



## High-Impact Drilling Programme for New Discoveries at Kharmagtai

23 May 2023

Xanadu Mines Ltd (ASX: XAM, TSX: XAM) (Xanadu, XAM or the Company) is pleased to announce 18,000m discovery exploration drilling programme is progressing well at the Kharmagtai copper-gold project. This program is being fast-tracked to ensure any new discoveries can be incorporated into the Kharmagtai Pre-Feasibility Study (PFS).<sup>1</sup>

### Highlights

- Aggressive 18,000m growth and discovery drill discovery programme underway.
- Discovery exploration program includes two additional diamond drill rigs.
  - 1x diamond rig will drill 8,000m in Phase 1 of deep exploration program targeting high-grade, large-scale mineralisation at depth in an analogue to Oyu Tolgoi. Additional 6,000m in Phase 2 is pending Phase 1 results.
  - 1x diamond rig will drill 10,000m of shallow holes, targeting open pit style resources in five unexplored porphyry clusters within the wider Kharmagtai district.
- Significant combined drill program at Kharmagtai.
  - Operating 6x total diamond drill rigs, including 2x discovery rigs and 4x PFS infill rigs.
  - Combined 54,000m includes 30,000m infill, 18,000m exploration and 6,000m pending Phase 1 findings.
  - 3.3x the average drill metres between 2019-2022.<sup>2</sup>
- Kharmagtai JV funds this exciting, high-impact discovery drilling programme as well as the PFS through to a decision to mine, with total investment of US\$35M.
- Discovery Exploration forms a core value driver in Xanadu's Three Horizon Strategy<sup>3</sup>.

<sup>1</sup> ASX/TSX Announcement – 13 March 2023, Zijin and Xanadu Transaction Completed and Kharmagtai PFS Underway

<sup>2</sup> ASX/TSX Announcement – 31 March 2023, Annual Report 2022

<sup>3</sup> ASX/TSX Announcement – 16 May 2023, RIU Sydney Resources Roundup Presentation

Xanadu’s Executive Chairman and Managing Director, Mr Colin Moorhead, said “We are very excited to kick off discovery drilling at Kharmagtai, an aggressive and systematic programme that underpins our growth strategy. It aims to realise the significant growth potential at Kharmagtai, beyond its existing world-class Resource. By running the exploration programme in conjunction with PFS infill drilling, we can incorporate potential new, high-grade, large-scale discoveries into key PFS decision making, which could be a material value driver at Kharmagtai”.

## Large-scale, high-grade exploration programme

Existing geochemical, geological, and geophysical datasets point to known mineralisation at Kharmagtai (1.1Bt containing 3Mt Cu & 8Moz Au)<sup>4</sup> represents a shallow surface expression of a much larger porphyry system at depth (Figure 1).

Deep drill holes have been designed to ensure that a potential high-grade, large-scale and deeper “Oyu Tolgoi” style deposit is discovered early in the PFS process, allowing optimal infrastructure decisions to be made, without sterilising what could be the major value driver at Kharmagtai (Figure 2).

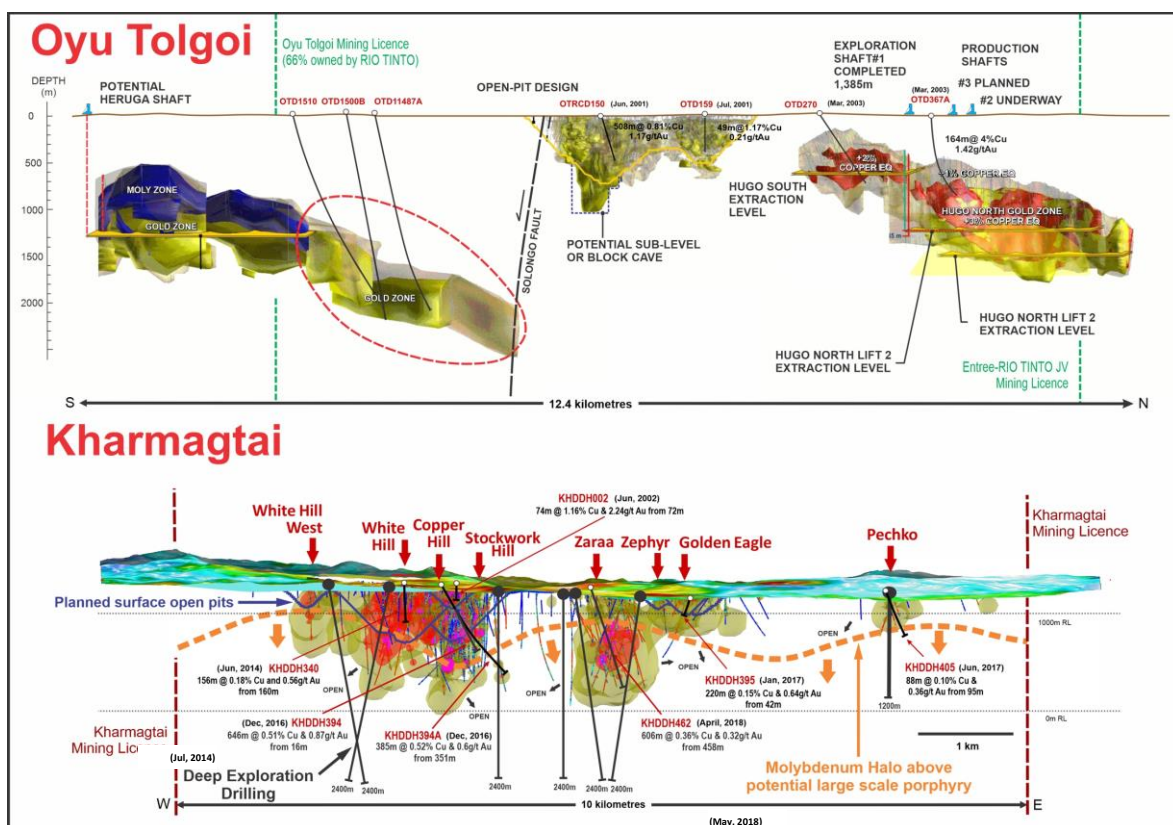
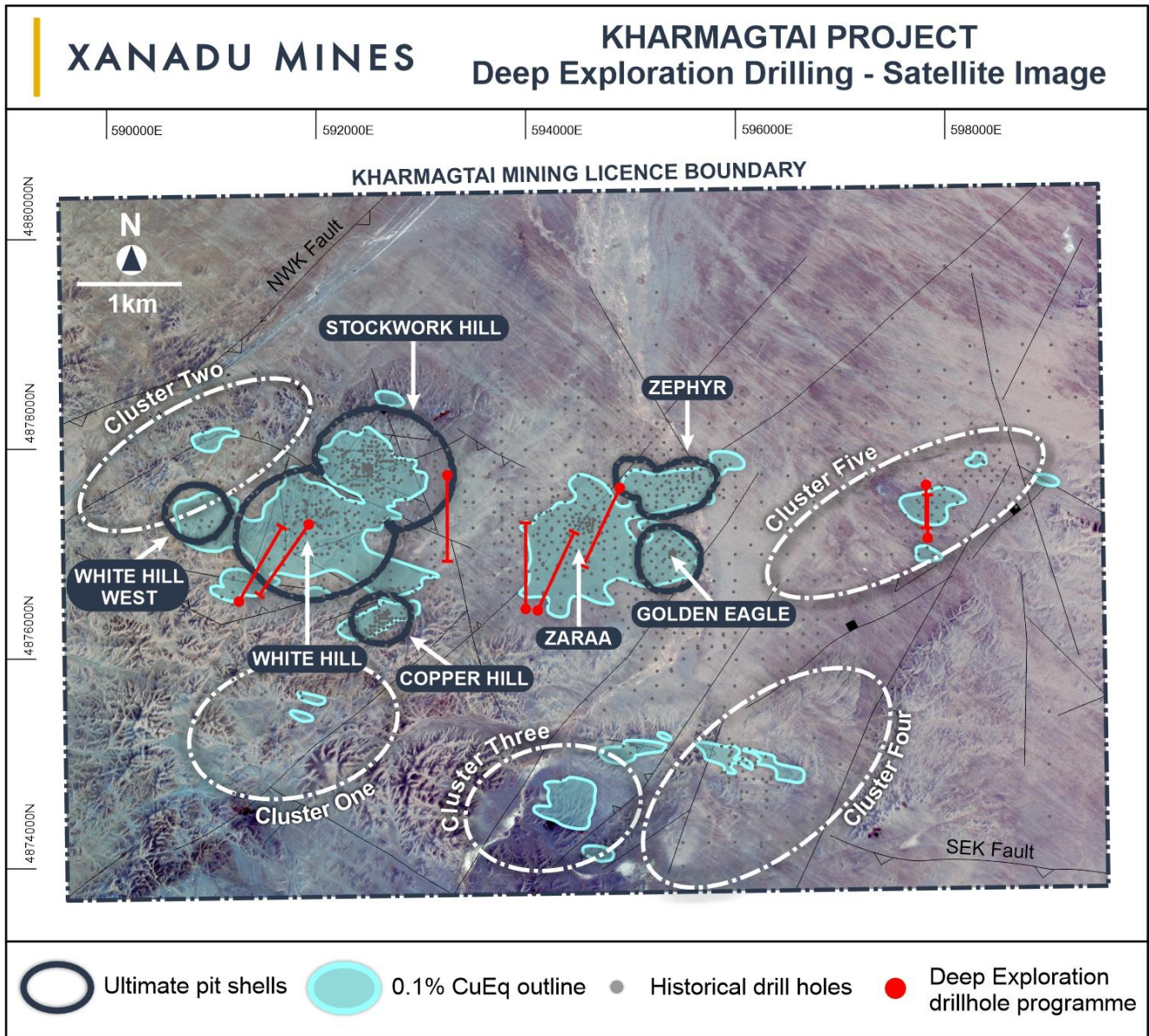


Figure 1: Long Sections through the Oyu Tolgoi Porphyry System and The Kharmagtai Porphyry System. Deep high-grade exploration drill program geochemical zonation points to much larger system beneath Kharmagtai.<sup>5</sup>

<sup>4</sup> ASX/TSX Announcement – 8 December 2021, Kharmagtai Resource Grows to 1.1 Billion Tonnes, Containing 3Mt Cu and 8Moz Au

<sup>5</sup> For drilling results in Figure 1, please refer to the following ASX/TSX Announcements – 3 Feb 2014 Acquisition of 90% of Kharmagtai Copper-Gold Project (includes historical Ivanhoe drill results); 18 Jul 2014 High-Grade Extensions Discovered at Kharmagtai; 22 Dec 2016 Three New Mineralised Porphyry Centres at Kharmagtai; 16 Jan 2017 New Gold Rich Porphyry Centre Identified Under Shallow Cover; 30 Jun 2017 Quarterly Activities Report; 2 May 2018 Kharmagtai Exploration Update - New Zaraa Discovery Assays





**Figure 2:** Kharmagtai copper-gold district showing currently defined mineral deposits and planned deep exploration holes.

*Deep Targeting Criteria*

The strongest evidence for a larger, high-grade porphyry system beneath the known mineralisation at Kharmagtai lies in the district wide 3D geochemical zonation (**Figure 1**). Porphyry systems have a well-documented and consistent geochemical zonation. The high-grade copper-gold core in a porphyry system is surrounded by a mushroom cap shaped halo of molybdenum above the copper and gold, which forms as cooling fluids drop first copper and gold, then molybdenum second. The temperature difference between copper and gold precipitation and

molybdenum is small, but sufficient to provide a geochemical vector with molybdenum highlighting a deeper copper-gold target.

At Kharmagtai this pattern is seen in small scale around the shallow, outcropping mineralisation. However, when viewed at a larger scale, a secondary stronger pattern emerges (**Figure 1**). Beneath White Hill, Zараа and Pechko lies a very strong, large-scale molybdenum halo, pointing to a much larger copper gold system beneath these deposits. The working model is a very large copper-gold porphyry from which smaller dykes of mineralisation are driven off during structural episodes. Stockwork Hill, White Hill, Copper Hill, Zараа et al, represent moments where faults tapping the larger porphyry system provide conduits for Cu-Au to be emplaced. The ultimate priority target at Kharmagtai is the larger system at depth.

Key geological observations also point quite strongly to a larger system at depth. Porphyry deposits at Stockwork Hill, White Hill and Copper Hill have the greatest understanding at Kharmagtai. They all appear to be “wall rock” deposits rather than the standard porphyry with a single large intrusive unit that contains most of the copper and gold. In all cases, copper and gold zonation is controlled by faults, suggesting porphyry fluids (and minor intrusive) are driven by a deeper source.

Additionally, the tourmaline breccia system at Kharmagtai overprints the porphyry system at Stockwork Hill. This tourmaline breccia mineralisation is being generated by another porphyry system below the existing mineralisation.

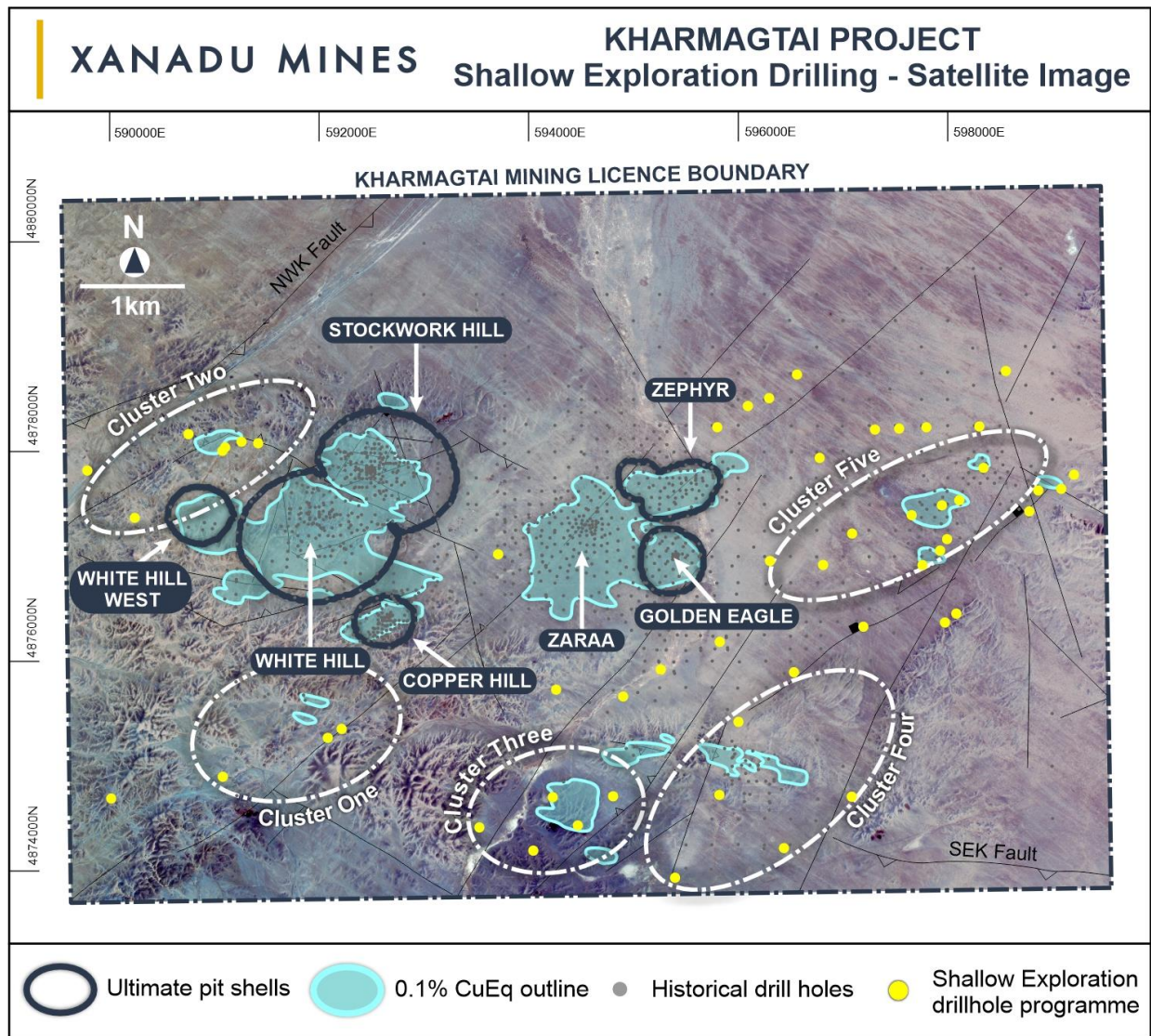
## Shallow high-grade exploration drilling plan

In 2016 a mining lease wide geochemical survey was conducted with the objective of discovering additional porphyry deposits under shallow cover. This work led to the discovery of Golden Eagle, Zephyr and Zараа, but numerous high priority geochemical targets remain untested. The objective of the shallow exploration programme is to test these remaining shallow high-grade open pit targets early in the PFS program to allow a discovery to be brought into the PFS resource (**Figure 3**). The strategy is to test all surface copper anomalies across the lease with a 9,900m diamond drilling programme, split into three phases to ensure any early success can be followed up by drilling in later phases (**Figure 3**).

Targets have been ranked, through identification of key precursors, and prioritised as follows:

1. Copper anomalism,
2. Evidence of proximal porphyry system (b-veins) and prospective host rocks, and
3. Structural framework.





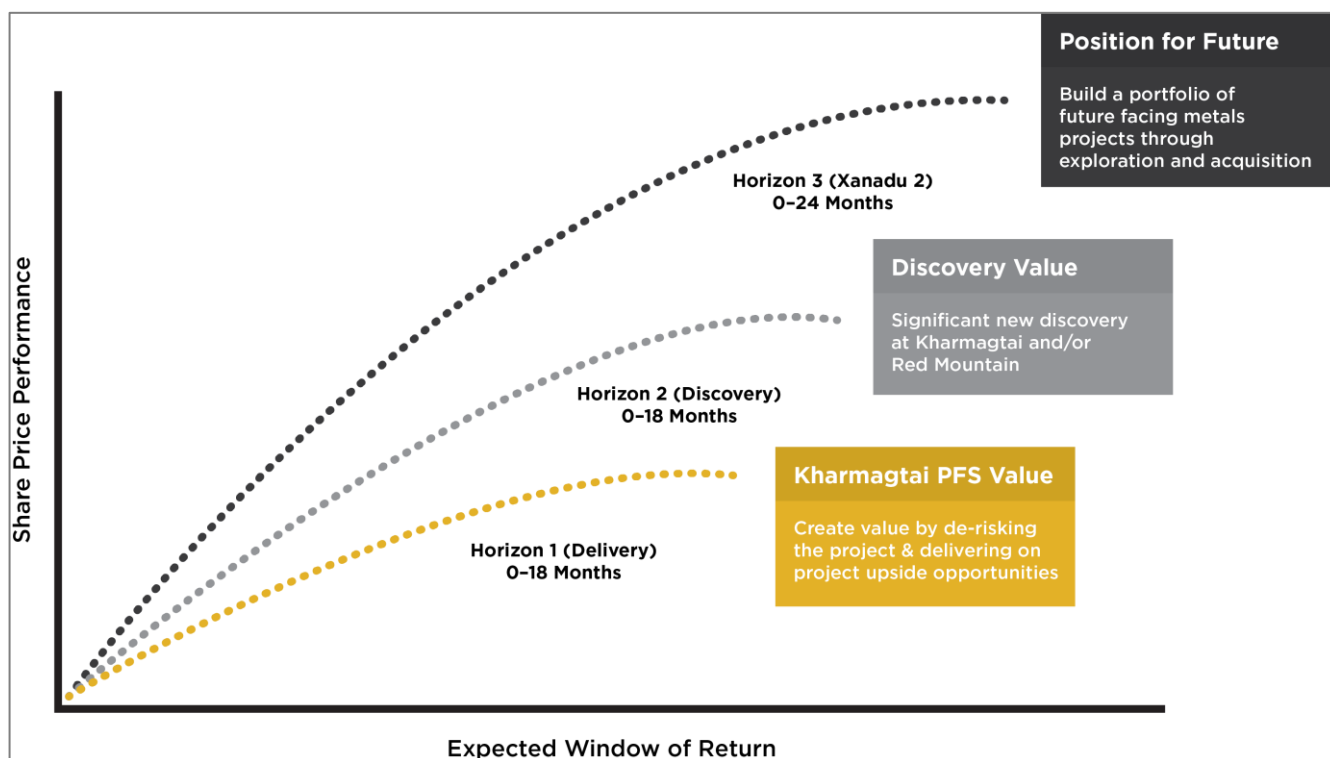
**Figure 3:** Kharmagtai copper-gold district showing currently defined mineral deposits & shallow exploration targets.

### Three Horizon Strategy

Discovery Exploration at Kharmagtai forms the core of Horizon 2 within Xanadu’s strategy to deliver shareholder value across three horizons (**Figure 4**)<sup>6</sup>. These include:

- Horizon 1 – Kharmagtai PFS Value: Create value by de-risking the project and delivering on project upside opportunities.
- **Horizon 2 – Discovery Value: Significant new discovery at Kharmagtai and/or Red Mountain.**
- Horizon 3 – Position for Future: Build a portfolio of future facing metals projects through exploration and acquisition.

<sup>6</sup> ASX/TSX Announcement – 16 May 2023, RIU Sydney Resources Roundup Presentation



**Figure 4:** Xanadu's Three Horizon Strategy

## About Xanadu Mines

Xanadu is an ASX and TSX listed Exploration company operating in Mongolia. We give investors exposure to globally significant, large-scale copper-gold discoveries and low-cost inventory growth. Xanadu maintains a portfolio of exploration projects and remains one of the few junior explorers on the ASX or TSX who jointly control a globally significant copper-gold deposit in our flagship Kharmagtai project. Xanadu is the Operator of a 50-50 JV with Zijin Mining Group in Khuiten Metals Pte Ltd, which controls 76.5% of the Kharmagtai project.

For further information on Xanadu, please visit: [www.xanadumines.com](http://www.xanadumines.com) or contact:

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This Announcement was authorised for release by Xanadu's Board of Directors.

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