

**PARTIAL RELINQUISHMENT  
REPORT**

**WAGGABOONYAH TENEMENT**

**EPM 14364**

**FOR THE PERIOD**

**5 July 2005 to 4 July 2007**

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<b>Date:</b>	<b>6 November 2007</b>
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<b>250K Map Sheets:</b>	<b>Mt Isa SF54-1</b>
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## 1. INTRODUCTION

EPM 14364 – “Waggaboonyah” forms part of Universal Resources Limited (Universal) regional tenement portfolio in the Mt Isa district. EPM 14364 was applied for by Universal as the area, particularly the central portion of the tenement, has the potential to host uranium mineralisation.

The tenement lays on the 29 Mile Fault, a major linking structure between the strongly mineralised Mount Isa and Mount Gordon Faults. The geology comprises Eastern Creek Volcanics, a known source rock for copper in the western fold belt, quartzites and arenites of the Judenan Beds which are brittle and should provide good structural trap sites for mobile copper. It also contains Gunpowder Creek and Paradise Creek Formation dolomites, shales and quartzites which host deposits such as the Mount Gordon Mammoth and Esperanza mines, Lady Loretta, Lady Annie and Mount Clarke.

## 2. LOCATION AND ACCESS

EPM 14364 – ‘Waggaboonyah’ is situated 55km to the northwest of Mount Isa. Access is gained via the Barkly Highway (Figure 1) then by the Lady Annie - Lady Loretta Road after which narrow tracks lead to within 300 metres of the tenement’s northern boundary.

## 3. TENEMENT STATUS AND HISTORY

EPM 14364 was granted on 5<sup>th</sup> July 2005 to Universal Resources Limited for a five (5) year term. The tenement comprises 29 sub-blocks (Figure 2) covering an area of approximately 93 km<sup>2</sup>.

As per the DME requirement, at the end of the second year of tenure, the tenement was to be reduced by 50%. After careful consideration and evaluation of historical, State government and acquired exploration data, Universal identified 15 sub-blocks for relinquishment. This is presented in tables 1 and 2 (also see Figure 2).

**Table 1 EPM 14364 – Granted BIM, Block number and Sub-block details**

<b>BIM</b>	<b>Block</b>	<b>Sub-blocks</b>
CLON	159	Y, Z
CLON	160	V,
CLON	231	D, E, J, K, M, N, O, P, R, S, T, U, W, X, Y, Z
CLON	232	A, F, L, Q, V
CLON	303	B, C, D, E
CLON	304	A

**Table 2 EPM 14364 – Sub-blocks relinquished as of 4 July 2007**

<b>BIM</b>	<b>Block</b>	<b>Sub-blocks</b>
CLON	159	Z
CLON	160	V
CLON	231	E, T, W, X, Y, Z
CLON	232	A, V
CLON	303	B, C, D, E,
CLON	304	A

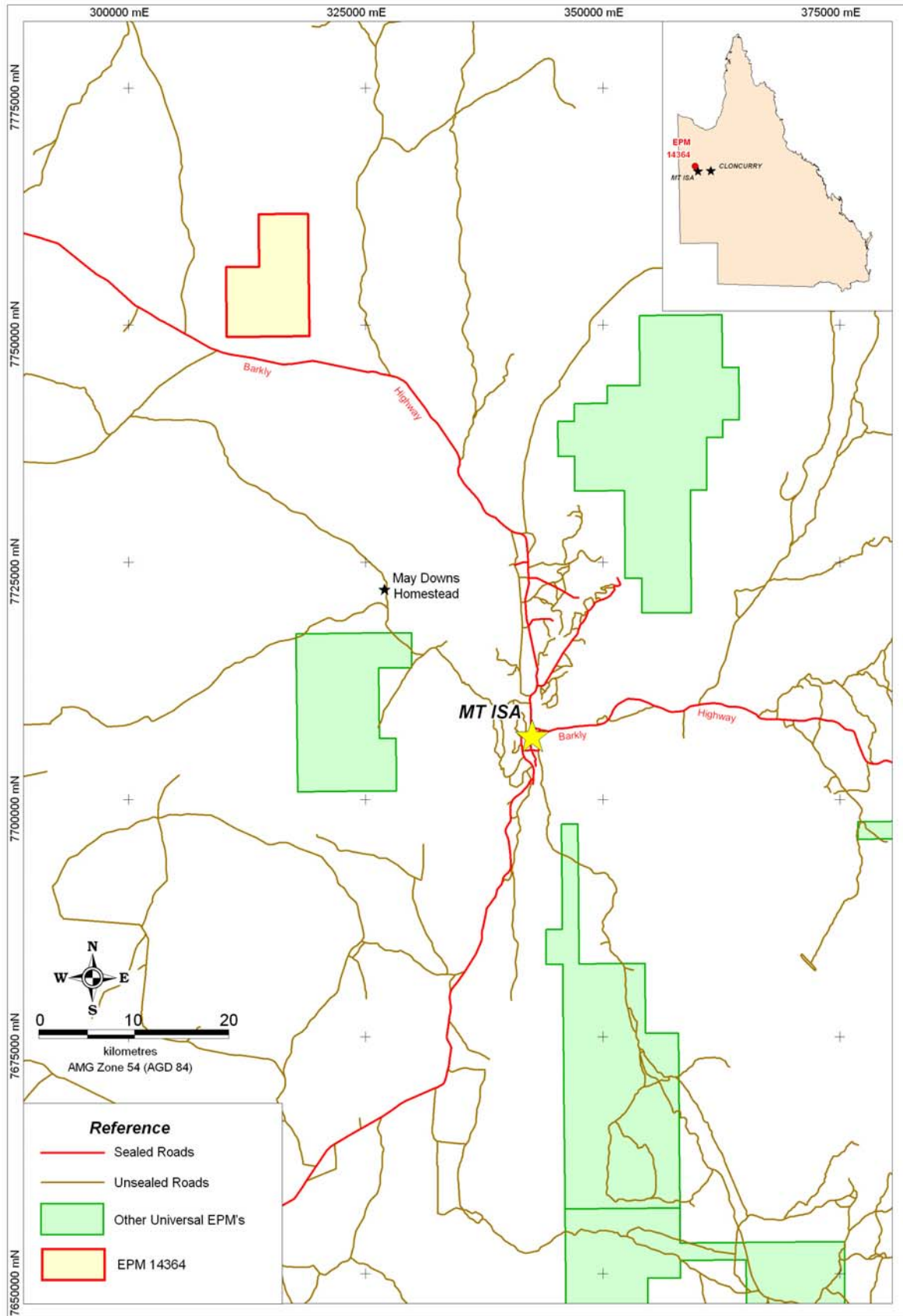


Figure 1: EPM 14364 – Tenement Location Plan

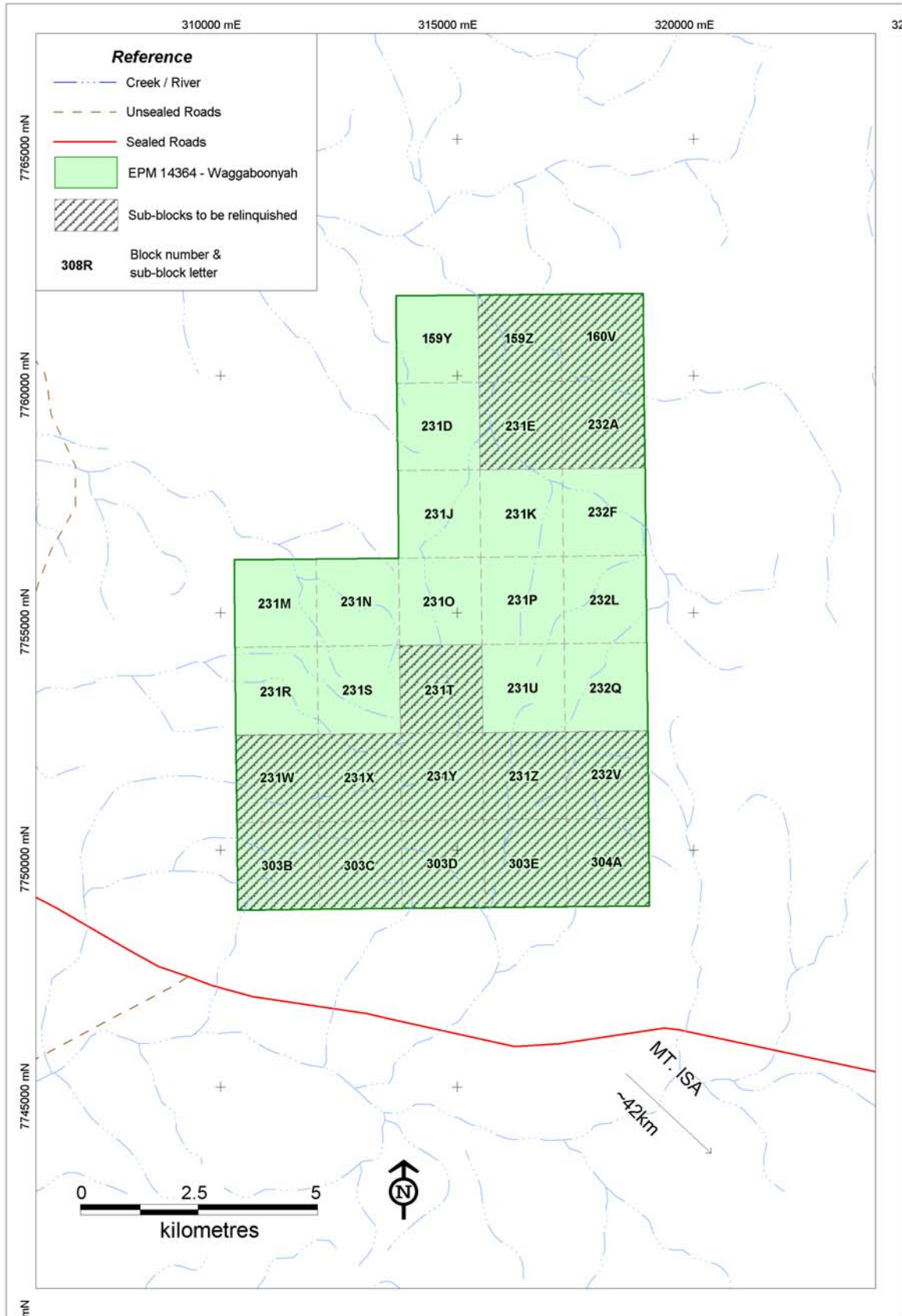


Figure 2: EPM 14364 – Relinquished Sub-blocks (as of 5<sup>th</sup> July 2007)

## 4. GEOLOGY

### 4.1 STRATIGRAPHY

#### Eastern Creek Volcanics

The lowest-most horizons found in the Waggaboonyah tenement are the Cromwell Metabasalt and Pickwick Metabasalt members of the Eastern Creek Volcanics (Figure 3). The Cromwell Metabasalt is a massive amygdaloidal meta-basalt with flow-top breccias, sandstones and dolomitic and calcareous siltstones. The Pickwick Metabasalt is similar to the basal meta-basalt but locally containing up to 50% of quartzite and feldspathic arenites.

#### Judenan Beds

The Eastern Creek Volcanics are conformably overlain by the Judenan Beds (Myally Subgroup). The Judenan Beds comprise a stacked sequence of quartzites, feldspathic quartzites and minor siltstones and cover most of the southern half of the tenement. Following the Judenan Beds is a time break in the stratigraphic record of approximately 60 million years which marks the end of Cover Sequence 2.

#### Gunpowder Creek Formation

The Judenan Beds are unconformably overlain by the Gunpowder Creek Formation of Cover Sequence 3. Four members are recognised within this predominantly psammitic and pelitic formation:

- **Torpedo Creek Quartzite:** approximately 100m of strongly outcropping orthoquartzite, feldspathic sandstone, and minor conglomerate.
- **Siliceous Shale Member:** several hundred metres of prominently outcropping, non-dolomitic, weakly to moderately carbonaceous red and green flaggy shales and siltstone with minor sandstone horizons.
- **Dolomitic Siltstone Member:** 20 to 100m of bleached dolomitic, variably carbonaceous, siltstones and shales.
- **Graphite Shale Member:** 20 to 50m of non-dolomitic, flaggy shales and fine sandstone, commonly with coarse pyrite cubes, and strongly carbonaceous at depth.

#### Paradise Creek Formation

The Gunpowder Creek Formation is conformably overlain by the Paradise Creek Formation. This is a predominantly dolomitic sequence composed of:

- **Oxide Chert:** 3 to 10m of pale grey laminated chert and silicified mudstone. Laminae are commonly mildly contorted. The chert commonly has a distinctive texture formed by thin discontinuous chert layers within silicified mudstone. This marks the base of the Paradise Creek Formation and is a useful marker horizon.



- **Dolomitic Siltstones:** the bulk of the Formation is composed of moderately outcropping dolomitic siltstones and mudstone, typically forming low rounded hills with a dark brown carbonate weathering patina. Concentric stromatolites are developed in places. Sandstone units 10 to 50m thick, commonly with carbonate cement, regularly occur as discontinuous lenses within the lower portion of the Formation.

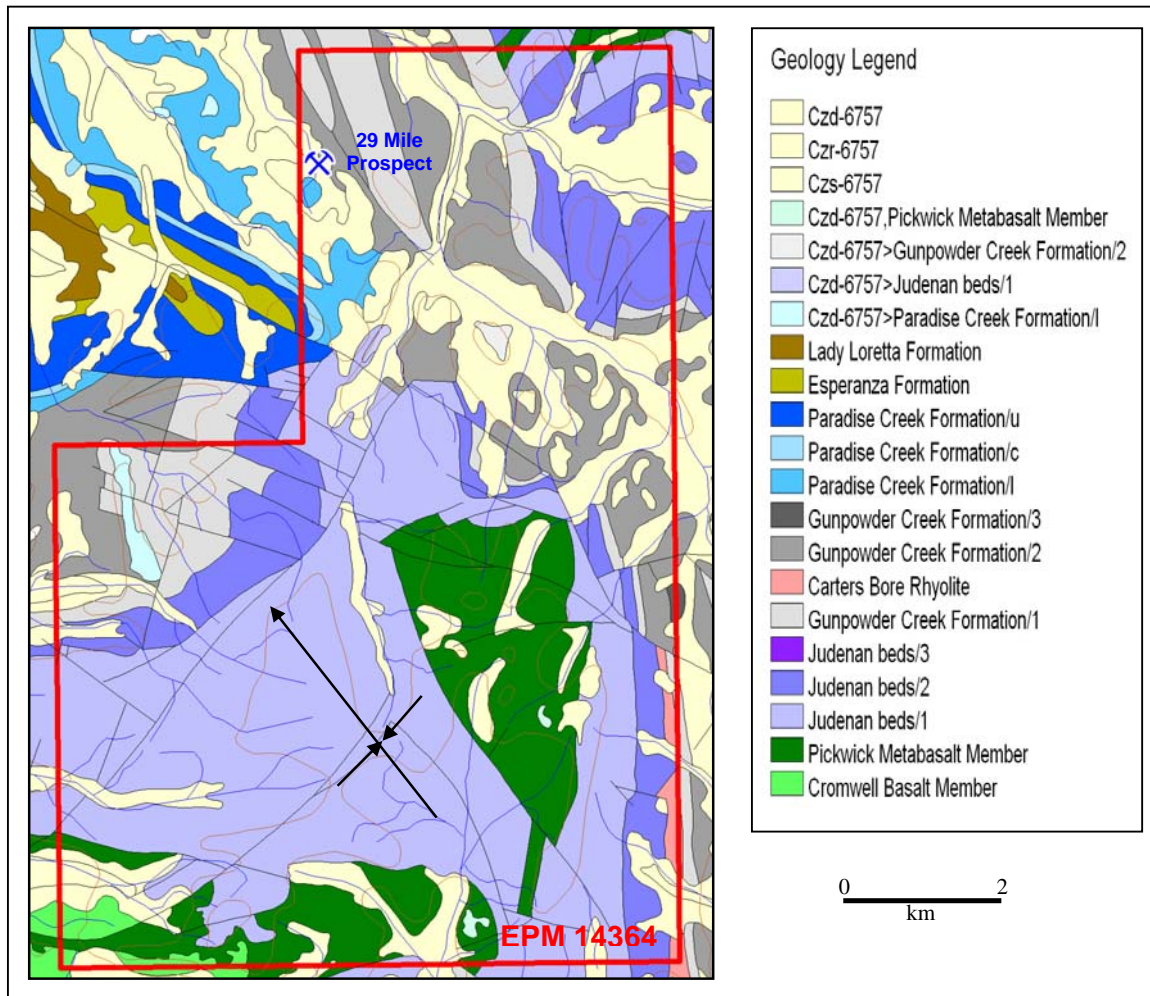
## **4.2 STRUCTURE**

The area contains numerous northwest striking folds with near-vertical dipping fold axes. The whole southern half of the tenement comprises one broad northwest dipping syncline, the eastern edge of which is faulted against the 29 Mile Fault. In the north, a series of tighter folds have developed with an increase in strain.

The northern area is dominated by the 29 Mile Fault zone, a large NW striking structure that links the north-south Mount Isa Fault to the southeast with the northeast-southwest striking Mount Gordon Fault to the northwest. Vertical movement on the 29 Mile Fault occurred, resulting in shifting the south block downwards. There are many other faults in the area, some acting as conjugate sets to the 29 Mile Fault.

A northwest striking graben has developed across the centre of the tenement, adjacent to the 29 Mile Fault. By analogy with other mineralised occurrences within the Western Fold Belt that are confined geologically to upper Gunpowder Creek - Lower Paradise Creek Formation stratigraphy and which are associated with major lineaments, the graben structure is a potential site for a similar style of mineralisation (e.g. Mount Kelly stratiform Cu shale hosted; Mount Oxide brecciated sediment hosted Cu). The dolomitic member of the Gunpowder Creek Formation and the lower dolomitic member of the Paradise Creek Formation are considered to be the most prospective for a stratiform or replacement style of Cu (or Zn, Pb) mineralisation.

Within the 29 Mile Fault area, previous explorers have recognised geochemically anomalous pyrite and carbonaceous sediments within the Graphite Shale Member of the Gunpowder Creek Formation.



**Figure 3: Geology of EPM 14364 ‘Waggaboonyah’. The tenement is comprised predominantly of quartzites and shales of the Gunpowder Creek Formation and the Judenan Beds.**

## 5. EXPLORATION HISTORY

Historical data searches suggest the Waggaboonyah tenement has been subjected to numerous phases of exploration since 1960’s. Initial exploration targeted ironstone formations as well as investigating zones of anomalous lead. Uranium became the focus during the 1970’s however, companies abandoned the tenement in favour of exploring areas closer to the Valhalla and Skala deposits. Data reviews were conducted by a number of companies in the 1990’s along with some rock chip sampling and geological mapping. Results were not encouraging with the ground subsequently dropped by the respective companies.

Previous work over EPM 14364 (held under earlier tenure) has been carried out by: Eastern Copper Mines, Anaconda Australia, Newmont, Godkin Uranium, Shell Australia, CRA Exploration, BHP Minerals and lastly by MIM Exploration and has included:

- Stream sediment sampling
- Soil sampling
- Rock chip sampling
- Geological mapping
- Geophysical surveys (including IP and aeromagnetic methods)
- Drilling (including auger and percussion)
- Trenching / costeaning

## **6. WORK COMPLETED**

Universal has conducted the following activities over the relinquished portion of EPM 14364 during the term of tenure.

### ***6.1. DATA REVIEW***

Datasets consisting of topographical, geological, geophysical and geochemical data were compiled from various sources.

Geological digital data was gathered from the QLD Geological Survey at 1:100,000 scale and from Geoscience Australia at smaller scales. Geochemical data was taken from the Qld government's 2004 regional geochemical datasets, the mineral occurrence datasets were obtained from the Queensland Governments Mineral Occurrence Database. Topographical data was collated from GeoScience Australia's 1:100,000 scale digital maps. Geophysical data was obtained from the North-West Queensland Mineral Province Datasets.

### ***6.2. FIELD REVIEW***

In the first year of tenure, a planned two day visit was spent attempting to access the tenement. Unfortunately, due to heavy rains associated with Cyclone Larry much of the tenement was inaccessible. Waterlogged ground and deep flowing streams prevented access to the part of the tenement where lead has historically been recorded.

There are no apparent tracks into the area, with the only viable entrance being to follow the base line of a prospect to the west of the tenement. This base line is several kilometres long and continues from the Lady Loretta road until the central west corner of the tenement. The terrain consists of relatively rounded hills over shale, vegetated with scattered snappy gum and grass. The hills are commonly capped with walls of quartzite boulders that follow the hill crests, the vegetation increases with a greater density of gum trees and spinifex.

While the hill sides are relatively smooth and easily traversed by vehicle, the quartzite ridges create a barrier that can be difficult to pass through. There are also many flat topped mesas in the area, capped by quartzites. The valley floors consist of flat colluvium/alluvium that is heavily vegetated and incised

by deep creeks. With the heavy rains experienced from Cyclone Larry most of the creeks were flowing and the valley floors were very soft and unable to support the weight of the vehicle.

No targets within the area of relinquishment were accessed during the first year of tenure.

A successful attempt was made during the second year of tenure to access EPM 14364 by foot. However, no targets were visited in the area of relinquishment.

### **6.3 URANIUM PROSPECTIVITY ANALYSIS**

A detailed prospectivity review of EPM 14364 was completed as part of a larger project, designed to define and prioritise uranium targets within Universal Resources regional tenement portfolio. Targets within the Waggaboonyah tenement were considered particularly prospective due to the similar stratigraphy to shale–mafic volcanic-hosted metasomatic style hematite-breccia deposits found at Skal and Valhalla (33.3Mt @ 0.077% U<sub>3</sub>O<sub>8</sub>).

A review of available datasets was completed over Universal’s regional tenement package. The most up-to-date, detailed geophysical datasets (aeromagnetic and radiometric) were downloaded from Geoscience Australia’s Geophysical Archive Data Delivery System (GADDS).

Initially the uranium channel image was reviewed with anomalous points highlighted and assigned an anomaly code. This work attempted to exclude anomalies that appear to be related to stratigraphic and/or granitic intrusions. A systematic review of the remaining datasets was then completed, with information integrated and a prospectivity rating assigned for each anomaly (Appendix 1, Plate 1).

## **7. RESULTS**

### **7.1 FIELD REVIEW**

Attempts to establish access into the tenement by vehicle have failed to locate any viable tracks from historical exploration. Sharp quartzite ridges, flat top mesas and localised areas of dense eucalypt vegetation, prevented access via four wheel drive and was deemed to be inappropriate for access with either motorbike or quad bike.

Enquires have been made as to the availability of helicopters in the Mt Isa district to complete the work. Preliminary discussions have been held with North Australian Helicopters regarding use of a small helicopter (either a Robinson 44 or a Bell Jet Ranger) to facilitate rapid assessment of the uranium targets.

Access was gained to the tenement by foot only. Exploration activities were carried out over targets within non-relinquished ground.

## 7.2 URANIUM PROSPECTIVITY ANALYSIS

A review of the NWQMP datasets failed to identify any known uranium occurrences within (or along strike of) EPM 14364 – Waggaboonyah. An open file search of the tenement indicates Anaconda Australia completed limited field work in 1970, following up a radiometric anomaly within the granted tenement boundary. A hand-held scintillometer survey recorded maximum values in the order of 100 counts per second (cps), in an area of extensive scree cover. Anaconda concluded no further work was justified.

A total of eight anomalies (WBY004 – 009 and 012 – 013), were identified during the first pass assessment of the uranium channel of the airborne radiometric data (Appendix 1, Plate 1). The intensity of most anomalies is low with seven of the eight below 5ppm U. The maximum value recorded is located at WBY004 with a peak of 6.1ppm U. This is well below that of the Skal (>30ppm U) and Valhalla (>20ppm U) deposits.

Of the eight anomalies only one has been rated with a ranking of low-moderate, with the rest ranked as low (Table 3).

**Table 3: Summary of Prospectivity Analysis**

Ranking	Description	Anomalies
1	Very High	-
2	High	-
3	Moderate	-
4	Low-moderate	WBY004
5	Low	WBY005, 006, 007, 008, 009, 012, 013

A review of the remaining geophysical (radiometrics, magnetics) and geological data has failed to upgrade the prospectivity of any of the anomalies, with none displaying similarities to any of the major prospects in the Mt Isa region.

## 8. REHABILITATION

No ground exploration activities were conducted within the relinquished portion of EPM 14364 over targets identified during the uranium prospectivity analysis. Therefore, no rehabilitation was required.

## 9. CONCLUSIONS

Although numerous radiometric anomalies were identified during the uranium prospectivity review, all are of low order and of limited interest. Those anomalies within the relinquished portions of the tenement are under-

explored and could be followed-up with surface sampling and geological mapping to further assess the relative prospectivity.

The remaining portion of EPM 14364 still has the potential to host base metal, gold and uranium mineralisation. Structurally, it is favourable, lying on a cross linking feature between two major mineralising structures in the form of the Mount Isa and Mount Gordon Faults. The upper stratigraphy is host to copper and lead deposits of various sizes throughout the western fold belt and several broad scale anomalies indicate that the same mineralising fluids have affected this area as well. This area of the tenement has been retained.

## **10. REFERENCES**

Bartlett, J. & Ewert, B.M., 2007. Universal Resources Limited, Annual Report, Waggaboonyah Tenement, EPM 14364 for the Period 5 July 2006 to 4 July 2007. August 2007. Unpublished.

Reid, R. & Ewert, B.M., 2006. Universal Resources Limited, Annual Report, Waggaboonyah Tenement, EPM 14364 for the Period 5 July 2005 to 4 July 2006. August 2006. Unpublished.

## **PLATES**

310000 mE

315000 mE

320000 mE

**Reference**

- EPM14364 - Relinquished Sub-blocks
- EPM14364 - Original Granted Area

Uranium Prospectivity Ranking

- + 4
- + 5

7760000 mN

7755000 mN

7750000 mN

7745000 mN

+ WBY013

+ WBY012

+ WBY009

+ WBY005

+ WBY008

+ WBY004

+ WBY006

+ WBY007



UNIVERSAL RESOURCES

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Scale: 1:50,000

**EPM 14364 - Waggaboonyah  
Uranium Prospectivity Review  
Over Relinquished Sub-blocks**

Projection: AGD84 (Zone 54)



## **APPENDICES**

## APPENDIX 1 - PROSPECTIVITY REVIEW

Anomaly	Prospect	East_AGD84	North_AGD84	Ranking (1 – 5)	Peak Uranium Value (ppm)	Uranium Anomaly	Thorium Channel	Potassium Channel	Magnetics	Geology	Other comments
WBY004	Waggaboonyah	310964	7749433	4	6.1	Intersection of NE an NW structures	thorium low	southern edge of a diffuse potassium high	Located in a break in magnetics due to the NE trending structure	Cromwell Basalt member	Of limited economic interest - re-assess after ground evaluation of WBY001 - 003
WBY005	Waggaboonyah	311263	7751210	5	4	small, weak anomaly on E structure	co-incident thorium anomaly	potassium low	Located adjacent to a E trending magnetic high	Judenan beds	Of no economic interest
WBY006	Waggaboonyah	315560	7749587	5	4.6	small (200 metre diameter) bulls-eye anomaly on NE structure	diffuse thorium signature (gradient from high to low)	southern edge of well defined NNW trending potassium high	Located on the southern end of a folded magnetic unit. Terminated by NE trending structure	Pickwick meta-basalt member	Of little to no economic interest - re-assess after ground evaluation of WBY001 - 003
WBY007	Waggaboonyah	318674	7749395	5	4.4	Weak, diffuse donut anomaly (500m diameter)	broad stratigraphic thorium high	potassium low	very quite / low magnetic signature	Judenan beds / colluvium	Of little to no economic interest - re-assess after ground evaluation of WBY001 - 003
WBY008	Waggaboonyah	318973	7750462	5	4.7	600 metre NNW trending anomaly	broad stratigraphic thorium high	occurs on a broken N trending potassium high	very quite / low magnetic signature	Carter Bore rhyolite	Of little to no economic interest - re-assess after ground evaluation of WBY001 - 003
WBY009	Waggaboonyah	318880	7752015	5	4.6	weak bulls-eye anomaly adjacent NE structure	broad stratigraphic thorium high	occurs on a broken N trending potassium high	very quite / low magnetic signature	Carter Bore rhyolite	Of little to no economic interest - re-assess after ground evaluation of WBY001 - 003
WBY012	Waggaboonyah	316073	7759089	5	4.7	weak 200 metre diameter bulls-eye anomaly on NE structure	mottled thorium associated with NE trending fault zone	northern edge of diffuse potassium anomaly	very quite / low magnetic signature	Gunpowder Creek Formation	Of little to no economic interest - re-assess after ground evaluation of WBY001 - 003
WBY013	Waggaboonyah	318300	7760754	5	4	intersection of NE and NW structures - on a very weak donut feature (700 metre diameter)	thorium low	potassium low	very quite / low magnetic signature	Judenan beds	Of no economic interest