3% Py
	121-123	12719	28	10	12	1	" " "
	123-124	12720	38	10	12	2	" " "
	124-126	12721	70	12	12	1	" " "
	126-127.5	12722	180	20	16	2	" " "
	127.5-127.9	12723	18	20	22	1	Pyritic breccia.
	128-129	12724	26	170	180	2	Sil.-calc. siltstone <1%
	129-131	12725	28	80	530	1	" " " "
		UNITS	ppm	ppm	ppm	ppm	
		METHOD	C1	3251	3251	3253	

025

084026

COMLABS Pty. Ltd.
COMPUTERISED ANALYTICAL LABORATORIES

ANALYTICAL REPORT

JOB COM841657
O/N : 4352/MT24/PAR/1014

	(m)	SAMPLE	Cu	Pb	Zn	Ag	Rock Type.
DDH7	131·1-131·7	12726	44	36	22	1	Sil. calc. siltstone. <1% P
	131·7-132	12727	10	12	14	1	" " " "
	132-134	12728	12	8	16	1	" " " "
	133·8-134·2	12729	16	12	16	1	" " " "
	134·2-135·8	12730	24	12	12	1	" " " "
	135·8-136·5	12731	28	16	14	1	" " " "
	157·1-158·3	12732	12	8	26	1	" " " "
DDH9	43·2-45·6	12733	180	28	24	1	Brecciated Siltstone.
	49-51	12734	100	28	250	<1	" "
	51-51·7	12735	55	8	160	<1	Lithic sandstone.
	51·7-52·5	12736	75	<4	75	<1	" "
	53·5-56·3	12737	150	4	330	2	Pyritic breccia.
	56·3-57·9	12738	70	<4	85	<1	Lithic sandstone.
DDH10	54-56	12739	220	12	95	1	Breccia. Sediment
	56-58	12740	590	10	55	1	" "
	58-60	12741	800	10	26	2	" "
	60-62·5	12742	770	20	95	1	" "
	62·5-64	12743	930	55	55	1	" "
	64-65	12744	270	18	14	1	" "
	165·5-167·7	12745	410	50	8	1	Pyritic breccia.
	169·2-169·5	12746	310	16	6	1	" "
	175·7-181·0	12747	290	8	24	2	" "
	181-187·5	12748	220	10	200	1	" "
Dial Mine Grid		12749	110	<4	8	<1	Syenite.
" " "		12750	55	12	10	<1	"
		UNITS	ppm	ppm	ppm	ppm	
		SCHEME	AA31	AA31	AA31	AA33	

COMLABS Pty. Ltd.
COMPUTERISED ANALYTICAL LABORATORIES

ANALYTICAL REPORT

JOB COM841657
O/N : 4352/MT24/PAR/1014

	SAMPLE	Cu	Pb	Zn	Ag	Dach Type.
Dial Mine Grid	12751	100	8	10	1	Sysmin
" " "	12752	130	4	10	<1	"
" " "	12753	50	10	6	<1	"
" " "	12754	22	<4	8	1	"
" " "	12755	14	6	6	<1	(.13 Au).
" " "	12756	135	14	34	1	"
" " "	12757	140	6	24	1	"
	UNITS	ppm	ppm	ppm	ppm	
	SCHEME	AAS1	AAS1	AAS1	AAS3	

COMLABS Pty. Ltd.
COMPUTERISED ANALYTICAL LABORATORIES

ANALYTICAL REPORT

JOB COM841657
O/N : 4352/MT24/PAR/1014

SAMPLE	Au
12701	<0.01
12702	<0.01
12703	<0.01
12704	<0.01
12705	<0.01
12706	<0.01
12707	<0.01
12708	<0.01
12709	<0.01
12710	<0.01
12711	<0.01
12712	<0.01
12713	<0.01
12714	<0.01
12715	<0.01
12716	<0.01
12717	<0.01
12718	<0.01
12719	<0.01
12720	<0.01
12721	<0.01
12722	<0.01
12723	<0.01
12724	<0.01
12725	<0.01
UNITS	ppm
CHECK	FA52

084029

COMLABS Pty. Ltd.
COMPUTERISED ANALYTICAL LABORATORIES

ANALYTICAL REPORT

JOB COM841657
O/N : 4352/MT24/PAR/1014

SAMPLE	Au
12726	<0.01
12727	<0.01
12728	<0.01
12729	<0.01
12730	<0.01
12731	<0.01
12732	<0.01
12733	<0.01
12734	<0.01
12735	<0.01
12736	<0.01
12737	<0.01
12738	<0.01
12739	<0.01
12740	<0.01
12741	<0.01
12742	<0.01
12743	<0.01
12744	<0.01
12745	<0.01
12746	<0.01
12747	<0.01
12748	<0.01
12749	<0.01
12750	<0.01
UNITS	ppm
SCHEME	FA25

COMLABS Pty. Ltd.
COMPUTERISED ANALYTICAL LABORATORIES

ANALYTICAL REPORT

JOB COM841657
O/N : 4352/MT24/PAR/1014

SAMPLE	Au
12751	<0.01
12752	<0.01
12753	<0.01
12754	<0.01
12755	0.13
12756	<0.01
12757	<0.01
UNITS	ppm
SCHEME	FAS2

COMLABS Pty. Ltd.
COMPUTERISED ANALYTICAL LABORATORIES

ANALYTICAL REPORT

JOB COM841657 O/N : 4352/MT24/PAR/1014

Results in ppm

SAMPLE	As	Sb
12701	14	42
12702	12	20
12703	7	46
12704	9	20
12705	10	26
12706	9	14
12707	8	20
12708	5	6
12709	6	16
12710	7	4
12711	7	8
12712	3	14
12713	20	12
12714	34	22
12715	28	8
12716	24	10
12717	14	14
12718	14	10
12719	20	6
12720	20	6
12721	38	6
12722	170	24
12723	12	12
12724	14	12
12725	20	10

COMLABS Pty. Ltd.
COMPUTERISED ANALYTICAL LABORATORIES

ANALYTICAL REPORT

JOB COM841657 O/N : 4352/MT24/PAR/1014

Results in ppm

SAMPLE	As	Sb
12726	20	14
12727	6	<4
12728	10	6
12729	7	4
12730	10	12
12731	12	4
12732	20	<4
12733	660	12
12734	32	10
12735	50	4
12736	90	8
12737	190	6
12738	65	10
12739	330	16
12740	260	12
12741	820	14
12742	1000	8
12743	3750	8
12744	950	8
12745	3500	10
12746	1200	6
12747	1350	6
12748	240	12
12749	200	12
12750	38	<4

084033

COMLABS Pty. Ltd.
COMPUTERISED ANALYTICAL LABORATORIES

ANALYTICAL REPORT

JOB COM841657 O/N : 4352/MT24/PAR/1014

Results in ppm

SAMPLE	As	Sb
12751	300	18
12752	330	6
12753	230	8
12754	115	4
12755	240	<4
12756	310	6
12757	50	<4

Method of Analysis : As Sb : XRF1