

GEOPEKO
TENNANT CREEK
A DIVISION OF PEKO WALLSEND OPERATIONS LIMITED

ANNUAL REPORT ON
EXPLORATION LICENCE 1849

Compiled by
W. O'NEILL

December, 1980

NORTHERN TERRITORY
GEOLOGICAL SURVEY

SCANNED

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ANNUAL REPORT ON EXPLORATION LICENCE 1849(December 1980)

1. INTRODUCTION.

Exploration Licence No. 1849 was granted to Geopeko Limited (60%), Australian Ores and Minerals (20%) and Shell Minerals Exploration (Aust.) Pty. Ltd. (20%) on the 31st of October, 1978. It covers an area of 471.4 square kilometres with the co-ordinates of the north western corner being 19° 52'S, 133° 25'E.

Access to the area from Tennant Creek is via the sealed road to Warrego Mine, west from there for approximately 10 kilometres then south to the Rover camp along a moderate quality dirt track for 65 kilometres. The location, boundaries and access are shown on the accompanying plan (TF 2129).

As this report pertains to the second year of tenure of the Exploration Licence the area involved remains unchanged from the first year.

2. EXPLORATION PHILOSOPHY AND HISTORY.

Work undertaken by previous licence holders consisted of low level aeromagnetic surveys during which several magnetic anomalies were detected. These were located on the ground, gridded and resurveyed magnetically in greater detail. Several were checked by exploratory diamond drilling.

The results of the above diamond drilling indicated the presence of mineralised bodies of the Tennant Creek type with copper, gold and bismuth mineralisation hosted in magnetite rich lodes. These lodes are hosted in rocks of the Warramunga Group which lie beneath flat lying cover rocks of Cambrian age.

As areas of the Licence were relinquished the magnetite anomalies were covered by Mineral Leases.

The current Licence holders are of the opinion that economic mineralisation may not only be confined to magnetite rich lodes. Gravimetric techniques were employed to explore for mineralisation not directly associated with magnetite.

The post Warramunga cover rocks preclude the use of direct examination and of electrical methods as exploration techniques.

A regional grid was established with an East West baseline 26.7 kilometres in length with North South traverses (up to 11 kilometres in length) established every 2500 metres along the base line.

Stations at 100 metre intervals along the base line and traverses, were levelled and gravimetric readings were taken. A total of 94.2 line kilometres was surveyed to give 944 levelled stations. After appropriate terrain corrections the gravimetric data was plotted and presented as a contoured plan. (See plan TF 2128 1979 Report)

The results of the above programme were considered sufficiently encouraging to warrant further more detailed gravimetric surveys. The additional gridding required, as well as collecting and interpreting the gravity data, formed the major part of the work undertaken in the 79/80 year.

3. WORK UNDERTAKEN 1979/80

3.1 Evaluation of Post Warramunga Cover Rocks

In order to undertake detailed interpretation of the regional gravity data the effects of post Warramunga cover must be quantified. To this end, a stratigraphic section (East - West) was constructed using all the available data from existing drill holes in the area.

An arbitrary R. L. was selected on which to normalise all of the drilling data, and a contour plan of the original Warramunga surface was constructed. (see accompanying plan TF2145)

A stratigraphic sequence was outlined, in which the following six distinct units were identified:-

Youngest	Unit 6 - Dolomite siltstone and sandstone (80m +)
	Unit 5 - Dolomite, interbedded siltstone and sandstone (34 - 48m)
	Unit 4 - Algal Dolomite (4 - 13m)
	Unit 3 - Dolomitic siltstone (26 - 40m)
	Unit 2 - Dolomite with interbedded siltstone and sandstone (10 - 43m)
Oldest	Unit 1 - Basal conglomerate, sandstone, siltstone (1 - 25m)

For each of the six units identified a number of samples were collected and specific gravity determinations were undertaken. With this information and the information supplied by the stratigraphic section it is possible to remove the effect of the post Warramunga cover rocks from the gravity profiles.

3.2 Gridding and Geophysics

Geophysical work this year involved gravity and magnetic infill at 400 metre spacing in selected portions of the 2500 metre spaced regional grid. A further 61.4 line kilometres of grid was established for the purpose.

These infills were designed to highlight gravity character from the regional survey, as well as subtle magnetic anomalies observed in the aeromagnetics.

Five new prospects are defined and should be followed up with detailed gridding and geophysical surveying. Additional portions of the regional grid should be selected for infill work with the goal of defining further prospects.

3.3 Compilation

At a meeting between the joint venture partners held in May 1980 it was decided that a compilation of all the available data on E.L. 1849 should be attempted. The compilation will be on a scale of 1:50,000 and will show interpreted geology beneath the post Warramunga cover and contain transparent overlays showing aeromagnetic data, gravity data, drill hole data, established grids, access etc.

Although some preliminary work has been undertaken to this end, the data is not yet in a presentable form.

3.4 Expenditure

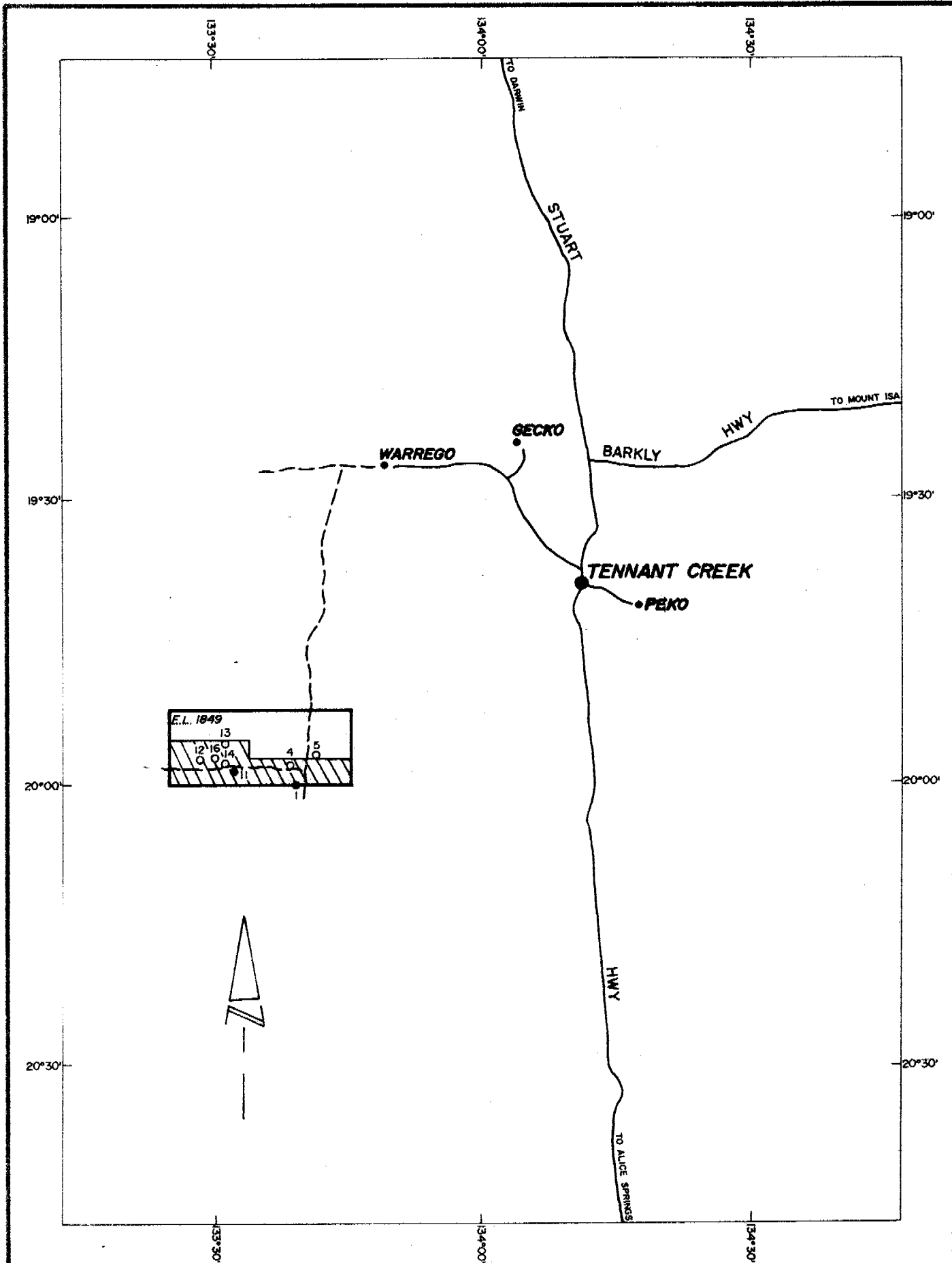
Total expenditure on Exploration Licence 1849 for the 12 months ending 31st October, 1980 was \$26,289.

Breakdown of this expenditure is as follows:-

Communication	\$ 259
Tenement	542
Premises	75
Survey & Grid	15525
Supplies	716
Geophysics	3855
Geology	372
Sustenance	161
Travel	92
Wages & Salaries	2279
Freight	22
Administration & Management	1211
Indirect	1180
	<hr/>
	\$26,289.

Attachments:

LOCATION and Access Map E.L. 1849 (TF 2129)
STRATIGRAPHY OF THE MERRINA BEDS E.L. 1849 (TF 2145)
ROVER - Bouger Gravity Profiles (Plan No 5734 S/B)
ROVER - Bouger Gravity Profiles (Plan No 5735 S/B)
ROVER - Bouger Gravity Contours (Plan No 5736 S/B)
ROVER - Geomagnetic Force Profiles (Plan No 5737 S/B)
ROVER - Geomagnetic Total Force Contours (Plan No 5738 S/B)



16
○ Drilled before 1979

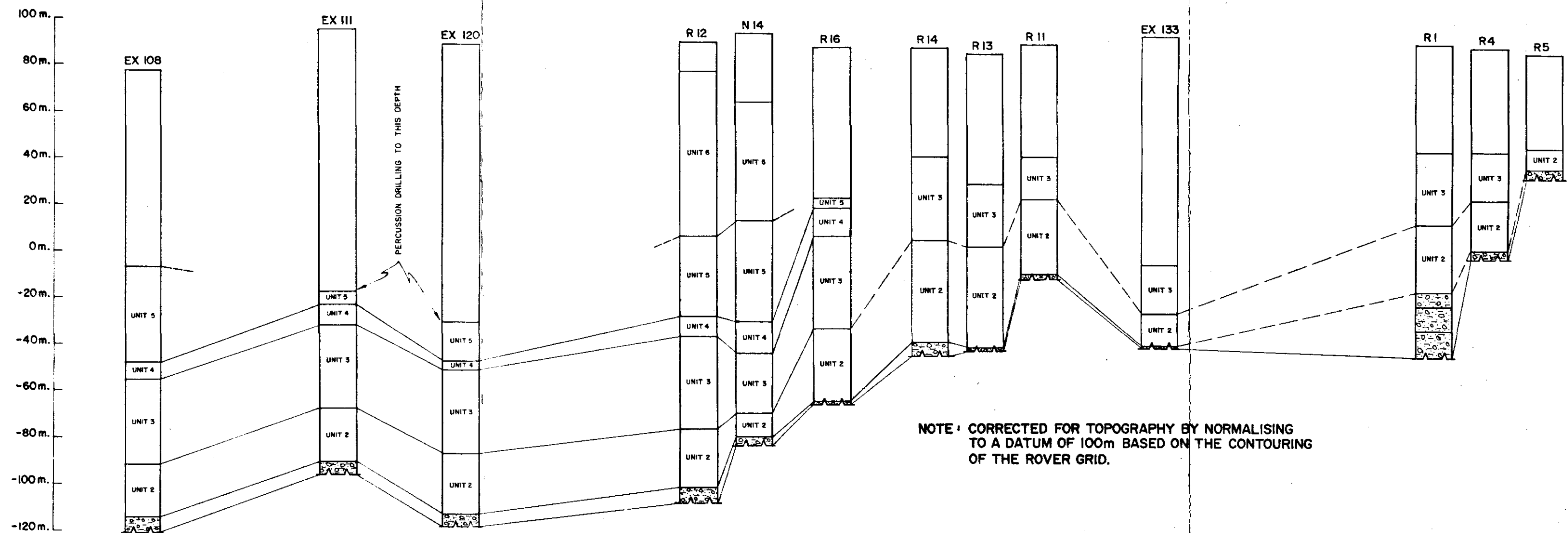
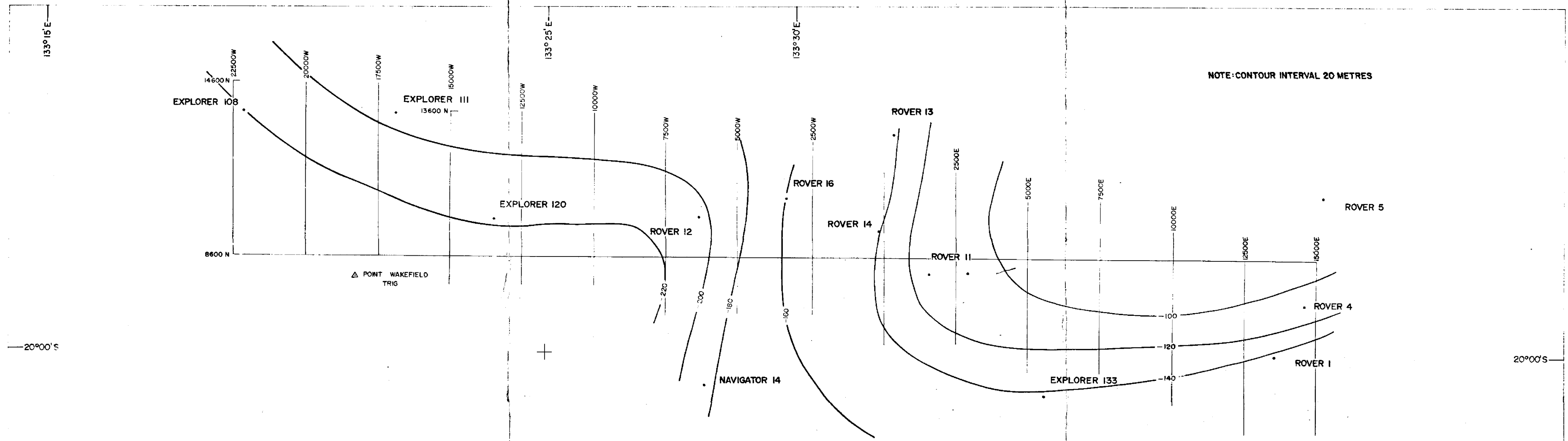
● Drilled in 1979

□ E.L. Boundary

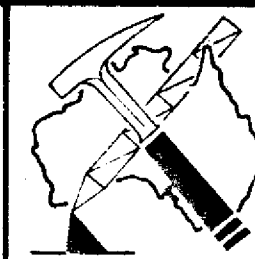
▨ Area of Renewal of E.L. Application

GEOPEKO

PROJECT		E.L. 1849		
AREA		ROVER EXPLORATION LICENCES		
DATA		LOCATION AND ACCESS		
DRAWN	COMPILED	SCALE	DWG. No.	
MDL 25/1/80	PJC 25/1/80	1:1 000 000	TF 2129	



- UNIT 6 DOLOMITIC SILTSTONE & SANDSTONE
- UNIT 5 DOLOMITE WITH INTERBEDDED SILTSTONE & SANDSTONE
- UNIT 4 ALGAL DOLOMITE
- UNIT 3 DOLOMITIC SILTSTONE
- UNIT 2 DOLOMITE WITH INTERBEDDED SILTSTONE & SANDSTONE
- UNIT 1 CONGLOMERATE, DOLOMITIC SANDSTONE & SILTSTONE
- DEPTH TO WARRAMUNGA GROUP ROCKS FROM RELATIVE LEVEL (CORRECTED FOR PRESENT DAY TOPOGRAPHY & DRILLHOLE INCLINATION)
- UNCONFORMITY



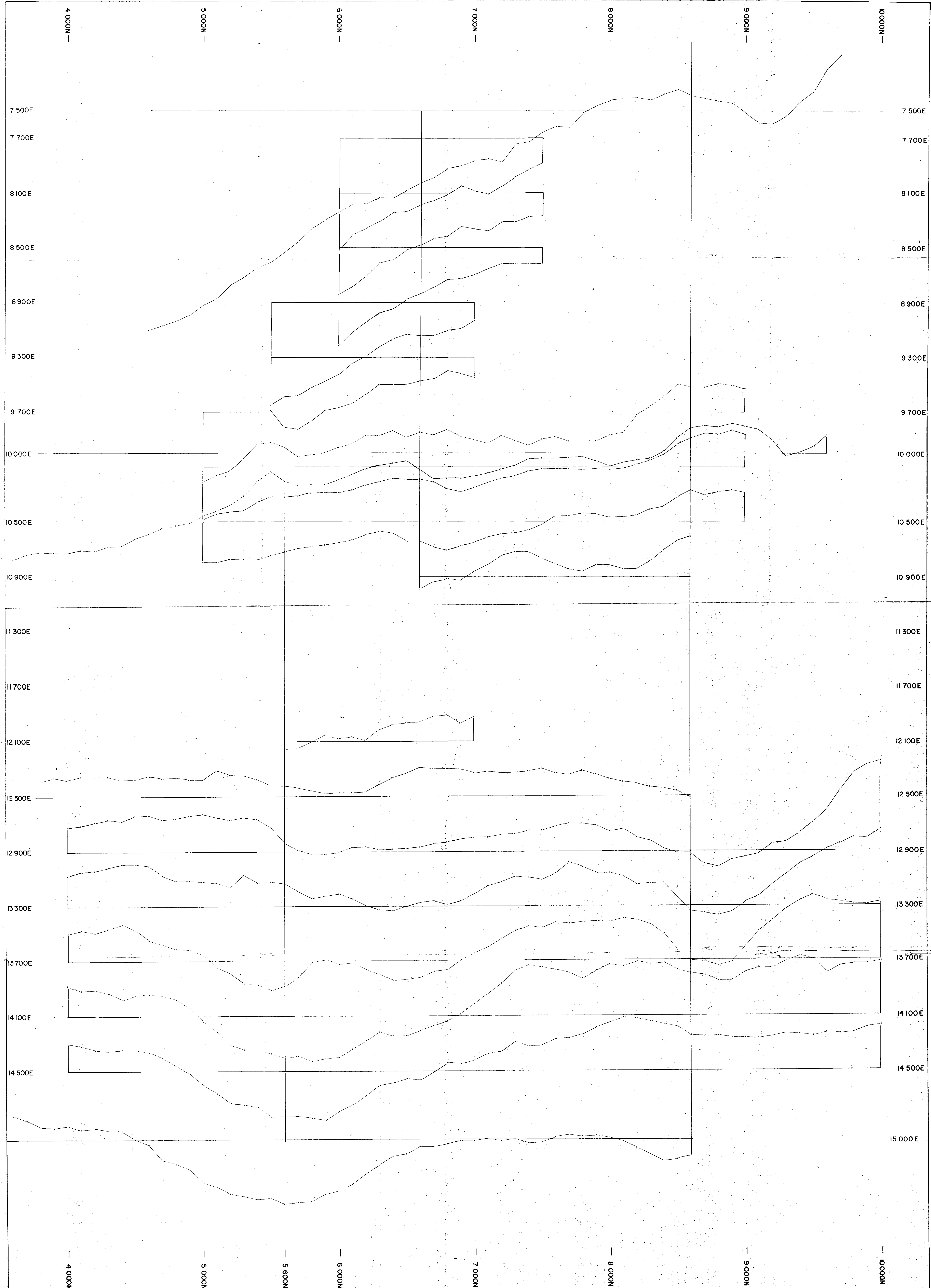
GEOPEKO

TENNANT CREEK NORTHERN TERRITORY

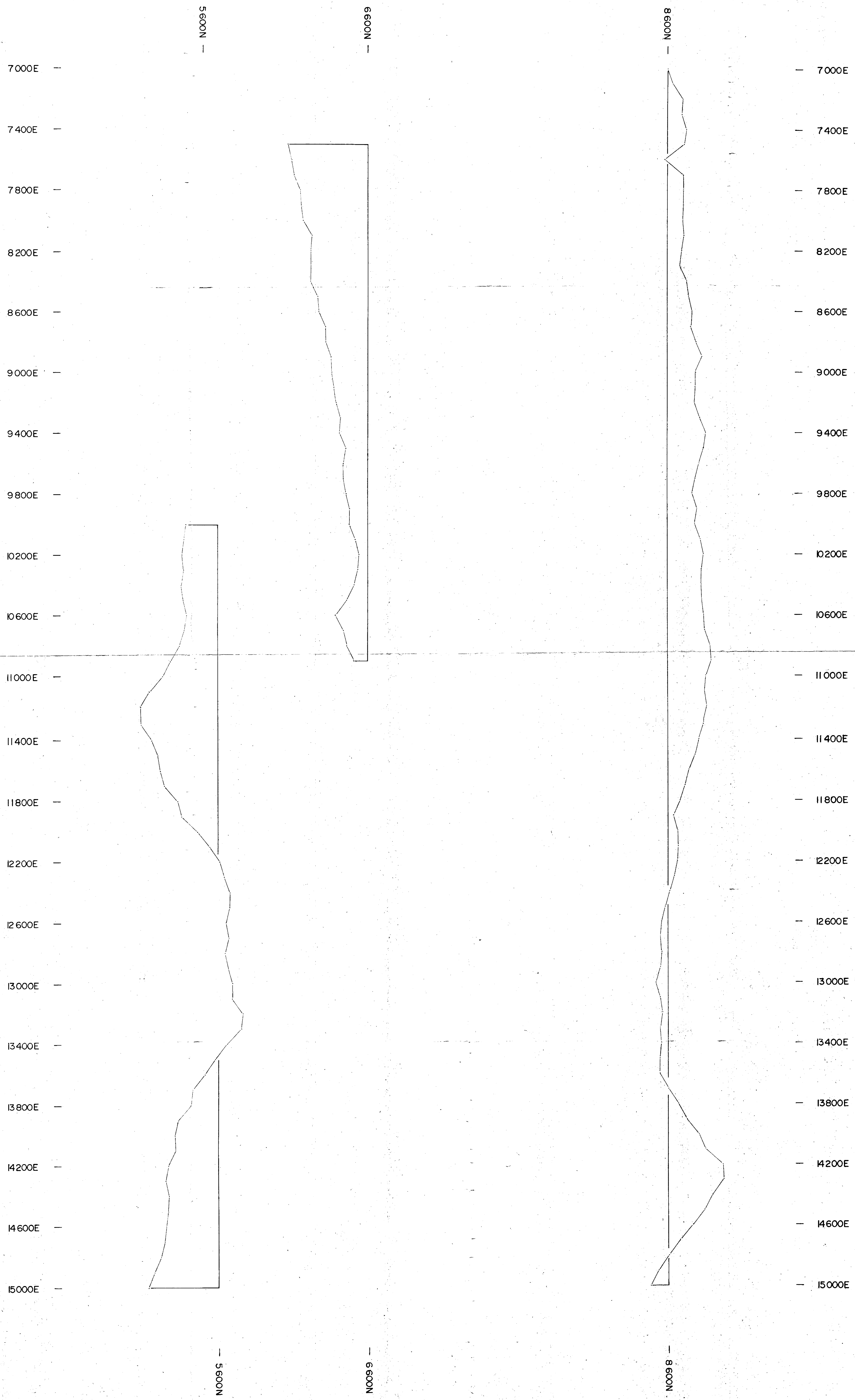


DWG. No. TF 2145

PROJECT	EL 1849			
AREA	ROVER EXPLORATION LICENCES			
DATA	RELATIVE RELIEF OF PRE MERRINA BEDS (CAMBRIAN) TOPOGRAPHY AND THE STRATIGRAPHY OF THE MERRINA BEDS			
COMPILED J.P.	DATE 13.2.80	DRAWN M.D.L.	CHECKED J.V.M.	SCALE 1:100 000



GEOPEKO LTD Geophysical Surveys Plan No. 5734 S/B	Instrument	Worden	Jatum	1080 micro-Galileo	Hor. Scale	1:10000	AREA	Tennant Creek
	Observer	P.W.Y.	Base Reg		Vert. Scale	1cm=2 micro-Galileo	PROSPECT	ROVER
	Scale	J.S.	Date	October 1980	Cont. Int.		PLAN SHOWS	Bouguer Gravity Profiles



GEOPEKO LTD Geophysical Surveys Plan No. 5735 S/B	Instrument	Worden	Datum	1080 micro-Galileo	Hor. Scale	1:10 000	AREA	Tennant Creek
	Observer	P.W.Y.	Base Peg		Vert. Scale	1cm = 2 micro-Galileo	PROSPECT	ROVER
	Scale Factor		Date	October 1980	Cont. Int.		PLAN SHOWS	Bouguer Gravity Profiles

