EL 24992

MAMADAWERRE PROJECT

NORTHERN TERRITORY

ANNUAL REPORT

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Datum/Zone: GDA94 (Zone 53)

Map Sheets: 1: 250, 000: Millingimbi (SD-5302)
1:100, 000: Goomadeer (5673)

Tenement manager: AMETS

Copies: Cameco Australia Pty Ltd (1)
Department of Resources (1)
Alligator Energy Ltd (1)
Northern Land Council (1)
SUMMARY

The Mamadawerre Project is a uranium exploration project consisting of Exploration Licence 24922 (EL24922) which was granted on 2nd September 2008 for initial period of 6 years, operated and managed by Cameco Australia Pty Ltd (Cameco). This report documents exploration work conducted during the third year of tenure. The tenement consists of 105 blocks with a total area of 306.3 km².

Exploration for unconformity style uranium mineralisation consisted of helicopter-supported outcrop sampling and reconnaissance work, an airborne electromagnetic (TEMPEST) survey of the Eastern tenement area was conducted (428 line kilometres). 65 rock samples were collected and 210 points were mapped during the 2010 program.

Work mainly focussed on an area in the southeast of the tenement where 2008 and 2009 outcrop sampling and reconnaissance work identified mineralization associated with the northwest trending Steptoe Fault along a 1000 m strike length. The best samples collected in 2009 returned 0.345 % U₃O₈ and 0.115 % U₃O₈ in allochthonous altered Gumarrinbang Sandstone.

In 2010, the Steptoe Fault related anomaly was extended southeast to the tenement boundary and left open, and northwest across the Daniel Fault where the anomaly fades away. The best results from the 2010 outcrop sampling were sample C007128 with 0.939 % U₃O₈; C007117 with 0.175 % U₃O₈, C007119 with 0.174 % U₃O₈, C007127 with 0.138 % U₃O₈, C007125 with 0.103 % U₃O₈, C007104 with 0.098 % U₃O₈, and C007130 with 0.051 % U₃O₈. All of these samples were collected on the Steptoe and Pigeon faults, and all are interpreted to be float of ferricreted sandstone, ferricrete or intensively weathered possible intrusive fragments.

The TEMPEST survey revealed the upper surface of the Nungbalgarri Volcanics and did not penetrate it. The top surface of the Nungbalgarri Volcanic sequence showed graben-like downward movements along the Daniel fault and it was determined that the Gumarrinbang Sandstone thickness above the volcanics in the Steptoe and Pigeon fault area is 50-100m thick.

The redox style uranium mineralisation associated with structure in the Nungbalgarri Volcanics or deeper at the unconformity was proposed and remains untested.

The total reportable expenditures on EL 24992 for the reporting period is $206,856.32

At the end of the 2010 field season, Cameco decided to farm out the Mamadawerre tenement. Alligator Energy Ltd was selected as a partner and the new project operator. The estimated expenditure for 2011 is $30,000.
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6
INTRODUCTION

Mamadawerre is a uranium exploration project in Western Arnhem Land, Northern Territory consisting of EL24992. The project is managed and operated by Cameco Australia Pty Ltd (Cameco).

2nd September 2011 will mark three years of tenure. The exploration licence is located on Aboriginal Land and work program was carried out under the terms of consent documentation agreed with the Northern Land Council (NLC) pursuant to the Aboriginal Land Rights (Northern Territory) Act 1976. The program was presented at the liaisons Committee meeting held on 12th May 2010 at Oenpelli, and approved by the NLC on behalf of the Traditional Owners.

Exploration activities during the third year of tenure consist of an airborne TEMPEST EM survey, surface sampling, mapping and reconnaissance.

Location and Access

The tenement is located in western Arnhem Land, Northern Territory on the Millingimbi (SD-5302) 1:250 000 scale topographic map sheet and the Goomadeer (5673) 1:100 000 scale topographic map sheet. The tenement is centred approximately 90 km northeast of Jabiru and 35 km southeast of the Narbalek Mine site (Figure 1).

Figure 1: EL24992 Location Map

Access within the tenement is limited due to the rugged nature of the area. Tracks do not currently exist, therefore a helicopter is required. Work was based from Cameco’s King River Camp on the Cobourg Peninsula Road.

Tenure

EL24992 was granted to Cameco on 2nd September 2008 for an initial period of six years and covers an area of 105 blocks for 306.3 km².

The Mamadawerre project is located within an Arnhem Land Aboriginal Reserve and is subject to Exploration Consent Deed with the Northern Land Council (NLC) on behalf of the Traditional Owners. The licence contains areas that are sensitive or have cultural and/or social significance to the Traditional Owners, ‘No Go Areas’, and are excluded from exploration access.

REGIONAL GEOLOGICAL SETTING

The following regional geological overview is largely based on the work by Needham et al. (1988), Needham (1998, 1990), and Needham and Stuart-Smith (1980). Information that is not based on these references is indicated below.

The Mamadawerre project area is located within the eastern margin of the Neoarchaean and Palaeoproterozoic Pine Creek Orogeny, and is in a region that has been subdivided into the Nimbuwah Domain of the Alligator Rivers region (Figure 2 and Figure 3).
Figure 2: Simplified geology of the Pine Creek Orogeny showing the location of selected mineral deposits (after Pirajno and Bagas, 2008).

Figure 3: NTGS 1:500,000 Regional Geology

The oldest exposed rocks in the Alligator Rivers region are those of the Neoarchean (ca. 2500 Ma) Nanambu Complex, a group of paragneiss, orthogneiss, migmatite, and schist forming dome structures. The Nanambu complex is unconformably overlain by a Paleoproterozoic metasedimentary and metavolcanic sequence, formerly included in the Pine Creek Geosyncline (PCG). Recent U-Pb age dating by the NTGS and Geoscience Australia (GA) of rocks within the Myra Inlier, previously mapped as part of the Paleoproterozoic PCG and named the Myra Falls Metamorphics, indicates that they are in fact part of the Neoarchean Nanambu Complex (Hollis, et al, 2009). These rocks have thus been re-mapped as the Kukalak Gneiss.

Paleoproterozoic rocks in the Alligator Rivers region are amphibolite-facies psammites assigned to the Mount Howship Gneiss and the Kudjumarndi Quartzite. These formations are included in the Kakadu Group and are probably correlatives of the Mount Basedow Gneiss and Munmarlary Quartzite, respectively (Ferenczi et al., 2005). The group appears to on-lap Neoarchean basement highs, but gneissic variants are also thought to pass transitional into paragneiss of the Nanambu Complex.

The Cahill Formation of the Namoona Group conformably overlies the Munmarlary Quartzite. The Cahill formation can be separated geologically into two groups, the lower Cahill Formation consisting of calcareous marble and calc-silicate gneiss, overlain by pyritic, garnetiferous and carbonaceous schist, quartz-feldspar-mica gneiss, and minor proportions of amphibolite; and the more psammitic Upper Cahill Formation consisting of feldspar-quartz schist, quartzite, lesser proportions of mica-feldspar-quartz-magnetite schist, and minor proportions of metaconglomerate and amphibolite. The Lower Cahill Formation is host to all of the major deposits of the Alligators Rivers Uranium Field, including Jabiluka, Ranger, Koongarra and Nabarlek. Mafic sills and dykes assigned to the Goodparla and Zamu dolerites intrude the Upper Cahill Formation.

Overlying the Cahill Formation is the Nourlangie Schist, argillaceous to quartzose phyllite and quartz-mica schist that locally contain garnet and staurolite.

The supercrustal rocks of the region are structurally complex, having been affected by at least three deformation event before deposition of the late Paleoproterozoic to Mesoproterozoic Kombolgie Subgroup (Thomas, 2002). The rocks have also been locally migmatized during the ca. 1847 +/-30 Ma Nimbuwah Event. In addition, there is a broad trend of increasing metamorphic grade from southwest to northeast in the Nimbuwah Domain. This gradient is thought to reflect the synchronous emplacement of ca. 1865 Ma granites in the Nimbuwah Complex.

Overlying the Proterozoic metamorphics with a marked regional unconformity is the the Kombolgie Subgroup, the basal unit of the late Paleoproterozoic to Mesoproterozoic Katherine River Group of the McArthur Basin (Sweet et al., 1999a, b). The subgroup consists of sandstone units called the Mamadawerre Sandstone, Gumarrinbang Sandstone, and Marlgota Sandstone (oldest to youngest) which are divided by thin basaltic units called the Nungbalgarri Volcanics, and Gilruth Volcanics respectively. The Mamadawerre Sandstone
has a minimum age of ca. 1700 Ma, which is the minimum age of the intrusive Oenpelli Dolerite. Detrital zircon SHRIMP data from the GA OZCRON database constrain the maximum age of the sandstone at ca. 1810 Ma.

The Oenpelli Dolerite is the most pervasive mafic intrusive suite to affect the Alligator Rivers region. It intrudes various Neoarchean and Paleoproterozoic units, as well as the Kombolgie Subgroup, forming magnetic sills, dykes, lopoliths, and laccoliths. The Oenpelli Dolerite has a U-Pb baddeleyite date of 1723 ± 6 Ma (Ferenczi et al., 2005), however, geochemical and geophysical data suggest several phases of intrusion throughout the region. These intrusive events had a pronounced thermal effect within the Kombolgie Subgroup, with the promotion of fluid flow and aquifer or aquitard modification. Localized effects in the sandstone include silicification, desilicification, chloritization, sericitization, and pyrophyllite alteration. A characteristic mineral assemblage of prehnite-pumpellyite-epidote has formed in the quartzofeldspathic basement rocks adjacent to the intrusions.

Deformation since deposition of the Katherine River Group includes transpressional movement along steep regional-scale strike-slip faults and possibly some shallow thrusting. These regional faults follow a pattern of predominantly north, northwest, north – northwest and northeast strikes, giving rise to the characteristic linearly dissected landform pattern of the Kombolgie Plateau. Another significant set trends east – west and includes both the Ranger and Beatrice Faults.

The Bulman Fault Zone is a principal regional feature and is considered to represent a long-lived deep crustal structure, with a large lateral component in rocks of the PCS. However, it appears that post-Kombolgie displacements along this and other faults have not been great, because the Arnhem Land Plateau is essentially coherent and offsets along lineaments are generally minor. Field investigations of many interpreted ‘faults’, including those with a marked geomorphic expression, show no displacement, and are best described as joints or lineaments (Thomas 2002).

Erosional remnants of flat-lying Paleozoic Arafura Basin and Cretaceous Carpentaria Basin are present as a veneer throughout the coastal zone of the Top End. Various regolith components are ubiquitous as cover throughout much of the region.

**Local Geology**

Sedimentary rocks of the Lower Kombolgie Subgroup (Sweet et al., 1999a) unconformably overlie (and obscure) basement in the central, southern and western parts of the tenement (Figure 4). The basal formation, the 100-250 m thick Mamadawerre Sandstone, forms a deeply dissected plateau surface. This area is composed largely of bare rock with sparse areas of shallow sandy soil supporting spinifex and scrub. Sandstone is quartzose to lithic and fine- to very coarse-grained with a variety of fluviatile to shallow high-energy marine bedforms, including trough and planar cross-beds (Ojakangas, 1979).

**Figure 4: Local Geology of Mamadawerre Project**
Mamadawerre Sandstone is unconformably overlain by the Nungbalgarri Volcanics. The contact is expressed locally as 100-500 m diameter sub circular depressions (‘dome and basins’), with the upper sandstone surface interpreted to represent the palaeotopographic surface of giant lunate current ripples or aeolian sand dunes with the volcanic draped over the top (Nott and Ryan, 1996). It may also represent large dewatering structures formed as a result of hot volcanic rocks draped over water-saturated sediments, which were deposited in estuarine conditions (Needham, 1978). The Nungbalgarri Volcanics consist of multiple vesicular and amygdaoaloidal basaltic flows. The regional stratigraphic thickness of the volcanic unit is variable between 50 m and 130 m, however, it may also be locally absent (Carson et al., 1999).

The Gumarrinbang Sandstone, which occupies the approximately one quarter of the tenement, unconformably overlies the volcanics, comprising fine- to coarse-grained quartz sandstone with scattered pebbly units. Sedimentary structures include planar and trough cross-stratification, ripples and horizontal planar stratification, suggesting a proximal to distal fluvial braided stream and estuarine depositional environment (Sweet et al., 1999b)

Sills and dykes of Oenpelli Dolerite occur in the Mamadawerre project area. In outcrop, the dolerite ranges from fresh magnetic coarse-grained subophitic dolerite to pervasively altered chlorite-hematite rock. The most visibly obvious structures in the tenement are deeply incised linear features of various orientation and significance, including fractures, joints and small faults.

PREVIOUS EXPLORATION

Exploration 1997-2005 EL3347

EL3347 was granted to the Kunbohwinjgu Joint Venture on the 28th July 1997 with AFMEX as the operator. Exploration activities included a helicopter-borne magnetic-radiometric geophysical survey (8,500 km), followed up by ground reconnaissance over 67 selected radiometric anomalies (Alonso and Kastellorizos, 1998) and (Fabray et al., 2000). During 1998 and 1999 heli-supported diamond drilling (10 holes, Figure 5) took place by AFMEX. The best results were: KBW004 there is up to 174ppm U in clay altered sandstone below the Nungbalgarri Volcanics and 60 m above the u/c; KBW002 in the SW part of the tenement contains an interval of 180ppm U immediately above the u/c, proximal to the NNW Ponting fault. NanoTEM ground electromagnetic geophysical surveys were conducted across the Daniel Fault. These lines show a number of offsets related to the fault. A helicopter supported regional stream sediment survey and limited radiometric anomaly follow up was also carried out. Results were low-order and no further follow-up was conducted (Ewington, 2001). The eastern portion of the licence was relinquished in 2001.

The Kunbohwinjgu joint venture was dissolved in 2003 and Cameco acquired 98% of EL3347. The remaining 2% remained with the Kunbohwinjgu Land Council Pty Ltd. Cameco was granted a two year extension in July 2003. Exploration conducted by Cameco included re-logging and sampling of several of the historical drill holes, and an airborne hyperspectral survey over the entire EL 3347 using the Hymap Mark 1 system.
The licence expired in July 2005 and Cameco retained 6 blocks which now forms ERL 25896, and relinquished EL3347. The area covering EL3347 was re-applied for by Cameco in 2005.

**Exploration 2008 – 2009 EL24922**

EL24922 was granted to Cameco Australia on the 2nd September 2008.

A helicopter supported outcrop sampling program was conducted on the project in late 2008. Sampling was concentrated along structural trends and following up weak hyperspectral clay anomalies identified from the Hymap survey to determine if weak geochemical or alteration patterns could identify the uranium mineralisation potential of the major lineaments. 52 samples were collected from across the project.

Sample MM080407 returned the best result of 0.074 % U₃O₈. The sample was from a hematite altered Gumarrinbang Sandstone stream transported cobble which was discovered in a creek bed in the southeast of the project area. The area has been named Steptoe and a northwest trending fault through it is called the Steptoe fault.

During 2009, helicopter-supported outcrop sampling, mapping and reconnaissance was conducted to follow up on the anomalous sample collected during the 2008 program. Work was focussed in the Steptoe area to determine the background geochemical signatures, alteration patterns, extent and controls to the mineralisation. A total of 10 stations were mapped and 19 rock samples were collected during the course of the program. This program identified uranium mineralisation stretching over 1,000 m within the Gumarrinbang Sandstone along the northwest trending Steptoe fault. The best results along the Steptoe fault included 0.34 %; 961 and 723 ppm U₃O₈ in hematite altered Gumarrinbang Sandstone. The mineralisation is located within a discrete structural zone of the Steptoe fault. Anomalous uranium results have been returned from sampling along the Pigeon fault with best results of 0.115 % U₃O₈ in what is interpreted to be Cretaceous sediment and 509 ppm U₃O₈ in ferruginous Gumarrinbang Sandstone. However in case of the Pigeon fault, mineralization was not able to be directly associated with Pigeon fault structure. Anomalous Pb²⁰⁶/²⁰⁴ isotope ratios of up to 1889.3 indicate that substantial radiogenic lead (Pb²⁰⁶) is present in the area tested by rock sampling.

The sampling conducted during 2009 has confirmed the presence of uranium mineralisation within the Gumarrinbang Sandstone related to structure and may indicate potential for unconformity related uranium mineralisation or mineralisation associated with the Nungbalgarri Volcanic Member. The 2009 sampling program did not define the extent of the anomalous uranium mineralisation.

**EXPLORATION DURING REPORTING PERIOD**

**Outcrop sampling**

During the 2010 exploration programs helicopter-supported outcrop sampling, mapping and reconnaissance were conducted to follow up on the anomalous sample collected during the 2008 and 2009 programs. The majority of the work was focussed in the Steptoe area to determine the background geochemical signatures, alteration patterns, extent and controls to
the mineralisation. Several other structure localities were also mapped. A summary of the work completed during the third year of tenure is given in Table 1.

Table 1: Mamadawerre EL24992 – 2011 Exploration Summary

A total of 210 stations were mapped and 65 rock samples were collected during the course of the program (Figure 5). Table 2 and Table 3 give more detailed information on each locality.

Figure 5: Location of Outcrop Samples and Mapping points

Table 2: Mamadawerre Project (EL 24992) - Outcrop Sample Locations (2010)

Table 3: Mamadawerre Project (EL 24992) - Mapping Points Locations (2010)

The outcrop sampling and processing was performed using Cameco standard methodology, as outlined in Appendix 1. This appendix details methodology used for reflectance spectroscopy, laboratory techniques and methods, and analysed elements. All samples were submitted to Northern Territory Environmental Laboratories (NTEL) in Darwin for geochemical analysis. The laboratory sample preparation, analytical methods and techniques and analysed elements can also be found within Appendix 1.

Appendix 1: Cameco Standard Outcrop Sampling and Processing Procedures and Rock Type Codes, NTEL Analytical Procedure and Analytical Suite

The following tables (Table 4, Table 5, and Table 6) detail the data and results from samples collected during the program. A uranium distribution map from geochemical sampling is presented as Figure 6.

Table 4: Outcrop Sample Alteration

Table 5: Outcrop Sample TSA Clay Minerals

Table 6: Outcrop Sample Geochemistry Results

Figure 6: Uranium Distribution Map of 2010 surface sampling

RESULTS

SWIR results of outcrop sampling

Short wave infrared reflectance data from 2010 surface sampling revealed the following dominant minerals kaolinite, illite, dickite and halloysite. Muscovite and opal occurred quite frequently with occasional carbonates (ankerite and siderite) and K-alunite. SWIR results of outcrop sampling are provided in Table 5 and Figure 7.

Figure 7: ASD Mineral 1 of 2010 surface sampling

In comparison to rock type and identified minerals following was noted:
- the interpret igneous origin rocks contain kaolinite and occasionally ankerite,
- ferricrete holds dominantly kaolinite,
- sandstone has wide variety of minerals as predominantly kaolinite, illite, dickite and muscovite, occasionally occurs K-alunite, siderite, opal, halloysite.
Geochemistry of outcrop sampling

65 samples were collected during the 2010 program and submitted for geochemical analysis (Table 6). 10 samples returned U₃O₈ values over 100 ppm. These 10 samples were collected in 3 areas (Figure 6): the Pigeon fault area with previously known mineralization, and two areas previously not known to be mineralized; the northwest arm of the Steptoe fault and the south part of the Nepal-Tibet fault where 188 ppm U₃O₈ (sample C007148) was obtained in altered Nungbalgarri volcanics (near the contact with Mamadawerre sandstone). The highest uranium values to date (Figure 8) in the Mamadawerre tenement were collected in the northwest arm of the Steptoe fault. Sample C007128 returned 0.939% U₃O₈ in a vein with hematite, K-alunite, U secondaries and fault striation marks within the sandstone. Samples with assays >100 ppm U₃O₈ had U/Th ratios between 30 and 6520 (Figure 9) and displayed positive correlation with uranium content. Unfortunately all samples except C007148 were not in situ rock samples. Lithologically those samples were 6 ferricrete or intensively ferricreted rocks, 1 possible intrusive, 1 sandstone, 1 vein fill of fault in sandstone, 1 altered rhyolite.

Geochemistry results along the Steptoe fault show mineralization continuity towards the Northwest with mineralization decreasing rapidly soon after crossing the Daniel fault. Low Pb⁰⁷⁰⁷/Pb²⁰⁶ and Pb²⁰⁸⁰⁸/Pb²⁰⁶ ratios in the Steptoe and Pigeon fault area indicate major addition of radiogenic lead from decaying U-bearing rock and uranium dominance over thorium in this system (Figure 10 and Figure 11). Despite low Au values (max. 189 ppb) the pattern of Au distribution broadly matches the elevated U distribution pattern (Figure 12). Rare Earth Elements values remain low (LowREE max 326 ppm and HighREE max 112 ppm) throughout the sampled area. The highest HREE value of 112 ppm was identified in what is interpreted to be an intrusive rock fragment. Ni values generally remain below 100 ppm, however values >100 ppm in two samples support the interpretation of these samples being in situ intrusive within the Pigeon and Tibet-Nepal fault.

AIRBORNE ELECTROMAGNETIC (TEMPEST) SURVEY

Introduction

In April 2010, 50 line kilometers of an airborne electromagnetic (EM) survey using the TEMPEST system was flown over the Mamadawerre EL24992 prospect (428 line km, Figure 13) by Fugro Airborne Surveys. The survey was flown to map the Nungbalgarri volcanics, and identify structures and alteration. The airborne EM survey should also be capable of mapping the Gumarrinbang sandstone thickness. The airborne EM survey may also map graphitic conductors within the basement rock, which would provide a good drill target if coincident with structure.
Figure 13: Mamadawerre Project TEMPEST survey flightline diagram, and tenement (EL24492) boundary.

Survey specifications

The airborne EM survey was flown with the TEMPEST system which is a fixed wing, towed receiver time domain airborne EM system. The system also contains a magnetometer, and an approximate digital elevation model is derived from using the onboard differential GPS and radar altimeter. The system is fully described in Lawrence and Stenning, 2010. The survey specifications are outlined in Table 7.

Table 7. Summary of specifications of TEMPEST survey.

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base frequency</td>
<td>25 Hz</td>
</tr>
<tr>
<td>Nominal altitude</td>
<td>100 metres</td>
</tr>
<tr>
<td>Traverse line direction</td>
<td>North South (000-180)</td>
</tr>
<tr>
<td>Traverse line spacing</td>
<td>150 metres</td>
</tr>
<tr>
<td>Datum, Projection</td>
<td>GDA 94, MGA Zone 53S</td>
</tr>
<tr>
<td>Aircraft</td>
<td>Shorts Skyvan (VH-WGT)</td>
</tr>
</tbody>
</table>

Fugro Airborne Surveys provides a conductivity model of the TEMPEST data derived using EMFLOW (Macnae et al, 1998, Stolz and Macnae, 1998). EMFLOW is a fast approximate transform that provides conductivity depth images. These are calculated for the X and Z component data separately. Conductivity values were calculated to a depth of 500 m below surface at each point, using a depth increment of 5 m.

Modeling

The TEMPEST data was inverted using a smoothed 1D Layered Earth algorithm by an Occam’s approach. The inversion utilized non-geometry corrected data and simultaneously inverted both X and Z component data. The 1D model consisted of 30 layers, whose thickness increased exponentially as defined in Table 8. The inversion has improvements in spatial resolution and is numerically more accurate than the model derived from EMFLOW. Most noticeable in EMFLOW models are limited to 20 discrete values, whereas the inversion provides a higher dynamic range.

Table 8. Inversion layer depth increments.

<table>
<thead>
<tr>
<th>Layer</th>
<th>Depth from (m)</th>
<th>Depth to (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>-4</td>
</tr>
<tr>
<td>2</td>
<td>-4</td>
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</tbody>
</table>
The resultant inverted conductivity model for Mamadawerre was gridded using Geosoft Oasis using a minimum curvature algorithm with a 37.5 meter cell size. The data was logged (Base 10) prior to gridding. Resultant grids were decorrugated using the PGW Microlevelling Geosoft extension to remove minor spurious line to line artifacts. A decorrugation wavelength of 600 meters was applied.

Data products

The digital elevation model derived from the TEMPEST Mamadawerre data is presented as Figure 14. The Total Magnetic Intensity data is presented as Figure 15. The conductivity model is presented as a series of conductivity plan models for a number of cumulative depth layers ie ~ 50m, 100m, 200m 300 m and 400m (Figure 16 - Figure 25). The original EMFLOW conductivity for the Z components data is shown for comparison. As the layers of the inversion are exponentially increasing with depth, the EMFLOW layers were averaged over the equivalent interval as shown in Table 9.

Examples of conductivity depth sections for a north south traverse line and east-west tie line are shown presented in Figure 26 and Figure 27.

Table 9. Example grids intervals.

<table>
<thead>
<tr>
<th>Cumulative Layer</th>
<th>Approximate</th>
<th>1D LEI Layer</th>
<th>EMFLOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>50 metres</td>
<td>45.7-54.3 metres</td>
<td>45-55 metres</td>
</tr>
<tr>
<td>2</td>
<td>100 metres</td>
<td>98.1-111.9 metres</td>
<td>100-110 metres</td>
</tr>
<tr>
<td>3</td>
<td>200 metres</td>
<td>204.6-229.1 metres</td>
<td>205-230 metres</td>
</tr>
<tr>
<td>4</td>
<td>300 metres</td>
<td>285.6-318.2 metres</td>
<td>285-320 metres</td>
</tr>
<tr>
<td>5</td>
<td>400 metres</td>
<td>354.0-393.4 metres</td>
<td>355-395 metres</td>
</tr>
</tbody>
</table>

Figure 14. Digital elevation model derived from Mamadawerre TEMPEST survey.
Figure 15. Total Magnetic Intensity derived from Mamadawerre TEMPEST survey.
Results

Overall the ground conductivity of Mamadawerre area is quite low. The predominant conductor in the TEMPEST data is attributed to the Nungbalgarri volcanic unit. This unit which is exposed in the north can be observed to dip to the south where it is overlain by the Gumarrinbang sandstone. This is coincident with an increase in topography. The unconformity in this area is not observed clearly in the TEMPEST data is expected to be at depths of 300m. The TEMPEST system would have difficult in resolving a conductor lying underneath the volcanic unit.

TEMPEST survey conclusions

The TEMPEST survey successfully mapped the Nungbalgarri Volcanics in the Mamadawerre area. The TEMPEST survey failed to image the unconformity which is expected to occur at depth of around 300 metres. A 3D geological model could be interpreted using the TEMPEST conductivity model as a basis.

CONCLUSIONS

The sampling conducted during 2010 has confirmed the presence of uranium mineralisation within the Gumarrinbang Sandstone, which is related to structure and may indicate potential for unconformity related uranium mineralisation on unconformity between Nimbuwah basement and Kombolgie sandstone or mineralisation associated with the Nungbalgarri Volcanic Member and potential mafic intrusive in fault zone (West Moreland type of mineralization).

Proposed West Moreland style mineralization may exist in area along Steptoe and Pigeon faults and with faults interception with Nungbalgarri Volcanics. Minor evidence of mafic (possibly dolerite type) intrusive along faults were found. If those intrusive exist they possibly would be small and discontinuous, no evidence of extensive intrusive along or cross-cutting Steptoe and Pigeon faults were found during field observations.
2010 outcrop sampling has increased known uranium mineralisation to 4.5 km stretch along the northwest trending Steptoe fault. Mineralisation of the Steptoe fault was closed towards northwest and was left open at southeast beyond tenement boundary. Anomalous uranium results have been returned from sampling along the Pigeon fault. According to U/Th and lead isotopes ratios uranium dominates in system. The Steptoe and Pigeon faults area is considered the prime target area of the Mamadawerre tenement. TEMPEST survey successfully mapped top of Nungbalgarri volcanics. TEMPEST 3D data with digital terrain model can be used to estimate thickness of Gumarrirnbang sandstone.

EXPENDITURE

A summary of the expenditure for the reporting period is given in Table 10. The total reportable expenditures for 2010 is $206,856.32 for EL 24992.

Table 10: Summary of expenditure for EL 24992

WORK PROGRAM FOR 2011-2012 (YEAR 4)

During the 2011 field season, the new project operator, Alligator Energy Ltd intends to undertake additional surface sampling and ground reconnaissance in the Steptoe area to assist in assessing drilling targets in the tenement for a planned 2012 drilling program.

The estimated expenditure to complete the work program as planned is expected to be approximately $30,000.
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