CAMECO AUSTRALIA PTY LTD

Annual Report – Namarrkon Project

31 May 2011 to 30 May 2012

EL23700

AMALGAMATED/COMBINED REPORTING NUMBER:	N/A
TENEMENT/PROJECT OPERATOR:	Cameco Australia Pty Ltd
TENEMENT/TITLE HOLDER:	Cameco Australia Pty Ltd UEL
AUTHOR:	X Granholm A Fitzpatrick T Dunlevie N Christie
COMPILATION DATE:	11 June 2012
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1:100,000 MAP SHEET:	Oenpelli 5573
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PROSPECTS DRILLED:	N/A
LIST OF ELEMENTS:	N/A

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ABSTRACT

The reporting period of 31 May 2011 to 30 May 2012 is the seventh year of tenure for Namarrkon Project. It consists of a single exploration Licence, EL23700, with a total area of 43.8km^2. The licence is located in western Arnhem Land in the East Alligator Rivers uranium field approximately 250km east of Darwin and approximately 75km northeast of the Jabiru township. The tenement was granted for an initial period of six years to Cameco Australia Pty Ltd (Cameco) on 31 May 2005. The project is operated by Cameco in Joint Venture with Uranium Equities Limited (UEL) who currently hold 40% interest in the tenement. On 31 May 2010, 17 blocks were relinquished for a total of 56.8km^2 reducing the ground from 100.6km^2 to the current size of 43.8km^2.

EL23700 is located on Aboriginal Land and the exploration program was carried out under the terms of consent documentation agreed with the NLC pursuant to the Aboriginal Land Rights (Northern Territory) Act 1976. Exploration work clearance was given by the NLC on behalf of the Traditional Owners following the Work Program Meeting held on 08 June 2011 at Oenpelli.

The 2011 exploration program consisted of a desktop review of previous exploration completed within the EL and target evaluation of current and potential anomalous zones.

Total eligible expenditure for the exploration program for 2011 was $63,960.56.

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1.0 INTRODUCTION

1.1 Location

The Namarrkon Project is located in western Arnhem Land, entirely within Aboriginal Land. The project is approximately 50km east north east of Jabiru and 15km south east of the rehabilitated Nabarlek mine site. Darwin lies approximately 250 kilometres to the west.. See Figure 1.

Relevant map sheets are:

- 1:250K Alligator Rivers SD-5301
- 1:100K Oenpelli 5573

1.2 Title History

Application for EL23700 was lodged on 27 March 2003 and grant of title was given to Cameco Australia on May 31 2005, for an initial period of six years. The original area of grant was 100.6km^2 (30 blocks). Approximately 3.1km^2 of EL23700 is designated as 'no-go' and various other archaeological sites are excluded from exploration access. On 31 May 2010, the anniversary of the fifth year of tenure, Cameco relinquished 17 blocks for 56.8km^2 retaining 43.8 km^2. This report details exploration work conducted during the seventh year of tenure.

In December 2006 a Joint Venture agreement was signed between Cameco and UEL allowing UEL to earn a 40% interest in EL23700, providing expenditure obligations were met. UEL has met the expenditure requirements, and currently holds 40% interest in the Namarrkon Project. Cameco remains Manager and Operator of the project.

As the exploration licence is located on Aboriginal land the work program was carried out under the terms of consent documentation agreed with the Northern Land Council, pursuant to the Aboriginal Land Rights (Northern Territory) Act.

An archaeological survey of the proposed work areas was conducted by Earth Sea Heritage Surveys (Earth Sea) prior to commencement of ground disturbing exploration activities. Indigenous archaeological sites are considered significant within the terms of the NT Heritage Conservation Act 1991 (HCA), and are afforded protected status under Section 39 of the HCA. Instructions for the proposed exploration works to avoid these archaeological places were recommended by Earth Sea, and the exploration program was conducted under those guidelines.

1.3 Physiography

The topography is dominantly Arnhem Land plateau, and escarpments on the immediate northeast of the Myra Inlier. Open savannah woodlands and sparse spinifex predominate on the sandstone. Soils consist of thin sandy types and some black loams covering (in part) the plateau country. Gorges and valleys within the plateau contain alluvium with some soil development, and denser vegetation. Various transported materials and soils cover the limited lowlands.

1.4 Access

The rugged nature of the sandstone plateau that almost entirely covers EL23700 necessitates the use of a helicopter, for most exploration activities. Vehicle access is limited with access from adjacent tenements to small areas in the west, and northern parts of the project area.

2.0 GEOLOGICAL SETTING

2.1 Regional Geology

The Namarrkon project area is located within the eastern margin of the Neoarchaean and Palaeoproterozoic Pine Creek Orogen in a region that has been subdivided into the Nimbuwah Domain of the Alligator Rivers region.

See Figure 2.

This section is largely based on the work by (Needham 1988), (Needham, Crick, and Stuart-Smith 1980; Needham 1990; Needham, Stuart-Smith, and Page 1988). 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. See Figure 3.

The oldest exposed rocks in the Alligator Rivers region are included in the Neoarchaean (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 Neoarchean in age and these quartzofeldspathic gneisses are named the 'Kukalak Gneiss' (Hollis et al., 2009). 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 et al., 2005). The group appears to on-lap Neoarchaean basement highs, but gneissic variants are also thought pass transitional into paragneiss of the Nanambu Complex.

The Cahill Formation of the Namoona 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 'hangingwall sequence'. The magnetic characteristic of this unit is due to the presence of mafic sills or magnetite and it is a useful characteristic used to 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 undergone local migmatisation during the ca. 1847-30 Ma Nimbuwah Event. In addition, there is a broad trend of increasing 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.

The Kombolgie Subgroup is the basal unit of the late Palaeo - to Mesoproterozoic Katherine River Group of the McArthur Basin (Sweet et al. 1999a; Sweet et al. 1999b). 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 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 units Neoarchaean 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, and authors 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. 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 Local Geology

EL23700 is almost completely covered by Palaeoproterozoic sedimentary and volcanic Kombolgie Subgroup. Basement rocks are present in the far northeastern corner of the tenement at the base of the Stevens fault-bound Mamadawerre Sandstone escarpment, although these are largely obscured by Quaternary cover. The local project geology of the Namarrkon project can be seen in Figure 4.

The Mamadawerre Sandstone, the oldest formation of the Kombolgie Subgroup, occupies most of the tenement, where it 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. Plateau escarpments are developed to the north of the tenement along the Stevens Fault.

Mamadawerre Sandstone is unconformably overlain by the Nungbalgarri Volcanics. The unconformable contact is expressed locally as 100 – 500m diameter 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 volcanics 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 dome and basin structures dominate airborne imagery of the southern-central part of the tenement with its unique dimpled pattern.

The Nungbalgarri Volcanics itself consists of multiple vesicular and amygdaloidal basaltic flows approximately 100 – 200m thick. Following airborne radiometric surveys by BMR in 1971-72 (Horsfall and Wilkes 1975) it was noted that ferricrete developed downslope of the outcropping Nungbalgarri Volcanics displays elevated U/Th ratios and forms prominent radiometric anomalies (Needham 1988).

The Gumarrirnbang Sandstone disconformably overlies the Nungbalgarri Volcanics forming restricted outcrop occurrences in EL23700. The sandstone comprises fine to coarse-grained quartz arenite 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.

Oenpelli Dolerite intrudes the Mamadawerre Sandstone as sills and outcrops at several localities, most notably along the arcuate Spencer Thrust extending from the centre to the west of the tenement and into the adjacent Nabarlek Project (EL 10176). Oenpelli Dolerite is also present along the Stevens Fault in the north east of the tenement.

Previous explorers (AFMEX), with later modifications by Cameco, have developed a detailed stratigraphy correlating metasedimentary rocks of the Myra Falls Metamorphics with the lower-grade Cahill Formation. In Western Arnhem Land the AFMEX stratigraphy correlates the Upper Cahill formation with the 'Upper Arkosic Unit,' which consists of alternating meta-arkose (quartz–biotite–muscovite gneiss) and biotite–muscovite–quartz schists.

The Lower Cahill formation correlates with three units, the upper 'Amphibolitic Unit,' the middle 'Lower Arkosic Unit' and the basal 'Calc-silicate Unit.' The 'Amphibolitic Unit' is characterised by para- and ortho-amphibolites (~40%) interbedded with biotite-muscovite schists. The 'Lower Arkosic Unit' consists of biotite-muscovite schists, some with garnet and/or sillimanite and rare graphite alternating with fine-grained meta-arkose and occasional amphibolite beds. The 'Calc-silicate Unit' contains amphibolites, garnet-mica schists, calc-silicate gneisses marbles and cherts.

A number of large structures pass through the tenement. The Spencer thrust runs west – northwest through the central part of the tenement and exhibits a north-side-up movement (Kastellorizos et al. 1999). The Quarry fault runs north – south through the tenement, passing through Kukalak Valley to the south of Namarrkon and disappears under cover to the north. To the north of the Spencer thrust, the Quarry fault has a surface expression of silicified sandstone breccias.

The Stevens fault in the northeast of the tenement strikes east – west through Namarrkon and extends to the east. Two well-defined faults, the Lightning and Thunder faults run west-north-westerly through the northern half of the tenement and continue into the adjacent Nabarlek (EL10176) project.

The Namarrkon lineament is a regional lineament originating near the northeast corner of Namarrkon and striking west-southwest for over 50 km. The extent of movement, if any, on this feature is not known.

3.0 EXPLORATION HISTORY

3.1 Previous Exploration

Exploration in the Alligator Rivers region of the Northern Territory can be divided into two phases. The first phase of exploration commenced in 1970 and continued until September 1973 when a Federal Government moratorium on mineral exploration on Aboriginal Land halted exploration activity. Exploration in West Arnhem Land recommenced in 1986 and on the Namarrkon Project area in 1996.

EL3589 – Afmex, Namarrkon Joint Venture: 1996-2002

Details of exploration conducted by AFMEX on EL3589 can be found in the respective annual reports (Kastellorizos 1998; Kastellorizos et al. 1999; Fabray 2000; Wollenberg 2001; Fabray 2002). A brief summary of this activity follows:

> Afmex conducted various airborne geophysical surveys including radiometrics, magnetics, electromagnetics (DIGHEM and TEMPEST), and helicopter supported gravity; small ground geophysical surveys including electromagnetics (NanoTem), induced polarisation (IP) and radiometrics; ground radiometric follow-up and outcrop sampling, and stream sediment sampling; and helicopter-supported diamond drilling of 12 holes (NAM-001 to NAM-012) for 3,691.2m.
>
> Outcrop sampling returned best uranium assay results of 368ppm U_3O_8 (sample number 610089), and sample 610088 returned 314ppm U_3O_8 and 214ppb Au and

were associated with 'narrow gently dipping quartz veins' hosted in dolerite at ARAD Anomaly 4 (Cameco named this area Hot Dot). Sampling at ARAD Anomaly 7 returned an assay of 36ppm U_3O_8 from quartz breccia in sandstone associated with a faulting. No results above expected background were returned from the stream sediment sampling of the area.

The diamond drilling was conducted over two years from 1998 to 2000. Eight holes (NAM-001 to NAM-008R) were planned to determine the geology of the basement rocks and determine alteration and/or mineralisation prospectivity of the targeted areas. Four holes (NAM-009 to NAM-012) were drilled to follow up alteration and structural disruption intersected in NAM-002. Results from the drilling were disappointing with the highest result of 2.8ppm U_3O_8.

EL3589 was relinquished on 26 July 2002.

Cameco Exploration: 2005 – 2009

Cameco Australia was granted EL 23700 on 31 May 2005 covering the same area as the former EL3589.

2005

Work Done

- Reprocessed the 2001 TEMPEST survey data;
- Helicopter supported reconnaissance mapping and outcrop sampling and;
- Collected 36 samples and Reconnaissance along the Quarry fault.

Results

- Targets generated from TEMPEST data and;
- Elevated uranium in outcrop samples from Hot Dot (up to 306ppm U), Hungry Dingo (up to 23.3ppm U) and along the Steven's Fault (6.89ppm U).

2006

Work Done

- Two helicopter–supported diamond drill holes (NMD0001 and NMD0002) for 893.3m;
- One ground-based reverse-circulation drill hole (NMR0003) for 136m;
- An airborne hyperspectral (HYMAP) survey and;
- Helicopter supported reconnaissance, outcrop and water sampling.

Results

- NMR002 (Black Bream) intersected up to 2.8% U_3O_8 over 16cm and;
- Elevated uranium in outcrop samples from Hot Dot (up to 89.5ppm U) and along Steven's Fault (11.9ppm U)

2007

Work Done

- Helicopter-supported ground reconnaissance, mapping and sampling with 18 samples submitted for geochemical analysis from 19 sites and;
- Four helicopter-supported diamond-core drill holes (NMD0004 to NMD0007) for 1,697.2m.

Results

- NMD0005 intersected up to 167ppm U_3O_8 over 20.4m and;
- NMD0006 intersected up to 172ppm U_3O_8 over 5.1m.

2008

Work Done

- One RC drill (NMR0008) hole for 150m was completed, and;
- Helicopter-supported ground reconnaissance, mapping and sampling with 33 samples submitted for geochemical analysis.

Results

- NMR008 intersected 300ppm U_3O_8 over 0.4m.

2009

Work Done

- Outcrop sampling along the Quarry Fault and;
- Resampled historical drill core.

Results

- Outcrop sample along the Quarry Fault returned 72.5 ppm U_3O_8.

2010

Work Done

- Two reverse circulation (RC) holes drilled along the Quarry Fault.

Results

- 221ppm U_3O_8 from 13-15m
- 127ppm U_3O_8 from 22-24m

3.2 Exploration During Reporting Period

The 2011 exploration program consisted of desktop review of previous exploration data and ongoing targeting within the tenement. No drilling or surface sampling was completed within EL 23700 during the reporting period.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The focus of exploration activities during 2011 focused on interpretation of existing results and re-evaluation of the Namarrkon Project. The majority of the target areas have already been investigated with less than ideal results. Some lower priority target areas remain to be investigated using exploration techniques. Additional desktop studies and on ground reconnaissance are needed to progress work the tenement. It is recommended to visually inspect the anomalous areas on the ground before a decision is made as to drop the ground or not.

4.1 Work Program for 2012

Exploration for the 2012 field season will be focused on target evaluation and further analysis of previous exploration data. Field reconnaissance may be conducted to the radiometric highs dependant on helicopter movements during the field season.

4.2 Expenditure

Eligible exploration expenditure for EL23700, the Namarrkon Project for the reporting period totalled $63,960.56. Expenditure for 2012 is expected to be $50,000.

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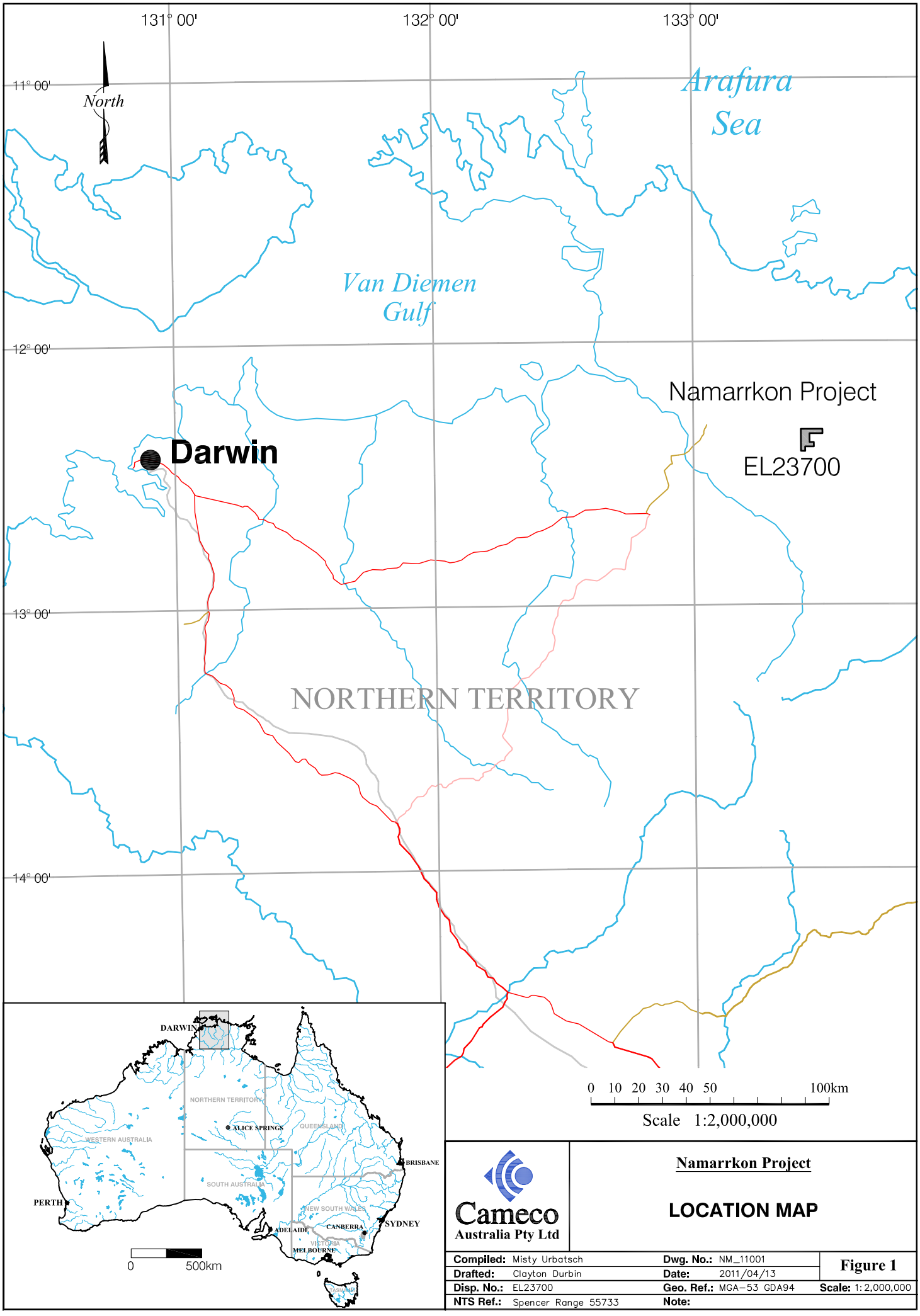
LIST OF FIGURES


131° 00'
132° 00'
133° 00'
11° 00'
12° 00'
13° 00'
14° 00'
North
Arafura Sea
Van Diemen Gulf
Namarrkon Project
EL23700
Darwin
NORTHERN TERRITORY
0 10 20 30 40 50 100km
Scale 1:2,000,000
DARWIN
NORTHERN TERRITORY
ALICE SPRINGS
QUEENSLAND
WESTERN AUSTRALIA
SOUTH AUSTRALIA
BRISBANE
PERTH
NEW SOUTH WALES
CANBERRA
SYDNEY
ADELAIDE
VICTORIA
MELBOURNE
0 500km
Cameco Australia Pty Ltd
Namarrkon Project
LOCATION MAP
Compiled: Misty Urbatsch
Drafted: Clayton Durbin
Disp. No.: EL23700
NTS Ref.: Spencer Range 55733
Dwg. No.: NM_11001
Date: 2011/04/13
Geo. Ref.: MGA–53 GDA94
Note:
Figure 1
Scale: 1:2,000,000

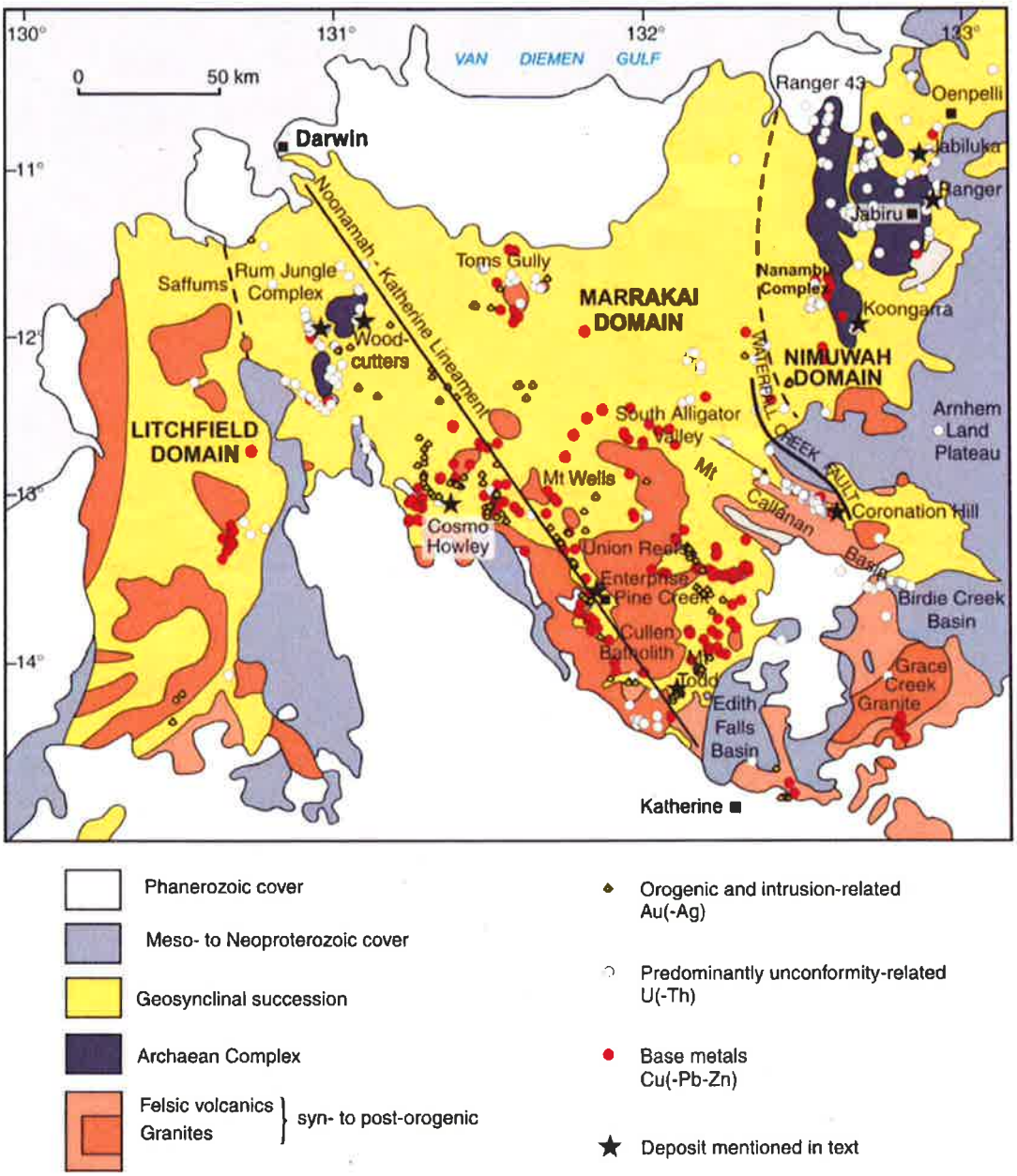
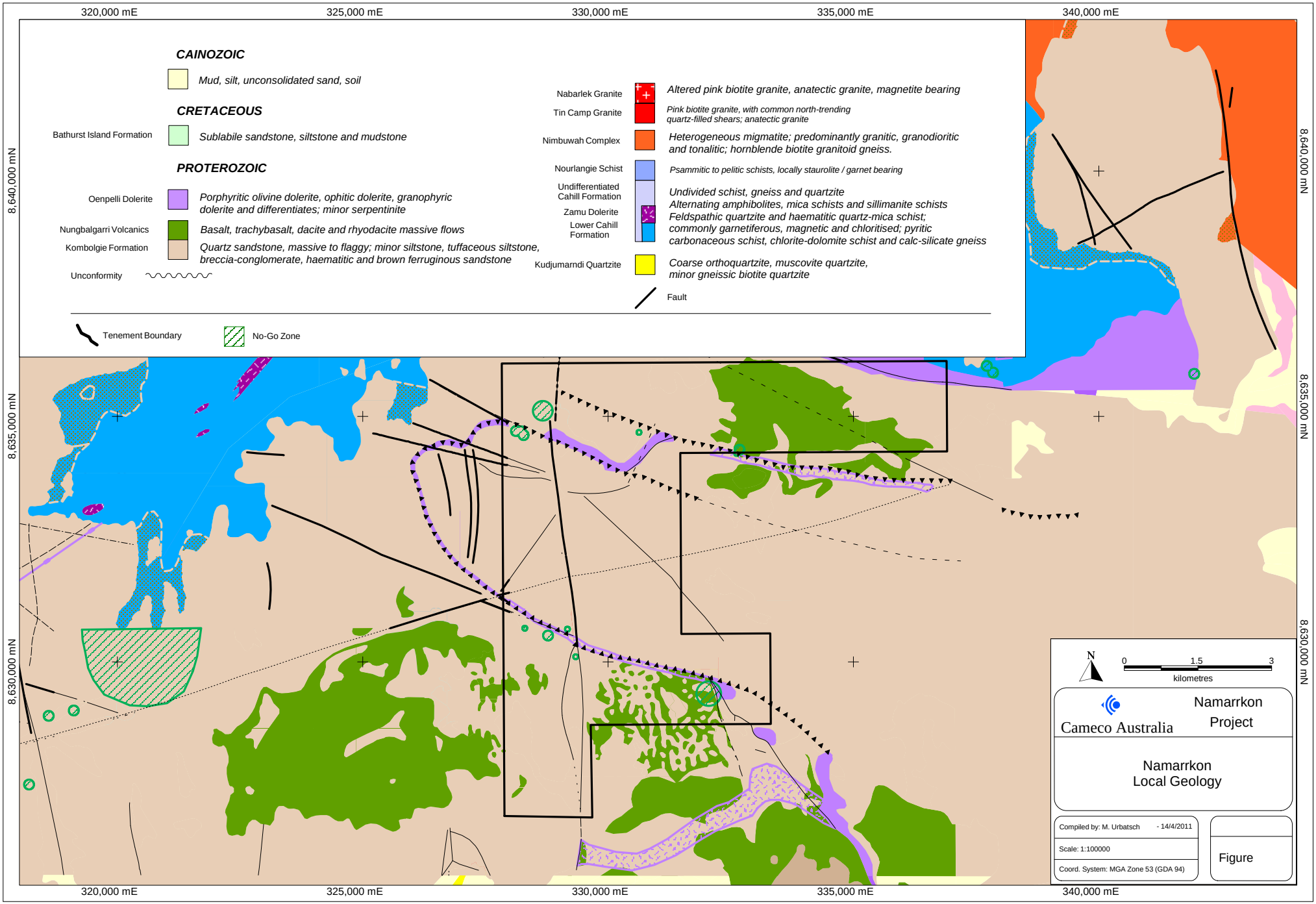
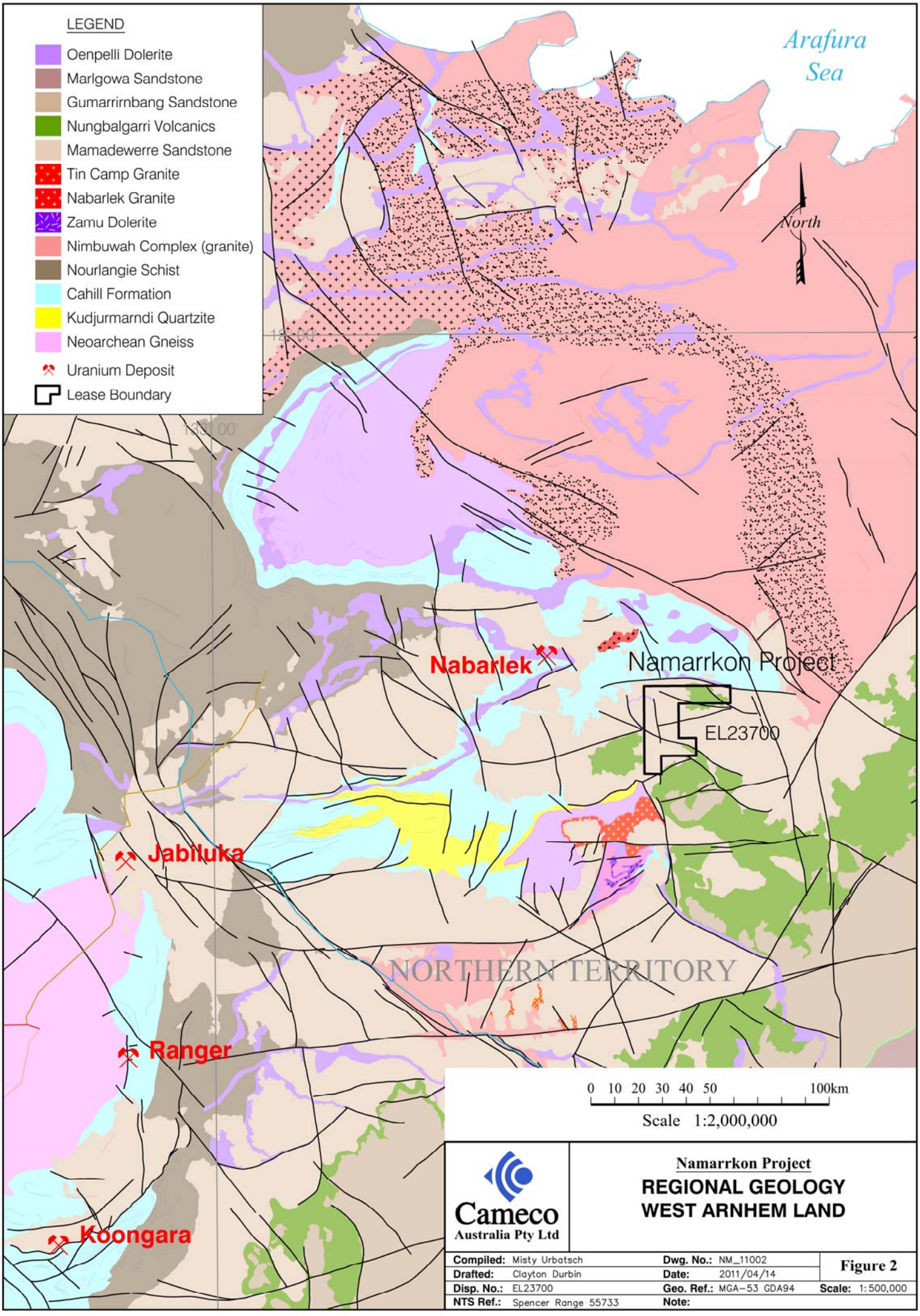


Fig. 2. Simplified geology of the Pine Creek Orogen showing the location of selected mineral deposits (after Pirajno and Bagas, 2008).


320,000 mE
325,000 mE
330,000 mE
335,000 mE
340,000 mE
8,640,000 mN
8,635,000 mN
8,630,000 mN
CAINOZOIC
Mud, silt, unconsolidated sand, soil
CRETACEOUS
Bathurst Island Formation
Sublabile sandstone, siltstone and mudstone
PROTEROZOIC
Oenpelli Dolerite
Porphyritic olivine dolerite, ophitic dolerite, granophyric dolerite and differentiates; minor serpentinite
Nungbalgarri Volcanics
Basalt, trachybasalt, dacite and rhyodacite massive flows
Kombolgie Formation
Quartz sandstone, massive to flaggy; minor siltstone, tuffaceous siltstone, breccia-conglomerate, haematitic and brown ferruginous sandstone
Unconformity
Nabarlek Granite
Altered pink biotite granite, anatectic granite, magnetite bearing
Tin Camp Granite
Pink biotite granite, with common north-trending quartz-filled shears; anatectic granite
Nimbuwah Complex
Heterogeneous migmatite; predominantly granitic, granodioritic and tonalitic; hornblende biotite granitoid gneiss.
Nourlangie Schist
Psammitic to pelitic schists, locally staurolite / garnet bearing
Undifferentiated Cahill Formation
Undivided schist, gneiss and quartzite
Zamu Dolerite
Alternating amphibolites, mica schists and sillimanite schists
Lower Cahill Formation
Feldspathic quartzite and haematitic quartz-mica schist; commonly garnetiferous, magnetic and chloritised; pyritic carbonaceous schist, chlorite-dolomite schist and calc-silicate gneiss
Kudjumarndi Quartzite
Coarse orthoquartzite, muscovite quartzite, minor gneissic biotite quartzite
Fault
Tenement Boundary
No-Go Zone
N
0
1.5
3
kilometres
Cameco Australia
Namarrkon Project
Namarrkon Local Geology
Compiled by: M. Urbatsch - 14/4/2011
Scale: 1:100000
Coord. System: MGA Zone 53 (GDA 94)
Figure


LEGEND
Oenpelli Dolerite
Marlgowa Sandstone
Gumarrirnbang Sandstone
Nungbalgarri Volcanics
Mamadewerre Sandstone
Tin Camp Granite
Nabarlek Granite
Zamu Dolerite
Nimbuwah Complex (granite)
Nourlangie Schist
Cahill Formation
Kudjurmarndi Quartzite
Neoarchean Gneiss
Uranium Deposit
Lease Boundary
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