Cameco Australia Pty Ltd

WELLINGTON RANGE PROJECT

NORTHERN TERRITORY

EL 5893

ANNUAL REPORT

CONFIDENTIAL

Date:	**May 2008**
Report No.:	**WR08-01**
Period:	**4 May 2007 to 3 May 2008**

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SUMMARY

This report describes exploration work undertaken on EL5893 Wellington Range for the fourth year of tenure. The licence is located in Arnhem Land approximately 100 km north northeast of the community of Jabiru. The tenement was granted for a period of six years on May 5 2004 and to the end of year three there has been no statutory reduction. Cameco is awaiting the decision of DPIFM Minerals and Energy on a 'Partial Waiver of Reduction' application submitted in April 2008.

Field activities for the reporting period consisted of diamond and air core drilling, outcrop sampling and geophysics, the latter comprising a ground EM survey and airborne Gravity.

Eight diamond core holes were drilled in 2007, two of which were abandoned due to difficulties encountered in the Cretaceous. Total metreage drilled was 2,932 m, which included 2,212 m of rotary mud pre-collaring. The program was designed to broadly target the northern extension of the regional magnetic trend as defined by the Southern Geoscience interpretative study. The trend forms an arc-like linear belt that is traceable on the magnetic image for approximately 30 km along the north-western boundary of the tenement. Specific target areas were inferred northeast and northwest structures, where they crosscut the prospective stratigraphy.

Drilling in 2006 along the southern part of this trend discovered the presence of a magnetite-bearing pelite on several drill fences, which with other intersected lithotypes were interpreted to be correlatives of the Cahill Formation. In 2007, intersections of two of the three marker horizons, the magnetic pelite (magnetite-bearing schist) and the underlying carbonate sequence (marble, calc silicate gneiss and para amphibolite) confirmed continuation of the prospective stratigraphy. Observations of interest concerning the stratigraphy in the current program as compared to 2006 include:

- The graphite bearing horizon intersected in 2006, which comprises a distinctive light grey, banded silicified semipelite was absent.
- The Magnetite bearing pelitic schist is present in several holes and is visually identical to the 2006 intersections. Streaky foliation controlled masses of magnetite were observed in one of the 2007 holes.
- Sulphide-rich layers within pelite, semipelite and amphibolite contain Pyrrhotite which is slightly magnetic.
- Graphite occurrences were confined to localised structures mainly within the carbonate sequence.
- The 'carbonate sequence' is better developed and is traceable over the three drill fences, a distance of approximately 9 km.

Despite the favourable environment, there were no obvious indications of structural disruption, hydrothermal alteration effects or uranium mineralisation.

In the southern part of the tenement 71 air core holes were drilled for a total of 1039m. The program was designed to map the basement geology through the regolith, determine it's prospectivity by observing any alteration features and obtain samples for geochemical analysis. The area is underlain by gneissic granitoid of the Nimbuwah Complex, which has been intruded by Oenpelli dolerite. Cover rocks are Cretaceous sandstone and siltstone with recent ferricrete and transported sand. No indications of uranium mineralisation were found.

A total of 12 rock samples were collected from Nimbuwah basement outcrops within the boundary of the Air core area. Five sandstone samples were collected from the environs of the planned (but cancelled) Tempest anomaly heli-hole.

Bell Geospace Limited conducted airborne gravity over the northern half of the tenement. A total of 1452 line kilometres on 200 metre spaced lines were flown to assist mapping basement geology below cover. Legal restrictions have prevented the data from being interpreted.

Quantec Geoscience Pty Ltd carried out a trial Time Domain EM orientation survey on a 1.5 km long traverse. The traverse corresponded to a 2006 drill fence on which one hole intersected the graphite-bearing semipelite. The object of the survey was to trial various configurations in an attempt to locate graphitic conductors beneath highly conductive Cretaceous cover. The survey was partly successful in that a subtle response was attributed to the graphitic horizon.

Rio Tinto Exploration continued their exploratory air core program within the tenement as part of the Malay Bay farm-in agreement with Cameco. Rio drilled 20 shallow holes for a total of 177 m. Analysis returned up to 30.2% Al_2O_3 however this result is related to kaolinitic clays. Rio considers that the area is unsuitable for bauxite formation.

Eligible exploration expenditure for Cameco's activities for the reporting period totalled $1,577,315.16. Rio Tinto Exploration expended $36,115, which brings total expenditure to $1,613,430.16.

The exploration program for 2008 will consist of both diamond core and air core drilling programs and further ground EM. The coring program, consisting of a minimum 11 proposed holes, which will focus on two main areas, one targeting a structural environment with similarities to the Aurari Fault Zone and the second a Gravity anomaly located adjacent to the south-eastern corner of the 2006 drilling area. Should additional funds be available then more detailed drilling of the primary targets can be carried out if necessary. Alternatively other defined target areas, such as structurally favourable sections of the magnetic trend can be drilled.

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INTRODUCTION

This report details exploration activity carried out over EL5893 (Wellington Range) for the year ending 3rd May 2008.

Location and Access

EL5893 is located in western Arnhem Land, and centred 100 km NNE of Jabiru.

Relevant map sheets are:

- 1:250K Cobourg Peninsula SC5313
- 1:100K Wellington Range 5574
- 1:50K Laterite Point

Figure 1 - EL5893 Location Map

The unsealed road to Gurig National Park on the Cobourg Peninsula provides good vehicular access to the eastern margins of the tenement. Several east-west trending roads and tracks provide additional access. Sandstone escarpment areas are accessible by helicopter.

Tenure

EL5893 was granted on 5 May 2004 for an initial period of six years. On granting, the total area under licence was 269 blocks for 856.4 square kilometres of which 378.8 square kilometres (44%) was excluded from exploration by the Northern Land Council. The current area available for exploration is 477.6 square kilometres.

Cameco applied for a Partial Waiver of Reduction in March 2008, involving the relinquishment of 68 blocks all within no-go zones in the tenement. If granted this will reduce the tenement area to 201 blocks or 639.9 square kilometres.

Physiography

The tenement contains some large remnant areas of dissected sandstone plateau, which form the western extension of the Wellington Range. The remainder consists predominantly of gently undulating country covered by savannah woodland. The principal drainage systems within the region are Angularli creek draining to the east and Murgenella Creek draining to the west.

Tenement Geology

The basement geology of the Wellington Range tenement has been clarified in the last two years from regional diamond core and air core drilling by Cameco. The diamond drilling programs have and will continue to be guided by geophysics, specifically airborne magnetics and gravity and ground-based EM surveys.

The possibility of Archaean granite gneiss of the Nanambu Complex occurring along the western edge of the tenement has been suggested following examination of drill core from the 2006 program (pers com L Bagas). An alternative is that they are part of the ‘older’ paleoproterozoic gneiss terrane e.g. Mount Howship gneiss as previously suggested.

Interpreted lower Proterozoic Cahill Formation rocks form an arcuate linear trend, which parallels the northwestern boundary of the tenement. Recent drilling has shown these rocks to consist of characteristic Cahill ‘marker’ horizons such as the magnetic pelite and an underlying carbonate-calc silicate unit. Graphitic structures and a semipelitic graphite bearing unit are also present at different stratigraphic levels. The bulk of the sequence however consists of pelitic and, semipelitic rocks with minor psammite and interlayered amphibolite. Intrusive rocks include pegmatite and dolerite. The intersected stratigraphy suggests that both upper and lower Cahill rocks are present.

A flaggy quartzite has been observed outcropping at or near the Kombolgie unconformity. These isolated outcrops have been mapped as Cahill formation by the BMR in the 1970s, however it is uncertain where they fit into the stratigraphic succession. Quartzitic rocks have been cored in some of the Wellington Range drill holes and well scattered outcrops of flaggy quartzite was mapped by PNC geologists near the top of the Myra Falls Metamorphics succession on the King River licences. Correlation of these “quartzites” in the region may provide an idea as to where the Wellington Range intercepts of Cahill Formation are in relation to the middle Proterozoic unconformity.

Granitoid and quartzofeldspathic gneisses and some migmatite of the early Proterozoic Nimbuwah Complex form the basement rocks in the southern part of the tenement. Large sill-like bodies of Oenpelli dolerite intrude the basement.

The basal Mamadawerre sandstone of the Kombolgie Subgroup forms the Wellington Range escarpment, which dominates the south-western quarter of the tenement. Several smaller isolated outcrops of sandstone occur in the south-east. In places along the unconformity a prominent cobble conglomerate has been mapped.

Up to 300 m of Cretaceous sediments, equated with the Bathurst Island Formation, obscures the basement geology in the northern part of the Wellington Range tenement. The sequence where drilled, consists principally of dark coloured micaceous mudstone with intercalated thin sandy beds. Other lithotypes include calcareous sandstone, siltstone and green glauconitic sandstone.

Recent cover materials include sands, clay, gravel and cemented ferruginous deposits.

Figure 2 - EL5893 Tenement Map

Structure and Geological History

The early Proterozoic rocks of the region have been affected by the Top End Orogeny (1880 to 1780 Ma), which includes the initial Nimbuwah Event, or Barramundi Orogeny at about 1870 Ma. This produced a prograde metamorphic effect with associated tight folding and faulting. The various ‘domains’ exhibited a variability of deformation and metamorphic grade with the western and eastern margins of the Pine Creek Inlier (Litchfield Province and Nimbuwah domain respectively) exhibiting the most pronounced effects.

Major regional faults, which affect the early Proterozoic, have north-west (Bulman), north-north-west (Aurari) and northerly (Anuru, Goomadeer) strikes. Another significant set trends to the east and includes both the Ranger and Beatrice faults. The Bulman Fault Zone is the principle regional feature and is considered to represent a long-lived deep crustal structure, which has exerted a large lateral component in rocks of the Pine Creek Inlier.

A more intense concentration of structures traverse the mid-Proterozoic and younger rocks and includes north-west, east, north-east and northerly trends. Both faulting and jointing with displacements ranging from a few metres up to 100 metres locally heavily dissect the Kombolgie.

The Wellington Range area occupies the north-western extension of the Arnhem Shelf in the northern McArthur Basin. Deposition of the Mamadawerre Sandstone took place in an environment of extension and local basin formation with probable fault-controlled sedimentation. Rapid thickening and thinning of the sequence imply this.

The widespread Oenpelli Dolerite intrusive event took place at about 1720 Ma. Localised effects in the sandstone include silicification, the introduction of magnesium-rich to intermediate chlorite and the formation of muscovite-illite. A characteristic mineral assemblage of prehnite-pumpellyite-epidote has formed in quartzofeldspathic Nimbuwah gneiss and migmatite adjacent to the intrusions.

Figure 3 - Regional Geology and Structures

Previous Exploration

Interpretation of government funded geophysical surveys was carried out by Mobil Energy Minerals Australia in the early 1980s. There is no known record of whether this work was followed up on the ground. McIntyre Mines was also active in the region investigating radiometric anomalies linked to conglomeratic beds in the Kombolgie Sub-group. Substantial exploration programmes have been completed immediately east and south of the present tenement boundaries. For example, during 1970-1972, Union Carbide Exploration Corporation, explored for uranium in the King River area, now held by Cameco. This work included airborne magnetics and radiometrics with follow-up geochemical surveys, geological mapping, and drilling.

Exploration work conducted by Cameco in the first year of tenure (2004) included airborne radiometric, magnetic and hyperspectral surveys. Ground follow-up of radiometric anomalies and systematic rock sampling was also completed. A total of 89 outcrop samples, mostly sandstone, were collected for geochemical analysis. Nothing of significance was found.

Work for the second year of tenure (2005) included a TEMPEST EM airborne survey and detailed interpretation of the airborne magnetics (by Southern Geoscience), the latter activity providing a basis for year three (2006) planning.

Work for the third year of tenure (2006) encompassed three fences comprising 13 pre-collared diamond drill holes. The holes were targeting a linear, approximately north-south trending anomaly, interpreted to correlate with a more regional trend representing the Cahill Formation, the host stratigraphy to the uranium deposits of the ARUF. The results of the drilling proved significant with the predicted Cahill Formation being intersected in the majority of holes. Gneissic terranes were confirmed to enclose the trend both to the east and west.

Table 1 gives a summary of all Exploration work completed by Cameco Australia.

Table 1 - EL5893 Summary of Exploration Work Conducted to Date

WORK CONDUCTED FOR REPORTING PERIOD

Work in 2007 consisted of eight diamond core drill holes targeting the Cahill magnetic trend, 71 air core holes to clarify geology and collect samples for geochemistry, a ground EM survey targeting the graphitic unit and rock outcrop sampling. Rio Tinto completed an air core program planned to assess the bauxite potential of the region.

Details of the work program are discussed below.

Figure 4 - 2007 Work Locations

Diamond Drilling

In late 2005 Southern Geoscience Consultants were contracted to produce a geological interpretative map of the project area utilising Cameco supplied data. The planning and logistics of the 2007 drilling program was based on this interpretative work, which combined the data of two airborne magnetic surveys and all geological information pertaining to the region. The pattern of proposed drill holes was constructed to cover the magnetic trend where inferred structures crosscut the stratigraphy. Originally 18 holes were planned, allowing for some flexibility in the progam. Four east-west fences were prepared over a strike length of approximately nine kilometers with up to four sites per fence at nominal 500 m spacings. See Figure 3 for details.

Drilling on the project commenced on July 14 and was completed on September 13. The contractor was Titeline Drilling of Ballarat Victoria who used a UDR650 for the program. Eight holes were drilled, two of which were abandoned due to difficulties encountered in the Cretaceous. otal metres drilled were 2932 m, which included 2212 m of PCD pre-collaring through the Cretaceous cover and 719.4m of coring. All holes were drilled towards the west (266 degrees magnetic) with a dip of 65 degrees with the exception of WRD0020, which was drilled to the southwest (221 degrees magnetic). Table 2 provides a summary of the 2007 drill holes.

Figure 5 - EL5893 Drillhole Locations

The Cretaceous overburden, which averaged around 250 m in thickness, unconformably overlies the Lower Proterozoic basement. A zone of weathering was evident in the basement rocks and in some cases was estimated to extend at least 30m beneath the unconformity. The rock type present determined the depth and degree of weathering, i.e. competent quartzites exhibited negligible weathering while pelitic or feldspathic rocks had more extensive weathering profiles. All holes were pre-collared through the Cretaceous sediments with a PCD bit utilising mud additives. Recognition of basement in the pre-collar sludge was made on mica content; in most cases the pre-collar penetrated into the weathered upper portion of the basement prior to the commencement of coring.

Table 2 - Diamond Drill Hole Details

Hole Number	Easting AMG 66	Northing AMG 66	Elev m	Bearing	Dip	Pre-collar m	Coring m	Total m
WRD0014	284000	8719500	44	266	75	272.7	153.5	426.2
WRD0015	284500	8719500	44	266	65	270.1	120.6	390.7
WRD0016	285000	8719500	33	266	65	254	106.4	360.4
WRD0017	282750	8727250	37	266	65	273	0	273
WRD0018	282510	8727250	32	266	65	286	117.5	403.5
WRD0019	283750	8727250	30	266	65	272	116.2	388.2
WRD0020	282850	8728250	30	221	65	278.8	105.2	384
WRD0021	282350	8729000	29	266	65	306	0	306
Totals						**2212.6**	**719.4**	**2932**

Following is a summary of results of each drill hole, detailing the intersected stratigraphy. The holes are described in the order drilled (west to east) and are grouped according to the traverse on which they are located from south to north.

Traverse One

WRD0014

Radiometrics indicated the Cretaceous boundary at 250m.

WRD0014 Summary Log

Basement rocks consisted of pelitic to quartz-rich semipelitic rocks attributed to the Lower Cahill Formation. This rock package was dominated by quartz-feldspar-mica semipelitic gneisses interlayered with garnetiferous pelitic schists, pegmatitic sweats and minor amphibolites. A rock logged as a marble was intersected between 284.61 and 285.16 m was identified by petrography as a calc-silicate.

The quartz rich semipelitic rocks consist of interlayered, strongly foliated quartz-biotite-feldspar gneiss, arkosic gneiss and quartz-feldspar-biotite-garnet gneiss with bands of quartz-feldspar-biotite pegmatite and rarely fine-grained strongly foliated amphibolite. Porphyroblastic garnets are altered to chlorite around the edges and commonly display the deflection of the rock fabric and the chlorite rich pressure shadows. Dark rounded to rhomboidal cordierite was also common in these garnetiferous layers. Common throughout the entire sequence were lenticular quartz-feldspar accumulations parallel to foliation. Biotite is often partially to fully replaced by chlorite. Pegmatites range from fine to coarse grained with biotite comprising around 5-10% of rock.

A silicified zone between 323.3-337.38 m surrounds two localised brecciated structures. Within this zone the silicification was medium to strong with pyrite commonly disseminated around structures and on fracture planes.

At 362.05 m-426.4 there is a distinct contact with a finely foliated leucocratic quartz-feldspar gneiss. This rock contains only minor biotite, which defines a weak foliation. Overall this sequence was very consistent and repetitive with only rare thin bands of darker more biotite rich intervals. A low intensity gamma kick was recorded between 409.85-409.90 m associated with small black biotite blebs.

WRD0015
Down hole radiometrics indicated the Cretaceous boundary at 238m.

WRD0015 Summary Log

The basement rocks are dominated principally by quartz-rich semipelite grading down hole into para- amphibolite, iron-rich semipelite, calc-silicate and marble.

The quartz rich semipelitic rocks consist of interlayered strongly foliated quartz-biotite-feldspar gneiss, arkosic gneiss and quartz-feldspar-biotite-garnet gneiss with pegmatite and rarely amphibolite. Both orth and para-amphibolite are present, the former having being visually distinguished by having sharp contacts with the metasediments while chilled margins were observed petrographically. Foliation parallel quartz veins and segregations occur throughout. Abundant late stage quartz-carbonate veinlets and fracture fill are also common and are observed cutting earlier quartz veins and offseting foliation. Other alteration features include minor pervasive carbonate (calc-silicate bands?) in the top portion of the hole between 270.1-298 m, several small zones of chlorite-sericite-carbonate alteration between 336-337 and 340-350 m and pyrite in veinlets and smeared along foliation partings.

This hole contained two main graphite-bearing intervals, a brecciated fault zone within semipelite associated with quartz and carbonate veining between 340-350 m where the graphite is present as disseminations and fracture fill, and a more localised occurrence between 384-385 m in an interbedded pelite-marble sequence.

Strongly magnetic intervals containing bands and disseminations of pyrite and pyrrhotite and magnetite were identified as interbeds within a semipelite between 369-378 m. Petrography identified these magnetic intervals as iron-rich chemical sediments with complex mineralogy, perhaps a banded iron formation (BIF). Overall this interval consisted of interbanded quartz rich semipelite and minor amphibolite completely and strongly altered by chlorite-sericite. From 378 m to the end of hole the stratigraphy becomes more carbonate-rich with interbeds of sulphidic and calc-silicate bearing semipelites, magnetic in places and white to light grey massive marble.

WRD0016
Radiometrics indicate the Cretaceous boundary at 224m.

WRD0016 Summary Log

The principal lithotype has been variously described as a quartz-rich semipelitic gneiss, semi pelitic schist and petrographically as an augen gneiss.

The rock is fine grained, strongly foliated to weakly gneissic and composed of quartz-feldspar-biotite. Abundant lenticular quartz-feldspar accumulations parallel to foliation were seen throughout, presumably it is these structures that have been identified petrographically as augen. The pegmatitic sweats range from fine to very coarse grained; the finer grained sections are weakly foliated while some of the coarser grained intervals have graphic textures. Rare small clear to milky quartz veins were common throughout.

Figure 6 - Traverse One Cross Section

Traverse Two

WRD0017
This hole was terminated in Cretaceous sedimentary cover at 273 m due to drilling difficulties.

WRD0017 Summary Log

WRD0018
This hole is a re-drill of WRD0017 and was collared approximately 10 m to the east. Radiometrics indicate the Cretaceous boundary at 286 m.

WRD0018 Summary Log

The basement rocks consist mainly of pelite ands semipelite dominated by quartz-feldspar-mica schists, garnetiferous biotite schists with thin interlayered amphibolite. Weathering in this hole extended to 312.8m.

The pelitic to semi pelitic schists are strongly foliated and composed of quartz-feldspar-mica +/- garnet with the latter concentrated in the more pelitic bands. There are common lenticular quartz-feldspar accumulations parallel to the foliation. Fairly abundant quartz-carbonate veinlets cross cut the foliation between 324.46-353.5m with 5mm bleached alteration selvedges. Occasional small clear to milky quartz veins parallel the foliation with less common larger ones. Amphibolites are strongly foliated and composed of hornblende-feldspar-quartz with weak chlorite alteration of the hornblende. The semipelitic assemblage between 324-354 m contains isolated bands of pink-orange garnet termed coticules (garnet rich chemical sediments) and layers rich in disseminated magnetite. Minor magnetic sulphide is present in this interval as well as at 373.6 m. Weak patchy carbonate-chlorite alteration is probably indicative of calc-silicate layers, which are typical of these iron silicate/iron oxide assemblages.

WRD0019

Radiometrics indicate the Cretaceous boundary at 272m.

WRD0019 Summary Log

The basement rocks consist of quartzite, semipelite, amphibolite, calc-silicate and marble.

Coring commenced at 292 m in a competent white quartzite, which showed grey sulphide coatings along fractures and small pelitic bands containing isolated garnet grains. A sharp contact at 312 m is present passing into a well foliated to crenulated quartz-rich semipelitic schist extending to 364 m. This unit contains large quartz-feldspar lenses several cm wide and bands of very coarse 1-2 cm sized garnet porphyroblasts often showing black chlorite rims, which form pressure shadows. Quartz stringers and lenses mark a localised fault between 353.15-353.7m, which is infilled with altered grey gneissic breccia, The breccia shows euhedral pyrite and garnet replacement along the foliation. Silicification increases from 333 m gaining in intensity towards the end of the interval. A thin greenish chlorite altered amphibolite was intersected between 352-354 m.

From 364 m the sequence initially is iron-rich to 374 m, consisting of chlorite altered amphibolite and semipelite with bands of magnetic sulphide; a thin zone of porphyroblastic garnet replaced by magnetite is present between 373-374m. A carbonate sequence follows with calc-silicate gneiss, para-amphibolite and impure marble interlayered with some pelitic material. A 10 cm fault zone infilled with graphite and quartz-pyrite breccia is present between 381-381.1 m. The hole terminates in a strongly foliated, porphyroblastic biotite-garnet semipelitic schist.

Figure 7 - Traverse Two Cross Section

Traverse Three

WRD0020

Radiometrics indicates the Cretaceous boundary at 309m.

WRD0020 Summary Log

The basement package is dominated by semipelitic schist, calc-silicate, garnetiferous pelitic schist and amphibolite.

The semipelitic schist intersected between 309 and 338m is variably magnetic, strongly foliated to crenulated with common pinkish alteration of feldspar and pervasive chlorite alteration. Both disseminated and foliation controlled magnetite in association with bands of pyrrhotite-pyrite comprise the magnetic component. Bands rich in porphyroblastic garnet are common throughout with some of the porphyroblasts encased in sulphide minerals. The magnetic component is pyrrhotite accompanied by pyrite.

At 338.0 m there is a gradational contact into a sequence of para-amphibolite and calc silicate gneiss with bands of impure marble to 358 m. Banded sulphides and minor magnetite are present from 347-354 m with brecciated quartz veins +/- pyrite and arsenopyrite throughout. Porphyroblastic garnet, coticular garnet layers, and foliation parallel sulphides bands are all present within the para-amphibolitic intervals.

The hole terminated in a garnet-rich pelitic to semipelitic schist. The garnet is present as interlayered thin bands of either finely granular garnet or as porphyroblasts. Pyrite on fracture surfaces is quite common as is quartz veining. Boudinage structures form within these veins between 364-367m. There are several small fault zones were marked by slickensides on fracture surfaces.

Figure 8 - Traverse Three Cross Section

Traverse Four

WRD0021
This hole was terminated at 309 m in a decomposed sandy micaceous rock, probably weathered basement. No attempt was made to redrill the hole

WRD0021 Summary Log

Figure 9 - Traverse Four Cross Section

Discussion and Interpretation

In 2007 a metasedimentary package consisting principally of pelite and semipelite was intersected along the targeted northern section of the magnetic trend. There is a suggestion from the drilling that the width of the prospective trend has contracted to less than one kilometre. The stratigraphy dips shallowly to the east with the depth of Cretaceous cover thinning to the south and east. Thickness of the Cretaceous ranges between 220-300 m.

As in 2006 important and conspicuous marker horizons were intersected, namely the iron-rich sequence, which comprises a sulphide-oxide-silicate assemblage, and a carbonate sequence consisting of marble, para-amphibolite and calc-silicate. Graphite is also present, principally as a component of structures in both pelitic (2006) and carbonate (2007) rocks. No distinct graphitic bearing unit has been identified within the stratigraphy. This combination of lithotypes is consistent with the previous drilling results, which confirmed the presence of the Cahill Formation at depth within the Wellington Range tenement.

As both the magnetic pelite and the carbonate sequence are present in the southern and northern sections of the stratigraphic trend, it confirms that the correct part of the targeted stratigraphy is being traversed. Their stratigraphic position, relative to each other, (magnetic unit above carbonate unit) is identical in both areas. The magnetic unit in the southern drilling area is exclusively a magnetite-bearing pelitic schist, (with some garnet banding), and is an easily recognisable and distinctive part of the succession. This same unit is present to the north, however it is less well developed and tends to be interlayered, though not exclusively, with the more lithologically diverse magnetic iron sulphide-rich sequence.

The magnetite pelite and associated coticular garnet bands were informally termed the ‘iron oxide-iron silicate’ unit (pers com D Thomas 2006); the addition of the iron-sulphide component to the north can be interpreted as a facies variation rather than a different unit, based on the observation that both the magnetite and pyrrhotite-pyrite co-exist in places. A petrographic description (Pontifex 2008) suggests that this unit has near identical mineralogy to the classic ‘Banded Iron Formations’ (BIF).

Holes from both programs exhibit the iron-rich metasediments grading into the underlying carbonate sequence, and in some cases magnetic sulphide-bearing semipelitic bands are interbedded with both calc-silicate and carbonate rocks. This association would imply a mixed sedimentary environment where iron-rich chemical sediments were being deposited alternately with carbonate, carbonaceous and terrigenous material. Referring to the available literature on the Alligator Rivers region, this stratigraphic association appears to be nearly identical to that mapped in the Myra Inlier and elsewhere to the west around the fringes of the Nanambu Complex (Needham et al 1988). There are descriptions in this reference that suggest the presence of BIF-like rocks in association with carbonaceous-graphitic schists (no carbonate) outcropping north of Jabiluka, however the stratigraphic position of those outcrops was not established at the time.

The question of the presence of ‘older’ gneissic rocks was raised in 2006 with the identification in WRD006 of a massive monolithologic quartz-feldspar-biotite gneiss, which is present throughout the hole. WRD006 was collared at the western edge of the middle fence and is located on the boundary of what is the magnetically interpreted domain of the ‘Nimbuwah Complex’ (Southern Geoscience 2005). It is possible, though very unlikely, that this is Nimbuwah; an alternate and probably more logical conclusion is that it is ortho-gneiss of the Nanambu Complex (pers com L Bagas 2008). Initially it was tentatively placed in the lower Proterozoic Kakadu Group i.e. Mount Howship Gneiss. A similar though not identical gneissic rock was intersected in WRD014 (2007) on the western edge of the most southerly drill fence. A petrographic description (Pontifex 2008) has identified this as an “augen gneiss”, which suggests ortho-gneiss, possibly Nanambu. Core samples will be provided to the NTGS for age dating following their reinterpretations of the basal paleoproterozoic stratigraphy in the Myra Inlier. What was formerly mapped as Mount Howship gneiss in the Inlier is now assigned to the Nanambu Complex following confirmation from age dating.

Patterns on the NTGS magnetic image of the ARUF region suggest that the Nanambu Complex is present as a series of domal structures, one of these being indicated to lie immediately to the west of the magnetic trend at Wellington Range. This would suggest a similar setting to the Ranger Mine environs, where east dipping Cahill Formation onlaps the Nanambu. The drilling at Wellington Range has so far failed to locate any areas of structural complexity similar to that which exists at Ranger such as the thrusting and associated dilational zones. There is no evidence for these types of structures, which would be illustrated down hole presumably by repetition or stacking of the stratigraphy.

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Aircore Drilling

Within the southeast portion of EL5893, 71 shallow aircore drill holes were completed between 3 -9 September, for a total of 1039 metres. Figure 10 shows the location of the drill holes superimposed on the interpreted geology. Drill holes intersected a range of rock types including dolerite, granitoids and granodiorite overlain by 3-10 m of sands and clays with a common gravely layer at the base of the cover sequence. Some Cretaceous sandstone was also drilled. Average hole depths were 15 m with dolerite the most commonly intersected rock type.

WRA0048 was the deepest hole drilled to 37 m. The logging sheet indicated that graphite was seen in the upper part of the hole and chlorite alteration was present beneath. The presence of graphite seems highly unlikely as the rock type was described petrographically as a quartz diorite (a basement lithology or a variation of the Oenpelli dolerite?). Similarly, no chlorite was identified, and any alteration observed was the result of weathering.

The aircore drilling largely confirms the Southern Geoscience geological interpretation of the area, which is dominantly Oenpelli dolerite intruding Nimbuwah granitoid. There were several small outliers of Kombolgie Subgroup sandstone in the northern part of the area, which form topographic highs and lie unconformably on the Nimbuwah basement.

Figure 10 - Aircore Drillhole Location

Outcrop Sampling

A total of 17 outcrop samples were collected, 12 within the aircore drilling area and five adjacent to the planned diamond core heli-hole location to the north. The object of the latter sampling was to increase sample density and geochemical knowledge of the surrounding area prior to drilling. Figure 8 shows the location of all outcrop samples and Table 3 contains a summary of samples taken. All geochemistry and associated data is available within the data folder attached to this report.

Outcrop within the aircore drilling area, with the exception of localized sandstone outliers, is dominated by quartzofeldspathic gneiss, porphyritic granitoid and pegmatoid. Figure 9 shows the location of outcrop samples. Those collected at the proposed heli-hole site were dominated by medium grained pebbly sandstone.

Figure 11 - Outcrop Sample Location

Table 3 - Outcrop Sample Summary

Sample Number	Easting	Northing	CPS (avg) Urtec	Description
WR072000	296590	8681037	65	Intermediate hematitic weakly gneissic granitoid
WR072001	296674	8681028	60	Greenish grey dolerite/amphibolite
WR072002	296747	8681029	70	Porphyritic pinkish yellow granitoid
WR072003	296785	8681032	62	Gneissic to pegmatitic granitoids pinkish green grey
WR072004	297257	8680007	65	Weathered granitic gneiss
WR072005	296379	8690150	58	Slightly hematitic med grained sandstone with conglomeratic layers
WR072006	299412	8676812	75	Intermediate weakly foliated qz/fx/bi granitoid with greenish feldspars
WR072007	296030	8681983	58	Porphyritic to pegmatoidal qz/fx/bi granitoid, intermediate comp, v weak to rarely foliated, greenish alt feldspars
WR072008	300299	8682997	65	Pinkish green mod foliated granitoid qz/fx/bi, with greenish alt feldspars, possibly hematitic weakly?
WR072009	299816	8681009	68	Pinkish grey gneissic granitoid qz/fx/bi, with pinkish to green feldspars
WR072010	300261	8680987	72	Pinkish granitoid, weakly gneissic larger greenish porphyroblastic feldspars
WR072011	297196	8680044	60	Pinkish pegmatoidal granitoid, feldspars are pinkish to rarely greenish and dominant mineral species, only minor qz/bi
WR072012	300049	8680357	63	Greenish grey felsic-intermediate granitoid, mod foliated with fx/qz/bi, and greenish alt feldspars
WR072013	296387	8690109	350	Coarse-med grained weakly hem sandstone
WR072014	296413	8690254	410	Fine grained pebbly hematitic sandstone with specular hematite
WR072015	296368	8690275	190	Med-coarse grained weakly hematitic sandstone
WR072016	296369	8690834	210	Fine to coarse grained weakly hematitic sandstone

Rio Tinto Aircore Program

Rio continued their regional aircore drilling program as part of their more widespread bauxite assessment of western Arnhem Land. The work on the Wellington Range licence has been carried out under an agreement termed the 'Malay Bay Letter Agreement'.

Rio drilled 20 shallow aircore holes for a total of 177m. All the holes were drilled along existing roads and tracks. Results returned up to 30.2% Al_2O_3 interpreted to be related to aluminous clay mineralogy and not to bauxite forming processes. The potential for a bauxite resource within the tenement has been downgraded. Details of work completed by Rio during the reporting period can be found in appendix 9.

Appendix 9 - Rio Tinto Work Summary

GEOPHYSICS

Bell Airborne Gravity

Early 2007 Bell Geospace Ltd completed an Air-FTG® (Airborne Gravity Full Tensor Gradiometer) survey for Cameco Australia in Arnhem Land. The survey included the northern half of Wellington Range Project, which was flown to assist with mapping basement below cover. West-east lines where flown in the north utilising 200 m lines and the line spacing was extended in the south to 800 m, for a total of 1452 line km.

At the time of writing there are legal restrictions surrounding the Bell gravity data since it is regarded as a "defence article" under Part 121 of the U.S. International Traffic in Arms Regulations ("ITAR"). Normally all survey data is submitted with the annual report but in light of these restrictions the NTGS has agreed that only a basic figure will suffice to substantiate that the survey was flown, which is shown below in Figure 12.

Figure 12 - Bell Geospace Airborne Gravity

Ground Electromagnetic Test

In 2007 Quantec Geoscience Pty. Ltd. carried out a trial ground time domain electromagnetic (TDEM) orientation survey 1.5 km long and centred at hole WRD007, which intersected graphite. The westerly oriented line extends from 282300mE to 283800mE along a northing of 8711900mN. The objective was to trial various configurations in an attempt to locate the graphitic conductors beneath a layer of highly conductive Cretaceous cover. Forward modelling had previously indicated that no existing airborne system would see through the cover, which was the case for existing airborne TEMPEST. Appendix 10 contains details of the survey.

Appendix 10 - Quantec Geoscience Logistics Report

The Stepwise Moving Loop (Step Loop) survey shows a subtle response attributed to graphite in the un-normalized pseudo-sections, which are not evident in the profile data, including the slingram and in-loop surveys. In this trial, the normalization of the data to the primary field did not supply additional information with respect to conductor location. It is proposed that better results may be achieved by extending the step-loop stations to +/-700 m from the loop centre. The Slingram and Moving Loop surveys are likely only responding to shallow features due to the masking effect of the highly conductive Cretaceous.

Following the success of the trial it is proposed that ground TDEM may be utilised further to target graphite that is thought to be prospective for uranium mineralisation and greatly improve the effectiveness of drilling.

Survey Specifications

For the Step Loop survey, the three components of the B field were recorded at 50 m intervals with a fluxgate magnetometer, utilizing a SMARTem V receiver and a Zonge ZT-30 transmitter. The x and z component data were reduced to pT/A and plotted as profiles for interpretation. A three component RVR coil, and a single component RVR coil were also used, but are not presented in light of the advantages of the B field sensors. This applies to the Slingram Moving Loop data as well.

The Step Loop survey was conducted by laying out a series of back-to-back 200 x 400 m loops. Three component data were recorded along the centre line over a maximum distance of +/-500 m from/through loop centres.

Interpretation includes conductor picking on pseudo-section images of individual Step Loop data channels. The pseudo-sections were produced by plotting the vertical component data at the midpoint between transmitter and receiver at a plot depth equal to half the transmitter - receiver distance. Additional processing included normalization of the data to the primary field (expressed in percent of the measured primary), as is customarily done with horizontal loop EM data.

In the Slingram Moving Loop configuration, the B field was measured at intervals of 50 m at a fixed distance of 200 m from the centre of a 200 m by 200 m moving transmit loop. The data is presented in a “Slingram” fashion where the data is plotted halfway between the centre of the transmit loop and the receiver coil. As mentioned, a sounding measurement was collected at the loop centres.

Additional details of both surveys’ parameters, as well as equipment specifications, can be found in the contractor’s logistics report.

Results

The location of a discrete conductor axis is generally determined from the peak of the in-line horizontal component anomaly and/or the inflection of the vertical component anomaly. The factors that can influence the interpretation are plate and host rock conductivity, depth to source, dip, channel delay time, multiple conductors, and as is known to be the situation at Wellington Range, the presence of a highly conductive layer above the basement conductors of interest. Figures 11 and 12 are presented to illustrate the difficulty encountered by a conventional Fixed Loop interpretation in such a situation. As the figures show, there is little appreciable change in profile characteristics from loop to loop along the length of the survey line due to the significant layered earth response caused by the Cretaceous cover. Neither the x nor z component profile data indicate an interpretable discrete bedrock conductor, as is commonly observed in the profiles from an area devoid of this layering effect. An interpretation based on the vertical component pseudo-sections and the Slingram Moving Loop surveys are therefore considered to be the best approaches left to identify basement conductors in this environment.

Figure 13 - Stepwise X Component Profiles

Figure 14 - Stepwise Z Component Profiles

Figures 15, 16 and 17 display, from bottom to top, a representative anomalous z component pseudo-section (channel 31), the fluxgate Slingram data, the Tempest CDI (Figure 15), the EMAX derived CDI of the ground sounding data (figures 16 and 17) and profiles of the airborne potential field data. The pseudo-section shows three conductive centres along the profile, located at approximately 2400-2500E, 3000-3100E, and 3600-3700E (labelled A, B and C). All three anomalies are considered to be poorly defined and weak, and are seen only within a small window of time channels centred on channel 31. Hole WRD-007 encountered narrow graphitic shears in the Lower Cahill basement, thus lending support to the anomalous response observed near the centre of the survey line (anomaly B).

Figure 15 - Ground Data and Tempest Conductivity-Depth Image

Figure 16 - Step Loop Channel 31 Z Component: 25 m Grid Cell Size

Figure 17 - Stepwise Channel 31 Z Component: 50 m Grid Cell Size

The pseudo-sections shown in Figures 16 and 17 are both channel 31-z component, but have a somewhat different appearance due to the cell size used in creating the grids. The pseudo-section of Figure 16 was generated using a 25 m cell size, whereas the one in Figure 17 was produced with a 50 m cell size. The obvious result of the larger cell size is a cleaner appearance and smoother anomalies. This doesn't appreciably change the interpretation of anomalies B and C, but it does affect A, shifting the apparent anomaly location 75 m west, where it correlates with drill hole WRD-006, which did not intersect any graphitic material. This creates uncertainty in the validity of this feature, which could potentially be resolved by one or two additional loops to the west.

Hole WRD-009, drilled very close to anomaly C, did not intersect any graphitic material. It is possible that the hole has slightly overshot the optimum target.

The Tempest CDI of Figure 15 shows a layer of high conductivity at, and just below, the Cretaceous cover/basement unconformity. This may be reflecting what is described in the log of WRD-009, for example, as very weathered semipelite and pervasive clay alteration. However, the conductivity-depth transformation of the ground data shown in Figures 16 and 17 indicates that the lowest resistivity values are within the upper portion of the section, correlating with the Cretaceous sediments. Given the conductive nature of the sediments observed in the x and z component profile data, this latter scenario is likely the more realistic setting. It is therefore suggested that the Tempest CDI is overestimating the depth to the conductive source.

The contractor also provided Step Loop data that is normalized to the primary, with the expectation of possibly emphasizing deeper features. The normalized pseudo-sections for early to late times are displayed on Figure 18. Unfortunately the normalized data did not add to the interpretation of discrete conductors. The pattern observed in the sections suggests, not unexpectedly, a layering effect. In the early time channels (5, 10 and 15) the upper portions of the sections show a positive response (warm colours), with only the very bottom turning negative (cool colours). The later channels (25, 30 and 35) display the opposite pattern. The transition seems to occur between channels 20 and 21. In fact channel 20 appears to be defining the discrete conductors observed in the un-normalized data, although not as distinctly. What the normalized pseudo-sections have done is confirm that the basement conductors are very weak.

The Slingram profiles show a significant amount of activity in the earlier time channels, some of which appears to be ashort wavelength (geologic?) noise component. Several larger amplitude and longer wavelength features are apparent. However, these are not believed to be basement responses due to the strong masking effect of the highly conductive upper layer, and perhaps more importantly, the short (200 m) transmitter-receiver separation. Generally the transmitter-receiver separation is chosen to be at least twice the depth of interest, which in this area is greater than 170 m.

Figure 18 - Stepwise Pseudo-sections Normalised to Primary – Various Channels

CONCLUSIONS AND RECOMMENDATIONS

The current program of drilling intersected several rock types, which can be correlated with those intersected in the 2006 drilling. The continuation, along a considerable strike, of the magnetic and calc-silicate-carbonate units, which also have a graphitic association, has confirmed the extension of the prospective Cahill Formation into the extreme northern part of the tenement. The continued presence of graphite, while not related to increased uranium levels, is encouraging in terms of the presence of continuous or semi-continuous conductive horizons that have the potential to be located and traced by EM geophysical methods. This may eventually lead to the discovery of major graphite-bearing structures or features that are potential focussing points for uranium mineralisation.

The interpretative work done by Southern Geoscience in 2005 has been largely confirmed. Despite a favourable geological setting there are no obvious indications of a uranium mineralising system within the areas drilled to date. A detailed study is in progress on the drill core geochemistry. Several in-house methods of statistical analysis of the geochemical results are currently being run to determine if there are subtle indications of alteration or mineralisation.

The orientation ground TDEM survey has shown that Step Loop configuration is best for identifying the graphite intersected in WRD007, below conductive Cretaceous cover. Therefore, traverses could be used to guide future drill programmes in the area and there is also scope for surveying multiple lines in order to identify increased conductivity along the graphitic trend, which may indicate increased alteration or structural disruption. It may still be worth testing the Slingram configuration with a larger transmitter-receiver offset and also using the new SQUID (Superconducting Quantum Interference Device) receiver to acquire better late time signal/noise ratios hopefully less affected by conductive cover.

EXPENDITURE

Eligible exploration expenditure Cameco Australia for EL5893 for the reporting period totalled $1,533,963.03 and eligible expenditure for Rio Tinto Exploration for the reporting period was $36,115, which gives a total of $1,570,078.03. Expenditure for 2008 is expected to be $1,050,000. Rio Tinto Exploration is not expected to be doing further exploration on EL5893.

Table 4 - EL5893 Cameco Exploration Expenditure

WORK PROPOSALS FOR YEAR 5

Diamond Core Drilling

- First priority drilling will be to cover a set of structures that are along strike from the regional trend of the Aurari Fault zone located on the adjoining King River tenement. A series of drill fences will specifically target zones of structural complexity along these structures. The structural and geological analysis of this area has been determined by Southern Geoscience.

- A second priority will be to target gravity anomalies detected in the 2007 airborne survey. The anomalies are located immediately to the east of fence one on the 2006 drilling area and are possibly within the Nimbuwah domain on the eastern flank of the magnetic trend. Two further fences along strike to the north have been prepared as a contingency.
- If regarded necessary a third priority will be to infill north of the 2006 drilling area along the magnetic horizon where a set of interpreted conjugate faults cross the trend.

Air Core Drilling

- Further regional RAB drilling (500m x 1km) in the central and southern parts of tenement to determine rock types, depth to basement and identify any basement geochemical anomalism.

Geophysics

- Ground TDEM ahead of drilling to enhance delineation of conductive layers and more effectively target drilling. Traverses are also planned in the northern part of the project area over existing broad geological and geophysical targets and where the basement is thought to be Cahill. The aim is identify specific graphitic conductors that can be targeted during the 2008 drilling campaign.

- Trial V-TEM along two lines in the central part of the tenement

REFERENCES

Otto G., Melville P. and Beckitt G., 2005. Exploration Licence EL5893, Wellington Range Project, Northern Territory. *Cameco Australia*, *2004-2005 Annual Report*, WR05-02.

Carter M and Beckitt G., 2006. Exploration Licence EL5893, Wellington Range Project, Northern Territory. *Cameco Australia*, *2005-2006 Annual Report*, WR06-02.

Melville P., 2007. Exploration Licence EL5893, Wellington Range Project, Northern Territory. *Cameco Australia*, *2006-2007 Annual Report*, WR07-02.

Needham, R. S. 1988. Geology of the Alligator Rivers Uranium Field, Northern Territory. Bulletin 224, BMR, Canberra.