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379001

**GEOPEKO**

A DIVISION OF PEKO EXPLORATION

**EL 1/90 MEUNNA**

REPORT ON

EXPLORATION ACTIVITY

MARCH 1990 TO FEBRUARY 1991

91-3247

<b>MINES</b>	
File Ref. E.L. 1	90
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**OPEN FILE**

By: Katrina Virgoe  
Ian Mathison  
February, 1991

T255

Distribution: Geopeko, Parkes  
Geopeko, Rosebery  
DMMR, Hobart

**INDEXED**

AMG REFERENCE POINTS ADDED

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## 1.0 INTRODUCTION

### 1.1 Location and Access (Fig. 1)

EL 1/90 Meunna is located in NW Tasmania approximately 20 km south-west of the coastal town of Wynyard.

Access within the EL is very good and is provided by a network of unsealed logging roads.

### 1.2 Tenure and Land Usage

EL 1/90 of 11 km<sup>2</sup> was granted to Peko Exploration Ltd in March 1990. The EL schedule is detailed in Appendix 1.

The EL consists of State Forest that has been intensively logged in the south-eastern corner. The logged areas now either lie devoid of vegetation or support thick regrowth. Vegetation over the rest of the EL is generally comprised of moderately open wet eucalypt forest.

### 1.3 Regional Geology (Fig. 2 and Table 1)

Geopeko's block of Arthur River ELs lie within the Rocky Cape Region of NW Tasmania. The oldest rocks in the area are those the Precambrian Rocky Cape Group and Oonah Formation. These units are basically comprised of thick sandstone and siltstone sequences and are separated by a north east trending metamorphic belt, the Arthur Lineament. The Rocky Cape Group contains Precambrian dolerite/gabbro dykes which have been emplaced into north-north west trending faults.

The north western area is underlain by the Eo Cambrian-Cambrian Smithton Trough which lies with a faulted or unconformable contact on the Rocky Cape Group. The Smithton Trough sequence consists of the basal Forest Conglomerate and Black River Dolomite (Success Creek Group Correlate), volcanoclastic sediments and basalt (Crimson Creek Formation Correlate), the Smithton Dolomite and fossiliferous sediments (Dundas Group Correlate). The south eastern corner of the area is underlain by rocks of the Cleveland-Waratah Association that lie within the Dundas Trough. These rocks are thought to be younger than the Crimson Creek Formation and consist of basaltic, andesitic and tholeiitic lavas.

The Precambrian-Cambrian rocks along the eastern edge of the area are in places overlain by Permian fluvio-glacial sediments and/or Tertiary basalt.

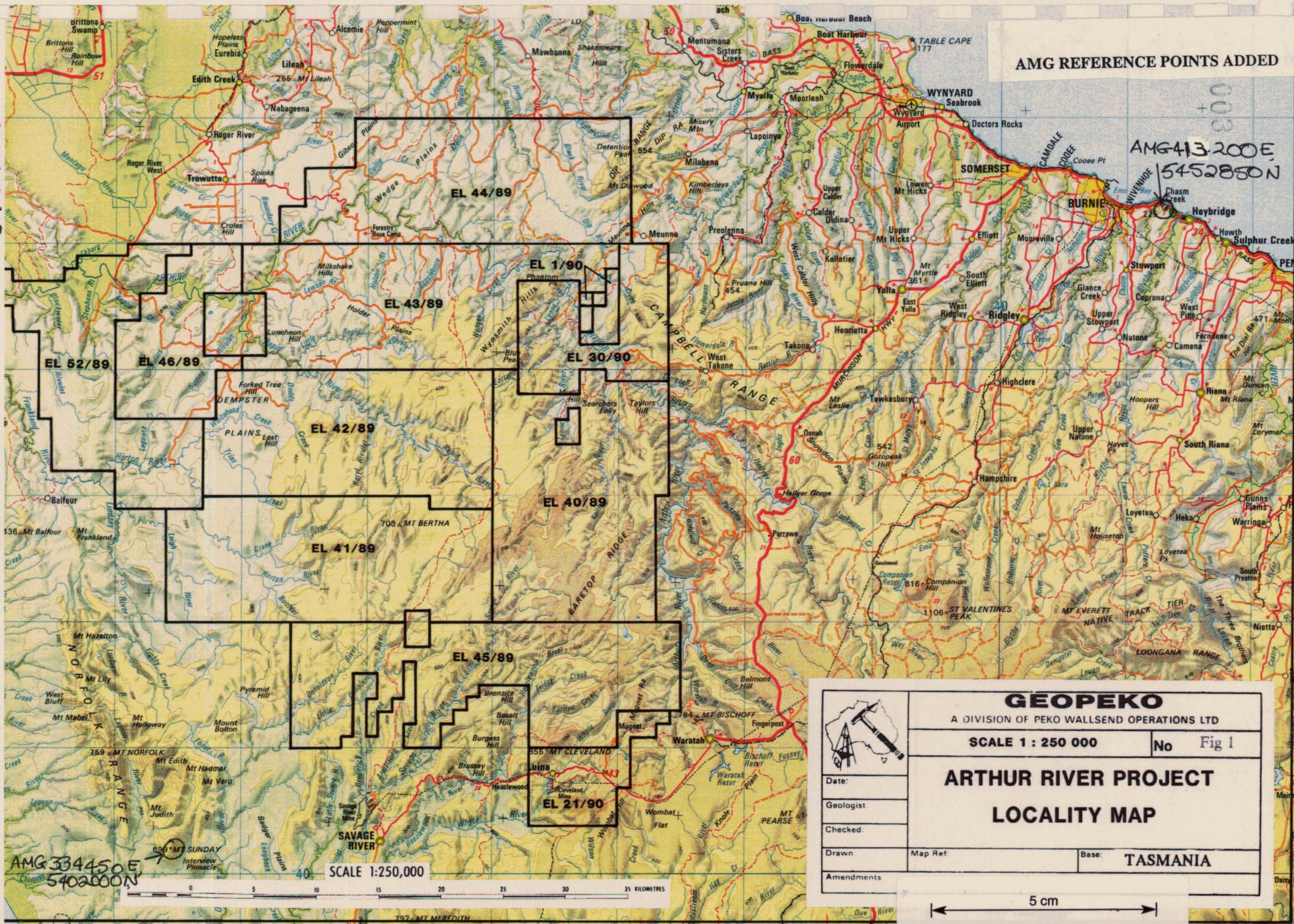
### 1.4 Known Mineral Deposits/Occurrences

There are a number of metallic mineral occurrences adjacent to the western, eastern and southern EL boundaries of Geopeko's Arthur River Project. (Green et al 1988).

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AMG REFERENCE POINTS ADDED

AMG 413 200 E  
5452850 N



AMG 334450 E  
5402600 N

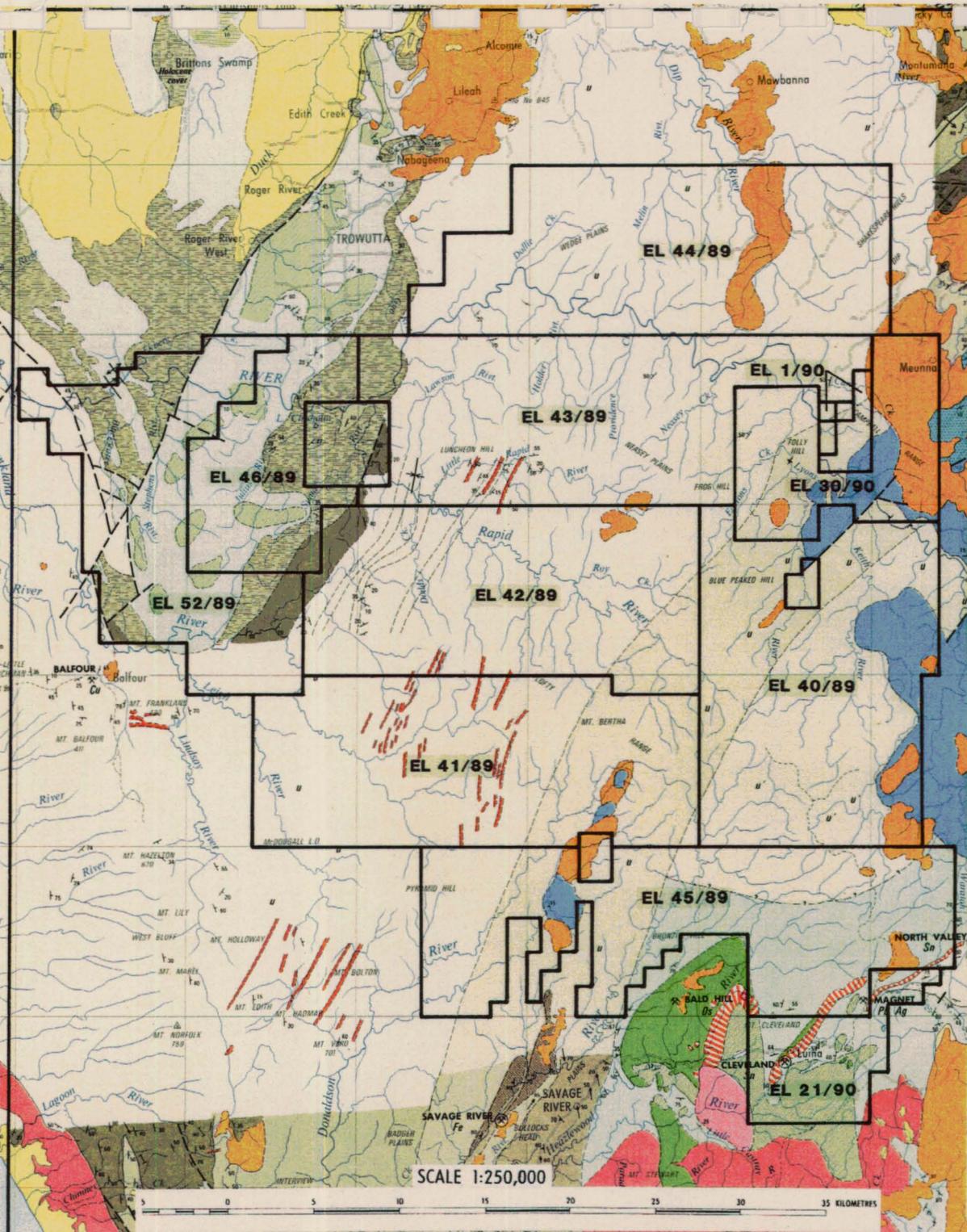
SCALE 1:250,000

	<b>GEOPEKO</b>	
	A DIVISION OF PEKO WALLSEND OPERATIONS LTD	
Date:	SCALE 1 : 250 000	No Fig 1
Geologist:	<b>ARTHUR RIVER PROJECT</b>	
Checked:	<b>LOCALITY MAP</b>	
Drawn:	Map Ref:	Base: <b>TASMANIA</b>
Amendments:		

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<b>HOLOCENE</b>		Alluvium, sand, gravel and talus.
<b>PLEISTOCENE</b>		Till, fluvioglacial, periglacial and associated deposits. Erosional surface.
<b>TERTIARY</b>		Non-marine sequences (light); marine limestone (dark); basalt and related igneous rock types (orange). Low angle unconformity.
<b>TRIASSIC</b>		Fluvio-lacustrine sequences of sandstone, siltstone, mudstone (light) with carbonaceous sequences indicated (dark). Fresh water sequence with some coal measures.
<b>PERMIAN</b>		Upper glacio-marine sequence of pebbly mudstone, pebbly sandstone and limestone. Fresh water sequence with some coal measures.
<b>UPPER CARBONIFEROUS</b>		Lower glacio-marine sequence of pebbly mudstone, pebbly sandstone, minor limestone, Tasmanite oil shale and basal tillite.

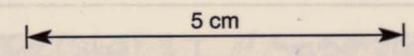
<b>CAMBRIAN</b>		Middle-Upper Cambrian fossiliferous usually greywacke turbidite sequences (horizontally lined overprint); acid with intermediate volcanic and associated rocks dominant (dark), and horizon with fossiliferous Upper Cambrian shallow water deposits (vertically lined overprint); basic-intermediate volcanic and associated rocks dominant (diagonally lined overprint); probably Cambrian unfossiliferous usually greywacke turbidite sequences (light); probably Cambrian unfossiliferous orthoquartzite sequence (dotted). Usually unconformity attributed to Penguin Orogeny but apparent conformity at Smithton and Pieman River.
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<b>PRECAMBRIAN</b>		Comparatively unmetamorphosed sequences. Mudstone-sandstone sequences (u) - dominantly mudstone (light), dominantly orthoquartzite (dark), quartzwacke turbidite successions (small dot over-print), conglomerate (large dot over-print); dolomite (horizontally lined over-print); basalt lava (vertically lined over-print).
<b>PRECAMBRIAN</b>		Metamorphic rocks. Pelitic sequences (dark); metaquartzite sequences (light) with some platy quartzite units indicated (vertically lined over-print); amphibolite (diagonally lined over-print). Garnet bearing rocks are indicated (g).

**IGNEOUS ROCKS**

<b>CAMBRIAN</b>		Dominantly adamellite-granite.
<b>LOWER CARBONIFEROUS - UPPER DEVONIAN</b>		Coarser grained basic rocks.
<b>PRECAMBRIAN</b>		Serpentinite, peridotite and associated rocks.
<b>PRECAMBRIAN</b>		Dolerite.

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<b>ARTHUR RIVER PROJECT</b>	
<b>REGIONAL GEOLOGY</b>	
Date:	
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Amendments:	Base <b>TASMANIA</b>



SCALE 1:250,000

0 5 10 15 20 25 30 35 KILOMETRES

STRATIGRAPHIC CORRELATION ADOPTED FOR THIS REPORT

	ROCKY CAPE BLOCK	LYONS RIVER (Arthur Lineament)	CLEVELAND - WARATAH	CORINNA	ZEEHAN (Ord - Dev seds omitted)
<b>TERTIARY</b>	Tb - Tertiary Basalt Tc - Tertiary gravel	Tb - Tertiary Basalt Tc - Tertiary gravel	Tb - Tertiary Basalt Tc - Tertiary gravel	Tb - Tertiary Basalt Tc - Tertiary gravels	Tb - Tertiary Basalt Tc - Tertiary gravels
<b>PERMO-CARB</b>		P - Permian Supergroup Fluviatile sandstone, coal measures, glaciomarine & glacial deposits			
<b>DEVONIAN</b>			Intrusion of Cleveland Granite	Intrusion of Pieshan Granite	Intrusion of Harrison Hill & Haemskirk Granite
<b>CAMBRIAN</b>	Cs - Unnamed Quartzwacke, siltstone, mudstone, conglomerate				Dundas Group
			Intrusion/emplacment of Ultramafic bodies		Intrusion/emplacment of Ultramafic bodies
<b>EO-CAMBRIAN</b>	Ed - Smithton Dolomite  Ea - Smithton Basalt Mafic volcanoclastics and tholeiitic basalts  Eb - Black River Dolomite Dolomite, silicified dolomite, chert  Ef - Forest Conglomerate and Quartzite		Ew - Unnamed mafic volcs, volcanoclastics and turbidites with some carbonates	?? Ecd - Corinna Dolomite  Ebv - Bernafai Volcanics  Esd - Savage Dolomite	Crimson Creek Formation   Success Creek Group
<b>PRE-CAMBRIAN</b>			Fb - Burnie Formation Interbedded quartzose quartzwacke & siltstone with minor mafic volcs	Fd - Donaldson Formation Quartzose turbidites	Donah Formation Interbedded quartzwacke and siltstone with some carbonates & mafic volcs
	Prg - Jacobs Quartzite Quartzarenite  Pri - Irby Siltstone Black mudstone, minor siltstone, sandstone, & dolomite  Prd - Detention Quartzite Quartzarenite & siltstone  Prc - Courie Siltstone Laminated siltstone, pyritic mudstone	??? Prn - Neasy Formation Quartzite-siltstone, minor dolomite and basic volcs		Pl - Interview Slates and Quartzite	
		Pa - Keith Metamorphics Felsitic & quartzose schist -some calcic & mafic schist (magnetite & amphibolite)		Times Group Felsitic & quartzose schist -some calcic & mafic schist (magnetite & amphibolite) - magnetite	

These are listed in Table (2) and Figure (3) shows their locations.

The deposits range from small, relatively insignificant workings, e.g. Victory Mine, Atlas Leases to large world class ore bodies e.g. Mt Bischoff, Savage River. In most cases, extensions of the prospective host formations can be continued into Geopeko's Arthur River EL's.

### 1.5 Previous Exploration (Appendix 2)

The northwest of Tasmania has seen regional company exploration activity since the mid 1960's. Techniques applied include stream sampling, gridding, soil and rock chip sampling, geological mapping, photogeology, diamond drilling and geophysical surveys. Generally this work has been concentrated in areas within a few kilometres walking distance of vehicular access. As much of the central northwest is remote and inaccessible, this has resulted in intensive modern exploration programs avoiding many areas.

### 1.6 Exploration Philosophy

Geopeko consider this portion of Tasmania to have been inadequately explored for base metals and gold mineralization. Since the early prospecting stage, systematic exploration by several companies has relied on airborne geophysics (Aeromagnetics and INPUT) and conventional stream sediment geochemistry with limited ground follow up. These techniques will give readily detectable responses from, "ideal" orebodies under "ideal" conditions. However, the combination of rugged topography and intense leaching of soil profiles; the superimposed effects of Tertiary weathering and surficial deposits; the complications of pyritic black shales and manganese deposits; and the contamination of several river systems by tailings and slimes from old mining operations would have masked many good responses and obscured any subtle responses.

Geopeko consider that the geochemical prospecting method developed by Dr. Baker of the Tasmanian Mines Department whereby the humate content of stream water is analysed for its content of leached metals provides a rapid and inexpensive method of screening large areas of ground.

Selected areas with a combination of suitable geological environment and geochemical characteristics could subsequently be further explored using expensive and slow techniques such as detailed geological mapping, grid based geochemistry and modern geophysical techniques.

As the proposed technique is both rapid and relatively cheap, it should be possible to define prospective areas at an early stage. Consequently Geopeko anticipate that it will be possible to relinquish a large proportion of the area applied for during the first year of tenure.

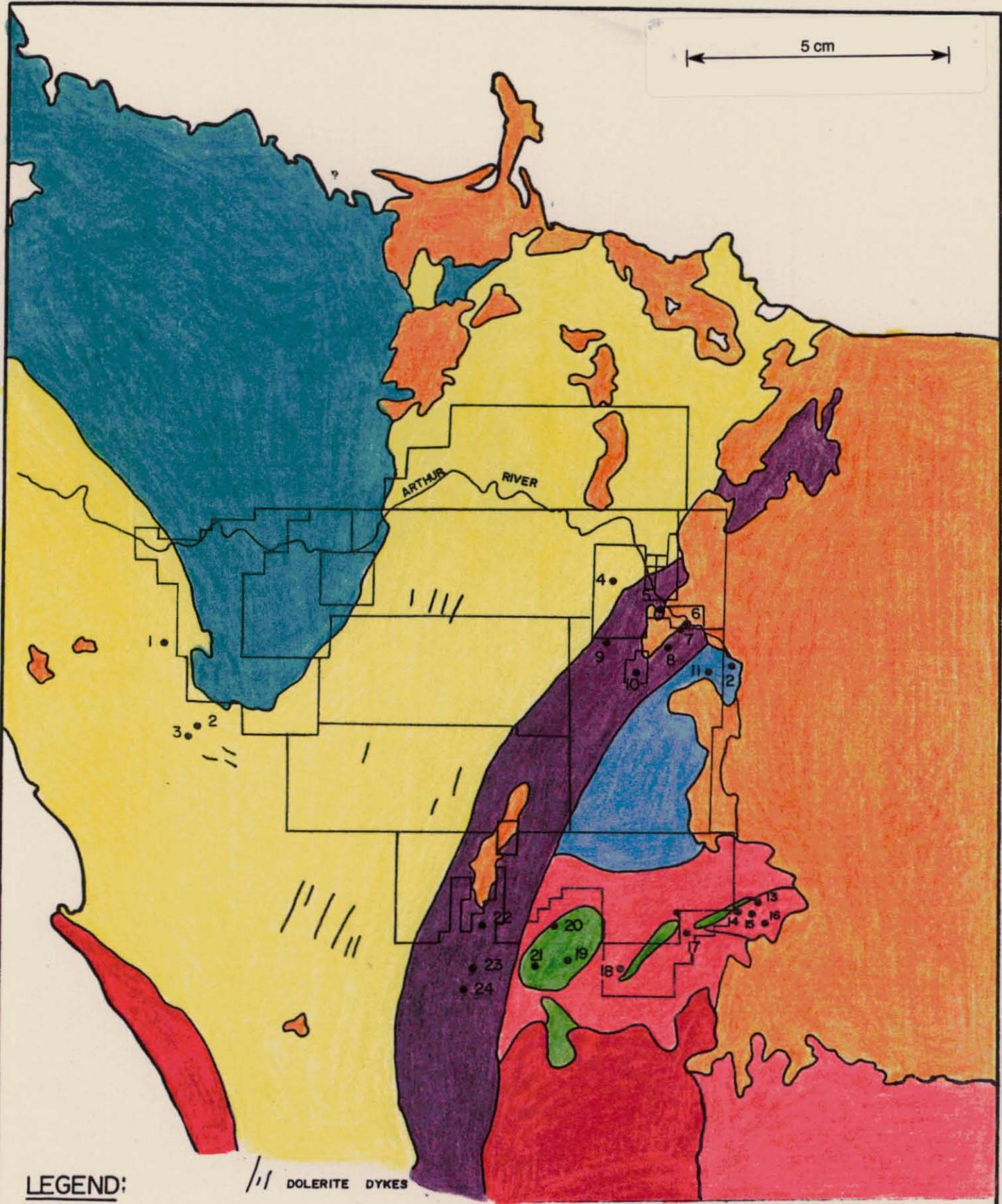
TABLE (2)                      METALLIC MINERAL OCCURRENCES/DEPOSITS

Map No.	Name	Commodity	Geology & Mineral Style	
1	The Clump	Cu	Rocky Cape Group	V
2	Murrays Reward	Cu	Rocky Cape Group	V
3	Specimen Hill	Sn Cu	Rocky Cape Group	V
4	Folly Hill	Au	Rocky Cape Group	A
5	Campbell Hydraulic	Au	Arthur Lineament	A
6	Victory	Cu	Arthur Lineament	V
7	Arthur River	Magnesite	Arthur Lineament	S
8	Keith River Gossan	Magnesite Py (Cu)	Arthur Lineament	MS
9	Pike's	Au	Arthur Lineament	A
10	Lyons River	Magnesite	Arthur Lineament	S
11	Atlas Leases	Ag Pb	Arthur Lineament	V?
12	Kay's	Au	Arthur Lineament	A
13	North Valley	Sn	Oonah Formation	A
14	Silver Cliffs	Pb Ag	Oonah Formation	V
15	Mt Bischoff	Sn	Oonah Formation	SCR
16	Fooks Load	Sn Pb Zn Ag Sb	Oonah Formation	V
17	Magnet	Pb Ag Zn	Crimson Ck Equiv.	V
18	Cleveland	Sn (Cu W Bi Mo)	Crimson Ck Equiv.	SCR
19	Lord Brassey	Ni	Cambrian Ultramafic	M
20	Bald Hill	Os Ir Au	Cambrian Ultramafic	A
21	Caudry's	Os Ir	Cambrian Ultramafic	?
22	Specimen Reef	Au	Arthur Lineament	V
23	Savage River Nth	Magnetite (Py)	Arthur Lineament	MS
24	Savage River Cent.	Magnetite (Py)	Arthur Lineament	MS

Mineralization Styles

A - Alluvial Deposit	S - Stratiform
V - Vein Deposit	MS - Massive Stratiform
M - Magmatic Deposit	SCR - Stratiform Carbonate Replacement

5 cm



**LEGEND:**

- HOLOCENE - CARBONIFEROUS COVER
- DEVONIAN GRANITE
- SMITHTON BASIN
- DUNDAS TROUGH SEDIMENTS
- BASIC INTRUSIVES
- OONAH FORMATION
- ROCKY CAPE GROUP
- ARTHUR LINEAMENT
- DOLERITE DYKES

	<b>GEOPEKO</b>	
	A DIVISION OF PEKO WALLSEND OPERATIONS LTD	
Date <b>SEPT. 1990.</b>	1:500,000	No Fig. 3
Geologist: <b>K.J.V.</b>	<b>MINERAL OCCURRENCES.</b>	
Checked:	(See Table 2 also)	
Drawn:	Map Ref: <b>TAS. DEPT. MINES.</b>	Base: <b>PARKES NSW</b>
Amendments:		

### 1.7 Target Models

Geopeko consider the Pre Cambrian rocks of NW Tasmania to be prospective for stratiform Pb, Zn, Ag deposits of the Mt Isa-McArthur River type and for stratiform Cu-Zn (Au) deposits of the Besshi Type. The mineralization at the Atlas Leases can be assigned to the first group while the Keith River Gossan can be compared to the Besshi Type.

Several occurrences of alluvial gold along the Arthur River highlight the potential of the area for gold only mineralization. Applicable models for gold mineralization include shear related gold deposits and volcanogenic gold deposits associated with basic volcanics.

## 2.0 EXPLORATION ACTIVITY

### 2.1 Aims

Exploration during 1990 was aimed at delineating through grass root techniques, prospective and geochemically anomalous areas within the EL. Areas worthy of further investigation would be followed up with more detailed exploration in the 1991 field season.

Work included huminex water sampling, rock chip sampling, geological mapping, regional geochemical compilation and a geophysical review.

### 2.2 Work Completed

#### Water Geochemistry

Nine (9) two litre huminex water samples from creeks draining parts of EL 1/90 were collected at a sample density of 2-3 km<sup>2</sup>. Good access within the EL allowed sampling of the total exploration area.

At each sample location water colour, water level, rate of flow, vegetation type and rock float were recorded for statistical purposes. The sample location was marked with an aluminium tag, a sample tag and orange flagging tape.

Water samples were analysed for gold by the Huminex technique. Base metals were determined at Analabs, Melbourne by carbon furnace AAS and arsenic by hydride generation AAS.

#### Stream Sediment Compilation

Any mineralized, altered or interesting rock outcrop or float encountered during creek and road traverses was sampled for assay or hand specimen purposes.

Regional stream sediment data obtained by previous exploration companies in the area was compiled. This allowed delineation of anomalous areas recognized by traditional stream sampling methods as well as providing a comparison for the Huminex technique.

### Rock Geochemistry

Composite rock chip samples at 50m intervals were collected along Cann Creek. This was part of a rock chip sampling program across the Arthur Lineament. The samples from EL 1/90 were analysed for Cu, Pb, Zn, Ni and Au. Base metals were determined by AAS after perchloric acid digestion. (ANALABS method 101). Gold was determined by fire assay/AAS finish on a 50g split of the original sample (ANALABS method PM313).

### Geology

Reconnaissance geological observations were recorded during water sampling. More detailed geological mapping was conducted in association with rock chip sampling along Cann Creek.

## 2.3 Results Received

### Water Geochemistry

Initial results reported three very anomalous gold values. Repeat analyses indicated that these results were spurious. Sample 20145 draining Arthur Lineament rocks reported 22 ppb Pb. This anomalous value merits follow up sampling.

### Rock Geochemistry

Three of the 30 rock chip samples collected as 50m chip composites from Cann Creek reported anomalous gold. Results and geology are tabulated below.

<u>Number</u>	<u>Au g/t</u>	<u>Geology</u>
21527	0.100	Serpentinized dolerite, talc schist, siltstone, quartz veins
21528	<0.005	Metasiltstone, quartzite, quartz veins
21529	5.83	Metasiltstone, quartzite, quartz veins
21530	0.510	Metasiltstone, quartzite, talc schist, quartz veins

Outcrop for the best sample was poor (< 50%).

Results from follow up rock chip sampling in this area have not yet been received.

### Mineralization

Mapped mineralization is restricted to minor pyrite (to 5%) observed as disseminated grains in a chloritic schist in Cann Creek. Quartz veining is very common in the meta sediments and does not appear to increase in the samples with anomalous gold.

## 2.4 Geology

### Reconnaissance

EL 1/90 is underlain predominantly by the metamorphosed rocks of the Arthur Lineament.

Regional field mapping of roads and creeks within the EL has not yet been undertaken. However, rock float observed in creeks during water sampling consisted of vein quartz, phyllite and meta arenites.

Tertiary basalt and cleaved Rocky Cape Group siltstones underlie the northern parts of the EL.

### Cann Creek

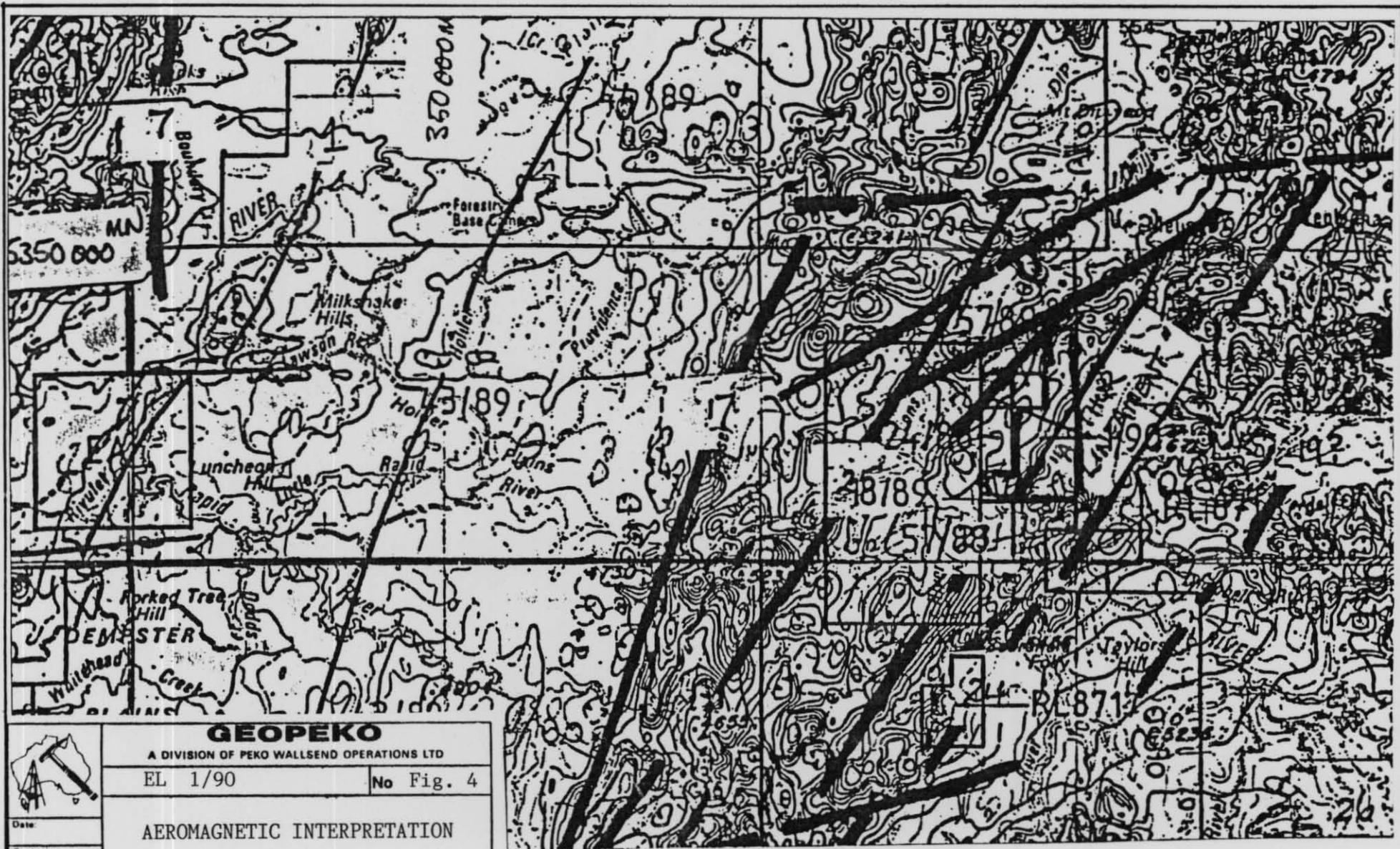
Intensely deformed, low grade metamorphic rocks are exposed along Cann Creek. These include magnesite, slate, phyllite, quartzite, talc schist and green schist/amphibolite. Quartz veining and segregations are common and detached fold hinges occur in several places. These isoclinal fold hinges pitch steeply in the local cleavage.

The green schist and amphibolite are interpreted as metamorphosed basic volcanic rocks. They are easily distinguished from intrusive dolerite dykes. Although serpentized dolerite has been mapped on the margins of one dolerite dyke, the body of this dyke is massive and has not reached the metamorphic grade of the green schists and amphibolites exposed nearby.

## 2.5 Geophysical Review

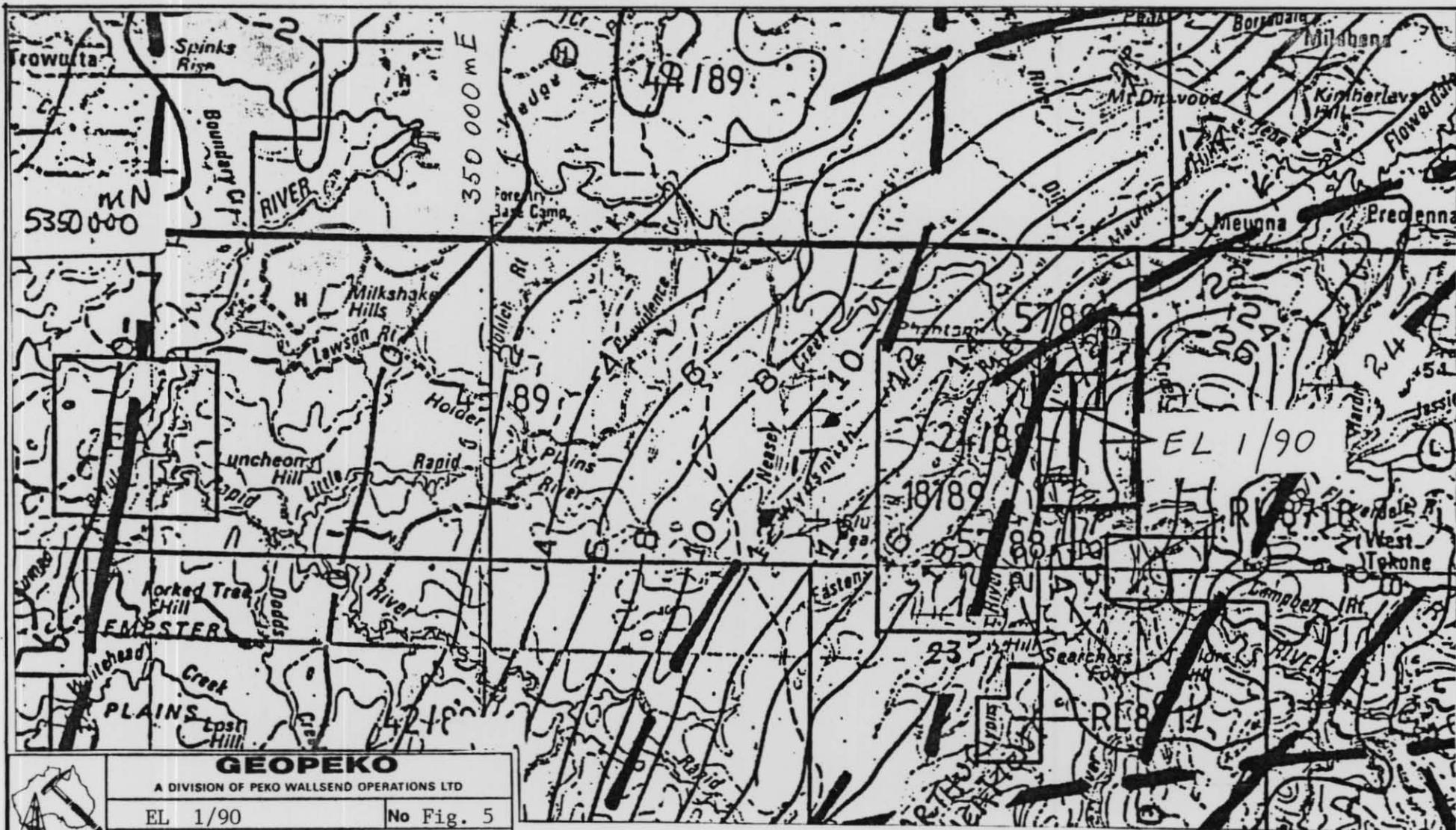
A geophysical review of the Rocky Cape Block using regional gravity and aeromagnetic data was undertaken by D.E. Leaman. This work is detailed in a separate report. (Leaman, 1990). Discussions specific to this EL are appended (Appendix 3) and summarized in figures 4 and 5.

Leaman considers that Feature 23, which appears in both gravity and aeromagnetic data, is potentially mineralized. This feature, and a large mafic accumulation may be important in the derivation of copper and gold mineralization.



	<b>GEOPEKO</b>	
	A DIVISION OF PEKO WALLSEND OPERATIONS LTD	
Date:	EL 1/90	No Fig. 4
Geologist:	AEROMAGNETIC INTERPRETATION	
Checked:	(From Leaman, 1990)	
Drawn:	Map Ref:	Base ROSEBERY, TASMANIA
Amendments:		

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<b>GEOPEKO</b>	
A DIVISION OF PEKO WALLSEND OPERATIONS LTD	
EL 1/90	No Fig. 5
GRAVITY INTERPRETATION (From Leaman, 1990)	
Date:	
Geologist:	
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Drawn:	Map Ref: <span style="border: 1px solid black; padding: 2px;">ROSEBURY, TASMANIA</span>
Amendments:	

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### 3.0 CONCLUSIONS

- \* Rocks exposed along Cann Creek in EL 1/90 are similar to Arthur Lineament rocks exposed further south.
- \* Anomalous gold values along Cann Creek appear very significant but require confirmation.
- \* Highly anomalous gold values reported from water samples along Cann Creek were downgraded by repeat analyses using a different technique. The initial values are now considered spurious. This should be confirmed.
- \* One water sample draining the Arthur Lineament was moderately anomalous in lead.

### 4.0 RECOMMENDATIONS

Interpretation of the results of follow up 25m rock chip sampling and accompanying geological mapping along Cann Creek is critical.

Provided this work confirms the initial gold anomaly, additional exploration in the Cann Creek area should focus on the following.

Additional closer spaced and lithology specific rock chip samples should be collected along Cann Creek to determine the host of the gold mineralization.

Bedrock sampling (wacker drilling) should be attempted along road and ridge traverses along strike from the Cann Creek mineralization.

Rock chip traverses should be carried out along creek and river channels crossing the strike extensions of the Cann Creek mineralization.

Petrological studies of the mineralization should be commissioned.

## REFERENCES

- BROWN, A.V. (1989), "Geological Survey Explanatory Report, 1:50 000 series Sheet 21 - Smithton". Tas. DMMR.
- BURRETT, C.F., Martin E.L. (1989) "Geology & Mineral Resources of Tasmania" Geological Society of Australia 15 (Burrett et al 1989)
- GREEN, G.R., BOTTRILL, R.S., BACON, C.A., TURNER, N.J. (1988) - Mineral Deposits and Metallogenic Map of Tasmania 1:50 000, Tas. DMMR.
- LEAMAN, D.E., (1990) - Geophysical - Structural Review - Rocky Cape Block NW Tasmania. Unpublished report for Geopeko.
- MATHISON, I.J. (1990) - Arthur River Project - 1990 Summer Field Season Water Sampling.

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APPENDIX 1  
EL SCHEDULE

No. E.L. 1/90

(Regulation 6A)

The Mining Act 1929**EXPLORATION LICENCE**

Issued to PEKO EXPLORATION LTD of PO BOX 180, ROSEBERY, TASMANIA, 7470  
in respect of 11 square kilometres of land in the Land Districts  
of WELLINGTON AND RUSSELL vicinity of MEUNNA as described in the  
schedule hereto.

This licence shall remain in force until the THIRTIETH day of MARCH  
1991.

This licence is subject to the following conditions:-

1. That the licensee shall immediately on the issue of this licence take steps to commence preliminary works necessary for the investigation of the area.
2. That the licensee shall carry out investigations as may be necessary to determine the mineral potential of the area, and in particular will fulfil the proposals set out in the exploration programme and approved by the Director of Mines.
3. That the licensee shall employ such technical and other staff and equipment as may be necessary effectively to carry out such investigations.
4. This licence shall apply to all minerals.
5. The licensee shall notify the owner and occupier of private land, in writing, at least three days before entering such land.
6. That the security (Private Land Deposit) provided by Section 15E (1) (a) & (b) of the Mining Act, 1929, (see below) shall be lodged with the Director of Mines before entering private land.
7. The licensee shall observe, perform and fulfil the conditions as set forth in Schedule 'A' (Revised) attached hereto.
8. The licensee shall be liable to pay the cost of any work carried out to remedy any damage arising from any breach of the conditions of this licence.

9. The licensee shall deposit an amount of \$5,000 (Performance Deposit) as security that the conditions contained herein shall be observed. Upon expiry or sooner determination of the licence, if the licensee satisfies the Director of Mines that such conditions have been complied with, the Director of Mines shall refund such deposit or such portion thereof, as he may determine.
10. If it is found, that the operations hereby authorised, are causing any undue damage to, or erosion of, the subject land or other land in the vicinity thereof or are unnecessarily disturbing the environment, the Minister may cancel the licence without compensation to the licensee by giving seven days' notice in writing of his intention so to do.
11. The licensee shall obtain the written permission of the Director of Mines before carrying out any work in a Forest Reserve.
12. The licensee shall arrange and keep in good standing public liability insurance to the minimum of \$1,000,000. Evidence of currency shall be produced on demand.

#### SCHEDULE

##### Part 1 (10 skm)

Commencing at the southeast corner at grid co-ordinates 370 000 metres E. 5 442 000 metres N. thence grid west to 367 000 metres E. grid north to 5 443 000 metres N. grid east to 368 000 metres E. again grid north to 5 445 000 metres N. again grid east to 369 000 metres E. again grid north to 5 448 000 metres N. again grid east to 370 000 metres E. aforesaid thence grid south to the point of commencement.

The area excludes a 29 ha Mineral Lease.

##### Part 2 (1 skm)

Commencing at the northwest corner at grid co-ordinates 367 000 metres E. 5 446 000 metres N. thence grid east to 368 000 metres E. grid south to 5 445 000 metres N. grid west to 367 000 metres E. aforesaid thence grid north to the point of commencement.

Land Tenure:

The area comprises: State Forest

Note: The land tenure table is a guide only.

## EXCLUSIONS

The area embraced by this licence includes State Forests but does not include:

- (a) All other public reserves or municipal reserves or roadways.
- (b) All forms of mining tenements and water licences including leases, water licences, easement licences, special and exploration licences, prospectors licences, miners rights, permits to enter, owners consents and owners rights which were in lawful possession or marked out prior to the date of marking out of this licence.
- (c) Land exempt from the provisions of the Mining Act, 1929.
- (d) Land under the National Parks and Wildlife Act, 1970, not subject to the Mining Act, 1929.
- (e) All Crown reservations or other land set apart or dedicated for any public purposes.

MINISTER FOR RESOURCES AND ENERGY

Date .....

APPENDIX 2

REVIEW OF PREVIOUS EXPLORATION

## APPENDIX 2

REVIEW OF PREVIOUS EXPLORATIONA2.1 EL 12/65 Pieman Project

During the mid 1960s Pickands Mather & Co International held EL 12/65 over a large part of northwest Tasmania. An extensive regional stream geochemical survey was conducted and although a number of geochemical anomalies were detected, and some resampling occurred later, no further work was undertaken. (Anon. 1966 in Cromer, 1988a). Unfortunately records of this sampling program are no longer held by the Tasmanian DMMR.

A2.2 EL 48/70 and EL 49/70

Two exploration licences to the southwest of Geopeko's Arthur River Project were granted as a joint venture to Australian Consolidated Industries Ltd and Consolidated Goldfields Australia Ltd. Field investigations included an aeromagnetic survey, stream sediment sampling, geological mapping and soil and rock chip sampling. This was designed to detect any tin mineralization that may be associated with the three Devonian granites in the two licence areas. Detailed evaluation was carried out in areas of geochemical and geomagnetic anomalies and known mineralization.

Results were not encouraging enough to justify further exploration and the two ELs were dropped in 1972. (Bell, 1972)

A2.3 EL 6/72 North West Tasmania

Australian and New Zealand Exploration Company was granted EL 6/72 in January 1972. This EL covered an area of the Smithton Trough to the north of the Arthur River. It was considered by ANZECO to be prospective for tungsten due to the similarity of the dolomites to those hosting the King Island Scheelite ore body. A panned concentrate and stream sediment sampling programme was completed over the EL with 94 samples taken and analysed for W, Cu, Pb, Zn, Mo, Sn and Cr. ANZECO received a number of anomalous assays for all the elements tested but found it difficult to interpret the results. Though some follow up was recommended, no further exploration was attempted. (Kinnane, 1972).

A2.4 EL 2/73

Following a study of the mineral potential of Australia during 1971, ESSO took out EL 2/73 in the northwest of Tasmania and conducted an airborne geophysical survey (INPUT) over the licence area. Sixty two anomalies were detected, however, dense vegetation restricted examination to thirty six targets and only thirteen had outcrop. Most of the anomalies were attributed to black slates and lithological contacts. ESSO

considered that no further exploration was warranted and the EL was relinquished in 1974. (Neale, 1973)

#### A2.5 EL 43/70 Keith River

Magnesite was first discovered in the Lyons River-Keith River area in 1925 by P.B. Nye. Since Mineral Holdings Australia was granted EL 43/70 over the area, numerous companies have explored the licence under joint venture agreements. A joint venture between Mineral Holdings Australia and CRAE Pty Ltd in 1982 delineated two deposits of moderate-high grade magnesite. These are known as the Lyons River and the Keith-Arthur River Prospects. (Mackenzie, 1984). Retention Licences 8717 and 8718 cover these two magnesite reserves.

#### A2.6 EL 1/77 Rocky Cape

EL 1/77 was initially taken up by CRAE Pty Ltd to investigate the possible tin potential of the area. Following a joint venture with Geopeko in 1979 and recommendations by P. Legge in 1980 that the Rocky Cape rocks showed similarities to the Selwyn Basin, Canada, the target was extended to shale hosted lead zinc deposits.

Statistical evaluation of regional drainage data indicated that the Trowutta Dempster plains district showed elevated values of Cu, Pb, Zn and Co. (Weir, 1982). Follow up of this area included stream sediment sampling, geological mapping and rock chip sampling. A photogeological interpretation (by Carey, 1981) covered the whole EL. The stream sediment sampling revealed lead anomalies from the Julius River, the Meryanna area, Wents Creek and Stephens Rivulet and an arsenic anomaly from Sumac Rivulet.

Follow up in the Julius River and Meryanna area included detailed stream sampling, gridding, soil sampling and ground geophysics. It was concluded that the Julius River anomaly was derived from a disseminated source or shears within the dolomite and that the Meryanna anomaly was the results of erosional basaltic remnants on topographic highs.

Resampling of the other 3 anomalous areas failed to repeat the initial high values.

CRA Exploration relinquished the northern part of EL 1/77 in 1983 concluding that the black shale sequences exposed at the eastern margin of the trough were too thin to have produced economic mineralization from brines (Weir, 1983).

Exploration continued in the western coastal parts of the EL including diamond drilling at the Alpine and Red prospects for tin before total EL relinquishment in 1985.

#### A2.7 EL 1/79 Rapid River

A detailed program of exploration was carried out over the Rapid River EL by Geopeko and/or CRAE Pty Ltd from 1979 to 1987. Commodities searched for included gold, platinum, shale hosted base metals and Mittershill type tungsten as well as extensions to the Lyons River magnesite trend. The work included airborne magnetic and radiometric surveys, ground follow up of all major magnetic anomalies, geological mapping and stream sediment sampling in selected areas. No significant mineralization was located. (Dickson, 1987)

#### A2.8 EL 10/79

EL 10/79 was operated as a joint venture by CRAE and Mineral Holdings Australia Pty Ltd. The target was initially dolomite, but when some anomalous gold and platinum values were obtained, greater emphasis was given to the metals aspect of exploration. Grades of 3.09 g/t [410732] and 4.06 g/t Au with 0.46 g/t Pt [408726] were obtained from dolomite chip sampling and, although resampling returned results of only 0.04 g/t Pt, the partners concluded that there was a significant gold occurrence in the dolomites. However, EL 10/79 was relinquished in 1984 with no follow up work. (Anon 1985 in Cromer, 1988a)

#### A2.9 EL 12/80 Leigh River and EL 61/83

EL 12/80 was granted to CRAE Pty Ltd in order to investigate two tin stream sediment anomalies located during previous reconnaissance by CRAE in 1977. The EL was also considered for shale hosted lead zinc and gold mineralization and this was supported by the presence of a number of INPUT anomalies obtained by ESSO in 1973. Work carried out included a computer study of all previous stream sediment geochemistry, infill stream sediment sampling, regional scale mapping, follow up of nine aeromagnetic anomalies defined by the Mines Dept. West Coast survey and investigations into the gold potential of altered Cambrian basalts. No significant base or precious metals were detected and the EL was relinquished in 1985. (Dickson, 1985).

EL 61/83 was taken up by CRAE to cover a large aeromagnetic anomaly located on the eastern margin of EL 12/80. A grid was established over the anomaly and Genie EM traverses carried out. No base metal or gold anomalism was detected and the EM failed to locate any conductors. The aeromagnetic anomaly was attributed to unmineralized Precambrian basic volcanics and the EL was dropped in 1985. (Dickson, 1986)

#### A2.10 EL 18/80 Arthur River and EL 18/83 Lake Chisholm

EL 18/80 was taken up by BHP Co Ltd and thought to be prospective for a skarn or massive sulphide hosted tin tungsten deposit of the Renison/Cleveland style. Carlin style gold, diamonds, Mississippi Valley lead-zinc and sedimentary copper

deposits were secondary targets. Work completed includes stream sediment and pan concentrate sampling, rock chip sampling, petrology, a photogeological and Landsat Image study, geological mapping, and evaluation and follow up of existing INPUT and aeromagnetic data. In view of the disappointing results and difficult access, the EL was relinquished in 1983. (Anon, 1983).

EL 18/83 lies adjacent to EL 18/80 and was taken by BHP to cover a broadly coincident INPUT/Aeromagnetic anomaly. An extensive grid was cut over the main zone of interest at Lake Chisholm and soil sampling, geophysical surveys and geological mapping were carried out. Pan concentrate sampling was used to follow up anomalous tin geochemistry reported from earlier work. The INPUT/Aeromagnetic anomaly was attributed to a small amphibolite body and magnetically susceptible basalts. No indications of potentially economic mineralization were encountered. (Anon, 1984).

#### A2.11 EL 21/87 Balfour and EL 22/87 Trowutta

Aureole Resources took up ELs 21/87 and 22/87 to explore for platinum group metals, gold and base metals, hosted mainly by receptive rocks along the eastern and southern margins of the Smithton Trough. Work included a regional geophysical evaluation by D.E. Leaman and rock chip sampling for assay and petrological purposes. Despite upgrading the prospectivity of parts of the two ELs, 22/87 was relinquished and 21/87 reduced in 1989 as Aureole shifted their emphasis to other tenements. (Cromer, 1988a + b).

#### A2.12 EL 5/63

EL 5/63 was granted to Comstaff Proprietary Limited in 1963 and covered the area from Rosebery in the south to Wandle Creek in the north. Comstaff divided the EL in 6 areas, ie, Area 1 Arthur River, Area 2 Ramsay, Area 3 Mt Block, Area 4 Chester/Pinnacles, Area 5 Huskisson and Area 6 East Renison. Area 1 covers part of Geopeko's EL 45/89 and is the only area discussed in this summary.

Systematic and detailed exploration of Area 1 commenced in 1970-71 field season and little is reported of any exploration carried out before this time.

Exploration of Area 1 from 1970-75 was based around 2 stream sampling programmes and several widely spaced TURAM EM traverses. The stream sampling surveys produced anomalies in the Tinstone Creek area (Ag,Cu,Zn,Pb,Sn & Ba), Magnet Creek (Sn), Deep Gully (Sn), Rollins Creek (Sn), Dalcos Creek (Sn) and from the Happy Day Creek (Cu, Zn, Ni). Follow up included gridding and soil sampling of the Tinstone Creek area, Happy Day Creek and four other Cu-Zn anomalies. No anomalies indicative of the presence of mineralization were recorded.

The Turam EM survey reported 8 anomalies and 5 of them were gridded and subjected to EM and/or magnetic surveys. No significant results were obtained.

From 1975-78 work was centred on the Magnet-Bischoff grid which was subjected to geological mapping, soil sampling, ground magnetics and EM surveys. Three diamond holes were drilled in the grid area, one to test an EM anomaly and the other two to test the Magnet lode at depth. No mineralization was intersected and no further work on the grid was recommended. (Shaw & Everett, 1985).

In 1980 a programme to investigate the alluvial tin potential of the Arthur River commenced. Initial work was encouraging with a tin volume estimate of 6-8 million m<sup>3</sup> of variable grade outlined. Though follow up work was recommended, no further exploration on this project was reported. (Washausen & Wilding, 1980).

In 1983-85 a DIGHEM survey was carried out over Area 1 using flight lines with a NW-SE direction. Five anomalies were recommended for follow up. Comstaff attributed them to Tertiary basalt cover.

In 1985 Comstaff was required to reduce EL 5/63 and most of Area 1 was relinquished. (Shaw & Everett, 1985).

#### A2.13 EL 1/68 Heazlewood

In 1968 EL 5/63, held by Comstaff Pty Ltd, was subdivided to form EL 1/68. EL 1/68 covered an area north of Luina which is drained principally by the Savage and Heazlewood Rivers.

Initially exploration of this licence focussed on the ultramafics and their potential for nickel mineralization. Gridding, soil sampling, geological mapping, geophysical surveys and some trenching failed to identify any new mineralization.

Regional reconnaissance projects were then implemented in the Savage, Whyte and Heazlewood drainages. The upper Heazlewood drainage basin emerged as the most prospective with anomalous values of zinc and copper. Two grids (HAB, HAC) were cut and geologically mapped and soil sampled. No mineralization was found and geochemical responses were weak.

In 1980, a DIGHEM survey over the total licence area was commissioned and exploration for the next 3 years centred around the follow up of 13 resultant anomalies. All anomalies were gridded, geologically mapped, soil sampled and subjected to ground magnetic and EM surveys. In all cases no mineralization was observed. In late 1983 two EM targets were selected for drill testing. Both holes failed to intersect mineralization and the EM responses were attributed to black graphitic slate and phyllite.

In 1984 Comstaff considered that all avenues for locating mineralization had been exhausted and the EL was relinquished. (Shaw, 1984).

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APPENDIX 3  
GEOPHYSICAL REVIEW

EL 1/90 MEUNNA

The location of this area is shown in Figure 1.

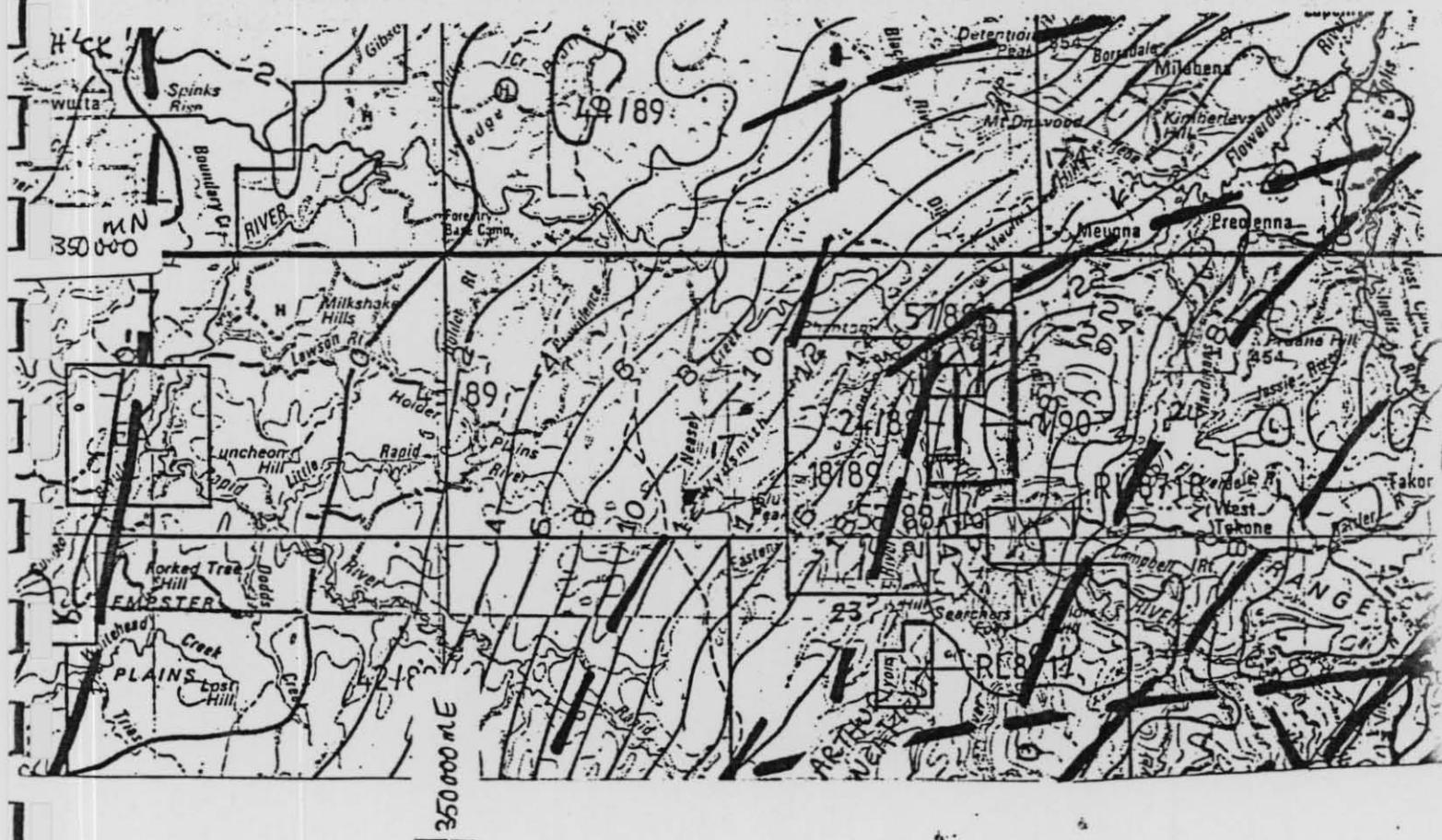
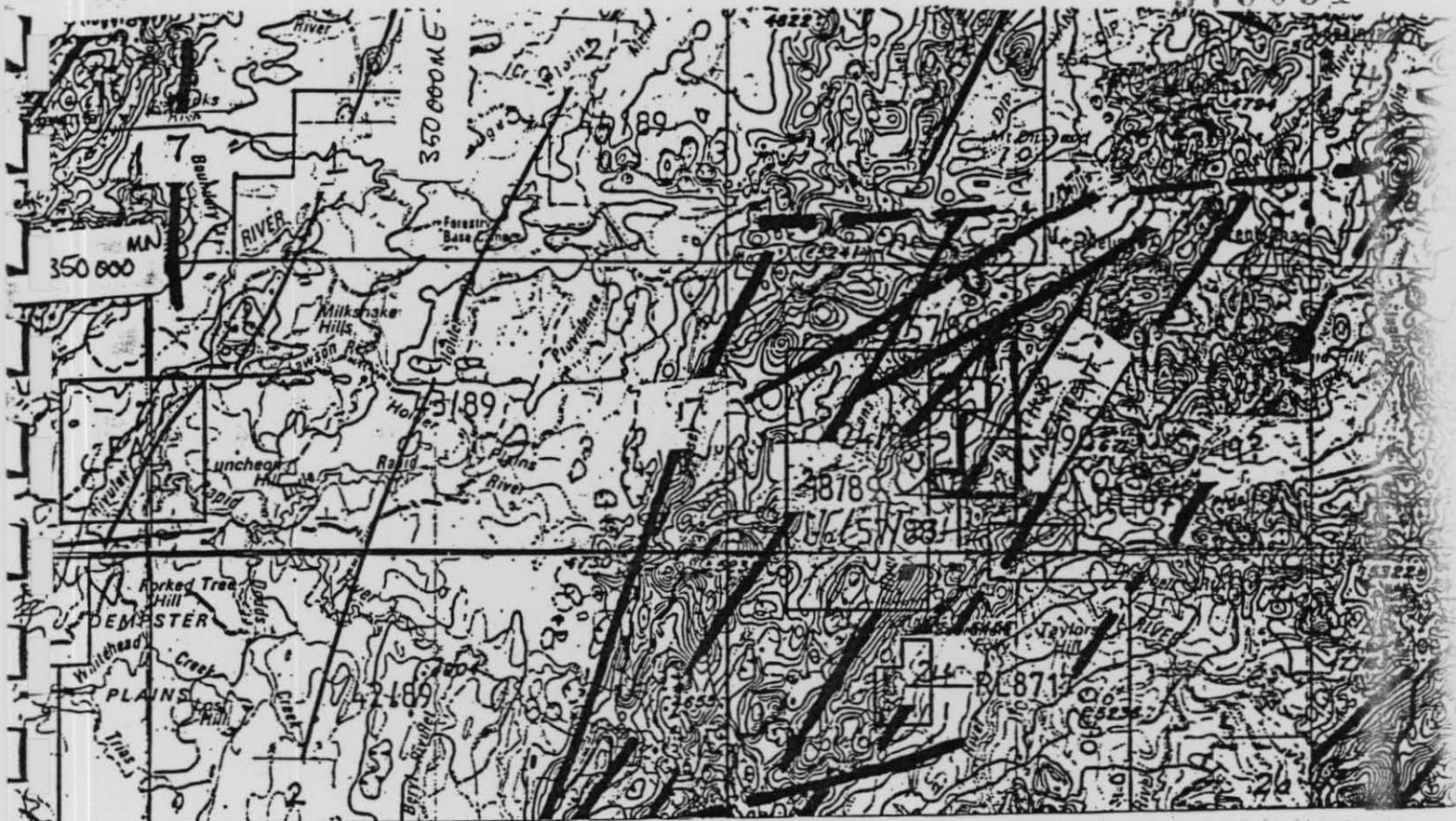
Figure 32 presents relevant gravity and magnetic data.

This small licence area lie near a large mafic accumulation within the lineament axis. It has been suggested that this is important to derivation of copper and perhaps gold mineralisation. Gravity data lack definition but do suggest that the western limit of this mafic sequence may lie in or close to the western parts of the EL. The implied change in orientation near the NW corner of the EL may also be significant.

Magnetic data suggest that the impression of the change-of-trend structures may lie about 1 km NW of the EL although a sympathetic but smaller feature may enter the far corners. The gradient, parallel to (23), may be more significant since it indicates either a change in burial or contrast which is not extensive. Indeed, the patchiness of the response of this shoulder anomaly suggests alteration or property variability. The set of magnetic units from (23) to (17), and their transference to more E-W orientations accounts for the total gravity effect.

Feature (23) is the principal magnetic response to cross the EL and its origin should be assessed. It would appear that at least part of this source is exposed. Its precise location should be determined by ground surveys and the (presumed) fault or shear boundary and contact zone tested for mineralisation. The same approach should be employed to locate and evaluate the gradient noted above and which lies about 2.5 km west of (23). The concentration of exploration activity in this area suggests that it is mineralised and identification of these major fractures may be crucial to success. Regional evaluation suggests that these dip east.

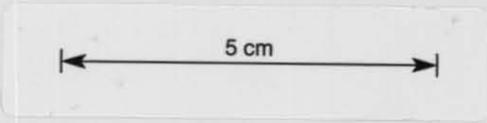
Any coupling of purified dolomite and silica should be taken as an indicator of sulphide transfer and possible alteration of the underlying mafics. If such occurrences can be found then the magnetic data in the vicinity should be assessed for indications of the volume of gross alteration. This is not feasible until after the geometric limits of the volume, or some anomalies, has been defined at surface.



EL 1/90 MEUNNA

MAGNETIC AND RESIDUAL GRAVITY DATA

FIGURE 32



APPENDIX 4  
WATER GEOCHEMISTRY & ROCK CHIP GEOCHEMISTRY  
SAMPLE DETAILS AND RESULTS

## ARTHUR RIVER PROJECT WATER SAMPLES - EL 1/90

NUMBER	AU	C	AU_C	CU	PB	ZN	AS
20069	20.0	9.5	2.11	2.20	0.00	8	-0.50
20070	11.7	5.5	2.13	1.10	2.50	10	-0.50
20071	3468.0	3.4	1020.00	1.10	6.00	-1000	-0.50
20072	82.8	3.6	23.00	1.10	6.00	-1000	-0.50
20073	118.8	3.5	33.94	0.80	2.50	-1000	-0.50
20144	3.3	9.1	0.36	3.40	5.50	11	-0.50
20145	2.5	2.4	1.04	1.50	22.00	9	-0.50
20146	2.3	3.4	0.68	0.70	2.00	2	-0.50
20147	2.6	1.9	1.37	1.10	2.00	6	-0.50
21044	-1000.0	-1000.0	-1000.00	1.00	0.20	3	1.00

Note:- -1000 value in Au, C, Au\_C => result not yet available from DMMR laboratory.

## ARTHUR RIVER PROJECT WATER SAMPLES - EL 1/90

DATE 06-02-1990	NUMBER 20069	MAP FOLLY	TYPE WATER
EL 1/90	NORTH 5446780	EAST 366200	SAMPLER KJV
WIDTH 4.0		UNIT	Prnf
DIRECTION 0		FLOAT_1	Mpyl
COLOUR med brown		FLOAT_2	qz
FLOW slow		FLOAT_3	
			LEVEL high
CONTAM			
VEGETATION logged			DRAINAGE AREA 2.0
DATE 06-02-1990	NUMBER 20070	MAP FOLLY	TYPE WATER
EL 1/90	NORTH 5446780	EAST 366200	SAMPLER KJV
WIDTH 7.0		UNIT	Prnf
DIRECTION 0		FLOAT_1	Tertiary Bb
COLOUR very weak		FLOAT_2	qz
FLOW moderate		FLOAT_3	Mpyl
			LEVEL high
CONTAM			
VEGETATION rain forest			DRAINAGE AREA 17.0
DATE 06-02-1990	NUMBER 20071	MAP FOLLY	TYPE WATER
EL 1/90	NORTH 5445880	EAST 369010	SAMPLER KJV
WIDTH 3.0		UNIT	Pa
DIRECTION 0		FLOAT_1	qz
COLOUR very weak		FLOAT_2	Mpyl
FLOW moderate		FLOAT_3	Sar
			LEVEL high
CONTAM			
VEGETATION rain forest			DRAINAGE AREA 2.0
DATE 06-02-1990	NUMBER 20072	MAP FOLLY	TYPE WATER
EL 1/90	NORTH 5446720	EAST 370000	SAMPLER KJV
WIDTH 6.0		UNIT	Tb on Pa
DIRECTION 0		FLOAT_1	qz
COLOUR very weak		FLOAT_2	Mpyl
FLOW moderate		FLOAT_3	MSar
			LEVEL high
CONTAM			
VEGETATION logged			DRAINAGE AREA 8.0

06-02-1991

## ARTHUR RIVER PROJECT WATER SAMPLES - EL 1/90

DATE 06-02-1990 NUMBER 20073 MAP FOLLY TYPE WATER

EL 1/90 NORTH 5446980 EAST 370160 SAMPLER KJV

WIDTH	4.0	UNIT	Tb on Pa
DIRECTION	0	FLOAT_1	qz
COLOUR	very weak	FLOAT_2	MSar
FLOW	moderate	FLOAT_3	

LEVEL high

CONTAM

VEGETATION logged

DRAINAGE AREA 2.0

DATE 20-02-1990 NUMBER 20144 MAP FOLLY TYPE WATER

EL 1/90 NORTH 5444700 EAST 366880 SAMPLER JHF

WIDTH	2.0	UNIT	Pa
DIRECTION	265	FLOAT_1	
COLOUR	med brown	FLOAT_2	
FLOW	moderate	FLOAT_3	

LEVEL low

CONTAM

VEGETATION rain forest

DRAINAGE AREA 1.0

DATE 20-02-1990 NUMBER 20145 MAP FOLLY TYPE WATER

EL 1/90 NORTH 5444140 EAST 367240 SAMPLER JHF

WIDTH	5.0	UNIT	Pa
DIRECTION	260	FLOAT_1	
COLOUR	clear	FLOAT_2	
FLOW	moderate	FLOAT_3	

LEVEL low

CONTAM

VEGETATION rain forest

DRAINAGE AREA 3.0

DATE 20-02-1990 NUMBER 20146 MAP FOLLY TYPE WATER

EL 1/90 NORTH 5442160 EAST 369260 SAMPLER JHF

WIDTH	3.0	UNIT	Pa
DIRECTION	110	FLOAT_1	Mpyl
COLOUR	clear	FLOAT_2	gy Msch
FLOW	fast	FLOAT_3	

LEVEL low

CONTAM

VEGETATION rain forest

DRAINAGE AREA 3.0

06-02-1991

## ARTHUR RIVER PROJECT WATER SAMPLES - EL 1/90

DATE 20-02-1990 NUMBER 20147 MAP FOLLY TYPE WATER

EL 1/90 \*\* NORTH 5443060 EAST 367660 SAMPLER JHF

WIDTH	2.0	UNIT	Pa
DIRECTION	240	FLOAT_1	Mpyl
COLOUR	med brown	FLOAT_2	Mqzt
FLOW	moderate	FLOAT_3	

LEVEL low

CONTAM

VEGETATION rain forest

DRAINAGE AREA 2.5

DATE 02-10-1990 NUMBER 21044 MAP FOLLY TYPE WATER

EL 1/90 NORTH 5445820 EAST 369010 SAMPLER MAT

WIDTH	5.0	UNIT	Pa
DIRECTION	0	FLOAT_1	
COLOUR	clear	FLOAT_2	
FLOW		FLOAT_3	

LEVEL

CONTAM

VEGETATION

DRAINAGE AREA 2.5

DATE 02-10-1990 NUMBER 21049 MAP FOLLY TYPE WATER

EL 1/90 NORTH 5446440 EAST 369160 SAMPLER MAT

WIDTH	3.0	UNIT	Prnf
DIRECTION	0	FLOAT_1	MSslt
COLOUR	weak brown	FLOAT_2	Sgwk
FLOW		FLOAT_3	

LEVEL

CONTAM logged

VEGETATION logged

DRAINAGE AREA 1.0

ARTHUR RIVER PROJECT 1990 SUMMER - WATER SAMPLES  
DMMR REPEAT ANALYSIS

EL	NUMBER	AU	AURPT
1/90	20071	3468.0	1.8
1/90	20072	82.8	18.0
1/90	20073	118.8	1.3
43/89	20052	47.2	6.5
43/89	20060	47.2	2.6
43/89	20076	596.4	1.6
43/89	20077	47.0	2.6
43/89	20087	67.1	3.6
43/89	20087	67.1	3.6
43/89	20089	35.6	2.6
43/89	20091	30.1	3.6
43/89	20657	30.7	2.3
44/89	20001	66.0	36.6
44/89	20012	36.8	5.1
44/89	20021	33.2	9.1
44/89	20079	36.9	4.4
44/89	20079	36.9	4.4
44/89	20079	36.9	4.4
44/89	20080	56.7	0.4
44/89	20080	56.7	0.4

AU :-by activated carbon extraction  
AURPT :-by new organic extraction technique

ARTHUR RIVER PROJECT 1990 SUMMER - WATER SAMPLES  
ANALYTICAL METHODS, UNITS AND LABORATORIES

Element	Units	Laboratory	Method
Au	ng/l (ppt)	DMMR Hobart	Activated carbon extraction from water. <i>Aqua regia digestion</i> - AAS
AuRPT	ng/l (ppt)	DMMR Hobart	Organic solvent extraction from water, AAS determination
C	mg/l (ppm)	DMMR Hobart	Total Organic Carbon - carbon analyser
Au/C	-	DMMR Hobart	Au result in ppt divided by C result in ppm
Cu	ug/l (ppb)	ANALABS Mbne	Carbon rod AAS on raw water
Pb	ug/l (ppb)	ANALABS Mbne	Carbon rod AAS on raw water
Zn	ug/l (ppb)	ANALABS Mbne	Carbon rod AAS on raw water
As	ug/l (ppb)	ANALABS Mbne	Hydride generation AAS on raw water

Page 1

27-02-1991

ARTHUR RIVER PROJECT - ROCK CHIP SAMPLING  
EL 1/90 - MEUNNA

NUMBER	21514	SAMPLER BT	TYPE RC	EL 1/90	DATE	04-12-1990
LOCATION	CANN CREEK			FROM 950	TO 1000	
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	Phyllitic Sslt & sandy Sslt					
COMMENTS						
PURPOSE	assay					
NUMBER	21515	SAMPLER BT	TYPE RC	EL 1/90	DATE	04-12-1990
LOCATION	CANN CREEK			FROM 1000	TO 1050	
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	MSslt & MSsst					
COMMENTS	py in qz vns					
PURPOSE	assay					
NUMBER	21516	SAMPLER BT	TYPE RC	EL 1/90	DATE	01-12-1990
LOCATION	CANN CK			FROM 1050	TO 1100	
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	MSslt & MSsst					
COMMENTS	py in qz vns					
PURPOSE	assay					
NUMBER	21517	SAMPLER BT	TYPE RC	EL 1/90	DATE	04-12-1990
LOCATION	CANN CK			FROM 1100	TO 1150	
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	MSsst & MSslt, qz vng					
COMMENTS	poor outcrop					
PURPOSE	assay					
NUMBER	21518	SAMPLER BT	TYPE RC	EL 1/90	DATE	04-12-1990
LOCATION	CANN CREEK			FROM 1150	TO 1200	
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	MSslt					
COMMENTS						
PURPOSE	assay					
NUMBER	21519	SAMPLER BT	TYPE RC	EL 1/90	DATE	01-12-1990
LOCATION	CANN CREEK			FROM 1200	TO 1250	
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	MSslt & MBd					
COMMENTS	dolerite intrusive					
PURPOSE	assay					
NUMBER	21520	SAMPLER BT	TYPE RC	EL 1/90	DATE	01-12-1990
LOCATION	CANN CREEK			FROM 1250	TO 1300	
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	MSslt					
COMMENTS						
PURPOSE	assay					
NUMBER	21521	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 0	TO 50	
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	talc Msch, magnesite					
COMMENTS	poor outcrop					
PURPOSE	assay					

ARTHUR RIVER PROJECT - ROCK CHIP SAMPLING  
EL 1/90 - MEUNNA

NUMBER	21522	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 50		TO 100
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	magnesite, tale Msch					
COMMENTS						
PURPOSE	assay					
NUMBER	21523	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 100		TO 150
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	Mqzt qz vns					
COMMENTS						
PURPOSE	assay					
NUMBER	21524	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 150		TO 200
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	MSslt Mqzt MSsst mic					
COMMENTS	poor outcrop					
PURPOSE	assay					
NUMBER	21525	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 250		TO 300
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	Mqzt MSslt qz vns					
COMMENTS						
PURPOSE	assay					
NUMBER	21526	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 300		TO 350
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	Mqzt MSslt qz vns					
COMMENTS						
PURPOSE	assay					
NUMBER	21527	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 350		TO 400
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	Msch MBd Mserp qz vns					
COMMENTS	amphibolite and serpentinite					
PURPOSE	assay TS					
NUMBER	21528	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 400		TO 450
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	MSsst Mqzt					
COMMENTS	poor outcrop					
PURPOSE	assay					
NUMBER	21529	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 450		TO 500
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	tale Msch MSslt Mqzt					
COMMENTS						
PURPOSE	assay					

ARTHUR RIVER PROJECT - ROCK CHIP SAMPLING  
EL 1/90 - NEUNNA

NUMBER	21530	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 500	TO 550	
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	MSslt Mqzt					
COMMENTS						
PURPOSE	assay					
NUMBER	21531	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 550	TO 600	
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	Mqzt MSslt qz vns					
COMMENTS						
PURPOSE	assay					
NUMBER	21532	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 600	TO 650	
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	MSslt Mqzt					
COMMENTS						
PURPOSE	assay					
NUMBER	21533	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 650	TO 700	
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	MSslt MSsst qz vns					
COMMENTS						
PURPOSE	assay					
NUMBER	21534	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 700	TO 750	
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	MSslt					
COMMENTS	phyllite					
PURPOSE	assay					
NUMBER	21535	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 750	TO 820	
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	MSslt					
COMMENTS	phyllite					
PURPOSE	assay					
NUMBER	21536	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 0	TO 100	
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	magnesite MSslt MSsst					
COMMENTS	poor outcrop					
PURPOSE	assay					
NUMBER	21537	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 100	TO 200	
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	MSslt					
COMMENTS	poor outcrop					
PURPOSE	assay					

ARTHUR RIVER PROJECT - ROCK CHIP SAMPLING  
EL. 1/90 - MEUNNA

NUMBER	21538	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 200		TO 250
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	talc Msch MSslt					
COMMENTS						
PURPOSE	assay					
NUMBER	21539	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 250		TO 300
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	MSslt					
COMMENTS						
PURPOSE	assay					
NUMBER	21540	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 300		TO 350
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	MSslt					
COMMENTS						
PURPOSE	assay					
NUMBER	21511	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 350		TO 450
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	MSslt Mqzt qz vns					
COMMENTS	100m sample - poor outcrop					
PURPOSE	assay					
NUMBER	21542	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 450		TO 500
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	MSslt MSsst					
COMMENTS	phyllite					
PURPOSE	assay					
NUMBER	21543	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 500		TO 550
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	MSsst MBd					
COMMENTS	?volcanics					
PURPOSE	assay					
NUMBER	21544	SAMPLER BT	TYPE RC	EL 1/90	DATE	05-12-1990
LOCATION	CANN CREEK			FROM 550		TO 650
AMG COORDINATES	EAST 0.00			NORTH 0.00		
LITHOLOGY	MSslt MBd					
COMMENTS	green schist, poor outcrop					
PURPOSE	assay					

Analysis - A Division of Incharge Inspection & Testing Services

Phone (004) 31 6837

14 Thirkell St. Coose Tas 7320

Fax No. (004) 31 8890

## ANALYTICAL REPORT No. 106480.60.07584

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:

Geopeko  
P.O. Box 180  
Rosebery Tas 7470

ORDER No.

PROJECT

002437

Arthur River

DATE RECEIVED

RESULTS REQUIRED

10/12/90

ASAP

No. OF PAGES OF RESULTS

DATE REPORTED

No. OF COPIES

TOTAL No. OF SAMPLES

4

24/12/90

1

92

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
21401/22, (215, 01/69, 71)	RC Prep: 6P005, 6P009, 6P016	Cu, Pb, Zn, Ni/6A101
21401/22, (215, 01/69, 71)	RC	Au, Au(R), Au(S)/66313, Au/RAW, Au/Wt

RESULTS

TO

Miss Katrina Virgoe  
Geopeko  
P.O. Box 180  
Rosebery  
Tasmania 7470

RESULTS

TO

RESULTS

TO

REMARKS

*pp of Vernon*  
AUTHORISED OFFICER

## ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

106480.60.07584

24/12/90

002437

2 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ni	Au	Au (R)	Au (S)		
----------	------------	----	----	----	----	----	--------	--------	--	--

11	21514	55	5	50	45	<0.005	-	-		43/89 1/70
12	21515	25	5	45	10	<0.005	-	-		
13	21516	45	5	75	65	<0.005	<0.005	-		
14	21517	45	10	70	40	<0.005	-	-		
15	21518	30	15	70	20	<0.005	-	-		
16	21519	80	<5	135	870	<0.005	-	-		
	21520	40	5	90	15	<0.005	-	-		
18	21521	10	5	20	<5	<0.005	-	-		
19	21522	20	<5	20	75	<0.005	-	-		
20	21523	15	10	60	<5	<0.005	-	-		
21	21524	35	<5	60	30	<0.005	-	-		
22	21525	10	5	40	20	<0.005	-	-		
23	21526	30	10	50	70	<0.005	<0.005	-		
24	21527	15	5	50	155	0.100	-	-		
25	21528	40	10	70	80	<0.005	-	-		

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

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**ANALYTICAL DATA**

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

106480.60.07584

24/12/90

002437

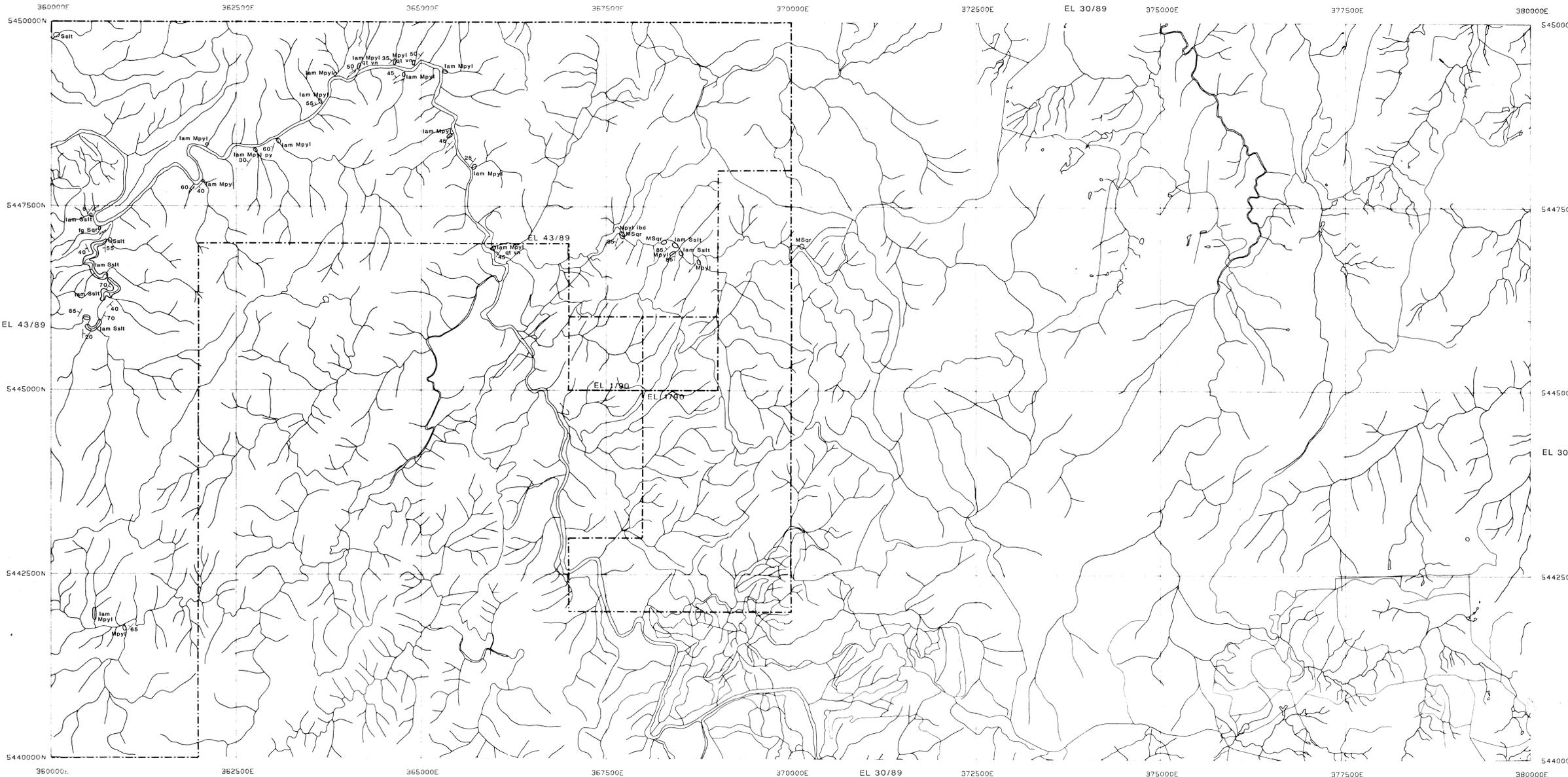
3 OF 4

TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ni	Au	Au(R)	Au(S)		
1	21529	20	5	40	10	5.830	-	-		
2	21530	20	5	60	20	0.510	-	-		
3	21531	15	<5	65	50	<0.005	-	-		
4	21532	25	5	70	10	<0.005	-	-		
5	21533	25	5	60	10	<0.005	-	-		
6	21534	25	5	125	15	<0.005	-	<0.005		
7	21535	30	<5	100	15	<0.005	-	-		1/90
8	21536	35	5	115	50	<0.005	-	-		1/90
9	21537	60	5	90	290	<0.005	-	-		
10	21538	30	10	65	55	<0.005	-	-		
11	21539	35	10	85	60	<0.005	-	-		
12	21540	25	10	75	40	<0.005	-	-		
13	21541	20	5	85	30	<0.005	-	-		
14	21542	35	15	80	25	<0.005	<0.005	-		
15	21543	30	10	80	50	<0.005	-	-		
16	21544	35	10	100	250	<0.005	-	-		1/90

18										
19										
20										
21										
22	SNR = Sample Not Received									
23	DETECTION	5	5	5	5	0.005	0.005	0.005		
24	UNITS	ppm								
25	METHOD	GA101	GA101	GA101	GA101	GG313	GG313	GG313		

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

AUTHORISED OFFICER \_\_\_\_\_



- ROCK TYPES**
- SEDIMENTS:**  
 Sst sandstone  
 Sqr quartz arenite  
 Swk greywacke  
 Ssl siltstone  
 Scl dolomite  
 Scon conglomerate  
 Sbx breccia
- IGNEOUS ROCKS:**  
 Tert Bb tertiary basalt  
 C Bb cambrian basalt  
 Bd dolerite
- METAMORPHICS:**  
 Mpyl phyllite  
 MSar meta arenite
- SEDIMENT GRAIN SIZE**  
 vfg very fine grained  
 fg fine grained  
 mg medium grained  
 cg coarse grained
- TEXTURES**  
 vns veins  
 lbd interbedded  
 lam laminated  
 clvd cleaved  
 stn staining  
 gd graded  
 wthd weathered
- COLOURS**  
 bk black  
 wh white  
 gn green  
 gy grey  
 pl pale  
 dk dark  
 or orange  
 cm cream
- MINERALOGY**  
 py pyrite  
 qt quartz  
 Fe iron  
 Mn manganese  
 cbd carbonite  
 Tq turquoise
- STRUCTURAL SYMBOLS**  
 bedding  
 facng facing  
 ovrtn overturned bedding  
 cleavage  
 fault  
 rock outcrop  
 float/subcrop  
 definite contact  
 approximate contact  
 interpreted contact

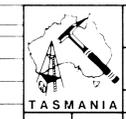
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PLATE 1

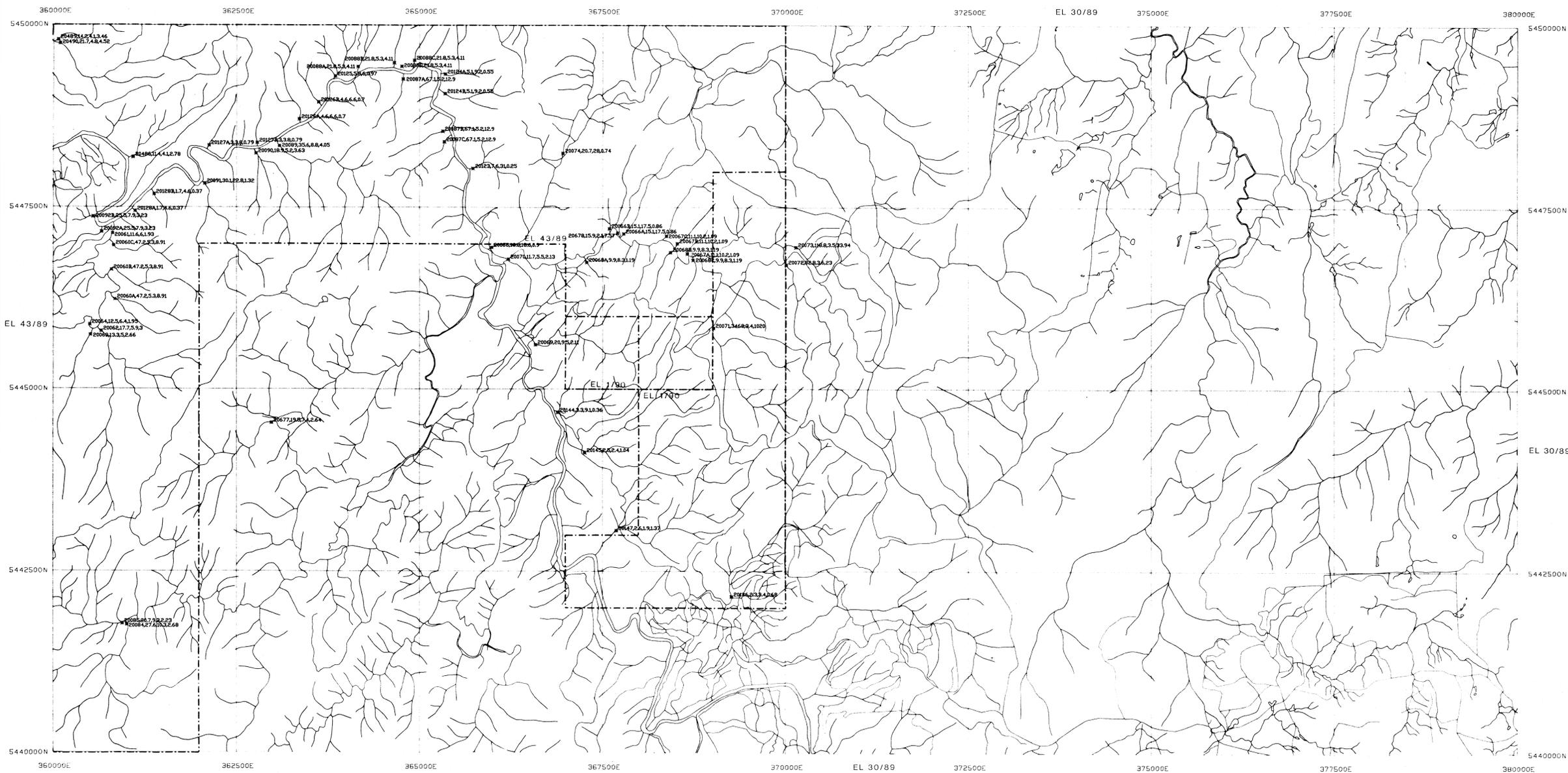
3445	3645
3444	3644
3443	



**GEOPEKO**  
 A DIVISION OF PEKO EXPLORATION LIMITED

SCALE - 1:25000  
 AUSTRALIAN HEIGHT DATUM

**3644 FOLLY**  
 EL 1/90  
 GEOLOGICAL FACT MAPPING



- ROCK TYPES**
- SEDIMENTS:**
  - Ssst sandstone
  - Sqr quartz arenite
  - Swk greywacke
  - Sst siltstone
  - Sdol dolomite
  - Scon conglomerate
  - Sbx breccia
- IGNEOUS ROCKS:**
  - Tert Bb tertiary basalt
  - C Bb cambrian basalt
  - Bd dolerite
- METAMORPHICS:**
  - Mpyl phyllite
  - MSqr meta arenite
- SEDIMENT GRAIN SIZE**
  - vfg very fine grained
  - fg fine grained
  - mg medium grained
  - cg coarse grained
- TEXTURES**
  - vns veins
  - ibd interbedded
  - lam laminated
  - civd cleaved
  - stn staining
  - gd graded
  - wthd weathered
- COLOURS**
  - bk black
  - wh white
  - gn green
  - gy grey
  - pl pale
  - dk dark
  - or orange
  - cm cream
- MINERALOGY**
  - py pyrite
  - qt quartz
  - Fe iron
  - Mn manganese
  - cbd carbonate
  - Tq turquoise
- STRUCTURAL SYMBOLS**
  - bedding
  - facing
  - overturned bedding
  - cleavage
  - fault
  - rock outcrop
  - float/subcrop
  - definite contact
  - approximate contact
  - interpreted contact

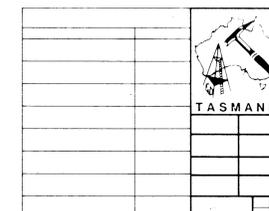
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PLATE 2

3445	3645
3444	3644
3443	

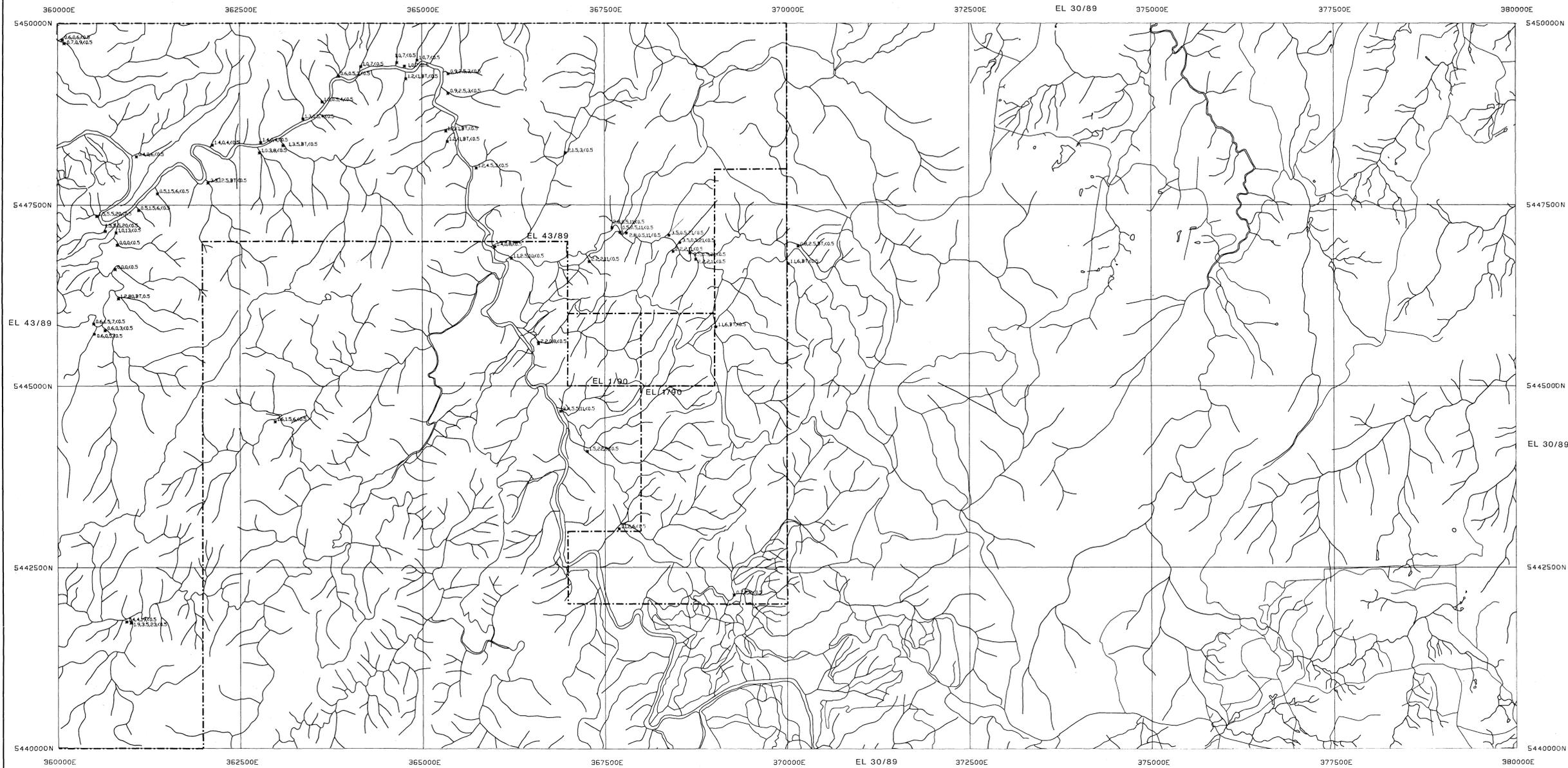


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SCALE 1:25000  
AUSTRALIAN HEIGHT DATUM

**3644 FOLLY**

**EL 1/90**  
**WATER GEOCHEMISTRY**  
Sample Number, Au, C, Au/C



- ROCK TYPES**
- SEDIMENTS:**  
 Ssst sandstone  
 Ssqr quartz arenite  
 Sgw greywacke  
 Ssilt siltstone  
 Sdol dolomite  
 Scon conglomerate  
 Sbx breccia
- IGNEOUS ROCKS:**  
 Tert Bb tertiary basalt  
 C Bb cambrian basalt  
 Bd dolerite
- METAMORPHICS:**  
 Mpyl phyllite  
 MSqr meta arenite
- SEDIMENT GRAIN SIZE**  
 vfg very fine grained  
 fg fine grained  
 mg medium grained  
 cg coarse grained
- TEXTURES**  
 vns veins  
 ibd interbedded  
 lam laminated  
 clef cleaved  
 stn staining  
 gd graded  
 wthd weathered
- COLOURS**  
 bk black  
 wh white  
 gn green  
 gy grey  
 pl pale  
 dk dark  
 or orange  
 cm cream
- MINERALOGY**  
 py pyrite  
 qt quartz  
 Fe iron  
 Mn manganese  
 cbd carbonate  
 Tq turquoise
- STRUCTURAL SYMBOLS**  
 bedding  
 facing  
 overturned bedding  
 cleavage  
 fault  
 rock outcrop  
 float/subcrop  
 definite contact  
 approximate contact  
 interpreted contact

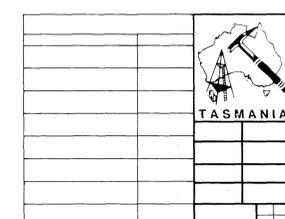
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PLATE 3

3445	3645
3444	3644
3443	



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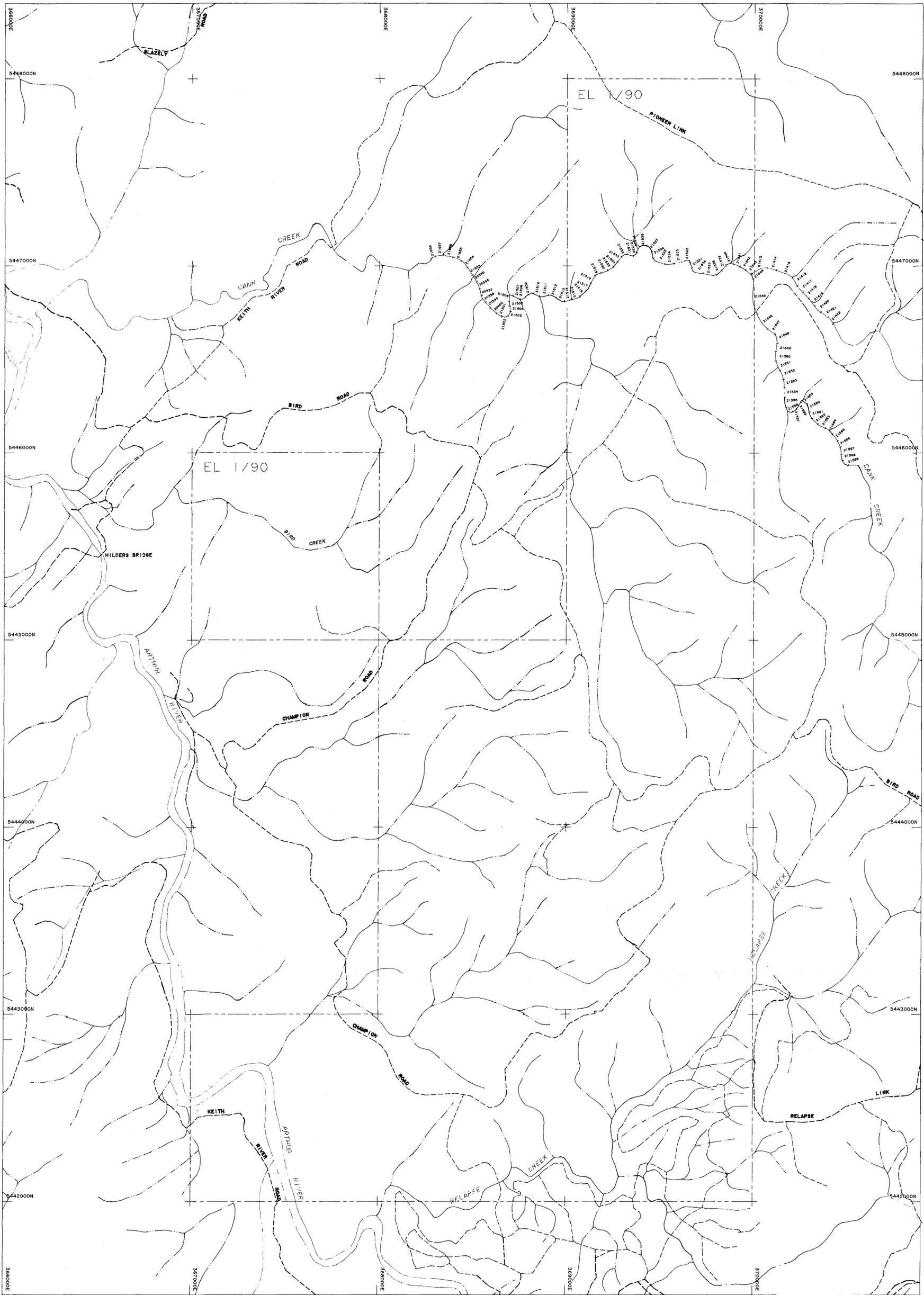
SCALE - 1:25000  
 AUSTRALIAN HEIGHT DATUM

**3644 FOLLY**

**EL 1/90**

**WATER GEOCHEMISTRY**  
 Cu,Pb,Zn,As





5cm

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		Scale 1: 10000 <b>379050</b>	
<b>TASMANIA</b>		Map Ref: FOLLY 3644 (1:25000 sheet series)	
Geo Carto Checked Date 13-FEB-9		<b>EL 1/90 CANN CREEK</b> <b>ROCK CHIP SAMPLING</b> <b>SAMPLE LOCATIONS</b>	
		Dwg No. 1484# <b>PLATE 5</b>	

91-3247.