

ASX: ORP



Unlocking Tomorrow's Energy Today

**CORPORATE PRESENTATION
SEPTEMBER 2025**

orpheusuranium.com

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Financial data

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

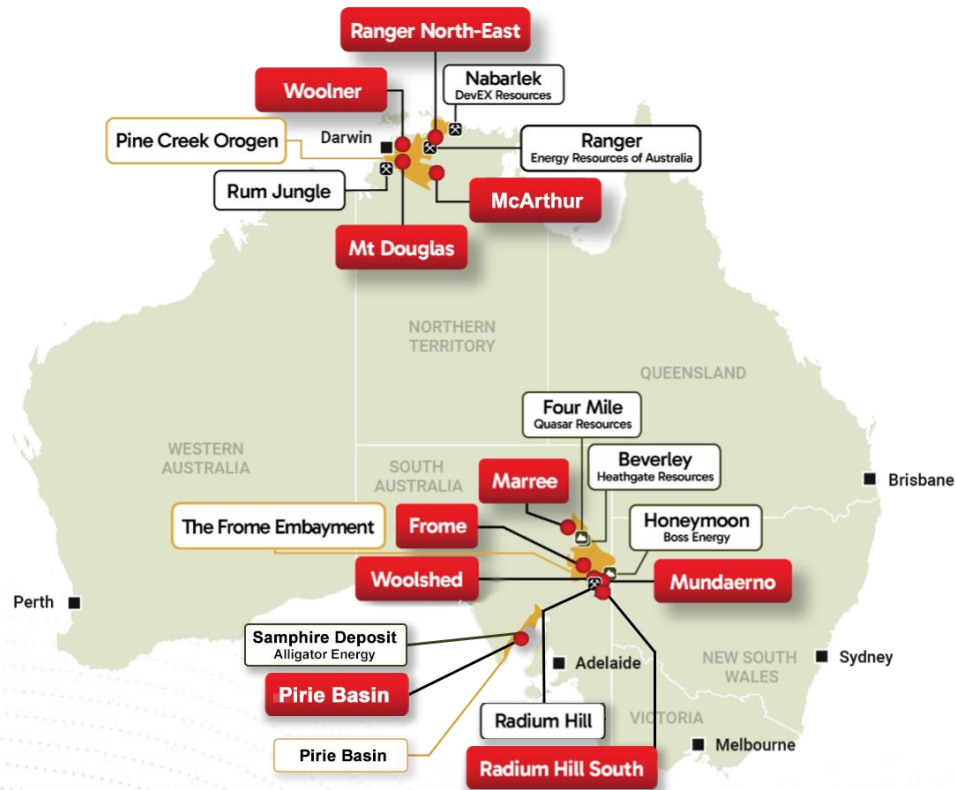
Market and industry data

This Presentation contains third party data relating to the industries, segments and markets in which the Company operates or aims to operate (Industry Data). This information has been prepared using publicly available data. The Industry Data includes third party market data, estimates and projections. There is no assurance regarding the accuracy of the Industry Data, and the Industry Data has not been independently verified by the Company.

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, Member of Australian Institute of Mining and Metallurgy, 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.

Major Investment Highlights



- Orpheus Projects
- ▲ Operating Uranium Mine
- ⛏ Closed Uranium Mine
- Significant Uranium Deposit

This map is not to scale

WHY ORPHEUS URANIUM?

- ✓ **Uranium-focused junior explorer** with a **portfolio developed** within the two Australian jurisdictions that allow **uranium exploration** and mining, **South Australia & Northern Territory**
- ✓ **Strategic development** of the project portfolio to contain **geologically relevant** tenure that **promotes long term value**
- ✓ Targeting **tier-1 (world-class) uranium exploration regions**, on tenure with confirmed presence of mineral systems
- ✓ Advancing 100% owned, market leading uranium exploration tenure → **Opportunity to invest in ‘true uranium explorer’**

✓ **BIMODAL STRATEGY → APPROACH LEVERAGING OFF IN-HOUSE URANIUM SPECIFIC EXPERIENCE**

- ✓ Continued development of core assets to **advanced-staged activities** including drilling
- ✓ Reviewing projects for acquisition/generating exploration targets within established mineralising jurisdictions

The Nuclear Cycle & Discoveries Through Time

Uranium is an enabler for which exploration has been cyclic but has led to discoveries

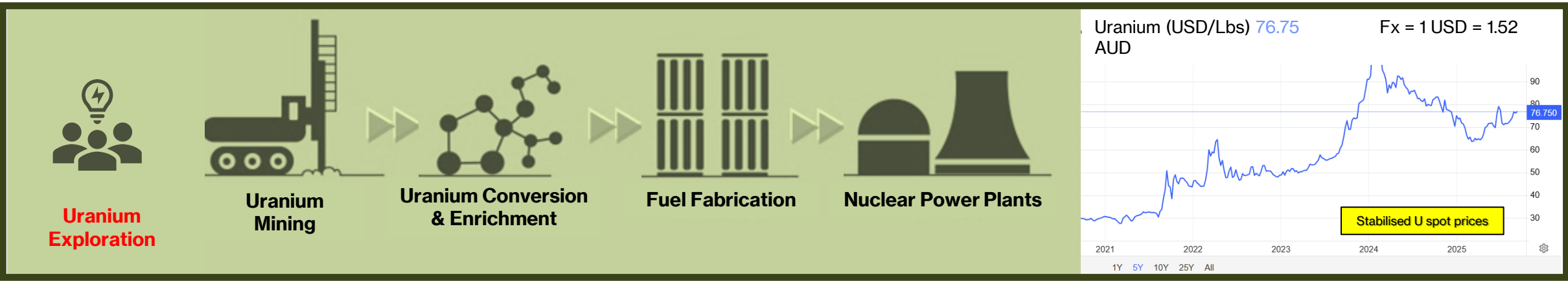
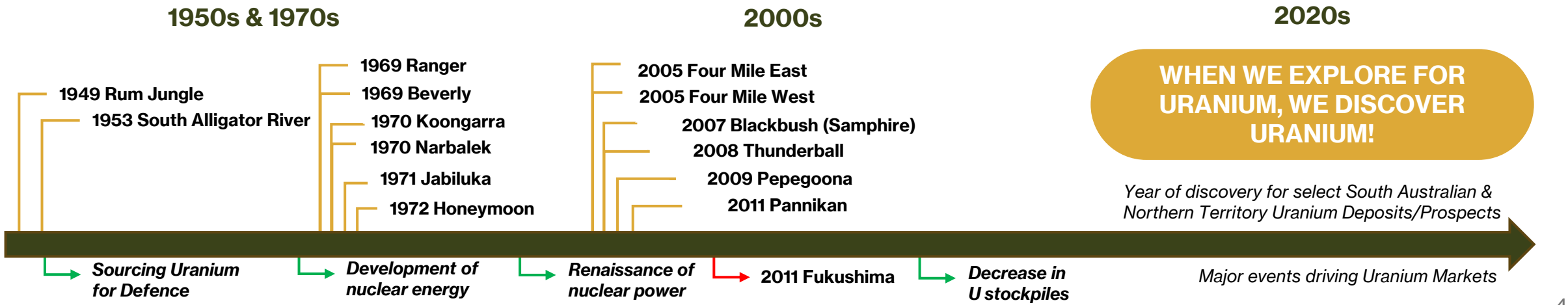


Image modified from: <https://www.orano.group/en/unpacking-nuclear/all-about-nuclear-energy>



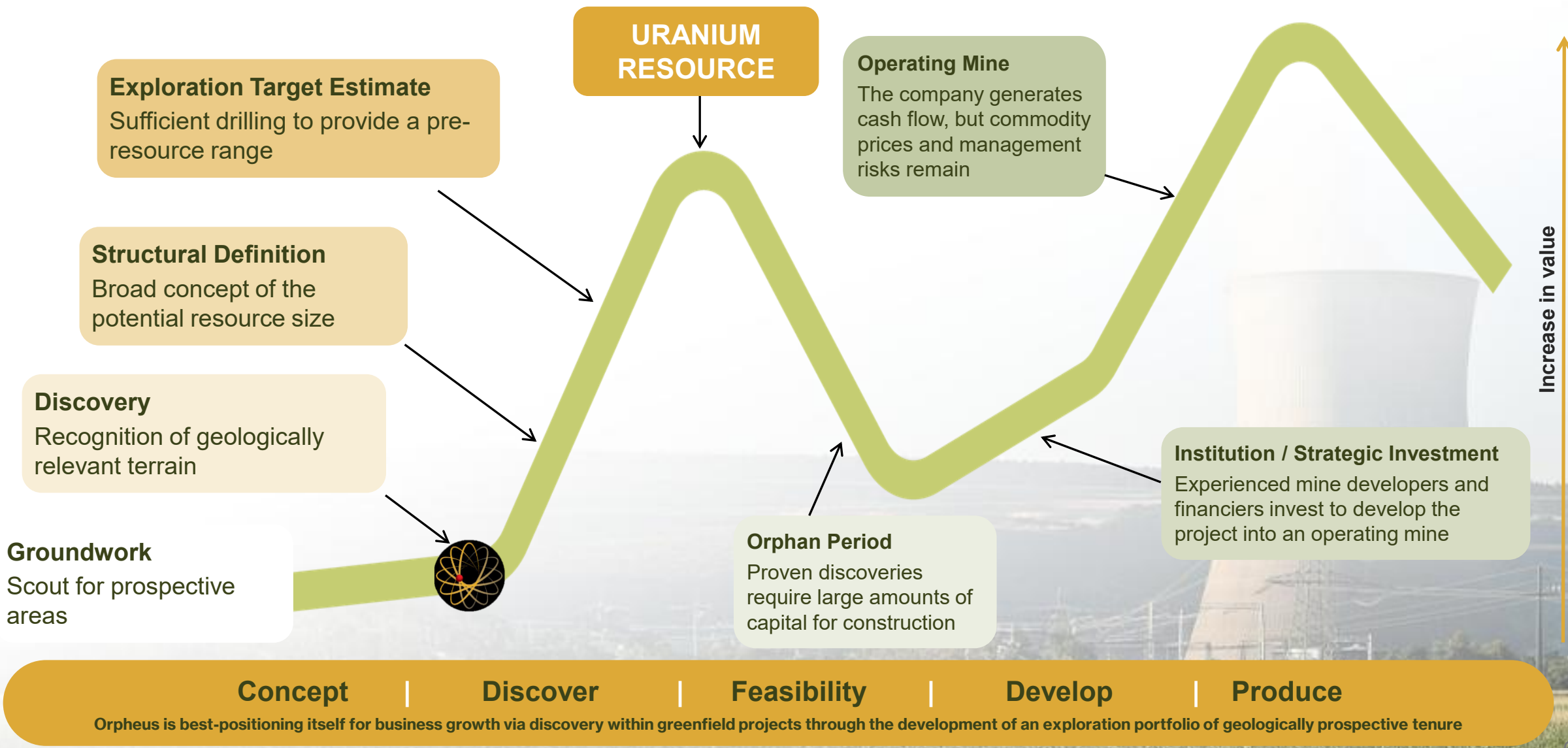
Orpheus Uranium Project Pipeline



Project rationalisation routinely occurring to minimise unnecessary outgoings, and maximise portfolio value

BIMODAL STRATEGY → APPROACH LEVERAGING OFF UNIQUE URANIUM-SPECIFIC EXPERIENCE

From Discovery to Resource



Uranium Deposit Types

SEDIMENTARY-STYLE URANIUM (SA)

- ✓ Mineralisation occurs within permeable units, typically but not limited to saturated unconsolidated permeable sandstones
- ✓ Uranium sourced from surrounding enriched uriferous rocks e.g., granites (SAs Frome Embayment contains some of the most uriferous surface and near surface rocks globally)
- ✓ Recovered through In-Situ Recovery (ISR) – lower cost, and dynamic operations



Source (Heathgate Resources Webpage): <https://heathgate.com.au/projects/>

UNCONFORMITY-STYLE URANIUM (NT)

- ✓ Mineralisation occurs peripheral to major structures within Proterozoic crystalline basement (commonly meta-sediments)
- ✓ Uranium sourced from either oceanic brines associated with sedimentary basins or enriched hydrothermal brines from beneath
- ✓ Recovered through conventional (open-cut or underground) operations

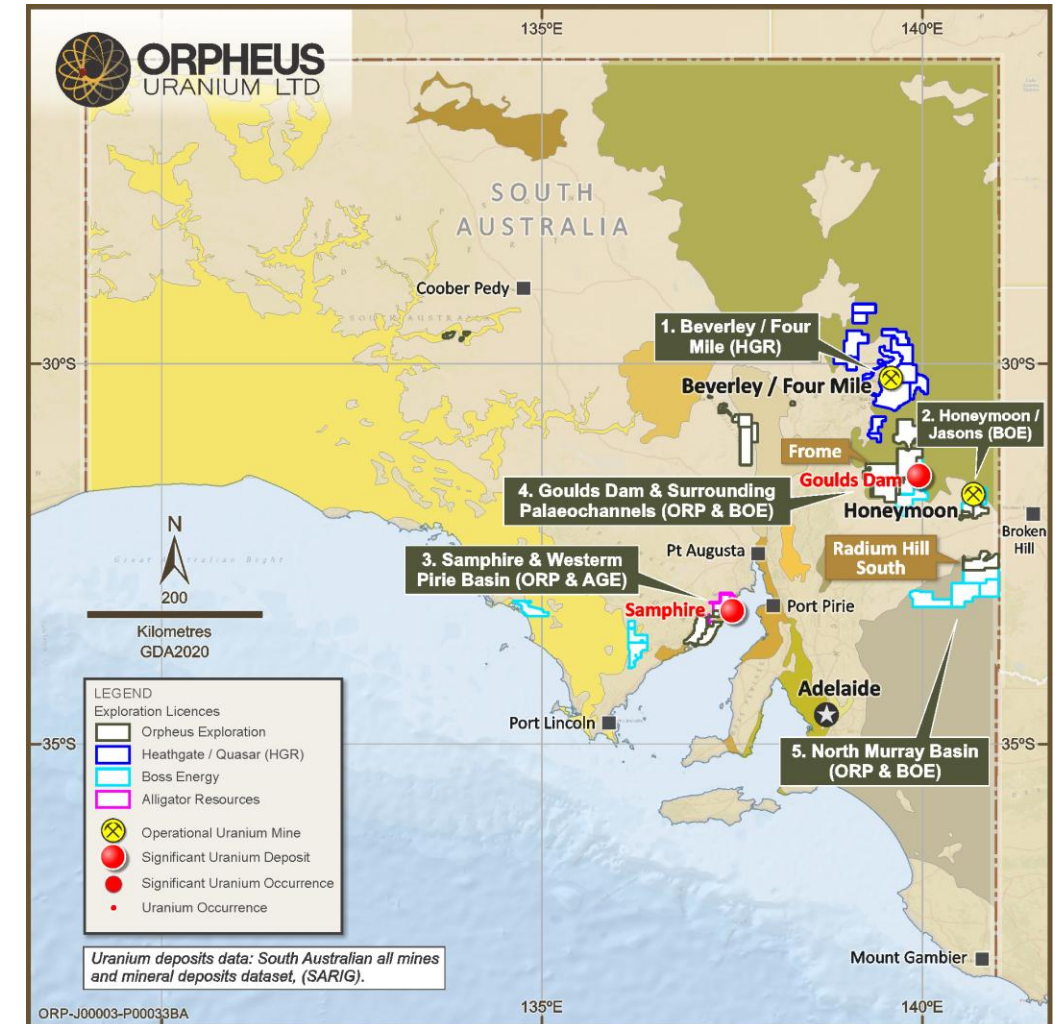


Key South Australian Projects

Leveraging results of previous explorers' activities who halted due to changing market conditions

- **Pirie Basin Uranium Project**
Over 40km strike of highly prospective Pirie Basin - adjacent to Alligator Energy's 18 Mlb. Samphire Uranium Project¹
- **Frome Uranium Project**
Located in a globally significant Callabonna Sub-Basin ~12km west of Boss Energy's 25 Mlb. Gould's Dam Uranium Deposit²
- **Radium Hill South Uranium Project**
~20 km south of Radium Hill Uranium Field and hosts five uranium occurrences
- **Proximal to Existing and Developing Operations**
Proximal to operations or developing **assets** that have **gained 'relatively recent' approval** for uranium mining **in a jurisdiction that allows uranium mining**
- **Project Generation**
Ongoing assessment for acquisition of projects that contain geologically relevant settings/allow on-ground advanced stage activities

1: Samphire Uranium Project – Alligator Energy Limited ASX: AGE - Increased Mineral Resource Estimate and Upgrade of Indicated Resource for the Blackbush Deposit. Samphire U Project. (18.0 Mlbs. at an average grade of 676ppm U3O8). Refer to ASX: AGE announcement dated 06 May 2025



2: Goulds Dam Uranium Deposit – Resource - Boss Energy Limited ASX: BOE - Combined Indicated and Inferred Resource – Average Grade 523 ppm U3O8 with Contained 25 Mlbs. U3O8. Refer to ASX: BOE announcement dated 23 January 2024

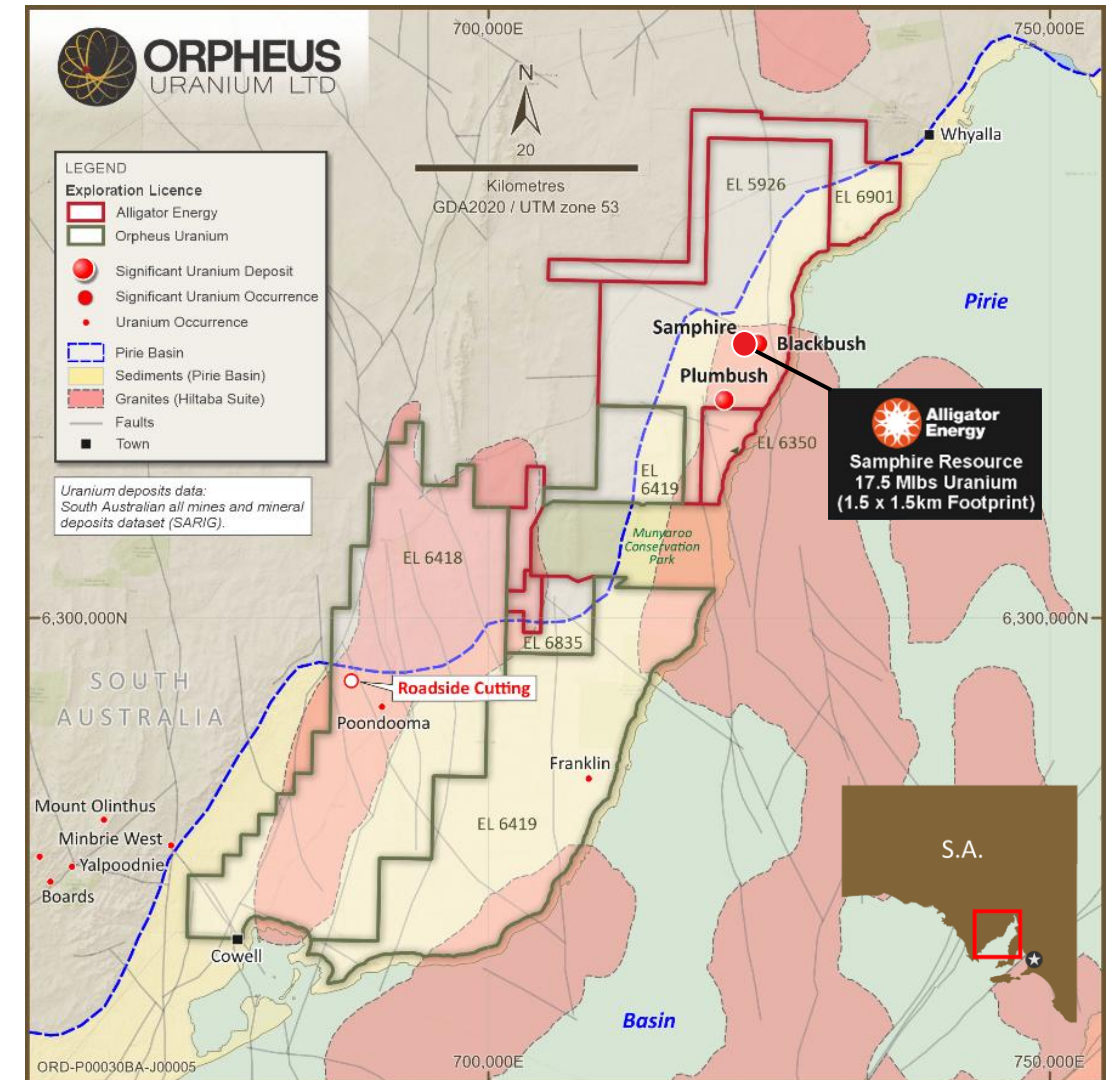
Pirie Basin Project

Advanced Exploration



FIRST TIME EXPOSURE TO URANIUM FOCUSED JUNIOR EXPLORER

- ✓ Over **40km strike of highly prospective Pirie Basin sediments** which are host to the 18 Mlb. (U) Samphire Project and underlain by fertile Hiltaba Suite granites
- ✓ **Pirie Basin is one of only two basins in South Australia** to host **sedimentary-style uranium deposits** that have active **advanced staged feasibility** or **producing in-situ recovery uranium projects**
- ✓ **Historical non-uranium exploration data** validates potential for uranium mineraliation, **intersections up to ~535 ppm U3O8** in drill holes (COD002)
- ✓ **Uranium exploration limited**, completed within localised areas in the late 1970s and early 2010s



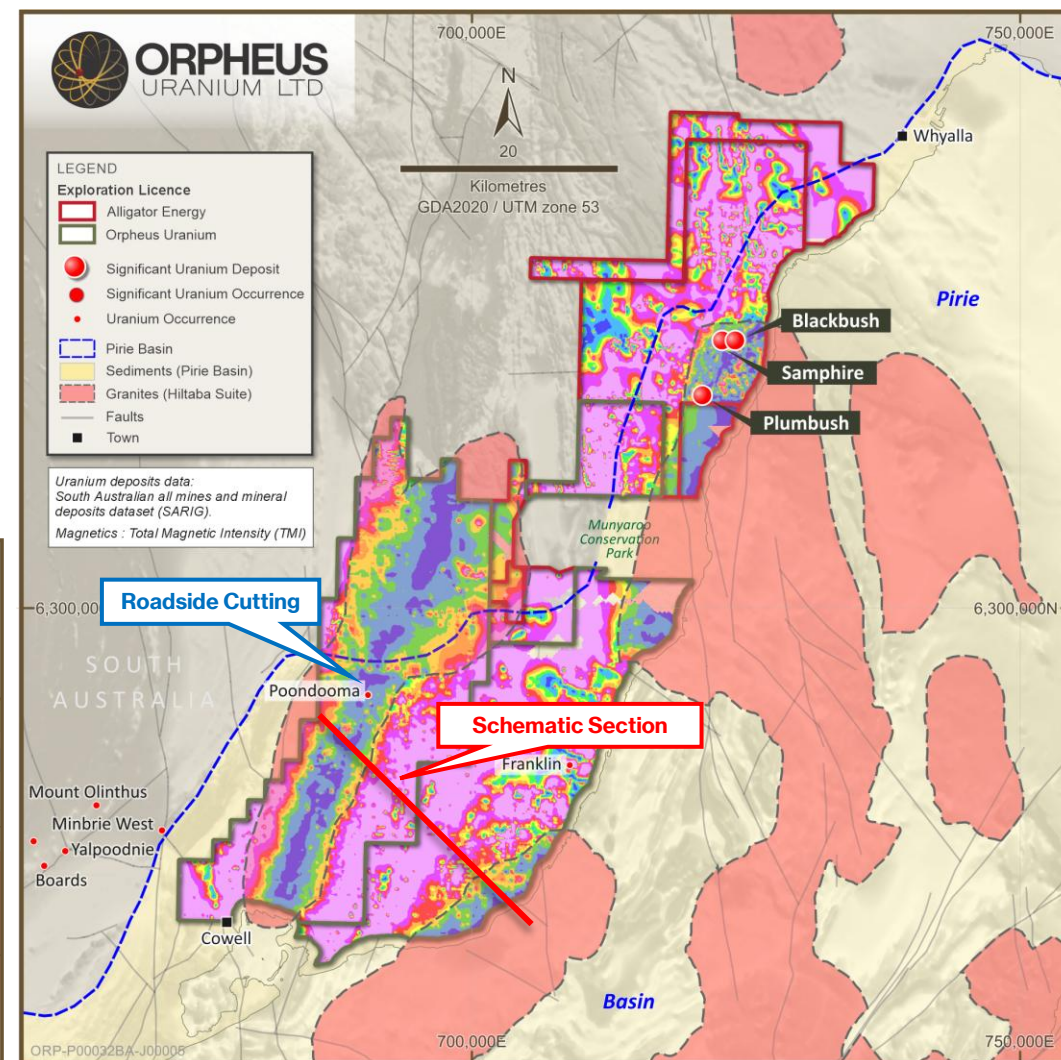
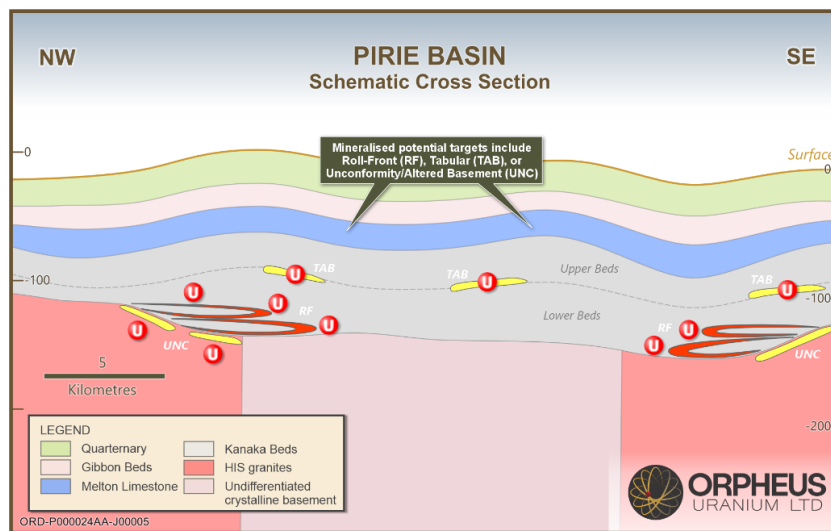
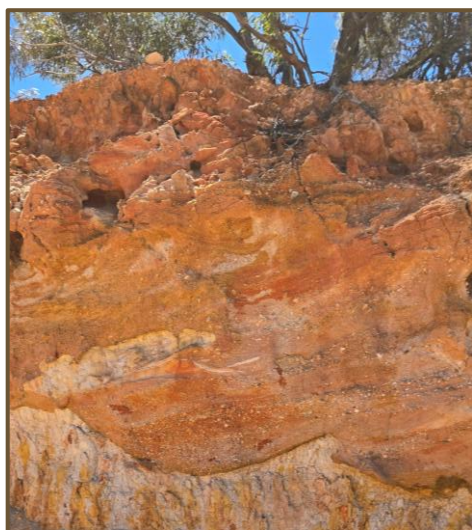
Pirie Basin Project

Advanced Exploration



FIRST TIME EXPOSURE TO URANIUM FOCUSED JUNIOR EXPLORER

- ✓ Mechanisms (source, transport & trap) for **uranium mineralising systems**, with **evidence of uranium mineralisation** at shallow depths of ~90 to 140m
- ✓ **100% ownership transaction incorporates** purchase of **technical data** including **regional gravity - reprocessed for uranium exploration** and delineating paleochannels
- ✓ Acquisition aligns with **Orpheus' strategy - consolidating unexplored extensions of proven uranium districts**, leveraging the Company's internal technical expertise to unlock new discoveries

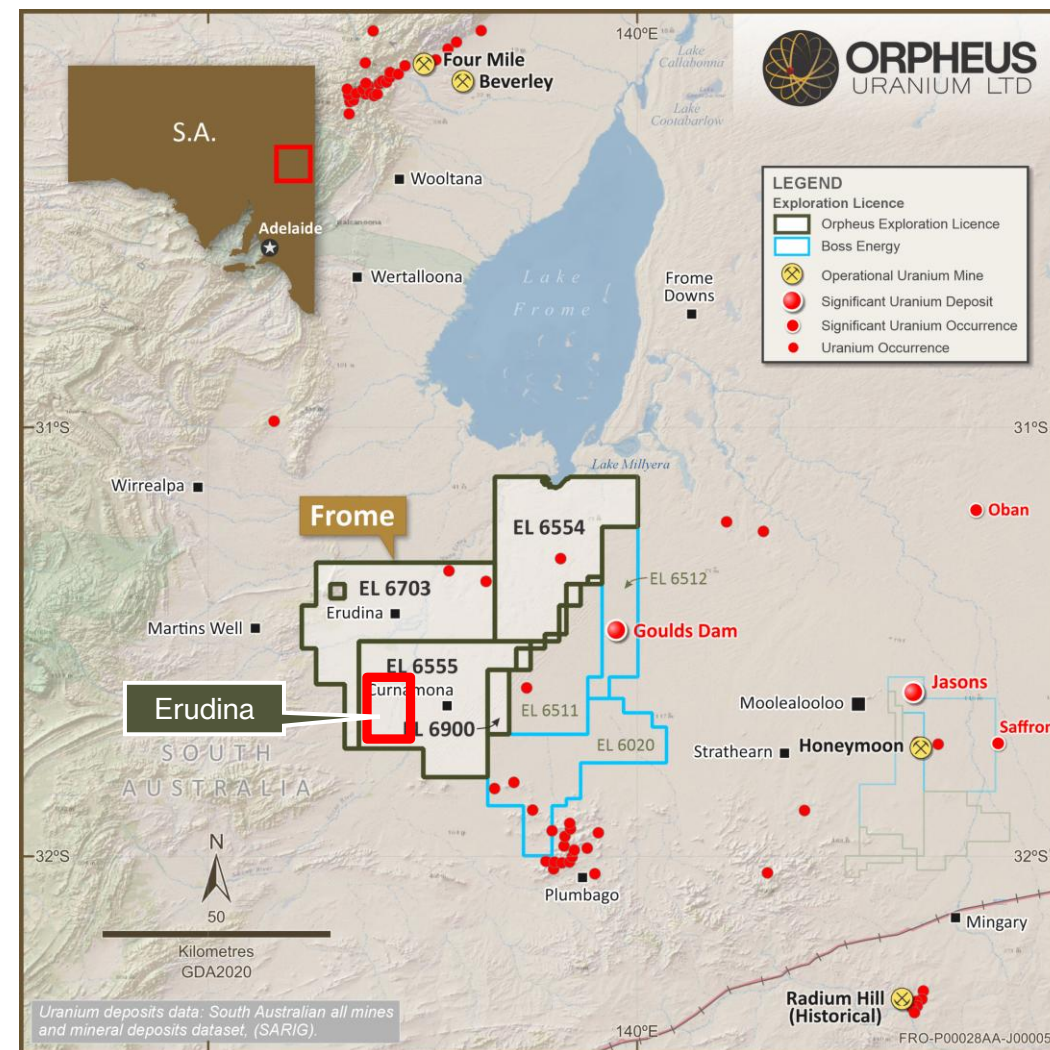


MULTIPLE TARGETS IN MULTIPLE PALAEOCHANNEL SYSTEMS

- ✓ Over **50km strike of highly prospective Callabonna Sub-Basin** - the only basin in **Australia** to host **sedimentary-style uranium deposits** that have **active producing in-situ recovery uranium projects**
- ✓ Mechanisms (**source, transport & trap**) for Uranium mineralising systems similar to regional deposits in Namba and Eyre Formations
- ✓ Contains a significant footprint of prospective paleochannels: **Hosts known uranium occurrences – mineral system located**
- ✓ **Erudina Exploration Target Area**
Initial testing of multiple targets proximal to Goulds Dam (~12km)

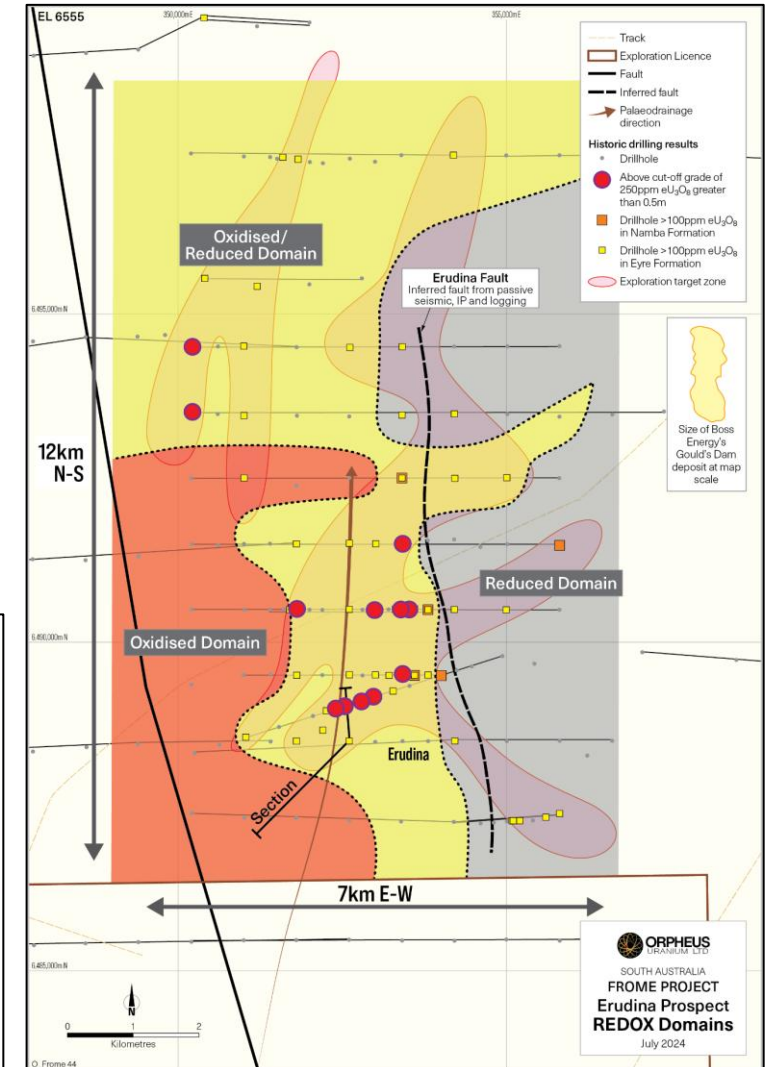
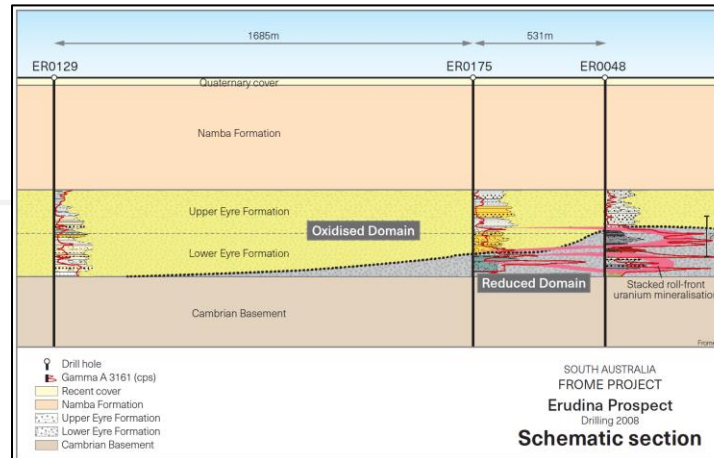


AGE	BASIN	STRATIGRAPHIC UNIT	THERMAL MATURITY
CENOZOIC	Lake Eyre Basin (Callabonna Sub-basin, incl. Pootlana Trough)	Coonabine Fm & equivalents	Sub-mature
		Eurinilla Fm & equivalents	
		Willawortina Formation	
		Namba Formation	
		Eyre Formation	
MESOZOIC Cretaceous	Eromanga Basin (Frome Embayment)	Mackunda Formation	Marginally mature
		Oodnadatta Formation	
		Coorikiana Ss	
		Bulldog Shale & equivalents	
		Parabarana Ss	
		Cadna-owie Formation	



DEFINED DRILL READY TARGETS AWAITING REGULATORY APPROVAL

- ✓ Exploration target area extends across a 12km N-S strike with potential for multiple 'stacked fronts'
- ✓ Evidence of mineralisation within the system – historical work identifies 56 historic anomalous drillholes >100ppm eU₃O₈, with Peak grades >1,500ppm eU₃O₈
- ✓ Development of subsurface reduced and oxidised sediments ("REDOX") model as a potential fluid-pathway and vector to higher-grade "roll front" style uranium mineralisation



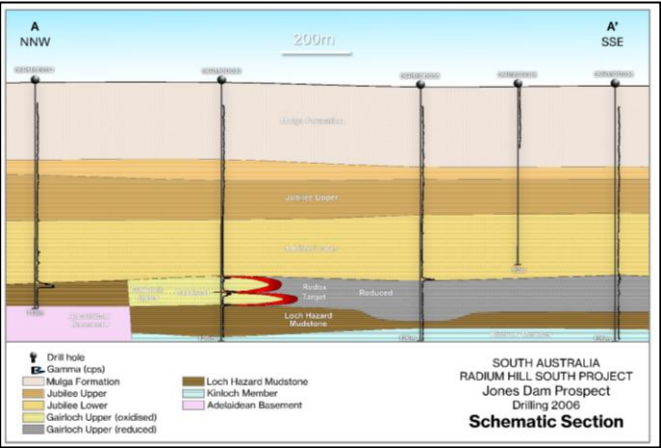
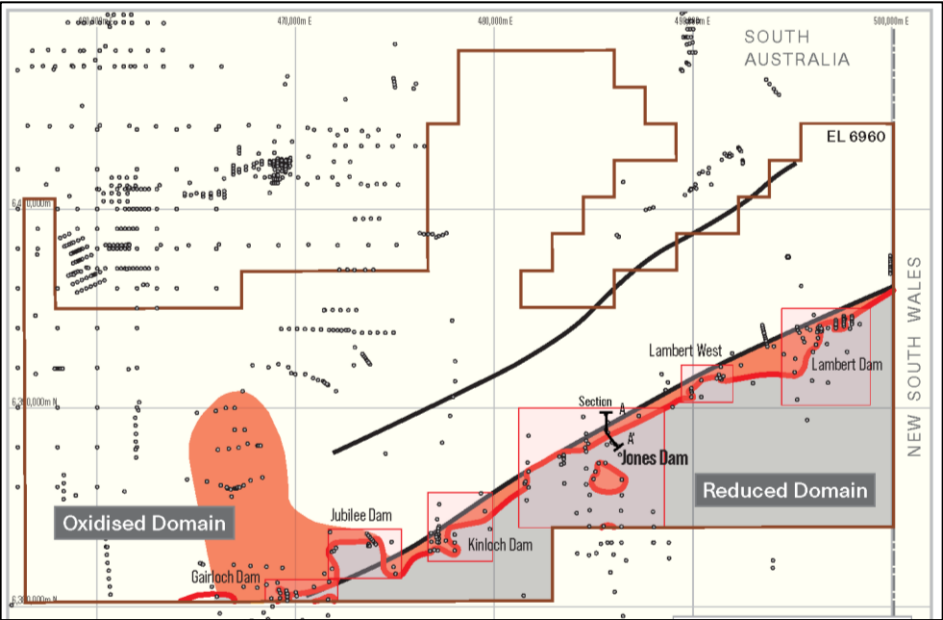
Radium Hill South Project

Advanced Exploration



FIVE EXISTING URANIUM PROSPECTS READY FOR IMMEDIATE FOLLOW-UP

- ✓ Located ~20km south of the highly radiogenic region of the historic **Radium Hill Uranium Field 2.6 Mlbs. @ 1,310ppm U_3O_8**
- ✓ Exploration licence hosts **five uranium prospects** that were abandoned due to market conditions in 2011
- ✓ Mechanisms (source, transport & trap) for **uranium mineralising systems**, with **evidence of uranium mineralisation** at shallow depths of ~80 to 110m
- ✓ Orpheus signed a Native Title Mining Agreement (NTMA) with the Wilyakali Native Title Aboriginal Corporation which allows advanced-stage activities, including drilling

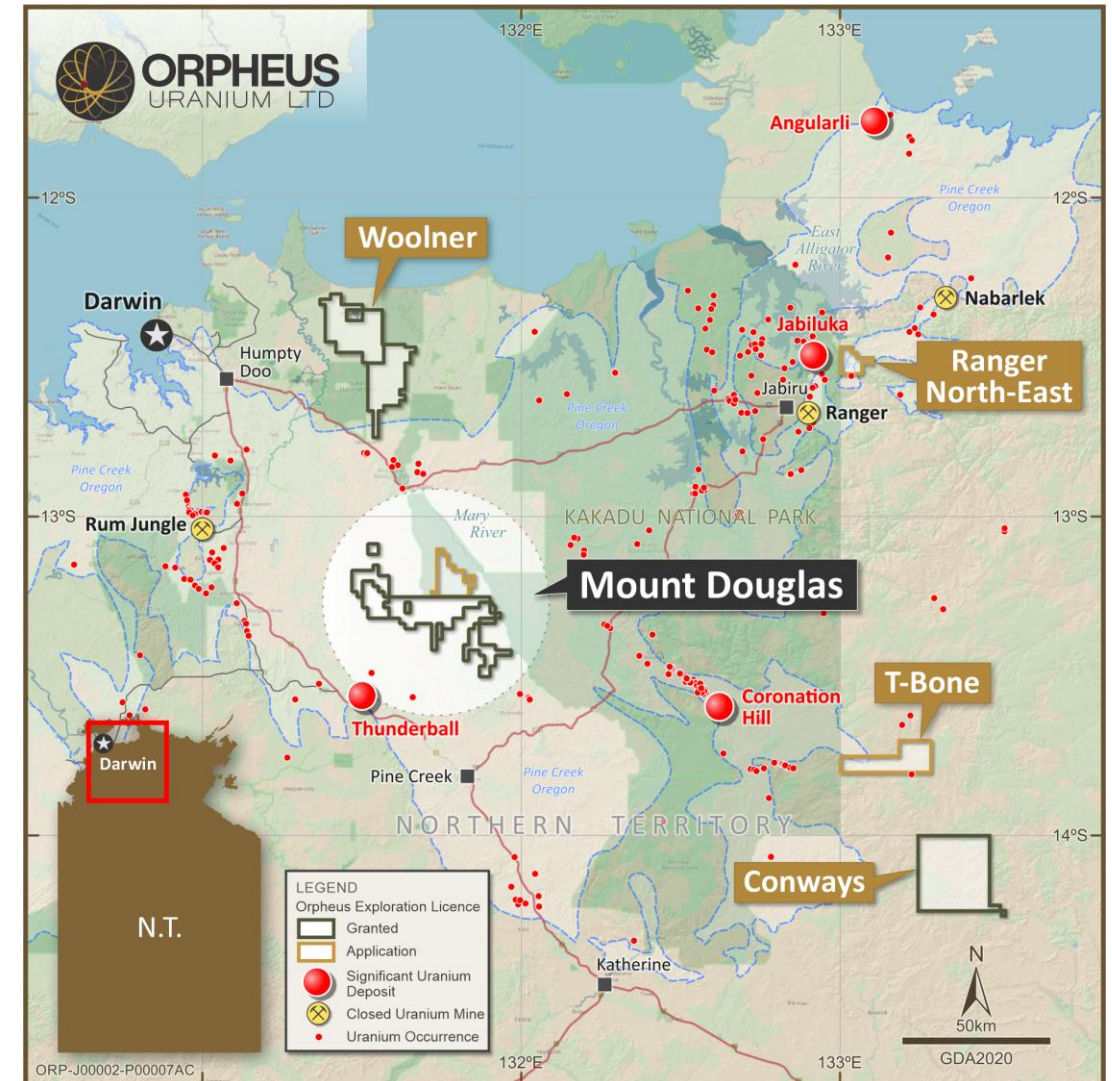


Prospect	Historic Results
Gairloch	1.9m @ 400ppm U_3O_8 from 103.8m at the contact between the base of a sand channel and underlying black carbonaceous clay
Jones Dam	2m @ 401ppm U_3O_8 from 86m in a strongly anomalous zone over 5.1m, within steely grey sand
Kinloch Dam	3m @ 507ppm U_3O_8 from 105m in sand below a silcrete layer

Key Northern Territory Projects

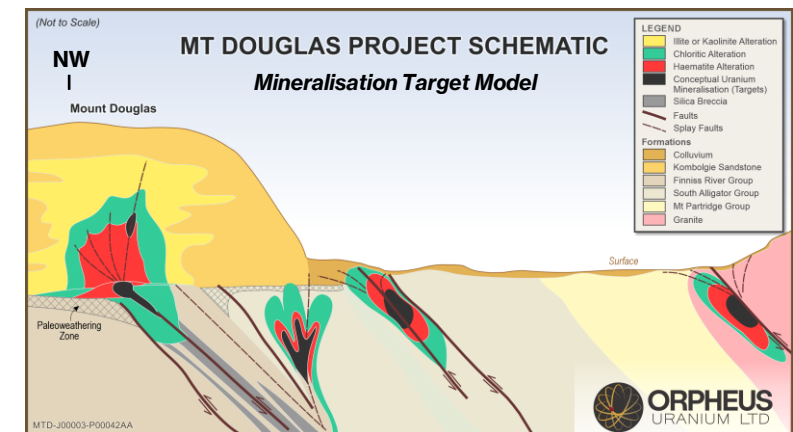
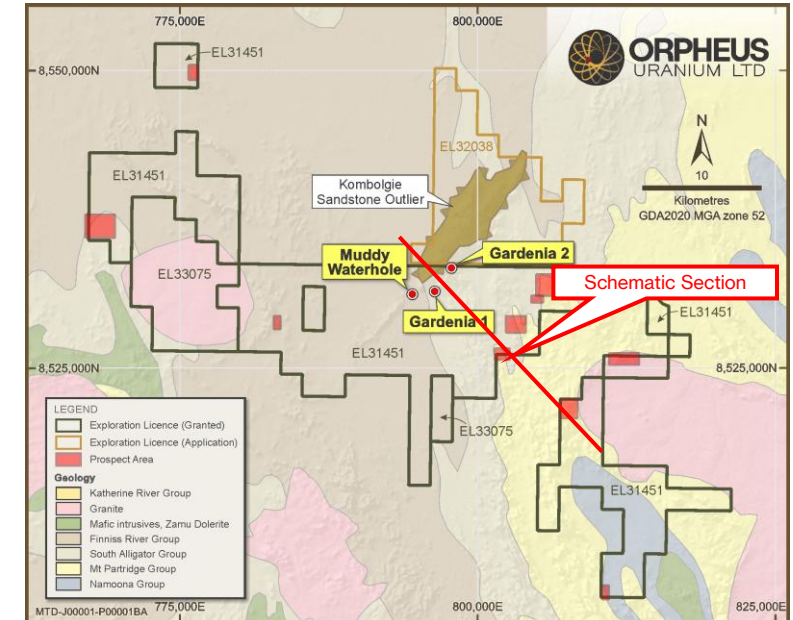
Significant region of historical production where Australia's large, high-grade deposits are discovered

- Targeting “Unconformity” and vein style mineralisation
Very underexplored, particularly in difficult-to-access areas of the Orogen
- Targeting the Pine Creek Orogen
“Australia’s economic Unconformity-Style mineral systems”
- Strategy of building ground position
Strategic play across the Orogen, preparing multiple drill targets for the medium term
- Key Project: Mount Douglas
Preparation for on-ground exploration activities at the end of wet season and working towards advanced-stage activities (i.e., trenching and drilling)



PROSPECTIVE FOR UNCONFORMITY AND VEIN-STYLE URANIUM MINERALISATION

- ✓ Evidence of **surficial radiometric anomalies** mapped throughout tenure and evidence of uranium mineralisation in rock chips of up to **750ppm U**
- ✓ **Geological synergy with proximal Thunderball unconformity-Style Uranium Deposit**
- ✓ Refined gravity geophysical survey with NTGS funding underway
- ✓ Heritage surveys for priority areas completed and ready for advanced stage exploration



Corporate Summary



CAPITALISATION DATA

Shares on issue

281.7M

Share Price (10 September 2025)

\$0.029

Market Capitalisation

\$8.2M

Cash (30 June 2025)

\$4.16M

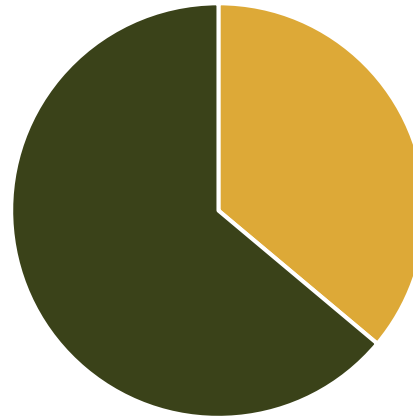
Liquid Assets (30 June 2025) *

\$0.74M

*Valuation of 4.33M shares in ASX:PSC (\$0.17)
as last reported 30th June 2025

+ ORP holds 6.25M call options to acquire ordinary PSC
shares at \$0.15 per share, expiring 11 April 2027

ASX: ORP Shareholder Spread



● **63.9%**
Top 20 Shareholders

● **36.1%**
Outside Top 20
Shareholders

BOARD & MANAGEMENT

Clint Dubieniecki – Managing Director & CEO

Simon Mitchell – Non-Exec Chairman

Todd Williams – Non-Exec Director

Richard Willson – Company Secretary

12 Month Share Price



5 Year Uranium Spot Price (USD/Lbs)





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 three of the best global uriferous jurisdictions in Australia. Callabonna sub-basin ands Pirie Basin 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.

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Comparable Projects

Orpheus reports Mineral Resources of uranium mines, deposits or past production that it considers comparable to the style and location of uranium mineralisation in which it explores, as presented within this presentation, and listed in the table herein.

Project	Development Phase	Location	Company / Operator	Resource Classification	Average Grade (ppm U ₃ O ₈)	Contained Metal (Mlbs, U ₃ O ₈)	Source
Honeymoon Uranium Mine	Mine	Frome Embayment (Callabonna Sub-basin) South Australia	Boss Energy Limited ASX: BOE	Mineral Resource	660	36	Refer to ASX: BOE announcement dated 23 January 2024
Jasons Uranium Deposit	Resource			Inferred Resource	790	10.7	Refer to ASX: BOE announcement dated 23 January 2024
Goulds Dam Uranium Deposit	Resource			Combined Indicated and Inferred Resource	523	25	Refer to ASX: BOE announcement dated 23 January 2024
Saffron Deposit	Resource		Marmota Limited ASX: MEU	Inferred Resource	557	5.4	Refer to ASX: MEU announcement 26 October 2023
Radium Hill Historic Mine	Historic Mine	Curnamona Province	Areas reserved from the Mining Act, 1971 and Opal Act, 1995	Past production	1,310	2.6	Refer to https://minerals.sarig.sa.gov.au/MineralDepositDetails.aspx?DEPOSIT_NO=962
Crocker Well Deposit	Resource	South Australia	Sinosteel Uranium SA Pty Ltd	Combined Indicated and Inferred Resource	281	11.7	Refer to ASX: PNN announcement 28 April 2010
Samphire Uranium project (Black bush)	Resource	Pirie Basin	Alligator Energy Limited ASX: AGE	Combined Indicated and Inferred Resource	676	18.0	Refer to ASX: AGE announcement dated 06 May 2025