

ASX: ORP



Effective Uranium Exploration:

Embracing Evolving Technologies To Maximise Value From Historical Datasets

**Global Uranium Conference
OCTOBER 2024**

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Financial data

All references to dollars (\$) and cents are to Australian currency, unless otherwise stated.

Market and industry data

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Competent Person Statement

Sections of information contained in this report that relate to Exploration Results were compiled or reviewed by Mr. Clinton Dubieniecki BSc (Hons), who is a Member of the Australian Institute of Geoscientists and is a full-time employee of Orpheus Uranium Limited. Mr. Dubieniecki has sufficient experience which is relevant to the style of mineral deposits under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the "Australasian Code for Reporting of Mineral Resources and Ore Reserves". Mr. Dubieniecki consents to the inclusion in this report of the matters based on this information in the form and context in which it appears.



Who is Orpheus Uranium

- ✓ Junior uranium focused exploration company with a portfolio focused in the two jurisdictions of Australia that allow uranium exploration and mining, South Australia & the Northern Territory
- ✓ Targeting tier-1 (world-class) uranium exploration regions, on tenure with confirmed presence of mineral systems
- ✓ Major projects include Mt Douglas, Frome, & Radium Hill South
- ✓ Strategic development of a portfolio that enables exploration success whilst positioning for market growth
- ✓ Technically intelligent team, with unique proven success in Uranium mineralisation discovery, development & production
- ✓ Drill targeting 100% owned, advanced uranium exploration projects

Why Are We Here?

Orpheus Uranium

Why Orpheus Uranium?

What should we talk about and why?

What are the take aways?

Data associated with Uranium exploration is generational

Taking time to reprocess / reinterpret data is invaluable

There has been a paradigm shift in the interpretation of **URANIUM** mineralising system (circa 2010)

Orpheus is a Uranium focused 'Greenfields' explorer with advanced exploration tenure leveraging these factors



Key South Australian Projects

Orpheus Uranium Premier Projects (SA)

Frome Project

Globally significant location for economic sandstone hosted uranium deposits - Callabonna Sub-Basin (SA)

~ 12km west of BOEs Gould's Dam Uranium Deposit

Advanced exploration project with 73,650m of historical regional and prospect drilling

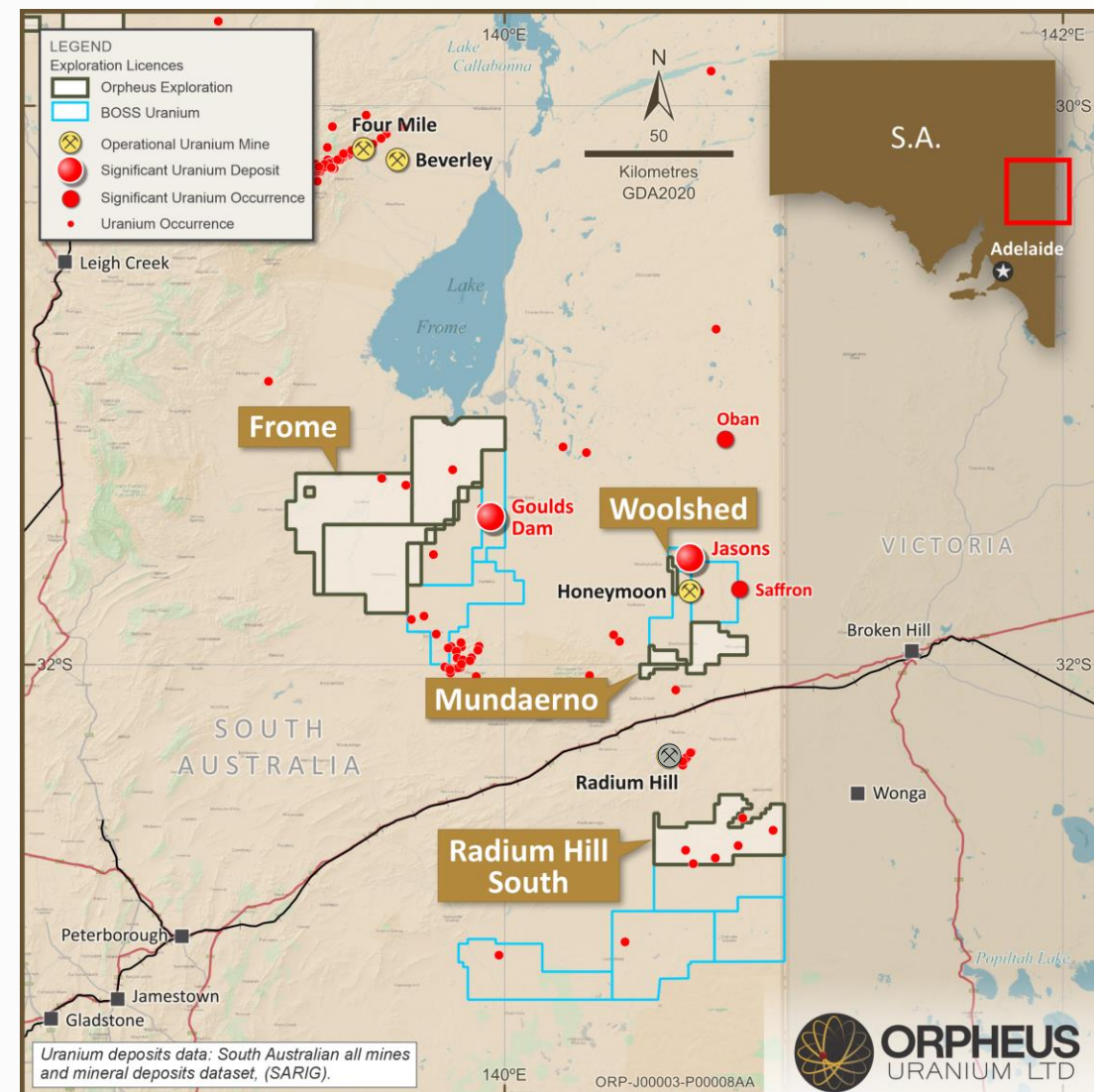
Radium Hill South Project

Located on the northern margins of the Murray Basin – tenure hosts five known uranium occurrences

~20 km south of Radium Hill Uranium Field

Advanced exploration project with 37,296m of historical regional and prospect drilling

ACTIVELY DEVELOPING PROJECT PIPELINE



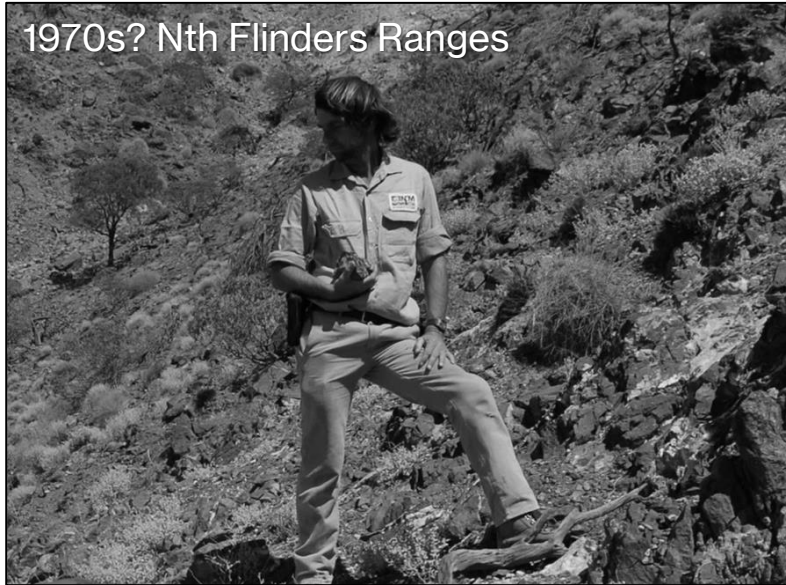
The Uranium Cycle – Discoveries through time

1950s & 1970s

2000s

2020s

1970s? Nth Flinders Ranges



2007 Dead-Tree Creek (Nth Flinders Ranges)



2024 Dead-Tree Creek (Nth Flinders Ranges)



1949 Rum Jungle

1953 South Alligator River

1969 Ranger

1969 Beverly

1970 Koongarra

1970 Narbalek

1971 Jabiluka

1972 Honeymoon

2005 Four Mile East

2005 Four Mile West

2007 Blackbush

2008 Thunderball

2009 Pepegooona

2011 Pannikan

Year of discovery for select South Australian & Northern Territory Uranium Deposits/Prospects

Sourcing Uranium
for Defence

Development of
nuclear energy

Renaissance of
nuclear power

2011 Fukushima

Decrease in
U stockpiles

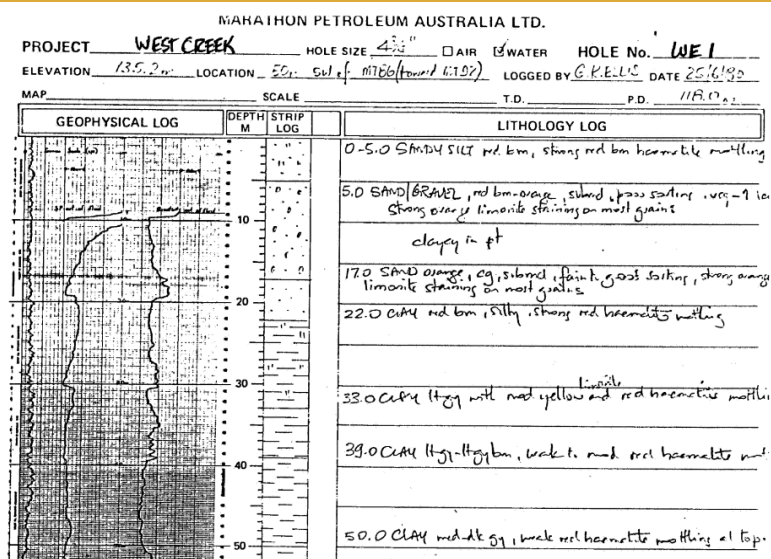
Major events driving Uranium Markets

Radium Hill South – Data through time



1950s & 1970s

ANALOGUE ERA

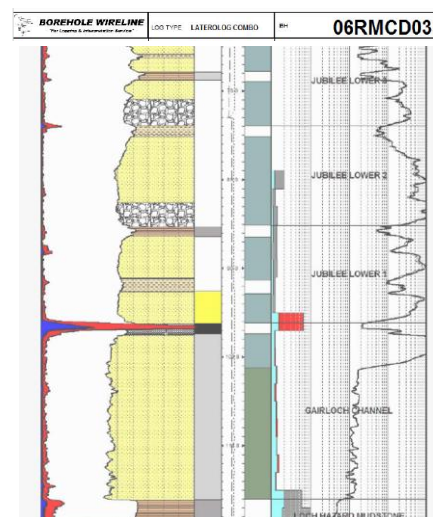


Limited digital technology

Handwritten logging descriptions
Hand drawn artistic geological logs with paper geophysical logs
Paper spreadsheet databases
Typewriter reports / drafted maps

2000s

ANALOGUE/DIGITAL HYBRID ERA

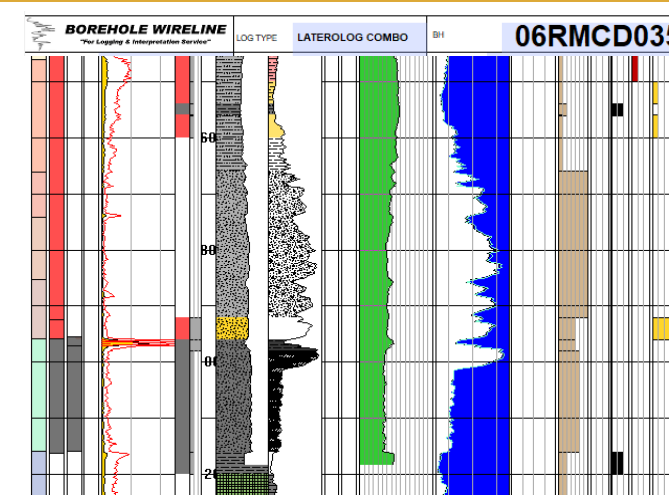


Evolving digital technologies

Handwritten logging descriptions (digitised post drilling)
Digital geological logs and geophysical logs
Digital 'spread-bases'
Digital reports and maps

2020s

DIGITAL ERA



High powered, high impact evolving digital technologies

Real-time logging
Detailed digital geological logs & geophysical logs,
Structured database supported by data lake retrieval techniques
Digital reports and maps

Radium Hill South – Data through time

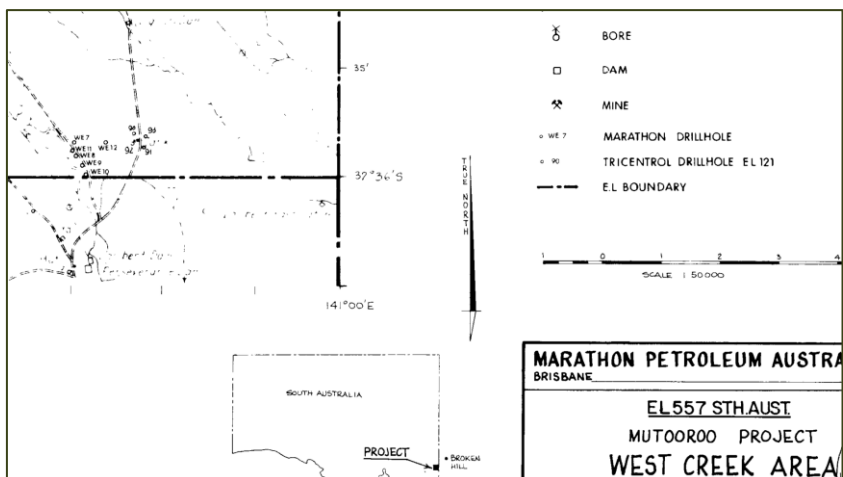
1970s

ANALOGUE ERA

Hand drawn cartographic maps
(stored in map cabinets)

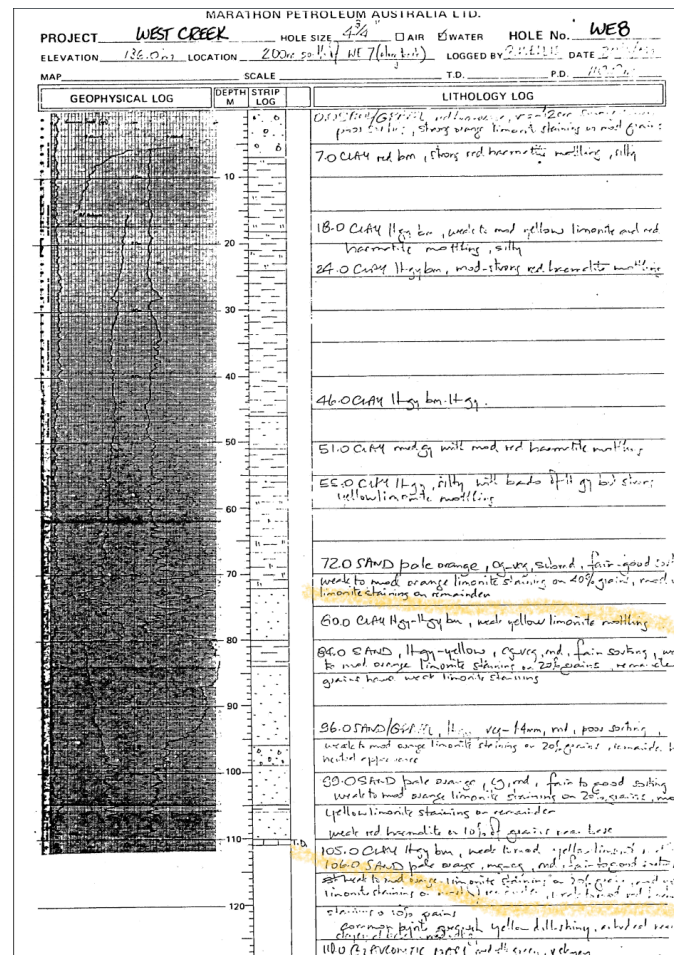
Hand drawn geological notes
physically compiled with
geophysical data (stored in the
company library)

**Printed or sketched logs for
manual correlation**



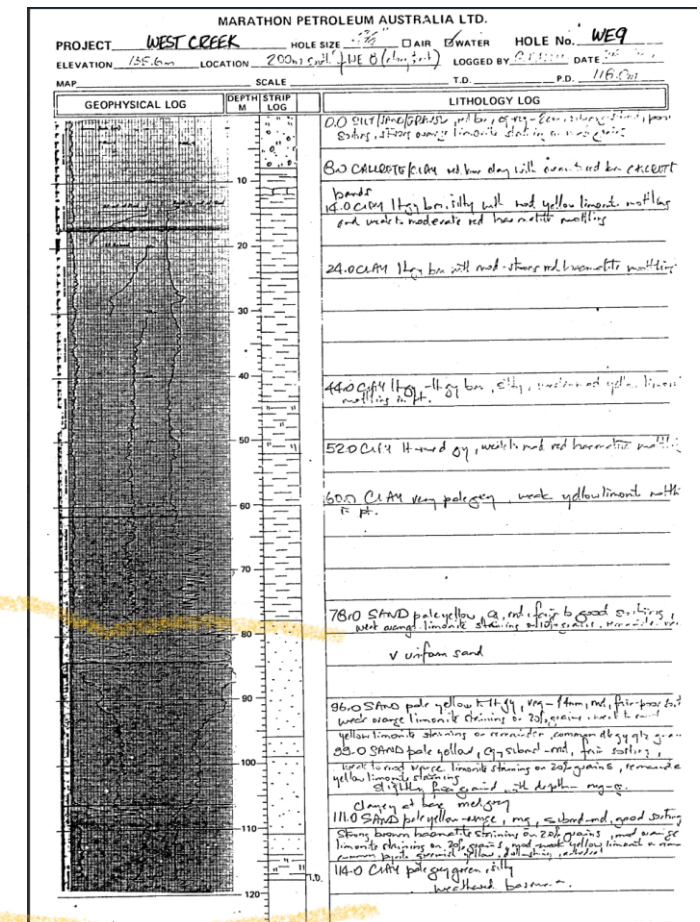
2000s

ANALOGUE/DIGITAL HYBRID ERA



2020s

DIGITAL ERA



Radium Hill South – Data through time

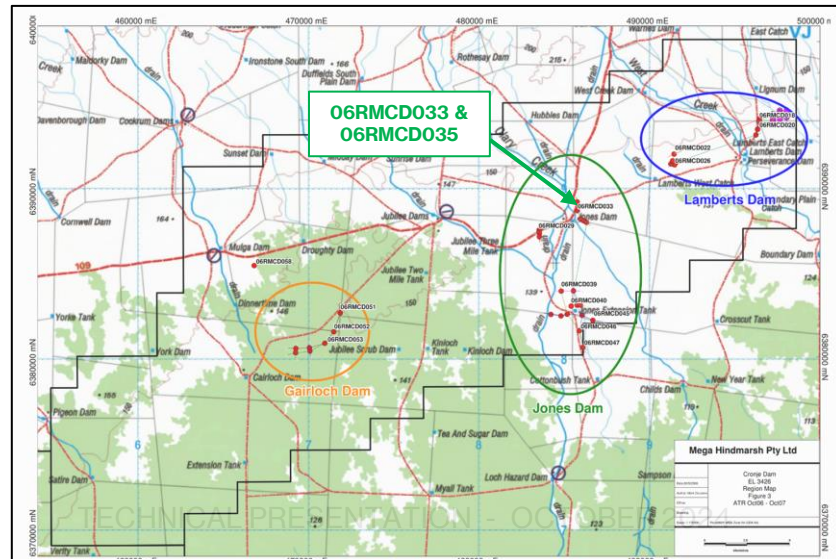
1970s

ANALOGUE ERA

Digital maps created in real time
(stored on field hard drive/network)

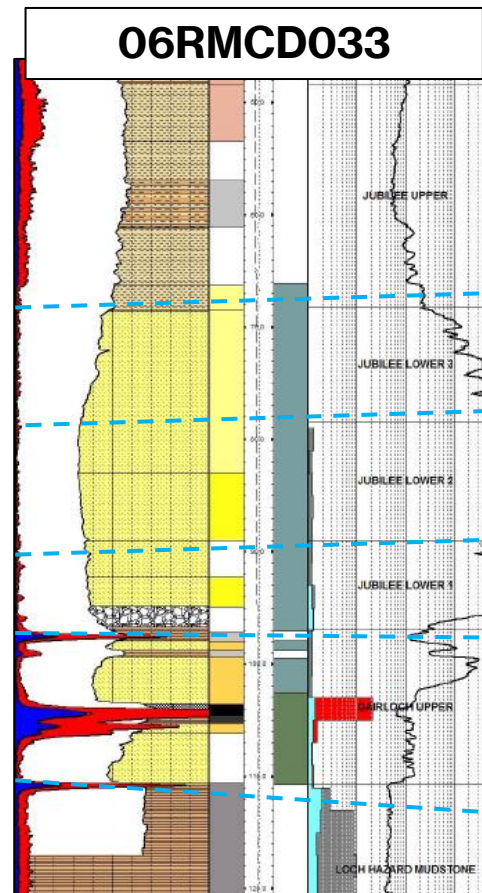
Digitisation of geological data with
geological logs (stored on field hard
drive/network)

Digital/Printed logs for correlation



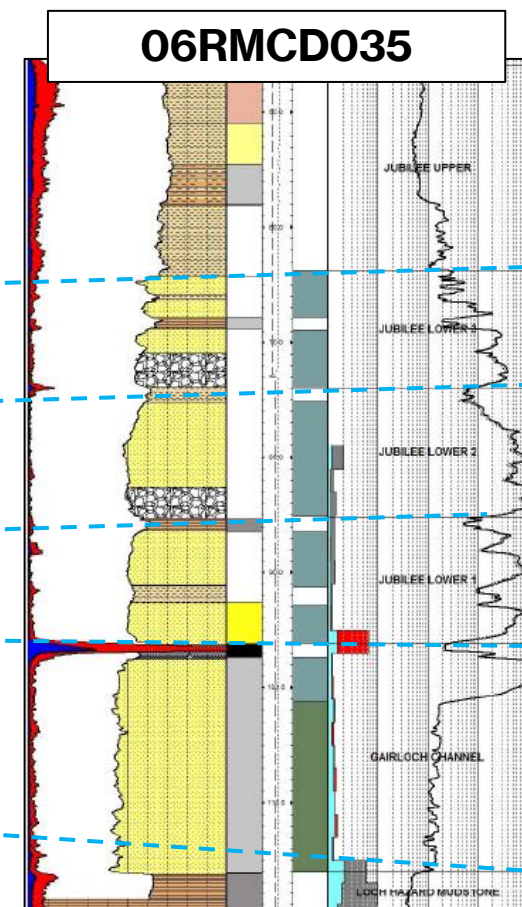
2000s

ANALOGUE/DIGITAL HYBRID ERA



2020s

DIGITAL ERA



Radium Hill South – Data through time

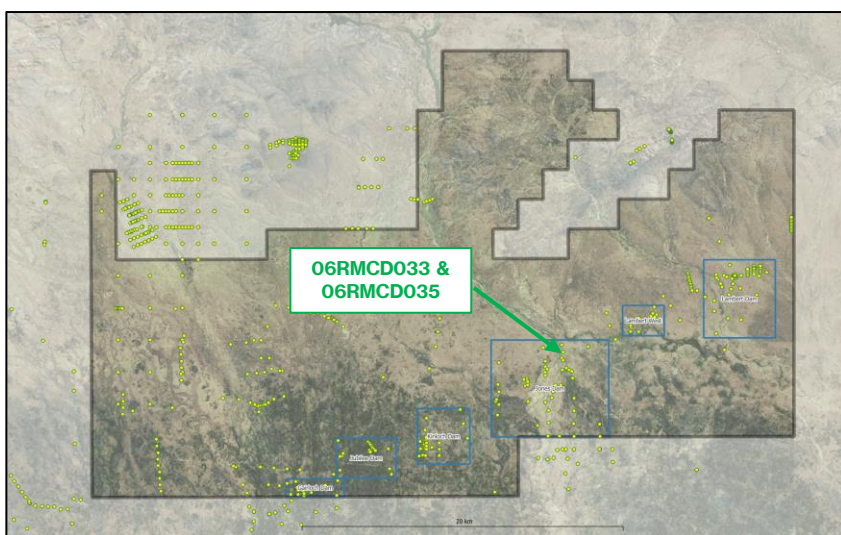
1970s

ANALOGUE ERA

Digital maps created in real time
(stored in the cloud or straight to server)

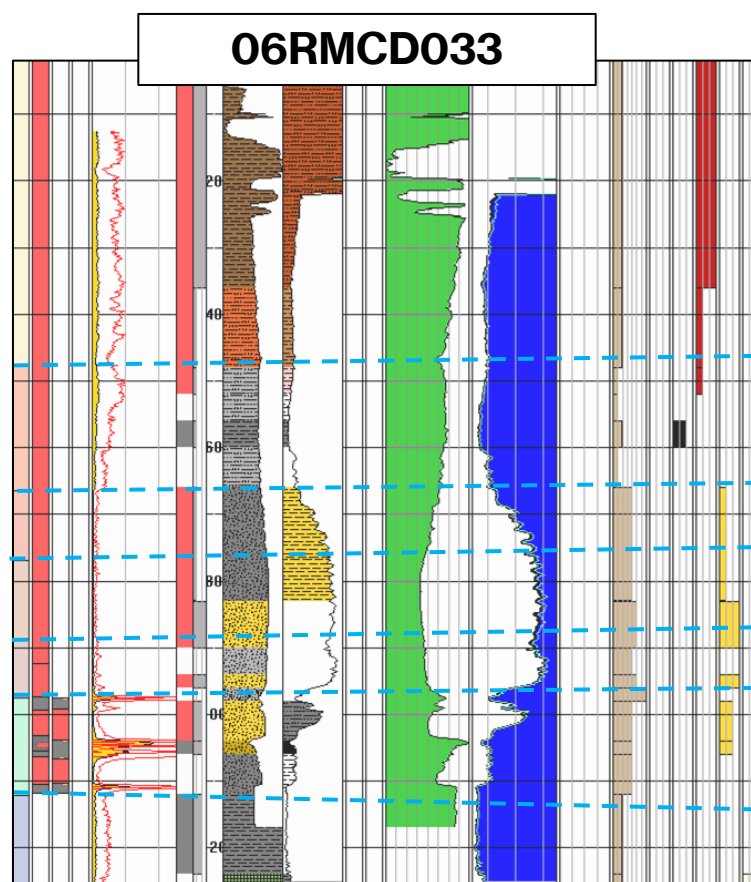
Digitisation (detailed) of geological
data with geological logs &
geochemical data (stored on cloud)

Digital logs for real-time continued
correlation & interpretation updates



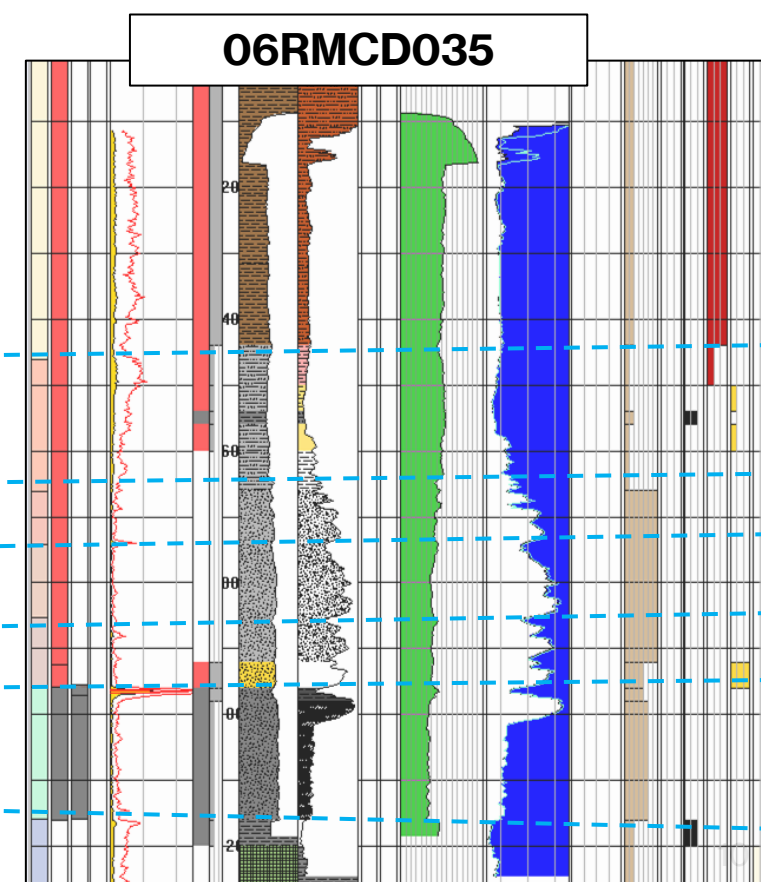
2000s

ANALOGUE/DIGITAL HYBRID ERA



2020s

DIGITAL ERA



Radium Hill South – Data through time



1970s

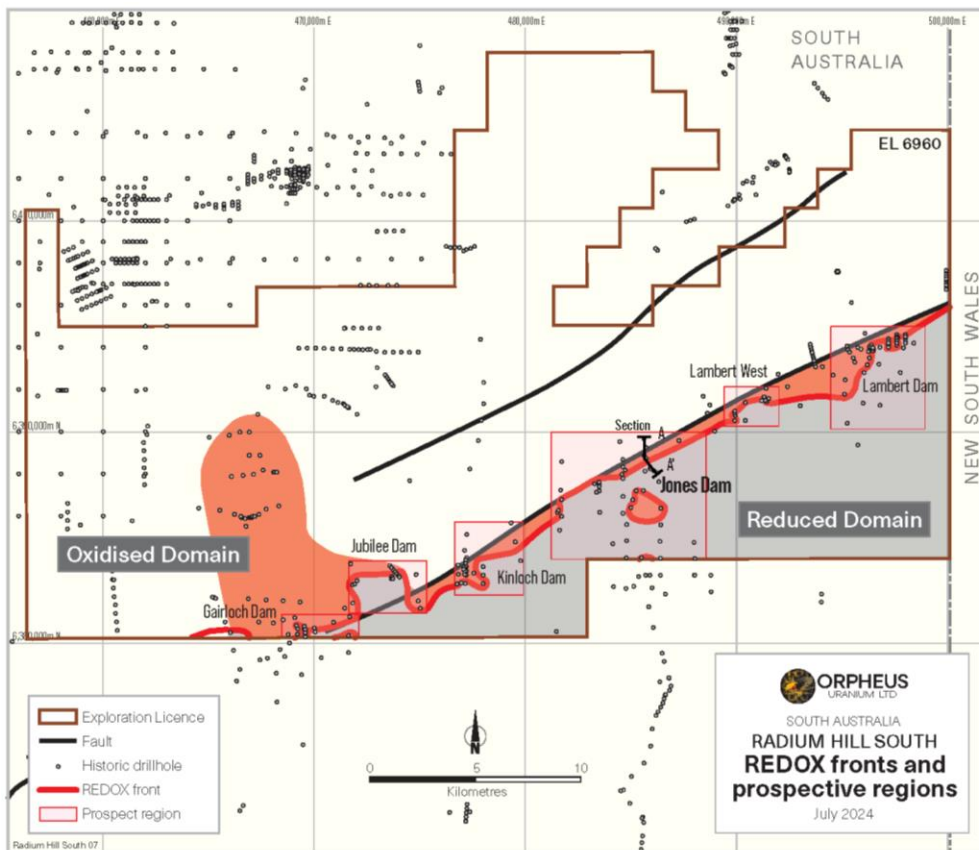
ANALOGUE ERA

2000s

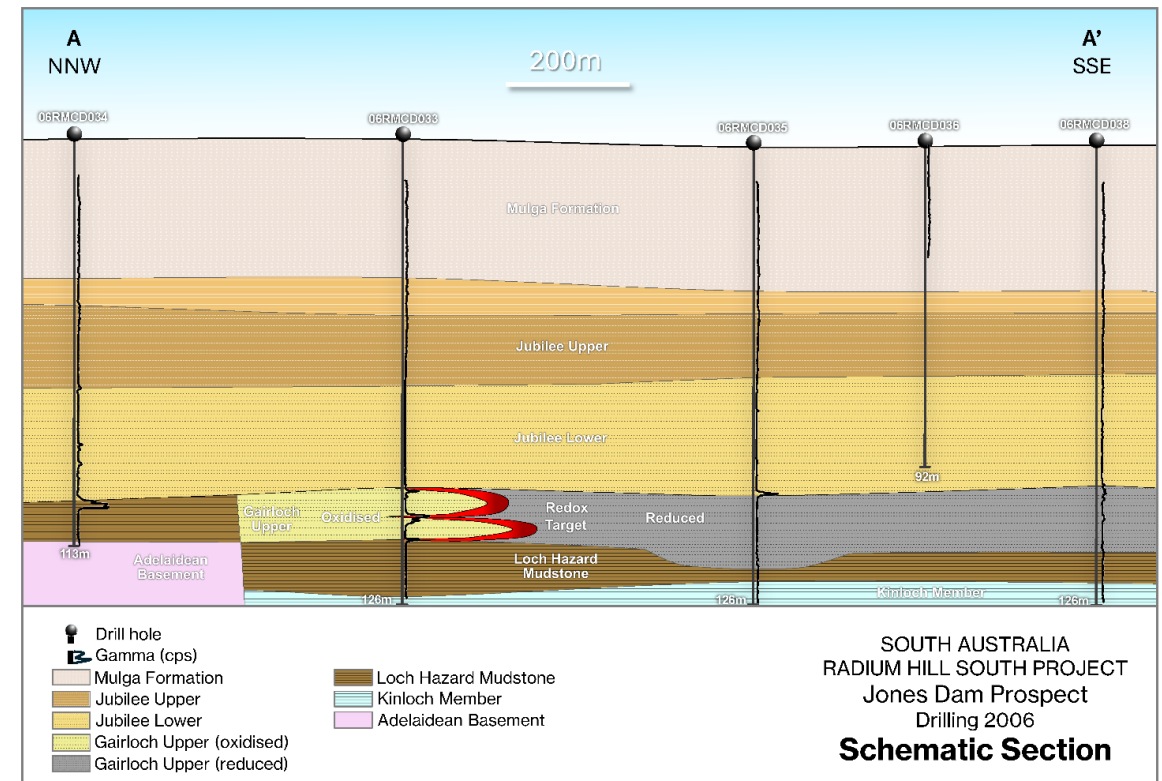
ANALOGUE/DIGITAL HYBRID ERA

2020s

DIGITAL ERA



Evolution of Interpretation → ROLL-FRONT MAPPING



Radium Hill South (EL6960) Subsurface interpreted model for (“REDOX characteristics”) as a vector to “roll front” style uranium mineralisation within the Gairloch Formation.

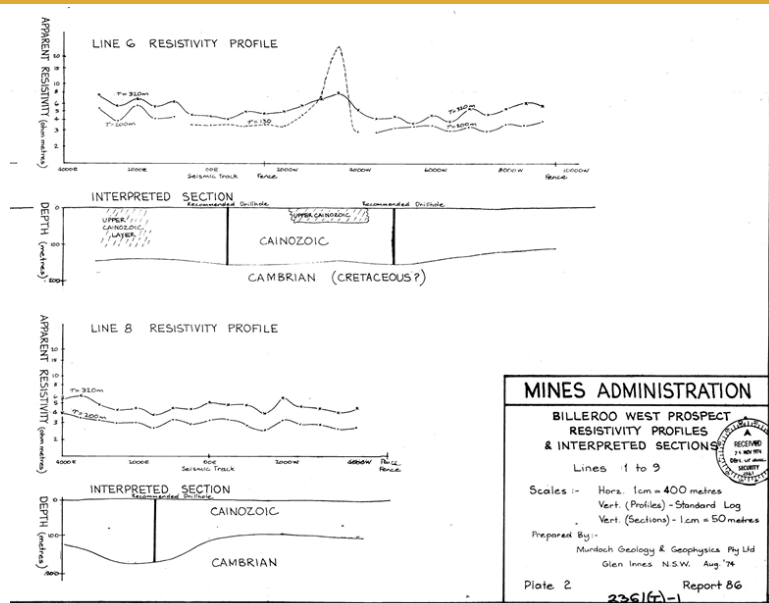
Radium Hill South (EL6960) – Schematic section of select drill holes with geological, redox and geophysical characteristics which are interpreted as having potential for typical “stacked” uranium roll-front mineralisation within Jones Dam Prospect.

Erudina – Data through time



1970s

ANALOGUE ERA



Limited digital technologies

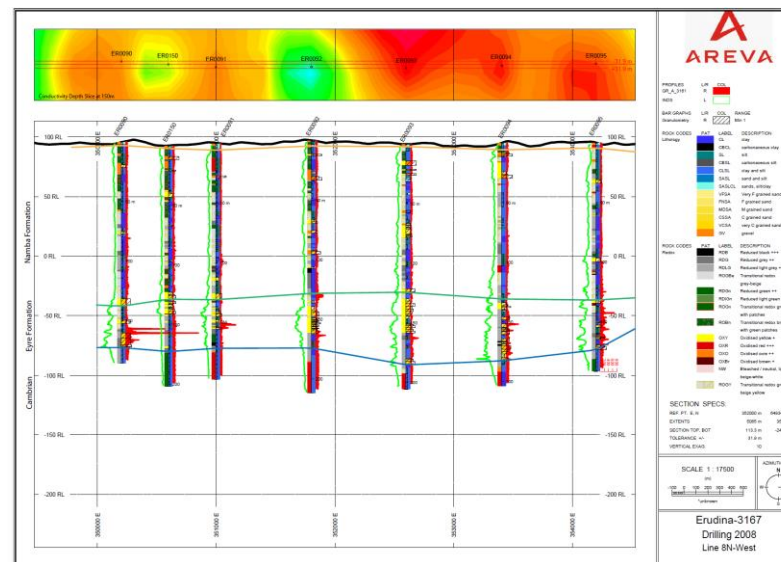
Manual integration of geophysical & geological datasets

Limited use of imagery – minimal available records available

Restricted format communication

2000s

ANALOGUE/DIGITAL HYBRID ERA



Evolving digital technologies

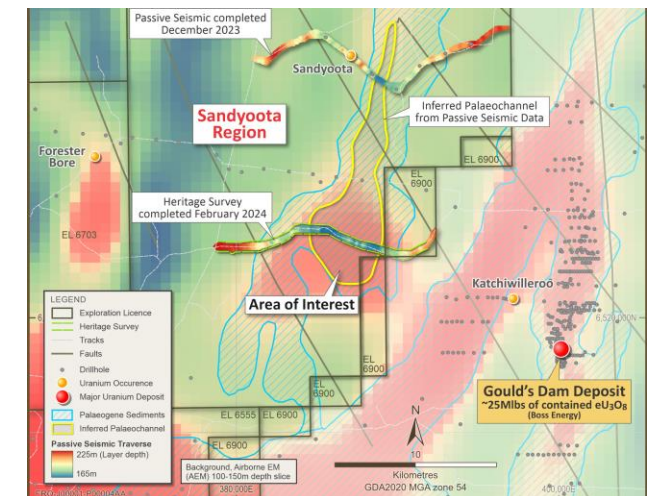
Developing multi-model integration of geophysical & geological datasets

Emerging use of routine image capture (low quality)

Multi format communication (limited)

2020s

DIGITAL ERA



Frome Downs (EL 6554) – Representative passive seismic lines inferring interpreted paleochannels channels

High impact digital technologies

Multi-model integration of geophysical & geological datasets

Freely available image capture - software supported visualisation

Multi-format digital communication

* Gould's Dam Deposit – Resource - Boss Energy Limited ASX: BOE – Mineral Resource – Average Grade 523 ppm U₃O₈ with Contained 25 Mlbs. U₃O₈. Refer to ASX: BOE announcement dated 23 January 2024

Erudina – Data through time

1970s

ANALOGUE ERA

Low-resolution photography can be black & white and limited retained for geological analysis

Limited forms of communication

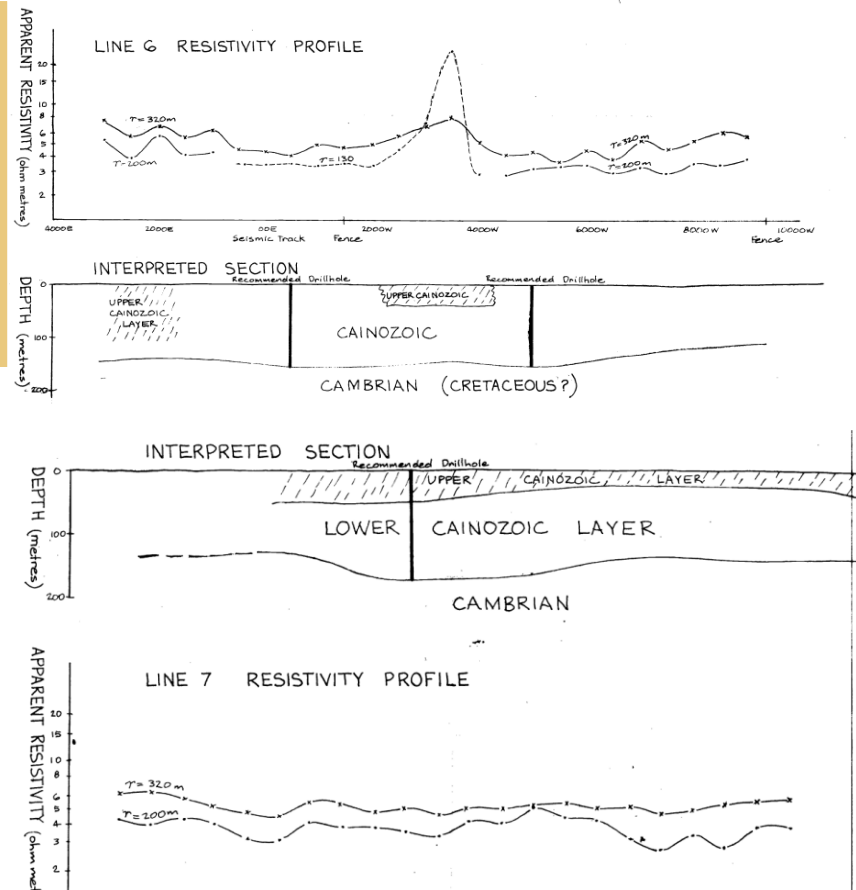
Hand drawn geophysical profiles & contours with correlated sections



PLATE 1. CURNAMONA HOMESTEAD S.M.L. 267

2000s

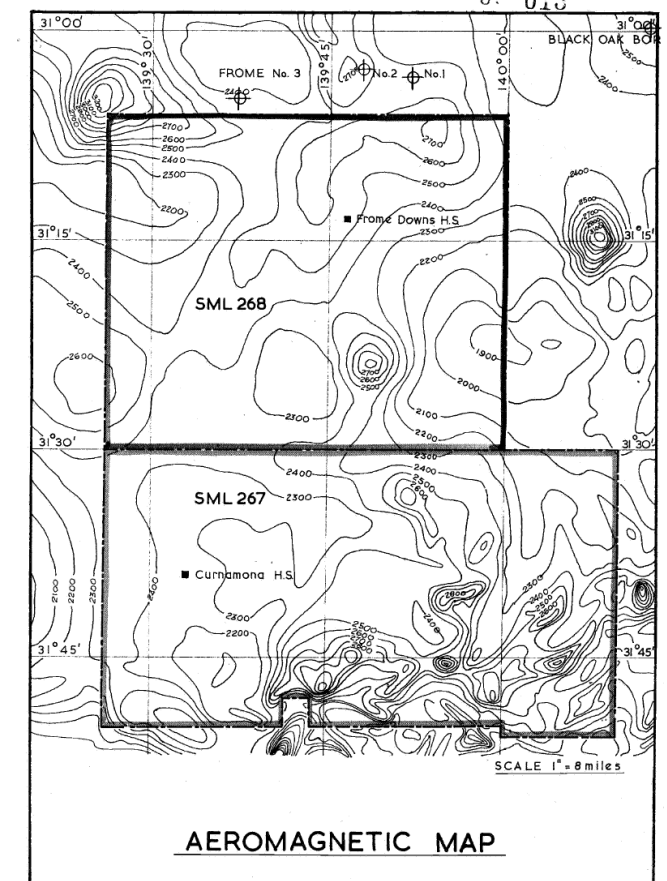
ANALOGUE/DIGITAL HYBRID ERA



SOURCE: ENV No. 2361 EL 109 FROME DOWNS PROGRESS AND TECHNICAL REPORTS TO LICENCE EXPIRY/RENEWAL, FOR THE PERIOD 12/11/1973 TO 11/11/1975

2020s

DIGITAL ERA



SOURCE: ENV1109 Progress Report S.M.L. 267

Erudina – Data through time

1970s

ANALOGUE ERA

Developing use of photography associated with geological interp.

Increased-resolution photography and accessibility to cameras

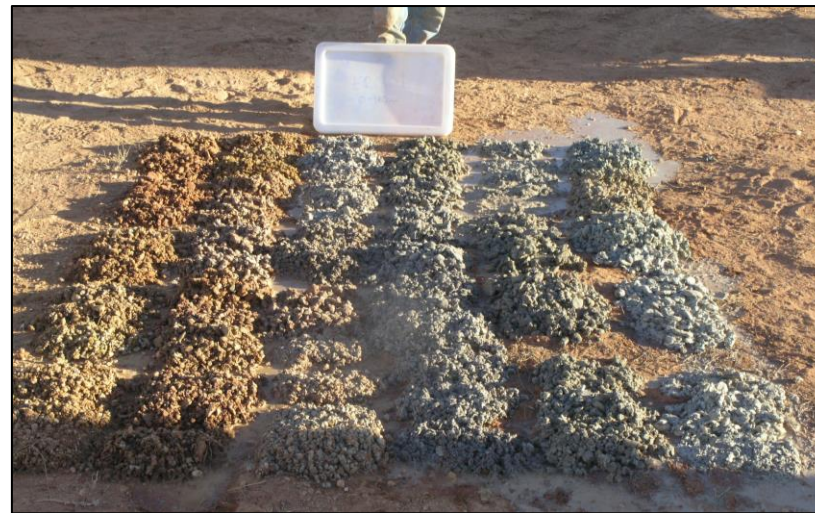
Emerging forms of communication

Digitally modelled geophysical profiles & grids for timely use with downhole information



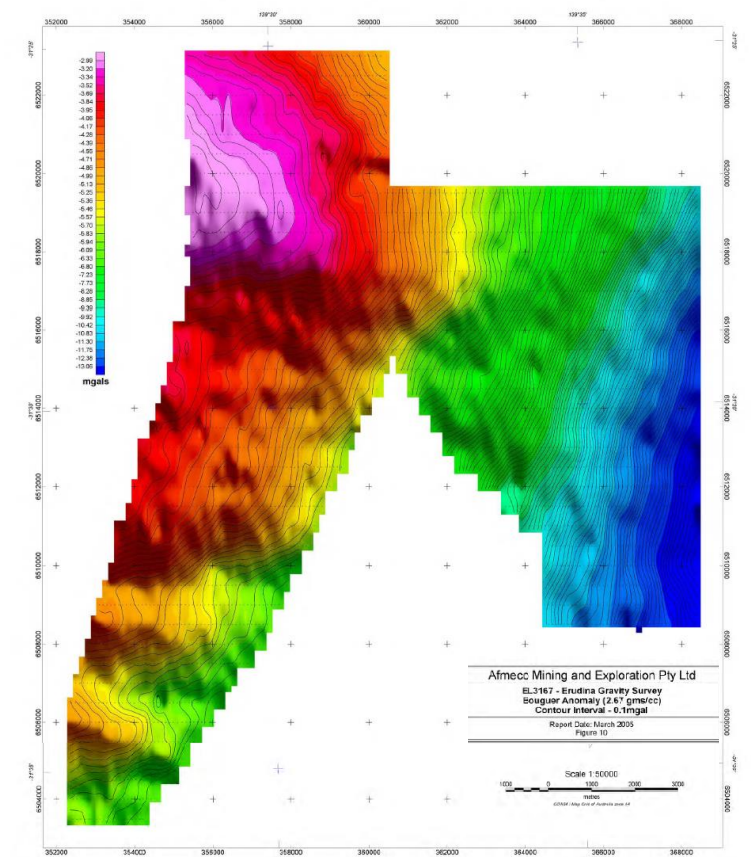
2000s

ANALOGUE/DIGITAL HYBRID ERA



2020s

DIGITAL ERA



SOURCE: Open File Envelope No. 10,556 EL 3167 / 4234, EL 3168 / 4235 AND EL 3169 / 4236 COMBINED ANNUAL REPORTS AND FINAL REPORT TO LICENCES' JOINT SURRENDER, FOR THE PERIOD 25/2/2004 TO 19/2/2014

Erudina – Data through time

1970s

ANALOGUE ERA

High-resolution photography and routine accessibility to cameras

Photography evolving to automate logging process (i.e., colour & grain size)

Advanced forms of communication

Digitally modelling of geophysical profiles & grids routinely available for use with downhole information



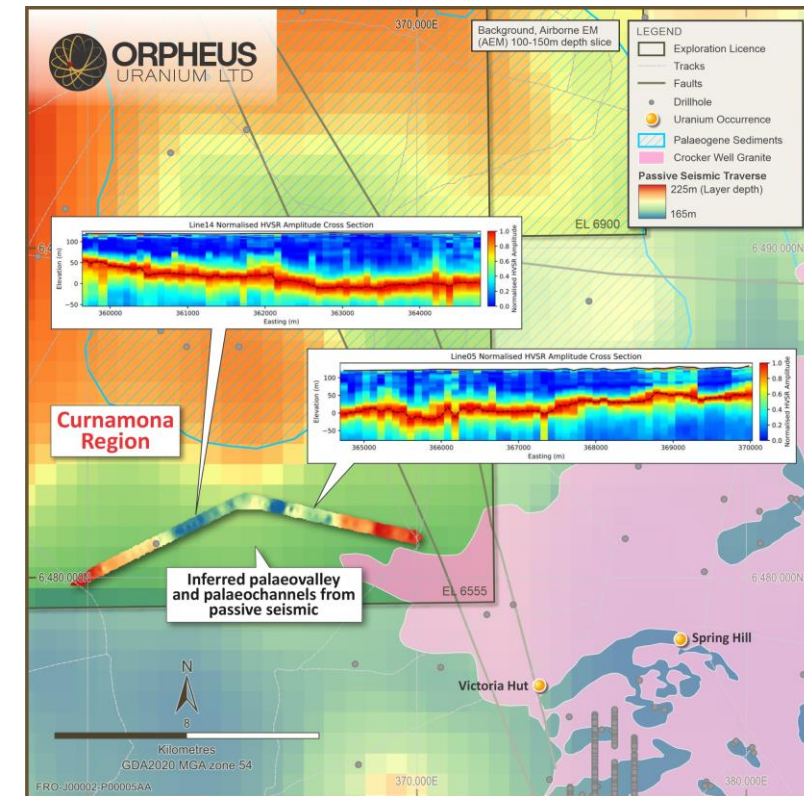
2000s

ANALOGUE/DIGITAL HYBRID ERA



2020s

DIGITAL ERA

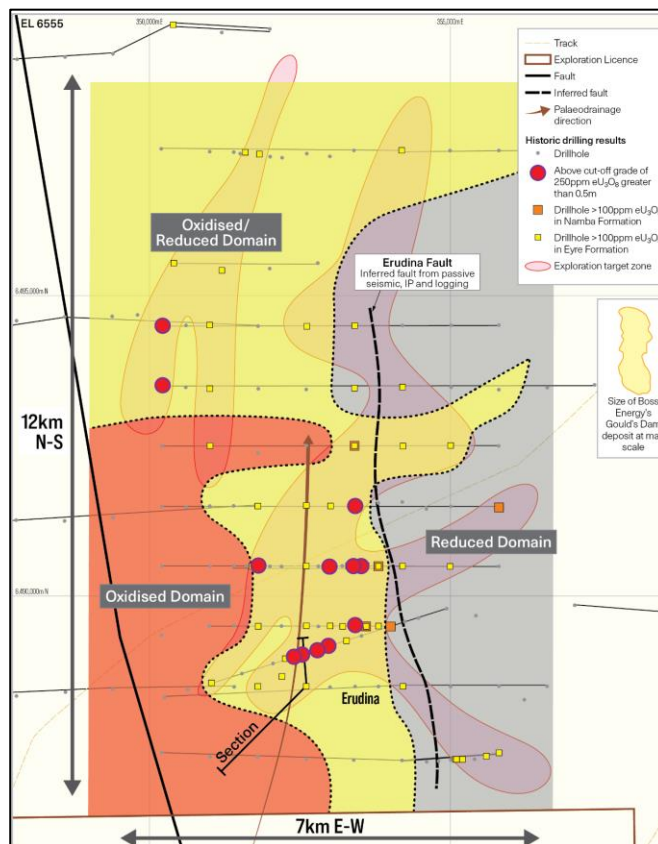


Curnamona (EL 6555) – Representative passive seismic lines inferring interpreted channels that may be evident of contemporary connectivity between Erudina Tertiary Palaeochannel system and one possible Uranium source in Crocker Well Granite

Erudina – Data through time

1970s

ANALOGUE ERA

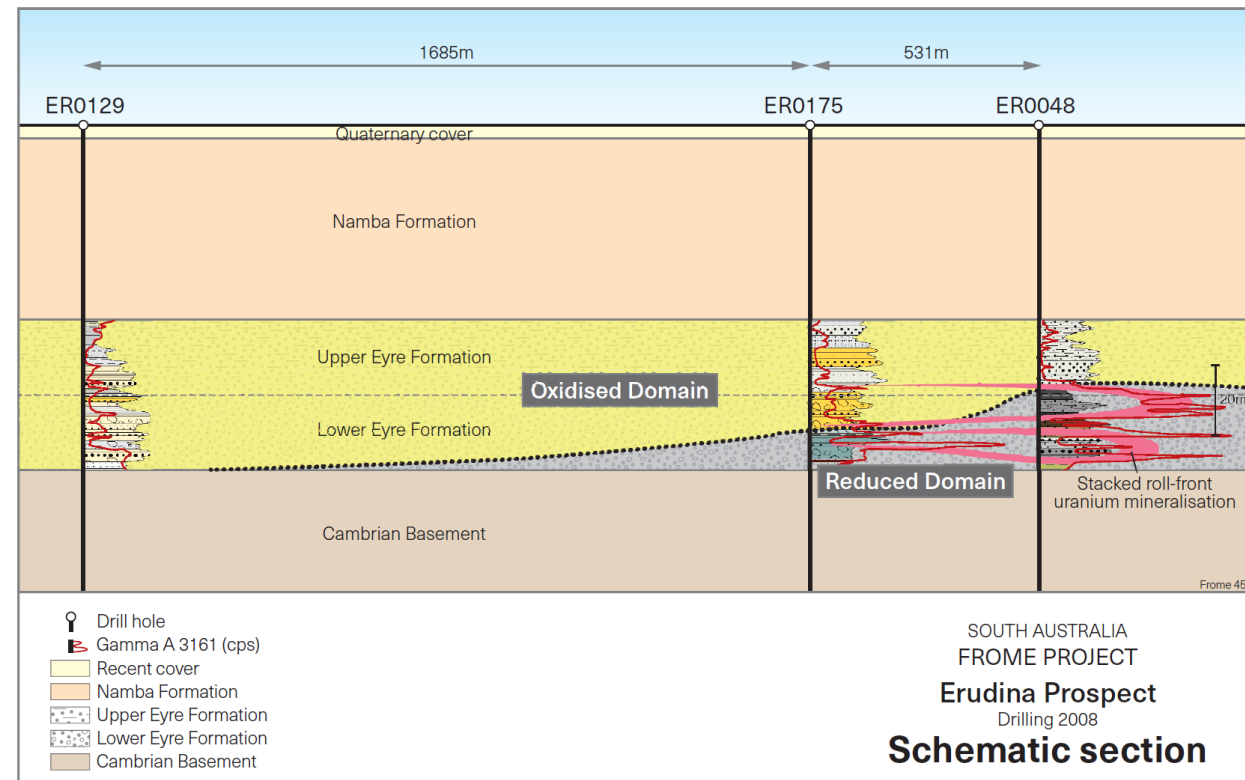


Curnamona (EL 6555) –Subsurface interpreted model for “REDOX characteristics” as a vector to “roll front” style uranium mineralisation within Eyre Formation of the Erudina Prospect

2000s

ANALOGUE/DIGITAL HYBRID ERA

Collaborative real-time analysis → DYNAMIC DRILLING PROGRAM



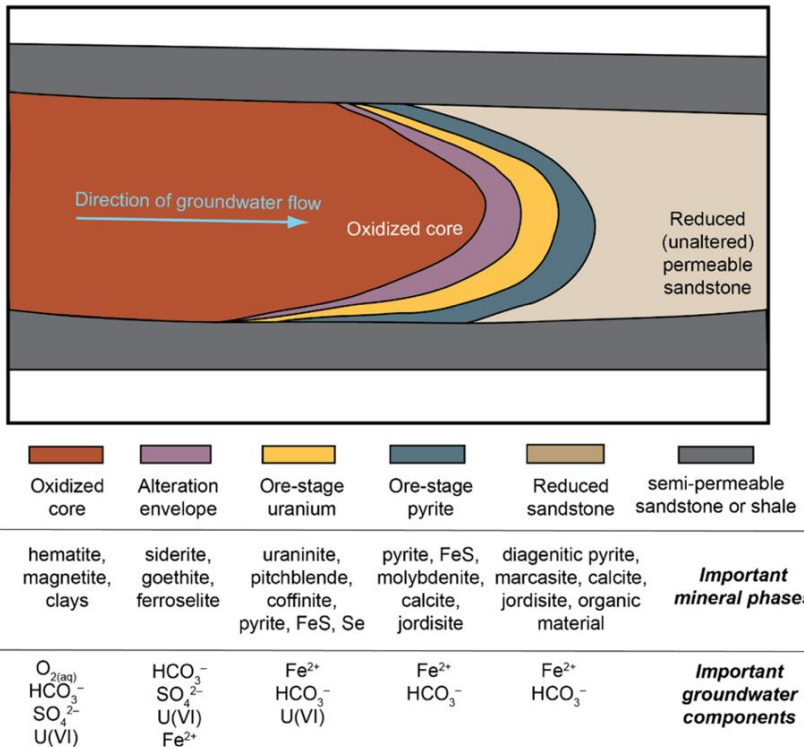
Curnamona (EL 6555) - Schematic section of select drill holes with geological, redox and geophysical characteristics which are interpreted as having potential for typical “stacked” uranium roll-front mineralisation within Erudina Prospect.

2020s

DIGITAL ERA

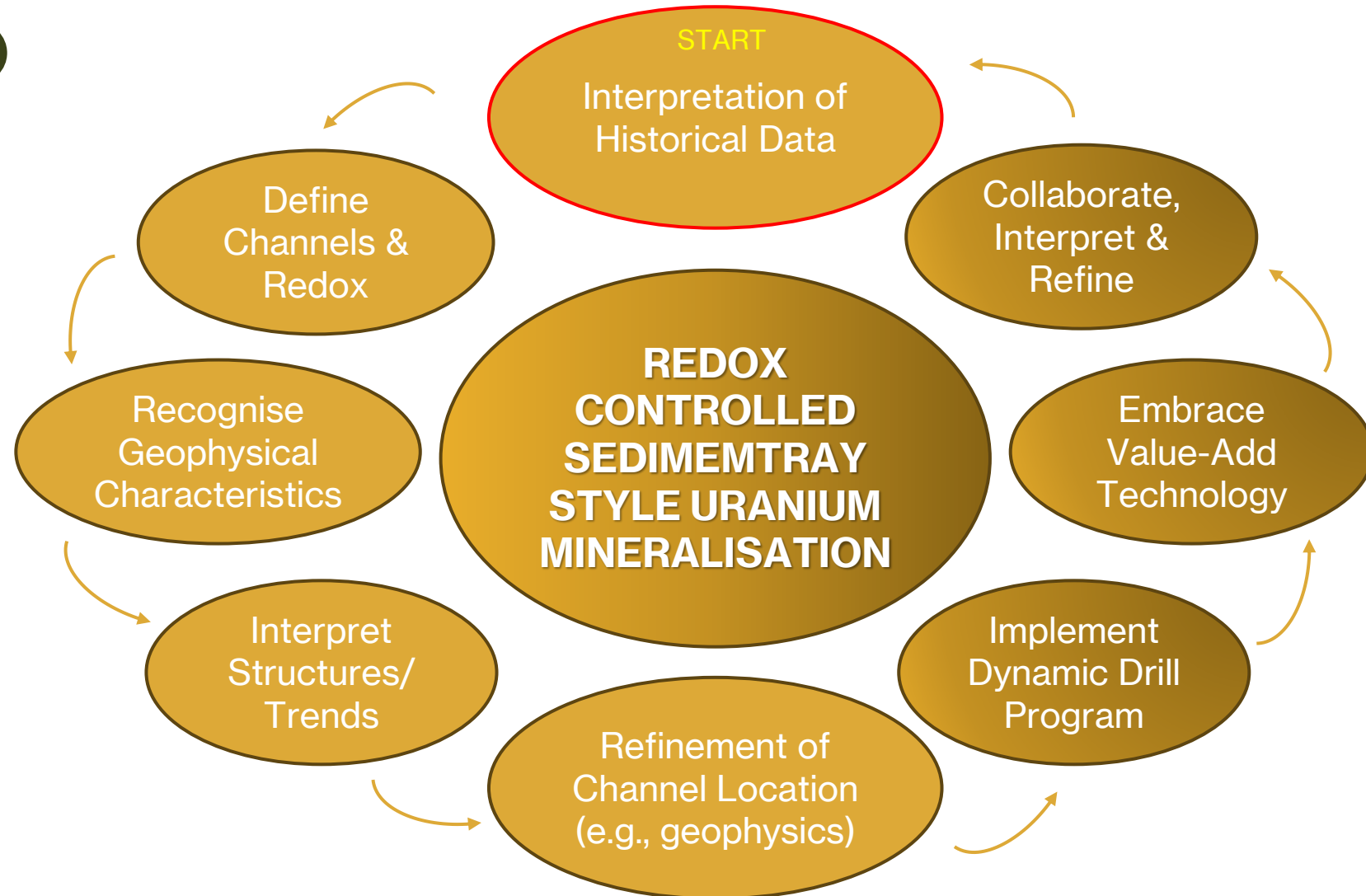
Orpheus Uranium – Exploration process (2020s)

REDOX CONTROLLED U MINERALISATION



Model section of a roll-front indicating geochemical alteration assemblages associated with uranium mineralisation, indicating an accumulation of pyrite at the 'nose' of the front containing ore-stage uranium mineralisation, (source).^[1]

^[1] Source: <https://www.mdpi.com/2075-163X/12/6/780>



Corporate Summary



CAPITALISATION DATA

Shares on issue

189.8M

Share Price (18 October 2024)

\$0.04

Market Capitalisation

\$7.6M

Cash (30 June 2024)

\$ 3.7M

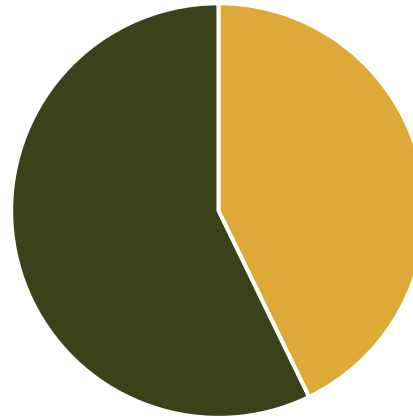
Debt

NIL

Liquid Investments*

\$0.7M

ASX: ORP Shareholder Spread



● **57.2%**
Top 20 Shareholders

● **42.8%**
Outside Top 20
Shareholders

12 Month Share Price



BOARD & MANAGEMENT

Clint Dubieniecki – CEO

Mick Billing – Non-Exec Chairman

Simon Mitchell – Non-Exec Director

Todd Williams – Non-Exec Director

Richard Willson – Non-Exec Director & Co Sec

*Current valuation of 8.33M shares in ASX:PSC (\$0.083)



Uranium

The right commodity at the right time with very strong uranium price signal, robust demand growth, constrained supply response. Current uranium mine supply structural deficit a long time in the making.



Technical team providing unique insights

Ongoing development of technical team and support, with proven track record in uranium discovery, development and production.



Tenure situated within tier-1 (world-class) locations

Orpheus has developed a tenure portfolio within two of the best global uriferous jurisdictions, the Frome Embayment in South Australia and the Pine Creek Orogen in the Northern Territory.



Prospectivity

Significant recent investor interest in companies which have demonstrated success in this prime location, with Orpheus following up on known mineralisation established by previous explorers.



Developing a Project Pipeline

A company that is actively and strategically developing a project pipeline to best position the business for continued exploration success.

Contact Us

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