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AUSTRALIA'S URANIUM

CLEAN ENERGY FOR
A GROWING WORLD

UNDERESTIMATION OF URANIUM MINERALISATION BY GAMMA PROBES AT THE SURFICIAL CARBONATE ASSOCIATED URANIUM DEPOSITS OF THE WILUNA PROJECT – UNRELATED TO SECULAR DISEQUILIBRIUM

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8 JUNE 2016

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WHO WE ARE


India


China

Wiluna Project

84Mlbs[1]

<10m deep

Permitted[2]

Toro Energy

A$100M Market Cap

A$0.05 Share Price

Major shareholders

OZ Minerals	21.1%
Mega Uranium	20.7%
Sentient Group	18.2%
RealFin Capital	4.4%

1. JORC 2012 at a 200 ppm U3O8 cut-off, includes Inferred resources and all deposits (see slide 22 for further details).
2. The Centipede and Lake Way deposits have received government environmental approval for mining

WILUNA URANIUM DEPOSITS - LOCATION

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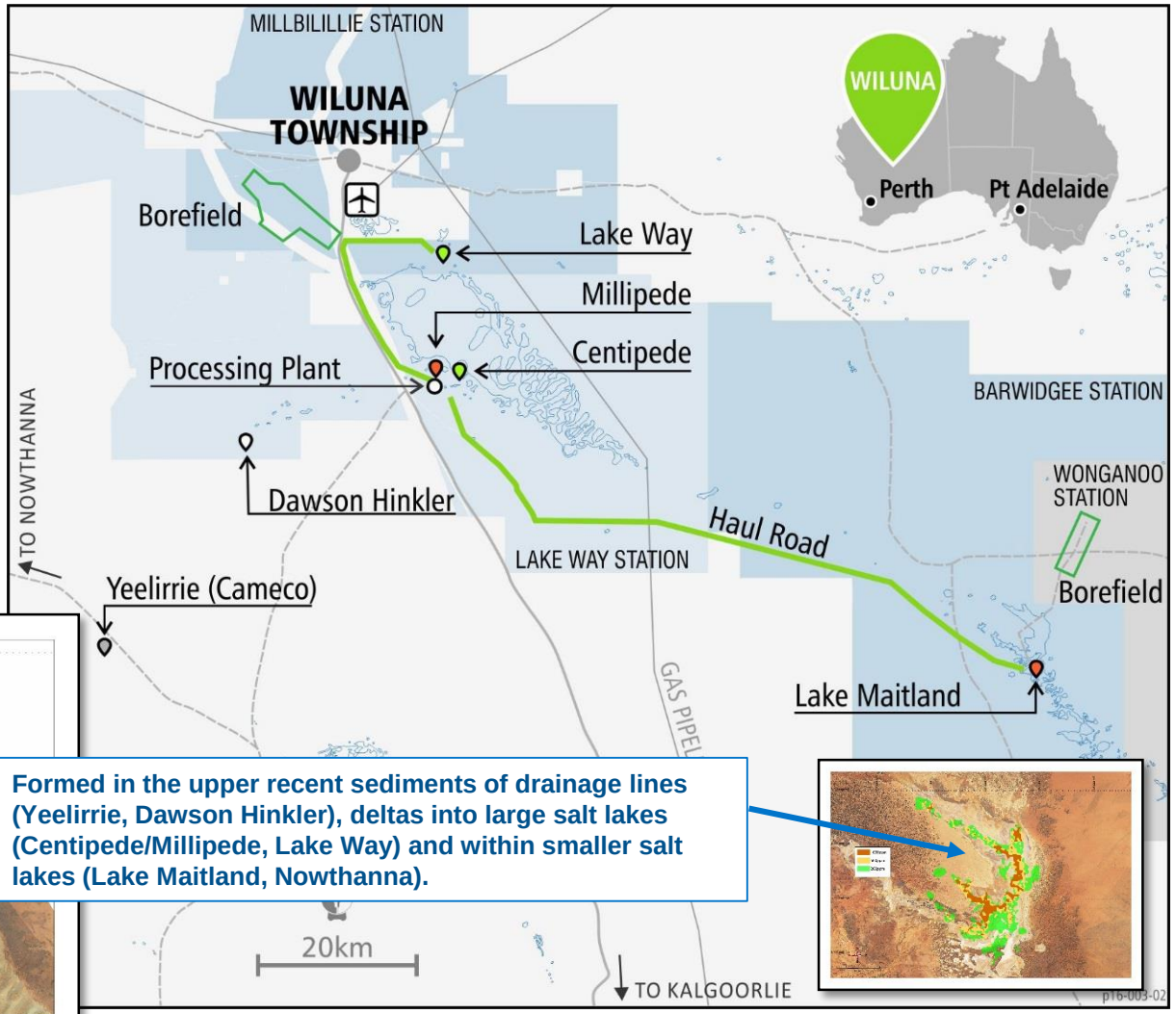
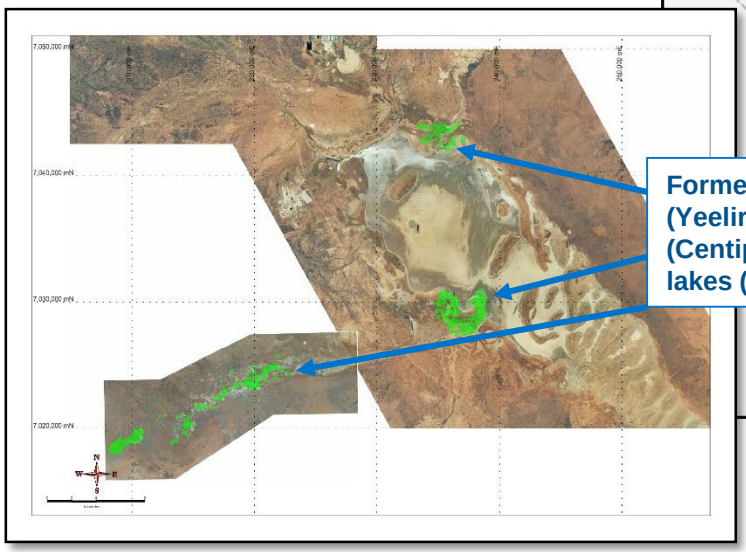
Located in the NE Yilgarn uranium deposit district – all surficial carbonate associated uranium deposits.

Some 700km NE of Perth, WA.

Deposits discovered in the 1970's and are yet to be exploited – currently amidst environmental approvals (2 approved)

Yeelirrie (Cameco) the largest and highest grade – all other significant deposits are part of Toro's Wiluna Uranium Project including Lake Maitland, Centipede/Millipede, Lake Way, Dawson Hinkler and Nowthanna.

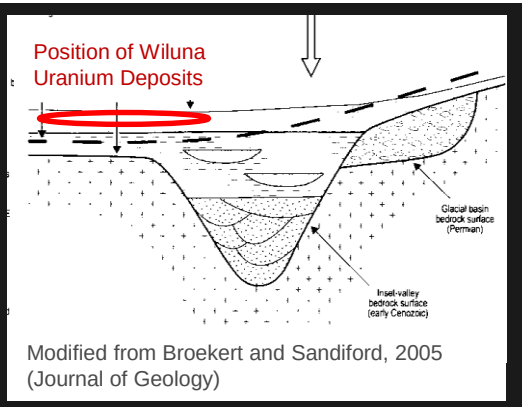




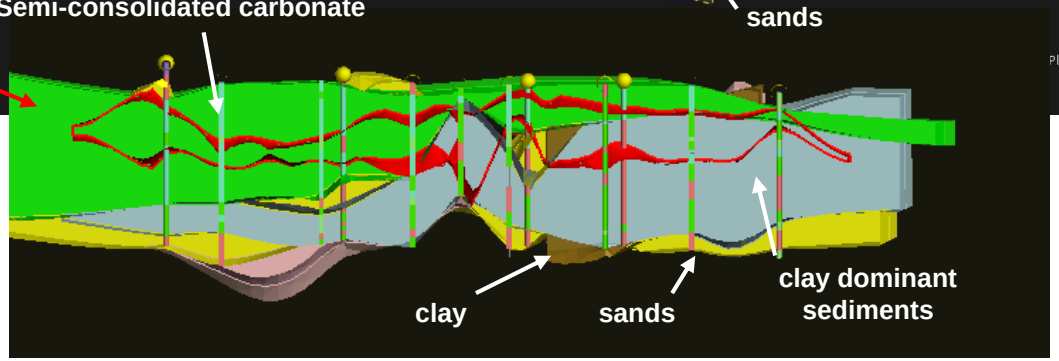
Formed in the upper recent sediments of drainage lines (Yeelirrie, Dawson Hinkler), deltas into large salt lakes (Centipede/Millipede, Lake Way) and within smaller salt lakes (Lake Maitland, Nowthanna).

GEOLOGY

A Recent genesis driven by climate, hydrology and hydro-geochemistry at the top of the water table - Strong geomorphological associations – Almost 100% Carnotite ($K_2(UO_2)2V_2O_8.3(H_2O)$)



Modified from Broekert and Sandiford, 2005 (Journal of Geology)



Carbonate system – YES

Calcrete hosted (strictly) - NO

UNDERESTIMATION OF U_3O_8 BY GAMMA PROBES – CONSEQUENCES AND CORRECTIONS

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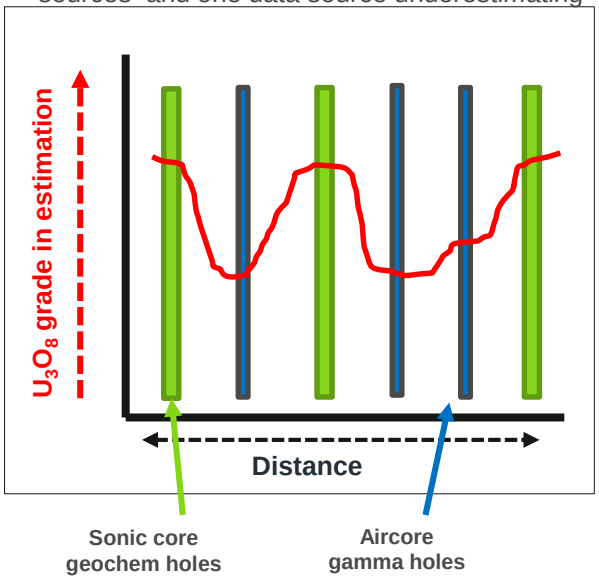
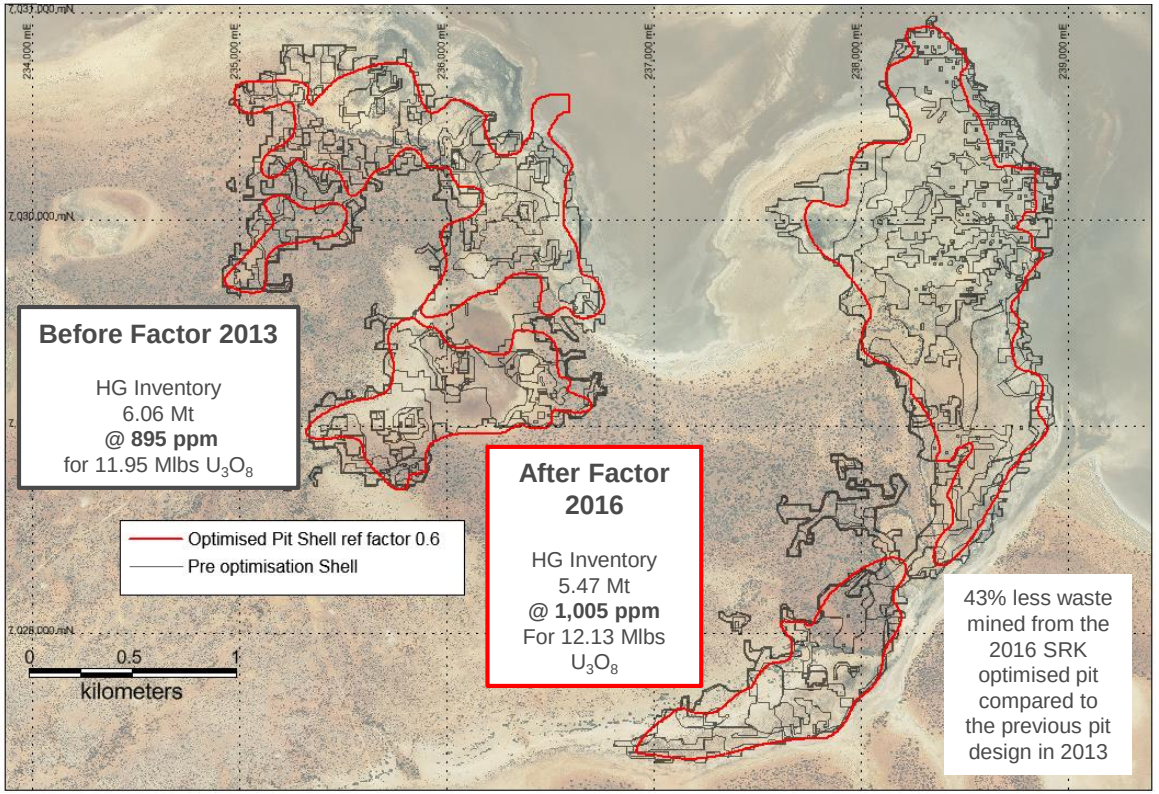
- Leads to an underestimation of grade and pounds in the ground
- Degrades economics in feasibility studies through lower grades and higher tonnes through the mill
- Force uranium explorers and developers into substantially higher cost resource drilling methodology (e.g. diamond or sonic core and geochemical analysis over Aircore or Reverse Circulation and gamma probing).

- If geochemistry data is added to the resource estimation spatial inconsistencies are created around the geochemistry derived data points, making 'ridges' or 'patches' grade variance that are difficult for pit design and mine planning.

What happens in a block model when two data sources and one data source underestimating



Comparison of high grade (> 500ppm U_3O_8) inventories before and after 20% factor applied to gamma data at Centipede/Millipede



WHY NOW?

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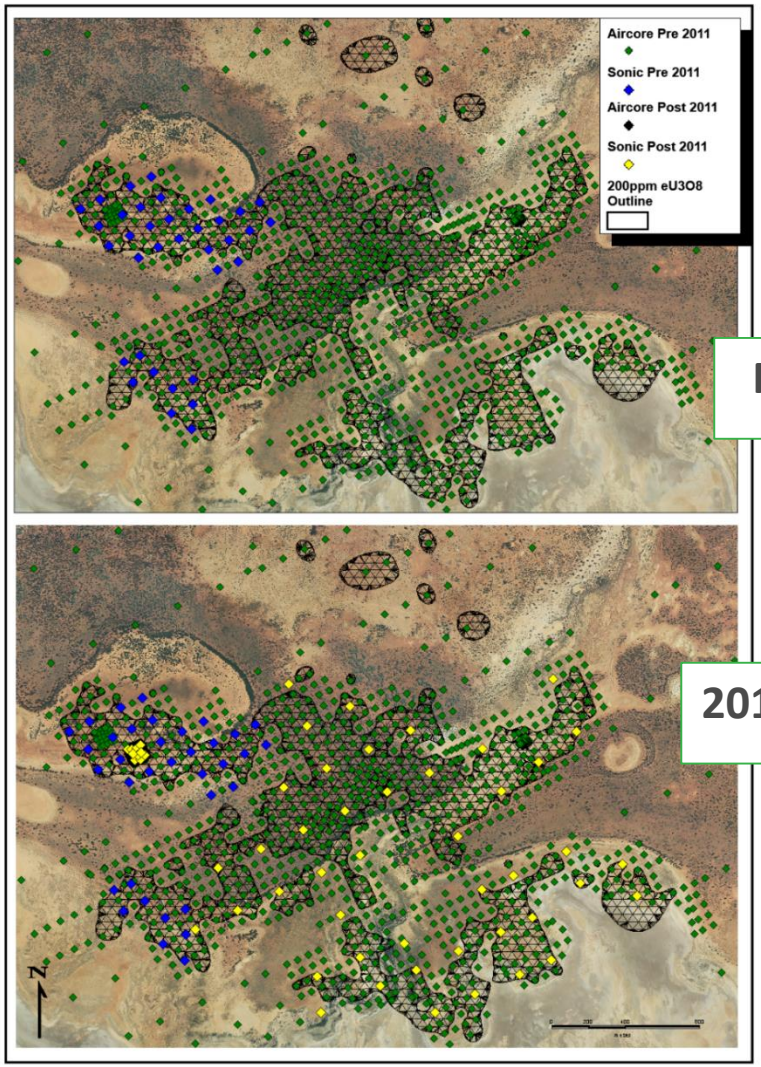
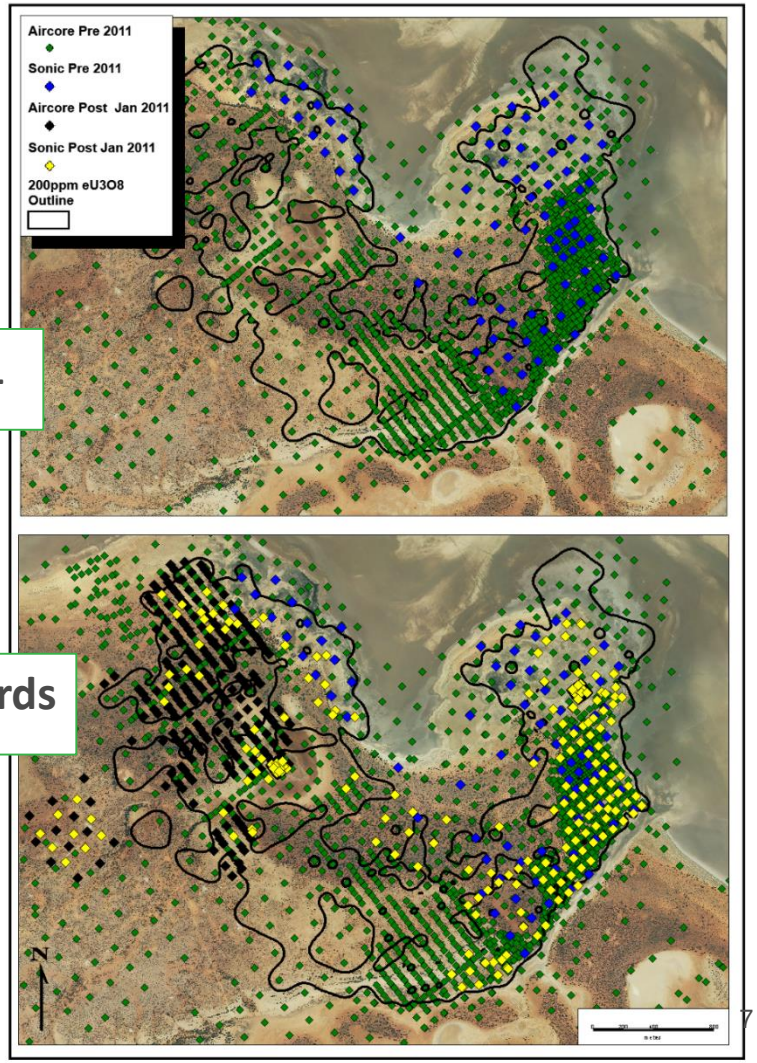
Prior to 2009 there was not a single core drill hole through Toro's deposits. Not until 2011 were cored drill holes properly QAQC'd or documented.



Pre-2011

2011 onwards

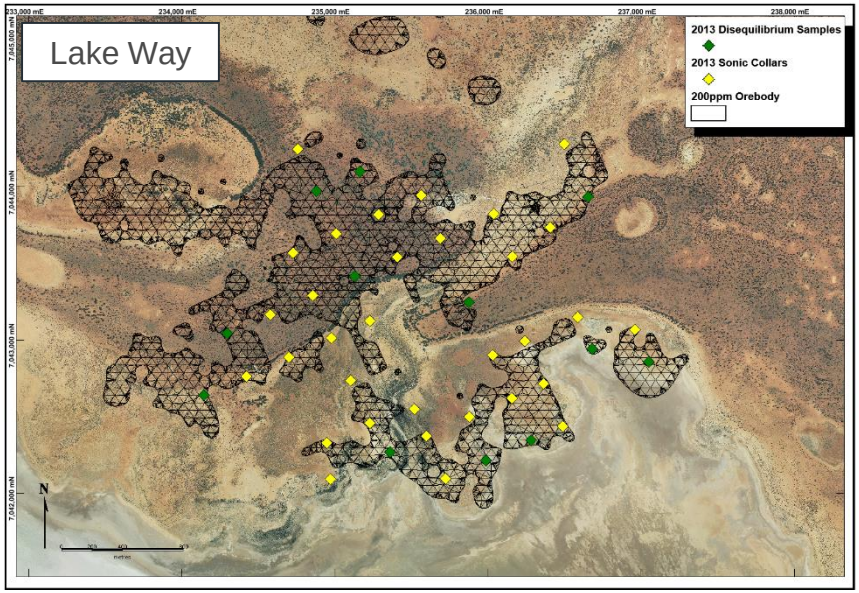


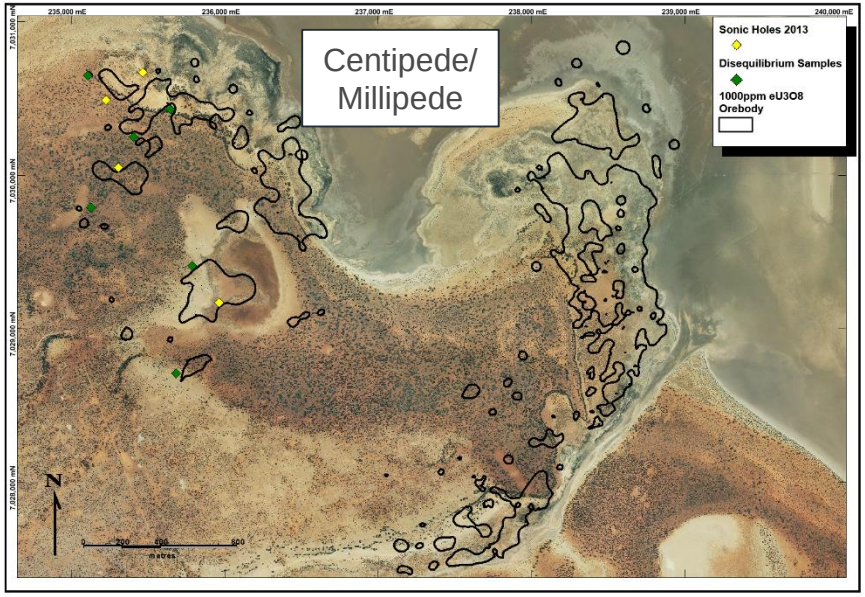
2013 DRILLING

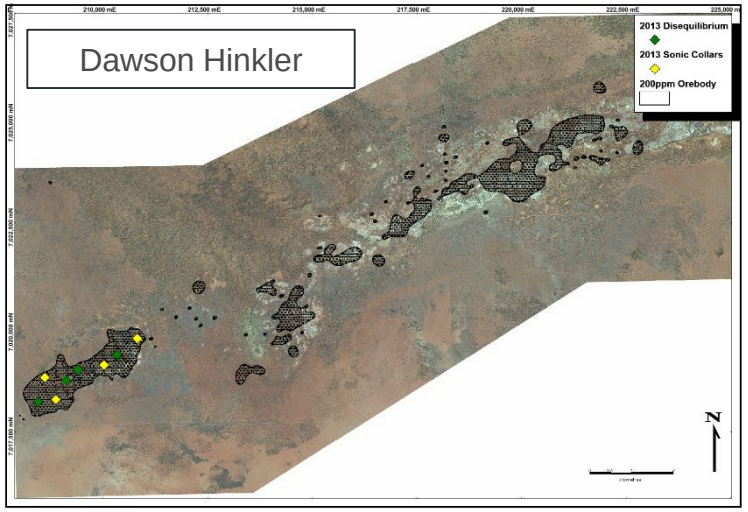
2013 drilling focused on moving from majority Inferred to majority Measured and Indicated and parts of the orebodies that had not been drilled for a number of decades

Sonic core with geochemistry was used to confirm the results from gamma probing aircore drill holes at a rate of 5-10%

Selected geochemistry samples sent for closed can secular equilibrium analysis at ANSTO, focused on different geomorphology and depth





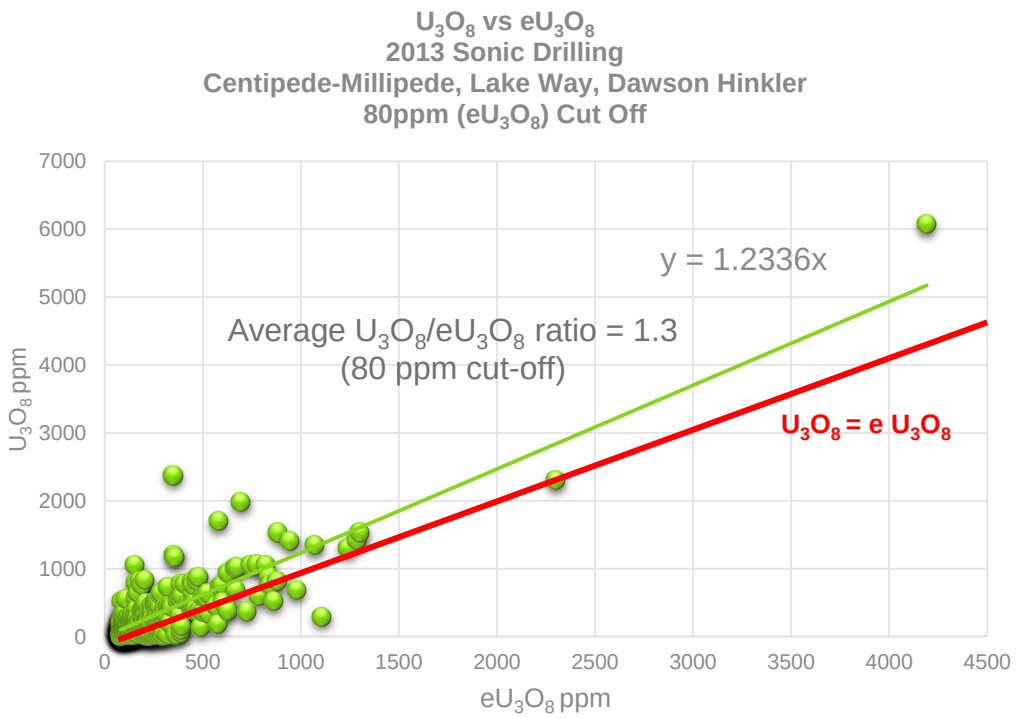


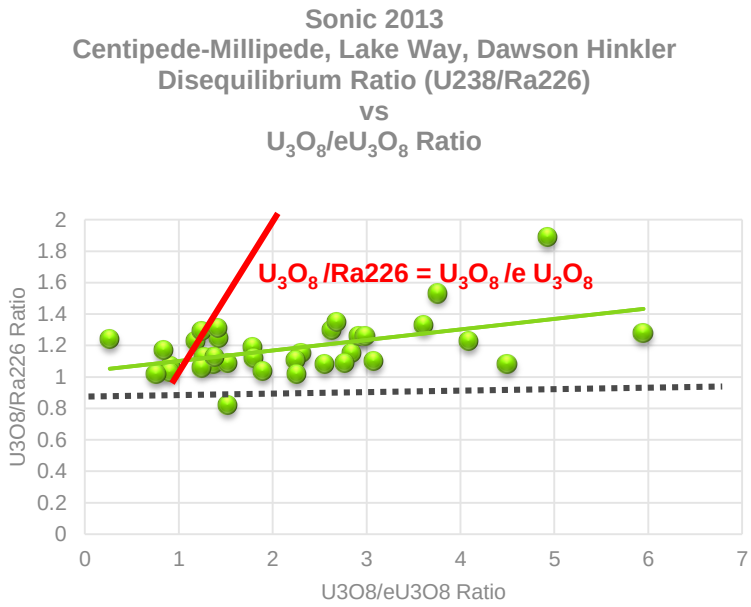
DISCOVERY OF GEOCHEMISTRY BIAS

Comparing 0.5m full sonic core geochemistry samples to the equivalent 0.5m composited de-convolved gamma data revealed a definitive bias towards geochemistry across all deposits drilled and sampled.

ANSTO closed can analysis showed that secular disequilibrium was not responsible for the bias, although it was a contributor to a small degree.

The gamma probe seemed to be genuinely underestimating grade.



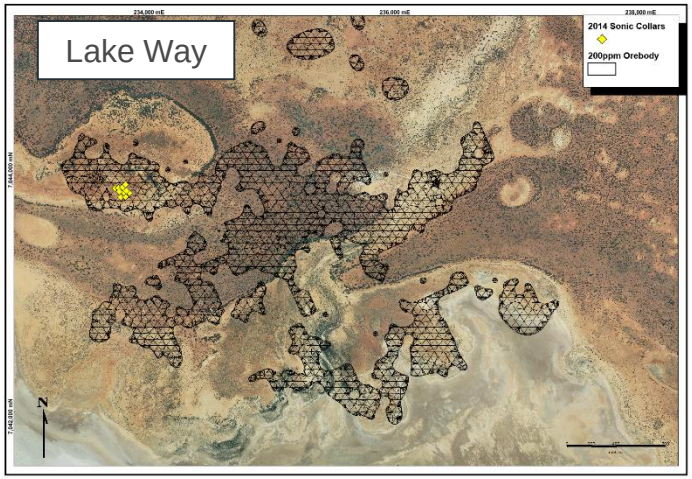


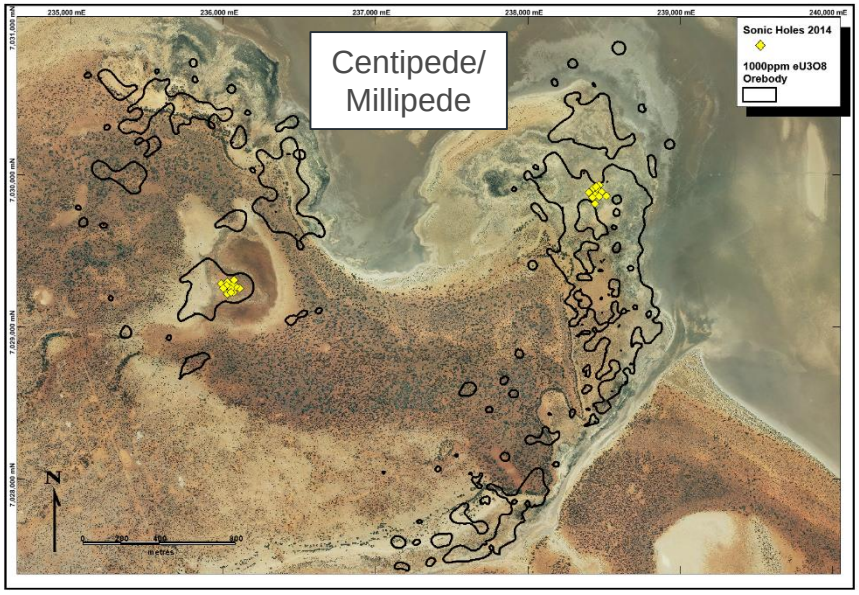
Average U_3O_8/eU_3O_8 downhole GT ratio = 1.9
(80 ppm cut-off)

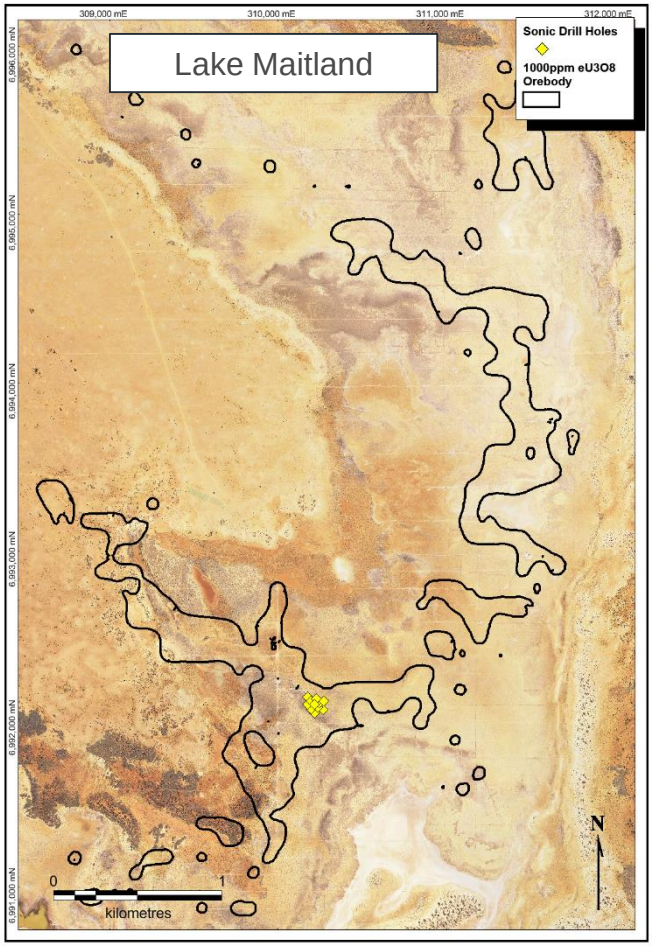
2014 DRILLING

2014 drilling targeted short scale variance in the resource with 4 100x100m drilling grids of 5x5m drill spacing.

No secular disequilibrium studies were conducted.







CONFIRMATION OF GEOCHEMISTRY BIAS

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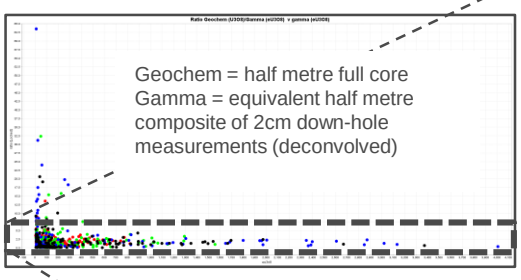
ANALYSIS OF 2014 DRILLING DATA – GEOCHEM V GAMMA COMPARISONS (Half metre down-hole)



Geochem = half metre full core
Gamma = equivalent half metre composite of 2cm down-hole measurements (deconvolved)

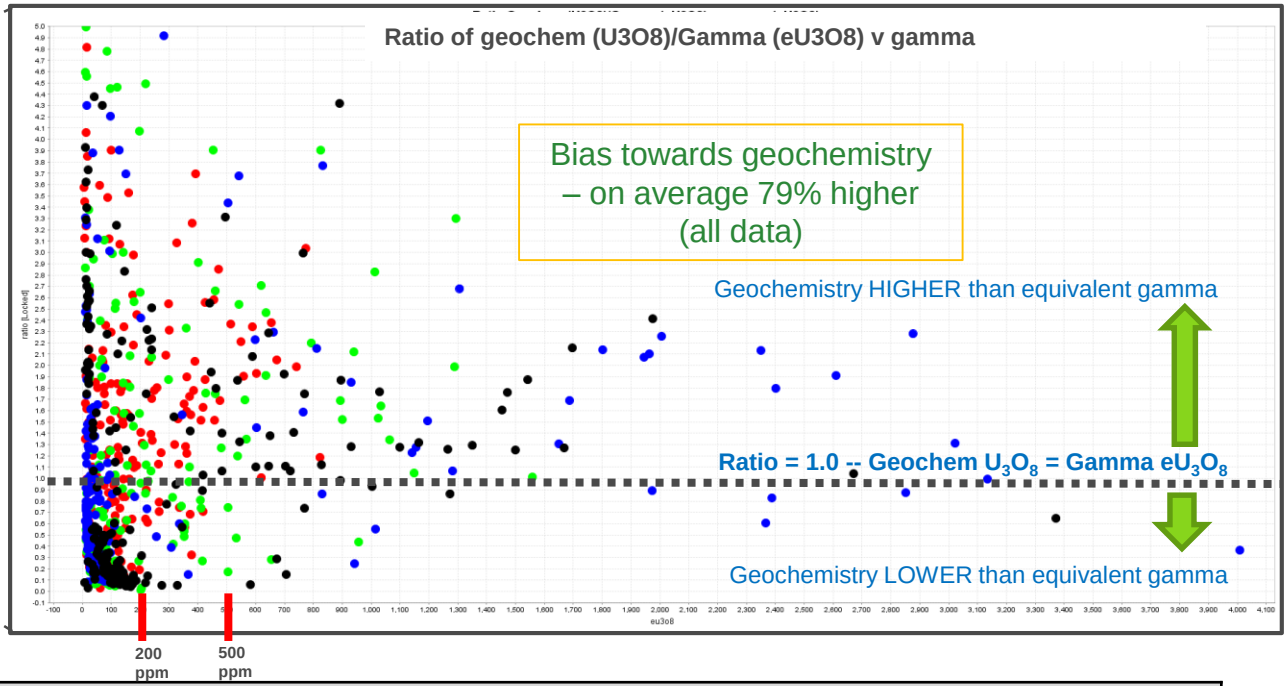


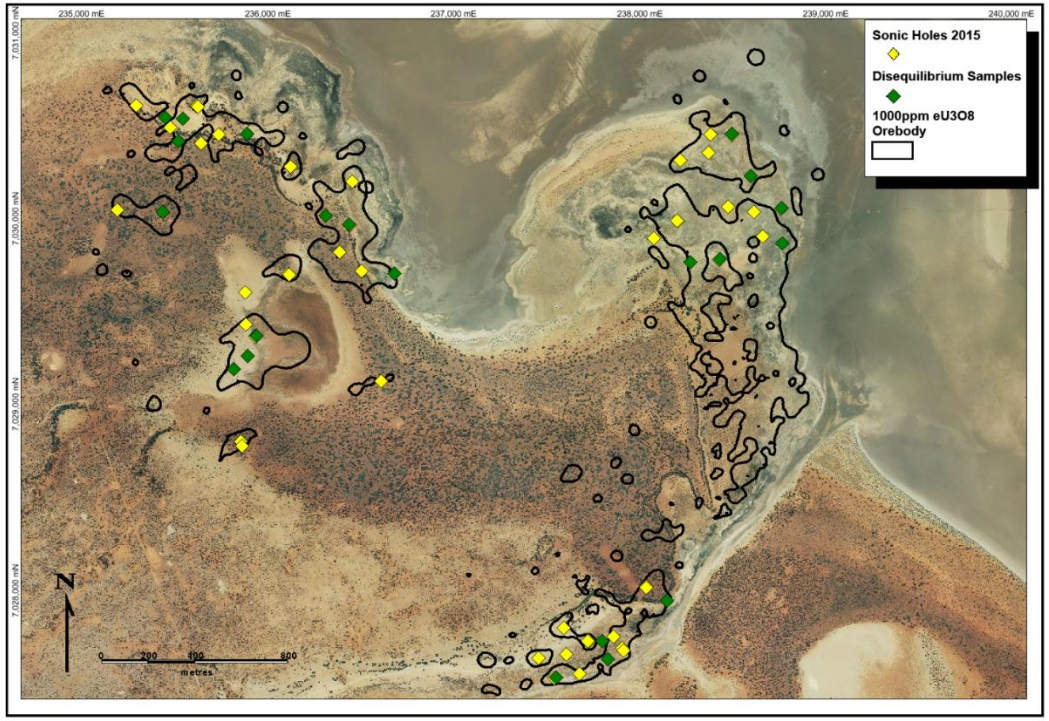
Chart colour	Drill grid	Averages within various cut-offs									
		All data		80 ppm +		100 ppm +		200 ppm +		500 ppm +	
		Average eU3O8 (ppm)	Average Ratio Geochem/Gamma	Average eU3O8 (ppm)	Average Ratio Geochem/Gamma	Average eU3O8 (ppm)	Average Ratio Geochem/Gamma	Average eU3O8 (ppm)	Average Ratio Geochem/Gamma	Average eU3O8 (ppm)	Average Ratio Geochem/Gamma
blue	Millipede	329	2.35	973	2.14	1173	2.39	1332	2.54	1622	1.86
green	Centipede	209	1.64	347	1.85	394	1.84	542	1.92	841	1.68
red	Lake Way	171	1.62	249	1.66	278	1.57	393	1.69	620	2
black	Lake Maitland	301	1.56	453	1.2	494	1.23	794	1.42	1087	1.45
	ALL 4 grids	253	**1.79**	446	**1.65**	505	**1.65**	736	**1.85**	1162	**1.69**

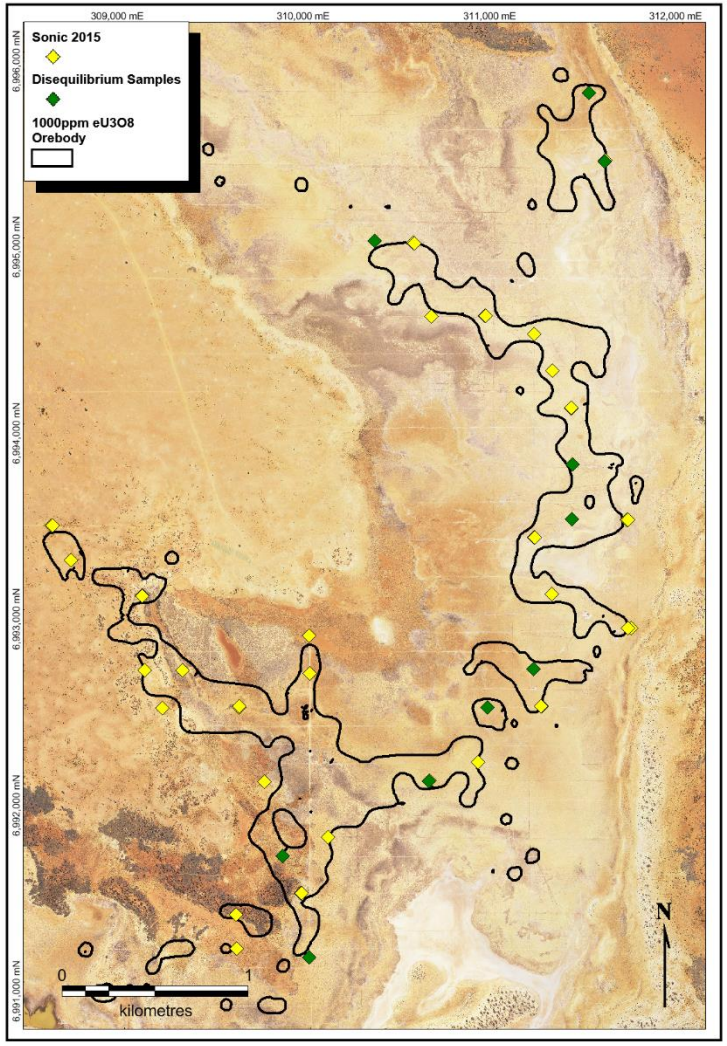
2015 DRILLING

2015 drilling targeted the geochemistry v gamma probe difference.

Only sonic core drilling in high grade regions of Centipede/Millipede and Lake Maitland – with spatial coverage.

Selected geochemistry samples sent for secular equilibrium analysis at ANSTO.

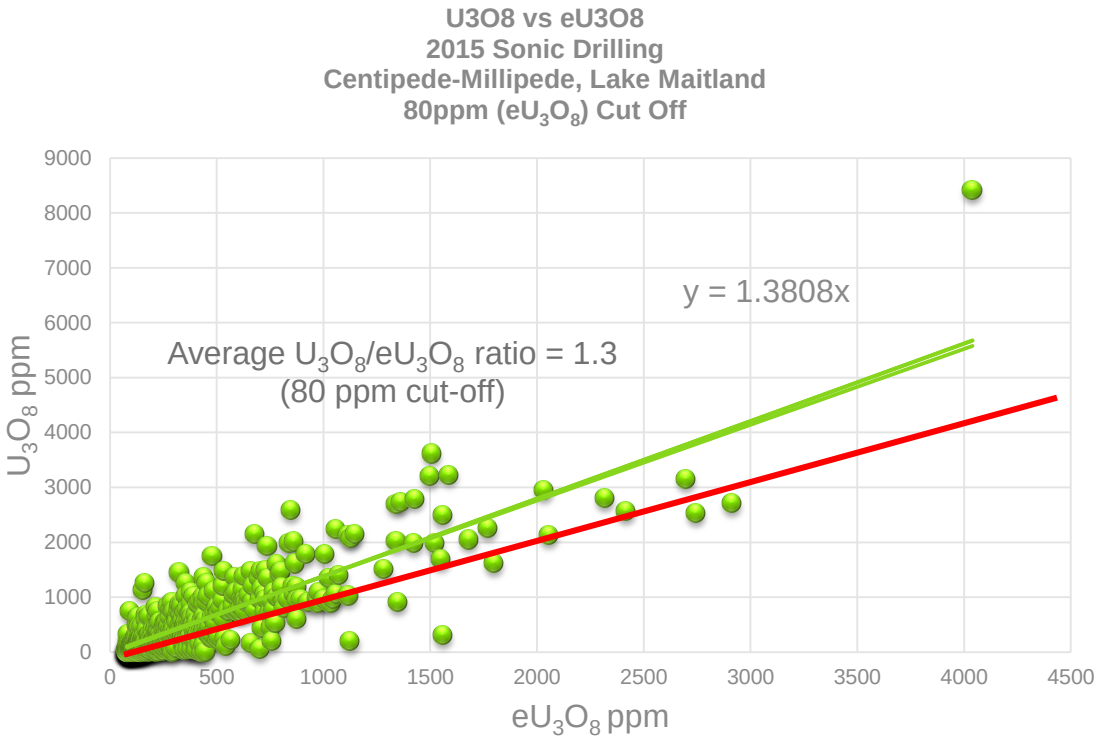


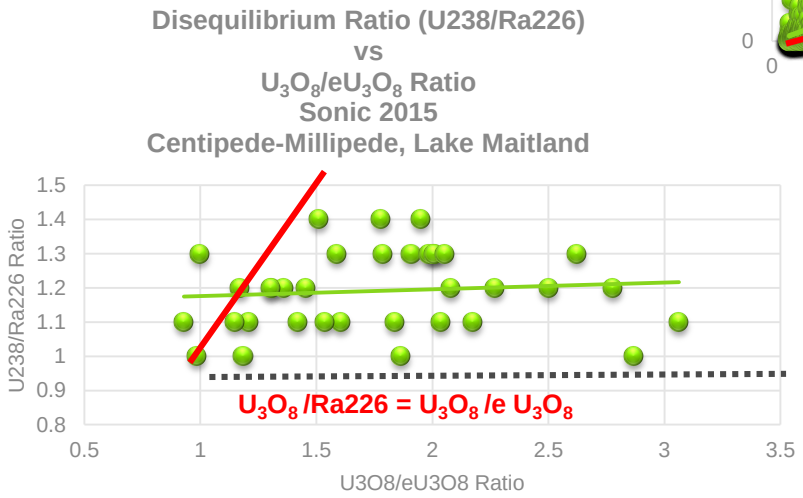


2015 GEOCHEMISTRY V GAMMA

Comparing 0.5m full sonic core geochemistry samples to the equivalent 0.5m composited de-convolved gamma data revealed a definitive bias towards geochemistry across all deposits drilled and sampled.

ANSTO closed can analysis showed that secular disequilibrium was not responsible for the bias – no relationship.





The gamma probe seemed to be genuinely underestimating grade.

ERROR? THE PROBE OR OPERATOR?

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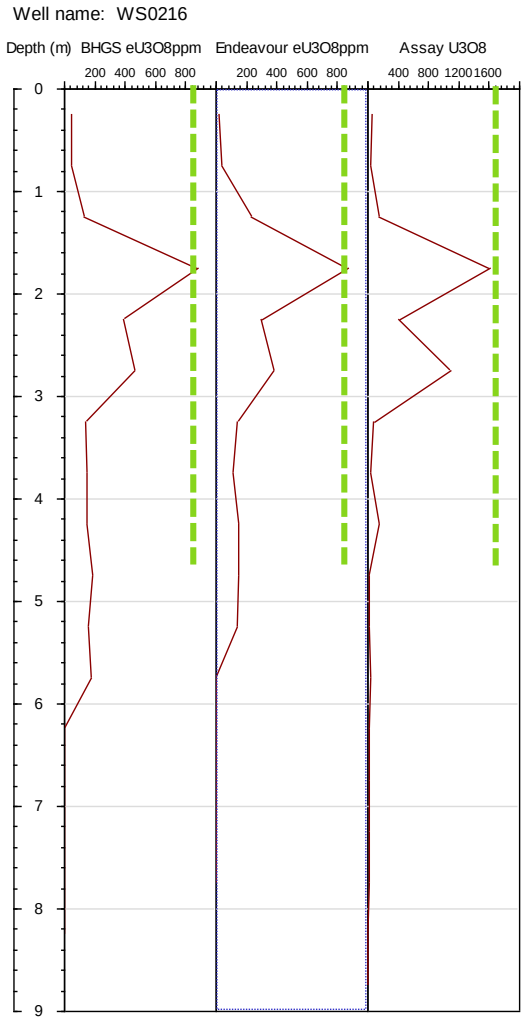
A second operator with a different probe proved there were no errors due to operators or gamma probes.

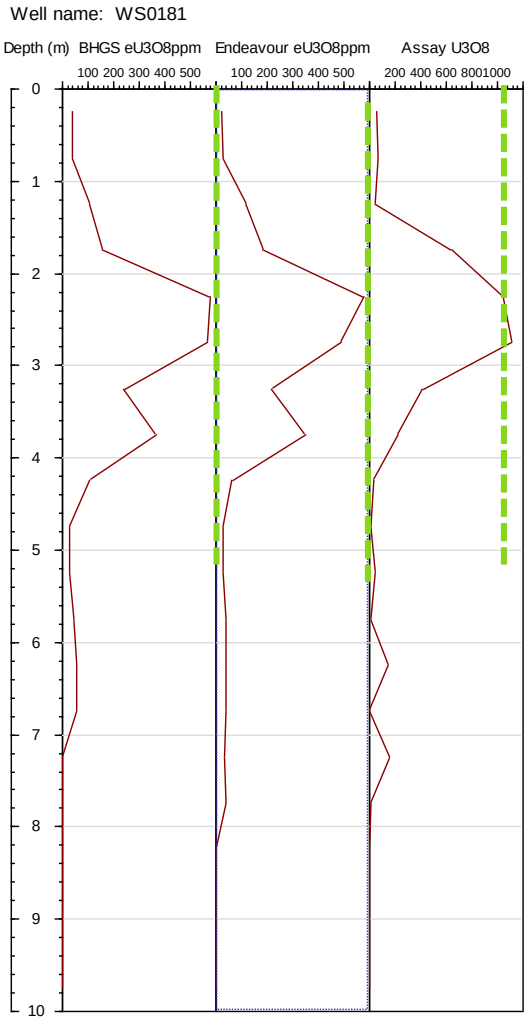


Endeavour Probe :

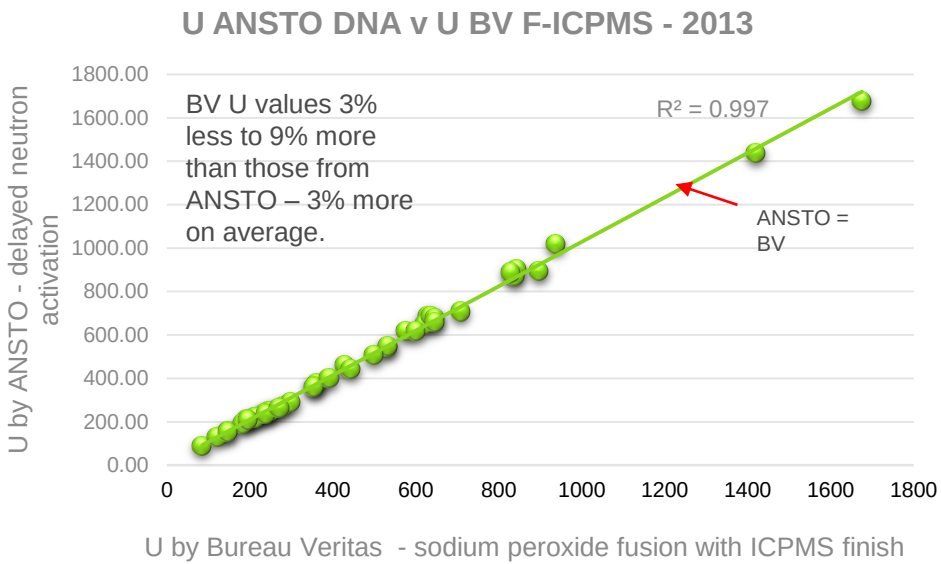
Endeavour Slim Gamma

BHGS Probe :

Gamma SN019



ERROR? ANALYTICAL TECHNIQUE?



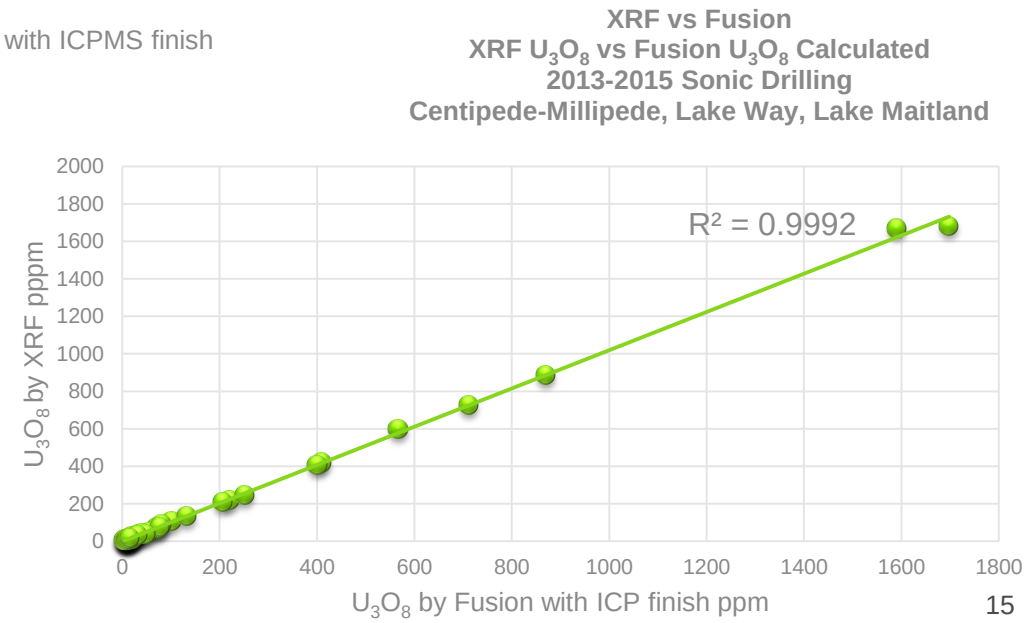
Standard geochemical analytical technique used at Toro is sodium peroxide fusion with an ICPMS finish.

Toro apply lab checks (Curtain Uni and Genalysis) as well as analytical technique checks on their standard methods.

A number of different analytical techniques have been tested on the same samples to check for analytical bias.

Excellent correlation and almost no bias found.

(XRF derived U around 5% higher than fusion-ICPMS from same lab)



ERROR? SAMPLING DEPTH?

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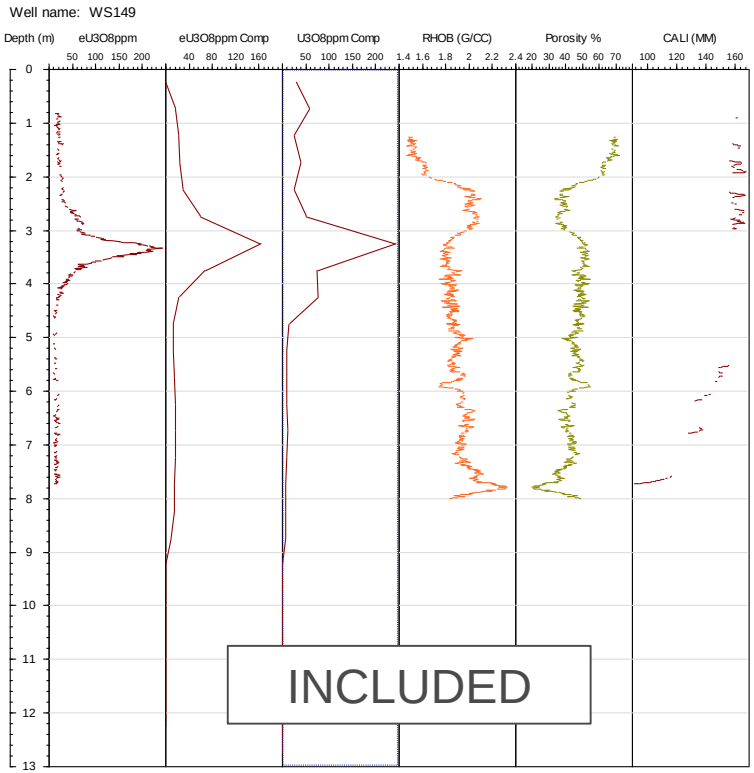
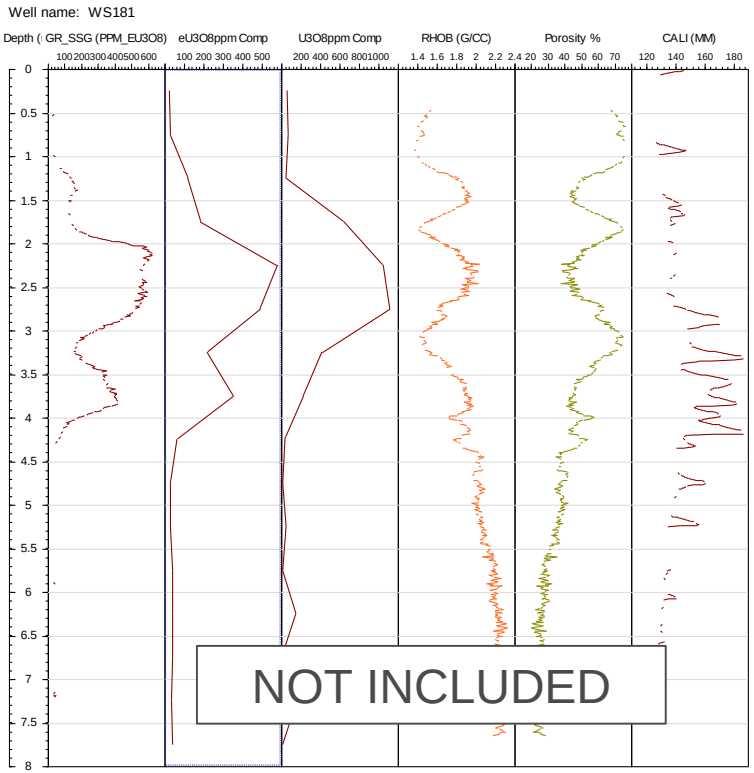
Differences in sampling depth and lengths proved to be a real issue for comparing the geochemistry to gamma

In zones of multiple peaks, the 0.5m geochemical sample (sampled through from surface) does not accurately sample the 'peaks' and troughs' of the mineralised zone according to the gamma probe 2cm trace.

Data had to be 'cleaned' so that comparisons were of definitive mineralised lenses only – no 'mismatches'





RESULT OF FILTERING OUT SAMPLING DEPTH ERROR – CENTIPEDE/MILLIPEDE DEPOSIT

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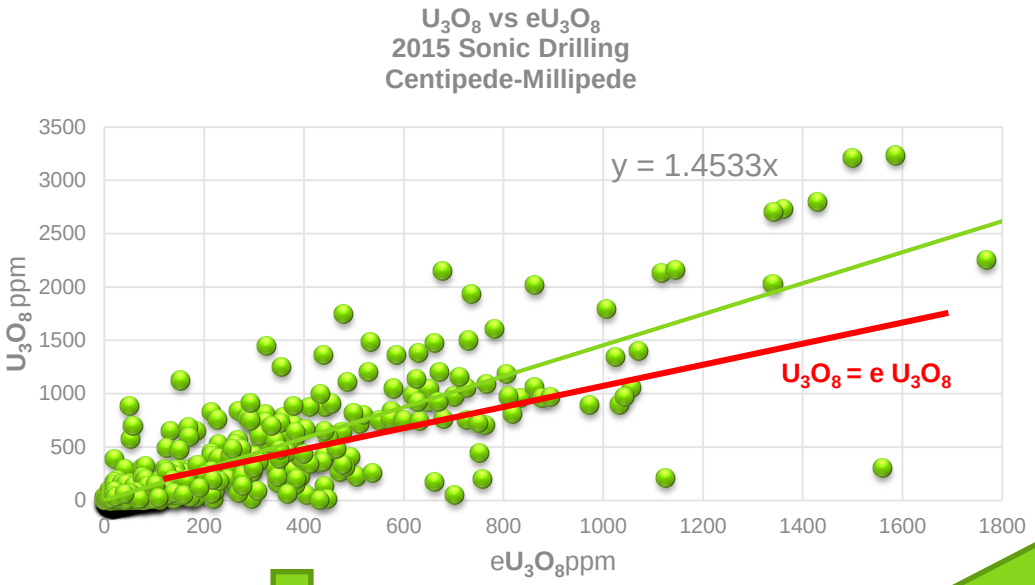
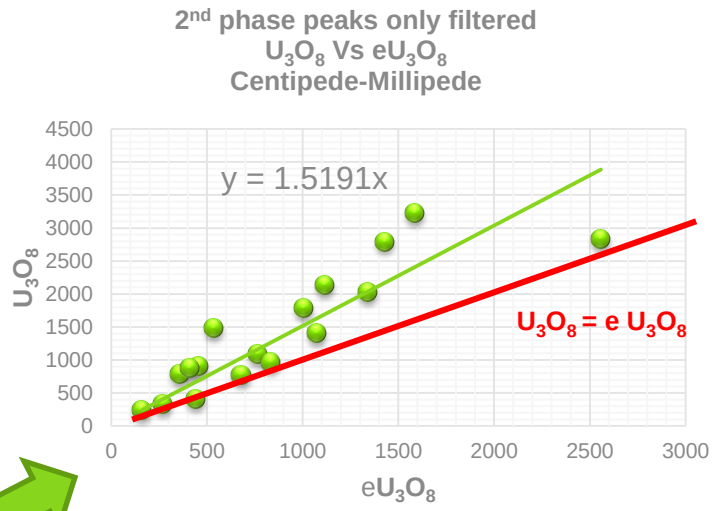
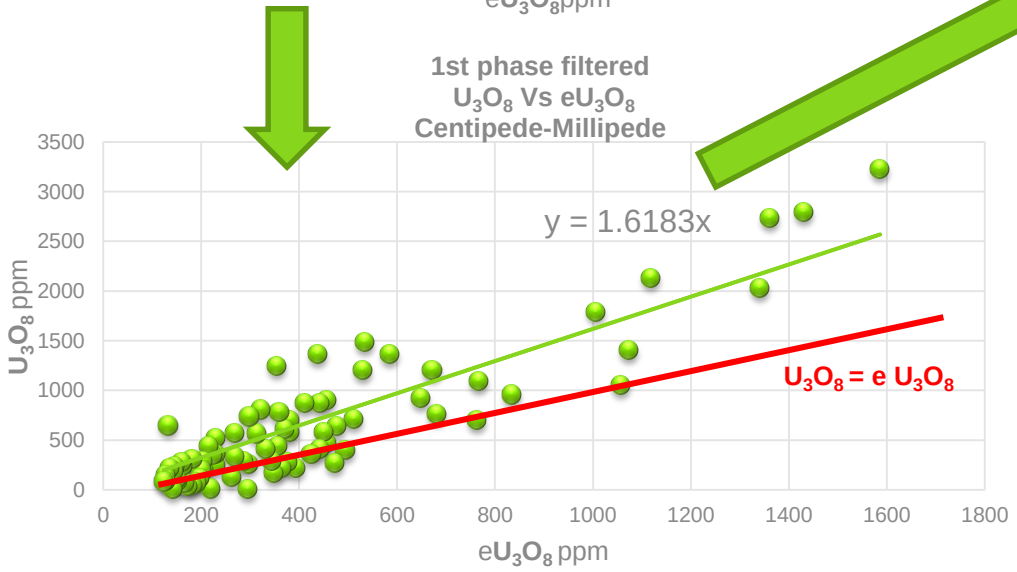




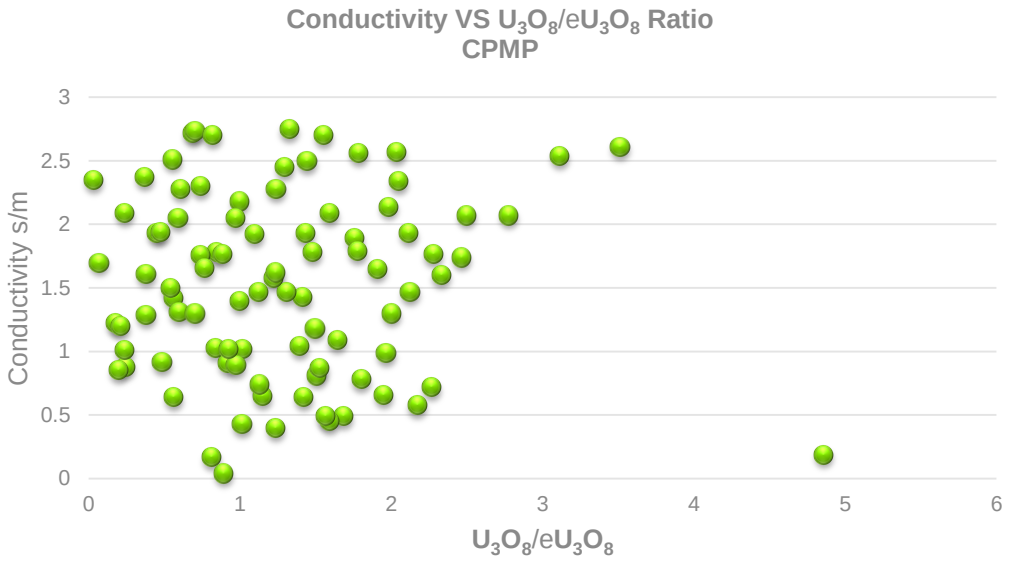


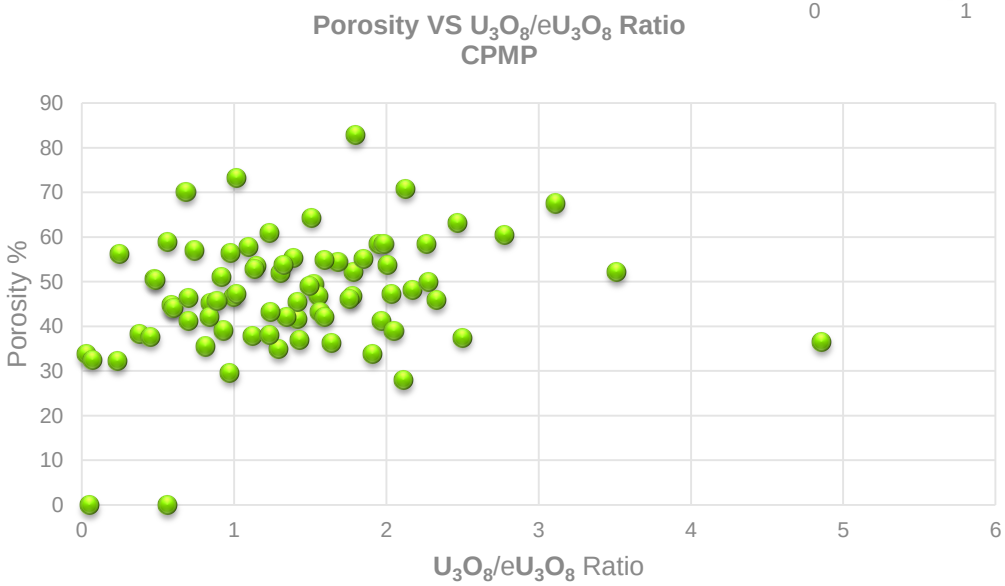
NO CHANGE
Trend becomes more defined

IS THERE A NATURAL CONTROLLING FACTOR?

The observation is real – the gamma probe is underestimating uranium content - currently trying to work out why.

Using the 1st phase 'cleaned' sample set for Centipede/Millipede only and checking for relationships with conductivity and porosity for possible links to groundwater, groundwater salinity or clay content.





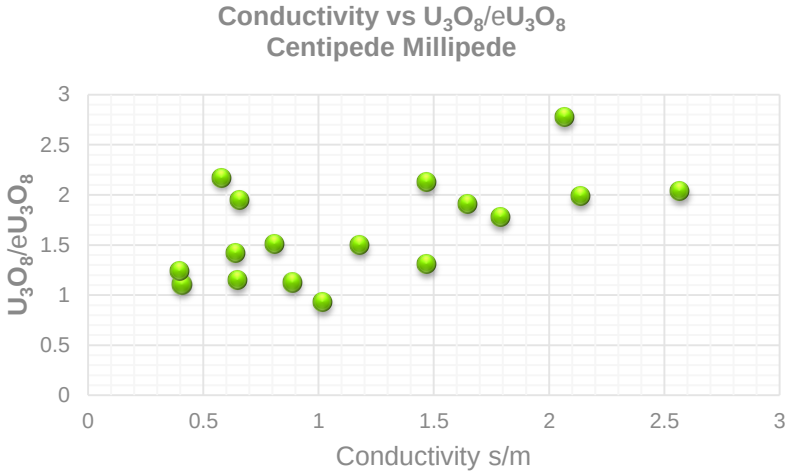
Doesn't seem to be any association at all.

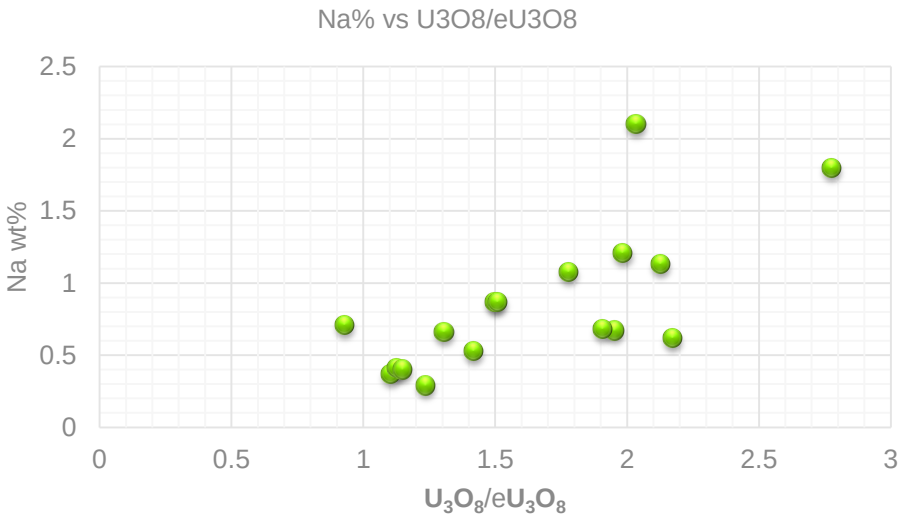
MINERALISED PEAK ONLY ANALYSIS
GROUNDWATER/CLAY RELATIONSHIP?

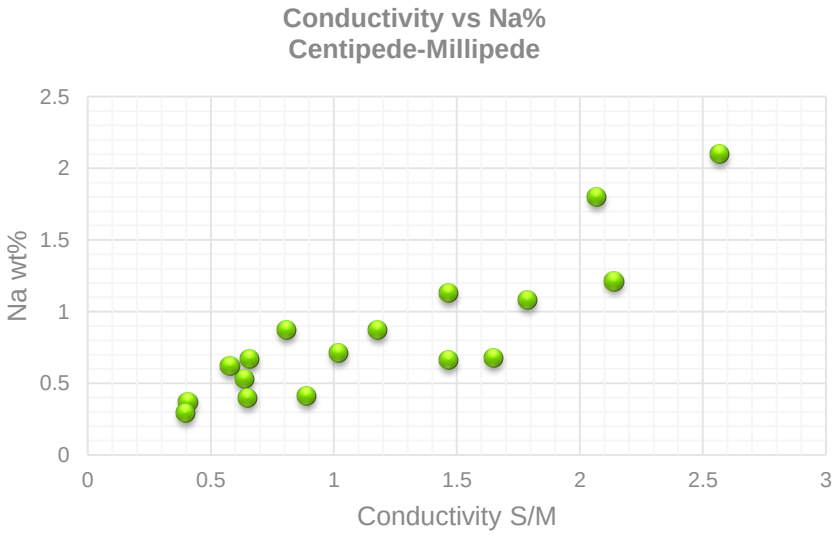
Filtering one step further – the mineralised peak only subset – there does seem to be a potential relationship to conductivity and wt% Na in the geochemistry samples.

No relationship with any other element or physical parameter.

Is this a relationship to groundwater salinity or clay content?







SPATIAL ANALYSIS - BLOCK MODELLING THE RATIO

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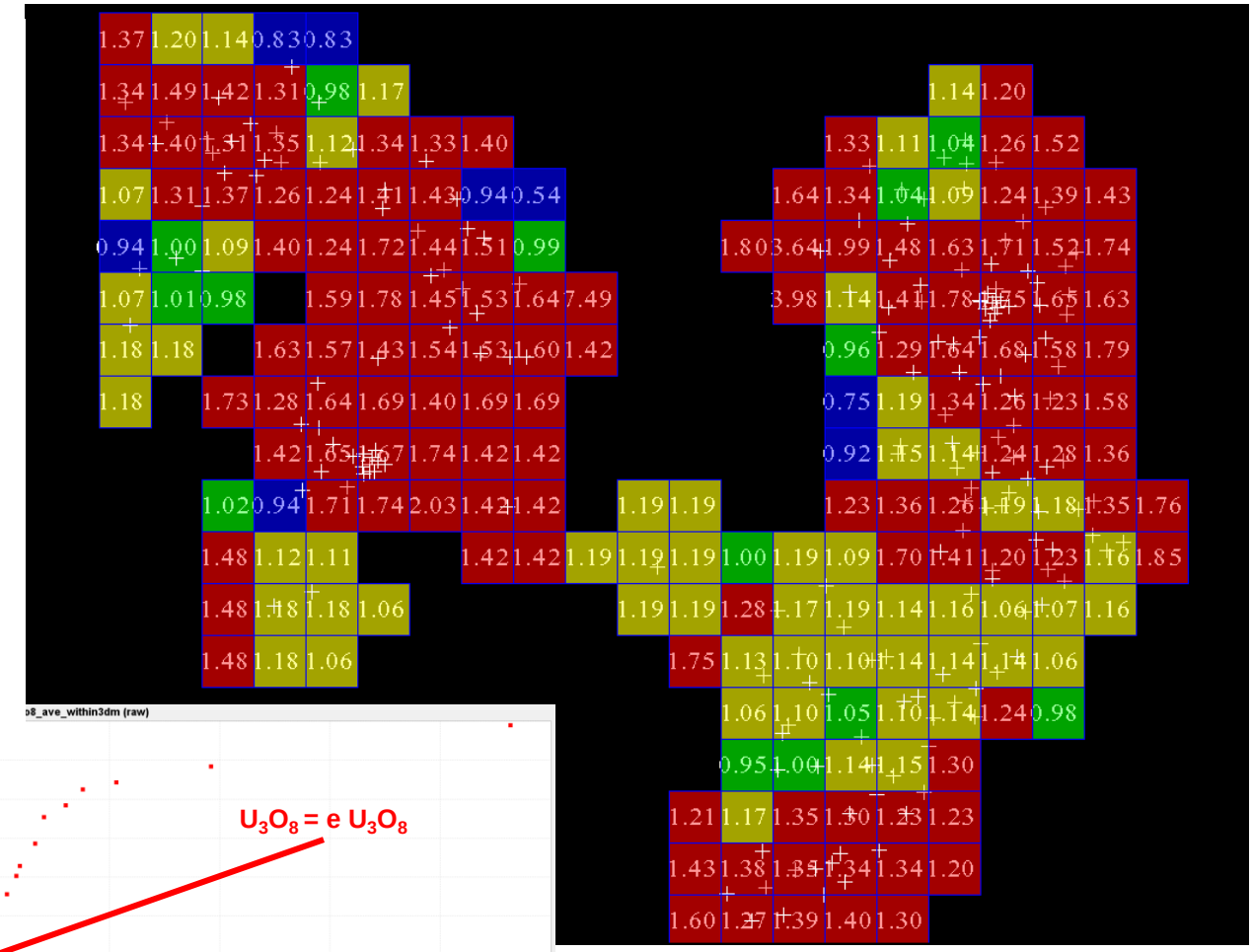
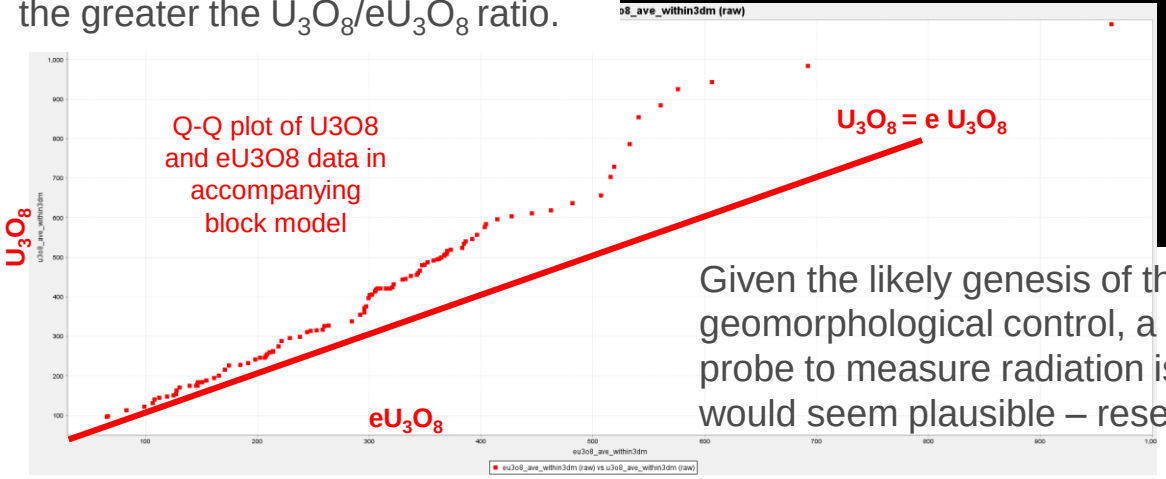
Spatial relationship seems to exist when block modelling the ratio of the average of U_3O_8 and eU_3O_8 for all holes within a 250 m search ratius from the centroid of a 200 x 200 m block (infinite thickness, 200x200m blocks)

Geomorphological combined with salinity?

Q-Q plot of this data using both grades that form the ratio suggests there may also be a grade relationship, the higher the grade, the greater the U_3O_8/eU_3O_8 ratio.





Given the likely genesis of these deposits and strong geomorphological control, a conclusion that the ability of the gamma probe to measure radiation is being hindered by groundwater salinity would seem plausible – research is ongoing

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Thanks again to….

SRK
Endeaver Geophysics
BHGS
Groundwave Drilling
All geologists and field assistants working on site over the 2015 drilling campaign

GROW WITH US

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RESOURCES – WILUNA URANIUM PROJECT JORC 2012

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Wiluna Uranium Project Resources Table (JORC 2012)									
		Measured		Indicated		Inferred		Total	
		200ppm	500ppm	200ppm	500ppm	200ppm	500ppm	200ppm	500ppm
Centipede / Millipede	Ore Mt's	4.9	1.9	12.1	4.5	2.7	0.4	19.7	6.8
	Grade ppm	579	972	582	1,045	382	887	553	1,021
	U_3O_8 Mlb's	6.2	4.2	15.5	10.3	2.3	0.9	24.0	15.3
Lake Maitland	Ore Mt's	-	-	22.0	8.2	-	-	22.0	8.2
	Grade ppm	-	-	545	929	-	-	545	929
	U_3O_8 Mlb's	-	-	26.4	16.9	-	-	26.4	16.9
Lake Way	Ore Mt's	-	-	10.3	4.2	-	-	10.3	4.2
	Grade ppm	-	-	545	883	-	-	545	883
	U_3O_8 Mlb's	-	-	12.3	8.2	-	-	12.3	8.2
Sub-total	Ore Mt's	4.9	1.9	44.3	16.9	2.7	0.4	52.0	19.2
	Grade ppm	579	972	555	948	382	887	548	951
	U_3O_8 Mlb's	6.2	4.2	54.2	35.3	2.3	0.9	62.7	40.4
Dawson Hinkler	Ore Mt's	-	-	8.4	0.9	5.2	0.3	13.6	1.1
	Grade ppm	-	-	336	596	282	628	315	603
	U_3O_8 Mlb's	-	-	6.2	1.1	3.2	0.4	9.4	1.5
Nowthanna	Ore Mt's	-	-	-	-	13.5	2.6	13.5	2.6
	Grade ppm	-	-	-	-	399	794	399	794
	U_3O_8 Mlb's	-	-	-	-	11.9	4.6	11.9	4.6
Total	**Ore Mt's**	**4.9**	**1.9**	**52.7**	**17.8**	**21.4**	**3.3**	**79.0**	**23.0**
	Grade ppm	**579**	**972**	**520**	**931**	**368**	**765**	**482**	**916**
	U_3O_8 Mlb's	**6.2**	**4.2**	**60.4**	**36.4**	**17.4**	**5.5**	**84.0**	**46.4**

Refer to JORC Table 1 presented in ASX Release of February 2nd 2016 for details on how these resources are estimated, competent persons statements on the following slide.

Competent Persons' Statement

Wiluna Project Mineral Resources – 2012 JORC Code Compliant Resource Estimates – Centipede, Millipede, Lake Way, Lake Maitland, Dawson Hinkler and Nowthanna Deposits

The information presented here that relates to Mineral Resources of the Centipede, Millipede, Lake Way, Lake Maitland, Dawson Hinkler and Nowthanna deposits is based on information compiled by Dr Greg Shirtliff and Mr Sebastian Kneer of Toro Energy Limited and Mr Daniel Guibal of SRK Consulting (Australasia) Pty Ltd. Mr Guibal takes overall responsibility for the Resource Estimate, and Dr Shirtliff takes responsibility for the integrity of the data supplied for the estimation. Dr Shirtliff is a Member of the Australasian Institute of Mining and Metallurgy (AusIMM) and Mr Guibal is a Fellow of the AusIMM and they have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity they are undertaking to qualify as Competent Persons as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012)'. The Competent Persons consent to the inclusion in this release of the matters based on the information in the form and context in which it appears.