EL 26096
ANNUAL TECHNICAL REPORT
22nd July 2008 – 21st July 2009

Title Holder: Spinifex Uranium Pty. Ltd.
Tenement Manager: Adam O’Connor, Mining Titles Consultant, Hetherington Exploration & Mining Title Services Pty. Ltd.
Author: Michael Leu B.Sc. (Hons. 1), Geology
Target Commodities: Uranium, Diamonds
Report Date: September 2009
Datum Zone: GDA94, Zone 53
1:250,000 mapsheet: Frew River SF5303 and Elkedra SF5307
1:100,000 mapsheets: George Creek (6055) and Hanlon (6056)
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Executive Summary

EL 26096, held by Spinifex Uranium Pty. Ltd., comprises part of the Davenport Province Project that also includes EL 26095, EL 26097, EL 26100, EL 26101, EL 26102 and EL 26196 (Figure 3). This Technical Report covers work conducted on Exploration Licence 26096 during 22nd July 2008 – 21st July 2009. Principal commodities sought are uranium and diamonds.

Activities included literature searches and database 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. During the term Spinifex Uranium Pty. Ltd. also negotiated the purchase of private company exploration reports.

The surface cover of EL 26096 consists predominantly of Quaternary sediments and open-file reports to examined date do not include uranium exploration. Data from the close hinterland to the south-west of EL 26096 downgrades the potential to host an economic uranium deposit, however this is not applicable to the broader area encompassed by the tenements comprising the Davenport Province Project. EL 7036, held by Carpentaria Gold Pty. Ltd., was situated south-west of the south-western corner of EL 26096 (CR1993-0515). An initial helicopter supported stream sediment sampling program was carried-out over the whole of the EL 7036. 289 samples were collected at a sample density of 1.06km² for the entire area within EL 7036. All samples returned <4ppm uranium.

Processing of data from the Elkedra aeromagnetic survey (Northern Territory Geological Survey) by Cowan Geodata Services has established that the central and eastern areas of EL 26096 (overlap with relinquished EL 23596, Report CR2004-0197) do not contain any large “bulls-eye” anomalies likely to be due to large kimberlite pipes. However the relatively wide line spacing of the aeromagnetic survey does not fully preclude the existence of small kimberlites in those areas (Report CR2004-0197).

BHP Minerals carried-out a wide-spaced, heavy mineral and stream sediment sampling program over EL 4043 that partially (minor) overlapped and extended west and south of EL 26096. BHP found no indications of kimberlite pipes (CR1984-0095).

Quaternary sediments conceal extensive areas of the Georgina Basin within EL 26096. Traverses using a portable scintillometer detected radioactive anomalies normally associated with phosphates in Authority to Prospect 2000 that lay to the south and west of EL 26906 (CR1968-0051). Potential for economic phosphate deposits exists in portions of the Middle Cambrian marine sequence of the Georgina Basin.

Eupene Exploration Enterprises Pty. Ltd. (CR1995-0898) considered the felsic volcanics in the early Proterozoic Hatches Creek Group have potential for volcanic-hosted, hot-spring, epithermal metal mineralisation. This interpretation was based on the geological similarities between the Hatches Creek Group and similar rocks in the Drummond Basin (central Queensland) where several significant exposed epithermal-style gold deposits have been located.
**Proposed Exploration Program**
EL 26096 represents a greenfields exploration play for principally uranium deposits of varying genetic styles. Spinifex Uranium Pty. Ltd. has developed exploration concepts based on specific geological criteria considered as important for controlling the localisation and upgrading of uranium mineralisation.

Spinifex Uranium Pty. Ltd. has designed a detailed exploration program to test conceptual uranium mineralisation models. The exploration program will initially involve a GIS compilation of previous exploration and interpretation of regional-scale airborne magnetic and radiometric data. Priority areas will be explored using various methods that may include photo geological studies and geological mapping, geochemical sampling (rock, stream, soil, RAB/bedrock drilling) and low-level airborne (radiometric and magnetic) and ground geophysical surveys such as radiometric and radon emission (alpha-track etch), and possibly IP and EM surveys. Promising geochemical and geophysical responses will be tested by drilling and downhole geophysics.

**Uranium Exploration Potential - Northern Territory**
Uranium production and current resource statistics for the Northern Territory are dominated by large unconformity-related deposits in the eastern Pine Creek Orogen. Smaller vein-type deposits in the Pine Creek Orogen (Adelaide River) have also been mined in the past. Geological analogues to Pine Creek Orogen unconformity-related deposits, that could be considered prospective, exist in the Davenport Province (Lally and Bajwah, 2006). Platform-cover successions represented by the Hatches Creek Group are correlatives of the Katherine River and Tolmer Groups that are both considered to be important in the formation of unconformity-related deposits in the Pine Creek Orogen (Lally and Bajwah, 2006).

Spinifex Uranium Pty. Ltd., in association with affiliated companies (Frontier Uranium Pty. Ltd. and Diamantina Uranium Pty. Ltd), has selected several regions in the Northern Territory (Figure 1) to test conceptual uranium mineralisation models. There has been little previous exploration for uranium in these project areas. However, in the last ten years, the Northern Territory and Commonwealth Governments have funded geological studies and regional geophysical surveys that have provided an improved understanding of metallogenic provinces and airborne radiometric and magnetic coverage. This new data has enabled the selection of potential areas for sandstone-hosted uranium deposits that may include roll-front, tabular and tectonic/lithologic deposits. Sandstone-hosted uranium deposits occur in Palaeozoic (Devonian–Carboniferous) continental red-bed sedimentary successions in the Ngalia and Amadeus Basins. Uranium mineralisation occurs at a redox boundary that formed either by flushing oxidising groundwater through reduced sandstone beds (Amadeus Basin deposits), or by interaction with detrital organic matter (Ngalia Basin deposits). Angela, in the Amadeus Basin, is the largest deposit of this type and contains 10,250 tonnes $\text{U}_3\text{O}_8$ grading 0.1% $\text{U}_3\text{O}_8$.

In the Northern Territory, economic sandstone-hosted uranium deposits have not been found outside the Ngalia or the Amadeus Basins. However, there is increasing evidence suggesting other basins, such as the Eromanga and Dunmarra Basins have similar potential. There has been little previous exploration for uranium in the Dunmarra Basin. As well, the proximity of uranium-enriched source rocks to Dunmarra Basin sandstone units suggests the potential for sandstone-hosted uranium deposits.
Davenport Province

In the Davenport Province, the Hatches Creek Group rests unconformably on deformed and metamorphosed Palaeoproterozoic orogenic rocks and therefore represents a target for unconformity-related uranium.

The region also has potential for gold deposits associated with the Treasures Suite (Wyborn et al. 1998). In the Davenport Province, the suite is composed of volcanics, and shallow intrusive granophyres and porphyries in the Ooradidgee Group (Treasure and Mia Mia Volcanics) and the Hanlon Subgroup (Arabulija and Newlands Volcanics) of the Hatches Creek Group. The Treasure Suite is a fractionated I-(granodiorite) type and members range in age from 1829 to 1816Ma. These ages are roughly equivalent to the Ar-Ar ages of muscovite formed during Au-Cu-Bi mineralisation at Tennant Creek. The Treasure Suite is also of a similar age to the major Au-related magmatic events at Pine Creek (Mount Todd Au deposit) and the Tanami Region, and is believed to be associated with the Au-Cu-Bi mineralisation at Tennant Creek and with W, Cu, Bi, Mo mineralisation in the Hatches Creek area (Wyborn et al. 1998).

Figure 1: Location of the Davenport Province Project comprising EL 26095, EL 26096, EL 26097, EL 26100, EL 26101, EL 26102 and EL 26196. Also depicted are sites of additional uranium exploration programs being undertaken by companies affiliated with Spinifex Uranium Pty. Ltd.
Tenement Details

Exploration Licences 26096

Holder: Spinifex Uranium Pty. Ltd. 100%, C/O Adam O'Connor, Mining Titles Consultant, Hetherington Exploration & Mining Title Services Pty. Ltd., Level 1, 503 Willoughby Rd, Willoughby N.S.W. 2068; PO Box 765, Willoughby N.S.W. 2068; Tel: 02 9967 4844, Fax: 02 9967 4614, adam@hemts.com.au

EL 26096 was granted on the 22nd July 2008 for a Period of 5 Years.

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Table 1: EL 26096, Tenement Details

Location (Figure 2)

EL 26096 encompasses portions of Frew River SF5303 and Elkedra SF5307 1:250,000 mapsheets and the George Creek (6055) and Hanlon (6056) 1:100,000 map sheets.

The upper north-west corner of EL 26096 is located approximately 208 kilometres due south-east of Tennant Creek. The area around Hatches Creek and Elkedra approximately defines the ‘central region’ of the Davenport Province Project that comprises seven exploration licences with a combined area of 7,664.5km². Elkedra is located 150 kilometres east-south-east of Wauchope, situated on the Stuart Highway. Northern access to Elkedra is via the unsealed Davenport Loop Road, and the Elkedra Station Road, that leaves the Stuart Highway 150 kilometres south of Tennant Creek.
Climate and Vegetation
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 40°C are common during summer and minimum temperatures of less than 10°C are common during winter (CR2006-0011).

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).

Regional Geology (primarily after Goulevitch, 1992 & unpublished reports by Spinifex Uranium Pty. Ltd.)
The geology of the Hatches Creek Group has been described by Blake et al. (1987) in an overall review of the geology of the Davenport Province. This province extends over four 1:250,000 sheet areas, and the geology of these sheets has been described by Walley and Simons (1987, Frew River), Wyche and Simons (1987, Bonney Well), Stidolph et al. (1988, Elkedra) and Haines et al. (Barrow Creek) (CR1995-0898).

The prospectivity for uranium in the Northern Territory has previously been reviewed above in ‘Uranium Exploration Potential - Northern Territory’.

The Warramunga and Hatches Creek Groups and several granitic intrusions crop out in the Davenport Province. The Warramunga Group hosts the Au-Cu-Bi rich ironstones at Tennant Creek and represents the oldest (1870Ma) rocks exposed within the Davenport Province. The Warramunga Group underwent a deformational event resulting in moderate to tight folding. It is unconformably (angular) overlain by the Ooradidgee Subgroup of the Hatches Creek Group.

The Hatches Creek Group crops out extensively. It is an ensialic sequence (at least 10 kilometres thick) of sediments and bimodal volcanic rocks. The Ooradidgee Subgroup is intruded by the Treasure Suite of igneous rocks that are tentatively dated at 1829 to 1816Ma. The suite is bimodal and composed mainly of extrusive volcanics. The main sedimentary rocks in the sequence confirm that deposition occurred under fluviatile to shallow marine conditions. Some rapid deposition is indicated and isopach evidence shows that some faulting probably took place during deposition. Felsic and mafic volcanics, and granophyre and dolerite/gabbro sills are interlayered with the sedimentary rocks. The felsic volcanics are predominantly lavas and ignimbrites with lesser bedded tuffs and agglomerates that indicate the volcanism was essentially sub-aerial. Blake et al. (1988) divide the Hatches Creek Group into three subgroups: the Ooradidgee, Wauchope and Hanlon Subgroups. The Ooradidgee and Wauchope Subgroups contain substantial volcanic components.

Some time after deposition, but before granite emplacement at 1660Ma, the Hatches Creek Group was deformed by two episodes of folding as well as strike-slip and reverse faulting, and was metamorphosed mainly to greenschist facies.

The Devils Suite of igneous rocks was emplaced late in the history of the Davenport Province, about 1720 to 1680Ma. 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 (1720Ma), Devils Marble Granite (1711Ma) and several unnamed granites.

Palaeozoic sediments of the Georgina (shallow marine, Cambrian) and Wiso Basins respectively unconformably overlap the eastern and western margins of the Davenport Province. The largely unexplored intracratonic early Middle Cambrian to Early Carboniferous Wiso Basin of central western Northern Territory contains up to 3 km of marine and nonmarine siliciclastics and carbonates.

Known mineralisation in the Hatches Creek Group includes gold that is confined to the lower part of the Ooradidgee Subgroup in the Kurundie and Kurinelli areas in the northern part of the Davenport Province.
Tungsten has been produced from the Hatches Creek field in the central part of the province and from the Wauchope and Mosquito Creek fields in the north-west. Minor base metal mineralisation occurs in the Hatches Creek field and Elkedra region. A Pb-Ag prospect is located at Silver Valley (CR2008-0349).

The Hill of Leaders Granite (1848±7Ma, part of the Tennant Creek Supersuite) outcrops on the northern part of the Davenport Province, where it intrudes folded turbiditic sedimentary rocks that have been correlated with the Warramunga Formation (1860-1850Ma). The Warramunga Formation contains ironstones overprinted with Au-Cu-Bi at Tennant Creek that formed during the emplacement of the Tennant Creek Supersuite.

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 tonnes of tungsten concentrate (65%WO$_3$). 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 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 to 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 that are associated the 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 (35km north of Hatches Creek). Gold-bearing quartz veins often cross-cut sedimentary rocks of the lower part of the Ooradidgee Subgroup and associated dolerite intrusives. Recent age dating suggests mineralisation is younger than the Au-Cu-Bi deposits at Tennant Creek and it might have formed around 1811Ma, coeval with mafic magmatism of the Stafford Event in the Arunta Region (Maidment et al. 2006).

Gold mineralisation was discovered in the Kurinelli goldfield area in 1898 by prospector/explorer Davidson (Davidson, 1905) but the region has been subjected to only limited, spasmodic attention since that time. Current (CR2008-0349) 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 that 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 (CR2008-0349).

Eupene Exploration Enterprises Pty. Ltd. (CR1995-0898) considered the felsic volcanics in the early Proterozoic Hatches Creek Group have potential to host volcanic-hosted hot-spring epithermal metal mineralisation. This interpretation was based on the geological similarities between the Hatches Creek Group and similar rocks in the Drummond Basin (central Queensland) where several significant exposed epithermal-style gold deposits have been located.

Regional Geology - Uranium
The only known uranium occurrences in the region are at Munadgee and Curtis Pounds.

The Munadgee Creek Uranium Project is located 87 kilometres south-east of Tennant Creek. It 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% U$_3$O$_8$ over 1.2 metres (Atom Energy Limited, 2007). Uranium mineralisation is present in north-north-west striking quartz veins within felsic porphyry intruding the Warramunga Group. The area is under exploration licence application by Imperial Granite and Minerals. Upon grant, Imperial Granite & Minerals has undertaken to transfer the title to Atom Energy Limited unencumbered. The vendors have reported uranium mineralisation occurs in a sheared brecciated and quartz veined quartz-feldspar porphyry. Discussions are continuing with the traditional owners and the Central Lands Council (Atom Energy Limited 2009. Website, www.atomenergy).
At the Curtis Pound Uranium Prospect, uranium is hosted in basalts and sediments of the Hatches Creek Group that crop out in the north-eastern flank of Curtis Syncline.

Figure 3: Simplified Regional Geology of EL 26096, mineralisation and associated tenements. The Davenport Project comprises seven exploration licences (combined area of 7,664.5km$^2$) that are between 115km and 235km south-east of Tennant Creek.
Figure 4: Satellite Image, Geology of the Davenport Province Project area comprising EL 26095, EL 26096, EL 26097, EL 26100, EL 26101, EL 26102 and EL 26196. Tip of red pointer on Hatches Creek situated 20°55'59.90"S, 135°12'00.01"E.

Figure 5: Terrain, Davenport Province Project area comprising EL 26095, EL 26096, EL 26097, EL 26100, EL 26101, EL 26102 and EL 26196. Ali Curung, 21° 0'1.47"S, 134°23'38.74"E
Local Geology

EL 26096 covers the Early Proterozoic Hatches Creek Group at the southern end of the Davenport Geosyncline, and the western margin of the Georgina Basin. The Hatches Creek Group comprises a multicyclic sequence of Proterozoic shallow water sediments interlayered with felsic and mafic volcanics and coeval intrusives. The low-grade metamorphic (lower greenschist) Hatches Creek Group has been intruded by the Elkedra Granite. Folding, pregranitic intrusion, has produced a series of upright, tight to open synclines, anticlines and domes.

The surface cover of EL 26096 consists predominantly of Quaternary sediments dominated by: **Qs:** Quaternary. Sandplain, with longitudinal dunes; red aeolian sand, some clay, stabilised by spinifex and **Qa:** Quaternary. Alluvial watercourses and flood plains; sand, silt, clay, soils and gravel. These overly platform cover sediments of the Cambrian Georgina Basin (vast majority of area encompassed by EL 26096) and the Davenport Province of the Tennant Creek Block. Outcrops of Hatches Creek Group (Wauchope Subgroup and overlying Hanlon Subgroup) of the Davenport Province occur intermittently along the westernmost portion of the EL.
Figure 7: Simplified Local Geology of EL 26096

Key, Simplified Geological Map

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Figure 8: EL 26096. Outcrop Geology, extracts Frew River (upper) and Elkedra (lower) 1:250,000 Geological Maps
Key, Elkedra 1:250,000 Geological Map

Qa: Quaternary. Alluvial watercourses and flood plains; sand, silt, clay, soils and gravel
Qc: Quaternary. Colluvial deposits; scree
Qp: Quaternary. Claypan; clay soil in poorly-drained depression
Qs: Quaternary. Sandplain, with longitudinal dunes; red aeolian sand, some clay, stabilised by spinifex
Czc: Dissected colluvial fan deposits; mainly boulder gravel
Ts: Tertiary. Silcrete

Key, Frew River 1:250,000 Geological Map

Qa: Quaternary. Alluvium, soil, minor aeolian and colluvial material
Qc: Quaternary. Colluvium, on slopes of ridges and hills
Qs: Quaternary. Aeolian sand, as stabilised sheets and dunes
Qas: Quaternary. Relict fluvial systems, sand covered
Tf: Tertiary. Ferricrete, ferruginised rock

Hatches Creek Group, Early Proterozoic
Summary of some previous exploration relevant to EL 26096, derived from Northern Territory Geological Survey open-file data

Report No: CR2006-0011  
Title: Soil sampling programme results, annual and final report on EL 9709  
Author: McGilvray, CT / Arafura Resources  
Tenure: EL 9709  
Province: Georgina Basin / Tennant Region - Davenport Province  
Stratigraphy: Ooradidgee Subgroup  
Map Sheet: Elkedra SF5307 / Elkedra 5955 / George Creek 6055 / Ammaroo 5954 / Sandover 6054

Abstract:
EL 9709, held by Arafura Resources N.L., was situated immediately south-west of EL 26096. EL 9709 was selected to secure basement rocks that belong to the same units as those hosting gold mineralisation and possible Ni-PGE mineralisation at Kurinelli, and Ni-Cu mineralisation at Barrow Creek. The EL was also considered prospective for Hatches Creek-type tungsten, and diamonds in primary intrusions. All gold anomalism located by Arafura Resources at Kurinelli is underlain by the Rooney’s Formation, in the basal unit of the Ooradidgee Group in the Davenport Province. It was noted that, according to published geological maps, the only other exposures of the Rooney’s Group away from Kurinelli are in EL 9709 at Elkedra and in EL 9701 to the east of Kurinelli. It was interpreted to be under shallow cover in a few other areas. (CR2005-0008).

A soil sampling program was conducted and this was the only exploration since grant. No elevated gold values were obtained from the 141 sites sampled:

- 47 sites returned a value above the detection limit of 1ppb;
- no sites returned a value above 2ppb;
- The highest value was 2 ppb.

Peak results for base metals were:
Cu – 36ppm – average 13ppm;  
Pb – 34ppm – average 6ppm;  
Zn – 86ppm – average 29ppm;  
Ni – 51ppm – average 11ppm;  
Co – 13ppm – average 3ppm;  
Ag – 1ppm – average <1ppm;  

None of the base metals were considered anomalous.

Report No: CR2004-0197  
Title: Final relinquishment report for EL 23596 "Elkedra River West", period ending February 20, 2004  
Author: Leadbeater J., Tompkins L.A. / Elkedra Diamonds  
Tenure: EL 23596  
Province: Georgina Basin  
Stratigraphy: Tomahawk beds / Dulcie Sandstone  
Map Sheet: Elkedra SF5307 / George Creek 6055 / Annitowa 6155

Abstract:
The northern ‘half’ of EL 23596, held by Elkedra Diamonds N.L., overlapped with the central and eastern areas of EL 26096. The principal exploration activity was processing and targeting for aeromagnetic anomalies from data of the Elkedra aeromagnetic survey flown by Tesla Airborne for the Northern Territory Geological Survey. All aeromagnetic interpretation and processing were undertaken by Cowan Geodata Services, Perth. The focus was to identify possible kimberlite targets in the presence of significant intrasedimentary background noise due to maghemite channels, areas of ferricrete, clay-pans and sinkholes, and cultural sources. Leadbeater and Thompkins noted that identifying possible kimberlite magnetic anomalies in an area of extensive drainage and palaeosurface related magnetic anomalies is difficult due to the high degree of overlap as well as interference from anomalies due to shallow basement rocks. They also
stated that the relatively wide line spacing of 400-m limits spatial resolution of small sources, as small kimberlite plugs located between flight lines may not be detectable or produce only weak magnetic anomalies potentially interpreted as sinkholes etc.

Based on this data it was concluded that EL 23596 does not contain any large “bulls-eye” anomalies likely to be due to large diatremes. However there are seven small high frequency anomalies superimposed on the basement anomaly pattern. These small anomalies are difficult to pick up because of the relatively high frequency, high amplitude anomalies of shallow Davenport Fold Belt. Based on the amplitudes and shapes of the anomalies it is likely that they are within the regolith or are due to shallow basement. Other possible sources include basal Cambrian Andagera conglomerates in paleovalleys. The area ranked low priority in terms of diamond prospectivity and was relinquished.

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**Abstract:**

The eastern boundary of EL 7987, held by Luina Pty. Ltd. (wholly owned subsidiary of Eupene Exploration Enterprises Pty. Ltd.), lay immediately west of the southern half of the western boundary of EL 26096. EL 7987 extended north-west and included most of the Elkedra Dome and the southern portion of the Murray Downs Dome.

The area was selected following a review that revealed marked geological similarities between the felsic volcanics in the Early Proterozoic Hatches Creek Group and similar rocks in the Drummond Basin (central Queensland) where several significant exposed epithermal-style gold deposits have been located. Eupene developed an exploration model (after Goulevitch, 1992) based on volcanic-hosted, hot-spring epithermal metal mineralisation.

Only limited ground reconnaissance was undertaken including 24 stream sediment, 21 soil and 26 rock chip samples being collected. Gold values were generally low, however three low order anomalous areas were identified comprising two low level anomalous areas in the Whisky Camp Anticline, and one in Elkedra Pound. Eupene concluded that given the sampling density the area is not regarded as having been adequately tested. Further work is required to determine the extent and tenor of mineralisation.
Report No: CR1994-0488
Title: EL 7036 Supplejack NT final report for the year ending July 1994.
Author: McGeough, M / Carpentaria Gold
Tenure: EL 7036
Province: Tennant Region / Georgina Basin
Stratigraphy: Frew River Formation / Hatches Creek Group / Elkedra Granite / Kudinga Basalt / Coulters Sandstone
Prospect/Deposit: Cobalt Bloom
Map Sheet: Elkedra SF5307 / George Creek 6055 / Sandover 6054
Abstract:
EL 7036, held by Carpentaria Gold Pty. Ltd., was situated south-west of the south-western corner of EL 26096. Initial exploration concentrated on the gold potential in the Early Proterozoic Hatches Creek Group. A Pine Creek geosynclinal model was proposed with the presence of Early Proterozoic low grade metamorphics intruded by granite. Reconnaissance stream sediment sampling (289 samples) failed to highlight any zones anomalous gold or base metal geochemistry. Rock chip sampling highlighted anomalous Cu, Co, Zn, Ag and Ni at a manganiferous lateritic capping locality referred to as Cobalt Bloom. Follow up included soil sampling, Sirotem and IP, and subsequently testing anomalous geochemical and geophysical responses with 10 RC and 1 diamond hole. Copper anomalism appears associated with surface manganese development.

Carpenteria summarized previous work and stated BHP Minerals in a joint venture with Amoco carried-out a widespread stream sediment sampling program for diamonds in 1983. Due to lack of success they withdrew from the area.

Report No: CR1994-0137
Title: EL 7036 Supplejack, NT partial relinquishment for the year ending 20-11-1993
Author: Lawrence, RJJ / Carpentaria Gold
Tenure: EL 7036
Province: Tennant Region / Tennant Region - Davenport Province
Stratigraphy: Hatches Creek Group / Elkedra Granite
Map Sheet: Elkedra SF5307 / George Creek 6055 / Sandover 6054
Abstract:
EL 7036, held by Carpentaria Gold Pty. Ltd., was situated south-west of the south-western corner of EL 26096. Exploration was undertaken in the southern and western portions of EL 7036. The tenement covers the Early Proterozoic Hatches Creek Group at the southern end of the Davenport Geosyncline, and the western margin of the Georgina Basin. The low-grade metamorphic Hatches Creek Group has been intruded by the Elkedra Granite. Folding, pregranitic intrusion, has produced a series of tight open folds. The licence was considered prospective for base metal and Pine Creek Geosyncline-style gold mineralisation.

Thirty-seven -80# stream sediment samples were collected in the sampled and subsequently relinquished portions of the licence. All results were subdued. No anomalous gold or base metal results were produced.

All samples returned <4ppm uranium.
Report No: CR1994-0073
Title: EL 7036 Supplejack NT third annual report year ending 20-11-1993.
Author: Wilson, RDM / Carpentaria Gold
Tenure: EL 7036
Province: Tennant Region / Tennant Region - Davenport Province
Stratigraphy: Hatches Creek Group / Frew River Formation / Elkedra Granite
Prospect/Deposit: Cobalt Bloom
Map Sheet: Elkedra SF5307 / George Creek 6055 / Sandover 6054
Abstract:
EL 7036, held by Carpentaria Gold Pty. Ltd., was situated south-west of the south-western corner of EL 26096. An IP survey was completed at the Cobalt Bloom Prospect. Interpretation of the data suggested that the chargeable source is the manganese outcrop.

Report No: CR1993-0515
Title: EL 7036 Supplejack, NT, report on relinquished areas.
Author: McGeough, M / Carpentaria Gold
Tenure: EL 7036
Province: Tennant Region
Stratigraphy: Hatches Creek Group / Elkedra Granite
Map Sheet: Elkedra SF5307 / George Creek 6055
Abstract:
EL 7036, held by Carpentaria Gold Pty. Ltd., was situated south-west of the south-western corner of EL 26096. An initial helicopter supported stream sediment sampling program was carried-out over the whole of the EL 7036. 289 samples were collected at a sample density of 1.06km$^2$ for the entire EL 7036. Five kilogram samples were assed by the BCL (Bulk cyanide Leach) method for gold and a sub-split -80 mesh (180µ) fraction was also assayed for a variety of elements. No anomalous Au (maximum value of 0.6ppb Au, mean 0.08ppb.) was reported from the stream sediment sampling. All elements assayed were uniformly low.

All samples returned <4ppm uranium.

Report No: CR1989-0053
Title: Final report EL 5831
Author: Mackie, AW / Mackie, AW / Ellis, T / Rouxel, IW / Morris, SR
Tenure: EL 5831
Province: Tennant Region
Map Sheet: Frew River SF5303 / Elkedra SF5307 / Hatches 5956 / Elkedra 5955 / Hanlon 6056 / George Creek 6055
Abstract:
The eastern portion of EL 5831, held by Mackie and Party, overlapped with a section of Gastrolobium Creek within the northern portion of EL 26096. The drainage basin of Gastrolobium Creek was tested for visible gold by panning. 5 – 10 individual stream sediment samples were taken at each location panned. No visible gold was recorded.
Report No: CR1984-0095
Title: Exploration report for the period 25-1-83 to 24-1-84, Elkedra, N T.
Author: Amoco Minerals Australia Company
Tenure: EL 4043
Province: Tennant Region
Map Sheet: Elkedra SF5307 / Elkedra 5955 / George Creek 6055
Abstract:
The north-east extremity of EL 4043, held by Amoco Minerals Australia Company, overlapped with the
north-west corner of EL 26096. EL 4043 extended west and south from this small area of overlap. Amoco
noted “there are no available records of any prior meaningful exploration in the licence area. The Frew River
Formation was considered a potential host for stratabound tungsten and base metal mineralisation and
exploration was primarily designed to evaluate this formation, particularly calcareous horizons. Calcareous
rocks anomalous in copper, zinc, cobalt and barium were found in a 250 metre wide zone in the Cobalt Bloom
locality. Contract Geophysicist C. G. Anderson carried-out an interpretation of the Eastern Arunta Block area,
including Elkedra. He identified several “plug” magnetic anomalies within and outside EL 4043 that were not
followed-up on the ground.

The property was also subject to a diamonds-only joint venture with BHP Minerals. BHP carried-out a wide-
spaced, helicopter supported, heavy mineral and normal (silt) stream sediment sampling over EL 4043. At
total of 32 samples in each category were collected. BHP found no indications of Kimberlite pipes.

Report No: CR1971-0139
Title: Recommendations of further work & discussions.
Author: Vam
Tenure: AP 2000
Province: Georgina Basin / Tennant Region
Map Sheet:
Elkedra SF5307 / Elkedra 5955 / George Creek 6055 / Sandover 6054 / Ammaroo 5954
Abstract:
Report by Dr. R. Davey (Amdel) on regional prospectivity in relation to Authority to Prospect 2000, Elkedra
Northern Territory. Specific emphasis on stratiform lead-zinc ore. Also discusses low grade phosphate
deposits.

Report No: CR1968-0051
Title: Progress reports on Ammaroo phosphate and turquoise exploration, NT.
Author: Vam
Tenure: AP 2000 / AP 1555 / AP 2018
Province: Georgina Basin / Tennant Region
Prospect/Deposit: Ammaroo
Map Sheet:
Elkedra SF5307 / Elkedra 5955 / George Creek 6055 / Annitowa 6155 / Ammaroo 5954
Abstract:
Authority to Prospect 2000 lay to the south and west of EL 26906 and overlapped the south-eastern portion of
EL 26102 of the Davenport Province Project. This is a collection of various reports from VAM, relating to
phosphate and turquoise exploration at Ammaroo. Copper and uranium are also considered targets. Traverses
using a portable scintillometer detected radioactive anomalies normally associated with phosphates. A scout
drilling program, principally in the vicinity of Limestone Bore, indicated potential for economic phosphate
deposits in portions of the Middle Cambrian marine sequence of the Georgina Basin.
**Conclusion and Ongoing Exploration**

EL 26096, held by Spinifex Uranium Pty. Ltd., comprises part of the Davenport Province Project that also includes EL 26095, EL 26097, EL 26100, EL 26101, EL 26102 and EL 26196 (Figure 3). The area encompassed by the EL 26096 is considered to have potential to host uranium and diamond mineralisation. However open file data, although scant, downgrades this potential.

Spinifex Uranium Pty. Ltd. has developed exploration concepts based on specific geological criteria regarded as important for controlling the localisation and upgrading of uranium mineralisation. The platform-cover successions of the Hatches Creek Group are considered to be important in the formation of unconformity-related uranium deposits. Also the presence, along the western margin of EL 26096, of sandstones interbedded with of bimodal (felsic and mafic) volcanics provides a potential setting for sandstone-hosted uranium deposits.

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. During the term Spinifex Uranium Pty. Ltd. also negotiated the purchase of private company exploration reports. EL 26096 represents a greenfields exploration play for principally uranium deposits of varying genetic styles.

Spinifex Uranium Pty. Ltd. has designed a detailed exploration program to test conceptual uranium mineralisation models. The exploration program will initially involve a GIS compilation of previous exploration and interpretation of regional-scale airborne magnetic and radiometric data. Priority areas will be explored using various methods that may include photo geological studies and geological mapping, geochemical sampling (rock, stream, soil, RAB/bedrock drilling) and low-level airborne (radiometric and magnetic) and ground geophysical surveys such as radiometric and radon emission (alpha-track etch), and possibly IP surveys. Promising geochemical and geophysical responses will be tested by drilling and downhole geophysics.

The surface cover of EL 26096 consists predominantly of Quaternary sediments and open-file reports examined to date do not include uranium exploration. Data from the close hinterland to the south-west of EL 26096 downgrades the potential to host an economic uranium deposit. 289 samples were collected by Carpentaria Gold Pty. Ltd. at a sample density of 1.06km$^2$ for the entire area within EL 7036. All samples returned <4pmm uranium (CR1993-0515).

Processing of data from the Elkedra aeromagnetic survey (Northern Territory Geological Survey) by Cowan Geodata Services has established that the central and eastern areas of EL 26096 (overlap with relinquished EL 23596, Report CR2004-0197) do not contain any large “bulls-eye” anomalies likely to be due to large kimberlite pipes.

BHP Minerals carried-out a wide-spaced, heavy mineral and stream sediment sampling program over EL 4043 that partially (minor) overlapped and extended west and south of EL 26096. BHP found no indications of kimberlite pipes (CR1984-0095).

Quaternary sediments conceal extensive areas of the Georgina Basin within EL 26096. This basin has the potential to contain economic phosphate deposits.

Eupene Exploration Enterprises Pty. Ltd. (CR1995-0898) considered the felsic volcanics in the early Proterozoic Hatches Creek Group have potential for volcanic-hosted, hot-spring, epithermal metal mineralisation.
References


