ANNUAL REPORT

Waterhouse West Project
EL24563

NORTHERN TERRITORY

FOR THE PERIOD
18 January 2010 to 17 January 2011

REPORT NO: ROY0291
DATE: January 2011
AUTHOR: B. Lawrence
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PROJECT NAME: Waterhouse West Project
TENEMENT NO: EL24563
TENEMENT OWNER: Aldershot Resources Ltd
TENEMENT OPERATOR: Royal Resources Limited
REPORT TYPE: Annual
REPORT TITLE: Annual Report Waterhouse West Project, EL24563 Northern Territory for the period 18 January 2010 to 17 January 2011
REPORT PERIOD: 18 January 2010 to 17 January 2011
AUTHOR: B Lawrence
DATE OF SUBMISSION: January 2011
DATUM: GDA94_Zone 52
1:250,000 SHEET AREA: Pine Creek (SD52-08)
1:100,000 SHEET AREA: Reynolds River (5071)
MINERAL FIELD: Rum Jungle Mineral Field
COMMODITY: Uranium
ABSTRACT

LOCATION: The Waterhouse West Project is centred approximately 10 kilometres southwest of the Batchelor town. The project is defined by a single Exploration Licence, EL24563, which covers an area of 128.4km² (48 sub-blocks) and is located on the Pine Creek 1:250 000 Sheet (SD52-08) and the Reynolds River 1:100 000 sheet (5071).

GEOLOGY: The Waterhouse West Project overlies the Archaean Waterhouse Dome, part of the Rum Jungle Mineral Field. The core of the Waterhouse Dome comprises schist, gneiss and granitic units and blocks of the Stanley Metamorphics. Exposures of the Early Proterozoic sedimentary units include the Manton Group, Mount Partridge Group, South Alligator and Tolmer Group sediments, which are folded around the margins of the granitic dome.

WORK DONE: During the reporting period limited access to the project following the extended wet season inhibited exploration. Pegging of proposed drill holes was carried out in the drier months in preparation for the coming year. Photo-interpretation geological mapping at 1:20,000 scale was carried out to identify key stratigraphic markers, geological contacts and deformation effects (structure a key element due to vein-style mineralisation) and to assess the role of northwest-southeast trending features

CONCLUSIONS: Continued focus lies in the north-western area of the tenement at the Giants Reef Prospect.
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1. INTRODUCTION AND TENURE

This report details exploration completed on the Waterhouse West Project for the fourth year of tenure during the period 18 January 2010 to 17 January 2011. The reporting area comprises one granted Exploration Licence EL24563 of 48 graticular blocks, overlying the Waterhouse West Dome, part of the Pine Creek Orogen. Tenement details are listed in Table 1.

The area is prospective for unconformity-type uranium mineralisation and vein-hosted uranium mineralisation along the western and south-western margins of the Waterhouse Dome.

During the reporting period, a size reduction was required surrendering 10 blocks. Field activities involved site reconnaissance and pegging of proposed drill holes at three prospective locations, the Giants Reef Prospect, the Giants Reef South Prospect and the Riverside North-east Prospect.

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2. LOCATION AND ACCESS

EL24563 is located 100 kilometres south of Darwin, approximately 10 kilometres southwest of the historic mining township of Batchelor in the Northern Territory (Figure 1). The tenement abuts the eastern boundary of the Litchfield National Park and covers an area of 128.4 km². It lies between longitude 130.93°E and latitude -13.27° S, and longitude 131.0°E and latitude -13.02° S on the Pine Creek 1:250 000 map sheet (SD52-08) and the Reynolds River 1:100 000 map sheet (5071).

The project area comprises savannah woodland with localised patches of tropical forest lining creeks, as well as areas of open black soil plains and experiences a wet season from November–April and a dry season from May–October. The average rainfall is 677mm with a mean temperature of approximately 34° C. During the reporting period the wet season finished late April and as a result, access to the tenement was prohibited due to boggy conditions on black soil plains.

Access to the tenement area is by the Stuart Highway and turning off toward Batchelor along the Litchfield Park road. The tenement is then accessed via gravel roads heading south and then west via various properties gates and tracks. The flat, relatively open country is generally accessible by 4WD. Access to the Giants Reef Prospect is via Chin Road (dirt track) travelling west to the Litchfield National Park fenced boundary. A track marks the boundary on both sides of the fence and is used to access both Giants Reef Prospect and the Giants Reef South Prospect. The Riverside North-east Prospect is accessed through Camp Creek Station.

3. REGIONAL GEOLOGY

The Waterhouse West project is situated around the Archaean Waterhouse Dome part of the historic Rum Jungle Mineral Field on the western side of the Pine Creek Orogen (Figure 2). The Archaean Rum Jungle and Waterhouse Complexes are domal structures containing mixed schist, gneiss, and granitic units and metasediments and Banded Iron Formations (BIF) assigned to the Stanley Metamorphics, upon which early Proterozoic sedimentation has taken place. The Proterozoic sedimentary sequences consist of repeated cycles which commence with the deposition of high energy conglomerate and sandstone, which fine upwards to shallow-water limestone.
In the western part of the Rum Jungle Mineral Field the oldest sedimentary rocks in the sequence are exposed against granitic contacts. These units belong to the basal Manton Group sediments which are overlain by the Mount Partridge Group. The basal member of the Mount Partridge Group is the Crater Formation, overlain by the Coomalie Dolostone, Whites Formation and Wildman Siltstone. The units of the Mount Partridge Group are unconformably overlain by rocks of the South Alligator Group. The Koolpin Formation lies along the eastern edge of the project area and isolated outcrops of Zamu Dolerite have been mapped along the north eastern edge overlying the Koolpin Formation. Overlying the South Alligator Group are sediments of the Burrell Creek Formation of the Finnis River Group. The formation consists of siltstone, shale and greywacke and extends through the western sector of the project area. The Geolsec Formation unconformably overlies the Finnis River Group and marks a period of deformation, metamorphism and granitic intrusions, resulting in uplift and erosion. The basal member of the Geolsec is a haematitic quartzite breccia unit which in places unconformably overlies the Coomalie Dolostone. The Late Proterozoic sandstones of the Tolmer Group unconformably overlie the Early Proterozoic sediments at Rum Jungle and elsewhere. These sandstones are essentially flat lying and were deposited upon erosional surfaces of the older rocks, with siliceous iron-rich breccias developed in places.

The Rum Jungle area within the Pine Creek Orogen has undergone greenschist facies regional metamorphism associated with the Nimbuwah Event of the Barramundi Orogeny (1860-1840Ma). A slight increase in metamorphic grade occurs along the boundary of the granitic complexes. Geological mapping by the Northern Territory Geological Survey (NTGS) has identified in order of seven deformatonal events occurring pre-Manton Group and post-South Alligator Group. The major structural feature of the region is the Giants Reef Fault. The Giants Reef Fault is a north-northeast to northeast trending dextral strike-slip structure with up to 7km lateral offset and >600m vertical movement, northwest-side down. It laterally displaces the Early Proterozoic sediments where structural trends are generally striking north–south but also swing concentrically around the two granitic complexes.

4. LOCAL GEOLOGY AND MINERALISATION

EL24563 is situated on the central, southern and western regions of the Archaean Waterhouse Dome. The core of the Waterhouse Dome comprises schist, gneiss and granitic units and blocks of the Stanley Metamorphics. Exposures of the Early Proterozoic sedimentary units include the Manton Group, Mount Partridge Group, South Alligator and Tolmer Group sediments which are folded around the margins of the granite dome.

Exposures of outcrop within the Waterhouse Dome are poorer than those of the Rum Jungle Dome due to areas of extensive surficial cover. Along the south-western margin of the Waterhouse Dome the stratigraphic correlations can be difficult due to a number of the units missing in the sequence and due to a series of northeast trending fault structures. The Whites Formation and the Wildman Siltstone are absent and in general the sediments thin in this area compared to the northern margin of the Waterhouse Dome and to the Rum Jungle Dome.

Along the southwest region of the Waterhouse Dome there are areas of outcropping, extensively brecciated, fault controlled Coomalie Dolostone. Previous mapping and drilling in this area has identified a major northwest trending thrust which repeats the Coomalie Dolostone South Alligator Group succession (Lally, 2002).

EL24563 also covers a portion of the north-western margin of the Waterhouse Dome. To the east outcropping Beestons Formation of the Manton Group sediments unconformably sits on top of the granites of the Waterhouse Dome and is overlain by the Crater Formation of the Mount Partridge Group. In this region the Whites Formation is preserved in conformable contact with the Coomalie Dolostone and both units show a thickening of stratigraphy compared to the southern margin.
Geology is steeply dipping to the southwest in the southern part of the tenement and towards the west in the north. The Giants Reef Fault cuts across the project area and offsets the northern tip of the Waterhouse Complex, exposed to the west is the Tolmer Group sediments.

Known mineralisation in the Rum Jungle Mineral Field has a close spatial relationship with the Coomalie Dolostone and Whites Formation contact. The Whites Formation is host to the uranium ores of the previously mined Dysons and Whites mines of the Embayment Group deposits.

Base metal mineralisation is associated with these deposits and also exists separately in the field, e.g. at the Intermediate Mine (copper), and at the Brown’s Deposit (copper, cobalt, nickel, lead, silver), also of the Embayment Group deposits.

Previous uranium exploration in the area has separated the Coomalie Dolostone into four rock units: siliceous and quartzitic rocks (usually formed over dolomite); tremolitic schist; unsilicified dolomite; and undifferentiated dolomitic sediments. The overlying Whites Formation is a carbonaceous schist unit which acts as an ideal reductant for uraniferous fluids.

Mineralisation is generally in structurally controlled environments, vein-style uranium where the Coomalie Dolostone is juxtaposed with the Whites Formation. Structures are therefore a focus for exploration of uranium within the project area.

Uranium and uranium-copper mineralisation was identified by Uranerz at the Kylie, SE-Kylie and Riverside prospects on the south-western Waterhouse Dome margin. Mineralisation is reported as being associated with D7 reverse faults and breccia zones within the Coomalie Dolostone beneath the Geolsec Formation. The faulted breccia zone is reported to be traceable for more than 5 kilometres.

There are three prospective uraniferous zones in the project area which Royal is focused upon. The first is situated along the south-western margin of the Waterhouse Dome, along a fault controlled unconformity that separates the brecciated units of the Coomalie Dolostone and the chlorite-altered meta-siltstones and shales of the South Alligator Group. The second is located along the western margin of the Waterhouse Dome, possible demagnetisation of a regional dolerite dyke which is faulted and transects the Giants Reef Fault. The third is located along the north-western boundary, the prospect lies within the core of the nose of an upright, vertical syncline plunging 45-55° to the north-east which is coincident with a weak but evident, airborne radiometric anomaly, where the western limb of the fold is cut by the Giants Reef Fault, the prospect is referred to as the Giants Reef Prospect.
Figure 1: Waterhouse West Project Location
Figure 2: Waterhouse West Project Regional Geology
5. PREVIOUS EXPLORATION

As reported by Aldershot (Annual Report 2008).

Parts of the project area were subjected to extensive exploration for uranium by the Bureau of Mineral Resources (BMR) in conjunction with Territory Enterprises Pty Ltd (TEP) in the 1950s and 1960s. The relevant BMR records for the area are available and cover geological mapping and geophysical surveys. Some diamond drill holes were sunk within the project area and are referred to in the BMR data but drill logs have not been located.

In the period 1977–83 major exploration programmes were conducted in the region by Uranerz Australia Pty Ltd (UAL) and CRA Limited. This exploration was driven by the results of the BMR–TEP exploration data and concentrated on anomalies outlined in that work on adjoining areas. In 1980–81 a zone of anomalous radioactivity was discovered in an area west of the Camp Creek Homestead called Riverside. Six RAB holes were drilled and one hole returned 150 ppm U3O8 and 250 ppm Cu, but the remainder were barren (Open File Report CR81/176).

UAL farmed into a group of contiguous tenements held by Mines Administration Pty Limited and aimed their exploration primarily at the discovery of uranium mineralisation with the knowledge that there was likely to be associated base metal mineralisation. In the period 1978–83 UAL conducted geological mapping, RAB and auger drilling for bedrock geochemical sampling, and geophysical surveys. This work defined the Hoppy Anomaly, a combined geochemical–geophysical anomaly which coincides with the axis of a weak electromagnetic anomaly. This had been located by the BMR exploration of the 1960s and was tested by six TEP diamond drill holes prior to 1967. Drill logs for these holes have not been located. Anomalous nickel, cobalt, copper and zinc values in bedrock samples exist over a strike length of 2500 metres with widths of up to a maximum of 500 m. The anomalous zone is elongate north–south, trends parallel to the mapped position of the Coomalie Dolostone – Masson Creek Formation contact, and is open to the south.

Six TEP diamond drill holes tested a similar contact position within ex EL6988 and about 1600 m north of the Hoppy Anomaly: no drill logs have been located. UAL carried out RAB drilling in this area but reported no anomalous results.

Further exploration was conducted by the Wells Family Syndicate who took up EL5429 in 1988. Reconnaissance geological traversing and geochemical rock-chip sampling was undertaken in the western portion of the area. A maximum value of 13 ppm Au was recorded from more than 100 samples with most samples below the limit of detection for gold (0.02 ppm). The 13 ppm Au value came from what is now known as the Ford Grid.

Exploration of the Hoppy Anomaly confirmed the earlier bedrock geochemical results. During 1991 Poseidon Exploration Limited explored the area for “Woodcutters” style mineralisation. A Sirotem survey was carried out to delineate conductors which were subsequently tested by two drill holes located approximately 500 m apart along strike. The holes confirmed that the source of the Sirotem response was foliated sheared graphitic sediments, and that the sequence contained sporadic, low-grade, base metal mineralisation (best intersection being 1.65 m at 11.9% copper, 1 g/t silver, with traces of nickel, cobalt and bismuth). Poseidon concluded there was little potential for “Woodcutters”-style deposits, but that the mineralisation was similar to that at Area 55.

The Central Electricity Generating Board (Australia) Pty Ltd (CEGBEA) conducted exploration for uranium within the general area from 1986–90. However, their major exploration effort concentrated to the east over the contact between the Rum Jungle Complex and the Lower Proterozoic sediments immediately west of Rum Jungle. CEGBEA conducted interpretation of the published aeromagnetic and radiometric data, commissioned colour aerial photography, flew an INPUT geophysical survey over 5 widely spaced lines, and carried out 4 regional ground magnetic and radiometric traverses. No major anomalies were delineated.
In 1989 prior to relinquishing the area, CEGBEA conducted helicopter-borne stream-sediment sampling for gold. A BLEG sample taken from a major tributary of the Finniss River west of Mount Fitch returned an anomalous value of 4.1 ppb gold. Re-sampling of the site was not undertaken due to a lack of trap sediment when revisited in 1990.

In 1990 Compass Resources N.L., in joint venture with CEGBEA, explored targets for base and precious metal mineralisation of the styles known at Whites and Dysons uranium deposits; and the intermediate copper deposit at Rum Jungle; deposits of the Brown’s lead–silver prospect type, the Mount Fitch and Mount Burton copper and uranium occurrences, and the Area 55 copper–lead occurrences.

In late November 1993 a discovery of copper–lead mineralisation hosted by a silicified dolomite was made. An outcrop zone measuring up to 10 m wide can be traced about 200 m along strike at this locality. Chalcopyrite, pyrite, galena, covellite and malachite are visible in the host rocks. Up to 15 volume % sulphides exist in hand specimen, but overall the proportion of sulphides is low. Out of 6 grab rock-chip samples collected from lines spaced 10 m apart at the northern end of the outcrop zone, 2 are reported to carry gold values above 0.5 ppm. Poor exposures of silicified dolomite have been recorded in 3 other localities.

The most significant gold prospect within the tenements is the Ford Grid: an arsenic anomaly 800 m long and up to 110 m wide, well-defined by auger soil samples greater than 1000 ppm As. The original gold rubble sample that ran 13 ppm Au found by the Wells Syndicate work has not been duplicated.

6. EXPLORATION AND RESULTS

Exploration activities during the reporting period comprised the following:
- Ongoing review of historical reports and compilation of past field work;
- Field reconnaissance to assist in access around the tenement area;
- Pegging of proposed drill holes;
- Regional geological interpretations.

6.1 Pegging of Proposed Drill Holes

During the drier season, pegging was completed of proposed drill holes for shallow aircore drilling. This is planned for the coming year.

6.2 Regional Geological Interpretations

During April, a geological consultant was contracted to interpret the regional geology and surrounding area southeast to the Adelaide River Fault. The objective was to focus on key stratigraphic markers for instance, the role of the Depot Creek unconformity, geological contacts and deformation effects (structure a key element due to vein-style mineralisation) and to assess the role of northwest-southeast trending features. Method employed was photo-interpretation at 1:20,000 scale, Figure 3, Appendix 1.

6. DISCUSSION OF RESULTS

Historically, Waterhouse West has undergone significant exploration for uranium, gold and base metals. Royal has digitally captured this information and is seeking areas which were not previously explored and areas which were explored but not followed up. Soil sampling at the Giants Reef prospect has identified a x4bg reading in faulted metasediment of the Crater Formation which returned 90ppm U. Uranium in soil contours located two >500ppb U in soil anomalies over a strike length of 700m, the main centre size of 500m by 250m and results returned a maximum value of 2,547cps. Pegging of drill holes has been carried out during the reporting period and drilling is proposed for the coming year.
Figure 3: Waterhouse West Project Photo-Interp 1:20,000 scale
7. **CONCLUSIONS AND RECOMMENDATIONS**

The Waterhouse West Project is situated within the Rum Jungle Uranium Mineral Field. The area is prospective for unconformity-type uranium mineralisation and vein-hosted uranium mineralisation along the western and south-western margins of the Waterhouse Dome where a number of previously identified prospects are situated. Known uranium mineralisation is structurally controlled shears and veins at the contact between the Coomalie Dolostone and the Whites Formation.

Further work recommended for the Waterhouse West Project includes:
- RAB and percussion drilling of targets identified.
- Determining areas for focussed mapping.
- Interpretation on the recent government airborne EM survey to determine its potential as an exploration tool with possible infill in favourable areas.

8. **REFERENCES**


**RUM JUNGLE WEST – HOPPY ANOMALY**

Anon, 1979, Annual Report on Exploration over EL 1296, Rum Jungle Area, Northern Territory, Uranerz Australia Limited, Perth. CR79/100


Central Electricity Generating Board Exploration (Australia) Pty Ltd, 1989, EL 4879, Report to NTDME. CR 89/565


Uranerz Australia Limited, Various company reports submitted to the NTDME between 1978 and 1985 namely:

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CR 83/188 - EL 1296
CR 85/211 - EL 1901
APPENDIX 1

1:20,000 scale Photo-Interpretation Geological Mapping – Exploration, EL24563

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