

ASX: ORP



Discovering Tomorrow's Clean Energy

GOLD COAST INVESTMENT SHOWCASE
JUNE 2024

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

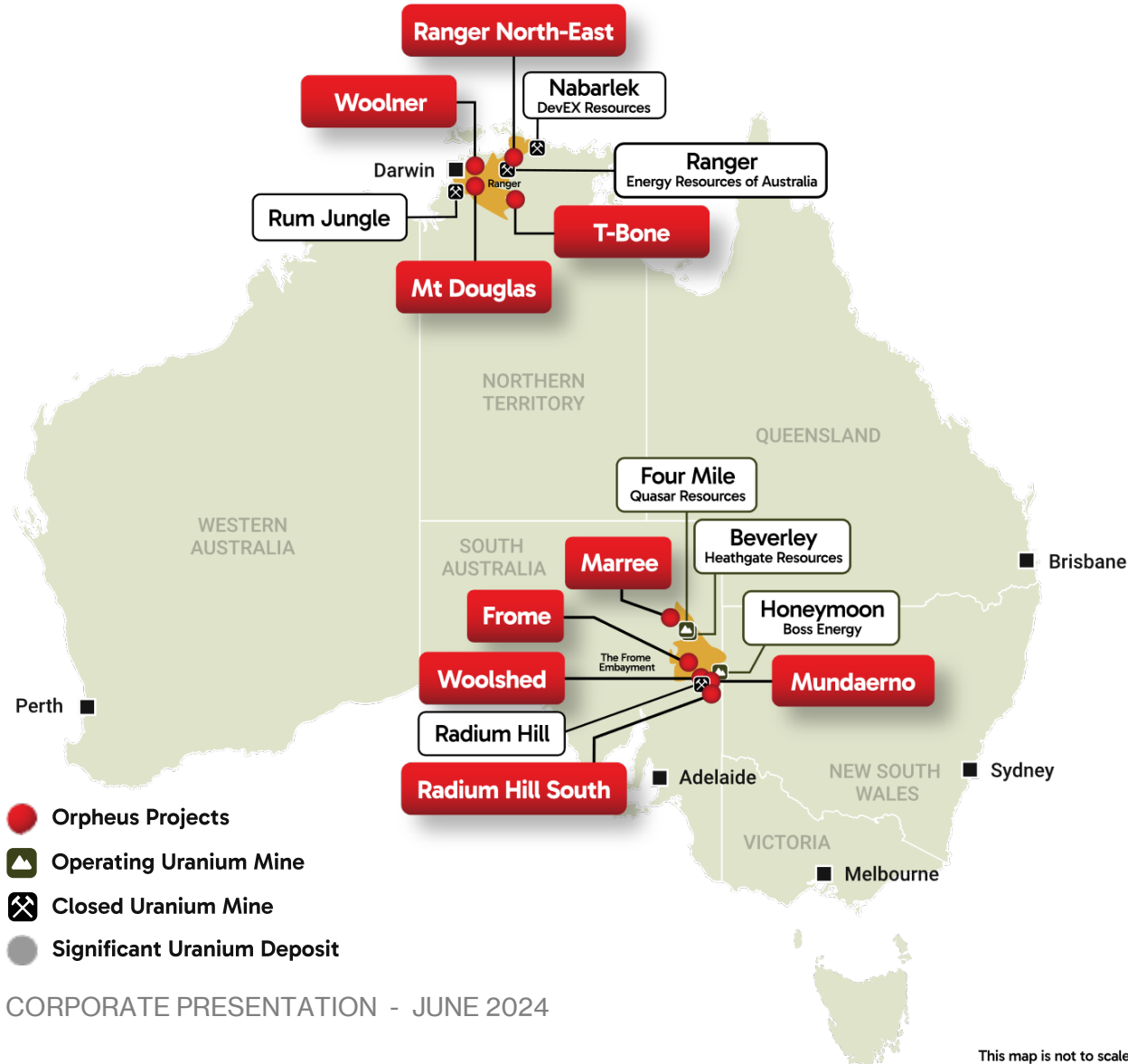
Market and industry data

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 presentation that relate to Exploration Results were compiled or reviewed by Miss Bethany Lawrence BScAppGeol(Hons),MAIG,GIA(Aff),CG(Aff) who is a Member of the Australian Institute of Geoscientists and is a full-time employee of Orpheus Uranium Limited. Miss Lawrence holds shares in Orpheus Uranium Limited. Miss Lawrence has sufficient experience which is relevant to the style of mineral deposits under consideration and to the activity which she 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". Miss Lawrence consents to the inclusion in this presentation of the matters based on this information in the form and context in which it appears.

Major Investment Highlights



DRILL READY & HIGH IMPACT PROGRAM

- ✓ Targeting tier-1 (world-class) uranium exploration regions, on tenure with confirmed presence of mineral systems
- ✓ Developing technically intelligent team, with unique proven success in Uranium mineralisation discovery, development and production
- ✓ Uranium exploration in the two jurisdictions of Australia that allow uranium exploration and mining, South Australia and the Northern Territory
- ✓ Drill targeting 100% owned, advanced uranium exploration projects with a healthy \$5 Million cash balance and poised for market growth
- ✓ Major projects include Frome, Mundaerno, Radium Hill South and Mt Douglas

High Impact Drilling Program



INDICATIVE FIELD ACTIVITY SCHEDULE 2024-25

PROJECT		2024			2025	
		Q2	Q3	Q4	Q1	Q2
Frome Project	Passive Seismic Heritage Clearance	Work Approvals Geological Interp,	DRILLING			
Radium Hill South Project		Site Reconnaissance Geological Interp,	Heritage Clearance Work Approvals		DRILLING	
Mundaerno & Woolshed Projects			Site Reconnaissance Geological Interp,		Heritage Clearance Work Approvals	DRILLING
Mount Douglas Project			Ground Gravity (NTGS Collaboration)	Mapping, Sampling, Costeaning	Drilling preparations	

Key South Australian Projects

Leveraging results of previous explorers who halted work in 2011-14

Frome Project

~12km west of Gould's Dam Uranium Deposit, located in a globally significant location in terms of discovered economic sandstone hosted uranium deposits

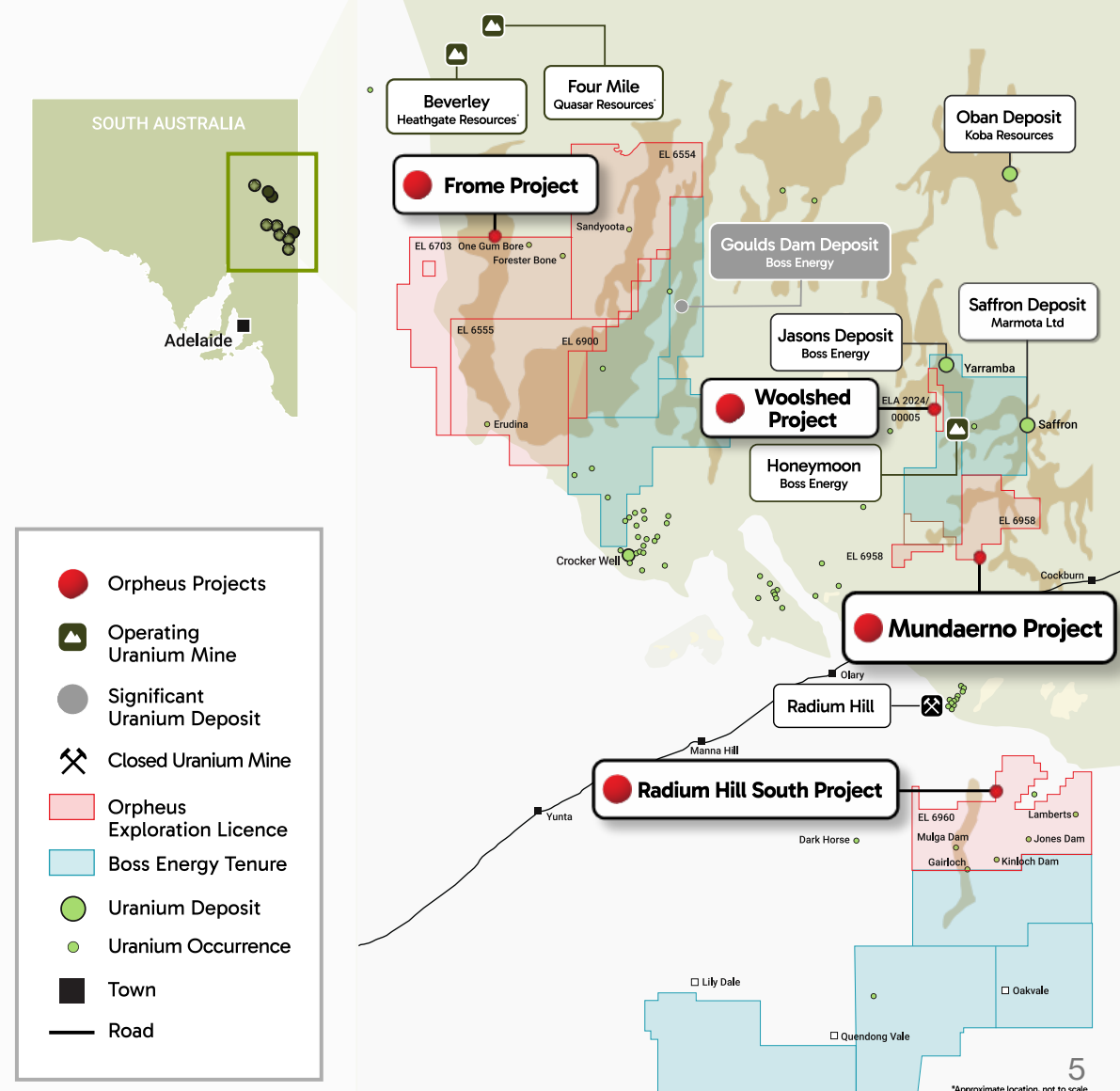
Frome Embayment (SA) – a good place for a uranium mine

Radium Hill South Project

~20 km south of Radium Hill Uranium Field and hosts five uranium occurrences

Mundaerno Project

~12km south of Honeymoon Uranium Mine and hosts part of the highly prospective Yarramba Palaeochannel



Frome Project

BROWNFIELDS PROJECT

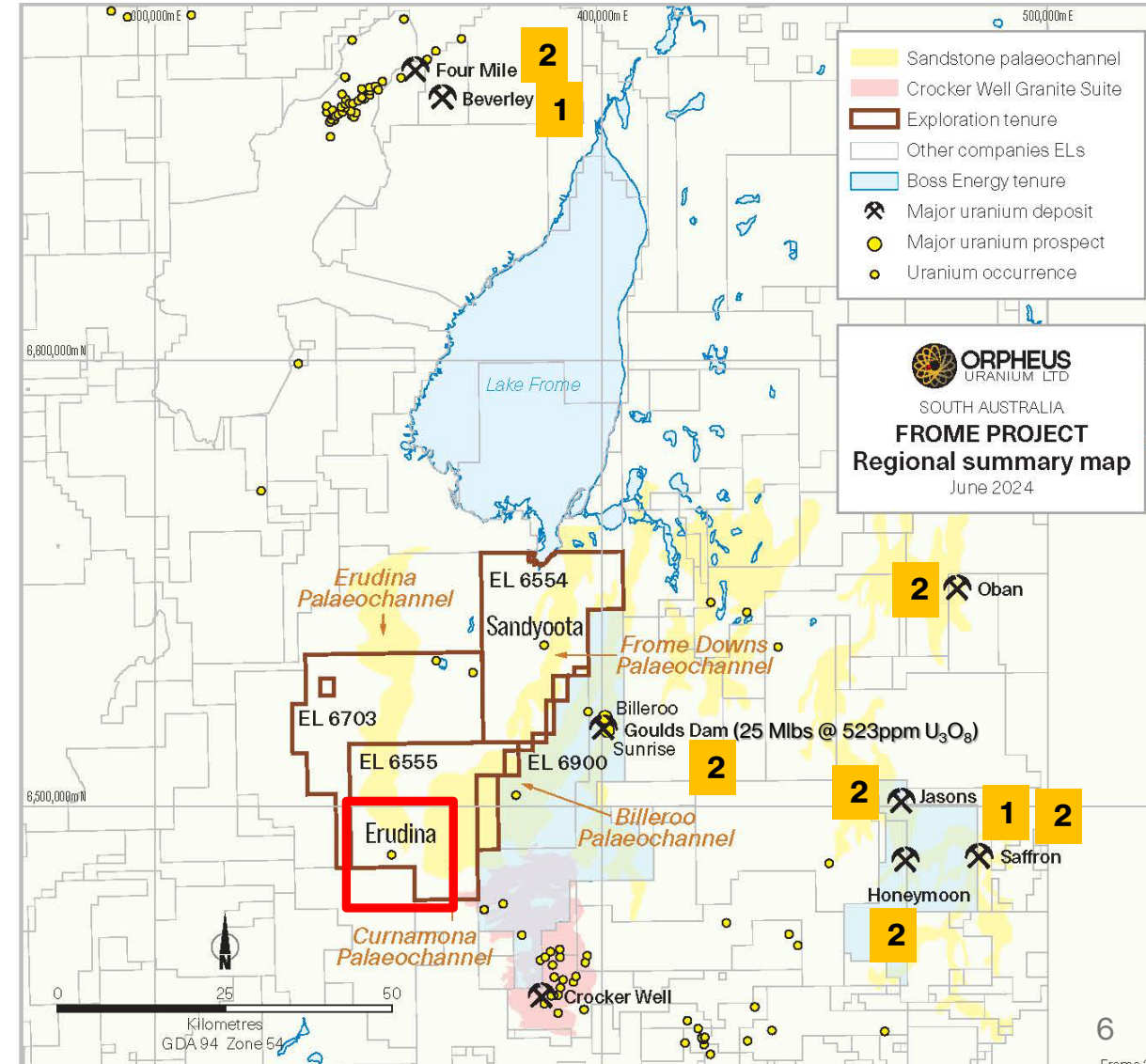


MULTIPLE TARGETS IN MULTIPLE PALAEOCHANNEL SYSTEMS

- Actively exploring - technical reviews, reconnaissance, and stakeholder engagement in preparation for **targeted and dynamic drilling programs**
- Contains a significant footprint of prospective paleochannels: **Hosts known uranium occurrences – mineral system located**
- Mechanisms (source transport & trap) for Uranium mineralising systems similar to regional deposits in Namba **1** and Eyre **2** Formations
- 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, ind. Poontana Trough)	Coonarbine 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	



Erudina Prospect

BROWNFIELDS PROJECT



DRILLING AT ERUDINA PROSPECT IMMINENT

Exploration Target Zone

Review of historic exploration defined the Erudina Exploration Target Zone:

- ✓ Defined from downhole gamma grades, 56 historic drillholes contained >100ppm EqU
- ✓ Peak grades are >1,500ppm EqU
- ✓ Extends across a 12km N-S by 7km E-W area
- ✓ Based on wide spaced ~1km drill traverses



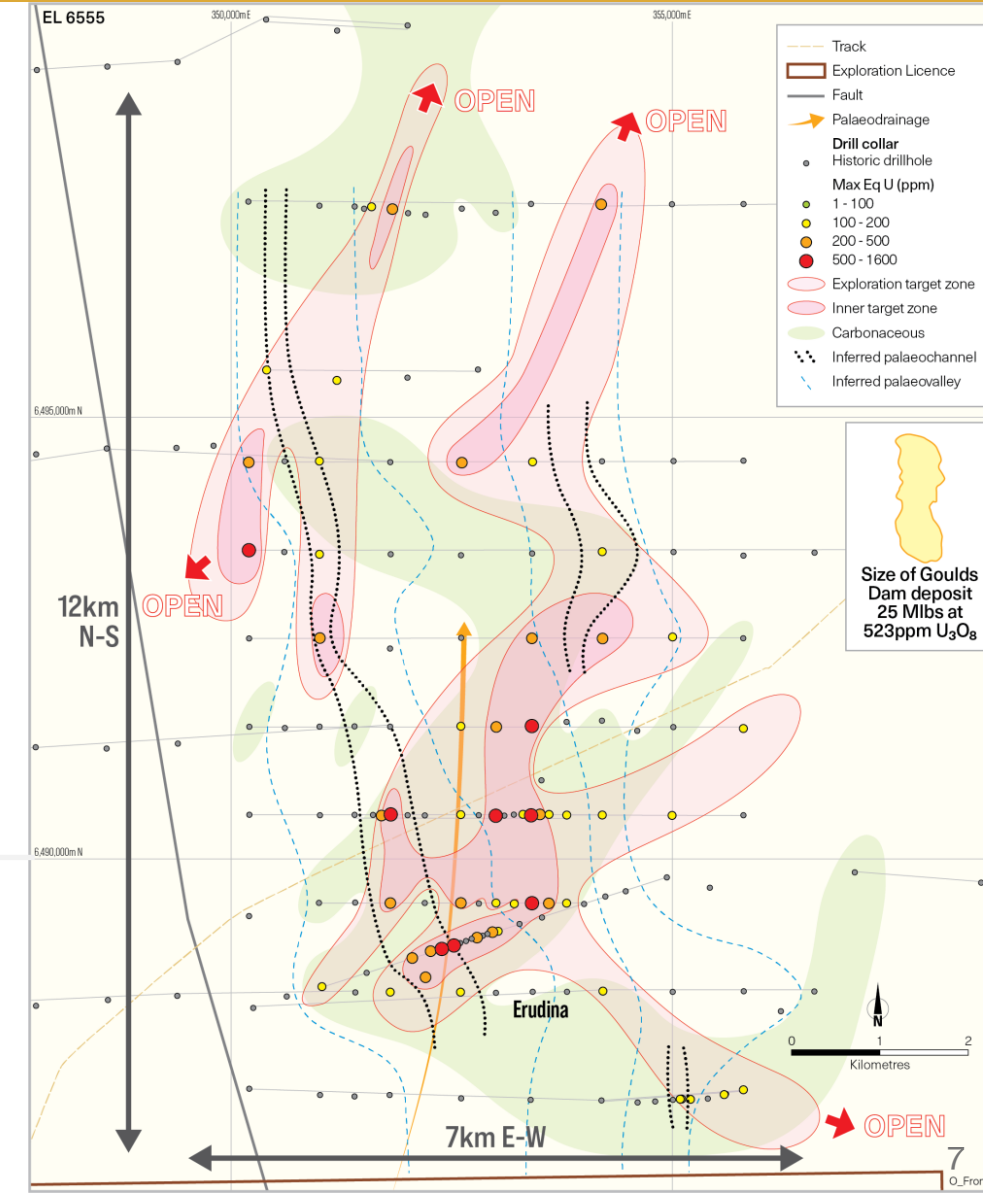
Exploration Program 2024-25

Passive seismic, IP and drillhole planning (Q1 2024)

Stakeholder engagement and clearance surveys (Q2 2024)

Drill testing at Erudina Prospect and Sandyoota (Q3 2024)

Drill interpretation, clearance surveys, drill program planning (Q4 2024 – Q2 2025)



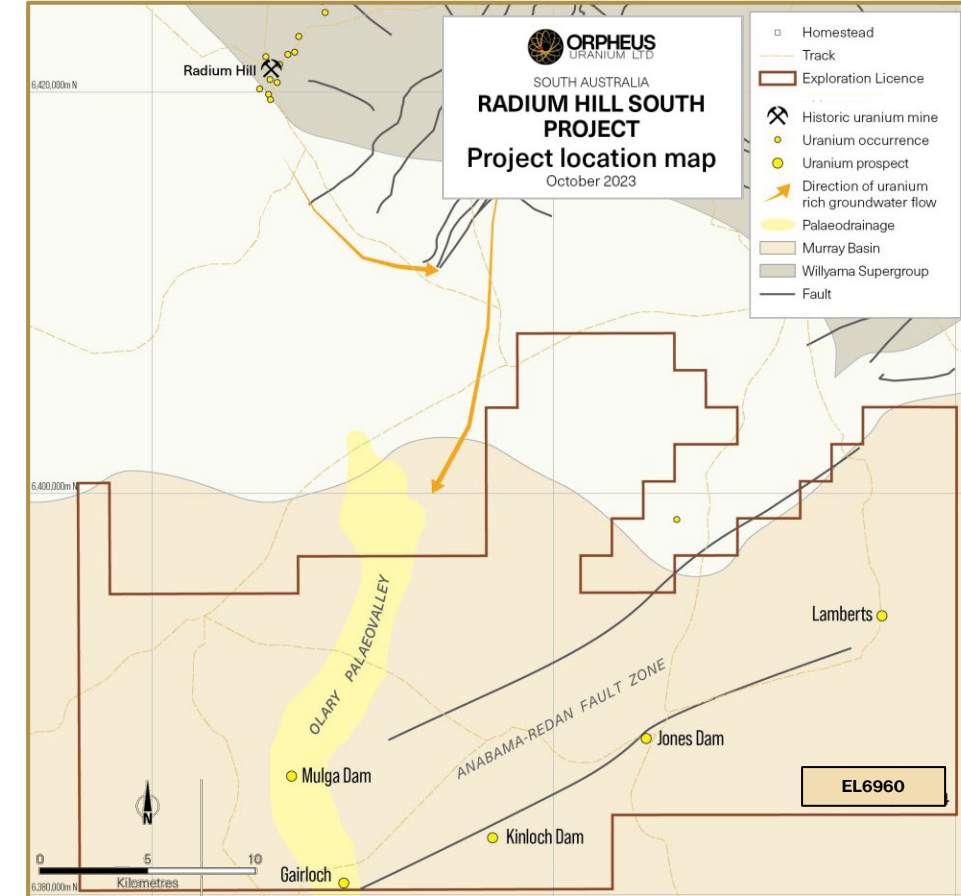
Radium Hill South Project

BROWNFIELDS PROJECT



FIVE EXISTING URANIUM PROSPECTS READY FOR IMMEDIATE FOLLOW-UP

- ✓ **Exploration Licence (EL) granted**, mineralizing system identified, proceeding to advanced on ground activities (i.e., drilling)
- ✓ Hosts **five uranium prospects** that were abandoned due to market conditions in 2011: uranium mineralisation at depths of ~80 to 110 metres
- ✓ Located ~20km south of the highly radiogenic region of the historic **Radium Hill Uranium Field 2.6 Mlbs @ 1,310ppm U₃O₈**



Exploration Program 2024-25

Geological interpretation, and prelim drillhole planning (Q2 2024)

Stakeholder engagement and work approvals (Q3 – Q4 2024)

Drill testing of refined prospects (Q4 2024 – Q1 2025)

Drill interpretation, clearance surveys, drill program planning (Q2 – Q3 2025)

Prospect	Historic Results
Gairloch	1.9m @ 400ppm U₃O₈ from 103.8m at the contact between the base of a sand channel and underlying black carbonaceous clay
Jones Dam	2m @ 401ppm U₃O₈ from 86m in a strongly anomalous zone over 5.1m, within steely grey sand
Kinloch Dam	3m @ 507ppm U₃O₈ from 105m in sand below a silcrete layer

Mundaerno & Woolshed Projects

GREENFIELDS PROJECT



WOOLSHED EXPLORATION LICENCE APPLICATION GRANTED

- ✓ Hosts a bend in the **Yarramba Palaeochannel** just 4km west of **Jasons Uranium Deposit**
The Yarramba Paleochannel hosts the:
 - **Honeymoon Uranium Mine 36 Mlbs @ 660ppm U₃O₈**
 - **Jasons Uranium Deposit 10.7 Mlbs @ 790ppm U₃O₈**
 - **Saffron Uranium Deposit 5.4 Mlbs @ 557ppm U₃O₈**
- ✓ Limited historic exploration conducted in 1970's – importantly there is only one historic drillhole in the 'Area of Interest'
- ✓ The single drillhole intersected Tertiary sands, carbonaceous matter and lignite fragments
- ✓ Prized landholding in the Yarramba Palaeochannel: host to >50 Mlbs uranium resources

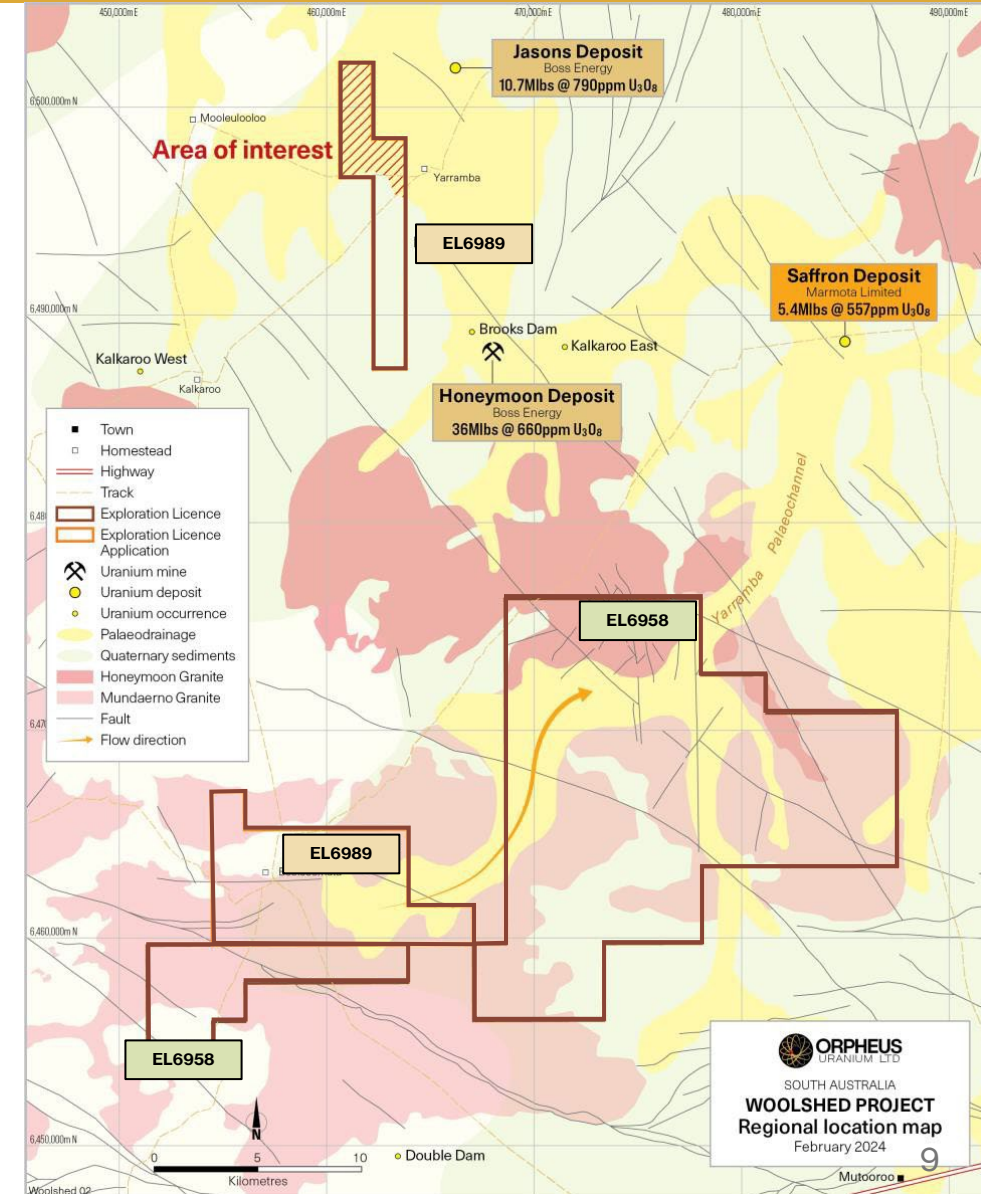
Exploration Program 2024-25

Geological interpretation, and prelim drillhole planning (Q3 – Q4 2024)

Stakeholder engagement and work approvals

Drill testing of refined prospects

Drill interpretation, clearance surveys, drill program planning



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

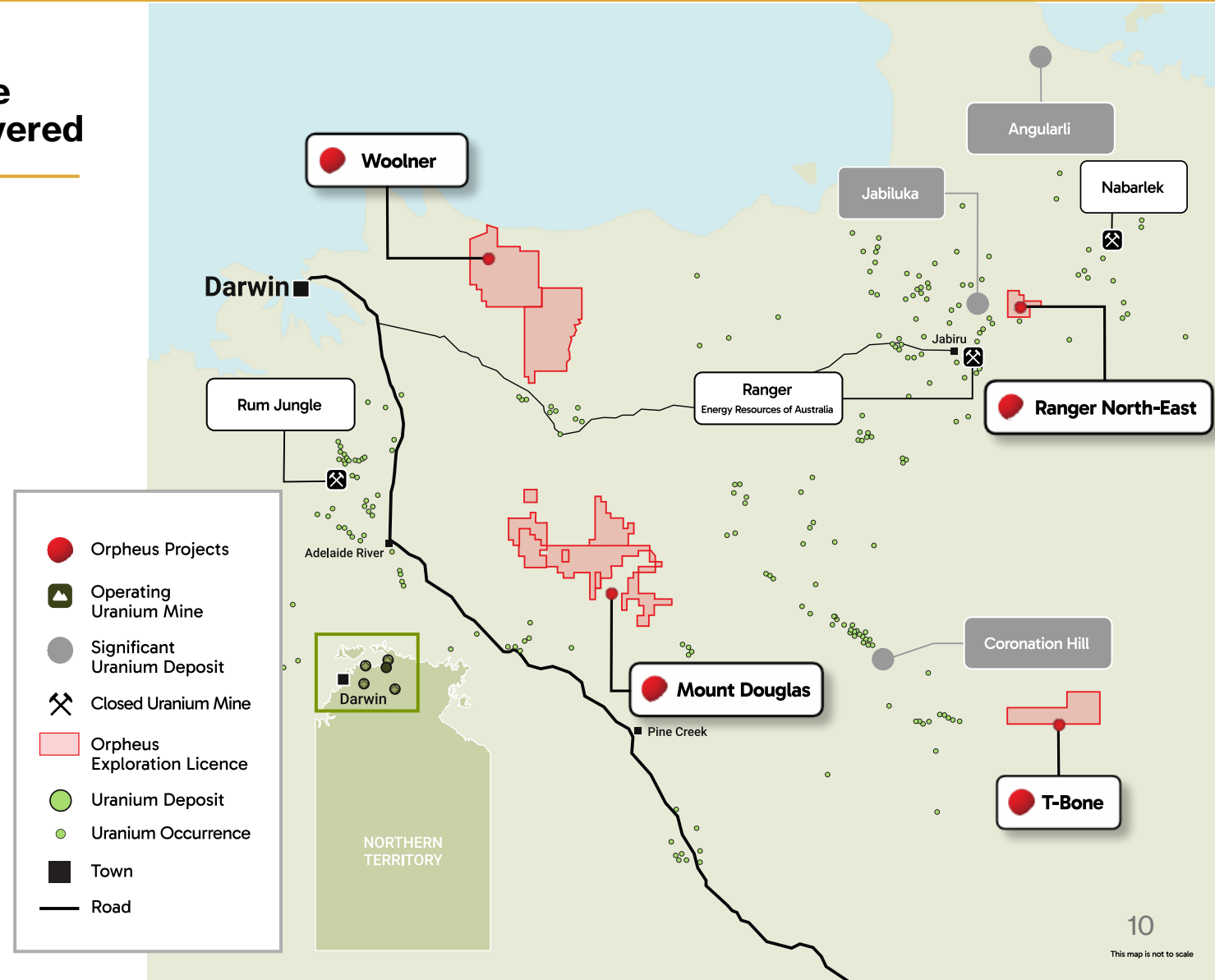
“Australia’s economic Unconformity-Style mineral systems”

Strategy of building ground position

Strategic play across the Orogen, preparing multiple drill targets for the medium term

Key Project: Mount Douglas

Preparing to drill after preliminary field activities in 2024



Mount Douglas Project

GREENFIELDS PROJECT



PROSPECTIVE FOR UNCONFORMITY AND VEIN-STYLE URANIUM MINERALISATION

- ✓ Evidence of uranium mineralisation in rock chips up to **1,089ppm U**
- ✓ **Radiometric anomalies** along margin of granite
- ✓ Mapped unconformity contact with overlying Kombolgie Sandstone



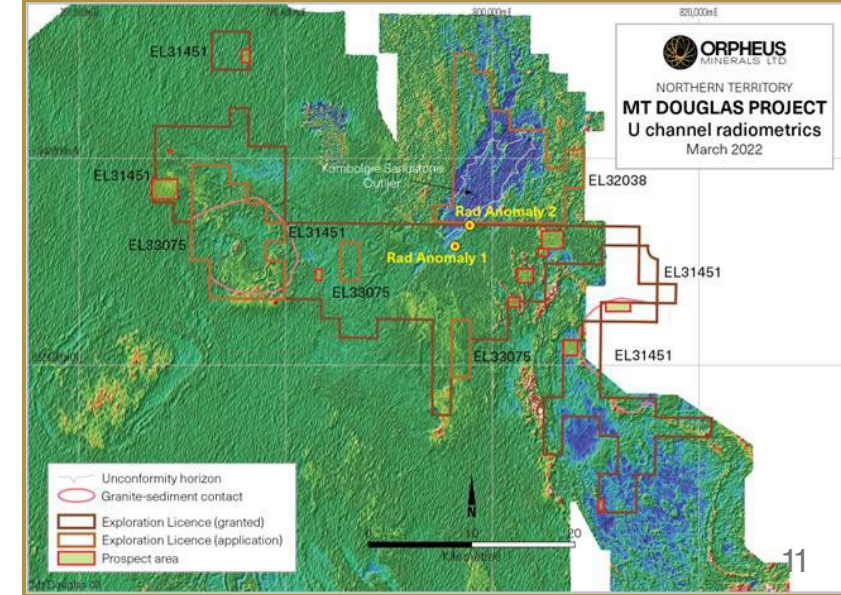
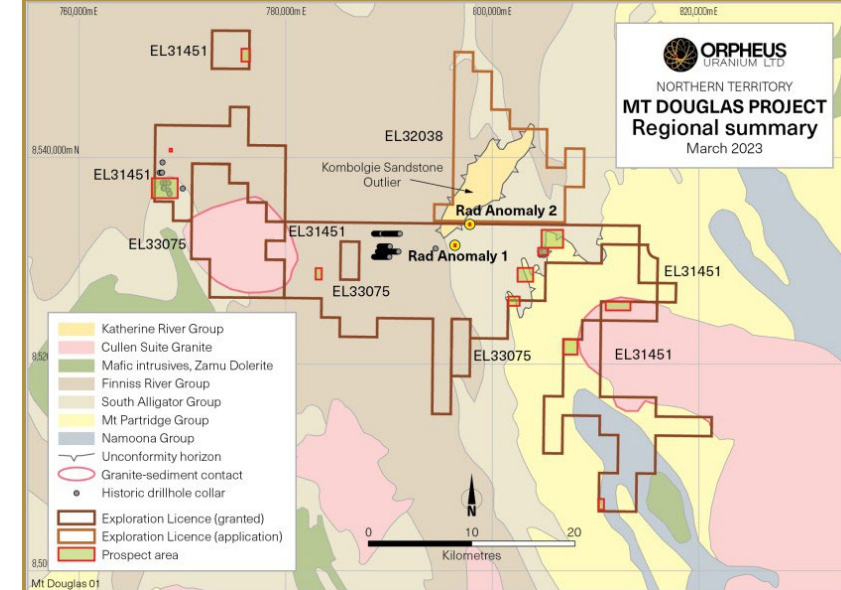
Helicopter assisted field reconnaissance



Hammer at the unconformity contact with overlying Kombolgie Sandstone



Elevated radioactivity from scintillometer (2,255cps)



Exploration Program 2024-25

Stakeholder engagement
(Q2 – Q4 2024)

Gravity geophysical survey
(NTGS collaboration)
(Q3 – Q4 2024)

Work approvals,
costeaming and
systematic sampling
(Q3 - Q4 2024)

Work approvals and
clearance surveys

Drill testing of
refined targets

Corporate Summary



CAPITALISATION DATA

Shares on issue

189.8M

Share Price (17 June 2024)

\$0.08

Market Capitalisation

\$15.2M

Cash (31 Mar 2024)

\$ 4.8M

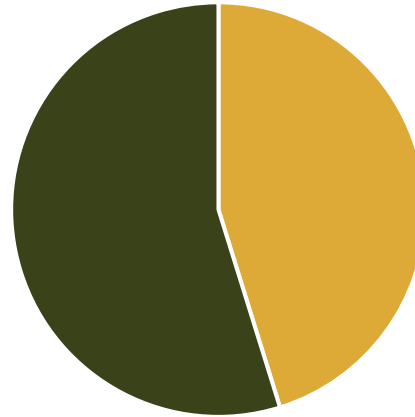
Debt

NIL

Marketable Securities*

\$1.3M

ASX: ORP Shareholder Spread



54.8%
Top 20 Shareholders

45.2%
Outside Top 20 Shareholders

6 Month Share Price



BOARD & MANAGEMENT

Clint Dubieniecki – CEO

Mick Billing – 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 (\$0.15)



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, with continued review of opportunities to grow holdings.



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.



Drilling planned to commence imminently

A full drill pipeline with multiple targets defined. Drilling commencement is dependent on final regulatory approvals.

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 on pages 5, 8 and 9 of 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

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