ASX: ORP

ORPHEUS URANIUM LTD

Unlocking Tomorrow's Energy Today

CORPORATE PRESENTATION
NOVEMBER 2025

orpheusuranium.com

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Past performance

Past performance is not indicative of future performance and no guarantee of future returns is implied or given.

Financial data

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

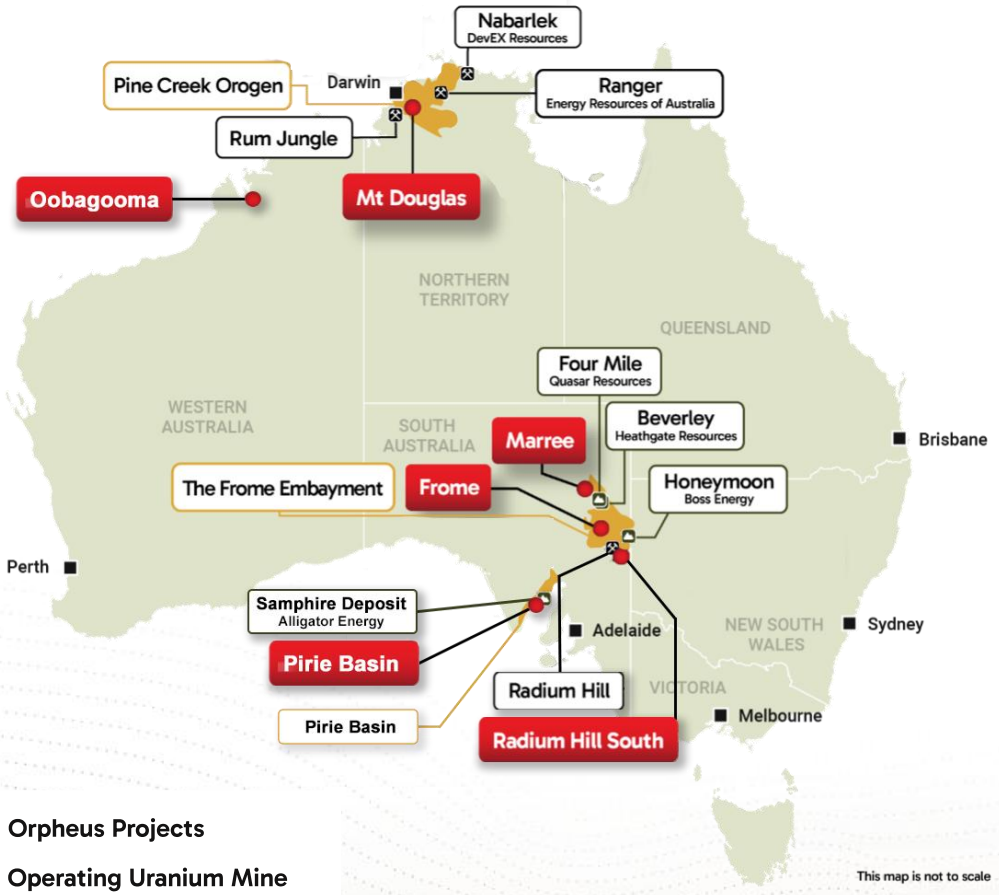
Market and industry data

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 Date, 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



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** (i.e., recent acquisition of **Oobagooma, Western Australia**)
- **Technically intelligent team with uranium experience at world-class uranium operations**
- Advancing 100% owned, market leading uranium exploration tenure → **Opportunity to invest in 'true uranium explorer'**

DUAL STRATEGIC APPROACH → LEVERAGING OFF IN-HOUSE URANIUM SPECIFIC EXPETIESE

- 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

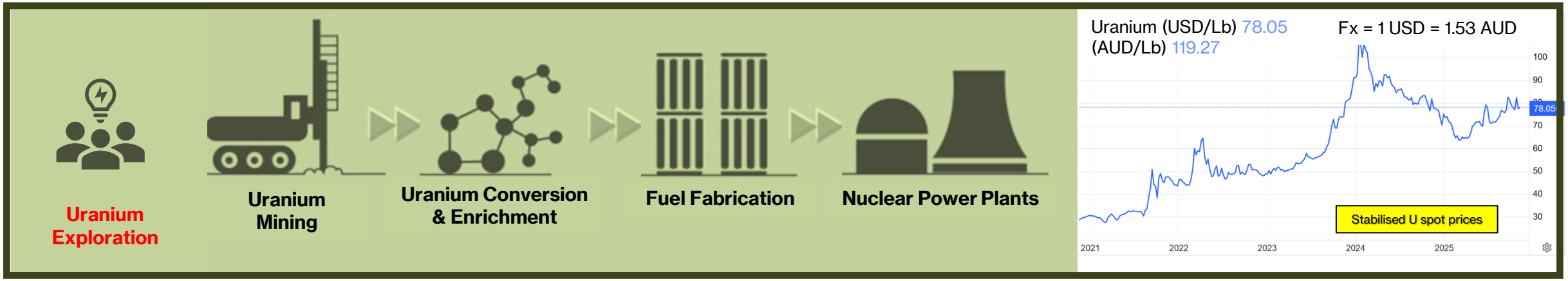


Image modified from: https://www.orano.group/en/unpacking-nuclear/all-about-nuclear-energy

1950s & 1970s

- 1949 Rum Jungle
- 1953 South Alligator River
- 1969 Ranger
- 1969 Beverly
- 1970 Koongarra
- 1970 Narbalek
- 1971 Jabiluka
- 1972 Honeymoon

2000s

- 2005 Four Mile East
- 2005 Four Mile West
- 2007 Blackbush (Samphire)
- 2008 Thunderball
- 2009 Pepegoona
- 2011 Pannikan

2020s

WHEN WE EXPLORE FOR URANIUM, WE DISCOVER URANIUM!

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

Orpheus Uranium Project Pipeline

Business Development (incoming Assets) →

Producing Assets →

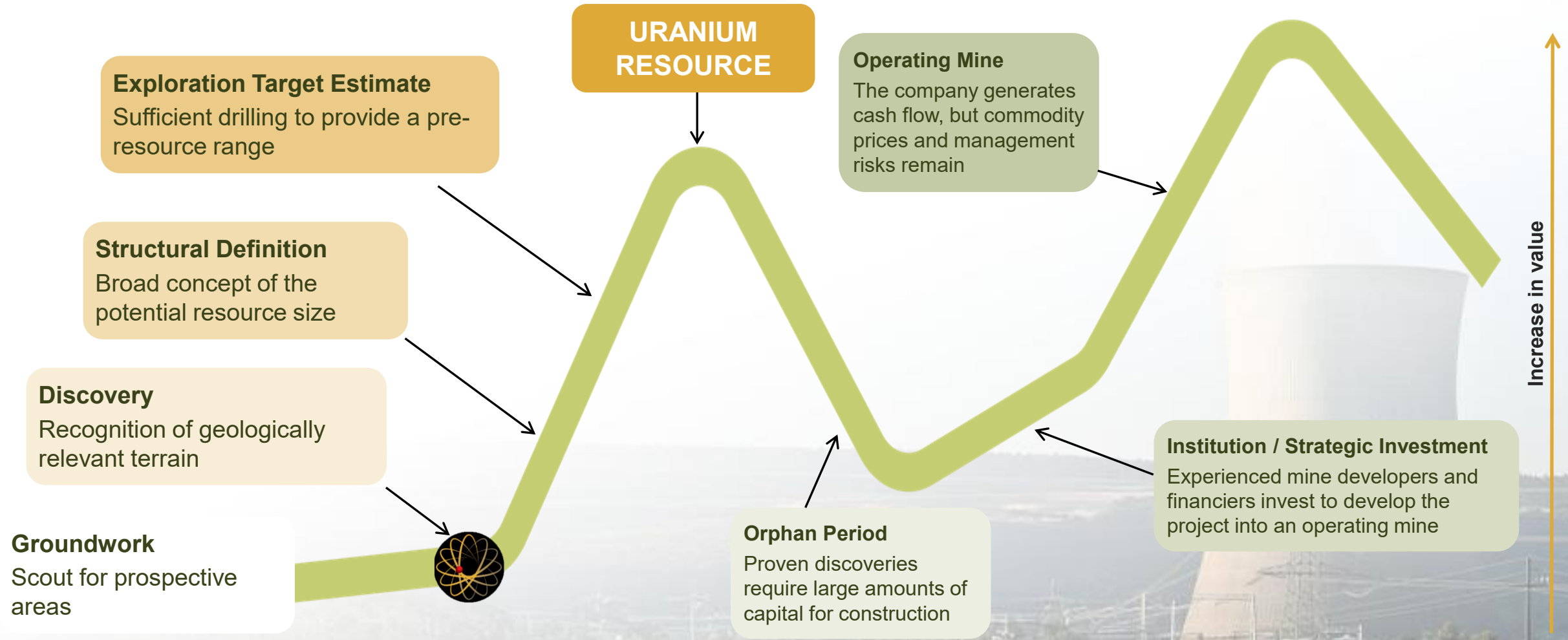
AS AN INDUSTRY - WHEN WE EXPLORE FOR URANIUM, WE DISCOVER URANIUM!

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

DUAL STRATEGIC APPROACH → LEVERAGING OFF DISTINCT URANIUM-SPECIFIC EXPERIENCE

* Sale agreement executed, working to completion of sale

From Discovery to Resource



Concept | Discover | Feasibility | Develop | Produce

Orpheus is best-positioning itself for business growth via discovery within greenfield projects through the development of an exploration portfolio of geologically prospective tenure

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 uraniferous rocks e.g., granites (SAs Frome Embayment contains some of the most uraniferous 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

Sedimentary-Style Mineralisation

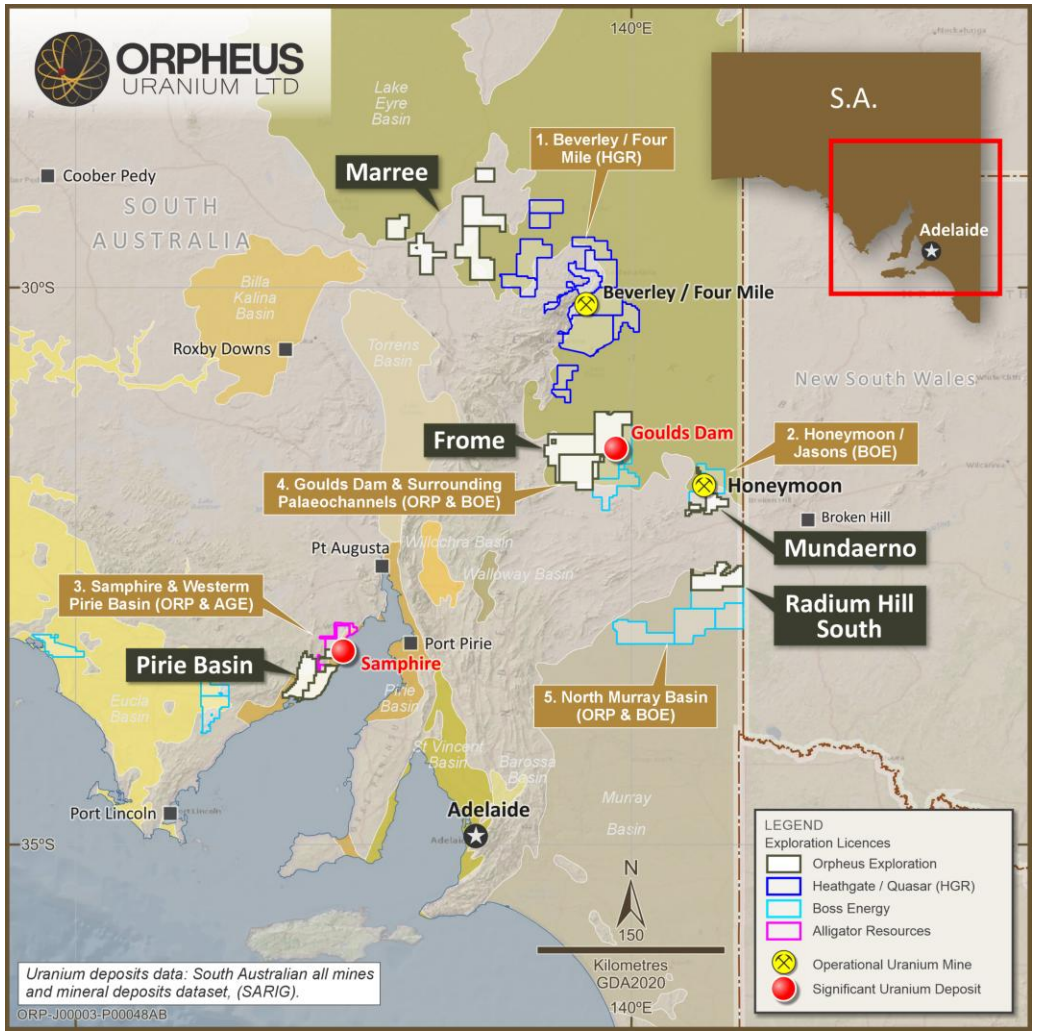
- **Pirie Basin Uranium Project**
  Over 40km strike of highly prospective Pirie Basin - adjacent to Alligator Energy's 18 Mlb. Samphire Uranium Project[1]

- **Frome Uranium Project**
  Located in a globally significant Callabonna Sub-Basin ~12km west of Boss Energy's 25 Mlb. Gould's Dam Uranium Deposit[2]

- **Radium Hill South Uranium Project**
  ~20 km south of Radium Hill Uranium Field and hosts five uranium known occurrences

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

- **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**



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

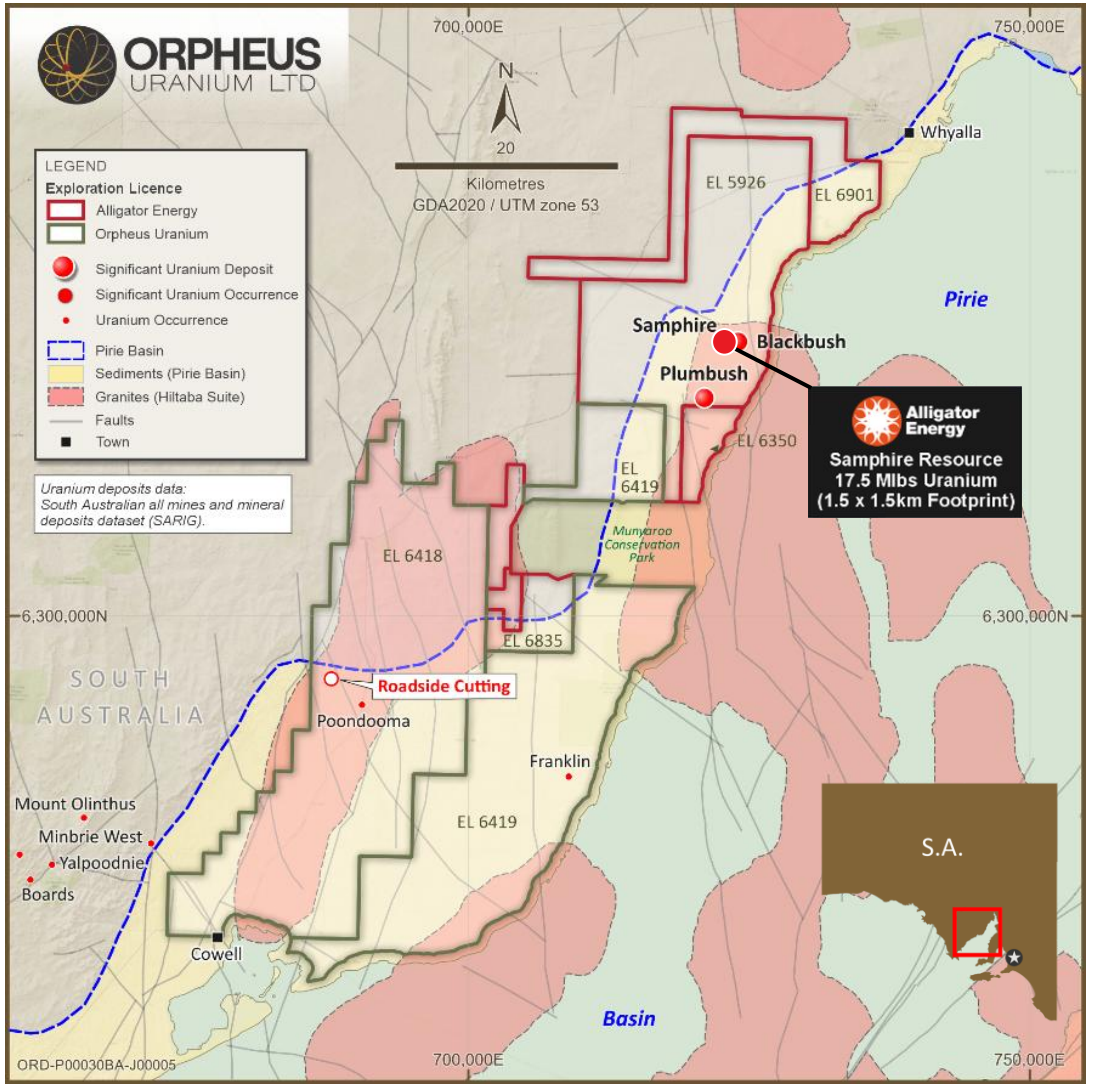
2: Goulds Dam Uranium Deposit – Resource - Boss Energy Limited ASX: BOE - Combined Indicated and Inferred Resource – Average Grade 523 ppm U3O8 with Contained 25 Mlbs. U3O8. Refer to ASX: BOE announcement dated 23 January 2024

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

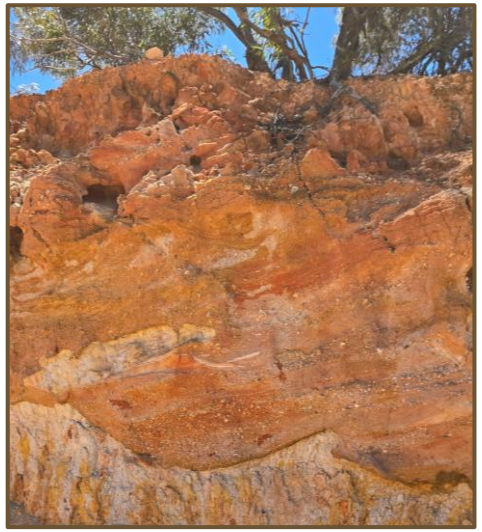


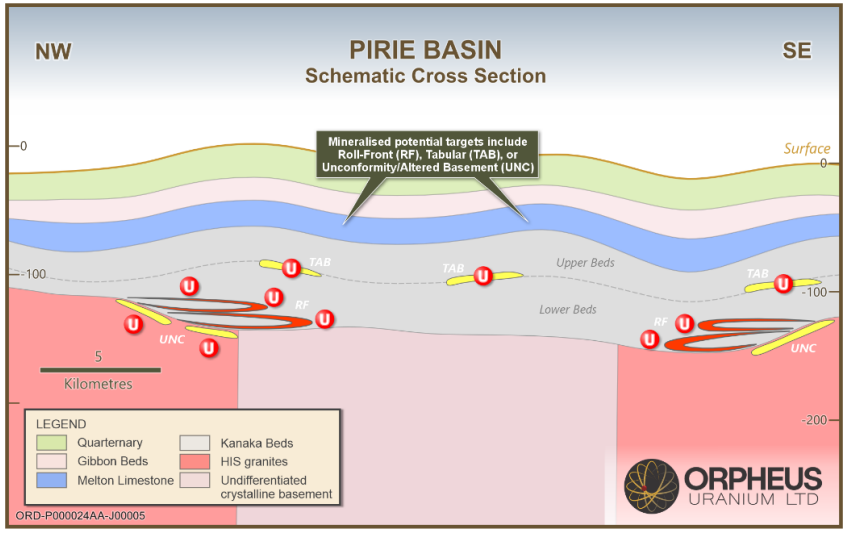
Pirie Basin Project

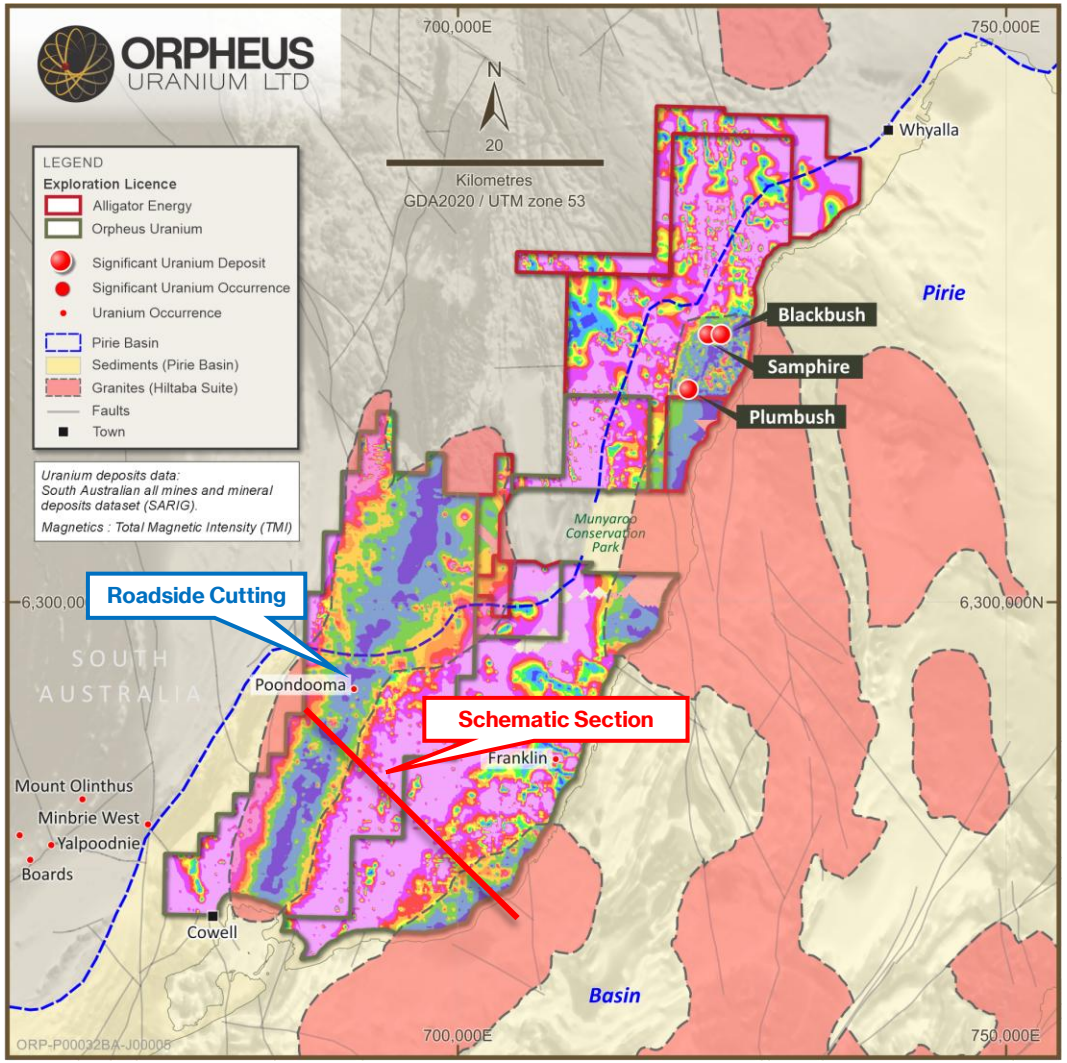
Advanced Exploration

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







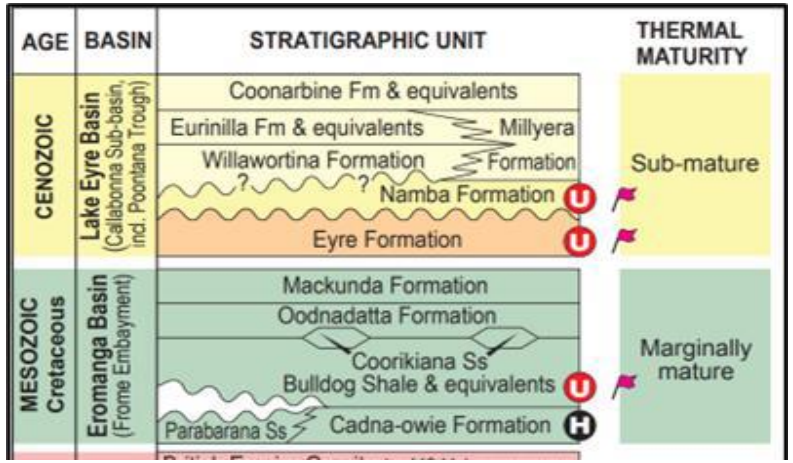
Frome Project

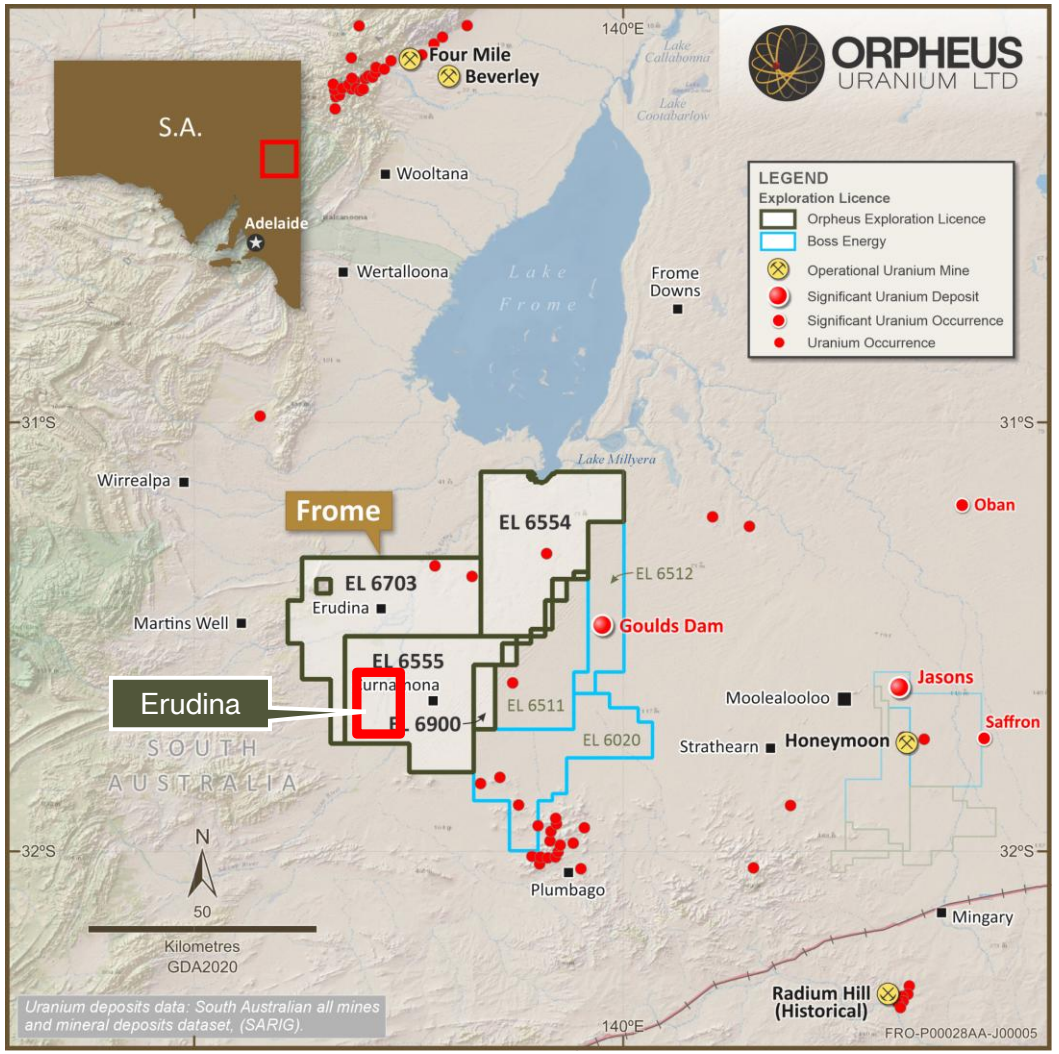
Advanced Exploration

ORPHEUS URANIUM LTD

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 -** proximal to Goulds Dam (~12km)
- 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**
- **NTMA Established – Progressing regulatory approvals for drilling**



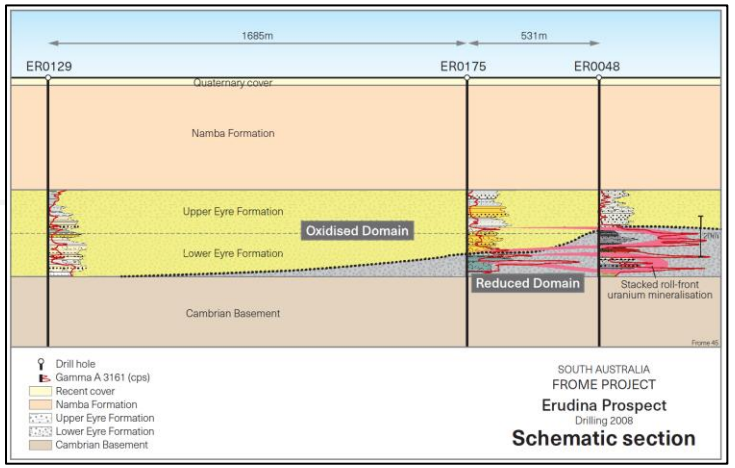


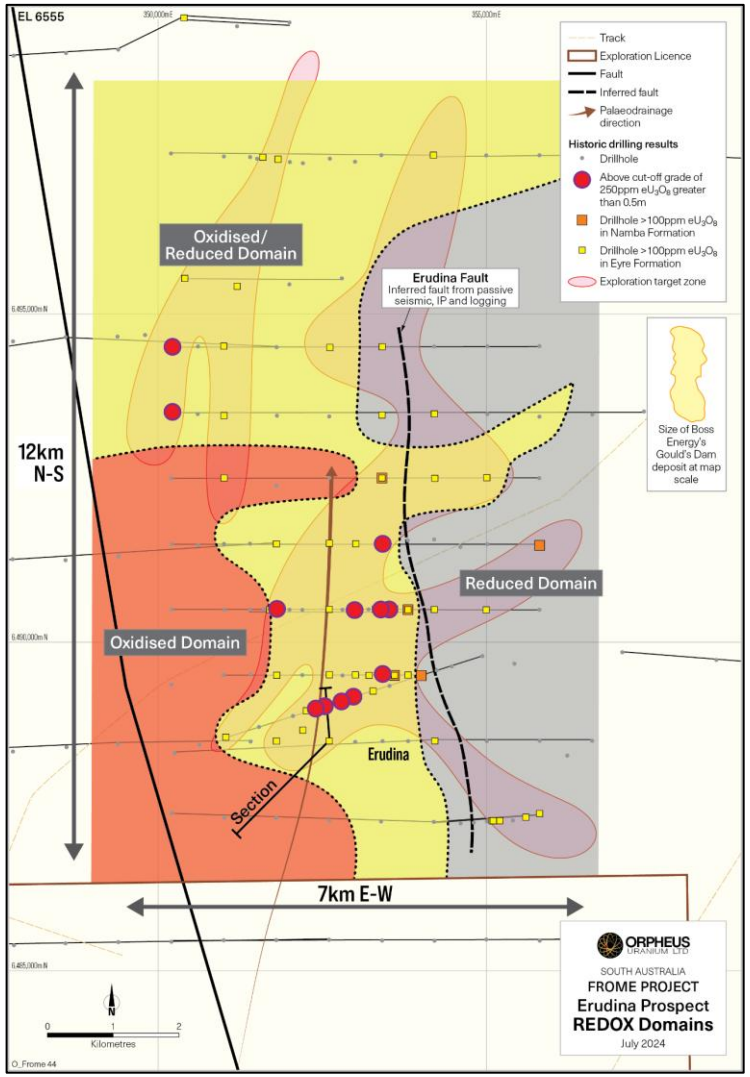
Frome Project | Erudina Prospect

Advanced Exploration

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



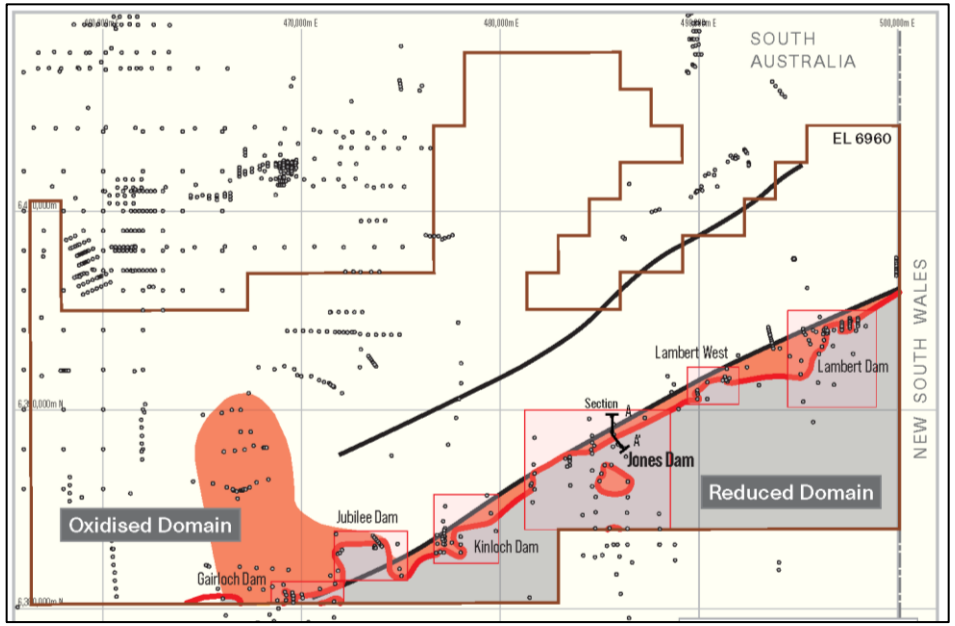


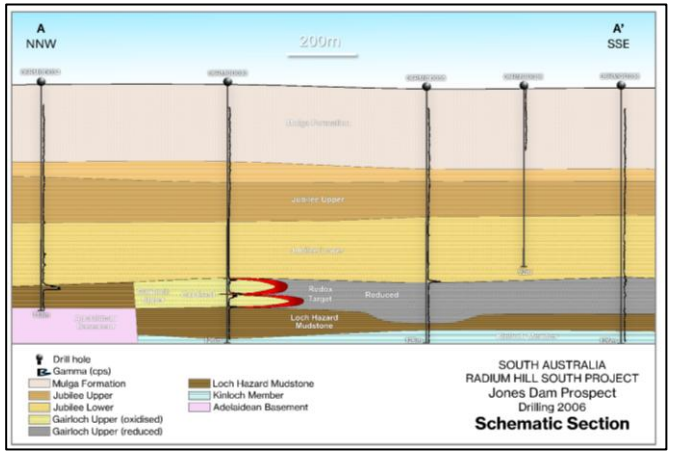
Radium Hill South Project

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
- **NTMA Established – Progressing regulatory approvals for drilling**





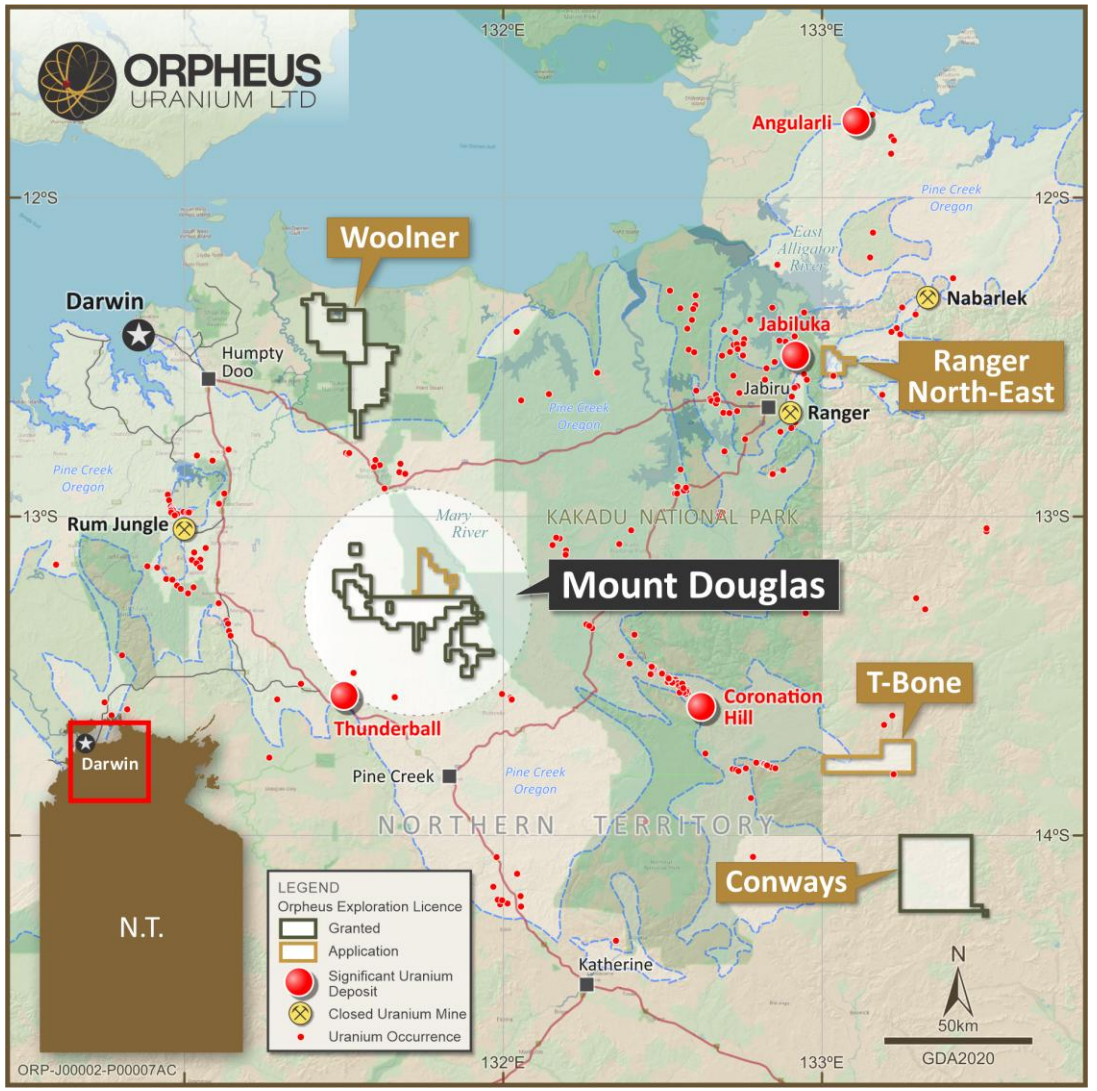
Prospect	Historic Results
Gairloch	**1.9m @ 400ppm U_3O_8** from 103.8m at the contact between the base of a sand channel and underlying black carbonaceous clay
Jones Dam	**2m @ 401ppm U_3O_8** from 86m in a strongly anomalous zone over 5.1m, within steely grey sand
Kinloch Dam	**3m @ 507ppm U_3O_8**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

Key Northern Territory Project

Unconformity and Vein style Mineralisation

- **Targeting the Pine Creek Orogen**
  "Australia's economic Unconformity-Style mineral systems" - Significant region of historical production where Australia's large, high-grade deposits are discovered

- **Mount Douglas**
  Exposure of Kombolgie Sandstone and geological synergy with Thunderball Uranium Depoist

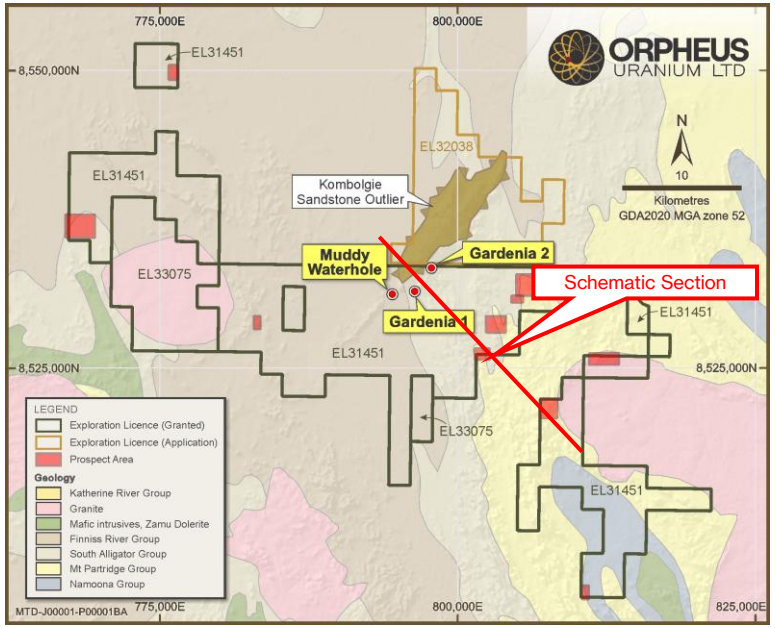


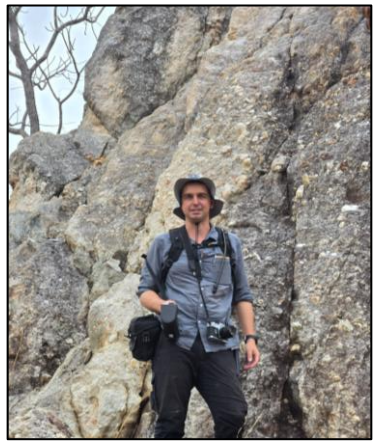
Mount Douglas Project

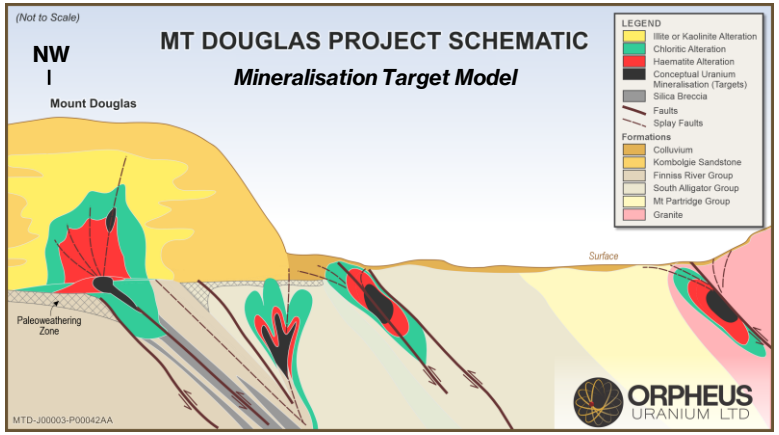
Early Exploration

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







Key West Australia Project

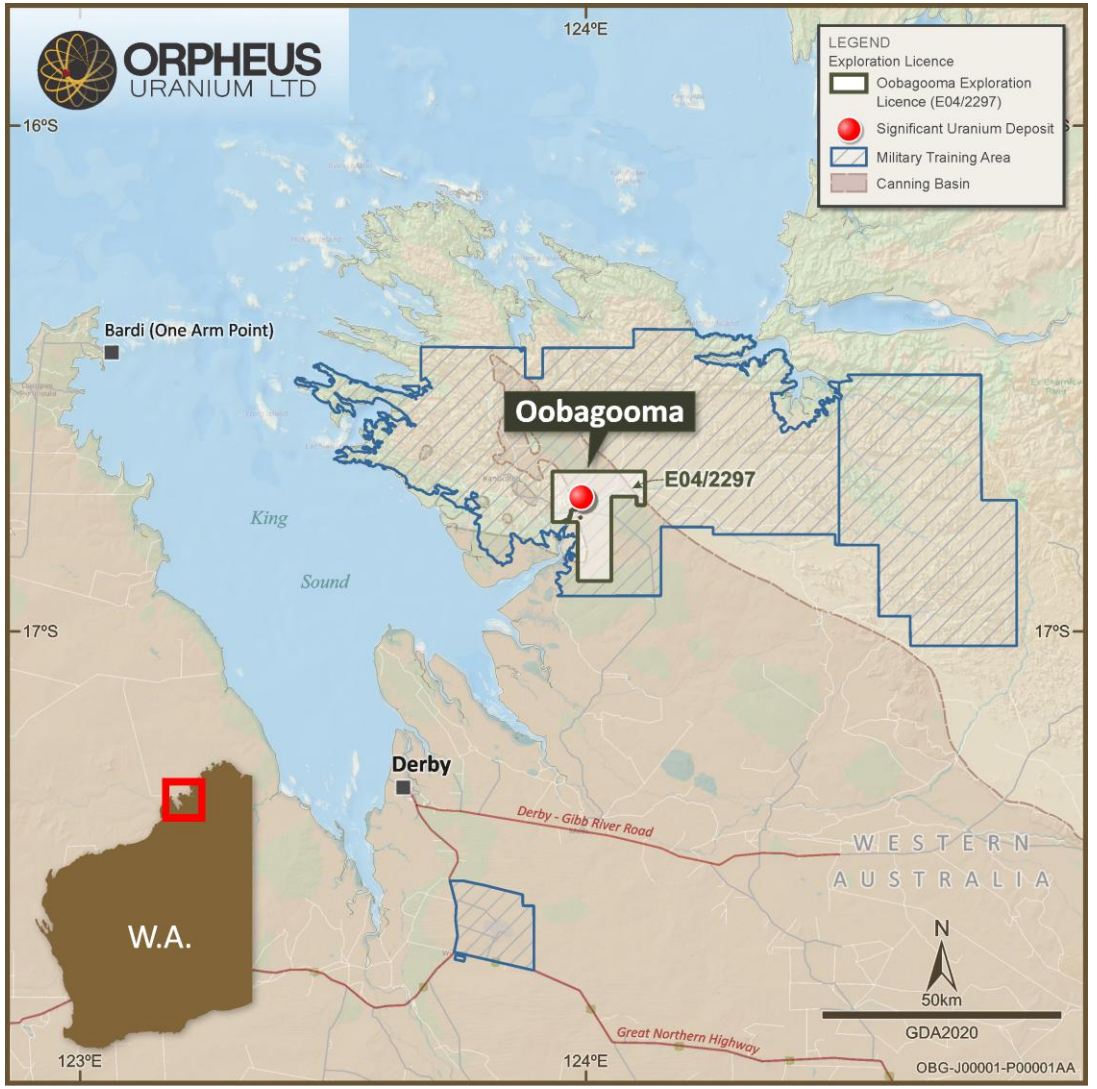
Oobagooma Uranium Project[3]

- **Targeting "Sedimentary" redox-style mineralisation**
  Hosted within Yampi Sandstone of the Carboniferous Canning Basin

- **Limited Contemporary On-ground Exploration**
  Discovered in 1981 by Australian French Mining & Exploration Company (Afmeco), most recent drilling in 1983

- **Geological setting conducive to uranium mineralisation**
  Evidence of mineralising source rocks, transport mechanism and geochemical trap sites

- **Elevated uranium grades – multiple holes with GT > 1,000 (m x ppm)**
  Known uranium mineralisation extends over approximately 4 km of strike and 1.5 km width



GT = Grade Thickness -calculated as uranium grade (eU3O8) x Thickness (m)

3: Oobagooma Uranium Project – Orpheus Uranium Limited ASX: ORP - Acquisition of Oobagooma Uranium Project. Refer to ASX: ORP announcement dated 14 October 2025

Corporate Summary

CAPITALISATION DATA

Shares on issue

281.7M

Share Price (12 November 2025)

$0.053

Market Capitalisation

$15M

Cash (30 September 2025)

$3.07M

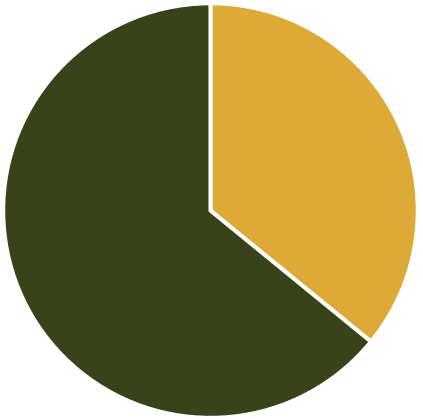
Liquid Assets (30 September 2025) *

$0.64M

** Following the end of the quarter Orpheus completed the sale of the remaining 3.2 million PSC shares for a total consideration of $0.639 million*

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

ASX: ORP Shareholder Spread



64.1% Top 20 Shareholders

35.9% 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)

Summary

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 uraniferous jurisdictions in Australia, and is extending into Western Australia.

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_3O_8)	Contained Metal (Mlbs, U_3O_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 South Australia	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		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

Board and Management

Orpheus is led by a Board with decades of experience and current connections with all aspects of today's uranium industry.

Clinton Dubieniecki
Managing Director

Clinton is a trained geologist with over 18 years of experience and extensive exposure to the uranium sector. He has worked across the full value chain of uranium projects – from exploration through to resource development and production – with multinational companies including Orano, Uranium One, and most recently Heathgate Resources, where he spent nearly a decade contributing to the operation of the Beverly and Four Mile projects. Clinton joined Orpheus in May 2024.

Simon Mitchell
Chairman

Simon is a trained geologist with more than 35 years of experience spanning technical, financial, and corporate roles, including significant exposure to exploration and mine development. He spent over six years with uranium development company Toro Energy, and more recently has provided consulting services to several Canadian uranium companies, including NexGen Energy Ltd, developer of the world-class Rook I uranium project in the Athabasca Basin, Canada. Simon joined Orpheus in October 2023.

Todd Williams
Non-Executive Director

Todd is a trained geologist with more than a decade of experience across all aspects of mineral exploration. He is currently the Managing Director of Unico Silver and brings extensive uranium sector experience through his time with Power Minerals (formerly PepinNini). Notably, he was instrumental in vending the 'Big Lake' uranium project – recently recognised as Discovery of the Year – into Alligator Energy. Todd joined Orpheus in December 2023.

Exploration Team

The Orpheus exploration team is full of uranium-specific expertise, with every geologist having experience in all stages of sedimentary-style uranium exploration and production at Australia's Beverley/Four Mile operation.

Isaac Lord
Senior Geologist

Isaac is a geologist with five years of experience at Heathgate Resources, Australia's premier sedimentary-style (ISR) uranium producer. He has gained exposure across the full uranium value chain, from exploration through to production, with the past two years spent in the company's Resource Development department focusing on the Four Mile deposits. Isaac joined Orpheus in October 2026.

Jack Maughan
Lead Geodata Scientist

Jack is a geologist with 10 years of international experience across multiple sectors of the mining and exploration industry. He began his career with Heathgate Resources, contributing to successful exploration programs and production activities. Jack later gained experience in North America, including as a data scientist with BHP, before returning to Australia to consult to Heathgate and subsequently joining Data Rock as a data scientist. Jack joined Orpheus in May 2026.

Chloe Reddaway
Project Geologist

Chloe is a geologist with two years of experience at Heathgate Resources, Australia's longest continuously operating sedimentary-style (ISR) uranium producer. She has worked across multiple geological departments, including uranium exploration and production, before contributing to regional exploration programs. Chloe joined Orpheus in June 2025

Orpheus Uranium Key Projects

Orpheus is targeting tier-1 (world-class) uranium exploration regions, on tenure with confirmed presence of mineral systems

Pirie Basin Project
South Australia
Sedimentary-Style

The Pirie Basin Project is located within South Australia's Pirie Basin, adjacent to Alligator Energy's (ASX: AGE) 18.0 Mlb Samphire Uranium deposit. The project portfolio encompasses over 40 km of strike length of fertile Pirie Basin sediments, which unconformably overlie the uranium-enriched Hiltaba Suite Granites. Despite its prospectivity, this tenure is being introduced to the market for the first time by a uranium-focused junior explorer.

Frome Project
South Australia
Sedimentary-Style

The Frome Project is situated within South Australia's highly prospective Calobonna Sub-Basin, which hosts all of the state's operating in-situ recovery uranium mines. The project lies in close proximity to Boss Energy's (ASX: BOE) 25.0 Mlb Gould's Dam Uranium deposit. The portfolio covers over 20 km of strike length of fertile Eyre Formation sediments and benefits from more than 80,000 m of historical drilling. Contemporary reinterpretation of this data has identified definitive redox targets for follow-up exploration activities.

Radium Hill South
Western Australia
Sedimentary-Style

The Radium Hill South Project is situated on the northern margins of the relatively underexplored Murray Basin, adjacent to the historic Radium Hill uranium fields. Regional exploration has identified five prospects exhibiting elevated uranium levels, with significant potential for further discoveries. Contemporary uranium exploration techniques will be employed to refine targeting across the tenement and advance its exploration potential.

Orpheus Uranium Key Projects

Orpheus is targeting tier-1 (world-class) uranium exploration regions, on tenure with confirmed presence of mineral systems

Mt Douglas
Northern Territory
Unconformity-Style

The Mount Douglas Project is located within the Pine Creek Orogen, a region that hosts the most recent production of unconformity-style uranium mineralisation. The project lies proximal to, and exhibits geological synergy with, Patronus Resources Thunderball uranium deposit. While Mount Douglas remains largely unexplored for unconformity-style uranium, it displays all the key geological characteristics indicative of potential uranium mineralisation.

Oobagooma Project
Western Australia
Sedimentary-Style

The Oobagooma Project has had significant historical exploration and is an important part of our strategy to create a balanced portfolio of uranium assets. The Project has had limited modern exploration , which provides Orpheus with the opportunity to add value through the advancement of a known uranium target that Orpheus believes is equivalent in scale to the likes of Alligator Energy's Samphire Deposit and Boss Energy's Gould's Dam sedimentary-style deposits.

Marree
South Australia
Sedimentary-Style

The Marree project comprises three prospective early-stage exploration licences located to the northwest of the Northern Flinders Ranges Mount Painter Block, which hosts some of the most uraniferous surface and potential uranium source rocks within Australia, if not globally. The project has potential for sedimentary-style uranium associated with Eocene sediments, similar to those that host the Four Mile and Honeymoon Projects.