URANERZ (AUSTRALIA) PTY. LTD.

U A L REPORT NO. 27

EXPLORATION 1973 ON

EXPLORATION LICENCES 846, 847, 864, 865 AND 866

WESTERN EXTENSION, EWANINGA

ALICE SPRINGS, NORTHERN TERRITORY

COMPILED BY

G.D. ILIFF

Perth March 1974

URANERZ (AUSTRALIA) PTY. LTD.

IL/CBB March 1974

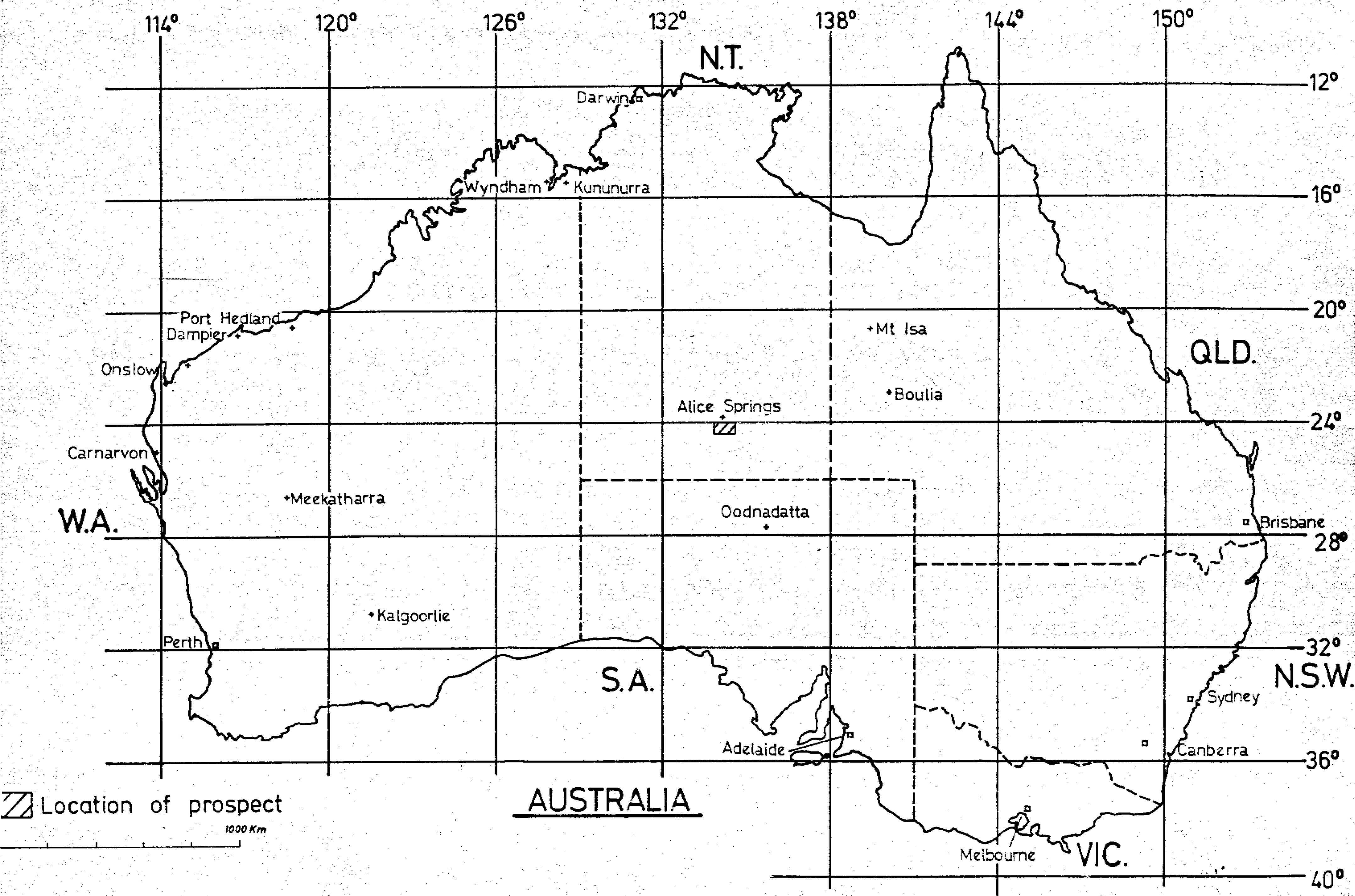
SUMMARY

In June, August and October-November, 1973 the UAL tenements in the Hermannsburg area, west of Alice Springs, were surveyed by airborne fixed-wing and helicopter and carborne spectrometry. The aerial methods covered all of the tenements while the carborne work was only in its early stage at the eastern end of the tenements.

Numerous low intensity anomalies were recorded in all three surveys. In a return follow-up survey by helicopter only three airborne 'kicks' repeated convincingly.

Four grab samples were taken, giving disappointing results, with a thorium bias of small magnitude.

Further work is recommended, including a continuation of carborne work, geological mapping and a stream sediment sampling survey.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Darwin
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Kununurra
Port Hedland
Dampier
Onslow
Carnarvon
W.A.
Meekatharra
Kalgoorlie
Perth
Mt Isa
Boulia
Alice Springs
QLD.
Oodnadatta
Brisbane
S.A.
N.S.W.
Sydney
Canberra
Adelaide
Melbourne
VIC.
AUSTRALIA
Location of prospect
1000 Km

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1. INTRODUCTION

1.1 AREA OF INVESTIGATION

The Ewaninga Western Extension comprises five Exploration Licences, 846, 847, 864, 865 and 866. At the western extremity a sixth EL, 848, was applied for but was never officially granted as it lies within an Aboriginal Reserve, the Haasts Bluff Reserve.

The five tenements straddle and lie south of the MacDonnell Ranges, Hermannsburg Sheet, stretching from Boggy Hole Bore on the Hugh River west to Gosse Bluff. Hermannsburg Mission is roughly half way along the length of the tenements, in the south of EL 864.

The eastern boundary is 60km from Alice Springs and the western 167km. (193km to the western end of EL 848).

1.2 PURPOSE OF INVESTIGATION

The function of UAL Field Party No. 2 was reconnaissance survey of primary exploration nature. In this capacity the party conducted mainly aerial radiometric work to try to delineate areas of above background radiation within the tenement area warranting detailed investigations to be carried out by other field teams.

1.3 TIME OF INVESTIGATION

Survey flying commenced on the 19th June, 1973 with a fixed-wing radiometric survey which was completed on the 21st June.

Work was recommenced on the 22nd of August with carborne radiometry on EL 846, until the 31st August.

Preparations for a helicopter-borne survey commenced on the 25th October. The survey itself started on Monday the 29th October and continued to the 11th November, 1973.

1.4 PERSONNEL

In charge of the porject was UAL Team 2 : Geologists, G.D. Iliff, Miss P. Robinson. Also involved in the work was J. Johnson (geologist).

1.5 INSTRUMENTS AND VEHICLES USED

The surveys were conducted with a Scintrex GAM-2 differential spectrometer with a 4 x 5 inch NaI crystal sensor.

SRAT SPP2 scintillometers were used in ground survey work.

Carborne survey work was done in a Haflinger 4 wheel drive vehicle, while transport duties were performed by Toyota Landcruiser station wagon and a Toyota Landcruiser flat-top, each towing trailers for Haflinger and fuel transport.

2. GENERAL INFORMATION

2.1 LOCALITY

Latitude : 23°40'S to 20°00'S.
Longitude : 132°00'E to 133°20'E.

Nearest major settlement : Alice Springs.

2.2 COMMUNICATIONS AND ACCESS

Road : The Hermannsburg road is sealed to just west of Jay Creek Settlement, 30 miles from Alice Springs. The remaining 61 miles is frequently graded and generally easily passable, except in wet weather, which was a frequent occurrence in 1973.

Beyond Hermannsburg the road to Gosse Bluff is not of the standard of the Jay Creek - Hermannsburg Road, but quite acceptable in dry weather. Beyond Gosse Bluff it branches north to Haasts Bluff settlement and south to Areyonga settlement. Due west of Gosse Bluff there is only a track which would require four wheel drive vehicles.

West of Jay Creek a road runs within the MacDonnell Ranges to Glen Helen Tourist Camp and Haasts Bluff settlement. This is unsealed, but good going in dry weather.

The main road runs more or less along the south side of the tenement area. Access to the outcrop areas requires four wheel drive, along fences, occasional seismic lines and up creeks. South of the MacDonnell Ranges the relatively flat areas are quite easy going, though traverse lines are frequently complicated by thick scrub. The ranges themselves are just about negotiable by Haflinger if time is plentiful and risks are taken. Transport here is much preferable by helicopter.

Rail : Alice Springs is served by a 3ft. 6ins. gauge railway line from Maree, South Australia, which is the northern limit of the standard gauge railway system of South Australia, linked with the other States. EL 845, Ewaninga Siding (Ferguson, 1974) straddles the railway line, but all the tenements concerned in this report are considerable distances from it.

Air : Alice Springs has an all-weather airport served by five airlines : TAA, Ansett ANA, East-West Airlines, Connair and SAATAS.

Direct regular flights are from and to Sydney, Adelaide, Broken Hill, Brisbane, Darwin, Tennant Creek, Katherine, Mount Isa and Ayers Rock.

The Royal Flying Doctor Service is operated out of Alice Springs by SAATAS.

Hermannsburg Mission has an airstrip which fulfills the requirements of all light aircraft in dry weather. A small strip exists near Gosse Dam.

Adequate transport requirements for field work are four wheel drive vehicles and helicopter.

Alice Springs is the main supply centre in the area.

2.3 TOPOGRAPHY

The average elevation is about 680m above sea level.

The highest peaks within the area are Mt. Hermannsburg and the MacDonnell Ranges rising to about 1,000m (exact heights not given). Mt. Giles in Chewings Range is 1,305m and Brinkley Bluff 1,225m high.

The drainage is mainly southwards by the Finke River and its tributaries, Umbarta Creek, Rudells Creek, Ellery Creek and Hugh River.

2.4 CLIMATE

The region is typically arid semi-desert. The prevailing wind direction is normally south-east, but west to north-west when there are storms.

Annual rainfall is about 300mm, which falls mostly in summer. In 1973 a rare season precipitated in excess of 500mm.

In January, the normal summer maximum temperature is about 37°C. and minimum about 22°C. The July maximum is about 20°C and minimum about 4°C. A diurnal range of 20°C is not unusual.

The best working season is March to early November.

2.5 VEGETATION

The ranges are almost exclusively covered with spinifex, though scrubby eucalypts grow quite thickly on some of the slopes.

Spindly eucalypts and acacias cover the Tertiary flats, while large gums (eucalypts) and casurinas grow along creeks and flood plains where also grasses and short-lived yellow flowering colts-foot grow.

2.6 POPULATION AND LAND USE

The only permanent habitation is Hermannsburg Mission, with a population of about 500 Aboriginals and a dozen Europeans. The country is used exclusively for grazing of beef cattle and horses.

2.7 WATER RESOURCES

Surface water is collected in a number of earth dams on the Missionary Plan and occurs in pools in the Finke and Hugh Rivers and Ellery Creek. In 1973 these rivers flowed quite frequently. Earth dams have been made in areas where supplies of groundwater cannot be found.

Groundwater is available from aquifers of Precambrian to Quaternary age. The Mereenie Sandstone of Ordovician to Devonian age is the aquifer which supplies Alice Springs.

Hermannsburg is supplied by water from Kaporilja Spring and by a well west of the mission. A mile south of the mission is a government bore. Gosse Bluff has a bore and a mile west of Undandita Native Camp is a well on Undandita Creek. Only three other bores are known in the tenement area; Junction Bore, Eastern Dam and Gosse Dam.

Large reserves of water are available within the MacDonnell Range aquifers.

2.8 MAGNETIC DEVIATION

The deviation for the Hermannsburg Sheet is about 4°40', with a mean change about 0.01° easterly per annum.

3. PREVIOUS SURVEYS AND ACTIVITIES

3.1 TOPOGRAPHIC MAPPING

The Hermannsburg Sheet, SF 53-13, 1:250,000 scale, was compiled in 1959 from 1950 aerial photography supplemented by 1958 spot photography and ground examination; printed in 1969, with overprints added at that date.

3.2 GEOLOGICAL MAPPING

Hermannsburg, SF 53-13, 1:250,000, first edition 1968, compiled in 1964 by D.J. Forman, E.N. Milligan, T. Quinlan and N.L. Kruger, of the Bureau of Mineral Resources (BMR).

The area within the tenements is mostly compiled by detailed mapping, with some detailed reconnaissance and air-photo interpretation.

3.3 GEOPHYSICAL SURVEYS

Hermannsburg F 53/B1-79, 1969, 1:250,000.

This is a combined map of total magnetic intensity and radio-activity on the data of a survey of the Amadeus Basin conducted in 1965 by the BMR. The survey was made at an altitude of 800ft. above ground along lines spaced either 2 miles or 4 miles apart. The radioactivity was measured by scintillometer, but the readings (unlike the magnetic data) were not corrected for variations in topography.

Several seismic lines were cut across strike and parallel to it. These are shown in the 1969 overprint edition of the 1:250,000 Hermannsburg topographic map. Some of them were put in by the BMR in 1962, others by private companies. Details of the BMR survey were not published, but written up by Moss (1964).

3.4 EXPLORATION AND MINING

In the words of the Explanatory Notes, Hermannsburg Sheet, "Water is the only mineral currently being exploited".

This northern edge of the Amadeus Basin has only seriously been explored for oil, by companies such as Magellan Petroleum and Exoil (N.T.) Pty. Ltd. Magellan Petroleum currently hold Oil Permits 175 and 178 over the area.

South of the area, minor copper occurrences have been found in the Waterhouse Range, called The Owen Springs Prospect. Extensive drilling in 1953-54 gave disappointing results. The copper occurring as malachite and cuprite in the Goyder Formation is thought to be syngenetic.

Many mining companies are working in the general Alice Springs area, on the Amadeus and Ngalia Basins in particular, in the search for uranium. Companies active in the area are Central Pacific Minerals (N.L.)., Urangesellschaft (on their own account and in joint venture with C.P.M. in the Ngalia Basin), C.R.A., Afmeco and Pechiney, to mention but a few.

4. GENERAL GEOLOGY

4.1 PETROLOGY, LITHOLOGY, STRATIGRAPHY

The tenements are mostly covering the Upper Devonian to Lower Carboniferous Brewer Conglomerate. In the area in question this formation is uppermost of a series of Proterozoic and Palaeozoic formations resting non-conformably on Archaean or Early Proterozoic crystalline granitic and highly metamorphosed Arunta Complex rocks.

The Arunta Complex basement, lying north of the MacDonnell Ranges, comprises gneiss, schistose gneiss, granulite, schist, amphibolite, metaquartzite and granite, all intruded by dykes of pegmatite and dolerite.

The Heavitree Quartzite, up to 1,500ft. of quartzites and minor conglomerates, is the basal bed of the Amadeus Basin which trends east-west between the Arunta Block to the north and the Musgrave Block to the south.

Table 1 summarizes the stratigraphy of the tenements - taken from Quinland and Forman (1968).

4.2 STRUCTURE AND TECTONICS

Structure : The sedimentary rocks lie in a synclinal structure trending east-west with the southerly dips of the northern limb, MacDonnell Ranges, being near vertical or even overturned against the basement and gradually flattening out in the middle of the syncline to dip north on the southern side of the syncline; the Waterhouse and Gardiner Ranges. This is the situation seen at its simplest.

The MacDonnell Ranges Homocline lies south of a major crustal upwarp, and the Waterhouse Range Anticline and Gardiner Range Anticline are disharmonic folds over the incompetent Bitter Springs Formation which has deformed considerably, pushing formations above it into quite complex folds. The syncline between the MacDonnell Ranges Homocline and the Waterhouse Range Anticline is called the Missionary Plains Syncline.

SUMMARY OF STRATIGRAPHY

Table 1

Age	Rock Unit	Lithology	Thickness (feet)	Stratigraphic relationship
QUATERNARY	(Qa)	Alluvium.	1–250	
	(Qs)	Aeolian sand.	1–50	
	(Qt)	Travertine, kunkar.	1–100	
				UNCONFORMITY
TERTIARY	(Tc)	Conglomerate.		
				UNCONFORMITY
	(Tl)	Chalcedonic limestone.	1–20	
				UNCONFORMITY
	(Ta)	Laterite.	50–200	
	(Ts)	Sandstone, sandy siltstone, lignite.	1–200	
				UNCONFORMITY
UPPER PERMIAN	(P)	Brown and grey sandy clay.	100	
				UNCONFORMITY
DEVONIAN TO CARBONIFEROUS — PERTNJARA GROUP	Brewer Conglomerate (Pzb)	Grey calcareous conglomerate and sandstone.	10,000 vertical thickness. 21,500 foreset thickness.	
	Hermannsburg Sandstone (Pzr)	Red-brown fine to medium silty sandstone, with scattered limestone and dolomite pebbles, current-bedded.	0–2000	? Conformable on Mereenie Sandstone in west. Unconformable on Larapinta and Pertaoorrta Groups in east.
	Parke Siltstone (Pzk)	Red-brown siltstone, some calcareous lenses.	0–800	
				UNCONFORMITY
ORDOVICIAN TO DEVONIAN	Mereenie Sandstone (Pzm)	Brown fine quartz sandstone, very thickly current-bedded.	0–2000	
				UNCONFORMITY
CAMBRIAN TO ORDOVICIAN — LARAPINTA GROUP (C-Ol)	Undifferentiated (C-Ol)	Fossiliferous sandstone, siltstone, shale, dolomite, limestone.		
	Carmichael Sandstone (Oc)	Red-brown sandstone, silty sandstone, siltstone.	0–200	
	Stokes Siltstone (Ot)	Dark red and purple siltstone, shale with thin limestone beds.	0–2000	
	Stairway Sandstone (Os)	Pale brown fine and medium silty quartz sandstone; quartz sandstone.	0–1500	
	Horn Valley Siltstone (Oh)	Siltstone with thin fossiliferous limestone beds, and some thin sandstone beds.	0–1400	
	Pacoota Sandstone (C-Op)	Pale brown fine and medium quartz sandstone; kaolinitic and silty quartz sandstone; micaceous siltstone.	0–2700	

Table 1 (cont'd)

Age	Rock Unit	Lithology	Thickness (feet)	Stratigraphic relationship
CAMBRIAN PERTAOORRTA GROUP (Cp)	Undifferentiated (Cp)	Sandstone, siltstone, shale, limestone.		
	Goyder Formation (Cg)	Pale brown fine to medium kaolinitic quartz sandstone commonly micaceous; limestone; siltstone; minor limestones.	1600	
	Jay Creek Limestone (Cj)	Blue-grey, yellow-brown dolomitic limestone and limestone; minor interbeds of shale.	175–1000	
	Hugh River Shale (Cl)	Grey or black shale; thin interbeds of limestone, silty sandstone, siltstone.	1600	
				DISCONFORMITY
	Arumbera Sandstone (Ca)	Red-brown medium very silty sandstone; purple-red micaceous siltstone	800–2800	
	Petermann Sandstone (Ce)	Red-brown sandstone.	About 640	
	Deception Formation (Cd)	Red-brown siltstone; with minor fine silty sandstone.	About 600	A conformable sequence in the Gardiner Range, laterally equivalent to Pertayoorrta units at Ellery Creek.
	Illara Sandstone (Ci)	Red-brown sandstone with minor siltstone.	250–650	
	Tempe Formation (Ct)	Siltstone, fossiliferous limestone and sandstone; glauconitic.	About 760	
	Eninta Sandstone (Cn)	Red-brown sandstone and siltstone. Some conglomerate beds.	300–1200	Unconformably overlies Pertatataka Formation in Gardiner Range.
PROTEROZOIC	Pertatataka Formation (Pup)	Red, green siltstone; shale; thin limestone and sandstone beds.	2200–4000	
	Areyonga Formation (Pua)	Pale brown, white, medium calcareous quartz sandstone; green tillitic siltstone; conglomerate.	0–1300	Disconformably overlies Bitter Springs Formation. Tillitic siltstone and conglomerate may or may not be present.
				DISCONFORMITY
	Bitter Springs Formation (Pub)	Dark grey dolomitic and cherty limestone; siltstone; evaporites.	2500	Conformably overlies the Heavitree Quartzite.
	Heavitree Quartzite (Puh)	White, pale brown, purple, medium and coarse quartzite and silicified silty quartz sandstone; silicified sandstone; siltstone.	500	
				UNCONFORMITY
PRECAMBRIAN	Arunta Complex (pCa)	Gneiss, schist, amphibolite, quartzite, granite, dolerite, pegmatite.		
	(pCg)	Granite		
	(pCq)	Metaquartzite, quartz sericite schist.		

Tectonics : The Arunta Complex was folded and metamorphosed during the Proterozoic Arunta Orogeny.

Following a considerable time of erosion of the basement the Heavitree Quartzite and Bitter Springs Formation were deposited in the sea during a period of tectonic stability. The overlying sediments were deposited in times disturbed enough to cause disconformities and minor unconformities until the late Ordovician Rodingan Movement when much of the area upwarped above sea level and part of the Larapinta Group eroded.

The Mereenie Sandstone was then deposited during a period of broad vertical movement in Siluro-Devonian times; largely continental in origin. The Upper Devonian Pertnjara Movement led to deposition of the Pertnjara Group in a continental environment during the Upper Devonian and Lower Carboniferous.

During the Alice Springs Orogeny nappes developed in the rocks below the Bitter Springs Formation and caused the overlying rocks to slide southwards, thus rendering the Missionary Plain Syncline less simple than it would otherwise have been.

4.3 ECONOMIC GEOLOGY

Besides water and stone for building, the area has only the presence of oil and gas as economic minerals. The Bitter Springs Formation includes some evaporites. A minor lignite deposit is known to occur in a Tertiary depression south of Alice Springs.

The 9,300m thickness of sedimentary sequence exposed in the MacDonnell Ranges includes possible source beds, reservoir beds and cap-rock for oil and natural gas. Natural gas was found in the Larapinta Group in the two holes drilled by petroleum companies. Drill stem testing in Palm Valley No. 1 Well of four intervals within the Stairway Sandstone, Horn Valley Siltstone and Pacoota Sandstone yielded a total of 14 million cubic feet per day of natural gas (Magellan Petroleum 1965).

The Owen Springs Copper Prospect (see Section 3.4), in the Waterhouse Range, is the only other known locality of minerals in the area.

The UAL find of uranium, south of Alice Springs, in the Brewer Conglomerate indicated the possibility of further finds being made in the same formation. (Ferguson, 1974).

5. PROSPECTIVE TARGETS AND AREAS

During the UAL 1972 Central Australian Reconnaissance (Geidans, 1973), it was recognized that the Brewer Conglomerate was a prospective target formation, being a continental sediment geotectonically related to the Arunta Block which provides a potential uranium source. An anomaly recorded over it appeared to substantiate this claim. The operator of the GAM-2 and navigator at the time was L. Geidans and he failed to locate the source of the anomaly. The anomaly was not re-located in the 1973 air or ground surveys, so in puzzlement the writer went to the original GAM-2 chart and found the alleged anomaly resembled very closely 'anomalies' recorded in the Gippsland Basin Survey, also in a helicopter, which were caused by H.F.radio transmission when the pilot communicated with Air Traffic Control. The irony of the situation was the discovery of mineralization at Ewaninga.

Other possible target formations in the area in question are the Tertiary Conglomerates, the Hermannsburg Sandstone, the Parke Siltstone and the Mereenie Sandstone, being all of continental origin. Further, the Heavitree Quartzite as the basal sedimentary sequence directly overlying the Arunta Complex is a target. The Arunta Complex, which in itself and in particular close to the unconformity, has potential for vein type deposits.

These formations form the north side and southern ridges, rounded hills and foot hills of the MacDonnell Ranges.

The Tertiary Conglomerate occurs mostly as mesas between creeks, flat topped and often thickly wooded with banks of quartz pebbles at the edges.

The Brewer Conglomerate lies beneath large expanses of the Missionary Plain, evidently not far below the plain surface, for the vegetation tends to reflect the structure of the formation. On aerial photographs these areas of shallow overburden appear to be outcrop. Ground survey work proved they were not outcrop, though shown to be so on the geological 1:250,000 map.

6. I N V E S T I G A T I O N S

During the 1973 field season work was conducted on the tenements in three sessions:

a) fixed-wing aerial spectrometric survey (June)

b) carborne spectrometric survey (August)

c) helicopter spectrometric survey, including some ground checks (October and November).

6.1 RADIOMETRIC AIRBORNE SURVEY

The initial survey was by fixed-wing. A carborne survey was started later and found to be very slow. Helicopter-borne work was conducted as a quicker alternative to carborne work.

6.1.1 Fixed-wing Survey

A Cessna 206 was employed. Alice Springs was used as a base. Some technical details follow:

Date of survey : 19th - 21st June.

Instrument : GAM-2 4 channel differential spectrometer, with 4 x 5 inch (101.6 x 127mm) NaI crystal.

Time constant : 2 seconds.

Chart speed : 1mm per second.

Survey speed : 70 to 80 knots depending on weather conditions.

Altitude : 20 - 60 metres.

Total survey distance : 1,500km.

Survey time : 12½ hours.

Positioning time : 5 hours.

Area covered : 3,100 sq.km.

Fuel consumption : Survey : 8 gallons (36.4 litres) per hour.
Positioning : 12 gallons (54.6 litres) per hour.

Average daily flying time : 5¾ hours.

Flight lines (Map 1) over the Arunta Complex, north of the MacDonnell Ranges, covered the basement at about 500m and 1,200m from the contact (the initial contact flight along the Heavitree Quartzite was conducted in July 1972 - Geidans 1973) and over the metaquartzites of the Chewinga Range. South of the Heavitree Quartzite the flight-lines were north-south at 1 mile to 1½ mile spacings over the tenement area.

6.1.2 Helicopter Survey

The GAM-2 was also carried on survey work by a Bell 47J 2A Alpine helicopter. Some flying was done out of Alice Springs, but most of it from a bush camp 8 miles north-east of Hermannsburg.

Technical data are as follows:

Date of survey : 29th October to 11th November, 1973.

Instrument : GAM-2 (details as above).

Time constant : 2 seconds.

Chart speed : 1mm per second.

Survey speed : 55 to 60 knots.

Altitude : 20 - 50 metres.

Total survey distance : 3,000km.

Total flying time : 57 hours 37 minutes.

6.3.1 Geological Mapping

The BMR 1:250,000 scale sheet of Hermannsburg, SF 53-13, was used for navigation purposes in the June 1973 fixed-wing survey and the flight line map subsequently made as an overlay to this sheet also incorporated the relevant geology. This is Map 1.

Map 2 (NT-1073-2c) is 1:80,000 photoscale of interpreted geology (based on the 1:250,000 scale Hermannsburg Sheet above) and carborne radiometric survey lines of August 1973. Photos used were Hermannsburg Run 9/076, Run 10/048.

Maps 3 and 4 (NT-1123-2c and NT-1124-2c) are 1:82,000 scale photoscale interpreted geology (based on the 1:250,000 scale Hermannsburg Sheet) with the helicopter-borne survey lines of October-November 1973 and Exploration Licence boundaries added.

6.3.2 Sampling

Two grab samples G128 and G129, were taken during the carborne survey and two, G158 and G159, were taken during the helicopter survey.

7. RESULTS

7.1 RADIOMETRIC ANOMALIES

Numerous low intensity anomalies ($\leq$ 2 b/g) were recorded in each survey.

Of the one hundred and three anomalies recorded in the aerial surveys many, those which would be inaccessible or difficult to reach by vehicle, were reflown in close zig-zag by helicopter. Only three of these repeated convincingly - anomalies No. 30, 31 and 58.

Background is taken as the average cps on the Uranium Channel of the GAM-2 charts of each formation surveyed.

Table 2 compares, to some extent, the differences of background readings from fixed-wing survey to helicopter survey, and these to carborne survey. Not surprisingly, values are higher in backgrounds recorded in carborne work compared with airborne work.

Anomalies recorded by airborne surveys are listed in Table 4. All anomalies are twice background.

Carborne anomalies recorded are listed in Table 5. It can be seen in this table that some of the anomalies did not repeat when immediately re-surveyed.

The fact that the majority of the carborne and many of the airborne kicks occur over creek beds or alluvium indicates the probability that a stream sediment sampling programme might be a success in giving some indication of source.

7.2 GROUND INSPECTIONS

The term "conglomerate" was found to be somewhat loosely applied in the case of both the Brewer Conglomerate and Tertiary Conglomerate for, though the hills and edges of the Tertiary mesas were covered with mainly quartzite pebbles and

BACKGROUND VALUES OF U CHANNEL, GAM-2 SURVEYS   Table 2

Formation	Symbol	Backgrounds in cps. Fixed-wing	Helicopter	Carborne
Quaternary, alluvium	Qa	5-6	5	8-10
sand	Qs	6	5	
Tertiary Conglomerate	Tc	7	6	9-12
Brewer Conglomerate	Pzb	4-9	5-6	9
Hermannsburg Sandstone	Pzr	5	4	-
Mereenie Sandstone	Pzm	4	4	-
Stokes Siltstone	Ot	6	6	-
Stairway Sandstone	Os	6	6	-
Horn Valley Siltstone	Oh	6	6	-
Pacoota Sandstone	Є-Op	6	6	-
Goyder Formation	Єg	6	5	-
Jay Creek Sandstone	Єj	5	5	-
Hugh River Shale	Єh	5	-	-
Arumbera Sandstone	Єa	5	-	-
Pertatataka Formation	Pup	5	-	-
Areyonga Formation	Pua	6	-	-
Bitter Springs Formation	Pub	5	-	-
Heavitree Quartzite	Puh	5	-	-
Arunta Complex	pЄa	5-9	7-9	9-12

cobbles, the outcrop observed was of gritty sandstone to arkosic siltstone and occasional laminae of mudstone. The pebbles and cobbles occur irregularly and infrequently in this matrix.

Within the Hermannsburg Sandstone definite thin (1 metre) conglomerate horizons were observed on Ellery Creek.

The conglomeratic appearance of the Brewer and Tertiary Conglomerates is therefore probably explained by assuming the weathering process and transportation to have removed the matrix and concentrated the pebbles and cobbles on the surface.

Nonetheless, the grits, sandstones and siltstones of these formations appear to be suitable host rocks for uranium mineralization, though none was found.

7.3 ASSAY RESULTS OF GRAB SAMPLES

Table 3

Sample No.	ppm U_3O_8	ppm Th	Anomaly No.
G128	BLD	20	Airborne, 1
G129	BLD	20	Carborne, 37
G158	10	20	Airborne, 58
G159	BLD	40	Airborne, 30

BLD = Below level of detection, i.e. <10 ppm by x-ray fluorescence method.

Analysts : Labtech, Midland, W.A.

Needless to say, these results are not encouraging.

It appears the window of the GAM-2 is not completely accurate, for it has been observed in other areas (notably N.E. Arunta) that apparent uranium kicks tend to yield thorium rich samples.

ANOMALIES RECORDED IN AIRBORNE SURVEYS — Table 4

(See Maps 1, 3 and 4)

Anomalies 1 to 59 by fixed-wing - 60 to 103 by helicopter

No.	Formation	Symbol	Remarks
1	Arunta Complex	pꞒa	granite, sample G128.
2	" "	pꞒa	" " "
3	" "	pꞒa	granite in col, doubtfully re-located by helicopter check.
4	" "	pꞒa	granite, not repeated.
5	" "	pꞒa	granite, relocated by helicopter
6	" "	pꞒa	" " " "
7	" "	pꞒa	granite, not repeated.
8	" "	pꞒa	granite, not followed up.
9	Brewer Congl.	Pzb	kick not repeated.
10	" "	Pzb	not repeated, by helicopter or carborne.
11	" "	Pzb	" " " " "
12	" "	Pzb	not yet followed up.
13	" "	Pzb	" " " "
14	" "	Pzb	doubtfully relocated by helicopter
15	" "	Pzb	convincingly repeated by heli-copter, edge of Ellery Creek.
16	Tertiary Congl.	Tc	possibly repeated by kick 91, helicopter-borne.
17	Brewer Congl.	Pzb	not repeated.
18	Tertiary Congl.	Tc	" "
19	Quaternary alluvium	Qa	not yet followed up.
20	"	Qa	" " " "
21	Tertiary Congl.	Tc	" " " "
22	" "	Tc	" " " "
23	" "	Tc	not convincingly repeated.
24	" "	Tc	tentatively repeated.
25	" "	Tc	" "
26	" "	Tc	not yet followed up.
27	" "	Tc	tentatively repeated.
28	Brewer Congl.	Pzb	close to Anom. 90, but neither were repeated on check survey.
29	Contact, Brewer Congl. on Hermannsburg Sst.	Pzb/ Pzr	not checked (off EL).
30	Tertiary Congl.	Tc	repeated convincingly, sample G159.
31	Quaternary alluvium	Qa	repeated convincingly, flood plain.
32	Brewer Congl.	Pzb	not checked.
33	Quaternary alluvium	Qa	" "
34	Brewer Congl.	Pzb	not repeated.
35	Quaternary alluvium	Qa	" "
36	Brewer Congl.	Pzb	tentatively repeated.
37	" "	Pzb	not repeated.
38	Tertiary Congl.	Tc	not yet followed up.

Table 4 (cont'd)

No.	Formation	Symbol	Remarks
39	Brewer Congl.	Pzb	not yet followed up.
40	" "	Pzb	" " " "
41	" "	Pzb	not repeated.
42	Quaternary alluvium	Qa	" "
43	Brewer Congl.	Pzb	" "
44	" "	Pzb	tentatively repeated.
45	Quaternary alluvium	Qa	not followed up.
46	Tertiary Congl.	Tc	not yet followed up (accessible).
47	" "	Tc	" " " " "
48	Brewer Congl.	Pzb	not repeated.
49	Stokes Siltstone	Ot	repeated.
50	Brewer Congl.	Pzb	"
51	Quaternary alluvium	Qa	not yet followed up.
52	Brewer Congl.	Pzb	not repeated.
53	Hermannsburg Sst.	Pzr	" "
54	Tertiary Congl.	Tc	not yet followed up.
55	Quaternary alluvium	Qa	" " " "
56	"	Qa	" " " "
57	Brewer Congl.	Pzb	not repeated.
58	Tertiary Congl.	Tc	repeated, sample G158.
59	" "	Tc	not repeated.
60	Jay Creek Limestone	Єj	repeated.
61	Brewer Congl.	Pzb	"
62	" "	Pzb	not repeated.
63	Goyder Formation	Єg	" "
64	Brewer Congl.	Pzb	tentatively repeated.
65	Pacoota Sst.	Є-Op	not repeated.
66	Goyder Formation	Єg	" "
67	Brewer Congl.	Pzb	tentatively repeated.
68	" "	Pzb	not repeated.
69	" "	Pzb	" "
70	Horn Valley Siltstone	Oh	" "
71	"	Oh	repeated.
72	"	Oh	not repeated.
73	Brewer Congl.	Pzb	" "
74	" "	Pzb	" "
75	" "	Pzb	" "
76	Quaternary alluvium	Qa	" "
77	Tertiary Congl.	Tc	tentatively repeated.
78	Brewer Congl.	Pzb	not repeated.
79	" "	Pzb	" "
80	" "	Pzb	" "
81	" "	Pzb	" "
82	Tertiary Congl.	Tc	tentatively repeated.

Table 4 (cont'd)

No.	Formation	Symbol	Remarks
83	Quaternary alluvium.	Qa	not repeated.
84	Brewer Congl.	Pzb	repeated.
85	Stokes Siltstone	Ot	not repeated.
86	" "	Ot	" "
87	Brewer Congl.	Pzb	" "
88	" "	Pzb	tentatively repeated.
89	Quaternary alluvium	Qa	not yet followed up.
90	Brewer Congl.	Pzb	not repeated.
91	Tertiary Congl.	Tc	repeat of Anomaly 15.
92	" "	Tc	not yet followed up.
93	Brewer Congl.	Pzb	" " " "
94	" "	Pzb	" " " "
95	" "	Pzb	" " " "
96	Tertiary Congl.	Tc	" " " "
97	Quaternary alluvium	Qa	" " " "
98	Brewer Congl.	Pzb	not repeated.
99	" "	Pzb	not followed up.
100	" "	Pzb	not repeated.
101	Goyder Formation	Єg	not yet followed up.
102	Mereenie Sst.	Pzm	" " " "
103	Brewer Congl.	Pzb	not repeated.

ANOMALIES RECORDED IN CARBORNE SURVEY

Table 5

(See Map 2)

No.	Formation	Symbol	Remarks
1	Quaternary alluvium	Qa	definite, but not convincingly repeated.
2	"	Qa	repeated.
3	"	Qa	high background, close to Tc.
4	"	Qa	" " " " "
5	Tertiary Congl.	Tc	edge of Tc outcrop.
6	Brewer Congl.	Pzb	side of creek.
7	" "	Pzb	not convincingly repeated.
8	" "	Pzb	" " "
9	" "	Pzb	top of outcrop.
10	" "	Pzb	valley.
11	" "	Pzb	sequence of kicks in valley.
12	Quaternary alluvium	Qa	flood plain.
13	"	Qa	" "
14	Tertiary Congl.	Tc	" "
15	" "	Tc	close sequence of kicks.
16	" "	Tc	" " " "
17	" "	Tc	" " " "
18	Quaternary alluvium	Qa	edge of Tc.
19	"	Qa	" " "
20	Tertiary Congl.	Tc	
21	" "	Tc	
22	Quaternary alluvium	Qa	flood plain.
23	"	Qa	" "
24	"	Qa	" "
25	Brewer Congl.	Pzb	rubble and sub-outcrop.
26	" "	Pzb	" " " "
27	" "	Pzb	" " " "
28	Quaternary alluvium	Qa	edge of flood plain
29	Tertiary Congl.	Tc	edge of flood plain, good kick.
30	Quaternary alluvium	Qa	" " " " " "
31	"	Qa	edge of flood plain.
32	Tertiary Congl.	Tc	" " " "
33	Quaternary alluvium	Qa	creek course in Tc.
34	"	Qa	" " " "
35	Brewer Congl.	Pzb	" " " Pzb.
36	" "	Pzb	" " " "
37	Quaternary alluvium	Qa	sample G129.
38	"	Qa	creek side, large kick.
39	"	Qa	" " " "
40	"	Qa	" " " "
41	Tertiary Congl.	Tc	creek.

Table 5 (cont'd)

No.	Formation	Symbol	Remarks
42	Quaternary alluvium	Qa	edge of Tc.
43	Arunta Complex	pꞒa	widely fluctuating background, granitic rocks.
44	" "	pꞒa	sample G118, granite.
45	" "	pꞒa	basement.
46	" "	pꞒa	"
47	" "	pꞒa	"
48	" "	pꞒa	basement, in vicinity of airborne anomaly.
49	" "	pꞒa	basement, in vicinity of airborne anomaly, boosted by Th.
50	" "	pꞒa	basement, boosted by Th.

8. ASSESSMENT

That the main target formation, the Brewer Conglomerate, is a potential host rock for uranium has already been demonstrated by the Ewaninga mineralization.

The fairly numerous kicks recorded in the spectrometric surveys support this, though the assay results as yet do not.

The investigations during the 1974 field season should produce more conclusive results.

9. RECOMMENDATIONS

The detailed work on EL 845 (Ferguson, 1974) showed the Undandita Member of the Brewer Conglomerate to be the host horizon for the uranium mineralization discovered. Consequently, an attempt should be made to determine the distribution of this unit in the area of investigation. Along the main creek courses good outcrop can be expected. In areas largely covered by overburden, shallow stratigraphic drilling could assist in mapping.

The drainage pattern in the area, with all the creeks flowing roughly south off the hills of the Hermannsburg Sandstone and the Brewer Conglomerate, appears to be suitable for a programme of stream-sediment sampling.

Considerable work is still required in carborne radiometry over selected areas with airborne anomalies.

Promising anomalies will be gridded, systematically surveyed by scintillometer to determine the extent of the anomalies, and trenched for inspection of lithology and seeking of mineralization.

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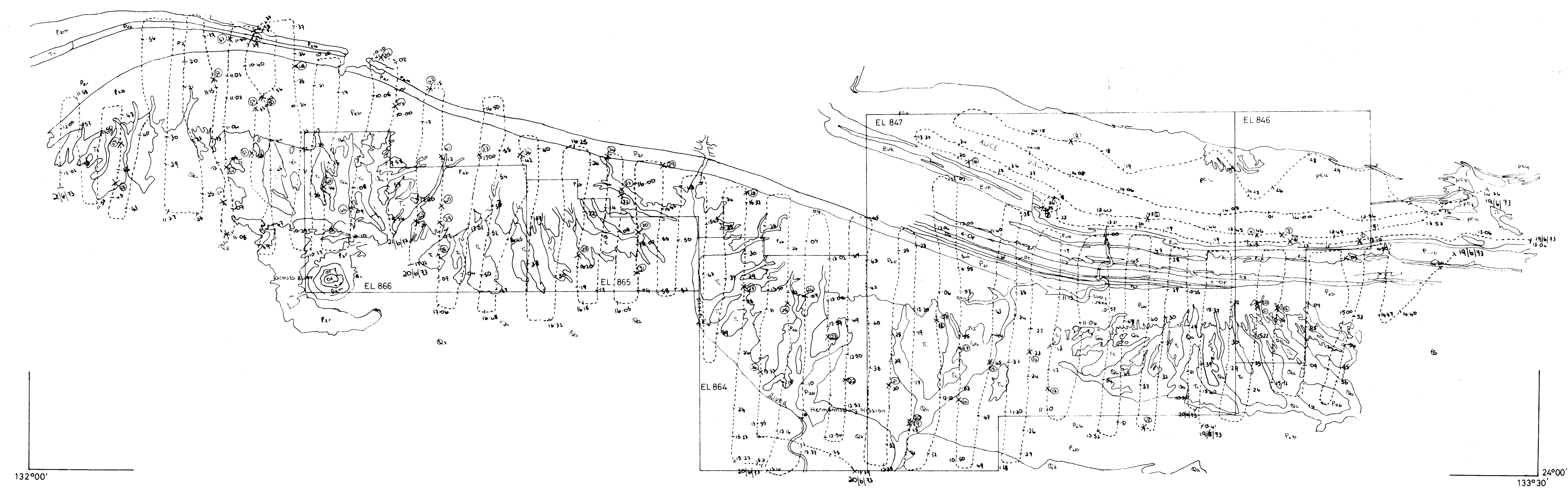
Geidans, L.	1973 :	UAL Report No. 3, Radiometric Airborne and Ground Reconnaissance Survey in Central Australia, 13th June - 25th July, 1972.
Moss, F.J.	1964 :	Gosses Bluff Seismic Survey, Amadeus Basin, Northern Territory, 1962. BMR Rec. 1964/66 (unpublished).
Quinlan, T. Forman, D.J.	1968 :	1:250,000 Geological Series, Explanatory Notes, Hermannsburg, Northern Territory, Sheet SF 53-13 International Index BMR.

HERMANNSBURG



- - - - AIRBORNE RADIOMETRIC TRAVERSES
- - X - - - ANOMALIES

5 0 10 km

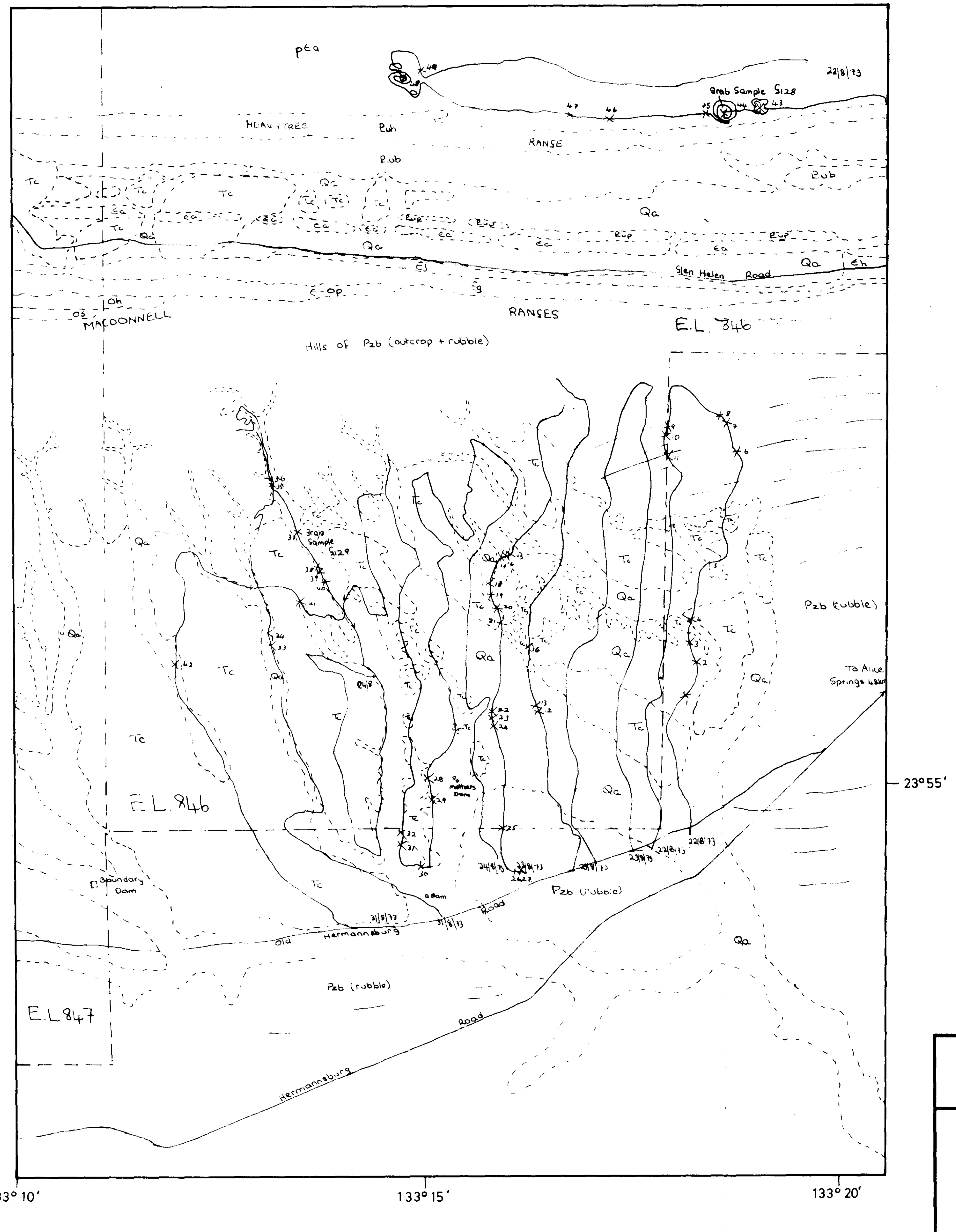
1 : 250 000

URANERZ (AUSTRALIA) PTY. LTD.

HERMANNSBURG
PR. 2c. SHEET SF. 53. 13.

RADIOMETRIC AIRBORNE SURVEY

GEOLOGY: IL	DATE: JULY 73	TENEMENT:	MAP No. 1
DRAWN: IL	DATE: JULY 73	NT-1041-2c	REPORT No. 27
T.C: UAL, UEB	SCALE: 1:250,000		PROJECT No. 2c.
P.C: UAL, UEB	REF: SF 53 13 GEOL & TOPO		



Carborne radiometric traverse
EL boundary
Formation boundary
Trend lines
x2 Anomalies

Qa	Alluvium
Tc	Tertiary conglomerate
Pzb	Brewer "
Os, Oh, €-Op, €g, €j, €a.	Cambrian & Ordovician seds.
Ꝑup, Ꝑub, Ꝑuh.	Proterozoic seds.
Ꝑea	Arunta complex

800m 0 2 4 km

1 : 80 000

URANERZ (AUSTRALIA) PTY. LTD.

EL 846

CARBORNE RADIOMETRIC SURVEY
WESTERN EXTENSION OF BREWER CONGLOMERATE

GEOLOGY: RO PA	DATE: SEP 73	TENEMENT:	MAP No. 2
DRAWN: RO PA	DATE: " "	NT - 1073 - 2c	REPORT No. 27
T.C: UAL, UEB	SCALE: 1: 80,000		PROJECT No. 2c
P.C: UAL, UEB	REF: PHOTOS HERMANSBURG RUN 9/076. RUN 10/048.		

LEGEND

QUATERNARY	Qa	ALLUVIUM
TERTIARY	Tc	CONGLOMERATE
DEVONIAN TO CARBONIFEROUS	Pzb	BREWER CONGLOMERATE
	Pzr	HERMANNSBURG SANDSTONE
	Pzk	PARKE SILTSTONE
ORDOVICIAN TO DEVONIAN	Pzm	MEREENIE SANDSTONE
CAMBRIAN TO ORDOVICIAN	€ Ol	UNDIFFERENTIATED
	Oc	CARMICHAEL SANDSTONE
	Ot	STOKES SILTSTONE
	Os	STAIRWAY SANDSTONE
	Oh	HORN VALLEY SILTSTONE
	€Op	PACOOTA SANDSTONE
CAMBRIAN	€g	GOYDER FORMATION
	€j	JAY CREEK LIMESTONE
	€h	HUGH RIVER SHALE
	€a	ARUMBERA SANDSTONE
	€e	PETERMANN SANDSTONE
PROTEROZOIC	Pup	PERTATATAKA FORMATION
	Pua	AREYONGA FORMATION
	Pub	BITTER SPRINGS FORMATION
	Puh	HEAVITREE QUARTZITE
	p€a	ARUNTA COMPLEX

21	HELICOPTER FLIGHT LINES AND TIME
-----	GEOLOGICAL BOUNDARY
——	ROAD
●45	RADIOMETRIC ANOMALY

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EWANINGA WESTERN EXTENSION

HELICOPTER RADIOMETRY AND GEOLOGY

GEOLOGY: JO J, IL	DATE: DEC 73	TENEMENT:	MAP No. 3
DRAWN: JO J EA	DATE: JAN 74	NT-1123-2c	REPORT No. 27
T.C: UAL, UEB	SCALE: 1:86,000. Approximately		PROJECT No. 2c
P.C: UAL, UEB	REF:		

LEGEND

QUATERNARY	Qa	ALLUVIUM		Єg	GOYDER FORMATION
				Єj	JAY CREEK LIMESTONE
TERTIARY	Tc	CONGLOMERATE	CAMBRIAN	Єh	HUGH RIVER SHALE
				Єa	ARUMBERA SANDSTONE
	Pzb	BREWER CONGLOMERATE		Єe	PETERMANN SANDSTONE
DEVONIAN TO CARBONIFEROUS	Pzr	HERMANNSBURG SANDSTONE		Ɍup	PERTATATAKA FORMATION
	Pzk	PARKE SILTSTONE		Ɍua	AREYONGA FORMATION
ORDOVICIAN TO DEVONIAN	Pzm	MEREENIE SANDSTONE	PROTEROZOIC	Ɍub	BITTER SPRINGS FORMATION
				Ɍuh	HEAVITREE QUARTZITE
	Є Ol	UNDIFFERENTIATED		pЄa	ARUNTA COMPLEX
	Oc	CARMICHAEL SANDSTONE			
CAMBRIAN TO ORDOVICIAN	Ot	STOKES SILTSTONE		21	HELICOPTER FLIGHT LINES AND TIME
	Os	STAIRWAY SANDSTONE		- - - -	GEOLOGICAL BOUNDARY
	Oh	HORN VALLEY SILTSTONE		——	ROAD
	ЄOp	PACOOTA SANDSTONE		●45	RADIOMETRIC ANOMALY

2·15 0 6·5 km

1 : 86 000 Approx.

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EWANINGA WESTERN EXTENSION

HELICOPTER RADIOMETRY AND GEOLOGY

GEOLOGY: JO J, IL	DATE: DEC 73	TENEMENT:	MAP No. 4
DRAWN: JO J EA	DATE: JAN 74	NT-1124-2c	REPORT No. 27
T.C: UAL. UEB	SCALE: 1: 86,000. Approximately		PROJECT No. 2c
P.C: UAL. UEB	REF:		

URANERZ (AUSTRALIA) PTY. LTD.

SUPPLEMENT REPORT

TO

UAL REPORT NO. 27

EXPLORATION ON

EL NOS. 846, 847, 864, 865 AND 866

WESTERN EXTENSION, EWANINGA

ALICE SPRINGS, N.T.

DECEMBER 1973 - JUNE 1974

COMPILED BY

H. WOBER

FROM FIELD REPORTS BY

G.D. ILIFF

AND COMPANY RECORDS

PERTH JULY 1974

URANERZ (AUSTRALIA) PTY. LTD.

WO/CBB

S U M M A R Y

Exploration work on EL Nos. 846, 847, 864, 865 and 866 in the first year of occupancy consisted of, initially, a fixed wing airborne radiometric spectrometer survey, followed by carborne work using the same instrumentation. When the terrain proved too difficult for a complete coverage by vehicle, this was replaced by a closely spaced low level helicopter survey. Numerous weak spot-highs were located which, however, could not be substantiated by ground checks.

Geological mapping on a regional scale to differentiate between members of the Brewer Conglomerate was started.

A widespaced stream sediment orientation survey was carried out as well.

Results to date are not encouraging, however, in view of the indications of secondary mineralization on EL 845 to the east, the extensive drift cover masking the area and the similarity of geological environment, not only with that of EL 845 but also of other sandstone-type uranium camps of the world, a continued effort is warranted.

Further work, employing radon detection methods, detailed geological mapping and shallow stratigraphic drilling is aimed at delineating targets at depth.

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LIST OF MAPS

1. INTRODUCTION

The Exploration Licences described in this report have been held by the company since 7th June, 1973. After completion of the 1973 exploration season a comprehensive report - UAL Report No. 27 - was prepared, summarizing the results to the end of 1973.

The present Supplement Report is designed to describe the work carried out in 1974 to 6th June, 1974, which is the end of the first year of tenure of the Exploration Licences.

As in the past, the work on these Exploration Licences is described in a joint report, because it was carried out as an integrated project and also because the results to date have not given rise to the distinction of one particular EL or to further advanced stages of work on any one of them.

Together with UAL Report No. 23, this report is to fulfil the company's obligations under Section 38 O(2) of the Mining Ordinances.

2. WORK BETWEEN DECEMBER 1973 AND JUNE 6, 1974

After a seasonal break for assessment and due to extensive flooding of the area this year, which made access on the ground impossible, work resumed at the end of March.

Although the radiometric surveys carried out in 1973 did not result in any encouragement, the indications on EL 845 showed that the area is nevertheless prospective and that minerali- zation at depth may be present without any surface expression.

The initial work was therefore designed to closer delineate the prospective member of the Brewer Conglomerate by geological mapping.

2.1 GEOLOGICAL MAPPING

Field Party No. 2, consisting of two geologists, started this work towards the end of March, after having been familiarized with the lithology of the different members with the help of drill core obtained from EL 845.

The work was still impeded by heavy rains at that time, which made travel in the terrain very difficult. Later on the mapping was continued with the aid of a helicopter which made access easier and facilitated the better spotting of outcrop areas.

The mapping was recorded on airphoto mosaics of 1:79,200 scale.

2.2 STREAM SEDIMENT SAMPLING

The stream sediment sampling programme was carried out by helicopter. The drainage pattern of this area appears to be favourable for this type of investigation. Pre-selected sample localities, indicated on a drainage plan overlay to airphoto mosaics, were visited as closely as conditions allowed landing. Enough material was taken in each sample to allow splitting later to make a duplicate set to be sent to the Department of Minerals and Energy. As fine a sediment as available was taken. 138 samples were taken by helicopter and 10 by vehicle, giving a total of 148 samples. Radiometric readings were taken at each locality.

2.3 RADIOMETRIC SURVEYS

Radiometric measurements with a SRAT SPP2 scintillometer were taken during stream sediment sampling and geological mapping. No anomalous values were obtained. Ground checking and some helicopter-borne GAM-2 work with the aim of relocating some of the 1973 low intensity airborne anomalies were cut short due to instrument troubles and will be resumed at a later date.

3. R E S U L T S

3.1 GEOLOGICAL MAPPING

The distinction between the Brewer Conglomerate and the Undandita Member, as described by Jones (1972), was found in many exposures to be less easy to determine than his convenient criteria of the type sections of the two formations. The Brewer Conglomerate is described as being made up of post-Arunta Complex clasts. It was observed, however, in at least two localities that its top boulders are almost exclusively Arunta in origin, of gneiss, granite and schist. These conglomerates must be considered part of the Brewer.

The Undandita Member is well exposed at its type section locality in Umbarta Creek north-east of Gosses Bluff on the Haasts Bluff road. It consists of poorly consolidated strongly cross-bedded feldspathic sandstone with up to 30cm thick conglomerate bands and isolated pebbles scattered throughout. The clasts are almost exclusively derived from the Arunta Complex gneisses, metaquartzite and vein quartz. The colour is largely purplish red-brown grading into uncontinuous lens-shape portions with grey green colour. Cross-bedding and small occasional channel structures typify it as a fluviatile deposit.

The sediments cored in the area of EL 845 are very similar to those of the type section.

At the edges of the Undandita its differentiation from conglomeratic Brewer is not so clear. Conglomerates with pebbles up to 3cm in diameter are found in considerable thicknesses among sandstones, considered by the writer basal Undandita. In these conglomerates the pebbles are post Arunta. Another feature is the frequency of situations where definite 'Undandita' sandstones are equally definitely overlain by large masses of Brewer Conglomerate. This shows an interfingering of Brewer and Undandita at its northern contact.

At the eastern end of the tenements the two rock types can be distinguished by photo interpretation, because the Undandita is so clearly stratified, until the strata prove to be of conglomerate with post Arunta pebbles. These strata, however, are stratigraphically Undandita. Clearly the rock types are considerably interfingered and the conditions of deposition fluctuated somewhat before they stabilized to produce the rest of the Undandita. No signs of break in deposition were observed at the 'contact', such as unconformities or weathered planes, though the sandstones are well cross-bedded.

Investigation of the southern contact of the Undandita showed that it lies directly on the Hermannsburg Sandstone and the conglomerate-type Brewer is absent. This observation can be interpreted that the Brewer, i.e. the massive conglomerate, is missing and wedges out beneath the Missionary Plain. The Undandita strata must therefore be regarded as the further travelling fine representatives of the Brewer.

The southerly dips at the eastern end of the tenements are much steeper (60°) than the average near the Finke River (5-15°), while dips on the southern side of the basin are also gentle at about 10° northerly.

Maps 3 and 4.

3.2 STREAM SEDIMENT SAMPLING

Stream sediments were generally found to be very coarse, the bulk being boulders, pebbles and sand. Silt and clay fractions were very rare, as can be expected considering the climatic conditions and the rather high relief.

The stream sediment samples, therefore, consisted mostly of fine sand and occasional silt.

The results of the analyses must be seen both in the light of the nature of the samples and the lack of any surface expression of mineralization, as indicated by the negative results of all the radiometric airborne and carborne work. However, a noticeable contrast could be delineated for one area. Ground-checks and possibly more closely spaced sampling will be carried out to determine whether these rises are due to the presence of mineralization or if they represent background changes due to changes in lithology. The sampling was widely spaced in this survey and the entire effort should be regarded more as an orientation survey than as a geochemical appraisal of the area.

Statistically, background values are 1-2ppm U_3O_8, threshold values 2-3ppm with values $\geqq$ 5ppm becoming slightly anomalous. However, since the values of most of the samples are close to the lower detection limit of the analytical method used and, with the inherent lower accuracy in mind, conclusions drawn from any rise in values can only be tentative.

Maps 1 and 2.

4. ASSESSMENT AND CONCLUSION

The exploration work carried out on the EL's subject to this report has, to date, failed to delineate any specific targets. Weak indications of increased radioactivity in several spots from airborne and carborne work could generally not be substantiated. A low intensity 'contrast-area' found by a widespaced stream sediment survey needs further testing before any conclusions should be drawn from it.

The main feature of interest present on these EL's is the continuation of the Undandita Member of the Brewer Conglomerate from the more prospective EL 845 east of them.

Soil and Tertiary, as well as alluvial drift cover which is extensive over the whole area, may well mask secondary and/or primary mineralization which could not be detected with the methods applied to date.

Various methods of radon detection in conjunction with shallow stratigraphic drilling and more detailed geological mapping are the methods to be used in the future for a thorough exploration of these Exploration Licences.

5. PROGRAMME FOR FURTHER WORK

A programme for further work has already been submitted, together with the Company's application for renewal of the Exploration Licences, and remains unchanged as follows:

1) GEOLOGICAL MAPPING

Geological mapping in detail is to continue over all Exploration Licences with the aim of establishing if any structures can be recognized in the Undandita member which may favour the deposition of uranium mineralization or which may act as traps.

2) SHALLOW DIAMOND DRILLING

The geological mapping is to be aided by drilling for stratigraphic targets and to resolve structural problems where outcrop is scarce. This is to be carried out by company owned Jacro 200S rig which has been used successfully for this type of drilling in the past on EL 845.

Between two and three holes are regarded a minimum requirement for each Exploration Licence. The average depth is estimated to be 150 to 200 feet.

3) RECONNAISSANCE RADON EMANATION SURVEYS

Both the General Electric Track-Etch Method, as well as sniffing methods, will be applied on a reconnaissance scale over geologically preselected areas. This work is designed to locate possible mineralization at greater depth which does not have any surface expressions and which was therefore not located by the radiometric methods employed so far.

4) DIAMOND DRILLING

Depending on the results of the above programme, deeper diamond and/or percussion drilling is planned on specific targets. It is difficult at this time to estimate the total footage for this phase of the programme

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HERMANNSBURG
SHEET 1

STREAM SEDIMENT SURVEY
SAMPLE DETAILS

GEOLOGY: IL	DATE: APR 74	TENEMENT:	MAP No. 1
DRAWN: EA	DATE: MAY 74	NT-2004-2c	REPORT No. APRIL
T.C: UAL, UEB	SCALE: 1: 80 000		PROJECT No. 2c
P.C: UAL, UEB	REF:		

S121 ● 2 Sample number with U_3O_8 result in ppm
● B Below detection


URANERZ (AUSTRALIA) PTY. LTD.
HERMANNSBURG
SHEET 2
STREAM SEDIMENT SURVEY
SAMPLE DETAILS
GEOLOGY: IL
DRAWN: EA
T.C: UAL, UEB
P.C: UAL, UEB
DATE: APR 74
DATE: MAY 74
SCALE: 1:80 000
REF:
TENEMENT: NT-2005-2c
MAP No. 2
REPORT No. APRIL
PROJECT No. 2c
S267 ● 2 Sample number with U_3O_8 result in ppm
● B Below detection
800m 0 2 4km
1:80 000
N
HERMANNSBURG 2
EL 846
EL 847
JERIMAH
CREEK
ELLERY
HERMANNSBURG MISSION
10/034
8/147
9/088
9/161
9/074
10/046

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HERMANNSBURG
SHEET 1

GEOLOGY OF BREWER CONGLOMERATE
AND UNDANDITA MEMBER

GEOLOGY: IL	DATE: APR 74	TENEMENT:	MAP No. 3
DRAWN: EA	DATE: MAY 74	NT-112-2c	REPORT No. APRIL
T.C: UAL. UEB	SCALE: 1: 80 000		PROJECT No. 2c
P.C: UAL. UEB	REF:		


8/147
9/088
9/161
9/074
10/034
10/046
Brewer
Conglomerate
Undandita
Member
Hermannsburg
Sandstone
b+sst
1:80 000
800m 0 2 4km
HERMANNSBURG
Inferred boundary
Undandita
Brewer
Hermannsburg
URANERZ (AUSTRALIA) PTY. LTD.
HERMANNSBURG
SHEET 2
GEOLOGY OF BREWER CONGLOMERATE
AND UNDANDITA MEMBER
GEOLOGY: IL
DATE: APR 74
TENEMENT:
NT-III-2c
MAP No. 4
DRAWN: EA
DATE: MAY 74
REPORT No. APRIL
T.C: UAL. UEB
SCALE: 1:80 000
PROJECT No. 2c
P.C: UAL. UEB
REF: