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GEOPEKO

A DIVISION OF PEKO EXPLORATION

EL 45/89 SAVAGE RIVER

REPORT ON

EXPLORATION ACTIVITY

JANUARY 1990 TO NOVEMBER 1990

TCR 91-3218

EL45/89

LETTER
8-1-'91
REFERS.

Katrina Virgoe
Ian Mathison
December, 1990

T251

Distribution: Geopeko, Parkes
Geopeko, Rosebery
DMMR, Hobart

AMG REFERENCE POINTS ADDED

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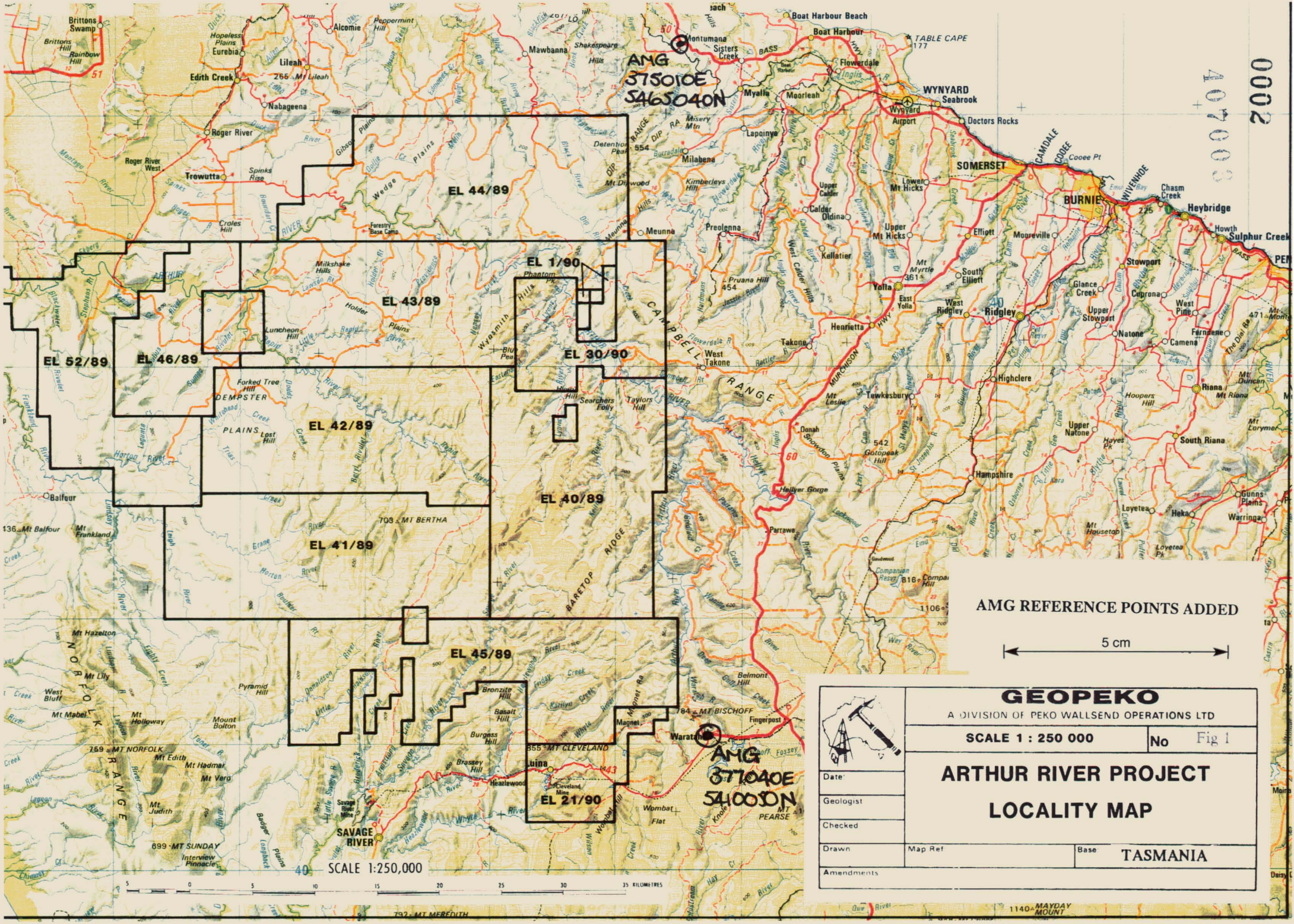
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EL 52/89
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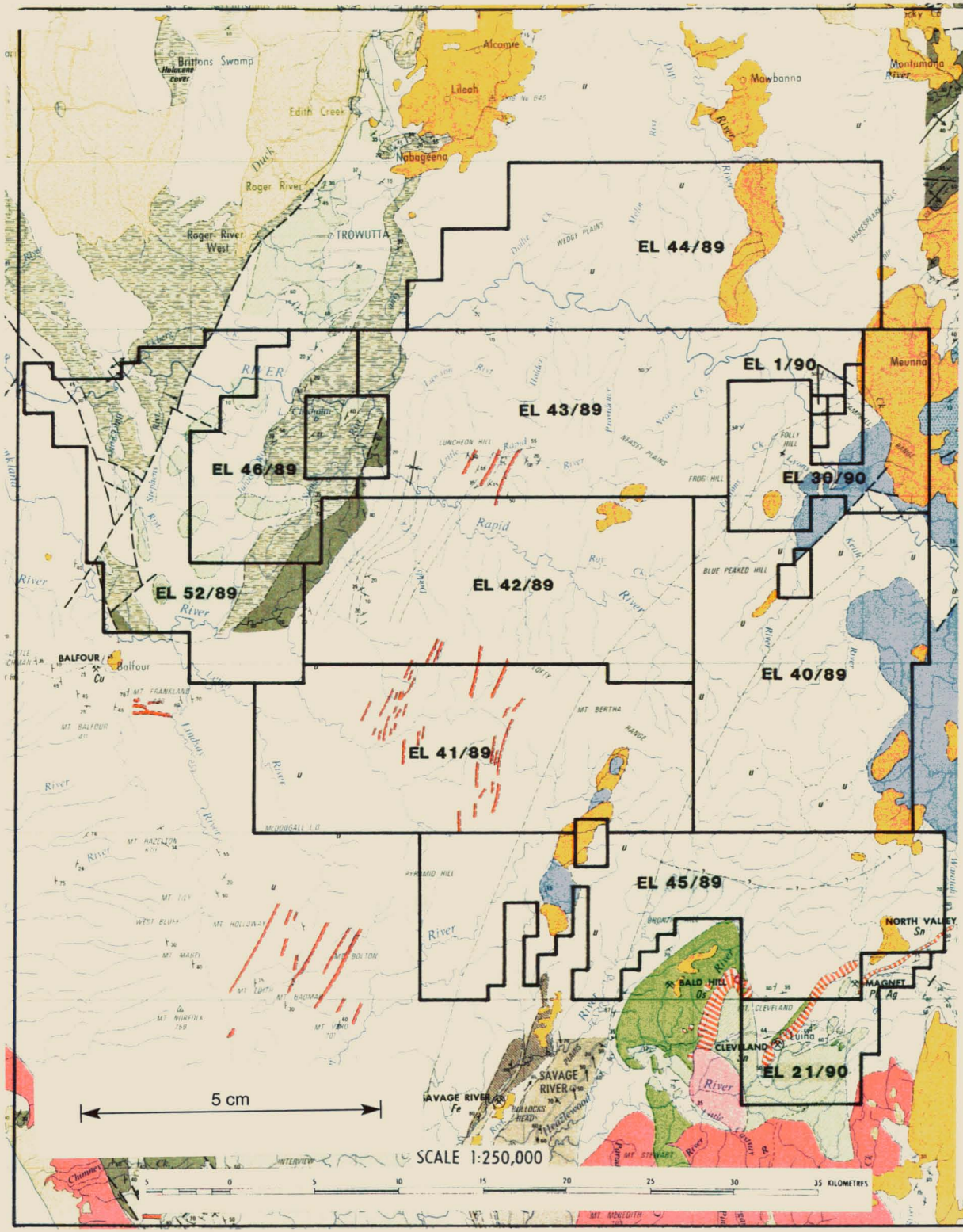

HOLOCENE — Alluvium, sand, gravel and talus.

PLEISTOCENE — Till, fluvioglacial, periglacial and associated deposits.

Errosional surface.

TERTIARY — Non–marine sequences (light), marine limestone (dark), basalt and related igneous rock types (orange).

Low angle unconformity.

TRIASSIC — Fluvio–lacustrine sequences of sandstone, siltstone, mudstone (light) with carbonaceous sequences indicated (dark). Fresh water sequence with some coal measures.

PERMIAN — Upper glacio–marine sequence of pebbly mudstone, pebbly sandstone and limestone. Fresh water sequence with some coal measures.

UPPER CARBONIFEROUS — Lower glacio–marine sequence of pebbly mudstone, pebbly sandstone, minor limestone, Tasmanite oil shale and basal tillite.

CAMBRIAN — 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.

PRECAMBRIAN — 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).

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

CAMBRIAN — Dominantly adamellite–granite.

LOWER CARBONIFEROUS –UPPER DEVONIAN — Coarser grained basic rocks.

Serpentinite, peridotite and associated rocks.

PRECAMBRIAN — Dolerite.

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SCALE 1 : 250 000 | No Fig 2

ARTHUR RIVER PROJECT
REGIONAL GEOLOGY

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1.0 INTRODUCTION

1.1 Location and Access (Fig. 1)

EL 45/89 Savage River is located in NW Tasmania approximately 5 km north of the townships of Savage River and Luina.

Access within the eastern half of the EL is good and is provided by the Savage River Pipe Line Road, old exploration tracks and an unsealed logging road. The western half of the EL is relatively inaccessible and access requires the cutting of walking tracks.

1.2 Tenure and Land Usage

EL 45/89 of 239 km^2 was granted to Peko Exploration Ltd in January 1990. The EL schedule is outlined in Appendix 1.

The EL consists predominantly of Uncommitted Crown Land with approximately 4 km^2 of State Forest and 1 km^2 of Timber Reserve. Vegetation within the EL is generally comprised of moderately open , wet eucalypt forest.

1.3 Regional Geology

Geopeko's block of Arthur River ELs lies within the Rocky Cape Region of NW Tasmania. The oldest rocks in the area are those of the Precambrian Arthur Lineament. The Arthur Lineament is a north-east trending metamorphic belt consisting of highly deformed sediments, basic volcanics and dolomite. To the west of this belt lies the Rocky Cape Group, a thick shallow marine shelf sequence and to the east lies the Oonah Formation, a deeper water turbidite sandstone sequence. 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 to Cambrian Smithton Trough which lies with a faulted or unconformable contact on the Rocky Cape Group. The Smithon Trough sequence consists of the basal Forest Conglomerate and Black River Dolomite (Success Creek Group correlate), volcaniclastic 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 have been correlated with the Crimson Creek Formation and consist of basaltic, andesitic and tholeiitic lavas and volcaniclastic sediments.

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

TABLE 1

STRATIGRAPHIC CORRELATION ADOPTED FOR THIS REPORT

	ROCKY CAPE BLOCK	LYONS RIVER (Arthur Lineament)	CLEVELAND - WARATAH	CORINNA	ZEEHAN (Ord - Dev seds omitted)
TERTIARY	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
PERMO-CARB		P - Parmeneer Supergroup Fluviatile sandstone, coal measures, glacimarine & glacial deposits			
DEVONIAN			Intrusion of Cleveland Granite	Intrusion of Pieman Granite	Intrusion of Ranison Bell & Heemskirk Granite
CAMBRIAN	Cs - Unnamed Quartzwacke, siltstone, mudstone, conglomerate				Dundas Group
			Intrusion/emplacement of Ultramafic bodies		Intrusion/emplacement of Ultramafic bodies
EO-CAMBRIAN	Ed - Smithton Dolomite			?? Ecd - Corinna Dolomite	Crimson Creek Formation
	Eb - Smithton Basalt Mafic volcaniclastics and tholeiitic basalts		Ev - Unnamed mafic volcs, volcaniclastics and turbidites with some carbonates	Ebv - Bernafai Volcanics	
	Eb - Black River Dolomite Dolomite, silicified dolomite, chert			Esd - Savage Dolomite	Success Creek Group
	Ef - Forest Conglomerate and Quartzite				
PRE-CAMBRIAN			Pb - Burnie Formation Interbedded quartzose quartzwacke & siltstone with minor mafic volcs	Pd - Donaldson Formation Quartzose turbidites	Oonah Formation Interbedded quartzwacke and siltstone with some carbonates & mafic volcs
	Prj - Jacobs Quartzite Quartzarenite	??? Prn - Neasy Formation Quartzite-siltstone, minor dolomite and basic volcs		Pi - Interview Slate and Quartzite	
	Pri - Irby Siltstone Black mudstone, minor siltstone, sandstone, & dolomite				
	Prd - Detention Quartzite Quartzarenite & siltstone				
	Prc - Cowrie Siltstone Laminated siltstone, pyritic mudstone				
		Pa - Keith Metamorphics Pelitic & quartzose schist -some calcic & mafic schist (magnesite & amphibolite)		Timms Group Pelitic & quartzose schist -some calcic & mafic schist (magnesite & amphibolite) - magnetite	

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).

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*

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 many areas having not yet seen intensive modern exploration. (See Appendix 2 for a review of previous exploration)

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 manganiferous 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.

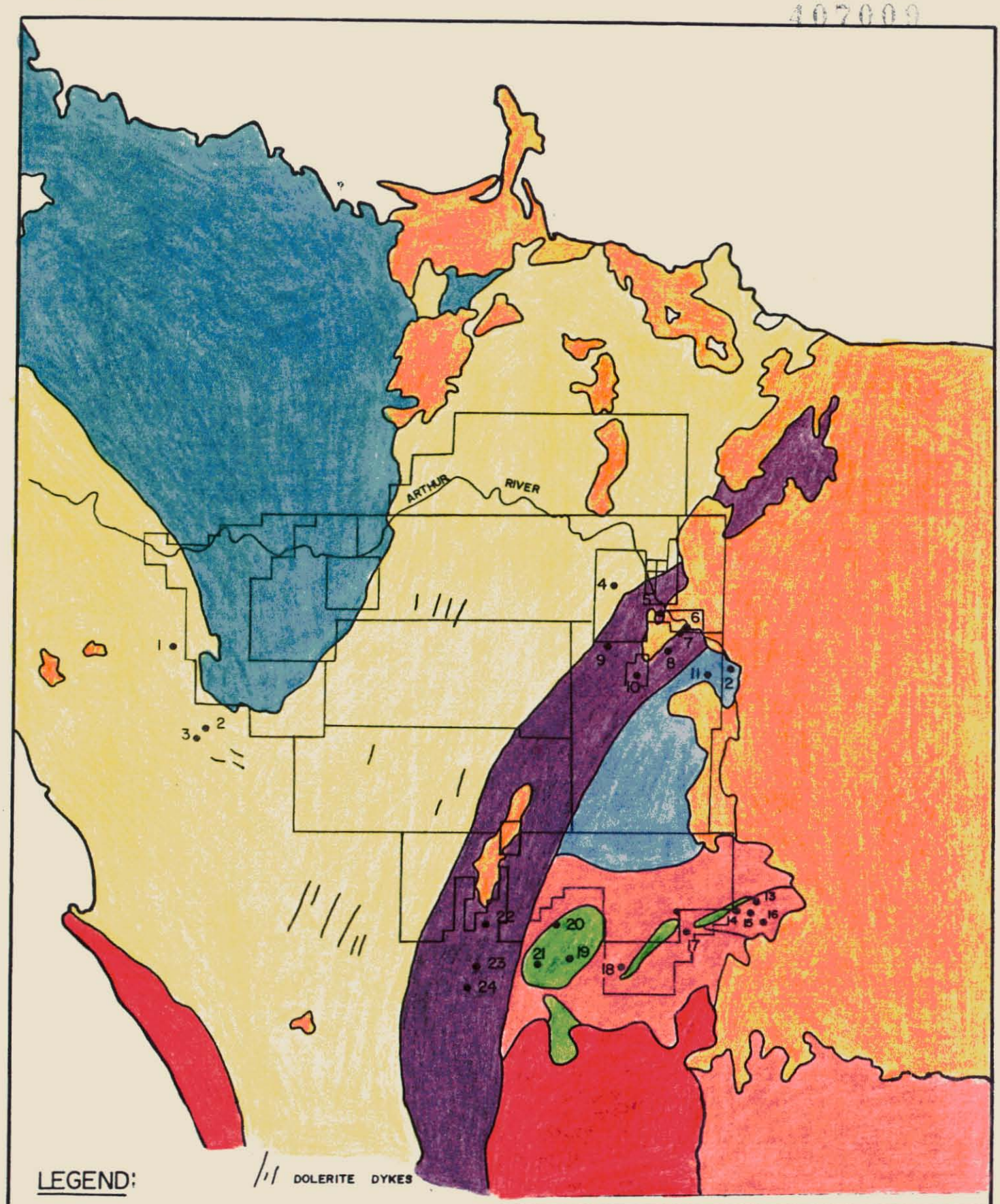
Selected areas with a combination of suitable geological environment and geochemical characteristics could subsequently be further explored using expensive and slow techniques such as

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



LEGEND:

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

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MINERAL OCCURRENCES.

(See Table 2 also)

Date: SEPT. 1990.
Geologist: K.J.V.
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Map Ref: TAS. DEPT. MINES.
Base: PARKES NSW
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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 following the first year of tenure.

1.7 Target Models

Geopeko consider the Precambrian 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 in EL 45/89 is aimed at delineating through grass roots techniques prospective and geochemically anomalous areas within the EL. Areas worthy of further investigation would be followed up with detailed exploration.

As a result of difficult access within the EL and company commitments to other licences in the area, little field work has been carried out in this EL during most of 1990.

Work included a geophysical review, a geochemical stream sediment compilation and preparation for the 1990-91 summer field season.

2.2 Geochemistry

Stream Sediment Compilation

A compilation of stream sediment base metal data within EL 45/89 by previous companies in the area has been undertaken.

At least 39 samples were collected by Comstaff in EL 1/68 and 66 by CRA in EL 1/79.

All samples were sieved to -80# and assayed for base metals using AAS techniques.

Overall the base metal results were very low. The highest results received in EL 1/68 were from sample 6839 with values of 16 ppm Cu, 225 ppm Pb and 250 ppm Zn. The highest results from EL 1/79 were 50 ppm Cu (sample 988394), 20 ppm Pb (sample 988394) and 220 ppm Zn (sample C1230).

2.3 Geophysical Review

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

Gravity data indicate that the Meredith Granite extends at depth into the western half of the EL. A more detailed survey is needed to locate any cupolas. Crestal anomalies are associated with rocks of the Arthur Lineament and further modelling is needed to separate these from the effects of the Heazlewood Ultramafic Complex.

Magnetic data hasve delineated at least four anomalous structures in the EL. These include the intersection of linear 22 with the Meredith Granite at depth, displaced anomalies within the Ultramafic Complex at depth, patchy anomalies in the north-east of the EL and anomalies along the Magnet trend.

2.4 1990-91 Field Season Preparation

During the 1990-91 field season Geopeko plans to stream sample EL 45/89 using the Huminex water technique, at a density of 1 sample per 2-3 km^2.

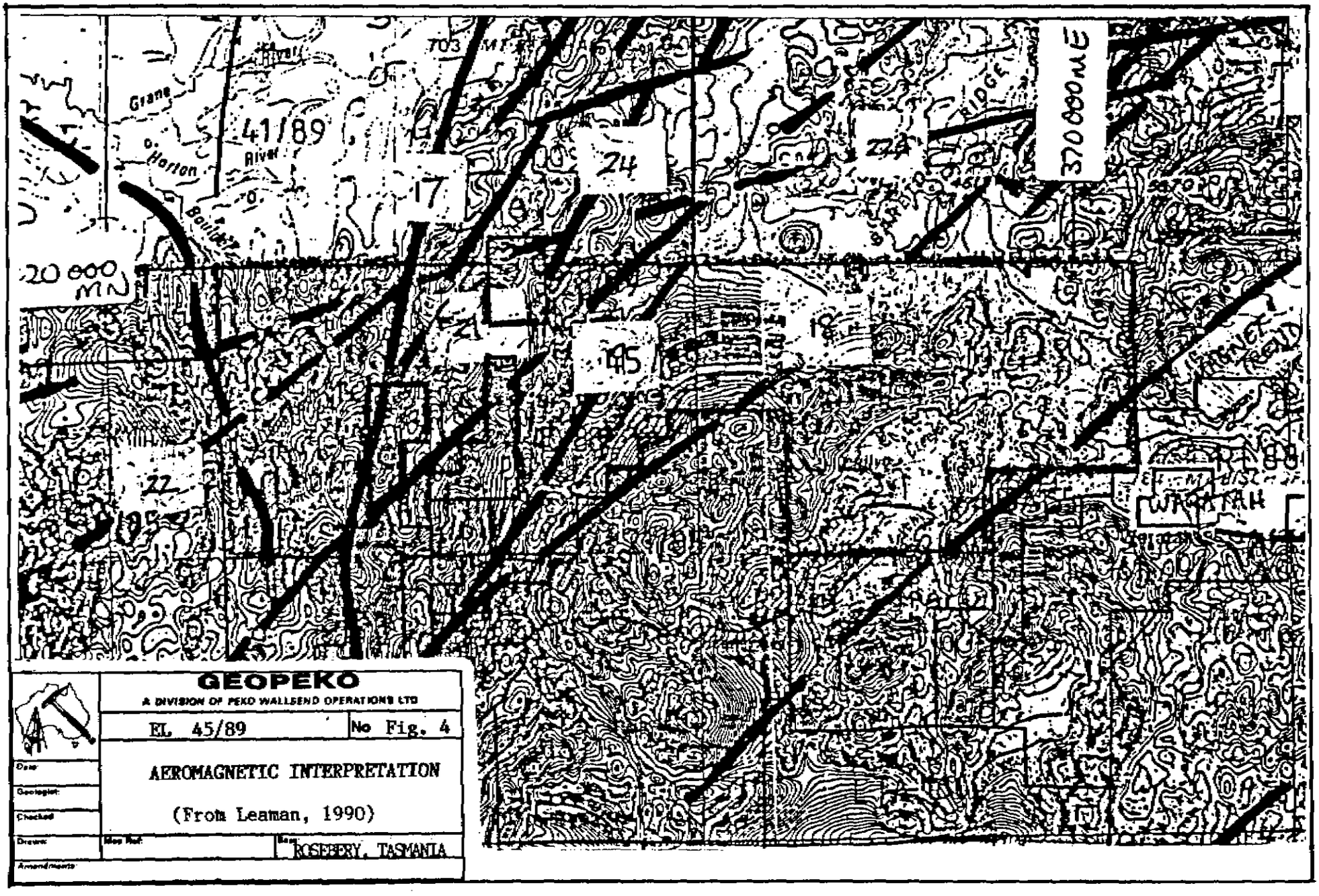
3.0 CONCLUSIONS

* Insufficient exploration has been conducted in this EL.

* The combination of known mineralization, aeromagnetic and gravity features, and a wide range of geological environments indicate that this area is worthy of further exploration.

4.0 RECOMMENDATIONS

The exploration program in this area should be delayed until the DMMR's problems with the Huminex analytical technique have been resolved. No part of this EL should be relinquished until reconnaissance exploration has been completed.



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EL 45/89	No Fig. 4
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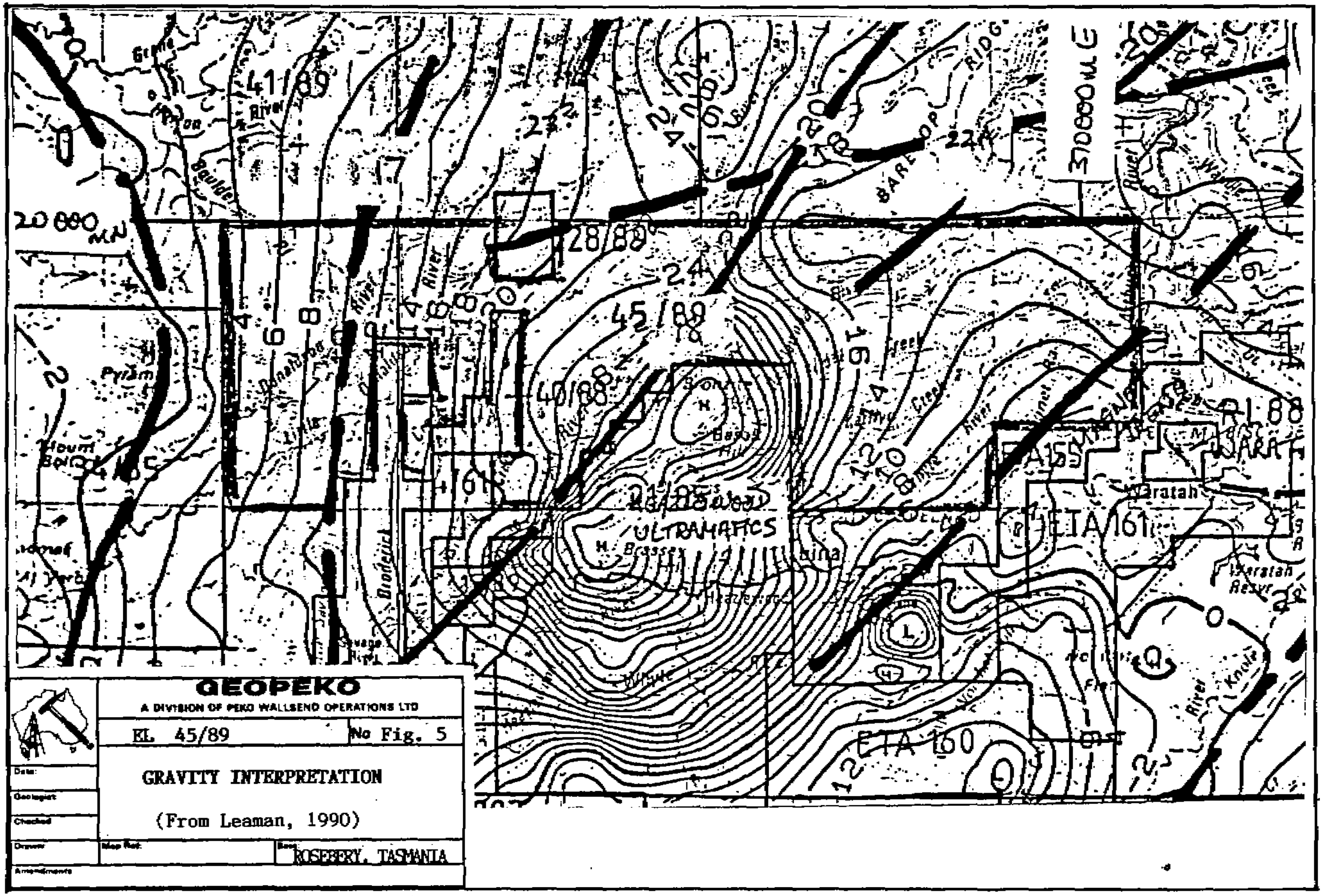

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EL 45/89	No Fig. 5	
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Geologist		
Checked		
Drawn	Map Ref:	Base: ROSEBERY, TASMANIA
Amendments		

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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.

APPENDIX 1

EL SCHEDULE

TASMANIA

No. EL 45/89 (Regulation 6A)

The Mining Act 1929

EXPLORATION LICENCE

Issued to PEKO EXPLORATION LIMITED of P.O. BOX 180, ROSEBERY, TASMANIA, 7470 in respect of 239 square kilometres of land in the Land District of RUSSELL vicinity of SAVAGE RIVER as described in the schedule hereto.

This licence shall remain in force until the TWELFTH day of JANUARY 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

Commencing at a southwest corner of the area whose grid co-ordinates are 344 000 metres E. 5 410 000 metres N. thence grid north to 5 420 000 metres N. grid east to 353 000 metres E. grid south to 5 418 000 metres N. again grid east to 355 000 metres E. again grid north to 5 420 000 metres N. aforesaid again grid east to 375 000 metres E. again grid south to 5 413 000 metres N. grid west to 370 000 metres E. again grid south to 5 410 000 metres N. aforesaid again grid west to 363 000 metres E. again grid north to 5 415 000 metres N. again grid west to 359 000 metres E. again grid south to 5 414 000 metres N. again grid west to 358 000 metres E. again grid south to 5 413 000 metres N. aforesaid again grid west to 357 000 metres E. again grid south to 5 412 000 metres N. again grid west to 356 000 metres E. again grid south to 5 410 000 metres N. aforesaid again grid west to 353 000 metres E. aforesaid again grid north to 5 412 000 metres N. aforesaid again grid east to 354 000 metres E. again grid north to 5 417 000 metres N. again grid west to 353 000 metres E. aforesaid again grid south to 5 414 000 metres N. aforesaid again grid west to 352 000 metres E. again grid south to 5 413 000 metres N. aforesaid again grid west to 351 000 metres E. again grid south to 5 411 000 metres N. again grid west to 350 000 metres E. again grid north to 5 414 000 metres N. aforesaid again grid east to 351 000 metres E. aforesaid again grid north to 5 416 000 metres N. again grid west to 349 000 metres E. again grid south to 5 411 000 metres N. aforesaid again grid west to 348 000 metres E. again grid south to 5 410 000 metres N. aforesaid thence again grid west to the point of commencement.

The area excludes: - 1 skm Savage River Iron Ore Pipeline
- 3 ha Mining Lease

Land Tenure:

The area comprises: Crown Land
State Forest
Timber Reserve

The area includes parts of the Savage River and Norfolk Range, Australian Heritage Commission Act, Registered Entries.

This land tenure table is a guide only.

APPENDIX 2

REVIEW OF PREVIOUS EXPLORATION

APPENDIX 2

REVIEW OF PREVIOUS EXPLORATION

A2.1 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^3 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

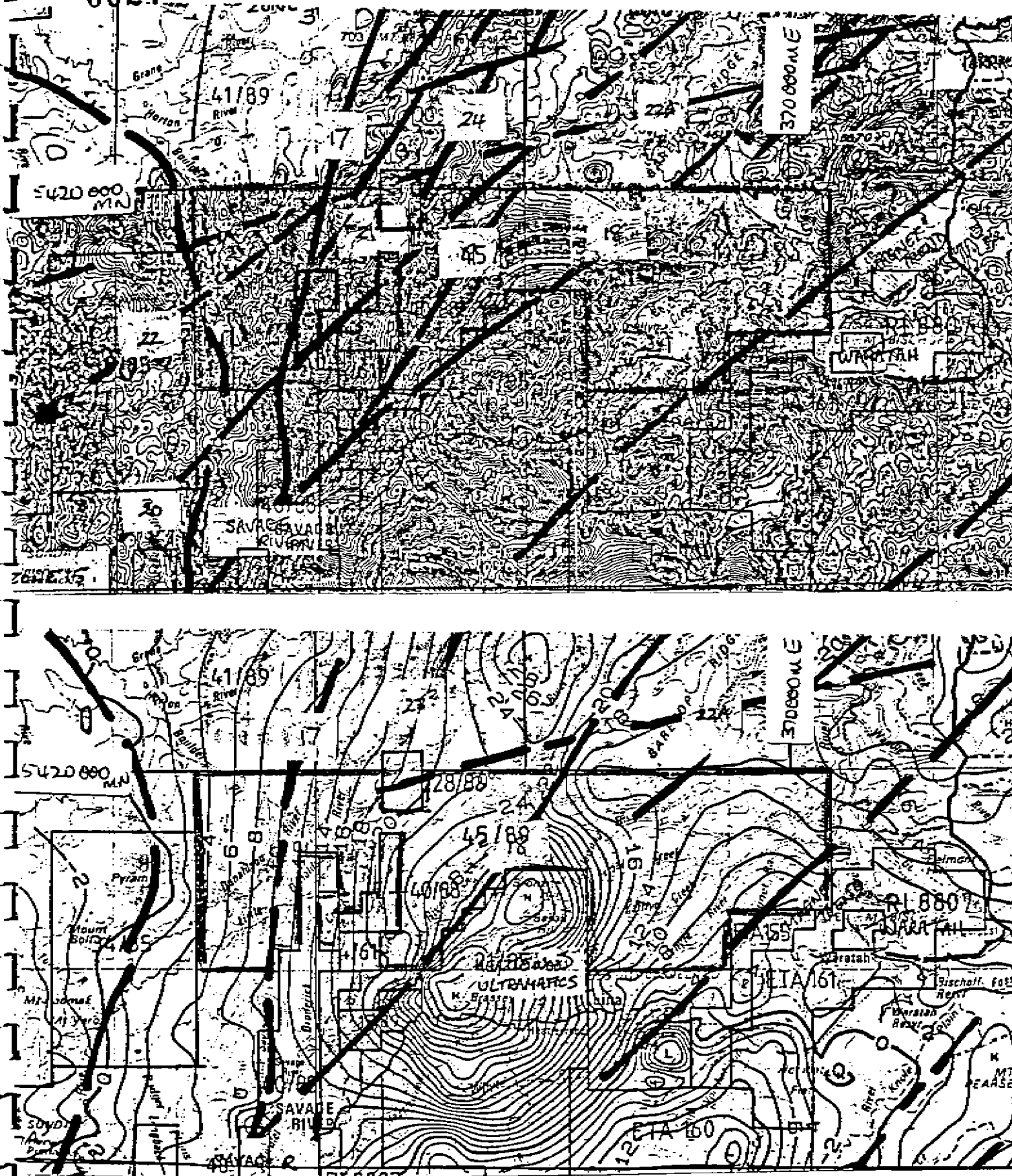
EL 45/89 SAVAGE RIVER

The location of this area is shown in Figure 1. Figure 29 presents relevant gravity and magnetic data.

EL 45/89 covers a much more complex environment than any of the other ELs examined in this survey. It extends from the overthrust Rocky Cape Block with the eastern limit of the Pieman Granite in the far west across the Arthur Lineament axis of high grade metamorphic rocks to the granite-intruded Precambrian and Cambrian rocks of the Luina and Waratah area. It includes the sheared NW margin of the Heazlewood Ultramafic complex.

The gravity field is simplest although this is partly due to uneven station coverage. The principal positive anomaly extends along the alignment of the east side of the lineament and this asymmetry reflects the balance between the Rocky Cape section intruded by granite to the west and the thick denser Burnie-Oonah sequence to the east. Crestal anomalies of the order of 26 mGal are associated with the metamorphosed rocks of the lineament. These are not easily separated from the effect of the mafic complex at Heazlewood and the modelling required has not been undertaken. Anomalies in the region of Luina, Whyte River and Waratah are almost neutral suggesting that the Meredith Granite extends far into this part of the EL (see also Figure 21).
The gravity survey should be upgraded in the area east of 362 000 mE in order to define the limits of the granite in depth and locate cupolas. It is interesting to observe that the general trend of existing gradients in the Whyte River region parallel the Magnet trend determined magnetically. Prospectivity of this area might be better assessed with this definition. The lead-zinc- silver occurrences are presumably related to the granite which might suggest that any deposits found will be relatively small and uneconomic. The scale of deposition may well depend on suitable hosts. Definition of granite forms is also relevant to any evaluation of tin prospectivity. Current data suggest that cupolas exist within the adjacent ETA and vacant areas to the south and west of Waratah.

Magnetic data provide additional definition of major structures. Most of these are concentrated within the area of the Lineament north of Savage River. Many of these have been excluded from the EL but the intersection of (22) with the inferred granite wall may be of interest. The magnetic survey also shows that the ultramafics extend E-W along Friday Creek, but at increasing depth. This trend may also be important and several small anomalies are displaced along it. The magnetic field east of Karilyn Creek is relatively quiet since it is free of intense thermal metamorphic aureole effects and large bodies of mafic rocks. The origin of the patchy anomalies centred around 368 500 mE, 5417 000 mN should also be determined. These are out of character. Some small isolated anomalies occur along the Magnet trend which may reflect localised alteration (e.g. 369 000 mE, 5413 000 mN).



EL 45/89 SAVAGE RIVER MAGNETIC AND RESIDUAL GRAVITY DATA
FIGURE 29

DATA ENTRY

Project Arthur River Project DB Number ______ Date 20/12/90
Prospect ______ X Ref T251
Company Geopeko
Title EL 45/89 Savage River Report on Exploration Activity January 1990 to November 1990
Author Katrina Vigar and Ian Matheson
Key Words Arthur Lineament, Gravity, Aeromagnetics
Near Town Savage River Country ______ State ______ Volumes 1
Commodities Cu Pb Zn Au Pages 5
Tenements EL 45/89 Plans -
Comments_1 ______ Comments_2 Text Appendices

MAP SHEET 1:250 000 SERIES

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Map2 ______
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Classification ______

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