

GEOPEKO

A DIVISION OF PEKO EXPLORATION

EL 42/89 RAPID RIVER

REPORT ON

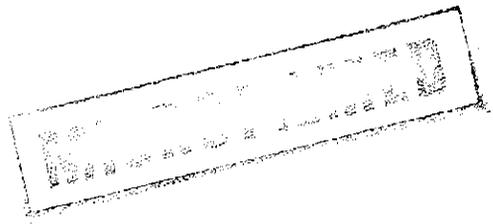
EXPLORATION ACTIVITY

JANUARY 1990 TO NOVEMBER 1990

91-3216

EL 42/89

LETTER
8-1-'91
REFERS



Katrina Virgoe
Ian Mathison
December, 1990

T252

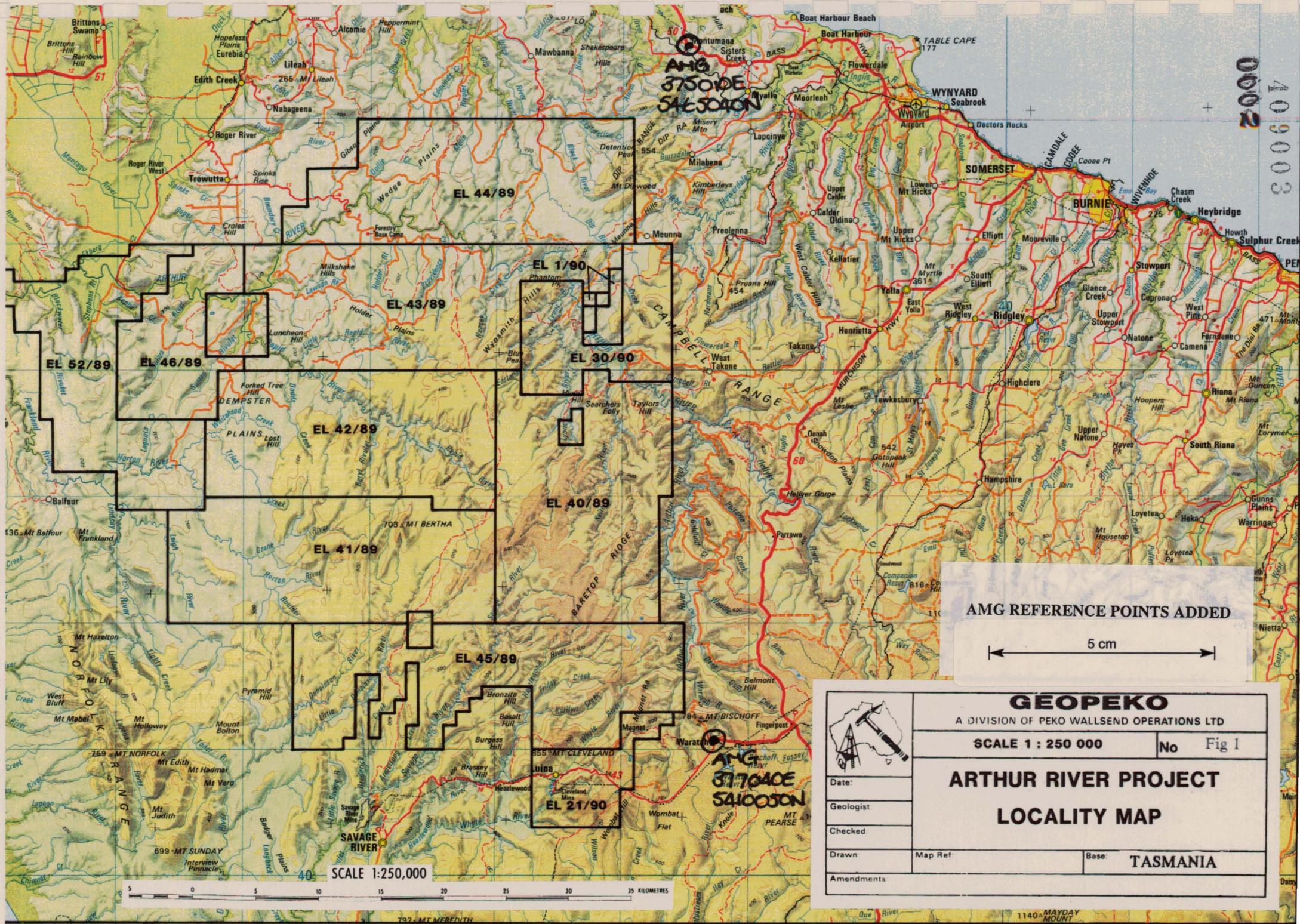
Distribution: Geopeko, Parkes
Geopeko, Rosebery
DMMR, Hobart



AMG REFERENCE POINTS ADDED

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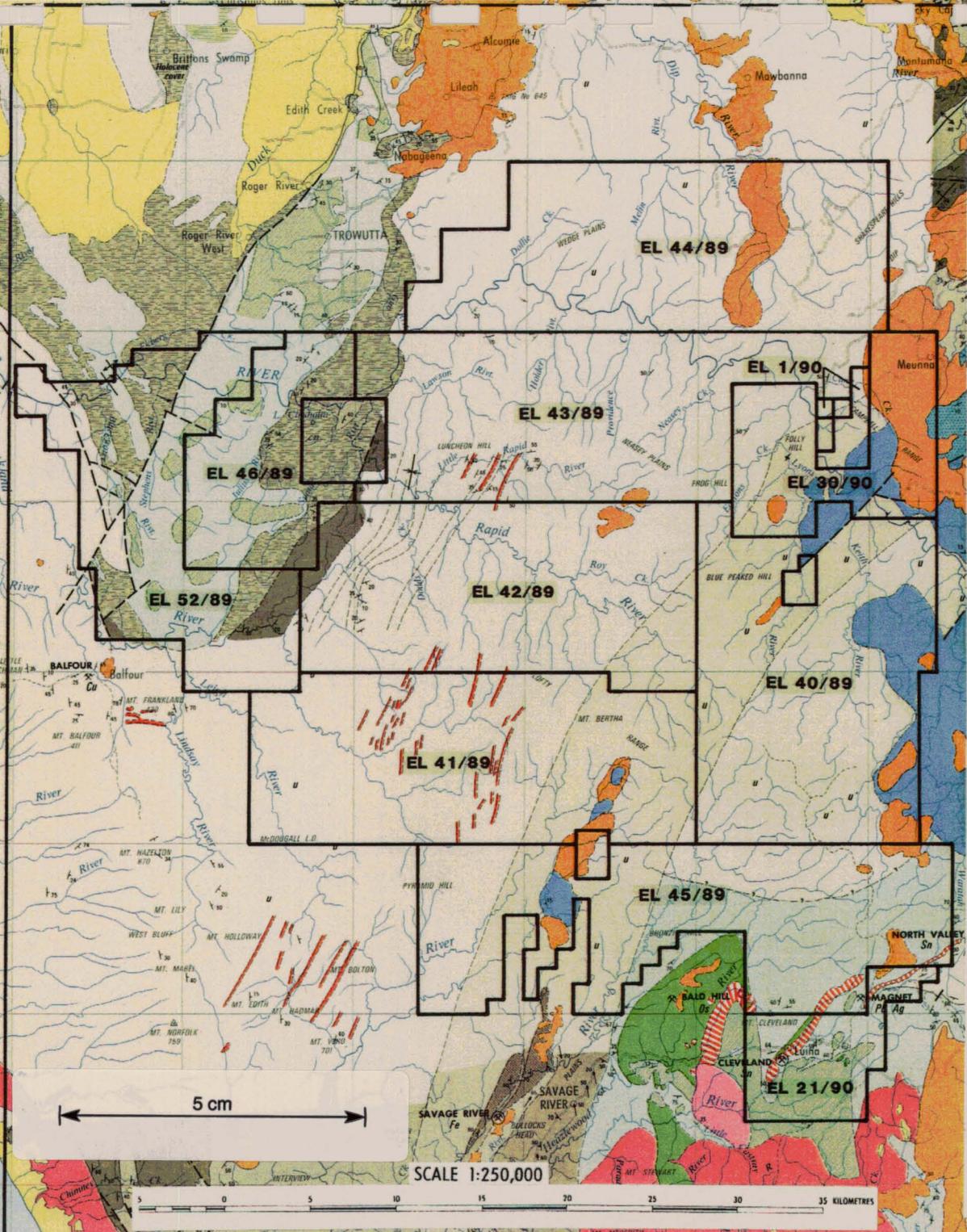


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		A DIVISION OF PEKO WALLSEND OPERATIONS LTD	
SCALE 1 : 250 000		No Fig 1	
ARTHUR RIVER PROJECT			
LOCALITY MAP			
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HOLOCENE		Alluvium, sand, gravel and talus.
PLEISTOCENE		Till, fluvioglacial, periglacial and associated deposits. Erosional surface.
TERTIARY		Non-marine sequences (light); marine limestone (dark); basalt and related igneous rock types (orange).
TRIASSIC		Low angle unconformity. 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).
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PRECAMBRIAN		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).
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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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REGIONAL GEOLOGY	
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1.0 INTRODUCTION

1.1 Location and Access (Fig. 1)

EL 42/89 Rapid River is located in NW Tasmania approximately 35 km to the south of the coastal town of Smithton.

Access within the EL is poor and is restricted to the Savage River Pipe Line Road and unsealed logging roads which run along the eastern and western EL boundaries respectively. The central portion of the EL is largely inaccessible and access requires the cutting of walking tracks and helicopter support.

1.2 Tenure and Land Usage

EL 42/89 of 230 km² was granted to Peko Exploration Ltd in January 1990. The EL schedule is detailed in Appendix 1.

The EL consists of State Forest and encloses the Wes Beckett Forest Reserve of 29 km². It also includes part of the Savage River, Australian Heritage Commission Act, Registered Entry.

Tracts of wet eucalypt forest within the State Forest in the western and far northern areas of the EL have been intensively logged over the past 10 years. These areas now either lie devoid of vegetation or support thick regrowth. Large stretches of buttongrass-tea tree plains occur over the eastern and western boundary areas. Vegetation over the rest of the EL is generally comprised of wet eucalypt forest, often with a thick undergrowth.

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 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 have been correlated

TABLE 1

STRATIGRAPHIC CORRELATION ADOPTED FOR THIS REPORT

	ROCKY CAPE BLOCK	LYONS RIVER (Arthur Lineament)	CLEVELAND - WARATAH	CORINNA	ZEEHAN (Ord - Dev seqs 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 - Permian Supergroup Fluviatile sandstone, coal measures, glaci-marine & glacial deposits			
DEVONIAN			Intrusion of Cleveland Granite	Intrusion of Piesan Granite	Intrusion of Ranison Bell & Neesbirk Granite
CAMBRIAN	Cs - Unnamed Quartzwacke, siltstone, mudstone, conglomerate				Dundas Group
			Intrusion/emplacment of Ultramafic bodies		Intrusion/emplacment of Ultramafic bodies
EO-CAMBRIAN	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 - Barnafai Volcanics Esd - Savage Dolomite	Crimson Creek Formation Success Creek Group
PRE-CAMBRIAN	Prj - Jacobs Quartzite Quartzarenite Pri - Irby Siltstone Black mudstone, minor siltstone, sandstone, & dolomite Prd - Detention Quartzite Quartzarenite & siltstone Prs - Cowrie Siltstone Laminated siltstone, pyritic mudstone	??? Prn - Neasy Formation Quartzite-siltstone, minor dolomite and basic volcs	Fb - Burnie Formation Interbedded quartzose quartzwacke & siltstone with minor mafic volcs	Pd - Donaldson Formation Quartzose turbidites Pi - Interview Slate and Quartzite	Coonah Formation Interbedded quartzwacke and siltstone with some carbonates & mafic volcs
		Pa - Keith Metamorphics Pelitic & quartzose schist - some calcic & mafic schist (magnetite & amphibolite)		Timms Group Pelitic & quartzose schist - some calcic & mafic schist (magnetite & amphibolite) - magnetite	

with the Crimson Creek Formation and consist of basaltic, andesitic and tholeiitic lavas and volcanoclastic 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.

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 1960s. 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

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

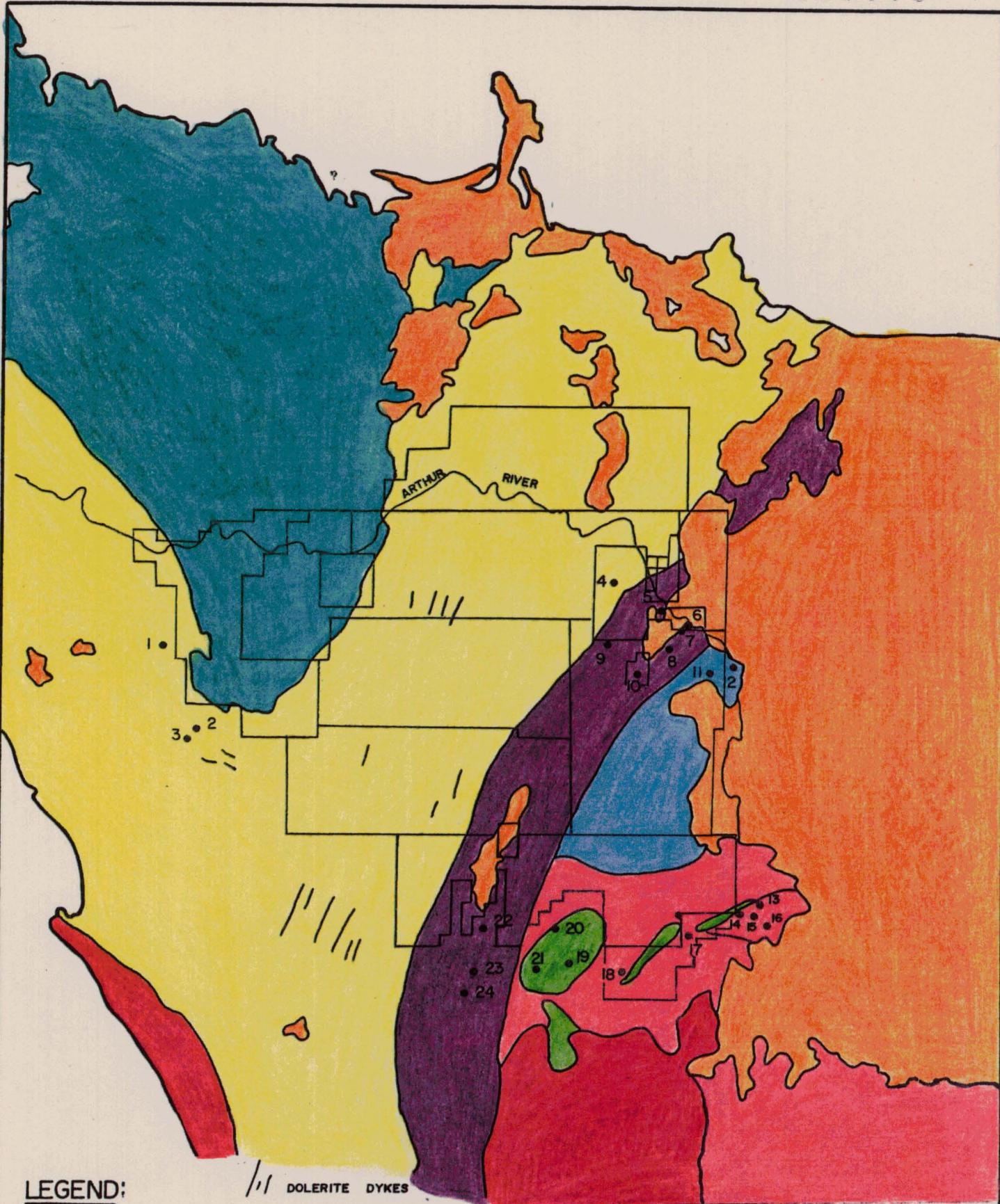
V - Vein Deposit

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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Date SEPT. 1990.	1:500,000	No Fig. 3
Geologist: K.J.V.	MINERAL OCCURRENCES.	
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Amendments:		

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 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.

The Cambrian and Eo-Cambrian rocks of the Smithton Trough have a potential for carbonate hosted zinc-lead-silver deposits, for carbonate hosted disseminated gold deposits and for shear related gold deposits. While no mineral occurrences are known from the Smithton Trough, anomalous base metal and gold geochemistry has been reported by previous explorers.

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 investigation would be followed up with more intensive 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 Geochemistry

Work Completed

Thirty two (32) two litre huminex water samples were collected from EL 42/89 at a sample density of 1 sample per 2-3 km². At this stage only one third of the EL area has been water sampled. This is the result of poor access within the central portion of the EL as well as company commitments to other licences in the 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.

Any mineralized, altered or interesting rock outcrop or float encountered during creek and road traverses was sampled for assay or hand specimen purposes. Five of these were analysed for Cu, Pb, Zn, Ni, Fe and Au.

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

Stream Sediment Compilation

A compilation of stream sediment base metal data within EL 42/89 by previous companies in the area has been undertaken. At least sixty four samples were collected by CRAE in EL 1/79, 31 samples by CRAE in EL 1/77 and two samples by BHP in EL 18/80.

The samples from ELs 1/79 and 1/77 were sieved to -80# and from EL 18/80 to -40#. All samples were assayed for base metals using AAS techniques.

Overall the base metal values were very low. The highest results received by CRAE in EL 1/79 were 85 ppm Cu (sample 665026), 250 ppm Pb (sample 665024) and 60 ppm Zn (sample 665050). Results from EL 1/77 were extremely low with highs of 29 ppm Cu (sample 934965), 27 ppm Pb (sample 1055111) and 81 ppm Zn (sample 1055096). Assays from EL 18/80 were equally low with highs of 6 ppm Cu, 42 ppm Zn (sample 223) and 28 ppm Pb (sample 222).

Gold in Water

Statistical analysis of 325 water samples taken regionally by Geopeko in the 1989-90 field season indicates that Au values >30ng/l and Au:C >4 are possibly anomalous and that Au values 750 ng/l and Au:C >8 are probably anomalous. Any higher values are definitely anomalous. (Mathison, 1990)

Overall the gold assay results from the areas so far sampled in EL 42/89 are low.

There are three samples from the 32 taken that fall within the possibly anomalous range. Samples 20674 and 20676 received Au:C ratios of 4.53 and 4.14 respectively and sample 20657 contained 30.7 ng/l Au.

Repeat analysis of sample 20657 by the DMMR's alternative technique reported 2.3 ng/l.

Samples 20674 and 20676 drain rocks of the Arthur Lineament that are in places overlain with Tertiary basalt.

Sample 20657 drains the Cowrie Siltstone and lies close to magnetic feature 2, which is thought to be a significant crustal feature within the Rocky Cape Group.

A sample taken in EL 43/89 but which mainly drains ground in the north-east corner of EL 42/89 received definitely anomalous values of 596.4 ng/l Au and Au:C ratio of 61.48. This sample drains rocks of the Cowrie Siltstone which are thought to be underlain by the Arthur Lineament.

Repeat analysis of the higher value indicates that it is spurious.

The other 29 samples taken in EL 42/89 had Au values ranging from 1.0-21.4 ng/l and Au:C ratios of 0.05-3.02.

Base Metals in Water

Statistical analysis of the 325 water samples taken regionally by Geopeko in the 1989-90 field season indicates that samples with values of Cu >3.8 µg/l, Pb >7 µg/l and Zn > 27 µg/l are possibly anomalous and samples with Pb >13 µg/l, Cu >7 µg/l and Zn >47 µg/l are probably anomalous. (Mathison, 1990)

The results from EL 42/89 were very disappointing with no anomalous results received from the 32 samples taken.

Rock Geochemistry

Five rock chip samples were taken in this EL and assayed for base metals and gold. All results were very low. The highest assays received were 40 ppm Cu (sample 20318), 150 ppm Pb (sample 20316) and 230 ppm Zn (sample 20317). No samples contained any detectable gold, ie Au >0.008 ppm. All results are appended as Appendix 4.

2.3 Geology

EL 42/89 is predominantly underlain by rocks of the Precambrian Rocky Cape Group. The lowest known stratigraphic member, the Cowrie Siltstone underlies most of the area. Field mapping which is presently limited to the western half of the EL,

indicates that the Cowrie Siltstone consists of interbedded black pyritic siltstone, laminated siltstone and mudstone and fine grained sandstone. Though bedding orientation is variable in places, two general bedding trends have been observed, i.e. 0-030M/30-55° SE and 010-050M/10-60° NW.

Two dolerite dykes are known to outcrop between the Rapid River and Tayatea Road. Tertiary basalt occurs in the north-east and in the south-east corner of the EL along the Rapid River.

The south-eastern corner of the EL is underlain by the metamorphic rocks of the Arthur Lineament. Field mapping has not yet been undertaken in this area.

No significant mineralization or alteration was encountered during the sampling programme.

2.4 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.

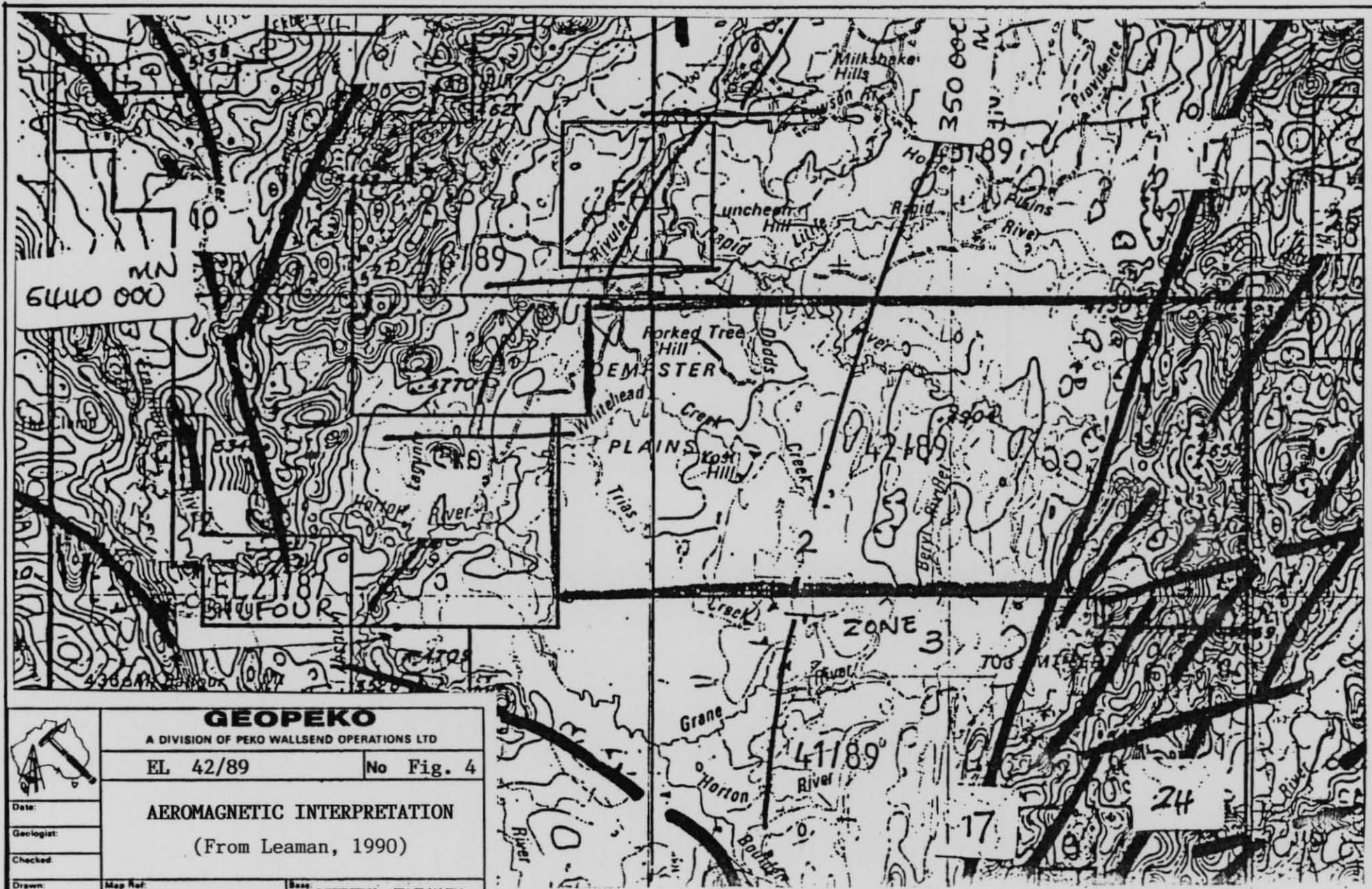
Both sets of data indicate that Arthur Lineament rocks lie at depth under the eastern quarter of the EL where Rocky Cape Group Rocks are exposed. This area is bounded by features 17 and 25 which trend north-easterly and which may have acted as conduits for mineralization.

Any trace geochemistry associated with these structures should be followed up with more detailed work.

The rest of the EL consists of the Rocky Cape Block core which is magnetically quiet and gravimetrically neutral.

3.0 CONCLUSIONS

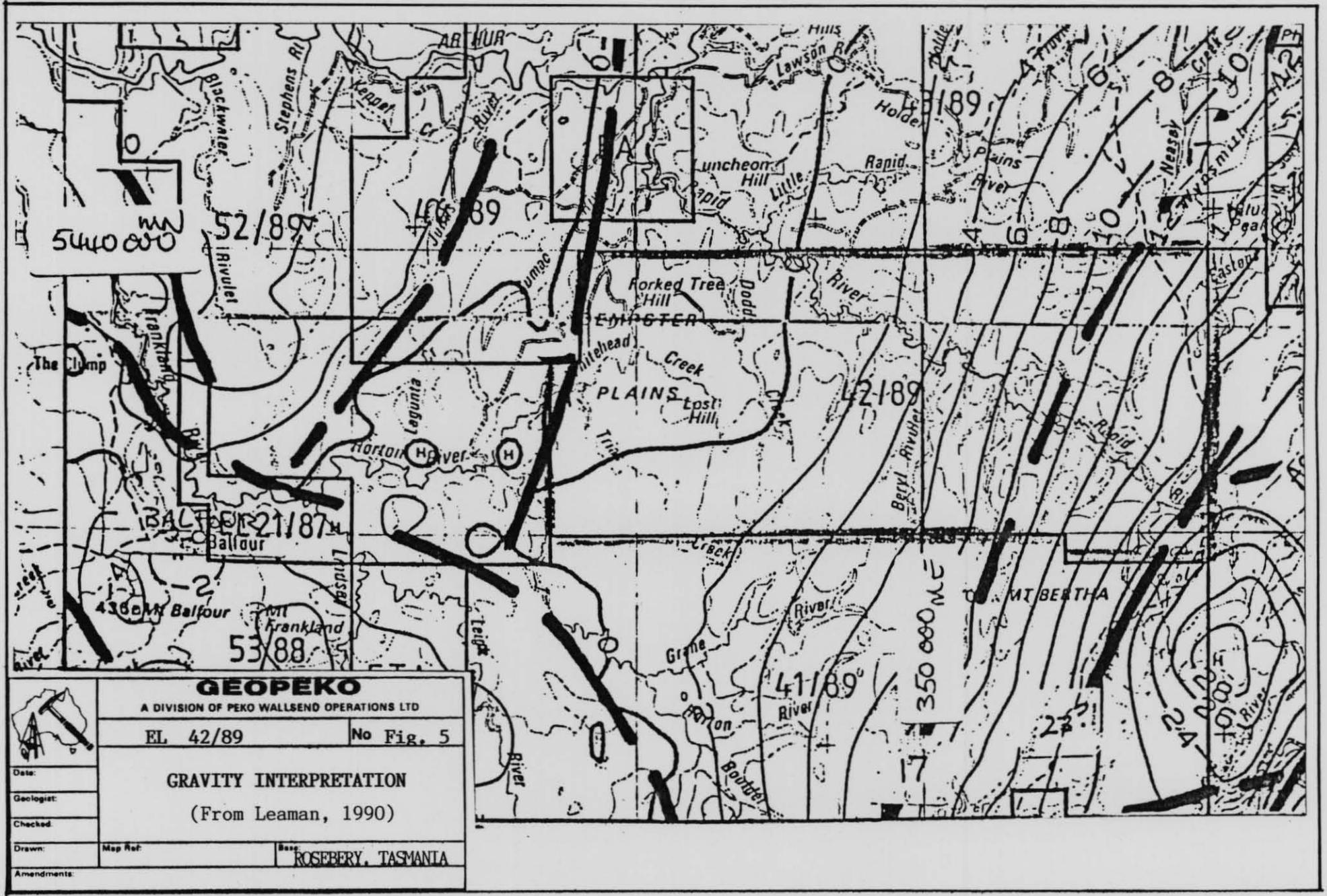
- * One third of EL 42/89 has been adequately covered by the regional 1989-90 water sampling programme.
- * The water sample gold results have highlighted 3 anomalous areas. These areas are:
 - in the north-east corner of the EL which is underlain by the Cowrie Siltstone.
 - in the drainage area of the upper Rapid River. This area lies mainly in EL 40/89 and is underlain by the Arthur Lineament.
 - near magnetic linear 2 as a spot anomaly.
- * The water sample base metal results were very low.
- * The compilation of base metal stream sediment data has not delineated any areas worth of more detailed work.



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5440 000 MN

52/89

406/89

42/89

341/87

53/88

350 000 ME

41/89



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EL. 42/89 No Fig. 5

GRAVITY INTERPRETATION
(From Leaman, 1990)

Date:
Geologist:
Checked:
Drawn:
Amendments:

Map Ref: Base: ROSEBERY, TASMANIA

- * No mineralization was encountered or anomalous rocks sampled.
- * Magnetic and gravity data has indicated that two anomalous structures exist in EL 42/89. Linear 2 trends north-east through the centre of the EL and appears to be a deep crustal feature. Linears 17 and 25 define a wedge of Arthur Lineament that has been overthrust from the west by the Rocky Cape Group. Both structures appear to be associated with anomalous geochemistry.

NB: In early December, after the bulk of this report was completed, it became obvious that the DMMR laboratory was having severe problems with the determination of gold in water. Some unknown element or compound was being concentrated by the activated charcoal extraction technique and was reporting on the gold channel. Repeat analyses using alternative techniques indicated that many, but not all, gold results were spurious. Re-analysis of water samples to identify genuinely anomalous samples is currently in progress.

4.0 RECOMMENDATIONS

The realization that not all gold in water results provided by the DMMR are valid necessitates either a pause in the program or a change in direction of the project. While alternative ways of selecting zones within this underexplored region are available, they do not offer the new approach, the near total coverage or the relatively low cost of the water technique.

Analysis of the water results shows that many high gold came from streams draining either the Arthur Lineament or the Neasy Formation. Streams draining the Cowrie Siltstone reported uniformly low gold in water and base metal values.

It is recommended that the exploration program in this area should be delayed until resolution of the analytical problem by the DMMR. Anomalous samples with confirmed high gold values should be followed up by detailed geological mapping and rock chip sampling. Areas of the EL underlain by the Cowrie Siltstone should be relinquished.

5.0 ENVIRONMENTAL DISTURBANCE AND REHABILITATION

Exploration conducted by Geopeko during 1990 has caused no environmental disturbance. Semi permanent samples markers left at sample sites are considered to be valuable reference points for future exploration. No rehabilitation has been necessary.

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.

0017

409018

APPENDIX 1
EL SCHEDULE

TASMANIA

No. EL 42/89

(Regulation 6A)

The Mining Act 1929**EXPLORATION LICENCE**

Issued to PEKO EXPLORATION LTD of PO BOX 180, ROSEBERY, TASMANIA, 7470 in respect of 230 square kilometres of land in the Land District of RUSSELL vicinity of RAPID 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 the northeast corner of the area whose grid coordinates are 360 000 metres E. 5 440 000 metres N. thence grid south to 5 429 000 metres N. grid west to 355 000 metres E. grid north to 5 430 000 metres N. again grid west to 337 000 metres E. again grid north to 5 436 000 metres N. grid east to 338 000 metres E. again grid north to 5 440 000 metres N. aforesaid thence again grid east to the point of commencement.

The area excludes the Wes Beckett Forest Reserve (29 ha) and 1 skm, Savage River Iron Ore Pipeline.

LAND TENURE:

The area comprises: State Forest
 Crown Land

The area includes part of the Savage River; Australian Heritage Commission Act, Registered Entry.

NOTE: This land tenure table is a guide only.

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 m³ 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).

REFERENCES

- ANON, (1966) - Interim Report for the North-West in Cromer 1988a, Tasmanian Project for Period Ending April 1966. Pickards Mather and Co. International. Tas. DMMR Open File Report No. 66-439
- ANON (1983) - EL 18/80 Arthur River. Final Report June 1983, BHP Co. Ltd. Tas. DMMR Open File Report 83-2001
- ANON (1984) - EL 18/83 Lake Chisholm - Tasmania. Final Report by BHP Co. Ltd. Tas. DMMR Open File Report 84-2145
- BELL, D.H. (1972) - EL 48/70, EL 49/70, 1971-1972 Annual Report - North Western Tasmania. Joint Venture Exploration by Australian Consolidated Industries Ltd., Consolidated Goldfields Australia Ltd., Mt. Lyell Mining & Railway Co Ltd., and Renison Ltd. Tas. DMMR Open File Report 72-876
- CAREY, S.W. (1981) - "Notes to accompany the Photo Interpretation of the country between the Arthur & Pieman Rivers, Tasmania." Geopeko Ltd, Tas. DMMR Open File Report 82-1753
- CROMER, W.C. (1988a) - EL 21/87 Balfour. Annual Report Year 1 (20 January 1988 - 19 January 1989), Aureole Resources Pty. Ltd. Tas. DMMR Open File Report 89-2900
- CROMER, W.C. (1988b) - EL 22/87 Trowutta. Annual Report Year 1 (15 November 1987 - 15 November 1988), Aureole Resources Pty. Ltd. Tas. DMMR Open File Report 88-2866
- DICKSON, T.W. (1985) - EL 12/80 Leigh River. Relinquishment Report, CRAE Pty.Ltd. Tas. DMMR Open File Report 85-2476
- DICKSON, T.W. (1986) - EL 61/83 Boulder Rivulet. Final Report, CRAE Pty. Ltd. Tas. DMMR Open File Report 86-2552

- DICKSON, T.W. (1987) - Rapid River EL 1/79 - North Western Tasmania. Final Report on Exploration by CRA Exploration Pty. Ltd. Tas. DMMR Open File Report 87-2723
- KINNANE, N.R. (1972) - Report on the Geological Reconnaissance & Stream Sediment Sampling Programme, N.W. Tasmania. Australia & New Zealand Exploration Company. Tas. DMMR Open File Report 72-869
- LEGGE, P.J. (1980) - The Lead Zinc Potential of the Younger Precambrian Rocks of North West Tasmania. CRAE Pty. Ltd. Tas. DMMR Open File Report 85-2349
- MACKENZIE, P.C. (1984) - EL 43/70 - Arthur River Area. Report on Exploration for 12 months to 15th October, 1984 by CRA Exploration Pty. Ltd. Tas. DMMR Open File Report 84-2214
- MCNEILL, R.D. (1960) - "Geological Reconnaissance of Part of the Arthur River area." Tas. DMMR Technical Report No. 5, 1960.
- NEALE, R.C. (1973) - Pieman River, EL 2/73 - Tasmania. Progress Report for the period January 31 - July 31, 1973, by ESSO Australia Ltd. Tas. DMMR Open File Report 74-987
- SHAW, R.W. & EVERETT, M.P. (1985) - EL 5/63 - Area 1 Arthur River. Final Report on Areas Surrendered to the DMMR, Tasmania (June 1985). Comstaff Pty Ltd. Tas. DMMR Open File Report 85-2383
- SHAW, R.W. (1984) - EL 1/68 Heazlewood - "Final Report to the Department of Mines, Tasmania" (1984). Comstaff Pty Ltd. Tas. DMMR Open File Report 85-2316.
- WASHAUSEN, F.F. & WILDING, I.G. (1980) - EL 5/63- Report on the Arthur River Alluvials, Section 1. Comstaff Pty Ltd. Tas. DMMR Open File Report 80-1415.
- WEIR, D.J. (1982) - EL 1/77 Rocky Cape. Lead Zinc Computer Study - Stream Sediments, CRAE Pty. Ltd. Tas. DMMR Open File Report 82-1801
- WEIR, D.J. (1983) - EL 1/77 Rocky Cape. Progress Report - Trowutta Dempster Plains Area, Period Ending 28/2/83, CRAE Pty. Ltd. Tas. DMMR Open File Report 82-1959

APPENDIX 3
GEOPHYSICAL REVIEW

EL 42/89 RAPID RIVER

The location of this area is shown in Figure 1.

Figure 26 presents relevant gravity and magnetic data.

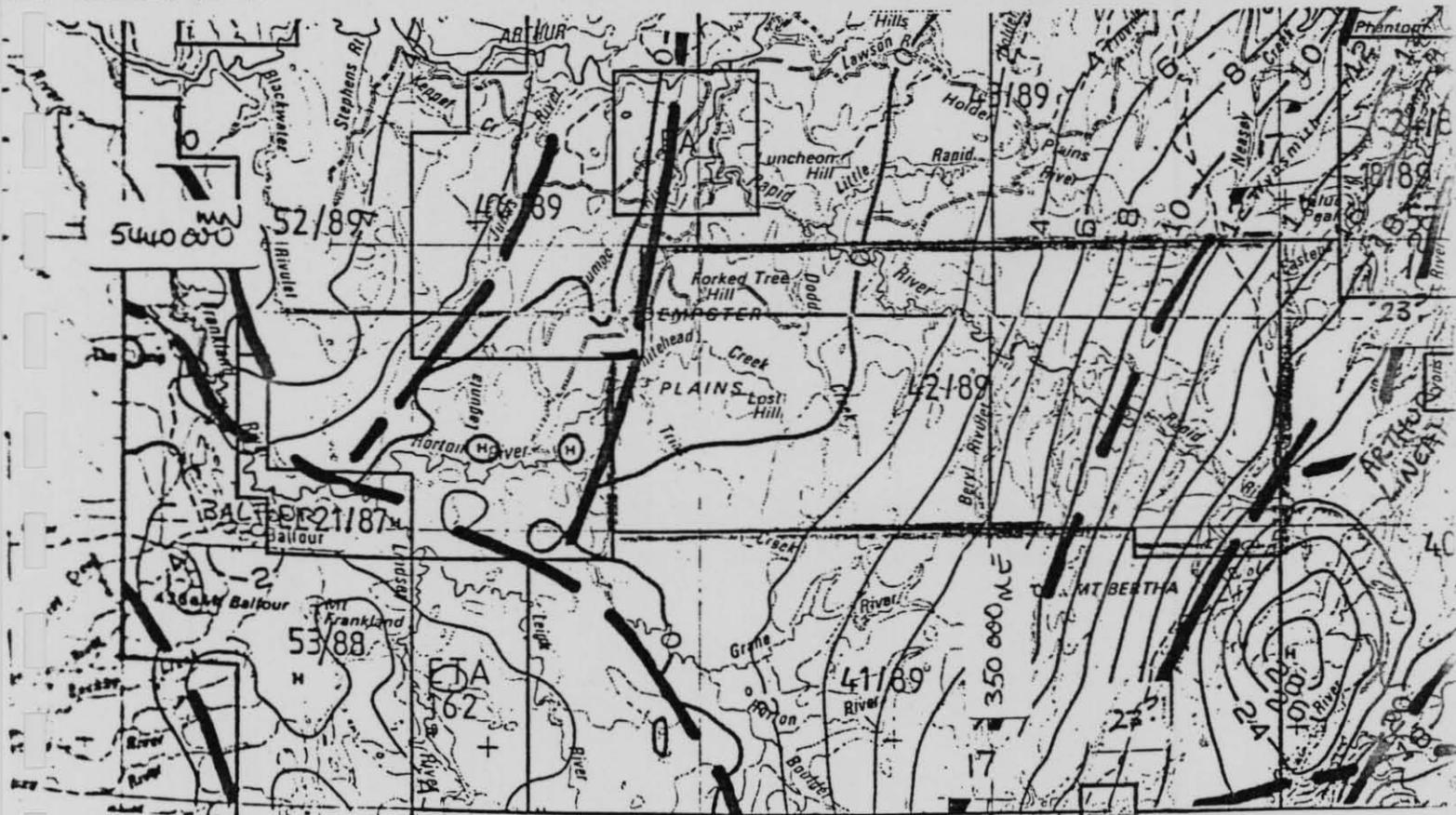
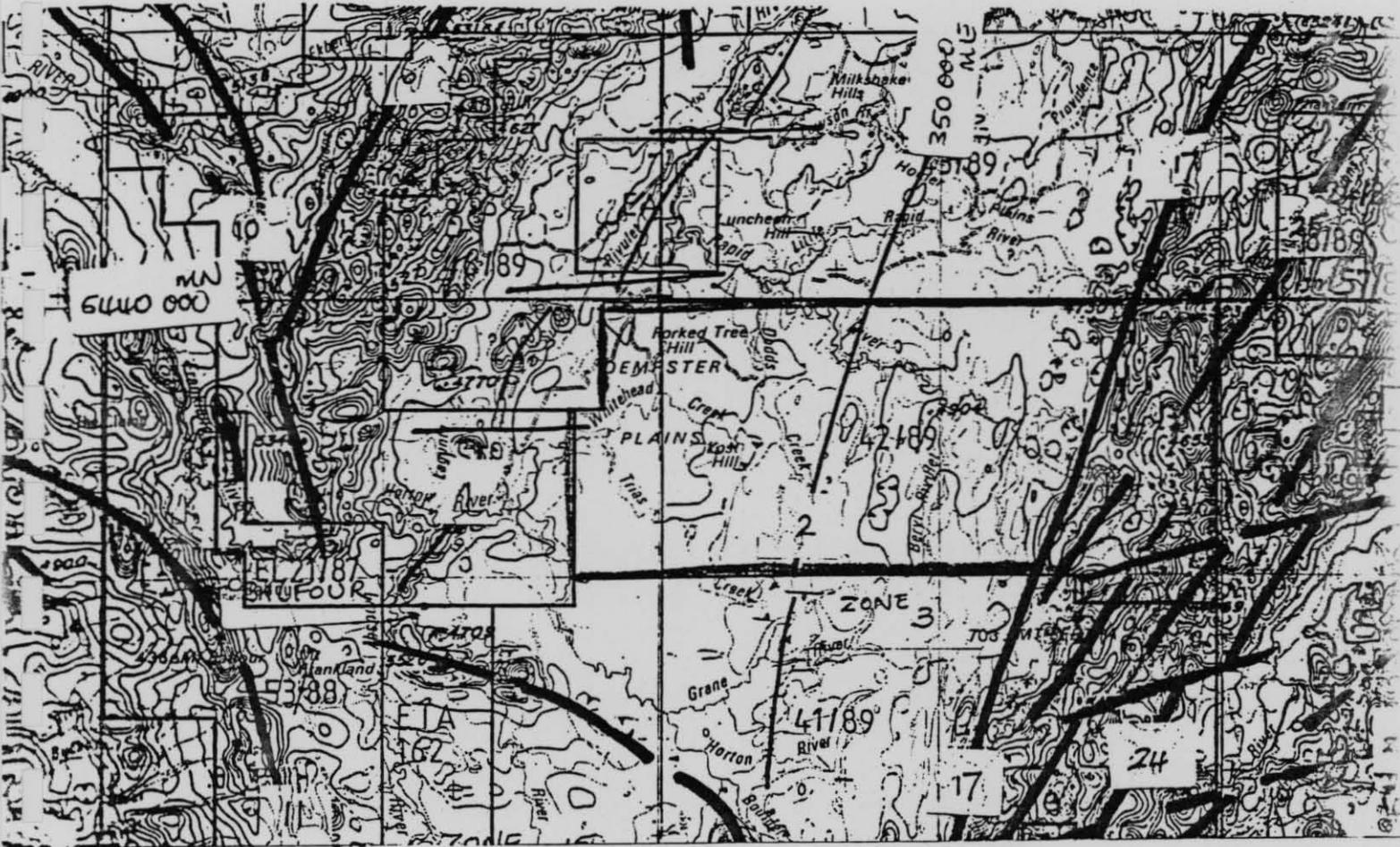
This EL covers the central part of the Rocky Cape Block core zone and much of it is magnetically quiet and gravimetrically neutral. These responses reflect the substantial thickness of siliceous Precambrian rocks present and suggest that the sequence approaches true basement scale and composition even though the eastern margin has been overthrust across the Lineament and Burnie Formation rocks.

Magnetic feature (2) marks the junction between unstressed and stressed rock suites. An oblique fracture set has been generated east of (2) (see Figures 3C, 7 and 20).

Most of the magnetic anomalies observed along the eastern side of the EL fall within the area considered to be normal Rocky Cape Group. Examination of these sources show that they are due to dipping slices of mafic or equivalent constitution at minimum depths of 1 to 1.5 km which are truncated by a west dipping interface with Rocky Cape Group rocks above the slices. The gravity data, though much more poorly defined in this area, support this conclusion.

The underlying mafic slices are terminated at depth by feature (17) and even though there is no known surface expression of this structure its projection should be examined for traces of mineralisation. This bounding feature is one of the most significant structures identified in regional analysis and it would be surprising if it never acted as a conduit. Similar comments apply to (25) although this is a lesser structure. Both (17) and (25) are wholly concealed and only identified magnetically.

The area covered by this EL appears barren on current mineral site maps and this may reflect surface conditions. Potential targets will lie at moderate depth.

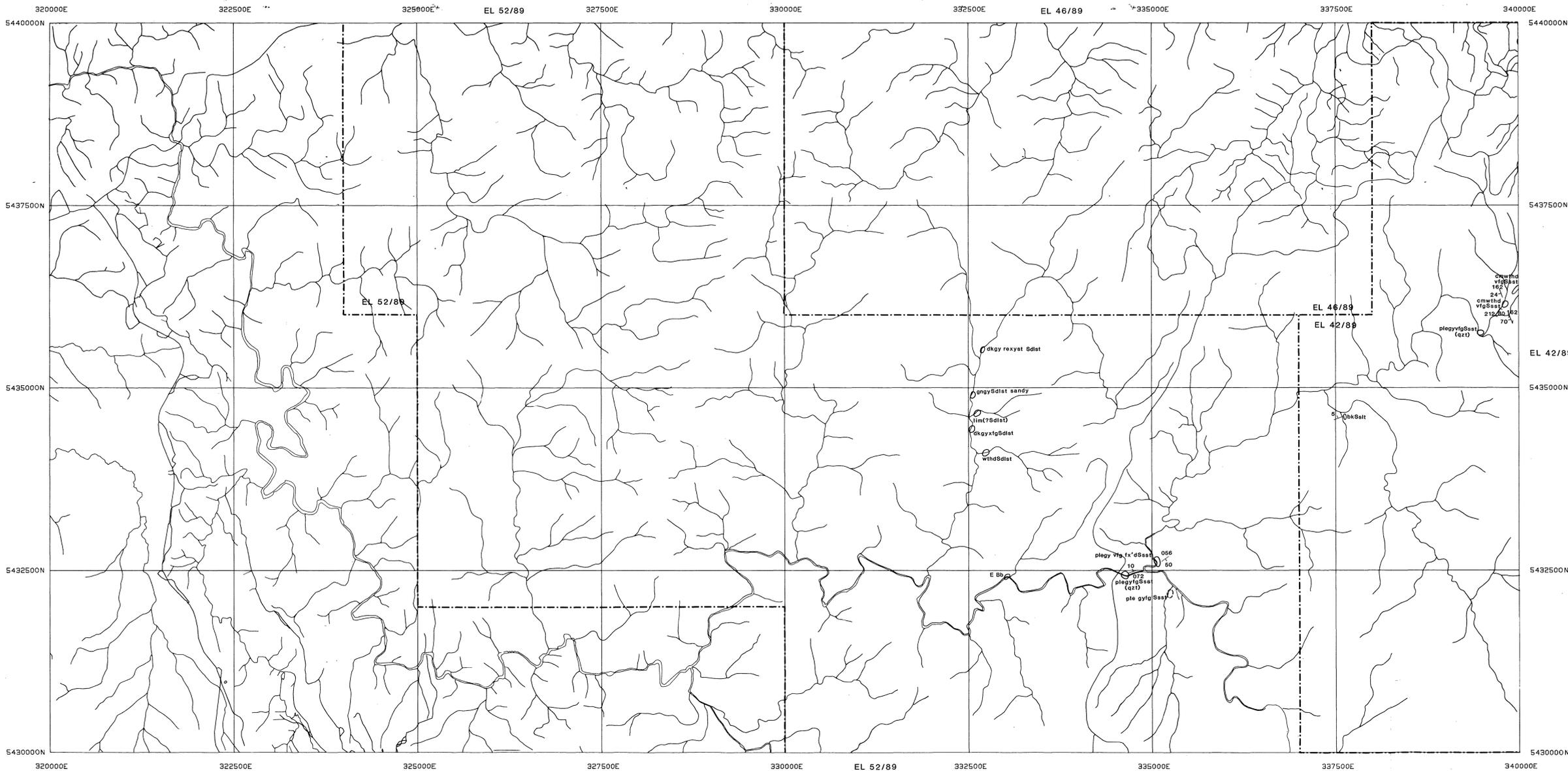


0031

409032

APPENDIX 4

ROCK GEOCHEMISTRY



- ROCK TYPES**
- SEDIMENTS:**
 Ssst sandstone
 Sqar quartz arenite
 Swk greywacke
 Sslt siltstone
 Sdol dolomite
 Scon conglomerate
 Sbx breccia
- IGNEOUS ROCKS:**
 Tert Bb tertiary basalt
 C Bb cambrian basalt
 Bd dolerite
- METAMORPHICS:**
 Mpyl phyllite
 MGar 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 carbonate
 Tq turquoise
- STRUCTURAL SYMBOLS**
 bedding
 facing
 overturned bedding
 cleavage
 fault
 rock outcrop
 float/subcrop
 definite contact
 approximate contact
 interpreted contact

PLATE 1a

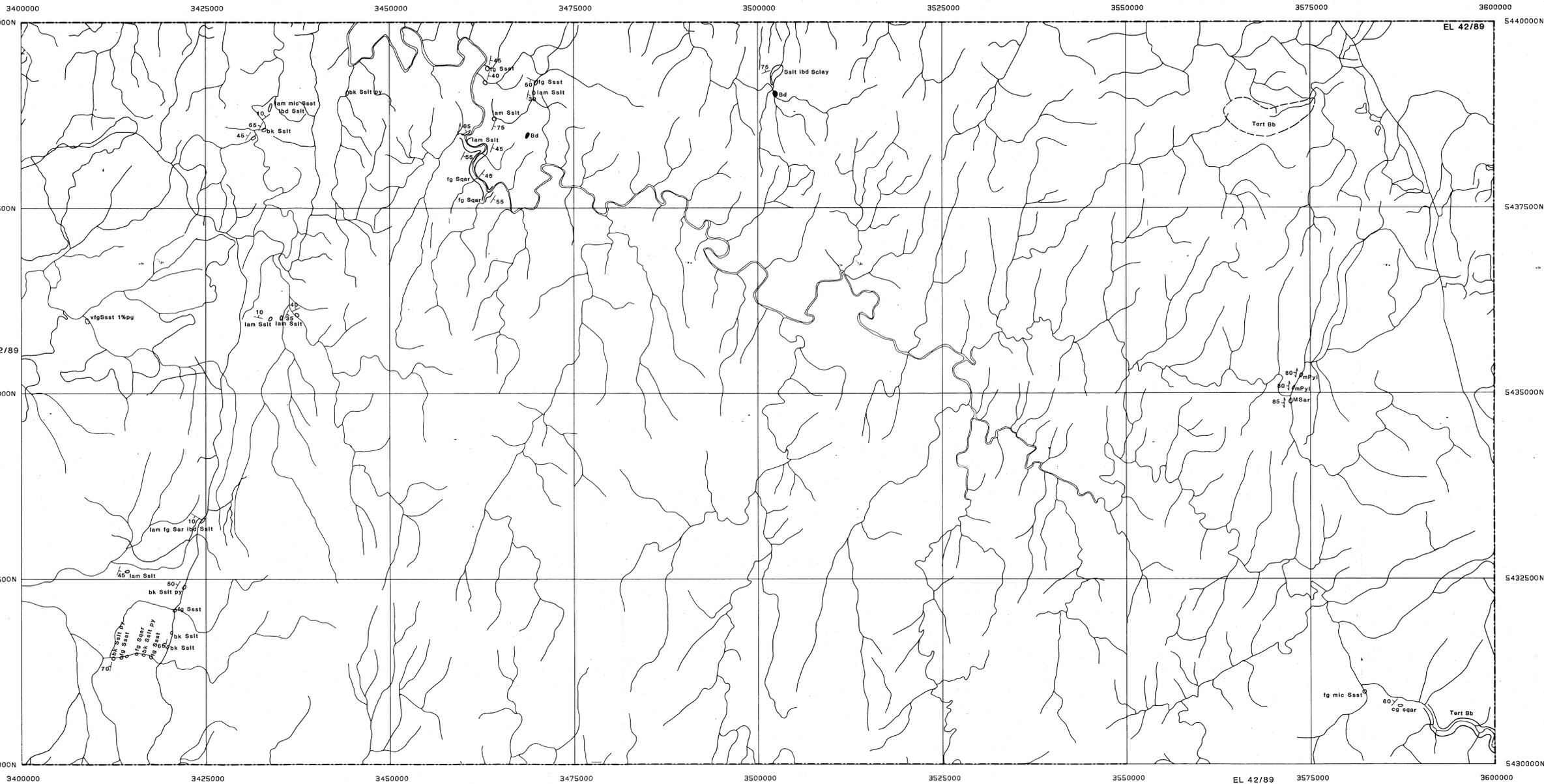
409034

91-3216.

5 cm

3244	3444
3243	3443
3242	3442

	GEOPEKO A DIVISION OF PEKO EXPLORATION LIMITED SCALE - 1:25000 AUSTRALIAN HEIGHT DATUM
	3243 DEMPSTER
	EL 42/89 GEOLOGICAL FACT MAPPING



- ROCK TYPES**
- SEDIMENTS:**
 Ssst sandstone
 Ssqr quartz arenite
 Ssk graywacke
 Sst siltstone
 Sdol dolomite
 Scn 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
 lbd interbedded
 lam laminated
 cld 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

PLATE 1b

409035
91-3216.



3244	3444	3644
3243	3443	
3242	3442	

	GEOPEKO A DIVISION OF PEKO EXPLORATION LIMITED
	SCALE - 1:25000 AUSTRALIAN HEIGHT DATUM
	3443 BERYL
EL 42/89 GEOLOGICAL FACT MAPPING	

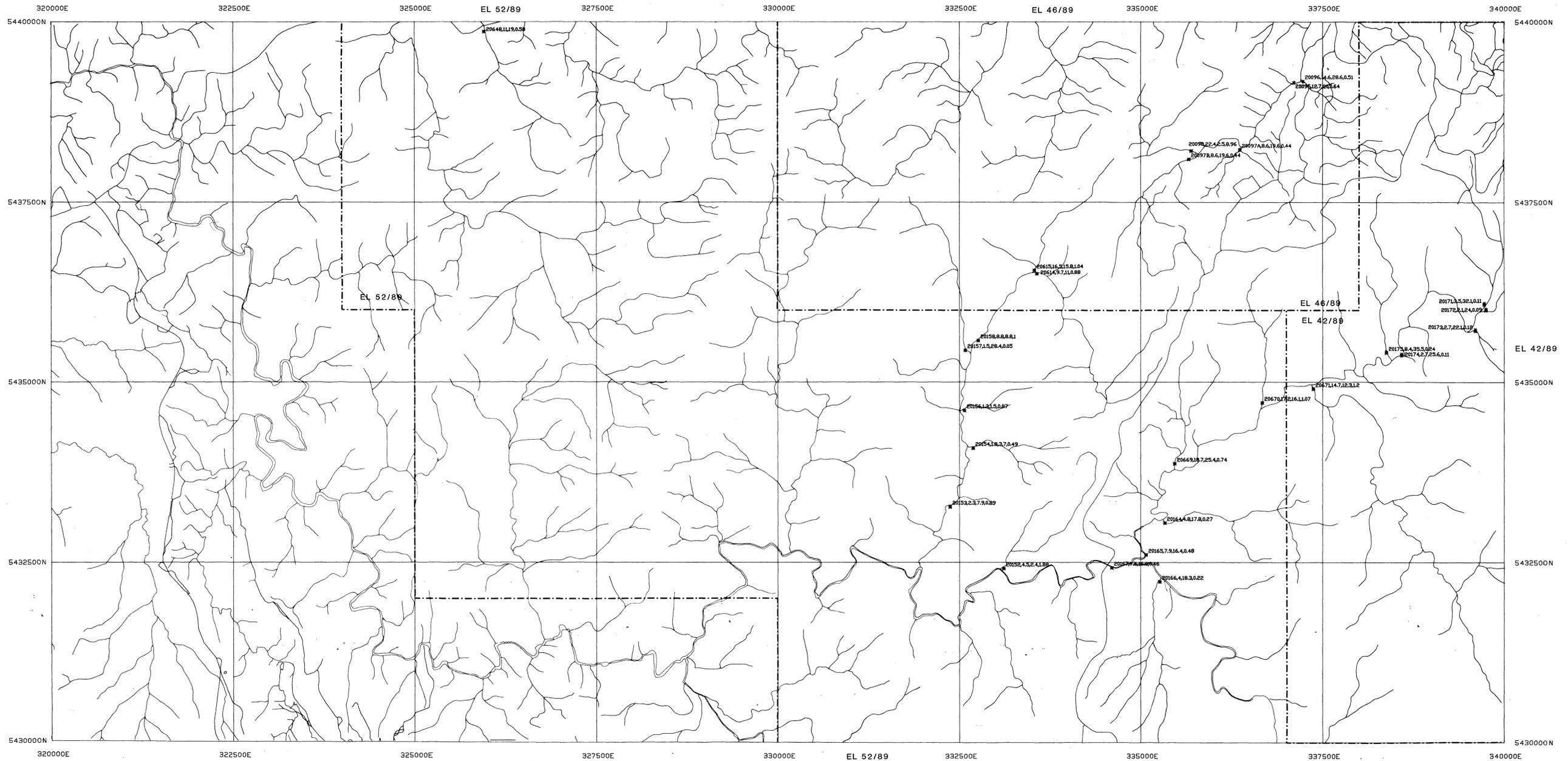


PLATE 2a

409030

5 cm

LEGEND
 Sample Location
 Sample Number
 Au (ppt)
 C (ppm)
 Au/C Ratio
 * 20662,11.8,13.9,0.85
 BT - Below Detection

91-3216.

3244	3444
3243	3443
3242	3442

<p>TASMANIA</p>	<p>GEOPEKO A DIVISION OF PEKO EXPLORATION LIMITED</p>
	<p>SCALE - 1:25000 AUSTRALIAN HEIGHT DATUM</p>
	<p>3243 DEMPSTER</p>
<p>EL 42/89</p>	<p>WATER GEOCHEMISTRY Sample Number, Au, C, Au/C</p>

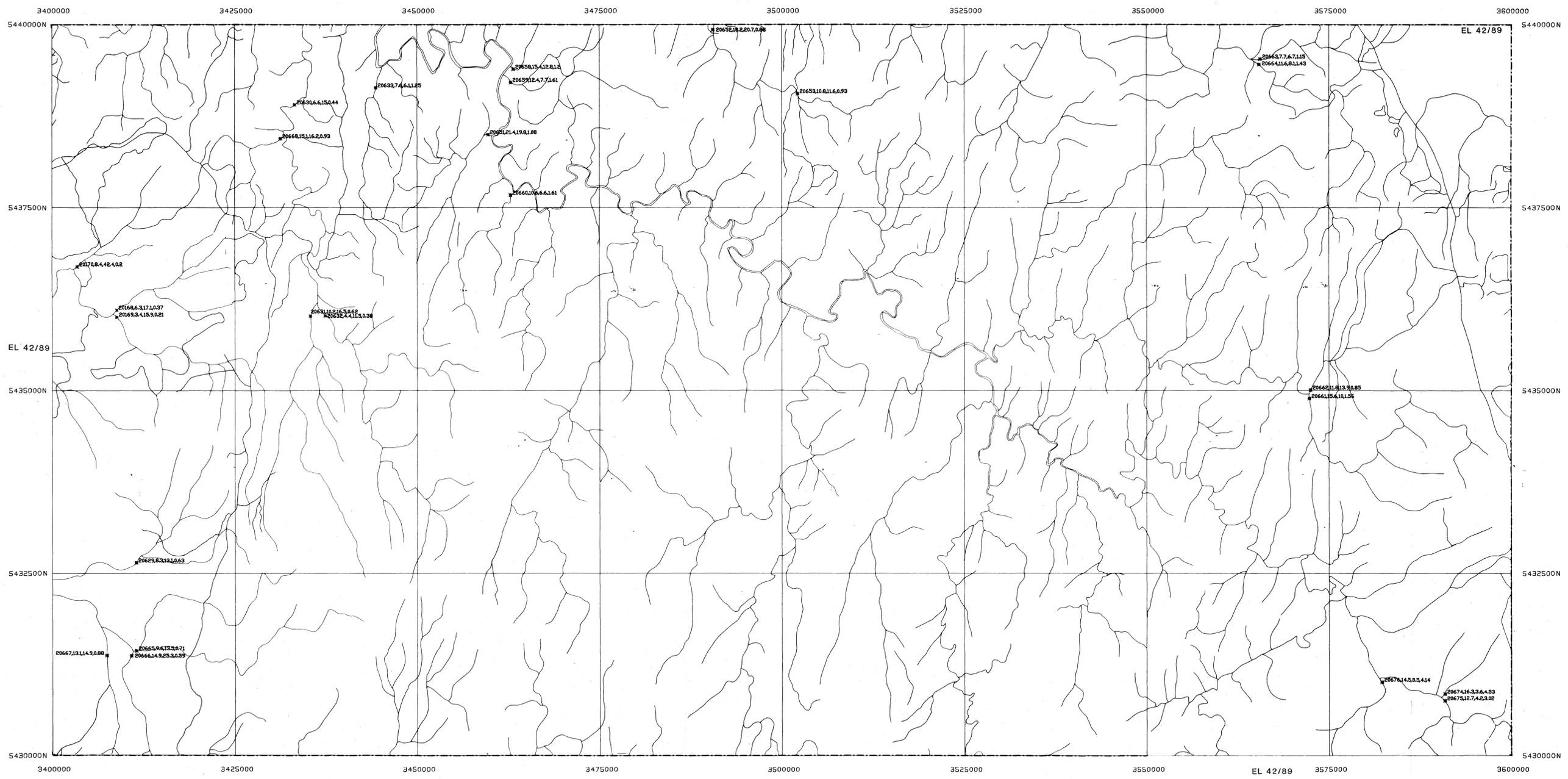


PLATE 2b

LEGEND
 Sample Location
 Sample Number
 Au (ppt)
 C (ppm)
 Au/C Ratio
 * 20662.11.8.13.9.0.85
 BT - Below Detection

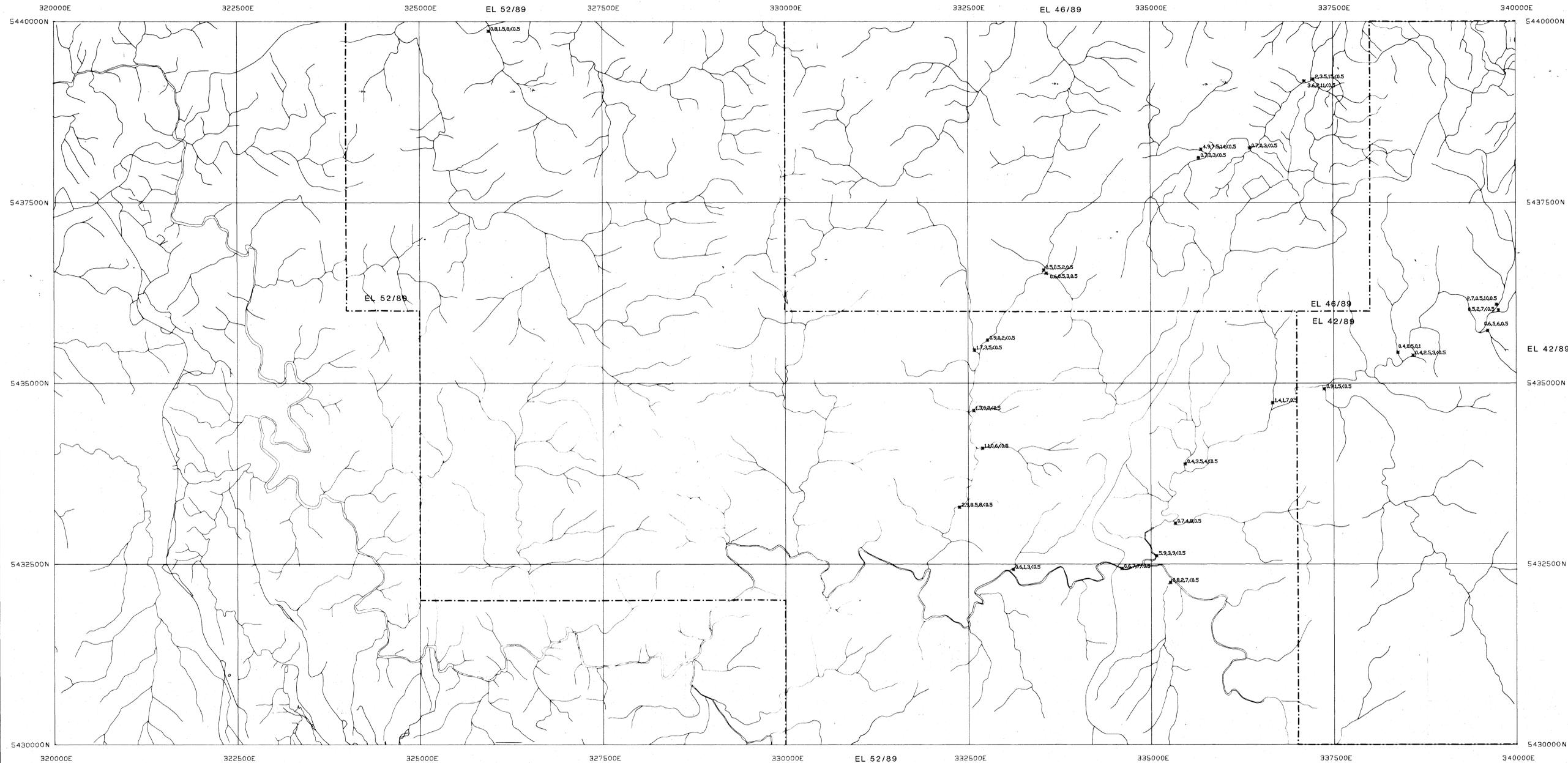


409037

91-3216.

3244	3444	3644
3243	3443	
3242	3442	

<p>TASMANIA</p>	<p>GEOPEKO A DIVISION OF PEKO EXPLORATION LIMITED</p>
	<p>SCALE - 1:25000 AUSTRALIAN HEIGHT DATUM</p>
	<p>3443 BERYL</p>
	<p>EL 42/89 WATER GEOCHEMISTRY Sample Number, Au, C, Au/C</p>



409038

PLATE 3a

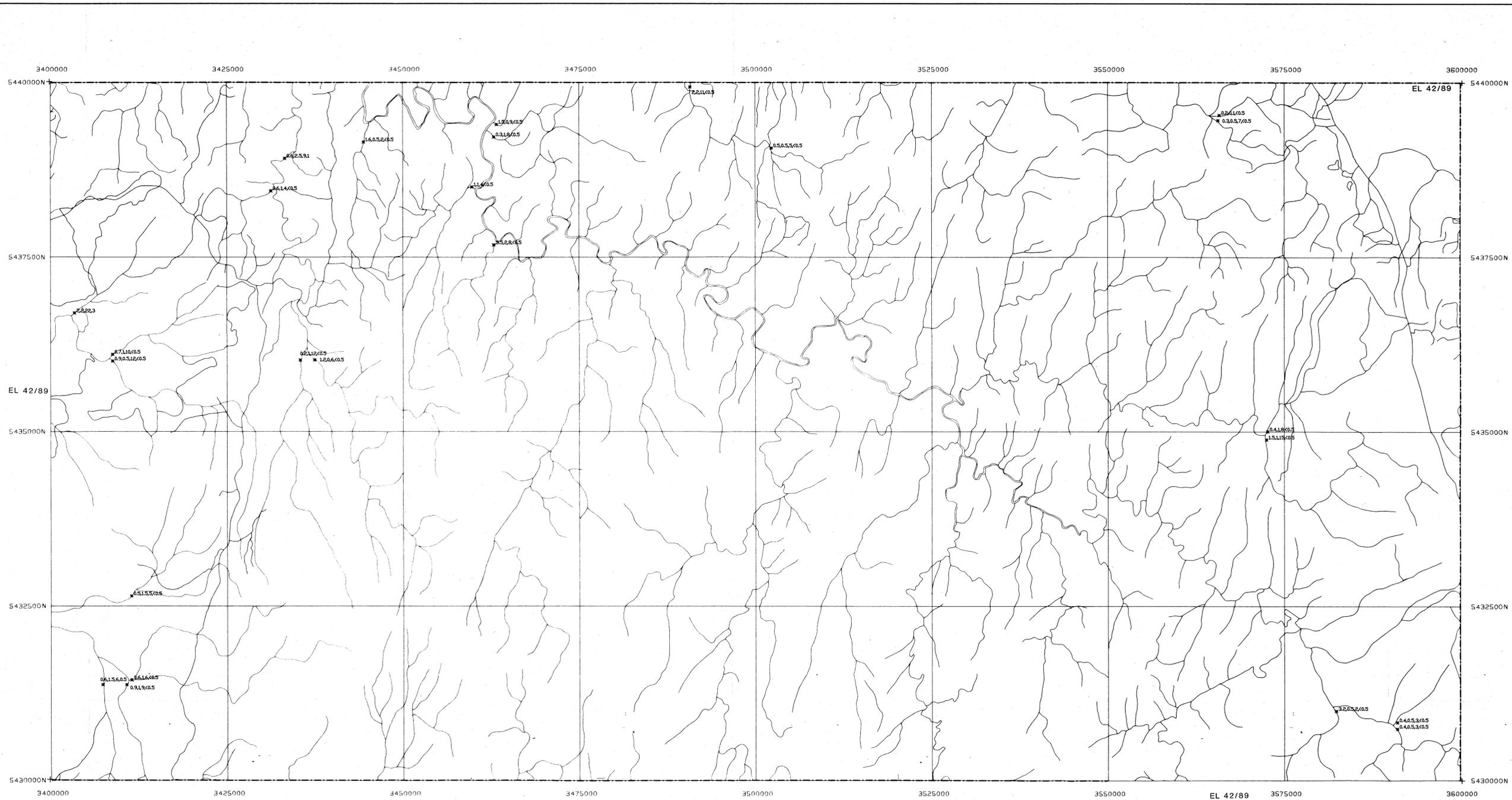
LEGEND
 Sample Location
 Copper (ppb)
 Lead (ppb)
 Zinc (ppb)
 Arsenic (ppb)
 * 3.8, 6.5, 23, 0.5
 BT - Below Detection

5 cm

91-3216.

	3244	3444
	3243	3443
	3242	3442

 TASMANIA	GEOPEKO A DIVISION OF PEKO EXPLORATION LIMITED
	SCALE - 1:25000 AUSTRALIAN HEIGHT DATUM
	3243 DEMPSTER
	EL 42/89 WATER GEOCHEMISTRY Cu, Pb, Zn, As



LEGEND
 Sample Location
 Copper (ppb)
 Lead (ppb)
 Zinc (ppb)
 Arsenic (ppb)
 3,8,6,5,23,0,5
 BT - Below Detection

PLATE 3b

5 cm

409039

91-3216.

3244	3444	3644
3243	3443	
3242	3442	

 TASMANIA	GEOPEKO A DIVISION OF PEKO EXPLORATION LIMITED
	SCALE - 1:25000 AUSTRALIAN HEIGHT DATUM
	3443 BERYL
	EL 42/89 WATER GEOCHEMISTRY Cu, Pb, Zn, As

409040

DATA ENTRY

Project Arther River Project DB Number _____ Date _____
Prospect _____ X Ref T250

Company Geopeko
Title EL 42/89 Rapid River Report on Exploration Activity January 1990 to November 1990
Author _____

Key Words Water Neominex Geochemistry Gravity Aeromagnetics Arther Lincement
Near Town Trowetta Country AUS State TAS Volumes 2

Commodities Cu Pb Zn Au Pages 8
Tenements EL 42/89 Plans 6

Comments 1 Comments 2 V1 Text Appendices Plans
Geochemistry Water Cu Pb Zn Au As C V2 Water Sampling Data

Rocks Cu Pb Zn Au Fe Ni MAP SHEET 1:250 000 SERIES _____

Latitude Deg 41 Min 15 Map Names B Map No _____

Longitude Deg 145 Min 15 Map1 BURNIF SK55-3

Map2 _____

Map3 _____

Stored At _____ MAP SHEET 1:50 000 SERIES _____

Shelved At _____ MAPS _____

Classification _____

Name: MAPNO3 Kind: Nonkey Type: Text Size: 8

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GEOPEKO

A DIVISION OF PEKO EXPLORATION

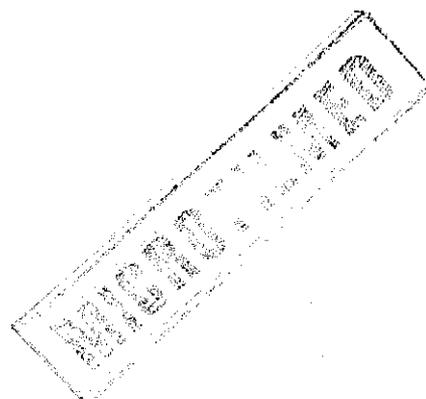
EL 42/89 RAPID RIVER

1990 SUMMER
WATER SAMPLING DATA
SAMPLE DESCRIPTIONS,
UNITS AND RESULTS

91-3216

EL42/89

LETTER
8-1-91
REFERS



Katrina Virgoe
Ian Mathison
December, 1990

To accompany report
T252

Distribution: DMMR, Hobart



Page 1

07-01-1991

ARTHUR RIVER PROJECT WATER SAMPLES - EL 42/89

DATE 30-04-1990 NUMBER 20629 MAP BERYL TYPE WATER
 EL 42/89 NORTH 5438660 EAST 343280 SAMPLER KJV

WIDTH 10.0 UNIT Prc
 DIRECTION 0 FLOAT_1 fg Sar
 COLOUR weak brown FLOAT_2 qt
 FLOW moderate FLOAT_3 no tag left

LEVEL low

CONTAM
 VEGETATION rain forest

DRAINAGE AREA 12.5

DATE 30-04-1990 NUMBER 20630 MAP BERYL TYPE WATER
 EL 42/89 NORTH 5436040 EAST 343560 SAMPLER KJV

WIDTH 5.0 UNIT Prc
 DIRECTION 0 FLOAT_1 Sslt
 COLOUR med brown FLOAT_2 Ssst
 FLOW moderate FLOAT_3 qt

LEVEL low

CONTAM
 VEGETATION rain forest

DRAINAGE AREA 4.0

DATE 30-04-1990 NUMBER 20631 MAP BERYL TYPE WATER
 EL 42/89 NORTH 5436080 EAST 343600 SAMPLER KJV

WIDTH 7.0 UNIT Prc
 DIRECTION 0 FLOAT_1 Sslt
 COLOUR med brown FLOAT_2 lam Sslt
 FLOW moderate FLOAT_3 Ssst

LEVEL low

CONTAM
 VEGETATION rain forest

DRAINAGE AREA 5.0

DATE 30-04-1990 NUMBER 20632 MAP BERYL TYPE WATER
 EL 42/89 NORTH 5439100 EAST 344440 SAMPLER KJV

WIDTH 10.0 UNIT Prc
 DIRECTION 0 FLOAT_1 Sslt
 COLOUR med brown FLOAT_2 vfg Ssst
 FLOW moderate FLOAT_3

LEVEL low

CONTAM
 VEGETATION rain forest

DRAINAGE AREA 2.0

Page 2

07-01-1991

ARTHUR RIVER PROJECT WATER SAMPLES - EL 42/89

DATE	30-04-1990	NUMBER	20650	MAP	BERYL	TYPE	WATER
EL	42/89	NORTH	5438480	EAST	346000	SAMPLER	KJV
WIDTH	5.0			UNIT		Smithton Trough	
DIRECTION	0			FLOAT_1		Sslt	
COLOUR	weak brown			FLOAT_2			
FLOW	moderate			FLOAT_3			
CONTAM						LEVEL	low
VEGETATION	rain forest					DRAINAGE AREA	3.5
DATE	30-04-1990	NUMBER	20651	MAP	BERYL	TYPE	WATER
EL	42/89	NORTH	5439920	EAST	349080	SAMPLER	KJV
WIDTH	5.0			UNIT		Prc	
DIRECTION	0			FLOAT_1		bk Sslt py	
COLOUR	med brown			FLOAT_2		Sqar	
FLOW	moderate			FLOAT_3		lam Sslt	
CONTAM						LEVEL	low
VEGETATION	rain forest					DRAINAGE AREA	3.5
DATE	30-04-1990	NUMBER	20652	MAP	BERYL	TYPE	WATER
EL	42/89	NORTH	5439060	EAST	350220	SAMPLER	KJV
WIDTH	3.0			UNIT		Prc	
DIRECTION	0			FLOAT_1		Bd	
COLOUR	med brown			FLOAT_2		qt	
FLOW	slow			FLOAT_3		Sslt	
CONTAM						LEVEL	low
VEGETATION	rain forest					DRAINAGE AREA	1.5
DATE	30-04-1990	NUMBER	20658	MAP	BERYL	TYPE	WATER
EL	42/89	NORTH	5439200	EAST	346320	SAMPLER	KJV
WIDTH	5.0			UNIT		Prc	
DIRECTION	0			FLOAT_1		Sslt	
COLOUR	weak brown			FLOAT_2		Ssst	
FLOW	moderate			FLOAT_3			
CONTAM						LEVEL	low
VEGETATION	rain forest					DRAINAGE AREA	2.0

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ARTHUR RIVER PROJECT WATER SAMPLES - EL 42/89

DATE 02-05-1990 NUMBER 20663 MAP BERYL TYPE WATER
 EL 42/89 NORTH 5439480 EAST 356560 SAMPLER KJV

WIDTH 5.0 UNIT Prc
 DIRECTION 0 FLOAT_1 qt
 COLOUR weak brown FLOAT_2 Tert Eb
 FLOW slow FLOAT_3

LEVEL low

CONTAM
 VEGETATION rain forest

DRAINAGE AREA 3.0

DATE 02-05-1990 NUMBER 20664 MAP BERYL TYPE WATER
 EL 42/89 NORTH 5431420 EAST 341150 SAMPLER KJV

WIDTH 5.0 UNIT Prc
 DIRECTION 0 FLOAT_1 Sqar
 COLOUR weak brown FLOAT_2 bk Sslt
 FLOW slow FLOAT_3 lam Sslt

LEVEL low

CONTAM
 VEGETATION button grass

DRAINAGE AREA 1.0

DATE 02-05-1990 NUMBER 20665 MAP BERYL TYPE WATER
 EL 42/89 NORTH 5431380 EAST 341080 SAMPLER KJV

WIDTH 7.0 UNIT Prc
 DIRECTION 0 FLOAT_1 qt
 COLOUR med brown FLOAT_2 bk Sslt
 FLOW slow FLOAT_3 Ssst

LEVEL low

CONTAM
 VEGETATION button grass

DRAINAGE AREA 10.0

DATE 02-05-1990 NUMBER 20666 MAP BERYL TYPE WATER
 EL 42/89 NORTH 5431380 EAST 340720 SAMPLER KJV

WIDTH 2.0 UNIT Prc
 DIRECTION 0 FLOAT_1 lam Sslt
 COLOUR brown FLOAT_2 Ssst
 FLOW still FLOAT_3

LEVEL low

CONTAM
 VEGETATION button grass

DRAINAGE AREA 2.5

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ARTHUR RIVER PROJECT WATER SAMPLES - EL 42/89

DATE 02-05-1990 NUMBER 20667 MAP BERYL TYPE WATER
 EL 42/89 NORTH 5438480 EAST 343120 SAMPLER KJV

WIDTH 2.0 UNIT Prc
 DIRECTION 0 FLOAT_1 bk Sslt py
 COLOUR med brown FLOAT_2 qt
 FLOW slow FLOAT_3 Ssst

LEVEL low

CONTAM
 VEGETATION rain forest

DRAINAGE AREA 1.5

DATE 02-05-1990 NUMBER 20670 MAP DEMPSTER TYPE WATER
 EL 42/89 NORTH 5434900 EAST 337400 SAMPLER KJV

WIDTH 15.0 UNIT Prc
 DIRECTION 0 FLOAT_1 none
 COLOUR med brown FLOAT_2
 FLOW slow FLOAT_3

LEVEL low

CONTAM
 VEGETATION button grass

DRAINAGE AREA 21.0

DATE 02-05-1990 NUMBER 20673 MAP BERYL TYPE WATER
 EL 42/89 NORTH 5430830 EAST 359080 SAMPLER KJV

WIDTH 2.0 UNIT Pa
 DIRECTION 0 FLOAT_1 qt
 COLOUR clear FLOAT_2 Tert Bb
 FLOW moderate FLOAT_3

LEVEL low

CONTAM
 VEGETATION rain forest

DRAINAGE AREA 2.0

DATE 02-05-1990 NUMBER 20674 MAP BERYL TYPE WATER
 EL 42/89 NORTH 5430740 EAST 359090 SAMPLER KJV

WIDTH 15.0 UNIT Pa
 DIRECTION 0 FLOAT_1 Tert Bb
 COLOUR clear FLOAT_2 qt
 FLOW moderate FLOAT_3

LEVEL low

CONTAM
 VEGETATION rain forest

DRAINAGE AREA 8.0

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ARTHUR RIVER PROJECT WATER SAMPLES - EL 42/89

DATE 02-05-1990 NUMBER 20675 MAP BERYL TYPE WATER
 EL 42/89 NORTH 5431000 EAST 358220 SAMPLER KJV

WIDTH 15.0 UNIT Pa
 DIRECTION 0 FLOAT_1 Tert Bb
 COLOUR clear FLOAT_2 qt
 FLOW moderate FLOAT_3 clvd Ssit

LEVEL low
 CONTAM
 VEGETATION rain forest DRAINAGE AREA 9.0

DATE 02-05-1990 NUMBER 20676 MAP BERYL TYPE WATER
 EL 42/89 NORTH 5430060 EAST 360280 SAMPLER KJV

WIDTH 15.0 UNIT Pa
 DIRECTION 0 FLOAT_1 Tert Bb
 COLOUR clear FLOAT_2 qt
 FLOW moderate FLOAT_3 Msch q c

LEVEL low
 CONTAM
 VEGETATION rain forest DRAINAGE AREA 6.0

DATE 02-05-1990 NUMBER 20159 MAP BALFOUR TYPE WATER
 EL 42/89 NORTH 5429660 EAST 336780 SAMPLER IJM

WIDTH 2.0 UNIT Prc
 DIRECTION 280 FLOAT_1 none
 COLOUR med brown FLOAT_2
 FLOW slow FLOAT_3

LEVEL low
 CONTAM
 VEGETATION button grass DRAINAGE AREA 3.0

DATE 02-05-1990 NUMBER 20160 MAP BALFOUR TYPE WATER
 EL 42/89 NORTH 5429340 EAST 336740 SAMPLER IJM

WIDTH 2.0 UNIT Prc
 DIRECTION 290 FLOAT_1 none
 COLOUR med brown FLOAT_2
 FLOW slow FLOAT_3

LEVEL low
 CONTAM
 VEGETATION button grass DRAINAGE AREA 1.5

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ARTHUR RIVER PROJECT WATER SAMPLES - EL 42/89

DATE 02-05-1990 NUMBER 20168 MAP BERYL TYPE WATER
 EL 42/89 NORTH 5436100 EAST 340880 SAMPLER IJM

UNIT Prc
 WIDTH 0.5 FLOAT_1
 DIRECTION 220 FLOAT_2 none
 COLOUR med brown FLOAT_3
 FLOW slow

LEVEL low

CONTAM
 VEGETATION button grass DRAINAGE AREA 2.0

DATE 02-05-1990 NUMBER 20169 MAP BERYL TYPE WATER
 EL 42/89 NORTH 5436000 EAST 340900 SAMPLER IJM

UNIT Prc
 WIDTH 0.5 FLOAT_1 none
 DIRECTION 290 FLOAT_2
 COLOUR med brown FLOAT_3
 FLOW still

LEVEL low

CONTAM
 VEGETATION button grass DRAINAGE AREA 4.5

DATE 02-05-1990 NUMBER 20170 MAP BERYL TYPE WATER
 EL 42/89 NORTH 5436700 EAST 340340 SAMPLER IJM

UNIT Prc
 WIDTH 1.0 FLOAT_1 none
 DIRECTION 220 FLOAT_2
 COLOUR med brown FLOAT_3
 FLOW still

LEVEL low

CONTAM
 VEGETATION button grass DRAINAGE AREA 3.0

DATE 02-05-1990 NUMBER 20171 MAP DENPSTER TYPE WATER
 EL 42/89 NORTH 5436060 EAST 339740 SAMPLER IJM

UNIT Prc
 WIDTH 1.0 FLOAT_1 Sslt
 DIRECTION 210 FLOAT_2
 COLOUR med brown FLOAT_3
 FLOW still

LEVEL low

CONTAM
 VEGETATION button grass DRAINAGE AREA 2.5

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ARTHUR RIVER PROJECT WATER SAMPLES - EL 42/89

DATE 02-05-1990 NUMBER 20172 MAP DEMPSTER TYPE WATER
 EL 42/89 NORTH 5435480 EAST 339760 SAMPLER IJM

WIDTH 3.0 UNIT Prc
 DIRECTION 240 FLOAT_1 Sslt
 COLOUR brown FLOAT_2
 FLOW still FLOAT_3

LEVEL low

CONTAM
 VEGETATION button grass DRAINAGE AREA 8.0

DATE 02-05-1990 NUMBER 20173 MAP DEMPSTER TYPE WATER
 EL 42/89 NORTH 5435720 EAST 339620 SAMPLER IJM

WIDTH 0.5 UNIT Prc
 DIRECTION 295 FLOAT_1
 COLOUR brown FLOAT_2
 FLOW still FLOAT_3

LEVEL low

CONTAM
 VEGETATION button grass DRAINAGE AREA 2.0

DATE 02-05-1990 NUMBER 20174 MAP DEMPSTER TYPE WATER
 EL 42/89 NORTH 5435360 EAST 338600 SAMPLER IJM

WIDTH 4.0 UNIT Prc
 DIRECTION 280 FLOAT_1
 COLOUR brown FLOAT_2
 FLOW still FLOAT_3

LEVEL low

CONTAM
 VEGETATION button grass DRAINAGE AREA 15.0

DATE 02-05-1990 NUMBER 20175 MAP DEMPSTER TYPE WATER
 EL 42/89 NORTH 5435400 EAST 338380 SAMPLER IJM

WIDTH 1.0 UNIT Prc
 DIRECTION 190 FLOAT_1
 COLOUR brown FLOAT_2
 FLOW still FLOAT_3

LEVEL low

CONTAM
 VEGETATION button grass DRAINAGE AREA 2.0

0042

409050

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ARTHUR RIVER PROJECT WATER SAMPLES - EL 42/89

DATE 28-03-1990	NUMBER 20620	MAP BERYL	TYPE WATER
EL 42/89	NORTH 5432640	EAST 341160	SAMPLER KJV

WIDTH	3.0	UNIT	Prc
DIRECTION	0	FLOAT_1	Sqar
COLOUR	weak brown	FLOAT_2	
FLOW	moderate	FLOAT_3	

CONTAM		LEVEL	
VEGETATION	button grass	DRAINAGE AREA	4.0

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Database fields

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ARTHUR RIVER PROJECT WATER SAMPLES - EL 42/89

NUMBER	AU	C	AU_C	CU	PB	ZN	AS
20159	2.1	14.7	0.14	0.50	0.00	1	-0.5
20160	3.5	18.0	0.19	0.50	0.00	1	-0.5
20168	6.3	17.1	0.37	0.70	1.00	10	-0.5
20169	3.4	15.9	0.21	0.90	0.50	12	-0.5
20170	8.4	42.4	0.20	2.00	2.00	22	3.0
20171	3.5	32.1	0.11	2.70	0.50	10	0.5
20172	2.1	24.0	0.09	0.50	2.00	7	-0.5
20173	2.7	22.1	0.12	0.60	5.00	6	0.5
20174	2.7	25.6	0.11	0.40	2.50	3	-0.5
20175	8.4	35.5	0.24	0.40	0.50	0	1.0
20629	8.3	13.1	0.63	0.50	1.50	5	-0.5
20630	6.6	15.0	0.44	0.60	2.50	9	1.0
20631	10.2	16.5	0.62	0.20	1.00	12	-0.5
20632	4.4	11.5	0.38	1.20	0.00	6	-0.5
20650	12.5	8.5	1.47	0.80	4.00	4	-0.5
20651	21.4	19.8	1.08	1.00	1.00	4	-0.5
20652	18.2	20.7	0.88	2.00	2.00	11	-0.5
20658	15.4	12.8	1.20	1.50	0.00	9	-0.5
20659	12.4	7.7	1.61	0.30	1.00	8	-0.5
20660	10.6	6.6	1.61	3.50	2.00	8	-0.5
20661	15.6	10.0	1.56	1.50	1.00	15	-0.5
20662	11.8	13.9	0.85	0.40	1.00	8	-0.5
20663	7.7	6.7	1.15	0.20	0.00	1	-0.5
20664	11.6	8.1	1.43	0.30	0.50	7	-0.5
20665	9.6	13.5	0.71	0.60	1.00	6	-0.5
20666	14.9	25.3	0.59	0.90	1.00	9	-0.5
20667	13.1	14.9	0.88	0.60	1.50	6	0.5

ARTHUR RIVER PROJECT WATER SAMPLES - EL 42/89

NUMBER	AU	C	AU_C	CU	PB	ZN	AS
20670	17.2	16.1	1.07	1.40	1.00	7	0.5
20673	5.9	2.5	2.36	0.00	1.00	4	0.50
20674	16.3	3.6	4.53	0.40	0.50	3	-0.5
20675	12.7	4.2	3.02	0.40	0.50	3	-0.5
20676	14.5	3.5	4.14	3.20	0.50	2	-0.5

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, Aqua regia digestion - 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