



ALLIGATOR ENERGY LTD

ACN 140 575 604

ELs 24291 & 26796
BEATRICE PROJECT

NORTHERN TERRITORY
ANNUAL REPORT

CONFIDENTIAL

Project Operator:	Alligator Energy Ltd
Tenement Holder:	Cameco Australia Pty Ltd
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Datum/Zone:	GDA94 (Zone 53)
Map Sheets:	1: 250,000: Alligator River (SD-5301) 1:100,000: Howship (SD-5572)
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ABSTRACT

The Beatrice project comprises two exploration licences (EL 24291 and EL 26796), located in western Arnhem Land, approximately 250 km east of Darwin and 30km north east of Jabiru. Exploration licences were granted to Cameco Australia Pty. Ltd. (Cameco) on 04 July 2008 and in December 2014 Alligator Energy entered into a joint venture agreement with Cameco to undertake exploration on these tenement. The Beatrice project tenements (EL 24291 and EL 26796) were granted amalgamated technical reporting status by Northern Territory Department of Resources (now the Department of Mines and Energy) on 09 November 2011. The approved and allocated group reporting ID is GR 043.

The tenements are considered prospective for unconformity-style uranium deposits similar to Ranger, Jabiluka, Koongarra and Nabarlek. Geology within the tenements is broadly equivalent to known deposits in the Alligator Rivers Uranium Field and consists in part of equivalents of Lower Cahill Formation of the Pine Creek Orogen (PCO) overlain in places by the lower Kombolgie Sub-group sandstone. The Beatrice Project area has been explored intermittently since 1970 resulting in the discovery of the Beatrice and Violet prospects. These prospects have been the focus of limited drilling and exploration. With the start of Alligator Energy's first season exploring the Beatrice project area no additional prospects have yet been identified, however several primary targets have been identified for ground based exploration and potential drilling. Field exploration work (non-ground disturbing) commenced on the tenements by Alligator Energy during April 2015 in conjunction with Alligator Energy's fifth full season of operations in Arnhem Land.

Work undertaken on these tenements to July 2015 has resulted in the collection of 191 surface samples inclusive of 27 soil samples and 164 Rock chip samples. Additionally 3 water samples have been collected for radionuclide analysis. Field work during the reporting period has also led to the collection of 672 ground based radiometric point readings through the use of hand held scintillometers, and 91 lithological mapping points. Ground based exploration was preceded by the resampling of historic drill core totalling 93 whole metre NQ ¼ core samples. Work has been limited by acquiring joint venture approval in December 2014, restricting ground based exploration to June of the 2015 dry season. Exploration is progressing during the writing of this report and most notably the undertaking of targeted and regional helicopter supported Sub-Audio Magnetics geophysics surveys.

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Appendix 1	Geological review time slice	GR043_2015_GA_02_APPENDIX1.pdf
Appendix 2	Re-sampled drilling assays	GR043_2015_GA_04_ASS2015A.txt
Appendix 3	Surface QAQC data	GR043_2015_GA_05_SQAQC2015A.txt
Appendix 4	Ground based Scintillometer data	GR043_2015_GA_07_SGEO2015A.txt
Appendix 5	Surface Mapping data	GR043_2015_GA_08_SMAP2015A.txt
Appendix 6	Water sample data	GR043_2015_GA_09_STRE2015A.txt
Appendix 7	Surface assays (Soils and Rock chips)	GR043_2015_GA_06_SURF2015A.txt
Appendix 8	Re-sampled drilling collars	GR043_2015_GA_03_COLL2015A.txt
Appendix 9	Verification list	GR043_2015_GA_11_Verification_List_2015.txt
Appendix 10	Logging codes	GR043_2015_GA_10_LoggingCodes.xls
Appendix 11	Beatrice Annual Report	GR043_2015_GA_01.pdf

1. INTRODUCTION

1.1 Exploration Activities

Details of field activities for the 2014/2015 exploration campaign for the Beatrice uranium Project are included in this report. This includes ELs 24291 and 26796.

The project is located within the Arnhem Land Aboriginal Reserve and is subject to a Consent Deed with the Northern Land Council (NLC) and the Traditional Owners. Clearance for work was given by the NLC, on behalf of the Traditional Owners, following the Exploration and Liaison Committee Meeting held on May 21, 2015 at Oenpelli.

Work on the Beatrice Project for this reporting period consisted of:

- Geochemical analysis of historic drill core totalling 93 samples (97 metres total) by Bureau Veritas.
- Radionuclide testing of 3 ground based water samples.
- Geochemical and Lead (Pb) isotope analysis of 164 surface rock chip samples.
- Geochemical analysis of 27 soil samples.
- Commencement of geophysical HeliSAM survey proposed to cover 3 regional areas.
- Prospect and regional mapping of the Beatrice anomaly and nearby targets.
- Ground based radiometric survey totalling 672 hand held scintillometer points.
- Initial validation of historical data and database amalgamation.
- Independent geological review of the Alligator Rivers and Pine Creek mineral provinces. (HINMAN GeoSOLUTIONs).

In addition to this field work there has also been continued work in re-establishing Myra Camp, from which fieldwork is based to meet modern standards and preparing various compliance documentation.

1.2 Location and Access

ELs 24291 and 26796 are non-contiguous exploration licences located in western Arnhem Land in the Northern Territory of Australia (see Figure 1). The project area is centred about 260 km east of Darwin, 230 km northeast of Katherine, and 45 km east of Jabiru.

The tenements are located on map sheets:

1:250,000:	Alligator River (SD-5301)
1:100,000:	Howship (SD-5572)
1:50,000:	Mount Howship (5572-4)

There are no current access tracks to the area and the tenements are only accessible by helicopter. A Polaris quad bike was slung in to EL24291 before commencing set up of the SAM geophysics survey to assist in laying of wire over the flatter areas of the tenement.

1.3 Tenure

The Beatrice project comprises Exploration Licences (ELs) 24291 & 26796. These ELs were granted to Cameco Australia Pty Ltd (Cameco) for a period of six years from 04 July 2008 to 04 July 2014 after which time an application for renewal was granted for a further two year period. In December 2014 a joint venture was initiated between Alligator Energy and Cameco whereby Alligator Energy Ltd. became the operator.

The total area covered by the two licences making up the Beatrice project is 356.99 km² (131 sub-blocks), comprising 337.21 km² (121 sub-blocks) on EL 24291 and 19.78 km² (10 sub-blocks) on EL 26796.



Figure 1: Regional location of EL's 24291 & 26796

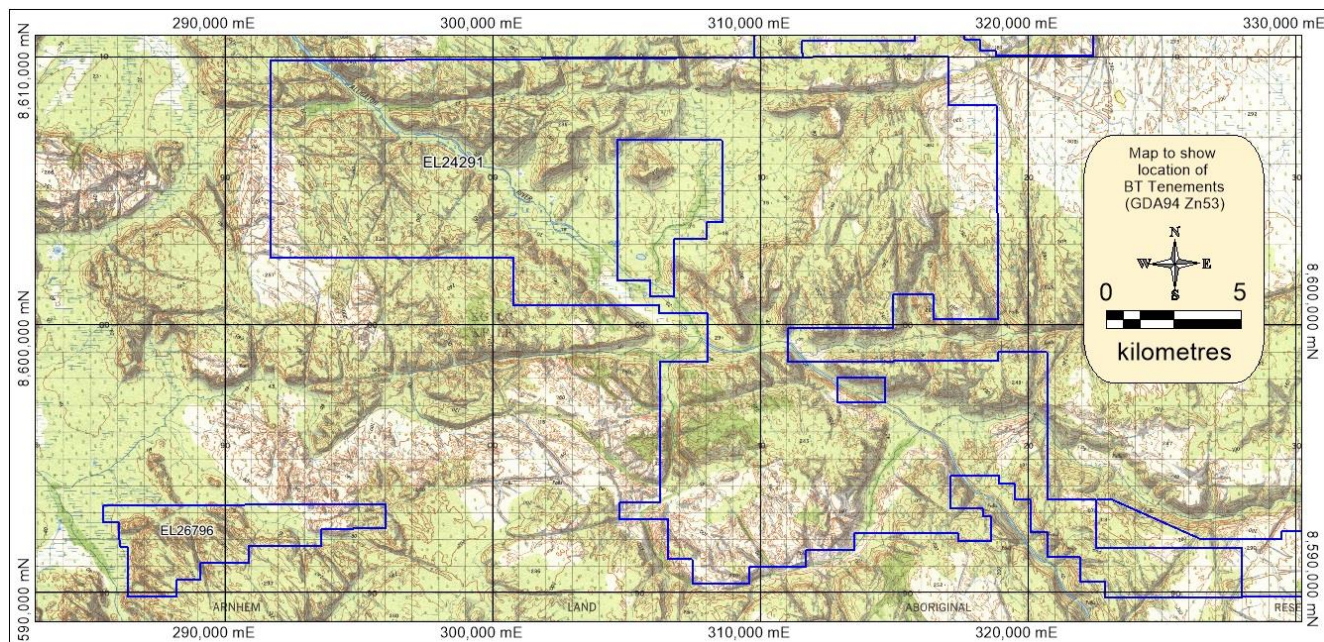


Figure 2: Topographic location of EL's 27291 & 26796

2. REGIONAL and PROJECT GEOLOGY

2.1 Regional Geology

The Beatrice project area is located at the northeastern margin of the Neoproterozoic Pine Creek Orogen, which has been subdivided into the Nimbuwah Domain of the Alligator Rivers region.

This following description of the regional geology is largely based on the work by (Needham, Crick et al. 1980; Needham, Smart et al. 1983 and Needham and De Ross 1990). Information that is not based on these references is indicated below.

The Bureau of Mineral Resources (now Geoscience Australia) completed 1:250 000-scale geological maps of the Pine Creek Orogen between the 1940s and 1960s following the discovery of uranium at Rum Jungle. The Alligator Rivers region was systematically mapped by the Bureau of Mineral Resources and the Northern Territory Geological Survey between 1972 and 1983. This later work produced 1:100 000-scale geological maps and reports for the region from Darwin to Katherine to the Alligator Rivers region.

The oldest exposed rocks in the Alligator Rivers region are included in the Neoproterozoic (ca. 2500 Ma) Nanambu Complex. The complex consists of paragneiss, orthogneiss, migmatite, and schist forming domical structures that are unconformably overlain by Palaeoproterozoic metasedimentary and metavolcanic rocks which were formerly included in the Pine Creek Geosyncline. Recent collaborative research work by the NTGS and Geoscience Australia indicates that SHRIMP U-Pb age dating of an area of

previously mapped Myra Falls Metamorphics outcropping within the Myra Inlier is Neoproterozoic in age (Hollis, Carson et al. 2009a) and these quartzofeldspathic gneisses are named the 'Kukalak Gneiss' (Hollis, Carson et al. 2009b). Palaeoproterozoic rocks in the Alligator Rivers region are amphibolite-facies psammites assigned in 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, Sweet et al. 2005). The group appears to on-lap Neoproterozoic basement highs, but gneissic variants are also thought to pass transitional into paragneiss of the Nanambu Complex.

The Cahill Formation of the Namoon Group conformably overlies the Kudjumarndi Quartzite. The lower part of the Cahill Formation (informally referred to as the Lower Cahill Formation) hosts the Nabarlek, Ranger and Jabiluka uranium deposits. The Lower Cahill Formation consists of a structurally lower calcareous marble and calc-silicate gneiss, which is overlain by pyritic, garnetiferous and carbonaceous schist, quartz-feldspar-mica gneiss, and minor proportions of amphibolite.

The informally named Upper Cahill Formation is psammitic and consists of feldspar-quartz schist, quartzite, lesser proportions of mica-feldspar-quartz-magnetite schist, and minor proportions of metaconglomerate and amphibolite. The Upper Cahill Formation is magnetic and significantly so at the base of psammitic unit in what is informally known as 'hanging wall sequence'. The magnetic characteristic of this unit is due to the presence of mafic sills or magnetite and it is a useful characteristic used for distinguishing the Cahill Formation from surrounding less magnetic rocks (Kendall 1990). Mafic sills and dykes assigned to the Goodparla and Zamu Dolerites intruded the Cahill Formation prior to metamorphism.

The Nourlangie Schist overlies the Cahill Formation and consists of 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 events before deposition of the late Palaeo- to Mesoproterozoic Kombolgie Subgroup (Thomas 2002). The rocks have also been locally migmatized during the ca.1847-30 Ma Nimbuwah Event. A broad trend of increasing metamorphic grade is evident 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.

The Kombolgie Subgroup is the basal unit of the late Palaeo- to Mesoproterozoic Katherine River Group of the McArthur Basin (Sweet, Brakel et al. 1999; Sweet, Brakel et al. 1999). The subgroup consists of sandstone units called the Mamadawerre Sandstone, Gumarrirnbang Sandstone, and Marlgowa Sandstone, which are divided by

thin basaltic units called the Nungbalgarri Volcanics and Gilruth Volcanics. The Mamadawerre Sandstone has a minimum age of ca. 1700 Ma, which is also 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 and is the youngest Proterozoic rock unit exposed. It intrudes various Neoproterozoic and Palaeoproterozoic units, and the Kombolgie Subgroup, forming magnetic sills, dykes, lopoliths, and laccoliths. The Oenpelli Dolerite has a SHRIMP U-Pb baddeleyite date of 1723 ± 6 Ma (Ferenczi, Sweet 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. Localised effects in the sandstone include silicification, desilicification, chloritisation, sericitisation, 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 Palaeozoic 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.

2.2 Project Geology

The Beatrice tenements lie to the south of the Myra Falls Inlier. EL 26796 is almost entirely Mamadawerre Sandstone, typically deeply jointed and faulted. Area in the northwest corner contains undifferentiated Cenozoic sediments. The northern part of

EL 24291 is bisected by the east trending Beatrice Fault, to the north of which lies Mamadawerre Sandstone of the Kombolgie Subgroup, and to the south is the Beatrice Inlier. The Beatrice Inlier is comprised of outcropping Nimbuwah Complex gneisses and granites, intruded by Oenpelli Dolerite, and bounded to the southwest by the Bulman Fault Zone. Mamadawerre Sandstone overlies the remainder of EL 24291.

Project scale mapping is an ongoing focus of the 2014-2015 field season with 161 mapping points taken by the end of the reporting period. A detailed map of EL24291 will be included in the 2015-2016 annual report for Beatrice.

3. PREVIOUS WORK

3.1 Queensland Mines Limited

Limited exploration work was conducted by Queensland Mines Limited (QML) between 1970 and 1973 before the cessation of exploration in Arnhem Land with the introduction of the Aboriginal Land Rights Act in 1973. Mapping, airborne and ground radiometric and magnetic surveys in 1970 and 1971 led to the identification of the Beatrice prospect (Robinson 1971, Lockhart 1974).

In 1971 radiometric surveying and costeaming of the most anomalous zones at the Beatrice prospect was conducted, followed by topographic and surface geological mapping. Trenches at the prospect were bulldozed for mapping. A track was bulldozed from the west along the East Alligator River valley into the Beatrice Inlier to permit truck-mounted drill rig access. Diamond drilling in 1971 comprised eight drillholes for a total of 490.7 m. Low-grade secondary sooty pitchblende was intersected below the surface anomalies. Despite intersecting 7 m at 3.3% U3O8, at the completion of the program it was suggested that all prospective sites had been tested and there was no further exploration potential.

In 1973, a grid-based mapping, radiometric and soil-sampling survey was conducted over the Beatrice prospect. Lockhart (1974) noted that the mineralisation is restricted to an area of chloritised gneiss, spatially associated with a series of northeast trending quartz stockwork breccias. QML's exploration was curtailed in early 1973 by the Federal Government imposed moratorium on exploration pending a resolution of the issue of Aboriginal Land Rights, and no further on-ground exploration work was conducted by QML.

Reinterpretation of results by QML geologists in 1982 (Foy, 1982a) concluded that potential remained within the prospect area based on the intersections from the 1971 drilling. However, re-examination of drillcore failed to confirm the presence of the previously reported "sooty pitchblende". As a result, further drilling and surface investigations were recommended by Foy (1982b).

3.2 Cameco Exploration

Afmeco Mining and Exploration Pty Ltd (AFMEX) acquired the exploration licence application from QML in 1998 and formed part of the joint venture partnership between AFMEX (25% operating partner), Cameco (50%) and SAE Australia Pty Ltd (25%).

Following the dissolution of the joint venture agreement in 2003, the exploration licence application was transferred to Cameco. The original exploration licence application area (EL 24291) was split by non-consent areas as determined by an anthropological survey conducted prior to grant, forming the two non-contiguous licences EL 24291 and EL 26796. Grant of licence was given on 04 July 2008, for a period of six years.

3.2.1 2008 – 2009

The 2008 exploration program consisted of airborne geophysical surveys and helicopter-supported ground activities, comprising geological mapping, reconnaissance, and outcrop sampling.

Air photography over the Beatrice project area produced a digital image which was geometrically corrected to create an ortho-photograph and digital elevation model. Two airborne geophysics surveys were flown over the Beatrice project area. These were a helicopter-borne VTEM (time domain electromagnetic system) and magnetic data, and fixed-wing radiometric and total field magnetic surveys.

Ground investigations consisted of reconnaissance and sampling of the identified airborne radiometric anomalies, geological reconnaissance across the tenement, with focus given to the Beatrice prospect. Outcrop sampling returned a best assay result of 0.15% U₃O₈ in a strongly chlorite altered and sheared granite from the Beatrice prospect.

A large radiometric anomaly identified in the northwest of EL 24291, sited within a shallow gully to the south of and parallel to the Beatrice Fault near the intersection with the Bulman Fault Zone returned elevated uranium results within sandstone, with a best assay result of 8.8 ppm U₃O₈ in hematite altered, fine-medium grained sandstone. This anomaly was named the Violet prospect.

3.2.2 2009 – 2010

Work conducted in 2009 consisted of an airborne radiometric and magnetic survey, an airborne hyperspectral survey, a ground-based sub-audio magnetic (SAM) survey over the Beatrice prospect, five diamond core drillholes and 272 auger holes at the Beatrice prospect, and rock outcrop sampling in conjunction with reconnaissance mapping over the two licences.

Helicopter-supported drilling and other work were conducted at the Beatrice prospect from 27 May to 23 July 2009. Five diamond drillholes for a total of 730.5 m and 272 auger holes were completed. The diamond drillholes were completed at variable azimuths and dips as conditions and targeting warranted. All auger holes were completed adjacent to the Beatrice prospect, with a portable track-mounted machine and a detachable auger bit. Auger holes penetrated the top 1.2 m of the soil horizon, and samples were collected of the bottom of hole from the auger flyte.

In addition, during the 2009 – 2010 field season 105 ground stations were recorded, including 10 mapping points and 95 rock sample sites. On EL 24291, 98 sites were recorded with 9 mapping stations and 89 rock samples collected. Lastly, on EL 26796, 7 sites were recorded with 1 mapping station and 6 rock samples collected for geochemical analysis.

3.2.3 2010 – 2011

Work conducted in 2010 consisted of a ground-based resistivity survey, airborne electromagnetic (TEMPEST) survey and helicopter-supported activities that included diamond core drilling, geological mapping and outcrop sampling.

In total, 6 diamond core drillholes were completed at the Violet prospect for a total of 1,836.7 m. The most significant uranium intersection was intersected in BTD0278 with 20.6 m at an average grade of 850.6 ppm U₃O₈ from 30.1 to 50.7 m.

Outcrop sampling in conjunction with reconnaissance mapping were conducted across EL 24291 and EL 26796 with 234 sites recorded in total. On EL 24291, 217 sites were recorded with 164 mapping stations and 53 rock sample sites. Lastly, on EL 26796, 17 sites were recorded with 3 mapping stations and 14 samples collected for geochemical analysis.

3.2.4 2011 – 2012

Helicopter-supported tree leaf vegetation sampling was conducted over the Beatrice prospect to test this surface sampling technique over known uranium mineralisation. In total 18 samples were collected at a nominal spacing of 50 m in a northwest trending line. Results of the survey did not become available until after the reporting period, and are included in the 2012 – 2013 annual report.

During late June archaeology site clearances were completed for drilling target areas located on EL 24291 and EL 26796. As a result, 1 helicopter-supported drill site was prepared and poly-pipe waterline was laid out to for the drilling water supply.

3.2.5 2012 - 2013

Cameco drilled one diamond core hole to 206.8m, targeting an interpreted steep north trending structure ~500m north of the Beatrice prospect. BTDD0001 was collared at 8604657N, 304317E (MGA94-53) with an azimuth of 270° and dip of -60°. Downhole gamma logging found no anomalous radioactivity.

Of the 22 drill core samples sent for geochemical analysis none returned significant results.

Cameco confirmed the presence of Cahill Formation stratigraphy below the Kombolgie Subgroup sandstone cover to the north of the EL24291 and highlighted two prospective areas that have not been followed up.

4. EXPLORATION WORK 2014-2015 TENURE YEAR

4.1 Overview

Exploration activities conducted during 2014 – 2015 reporting period on the Beatrice Project comprised the following:

- Geochemical analysis of historic drill core totalling 93 samples (97 metres total) by Bureau Veritas.
- Radionuclide testing of 3 ground based water samples.
- Geochemical and Lead (Pb) isotope analysis of 164 surface rock chip samples.
- Geochemical analysis of 27 soil samples.
- Commencement of geophysical HeliSAM survey proposed to cover 3 regional areas.
- Prospect and regional mapping of the Beatrice anomaly and nearby targets.
- Ground based radiometric survey totalling 672 hand held scintillometer points.
- Initial validation of historical data and database amalgamation.
- Independent geological review of the Alligator Rivers and Pine Creek mineral provinces. (HINMAN GeoSOLUTIONs).

In addition to this field work there has also been continued work in re-establishing Myra Camp to meet modern standards from which fieldwork is based, preparing various compliance documentation, conducting safety and environmental audits and providing ongoing assistance to regional stakeholders with introduced weed management programs.

4.2 HeliSAM Survey

Alligator Energy has commissioned a HeliSAM survey to be conducted over parts of EL24291 by Gap Geophysics. The aim is to utilise geophysical and exploration techniques capable of 'seeing' through Kombolgie sandstone cover at a regional scale within the ARUP, and is a key exploration strategy of Alligator Energy. At time of reporting the first of three regional grids (BT1b) has been set up, however data acquisition is yet to commence.

Figure 3 below shows the proposed locations of grids to be conducted. Grid specifications and results will be published in the 2015-2016 Beatrice Annual report.

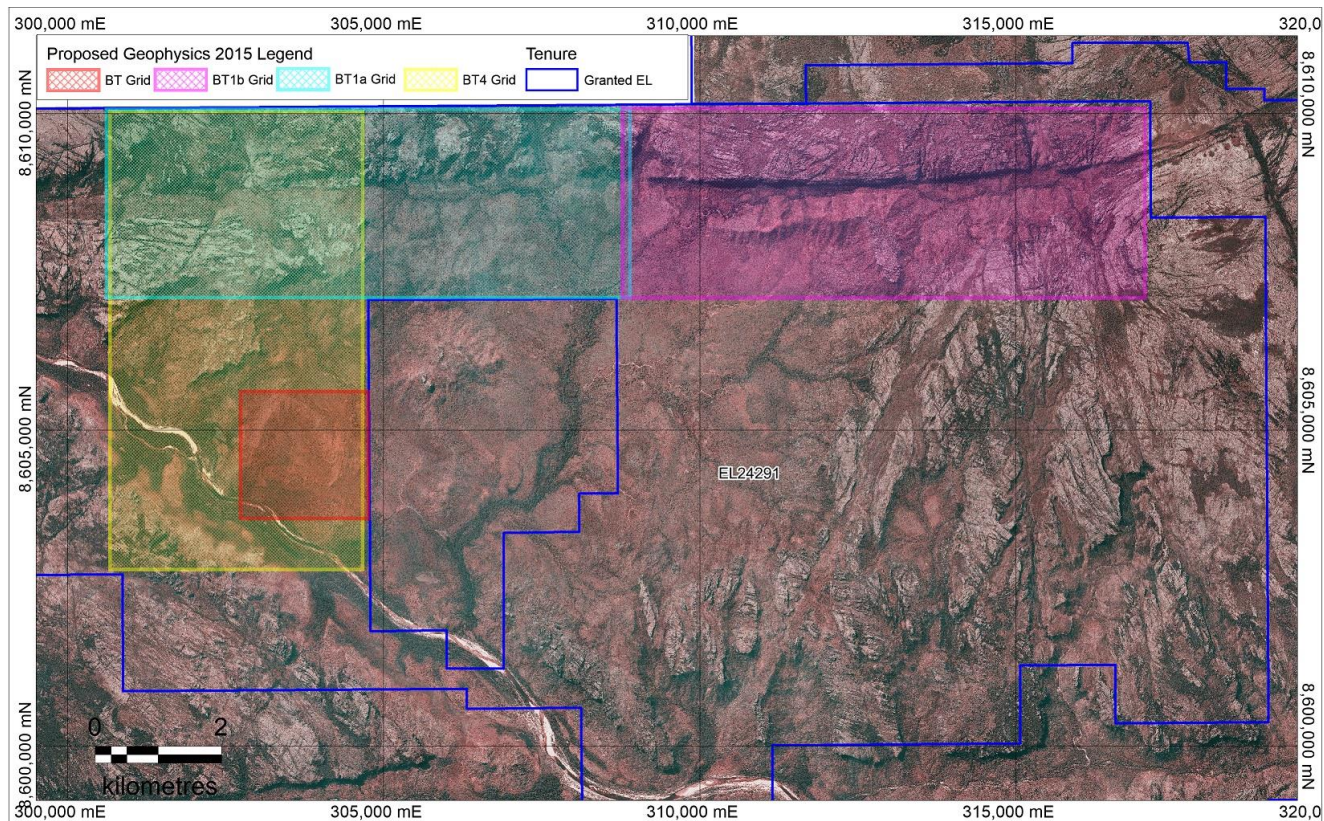


Figure 3: Proposed location of HeliSAM Survey grids.

The data from this HeliSAM survey will be utilised to identify basement structures, sub-Kombolgie stratigraphy and areas of potential chlorite alteration.

4.3 Independent Regional Geological interpretation review.

In early 2015 an independent geological review was carried out by Mark Hinman (HINMAN GeoSOLUTIONS). The review focused on interpreting regional geological evolution of the Alligator Rivers and Pine Creek mineral provinces, with the aim of highlighting key structural and stratigraphic controls and intersections. This exercise has resulted in a more detailed understanding of stratigraphic and structural relationships and their potential control of uranium mineralisation in the ARUP. A detailed geological time slice for the Alligator Rivers and Pine Creek mineral provinces was also produced for Proterozoic stratigraphy with relation to North-West Queensland's mineral provinces (see **Appendix 1**).

4.4 Surface Program

Following on from collaboration with CSIRO in 2013 on the development and improved methodology of lead (Pb) isotope ratios, Alligator Energy is undertaking an extensive surface sampling program over the Beatrice Project area. This surface program at the time of reporting consists of 1027 total samples collected as outlined below in **Table 1**. An overview of sampling distribution can also be seen below in **Figure 3**.

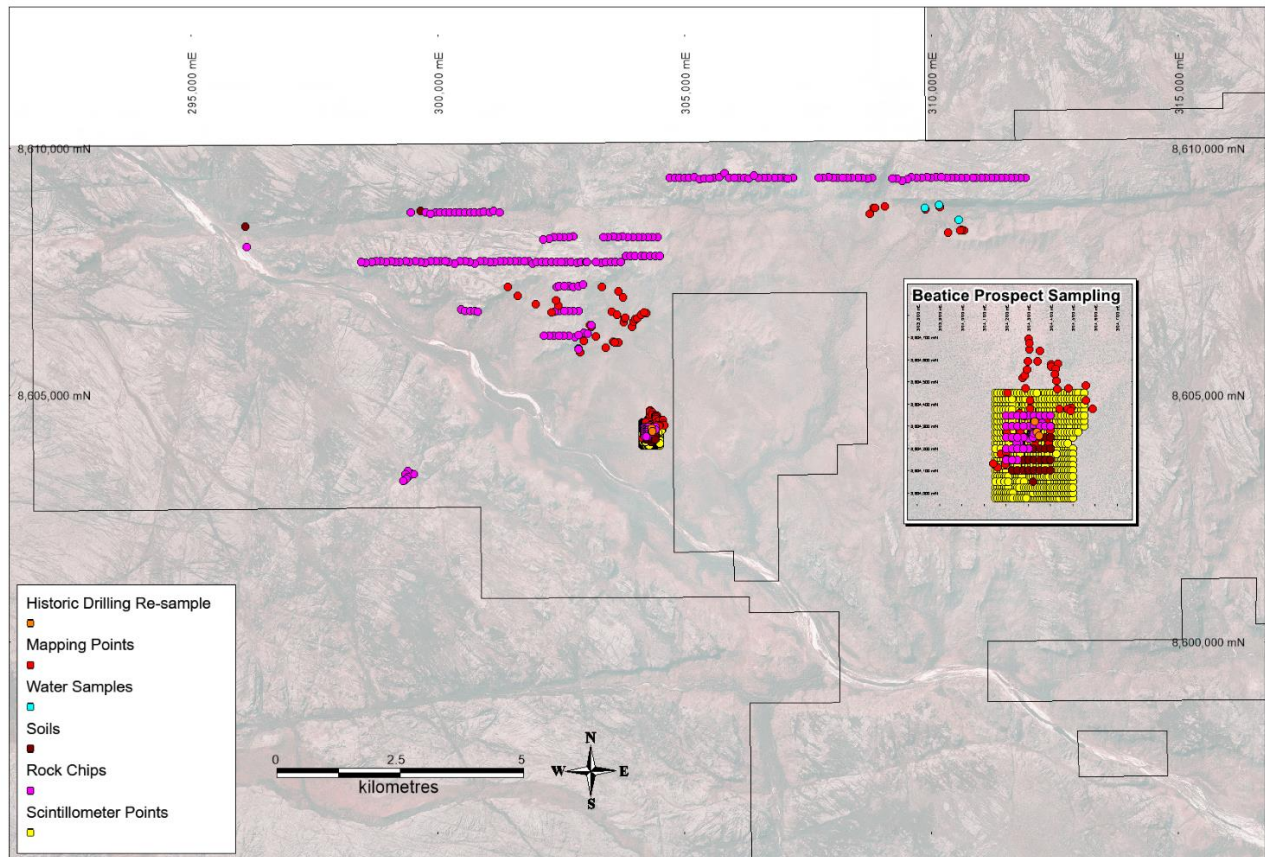


Figure 4: Overview of Beatrice surface sampling 2014 – 2015. Beatrice prospect sampling inset.

Sample Type	Samples
Rock Chip	164
Scintillometer	672
Water	3
Soil	27
Mapping	161
Total	1027

Table 1: Summary of surface sampling

Surface assays received for this report period include 164 rock chip results and 27 soils. Outstanding assay results for samples collected during this reporting period will be submitted in the 2015/2016 report.

Sampling has been carried out with a main focus on Kombolgie sandstone cover, and the aim of identifying radiogenic Pb anomalies and geochemical signatures of potential undercover uranium. Scintillometer and soil sampling have primarily focussed on the Beatrice prospect with further target areas being identified for investigation. Additionally 3 water samples were collected for radionuclide analysis, all from surface springs at south of the Beatrice fault.

4.4.1 Rock Chip Samples

Rock chip sampling was primarily focused on sandstone cover with transects planned north of the Beatrice fault and also between the Bulman and Beatrice Faults. Samples are typically spaced 100 metres apart with nominal line spacing of 500m. Sandstone samples were taken as close to planned points as possible, where exposure would allow, and fresh samples were collected using a geopick ensuring minimal surface contamination. Samples were submitted to Bureau Veritas (Amdel) Darwin for sample prep, full suite geochemical and isotope analysis. All samples were prepared using a total acid digest before being presented to ICPMS for analysis as outlined in drilling below. Samples for Pb204, Pb206, Pb207 and Pb208 isotopes were re-presented to ICPMS to read raw counts. Pb206/Pb204, U235/Pb207 and U238/Pb206 are preferred ratios used to indicate radiogenic lead derived from a uranium source. U235/Pb207 was included in analysis as QAQC of the other ratios as it also highlights anomalism of uranium derived lead. Results from this survey will be vector towards an unexposed uranium source and help future targeting of drilling below sandstone cover.

Direct sampling of sub-Kombolgie basement has also been undertaken in conjunction with reconnaissance of radiometric anomalies and scintillometer surveys. A highlight of this survey includes the identification of previously unknown outcropping uranium mineralisation >1500ppm in sample 19208. This sample is located approximately 2.5km north-west of the Beatrice prospect.

4.4.2 Soil Samples

Soil sampling was predominantly conducted south of the Beatrice Prospect. Samples were submitted to Bureau Veritas (Amdel) Darwin for sample prep, full suite geochemical and isotope analysis. All samples were prepared using a total acid digest before being presented to ICPMS for rock chip sample analysis.

Analysis included Al, Cr, Fe, K, Mg, Na, P, As, Cu, Dy, Er, Eu, Gd, Ho, Lu, Nd, Ni, Pb, Pr, Sm, Sr, Tb, Ce, Th, La, Tm, U, Yb, Zn, Zr. Samples for Pb204, Pb206, Pb207 and Pb208 isotopes were treated as for rock chip samples with Pb/Pb and U/Pb ratios being reported.

4.4.3 Radionuclide Water Samples

Radionuclides are considered an important tool in identifying a uranium source through radiogenic ground water and distinguishing between other radiogenic sources by Alligator Energy. Three initial surface water samples were collected north of the Beatrice fault at the base of the Kombolgie Subgroup sandstone where groundwater breaches to surface. These samples aim to vector towards mineralisation under the sandstone cover. All samples were submitted to ANSTO for preparation and analysis summarised below:

Sample preparation:

- VI3330 ERMIC Radium chemical isolation.
- VI2781 Actinide and Strontium separation from soil, sediment, vegetation & water.
- VI3338 ERMIC Cerium fluoride alpha source preparation.

Sample analysis:

- Ra226, U238, U235 and U234 by VI3321 ERMIC Operation of Ortec Alpha Spectrometers.
- Th234 (U238), Pb214 (Ra226), Ac228 (Ra228) by VP-2747 Gamma-ray Spectrometry.

4.4.4 Mapping Points

Mapping initially began in April 2015 at the Beatrice prospect with the aim of highlighting key structures and identifying basement stratigraphy. The Beatrice prospect itself is believed to be hosted within a varying basal gneiss complex, likely part of the Nimbuwah complex. Mineralisation appears associated with a combined 045 and north-south striking shear zone. Lithology and mineralisation also lie proximal to a coarse porphyritic Granodiorite intrusion forming the north-east part of the Beatrice hill. Mapping points have also been collected during regional reconnaissance of radiometric anomalies in conjunction with scintillometer readings. The location of mapping points can be seen in **Figure 4** above.

4.5 Drilling Program

Drilling will be planned and carried out once targets are defined from mapping and HeilSAM interpretation. As there is currently no road access available to the Beatrice tenements any subsequent program will be carried out with a helicopter supported multi-purpose drill rig.

Three historic drill holes BTD0273, BTD0274 and BTD0275 have been re-sampled by Alligator Energy totalling 93 samples. Core was sampled at one-metre intervals within selected zones and then half sawn using a diamond saw. The core was cut along orientation lines where still visible. One metre, half core intervals are placed into

sequentially numbered calico bags and the sample number and interval entered into the logging spreadsheet.

Drill core samples were transported to AMDEL (Bureau Veritas) Laboratories in Berrimah, Darwin for sample preparation. The preferred uranium analysis technique was a four acid total digestion, with ICP-MS finish. This technique is considered a total analysis method.

Procedures for sample preparation at the Berrimah laboratory were as follows:

- Drill samples sorted and dried to a core temperature of approximately 100°C.
- Dried samples were coarse crushed using a Boyd crusher to a sizing of approximately 5mm.
- The total sample was milled in an LM5 pulveriser to 85% passing 75µm.
- An analytical pulp of 250 g was taken from the bulk and the residue retained.
- The pulp sample was then delivered to AMDEL's laboratory in Adelaide for assay.

The primary uranium assay technique used was ICP-MS following lithium borate fusion of the pulp sample. This method involves taking a 0.1g subsample of the analytical pulp which is then fused with lithium metaborate followed by dissolution to give a "total solution". The solution is presented to an ICP-MS for the determination of elements of interest. Apart from uranium, a comprehensive suite of other elements were also analysed by ICP-MS. In addition, fire assay was used for gold, platinum and palladium and XRF was used as required for uranium where the upper detection limit using of ICP-MS was inadequate. The full suite of analytical results and detection limits for core samples is included in attached data files.

5. TENNEMENT SUMMARIES

EL24291:

- HeliSAM survey commenced.
- Regional geological interpretation and review.
- Geological reconnaissance and mapping.
- Re-sampling of historic drilling.
- Geochemical sampling including Pb isotopes, rock chips, soils and waters.
- Database amalgamation and review.

EL26796:

- Regional geological interpretation and review.
- Geological reconnaissance.
- Database amalgamation and review.

6. CONCLUSIONS AND RECOMENDATIONS

The Beatrice project is considered by Alligator Energy as a highly prospective tenement package which warrants considerable further exploration. Historical exploration is very limited and initial ground based exploration has already yielded positive results tenement wide.

With limited field work across both tenements to date, no definitive conclusions have been reached by Alligator Energy, however several hypothesis are outlined below:

1. Uranium is concentrated within a large scale shear structure at the Beatrice prospect associating with 045 and north-south trending structures.
2. Fertile structures appear to be oriented roughly normal to host strike, and may be concentrated in the quadrant 340-050°;
3. It seems likely that the most favourable location for substantial tonnages and grades of uranium mineralisation lies within Lower Proterozoic basement schist/carbonate sequences of the Cahill Formation where disrupted by steep fertile structures probably normal to the formational strike;
4. The locations of all Cahill Formation schist/carbonate sequences need to be distinguished from underlying Kudjumarndi Quartzite and Kukalak Gneiss, and established by field mapping and geophysical interpretation;
5. The various non-foliated dolerite bodies require distinguishing into the Oenpelli age group (~1720Ma) and the Galiwinku/Arnhem age group (~1320Ma)

The following recommendations are made for continued exploration:

1. Conduct fixed loop EM (FLEM) surveys over Beatrice prospect and targets identified by HeliSAM survey.
2. Continued regional and prospect scale geological mapping.
3. Further radionuclide sampling of anomalous ground water should be carried out with a view of vectoring on a potential radiogenic source.
4. Field checking of targets identified through independent geological review by Mark Hinman.
5. Track access reconnaissance.
6. Extensive surface sandstone sampling program for Pb isotope analysis.
7. Re-logging of historic drill core.
8. Geophysics data review and drill targeting.
9. Targeted drill testing of geochemical, radiometric and geophysical anomalies.

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