Kharmagtai Open Pit Scoping Study Completed

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HIGHLIGHTS

Open Pit design from 2019 Scoping Study (colour coded by phase).

Site Layout plan

Cleaner test schematic.

Grade vs recovery flotation testwork.

Schematic process flow diagram.

Break down of US$5.03 operating cost per tonne.

Location of the Kharmagtai Project in the South Gobi porphyry copper belt.

Geological map of Kharmagtai licence area: Solid geology interpretation of lithologies and major structure derived from limited outcrop exposure, drill holes, and interpretation of geophysical datasets.

Drill hole locations over conceptual open pit design.

Estimation and modelling techniques

Bulk density

- Scoping Study completed for Xanadu’s Kharmagtai Open Pit Copper and Gold Project, confirms the Company’s strategy to explore for high-value large copper porphyry systems in Mongolia;
- Based on results, the Company will progress additional drilling at the project and proceed with more advanced mining studies;

- The Scoping Study was focussed on open pit mining only and should be considered an interim study – leaving a great deal of potential upside development opportunity;
- The Scoping Study identifies important opportunities for further upside both from extending the life of the open pit mine, assessing higher-grade underground options and evaluating oxide gold potential near surface at several locations; and
- Underground mining targeting the high-grade Stockwork Hill and Copper Hill deposits has not been considered in this study but represents a clear and compelling path to further value creation and the ability to expand into a larger project within the current and any future Mineral Resource upgrade.

SCOPING STUDY PARAMETERS – CAUTIONARY STATEMENTS

The Scoping Study referred to in this announcement has been undertaken to determine the potential viability of an open pit mine with a conventional milling and flotation circuit to produce multiple metal concentrates. The Scoping Study is a preliminary technical and economic study based on low-level technical and economic assessments that are not sufficient to support the estimation of Ore Reserves. Further evaluation and appropriate studies are required before the Company will be able to estimate any Ore Reserves or provide any assurance of an economic development. Having regard to ASX Listing Rules Guidance Note 31 *Reporting on Mining Activities (ASX GN31)* , the Company does not disclose in this announcement any production targets, forecast financial information or income-based valuations related to the Scoping Study, but instead the Company discloses appropriate information of a technical nature to ensure that the market is properly informed of the Company’s prospects. Accordingly, the Company hereby makes certain aspirational statements and discloses the parts of the Scoping Study that do not contain production targets. The aspirational statements are based on the Company’s current expectations of future results or events and should not be solely relied upon by investors when making investment decisions.

The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Resources 2012 (JORC Code) (issued by the Joint Ore Reserves Committee), and the Canadian National Instrument (“NI”) 43-101, compliant Mineral Resource estimate issued by the Company in its ASX/TSX Announcement on 31 October 2018, forms the basis for the Scoping Study that is the subject of this Announcement. Conceptual modelling of the Kharmagtai open pit, considered in the Scoping Study, originates from Indicated and Inferred Mineral Resources. There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration will result in the determination of Indicated Mineral Resources.

The Scoping Study is based on the material assumptions outlined within this Announcement (particularly Pages 23-25). While the Company considers that all material assumptions are based upon reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the Scoping Study will be achieved.

To achieve the range of outcomes indicated, there would be a requirement to raise significant additional funding to support the development. Investors should note that there is no certainty that Xanadu and its partners will be able to raise that amount of funding when needed. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of Xanadu’s existing shares. It is also possible that Xanadu could pursue other ‘value realisation’ strategies such as a sale or partial sale of its interest in the Kharmagtai Project. If it does, this could materially reduce Xanadu’s proportionate interest in the Kharmagtai Project.

This Announcement contains forward-looking statements. Xanadu has concluded that it has a reasonable basis for providing these forward-looking statements and believes that it has a reasonable basis to expect that it will be able to fund development of the project. However, a number of factors could cause actual results or expectations to differ materially from the results expressed or implied in the forward-looking statements.

Given the uncertainties involved, investors should not make any investment decisions based solely upon the results of the Scoping Study.

As the Company is dual listed on the Australian Securities Exchange (ASX) and the Toronto Stock Exchange

(TSX), the work required to complete the Scoping Study is required to comply with the JORC Code. It should be noted that the levels for disclosure and the nomenclature used is different in other jurisdictions.

SUMMARY - KHARMAGTAI OPEN PIT PROJECT

TORONTO, April 11, 2019 - Xanadu Mines Ltd. (ASX: XAM, TSX: XAM) (“Xanadu” or the “Company”) is pleased to report that it has completed an interim Scoping Study (“Scoping Study” or the “Study”) to assess the economic viability of the near-surface copper and gold mineralisation from the Company’s Kharmagtai Project in Mongolia. This Study is based upon the current Indicated and Inferred resources.

The Study was commissioned to assess the potential economics of a standalone open cut mine accessing value from the Mineral Resource Estimate as it now exists. It does not consider any value that may be generated using underground mining techniques, or oxide gold potential (refer to Xanadu’s ASX/TSX announcement dated 20 March 2019) nor from possible expansion in the resource stemming from the current evaluation drilling programmes. The project economics are highly encouraging and highlight Xanadu’s Kharmagtai Project’s potential to become a robust, high margin, rapid payback, long life and low strip ratio copper-gold mine in Mongolia at 10-year average copper and gold prices.

The Scoping Study has been prepared by CSA Global Pty Ltd (“CSA Global”) with input from reputable industry consultants O2 Mining Limited and the Company. The findings of the Scoping Study are positive with a recommendation that the project be progressed to the Preliminary Feasibility Study (PFS) level.

The Scoping Study suggests that mining could occur in three deposit areas; Stockwork Hill, Copper Hill and White Hill. The deposits have been optimised using the Lerch-Grossman algorithm and initially will be mined as three separate pits but will ultimately result in two large open pits (Figure 1). The optimised open pit designs extend to a maximum vertical depth of approximately 380m and the largest final pit (Stockwork Hill and White Hill combined) would be 2.1km in length and 1.3km in width. The project was modelled assuming a processing facility of 20 million tonnes per annum (Mtpa) capacity would be constructed at site to process the mineralisation.

The Study is based on Indicated Mineral Resources and Inferred Mineral Resources. It should be noted there is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target will be realised.

The mineralisation at Kharmagtai is best described as a mineralised copper-gold porphyry system. These types of deposit are an economic source of copper on every continent and account for a significant proportion of global copper production. As such, they have been well studied resulting in well understood generic models which provide guidance on the types and distribution of mineralisation within them. The deposits are generally large (to very Large), relatively low grade (0.25% Cu to 1%Cu), polymetallic (Au, Ag, Mo) and the mineralisation is relatively uniformly distributed throughout the large intrusive bodies that host them. The mineralisation occurs in vein stockworks and as disseminated sulphides. Because of their large size and relatively uniform grade distribution and once they have been discovered, they are relatively easy to evaluate by iteratively more-dense drilling campaigns. The current Mineral Resource, although mostly Inferred, has been well delineated with drilling. Given the nature of the mineralisation and the style of deposit the Company is confident that as Infill drilling is conducted it will confirm the continuity of grade and mineralisation and improve the confidence in the resources to the extent that would allow a higher classification.

The Kharmagtai open pit Scoping Study indicates there is the potential to economically extract approximately 51% of mineralisation from within the Indicated and Inferred Mineral Resources (refer to Xanadu’s ASX/TSX announcement dated 31 October 2018) using open cut mining and the material assumptions (Table 1) used in the Study. The Company notes that all three currently defined deposits are open at depth and along strike and are the subject of current and planned drilling programs.

To reflect the inclusion of Inferred resources, uncertainty over future pricing environments, the likely variability in material assumptions supporting the Study and the level of study the Company has taken a

conservative approach with the inputs to the study and the disclosure of the results. Considering the above and guidance provided by ASX GN 31, the Company believes it is not appropriate to report the financial metrics such as internal rates for return, net present values or net cashflows at this time. Other material assumptions for the study and key in put assumptions for the study are presented in this release.

Throughout this Announcement, any dollar values are US Dollar (US$) values, unless otherwise stated. The input metal pricing for the study is US$3.00 per pound copper and US$1300 Oz gold. These values are a conservative representation of the ten-year average of official London Metal Exchange (LME) prices for copper and London Bullion Market Association for gold, which are US$3.05 per pound Cu and US$1,315 per Oz Au respectively.

Xanadu’s Managing Director & Chief Executive Officer, Dr Andrew Stewart, said *“The open pit Scoping Study clearly demonstrates that the Kharmagtai copper-gold project is one of the leading development assets globally today. The Scoping Study indicates the potential to develop a low-strip ratio open pit mining operation in an accelerated time frame, with rapid payback of the life-of-mine infrastructure for future open pit and underground mining operations. Whatever lens you look through, whether it is value, strip ratio, cost, mine life, production profile or scalability, we believe Kharmagtai has the potential to be an outstanding project.*

Importantly, the Study identifies many opportunities for further upside that will improve project economics both from extending the life of the open pit mine and targeting the high-grade Stockwork Hill and Copper Hill underground resources which represent a clear and compelling path to value creation and the ability to expand into a larger resource. Excellent oxide gold recoveries at Golden Eagle complement the existing copper-gold resources and represent the opportunity for a low cost, high-value gold leach operation which could be run early in the development life of Kharmagtai, injecting significant cash into the project to offset the cost of developing a large-scale copper-gold deposit.

Whilst the current resource provides an excellent platform for the Company to join the ranks of copper producers in the coming years, we believe that the exploration potential holds significant value for shareholders. We are excited with recent drilling (KHDDH488) below the Stockwork Hill deposit which has demonstrated the existence of a significant new zone of bornite gold-rich porphyry mineralisation along strike and at depth of the current open pit resource. In addition, we are currently having success with our Mineral Resource evaluation drilling at the new Zaara discovery and Golden Eagle oxide gold prospect. We are very confident that these results will provide the basis for a significant increase in the size and grade of the overall Kharmagtai deposit and have a positive impact on ongoing economic studies”.

Table 1. Key Scoping Study Input Assumptions

Parameters	Units	Estimated Values
Processing		
Maximum processing constraint	Mtpa	20
Metal Recovery		
Copper (average)	%	86.6
Gold (average)	%	70.9
Concentrate transport cost	US$/t	25
Payablity Cu	%	96
Payability Au	%	90
Smelting Charge Cu	US$.dmt	90
Refining Charge Au	US$/Payable Oz	5
Preproduction Capital Cost Estimates		
Open pit mining capital (mining fleet, pre-strip)	US$ million	115
Surface Infrastructure (camp, workshop, power, magazine, water, tailings)	US$ million	61
Processing	US$ million	209
Indirects (owner cost, EPCM)	US$ million	44
Contingency	US$ million	55
Total Initial Capital	US$ million	484

Sustaining Capital	US$ million	194
Environmental	US$ million	5
Total Capital	US$ million	683

NOTES:

1. Estimates are based upon the Kharmagtai open pit mining operations only. The Scoping Study excludes the production potential from the Zaara copper-gold deposit, Golden Eagle Oxide, underground sources of mineable material, and further near surface open pit resources.
2. Estimates presented in Table 1 are on the basis of a 100% project interest. Xanadu holds a 76% participating interest in the project through a contractual joint venture.
3. The Mineral Resource Estimate reported in accordance with JORC (2012) and NI 43-101 and announced by the Company on 31 October 2018 forms the basis of the mining and financial estimates referred to in the Announcement.
4. Technical and economic estimates in the Scoping Study are based on low level technical and economic assessments (+/- 35% accuracy) that are not sufficient to support the estimation of Ore Reserves

OVERVIEW OF KHARMAGTAI SCOPING STUDY

Geology and Mineralisation

Mineralisation at Kharmagtai is associated with multiple porphyritic intrusive stocks of diorite to monzodiorite in composition. Copper and gold are hosted within the sulphide minerals chalcopyrite and bornite associated with porphyry style veining and found as disseminations throughout the rock mass. The Scoping Study focuses on three zones of mineralisation, the Stockwork Hill, White Hill and Copper Hill deposits on which the upgraded resource estimate for Kharmagtai was based (*refer to Xanadu’s ASX/TSX announcement dated 31 October 2018*).

Mineral Resources

The Mineral Resource that forms the basis of the Scoping Study is unchanged from that announced by the Company on 31 October 2018 (and presented in an NI 43-101 report lodged on SEDAR in October 2018). The Mineral Resource Estimate was reported in accordance with JORC (2012) and NI 43-101 and demonstrates that the mineralisation is robust and continuous with over 22% of the resource classified in the Indicated Mineral Resource category. Recent drilling over the last two years has significantly advanced the understanding of the deposit geology and the relationships between lithology, alteration, structure and mineralisation. Table 2 below provides a summary of the Mineral Resources as presented in the 31 October 2018 Mineral Resource report.

Table 2. Interim Kharmagtai Mineral Resource Estimate (valid as at 31 October 2018)

Deposit	Classification	Tonnes	Grades			Contained Metal		
		Mt	CuEq, %	Cu, %	Au, g/t	CuEq, Kt	Cu, Kt	Au, Koz
White Hill	Indicated	45.2	0.42	0.30	0.23	189	135	340
Stockwork Hill		74.4	0.59	0.38	0.41	441	286	972
Copper Hill		9.7	0.76	0.48	0.54	73	47	167
Total Indicated		129.3	0.54	0.36	0.36	703	468	1,479
White Hill	Inferred	412.8	0.40	0.31	0.17	1,653	1,299	2,227
Stockwork Hill		55.4	0.47	0.30	0.34	263	167	601
Copper Hill		0.7	0.39	0.31	0.16	3	2	4
Total Inferred		468.9	0.41	0.31	0.19	1,919	1,468	2,832

Notes:

- Mineral Resources are classified according to Canadian Institute of Mining (CIM) Definition Standards for Mineral Resources and Mineral Reserves (10 May 2014).

- Mineral Resources for open pit mining are estimated within the limits of an ultimate pit shell. Mineral Resources for underground mining are estimated outside the limits of ultimate pit shell.
- A cut-off grade of 0.3% CuEq has been applied for open pit mineral resources.
- A cut-off grade of 0.5% CuEq has been applied for underground mineral resources.
- Dry bulk density values of 2.65 t/m3 for oxide zones; 2.76, 2.74, 2.73 and 2.71 t/m3 for country rocks, 2.78, 2.80, 2.77, 2.81 and 2.76 t/m3 for porphyries and 2.76 t/m3 for andesite dyke were used for the model cells.
- CuEq was calculated using conversion factor 0.62097 for gold. Metal prices were US$3.1 /lb for copper and US$1320 /oz for gold, recoveries – 70% for gold and 85% for copper (82.35% relative gold to copper recovery), copper equivalent formula applied: CuEq = Cu + Au * 0.62097 * 0.8235.
- Rows and columns may not add up exactly due to rounding.

Mining

The Scoping Study has focused on mining sulphide mineralisation from three adjacent open pits. Mining is based on bulk open pit mining techniques using standard drill and blast, load, haul, crusher feed by an owner operator mining fleet. Pits have been designed to a depth of 200m at Stockwork Hill, 380m at White Hill and at 160m for Copper Hill. Mining is planned to be staged with the initial focus on higher-grade material to improve project economics. Waste material is to be stockpiled directly adjacent to the pit and tailings to be stored within a tailing’s facility adjacent to the pit. The flat terrain provides several favourable areas for both waste and tailings facilities within proximity to the deposits (Figure 2).

Optimisation of the Mineral Resource block model was completed using the Lerch-Grossman algorithm within Mindsight Software. The optimised pits were then scheduled, and pit designs were applied resulting in four phases of mining at White hill, two phases at Stockwork Hill and a single phase at Copper Hill (Figure 1). Mining will commence at Copper Hill targeting high-grade material, while the pre-strip is initiated for the White Hill and Stock Work Hill areas. When the prestrip is complete mining will proceed in phases accessing mineralisation from all three deposits. As can be seen in Figure 3, the majority of material throughout the mine life is derived from White Hill.

The study aimed to access the highest-grade material in the early years and targeted the Indicated Mineral Resources. This caused higher than normal grades for years one and two which then stabilises to a reasonably consistent grade over time – reflecting the consistent nature of the mineralisation within this large well-mineralised porphyry system.

Processing

The Scoping Study assumes that mined mineralisation would be treated using a standard crushing-milling-flotation process plant and would result in the production of a filtered copper-gold concentrate. Laboratory scale metallurgical work has been conducted on samples of mineralization likely to be processed at Kharmagtai, and this work indicates that copper recoveries of 90.9% and 85.7% plus gold recoveries of 76% and 69.1% for Copper Hill and White Hill respectively are suitable for this Scoping Study. Additional metallurgical characterisation and flotation testwork work is currently underway to further define metallurgical performance of the various geometallurgical domains within the project.

Table 3. Process plant recoveries used

Copper Hill		White Hill Recoveries	
Copper (%)	Gold (%)	Copper (%)	Gold (%)
90.9	76.0	85.7	69.1

Final concentrate grades vary with mineralisation style and head grade, but on average will run between 26% Cu and 22.5% Cu and will not contain penalty levels of deleterious elements. The basis for these results was reported publically in the NI43-101 Technical Report filed on SEDAR in October 2018.

In summary, a program of preliminary metallurgical testwork was completed by G&T Metallurgical Services (Kamloops, Canada) on a batch of nine composite samples from Mongolia. The samples were reported at that time to have originated from an untested region of the Oyu Tolgoi deposit; however, Xanadu has

confirmed that five of the nine composite samples did in fact originate from the region now described as Kharmagtai (Table 4.)

Table 4. 2008 testwork samples and originating location

Sample ID	Mass (kg)	Description	% Cu	g/t Au	% Fe	% S	% Cuox	g/t F
AT 001	17.2		0.53	1.62	7.55	3.17	0.062	525
AT 002	28.5	Altan Tolgoi (now named Stockwork Hill)	1.58	2.15	6.05	1.92	0.025	415
AT 003	15.4		0.57	0.46	4.48	0.42	0.329	585
TS 001	16.8	Tsagaan Sudal (White Hill)	0.25	0.24	0.25	1.94	0.01	368
ZU 001	20.7	Zesen Uul (Copper Hill)	1.4	2.18	7.45	1.52	0.152	225
MET 001	36.2		0.76	0.42	8.75	2.16	0.004	2,502
MET 002	38.2	Oyu Tolgoi samples	0.56	2.46	2.38	2.47	0.002	1,405
MET 003	41.3		0.47	1.13	4.47	0.72	0.005	3,098
MET 004	38.5		0.47	0.18	2.17	2.12	0.003	1,754

The MET 001 to MET 004 samples were from the Oyu Tolgoi deposit and were not used in the Study. Samples AT001-003, TS001 and ZU001 formed the basis for the Scoping Study recoveries.

The assays in Table 4 highlight some noteworthy characteristics:

- AT 001 has a relatively high pyrite to copper ratio which could be detrimental to performance;
- AT 003 has a relatively high proportion of oxide copper minerals which will negatively impact copper recovery in a sulphide flotation process;
- Gold content is generally good, except in AT 003 and TS 001, which are both below 0.6 g/t; and
- Fluorine content is generally acceptable, with all samples grading less than 600 g/t F.

Flotation testwork on these samples consisted of a series of batch rougher and cleaner tests. No locked cycle testing was completed. The cleaner test flowsheet and range of test conditions is given in Figure 6.

In this work, Aerophine 3418A was used as a selective copper sulphide collector and MIBC (Methyl Iso Butyl Carbinol) was used as a flotation frother. Pulp pH was adjusted in the cleaner circuit using lime to increase pH to a point where only moderate pyrite flotation would be expected. Insufficient work was conducted in this preliminary program to really optimise flotation conditions.

Saleable copper concentrates were achieved for all composites with average contents of approximately 30% copper. At these concentrate levels, the recovery of copper ranged between 75% and 90%, although AT 003 achieved only 30% recovery due to the elevated levels of oxide copper mineralisation in this composite. Grade vs recovery curves for the five composites are illustrated in Figure 7.

It is important to note that as these tests are batch tests, the cleaner tails streams are not recirculated, and thus these metal units have no chance to report to final concentrate. The locked cycle test addresses this issue and would normally result in an increase in grade or recovery of 1-2% over the batch results.

The process plant envisaged for this project is illustrated in Figure 6 above. The flowsheet is very straightforward and uses proven technology for all process steps, including gyratory crushing, SAG & ball milling, rougher, scavenger and cleaner flotation, tailing and concentrate dewatering, plus tailing pumping and storage. The mineralization is judged to be of relatively low abrasion index and medium to high hardness. Reagent usage is straightforward.

Capital costs for the processing facility were estimated using a scoping level process design and equipment selection in conjunction with equipment supply quotations from a reputable Chinese contractor. To this data the costs for equipment installation, civil & earthworks, steelwork, platework, piping, electrical and instrumentation disciplines were calculated. The total direct CAPEX for the processing plant is estimated to cost US$229M, with a cost breakdown in Table 6.

Indirect capital cost items such as contractor mobilization, critical spares purchase, first fills (reagents and

grinding balls), commissioning and other preproduction items were estimated using factors from the direct capital total. Indirect capital costs add another US$37.5M to the CAPEX and contingency adds a further $43.2M for a total processing plant capital cost of $309.7M

Operating costs for processing at 20Mtpa are estimated to be US$5.03 per tonne, with a breakdown as illustrated in Figure 9.

Table 6. Process capital costs summary (minus indirects and contingency)

Item	Cost (US$ Million)
Civil & Earthworks	25
Mechanical Equipment	100
Steelwork/Platework	35
Piping	21
Electrical	30
Buildings	18
Total	$229

Capital Costs

The capital costs for the project have been developed based on indicative quotes for major mechanical equipment, benchmarking against similar projects globally and from CSA Global’s database of recent project work. The estimates have been built up using industry standard methods and is valid as at Q1 2019.

The key capital items include the processing plant at US$232M, Mining and pre-stripping capital US$214M, Surface Infrastructure (power, water, roads, camp, workshop and tailings) US$108M, Environmental Costs US$5M and Overall Contingency of US$74M.Total capital for the project including sustaining capital amounts to US$683 million.

We have estimated a Contingency over all aspects of the project development to be in the order of US$74M. In some cases where pricing is less certain, a contingency up to 25% has been applied, in other areas where pricing is more confident, contingency applied is as low as 5%.

The project benefits from its location 10km from the national grid for power and similar distance the national road network. The area is almost uninhabited, and the terrain is gently undulating which makes siting of mining and related infrastructure straightforward.

Royalty and Taxation regime in Mongolia

Economic evaluation of the project has been completed using a discounted cash flow methodology using the 20Mtpa processing capacity as a basis. The project has been modelled using the current royalty and taxation regime in Mongolia which is outlined in Mongolia’s Mining Law. There are currently discussions underway in government regarding changes to some of the taxation and royalty rates to lower levels, however, as at the time of writing Mongolia has a staged corporate tax rate, as per the below:

- MNT 0 - 3 billion is taxed at 10%
- MNT 3 billion plus is taxed at 25%

Royalty rates in Mongolia differ depending on the mineral being extracted and the level of purification, the market price and where it is processed. In the case of gold, it attracts a 5% standard royalty an additional 5% surcharge royalty based on the prevailing gold price at USD$1300. Copper has a similar system where there is a base 5% royalty however, the surtax rates are much higher when selling concentrates; for example, at US$3.00 per lb of copper an additional 12% royalty will apply (Table 7).

Table 7. Royalty summary

Commodity	Flat Royalty (%)		Royalty Surcharge (%)		Total Royalty (%)	
Copper	5	%	12	%	17	%
Gold	5	%	5	%	10	%

As it stands, the Mongolian Mining Law provides a facility to negotiate better taxation and royalty terms for significant development projects and based on this study Kharmagtai would fall into that category. Two examples where foreign invested companies have been able to negotiate such agreements are Ivanhoe Mines’ Oyu Tolgoi copper-gold Project and Centerra Gold’s Boroo gold Project. Both companies successfully negotiated a flat 5% royalty rate on the minerals being produced.

Given the potential scale of the Kharmagtai development demonstrated in this study it is likely that a similar agreement could be negotiated as the project moves closer to development. As such, the Company believes it is appropriate to show the economic returns for both the current taxation and royalty basis and what a negotiated reduction could look like to ensure that investors are fully aware of the impact of such an agreement; should it be negotiated.

Sensitivity Analysis

As part of the economic assessment of the project a series of sensitivity analyses were undertaken to assess the effect of fluctuations in metal pricing, capital cost and operating costs. Each of these variables were tested in ranges of +/- 30% to assess the effect on the economics of the project. The results indicated the Project is most sensitive to metal pricing.

As the project develops it is likely the operating company would seek to negotiate more favourable royalty terms, as has been done by other mining companies in Mongolia. Should such negotiations be successful, and the operator is able to negotiate the same terms as those at the Oyu Tolgoi or Boroo projects it could result in a 5% flat royalty. As expected, this has strongly positive impact on the post-tax economics of the project. As part of the Scoping study a flat 5% royalty rate was modelled while keeping all other inputs to the cashflow mode the same. The results of this work demonstrated a strong case to move forward negotiations as a priority as the project becomes even more robust.

NEXT STEPS

The Study identifies serval important opportunities for further upside opportunities that will improve the project. Key next step programs include:

- Continue resource evaluation drilling targeting additional infill drilling Copper Hill, White Hill and Stockwork Hill to upgrade inferred material to Indicated material and to expand the resources. A higher resource category will allow a higher confidence in the economic assessment in future studies (this work is in progress).
- Continue to evaluate the near surface oxide gold Exploration Targets recognised by the Company at Golden Eagle and Stockwork Hill. Aim to convert the Exploration Target to Mineral Resources, so it can be included in future mining studies (in progress).
- Look to complete an updated Mineral Resource estimate to capture recent evaluation drilling at Zaara. Golden Eagle, Copper Hill, Stockwork Hill and Copper Hill.
- Infill drilling below the current resources targeting the high-grade mineralisation at Stockwork Hill where high-grade bornite has recently been reported and at Copper Hill deposits.
- Complete conceptual mining studies to investigate the underground Mining potential of areas outside of the open cut areas to assist in targeting drilling.
- Metallurgical test work is in progress to refine the recoveries of copper and gold reporting to concentrate.
- Complete comminution studies on relevant samples to inform future, more detailed mining studies.

- Complete Geometallurgical characterisation of the deposit to aid more detailed mine planning in subsequent studies.
- Progress towards a PFS level study to define Ore reserves for the project and improve the reliability of the economic assessment of the project.

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ABOUT XANADU MINES LIMITED

The Kharmagtai copper-gold project is in Omnogovi Province, approximately 420km southeast of Ulaanbaatar. It is within the South Gobi porphyry copper province which hosts most of the known porphyry deposits in the South Gobi region of Mongolia, including the Oyu Tolgoi copper-gold operations (120km south), the Tsagaan Suvarga porphyry copper-molybdenum development (170km east) and Xanadu’s Oyut Ulaan porphyry copper-gold exploration project (260km northeast).

Kharmagtai is close to good infrastructure, with sealed roads from Ulaanbaatar to Dalanazagad within 70km of the project and an existing powerline from Tsogttsetsii to Manlai within eyesight of the project. A power plant is planned for the coal mine at Tsogttsetsii (70km from Kharmagtai) with rail lines planned from Tsogttsetsii to the Chinese border town of Ganqimaodao. The project has a granted 30-year mining licence and a registered water resource.

DISCLAIMER

This ASX/TSX release has been prepared by Xanadu Mines Ltd. and neither the ASX or the TSX, nor their regulation service providers accept responsibility for the adequacy or accuracy of this press release.

FORWARD LOOKING STATEMENTS

Certain statements contained in this press release, including information as to the future financial or operating performance of Xanadu and its projects may also include statements which are ‘forward‐looking statements’ that may include, amongst other things, statements regarding targets, estimates and assumptions in respect of mineral reserves and mineral resources and anticipated grades and recovery rates, production and prices, recovery costs and results, capital expenditures and are or may be based on assumptions and estimates related to future technical, economic, market, political, social and other conditions. These ‘forward–looking statements’ are necessarily based upon a number of estimates and assumptions that, while considered reasonable by Xanadu, are inherently subject to significant technical, business, economic, competitive, political and social uncertainties and contingencies and involve known and unknown risks and uncertainties that could cause actual events or results to differ materially from estimated or anticipated events or results reflected in such forward‐looking statements.

Xanadu disclaims any intent or obligation to update publicly or release any revisions to any forward‐looking statements, whether as a result of new information, future events, circumstances or results or otherwise after today’s date or to reflect the occurrence of unanticipated events, other than required by the Corporations Act and ASX and TSX Listing Rules. The words ‘believe’, ‘expect’, ‘anticipate’, ‘indicate’, ‘contemplate’, ‘target’, ‘plan’, ‘intends’, ‘continue’, ‘budget’, ‘estimate’, ‘may’, ‘will’, ‘schedule’ and similar expressions identify forward‐looking statements.

All forward‐looking statements made in this press release are qualified by the foregoing cautionary statements. Investors are cautioned that forward‐looking statements are not guarantees of future performance and accordingly investors are cautioned not to put undue reliance on forward‐looking statements due to the inherent uncertainty therein.

CAUTIONARY NOTE TO INVESTORS OUTSIDE AUSTRALIA

This news release has been prepared in accordance with the requirements of the securities laws in effect in Australia, which differ from the securities laws other jurisdictions. Unless otherwise indicated, all resource and reserve estimates included in this press release have been prepared in accordance with JORC Code 2012 which establishes standards for all public disclosure for mining companies on the ASX. Australian standards, including the JORC Code 2012, differ significantly from other jurisdictions. Investors outside of Australia are cautioned not to assume that any part or all of mineral deposits will ever be converted into reserves. Investors should also understand it cannot be assumed that all or any part of an "inferred mineral resource” will ever be upgraded to a higher category. Under Australian rules, estimated "inferred mineral resources” may not form the basis of feasibility or pre-feasibility studies except in rare cases. Investors are cautioned not to assume that all or any part of an "inferred mineral resource” exists or is economically or legally mineable. As such this disclosure should be read in the context of Australian disclosure standards and should not be published or referred to in jurisdictions outside of Australia.

COMPETENT-QUALIFIED PERSON STATEMENT

The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the ‘JORC Code 2012’) sets out minimum standards, recommendations and guidelines for Public Reporting in Australasia of Exploration Results, Mineral Resources and Ore Reserves. The Information contained in this announcement has been presented in accordance with the JORC Code 2012.

The information in this announcement that relates to Mineral Resources is based on information compiled by Dmitry Pertel who is responsible for the Mineral Resource estimate. Mr Pertel is a full-time employee of CSA Global and is a Member of the Australian Institute of Geoscientists, has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity he is undertaking to qualify as the “Qualified Person” as defined in the CIM Guidelines and National Instrument 43-101. Mr Pertel consents to the inclusion in the report of the matters based on this information in the form and context in which it appears.

The information in this report that relates to the Scoping Study is based, and fairly reflects, information compiled by Gordon Zurowski, P.Eng is a registered Professional Engineer in Ontario, Canada. Mr Zurowski is employed by CSA Global, independent resource industry consultants. Mr Zurowski 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 Zurowski consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this announcement that relates to metallurgical test work is based on a summary of results compiled by Andrew Holloway who is responsible for metallurgical and process engineering aspects of the project. Mr. Holloway, who is a principal of AGP Mining Consultants Inc. (Toronto, Canada) and is a Professional Engineer in Ontario, Canada, has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity he is undertaking to qualify as the “Competent Person” as defined in the 2012 Edition of the “Australasian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves” and the National Instrument 43-101. Mr Holloway consents to the inclusion in the report of the matters based on this information in the form and context in which it appears.

The information in this announcement that relates to exploration results is based on information compiled by Dr Andrew Stewart who is responsible for the exploration data, comments on exploration target sizes, QA/QC and geological interpretation and information. Dr Stewart, who is an employee of Xanadu and is a Member of the Australasian Institute of Geoscientists, has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity he is undertaking to qualify as the

“Competent Person” as defined in the 2012 Edition of the “Australasian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves” and the National Instrument 43-101. Dr Stewart consents to the inclusion in the report of the matters based on this information in the form and context in which it appears.

COPPER EQUIVALENT CALCULATIONS

The copper equivalent (CuEq) calculation used in the Mineral Resources represents the total metal value for each metal, multiplied by the conversion factor, summed and expressed in equivalent copper percentage. The copper equivalent calculation is intended as an indicative value only. The copper equivalent was calculated using conversion factor 0.62097 for gold. Metal prices were US$3.1 /lb for copper and US$1320 /oz for gold, recoveries – 70% for gold and 85% for copper (82.35% relative gold to copper recovery), copper equivalent formula applied: CuEq = Cu + Au * 0.62097 * 0.8235.

DEFINITIONS

Term	Meaning
Au	Gold
Kharmagtai	Group of deposits comprising Copper Hill, Stockwork Hill and White Hill
Cu	Copper
CuEq	Copper equivalent
CSA Global	CSA Global Pty Ltd
Indicated	Indicated Mineral Resource in accordance with the JORC 2012 edition and 43:101
Inferred	Inferred Mineral Resource in accordance with the JORC 2012 edition and 43:101
LOM	Life of Mine
M	Metres
Mt	Million tonnes. Also used as ‘Mtpa’ where referring to per annum metrics
NSR	Net Smelter Royalty
Oz	Troy Ounces
RC	Refining Costs
RL	Resource Line. Used to define the depth of a pit shell e.g. “750mRL”
ROM	Run of Mine
Strip Ratio	Ratio of waste to ore
T	Tonnes. Also used as ‘tpa’ or ‘t/a’ where referring to per annum metrics
XAM	Xanadu Mines Ltd. Also referred to as the Company

APPENDIX 1. KEY COMPONENTS OF KHARMAGTAI PROJECT SCOPING STUDY

BACKGROUND

Xanadu Mines Kharmagtai copper-gold project is located approx. 420 kilometres southeast of Ulaanbaatar and approx. 100 kilometres northwest of Rio Tinto’s Oyu Tolgoi copper-gold mine. Xanadu currently has a 76.5% interest in the project through an 85% interest in its joint-venture company Mongol Metals LLC, which has a 90% interest in the project.

This area of Mongolia contains several major mineral deposits. The Kharmagtai project is located 120 km north of the Oyu Tolgoi porphyry copper-gold project, 150 km west of the Tsagaan Suvarga copper deposit, and 60 km north of the Tavan Tolgoi coal deposit (Figure 10).

Road access to the area follows a paved road from Ulaanbaatar requiring six hours of travel time, with the last 1.5 hours on approximately 60 km of unsealed roads. The soum (sub-province) centre of Tsogttsetsii is situated approximately 60 km southwest of the Project area and is serviced by daily flights from Ulaanbaatar requiring 45 minutes travel time.

GEOLOGY

Outcrop throughout the Kharmagtai district is sparse with Quaternary sand forming a thin cover over most of the district (Figure 11). The current geological understanding is derived mainly from diamond drilling, supported by mapping of localised outcrop and trenches. Copper-gold mineralisation at Kharmagtai is hosted within the Lower Carboniferous Kharmagtai Igneous Complex (KIC), which was emplaced into a Late Devonian volcano-sedimentary sequence (Kharmagtai Volcanic Group). The Kharmagtai Volcanic Group has a minimum stratigraphic thickness of 1,500 m and dominates the western part of the district. The true thickness of the succession is poorly constrained, due to structural and alteration complexities. The volcanic group predominantly comprises hornblende-phyric andesite interbedded with poorly sorted breccia and finely laminated volcaniclastic units.

The KIC is characterised by a composite porphyritic diorite to monzodiorite intrusive complex characterised by a high-K calc-alkaline island arc geochemical signature. The complex covers approximately 5–6 km2, extending from White Hill in the west, to Wolf prospect in the east. The intrusive complex is predominately composed of diorite, quartz-diorite and monzodiorite intrusions, with granodiorite and syenite on its eastern margin. Intrusions appear to become more evolved the further east they are in the igneous complex. Early-mineral intrusions are typically equigranular stocks, or weakly mineralised dark-grey to black diorite, that have been cut by a series of quartz diorite porphyry pipes and dykes of early- and inter-mineral timing. The dimensions of the composite mineralised pipes at Kharmagtai are around 100–200 m in diameter, with vertical extents up 1 km. Unidirectional solidification textures (UST), such as crenulated quartz layers, brain rock and vein dykes typically occur in most of the mineralised intrusions, indicating an intimate relationship between intrusive emplacement, volatile exsolution and mineralisation. The final intrusive phase comprises plagioclase-phyric andesite dykes that were emplaced along northwest-trending shear zones (Figure 2).

A large proportion (70%) of the Property is covered by young sediments, with an average thickness of 35 m and a maximum thickness of 85 m. These cover sediments comprise basal conglomerate overlain by red-brown clays of probable Cretaceous age with an upper layer of Quaternary colluvium (sand, gravel and clay).

RESOURCE MODEL

The Mineral Resource Estimate used in the Scoping Study was announced on the 30th October 2018. The Mineral Resource Estimate is summarized in Table 2. The Mineral Resources are quoted above 0.3% CuEq cut-off within a conceptual constraining wireframe. The parameters used to generate an optimised ultimate open pit shell are provided in Table 6. The drill hole collar plan and conceptual pit outlines are shown in Figure 12 and the drill hole data used within the resource is summarized in Table 7.

Table 6: Constraining Pit Parameters used for Resource Estimate (See note)

Parameters	Units	Value
1. Mining		
Ore mining cost	$/t	2.49
Waste mining cost	$/t	2.49
Mining losses	%	0
Mining dilution	%	5
2. Processing		
Processing cost (including G&A costs)	g/t	4.2
Processing recovery:		
Gold	%	70
Copper	%	85
3. Pricing		
Elements price:		
Gold	$/oz	1,320
Copper	$/t	6,834
Selling cost for Au	$/oz	4

Selling cost for Cu	$/t	1,030
4. Other to optimization		
SG parameters	t/m^3	2.75
General pit slopes	°	50

Note: these values were not used in the scoping study they were only used to demonstrate the case for eventual economic extraction

Table 7: Drill Hole Summary

Timing	Reverse Circulation	Metres	Diamond Core	Metres	RC and Diamond	Metres	Trenches	Metres
Drilling <2015	155	24553	252	88511.1	0	0	106	39774
Drilling >2015+	68	13107	116	57876.7	22	5323.1	17	5618
Total	223	37660	368	146387.8	22	5323.1	123	45392

ESTIMATION METHODOLOGY

A block model was created to encompass the full extent of the Kharmagtai deposits (White Hill, Copper Hill and Stockwork Hill - other exploration areas were excluded). The block model used a parent cell size of 20 m(E) x 20 m(N) x 20 m(RL) with sub-celling to 4 m(E) x 4 m(N) x 4 m(RL) to maintain the resolution of the wireframed geological domains and rock types.

An empty block model was created within the closed wireframe models for the geological domains, rock types, barren dykes, level of veining (stockwork) and breccia. The model was also coded according to the oxide zones. Each modelled geological domain was assigned several unique codes in the model file (geology, veining and breccia). The block model was then restricted below the topography surface.

Copper and gold grade values were interpolated into the empty block models separately for each modelled geological domain of the deposits using the Ordinary Kriging method. The Ordinary Kriging method was performed at different search radii until all cells were interpolated. The search radii were determined for each domain based on the parameters of the modelled semi-variogram ranges averaged for each direction for copper and gold. The blocks were interpolated using only assay composites restricted by the corresponding domain for each deposit. When model cells were estimated using radii not exceeding the full semi-variogram ranges, a restriction of at least three samples from at least two drill holes or trenches was applied to increase the reliability of the estimates.

APPENDIX 2: MATERIAL ASSUMPTIONS

Material assumptions used in the estimation of the mineable material and associated financial information relating to the study discussed in this announcement, including consideration of the “modifying factors” under the JORC Code 2012 and NI 43:101, are set out in the following table.

Table of Material Assumptions used in the Scoping Study

Criteria	Commentary
Mineral Resource estimate for conversion to Ore Reserves	The Scoping Study reported here is based on Indicated an Inferred material and the relatively early stage of investigat Mineral Reserve.
Site visits	A site visit was conducted by the Competent Persons Mr. C September 2018.

Study status	The work reported here is a Scoping Study level and is bas Due to the low level of confidence in Inferred Resources th may not be realized when subjected to further investigation This is an interim study to assess the economic viability of take account of any underground potential at the project. A including resource drilling, geometallurgical study, geologic contribute to future studies at the project. A reasonable level of diligence has been undertaken to est study. All modifying factors have been collated and reviewe the area of study
Cut-off parameters	For this scoping study we have calculated a marginal cut-o strategy has been developed based on economic analysis breakeven cut-off to mine and process the mineralization w completed using the Lerch-Grossman algorithm to assess Model using Minesight software. The cut-off grade has been benchmarked against similar p considered reasonable for the style of bulk open pit mining
Mining factors or assumptions	The Scoping Study is based on standard bulk mining open within the deposits. The project will utilize standard drill and be completed by the owner’s team comprised of ex Th waste material will be stockpiled adjacent to the pit in de be stored in standard tailings storage facility located adjace deposit area provides several favourable areas for both wa Mining costs are based on industry standard techniques to its operation, CSA Global has benchmarked the values aga of similar size globally.
Metallurgical factors or assumptions	Preliminary metallurgical test work has been completed on the deposit representing different mineral grades likely to b work was designed to assess the potential recovery and qu the mineralisation targeting copper, gold and silver. Only co The work demonstrates the mineralisation present at Kharm conventional, off-the-shelf grinding and flotation techniques suggested that recoveries of 71% for gold and 87% for cop Additional work has commenced to optimise the metallurgi
Environmental	Initial baseline study has commenced on site but is limited Limited work has been undertaken to assess the environm area is flat, arid and uninhabited; as such, environmental c development should it proceed.
Infrastructure	The project area lies in relatively remote part of Mongolia b Mine owned and operated by Rio Tinto. The project can be utilising sealed and all-weather unsealed roads throughout Power lines exist within 10km of the Project and are anticip connecting to the grid have been estimated as part of the s There is currently a Yurt-style exploration camp at the proje infrastructure will be required to be built as part of the proje included in the study

	The development of the Kharmagtai Project has been divid expenditure. The capital cost estimate for the Scoping Stud engineering works, mining and processing equipment and a prepared based upon CSA Global’s project databas industry standard estimating factors and benchmarking aga quotations. A 20% capital expenditure contingency allowan some conservatism in this level of study. The cost estimate of Q4 2018 in real terms, with no allowance for escalation o
Costs	The operating cost estimate for this study includes all costs infrastructure, and site-based general and administration co based on comparative costs for operations of similar size a infrastructure. Mining costs range from US$1.55/t to US$2. operations. Processing costs are consistent through the op General and administration costs address overheads, adm approximate cost of US$0.26 per processed tonne. The se US$90/concentrate tonne and transport costs of US$25/t. F copper, and US$5/oz for gold. The cost estimates were con allowance for escalation or inflation
Revenue factors	Revenue from the project is derived from the sale of a clea established the characteristics of expected final products th polymetallic processing operations and the preliminary met Person for this study. This benchmarking process underpin concentrate presented. Payability is a standard term in con (percentage) of the contained metal for which payment will payability was estimated at 96% for copper and 90% for go trailing average. Risks associated with these assumptions is lower than expected, the metal concentrate product split assumptions are not met
Market assessment	The market for the Company’s copper and gold pro be produced from Kharmagtai are actively traded in spot m derivative financial instruments. Prices set in financial mark conditions and market sentiment. These prices are often th negotiating offtake and / or sales agreements with counterp copper and gold prices are all greater than current LME sp conditions could be characterised as favourable for the me
Economics	The Scoping Study is a preliminary technical and economic assessments (+/- 35% accuracy) that are not sufficient to s evaluation work and appropriate studies are required befor Reserves or provide any assurance of an economic develo financial modelling. This number was selected as a cost of discount rate for project funding and economic forecasts. S completed.
Social	The Company believes it is in a strong position to enter an Government along the lines of other operators in Mongolia. assessed using the current royalty regime but with a sensit of negotiation with government. The Scoping Study contemplates a development of the Kha operation with the construction of a processing facility at sit facility. The Company expects the Kharmagtai developmen benefits for local communities, including employment oppo residents may be directly or indirectly affected by the mine Community programs and social impact studies have comm developing links within the local community.
Other	Xanadu has strong stake holder engagement with the local and employment of the local populace. Xanadu is in regula government of Mongolia. Due to the scale of the project it is be in place prior to development which will is anticipated to
Classification	No reserves have been classified as part of this scoping st Due to the proportion of inferred resources and conceptual economic viability has not been demonstrated and therefor

Audits or reviews	All study Inputs have been prepared by Competent Person has been the subject of internal peer review by discipline e to the Xanadu Board for a review of material omissions or e Audit.
Discussion of relative accuracy/ confidence	The accuracy or confidence in this study is commensurate minus 35%. All estimates have been prepared by Compete and benchmarked against similar projects globally. Due to resources and uncertainty over future metal prices the resu possible that with additional exploration work that aspects impact the amount of mineralization available for mining. B here may or may not be achievable.

APPENDIX 3: KHARMAGTAI TABLE 1 (JORC 2012)

Set out below is Section 1, Section 2 and Section 3 of Table 1 under the JORC Code, 2012 Edition for the Kharmagtai project. Data provided by Xanadu. This Table 1 updates the JORC Table 1 disclosure dated 20 March 2019.

3.1 JORC TABLE 1 - SECTION 1 - SAMPLING TECHNIQUES AND DATA

Criteria	JORC Code explanation
Sampling techniques	● *Nature and quality of sampling (eg cut channels, random ch* ● *Include reference to measures taken to ensure sample repre* ● *Aspects of the determination of mineralisation that are Mate* ● *In cases where ‘industry standard’ work has b*
Drilling techniques	● *Drill type (e.g. core, reverse circulation, open-hole hammer,*
Drill sample recovery	● *Method of recording and assessing core and chip sample re* ● *Measures taken to maximise sample recovery and ensure re* ● *Whether a relationship exists between sample recovery and*
Logging	● *Whether core and chip samples have been geologically and* ● *Whether logging is qualitative or quantitative in nature. Core* ● *The total length and percentage of the relevant intersections*
Sub-sampling techniques and sample preparation	● *If core, whether cut or sawn and whether quarter, half or all* ● *If non-core, whether riffled, tube sampled, rotary split, etc. a* ● *For all sample types, the nature, quality and appropriateness* ● *Quality control procedures adopted for all sub-sampling stag* ● *Measures taken to ensure that the sampling is representativ* ● *Whether sample sizes are appropriate to the grain size of th*

Quality of assay data and laboratory tests	● *The nature, quality and appropriateness of the assaying and* ● *For geophysical tools, spectrometers, handheld XRF instrum* ● *Nature of quality control procedures adopted (e.g. standards*
Verification of sampling and assaying	● *The verification of significant intersections by either indepen* ● *The use of twinned holes.* ● *Documentation of primary data, data entry procedures, data* ● *Discuss any adjustment to assay data.*
Location of data points	● *Accuracy and quality of surveys used to locate drill holes (co* ● *Specification of the grid system used.* ● *Quality and adequacy of topographic control.*
Data spacing and distribution	● *Data spacing for reporting of Exploration Results.* ● *Whether the data spacing and distribution is sufficient to est* ● *Whether sample compositing has been applied.*
Orientation of data in relation to geological structure	● *Whether the orientation of sampling achieves unbiased sam* ● *If the relationship between the drilling orientation and the ori*
Sample security	● *The measures taken to ensure sample security.*
Audits or reviews	● *The results of any audits or reviews of sampling techniques*

3.2 JORC TABLE 1 - SECTION 2 - REPORTING OF EXPLORATION RESULTS

Criteria	JORC Code explanation
Mineral tenement and land tenure status	● *Type, reference name/number, location and ow* ● *The security of the tenure held at the time of re*

Exploration done by other parties	● *Acknowledgment and appraisal of exploration b*
	● *Deposit type, geological setting and style of mi*
Geology	
	● *A summary of all information material to the un*
Drill hole Information	● *easting and northing of the drill hole collar* ● *elevation or RL (Reduced Level – eleva* ● *dip and azimuth of the hole* ● *down hole length and interception depth* ● *hole length.*
	● If the exclusion of this information is justified or
Data aggregation methods	● *In reporting Exploration Results, weighting ave* ● *Where aggregate intercepts incorporate short l* ● *The assumptions used for any reporting of met*
Relationship between mineralisation widths and intercept lengths	● *These relationships are particularly important i* ● *If the geometry of the mineralisation with respe* ● *If it is not known and only the down hole length*

Diagrams	● *Appropriate maps and sections (with scales) ar*
Balanced reporting	● *Where comprehensive reporting of all Explorati*
Other substantive exploration data	● *Other exploration data, if meaningful and mate*
Further work	● *The nature and scale of planned further work (e* ● *Diagrams clearly highlighting the areas of poss*

3.3 JORC TABLE 1 – SECTION 3 ESTIMATION AND REPORTING OF MINERAL RESOURCES

Criteria	JORC Code explanation
Database integrity	● *Measures taken to ensure that data has not been corrupted by, for e* ● *Data validation procedures used.*
Site visits	● *Comment on any site visits undertaken by the Competent Person an* ● *If no site visits have been undertaken indicate why this is the case.*

Geological interpretation	● *Confidence in (or conversely, the uncertainty of) the geological interp* ● *Nature of the data used and of any assumptions made.* ● *The effect, if any, of alternative interpretations on Mineral Resource e* ● *The use of geology in guiding and controlling Mineral Resource estim* ● *The factors affecting continuity both of grade and geology.*
Dimensions	● *The extent and variability of the Mineral Resource expressed as leng*
Estimation and modelling techniques	● *The nature and appropriateness of the estimation technique(s) applie* ● *The availability of check estimates, previous estimates and/or mine p* ● *The assumptions made regarding recovery of by-products.* ● *Estimation of deleterious elements or other non-grade variables of ec* ● *In the case of block model interpolation, the block size in relation to t* ● *Any assumptions behind modelling of selective mining units.* ● *Any assumptions about correlation between variables.* ● *Description of how the geological interpretation was used to control t* ● *Discussion of basis for using or not using grade cutting or capping.* ● *The process of validation, the checking process used, the compariso*
Moisture	● *Whether the tonnages are estimated on a dry basis or with natural m*
Cut-off parameters	● *The basis of the adopted cut-off grade(s) or quality parameters applie*
Mining factors or assumptions	● *Assumptions made regarding possible mining methods, minimum mi*
Metallurgical factors or assumptions	● *The basis for assumptions or predictions regarding metallurgical ame*
Environmental factors or assumptions	● *Assumptions made regarding possible waste and process residue di*
Bulk density	● *Whether assumed or determined. If assumed, the basis for the assu* ● *The bulk density for bulk material must have been measured by meth* ● *Discuss assumptions for bulk density estimates used in the evaluatio*

Classification	● *The basis for the classification of the Mineral Resources into varying* ● *Whether appropriate account has been taken of all relevant factors (* ● *Whether the result appropriately reflects the Competent Person&rsqu*
Audits or reviews	● *The results of any audits or reviews of Mineral Resource estimates.*
Discussion of relative accuracy/ confidence	● *Where appropriate a statement of the relative accuracy and confiden* ● *The statement should specify whether it relates to global or local esti* ● *These statements of relative accuracy and confidence of the estimat*

3.4 JORC TABLE 1 – SECTION 4 ESTIMATION AND REPORTING OF ORE RESERVES

Ore Reserves are not reported so this is not applicable to this report.

Photos accompanying this announcement are available at:

http://www.globenewswire.com/NewsRoom/AttachmentNg/55d4e4d1-f8b6-4b67-a27e-6f3a5ab6f7d1

http://www.globenewswire.com/NewsRoom/AttachmentNg/e1b8de33-fc69-4f69-abac-84496fd742d4

http://www.globenewswire.com/NewsRoom/AttachmentNg/874a867b-03ac-4e8e-a6e2-0f1c8b332095

http://www.globenewswire.com/NewsRoom/AttachmentNg/ef477cde-ddbb-4b4b-8e38-a90e5c3ece3f

http://www.globenewswire.com/NewsRoom/AttachmentNg/f1be9b7c-dbcf-4904-ae18-25f5771f21b7

http://www.globenewswire.com/NewsRoom/AttachmentNg/177464af-d41c-436a-97ac-73ad40082693

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