

The Boda Porphyry Discovery

David Meates, Exploration Manager NSW Rodney Dean, Senior Geologist Ian Chalmers, Technical Director

MAY 2022



Disclaimer



This presentation contains certain forward-looking statements and forecasts, including possible or assumed reserves and resources, production levels and rates, costs, prices, future performance or potential growth of Alkane Resources Ltd, industry growth or other trend projections. Such statements are not a guarantee of future performance and involve unknown risks and uncertainties, as well as other factors which are beyond the control of Alkane Resources Ltd. Actual results and developments may differ materially from those expressed or implied by these forward-looking statements depending on a variety of factors. Nothing in this presentation should be construed as either an offer to sell or a solicitation of an offer to buy or sell securities.

Alkane Resources Ltd cannot and does not give any assurance that the results, performance or achievements expressed or implied by the forward-looking statements contained in this presentation will occur and investors are cautioned not to place any reliance on these forward-looking statements. Alkane Resources Ltd does not undertake to update or revise forward-looking statements, or to publish prospective financial information in the future, regardless of whether new information, future events or any other factors affect the information contained in this presentation, except where required by applicable law and stock exchange listing requirements. This document has been prepared in accordance with the requirements of Australian securities laws, which may differ from the requirements of United States and other countries' securities laws. Unless otherwise indicated, all ore reserve and mineral resource estimates included or incorporated by reference in this document have been, and will be, prepared in accordance with the JORC classification system of the Australasian Institute of Mining, and Metallurgy and Australian Institute of Geosciences.

Previously reported information

The information in this report that relates to the combined mineral resources and ore reserves is drawn from the Company's ASX announcement dated 7 September 2021.

The Tomingley Life Of Mine Plan is extracted from the Company's ASX announcement dated 3 June 2021. Exploration results are extracted from the Company's ASX announcements noted in the text of the document and are available to view on the Company's website. The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcement(s); in the case of estimates of mineral resources or ore reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed; and that the form and context in which the Competent Person's findings are presented have not been materially altered.

Competent person

Unless otherwise advised above or in the Announcements referenced, the information in this presentation that relates to exploration results, mineral resources and ore reserves is based on information compiled by Mr D I Chalmers, FAusIMM, FAIG, (director of the Company) who has sufficient experience which is relevant to the style of mineralisation and type of deposit 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 Exploration Results, Mineral Resources and Ore Reserves. Mr Chalmers consents to the inclusion in this presentation of the matters based on his information in the form and context in which it appears.

Acknowledgements

- Alkane employees past and present
- Dr Alan Wilson (GeoAqua Consultants)
- Dr Anthony Crawford (A & A Crawford Geological Research Consultants)



Overview



Background

Geological setting

Prospect geology

Mineralisation

Boda geological model

Implications for exploration



Background

Alkane Active in the Central West for 30 years

- Peak Hill Gold Mine operation 1998 2002
- Tomingley >2Moz Au resources and production since 2014
- Other Discoveries
 - Discovery with Newmont of >2Moz Au McPhillamys and subsequent sale to Regis Resources (2012)
 - Resource definition of Galwadgere Cu-Au deposit and sale to Sky Metals (2020)
 - Resource definition; process development of the Dubbo Rare Metal Project. Successful demerger of Australian Strategic Materials in 2020
- Northern Molong Porphyry Project (NMPP) discovery of significant Au-Cu mineralisation at Boda in 2019 and extensive ongoing drilling.





MACQUARIE ARC – ORDOVICIAN VOLCANICS



Exploration History

- EL 4022 was acquired from CRAE (Rio Tinto Exploration) in 2004 with the initial interest being the historically mined (70koz) high grade quartz vein at Bodangora (Mitchell's Creek mine).
- Following drill testing of Bodangora by Alkane (with very few interesting results), the company initiated a thorough review of a substantial data base on the whole project area. This work highlighted a number of potential porphyry type targets demonstrated by the outcropping alteration and mineralisation at the small historic workings at Kaiser.
- The Kaiser outcrop area had been extensively drilled by a number of companies over a strike length of about 300m and depth of 90m, and calculated a non-JORC deposit of 403,000 tonnes grading 0.93g/t Au and 0.99% Cu.



Kaiser workings and leaching vats

Geological Setting

- Boda and Kaiser located at the intersection of the Arc parallel Nindethana Thrust and northwest 'Dubbo' transverse corridor. Other north-south thrust structures offset the belt to the west (Macquarie Thrust).
- Dilationary intersection and offset provides enhanced environment for monzonite intrusive bodies and focus for large fluid flow.
- Northern Molong Porphyry Project comprises of intrusives, volcanics and volcaniclastics of the Ordovician Cheeseman Creek Formation.



Boda Geology – Country Rocks

- Boda volcanics are shoshonitic.
- Host Ordovician volcanic package comprises of four litho-geochemically distinct suites.
- Most abundant upper suite correlates with the upper Fairbridge Volcanics.
- Mapping of the volcanic groups suggests stratigraphy at Boda is horizontal to gently east dipping.
- Rare intercalated volcaniclastic units.



KSDD007 - 345m (Vol1A) hornblende-augiteplagioclase -phyric basaltic andesite



KSDD011 - 916m (Vol1B) hydrothermally brecciated augite - phyric basalt



Shoshonitic Boda Cheesemans Creek Formation volcanics (Vol1A + Vol1B) vs Goonumbla and Forest Reefs Volcanics Crawford et al (2007 AJES Macq Arc Special Edition)

Boda Geology – Intrusive Rocks

- Intrusions comprise of high-K calc-alkaline to shoshonitic monzodiorite and monzonites.
- Monzogabbro and monzodiorite intrusives are feeder dykes and are premineral.
- Monzonite dykes host only late-mineral quartzchalcopyrite veins suggesting late-mineral timing.
- Post-mineral intrusions comprise of basaltic, andesitic, dacitic and rhyolitic compositions







KSDD009 – 148m Plagioclasehornblende monzodiorite porphyry with cognate inclusion of hornblendite



KSDD019 – 988m Biotite-quartz monzonite

Boda Geology – Intrusive Breccias

- Magmatic-hydrothermal breccias appear to be the focus of the extensive calcpotassic alteration at Boda.
- Series of NW trending monzodiorite intrusions form a vertical 300m x 500m stock of intrusive breccias central to Boda.
- Intrusive breccias transition to hydrothermal breccias with highest Cu-Au grades
- Brecciation event syn- to post monzodiorite emplacement and is the likely 'causative' to Boda



BOD077 – 420m Monzodiorite-hydrothermal breccia of calc-potassic altered basaltic andesite with chalcopyrite mineralisation

KSDD001 - 925m

Pink monzodiorite intrusive

breccia of calc-potassic altered

basalt

KSDD011 – 916m Hydrothermally brecciated augitehornblende phyric basalt

Mineralisation

- ~3km of continuous >0.2g/t gold mineralisation from Kaiser to Boda Three prospects.
- Approximately 60,000 metres of drilling at Boda for the maiden resource estimation.



Mineralisation

- Calc-potassic alteration assemblage of biotite-actinolite-epidotemagnetite.
- Higher Au-Cu grades centred around sulphide cemented breccias of calc-potassic altered volcanics.
- Veining proximal to the breccias is dominantly calcite-quartz and typically sulphide poor.
- Hematite blush of albite indicative of inner propylitic alteration.
- Propylitic alteration assemblage actinolite-hematite-epidote-pyrite zoning to outer more chloritecalcite-albite-pyrite dominant.



KSDD007 - 96.8m @ 3.97g/t Au and 1.52% Cu Chalcopyrite cemented breccia within calc-potassic alteration of 1,167m @ 0.55g/t Au and 0.25% Cu from 75 metres

> KSDD028 (850m) – Planar quartz-chalcopyrite vein cross-cutting chalcopyrite cemented breccia

Mineralisation

- Bornite-chalcopyrite cemented breccia observed at depth to the northwest. Indicator of the Boda system plunging northwest.
- Overprinting north-east • shoulder of Boda is a gold rich phyllic blanket comprising of sericite-quartz-calcitealbite-pyrite.
- Evidence of epithermal gold ۲ mineralisation within the phyllic alteration zone.



KSDD006 – 349.5m epithermal veining in phyllic alteration zone



North-western drilling section at Boda

Mineralisation – Hydrothermal Breccia Zonation



KSDD040 – pyrite-cemented crackle breccia 1m grading 0.41g/t Au from 250m

KSDD043 – chalcopyrite-cemented crackle breccia 1m grading 14.3g/t Au, 2.80% Cu from 738m

BOD071 – chalcopyrite-bornite crackle breccia 1m grading 2.32g/t Au, 1.46% Cu from 973m



Mineralisation Zonation



MACQUARIE ARC PORPHYRY MODEL



GEOCHEMICAL SIGNATURE



Boda Metal Zonation

Boda Geological Model

- Shallowly east dipping host sequence of shoshonitic basalt to andesite lavas with rare volcaniclastics. The volcanic sequence is cut by near vertical monzogabbro to monzonitic dykes and intrusive breccias.
- Positioned beneath a submarine stratovolcano.
- Alteration of host sequence is extensive calc-potassic with gold-copper mineralisation centred around intrusive breccias, zoning out to inner and outer propylitic alteration overprinted by a significant gold-rich phyllic alteration blanket.
- Metal zonation indicates several separate hydrothermal cells defined within the 5km NW corridor at Boda, Boda Two and Kaiser.
- Lithogeochemistry and age-dating place Boda in Late Ordovician – Early Silurian shoshonitic volcanic - intrusive event (443 – 436Ma) of the Molong Volcanic Belt.



Exploration Implications: Magnetic Intrusive Complexes

15km northwest trending structural corridor with multiple 'fertile' alkalic intrusive complexes.

Finns Crossing

Murga prospect skarn target and separate strong IP chargeability anomaly possible extensive phyllic alteration. Float samples 6.4g/t Au 7.6% Cu; 3.8g/t Au 0.12% Cu

Comobella Intrusive Complex

21km2 area, several copper-gold intercepts associated with monzonites. Best COMRC009 46m @ 0.9g/t Au and 0.25% Cu.

Driell Creek Intrusive Complex

6km2 area positioned within NW corridor. Driell Creek prospect (magnetic low) is a significant sized upper level phyllic zone alteration (Au poor).

Boda and Kaiser Intrusive Complexes

5km long Kaiser-Boda, 1km wide corridor, of intrusives, extensive propylitic to magnetic potassic alteration with gold and copper mineralisation.



Exploration Implications: Electrical Geophysics

- Seven IP surveys completed since 1999 including three small programs completed by North.
- Bodangora Wind Farm was constructed from 2017 2019 and exploration ceased. Alkane completed an IP survey in 2019 immediately after Boda was discovered. The survey is compromised by the wind farm infrastructure.
- IP has identified four significant chargeability highs associated with porphyry alteration zones. Including a gold-poor but extensive phyllic alteration at Driell Creek, Au-Cu mineralisation at Kaiser and two gold-rich phyllic zones at Boda and Boda Two with intercepts of KSRC018
 – 311m @ 0.28g/t Au from 19m and KSDD022 – 292m @ 0.66g/t Au from 867m respectively.
- In 2022 a IP + MT survey over the Driell Creek Magnetic Complex has highlighted a new chargeable high, with a resistive halo, ~2km northwest of Kaiser.



Exploration Implications: Discovery Drilling Section

- Initial RC drilling in conducted by CRAE in 1995 outlined 600m x 200m zone of shallow low-grade mineralisation.
- In 2016 Alkane targeted the Boda mineralisation and a co-incident IP chargeable high with deep RC hole KSRC018 intersecting 311m @ 0.28g/t Au from 19m in mostly phyllic alteration. A zone of potassic alteration near end of hole returned 24m @ 0.53g/t Au, 0.17% Cu from 283m.
- In 2019 diamond drill hole KSDD003 intersected 507m @ 0.48g/t Au, 0.20% Cu from 211m demonstrating lateral and vertical metal and alteration zonation of a significant Au-Cu porphyry system.





Discovery Hole - KSDD003

Summary

- Boda is a Au-Cu alkalic porphyry system associated with intrusive-hydrothermal breccias of a host sequence of basaltic -andesites. Boda represents a probable unique style of significant Au-Cu porphyry mineralisation for the Macquarie Arc.
- Exploration work continuing at Boda Two, Kaiser, Korridor and the Driell Creek Intrusive Complex. As well as distal skarn targets such as Finns Crossing.
- Boda maiden resource estimation is due for release later this month and should confirm it as a state significant greenfields discovery for NSW.











in alkane-resources-ltd

