ASX Announcement **8 February 2024**

Copper-Gold Porphyry Style Deposit Characteristics Identified at Douglas Creek

Highlights:

A vectoring and fertility tool study (PVFTS) in combination with an internal exploration data review highlights fertile copper-gold porphyry characteristics. Diagnostic features of both deposit styles identified in the data include:

- Chlorite and epidote compositions identified by CODES University typical of porphyry-related copper-gold systems;
- Classic, large and circular airborne magnetic and radiometric anomalies;
- Large, coincident copper-bismuth-potassium-in-soil anomalies in regional soil data; &
- Classic potassic alteration signatures from lithogeochemistry alteration studies on ioGAS software.

IP program currently now being planned to build on this work and identify drill targets

GNM CEO & Managing Director, Cameron McLean said "This geochemical program has given the Board a much greater confidence in the existence of a highly prospective porphyry system at Douglas Creek, and the potential unveiling of a new porphyry district. We are looking forward to using the study and IP program to plan a more detailed drill program".

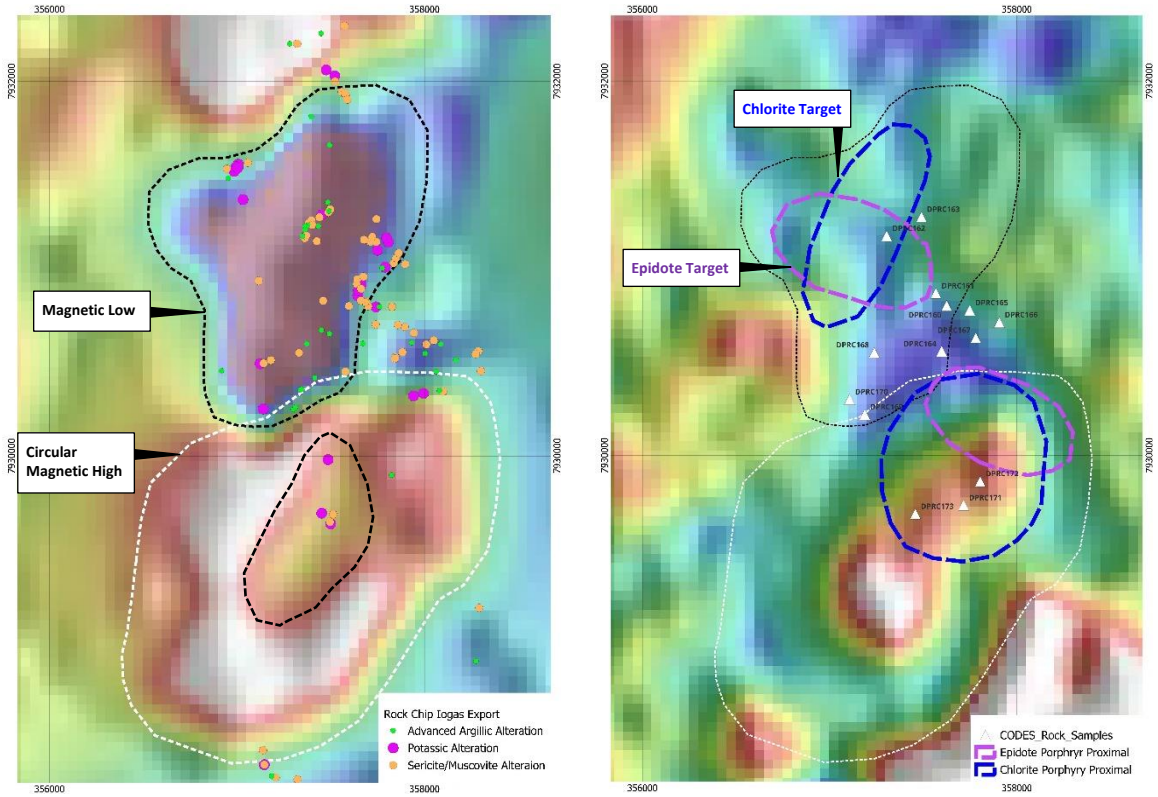

Figure 1 (left): Airborne magnetic image with lithogeochemistry alteration index on rock assays; (right) Airborne radiometric potassium image with CODES chlorite and epidote minerals samples and interpreted targets.

Great Northern Minerals Limited **(ASX: GNM)** (**"GNM"** or the **"Company"**) is pleased to announce the outcome of a fertility study undertaken by the Centre of Ore Deposit and Earth Sciences (CODES) at the University of Tasmania (UTAS) highlighting encouraging results from the Douglas Creek porphyry Cu fertility assessment study together with an internal review of the regional geophysical and geochemical data.

CODES Mineralogy Vectoring Work

The Porphyry Vectoring and Fertility Tool Study (PVTS) uses the chemical compositions of hydrothermal minerals to predict the likely direction and distance to mineralised centres, and the potential metal endowment of a mineral district. Industry adoption of the study method has steadily increased to combine with more established exploration techniques when searching for deeper buried resources or concealed under cover.

At Douglas Creek total of 16 samples from Douglas Creek were sent to University of Tasmania (CODES) for analysis (Figure 1). During that work on each sample chlorite and epidote minerals were identified and probed to define the chemical composition and compared to known deposits including Batu Hijau in Indonesia and Northparkes in Australia is order to define vectors.

Out of 16 samples epidotes were analysed in 13 samples, while chlorites were analysed in all samples from the area. Epidote compositions suggest a medium size porphyry system, while chlorite compositions display more fertile signatures with several samples plotting in the "Giant only" field. Most proximal samples identified based on epidote compositions are DPRC161, DPRC162 and DPRC173 and possibly samples DPRC174 and DPRC164. Most proximal samples identified based on chlorite compositions are sample DPRC170, DPRC161 and DPRC169 (Figure 1). Two semi-coincident target areas on in then north and one in the south were identified based on chlorite compositions using Heatmap approach and data-driven Heat Regression modelling approach was applied to both chlorite and epidote compositions. Target areas are summarised in Figure 1.

Magnetic and Radiometric Geophysics Work

In light of the targeting work by CODES an assessment of magnetic geophysical images was conducted in order to identify porphyry characteristics given many known deposits display characteristic magnetic and potassic alteration signature.

The most striking feature from this work is that in the south a large circular magnetic feature 2km by 1km is evident coincident with both epidote and chlorite targets (Figure 1). In addition, a large potassium anomaly 1km by 400m occurs in the centre of the anomaly that may represent potassic alteration typical of porphyry copper-gold deposits (Figure 1).

Another important geophysical feature of interest is a large prominent magnetic low feature 1.6km by 700m occurs at the north coincident with both epidote and chlorite targets (Figure 1). Magnetic low features are interesting in porphyry environments and can represent reversely polarised magnetite alteration.

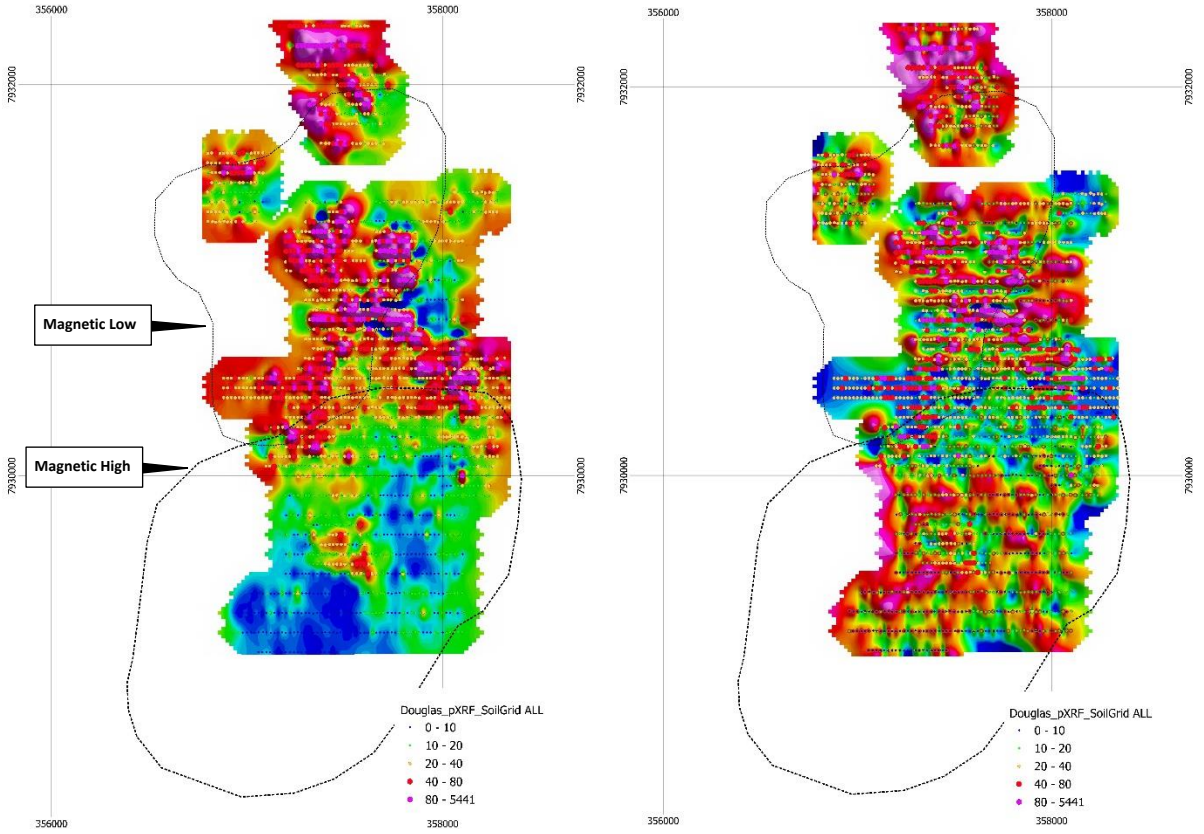

Figure 2 (left): Gridded copper-in-soil from the regional XRF dataset; (right) Gridded bismuth-in-soil from the regional XRF dataset showing the magnetic low and magnetic high anomalies for reference.

Regional Soil Geochemistry

An assessment of regional soil geochemistry was completed in order to assess if characteristic metals typical of porphyry systems occur associated with the identified geophysical and CODES mineralogy targets. In the northern target area both copper, bismuth and potassium are highly coincident with the airborne magnetic low and chlorite and epidote targets (Figure 1 & 2). In the southern target, there is a prominent central copper-in-soil anomaly however the bismuth (and potassium) is much more prominent and widespread. It should be noted that a smaller aqua-regia digest soil survey was completed and has validated the anomalies identified in the XRF data.

Rock Lithogeochemistry Alteration Studies

In order to gather further evidence for alteration typical of porphyry-related copper-gold deposits a database of 228 rock samples with 4-acid digestion multi-element geochemistry assay data which was interrogated with ioGAS software to produce ternary K/Al and Na/Al Molar plots that can accurately characterise the dominant alteration mineralogy typical of porphyry copper-gold systems which are typically 'potassic' that grade through to 'phyllic' (sericite-muscovite) alteration into 'advanced argillic' (chloritic) alteration. Argillic alteration typically occurs in the upper levels of a hydrothermal system, above the zone of phyllic alteration, and is often associated with porphyry copper and gold deposits.. Plot on Figure 3 indicates all three alteration styles are represented in the Douglas Creek data.

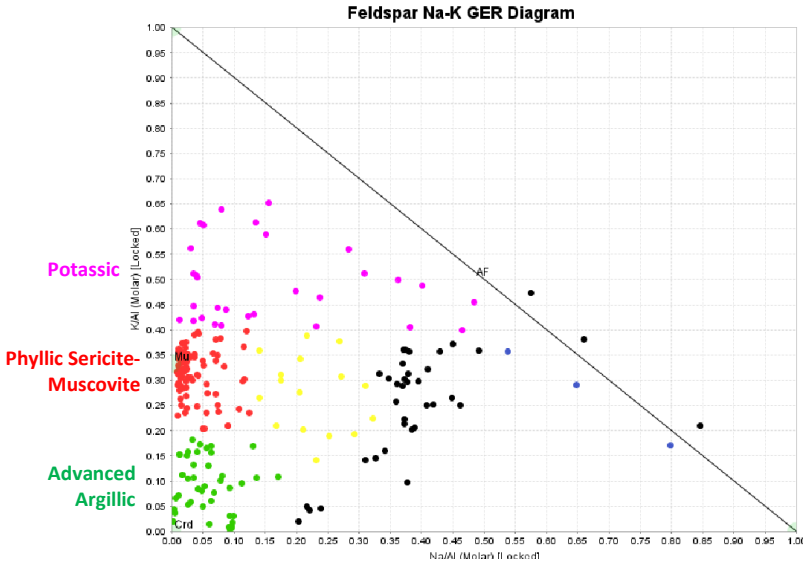

Figure 3: Ternary K/Al and Na/Al molar plots from multi-element rock geochemistry characterising the primary alteration types present at Douglas Creek. NB: Three alteration styles plotted on map in Figure 1.

Both the southern and northern target areas associated with prominent circular magnetic anomalies are represented by a potassic alteration signature (Figure 1) typical of classic porphyry copper-gold deposits. The data also suggests a cross over into sericite-muscovite alteration signatures in places. This potassic signature is supported by field observations where pink potassium feldspar altered adamellite intrusives have been identified in the field associated with a magnetic low (Figure 4).

Figure 4: Photograph of HP4 sample described as a potassium feldspar altered adamellite intrusive

Discussion and Next Steps

This new comprehensive work by GNM completed recently at Douglas Creek indicates numerous evidence to support excellent potential for a fertile porphyry copper-gold system on the project. The next step on this project is to conduct some strategically located IP survey lines across the main anomalies in order to detect large accumulation of disseminated copper sulphide at depth that would indicate the presence of a buried mineralised porphyry system.

ENDS

This announcement has been authorised by the Board of Great Northern Minerals Limited.

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Competent Person Statement

This report's information related to Historical Exploration Results is based on information and data compiled or reviewed by Mr James Cumming and Mr Leo Horn. Both Mr Cumming and Mr Horn are consultants for the Company and are a Members of the Australasian Institute of Geologists (AIG).

Mr Cumming and Mr Horn have sufficient experience relevant to the style of mineralisation under consideration and to the activities undertaken to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Accordingly, Mr Cumming and Mr Horn consent to the inclusion of the matters based on the information compiled by them, in the form and context it appears.

The Company confirms that it is not aware of any new information or data that materially affects the information in the relevant ASX releases. The form and context of the announcement have not materially changed.