### ASX ANNOUNCEMENT 7th May 2015

URANIUM EQUITIES LIMITED ACN 009 799 553



ASX Market Announcements Office via electronic lodgement

# **UEQ Identifies Significant New Exploration Target Beneath High-Grade Nabarlek Uranium Mine, NT**

#### **HIGHLIGHTS**

- 'Drill-ready' offset target identified beneath historical Nabarlek Uranium Mine in the Northern Territory
- Nabarlek was one of the highest grade uranium mines in Australia (open pit production: 24Mlbs @ 1.84% U<sub>3</sub>O<sub>8</sub>)
- New target identified from a new understanding and interpretation of ore geometry and alteration vectors
- Additional high-quality targets also identified in surrounding permits
- Access agreements in place, allowing UEQ to rapidly proceed with drill testing.

Uranium Equities Limited (ASX: UEQ) is pleased to advise that it has identified a significant new exploration target within UEQ's 100%-owned Nabarlek Mineral Lease, directly beneath the historical high-grade **Nabarlek Uranium Mine** in the world-class Alligator Rivers Uranium Province (ARUP) in the Northern Territory.

The target, which was identified following a recent review of the ore geometry and alteration vectors in the area surrounding the rich deposit, represents a potential **offset extension of the high-grade Nabarlek orebody at depth.** The offset target sits below a cross-cutting dolerite sill which truncates the deposit.

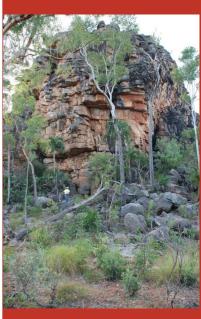
The offset target represents a new high-priority exploration opportunity for Uranium Equities, which the Company intends to drill test as soon as possible.

### **Nabarlek Offset Target**

Work by Uranium Equities' technical team during the wet season has focused on characterising alteration patterns associated with the previously-mined high-grade Nabarlek deposit (historical production: 24Mlbs @ 1.84% U<sub>3</sub>O<sub>8</sub>) and identifying new drill targets with similar patterns.

In conjunction with this alteration study, the Company has developed a new geological model for the Nabarlek orebody. This model indicates that while the orebody dips to the north-east, it plunges to the north before it is truncated by the Oenpelli Dolerite sill. This suggests that a potential 'offset' extension of the Nabarlek orebody may be located to the north beneath the barren dolerite sill (Figure 1).

The concept is supported by limited historical drilling beneath the dolerite sill which had targeted down-dip extensions of the orebody, but not the modelled down-plunge extensions of the system below the sill. Analysis of the spectral and geochemical signatures of these deeper holes has identified alteration chemistry and mineralogy analogous to the Nabarlek signature, suggesting that these holes intersected an alteration halo adjacent to the untested offset target located north of the historical drilling (Figure 2). This provides a clear vector for the Company to target offset mineralisation beneath the dolerite.

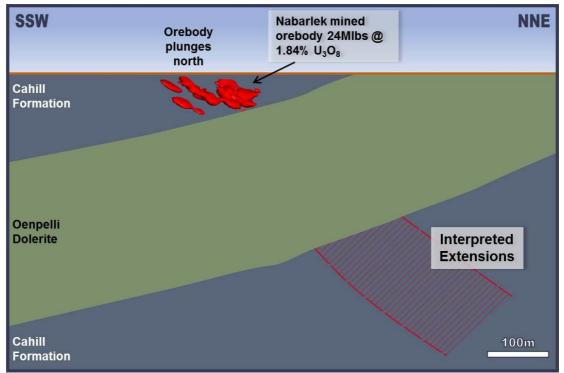


ASX: UEQ

HEAD OFFICE Level 2, 1292 Hay Street West Perth, WA 6005 GPO Box 2890 Perth, WA 6001 T: +61 8 9322 3990 F: +61 8 9322 5800 E: info@uel.com.au







<u>Figure 1</u>: – Nabarlek offset target Oblique section view to 290°.

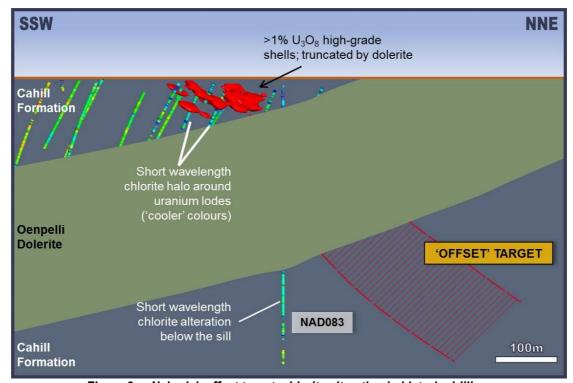


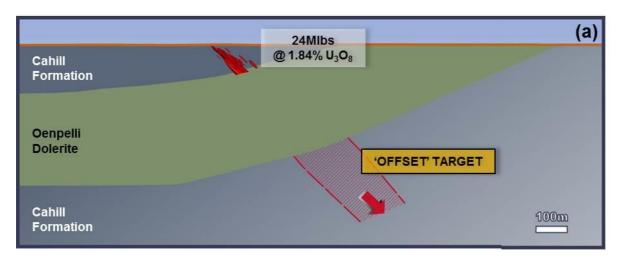
Figure 2: – Nabarlek offset target; chlorite alteration in historic drilling.

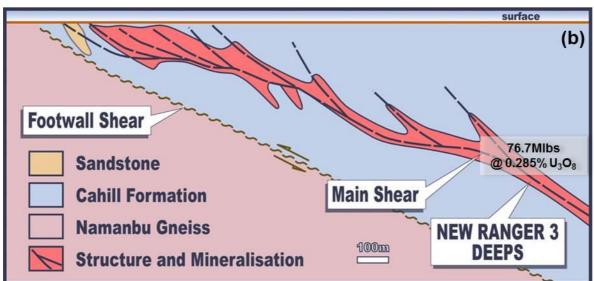


URANIUM EQUITIES LIMITED ACN 009 799 553

The Company considers this structural target to be analogous to the Ranger 3 Deeps mineralisation discovered by ERA in 2009, where the principal structure that hosts mineralisation – a reverse fault with associated breccia zones, alteration and mineralisation – extends to over 500m vertical depth (Figure 3).

Drawing on this analogy, the interpreted offset target has the potential to extend the high-grade mineralisation at Nabarlek by a further 400 vertical metres down-plunge.





<u>Figure 3</u>: – (a) Nabarlek offset target in cross-section looking north at same scale as (b) Ranger 3 Deeps (source ERA)

#### **Alteration Studies**

The alteration study comprised the collection of new analytical data and a reassessment of existing data, including short-wave infrared (SWIR) spectral and multi-element geochemical data, from historical and company drilling. This included analysis of a number of historical holes which had been drilled under the old pit at Nabarlek, using the Northern Territory Government's "HyLogger" analyser.





The study builds on knowledge of characteristic signatures of uranium and other sediment hosted metal deposits globally that the Company's geologists, working with recognised industry experts, have extensive knowledge of and believe to be proprietary to the Company.

The re-assay and mineral spectral analysis defined a distinctive alteration pattern surrounding Nabarlek within Cahill Formation equivalents which are the host rocks to the Nabarlek deposit (Figure 4). These associations include:

### **Lithogeochemical Signature**

- Vanadium enrichment and lithium anomalism strongly correlated with the uranium lodes; and
- Molybdenum anomalism proximal to ore.

### Short Wave Infra-Red (SWIR) Spectral Signature

- Short wavelength (magnesium-rich) chlorite halo proximal to ore; and
- A core of aluminium-poor white mica (phengite) proximal to ore within a broad zone of muscovite representing calcium-sodium (Ca-Na) depletion.

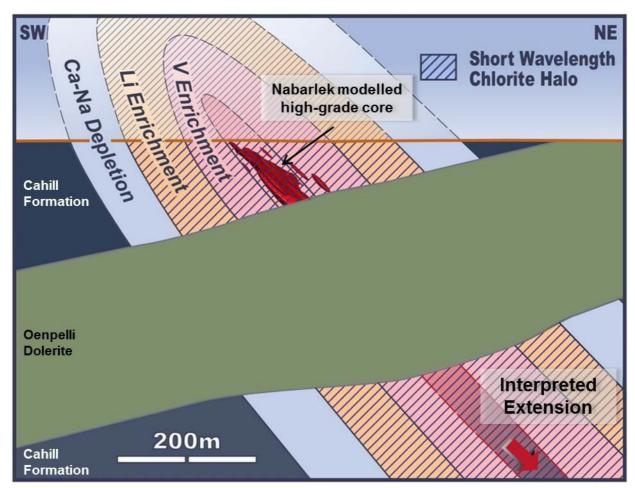


Figure 4: - Simplified alteration zoning around the Nabarlek deposit





### **New Regional Targets Identified**

A number of high-priority, near-mine targets associated with known mineralised systems or fertile structures have been identified by the Company through the application of the new alteration model across the Nabarlek Project tenure. The best targets are being prioritised for follow up test work in the 2015 field season (Figure 5).

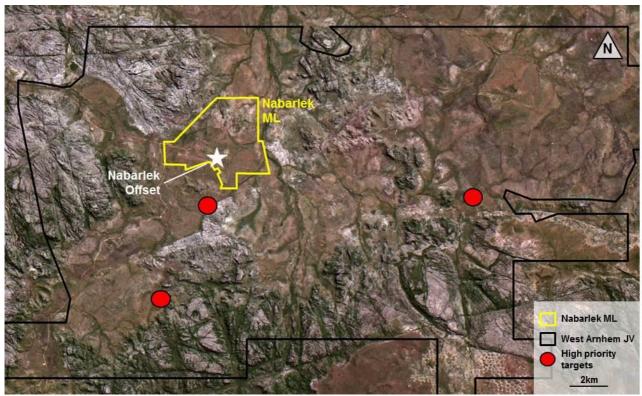


Figure 5: - Nabarlek Project, regional alteration targets on Landsat satellite imagery

Commenting on the new offset target, Uranium Equities Chairman, Mr Tim Goyder, said: "This represents an important geological breakthrough by our team and, potentially, one of the most significant developments in the history of this high-grade uranium project in more than three decades.

"Nabarlek was one the most famous mineral discoveries in Australia back in the 1970s, and it subsequently became the country's highest grade uranium mine, producing over 24 million pounds at 1.84% U<sub>3</sub>O<sub>8</sub>. However, limited efforts to locate extensions of this rich deposit at depth below the barren dolerite sill which clearly truncates the open pit mineralisation were never successful.

"Now, through the application of state-of-the-art geochemistry and the latest geological thinking about the signatures of this style of unconformity uranium deposit, we have been able to delineate what we believe to be a compelling new target down-plunge in an offset position below the dolerite sill. This is a priority exploration opportunity for UEQ and, together with the new regional targets identified by our team, presents a walk-up drill opportunity with company-changing potential. We intend to press ahead with drill testing as soon as we can."





### **NABARLEK PROJECT**

The West Arnhem Joint Venture with Cameco Australia (Uranium Equities right to earn 100%) and the 100%-owned Nabarlek Mineral Lease, located in the Alligator Rivers Uranium Province in the Northern Territory, represent a rare near-mine uranium exploration opportunity surrounding the historic Nabarlek Uranium Deposit (previous production: 24Mlb @ 1.84% U<sub>3</sub>O<sub>8</sub>) – the Nabarlek Project.

### **ALLIGATOR RIVERS URANIUM PROVINCE**

The Alligator Rivers Uranium Province (ARUP) is a world-class uranium province, comparable to the Athabasca Uranium Province in Canada in terms of its geological setting and size although the Athabasca is known to host over one billion pounds of U<sub>3</sub>O<sub>8</sub> in resources, significantly greater that the 500 million pounds known in the ARUP. This largely reflects the exploration maturity of the provinces, with the Athabasca receiving in excess of \$110 million in exploration in 2012 compared with less than \$25 million on uranium exploration in the entire Northern Territory in the same period (expenditures sourced from Saskatchewan Mining Association & Australian Bureau of Statistics).

The focus of UEQ's exploration activities in the ARUP is on the discovery of high-grade Alligator Rivers-style, unconformity and structurally controlled uranium deposits.

The Company has been actively exploring the ARUP region both exclusively and in joint venture with Cameco Australia since 2007, and now controls over 5,000km² of tenure after recently expanding its ground position in one of the world's premier uranium provinces.

**Tim Goyder** 

Executive Chairman

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For further information, please contact:

Tim Goyder, Executive Chairman Uranium Equities Limited Telephone +618 9322 3990 For media inquiries, please contact:

Nicholas Read Read Corporate Telephone: +618 9388 1474

### **Competent Person Statement**

The information in this report that relates to Exploration Results is based on information compiled by James Merrillees who is a consultant to the Company and a member of the Australasian Institute of Mining and Metallurgy. Mr Merrillees has sufficient experience that is relevant to the styles of mineralisation, the types of deposits under consideration and to the activities undertaken to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Merrillees consents to the inclusion in this report of the matters based on information in the form and context in which it appears.





### **APPENDIX 1**

The following section is provided to ensure compliance with the JORC (2012) requirements for the reporting of exploration results:

Table 1 - Nabarlek Drilling - Drillholes with Spectral Data Reported

Hole No	Prospect	Easting MGA94Z53	Northing MGA94Z53	RL (m)	Azi	Dec	Total Depth (m)
NAD0026	Nabarlek	317506	8638622	76	283	-60	116.2
NAD0035	Nabarlek	317539	8638567	77	286	-60	128.7
NAD0083	Nabarlek	317602	8638678	75	0	-90	489.5
NAD0088	Nabarlek	317547	8638583	77	283	-60	42.2
NAD0168	Nabarlek	317585	8638519	78	289	-62	36.6
NAD0177	Nabarlek	317372	8638687	78	286	-47	105.5
NMLR015	Nabarlek	317396	8638744	77	270	-60	115.0
NMLR016	Nabarlek	317452	8638802	78	270	-60	150.0
NMLR045	Nabarlek	317235	8638584	81	270	-60	130.0
NMLR046	Nabarlek	317283	8638630	79	270	-60	118.0

Section 1 - Sampling Techniques and Data

Criteria	JORC Code Explanation	Commentary
Sampling techniques	Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.	This Appendix relates to the Short Wave Infra-Red (SWIR) spectral data reported in the attached announcement, being the new exploration information presented therein. The data is presented in support of the new geological model for down plunge extensions of the historically mined Nabarlek uranium mineralisation  The short wave infrared analytical data presented comprises new scans from historical holes (drilled by either UEQ or earlier explorers). In particular the SWIR data presented relates to the chlorite mineral phase.  Spectral data were collected by:  Northern Territory Geological Survey (NTGS) HyLogger scan of historical diamond core holes. The HyLogger is a CSIRO developed automated visible to infrared drill core scanning system that provides semi-quantitative mineralogy estimates. No sampling was required- readings were taken on either half core or whole core, remaining from historical sampling;  UEQ TerraSpec analysis of selected RC drill chips. Samples comprised "reference library" samples of 2m composites of sieved and washed drill spoil: and



URANIUM EQUITIES LIMITED ACN 009 799 553

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	Include reference to measures taken to ensure sample	All available sample was measured.		
	representivity and the appropriate calibration of any measurement tools or systems used	Instruments are regularly calibrated against a white reference material, to control instrument drift.		
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules)	Spectral data are used to determine alteration mineralogy and mineral zonation as a guide to mineralisation fluid flows. The method is not used to directly identify mineralisation.		
		The aim of this sampling program was to measure the bulk spectral signature of the chlorite alteration around the historical Nabarlek mine, and not to identify individual grains/ minerals or discrete mineralisation.		
	may warrant disclosure of detailed information	As such the sampling methodology and QA/QC quoted below is appropriate for samples where the unit of interest forms a large percentage of the sample volume.		
	Drill type (o.g. core reverse circulation, open help harmon retory	SWIR data reported here is from historical drilling, including the original drilling from the Nabarlek mine site, completed by QML between 1970 and 1973, and more recent exploration drilling completed by UEQ.		
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	QML drilling (prefix "NAD")- NQ core drilling,		
Drilling techniques		UEQ drilling (prefix "NMLR") - RC drilling All drillholes are 8.5" diameter, reverse circulation drillholes utilising a face sampling drill bit/hammer. Downhole surveys were completed using a Camteq Proshot tool (Serial No: 7419) that was run down the drillhole to stainless steel rod located immediately behind the hammer. Surveys were taken at ~60m intervals.		
	Method of recording and assessing core and chip sample recoveries and results assessed	QML drilling (prefix "NAD"): Recovery measured, considered good and typically less than 80% in primary zone.		
		UEQ drilling (prefix " NMLR")- recovery recorded as >95% overall QML drilling (prefix "NAD"): Not documented.		
Drill sample recovery	Measures taken to maximise sample recovery and ensure representative nature of the samples	UEQ drilling (prefix "NMLR") - RC samples were dry and dust suppression techniques were used during the drilling to maximise sample recovery. Samples sent for analysis were riffle split to ensure they accurately represent the drilled metre.		
	Whether a relationship exists between sample recovery and	QML drilling (prefix "NAD"): Not documented, but not likely to affect results give the nature of the data being collected		
	grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	UEQ drilling (prefix "NMLR") - Reverse circulation drilling provides good recoveries and was done to provide a good–excellent representation of the drilled geological sequences. There is a very low possibility of sampling bias.		
Logging	Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.	Not applicable, no mineralisation results are reported,		
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	All drill holes have been geologically logged, with both qualitative and quantitative attributes.		
	The total length and percentage of the relevant intersections logged	No mineralisation results are reported, but all drilling scanned for spectra has been geologically logged.		
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	No sample preparation was required. Whole core at the NTGS core facility was analysed by the HyLogger scanner.		
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	UEQ drill chips were analysed by TerraSpec ASD of chips in chip trays. The original chip samples were collected by sieving and washing riffle split bulk material. No other sample preparation was required.		



URANIUM EQUITIES LIMITED ACN 009 799 553

	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Sample sizes are considered appropriate for the spectral analyses, given they are qualitative in nature and designed to measure bulk attributes where the unit of interest forms a large percentage of the sample volume.		
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	There is no sub sampling.		
	Measures taken to ensure that the sampling is representative of	HyLogger measures the entire core surface, and is representative.		
	the in situ material collected, including for instance results for field duplicate/second-half sampling.	Terra Spec sampling- no repeat sampling was undertaken, but as the sampling program is designed to measure bulk attributes where the unit of interest forms a large percentage of the sample volume, repeat sampling is not considered necessary		
		HyLogger measures the entire core surface, and is representative.		
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Terra Spec sampling is representative of the alteration mineralogy, a bulk property of the rock bulk attributes where the unit of interest forms a large percentage of the sample volume, and is considered representative.		
Quality of assay data and laboratory tests	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.	No laboratory results are reported.		
	For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	No laboratory results are reported.		
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	No laboratory results are reported.		
	The verification of significant intersections by either independent or alternative company personnel.	No significant intersections are reported.		
	The use of twinned holes.	No twin holes have been drilled.		
Verification of sampling and assaying	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data was collected by automated software attached to the spectral analyser. All data was compiled into Excel spreadsheets and sent to the Company's database consultants for validation and compilation into the Company's drilling database.		
	Discuss any adjustment to assay data.	No assay data reported.		
Location of data points	Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.	UEQ collar locations (including RL) for all holes were surveyed by using a standard hand-held GPS. Expected accuracy is +/- 5m for easting and northing and +/- 15m for elevation coordinates. Downhole surveys were collected during the course of the drilling at regular (~60m) intervals.  Location accuracy for historical holes held at the NTGS is not known as collars are not locatable in the field but were originally reported as surveyed from the mine grid and considered sufficient accurate for the level of this study.		
	Specification of the grid system used.	The grid system for the Nabarlek Project is MGA94, Zone 53.		
	Quality and adequacy of topographic control.	All co-ordinates based on standard hand-held GPS readings (expected accuracy is +/-5m for easting and northing and +/-15m for elevation coordinates).		





	Data spacing for reporting of Exploration Results.	Drillholes are at various spacings reflecting the availability of historical drill sample. The spacing is consistent with the early stage of exploration being reported.
Data spacing and distribution	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	The method is not used to directly identify mineralisation, and data spacing and distribution of the reported drilling is not appropriate for any sort of comment on potential geological and grade continuity.
	Whether sample compositing has been applied.	HyLogger sampling has been composited into a representative 1m sample result, using automatic processes within the "TSG" software used to process the spectral data.  No sample compositing has been done on the percussion sampling.
Orientation of data in	Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.	Sampling was predicated on the availability of historical sample. However, the sampling is from consistently oriented angle drill holes, considered to be unbiased.
relation to geological structure	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	No orientation based sampling bias has been identified from drilling on the Nabarlek Project at this point.
Sample security	The measures taken to ensure sample security.	Company staff collect all samples and chain of custody is managed by Uranium Equities with analysed samples here transported and delivered by Company staff.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No audits of sampling techniques have been undertaken.

### **Section 2 - Reporting of Exploration Results**

Criteria	JORC Code Explanation	Commentary		
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	The Nabarlek Project is located in the Arnhem Land Aboriginal Reserve and is freehold Aboriginal land. 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.  The Project is centred on the historical Nabarlek Mineral Lease (MLN962) held 100% by Queensland Mines Pty Ltd, a fully owned subsidiary of Uranium Equities Limited. In addition, the Project includes three granted exploration licences (EL10176, EL23700 and EL24371) and one exploration licence application (ELA24878) held in the West Arnhem Joint Venture (WAJV) between Cameco Australia Pty Ltd (60%) and GE Resources Pty Ltd (40%), a wholly owned subsidiary of Uranium Equities Limited. UEQ has an agreement to acquire Cameco's remaining 60% interest in the WAJV by spending \$2m on exploration by 31/08/2016.  Uranium Equities currently has management of the Project. Uranium Equities has an approved Mine Management Plan (MMP) with attached environmental security bond over both the Nabarlek ML and the WAJV areas with the Northern Territory's Department of Mines and Energy.		
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements are in good standing and no known impediments exist.		
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	The general area covered by this report has been explored in the past by various companies including Queensland Mines Limited and Cameco Australia Pty Ltd. Uranium Equities has reviewed past exploration data generated by these companies.		
Geology	Deposit type, geological setting and style of mineralisation	The focus of exploration within the Nabarlek Project is the discovery of additional high grade Nabarlek-style uranium deposits. The Nabarlek Mine is one of the world-class uranium deposits of the Alligator Rivers Uranium Field (ARUF) with other		



URANIUM EQUITIES LIMITED ACN 009 799 553

		similar deposits including Ranger, Jabiluka and Koongarra. Classically known as Unconformity-style uranium deposits, recent developments suggest a strong structural control to mineralisation is also apparent. These deposits occur within Palaeoproterozoic basement rocks of the Pine Creek Orogen, within fracture/fault and breccia zones in proximity to unconformable contacts with overlying platform cover sedimentary rocks. 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.
Drill hole Information	A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all material drill holes:	Refer to Table 1.
	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.	N/A- No assay results are reported.
Data aggregation methods	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	N/A- No assay results are reported.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	N/A- No assay results are reported.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.  If the geometry of the mineralisation with respect to the drillhole angle is known, its nature should be reported.  If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').	All intercepts are downhole lengths, true widths are not known.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Refer to figures in body of announcement.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	All spectral data collected from around the historic Nabarlek mine are shown in the figures in the body of the announcement
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	There is no other meaningful or material exploration data that has been omitted from the report.
Further work	The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive	The release describes planned follow up of targets generated as a result of the spectral studies undertaken.  Interpretations and future areas for exploration are outlined in diagrams provided in the body of the release.