ANNUAL AND FINAL RELINQUISHMENT
EXPLORATION REPORT

EL 24967

FOR YEAR 6 ENDING 30th July 2012

‘HAYWARD CREEK’

TENNANT CREEK  NT

Tennant Creek SE5314  1:250,000
Flynn 5759          1:100,000
Barkly 5859         1:100,000

Titleholder: TUC Resources Limited

Report No. 2012-04
Prepared for TUC Resources Ltd
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1. SUMMARY

EL 24967 is roughly 60 kilometres North of Tennant Creek, lying east of the Stuart Highway.

In year 2 and 3 a total of 11 soil samples and 20 rock chip samples were taken with limited results (best result; Cu 215ppm, As 200ppm and Zn 115ppm).

A first pass 41 hole RAB program was completed for 1,200m and 452 samples. Drilling is at very early stages with broad spaced holes (approximately one kilometre apart on 2 to 7km spaced drill lines). RAB ‘Bottom of hole’ assays (which have been analysed for the entire REE suite) have returned highly anomalous rare earth values of up to 4,292ppm TREO (0.43% TREO) from 23m. The remainder of the samples have been assayed for REE indicator elements Ce, La and Y returning results of up to 1,500ppm. Results so far indicate a good REE distribution with over 30% consisting of medium and heavy REE’s.

Multi element geochemistry of drill samples shows other geochemical anomalies in Phosphate, Copper (250ppm), and Tungsten (550ppm) but at this stage only the phosphate anomaly is interpreted to be significant.

Some results from the year 5 drilling were received and processed during year 6 and some sampling and drill costs were invoiced during the period.

As the tenement had reached the end of its sixth year and due to TUC’s growing HREE potential in the Daly Region no further exploration was planned for this tenement and it was allowed to expire without renewal at the end of year 6.
2. LOCATION AND ACCESS

EL24967 is situated approximately 40km to the North of Tennant Creek, NT (Figure 1). The western boundary of the Licence runs approximately seven kilometres east of the Stuart Highway, while the northern eastern boundary partly includes sparse but operational dirt roads. The southern boundary is approximately 25 kilometres north of the Barkly Highway and the track on the eastern perimeter of the tenement bounds the track to Rockhampton Downs and Wogyala.

Topography for most of the tenement is low relief, with some floodplains. The western border of the Licence has higher relief. The tenement has numerous creeks which can flood in heavy rains during the wet season. The northern boundary encompasses the southern end of Brunchilly Creek and the western boundary includes Hayward Creek.

The area has arid, ‘tropical’ climate with long hot summers and short mild winters. Rainfall peaks over the summer period (December to February) with up to 100mm during January (mostly storm related). Temperatures can range from 10°C during the winter into the high 30s for extended periods during summer.
3. TENEMENT STATUS AND OWNERSHIP

EL 24967 was granted on 31\textsuperscript{st} July 2006 and expired on 30\textsuperscript{th} July 2012. It comprised of 448 graticular blocks, half (224 blocks) of which were relinquished at the end of the third year (Figure 1). A waiver from reduction was requested and granted for the end of the fourth year and 112 blocks were relinquished at the end of year 5. There are no other current mining leases or mineral claims shown within the Licence boundaries.

Underlying cadastre is all Perpetual Pastoral Lease, owned by several parties, including:

J. Warby, S. Kidman and Co Ltd. and A.A. & P. Joint Holdings Pty Ltd.

In 2009 TUC established a Joint Venture with Panoramic Resources (PAN) which includes tenements EL24966 and EL24967. The joint venture involved expenditure of up to $9M by PAN on direct exploration on EL24966 and also expenditure of at least $50K on EL24967.

The expenditure covenant set for the fifth year was $40,000 although $50,000+ was planned to be spent under the Joint Venture.

The tenement was not renewed at the end of year 6.

4. GEOLOGY

EL 24967 is situated in the north eastern portion of the Tennant Creek SE 53-14 1:250,000 Geological Map Sheet. A full description of the most recent geological interpretation of the geology and stratigraphy of Tennant Creek region can be found in the 1:250,000 Tennant Creek Geological map series and explanatory notes (Donnellan, et al 1999).

The tenement area covers the top half of the north eastern portion of the Tennant Creek SE 53-14 1:250,000 Geological Map Sheet. The Palaeoproterozoic geology of EL24967 includes the Churchills Head Groups - Tomkinson Creek Subgroup (includes the Haywood Creek Formation) in the west and to the south the Flynn Subgroup (includes the Brumbreu Formation) further to the east Palaeozoic Cambrian is exposed as Gum Ridge Formation and Anthony Lagoon Beds subcrop
(Figure 2). Extensive Alluvial Red soil plains channel through the centre of the tenement, these are flanked to the east by black soil plains and to the west by subcropping undifferentiated Haywood Creek Formation and Gum Ridge Formation.

The Haywood Creek Formation depositional environment is postulated to be Fluvial, intertidal/shallow marine. The Brumbreu Formation is interpreted to be a marginal marine to fluvial depositional environment. The Wundirgi Formation is predominantly subaqueous (deep water marine to littoral) with a minor subaerial component comprising felsic surge and fall deposits (Donnellan, et al 1999).

![Figure 2 NTGS Geology and MODAT Occurrences](image)

The structure within the south western portion of the tenement is most striking being synclinal Haywood Creek Formation. Faulting is mostly in a north west and south east direction.

There are no recorded MODAT occurrences within EL24967, however the Whippet Mine lies two kilometres south of the southern most boundary of the tenement. This was an abandoned gold mine. There is also a cluster of prospects/mines five to ten kilometres to the south west of the southern most boundary of EL24967.

Geopeko delineated the ‘Explorer 98’ prospect (location 19°08′40″, 134°15′40″). The target was evaluated and found most likely to be a linear geophysical anomaly interpreted most likely to be a basic dyke. No further work was completed on this target.
5. PREVIOUS EXPLORATION

Historical tenements for EL24967 are summarised in Appendix A. The eastern portion of **EL1669** covered the south western segment of EL 24967. Uranerz Australia were prospecting for Vein like Uranium Deposits (Alligator River Type Uranium Deposits located near an unconformity) but received ‘**no encouraging results**’. Drilling showed that the magnetic features were dolerite sill/dykes. A Note was made that Uranium mineralisation has been reported in chloritised shales and been intersected in local gold mines. Uranerz also made the following observations

- Predominantly thorium anomalies
- Basal Grit heavy metal accumulation underlying the ‘Blanche Creek Conglomerate are examples of dirty cross bedded sandstones with heavy mineral bands with readings up to 500cps.
- Laterite cover with readings up to 250cps, iron enriched purple brown arkosic sandstones with readings up to 125cps.
- Ironstones eg at Last Hope Mine have readings up to 125cps.
- Possible dolerite sill north of the Last Hope Mine reading 250-300cps and small lamprophyric sills up to 150cps.

The extensive **EL214** intersects six blocks of the southern most section of EL24967. Geopeko were exploring for Tennant Creek style Copper – Gold (+/- Bi) deposits. Explorer 76, 77 & 78 prospects (location 19°16’, 134°15’00” to 134°17’00”) fall within the tenement area where an elongate gamma anomaly corresponded with Basic sills.

**EL215** covered a larger area of EL24967. Once again Geopeko were exploring for Tennant Creek style Copper – Gold (+/- Bi) deposits in the 1970s’. Most useful work completed would be the outcrop geology maps. Work on the tenement included multi element sampling, and structural review. Explorer 98 (location 19°08’40”, 134°15’40”) was evaluated within EL24967 and found by Geopeko to be a linear geophysical anomaly interpreted most likely to be a basic dyke. No further work was completed.

**EL24015** was held by Red Metals Ltd for one year (2005). No work was completed during this period.

During the mid 1980’s **EL4248** was explored for diamonds by Ashton Mining and associates. 52 samples were taken, 12 gravel and 40 loam samples. No diamond indicator minerals were located.
EL5409 was explored by Giants Reef Mining/ Western Mining in the period 1988 to 1992. EL5409 covers only three blocks of EL24967. Sampling was difficult to locate on current mapping tools. EL5409 was stream sediment sampled with one location identified but discounted as the distribution of values indicated that the samples had been contaminated by windblown sediment from the Whippet Mine dumps.

EL5493 was explored by Giants Reef Exploration/ Western Mining in the period 1988 to 1992. Ground was relinquished because the Tomkinson Creek Group and Cainozoic cover was considered 'unprospective'.

EL7653 was incorporated in SEL7716 and no work was completed on the tenement during its tenure by Giants Reef Exploration/ Western Mining.

Giants Reef Exploration/ Western Mining completed extensive exploration across SEL7716 during the 1990s. However this tenement only covers six graticular blocks of EL24967. The region was covered by gravity – ground magnetic – IP and soil gas surveys as well as aeromagnetics. A bouger gravity anomaly map shows no anomalism in the EL24967 region. Sampling was completed out of the tenement area but may prove relevant because of its proximity to EL24967. The sampling was completed over an area to the north of the Whippet Mine. These samples were analysed using the ‘regoleach’ partial extraction method. The sampling did not delineate any gold values but a strong linear Bismuth anomaly was thought to be associated with dispersion from the Whippet Mine Tailings dump. Other Bi anomalies were noted as well as Cu-Pb anomalism. No further work seems to have been completed on these anomalies. The ‘Drillsteel’ target was north of the Whippet Mine (but no exact location was determined) and is highlighted as a follow up target by Giants Reef Exploration. The prospect was located using rockchipping ironstone exposure and showed some Bismuth anomalism. Thoughts included that the exposure may be deep extensions of the Whippet Mine mineralising system. No follow up was completed during this tenure.

EL7761 was held by Poseidon Gold during 1993-1994. Extensive aeromagnetics were completed and the interpretation revealed a complex folding and faulting pattern. Twenty two stream sediment samples were taken and analysed by BCL – no anomalous values were obtained and the ground was relinquished with the interpretation of extensive cover in the tenement.

EL8733 was held by North Flinders Mines during 1995. No work was completed during this period.
EL8775 covers one graticular block of EL24967. The ground was held by Normandy/Poseidon Gold for 1996-1997 period. A gravity survey was completed (during 1991-1993) with one anomaly outlined (134°15', 19°15'). Underlying geology of Flynn sub group and Tomkinson Creek Group were not thought prospective and so relinquished.

EL9180 covers five graticular blocks of EL24967. Normandy Gold held the ground over the 1997 period. Tenement was sampled by vacuum drilling with 'negative' results. Although Au, Cu and Bi anomalism is low, Fe in places ranges from 10 to 15%. A magnetic ridge within the tenement was determined to be a dolerite dyke. The section of vac drilling within EL24967 was referred to as the "Eiger" Prospect. Drillhole locations were found within the NTGS Explorer database.

Carpentaria Gold and Giants Reef exploration found little to explore for in EL9296, interpreting the tenement as being underlain by unprospective granite.

EL9499 was explored by Normandy Gold commencing 1997. Aeromagnetic covered a small area but included Radiometrics (Uranium, Thorium and Potassium).

6. EXPLORATION BY TUC

Year 1 and 2

In the first two years of EL24967 tenure TUC Resources compiled the previous exploration work (above and appendix A) as well as mapping the stratigraphy in the area and obtaining samples for geochemical analysis 13 samples were taken and some samples showed elevated levels of phosphate with a spatial association with areas of outcropping and sub-cropping phosphate prospective rocks, including the Anthony Lagoon, Gum Ridge and Montejinni rock sequences. Field observations suggested that the rocks in these locations were of a more bio-siliceous nature upgrading the potential to host phosphate.

Geo-statistical analysis of 23 (13 from EL24967) samples shows elevated populations of phosphate (represented by brighter colours in Figure 3). These elevated samples have a spatial association with areas of outcropping and subcropping phosphate prospective rocks, including the Anthony Lagoon, Gum Ridge and Montejinni rock sequences. Field observations suggested that the rocks in these locations were of a more bio-siliceous nature upgrading the potential to host phosphate.
Year 3

Work completed during the third year of tenure consisted of 11 Soil Samples and 7 Rock Chips over a magnetic anomaly. Results for the program were disappointing; however one sample came back with anomalous values for Cu (215ppm), As (200ppm) and Zn (115ppm).

Year 4

Exploration included target review and drill program design

Year 5

A first pass 41 hole RAB program was completed for 1,200m and 452 samples. Holes were sampled with 6m composites and a multi-element sample was taken from the bottom of each hole, resamples were then taken from significant results (Appendix B).

Drilling spacing was very broad approximately one kilometre apart on 2 to 7km spaced drill lines.
RAB ‘Bottom of hole’ assays (which have been analysed for the entire REE suite) returned highly anomalous rare earth values of up to 4,292ppm TREO (0.43% TREO) from 23m (Table 1).

<table>
<thead>
<tr>
<th>Hole Id</th>
<th>From (m)</th>
<th>Width (m)</th>
<th>TREO (ppm)</th>
<th>TREO (%)</th>
<th>HREO Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCRAB-010</td>
<td>22</td>
<td>2</td>
<td>652</td>
<td>0.07%</td>
<td>35.2%</td>
</tr>
<tr>
<td>TCRAB-024</td>
<td>23</td>
<td>1</td>
<td>4,292</td>
<td>0.43%</td>
<td>23.8%</td>
</tr>
<tr>
<td>TCRAB-025</td>
<td>24</td>
<td>2</td>
<td>562</td>
<td>0.06%</td>
<td>31.7%</td>
</tr>
<tr>
<td>TCRAB-026</td>
<td>25</td>
<td>1</td>
<td>897</td>
<td>0.09%</td>
<td>25.2%</td>
</tr>
</tbody>
</table>

**Table 1** Bottom of hole REO intersections

The REE mineralization is interpreted to be within a shallow, and gently east dipping horizon (Figure 3). The highest grade REO intersection is at the end of a drill hole leaving the rest of the zone untested. Also some holes did not penetrate deep enough to test the horizon leaving the horizon un-drill tested for kilometres.

Figure 4 Down hole Max REE and contour of ‘top of REE horizon’ over 250k geology

An association of increasing REE (Y-Ce-La) with increasing phosphate values suggests that the REE’s are hosted in REE bearing phosphate minerals (could include Xenotine). Also an association with weakly elevated uranium values support future drill targeting of uranium trends evident on radiometrics (Figure 4). These
uranium trends continue into TUC’s application EL24968 which covers similar geological terrain immediately to the south of EL24967.

Results indicate a good REE distribution with over 30% consisting of medium and heavy REE’s. The more valuable LREE’s, Nd and Pr, make up over 30% of the LREE’s. Overall higher demand elements make up more than 50% of the TREE (high demand LREE + MREE + HREE). Figure 5 shows both the distribution and relative value of the rare earth elements.
Multi element geochemistry shows other geochemical anomalies in Phosphate, Copper (250ppm), and Tungsten (550ppm) but at this stage only the phosphate anomaly is interpreted to be significant. Best phosphate intersects include 11m @ 0.42% P2O5 from 40m including 5m @ 0.62% P2O5 from hole TCRAB-003 to the north east of the tenement (Figure 6).

![Figure 7 Phosphate down hole maximum results over 250K geology](image)

**Year 6**

Some results from the year 5 drilling were received and processed during year 6 and some sampling and drill costs were invoiced during the period.

As the tenement had reached the end of its sixth year and due to TUC’s growing HREE potential in the Daly Region no further exploration was planned for this tenement and it was allowed to expire without renewal at the end of year 6.
8. REFERENCES

Appendix A – Historical Tenements.

EL24967_2012_AS_02_PreviousTenureOnEL24967.xls

Appendix B – Drill Hole Data.

EL24967_2012_AS_03_DHCollardata.txt
EL24967_2012_AS_04_DHAssaydataResamples.txt