



**U R A N I U M**  
E Q U I T I E S

**NABARLEK ML PROJECT  
(MLN962)**

**Annual Technical Report  
for the period 23/03/11 – 22/03/12**

**Author: Brendan Reed  
Date: 10/05/2012**



Title holder	Queensland Mines Pty Ltd
Operator	Uranium Equities Limited
Title/Tenement	MLN962
Report Title	Nabarlek ML Project (MLN962) Annual Technical Report for the period 23/03/11 – 22/03/12
Personal Author	Reed, Brendan
Corporate Author	Uranium Equities Limited
Company Reference	ML 2011 Annual Report
Target Commodity	Uranium
Date of Report	10/05/2012
Datum/Zone	GDA94/Zone 53
1:250,000 Map Sheet	Alligator River (SD5301)
1:100,000 Map Sheet	Oenpelli (5573)
Contact Details	Uranium Equities Limited Level 5 29 King William Street ADELAIDE SA 5000
	Phone           08 81100700 Fax              08 81100777
Email for Technical Details	<a href="mailto:brendan.reed@uel.com.au">brendan.reed@uel.com.au</a>
Email for Expenditure	<a href="mailto:brendan.reed@uel.com.au">brendan.reed@uel.com.au</a>



## **NABARLEK MINERAL LEASE, WEST ARNHEM LAND, NORTHERN TERRITORY**

### **EXECUTIVE SUMMARY**

Nabarlek Mineral Lease is located in the western portion of the Arnhem Land Aboriginal Reserve, 28km east of the Gunbalanya (Oenpelli) Aboriginal Community and approximately 300km east of Darwin.

The Mineral Lease (MLN962) contains the Nabarlek Uranium Mine which historically produced a total of 24.4 million pounds  $U_3O_8$  at an average grade of 1.84%  $U_3O_8$  (40.5 lb/tonne  $U_3O_8$ ) between 1978 and 1988.

Uranium Equities Limited acquired the mineral lease with the purchase of Queensland Mines Pty Ltd in mid-2008. Uranium Equities Limited believes that the region provides outstanding potential to discover additional economic high grade uranium mineralisation in the immediate vicinity of the historical mine.

Uranium Equities Limited has undertaken a significant exploration drilling campaign during the reporting period, consisting of 47 RC holes for 4,935m. During the drilling campaign, a total of 1,887 samples were assayed by a portable Niton XRF Analyser and a total of 181 samples were sent to NTEL for laboratory assay.

In addition, a detailed ground gravity survey was also completed. A total of 1,637 gravity stations were collected on a 50 x 50m grid pattern focussing on areas with shallow Kombolgje Sandstone cover.

## CONTENTS

### EXECUTIVE SUMMARY

1.	INTRODUCTION .....	1
1.1	Location .....	1
1.2	Tenement Status .....	<b>Error! Bookmark not defined.</b>
1.3	Aboriginal Heritage .....	2
1.4	Access .....	2
2.	PROJECT GEOLOGY .....	4
2.1	Conceptual Model .....	4
2.2	Geological Setting .....	4
2.3	Previous Investigations .....	5
3.	PREVIOUS WORK .....	6
3.1	2008 .....	6
3.2	2009 .....	6
3.3	2010 .....	7
4.	WORK COMPLETED DURING THE REPORTING PERIOD .....	8
4.1	Drill Targeting .....	8
4.2	2011 Drill Program .....	9
4.3	2011 Ground Gravity Geophysical Program .....	<b>Error! Bookmark not defined.</b>
5.	FURTHER WORK .....	13
6.	REFERENCES .....	13

### LIST OF APPENDICES

Appendix I:	RC Drill Collars
Appendix II:	RC Downhole Surveys
Appendix III:	RC Drill Logs (with Drill Codes)
Appendix IV:	Downhole Gamma Logs
Appendix V:	XRF Assays
Appendix VI:	NTEL Assays
Appendix VII:	Gravity Survey Report and Data



## LIST OF FIGURES

Figure 1: Location Map .....	1
Figure 2: Aerial view of Nabarlek.....	3
Figure 3: Geological Framework of the Nabarlek Region .....	4
Figure 4: Drilling Prospects Map .....	9
Figure 5: 2011 Drill Program .....	10
Figure 6: Boomerang Prospect GT Contours .....	12
Figure 7: Gravity Image .....	13

## LIST OF TABLES

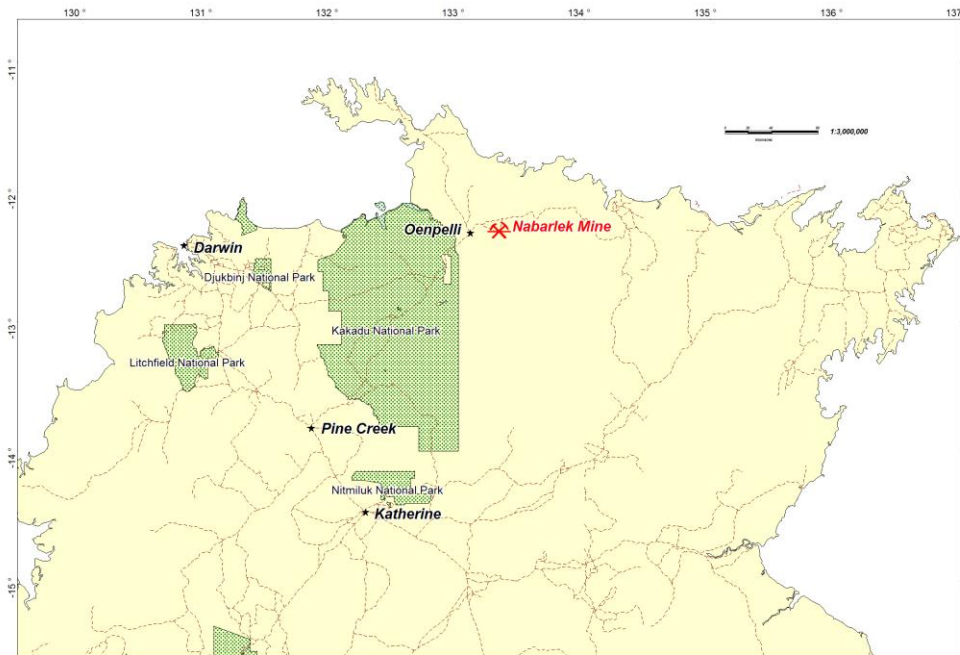
Table 1: 2008 Drilling Best Intercepts.....	6
Table 2: 2009 Drilling Best intercepts.....	6
Table 3: 2010 AC Best Intercepts.....	7
Table 4: 2010 RC Best Intercepts .....	7
Table 5: Significant Downhole Gamma .....	10
Table 6: Significant XRF Analysis of Four Metre Composites Using a 100ppm Cut Off.....	11
Table 7: Significant XRF Analysis of One Metre Samples Using a 200ppm Cut Off .....	11
Table 8: Significant Laboratory Analysis Using One Metre Samples.....	11

# 1 INTRODUCTION

## 1.1 Location

The Nabarlek Mineral Lease is located in the western portion of the Arnhem Land Aboriginal Reserve, 28km east of the Gunbalanya (Oenpelli) Aboriginal Community and approximately 300km east of Darwin. It lies within the Alligator River (SD5301) 1:250,000 and the Oenpelli (5573) 1:100,000 Map Sheets.

The Mineral Lease (MLN962) contains the historical Nabarlek Uranium Mine which produced a total of 24.4 million pounds  $U_3O_8$  at an average grade of 1.84%  $U_3O_8$  (40.5 lb/tonne  $U_3O_8$ ) between 1978 and 1988. The Nabarlek deposit was a small, high-grade orebody having dimensions of approximately 200m x 15m x 70m.



**Figure 1: Location Map**

Uranium Equities Limited (UEL) acquired the Mineral Lease with the purchase of Queensland Mines Pty Ltd (QMPL) in mid-2008 to further consolidate the Company's position in the highly prospective Alligator Rivers Uranium Field. Uranium Equities Limited believes that the region provides outstanding potential to discover additional economic high grade uranium mineralisation in the immediate vicinity of the historical Nabarlek Mine.

Nabarlek was discovered by QMPL in June 1970 via follow up of a prominent airborne radiometric anomaly in outcropping basement lithologies. Delineation drilling was completed from July 1970 to November 1970, then again from April 1971 to December 1971. Very little additional exploration work was done in the area immediately surrounding the deposit.

Open cut mining was completed in 4 months and 11 days (one dry season), starting in June 1979 and finishing in October 1979. During this time 546,437t of ore grading 1.84%  $U_3O_8$  and 157,000t of mineralised waste grading 0.05%  $U_3O_8$  was stockpiled. The processing mill at Nabarlek started operation in June 1980 and continued until 1988, by which time 11,084t  $U_3O_8$  had been produced (Lally & Bajwah, 2006).



## 1.2 Tenement Status

Mineral Lease North 962 (MLN962) was initially granted on the 23<sup>rd</sup> March 1979 to QMPL (formerly Queensland Mines Limited).

Following the completion of mining operations, the Mineral Lease remained an asset of QMPL until the company was purchased by Uranium Equities Limited in 2008. The tenement is 1,278.9ha in area and is bounded by exploration licence EL10176 held in a joint venture partnership between Uranium Equities Limited (40%) and Cameco Australia Pty Ltd (60%).

With Uranium Equities Limited assuming ownership and management of the Mineral Lease, an initial Mine Management Plan (MMP) was lodged in May 2008 covering the proposed exploration program and the outstanding legacy rehabilitation obligations. The MMP was approved by the regulatory authorities on 9<sup>th</sup> September 2008 and a bond lodged with the NT Government.

## 1.3 Aboriginal Heritage

The project area lies within the Arnhem Land Aboriginal Reserve and is therefore freehold Aboriginal Land. All personnel entering the project area are required to obtain the appropriate Northern Land Council (NLC) permit.

Permission to explore over Aboriginal Freehold land is gained via Exploration Agreements with the relevant Traditional Owners under the Commonwealth *Aboriginal Land Rights (NT) Act*.

QMPL had both an exploration agreement and a settlement deed with the NLC. QMPL was specifically given the right to undertake exploration on MLN962 pursuant to the Nabarlek Settlement Deed (clauses 3.4 and 3.5) and in accordance with the applicable provisions of the Exploration Agreement.

Upon purchase of the Mineral Lease, Uranium Equities Limited provided a verbal undertaking to the NLC to adhere to the requirements set out in the existing QMPL agreements and to also initiate discussions to re-negotiate the Exploration Agreement to be more in keeping with those for the surrounding Uranium Equities Limited-Cameco Joint Venture tenements.

Legislation requires that all sacred, cultural and heritage sites are initially documented by the Traditional Owners and NLC Anthropologists and Archaeologists prior to exploration commencing. This information is then utilised to determine 'No-Go' areas.

Prior to issuing the Nabarlek Mineral Lease to QMPL, six sites were identified and surveyed by the Northern Territory Lands Branch surveyors to obtain their protection under the legislation of the time. One of the surveyed sites, Gabo Djang or Green Ant site, is located immediately south-west of the Nabarlek Pit. QMPL retained confidential records of ten other sites in the vicinity and ensured that mine staff did not intrude on those areas. These areas remain 'No-Go' areas for Uranium Equities Limited personnel.

Uranium Equities Limited liaises with the Traditional Owners each year to discuss future exploration activities and have developed a strong professional relationship, which includes employment in exploration and rehabilitation activities.

## 1.4 Access

Access to the site is via the unsealed and seasonal Oenpelli – Maningrida road from Cahill's Crossing at the East Alligator River to the 'Three Ways' intersection to the Coburg Peninsula. From there, access is via the old Nabarlek Mine access road to the Mineral Lease. There is good vehicular access throughout the Mineral Lease due to pre-existing mine infrastructure.

Access to site is also possible using a light plane direct from Darwin, to land on the all-weather sealed airstrip at the Nabarlek Mineral Lease. Uranium Equities Limited has established a semi-permanent twelve person field camp adjacent to the airstrip. Transportable office, accommodation, kitchen and ablution blocks have been installed, serviced by both power and water (Figure 2).



**Figure 2: Aerial View of Nabarlek**



## 2 PROJECT GEOLOGY

### 2.1 Conceptual Model

The primary focus of exploration on the Nabarlek ML is for the discovery of a high grade Nabarlek-style Uranium deposit. Nabarlek is an unconformity-associated Uranium deposit whereby mineralisation is concentrated within structural zones, spatially associated with a regional unconformity between flat-lying siliciclastic basinal sediments and the underlying metamorphic basement rocks.

The highly prospective nature of the Alligator Rivers Region for this type of mineralisation is demonstrated by the presence of economic Uranium deposits not only at Nabarlek, but also at Ranger, Jabiluka and Koongarra.

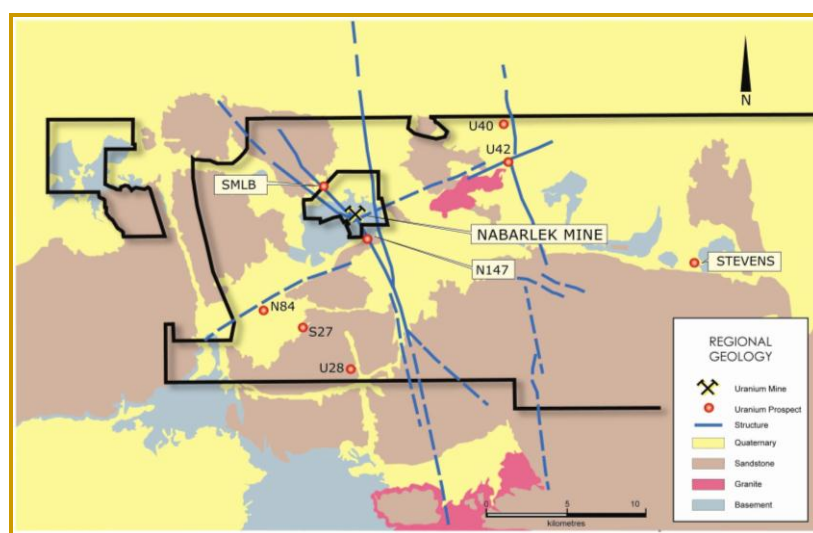
In addition to Uranium, significant Gold, Platinum and Palladium resources are present at existing Uranium occurrences within the Alligator Rivers Uranium Field (Ranger, Jabiluka, Koongarra and Coronation Hill/South Alligator Valley-style deposits) suggesting that economic mineralisation of Gold and PGE's (Platinum Group Elements) associated with economic or sub-economic Uranium may also be present within the project area.

### 2.2 Geological Setting

The Nabarlek Mineral Lease is located within a small embayment on the northern edge of the Arnhem Land Plateau and comprises gently undulating terrain of red-yellow coloured lateritic soils and transported sands.


Outcrop within the Mineral Lease area is poor, with most of what is known of the geology having been derived from drilling within the Mineral Lease and mapping in the old open pit.

The oldest rocks are a sequence of Early-Proterozoic metamorphosed sediments (semi-pelites), schists and amphibolites termed the Myra Falls Metamorphics. This unit is considered to be stratigraphically equivalent to the Cahill Formation in the western part of the Alligator Rivers Uranium Field and forms the host lithologies of the Nabarlek Deposit.



**Figure 3: Geological Framework of the Nabarlek Region**

The Myra Falls Metamorphics are faulted against the Nabarlek Granite which has been intersected in two deep drillholes beneath the Nabarlek Deposit (Wilde and Wall, 1987). This granite also outcrops a few kilometres to the northeast of MLN962 on the adjacent exploration licence EL10176 (refer Figure 3).



Mid-Proterozoic, shallow-dipping Mamadawerre Sandstone (Kombolgie Formation) unconformably overlies the sequences described above, forming an extensive inaccessible plateau to the immediate north, west and south of the Mineral Lease (Figure 3).

Drilling in the pit environs has revealed that the Mamadawerre Sandstone forms extensive subcrop areas blanketing the basement geology. Between 10 and 50m of sandstone and basal conglomerate sequences occur beneath the current land surface in areas covered by soils and transported sands. These cover sequences (both transported and in situ) would effectively obscure mineralisation that may occur at the unconformity position or associated with a structural zone.

The metamorphic basement sequences in the Mineral Lease area have been intruded by the late stage Oenpelli Dolerite, which comprises a significant part of subcropping lithologies found immediately north of the open pit site. In the Ponds Prospect, the Oenpelli Dolerite forms a shallow southerly dipping 250m thick dolerite dyke that also forms the base of mineralisation in the Nabarlek Pit.

Mineralisation at Nabarlek is believed to be at least partially controlled by the Nabarlek Shear Zone, which forms a NW–SE trending structure through the Mineral Lease. The Nabarlek Shear Zone may provide the important favourable structural focus for mineralisation.

Recent drilling has revealed that the dolerite may also intrude through the overlying Mamadawerre Sandstone sequence and has been found to sill along the regional unconformity between basement sequences and the overlying Mamadawerre Sandstone.

Like the surficial transported sediments and subcropping Mamadawerre Sandstone, the dolerite has the potential to mask the surface expression of any additional mineralisation and structural zones.

### **2.3 Previous Investigations**

Queensland Mines Limited discovered surficial Uranium mineralisation in the Nabarlek region in June 1970 from following up of an intense airborne radiometric anomaly.

Initial exploration work included trenching, mapping, scintillometer surveys and rock chip sampling. The program quickly moved to exploration and resource drilling, which was completed in December 1971. The majority of this drilling concentrated on delineating the Nabarlek orebody with only minimal exploration work conducted on the remainder of the Mineral Lease.

Following government approvals, the Nabarlek Mine was operated by Queensland Mines Limited from 1978 until 1988. Mining was conducted in one campaign of 143 days duration in the dry season and the ore was stockpiled on a custom built impermeable pad. The mill was built through the following wet season and milling of the stockpiled ore commenced in 1980. A total of 606,700t of ore was milled to produce 11,084t of  $U_3O_8$ . During this process 2.3Mt of waste rock material was temporarily stockpiled and 595,900t of tailings material was deposited in the mined out pit.

No exploration activities occurred within the Mineral Lease during the period of 1973 to 1981. Exploration work did resume in 1981, with geochemical soil and track etch radon surveys conducted over parts of the Mineral Lease. Drilling was conducted from 1983 to 1984 targeting eight anomalous zones identified from the surveys.

No further exploration work on MLN962 was conducted until 1994, when Afmeco Mining and Exploration Pty Ltd (AFMEX) conducted a program of percussion drilling with diamond tails around the margins of the Mineral Lease.

Following this program, there has been no additional work carried out on MLN962 prior to Uranium Equities Limited involvement in 2008. However a number of airborne surveys have been conducted over the Mineral Lease as part of wider regional surveys conducted by Cameco Australia Pty Limited, including radiometrics, magnetics, hyperspectral and electromagnetic (GEOTEM/TEMPEST) surveys.



### 3 PREVIOUS WORK

#### 3.1 2008

Uranium Equities began exploring MLN962 in 2008. The limited work program completed during the first year consisted predominantly of an extensive process of compiling and validating available datasets for the project area with field operations consisting of reverse circulation and air core drilling campaigns.

Drilling operations were restricted to disturbed areas within the Nabarlek mine/mill perimeter fence. RC drilling focused on the Nabarlek Pit environs, while AC drilling tested strike extensions of the Nabarlek Shear.

Significant results were received from the on-site XRF analytical work. Using a 200ppm U<sub>3</sub>O<sub>8</sub> cut-off, better intercepts are presented below in Table 1.

Drillhole	MGA_N	MGA_E	Azi	Dec	TD	Intercept (XRF Results)
NMLR015	8638743	317399	225	-60	115	1m @ 588ppm U <sub>3</sub> O <sub>8</sub> from 37m
NMLR026	8638256	317847	225	-60	150	17m @ 799ppm U <sub>3</sub> O <sub>8</sub> from 65m (inc. 7m @ 1444ppm U <sub>3</sub> O <sub>8</sub> from 68m)
NMLR027	8638308	317803	225	-60	126	1m @ 451ppm U <sub>3</sub> O <sub>8</sub> from 72m

**Table 1: 2008 Drilling Best Intercepts**

#### 3.2 2009

In June 2009, Uranium Equities commissioned a 797 station gravity survey. The survey was aimed at identifying potentially mineralised structures underneath the cover sediments, particularly associated with offsets of the Nabarlek Shear.

A radon survey was carried out in October 2009. The purpose of the survey was to determine the effectiveness of the technique over the known Nabarlek mineralisation and to try to identify hidden targets beneath cover sequences elsewhere within the Mineral Lease.

The 2009 RC drilling program focused around the historical Nabarlek pit and the north-western edge of the lease. Significant results were received from the on-site XRF analytical work. Using a 200ppm U<sub>3</sub>O<sub>8</sub> cut-off, better intercepts are presented below in Table 2.

Drillhole	Prospect	MGA_E	MGA_N	Azi	Dec	TD	Intercept (XRF Results)
NMLR029	Nab Sth	317837	8638193	225	-60	194	1m @ 225ppm U <sub>3</sub> O <sub>8</sub> from 38m
NMLR029	Nab Sth	317837	8638193	225	-60	194	1m @ 290ppm U <sub>3</sub> O <sub>8</sub> from 84m
NMLR031	Nab Sth	317890	8638245	225	-60	202	2m @ 200ppm U <sub>3</sub> O <sub>8</sub> from 102m
NMLR034	Nab Sth	317736	8638331	225	-60	170	1m @ 591ppm U <sub>3</sub> O <sub>8</sub> from 50m
NMLR034	Nab Sth	317736	8638331	225	-60	170	2m @ 621ppm U <sub>3</sub> O <sub>8</sub> from 72m
NMLR035	Nab Sth	317803	8638385	225	-60	160	3m @ 485ppm U <sub>3</sub> O <sub>8</sub> from 118m
NMLR036	Nab Sth	317841	8638426	225	-60	208	2m @ 348ppm U <sub>3</sub> O <sub>8</sub> from 44m
NMLR063	Hopwood	317750	8638813	135	-60	94	2m @ 226ppm U <sub>3</sub> O <sub>8</sub> from 0m

**Table 2: 2009 Drilling Best Intercepts**



### 3.3 2010

An extensive air core programme was designed and implemented to broadly cover the mineral lease to delineate areas of near surface anomalism. Based on the AC drilling three areas were then followed up with Reverse Circulation drilling.

The combination of AC and RC drilling highlighted the Boomerang, Bullroarer and Clapstick prospects. Best intercepts are provided below in Tables 3 and 4 for the AC and RC drilling respectively.

Drillhole	MGA_E	MGA_N	Azi	Dec	TD	Grade
NMLA098	318595	8641643	0	-90	16	10m @ 120ppm U <sub>3</sub> O <sub>8</sub> from 3m
NMLA320	318984	8641461	0	-90	18	9m @ 400ppm U <sub>3</sub> O <sub>8</sub> from 5m including 1m @ 1580ppm from 12m

**Table 3: 2010 AC Best Intercepts**

Drillhole	MGA_E	MGA_N	Azi	Dec	TD	Grade
NMLR106	317391	8641002	221	-60	100	2m @ 1,465ppm U <sub>3</sub> O <sub>8</sub> from 55m
						1m @ 230ppm U <sub>3</sub> O <sub>8</sub> from 60m
NMLR113	319328	8639773	176	-60	120	4m @ 324ppm U <sub>3</sub> O <sub>8</sub> from 60m
NMLR115	319134	8639815	176	-60	136	11m @ 1,138ppm U <sub>3</sub> O <sub>8</sub> from 21m
						12m @ 791ppm U <sub>3</sub> O <sub>8</sub> from 46m incl. 8m @ 1,014ppm U <sub>3</sub> O <sub>8</sub> from 46m
NMLR118	318588	8641649	131	-60	58	1m @ 118ppm U <sub>3</sub> O <sub>8</sub> from 7m
						3m @ 122ppm U <sub>3</sub> O <sub>8</sub> from 11m
NMLR119	318998	8641471	131	-60	58	2m @ 136ppm U <sub>3</sub> O <sub>8</sub> from 6m
						1m @ 100ppm U <sub>3</sub> O <sub>8</sub> from 11m

**Table 4: 2010 RC Best Intercepts**



## **4. WORK COMPLETED DURING THE REPORTING PERIOD**

### **4.1 Drill Targeting**

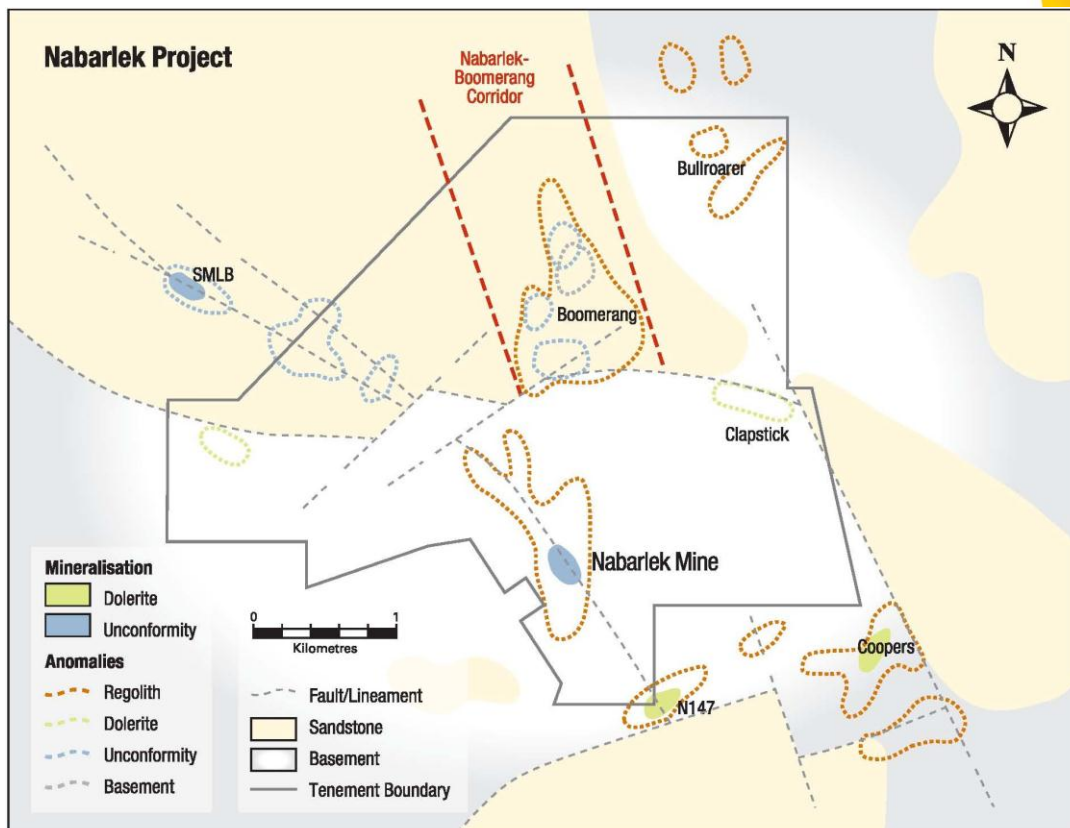
The drilling results from previous years had highlighted three areas of geological interest, these being the Bullroarer, Clapstick and Boomerang prospects. These three areas became the main focus for exploration work in 2011 with each prospect being studied in depth.

The Bullroarer prospect on closer examination was deemed to be a surficial anomaly with no anomalous uranium intersected with deeper RC drilling. Contouring the GT of each drill hole also showed a close spatial relationship with low lying drainage into the nearby Coopers Creek. It is assumed that the uranium has been scavenged and mobilised from the surrounding area and then deposited within the drainage area in a reducing environment. There is the strong potential that the uranium associated with the low lying drainage channels has been mobilised from the upper catchment area in the south west, proximal to the Boomerang prospect.

The Clapstick prospect is associated with a small flexure at the contact between the dolerite, sandstone and basement rocks. Uranium mineralisation is within the dolerite and is likely to be related to a N-S trending structure that is causing the flexure. Although this prospect has significant uranium mineralisation the potential size of the deposit and the host rock for mineralisation has meant that the priority for this area is lower and wasn't included into the 2011 drilling campaign. Future work on this prospect is still warranted.

The Boomerang prospect is situated in what has been labelled as the Nabarlek – Boomerang Structural Corridor. The corridor has been identified from compilation work done by consultant geologist Warren Batt and has become a major exploration focus for the company.

Consultant geologist Warren Batt also reviewed the results from the 2010 drilling programme with the main outcomes of the review being that a focus on the Nabarlek – Boomerang Corridor should be of a high priority. Due to the fact that the Nabarlek Deposit had a small geochemical alteration halo meant it was possible to drill within 20m of the deposit and have no significant uranium anomalism or geochemical signature. This effectively meant that a new Nabarlek style deposit could easily be missed during exploration. Due to the small size of a Nabarlek style deposit a drill programme with close enough drill spacing so as not to miss the small geochemical footprint was proposed.



**Figure 4: Drilling Prospects Map**

## 4.2 2011 RC Drill Program

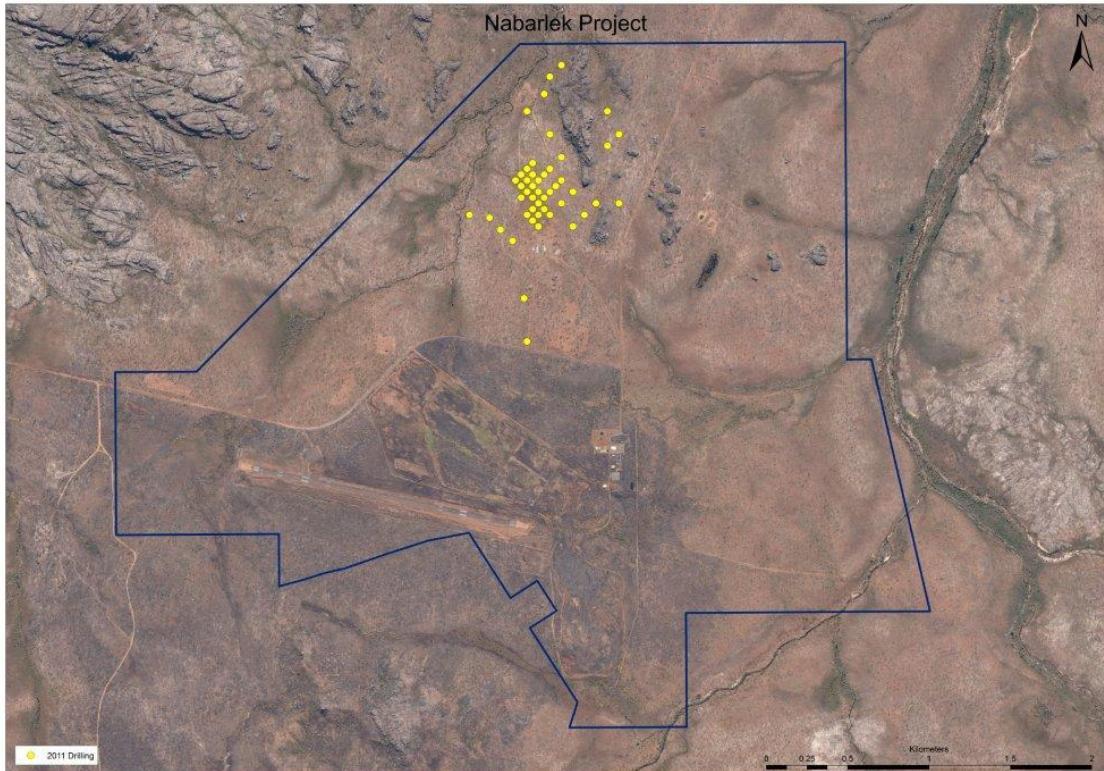
The 2011 drilling programme was designed to extend the drill coverage over the Nabarlek - Boomerang Structural Corridor and to further drill test the basement anomaly within the Boomerang Prospect.

RC drilling contractors Profile Drilling mobilised to site in July and completed a total of 47 RC drillholes (NMLR158 – NMLR204) and one drillhole extension (NMLR072) for a total of 4,935m. RC drill collars, downhole survey and drill logs are provided in Appendices 1, 2 and 3 respectively.

Drill spacing over the know Boomerang Prospect was at 50m centres which was determined to be of a sufficient drill spacing to adequately explore for a small high grade structurally controlled deposit with a small alteration footprint.

Drilling within the corridor highlighted areas of strong haematite alteration and areas of brecciation and quartz veining confirming that there are complex structures in the area and that they are associated with strong alteration

Anomalous uranium values were also encountered within the Boomerang Prospect extending the know mineralisation. Boomerang is now interpreted to be situated within a fault bounded dilatational jog and further drill testing will hopefully extend the mineralisation and further advance the structural understanding of the area and the relationship with uranium mineralisation.



**Figure 5: 2011 Drill Program**

Estimated uranium values were initially interpreted using the downhole gamma probe (Table 5) using UEL’s Auslog Total Gamma 32mm slimline probe through the drill rods. Downhole gamma data is included with this report as LAS files in Appendix 4.


Hole No	Width	From	To	Avg CPS	Max CPS
NMLR162	3.4	117.3	120.7	2083	4,670
	6.74	145.39	152.13	4500	28,770
NMLR166	3.19	61.91	65.1	363	1,380
NMLR171	1.91	80.37	82.28	237	490
	1.58	96.06	97.64	1728	3,980
NMLR172	1.13	68.98	70.11	293	690
	2.72	81.21	83.93	219	273
	2.71	98.58	101.29	166	300
NMLR173	110.98	87.03	198.01	346	3,290

**Table 5: Significant Downhole Gamma**

The gamma probe was not accurately depth calibrated until drillhole NMLR174, and therefore depths for NMLR158 – 173 should only be considered as approximate. However since all holes are analysed with the Niton XRF the gamma probe is only used as field guide during drilling.

Drill samples were screened with a Niton Portable XRF Analyser, with 1,887 readings taken during the programme. Appendix 5 contains results of all on-site XRF analyses.

Samples were initially composited over four metres with an XRF analysis done. Using a 100ppm U<sub>3</sub>O<sub>8</sub> cut-off significant XRF results are listed in table 6:



Hole No	Width	From	To	ppm
NMLR162	4.0	96.0	100.0	583
	12.0	116.0	128.0	208
NMLR173	24.0	100.0	124.0	271
	12.0	148.0	160	209
	12.0	184.0	196	238
NMLR177	8.0	80.0	88.0	162
	4.0	112.0	116.0	229

**Table 6: Significant XRF Analysis of Four Metre Composites Using a 100ppm Cut Off**

If a four metre composite XRF analysis returned an anomalous uranium value then the four metre composite was re-sampled at one metre intervals and re-analysed. Sample results using a 200ppm U<sub>3</sub>O<sub>8</sub> cut-off include:

Hole No	Width	From	To	ppm
NMLR160	1.0	85.0	86.0	308
NMLR162	3.0	97.0	100.0	1,104
	3.0	115.0	118.0	435
	4.0	122.0	126.0	1,682
NMLR173	1.0	98.0	99.0	211
	5.0	103.0	108.0	328
	4.0	113.0	117.0	344
	1.0	120.0	121.0	209
	4.0	156.0	160.0	275
	1.0	179.0	180.0	300
	1.0	186.0	187.0	247
	2.0	192.0	194.0	425

**Table 7: Significant XRF Analysis of One Metre Samples Using a 200ppm Cut Off**

In addition, riffle split samples from anomalous one metre intervals determined from the XRF analysis were forwarded to NTEL in Darwin for independent laboratory analysis. Samples were assayed for Ag, As, Bi, Co, Cu, Ni, Pb, Th, U and Zn by ICPMS and selected samples were also assayed for Au, Pd and Pt by 50g fire assay. Laboratory assays are listed in Appendix 6. Results using a 200ppm U<sub>3</sub>O<sub>8</sub> cut-off are included below in table 8:

Hole No	Width	From	To	ppm
NMLR162	3.0	97.0	100.0	824
	2.0	116.0	118.0	540
	5.0	121.0	126.0	1,610
NMLR173	1.0	98.0	99.0	224
	5.0	104.0	109.0	632
	5.0	113.0	118.0	554
	2.0	120.0	122.0	224
	4.0	156.0	160.0	371
	4.0	192.0	196.0	352

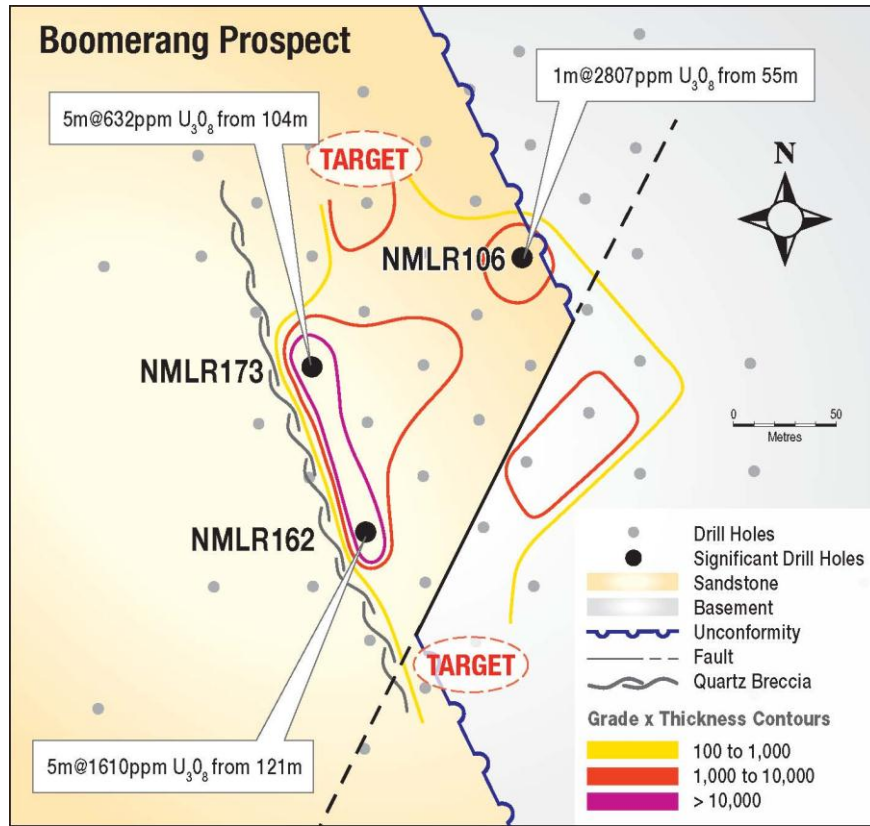
**Table 8: Significant Laboratory Analysis using One Metre Samples**

Samples submitted to NTEL for NMLR162 also returned anomalous Cu and Pb assays with up to 1,140ppm Cu and 264ppm Pb. Of the selected samples also submitted for fire assay no significant results were returned with the maximum fire assay result for Au being 77ppb, and Pd and Pt at or below the limit of detection.

The outcomes from the 2010 exploration program have identified uranium mineralisation within an interpreted dilational jog structure, which is associated with strong alteration and quartz brecciation. Mineralisation is open to the south along the unconformity and to the north



at depth within the basement providing targets for future drilling (Figure 6). The mineralisation also seems to not be continuous across the fault. A further target for mineralisation is to determine the sense of movement on the fault and the overall displacement and target the potential mineralisation on the other side of the fault.



**Figure 6: Boomerang Prospect GT contours**  
(sum of the U<sub>3</sub>O<sub>8</sub> grade (>20ppm) x thickness)

### 4.3 2011 Ground Gravity Geophysical Program

Geophysical consultants Atlas Geophysics Pty Ltd have completed a detailed ground gravity survey over the north western parts of the Nabarlek ML. A total of 1,637 gravity stations were collected on a 50 x 50m grid pattern. The survey was designed to focus on areas under the Kombolgie Sandstone in the attempt to define geological structures. A copy of the Geophysical Survey Report is provided in Appendix 7 and a preliminary image is shown in Figure 7.

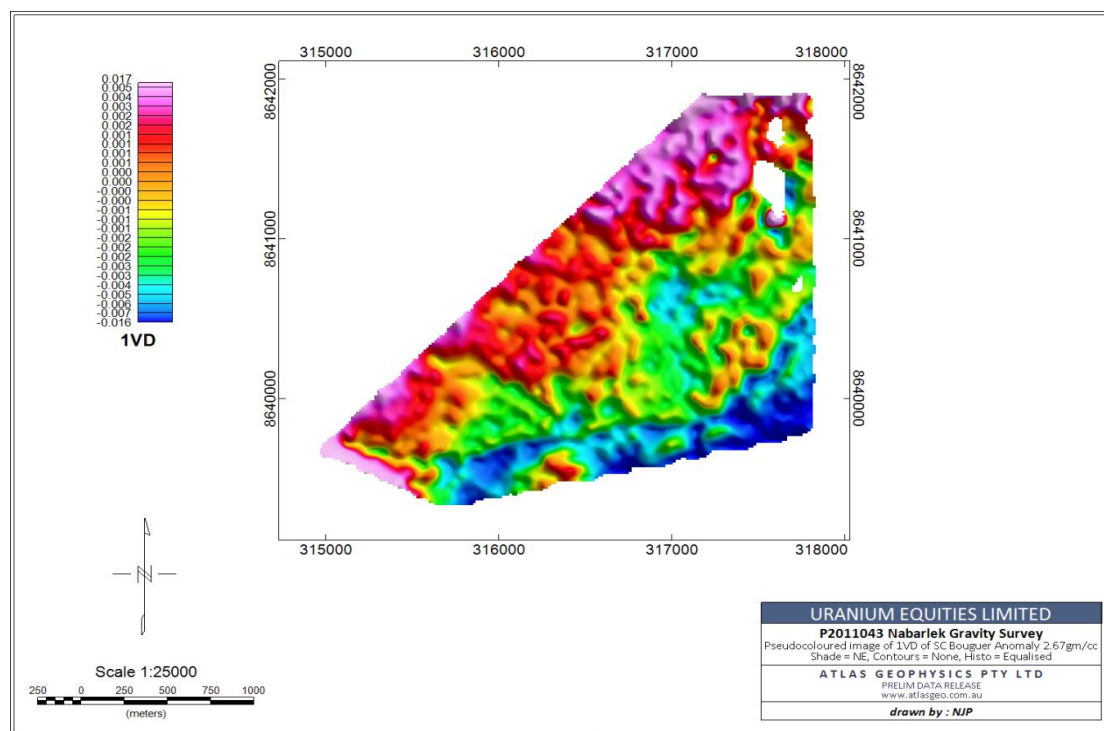


Figure 7: Gravity Image (1VD of SC Bouguer Anomaly)

## 5. FURTHER WORK

Future work on the Mineral Lease will involve merging the newly acquired gravity data with a previous gravity survey completed over the SMLB Prospect. Interpreting the gravity data in conjunction with the drilling data will aim to map geological structures and highlight areas of alteration or potential areas of alteration within the basement. This combined dataset will then be used to highlight areas favourable for Nabarlek style mineralisation under cover of the sandstone.

## 6. REFERENCES

Lally, JH and Bajwah, ZU, 2006: Uranium Deposits of the Northern Territory. Northern Territory Geological Survey, Report 20

Wilde, AR and Wall, VJ, 1987: Geology of the Nabarlek Uranium Deposit, Northern Territory, Australia. Economic Geology 82, 1152 – 1168

Williamson, G, 2009: Nabarlek ML Project (MLN962), Annual Technical Report for the Period 23/03/08 – 22/03/09



**APPENDIX I**  
**RC DRILL COLLARS**



**APPENDIX II**  
**RC DOWNHOLE SURVEYS**



**APPENDIX III**  
**RC DRILL LOGS AND DRILL CODES**



**APPENDIX IV**  
**DOWNHOLE GAMMA LOGS**



**APPENDIX V**  
**XRF ASSAYS**



**APPENDIX VI**  
**NTEL ASSAYS**





**APPENDIX VII**  
**GRAVITY SURVEY REPORT AND DATA**