Argonaut RESOURCES NL

ASX announcement

7 February 2024

Significant Uranium Exploration Asset Acquisition – Woolshed Project

Argonaut Resources NL (ASX: ARE) (*Argonaut* or the *Company*), to be renamed Orpheus Uranium Limited, is pleased to announce that the Company has pegged a new uranium exploration project, the Woolshed project, considered highly prospective for sedimentary-hosted roll-front and tabular-style uranium mineralisation, in the south-eastern portion of the Frome Embayment, Southern Curnamona Province region of South Australia.

Highlights

Woolshed Project

Located 4km west of the Honeymoon Uranium Mine and also 4km west of the Jasons Uranium Deposit

- Orpheus Minerals Ltd, a wholly owned subsidiary of Argonaut, has pegged an Exploration Licence Application ELA 2024/00005, the Woolshed project, containing two Blocks.
- The Northern Block contains a portion of the highly prospective Yarramba Palaeochannel, situated 4km directly west of the Jasons Uranium Deposit (11 Mlbs contained U_3O_8)[1] held by Boss Energy Ltd (ASX: BOE), refer to Figure 1.
- The Northern Block is also located approximately 4km north-west of the Honeymoon Uranium Mine (36 Mlbs contained U_3O_8)[2]. Importantly, this region of the Yarramba Palaeochannel located within ELA 2024/00005 has only one known historic drillhole and therefore remains completely untested.
- The Southern Block contains the headwaters of the Yarramba Palaeochannel situated directly on top of Mesoproterozoic granites and is contiguous with Orpheus' Mundaerno project.
- This acquisition substantially increases the Company's footprint of the highly prospective Yarramba Palaeochannel. A review of historic datasets to delineate areas for exploration has commenced to begin exploration activities immediately following grant of tenure.

This recent asset acquisition increases the Company's considerable surface footprint of paleochannels in the highly prospective regions of the Frome Embayment in the north and to the south, the northern margin of the Murray-Darling Basin, in the exploration for sedimentary-hosted roll-front and tabular-style uranium mineralisation. Refer to Figure 2 for project locations.

1 *Source: https://bossenergy.com/honeymoon-project/exploration.*
2 *Source: https://bossenergy.com/honeymoon-project.*

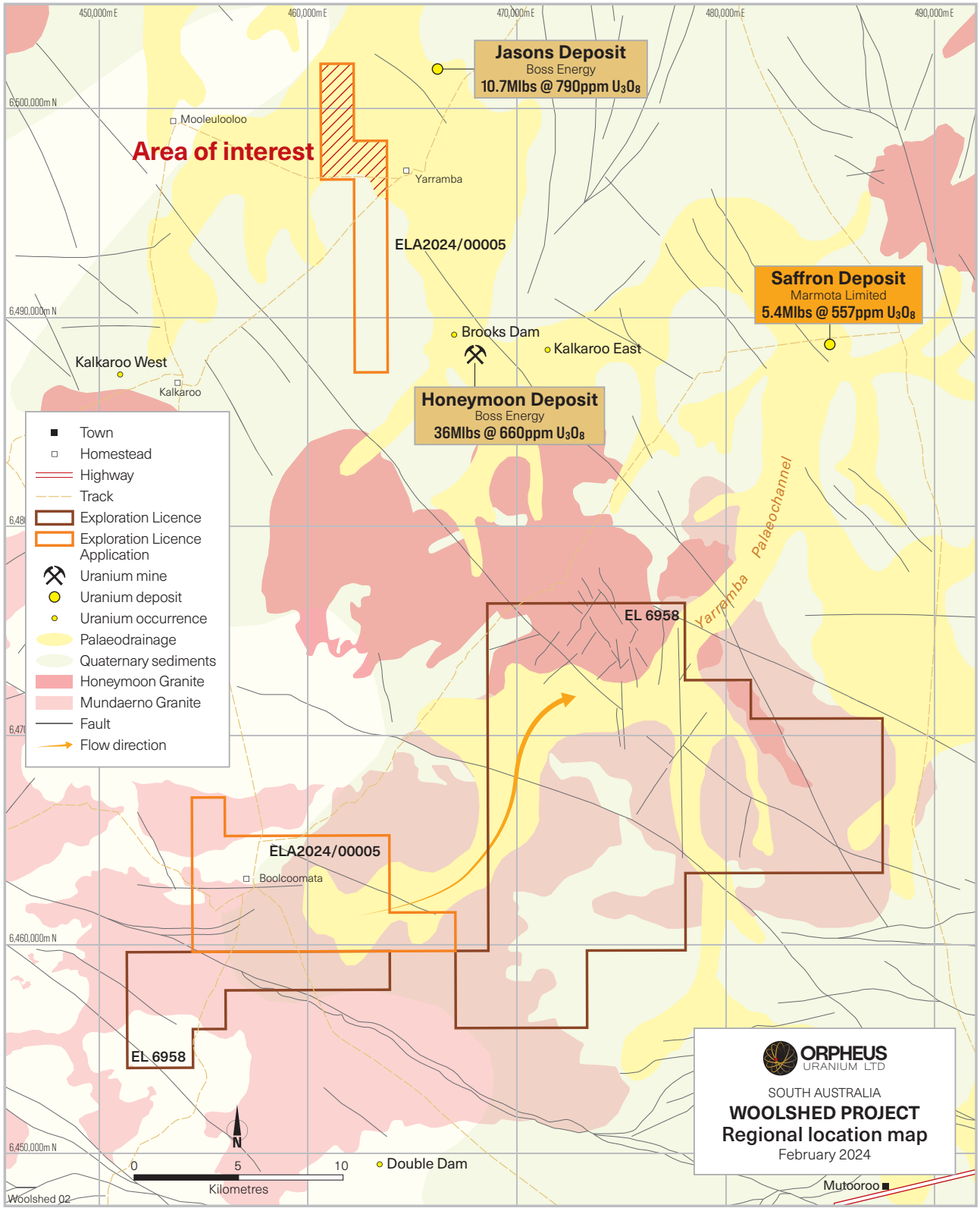

Figure 1 *Woolshed project location ELA2024/00005 and nearby uranium occurrences, highlighting the 'Area of Interest' within the Yarramba Palaeochannel, located just 4km north-west of the Honeymoon Uranium Mine and 4km west of the Jasons Uranium Deposit, and contiguous with the Company's Mundaerno project EL 6958.*

Woolshed Project

The Woolshed project is considered highly prospective for sedimentary-hosted roll-front and tabular-style uranium mineralisation associated with Tertiary palaeochannels.

- The Northern Block contains a large portion of a bend in the Yarramba Palaeochannel that is 4km west of Jasons and is proximal to the radiogenic Mesoproterozoic Honeymoon Granite that is the inferred source of uranium in the area.
- The Southern Block contains the headwaters of the Yarramba Palaeochannel that lies directly on top of Mesoproterozoic granites of the Bimbowrie Suite.

Prospectivity

The South Australian Government database indicates there has been minor historic drilling within the inferred portion of the Yarramba Palaeochannel within the Northern Block of the Woolshed project, located 4km west of the Jasons Uranium Deposit. This location presents itself as a high priority target. Drilling adjacent to the Northern Block was limited to a single traverse, conducted in the 1970s.

The location of the Yarramba Paleochannel has been recently revised by the Geological Survey of South Australia from Airborne Electromagnetic (AEM), the Frome TEMPESTTM AEM survey, that was flown in 2010 by Geoscience Australia, covered much of the Callabonna Sub-basin and a portion of the northern Murray Basin. AEM is an optimum geophysical technique at mapping paleodrainages in this region where thick sedimentary successions include stacked fluvial systems with channel sands saturated by variably saline groundwater[3].

Historically, the region was explored by the Minad-Teton joint venture as part of the South Eagle Uranium project that led to the discovery of Honeymoon in 1972. One historic drillhole within the Northern Block of ELA 2024/00005 (on the margin of the AEM inferred Yarramba Palaeochannel) and historic drillholes directly west of the licence boundary, intersected: Tertiary sands and carbonaceous matter with lignite particles.

Importantly, there is only one historic drillhole within the portion of the Yarramba Palaeochannel of the Northern Block. The Company believes the 'Area of Interest' within the Woolshed project requires immediate testing for uranium mineralisation, highlighted on Figure 1.

Geology

The Woolshed project is situated in the south-eastern portion of the Frome Embayment, Southern Curnamona Province comprising basement rocks of Proterozoic metasediment and metavolcanic units of the Willyama Supergroup and Mesoproterozoic granites of the Bimbowrie Suite, the Honeymoon Granite and Mundaerno Granite. Mesozoic and Cenozoic sediments were deposited unconformably with varying thickness on top of basement rocks and form paleochannel and blanket sands across the region, concealed at surface by younger Quaternary sediments.

Exploration

Orpheus' exploration objective is to locate suitable trap sites for sedimentary-hosted roll-front and tabular-style uranium mineralisation within the Yarramba Palaeochannel. The work program proposed for the Woolshed project includes drilling of high priority targets within the 'Area of Interest' (Figure 1) of the Yarramba Palaeochannel.

Orpheus has commenced compiling and interpreting all existing datasets.

Tenure

Orpheus holds a 100% interest in ELA 2024/00005 Woolshed project that comprises two non-contiguous Blocks for a combined area of 87km^2. An exploration licence application was submitted by the Company on 29 January 2024. Remarkably, the area was identified as open ground on the tenure portal of the Government of South Australia and an application was submitted following an immediate review.

The licence is contiguous with Boss Energy Ltd exploration licence, that hosts the Honeymoon Uranium Mine and Jasons Uranium Deposit, situated 4km to the east of the Northern Block of the Woolshed project (Figure 1).

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3 *Hou, B., Fabris, A.J., Michaelsen, B.H., Katona, L.F., Keeling, J.L., Stoian, L., Wilson, T.C., Fairclough, M.C., 2012. Paleodrainage and Cenozoic coastal barriers of South Australia: new map and GIS dataset, Geological Survey of South Australia, DMITRE.*

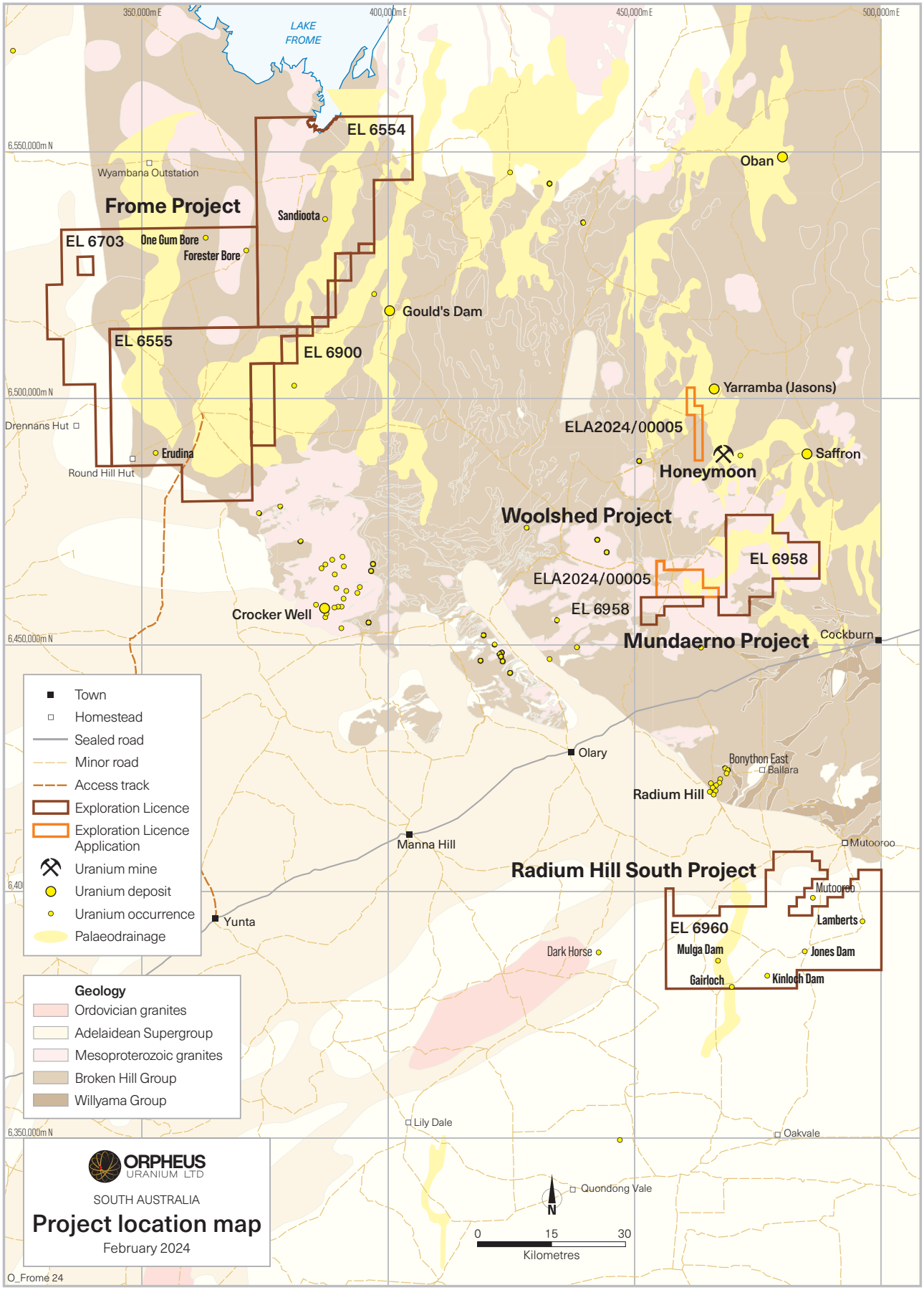

Figure 2 *Project locations and uranium occurrences in the highly prospective region of the Frome Embayment, the Southern Curnamona Province and the northern margin of the Murray-Darling Basin.*

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

About Argonaut

Argonaut Resources NL is an Australian Securities Exchange listed exploration company which has received shareholder approval to be renamed Orpheus Uranium Limited. The name change is estimated to be complete early in 2024. The strategic direction of the Company is to focus principally on its Australian uranium assets, and has acquired and commenced activities on an extensive suite of highly prospective uranium licences in South Australia and the Northern Territory, both jurisdictions which allow uranium mining and processing.

This report is authorised for release by:

Mick Billing
Executive Chairman

Argonaut Resources NL

Competent Person Statement

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 Argonaut Resources NL and Orpheus Uranium Limited. Miss Lawrence holds shares in Argonaut Resources NL. 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.