

**PARTIAL RELINQUISHMENT REPORT OVER MURRAY
DOWNS URANIUM
PROJECT**

**HATCHES CREEK MINERAL FIELD,
NORTHERN TERRITORY**

**Hodgson Project
Exploration Licence: 26102**

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June 2012**

DISTRIBUTION

- 1. Northern Territory Department of Minerals & Energy*
- 2. Diamantina Uranium Pty Limited*

PROJECT NAME:	MURRAY DOWNS		
TENEMENTS:	Exploration Licences 26102		
MINERAL FIELD:	Hatches Creek Mineral Field		
LOCATION:	Bonney Well	SF5302	1:250 000
	Barrow Creek	SF5306	1:250 000
	Murray Downs	5855	1:100 000
	Davenport Range	5856	1:100 000
	Elkedra	5955	1:100 000
COMMODITIES:	Uranium and Base Metals		

TABLE OF CONTENTS

1.0 MURRAY DOWNS PROJECT	2
2.0 INTRODUCTION	3
3.0 LOCATION AND ACCESS	3
4.0 TENEMENTS	3
5.0 REGIONAL GEOLOGY MINERALISATION	5
6.0 REGIONAL ECONOMIC GEOLOGY AND MINERALISATION	6
7.0 PREVIOUS EXPLORATION	6
8.0 SPINIFEX PTY LTD EXPLORATION 2010-2011	9
9.0 REFERENCE	9

LIST OF FIGURES

Figure 1: Murray Downs Project – Relinquishment Map showing areas dropped (outlined in red hatching)	4
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LIST OF TABLES

Table 1: Mataranka Project - Tenement Summary.....	3
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1.0 MURRAY DOWNS PROJECT

2.0 INTRODUCTION

The Murray Downs Project is located approximately 407km northeast of Alice Springs and 34.5 km east of Wycliffe Well in Northern Territory. The project comprises one Exploration Licence (EL 26102) which covers a total area of 1,560 km².

This report describes the results of literature research and target generation based on re-interpretation of magnetic/radiometric data carried out during the third year of the Licence.

During July 2011 consulting geologists Kastellco Geological Consultancy (“**KGC**”) conducted a review of existing historical exploration data within the Northern Territory Geological Survey Database. This was conducted for all the Project area to identify any high potential base-metal and uranium exploration targets and resulted in the identification of several targets that warrant further work.

Based on the review a total of 25% of the tenement was to be relinquished, based upon more favorable radiometric targets within Exploration Licence area.

3.0 LOCATION AND ACCESS

The Murray Downs Project is located approximately 407km northeast of Alice Springs and 34.5 km east of Wycliffe Well in Northern Territory. The project comprises one Exploration Licence (EL 26102) which covers a total area of 1,560 km². The area can be reached via the Stuart Highway from Darwin or Alice Springs. The upper north-west corner of EL 26102 is located approximately 126 kilometres due south-east of Tennant Creek. Vehicle access is gained via station tracks east from Wycliffe Well location.

The Elkedra Region has a semi-arid, tropical climate. Rainfall data from the Bureau of Meteorology, taken at Ali Curung and Barrow, indicates the mean yearly rainfall is 350mm. The bulk of rainfall occurs during November to March and is sourced from monsoonal tropical low pressure systems and occasional cyclones. Maximum temperatures of over 40⁰C are common during summer and minimum temperatures of less than 10⁰C are common during winter. Vegetation in the area is dominated by a variety of grasses, mulga/gidgee trees and occasional eucalypts. Spinifex is the dominant grass species that grows on hills, valleys and open plains. Mulga and gidgee tree stands grow on plains and valley floors. Eucalypts are generally found along watercourses (Blake and Horsfall 1987).

4.0 TENEMENTS

The project is comprised of one granted exploration licence (EL) with the tenement details summarised in Table 1 and their locations are shown in Figure 1.

Table 1: Mataranka Project - Tenement Summary

Project	Tenement Number	Status	Current Area		Current Holder	Granted Date	Expenditure Covenant (\$)
			Blocks	(sq km)			
Murray Downs	EL26102	Granted	496	1,560 km ²	Spinifex Uranium Pty Ltd	22/07/2008	\$120,000

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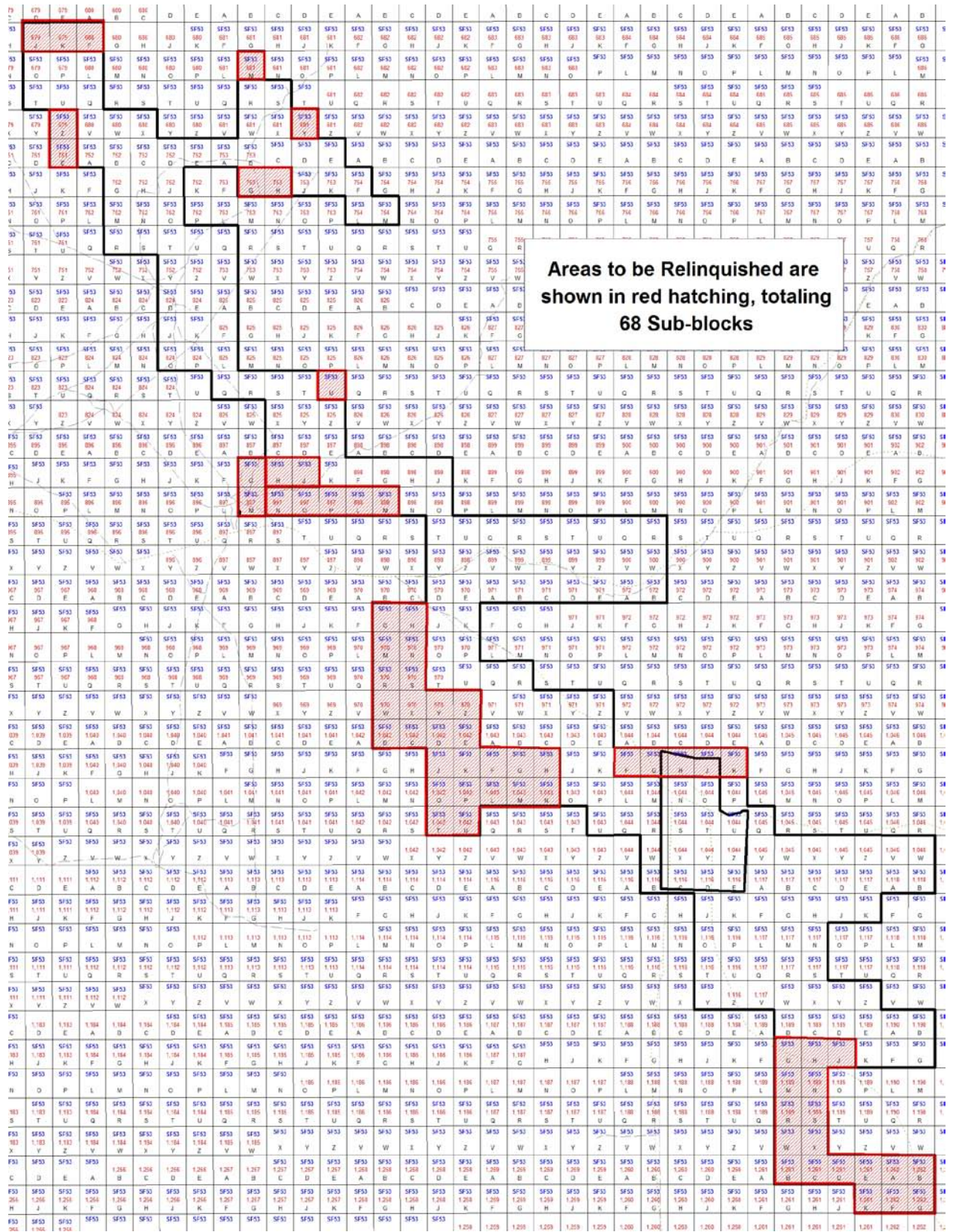


Figure 1: Murray Downs Project – Relinquishment Map showing areas dropped (outlined in red hatching)

5.0 REGIONAL GEOLOGY MINERALISATION

The Davenport Province represents an extension of the North Australian Platform Cover and includes sedimentary and bimodal volcanic rocks that were deposited between 1840 and 1790 Ma (Donnellan, 2005, Claoué-Long et al, 2005). The oldest rocks belong to the Ooradidgee Group which is unconformably overlain by the Hatches Creek Group comprising two main stratigraphic units (Wauchope and Hanlon Subgroups). A simplified geological map of the Davenport Province Project (adapted from Ahmah and Scrimgeour, 2006) is shown in Figure 2.

The Hill of Leaders Granite (1848 ± 7 Ma) which is part of the Tennant Creek Supersuite outcrops in the northern part of the Davenport Province, where it intrudes folded turbiditic sedimentary rocks that have been correlated with the Warramunga Formation (1860-1850 Ma). The Warramunga Formation contains ironstones overprinted with Au-Cu-Bi mineralisation at Tennant Creek that formed during emplacement of the Tennant Creek Supersuite and is separated from the overlying Ooradidgee Group by a major angular unconformity. The Warramunga Formation underwent a deformational event before the deposition of the Ooradidgee Group resulting in moderate to tight folding.

The Ooradidgee Group is intruded by the Treasure Suite of igneous rocks that are tentatively dated between 1830 to 1815 Ma. The suite is bimodal and composed mainly of extrusive volcanics, although shallow-level intrusives are present as granophyres or porphyry sills within the lower Hatches Creek Group.

The Devils Suite of igneous rocks was emplaced late in the history of the Davenport Province between about 1720 to 1680 Ma. It is an extremely fractionated, oxidised, fluorite-bearing I-(granodiorite) type associated with minor vein-W deposits (Wyborn et al, 1998). The suite postdates known sedimentation and includes the Elkedra Granite (1720 Ma), Devils Marble Granite (1711 Ma) and several unnamed granites.

In comparison to other Proterozoic Basins to the north, the Davenport Province is more deformed and is metamorphosed to lower greenschist facies. It is unconformably overlain by the Palaeozoic Georgina and Wiso basins to the east and west respectively. Stratigraphic equivalents of Davenport Province are known to extend into the Aileron Province of the Arunta Region.

The Davenport Province is well mineralised and contains numerous small mineral occurrences including W, Au, Sn, Cu, Pb-Zn, Ni, Ta, Nb and U. According to Blake et al (1987), some of the small tungsten deposits were mined between 1913 and the early 1970s, yielding 4,500 t tungsten concentrate (65% WO₂). At the Wauchope tungsten field and the Juggler mine near Elkedra, mineralisation is spatially associated with outcropping granites of the Devils Suite. Other deposits, such as in the Hatches Creek tungsten field, are interpreted to be related to unexposed granites (Blake et al, 1987). Budd et al (2001) classified the tungsten mineralisation into two types: 1) W-Cu-Bi-Mo-Au with minor U and Sn; and 2) W-Sn and related these to Treasure Suite volcanic rocks and the Devils Suite, respectively. The suite of metals at the Hatches Creek tungsten field is similar to the Au-Cu-Bi deposits at Tennant Creek which are associated with Cu, Bi, Mo, Se, Pb, Co and minor W and Sn.

Small lode gold deposits and prospects exist in the Davenport Province, primarily in the Kurinelli area (35 km north-northwest of Hatches Creek). Gold-bearing quartz veins often cross-cut sedimentary rocks of the lower part of the Ooradidgee Group and associated dolerite intrusives. Recent age dating suggests mineralisation is younger than the Au-Cu-Bi deposits at Tennant Creek and might have formed around 1811 Ma, coeval with mafic magmatism of the Stafford Event in the Arunta Region (Maidment et al, 2006).

The only known uranium occurrences in the region are at Mundagee and Curtis Pounds (Figure 2). The Mundagee Prospect was found in 1955, and there has been limited underground development. Recent sampling in a cross-cut at the base of one of the shafts returned assays of 0.82% U₃O₈ over 1.2 m (Atom Energy Limited, 2007). Uranium mineralisation is present in north-northwest striking quartz veins within felsic porphyry intruding Warramunga Group sediments. At the Curtis Pounds Uranium Prospect, uranium is hosted in basalts and sediments of the Hatches Creek Group that crop out in the northern eastern flank of the Curtis Syncline.

6.0 REGIONAL ECONOMIC GEOLOGY AND MINERALISATION

The Hatches Creek tenements are underlain by a Neoproterozoic sequence of weakly metamorphosed clastic sedimentary and felsic volcanic rocks. The sequence is intruded by igneous sills. Sandstone is the dominant sedimentary lithology. The sequence has been subjected to folding and faulting and has been cut by numerous narrow quartz reefs which follow lines of shearing. These reefs are mineralised, the main mineral of economic interest being wolframite, although bismuth, gold and copper mineralisation is also present within them. The tenor of the mined reefs was between 1% and 5% WO₃.

The mineralised reefs are present in groups. The average reef width is 30cm, with the maximum width being 1.5m. The maximum strike length of any one reef is 170m, but an echelon lines of reefs are up to 1.5km in length. The reefs strike in two main directions, just east of north, parallel to the main fault direction, and east-northeast. The north-striking reefs dip at moderate to steep angles either to the west or the east; those striking easterly dip at moderate to steep angles to the south. The majority of the reefs are within volcanic or intrusive rocks, rather than in the sandstone units.

Mining began in the Wolfram Field in 1913 and continued intermittently until 1957. Mining occurred on numerous reefs within each of 16 groups of lodes. Total production from the field is recorded as 2,840t of wolfram and scheelite concentrates, 5.6t of bismuth, and 69t of copper ore. The maximum depth of mining was 80m. Production of gold is recorded from the Pioneer, and the Black Diamond groups.

7.0 PREVIOUS EXPLORATION

In 1973, EL 301, held by Aquitaine Australia Minerals Pty. Ltd., was situated around Murray Downs homestead. EL 301 overlaps with portions of the north-west and north-eastern areas of EL 26102 respectively.

Aquitaine became interested in the Murray Downs area as a result of a radiometric anomaly (No.48 on BMR map GR281-4) detected by the BMR survey of the Davenport Range during 1956. The anomaly was classified as one of six significant anomalies detected by the survey. Western Nuclear Australia Limited constructed a grid over the anomaly (designated R4) in June 1970, and a scintillometer survey was followed by auger drilling. The radiometric survey located an east-west trending (4,500 x 700 feet) anomaly 2,000cpm above background. An auger drilling program was carried-out in the R4 grid area. Soils over the anomaly gave <1ppm U₃O₈, but the lateritic conglomerate (Tomahawk Beds) exposed in Skinner Creek average 14ppm. It was noted similar lateritic profiles occur at the unconformity at the base of the Hatches Creek Group close to where Southeast Creek crosses the Elkedra road (off the E. L.).

Probing the auger holes indicated the upper six inches of the alluvium was the highest counting portion of the hole. Three airtrack percussion drill holes were sited to cut the surface of the radiometric anomaly at right angles. The drilling indicated the R4 radiometric anomaly was not due to an

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economic uranium deposit, but probably due to trace uranium values in the surface laterite of 14ppm U₃O₈. It is believed that the Hatches Creek Group has little potential for economic deposits within the area encompassed by EL 301.

Aquitaine's Appendix contains the 'Text of Summary Report on this property by D. G. Taylor, geologist with Western Nuclear Australia Limited, dated March, 1971.'

In 1974, EL 743, held by Geopeko Limited, covered a similar area to EL 1851 (CR1979-0195). The southern portions of these ELs overlapped with part of the central portion of EL 26102. One airborne radiometric anomaly detected by the Bureau of Mineral Resources (No.5 on Sheet G281-5) was inspected. Field work with a portable scintillometer (Scintrex BGS-IS) did not locate anomalous levels of radiation. A uniform level of 25 counts per minute was found throughout the locality. A small lead occurrence in the Pound was visited and found to consist of galena in a quartz vein, 'about 7-10 ft. wide and up to 500 ft. long'.

In 1979, the southern portion of EL 1851, held by CRA Exploration Proprietary Limited, overlapped with part of the central portion of EL 26102. Ground reconnaissance, rock geochemical sampling and geological mapping, followed by an airborne spectrometer survey and subsequent ground follow-up located three small but intense uranium anomalies within the radiometrically responsive acid volcanic units of the Hatches Creek Group (Amelia Pound area). Snelling concluded the limited nature of the uranium anomaly areas and the two base metal prospects, plus the moderately severe radiometric disequilibrium indicative of uranium leaching at outcrop level, indicates that any mineralisation is not of economic significance.

Exploration was initiated following investigation of data from high level aerial surveys flown by the BMR in 1956 and 1957 over the Davenport and Murchison Ranges. These located some total count gamma ray anomalies that coincided with outcrops of acid volcanic units of the Hatches creek Group. The anomalies were considered primarily due to potassium in the acid volcanics, although the favourability of the lithologies for uranium mineralisation required investigation.

Ground reconnaissance measured the background radioactivity (BGS-ISL scintillometer) for different rock types.

Acid volcanic:	200-300 c.p.s.
Quartzites:	70-110 c.p.s.
Greywackes :	180-200 c.p.s.

No anomalous radioactivity was detected in the acid volcanics. GR-410 spectrometer traverses indicated that potassium was the major contributor to the radioactivity in the acid volcanics, with U/Th ratios of 1 or less.

All major rock types were sampled to assess the geochemical background levels. Assay results are tabulated in Appendix 1. Most of the acid volcanics samples returned 2-3 ppm U, while the ferruginous horizons gave values of 2, 3 and 9ppm and also the best Ag values. A total count anomaly of some 500 c.p.s. was detected in the quartzites (silicified quartz sandstones) of the Hatches Creek Group. CR-410 spectrometer readings however showed the source to be thorium.

In the Amelia Creek area one total count anomaly of some 700 c.p.s. was detected in the acid volcanics, but the GR-410 spectrometer showed the source to be potassium.

An airborne spectrometer survey showed the acid volcanic units have a higher radiometric response, particularly in the potassium channel, relative to other lithologies. Snelling noted the spectrometer could be used to map this unit. Only three definite uranium channel anomalies were recognised. Their

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positions in the upper reaches of the Amelia Creek are plotted on Plan Ntd. 1085 (Anomalies AP-1, AP2 and AP-3). Ground investigation of the three anomalies was not encouraging. They were areas of small but intense spot uranium anomalies. The best of these, anomaly AP-3, registered 3000 c.p.s. on the BGS-ISL scintillometer, while a GR-410 spectrometer scan obtained a maximum value of 340ppm eU. Samples collected for assay gave results ranging from 3 to 36ppm U (fluorometric method at the Zinc Corporation Laboratory), or 8 to 60ppm U (XRF analyses by Amdel). This indicates that moderately severe disequilibrium conditions exist due to leaching of uranium.

Two small base metal prospects were inspected and were regarded as too small to warrant further investigation. One consisted of secondary copper minerals in quartz veins, 19km east of Murray Downs homestead. The other, 25km east-north-east of Murray Downs homestead, consisted of galena in quartz veins that cut basic rocks.

In 2008, The western and southern boundaries of EL 9745 (part of the West Davenport project), held by Arafura Resources Limited, were juxtaposed with the north-eastern boundary of EL 26102. Hussey reports "The West Davenport project area is situated in the southwest Davenport Province in the central part of Northern Territory, 150 kilometres south-southeast of Tennant Creek. Gold mineralisation was discovered in the nearby Kurinelli goldfield area over 100 years ago in 1898 by prospector/explorer Davidson (Davidson, 1905) but the region has been subjected to only limited, spasmodic attention since that time.

Current activity by local prospectors in the area is directed towards recovery of gold nuggets from shallow alluvial and colluvial deposits using metal detectors. Several hundred to several thousand ounces of gold are estimated to have been recovered in this way over the past 10-20 years. Historical exploration centred on gold mineralisation within quartz veins which characteristically occur within interbedded sandstone/siltstone (Rooneys Formation) and conformable gabbro/dolerite sills. The two main mines were the Kurinelli Mine (former MCC59) and the Dempsey's Choice Mine (MCC191).

Historical production was about 400 ounces of gold. The units which host the gold mineralisation also occur elsewhere in the Davenport Province but no significant gold mineralisation has been discovered to date in these areas. Despite this, historic exploration activity has indicated traces of gold mineralisation in streams and rock chips from several other locations, including the West Davenport project area. EL 9745 hosts the Silver Valley Pb-Ag prospect that also includes trace Cu and Zn mineralisation. Although many companies have held tenure in the Davenport Province in the past, most work has been superficial, and drilling is notable for its almost total absence away from the old mining centre at Hatches Creek, which is about 20-30 kilometres south of the Kurinelli field and about 30-35 kilometres northeast of Silver Valley."

Phase 1 reconnaissance sampling:

No samples were collected from within exclusion zones around Aboriginal sacred sites advised by the Central Land Council or from within granted mineral claims, and priority applications for mineral claims, held by unrelated parties, without permission.

A total of 76 paired stream sediment samples, including three duplicates, were collected from EL 9745 from the hills south-west of the Silver Valley prospect. A 50 gram -80# sample fraction was collected for base metals (Cu, Pb, Zn, Co and Ni), while about 1.5-2 kg of a -3.3 millimetres fraction was sampled for low-level Au and Ag by BLEG. The highest values were: 8.6 ppb Ag, 1.9 ppb Au, 19.1 ppm Co, 20 ppm Cu, 16.2 ppm Ni, 20.4 ppm Pb, 99.5 ppm Zn. The results were generally low, however several potential low order Au/Ag anomalies do exist. These have more than 1 ppb Au and should be evaluated further.

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PARTIAL RELINQUISHMENT REPORT ON EXPLORATION ACTIVITIES OVER EL26102

Values above about 15.7 ppm Co, 12.5 ppm Cu, 9.6 ppm Ni, 11.6 ppm Pb, 63 ppm Zn, 1 ppb Au and 6.2 ppb Ag were considered statistically anomalous, representing the highest 5-7% of their respective populations.

Hussey concluded that given the expected dilution by mass weathering of the Kurinelli Sandstone, the low order anomalous gold values (those greater than about 1ppb Au) associated with elevated silver are considered worthy of follow-up.

The abandoned Wauchope Field Tungsten deposits are located about 10 kilometres northwest of EL 9710 (outside the scope of this report).

In 2009, the western and southern boundaries of EL 9745 (part of the West Davenport project), held by Arafura Resources Limited, were juxtaposed with the north-eastern boundary of EL 26102. Arafura's previous exploration activities (CR2008-0349) had located a number of low-order Au/Ag stream sediment anomalies in EL 9745. Numerous unsuccessful attempts were made to locate a suitable JV partner and consequently Arafura therefore decided to surrender EL 9745 and focus its efforts on key tenements with REE exploration potential.

In 1996, Stockdale Prospecting Limited targeted economic diamond mineralisation; however, more recent exploration targeted sediment-hosted base metal mineralisation. Reconnaissance heavy mineral stream sediment sampling for diamonds was completed, and possible kimberlitic indicator minerals, mainly being spinels, were obtained from a number of samples draining breakaways of Cretaceous rocks. Infill samples were collected around the north-central licence area around Cretaceous rocks, confirming the anomalous nature of a number of catchments. Rare kimberlitic compositions were obtained, but results were not encouraging enough to warrant further diamond exploration. The Cretaceous cover is possibly a secondary source of the spinels.

8.0 SPINIFEX PTY LTD EXPLORATION 2010-2011

During June 2012 consulting geologists Kastelco Geological Consultancy ("KGC") conducted a review of existing historical exploration data within the Northern Territory Geological Survey Database. This was conducted for all the Project areas to identify any high potential base metal and uranium exploration targets and resulted in the identification of several targets that warrant further work.

The targeting was undertaken at a high level to identify areas of interest that stand out in the regional re-interpreted geophysical data. Historical prospects were reviewed to determine the effectiveness of the previous exploration and evaluate remaining potential within the Exploration Licence area.

Based on the review a total of 25% of the tenement was to be relinquished based upon more favorable radiometric targets within Exploration Licence area.

9.0 REFERENCE

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SPINIFIX URANIUM PTY LTD
PARTIAL RELINQUISHMENT REPORT ON EXPLORATION ACTIVITIES OVER EL26102

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