FOURTH ANNUAL REPORT
ON POISION CREEK PROJECT

DAVENPORT MINERAL FIELD,
NORTHERN TERRITORY

13 February 2011 to 12 February 2012

Poison Creek Project
Exploration Licence: 26100

BY
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DISTRIBUTION
1. Northern Territory Department of Minerals & Energy
2. Spinifex Uranium Pty Ltd
PROJECT NAME: POISION CREEK

TENEMENTS: Exploration Licences 26100

MINERAL FIELD: Davenport Mineral Field

LOCATION: FREW RIVER SF5303 1:250 000

Coolibah 6057 1:100 000
Hanlon 6056 1:100 000

COMMODITIES: Iron, Gold and Base Metals
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1.0 POISON CREEK PROJECT

2.0 INTRODUCTION

The north-west corner of EL 26100 is located approximately 184 kilometres south-east of Tennant Creek in the Northern Territory (Figure 1).

Work included literature searches and data base compilation. Open file company reports were obtained from the Northern Territory Geological Survey and a review of past exploration data and geological concepts undertaken. Airphoto interpretation has identified geological and structural features for ground reconnaissance.

EL 26100 represents a greenfields exploration play for principally iron deposits of varying genetic styles. The tenement is also considered to have potential to host base metal and potentially gold mineralisation. Past exploration has comprised of exploration to identify “Tennant Creek type ore bodies”. Rock chip sampling from previous explorers also identified six outcropping ferruginous (lateritised) siltstones within a kilometre of the Gidyea Prospect which lies to the west of EL26100. Gidyea 2 assayed 1.17ppm gold and Gidyea 6, 0.36% cobalt and 0.13% copper.

The project areas has been shown to contain a number of clusters and linear first and second order magnetic anomalies which have never been investigated in great detail (Figure 3).

### Magnetic Anomalies warranted for follow up exploration work over EL26100

<table>
<thead>
<tr>
<th>Tenure Number</th>
<th>Radiometric Anomalies</th>
<th>Intensity of Anomaly</th>
<th>Strike Length of Anomaly</th>
<th>Width of Anomaly</th>
<th>Geological Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL26100</td>
<td>1</td>
<td>Strong</td>
<td>16.8 km Max</td>
<td>0.6 km Max</td>
<td>Quaternary Sediments</td>
</tr>
<tr>
<td>EL26100</td>
<td>2</td>
<td>Medium to Strong</td>
<td>2.7 km Max</td>
<td>1.8 km Max</td>
<td>Canulgerra Sandstone and Quaternary Sediments</td>
</tr>
</tbody>
</table>

3.0 LOCATION AND ACCESS

The north-west corner of EL 26100 is located approximately 184 kilometres south-east of Tennant Creek. The nearest settlement, Canteen Creek, is located approximately 8km west of the south-western margin of EL 26100. Canteen Creek Settlement, located at the eastern end of the Davenport Ranges, is approximately 260km from Tennant Creek by road; this includes 180km of dirt road. Canteen Creek Settlement also has an airstrip suitable for light aircraft.

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: Poison Creek Project –Tenement Summary

<table>
<thead>
<tr>
<th>Project</th>
<th>Tenement Number</th>
<th>Status</th>
<th>Current Area (sq km)</th>
<th>Current Holder</th>
<th>Granted Date</th>
<th>Expenditure Covenant ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poison Creek</td>
<td>EL26100</td>
<td>Granted</td>
<td>158</td>
<td>496.3 km²</td>
<td>13/02/2008</td>
<td>$95,600</td>
</tr>
</tbody>
</table>
4.1 Climate & Topography

The climate is arid, temperate, and continental. The highly irregular annual rainfall averages 353mm. Mean temperatures are 37°C in summer and 24°C in winter. Mean minimum temperatures are 24°C and 11°C for summer and winter respectively. In the Wet Season (October-May) roads can be cut off quickly by rising rivers. The landscape is dominated by quaternary sediments consisting aeolian sand frequently as stabilised sheets and north-west striking dunes. Topographic highs comprise predominantly north-east striking Early Proterozoic lithologies.

Figure 1: Poison Creek Project – Location Map
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.

Most of the isolated Proterozoic outcrops identified on the Frew River 1:250,000 Geological Map are listed as tentative (accompanied by? suffix) and identification was presumably based on lithology combined with relative stratigraphic and strike position. As stated above, the landscape is dominated by Quaternary sediments consisting aeolian sand frequently as stabilised sheets and north-west striking dunes.

In the southern portion of the EL these are associated with sand covered Quaternary relict fluvial systems. Minor outcrops of Cainozoic vein quartz rubble occurs in the northern central portion of the EL. Many of the topographic highs comprise predominantly north-east striking Early Proterozoic lithologies.

6.0 PREVIOUS EXPLORATION

The Dalmore-Epenarra Project was selected to develop a regional exploration effort on pre-Cambrian terrain beneath shallow cover for extensions of the Tennant Creek terrain, based on newly released airborne geophysical data. It was hoped to promote interest in testing geophysical targets, primarily for Tennant Creek type ore bodies, by developing the concept and then enlisting investment from other explorers. The holders had to divert resources to other projects and surrendered the titles when they were unable to find investment partners.

In 1979 R L Clough sampled outcropping massive hematitic “ironstone” mainly because of its perceived similarity to auriferous ironstones being mined in the Tennant Creek area and had it assayed by the NT Mines Branch Administration in Darwin. The single rock chip sample assayed 0.6ppm gold and 0.4% cobalt.

Clough subsequently applied for and was granted EL 2065 over the area in June 1979. He pegged a mineral claim (MC28F) over the area of outcropping ironstone and sought Government assistance under the Provisions of Assistance to Mining Ordinance.

A ground magnetometer survey over an area 400m x 400m (16Ha) was requested by J Howard, Resident Geologist, Tennant Creek “in order to pinpoint any possible drilling target”. The magnetometer survey was undertaken by P Woyzbun, Resident Geophysicist, Alice Springs Branch, NTGS on east-west traverses 50 metres apart with readings taken every 25m. On average every fourth reading was repeated at least twice using a Geometrics G816 magnetometer.

The Gidyea Prospect Total Magnetic Intensity (TMI) contour plan shows a well defined magnetic anomaly occupying most of the area surveyed with the high “forming a complete closure with an amplitude of approximately 500 nT above background.”

Woyzbun concluded the interpreted causative body is 12-15m thick with a strike length of 150m and dipping 60° to the northeast. Vertical depth to the top of the “unoxidised part of the body” is about 20m.
Figure 2: Poison Creek Project Regional Geology map
He recommended the anomaly be tested by an inclined drillhole (–60°) on a bearing of 207° true north. The drilling of the above diamond core hole named EG DDH1 (89.1m) was carried out in 1980, however apart from the resultant drill core stored in the Alice Springs NTDPIFM Core Library there are no other references to the above drillhole in the NTGS database. It is possible there may be a reference in the so far uncollated Tennant Creek GS reports which were moved to Alice Springs in 1981 and have been in storage ever since.

In 2002 Tennant Creek Gold (NT) Pty Ltd rock chip sampled six outcropping ferruginous (lateritised) siltstones within a kilometre of the Gidyea Prospect. Gidyea 2 assayed 1.17ppm gold and Gidyea 6, 0.36% cobalt and 0.13% copper (Figure 4).

In 2004-05 the EG DDH1 drillcore was located in the NTDPIFM Alice Springs Core Library. The core was lithologically logged, composite sampled and analysed for 32 elements. Bonney Well 400m line space aeromagnetic data was acquired from NTDBIRD, image processed and interpreted. Colour aerial orthophotographs were also acquired. EG DDH1 intersected 89.1m of hydrothermally altered meta-gabbro. Three composite core samples were weakly anomalous in gold (200ppb) and enriched in iron (10-12%). Interpretation of the Regional TMI shows a highly convoluted refolded, magnetic ring structure, the south west extremity of which hosts the Gidyea Prospect.

During 2005-06 preliminary interpretation of aerial photography and data review was undertaken.

During 2007 extensive data review was undertaken to assess the prospectivity of the area. See Appendix 2. It was also brought to the attention of Molyhil Mining Pty Ltd and Hatches Creek Pty Ltd by the CLC that there were issues regarding access to Aboriginal Land covering most of the tenement even though the tenement has been granted since 2002. A short reconnaissance field trip was undertaken in late February 2008. Recently received assays from samples collected in February have downgraded the prospectivity of the tenement.

**7.0 WORK COMPLETED AND DISCUSSION**

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 areas to identify any high potential base metal and uranium exploration targets and resulted in the identification of several targets that warrant further work.

Work during this term included literature searches and data base compilation. Open file company reports were obtained from the Northern Territory Geological Survey and a review of past exploration data and geological concepts undertaken. Airphoto interpretation has identified geological and structural features for ground reconnaissance.

EL 26100 represents a greenfields exploration play for principally iron deposits of varying genetic styles. The tenement is also considered to have potential to host base metal and potentially gold mineralisation. Past exploration has comprised of exploration to identify “Tennant Creek type ore bodies”. Rock chip sampling from previous explorers also identified six outcropping ferruginous (lateritised) siltstones within a kilometre of the Gidyea Prospect which lies to the west of EL26100. Gidyea 2 assayed **1.17ppm gold** and Gidyea 6, **0.36% cobalt** and **0.13% copper**.

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.
Through detail interpretation of airborne magnetic from the Northern Territory Geological Survey, the following magnetic anomalies were identified as shown in Table 2. The location of the magnetic target anomalies targets is represented in Figure 3.

The project areas has been shown to contain a number of clusters and linear first and second order magnetic anomalies which have never been investigated in great detail (Figure 3).

**Table 2: Magnetic Anomalies warranted for follow up exploration work over EL26100**

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Figure 3: Poison Creek Project Areas showing Magnetic Target Anomalies

Magnetic Target 1
Extensive Zone
16.8 km in length by 0.6 km in width

Magnetic Target 2
Board Zone
2.7 km in length by 1.8 km in width
8.0 REFERENCES

Ahmad M, and Scrimgeour, IR, 2006, Geological Map of the Northern Territory, 1:2,500,000 Scale, Northern Territory Geological Survey.


