Samphire Uranium Project

Paydirt 2013 Uranium Conference

Monday 29 April 2013, Adelaide, South Australia

UraniumSA

Disclaimer

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The interpretations and conclusions presented herein are based on technical information and geological theory available to the Company and on materials provided to the market in releases to the Australian Securities Exchange which are available from the web sites of UraniumSA and Australian Securities Exchange (ASX). It is the nature of all scientific interpretations and conclusions that they are founded on an assessment of probabilities and there is no claim of complete certainty made and assumptions concerning the possible progress of exploration and development are conjectural.

The results reported herein, insofar as they relate to Mineral Exploration activities, are based on information complied by Russel Bluck a Member of the Australian Institute of Geoscience and employee of UraniumSA Limited with sufficient experience relevant to the style of mineralisation and type of deposits being considered and to the activity undertaken to qualify as a Competent Person as defined by the 2004 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code, 2004 Edition). He consents to the inclusion in the report of matters based on his information in the form and context in which it appears.

The results mentioned above or given elsewhere in this presentation are preliminary and it should not be assumed that further exploration will result in an increase in Mineral Resources or the future development of a mining operation.

The technical terms and usage in this presentation are the same as those of the UraniumSA Limited report to the ASX for the September 2012 quarter and the reader is referred to that document which is available from either the UraniumSA Limited website at uraniumsa.com.au or from the ASX website.

Corporate Profile

Issued Securities

147.27m	ordinary shares
8.8m	unlisted options
5.5m	directors options

Market Cap

$5.9	(A$m @ $0.004)

2013 trading

$0.075 high	$0.036 low
1.8m	avg vol per month

1 year price range

$0.12 high	$0.036 low

Shareholder statistics

total 1937
top 20 hold 45.38 %
top 50 hold 56.97 %

Top 10 shareholders as at 11 Apr 13

		Shares	%
1	J P MORGAN NOMINEES AUS	18,127,530	12.31
2	HSBC CUSTODY NOMINEES	6,089,674	4.13
3	NATIONAL NOMINEES LIMITED	4,790,354	3.25
4	MR DENNIS JUN TOW	4,781,000	3.25
5	ESCOR INVESTMENTS PTY LTD	4,700,000	3.19
6	BLUCK HOLDINGS PTY LTD	4,634,233	3.15
7	HILTABA GOLD PTY LTD	3,888,238	2.64
8	MONEX BOOM SECURITIES (HK) LTD	2,671,021	1.81
9	MERRIWEE PTY LTD	2,555,000	1.73
10	BAYSTREET PTY LTD	2,450,174	1.66

Shareholder categories as at 11 Apr 13

	Shares	%	
Aust Institutions	14,807,420	10.1	
O/Seas Institutions	19,476,808	13.2	
Corporates	8,288,238	5.6	28.9
Directors	7,195,400	4.9	33.8
Large Private (>0.5m)	31,310,991	21.3	
Others	66,195,899	44.9	
Total	147,274,756	100.0	

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Location
Only South Australia

South Australia
high uranium endowment

SAMPHIRE PROJECT
Blackbush and Plumbush deposits

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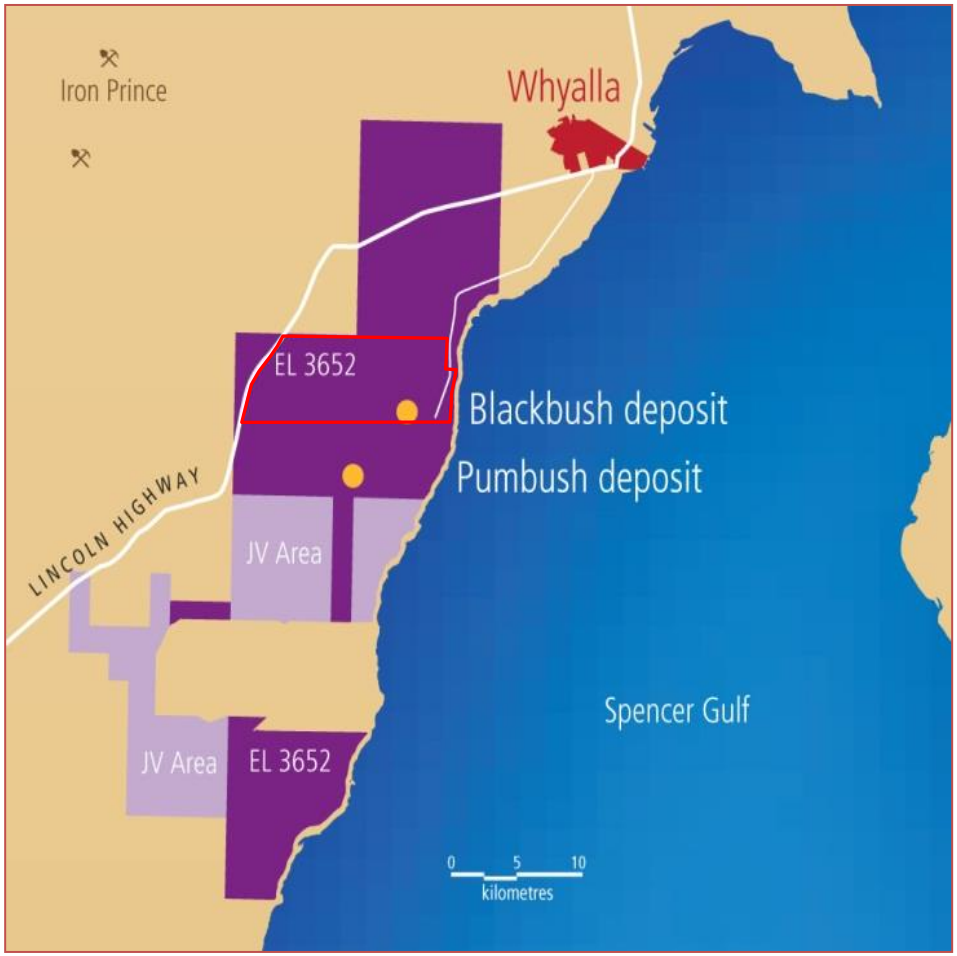
Location
Samphire project



South Australia
stable regulatory regime

City of Whyalla
mining heritage and industry

Infrastructure
industrial water, power, roads

Perpetual Lease
land title extinguishes Native Title while Cultural Heritage continues

Samphire Uranium
own the land at Blackbush

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Positioned to Prosper

drilled out mineralisation with development and exploration upside

Blackbush **deposit** has development pathways to production

1. Geotechnical parameters are well known and will determine the selection of the mining method which will provide optimal return on investment
2. High grade mineralisation in the Western Zone (~1,000ppm) with potential for more discovery
3. **Grade is King** – varying the cut-off grade significantly improves average grade and provides development flexibility

Plumbush deposit drill out should increase the asset base of sediment-hosted mineralisation within the Samphire project

Exploration upside is real and achievable with

1. repetitions of the known styles of sediment-hosted mineralisation
2. high-grade mineralisation at the unconformity
3. granite-hosted uranium mineralisation

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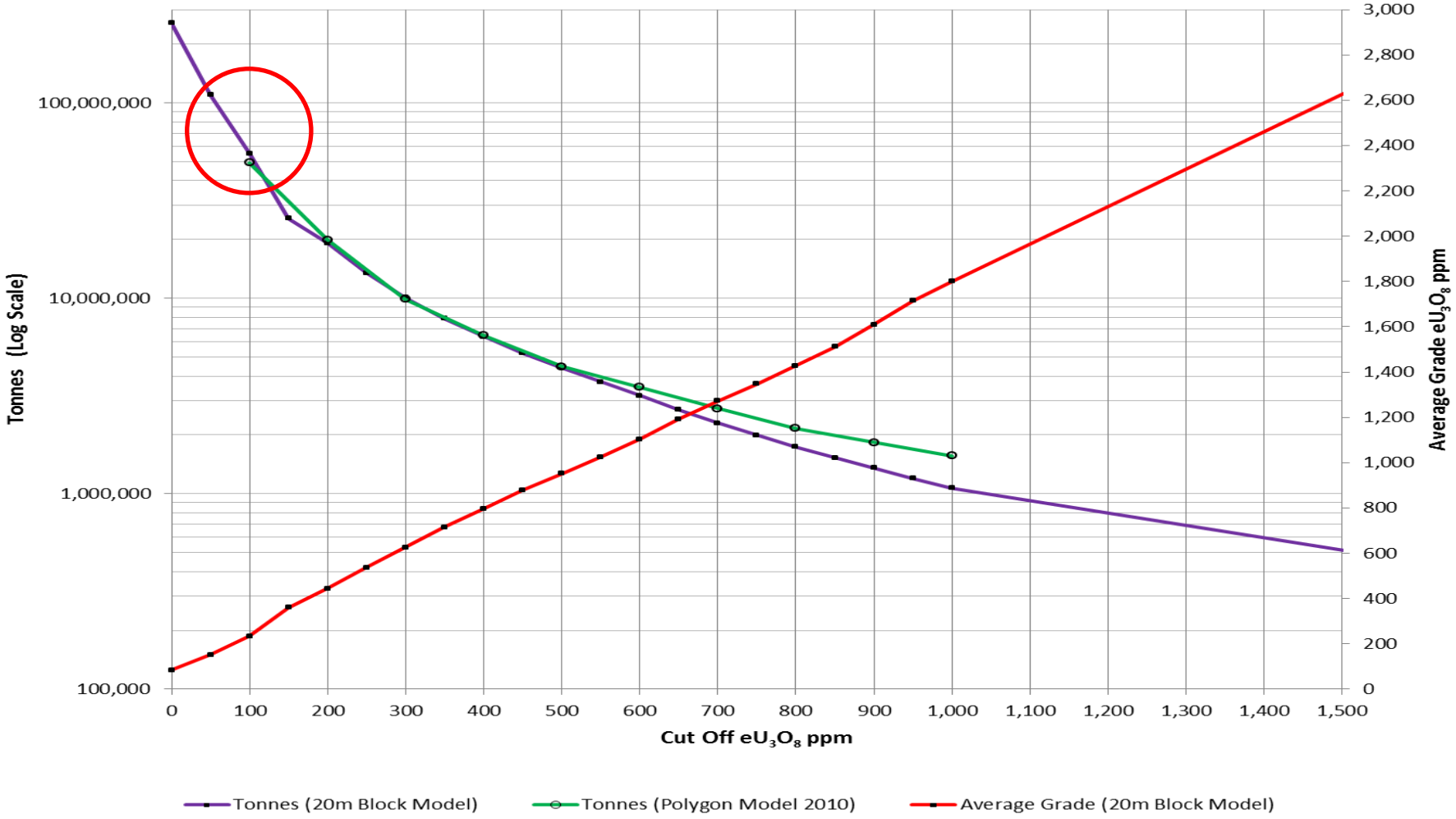
Blackbush deposit

tonnes/grade curve – a well defined deposit



The original polygonal method and current block model give similar results at the 100ppm cut-off giving confidence in the geological and other assumptions which have been used

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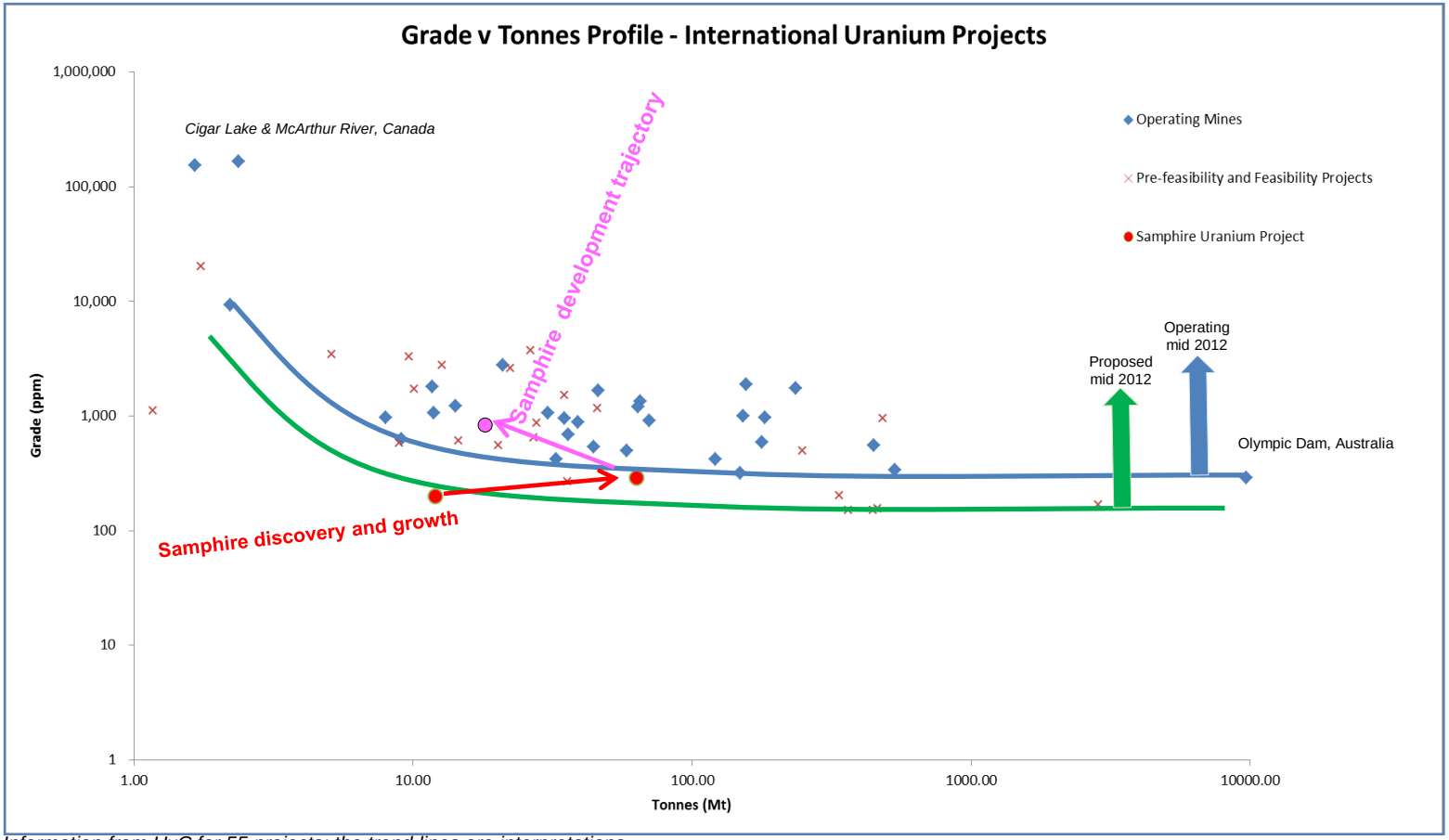
Samphire project

Growing tonnes and grade – our focus since mid-2011



Information from UxC for 55 projects: the trend lines are interpretations

there are more tonnes to be discovered, there is real grade flexability

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Established Assets and Opportunity

drilled out mineralisation – the story so far

2007 December	Discovery
2009 May	**Blackbush** Inferred Resource 12Mt at **200ppm** avg eU_3O_8
2011 April	Samphire project total Inferred Resource 67.2Mt at **284ppm** avg eU_3O_8 **Blackbush 280ppm**
2012 July	Samphire project total Inferred Resource 63.3Mt at **290ppm** whole resource avg eU_3O_8 **Blackbush 289ppm** whole resource avg eU_3O_8 **Blackbush 322ppm** sediment resource avg eU_3O_8

Drill out of the Plumbush deposit sediment-hosted mineralisation should increase the asset base of the Samphire project

NOTE. Inferred Resource estimates to JORC Code 2004, 100ppm eU_3O_8 cut-off, previously reported to ASX

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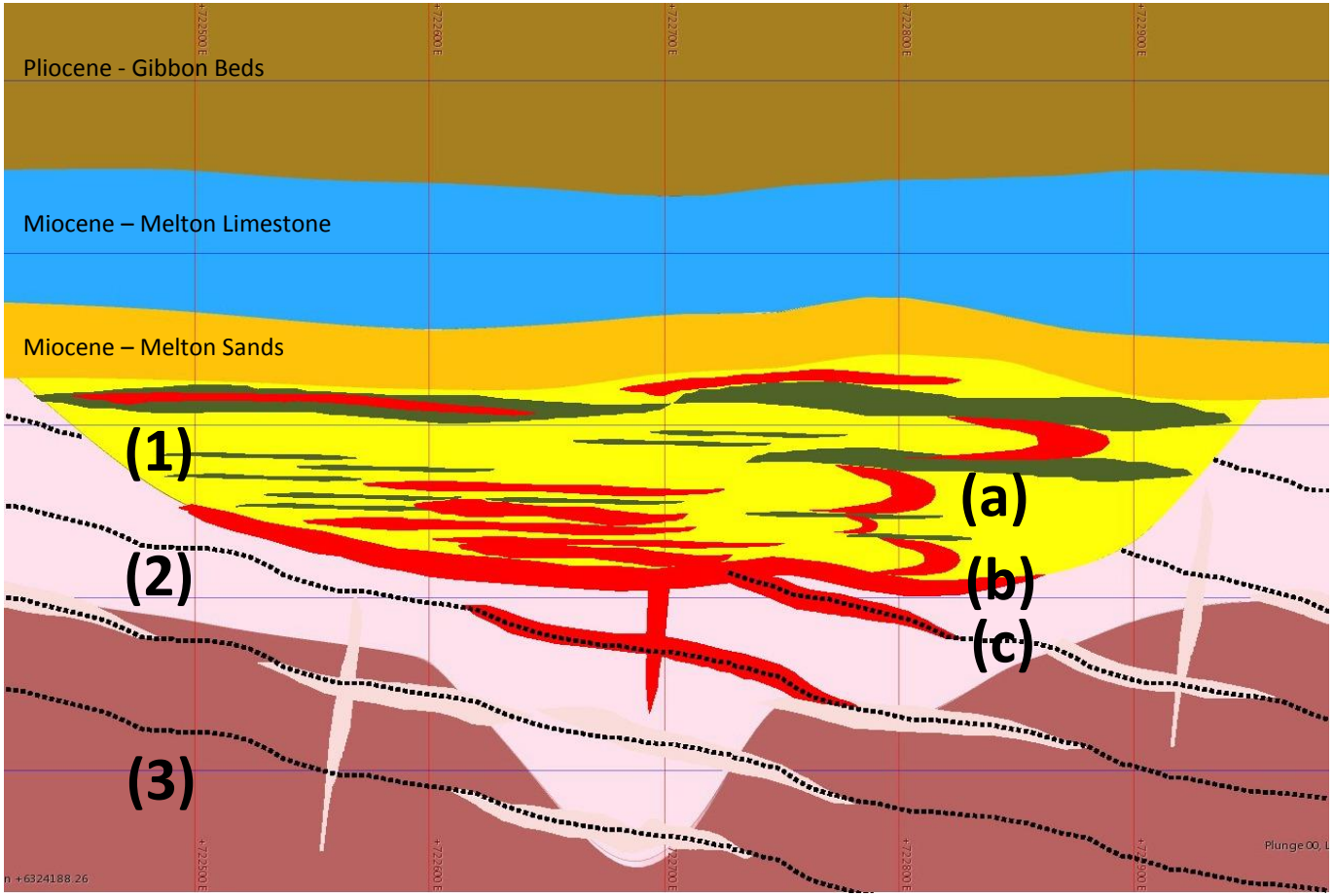
Blackbush deposit
geology of the mineralisation



Schematic cross section ~63243500N view north scale a shown

(1) Eocene Kanaka Beds
reduced sand, lignite

(2) clay cap on granite
saprolite/alteration

(3) Samphire granite
anomalous uranium

(4) Uranium mineralisation occurs (red)

(a) as normal roll-fronts

(b) in high-grade sheets on the unconformity

(c) in decompression structure in clay- granite

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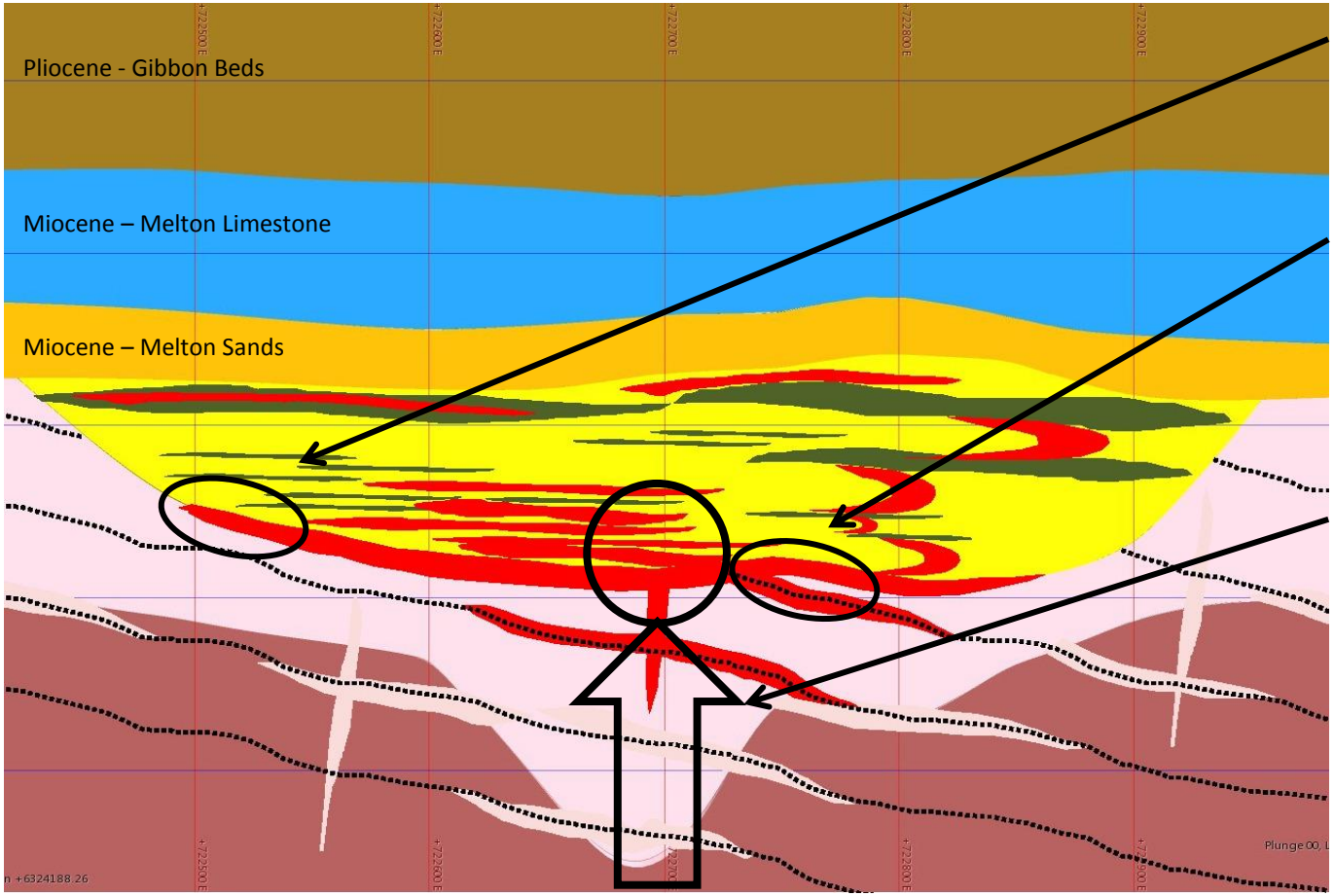
Emerging Opportunity

Blackbush deposit – more high-grade at the unconformity



Schematic cross section ~63243500N view north scale a shown

High grade mineralisation along the unconformity

Best grade-thickness discovered so far is near shallow-dipping structures in granite basement

Vertical epithermal fluorite vein sets in granite may represent favourable pathways for major unconformity deposition

The conceptual geological targets are podiform bodies 20-30m wide, 100-200m strike, >20m thick, grades >1% U_3O_8. None have been discovered

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Emerging Opportunity

Granite-hosted uranium mineralisation – the concept

Granite is the ultimate source of most uranium – at Samphire we have drilled potential ore grade in granite and there is the possibility of more and larger discoveries from targeted exploration

The theory is that **molten granites separate into "fractions"** and uranium (and other elements) can become concentrated – usually forming veins but also potentially accumulating as disseminated materials (large tonnage/low grade targets)

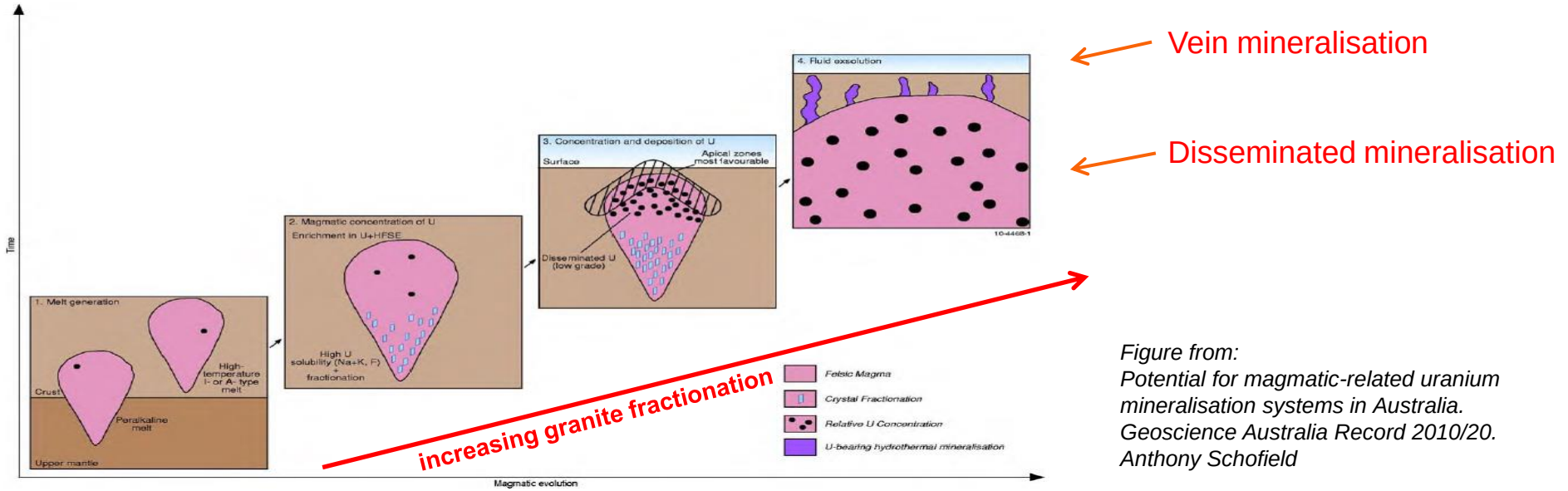

Figure from:
Potential for magmatic-related uranium mineralisation systems in Australia. Geoscience Australia Record 2010/20. Anthony Schofield

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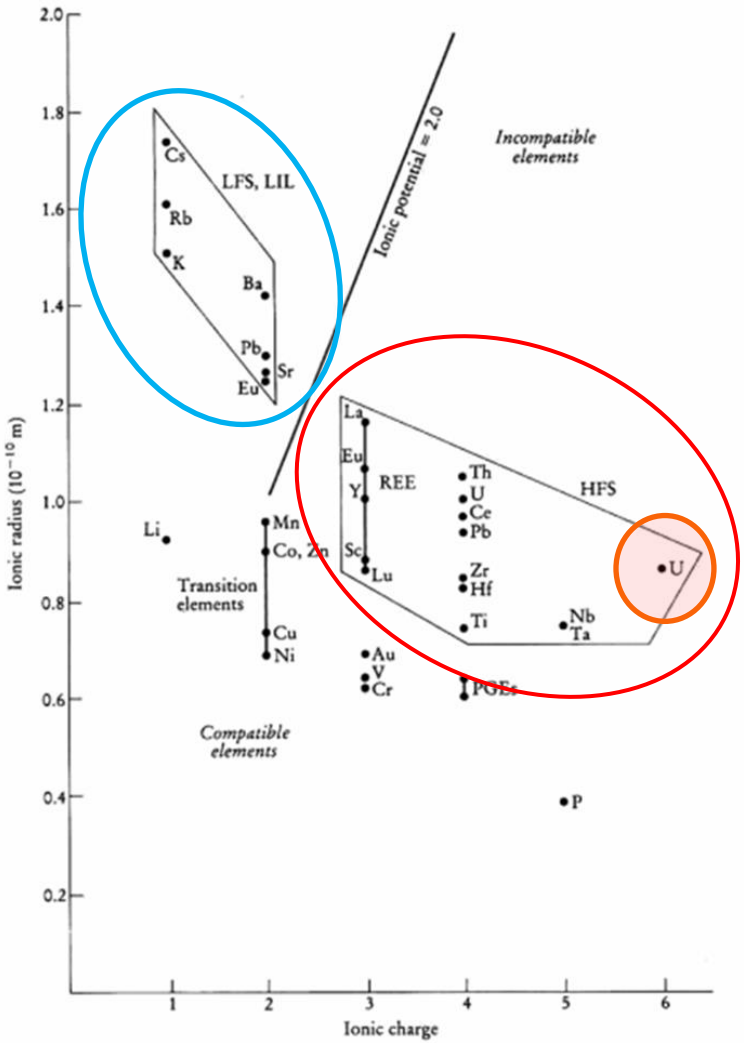
Granite-hosted uranium mineralisation
the theory



During fractional crystallisation of a granite magma some elements are concentrated in the melt phase

High Field Strength elements are concentrated into residual magma

Uranium is a HFS element

Large Ion Lithophile elements indicate fractionation trends

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Granite-hosted uranium mineralisation
the indicators

Granite with potential for concentration of uranium by fractionation will have

1. High content of **HFS elements (**high field strength elements)
2. Indicators of fractional crystallisation (**LIL elements**)
3. **Fluorine** to keep uranium available for late fractionates
4. A high **uranium** content

The Samphire granite has

1. HFS contents above the Hiltaba suite average
2. Positive LIL indicators with
   favourable K/Rb ratio of 125 (lower indicates more fractionation - Hiltaba ratio is 148)
   favourable Rb/Sr ratio of 6 (moderate is 1 & 10 is high fractionation - Hiltaba ratio is 11)
3. Fluorite as matrix dissemination and epithermal veins in granite
4. A uranium content twice the Hiltaba suite average

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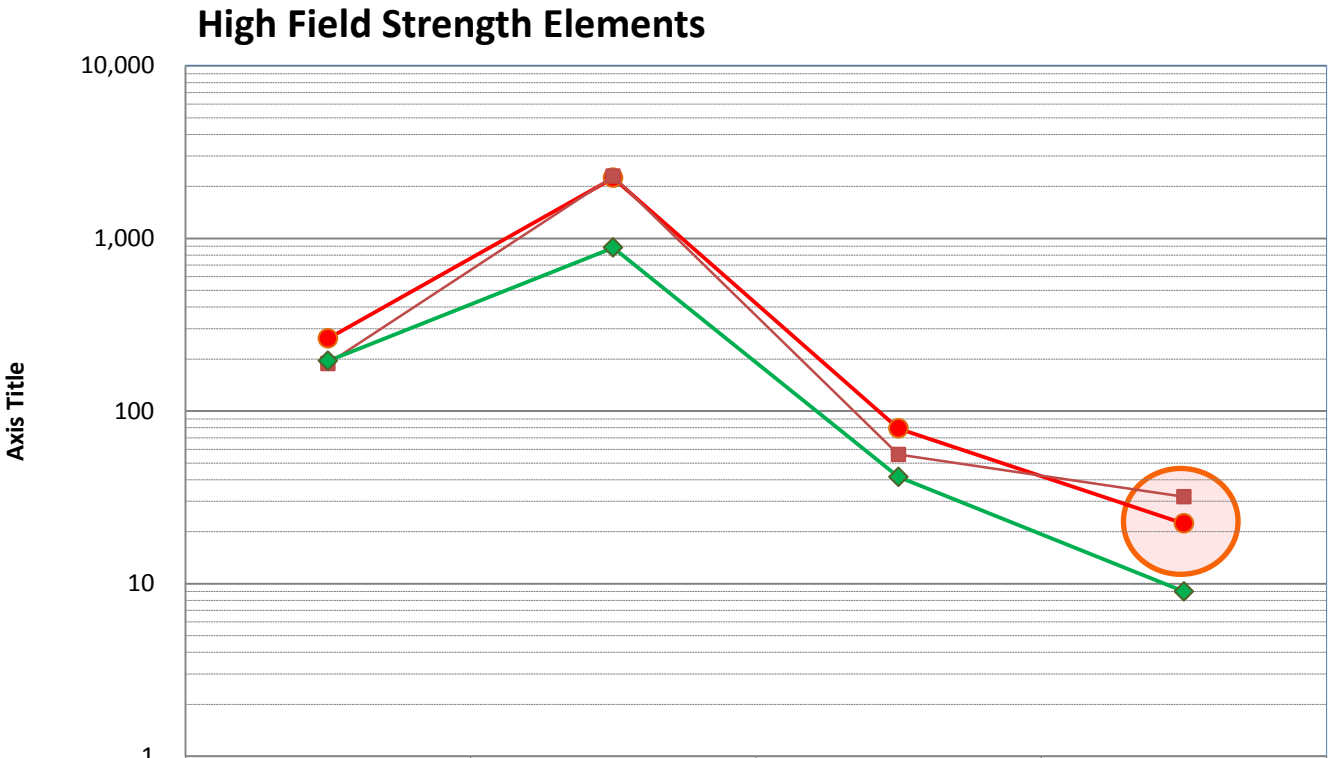
Granite-hosted uranium mineralisation

comparison to Hiltaba suite granite *(host to the Roxby Downs deposit)*



	Zr	Ti	Th	U
Samphire	263	2,238	79	22
Saprolite	188	2,287	56	32
Hiltaba	195	884	42	9

HFS elements
higher numbers in each element indicate more fractionation

Samphire granite HFS are above Hiltaba suite average

Samphire granite has a high average uranium endowment

Samphire granite
is Hiltaba suite age
(zircon ages, work in progress not formally reported)

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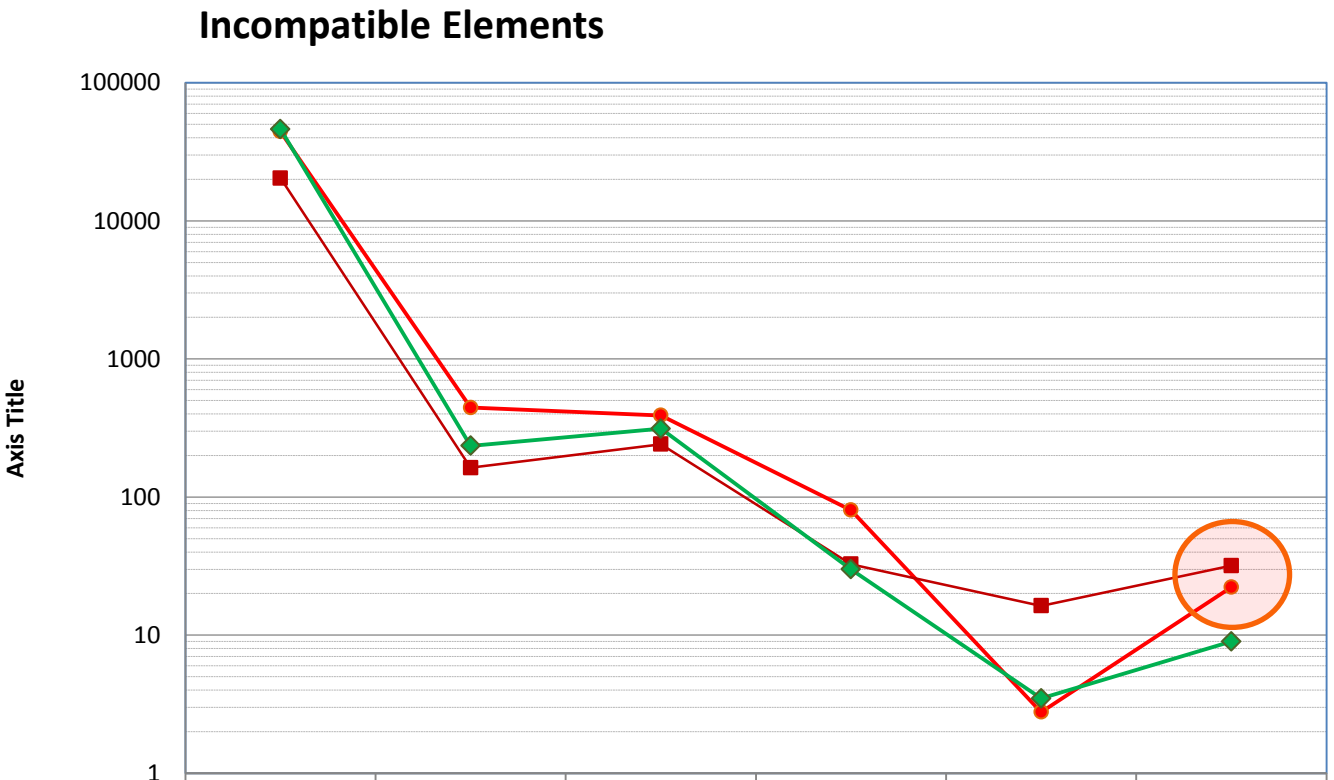
Granite-hosted uranium mineralisation

comparison to Hiltaba suite granite *(host to the Roxby Downs deposit)*



	K	Ba	Rb	Sr	Cs	U
Samphire	44384	445	390	80	3	22
Saprolite	20,395	163	241	33	16	32
Hiltaba	46,116	235	313	30	3	9

LIL elements
higher numbers in each element indicate more fractionation

Samphire granite
LIL elements higher than Hiltaba suite

And are associated with higher uranium

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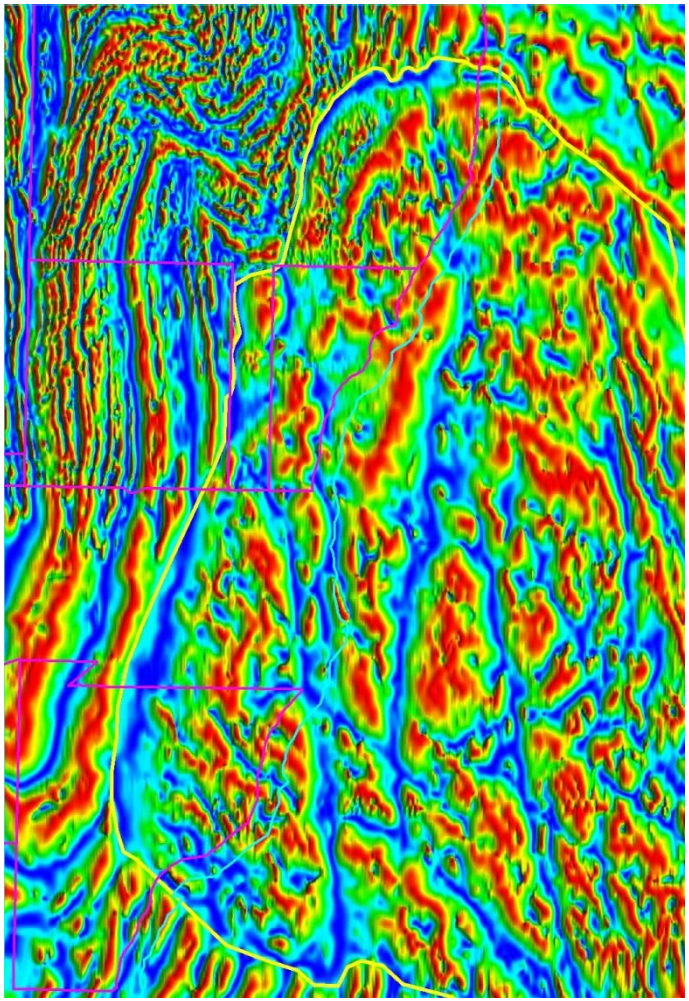
Granite-hosted uranium mineralisation

the Samphire granite – what we know and where it can lead



The Samphire granite is clearly delineated in aeromagnetic imagery (yellow outline) and is ~35km north-south

There is a complex history of sequential granite intrusion with both syn and post emplacement structures and alteration

UraniumSA hold EL tenure or JV rights over the available on-shore prospective ground

coast line is the light blue northeast to southwest trending line
tenure is the purple line
the Munyaroo Conservation Park is excluded

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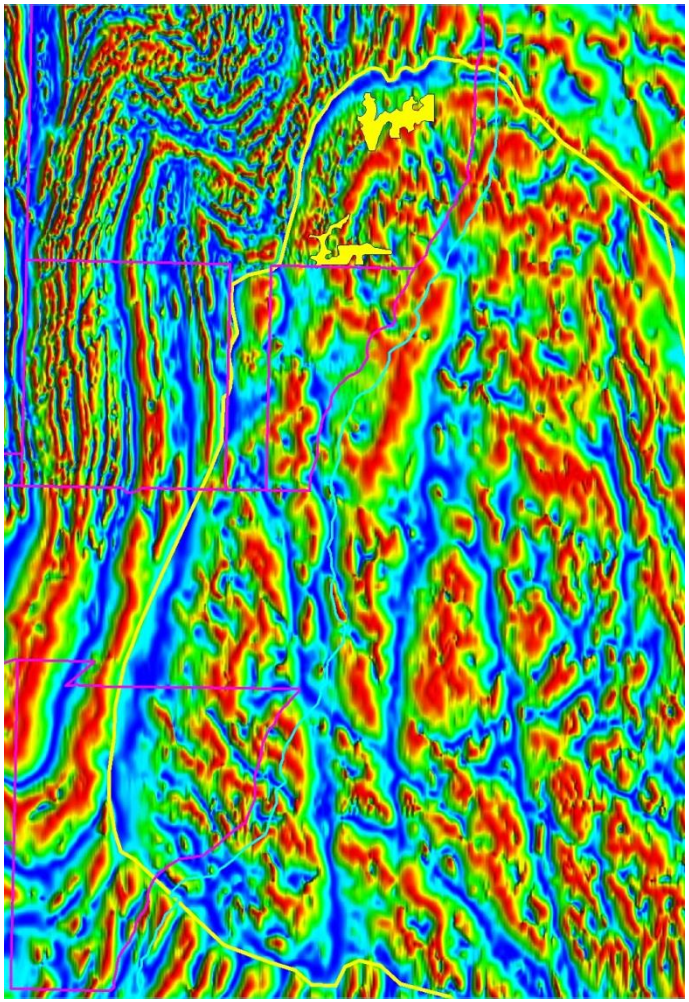
Granite-hosted uranium mineralisation

the Samphire granite – what we know and where it can lead



The location of the Blackbush and Plumbush deposits may be controlled by basement features in the granite basement

Granite-hosted uranium mineralisation is known;

1. in decompression structure at the top of the granite with trace anomalous gold
2. as high-grade accumulations at the unconformity above basement structures

The new targets are large tonnage deposits in granite intrusive phases, and in post-emplacement alteration zones and structures within the granite and along its margins

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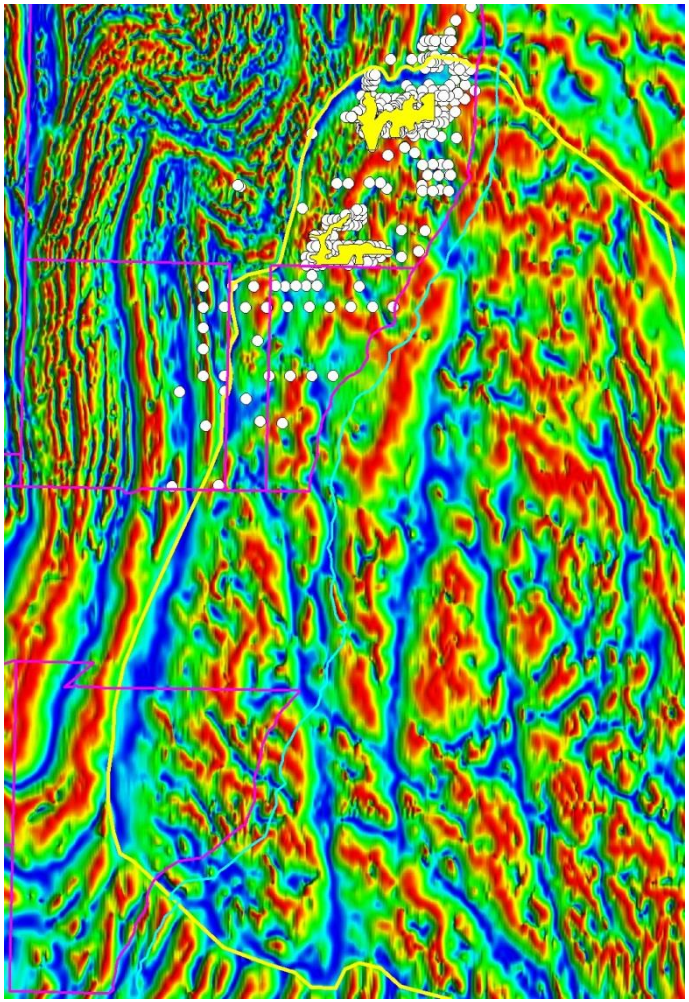
Granite-hosted uranium mineralisation

the Samphire granite – what we know and where it can lead



~702 holes have been drilled targeting sediment-hosted uranium

While the majority of the holes have been completed in granite basement they are not positioned to give information on the granites

These end-of-hole samples have been geochemically analysed and the data is being interpreted to identify areas for exploration

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Granite-hosted uranium mineralisation

the mineralisation is real and the opportunity is excellent

Examples of intersections from within the Samphire granite include

2.73m @ 1,119ppm eU_3O_8 with a peak grade of 2,990ppm eU_3O_8

50.09m @ 142ppm eU_3O_8 with a peak grade of 537ppm eU_3O_8

These intersections are chance discoveries and clearly demonstrate the opportunity that could come from targeted exploration

Note: the above intersections are selected examples from 2 of ~702 holes in the Sampjire project, this data is given without context or location and in support of the geological model being examined, results previously reported to ASX

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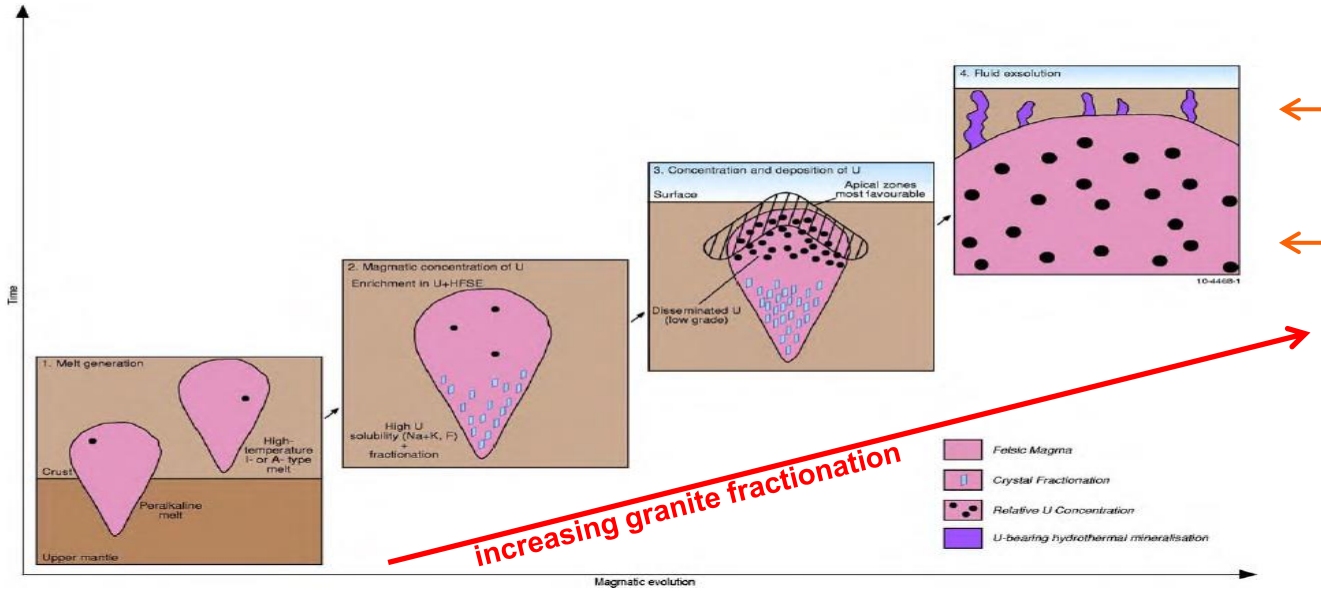
Granite-hosted uranium mineralisation

all the "right stuff" and we are well along the pathway to discovery



← Vein mineralisation

← Disseminated mineralisation

Figure from:
Potential for magmatic-related uranium mineralisation systems in Australia. Geoscience Australia Record 2010/20. Anthony Schofield

The **right granites**	Samphire granite is a fractionated A type, Hiltaba suite
The **right metals**	elevated fluorine anomalous to potential ore grade uranium anomalous copper and gold
The **right styles**	uranium mineralisation in veins and lodes 50m intersections of uranium in granite

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Outlook for 2013

Blackbush deposit has the tonnes/grade to be an achievable development proposition under nearly any price scenario

Samphire project has the uranium endowment, geological attributes and discovery track record of a significant uranium district

The **uranium spot price** will recover

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Samphire
URANIUM