# GEOLOGICA Pty Ltd

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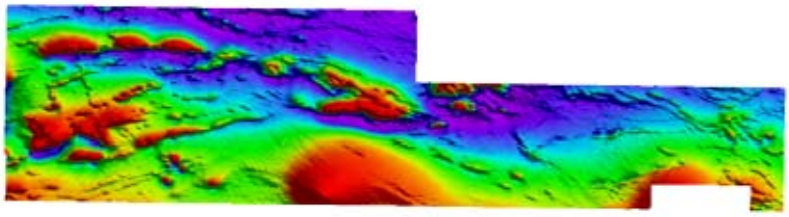
**FAST-TRACK REPORT (FTR-23)**
**Geophysical and Geological Interpretation**
**for**
**Turner's Dome**
**in Northern Territory**
**on behalf of**
**Mineral Agencies Australia**



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## INTRODUCTION

This report covers Exploration licence number E25246 (Turner's Dome) and is a rapid evaluation of the geological and geophysical interpretation of the tenement.

### Location

The tenement is situated northwest of Alice Springs in the Arunta region west of the Tanami Road. Access to the area is easily achieved by track from the Tanami Road to Vaughan Springs. The Tanami Road crosses the eastern part of the tenement and minor roads and tracks from this road extend to Vaughan Springs Station and to the site of the Bigryli Uranium Deposit located a few kilometres south of the tenement. The road distance to the general vicinity is about 500 kilometres from Alice Springs.

### Regional Geology

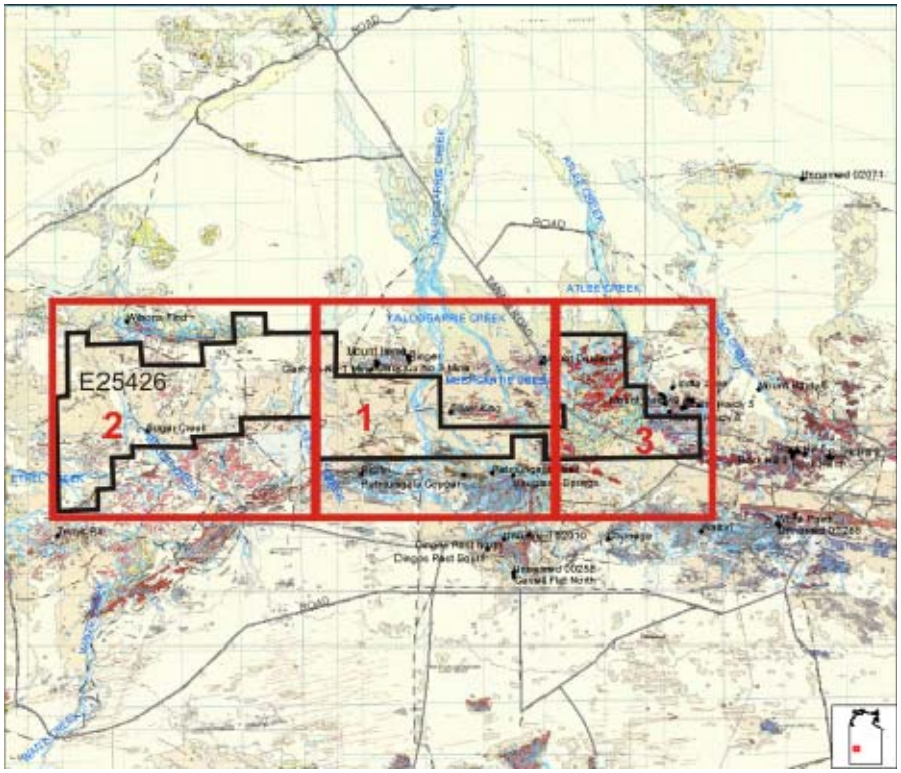
The area is part of the Meso-Proterozoic to Palaeo-Proterozoic Aileron Province sequence of the Arunta Region. The rocks are metamorphosed sediments, volcanics and calc-silicates with mafic and granite intrusives. The age of the Aileron Province rocks ranges from 1560 to 1860 Ma. The adjacent Ngalia Basin lies immediately south of the tenement and is Neo-Proterozoic in age (300 to 1080 Ma).
Mineral occurrences are well known from the Aileron Province which includes many gold mines as well as copper, lead zinc and rare earth discoveries. The Ngalia Basin is known for its roll-front uranium deposits as at Bigryli.

### Tenement Geology

The tenement is mainly undulating plateau upland area and relatively flat, except for the eastern part which is a dissected upland area of higher relief.
The area is considered geologically prospective for uranium, particularly due to the pervasive high radiometric uranium count from airborne surveys. This could be due to the high background levels in the sandstones and mudstones of the sedimentary sequences as well as the occurrence of granites with high-background radiation. There are also indications from radiometric patterns that palaeochannels cross the tenement.

The laterite profile is a good provenance for uranium and base metal enrichment within the groundwater or hydrologic circulation. The laterite profile is variously developed in the eastern and western upland areas and is resistant to erosion, creating low-lying mounds or rises as remnants of the once extensive oxidation.

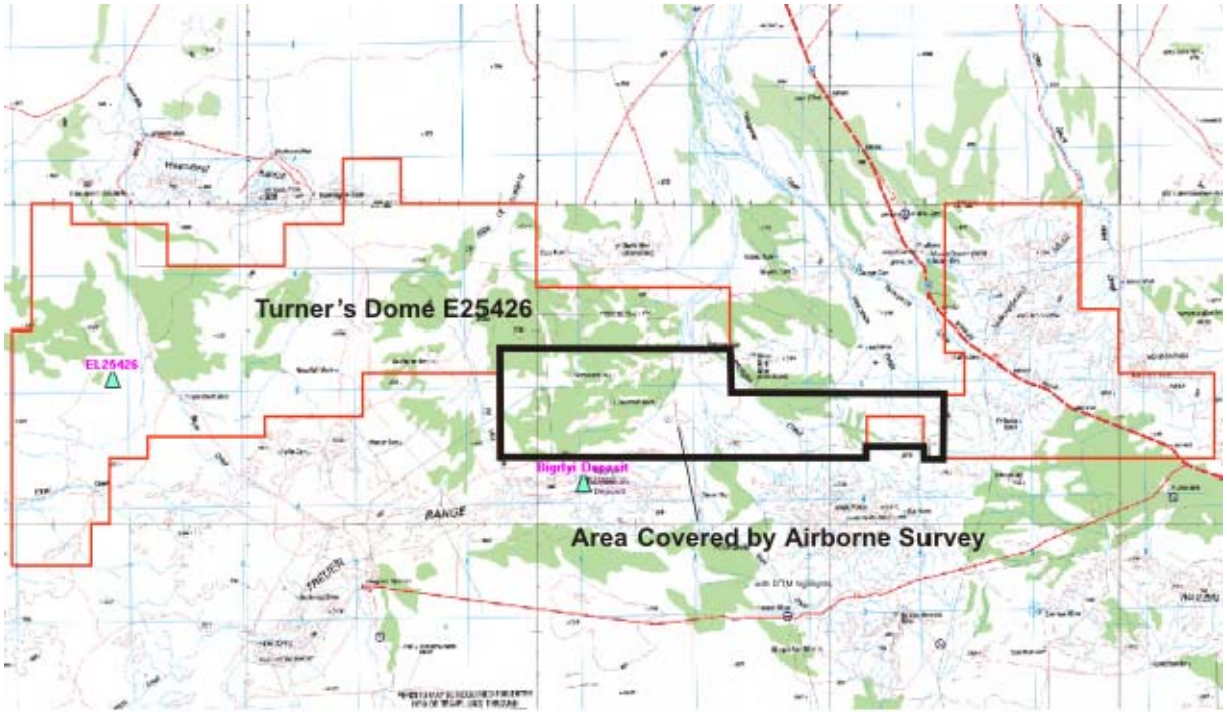
The palaeo-drainage trending N-S on the central and western side of the tenement shows up well on the regional (wide-spaced) airborne total radiometric count (potassium, thorium & uranium) and is of exploration interest for locating possible calcrete or palaeo-channel sources. Due to the large tenement size (114kms across) E25426 has been divided into three areas as shown on the geology map below.




. E25426 Gology Map & Exploration Priority Areas (1-3 in order of priority)

**Tenement Geophysics**

Regional (from NTGS database) gravity data over both the tenements is unreliable and does not show any discernable pattern. This is probably a product of course data spacing and that the data needs further processing and evaluation before any meaningful interpretation can be made.
Airborne Total Magnetic Image (TMI) NTGS data gives a clearer picture of the underlying structures within the lease area. Here the strongly magnetic granites and gneisses (containing magnetite) show up as high order responses. However the line spacing is approximately 400m and good definition of anomalies is not achieved. Therefore a new survey was necessary.
During January/February 2008 GPX Airborne Services completed a grid survey of Air Magnetics and Radiometrics over the central portion of the lease. This was completed at a line spacing of 100m and a flying height of 60m. A total of 3,318 line kilometers was flown.




**Interpretation**

Using a combination of uranium, potassium, thorium and total counts with magnetics or elevation models the Central Area of the tenement was subjected to analysis for:

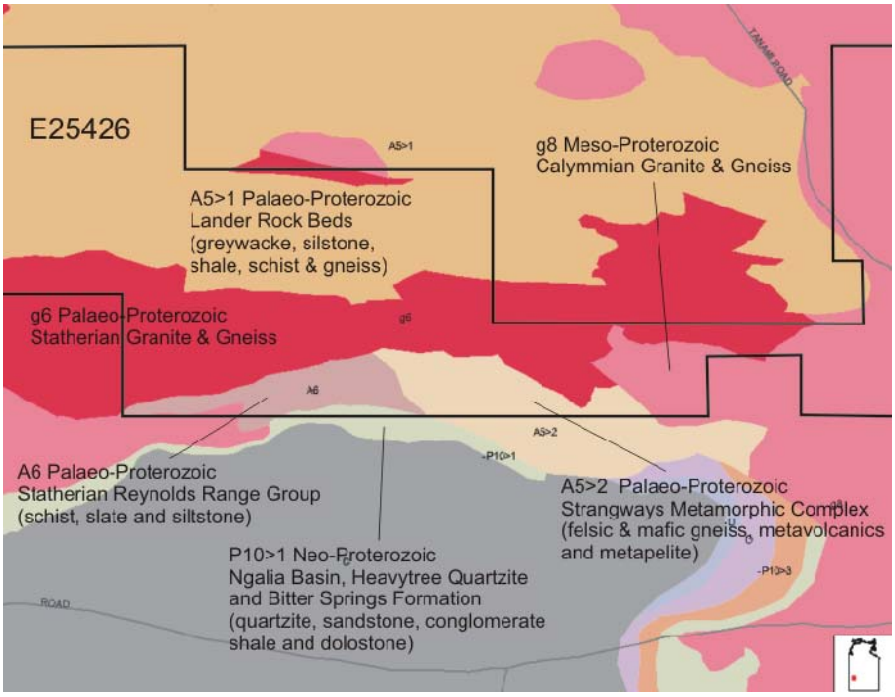
- Surface drainage features
- Sub-surface structures
- Target areas where combined effects were of interest

A plot of superimposed uranium count and 1st Vertical Derivative Magnetics confirms that the anomalous uranium areas are related to surface drainage features as well as bedrock features in the south and east of the area. The location with respect to the Turner's Dome region suggests that there is a strong drainage direction to the north from the granite and Proterozoic sediment substrate into the lower lying areas. The magnetic pattern shows a strong set of WNW and W-trending dykes (probably contacts and pegmatite veins) and several basement fractures or faults in the NNE and NNW orientation. The magnetic patterns for the granite/gneiss and the sedimentary sequence are quite different.

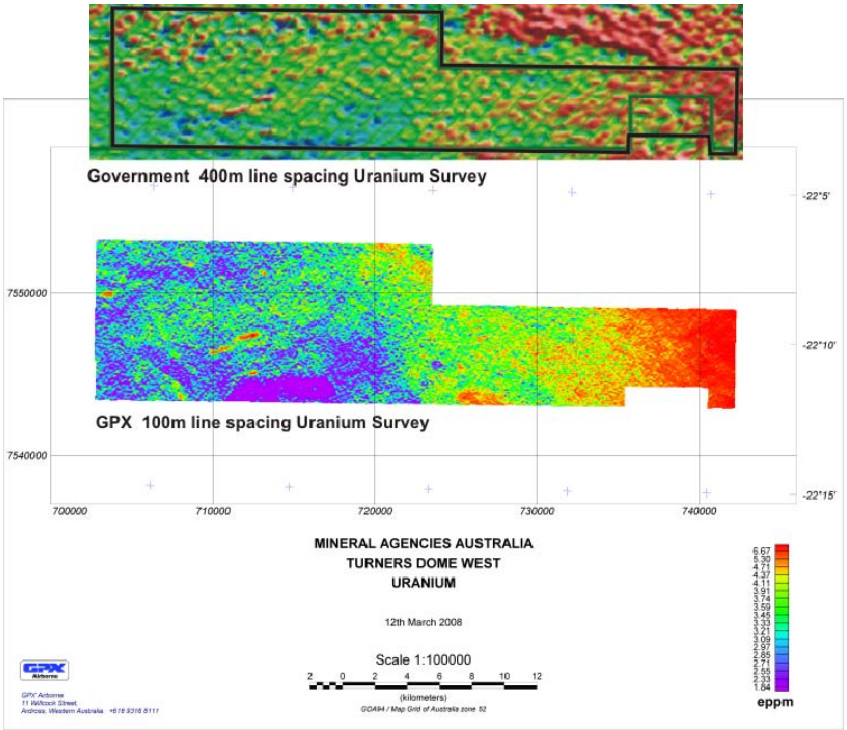
Uranium count contour distributions indicate that the large eastern drainage anomaly is broad and approximately 5 kilometres across. This has a reading in the order of 5 to 6 ppm (orange colour in the map below) considering the aircraft background of 0.37 ppm U count in the area. Therefore the anomaly is considered real and indicates uranium at about 14 times background.

Smaller anomalies, probably related to contacts or channels are more distinct against the background and several targets have been identified.

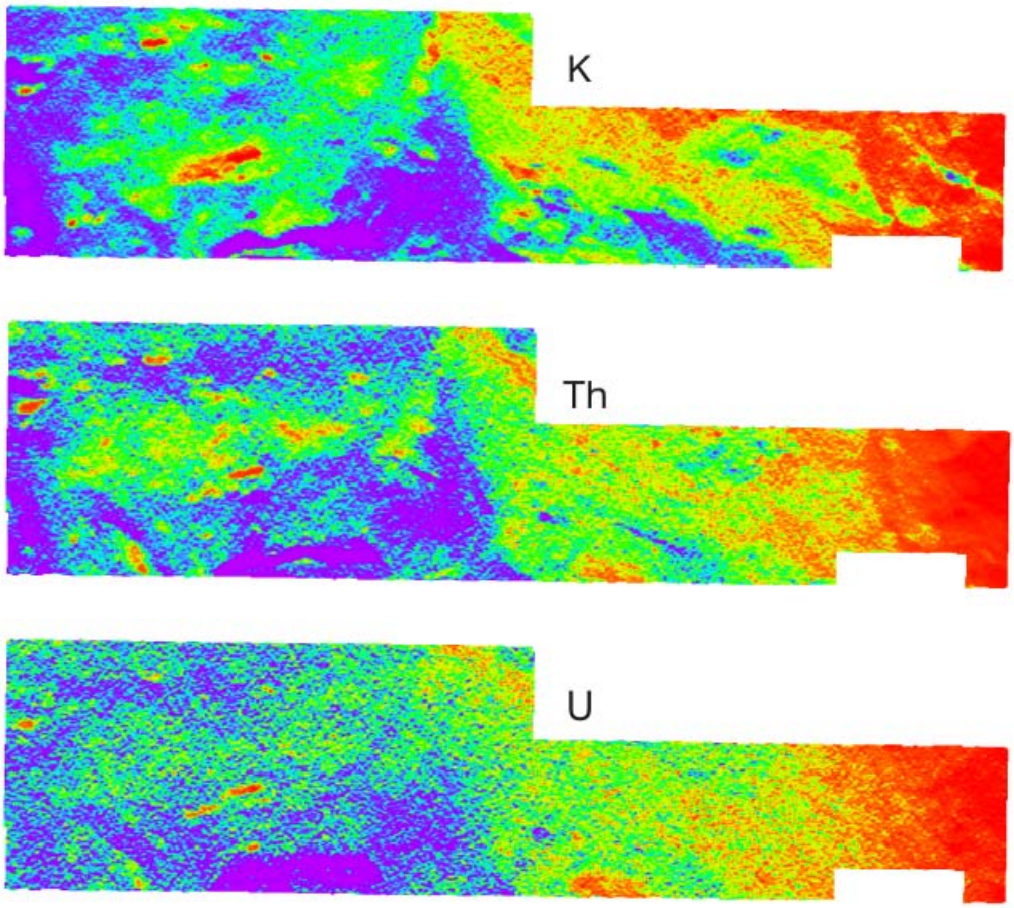
See maps below:




**Bedrock Geology of E25426 Central Area**




*A comparison of the 400m spaced Government and the 100m spaced GPX radiometric survey*




**Comparison of Potassium (K), Thorium (Th) and Uranium (U) responses at Turner's Dome (E25426)**

Note that the locations of K, Th and U are similar, but U has a more discrete and defined pattern, except within the drainages in the eastern half of the map.

## Target Areas

There are 8 targets interpreted from the data and described below as follows:

### Target T1

This is interpreted to be a channel-like structure orientated NW-SE on the SW portion of the flight area. It is a surface feature and is seen to overlie the E-W magnetic linear features (probably representing contacts or rock units of the Palaeo-Proterozoic Reynolds Range Group siltstones, slates and schists). The anomaly is expected to be within the alluvium, flood plain sheetwash and surficial sands of a palaeo-channel. The radiometric reading in this feature for uranium count is above the equivalent intensity of 5ppm U (eppm) and can be seen to extend for about 2 kilometres along strike.

### Target T2

This anomaly is a “spot” feature that occurs above a complex magnetic pattern. It may represent an isolated part of a palaeo-channel or a point on the contact between two major rock units, the Reynolds Range Group and the Statherian granites and gneisses. The strike length of the uranium anomaly measuring above 5eppm U is about 500m and is orientated E-W.

### Target T3

This is a large and linear, complex ENE-WSW striking anomaly of at least three components. It also appears to parallel two pronounced topographic ridges and is coincident with similarly orientated linear magnetic high features. The location with respect to geology is close to the contact of the Statherian granite/gneiss and the Reynolds Range Group metasediments. It is likely that this extensive anomaly (exceeding 4kms strike) is fracture/vein or unconformity/contact associated. However, it could also be a topographic “trap” situation where a palaeo-channel has been isolated between two ridges. The uranium values measure above 6eppm U and present as strong outlier features against a relatively low background.

### Target T4

The T4 anomaly is ovoid and elongated in the E-W direction for an extent of about 1 kilometre against a relatively low uranium response background. The anomaly is parallel with a magnetic linear feature and is contained within the Statherian granite/gneiss. The cause of values above 5eppm U may be related to porphyry or pegmatite dykes, fractures or quartz veins within the granite/gneiss terrane. Note that this anomaly parallels the bedrock geology units rather than current northward flowing surficial alluvium or drainage channels.

**Target T5**

T5 is an isolated “spot” Uranium high of a few hundred metres length only. This anomaly lies parallel to the bedrock magnetic features and may represent the contact zone of the granite/gneisses with the Palaeo-Proterozoic Lander Rock Beds. There does not appear to be any association with recent alluvium or palaeo-channels.

**Target T6**

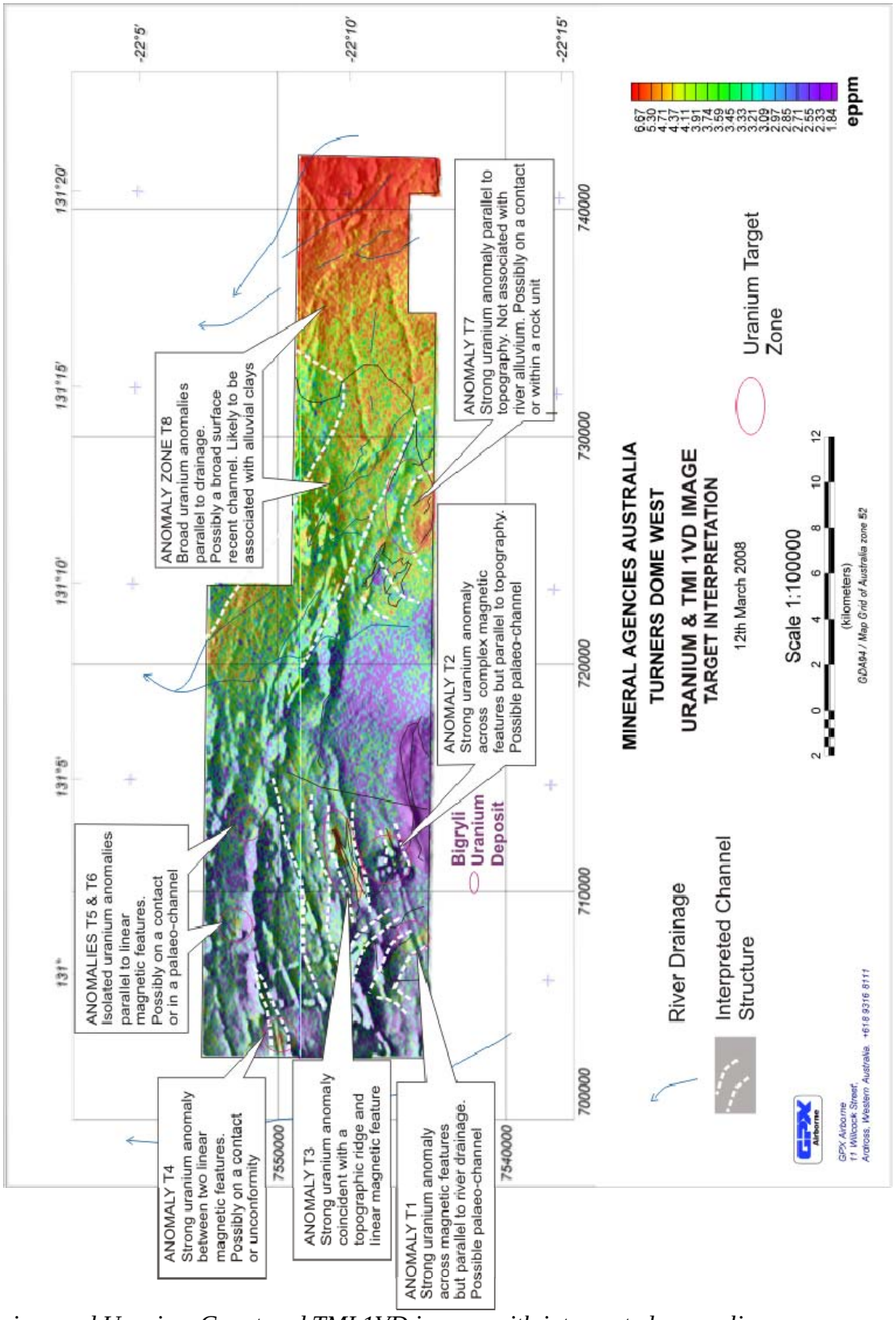
Similar in occurrence to T5, this is an isolated uranium anomaly occupying the same stratigraphic position near the granite/gneiss and Proterozoic Lander Rock Beds. This area should be investigated further for the possibility of contact or unconformity-hosted uranium.

**Target T7**

Situated at the southern boundary of the tenement, this uranium anomaly is 3 to 4kms in length and about 1km across and shows up well against a lower value background. The underlying bedrock is Strangways Metamorphic Complex schists and pelites. Several linear ridge-like features are seen from the Digital Elevation Model through this area. These may be dykes or intrusives. The intensity of the magnetic response is varied in the area and some linear features are seen. There may be some association of uranium with the major drainage system, but most of the anomalous zone has a higher elevation than the surrounding area. This area warrants further investigation.

**Target T8**

This is a very broad (10km long by 5km wide) surface anomaly that occurs within the major drainage floodplain and is orientated to the NW along with the river flow direction. It probably represents re-deposited alluvial silts and clays containing uranium compounds. The general tenor of the uranium intensity increases eastwards where the river channel is better developed. This may represent a former flow direction of the river and is likely to be relatively modern. However, these features may be masking older, buried palaeo-channels and some exploration effort may reveal the cause of the anomaly.




*Superimposed Uranium Count and TMI 1VD images with interpreted anomalies*

**Exploration Plan**

The exploration plan for each of the 8 Target anomalies is outlined below:

- Scintillometer traverses at 500m metre line spacing and 50 metre sample intervals
- Mapping of regolith and geology along the traverse lines
- Sampling of rock or soil where visible and appropriate on the traverse lines
- Follow up scintillometer or geochemical surveys after results from initial program are returned in a zone of interest
- Second stage exploration using auger or RAB/Air Core drilling within target areas

The next stage of field work is expected to include evaluation of Targets 1-8 by geological mapping and reconnaissance rock chip sampling with spot radiometric readings. This will be followed in the next field campaign by systematic scintillometer traverses to cover the areas of high uranium count responses.

See below a schematic budget for the next stages of exploration for the next year:

| **Cost Centre** | **Planned Activity** | **Expenditure** |
|---|---|---|
| Office Studies | Data processing, research, reports, administration | $10,000.00 |
| Airborne Exploration | Reconnaissance Mapping | NIL |
| Remote Sensing | Landsat interpretation | NIL |
| Ground Surveys – Target Evaluation | Reconnaissance geology 8 days at $1250/day | $10,000.00 |
| Ground Geophysics | Radiometric Surveys 100,000 line metres 1900 readings | $100,000.00 |
| Geochemical Surveys | Rock Chip and Soil samples, GPS locations, baselines and assays | $50,000.00 |
| Assays | 200 samples at $20 | $4,000.00 |
| Field costs (transport, fuel, manpower, accommodation) | 4 weeks | $24,000.00 |
| Contingency | | $5,000.00 |
| **TOTAL** | | **$203,000.00** |

**Recommendations**

- It is recommended that further exploration continue on the Central Area in the light of significant airborne radiometric anomalies and structures present.
- It is also recommended that Areas 2 and 3 of the tenement should be surveyed using similar airborne methods.
- Some of the larger anomalies indicate that the prospectivity for uranium is related to surface drainage features of the palaeo-fluviatile system and likely to be within alluvium, flood plain sediments and calcrete horizons. Therefore further ground-based scintillometer surveys should be used to better define detailed targets.
- Other anomalies may be related to bedrock features and could be significant targets for unconformity, "roll-front", vein or fracture-hosted uranium. These targets should be evaluated by both surface radiometric surveys as well as drilling.

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