

ASX RELEASE | 18 MARCH 2024

On Track for Maiden Drilling at Frome

HIGHLIGHTS

Erudina Prospect – Drilling Campaign Preparations

- Orpheus has defined its initial drilling campaign within the Exploration Target Zone at the Erudina prospect, Frome project, which is set to commence once SA Government approvals are received (expected Q2 CY2024).
 - ~30 rotary mud drillholes for 7,000m drilling planned as a first-pass campaign to initially target 12 historic drillholes that contain uranium mineralisation (using a nominal cut-off grade of 250ppm eU₃O₈ with at least 0.5m vertical thickness that has been applied to sedimentary-hosted uranium deposits in the district).
 - Boss Energy's (ASX: BOE) Goulds Dam uranium deposit is 12km west of the Frome project.
 - Drilling is primarily designed to:
 - Identify sedimentary-hosted roll-front and tabular style uranium mineralisation, targeting pyritic sands, gravels and carbonaceous material of the Lower Eyre Formation.
 - Target 12 historic drillholes that contain uranium mineralisation ore grades.
 - Test the mineralisation potential of palaeochannel features identified from interpretation of the detailed passive seismic survey.
 - Importantly, there has been no historic drilling north or south between traverses and this N-S orientation is of specific interest given the hydrological flow direction is predominately north-flowing that may influence roll-front geometries.
- Orpheus has submitted a Program for Environment Protection and Rehabilitation (PEPR) for exploration drilling to the South Australian Government in December 2023.
- Experienced drilling contractor and geophysical wireline logger appointed for the drilling campaign, that will commence once final regulatory approvals are received, expected within the coming weeks.

Heritage Survey Successfully Completed

- Traditional Custodians of the Adnyamathanha Traditional Lands Association (Aboriginal Corporation) RNTBC (ATLA), Archaeologists and representatives from Orpheus completed a Heritage Survey at the Frome project in February 2024.
- Survey covered 30 line-km at the Erudina prospect and a 12km traverse across the Sandyoota region.
- Orpheus extends its sincere gratitude and respect to the Survey Team for its considerable effort to attend, conduct and complete the survey during hot weather conditions.
- Orpheus awaits a formal response from ATLA (expected late March 2024) in respect of the Heritage Survey report.

Next Steps

- Orpheus plans to commence drilling ~30 rotary mud drillholes for 7,000m, planned as a first-pass campaign to initially target 12 historic drillholes.
- It has submitted a Program for Environment Protection and Rehabilitation (PEPR) for the drilling program to the South Australian Government and appointed a drilling contractor and geophysical wireline logger.
- Once permits are received, Orpheus will prepare drill sites, mobilisation, and logistics to commence drilling, Q2 CY2024.

Orpheus Executive Chairman Mick Billing said:

"We wish to thank the Traditional Owners who attended the heritage survey during February and completed the survey in very hot weather. We look forward to our initial drilling campaign at Erudina, a significant milestone for the Company as a newly focussed uranium explorer and providing updates on our work as we aim to uncover the uranium potential of the Frome project."



Photo 1. Heritage survey at the Erudina prospect, Frome project, survey team arriving to site during hot conditions in February 2024



Photo 2: Kadni (Aboriginal word for lizard), a Bearded Dragon observed during the Heritage survey

Erudina Prospect, Exploration Target Zone

Orpheus has identified a highly encouraging, widespread Exploration Target Zone containing significant uranium mineralisation at the Erudina prospect, that extends across an area of 12km N-S by 7km E-W, comprising prospective Tertiary sequence stratigraphy located within the Erudina palaeochannel (Figure 1). Orpheus believes this 12km strike length Exploration Target Zone warrants immediate infill drilling, with preparations well underway.

Historic drilling results include uranium grades of >1,500ppm equivalent uranium (EqU)¹ contained within porous sands and reduced carbonaceous horizons of the highly prospective Eyre Formation in association with strong reduction-oxidation 'redox' front systems that represent migration of oxidising groundwaters. Orpheus has inspected historic drill core, and these redox processes are visually evident as iron oxide staining within sands of the Eyre Formation.

Historic results at the Erudina prospect include:

- 56 drillholes intersected uranium mineralised intervals with anomalous radiometric values over 100ppm EqU across a 12 km N-S strike length:
 - Eyre Formation comprises anomalous radiometric values of >1,500ppm EqU
 - Namba Formation comprises anomalous radiometric values up to 300ppm EqU.

For further detail, see ASX announcement [18 December 2023](#).

¹ Uranium mineralisation at the Erudina prospect has been indicated from gamma logging conducted by Areva Australia Pty Ltd. To date, there has been no Prompt Fission Neutron (PFN) data acquired. Equivalent uranium grades calculated from gamma logs are considered reliable for the estimation of uranium grade, however, do not account for the effects of disequilibrium.

Satellite Imagery Analysis and Thermal Modelling Complete

Orpheus commissioned independent consultant Dr. Neil Pendock, a remote sensing exploration specialist, to conduct a Satellite Imagery Gas Study and Thermal Imaging Analysis using Sentinel-2 satellite imagery with the objective to detect helium, hydrogen, methane, and other gasses emanating at surface that may encourage exploration to assist with possible identification of uranium mineralisation at depth. For further detail, see ASX announcement [7 December 2023](#).

Dr Pendock reported helium estimates are anomalous over the 40 regional uranium occurrences, with the Erudina prospect, being particularly anomalous in helium, reporting as much as 12 times background levels. This anomalism predominately aligns with the eastern side of Erudina, in line with the Exploration Target Zone and juxtaposed to uranium ore-grades at depth (Figure 1).

Whilst satellite imagery is a surficial response, not penetrating below the land's surface, the results infer that helium is emanating to the surface and may be influenced by uranium mineralisation occurring at depth, within pyritic sands, gravels and carbonaceous material of the Lower Eyre Formation.

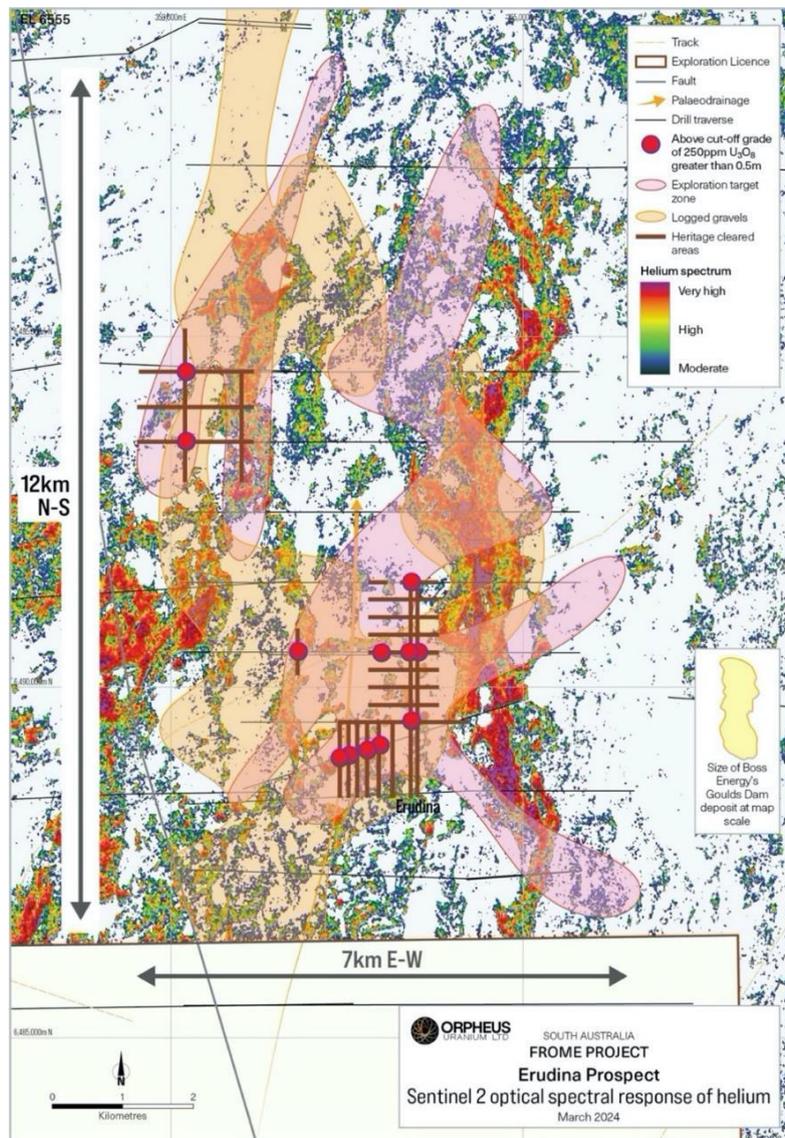


Figure 1: Erudina prospect, 12 km strike length Exploration Target Zone identified from historic drill results of significant uranium intersects (equivalent uranium converted from downhole Total Gamma) acquired by Areva Australia Pty Ltd, showing drillholes with ore-grade intersects, areas logged with Eyre Formation gravels and the areas planned for drilling, underlain by results of the satellite gas study – Sentinel 2 optical spectral response of helium.

About the Frome Project

The Frome project is comprised of four highly prospective exploration licences in the Frome Embayment area of South Australia which, directors believe, is the most prospective region in Australia for sandstone-hosted uranium deposits, (Figure 2).

The Frome project covers large portions of the Erudina, Curnamona, Frome Downs and Billeroo palaeochannels, located ~12km west of the Goulds Dam deposit held by Boss Energy Ltd (ASX: BOE). BOE has announced strong infill drilling results for Goulds Dam (ASX: BOE - announcement 12 September 2023) and two new satellite prospects adjacent to Goulds Dam (Billeroo and Sunrise) (ASX: BOE - announcement 28 September 2023).

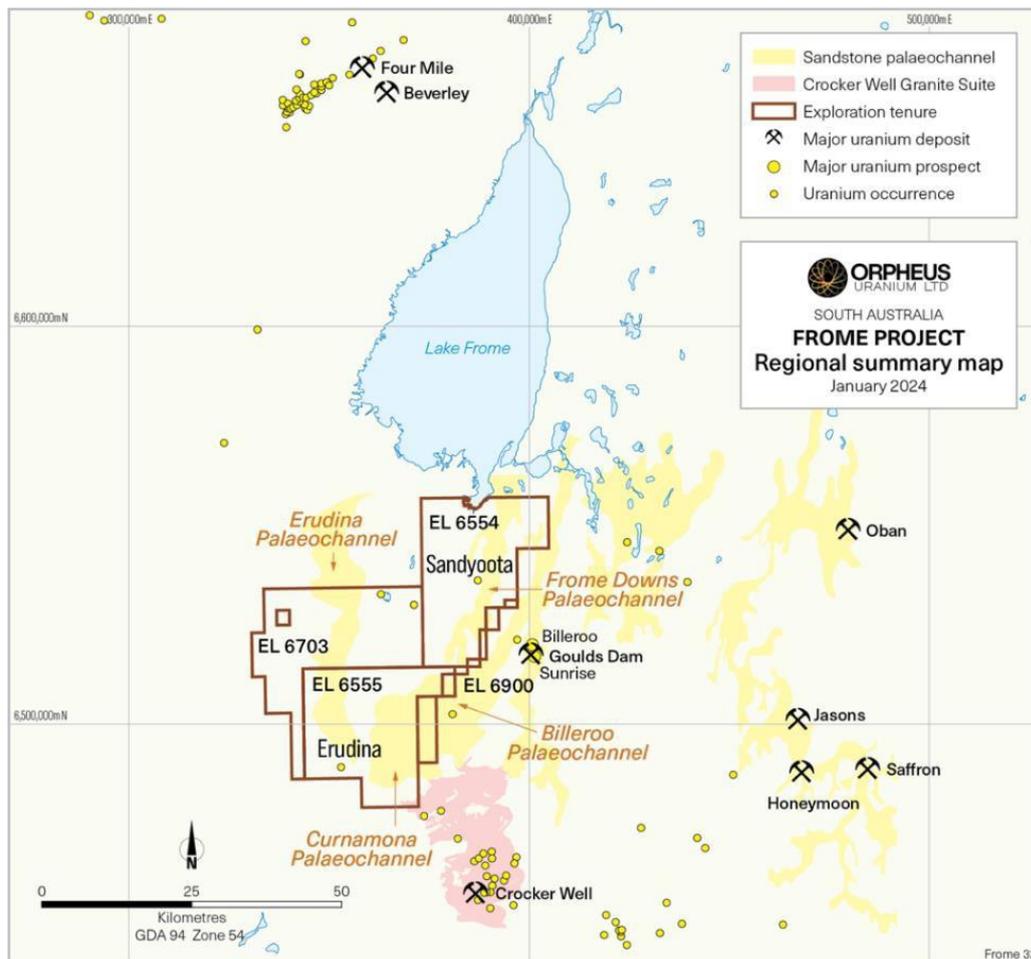


Figure 2: Frome project, Erudina prospect and uranium deposits, showing Eyre Formation sandstone palaeochannels and the Crocker Well Granite Suite which is a uranium-bearing source rock from which oxidised groundwater containing dissolved uranyl species.

About Orpheus

Orpheus Uranium Limited is an Australian Securities Exchange listed exploration company exploring for uranium in South Australia and the Northern Territory, both jurisdictions which allow uranium mining and processing.



Figure 3: Location map of uranium assets owned by Orpheus located in South Australia and Northern Territory

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This announcement was approved for release by Mick Billing, Executive Chairman of Orpheus Uranium Limited.

Sections of information contained in this report 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 report of the matters based on this information in the form and context in which it appears.

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