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Xantippe Resources Ltd
L2, 20 Kings Park Road
West Perth WA 6005
PO Box 644
West Perth WA 6872

P. +61 8 6143 1840
E. info@xantippe.com.au
ABN. 56 123 102 974
ASX . XTC

29th April 2020

Southern Cross Maiden Drilling Programme Confirms Broad Zones of Gold Mineralisation

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Highlights:

- Drilling intersects broad zones of mineralisation up to 24m in width and can be traced over 400m strike at some prospects
- Mineralisation observed in all holes drilled with better drilling results including:
  - SXRC0013 - 3m @ 3.07 g/t Au from 47m
  - SXRC0012 - 3m @ 2.74 g/t Au (within 8m @ 1.60 g/t) from 13m
- Series of high priority targets now identified for future testing at:
  - **Boodarding:** LKD391: **3m @14.8 g/t Au from 94m (inc 1m @ 32.83 g/t Au)**
    LKA247: 3m @ 5.94g/t Au from 63m
  - **Battler North** SCRC 1 - 4m @ 4.60g/t Au from 57m (inc 1m @ 12.8g/t Au)
    SCRA066 - 3m @ 4.24g/t Au from 58m (inc 1m @ 10.55g/t Au
  - **Alpine/Roma** ALP10 - 5m @ 3.30g/t Au from 39m (inc 1m @ 12.70g/t Au)
    RDH04 - 20m @ 1.59g/t Au from 58m
- Updated geophysical interpretation is planned to further highlight high priority target areas
- Historical data capture and database compilation well advanced

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Xantippe Resources Limited (ASX: XTC) (XTC or the Company) advises that it has received assay results for the recently completed maiden drilling programme[1] over the acquired Southern Cross gold project in Western Australia.

A total of 16 holes for an advance of 1,722m of reverse circulation drilling (Table 1) were completed across three prospects: Glendower, Xantippe and Treasury South.

Drilling has successfully identified broad zones of mineralisation with the expected geological structure associated throughout the Southern Cross Greenstone Belt.

[1] Refer to ASX announcement dated 12th March 2020

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Xantippe Managing Director Richard Henning said:

"With further analysis of these drill results along with geophysical investigation, we remain highly confident that we will attain a clearer picture of the coarse gold structures that have previously been identified at the Southern Cross project.

We are committed to the Southern Cross region, the tenements over which we maintain an option, and the potential which they offer. We consider this project to be a major opportunity to create value in a first class and proven gold mining region.

Our priority now is to undertake further geophysical interpretation and database evaluation to highlight high-priority target areas throughout the entire tenement holding, specifically the Boodarding, Battler North and Alpine/Roma prospects, which may be the subject of our next drilling campaign. In addition, we have enough funding to see us well placed to carry out geophysical investigation and test these targets.

I look forward to updating investors on our exploration activities in due course."

Hole ID	DRILL_TYPE	Prospect	AMG East	AMG North	Hole Dip	Hole Azimuth	Depth m
SXRC0001	RC	Glendower	731371	6526942	-60	45	60
SXRC0002	RC	Glendower	731401	6526964	-60	45	72
SXRC0003	RC	Glendower	731424	6526850	-60	45	120
SXRC0004	RC	Glendower	731499	6526780	-60	45	156
SXRC0005	RC	Glendower	731525	6526797	-60	45	156
SXRC0006	RC	Glendower	731548	6526816	-60	45	84
SXRC0007	RC	Glendower	731607	6526617	-60	45	84
SXRC0008	RC	Glendower	731632	6526630	-60	45	144
SXRC0009	RC	Xantippe	735923	6519955	-60	45	72
SXRC0010	RC	Xantippe	735901	6519936	-60	45	96
SXRC0011	RC	Xantippe	735879	6519913	-60	45	108
SXRC0012	RC	Xantippe	735876	6520034	-60	70	72
SXRC0013	RC	Xantippe	735838	6520006	-60	65	114
SXRC0014	RC	Xantippe	735816	6520009	-70	60	156
SXRC0015	RC	Treasury South	736549	6519323	-60	54	114
SXRC0016	RC	Treasury South	736532	6519311	-60	54	114

Table 1. Drill hole summary table (Datum: GDA_1994_MGA_Zone_50)

Xantippe

A total of 6 holes for 618m (SXRC009-014) were completed at Xantippe (Figure 1).

Drilling at Xantippe intersected a sequence of intensely sheared and altered mafic rocks (amphibolite) with zones of mineralisation including intersections of massive quartz veining and associated chlorite/sericite alteration and minor sulphides (pyrite/arsenopyrite) indicating that drilling had intersected a mineralised system of note. Several large pegmatites intruded the sequence. Along strike drilling is limited in this area, however mineralisation can be traced between holes over 100m and it remains open along strike.

Better results included (using a 0.5g/t cut off):

- SXRC0012 - 3m @ 2.74 g/t Au (within 8m @ 1.60 g/t)
- SXRC0013 - 3m @ 3.07 g/t Au

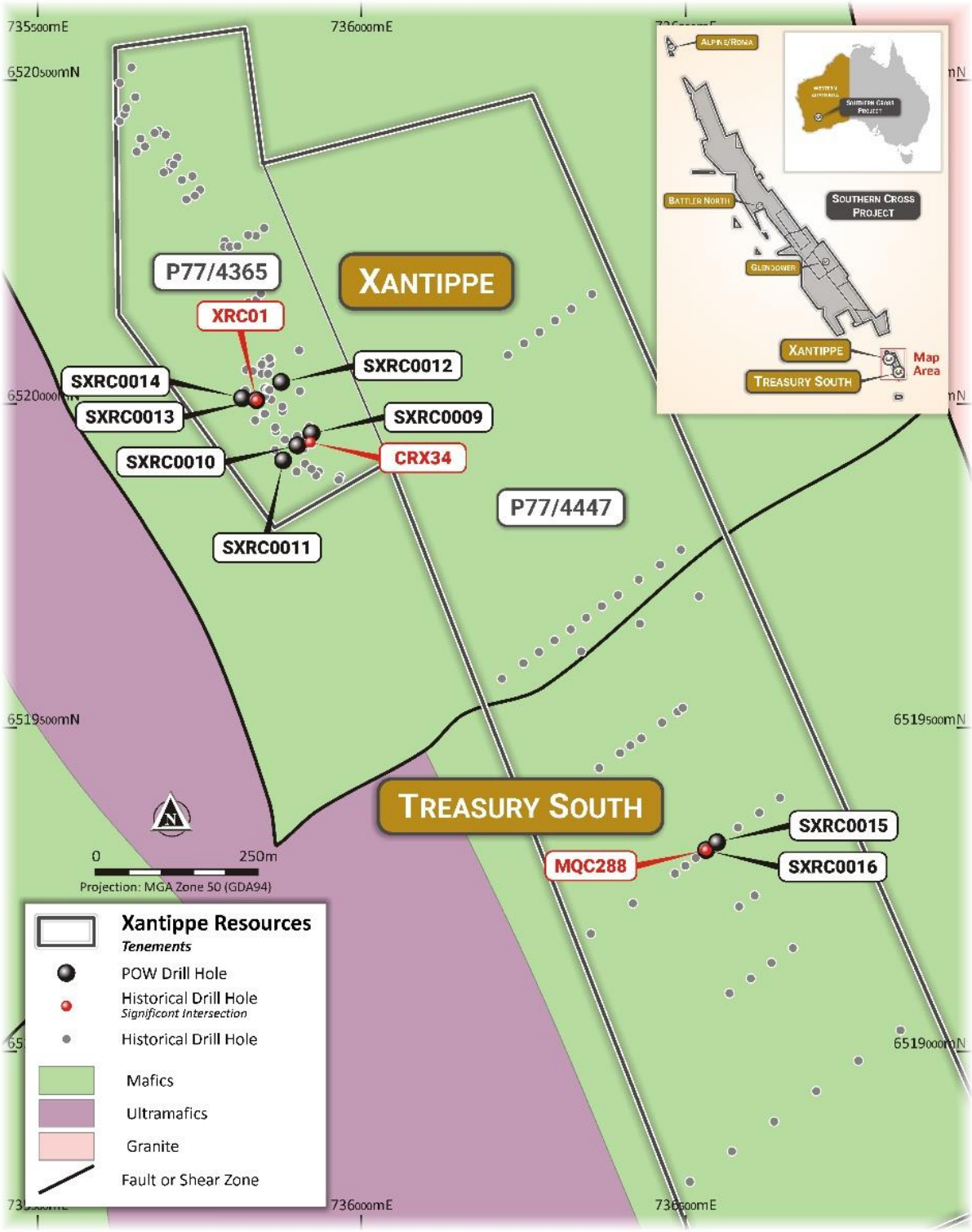

Figure 1. Drill Hole Location Plan for Xantippe and Treasury South Prospects

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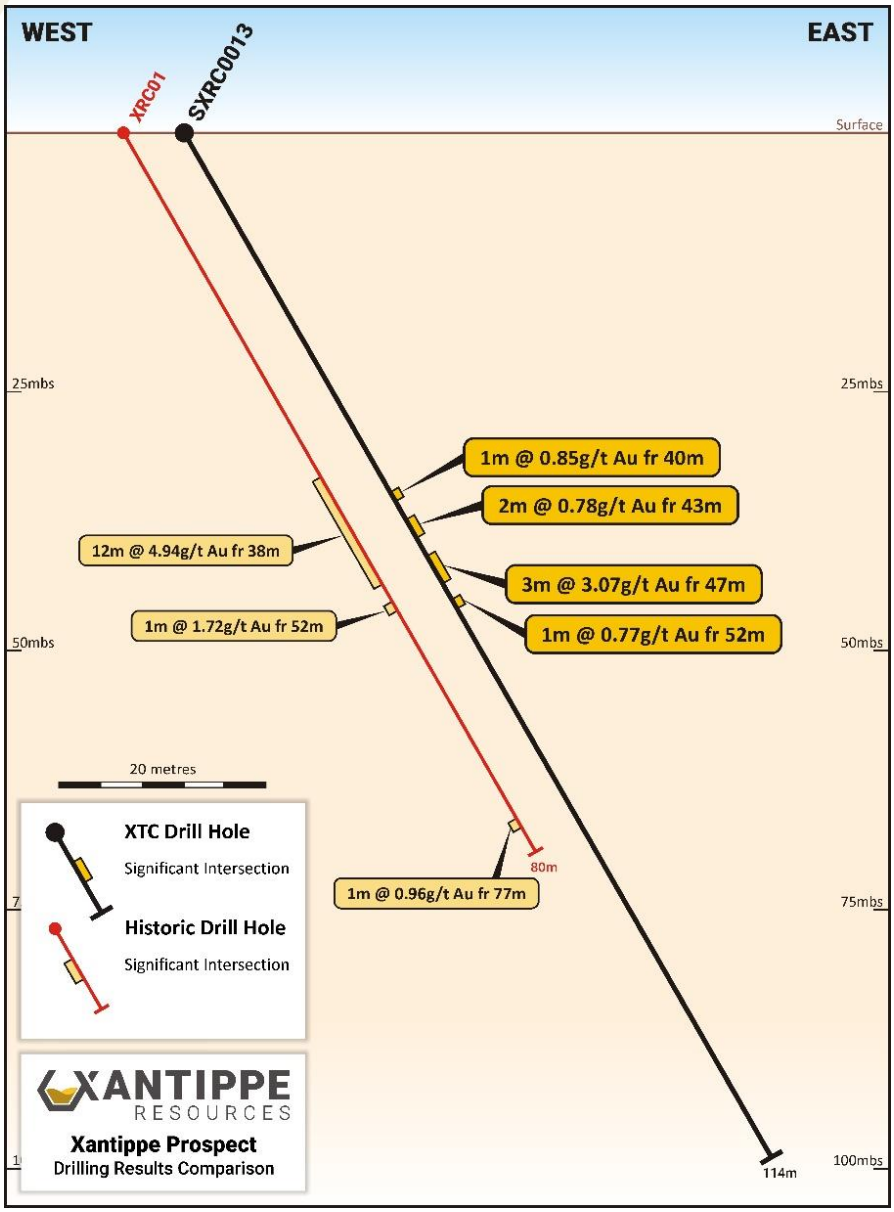

Figure 2. Comparison of historic results against recent results showing correlation of mineralised zones.

Glendower

A total of 8 holes for 876m (SXRC001-008) were completed at Glendower (Figure 2).

Drilling at Glendower intersected a sequence of largely massive mafic rocks including both amphibolite and basal rock types. Zones of moderate to strong alteration were encountered with mineralisation varying between 4-12m in width including minor sulphides (pyrite and arsenopyrite). There were significant intersections of massive quartz veining and associated chlorite/sericite alteration indicating that drilling had intersected a mineralised system of note. Mineralisation could be traced along strike for over 400m.

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Better Results included (using a 0.5g/t cut off):

- SXRC0001 - 1m @ 1.23 g/t Au
- SXRC0006 - 5m @ 0.87 g/t Au

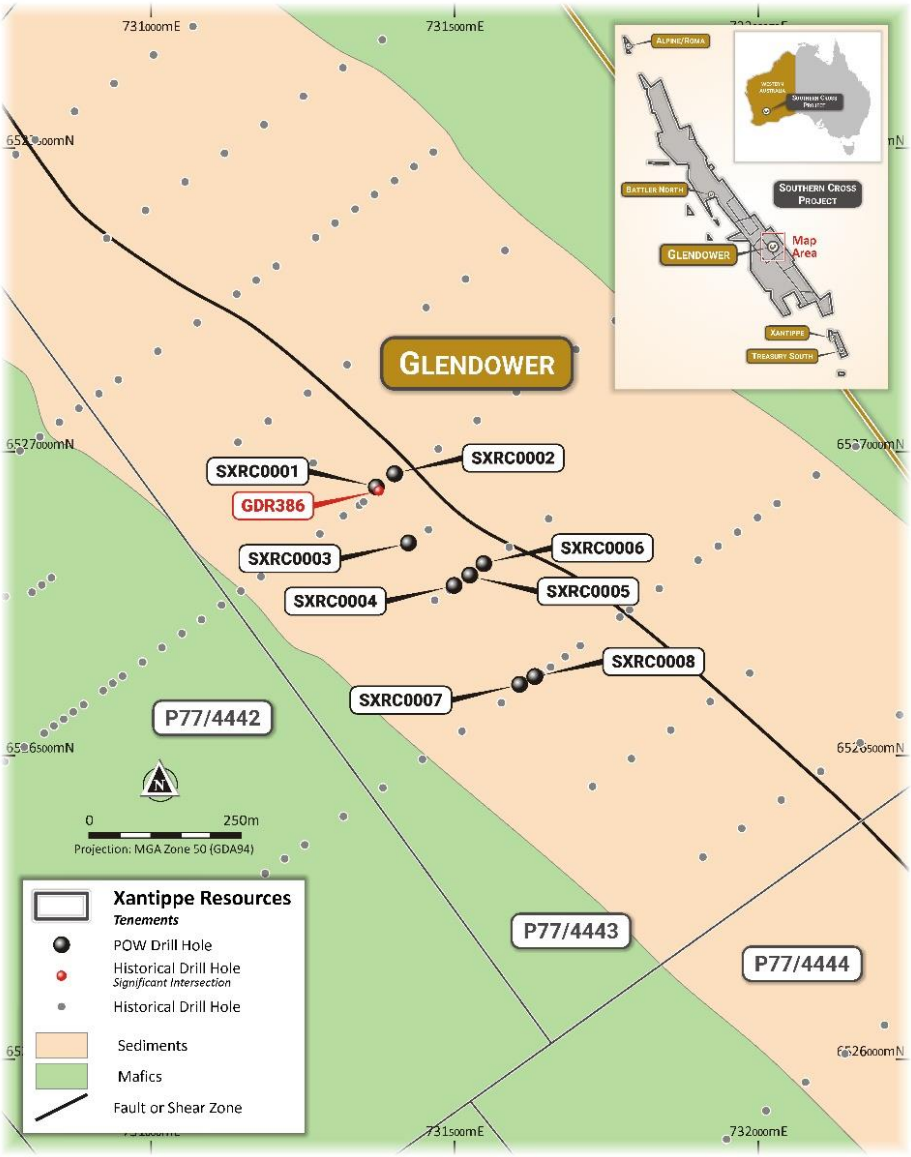

Figure 3. Drill Hole Location Plan for Glendower Prospect

Treasury South

A total of 2 holes for 876m (SXRC015-016) were completed at Treasury South (Figure 1).

The geology at Treasury South is less known, the drilling intersected a mafic sequence of fine to medium grained mafics (amphibolite). Several thin zones of pegmatite were also noted in these holes

in addition to weak quartz and sulphide mineralisation up to 4m in width. Mineralisation in this area is still open at depth.

Significant Assays (4m composite samples)

PROJECT	HOLE	FROM	TO	RESULT +0.25 g/t Au
Glendower	SXRC0001	36	40	4m @ 0.671
	SXRC0003	28	32	4m @ 0.349
	SXRC0005	72	80	8m @ 0.2805
	incl.	72	76	4m @ 0.305
	&	76	80	4m @ 0.256
	SXRC0006	24	36	12m @ 0.54
	incl.	24	28	4m @ 0.907
	&	28	32	4m @ 0.362
	&	32	36	4m @ 0.353
Xantippe	SXRC0010	28	44	12m @ 0.318
	incl.	28	32	4m @ 0.324
	&	36	40	4m @ 0.344
	&	40	44	4m @ 0.286
	SXRC0011	44	52	8m @ 0.329
	incl.	44	48	4m @ 0.304
	&	48	52	4m @ 0.354
	SXRC0011	56	64	8m @ 1.354
	incl.	56	60	4m @ 1.655
	&	60	64	4m @ 1.054
	SXRC0012	12	20	8m @1.598
	incl.	12	16	4m @ 1.833
	&	16	20	4m @ 1.363
	SXRC0013	40	52	12m @ 0.868
	incl.	40	44	4m @ 0.303
	&	44	48	4m @ 1.636
	&	48	52	4m @ 0.665
Treasury South	SXRC0015	112	114	4m @ 0.334

Weighted averages calculated using a 0.25g/t Au lower cut and no upper cut.

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Significant Assays (1m re-split samples)

PROJECT	HOLE	FROM	TO	RESULT +0.5 g/t Au
Glendower	SXRC0001	37	38	1m @ 1.23 g/t
	SXRC0003	27	28	1m @ 0.58 g/t
	&	30	31	1m @ 0.98 g/t
	SXRC006	24	29	5m @ 0.87 g/t
	&	31	34	3m @ 0.69 g/t
	SXRC008	17	18	1m @ 0.52 g/t
Xantippe	SXRC010	37	42	5m @ 0.78 g/t
	SXRC011	48	49	1m @ 1.04 g/t
	&	51	54	3m @ 0.80 g/t
	&	57	61	4m @ 1.01 g/t
	&	64	65	1m @ 1.09 g/t
	SXRC012	13	16	3m @ 2.74 g/t
	inc.	13	14	1m @ 3.63 g/t
	inc.	15	16	1m @ 4.12 g/t
	&	19	20	1m @ 7.87 g/t
	SXRC013	40	41	1m @ 0.85 g/t
		43	45	2m @ 0.78 g/t
		47	50	3m @ 3.07 g/t
		52	53	1m @ 0.77 g/t

Weighted averages calculated using a 0.5g/t Au lower cut, no upper cut and a maximum of 1m of internal dilution.

Upcoming Program

Xantippe will utilise geophysical interpretation to identify high-priority target areas for future drilling campaigns. The historical data capture and database compilation is well advanced and will provide further intelligence towards our next drilling targets.

Geophysical work will begin on these target areas as soon as practical. A further round of drilling is likely to take place over three targets Boodarding, Battler North and Alpine/Roma.

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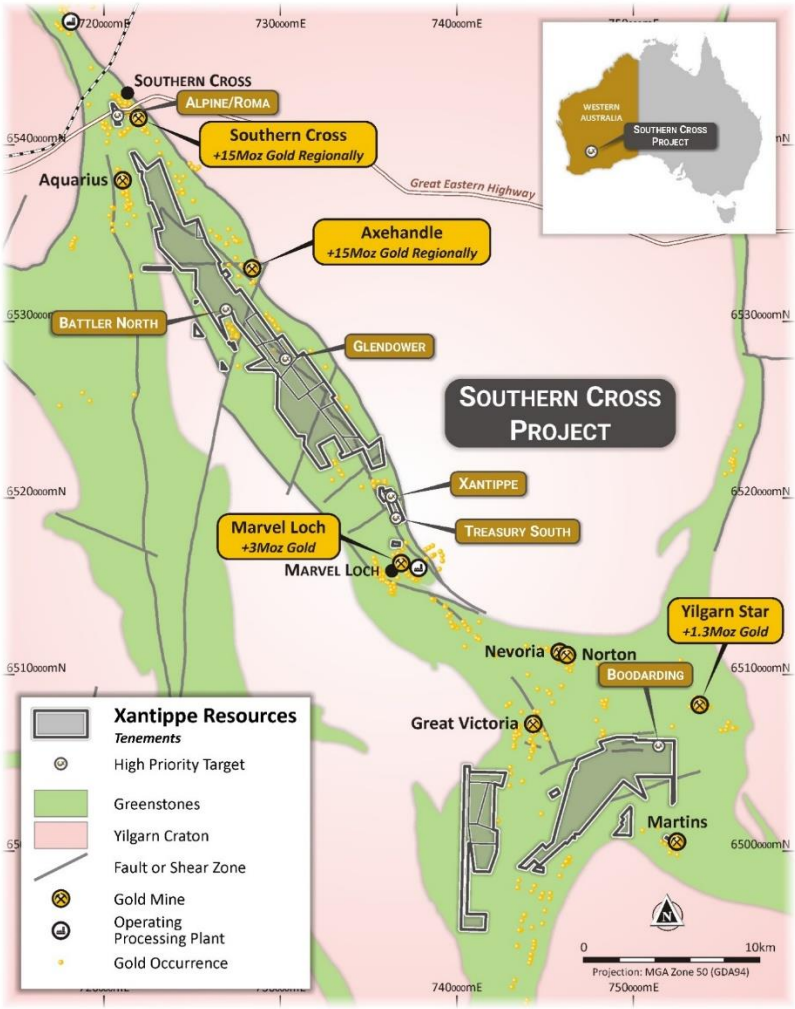

Figure 4. Tenement location plan

Best results from historical drilling across these three prospects include:

- **Boodarding:** LKD391: **3m @14.8 g/t Au from 94m (inc 1m @ 32.83 g/t Au)**
  LKA247: 3m @ 5.94g/t Au from 63m
- **Battler North:** SCRC 1 - 4m @ 4.60g/t Au from 57m (inc 1m @ 12.8g/t Au)
  SCRA066 - 3m @ 4.24g/t Au from 58m (inc 1m @ 10.55g/t Au
- **Alpine/Roma:** ALP10 - 5m @ 3.30g/t Au from 39m (inc 1m @ 12.70g/t Au)
  RDH04 - 20m @ 1.59g/t Au from 58m

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For more information, please contact:

Richard Henning
Managing Director
Xantippe Resources Limited
Phone: +61 8 6143 1840
Email: info@xantippe.com.au
www.xantippe.com.au

Media
David Tasker
Email: dtasker@chapteroneadvisers.com.au
Phone: +61 433 112 936

The information in this announcement that relates to exploration results is based upon information compiled by Mr Jeremy Peters, of Burnt Shirt Pty Ltd. Mr Peters is a Fellow of the Australasian Institute of Mining and Metallurgy (AusIMM) and Chartered Professional Mining Engineer and Geologist of that organisation and 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 December 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" (JORC Code). Mr Peters consents to the inclusion in the report of the matters based upon the information in the form and context in which it appears.

About the Southern Cross Gold Project

The Southern Cross Project is located 380km east of Perth, south east of Southern Cross in the Yilgarn Goldfield.

The project comprises 20 Prospecting Licences and 2 Exploration Licences with a combined area of around 76 km2, over contiguous tenements cover around 30km of strike of the Southern Cross Greenstone Belt, which has historically produced around 15Moz gold, predominantly from the Marvel Loch and Southern Cross centres, both of which are in operation to varying extents.

The project area is serviced by sealed roads, grid power, scheme water, rail and town amenities. Minjar operates the Marvel Loch plant nearby and Ramelius Resources operates the Edna May facility some 60 kilometres to the west.

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JORC Code, 2012 Edition – Table 1 report template

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	• Reverse circulation (RC, HQ size) samples were taken at 1m intervals throughout the hole. RC samples were collected in a large plastic bucket from an on-board splitter and then laid out in rows. A representative 2-3kg, 4m composite sample was taken for analysis, spear sampling drill cuttings. Down hole sampling is carried out on either a 1 or 4m interval from which 2-3kg of pulverized material (RC) was pulverized to produce a 50g charge for assaying. • Drilling used 6m long drill rods, with one 1 taken for each metre rod interval. • Collar surveys are carried using handheld GPS with a northing and easting accuracy to within 5m, and the z direction was determined by satellite derived elevation data and is accurate to less than a metre. • Drilling targeted historically identified mineralisation the gold mineralization is found in mafic host rocks, concentrated in structural zones and within quartz veins. •
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• RC drilling involves the use of compressed air collect a sample is collected from the open face drilling bit and blown up the inner tube of the drill rod to the surface.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• Sample volume Es were field assessed by comparison to a theoretical dried sample mass, estimated to be within the range of 15 kg to 20 Kg, 70% of samples fall within the expected range. Lower than average sample recovery is recorded only for the very top of the drill hole due to air and sample losses into the surrounding soil. • RC drilling sample weights were monitored and samples were carefully spear sampled to ensuring that the sample sent to the assay

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Criteria	JORC Code explanation	Commentary
		laboratories were in the range of 2-3kg. • there is no obvious relationship between sample recovery and grade, but the Competent Person cautions that historic drilling indicates the presence of coarse gold
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• RC holes were logged in the field at the time of sampling. • Each 1m sample interval was assessed for lithology, colour, grainsize, structure and mineralization. • A representative chip sample produced from RC drilling was washed and taken for each 1m sample and stored in a chip tray.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• RC samples were split by the cone splitter on the drill rig and sampled dry. • The sampling was conducted using industry standard techniques and were considered appropriate. • The 4m composites were collected using a scoop which is inserted into the sample pile at a low angle and pushed across the sample. • Every effort was made to ensure that the samples were representative and unbiased. • All samples were taken after the rig mounted splitter. Depending on the rock types on average a 2-3kg sample was sent to the lab for analysis and the remaining material averaged 15-20kg and remains on site for any further analysis if required.
Quality of assay data and	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*	• Samples were received, sorted, labelled and dried • Samples were crushed, pulverized to produce a homogenous representative sub-sample for analysis. A grind quality target of

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Criteria	JORC Code explanation	Commentary
laboratory tests	• *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	85% passing 75µm has been established and 50g was split off for assaying. • The samples were analysed using MinAnalytical laboratories 50g fire assay AAS method. FA50AAS is a lead collection fire assay using specially formulated flux to accommodate a variety of sample matrices. Some reduction in sample charge weight may be required to fuse difficult sample matrices. • Geophysical tools not used. • Standards were inserted on a 1:20 ratio, blanks and duplicates we inserted 1:50 ratio for samples taken. • Duplicate sample regime is used to monitor sampling methodology and homogeneity. • A powder chip tray for the entire hole is completed for both RC and RAB. A sub-sample is sieved from the large RC pile at site into chip trays for every interval to assist in geological logging. These are photographed and kept on the central database • Routine QA/QC controls for the method FA50AAS include Blanks, certified reference standards of gold and duplicate samples. Certified Reference Materials and/or in-house controls, blanks, splits and replicates are analysed with each batch of samples. • A QA/QC review of all information indicated that all assays were inside reasonable tolerance levels.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• All information was internally audited by company personnel. • The drill program was designed to twin historical holes to validate the projects geology. • Xantippe's experienced geological team supervise all processes.

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Criteria	JORC Code explanation	Commentary
		• All field data is entered into excel spreadsheets (supported by look-up tables) at site and subsequently validated as it is imported into the centralized database. • Electronic data is stored on the main server managed by Expedio. • Results were reported as Au (ppm) and were converted to a grams per ton. 1 part per million = 1 Gram/ton
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• The coordinates of each drill hole were taken at the time of collecting using a handheld GPS with an accuracy of 5m. • The grid system used is GDA 94. • Topographic accuracy was +/- 5m
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• Drilling was designed to target historic geological targets. • Drill data is not currently at sufficient spacing to define a mineral resource. • Samples were composited on a 4m basis to reduce the cost of assaying. Zones of higher-grade mineralization where resampled at 1m intervals.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• Drilling was orientated perpendicular to the known strike of the mafic units. • Drill holes we orientated at either -60 degrees or -70 degrees depending on the dip of the mafic units and the local structures being targeted.
Sample security	• *The measures taken to ensure sample security.*	• Samples were delivered to a courier and chain of custody is managed by Xantippe.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• Internal company auditing.

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Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a license to operate in the area.*	• All work was completed inside granted tenements P77/4443, P77/4447 and P77/4365 • There are no known impediments to operation in the area
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Exploration was historically completed by various parties. Xantippe has access to this information from Open File data and has examined and assessed this data as conforming to then-current industry standards. Xantippe has referred to this data in public announcements
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Southern Cross Greenstone Belt is a tract of slightly to strongly metamorphosed rocks. Mafic and ultramafic volcanics, sedimentary rocks, and more restricted felsic volcanic rocks are typical in the area. Gold mineralisation occurs in shear hosted deposits, commonly located on contacts between rock types, and BIF hosted deposits with brittle fracture and veining, usually located within the nose of folds.
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* ○ *easting and northing of the drill hole collar* ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* ○ *dip and azimuth of the hole* ○ *down hole length and interception depth* ○ *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from*	• Grid used GDA_1994_MGA_Zone_50 • No material data has been excluded from the release. • All hole details are in Table 1 of the main release.

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Criteria	JORC Code explanation	Commentary
	the understanding of the report, the Competent Person should clearly explain why this is the case.	
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low-grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• Intercepts are weighted averages using a 0.25 g/t cut off with no more than 4m of internal dilution. • The data aggregation id based on uniform 1m drill intercepts • No metal equivalent values are being reported
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	• Exploration results are reported as down hole intercepts. • The drill holes are detailed in the table in the main release. • The orientation of individual geological structures remains uncertain, pending diamond drilling, but previous workers describe steeply-dipping structures, which is supported by field observation
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Relevant diagrams and maps have been included in the main body of the release.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• All relevant results available have been reported.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• The interpretation of the results is consistent with the observations and information obtained from the data collected.
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).*	•

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Criteria	JORC Code explanation	Commentary
	• *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	•
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	•
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	•
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	•
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* • *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.*	•

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Criteria	JORC Code explanation	Commentary
	• *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	•
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	•
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	•
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of*	•

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Criteria	JORC Code explanation	Commentary
	the basis of the metallurgical assumptions made.	
Environmen-tal factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	•
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	•
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).* • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	•
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	•
Discussion of relative	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For*	•

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Criteria	JORC Code explanation	Commentary
accuracy/ confidence	*example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	• *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.* • *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	•
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	•
Study status	• *The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.* • *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.*	•
Cut-off parameters	• *The basis of the cut-off grade(s) or quality parameters applied.*	•

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Criteria	JORC Code explanation	Commentary
Mining factors or assumptions	• *The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).* • *The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.* • *The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.* • *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).* • *The mining dilution factors used.* • *The mining recovery factors used.* • *Any minimum mining widths used.* • *The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.* • *The infrastructure requirements of the selected mining methods.*	•
Metallurgical factors or assumptions	• *The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.* • *Whether the metallurgical process is well-tested technology or novel in nature.* • *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.* • *Any assumptions or allowances made for deleterious elements.* • *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.* • *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?*	•
Environmen-tal	• *The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process*	•

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Criteria	JORC Code explanation	Commentary
	residue storage and waste dumps should be reported.	
Infrastructure	• *The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	•
Costs	• *The derivation of, or assumptions made, regarding projected capital costs in the study.* • *The methodology used to estimate operating costs.* • *Allowances made for the content of deleterious elements.* • *The source of exchange rates used in the study.* • *Derivation of transportation charges.* • *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.* • *The allowances made for royalties payable, both Government and private.*	•
Revenue factors	• *The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.* • *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.*	•
Market assessment	• *The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.* • *A customer and competitor analysis along with the identification of likely market windows for the product.* • *Price and volume forecasts and the basis for these forecasts.* • *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.*	•
Economic	• *The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.* • *NPV ranges and sensitivity to variations in the significant assumptions and inputs.*	•

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Criteria	JORC Code explanation	Commentary
Social	• *The status of agreements with key stakeholders and matters leading to social licence to operate.*	•
Other	• *To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:* • *Any identified material naturally occurring risks.* • *The status of material legal agreements and marketing arrangements.* • *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.*	•
Classification	• *The basis for the classification of the Ore Reserves into varying confidence categories.* • *Whether the result appropriately reflects the Competent Person's view of the deposit.* • *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	•
Audits or reviews	• *The results of any audits or reviews of Ore Reserve estimates.*	•
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.*	•

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Criteria	JORC Code explanation	Commentary
	• *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.* • *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	

Section 5 Estimation and Reporting of Diamonds and Other Gemstones

(Criteria listed in other relevant sections also apply to this section. Additional guidelines are available in the 'Guidelines for the Reporting of Diamond Exploration Results' issued by the Diamond Exploration Best Practices Committee established by the Canadian Institute of Mining, Metallurgy and Petroleum.)

Criteria	JORC Code explanation	Commentary
Indicator minerals	• *Reports of indicator minerals, such as chemically/physically distinctive garnet, ilmenite, chrome spinel and chrome diopside, should be prepared by a suitably qualified laboratory.*	•
Source of diamonds	• *Details of the form, shape, size and colour of the diamonds and the nature of the source of diamonds (primary or secondary) including the rock type and geological environment.*	•
Sample collection	• *Type of sample, whether outcrop, boulders, drill core, reverse circulation drill cuttings, gravel, stream sediment or soil, and purpose (eg large diameter drilling to establish stones per unit of volume or bulk samples to establish stone size distribution).* • *Sample size, distribution and representivity.*	•
Sample treatment	• *Type of facility, treatment rate, and accreditation.* • *Sample size reduction. Bottom screen size, top screen size and re-crush.* • *Processes (dense media separation, grease, X-ray, hand-sorting, etc).* • *Process efficiency, tailings auditing and granulometry.* • *Laboratory used, type of process for micro diamonds and accreditation.*	•

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Criteria	JORC Code explanation	Commentary
Carat	• *One fifth (0.2) of a gram (often defined as a metric carat or MC).*	•
Sample grade	• *Sample grade in this section of Table 1 is used in the context of carats per units of mass, area or volume.* • *The sample grade above the specified lower cut-off sieve size should be reported as carats per dry metric tonne and/or carats per 100 dry metric tonnes. For alluvial deposits, sample grades quoted in carats per square metre or carats per cubic metre are acceptable if accompanied by a volume to weight basis for calculation.* • *In addition to general requirements to assess volume and density there is a need to relate stone frequency (stones per cubic metre or tonne) to stone size (carats per stone) to derive sample grade (carats per tonne).*	•
Reporting of Exploration Results	• *Complete set of sieve data using a standard progression of sieve sizes per facies. Bulk sampling results, global sample grade per facies. Spatial structure analysis and grade distribution. Stone size and number distribution. Sample head feed and tailings particle granulometry.* • *Sample density determination.* • *Per cent concentrate and undersize per sample.* • *Sample grade with change in bottom cut-off screen size.* • *Adjustments made to size distribution for sample plant performance and performance on a commercial scale.* • *If appropriate or employed, geostatistical techniques applied to model stone size, distribution or frequency from size distribution of exploration diamond samples.* • *The weight of diamonds may only be omitted from the report when the diamonds are considered too small to be of commercial significance. This lower cut-off size should be stated.*	•
Grade estimation for reporting Mineral Resources	• *Description of the sample type and the spatial arrangement of drilling or sampling designed for grade estimation.* • *The sample crush size and its relationship to that achievable in a commercial treatment plant.* • *Total number of diamonds greater than the specified and reported lower cut-off sieve size.*	•

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Criteria	JORC Code explanation	Commentary
and Ore Reserves	• *Total weight of diamonds greater than the specified and reported lower cut-off sieve size.* • *The sample grade above the specified lower cut-off sieve size.*	

Value estimation	• *Valuations should not be reported for samples of diamonds processed using total liberation method, which is commonly used for processing exploration samples.*
	• *To the extent that such information is not deemed commercially sensitive, Public Reports should include:*
	  ○ *diamonds quantities by appropriate screen size per facies or depth.*
	  ○ *details of parcel valued.*
	  ○ *number of stones, carats, lower size cut-off per facies or depth.*
	• *The average $/carat and $/tonne value at the selected bottom cut-off should be reported in US Dollars. The value per carat is of critical importance in demonstrating project value.*
	• *The basis for the price (eg dealer buying price, dealer selling price, etc).*
	• *An assessment of diamond breakage.*
		•

Security and integrity	• *Accredited process audit.* • *Whether samples were sealed after excavation.* • *Valuer location, escort, delivery, cleaning losses, reconciliation with recorded sample carats and number of stones.* • *Core samples washed prior to treatment for micro diamonds.* • *Audit samples treated at alternative facility.* • *Results of tailings checks.* • *Recovery of tracer monitors used in sampling and treatment.* • *Geophysical (logged) density and particle density.* • *Cross validation of sample weights, wet and dry, with hole volume and density, moisture factor.*	•
Classification	• *In addition to general requirements to assess volume and density there is a need to relate stone frequency (stones per cubic metre or tonne) to stone size (carats per stone) to derive grade (carats per tonne). The elements of uncertainty in these estimates should be considered, and classification developed accordingly.*	•

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