ANNUAL REPORT

EXPLORATION LICENCE 25658

MUELLER CREEK

FOR THE PERIOD 30/8/09 to 7/7/10

FINAL REPORT

by

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BSc (Hons) MSc MAusIMM

Target Commodities: Uranium and REE

GDA 94 – Zone 53
1:250000 Alcoota
1:100000 Alcoota

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6. EL 25658 (Mueller Creek) – Stream sediment sample locations
SUMMARY
The tenement is located about 120km northeast of Alice Springs in the southern part of the Northern Territory.

EL 25658 was granted to Alistair Mackie on 30th August 2007. The licence was transferred to WDR Base Metals Pty Ltd, a wholly owned subsidiary of Western Desert Resources Ltd, on 17th June 2008.

The Exploration Licence was included in the “Bushy Park” joint venture with NuPower Resources Ltd. The project area is underlain by the Aileron Province of the Palaeoproterozoic Arunta Block. It is prospective for uranium, gold, rare earths and base metal deposits.

Previous exploration in the area has included aeromagnetic surveys, follow up ground magnetic surveys, reconnaissance geochemical programmes of surface sampling, and aircore drilling.

Bore water sampling, stream sediment sampling, airborne EM and regional gravity surveys have been completed during the current tenure by NuPower.

Reconnaissance field checking of radiometric and stream sediment anomalies was carried out during year 3. No evidence of uranium mineralization was found in the exploration licence. The thorium and rare earths found in stream sediments appear to be due to concentration of heavy minerals from quite low levels in rocks of the Mount Bleechmore Granulite. No evidence for a significant rare earth source, e.g. carbonatite, was found.

The exploration licence was surrendered on 7th July 2009.
INTRODUCTION

BACKGROUND
The Exploration Licence was included in the “Bushy Park” joint venture with NuPower Resources Ltd. It is prospective for uranium, gold, rare earths and base metal deposits.

LOCATION AND ACCESS
The tenement is located about 120km northeast of Alice Springs in the southern part of the Northern Territory (Figure 1).

Access is by the sealed Stuart Highway north from Alice Springs, and thence by the unsealed Plenty Highway and unnamed roads to Alcoota Station. Access within the project area is by station tracks.

Figure 1: EL 25658 (Mueller Creek) – location plan

CLIMATE
The climate is semi-arid, sub-tropical with cold winters and hot summers. The average annual rainfall is 300mm with most falls in summer months.

TOPOGRAPHY AND VEGETATION
The topography of the area is subdued and is dominated by alluvial flats of the Mueller and Waite Creeks and their tributaries.
The alluvial flats contain open woodland with ghost gums and other eucalypts with some acacias.

**TENURE**

**MINING/MINERAL RIGHTS**

EL 25658 was granted to Alistair Mackie on 30\textsuperscript{th} August 2007. The licence was transferred to WDR Base Metals Pty Ltd, a wholly owned subsidiary of Western Desert Resources Ltd, on 17\textsuperscript{th} June 2008.

Western Desert Resources Ltd and NuPower Resources Ltd entered into the “Bushy Park” joint venture on 5\textsuperscript{th} February 2008. NuPower have to spend a total of $1,000,000 on this EL and EL25338 within 3 years from commencement to earn a 51% interest in the tenements.

**LAND TENURE**

The tenement is located within the boundaries of Perpetual Pastoral Leases 972 (Atartinga), 1032 (Alcoota) and 1122 (Bushy Park).

**NATIVE TITLE/ABORIGINAL LAND CLAIMS**

The Mueller Creek project does not currently fall within the area of a registered Native Title Claim.

The project area lies within an Aboriginal land claim pursuant to the *Aboriginal Land Rights (Northern Territory) Act 1976*.

**ABORIGINAL SACRED SITES**

There are no known sacred sites within the project area.

**GEOLOGY**

**REGIONAL GEOLOGY**

The project area is underlain by the Aileron Province of the Palaeoproterozoic Arunta Block. The Aileron Province forms part of the North Australia Craton and is aged between 1865-1740 Ma.

**LOCAL GEOLOGY**

The Arunta Block consists of three groups within the area (Figure 2). The Strangways Metamorphic Complex crops out in the south of the tenement and is probably the oldest group of rocks. It consists of felsic and mafic granulite and gneiss. Further to the north rocks of the Reynolds Range Group and the Landers Rock Beds occur. Both these groups consist of metasediments. Proterozoic-age granite/gneiss intrudes the metamorphic sequence in two areas.

The Proterozoic age rocks have been deeply weathered during Cretaceous to early Tertiary times forming a thick lateritic profile over most of the licence. The Late Tertiary Waite Formation consisting of limestone, mudstone and sandstone occurs in two north trending palaeo-channels.
PREVIOUS EXPLORATION

MINING HISTORY
No mining has been carried out in the area.

EXPLORATION BY PREVIOUS COMPANIES

Central Pacific Minerals AP 1726 (1968-69) CR1969/010
Exploration of the area was conducted for base metals, uranium and phosphate. No mineral occurrences were noted.

Otter Exploration EL 1456 (1977-78) CR1978/143
Otter Exploration explored the north western part of the area for uranium and base metals. Radiometric anomalies from government airborne surveys were ground checked. Some geochemically anomalous uranium values were found in areas underlain by granite/gneiss.

Negri River Corporation EL 8710 (1983-84) CR1985/259
Diamond exploration was carried out. No kimberlitic indicators were found.
Exploration for garnet resources was carried out. No economic concentrations were found.

Exploration was carried out within these ELs for IOCG and Tennant Creek-style copper/gold deposits. Small programmes of surface sampling and aircore drilling were carried out with no significant results.

EXPLORATION COMPLETED DURING PREVIOUS YEARS

Year 1

Water bore sampling.
Six station water bores were sampled (Figure 3). The results of the bore water sampling showed that the uranium values ranged between 2.4 and 10.8ppb. These values were not considered to be significantly anomalous.

Figure 3: EL 25658 (Mueller Creek) – Water bore sampling
Year 2

Reconnaissance Sampling Program
A reconnaissance sampling program which collected 72 stream sediment and 2 rock chip samples was undertaken in year 2 (Figure 4). Several multi-element stream sediment anomalies in the southern part of the EL were identified.

Figure 4:  EL 25658 (Mueller Creek) – Stream sediment sample locations

Airborne Electromagnetic (EM) Survey
Fugro Airborne Surveys completed an airborne EM (TEMPEST) survey in September 2008 over the western part of the EL (Figure 5). The survey covered 124.4 square kilometres at a 1 kilometre line spacing with an east-west flight direction. No significant bedrock conductors were detected and processing of the data did not show any prospective palaeo channels.
Gravity Survey

A regional Geoscience Australia and NTGS gravity survey on a 4 x 4 kilometre grid was completed over the area in 2008, with infill of 2 x 2 kilometres completed over the western half of the EL. The gravity station locations are shown on Figure 6. No significant gravity features significant for uranium mineralisation were found.
EXPLORATION COMPLETED DURING CURRENT YEAR

Follow-up field checking

A week was spent by NuPower field personnel following up radiometric and stream sediment anomalies within this exploration licence.

There is a large airborne radiometric thorium anomaly in the southeastern part of the EL, with a smaller one near the northern end. Approximately coincident with this is a much less intense airborne uranium anomaly. NuPower stream sediment sampling showed anomalies in uranium, thorium and rare earths.

The more intense parts of the radiometric anomalies were traversed and mapped. They were found to coincide with the following:

small sandy gravelly stream beds,

areas of lag or alluvial gravel,
the bases of monadnocks of Tertiary sandstone,

bases of monadnocks of Mount Bleechmore Granulite or

radiometrically anomalous granulite or small outcrops of pegmatite or migmatite or apparently late granodiorite within the granulite.

Most of the anomalies are clearly due to heavy minerals, presumably monazite (with small amounts of uranium), within alluvial or lag sediments. Spectrometer “assays” show that these radiometric anomalies are overwhelmingly due to thorium. The heavy minerals are clearly eroding out of Tertiary sediments, where they have been to some extent pre-concentrated, or out of the Mount Bleechmore Granulite. In places radiometric values around the bases of the monadnocks are up to four times background on them – which is usually quite low.

Only in the extreme southeast and northeast corners of the area were significant radiometric readings obtained from the granulite or small irregular pegmatite/migmatite dykes and rare granodiorite dykes within the granulite. This radiation is thorium dominated with levels similar or slightly less than those over the “hot” granites in the Aileron area. The bulk of the Mount Bleechmore Granulite here appears to be meta-sedimentary, but there are outcrops of what appears to be metamorphosed porphyritic granite – very similar to that in the Aileron area.

The area has quite extensive Tertiary deposits – including sandstone, laterite, paleosol, silcrete and some calcrete. Radiometric background over the calcrete is low.

RESULTS AND EXPENDITURE

Discussion of results
No evidence of uranium mineralization was found in the exploration licence. The thorium and rare earths found in stream sediments appear to be due to concentration of heavy minerals from quite low levels in rocks of the Mount Bleechmore Granulite. No evidence for a significant rare earth source, e.g. carbonatite, was found. The alluvial and lag accumulations appear too small and low grade to be of interest. No further work was recommended.

The exploration licence was surrendered on 7th July 2009.

Expenditure
The expenditure commitment for EL 25658 for year 3 was $85,000. Actual expenditure was $17,317 as shown on the accompanying exploration expenditure form.