

ASX: ORP



Discovering Tomorrow's Clean Energy

CORPORATE PRESENTATION
MARCH 2024

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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

- ✓ Uranium exploration in the two jurisdictions of Australia that allow uranium exploration and mining, South Australia and the Northern Territory.
- ✓ Targeting world-class uranium exploration regions, the Frome Embayment and Pine Creek Orogen, the location of currently operating and historic uranium mines.
- ✓ 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

PROJECT	Q1	Q2	Q3	Q4
Frome Project, SA	Passive Seismic Heritage Clearance	DRILLING		
Radium Hill South Project, SA	Site Reconnaissance	Passive Seismic Heritage Clearance	DRILLING	
Mundaerno Project, SA	Site Reconnaissance	Ground Gravity Passive Seismic	Heritage Clearance	DRILLING
Mount Douglas Project, NT		Mapping, Sampling, Costeaining Drilling preparations		

Key South Australian Projects

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

Frome Project

- ❑ ~12km west of Boss Energy's Goulds Dam Uranium Deposit
- ❑ Located in a globally significant location in terms of discovered economic sandstone hosted uranium deposits



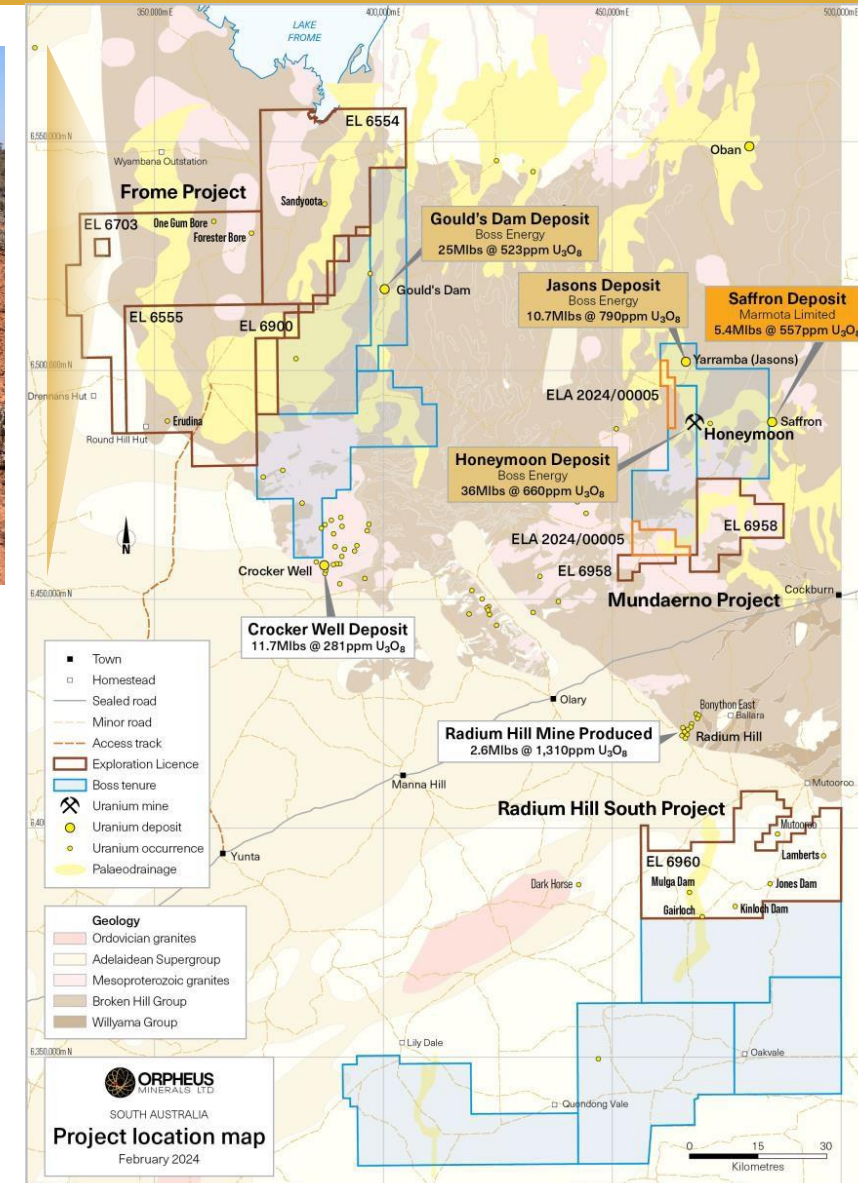
Frome Embayment (SA) – a good place for a uranium mine

Radium Hill South Project

- ❑ ~20km south of Radium Hill Uranium Field
- ❑ Hosts five uranium occurrences

Mundaerno Project

- ❑ ~12km south of Boss Energy's Honeymoon Uranium Mine
- ❑ Hosts part of the highly prospective Yarramba Palaeochannel



Frome Project, SA

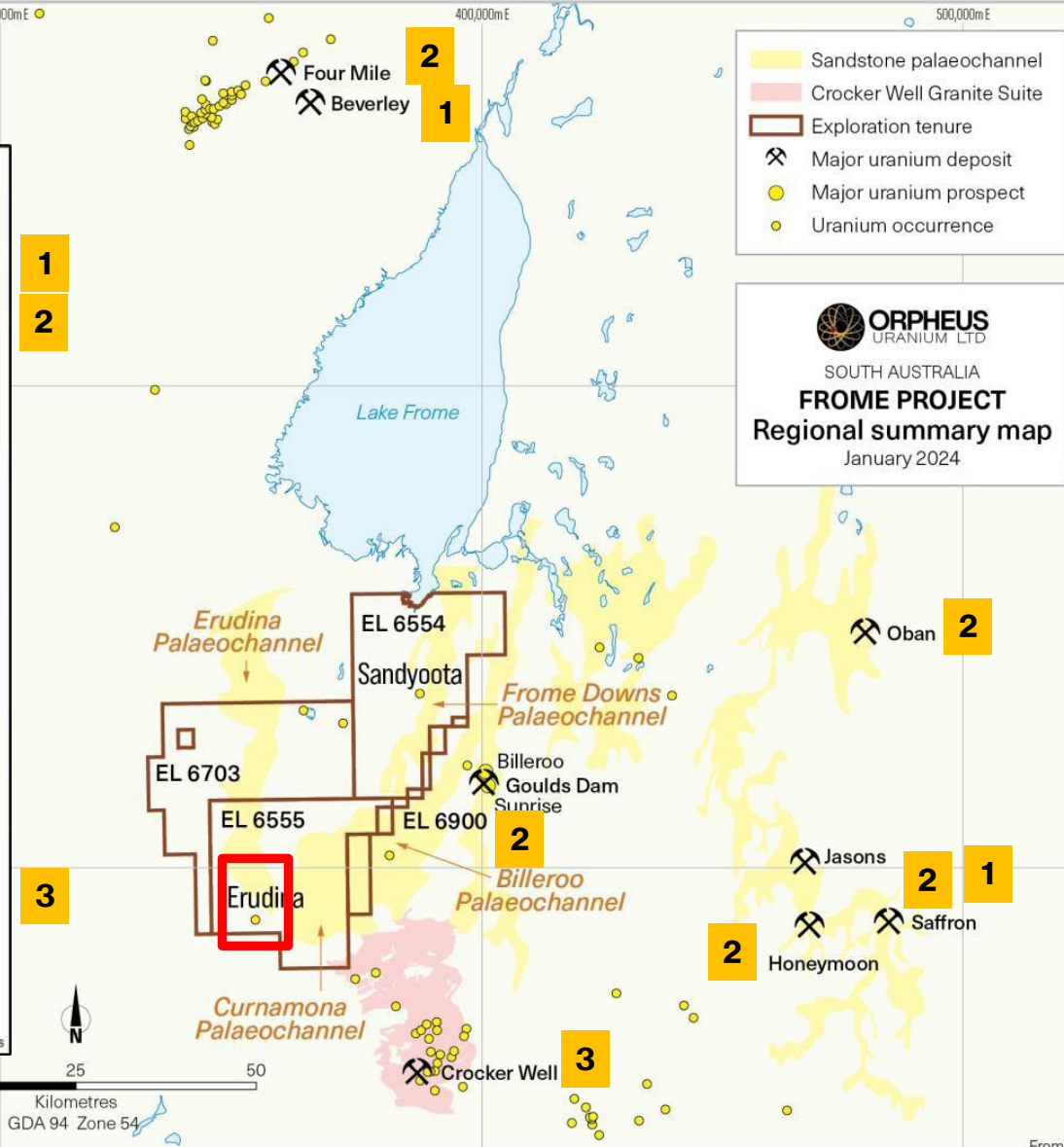
MULTIPLE TARGETS IN MULTIPLE PALAEOCHANNEL SYSTEMS

- ✓ Located ~12km west of Goulds Dam Uranium Deposit (25 Mlbs @ 523ppm U_3O_8)
- ✓ Contains a significant footprint of prospective paleochannels: **Erudina, Curnamona, Frome Downs, Billeroo**
- ✓ Hosts four known uranium occurrences: **Erudina, Sandyoota, Forester Bore, One Gum Bore**
- ✓ Both **1** Namba and **2** Eyre formations have been intersected in drilling across the Frome Project
- ✓ **Erudina Exploration Target Zone**

AGE	Basin	STRATIGRAPHIC UNIT	THERMAL MATURITY
CENOZOIC	Lake Eyre Basin (Calibonina Sub-basin, incl. Pountana Trough)	Coonabine Fm & equivalents	Sub-mature
		Eurilla Fm & equivalents	
		Willawortina Formation	
		Namba Formation	
		Eyre Formation	
MESOZOIC	Cretaceous	Mackunda Formation	Marginally mature
		Oodnadatta Formation	
		Coorikiana Ss	
		Bulldog Shale & equivalents	
		Parabarana Ss	
PALEOZOIC	Cambrian	Cadna-owie Formation	Late to post-mature
		British Empire Granite (c. 442 Ma)	
		Grindstone Range Sandstone	
		Pantapinna Sandstone	
		Balcoracana Formation	
		Moodlatana Formation	
		Wirrealpa Limestone	
		Billy Creek Formation	
		Moorowie Formation	
		Memmerna Formation	
NEOPROTEROZOIC	Coombalarnie Platform	Wilpena Group	Metasediments
		Umberatana Group (incl. Yudnamutana Subgroup)	
		Burra Group	
		Callanna Group	
MESOPROTEROZOIC	Mt Painter & Mt Babbage Inliers	Moolawatana Suite (c. 1560 Ma)	Uraniferous crystalline rock
		Mount Neill Granite & Pegepoo Porphyry (c. 1580 Ma)	
		Radium Creek Group (<1595 Ma)	
		Ninnerie Supersuite (incl. Crocker Well Suite, & Honeymoon-type granite (c. 1590 Ma)	
PALEO-PROTEROZOIC	Curnamona Province	Willyama Supergroup (c. 1730–1640 Ma)	Potential hydrocarbon reservoir & fairway

KEY

- Sandstone palaeochannel
- Crocker Well Granite Suite
- Exploration tenure
- X Major uranium deposit
- Major uranium prospect
- Uranium occurrence
- U Uraniferous crystalline rock
- H Potential hydrocarbon reservoir & fairway
- ~ Oil-prone organic facies



Erudina Prospect, SA

DRILLING AT ERUDINA PROSPECT PLANNED Q2 2024

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

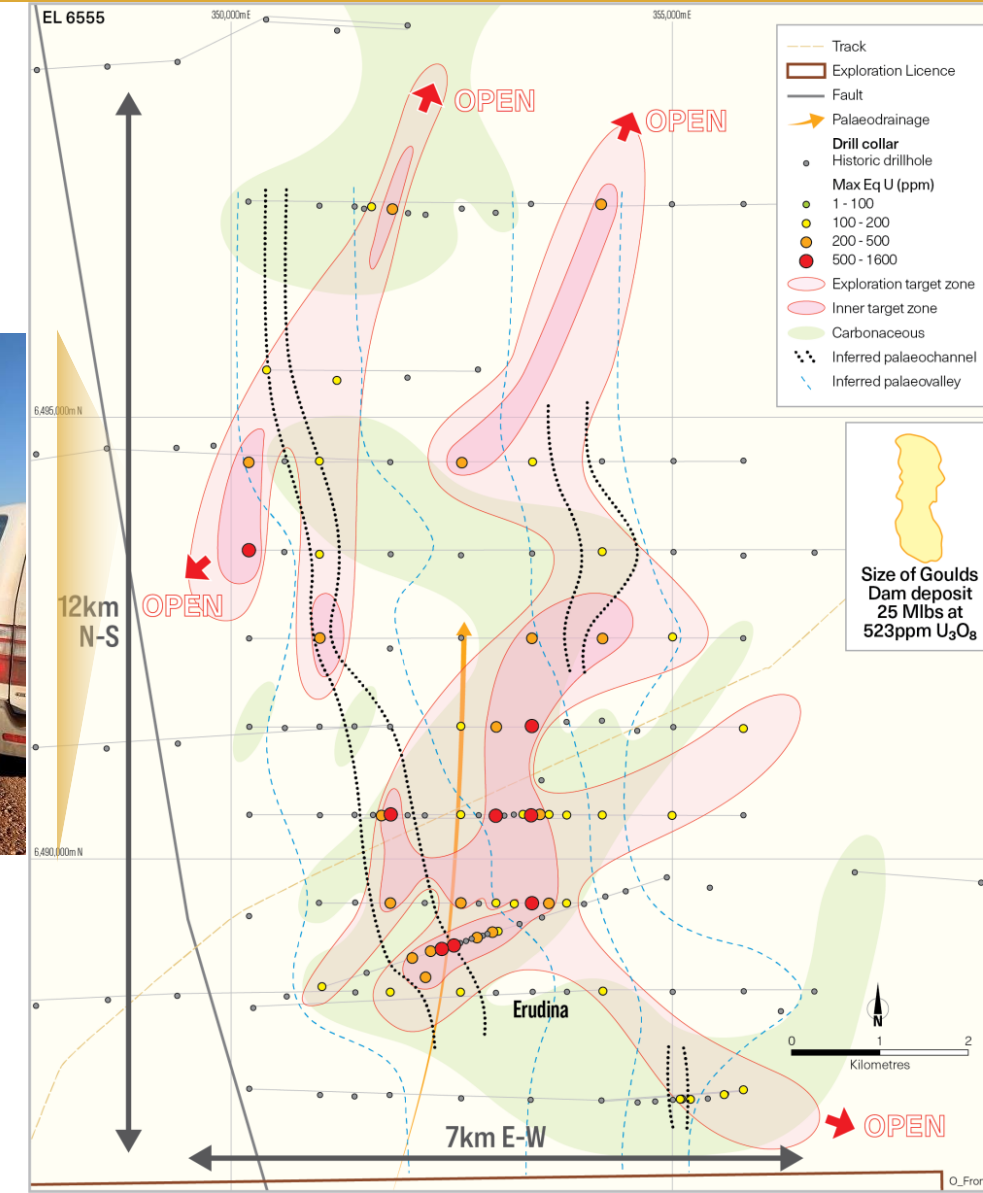


EXPLORATION PROGRAM 2024

Passive seismic, IP and drillhole delineation (Jan-Mar 2024)

Stakeholder engagement and clearance surveys (Feb 2024)

Drill testing at Erudina Prospect and Sandyoota, west of Goulds Dam (Q2 2024)



Radium Hill South Project, SA



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)**
- ✓ Hosts the **Olary Palaeovalley System** that comprises prospective horizons equivalent in age to the Frome Embayment
- ✓ Hosts **five uranium prospects** that were abandoned due to market conditions in 2011: **Jones Dam, Kinloch Dam, Gairloch, Lamberts, Mulga Dam**, uranium mineralisation at depths of ~80 to 110 metres

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

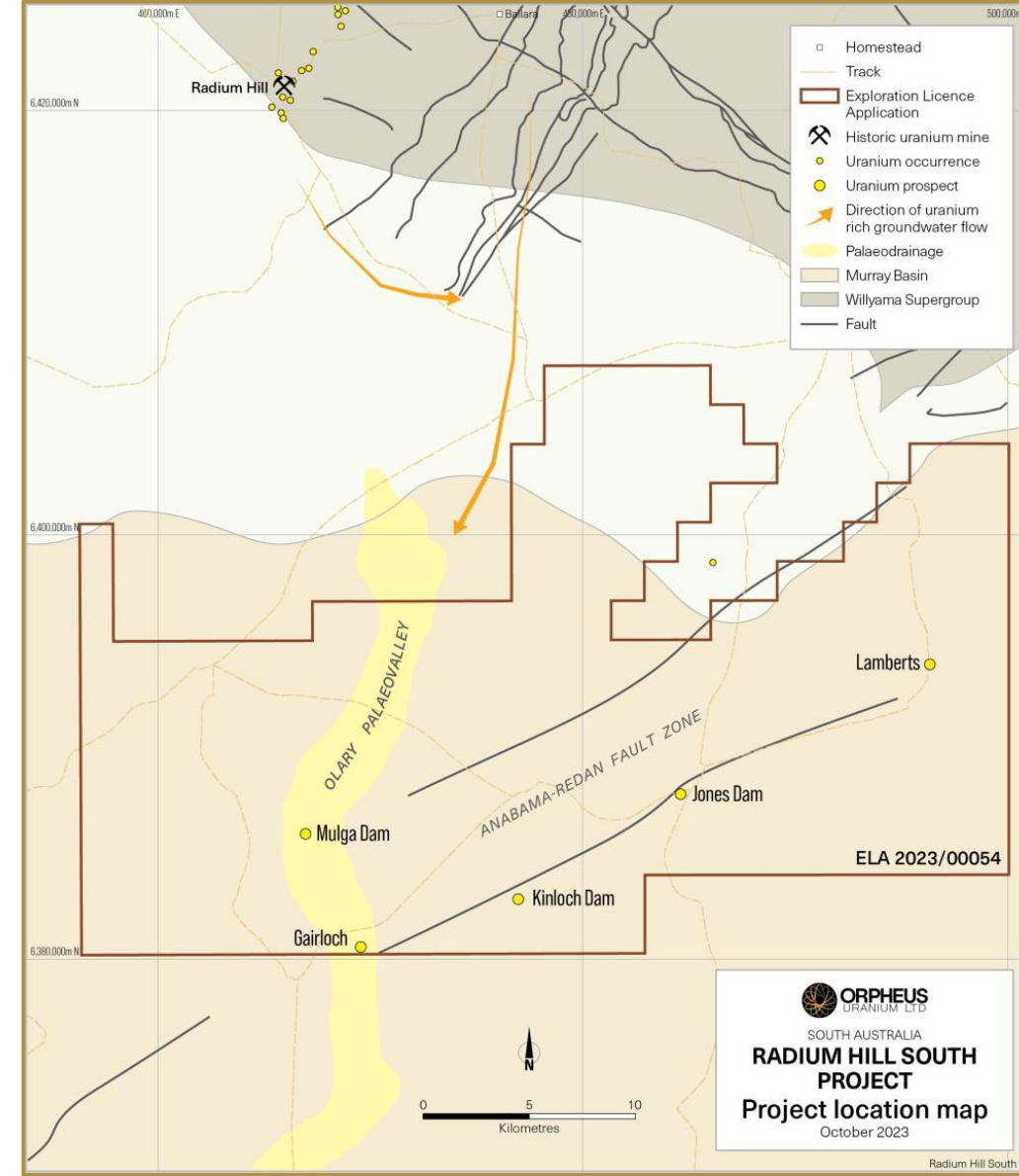
EXPLORATION PROGRAM 2024

Passive seismic to define the palaeovalley architecture and Anabama-Redan Fault Zone

Stakeholder engagement and clearance surveys

Drill testing existing prospects and additional targets

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Mundaerno & Woolshed Projects, SA



WOOLSHED EXPLORATION LICENCE APPLICATION PEGGED IN JANUARY 2024

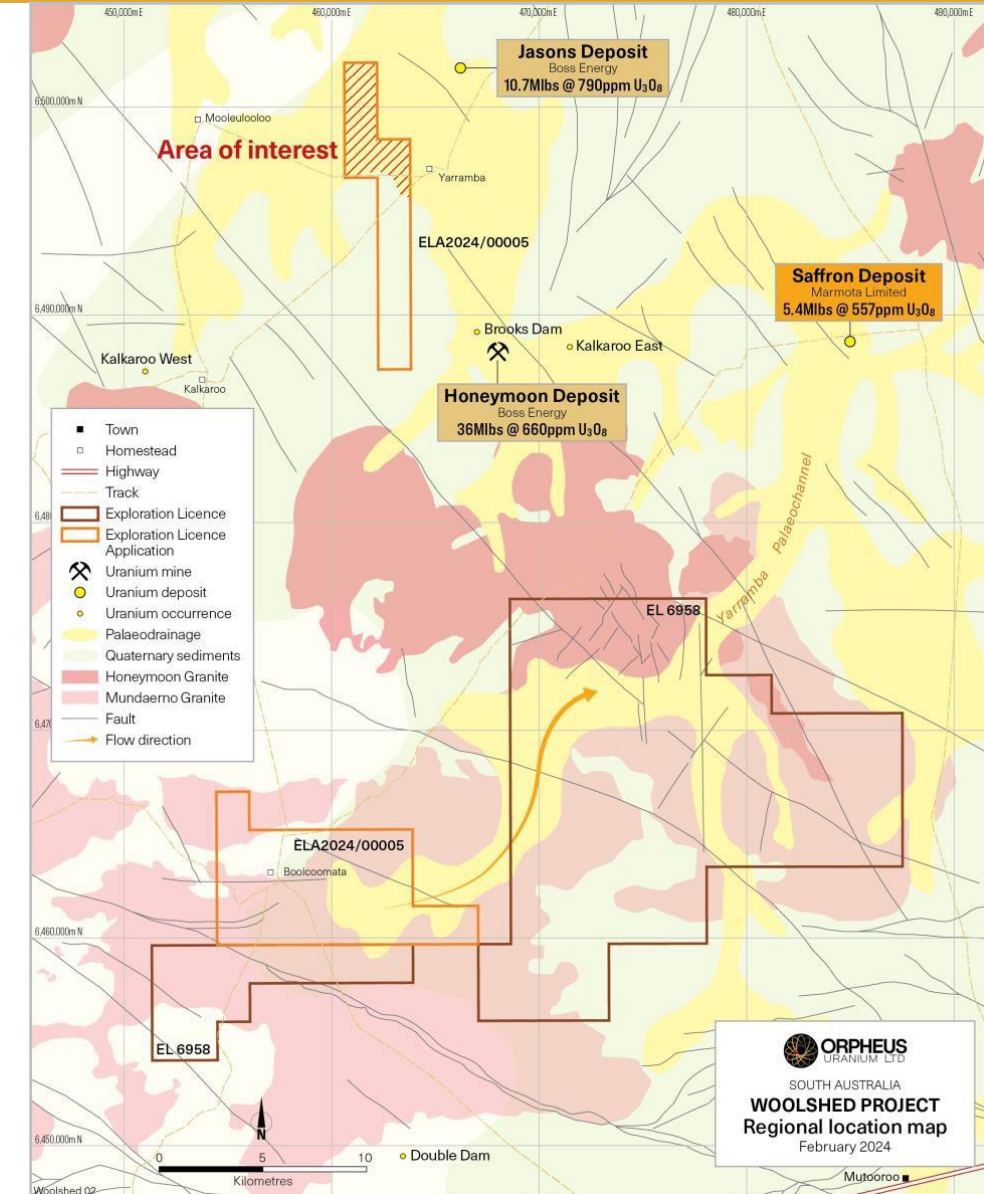
- ✓ Hosts a bend in the **Yarramba Palaeochannel** just 4km west of **Jasons Uranium Deposit**
The Yarramba Paleochannel hosts the:
 - 📍 **Honeymoon Uranium Mine 36 Mlbs @ 660ppm U_3O_8**
 - 📍 **Jasons Uranium Deposit 10.7 Mlbs @ 790ppm U_3O_8**
 - 📍 **Saffron Uranium Deposit 5.4 Mlbs @ 557ppm U_3O_8**
- ✓ Limited historic exploration conducted in 1970s – 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

Stakeholder engagement and clearance surveys

Maiden drill testing of the Yarramba Palaeochannel targets

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Northern Territory Projects



Region hosts Australia's large, high-grade uranium deposits; historical production centre

Targeting the Pine Creek Orogen

"Australia's Athabasca"? – "yes and no", it rhymes but it is different

Targeting "Unconformity" and vein style mineralisation

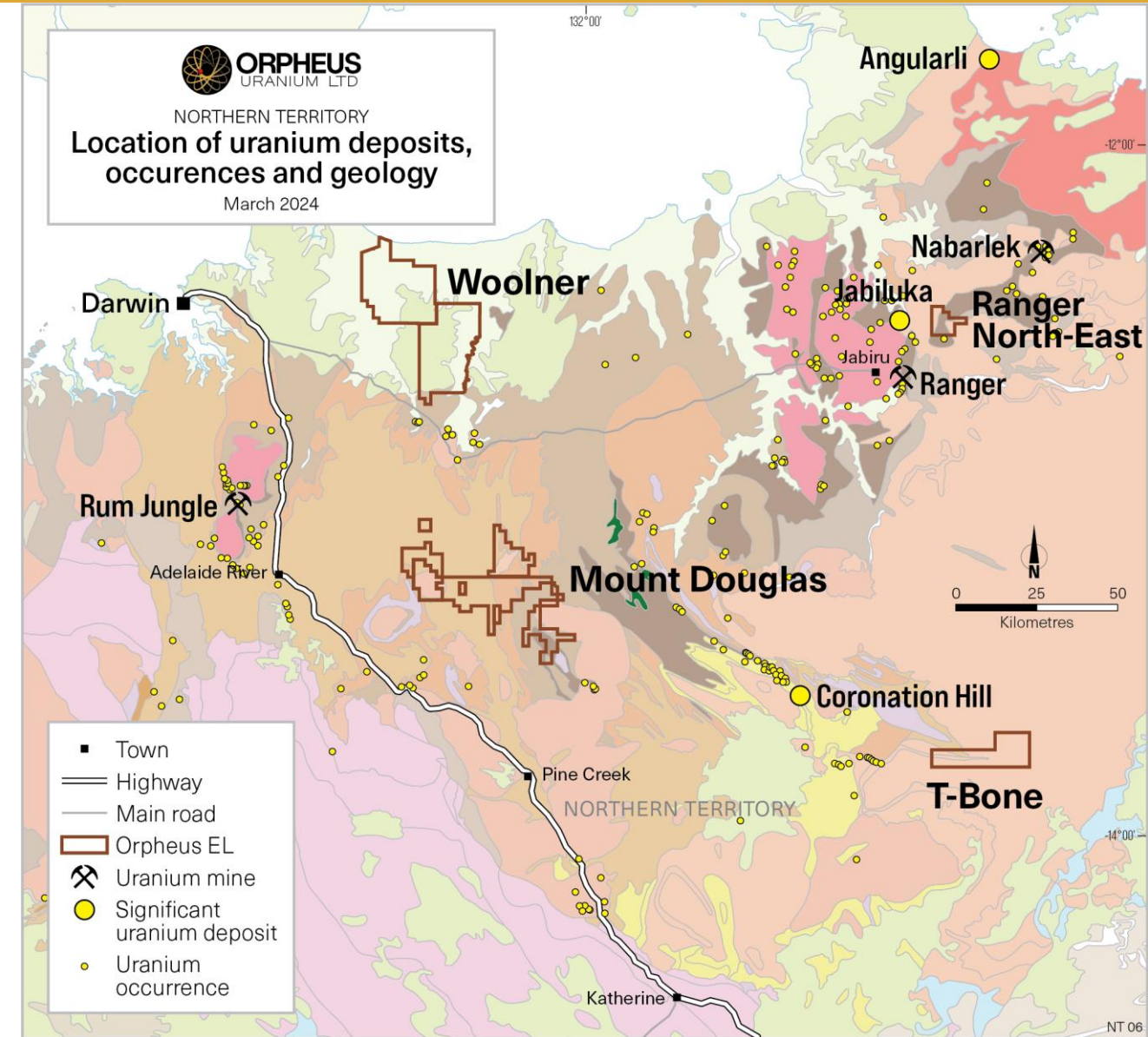
Very underexplored, particularly in difficult-to-access areas of the Orogen

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, NT



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

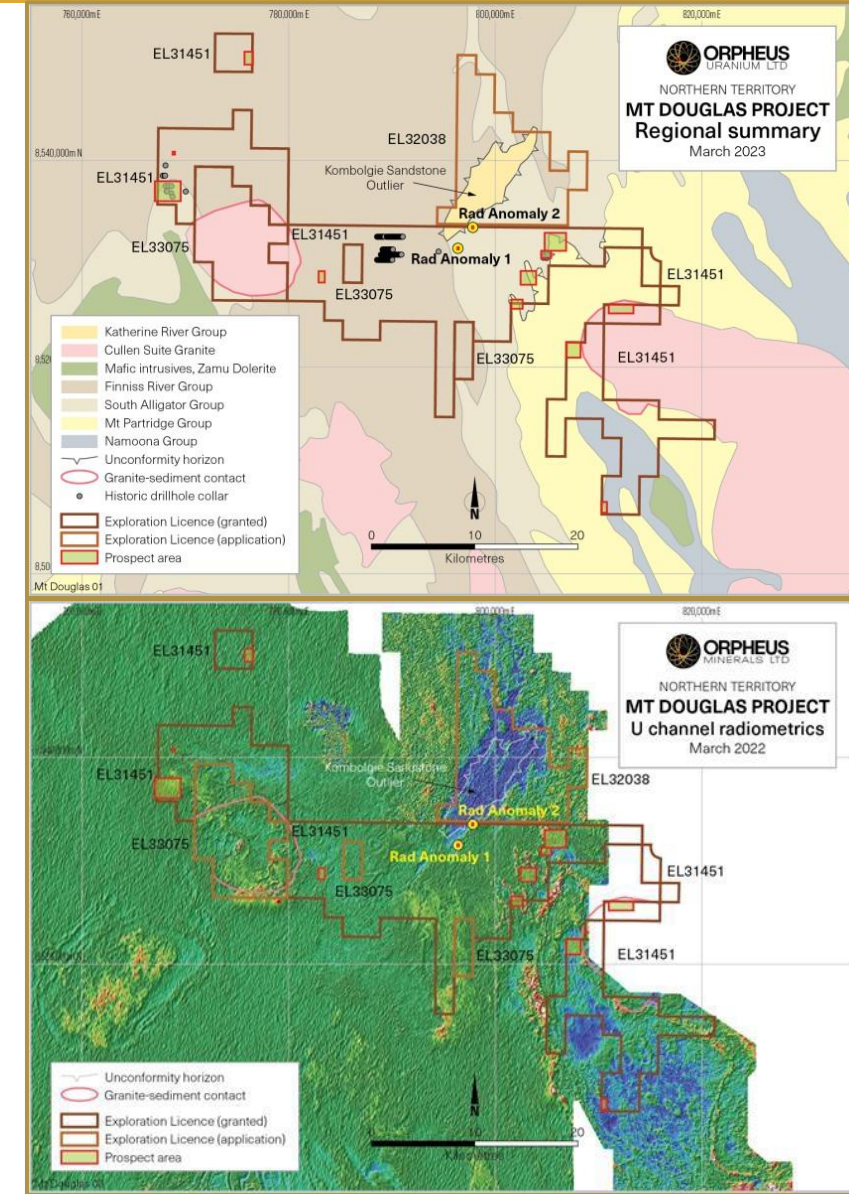
Stakeholder engagement

Explore surface radiometric anomalies

Costeaning and systematic sampling

Dry Season Drilling

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Corporate Summary



CAPITALISATION DATA

189.8M

Shares on issue

\$0.09

Share Price (14 Mar 2024)

\$17M

Market Capitalisation

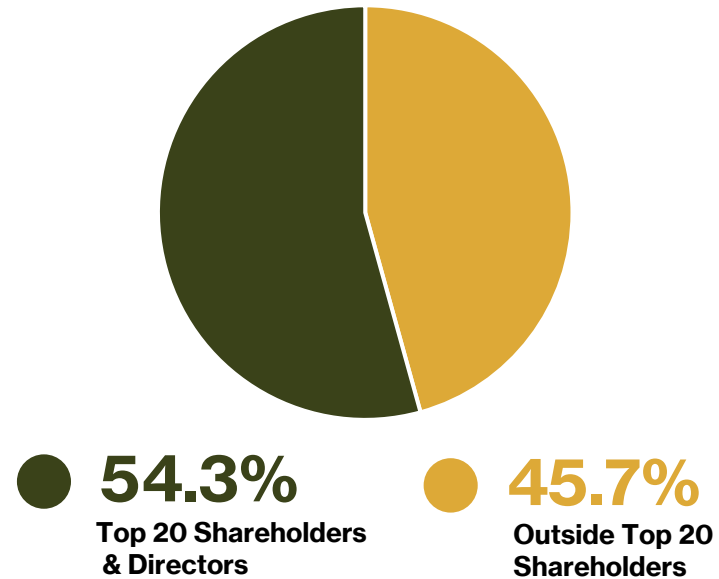
NIL

Debt

\$5.3M

Cash (31 Dec 2023)

ASX: ORP Shareholder Spread



6 Month Share Price



BOARD & MANAGEMENT

Mick Billing
Executive Chairman

Simon Mitchell
Non-Executive Director

Todd Williams
Non-Executive Director

Richard Willson
Director & Company Secretary



Uranium Exposure

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.



Fully funded to drill

Recently restructured and recapitalised uranium focused company with operations in South Australia and Northern Territory, adjacent to companies with market caps some orders of magnitude higher.



All projects 100% owned and highly prospective

Includes significant exposure to two of the best geological domains in Australia – the Frome Embayment in South Australia and the Pine Creek Orogen in the Northern Territory.



Near term focus on the Frome Embayment

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 to commence Q2 2024

A full drill pipeline with multiple targets defined. Drilling commencement is dependent on heritage agreements and clearances with Traditional Owners

Contact Us

Registered Office:

79 King William Road
Unley, South Australia 5061

P. +61 8231 0381

E. info@orpheusuranium.com

W. www.orpheusuranium.com