E.L. 4857 - MT. THOMAS
TOLMER PROJECT, N.T.
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P. MELVILLE
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I. INTRODUCTION

1.1 GENERAL

This report encompasses the exploration activities carried out on E.L. 4857 during the 1988 field period. The tenement is being explored by a joint venture agreement between TOTAL Mining Australia Pty. Limited (T.M.A.) and the Power Nuclear Corporation of Japan (PNC).

The geological similarities of the region to that of the Alligator Rivers Uranium Field prompted T.M.A. to mount an exploration programme based on that model.

1.2 DESCRIPTION OF THE AREA

The tenement is located approximately 110 km south of Darwin in the Reynolds River catchment zone, being part of the Tipperary Pastoral Company. The southern boundary at latitude 13° 29' is located just north of the main Daly River-Adelaide River road; other boundaries are within longitude 130° 46' - 130° 56' and the extreme northern tip at latitude 13° 19'. The E.L. has been reduced to 55 sub-blocks, approximating 179 km².

1.3 LOGISTICS

Access to the main areas of interest within the E.L. is good during the dry season. The Burrell Creek Formation generally forms flat open country except within 0.5 to 1 km of the contact with the Tolmer Sandstone. In places vehicle access onto the Tolmer Sandstone is possible and can be easily traversed by 4-WD. Various station and tourist tracks feed off the main road into all areas.

The principal drainages are the north flowing Reynolds River and south flowing Hayward Creek; many tributaries carry run-off from the sandstone country into Hayward Creek. Flash-flooding occurs during the wet season build-up in many watercourses. The wet season rains make much of the country impassable.
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TENEMENT SITUATION
II. GEOLOGY

2.1 REGIONAL SETTING AND STRATIGRAPHY

The Joint Venture Licences are located on the western edge of the Pine Creek Geosyncline. The main rock types are sediments ranging in age from Lower Proterozoic to Adelaidean; Carpentarian granites intrude these sediments. The Litchfield Complex of ?Archaean to Lower Proterozoic age occurs to the northwest. The Cambrian Daly River Group obscures much of the Lower Proterozoic-Adelaidean rocks both west and east of the tenement area.

The stratigraphy is as follows (from N.T.G.S., 1983):

ARCHAEOAN–EARLY PROTEROZOIC: Litchfield Complex comprising high grade metamorphics which appear to include sediments, basic to intermediate rocks and anatctic granites. These are located to the northwest of the project area.

EARLY PROTEROZOIC: Burrell Creek Formation comprising variably metamorphosed sandstones and siltstones. Includes pebble and conglomeratic facies, graphitic shales/schists and some carbonate rocks (Pfb).

LATE PROTEROZOIC:

(i) Carpentarian syn-orogenic to post-orogenic granites. Represented by the Mt. Litchfield, Allia Creek and Jammine granites and the Soldiers Creek granite at Collia (Pxgl, Pxga, Pxgi and Pgs).

(ii) ?Early Adelaidean Tolmer Group. Comprises four formations:

+ Depot Creek Sandstone: thickly bedded medium to coarse quartz arenite (450 m) (Ptd).

+ Stray Creek Sandstone: flaggy micaceous, ripple marked quartz arenite (300 m) (Pts).

+ Hinde Dolomite: dolomite, dolomitic shales and arenites, quartz arenites (+ 314 m) (Pth).

+ Waterbag Creek Formation: red mudstone with thin arenite layers (non-outcropping) (+ 134 m) (Ptw).

(iii) Late Adelaidean Uniya tillite (0 - 30 m) (Put).

PALAEOZOIC: Cambrian Daly River Group. Basal conglomerates, Antrim Plateau Volcanics (basalts) and the Tindall Limestone (f1a).
2.2 REGIONAL STRUCTURE

The principal structural feature of the region is the Giants Reef Fault which has caused obvious displacement to the various rock units it traverses. The zone extends some 30 km northeast of Rum Jungle where it loses its identity under alluvial cover; southwards it extends well outside the Company's area of interest. The Giants Reef Fault is considered to be the northern extension of the Hall's Creek Mobile Zone. Parallel structures, the largest being the Stapleton and Rock Candy Range Faults and many minor ones traverse both the Burrell Creek Formation and Tolmer Group rocks.

Folding is present both on a small and large scale. The Burrell Creek sediments are tightly folded with fold axis striking generally N-S. The overlying Tolmer Group dips gently eastwards forming the extensive Daly River Basin. Folding occurs in the Tolmer adjacent to the Rock Candy Fault forming an elongated domal structure thought to be underlain by Carpentarian granite. The Cambrian sediments are nearly flat lying.

Regional dips are moderate to steep westerly for the Burrell Creek Formation and gently eastwards for the Tolmer Group. Strikes are N-S to NW-SE.

2.3 GEOLOGY OF E.L. 4857

+ Burrell Creek Formation

The lithologies represented here comprise both meta-argillites and arenaceous types, the latter being more widespread than elsewhere. The structural trend is north-south with bedding vertical to steep west. Local folding occurs mainly north and northeast of March Fly, the structures being south plunging. Many photo lineations cross-cut the bedding at right angles; displacements are small scale.

Progressing south along the unconformity there is a gradual change in the facies exposed due to the combination of regional bedding strike and the trend of the contact. Lithologies, exposed to the north, gradually "disappear" under the Tolmer Group producing a continual succession of younger rocks along the traverse zone. This is illustrated by mapping (Robertson Research and Mobil) and ground traversing (T.M.A.) where coarse sandstones and conglomerates predominate adjacent to the unconformity east and north of March Fly. These coarser lithologies have been previously mapped as Noltenius Formation (BMR) and were considered older than the Burrell Creek Formation. This stratigraphic name has since been abandoned with all Lower Proterozoic rocks now being grouped within the Burrell Creek. The stratigraphy is generally as follows: coarse sandstones and grits with thin conglomeratic horizons (basal) becoming finer grained with a predominance-of meta-siltstones of variable composition giving rise to sericite and quartz-muscovite schists. Interbedded with these are further sandstones of variable grain size and some thin conglomerate...
beds. Locally, carbonaceous (sometimes, but rarely, graphitic) shales occur as thin bands as do isolated outcrops of black silicified greywacke. All these facies occur at the March Fly prospect.

+ Tolmer Group

The Depot Creek Sandstone forms a prominent escarpment in places trending NNE-SSW. Outcrop of this basal unit is restricted to an average width of approximately 1.5 km due to overlying tillite and Cambrian limestone northwards (Blackfellow Creek area) and Stray Creek Sandstone elsewhere; the latter has an unconformable relationship with the Depot Creek. East and north of Hayward Creek the unconformity surface is well preserved with little erosion of the Burrell Creek. Topographically the landform is fairly flat lying across the contract and this extends perhaps 500-800 m west to where the escarpment is developed in Burrell Creek sediments.

Regional dips taken by the NTGS and field observations show the basal sandstone member to be tilting very gently eastwards with measurements ranging from 10°-20° along most of the contact.

The series of parallel E-W faults in the Burrell Creek Formation also affect the Tolmer although this is not acknowledged on the NTGS maps. Minor offsets in the contact were observed during the traversing; sheeting structures in the sandstone indicated the fault trend.

Lithologically the Depot Creek Sandstone is a fine grained quartz-arenite with thin pebbly bands throughout; local conglomerate lenses were seen in places. Sedimentary features such as ripple marks and current bedding are common.

+ Uniya Tillite

Glacial features and sedimentation occur in a N-S trending zone from Hayward Creek north to the Reynolds River. The feature is thought to represent a glacial valley coinciding with a structural depression within the Tolmer Sandstone; this depression has been identified by geophysics and drilling at two INPUT anomaly locations.

Glacial sediments are present as both unconsolidated till (e.g. Hayward Creek area) and as a fluvio-glacial shale/sandstone sequence in both outcrop and drill cuttings (INPUT anomalies 2851 and T11). The shales are red and varve-like while the sandstones are poorly sorted facies containing variously sized pebbles and large dropstones of Depot Creek Sandstone.

The most outstanding glacial feature is the striated pavement at Hayward Creek. Other pavements were found by T.M.A. geologists to the north at the Reynolds River and also near Alligator Creek (T11).
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5.

Daly River Group

The Cambrian Antrim Plateau Volcanics and Tindall Limestone unconformably overlie both the Tolmer Group and the glacial sequence. Drill holes at both T11 and 2851 INPUT anomalies intersected a thin layer of amygdaloidal basalt covering the glacial sediments; a palaeosol was identified in some holes. Muddy shale beds and some pebbly horizons might also be of Cambrian age though this is not definite.
III. FIELD ACTIVITIES

The principal aim of the 1988 programme was to carry out detailed exploration over conductive zones as defined by the aerial INPUT survey and to follow-up where necessary with drilling. Other activities were confined to further evaluation of the March Fly and Hayward Creek prospects, and some ground investigation of subtle airborne radiometric anomalies occurring within the Tolmer Sandstone, these being confined to the northern part of the licence. A drill hole near Alligator Creek tested a gravity low to determine the source of the anomaly and its possible relation to the regional exploration model.

3.1 INPUT ANOMALIES

3.1.1 2881/2891

Located at AMG 037038 Daly River sheet, photos Run 1 4928, 4929. This INPUT anomaly was included as an additional one to investigate due to its proximity to T11 and the geological environment in which it is situated, i.e. Tolmer and Burrell Creek presence, nearby granite and the Stapleton Fault zone. The only activity on the ground was a MaxMin II survey; at this stage no VLF or geological work has been done apart from general reconnaissance.

A very marked EM anomaly appears on the western side of profile 1100N and extends to the northernmost section at 2000N. The conductor tends to become less apparent with increasing depth to 1300N, then becomes stronger to 1600N. From 1700N the position of the conductor switches to the west side of the grid shifting gradually to the centre until its identity is almost lost on the final profile. The conductive zone outlined by the geophysics coincides with the Alligator Creek Valley, a wide fairly flat alluvial covered area which coincides with the Stapleton Fault (see Plate 2 for profiles).

At this stage no further work is planned.

3.1.2 T11

+ Introduction

Located at AMG 030030 Daly River sheet, photos Run 1, 4928, 4929. This conductor was looked at in some detail, reaching the diamond drilling stage towards the end of the field season.

T11 is located on a wide sand and soil covered area which, based on photo studies, appears to be structurally controlled. Two major structures are present: the Stapleton Fault zone which cuts across the northern boundary in a NW/SE direction and a regional NW lineament forming the eastern boundary of the conductor and coinciding with outcropping Depot Creek Sandstone. To the west much of the geological detail is obscured by sand and soil cover; a major NW photolineament occurs however, which controls the course of the Reynolds River to some extent.
The nearest outcrops of Lower Proterozoic rocks occur to the NE within 2891. Tolmer Sandstone is present as the Depot Creek Member, giving reasonable exposure. The outcrops tend to be strongly fractured with variable SW dips, principally steep, indicating the influence of faulting.

The initial INPUT anomaly comprises three principal conductors aligned in a NW direction. MaxMin generated several persistent conductive trends evident on all channels (Plate 3); partial coverage of the grid by VLF tended to illustrate a similar pattern. Based on the EM results a concentrated pattern of Alphacard stations was planned and completed prior to the final initiation of the pre-collar percussion drilling programme. Several relatively strong radon anomalies exist on the southern portion of the grid, i.e. between 1900N and 2700N (see Plate 4). They show up as two separate trends which eventually coalesce and tend to mirror the MaxMin directions. Northwards the radon anomalies lose intensity and become fragmented, however they persist in following the EM trends.

Scintillometric readings show reasonable correlation, with highest values along the eastern side of the grid. The combination of the EM/radon/SPP2 data enabled the planning of drilling targets on two profiles.

The subsurface geology of the anomaly was not known prior to deep drilling at nearby INPUT 2831 ("Radio Tower"). Here a large area of non-outcrop bordering Depot Creek Sandstone was found to be underlain by glacial sediments and some Cambrian. A similar situation was proposed for T11 and this was, in fact, the case. In the meantime however some minor outcrop and rubble areas of conglomerate and laminated sandstone were found, these being assigned to the glacial sequence. The geology of T11 can best be described from the information derived from drilling and this is covered fully below.

The origin of the conductor is most likely due to a red shale facies within the glacial sediment sequence. There may also be some contribution from faulting and shearing which have created the structural framework of the area. The radon and radiometric anomalies are considered also to be associated with these rocks. That being the case, no further activity will be undertaken on T11.

+ **Drilling Summary**

Six holes were drilled on two 100 m profiles where both MaxMin and Alphacard surveys outlined anomalies. All holes were drilled initially by percussion (497 m total) and three holes were extended by coring (317 m total). The results of the drilling are shown on two cross-sections, Plates 28 and 29.

All the holes intersected conductive overburden between 40-70 m, and then passed into Tolmer Sandstone. TOL-P-17, P-18 and P-19 successfully drilled through the Lower Proterozoic unconformity. No mineralisation was found, however some minor anomalies were determined from chemical analyses near the unconformity.
All the percussion precollars suffered from poor recovery and caving at and below the water table, which made interpretation of lithological units difficult from drill chips. Attempts were made by Century to log all the holes a week after drilling, however, due to caving, they were all blocked by clay plugs near the water table.

Major NW to NW faulting is considered to have created a depression in the Tolmer in which fluvioglacial sediments have been deposited. The EM response could be a reflection of the lithology or structure or both. The Alphacard anomalies, as at 2851, could be caused by the glacial shale unit.

+ Cross-section 3400N

TOL-P-17, PD-18 and PD-19 were drilled from west to east 50 m apart along the 3400N profile. All three holes successfully drilled the unconformity. TOL-P-17 was percussion drilled to 162 m whilst TOL-P-18 and P-19 were precollared to 72 m and 48 m and extended by coring to 130.6 m and 136.2 m respectively.

The unconformity was penetrated at a lesser depth in TOL-P-18 (73.5 m) than in TOL-P-17 (86 m) or TOL-P-19 (91.4 m - 94.6 m). Therefore, only 0.5 m of Tolmer core was recovered in TOL-P-18.

TOL-P-19 and P-18 showed that the Tolmer Sandstone near to the unconformity is steeply dipping, haematitic (or bleached in TOL-P-18) and kaolinitic in fractures; and filled with pervasive cherty silica veins and breccia in TOL-P-19. Brecciation and shearing is very strong in TOL-P-19, especially at the unconformity, which hinders the interpretation of the contact. The underlying Burrell Creek Formation (which has a more complete record in core and chips) is altered in TOL-P-18 and P-19 and relatively fresh in P-17. In TOL-P-17 the sandstones are grey and/or haematitic, and the phyllites are grey. In TOL-P-18 and P-19 the sandstones are haematitic and clayey, while the argillites are red, slaty, fissile shales and phyllites. These shales are sericitic and quartz veined, especially within 19 m of the unconformity.

All holes were collared in amygdaloidal basalt and tuff of Lower Cambrian age, and then drilled through a regolith into red and green shales and grey/white lithic arenites and conglomerates (presumably of the fluvioglacial Umiya Formation) and into haematitic Depot Creek Sandstone before drilling through the unconformity. Excessive caving of the overburden while drilling in the thin Tolmer Sandstone caused problems in interpretation of precollar chip samples. The water table was drilled between 25 m and 30 m within the fluvioglacial sediments.

Shearing and fracturing were very common in the Lower and Middle Proterozoic rocks.
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+ Cross-section 2100N

TOL-P-24, P-22 and P-23 were percussion precollared from west to east, 50 m apart along the 2100N profile. TOL-P-24 and P-22 were percussion drilled only, to 66 m and 90 m respectively, while TOL-P-23 was extended by diamond drill from 60 m to 229.7 m. The Lower Proterozoic unconformity was not reached in TOL-PD-23 due to an extended section of Tolmer Sandstone through faulting and steep dip and poor drilling conditions which caused the hole to be abandoned.

Plate 29 shows that all the holes were collared in chocolate coloured siltstone then passed through a red, clayey tuff and haematitic quartz-arenite and pebbly sandstones then passed into a clean red conglomerate (up to 6 m thick) before entering the purple Depot Creek Sandstone. The siltstone is similar to that overlying basalt at the magnetic anomaly and is therefore interpreted to be Lower Cambrian. The basalt is represented by a shaley tuffaceous unit which merges imperceptibly into a basal conglomerate which may be of fluvo-glacial origin as suggested in profile 3400N. As mentioned earlier, caving and poor drilling conditions in deeply weathered clay strata caused contamination of percussion samples.

The Tolmer in TOL-PD-23 was the usual fine grained pink quartzite of the Depot Creek Sandstone down to 115 m, then it became increasingly coarse grained and pebbly, red to purple, occasionally haematitic clay-rich crumbly to silicified sandstone. Fracturing and brecciation were pervasive in the hole. Bleaching, chert development and haematisation were present towards the end of the hole. TOL-PD-23 was abandoned when a large cavity was intersected. Gross lithological correlation with TOL-PD-14 suggests that the pebbly bands of the middle unit of the Depot Creek were penetrated and that a further 50 m would need to be drilled to reach the unconformity.

+ Chemical Analyses

TOL-PD-18 and PD-19 only were sampled. Uranium values in general were low throughout the various rock types (Tolmer max. 6 ppm in TOL-PD-19). Magnesium values were not generally anomalous except perhaps for two analyses in TOL-PD-19 at 72 m and 79.5 m where Mg was 850 ppm and 950 ppm respectively (Tolmer Sandstone). Arsenic, cobalt and nickel, however, in these samples were low. No gold or aluminium analyses were anomalous.

+ Geological Synthesis and Conclusions

The stratigraphic sequence at T11 is: Burrell Creek, grey to mauve or red metasandstones and schists overlain unconformably or thrust faulted (TOL-PD-19 "transition zone") against steeply dipping and fractured, haematitic Depot Creek Sandstone, which is unconformably overlain by conglomerates and shales of the Uniya Tillite and then amygdaloidal basalt and chocolate coloured siltstone of the Antrim Plateau Volcanics.

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Profile 3400N shows that the Phanerozoic rocks dip towards the west quite steeply. The westerly dip is confirmed by the presence of lateritized shale and conglomerate (subcropping fluvio-glacial and basaltic tuffs) and a smooth westerly dipping (35°/306°) polished surface on the Depot Creek Sandstone overlain by cobbles (resembling a glacial pavement) at approximately 1250E (25 m east of TOL-PD-19). Fluvio-glacial sediments are also exposed in Alligator Creek in the northeast of T11. The shale unit appears to dip back towards the east in TOL-P-17. The Carpentarian unconformity is slightly domed under TOL-PD-18, and bedding/cleavage relationships in the Burrell Creek are very steep, suggesting that it is near to the axis of a structure. However intense faulting near TOL-PD-19 must cause some undulation in this contact. No definite chemical anomalism has been found, however haematitic alteration and some enrichment of Mg, As and Al (but not Co or Ni) has occurred near to the contact in shear zones.

On profile 2100N the units above the Tolmer are apparently deeply weathered interbedded siltstone, sandstone, conglomerate and shales and therefore definite lithological boundaries are diffuse. A subdivision according to lithology and colour has been attempted. The post-Tolmer unconformity surface appears to be trough-like (as in 3400N) with the steepest grade between TOL-P-22 and TOL-PD-23. These units dip towards the east. The easterly dip is confirmed by log character (top of hole only) and a line of prominent outcrops of laterite approximately 25 m west of TOL-P-24, which probably represent outcropping basaltic and shaley sediments. TOL-P-23 was diamond drilled first because the Tolmer Sandstone was positively identified, whereas in TOL-P-22 it was coarse grained, poorly sorted and haematitic and resembled the Burrell Creek Sandstones in TOL-P-16. The presence of bleaching, chert development, haematisation, pervasive fracturing and steep dip suggests that the area is strongly faulted.

The presence of fluvio-glacial sediments against Tolmer outcrop is confirmed near profile 3400N. This glacial surface trends NE, which is parallel to the main MaxMin anomaly. The difference in geology of the overburden between the two profiles causes no problem with the first hypothesis because these profiles lie on two separate anomalous trends; therefore the thickness of conductive shale may be producing the response. The presence of relief in the Lower Proterozoic unconformity, pervasive faulting, brecciation and haematitic alteration and silicification in the Tolmer also suggests a possible structural explanation. Extensive outcrops of Depot Creek Sandstone in the east of T11 are intensely faulted and fractured. Various fault trends have produced a patchwork of faulted blocks causing rapid variation in bedding attitudes or complete destruction of bedding and haematisation/silicification of the sandstone in places. The focus of this intense faulting has not been outlined in the reconnaissance mapping to date.
The chemical analyses are not very encouraging, however some magnesium and uranium have been concentrated in this area. Further analyses need to be performed, including samples from the base of TOL-PD-23, especially in bleached and haematitic areas such as 192 m. Radiometric logging is required on all holes where polypipe has been inserted.

3.1.3 2851-Radio Tower

**Introduction**

Centred at AMG 995018 Daly River sheet, photos 5018, 5019; the main Daly River road passes through the grid.

Like T11, 2851 reached the drilling stage with a percussion precollared diamond hole reaching 350 m. Surface activities included VLF, MaxMin II, Alphacard and scintillometer surveys. Both EM methods defined a similar conductive trend (Plates 5 and 6) which was further investigated by radon detection. Synthesis of the data enabled a target to be established and a drilling profile was chosen (Plate 7). No geological mapping was done due to outcrop absence; outside the grid Depot Creek Sandstone outcrops in probable structurally controlled areas to the west and north. In addition extensive outcrops of glacial sediments occur northwards along strike of the anomaly; facies include a poorly sorted sandstone with dropstones, conglomerates and shales. Glacial striations were seen on Tolmer Sandstone surfaces. Due to the nature of the anomalies and the interpreted cause, two additional holes planned for the 1988 campaign were cancelled. There is no geological reason to pursue the investigations at 2851.

**Drilling**

The hole was percussion precollared to 150 m (50 m short of the target depth) at 1100E on the 1400N line. This was the westernmost hole of a proposed 100 m profile across the MaxMin conductor and coincident, moderate Alphacard anomaly. TOL-PD-16 was sited between the MaxMin and VLF anomaly axes (see Plate 7) in an area of no outcrop.

The unconformity was cored at 319.5 m, a sharp contact was intersected. No alteration was discernible in the sandstone except for haematitic layers and kaolinite lining some fractures. Opaque quartz grains were more common near the base of the Tolmer but these would probably be detrital and derived from the Burrell Creek Formation. The radiometric log shows no enrichment of uranium in the sandstone above the unconformity although the Burrell Creek rocks are somewhat enriched below it.
The stratigraphy of the hole is as follows:

Lower Cambrian: Antrim Plateau Volcanics:
   Amygdaloidal basalt 0 - 4 m

Upper Proterozoic: Uniya Tillite:
   Fluvio-glacial arenites
   and conglomerate 4 - 38 m

Upper Proterozoic: Uniya Tillite:
   Red and green ?varved shales 38 - 78 m

Middle Proterozoic: Tolmer Group:
   Depot Creek Sandstone 78 - 319.5 m

Lower Proterozoic: Burrell Creek Formation 319.5 - 351 m

The Tolmer Sandstone in this hole is generally a fine grained, pink quartzite, however two prominent pebbly bands are located at approximately 260 m; these are good consistent marker beds about 50 m above the base of the sandstone and are also widespread in outcrop. Approximately 30 m of sedimentary breccia and slumped strata were intersected above the pebbly unit.

+ Chemical Analyses

Chemical analyses performed on core suggests that the background for uranium may be slightly higher in this hole than regionally, however no anomalous samples occur.

A sample of Tolmer at 318 m was anomalous in aluminium for that rock type (i.e. Al = 1.4%) however Mg is only slightly high (500 ppm) therefore a clay mineral, perhaps as a fracture fill, is indicated.

+ Geological Synthesis and Conclusion

The current thoughts on the geology of 2851 is a sequence of fluvioglacial sediments occupying a depression within the Depot Creek Sandstone. A thin layer of Cambrian basalts overlie and have preserved the Uniya Tillite above the Depot Creek Sandstone. Ground investigation along strike at the northern end of the anomaly has confirmed the presence of outcropping fluvi-glacial sediments lying directly on a striated glacial pavement. The shales, however, are absent indicating a lensing out towards the north. The sandstones consist of porous, cream and dark grey coloured quartz-lithic arenites, conglomeratic in parts. In the macro sense these sandstones are packed with pseudonodules. The glacial pavement is extensive, has significant relief, and dips towards the axis of the EM anomalies.

The consolidated fluvi-glacial sediments are preserved atop the glacial pavement as outliers due to their well stratified and cemented nature as opposed to the easily weathered tillite which overlies this surface at Hayward Creek. This occurrence of the glacial surface so far north has not been recognised before. Indeed other glacial deposits are now being recognised in certain areas overlying the Depot Creek.
The MaxMin anomaly could therefore be explained as reflecting the contrast in conductivity between the fluvio-glacial overburden (especially the shales) and the underlying resistive quartzite. The coincidence of the northern end of the anomaly with the appearance of outcrop (and lensing of the shale) seems to confirm this hypothesis. No evidence of faulting (another explanation for the EM anomaly) was found in the Tolmer outcrops east of the anomaly.

The Alphacard anomaly may represent contribution of radon from these shales.

Kewanie Oil, in their report on exploration in this area, refer to investigation of Prospect "A" on A.P. 3310M which seems to be near to 2851. They auger sampled a geobotanical anomaly and discovered large areas with anomalous base metal values. They recognised basalt in these samples so it is suggested that the basalt was preserved in a glacial valley and itself is anomalous in lead/zinc. They abandoned a deeper hole at 25 m, due to hard formation (Tolmer Sandstone) that they drilled south of the anomalies.

3.1.4 T18

Centred at AMG 999990 Daly River sheet, photos Run 2 5018, 5019. The anomaly was initially surveyed at the end of the 1987 field season using EM-37, MaxMin II and I.P. resistivity. Several lines were run as part of a programme to find the most suitable method of ground follow-up. Activities for the current year included partial coverage by SIROMET, VLF, Alphacard and geological mapping (Plates 8, 9 and 10).

Geological work on the anomaly shows two areas of Depot Creek Sandstone outcropping on both the east and west sides. An extensive area of sand/soil cover separates the two. The sandstone is a fine to medium grained quartzite showing mainly low dips to the southeast; two fracture directions predominate: ENE and NW. Mapped faults and fracture zones, probably indicating faults, show a NW trend while a major inferred structure is thought to control outcrop distribution and radon anomalies. All these features are illustrated on Plate 8. Although no lithologies have been observed in the central sections of the grid, the similarities to both 2851 and T11 suggest the presence of buried glacial sediments.

All the EM methods employed show two conductive zones trending more or less north-south. Their intensity appears to vary along strike as indicated by the VLF profiles, eventually the more easterly phenomenon "dies out" towards the north or alternatively passes out of the survey area. That these conductive trends correlate with the outcrop limits would suggest a structural origin, however lithologies cannot be discounted. Distance to the unconformity from T18 is approximately 1.5 km, depth to the contact is not known despite an attempt at electrical sounding to determine its position, however it is probably extensive. It is therefore unlikely that the conductors would represent graphitic facies in the Burrell Creek Formation because of the thickness of the sandstone + glacial sediments.
A SIROMEM survey was run on an experimental basis early in the year. The object was to compare results with both EM 37 and MaxMin so that a decision could be made on the most convenient method to use. Three lines were surveyed and a conductive feature was found; this apparently coincided with that found by the other EM surveys.

Several radon anomalies are apparent, the results having been contoured using 4 and 8 c/m. A distinct NNE trend emerges corresponding to the regional directions. The main, larger area straddles the inferred faulted contact along the eastern Tolmer Sandstone outcrop. A narrow barren zone between is caused by laterite outcrop; nowhere does the high radon pass into the sandstone. A separate but possibly continuous anomaly is located to the southwest and several localized, low order zones occur to the north. Down-hole SPP2 values correlate well with the radon.

Although no definite proof has been gained as to the nature of the phenomenon producing the EM/radiometric anomalies, the combination of all the data, the setting and nature of the conductors, and comparison with 2851 and T11, suggest a fluvioglacial origin, probably the red shale facies. The continuation of work at T18 is not recommended to proceed.

3.2 OTHER PROSPECTS

3.2.1 March Fly

Summary

Nine percussion holes (total 767 m) were drilled to around 100 m depth each, along the 345 m strike of the March Fly anomaly (see Plate 18). Holes TOL-P-1, P-2, P-3, P-5 (in the northernmost area of the prospect) and TOL-P-20 and P-21 (in the south) were drilled into Alphacard anomalies under surface alluvial and eluvial cover. TOL-P-4, P-6 and P-7 were drilled into a strong linear surface radiometric anomaly between the abovementioned drill holes.

A number of rich intersections were found in TOL-P-6, P-7 and P-20. The maximum grade encountered was 11.6% eU over 0.3 m in TOL-P-6 between 53.1 and 53.4 m. TOL-P-7 had three thin intersections making a total of 0.9 m at 0.10% eU at 300 ppm eU cut-off between 41 and 70 m. TOL-P-20 gave an intersection of 0.9 m at 0.194% eU.

The mineralisation is within strongly haematitic carbonaceous shale and sandstones, and appears to be structurally controlled and confined to the margins of the carbonaceous bed.
Drilling

TOL-MF-P-2 (Plate 19). This is the most northerly of the drill holes. It was drilled in an alluvium covered area towards the southwest into a low amplitude Alphacard anomaly elongate along the axis of an interpreted syncline. This syncline was thought to be an extension of the interpreted structure which hosts mineralisation in Mobil's drill holes.

An anomaly between 8.3 and 8.6 m averaged 514 ppm eU. This anomaly is in altered graphitic schist, at a contact with a thick quartz-tourmaline body.

A series of dark grey phyllites, occasionally graphitic and pyritic, and coarse, pyritic sandstones was intersected.

TOL-MF-P-5 (Plate 19). The hole was drilled to 54 m, 20 m behind TOL-P-2 to undercut the anomaly in that hole. No anomaly was found even though the quartz-tourmaline vein was intercepted at 46 m. The lack of anomalism can be explained by the monotonous, medium to coarse grained meta-sandstone and quartz-arenite sequence intersected in this hole. The anomalous schist in TOL-P-2 is faulted out.

TOL-MF-P-1 (Plate 20). This hole was drilled towards the southwest to undercut a soil covered surface anomaly of over 15,000 cps occurring in weathered sandy schist with traces of metatorbernite and located 84 m southeast of TOL-P-2. No anomaly was found except for a high background of 420 cps in chloritic, hornfelsic phyllite at 44 m, close to granite veins. The surface anomaly was directly above granite and quartz veins in the hole. The hole is interpreted as drilling down dip on the eastern limb of a syncline (Plate 18).

The lithologies penetrated were predominantly coarse sandstone with thin phyllite lenses.

TOL-MF-P-3 (Plate 21). TOL-P-3 was drilled 38 m northwest of TOL-P-1 into the centre of the syncline. A minor anomaly (0.2 m at 480 ppm eU) occurred at the contact of a quartz vein and carbonaceous shale. The main lithologies were green meta-sandstones, quartzite, phyllite (occasionally pyritic and carbonaceous) and pyritic quartz and granitic veins.

TOL-MF-P-4 (Plate 22). This hole was planned to undercut a very broad and strong surface SPP2 anomaly (up to 15,000 c/s in sandy schist) which was the original discovery anomaly; this had previously been drilled by Mobil Exploration. They discovered a near surface zone within the syncline which gave up to 820 ppm U. The anomaly decreased significantly with depth. Our collar location was adjacent to Mobil's NPD 75.

A weak radiometric peak at 57.5 m was found in quartz veined sericitic schist and sandstone. Lithologies were predominantly resistive meta-sandstone and phyllite. Pyritic, carbonaceous phyllite was a minor constituent except at the very end of the hole.
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TOL-MF-P-6 (Plate 23). The best hole at March Fly; drilled towards the west to undercut an anomaly of up to 2,000 c/s in haematitic carbonaceous schist at the surface. This hole contains the most graphitic rocks at March Fly.

Two good anomalies and a thick anomalous zone were intersected below the water table in this hole. An extremely rich anomaly between 52.6 and 53.8 m (1.2 m) returned an average grade of 2.49% eU above the 300 ppm eU cut-off, representing a maximum grade of 11.6% over 0.3 m. An anomaly between 59.8 m and 61.2 m had an average grade of 0.23%. In fact, the thin, high grade intersection caused problems for the ore grade programme of Century Geophysics, and had to be calculated graphically. The rich anomaly was hosted by interbedded chloritic sandstone and haematitic and carbonaceous metasiltstone with vein quartz present, at the base of a quartz veined carbonaceous shale unit. On the electrical log the anomaly is interpreted to be at the contact of the schist and carbonaceous shale unit and a predominantly sandstone unit. The second anomaly was hosted within the sandstone sequence. Furthermore, an overlying sandstone/schist unit between 23 m - 29 m and 31 m - 40 m was also anomalous (equal to, or greater than, 2 x background).

TOL-MF-P-7 (Plate 24). This hole was drilled towards the west approximately 100 m south of TOL-P-6. It was planned to undercut a strong surface anomaly up to 3,000 c/s on the surface (in shallow pits) in carbonaceous shales. The lithologies were slightly graphitic as gauged by drill mud returns.

Several thin anomalies representing a total of 1.2 m at 1019 ppm eU average grade were intersected between 41 m and 71 m. Maximum grade was 1,470 ppm eU between 41.5 and 41.9 m. The stronger anomaly was in quartz veined dark grey and green siltstone 4 m above a carbonaceous shale bed, while the lower anomalies are in grey siliceous metasiltstone above the same sandstone unit as in TOL-P-6. Background in the hole was lower than in TOL-P-6.

Lithologically this hole consists of grey metasiltstones and phyllites (often siliceous, occasionally carbonaceous) down to metasandstones and minor phyllites at 73 m. The electrical log shows that these lithologies are more resistive than at TOL-P-6.

TOL-MF-P-20 (Plate 25). This hole was drilled towards the southwest, 107 m SE of TOL-P-7 to a depth of 77 m. It was planned to intersect the possible subsurface mineralisation solely indicated by a strong Alphacard anomaly on an alluvial flat. Strong transverse faulting is suggested in this area.

An anomaly 0.8 m thick with average grade 2,131 ppm eU was intersected between 64.8 m and 65.6 m, within a chloritic metasandstone and siltstone interval and overlain by dark grey pyritic sandstones. The drilled water table initially at 71 m reached the hydrostatic level of 7 m. The lithologies intersected were predominantly sandstones.
TOL-MF-P-21 (Plate 25). This hole was drilled 48 m WSW of TOL-P-20, to a depth of 78 m. It failed to prove the southern extension of the mineralisation encountered in TOL-P-6 and P-7. Instead very resistive sandstones and schists were intersected, with only very thin carbonaceous shale at 35 m. This area is structurally complex, therefore a 4 m thick layer of quartz (brownish green chalcedony) between 48 m and 52 m probably represents intense silicification in a major late stage fault zone.

Chemical Analyses

Cuttings from TOL-P-6, P-7 and P-20 in the anomalous zones were analysed for U, Co, Ni, As and V by XRF, for Au by fire assay, and for U equilibrium and C% on selected samples.

Considering uranium for TOL-P-6, we find two rich intersections, notably 2 m at an average grade of 9,900 ppm between 52 m and 54 m and 1,445 ppm average over 2 m between 59 m and 61 m being indicated, or an average of 6 m at 3,928 ppm above 300 ppm cut-off in total. Analyses for TOL-P-7 show two intercepts of 3 m at 1,023 ppm U average grade at 41 m and 2 m at 500 ppm U at 68 m. Values for TOL-P-20 were all very low, below the 300 ppm U cut-off.

Disequilibrium (%U closed can: %U XRF) determined for the peak at 53 m suggests that the ore zone is depleted (i.e. "D" factor = 1.37 average). Considering the geographical elevation and low water table some oxidation of the ore may have occurred. Disequilibrium was not determined for TOL-P-7 but, considering the higher water table, may actually be enriched. The poor result for TOL-P-20 suggests very strong depletion, producing a radon anomaly.

Cobalt and nickel concentrations are elevated in March Fly compared to the average for slates. However they are only slightly anomalous, cobalt more so than nickel. The anomalous zones correspond with uranium enrichment, the highest being between 42 and 43 m in TOL-P-7 (195 ppm Ni, 210 Co). Gold also follows uranium, reaching a maximum of 0.26 ppm in the same interval.

Geological Synthesis

Correlation between drill holes is generally good with gross units persistent spatially. Mineralisation appears to be structurally controlled and confined to suitable sites within or adjacent to carbonaceous shale, especially near to quartz veining associated with faulting. Late stage strike faults trending approximately magnetic N-S are hosts to very rich uranium mineralisation adjacent to a carbonaceous unit in TOL-P-6 and P-7. The possible proven reserve between these two drill holes is 263 tonnes.

Surficial anomalies in the north, such as those drilled in TOL-P-4, P-1 and P-3 and the (?)radon anomaly in TOL-P-20 could be the result of supergene concentration in areas of lower relief. The disequilibrium evident in the TOL-P-6 ore-zone could support depletion in areas of high relief and transportation causing false
anomalies elsewhere. The Alphacard anomaly in the syncline therefore may represent a supergene concentration in a favourable structural area.

**Conclusion**

The association of the rich intersections with the most carbonaceous (and least resistive) strata around TOL-P-6 suggests that the increase in arenaceous strata towards the north of the prospect can explain the lack of significant mineralisation there. Opportunities exist along the 172 m strike length between TOL-P-4 and TOL-P-6 for further rich discoveries considering the carbonaceous strata outcropping between them and continuation of the strike faulting through this area. Resistivity or conductivity surveys, together with radon surveys in this area should outline at least one suitable target for drilling to increase the reserves. Such an area, around 10020N/10020E, is mapped as structurally disturbed and lithologically favourable. A major transverse fault intersected by TOL-P-21 terminates the anomaly in the south. The main anomaly has most likely been offset westwards to the ridge/anticline which strikes southwards from the prospect. Surface anomalies as strong as those near TOL-P-6 were discovered along this trend in 1987 associated with graphitic and sericitic siltstones.

**3.2.2 Hayward Creek**

The Hayward Creek prospect is a large airborne radiometric anomaly located by Mobil Energy Minerals in the late 70's. The anomaly coincides with a large swampy area developed at the contact of the Middle Proterozoic Stray Creek Sandstone and a sequence of glacial sediments – the Uniya Tillite. It was decided to explore, in detail, the radon-swamp anomaly in a local and also more regional context.

A photo study to determine the structural framework of the region was undertaken (Plate 11). On the basis of fracture concentration, four subdivisions were made and each of these would be gridded and followed up by Alphacard surveys and, in the case of Area I, a detailed geological description.

**AREA I**

**Summary**

Area I comprises the large swamp which marks the headwaters of Hayward Creek. The swampy area is the source of an intensive airborne radiometric anomaly located by Mobil Energy Minerals during surveys carried out in the 1970's. Their ground activities included geophysics and drilling.

Current exploration work conducted in 1988 includes an extensive Alphacard survey and geological mapping; VLF and MaxMin covered Area I as part of a more regional survey.
Geology and Structure (Plate 12)

The stratigraphy within Area I comprises Depot Creek and Stray Creek Members of the Tolmer Group overlain by late Proterozoic glacial sediments of the Uniya Tillite.

The outcrop edge of the Stray Creek Sandstone is a striated glacial pavement (possibly associated with a longitudinal fault). The Stray Creek member contains mappable units of red shaley sandstone and a thinly bedded, intensely ripple marked sandstone covered with various types of shrinkage cracks. These units should be mapped in detail to determine more precisely the structuring within the sandstone. The contact with the Depot Creek Sandstone occurs at around 4700E/4800N.

Coarse grained sandstone and granulestones are common in both formations. Bedding is at low to moderate angles towards the east, and flexures are common near to faults. Brecciation and silicification are common along major faults.

The glacial pavement is conformable to bedding and is overlain by red sandy tillite with contained boulders of granite, schist and sandstone. These are overlain and interbedded with red and green arenites and shales. The shales exposed at 5225N/5400E are pebbly, fissile and varved. A porous, coarse grained lithic arenite outcrops in the extreme east of the grid and dips towards the west suggesting that the glacial Uniya Formation fills a small basin. The Tolmer Sandstone is cut by numerous faults. A major fault trends 060°M at 5300N/5200E. Significant sinistral displacement is indicated. Slight increase in background Alphacard is located on this feature. More significantly however, a fault at 5000N/5250E trends northwesterly and has caused some vertical displacement (1 m) and silicification. This fault is adjacent to an Alphacard anomaly which is not in the swamp, and it is parallel to the gross alignment of Alphacard anomalies.

Mobil noted a small aeromagnetic dipole feature adjacent to their radon anomalies. A magnetic survey to determine its location compared to the surface geology would be useful.

Radon Survey

An Alphacard survey was designed to cover the swampy area and extend west, east and north into the adjacent outcrops (Plates 13, 14 and 17). The Stray Creek Sandstone gave many zero readings indicating almost total impermeability to radon transmission. The surrounding till and glacial sediments showed moderate readings averaging around 3 c/m with several highs, the maximum being 10 c/m. The swamp south of the spring has given some very strong anomalies (maximum 181 c/m), most of them being confined to black soil areas adjacent to flowing water. There are several smaller high zones near the spring source with maximum values to 48 c/m. The creek forms a sharp boundary to the anomaly, the values falling off rapidly into soil areas and eventually the till slopes. Note that several high values which appear to be within the sandstone outcrop are, in fact, located on the black soil/sandstone outcrop.
The radon source is speculative, however it seems likely that it originates at depth from a radioactive concentration in the Lower Proterozoic; the presence of faulting and intense fracturing within the normally very dense, compacted sandstones of the Tolmer Group has allowed the radon-bearing waters to reach the surface. The occurrence of uranium at March Fly and Dozer in association with favourable host rocks add weight to similar combinations being present beneath the Tolmer cover. In addition, radon-bearing springs are also present along the contact adjacent to Eccles I and SH2 where favourable environments are known to exist for uranium concentrations.

+ Geophysics

Several profiles of EM, both VLF and MaxMin II (see Plates 15 and 16) showed a highly resistive environment over the sandstone, a sharp structural conductor at the contact of the sandstone/swamp and another less pronounced feature possibly outlining a glacial shale facies (?red shale conductors at T18, 2851 and T11). The VLF exhibited an additional feature on the two sections covered; this coincided with an observable change in the sandstone outcrops which is interpreted to be either the faulted Depot Creek/Stray Creek contact or a fault within the Depot Creek. MaxMin did not define this contact.

An additional VLF profile was run N-S on line 5000E using the North West Cape station; the response is fairly flat although some poorly defined cross-overs may indicate fracture zones.

AREA II (Plate 17)

Area II includes both Depot Creek Sandstone, strongly faulted, and overlying alluvial-eluvial deposits and some glacial till. Faulting is both N-S and NNE with subordinate NW lineaments; an intense, almost northerly lineation exists in the sandstone probably being bedding fracture systems.

Widely spaced Alphacard readings show very low values, from 0 to 4; contours indicate a general rise in radon over the sand/till cover.

AREA III (Plate 14)

Comprised entirely of Depot Creek Sandstone, becoming progressively thinner as the unconformity is approached. Seventy-seven Alphacard stations were measured over 6 profiles. A pronounced anomaly is obvious, which can be related to major structural directions as mapped by B. Berthault; the highest value is adjacent to the intersection of the two features.
Further Alphacard is warranted in Area III as fill-in and extension to better define the highs and to determine extent. Another anomaly, with values of 3 c/m in a 0 to 1 c/m environment extends further to the north-east overlapping into Area I and probably continuous from the Area III trend.

AREA IV (Plate 17)

Contains both Depot Creek Sandstone and glacial till terraces with the contact being a N150°E lineament. Eluvial sands overlie both the sandstone and till in places.

The Tolmer forms areas of rocky outcrop with a pronounced NNW linear pattern. This is truncated to the NW by a parallel structure which divides the sandstone and tillite.

The Alphacard values have been contoured at 3, 5 and 7 c/m. The distribution of the contours is clearly controlled by geology, the NNE contact coinciding with the contour trend. Eighty-eight stations were read, the majority within the Tolmer.

In conclusion, Areas II and IV are not indicated as being prospective and no further work is recommended. Further exploration at Area I would serve no useful purpose as the swamp radon anomaly is indicative of a deep seated source. The only exception is in the western part where there is indication of an anomalous trend from Area I. The latter has most promise with Alphacard values to 10 c/m in a probable structurally controlled anomaly trend. Also the latter's proximity to the unconformity makes it more prospective.

3.3 GRAVITY ANOMALY

This hole was percussion precollared to 114 m on the gravity low at AMG 949647 Daly River 1:100,000. Final depth was 339 m, and an unconformable sandstone/granite contact was encountered at 329 m.

A contact which was defined at 120-130 m by electrical sounding was shown to be a moist, porous, haematitic sandstone layer. Hence, as predicted, the gravity anomaly represents a granite body overlain by sandstone cover.

The Depot Creek Sandstone appeared fresh in the core, no mineralisation or alteration was observed, except for subvertical fractures, thinly lined with kaolinite, and occasional porous and haematitic horizons.

The unconformity was sharp in the core and on the radiometric log. The NaI log shows that the Tolmer Sandstone is slightly enriched in uranium for 3 metres above the unconformity. The sandstone is shaley at the contact, but this appears to be depositional or a palaesosol. These shaley laminae may therefore be a cause of the higher background radiation at the base of the Tolmer.
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The granite is a red to greenish-grey medium grained biotite granite. Mild haematisation and chloritisation within 6 m of the contact could be a result of palaeoweathering effects. This granite outcrops in an area of low relief several kilometres to the east, near the access track to the drill hole. Here it can be seen in contact with the Tolmer Sandstone and metamorphic effects are visible in outcropping Burrell Creek rocks - hornfelsing and andalusite development.

A suggested name for this intrusion is the 'Alligator Creek Granite'.

Core recovery was good, averaging 98%.

3.4 AIRBORNE RADIOMETRIC ANOMALIES - GROUND FOLLOW-UP

A reassessment of the flight line data was made taking into account subtle uranium peaks which coincided with the Depot Creek Sandstone. The location of the anomaly was transferred onto colour aerial photo copies for field use.

Previously, geophysical consultants had determined thresholds for the various lithological units - this formed the basis for the initial interpretation of the radiometric data. The calculated figure arrived at for the Depot Creek Sandstone was considered too high by T.M.A. and that many subtle, yet possibly significant anomalies were being overlooked. A reinterpretation of the data came up with new information which was then checked out in the field.

Most of the anomalies checked are within E.L. 4856 with the remaining in the north of E.L. 4857. Approximately 4 days of helicopter transport was required for access to the majority of locations. A summary of the investigations follows:

+ Daly River Sheet, photo Run 1 No. 4930. A group of four anomalies located approximately 600 m SSE of INPUT anomaly T19. These occur within a heavily fractured area of Depot Creek Sandstone with principally E-W and N-S directions; a regional NW structure is also present, this being the northern extension of the T11 feature which forms the contact between the Tolmer and glacial sediments. Ground check confirmed the highly shattered nature of the sandstone; scintillometric traverses failed to indicate any variation in background. Due to the close proximity of INPUT anomaly T10 and the favourable radon and down-hole SPP2 results it would be advisable to cover this zone with an Alphacard survey.

Two additional anomaly clusters are located 700 m south which have yet to be looked at; these are related to a similar structural pattern as the above and are therefore worthy of follow-up.
IV. CONCLUSIONS

In summary, the main aspects of exploration in E.L. 4857 included geophysics and drilling within several easily accessible areas beneath which strong EM conductors had been located. The outcropping mineralization at March Fly was extensively drilled and shown to contain high grade, though thin, intersections. Hayward Creek was explored at both a local scale as well as part of a more regional outlook and this work will be ongoing into 1989.

The three EM conductors, T11, T18 and 2851 were, on the basis of drilling and/or geophysics, shown to be depressions within the Depot Creek Sandstone infilled with fluvio-glacial sediments some of which are, most likely, conductive. They are obviously of no further interest at this stage. Further ground work is warranted south of INPUT T10 (located on the boundary of E.L. 4857 but within 4856). The proximity of T10 to structurally disturbed Depot Creek Sandstone containing airborne radiometric anomalies, and samples showing interesting thermoluminescence values makes the general area prospective.

Drilling at March Fly has confirmed the presence of uranium mineralization at depth in association with carbonaceous shales and exhibiting strong hydrothermal alteration: hematization and chloritization. Together with Eccles II and SH2 to the north, the March Fly phenomenon confirms the presence of a suitable environment and conditions for the deposition of uranium.

The regional Alphacard survey around Hayward Creek has confirmed the emanation of radon-rich waters from a north-south fault zone adjacent to the swamp. The major problem here is the interpreted depth to the unconformity and therefore to the source of the radon; however an, as yet, poorly defined Alphacard anomaly in Area III might indicate a 'closer to the surface' radon generating phenomenon associated with obvious photo structures – one in particular trending NE-SW which links the March Fly and Hayward Creek areas.
V. EXPENDITURE STATEMENT

Period 4.3.88 to 3.3.89

Please note that E.L.'s 4856, 4857, 4858, 4870 and 4958 are considered as a project for expenditure commitment purposes (Ref. letter from Department of Mines and Energy, UM:may:NH22:152 of 20.6.88).

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<td>CONTRACT SERVICES</td>
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<td><strong>TOTAL</strong></td>
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GROUND SURVEY SPECIFICATIONS

EM SYSTEM:
Apex MAXMIN II
5555 Hz
1777 Hz
888 Hz
466 Hz

COIL SEPARATION:
150 metres

STATION SPACING:
25 and 50 metres

MAXMIN 888 Hz PROFILES:
Grid notation refers to Local Grid
Vertical scale 120 percent per cm
Bean values 10 percent
Out of phase

TOTAL MINING AUSTRALIA PTY LTD
TOLMER NT
MAXMIN 888HZ PROFILES
T11: PROSPECT

CR 89/215

Plate 5

SURVEYED BY GECOTEX PTY LTD, MAY-JUNE 1988
Prepared using the EGS GENET SYSTEM

DATE: 30-SEP-88
CHANNEL 5 / 0.25ms

CHANNEL 10 / 0.71ms

CHANNEL 3 / 0.15ms

CHANNEL 16 / 1.94ms

NOTE: All Values Are In OHM. M
GROUND SURVEY SPECIFICATIONS

EM SYSTEM:
   AEG MAXMIN II
   3555 Hz
   1777 Hz
   888 Hz
   444 Hz

COIL SEPARATION = 150 metres
STATION SPACING = 25 and 50 metres

MAXMIN 1777 HZ PROFILES

Grid rotation refers to Local Grid
Vertical scale = 30 percent per cm
Base value = 10 percent
Out of phase ---

Plate 16

CR 9/215 B

TOTAL MINING AUSTRALIA PTY LTD

TOLMER NT
MAXMIN 1777 HZ PROFILES
HAYWARD CREEK PROSPECT

547-202 DATE: 11 OCT 88


0.0 0.1 0.2 0.3 0.4 0.5 km
SCALE 1:9000