ASX ANNOUNCEMENT

20 August 2018

Aurora Tank Gold

Phase 2 Metallurgy yields Fast Leaching and High Gold Recoveries

Marmota Limited (ASX: MEU) ("Marmota")

HIGHLIGHTS

- Results have been received from Marmota's Phase 2 metallurgical testwork at Aurora Tank, including the first metallurgical testing of mineralised core from the November 2017 diamond drilling program.
- Combined Gravity recoverable gold and cyanide leaching tests returned **overall gold recoveries of 95.9% and 92.7%** on the supergene and transitional samples respectively.
- Concentrates show **gold particles are generally fine grained,** in the 5 to 50 micron size range.
- Variable grind size continuous agitation tests, on 150, 106 and 75 micron sized samples, gave recoveries of 89 – 92% with leaching predominantly complete in 6 hours, indicating **fast leach kinetics**.
- Intermittent bottle roll tests using **coarse crushed samples** of 12.5mm and 25mm sizes also yielded recoveries of 89.2% and 81.5% respectively. Recoveries were predominantly complete by the 24-hour mark, indicating that low-cost **low-capex heap leaching may be a viable option** for the Aurora Tank Goshawk gold deposit, which the Company intends to explore in further detail.

Background

Marmota reported Phase 1 metallurgical testwork results at Aurora Tank in October 2017 [ASX:MEU 27 Oct 2017]. In Phase 1 testing, three samples from the July 2017 percussion drilling program yielded excellent gold recoveries of 94 to 97%. To obtain better quality in-situ samples for more reliable geological and metallurgical investigations, a six-hole diamond drilling program on mineralised zones was carried out in November 2017 [ASX:MEU 20 Nov 2017]. Geological investigation of that drilling also led to the first visible gold at Aurora Tank [ASX:MEU 22 March 2018].

Marmota's Phase 2 metallurgical testwork program was carried out at the Adelaide Mineral Processing Laboratory of Bureau Veritas Minerals Pty Ltd – with final reports recently received. Aims of the testwork were to provide more reliable results on crushed diamond drill core to aid Marmota in its scoping and feasibility studies, as the Company investigates the best pathways to production.

The Phase 2 work was focused on two main subjects:

(1) gold particle size distribution and the efficiency of gravity concentration, and

(2) effects on gold recovery of variable grind sizes on continuous and intermittent bottle rolls.

The sample locations used for Phase 2 metallurgical testing (from diamond core) are shown in Fig. 1.

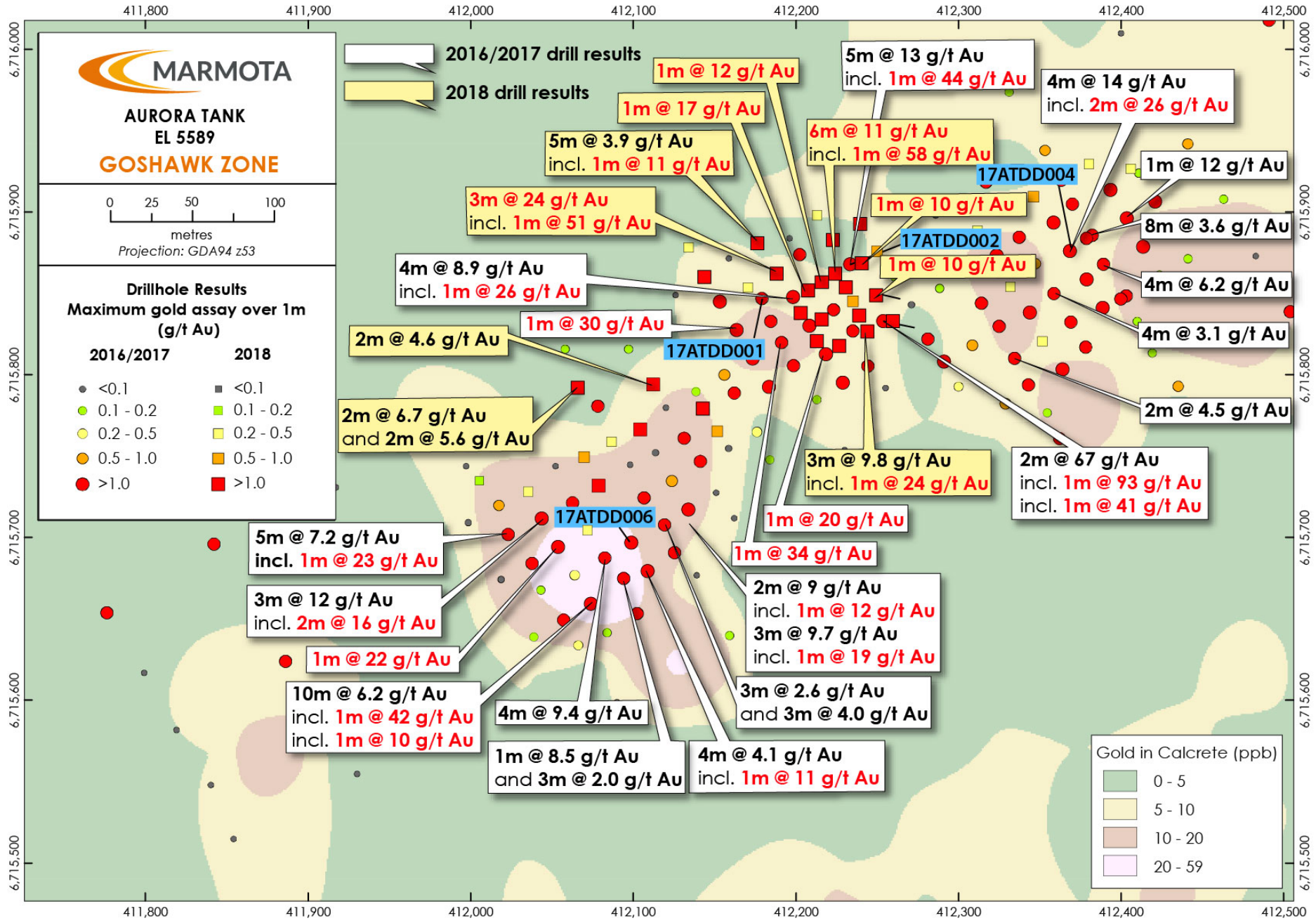

Figure 1: **Aurora Tank: Location of Metallurgical Samples (blue labels) + Best downhole gold results**

SAMPLES

Samples were quartered diamond drill core from holes 17ATDD001, 2 4 and 6 (see Fig. 1).

A total weight of 45 kg was subdivided into three samples:

- a 10kg supergene sample representing near-surface mineralisation (10-30m depth) in the saprolite zone
- a 9.2kg transitional sample representing shallow depth mineralisation (30-50m depth) in the saprock zone
- a 25.8kg composite sample from holes 1, 4 and 6 designed to be a representative ore sample

The samples were crushed to variable sizes depending on the work planned.

RESULTS

Gravity Concentration

The supergene and transitional samples were run across a Wilfley Table and these concentrates put through a superpanner to produce a concentrate to examine individual gold particles. **S**canning **E**lectron **M**icrographs (SEM) of two of the gold grains from the superpanner concentrates are shown in Fig. 2. The particulate-porous nature of this gold suggests it may be formed by supergene recrystallisation processes during weathering.

For the *supergene* sample, **overall recovery was 95.9%** with 1.5% attributable to gravity recoverable gold and 94.4% from cyanide leaching of the gold tailings. For the *transitional* sample, **overall recovery was 92.7%,** with 16.0% attributable to gravity recoverable gold and 76.7% from cyanide leaching off gravity tailings. These results suggest that gravity recoveries were not particularly high and that, as the total gold recoveries including cyanide leaching are high, **gravity gold recovery may not be necessary**.

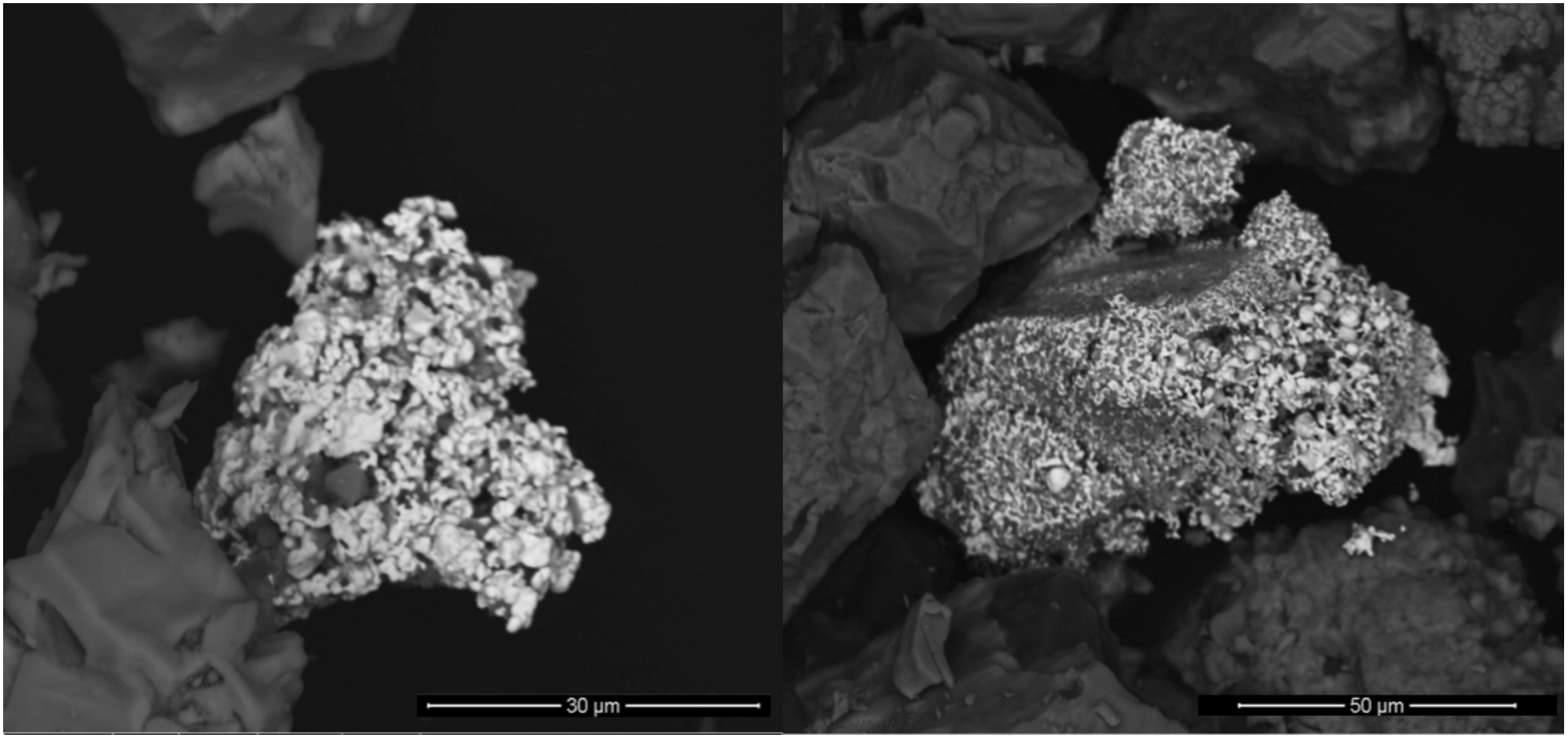

Figure 2: **Scanning Electron Microscope images of *supergene* (left) and *transitional* (right) gold grains**

Gold Particle Size

The two superpanner concentrates were also subjected to QEMSCAN (**Q**uantitative **E**valuation of **M**inerals by **SCAN**ing electron microscopy) and SEM analysis. At total of 10 gold particles in the size range of 5 to 50 microns were reported and their sizes and shapes are shown in plan view on Fig. 3. This compares well with the petrographic observations from 10 gold anomalous core samples, of which 8 contained visible gold in the 2 to 50-micron size range. These results suggest the gold at Goshawk is relatively fine grained.

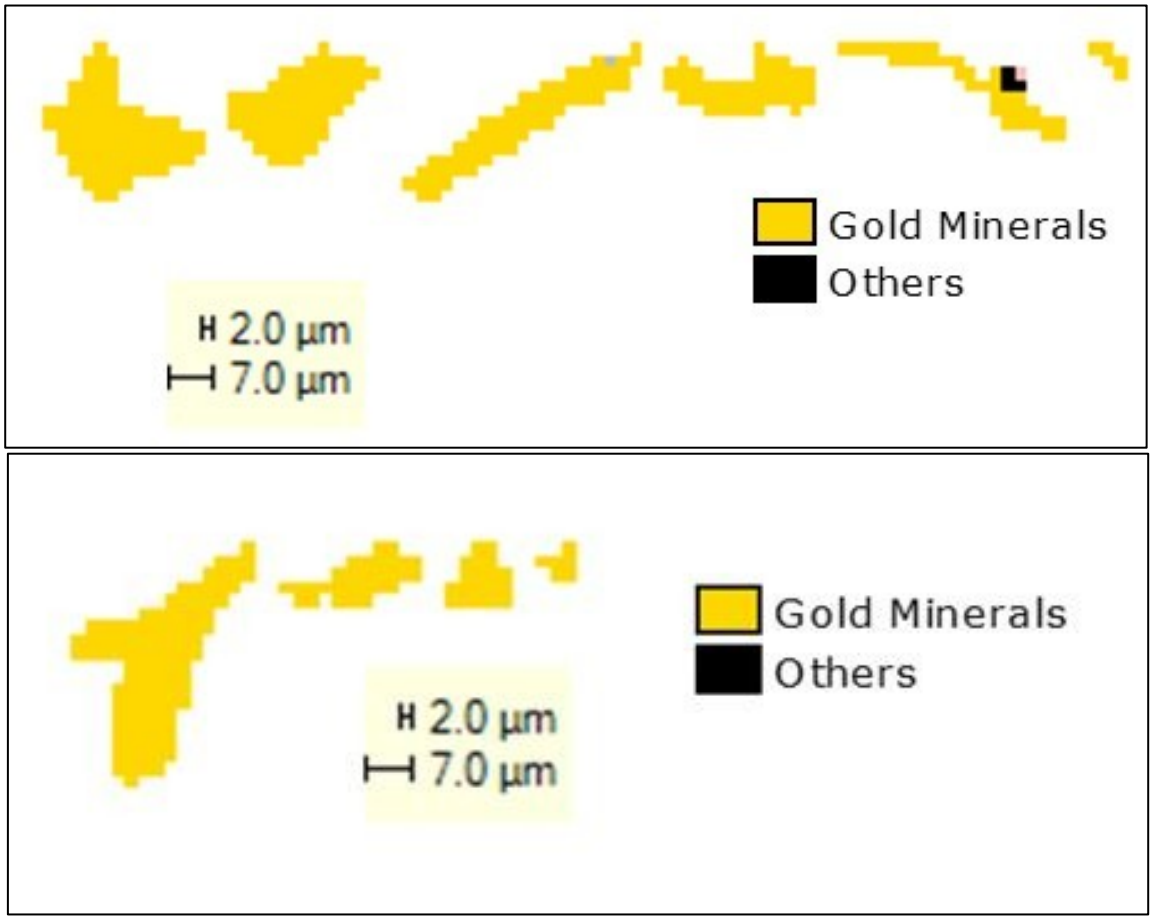

Figure 3: QEMSCAN images showing size and shape of gold grains
from *supergene* (top) and *transition* zones (bottom)

Variable Grind Gold Recovery

In order to determine the effect of grind size on cyanidation gold recovery, three 1kg charge samples of the composite ore were pulverised with P80s (*i.e.* 80% of material passing through screen sizes) of 150, 106 and 75 microns respectively. These samples were subjected to continuous bottle rolls for 48 hours. Cyanide and lime addition were not optimised, and additions were reasonably liberal to ensure reagent levels did not impede leach performance.

Gold recoveries were relatively insensitive to grind size and ranged from 89 to 92% as shown in Fig. 4. The leaching was predominantly complete by the 6 to 24-hour mark, indicating **fast leach kinetics**.

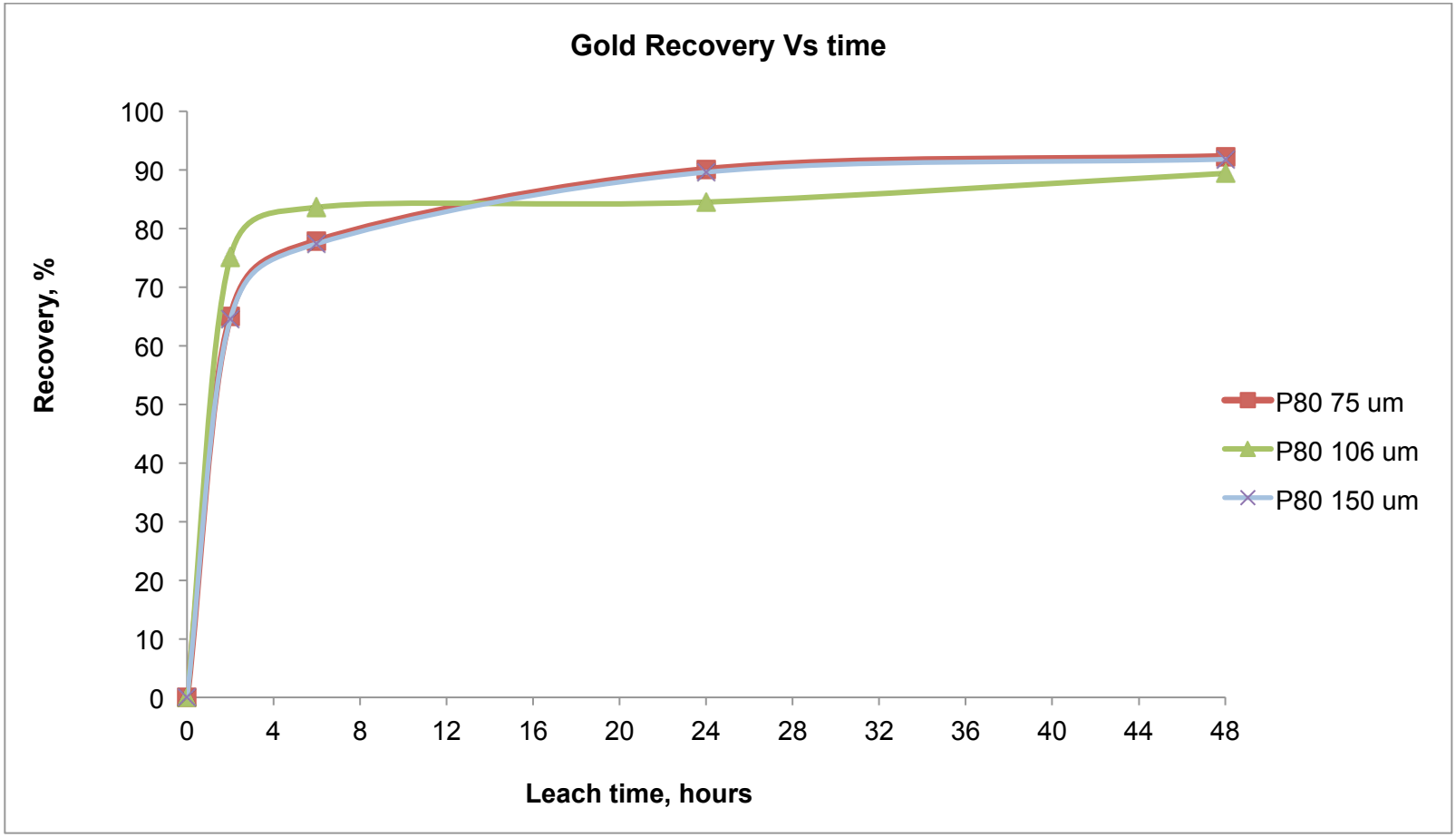

Figure 4: **Gold recoveries versus time** (at 3 different grind sizes)

Intermittent Bottle Roll Recovery

In order to obtain a first-pass understanding of the potential for heap-leaching as a gold recovery process, intermittent bottle rolls on two *coarse* crush sizes of composite ore were carried out. The composite sample was crushed to 25mm and then a 7kg sample was split out. The remainder was crushed to 12.5mm and another 7kg sample split out. The bottle rolls were carried out on 5kg samples with one minute per hour of rolling for a total of 168 hours.

Gold recoveries for the 12.5mm and 25mm crush sizes were 89.2% and 81.5% respectively. Gold leaching was predominantly complete (82-88% recovery) by the 24-hour mark (see Fig. 5). This indicates that heap-leaching is an option worth investigating for the Aurora Tank deposit. Future work could include leach column tests which would also establish the required crush size and recovery rates for a potential heap.

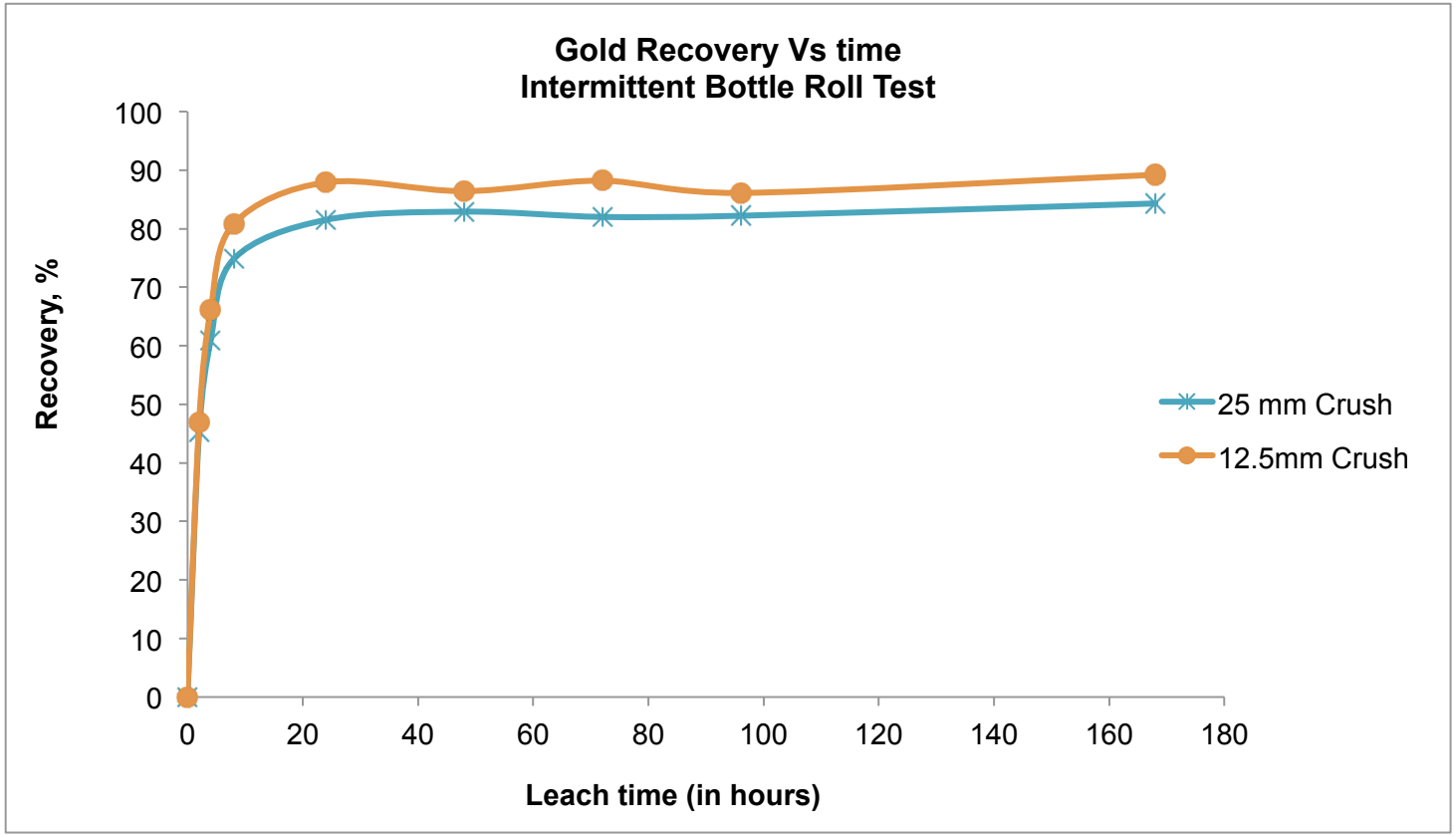

Figure 5: Gold recoveries versus time from non-aggressive leaching (intermittent bottle roll tests)

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About Marmota Limited

Marmota Limited (ASX: MEU) is a South Australian mining exploration company, focused on gold, copper and uranium. Gold exploration is centred on the Company's dominant tenement holding in the highly prospective and significantly underexplored Gawler Craton, near the Challenger gold mine, in the Woomera Prohibited Defence Area. The Company's copper project is based at the Melton project on the Yorke Peninsula. The Company's uranium project is at Junction Dam adjacent to the Honeymoon mine.

For more information, please visit: www.marmota.com.au

Competent Persons Statement

Information in this Release relating to Exploration Results is based on information compiled by Dr Kevin Wills, who is a Fellow of the Australasian Institute of Mining and Metallurgy. He has sufficient experience which is relevant to the styles of mineralisation, metallurgical testwork and types of deposits under consideration and to the activities being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code of Reporting of Exploration Results, Mineral Resources and Ore Reserves." Dr Wills consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

Where results from previous announcements are quoted, Marmota confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcement and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

APPENDIX 1

JORC Code, 2012 Edition – Table 1 report

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 (e.g. 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 (e.g. '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 (e.g. submarine nodules) may warrant disclosure of detailed information.*	• 6 diamond drill holes were drilled to collect HQ3 core samples from the Goshawk prospect area. Quarter core samples were collected at 1m average intervals using a brick cutting saw. Sample length only deviated where it was required to compensate for core loss. • Samples were an average weight of 1 kg which were pulverized to produce sub samples for lab assay (samples pulverized to produce a 30 g sample for Aqua Regia Digest and Fire Assay). Samples were analysed by Inductively Coupled Mass Spectrometry. • Metallurgical samples were recomposited over the interval of interest by selective sampling of quarter core after the 1m samples results were available. • Only laboratory assay results were used to select samples
Drilling techniques	• *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. 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).*	• Drill method consists of HQ triple tube at an inclination of 60 degrees. Hole diameters are 149 mm.
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.*	• Core was logged and sample recovery estimated on site by a geologist. Qualitative assessment of sample recovery was recorded. • Additional measures were used in the field to try and improve recovery including but not restricted to the use of muds to firm up core. • Sample recoveries were low at intermittent intervals and core loss is reported. • It is likely that some mineralised intervals were not recovered.

Criteria	JORC Code explanation	Commentary
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.*	• All samples were geologically logged by the on-site geologist. The holes have not been geotechnically logged. • Geological logging is qualitative. • Core Trays were photographed at the completion of the exploration program prior to core cutting. • 100% of any reported intersections in this announcement have had geological logging completed.
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.*	• 1m (average) samples averaging 1 kg were collected for laboratory assay. ¼ core samples were collected by cutting with a brick saw. • Laboratory sample preparation includes drying then pulverizing of submitted sample to target of p80 at 75 um. • No samples checked for size after pulverizing failed to meet sizing target in the sample batches relevant to the report. • Samples were digested for both Aqua Regia and Fire Assay. Both control and duplicate samples were introduced by the Company, while the laboratory completed repeat assays on various samples. • Standard samples were also introduced into the sample stream by the laboratory. • Both Company and laboratory introduced duplicate samples indicate acceptable analytical accuracy and precision. • Laboratory analytical charge sizes are standard sizes and considered adequate for the material being assayed.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *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.*	• Bureau Veritas Minerals in Adelaide was used for analytical work. Samples were analysed in the following manner: ○ Aqua Regia Digest. Analysed by Inductively Coupled Plasma Mass Spectrometry for Au, Ag, As,Cu, B and S ○ Fire Assay was Analysed by Inductively Coupled Plasma Mass Spectrometry for Au • For laboratory samples, the Company analysed each sample using two different digest methods and the same analytical method to determine precision of results. The laboratory introduced additional QA/QC samples (blanks, standards, checks) at a ratio of greater than 1 QA/QC sample for every 10 drill samples. • Both the Company introduced and laboratory introduced QA/QC samples indicate that acceptable levels of accuracy and precision have been established.
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.*	• A Company geologist has checked the calculation of the quoted intersections in addition to the Competent Person. • No adjustments have been made to the assay data.

Criteria	JORC Code explanation	Commentary
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.*	• Drill hole coordinate information was collected using a digital GPS system with an autonomous accuracy of +/-0.5 metres utilising GDA 94 Zone 53. • Area is proximately flat lying and topographic control uses SRTM 90 DEM.
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.*	• Drill holes were advanced along traverses setup perpendicular to the orientation of the geochemical anomaly.
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.*	• Drill lines were orientated to cover previously drilled mineralisation and traverses crossed the width of the mineralised zone, therefore a sampling bias should not have occurred.
Sample security	• *The measures taken to ensure sample security.*	• Laboratory Samples were cut and transported to the laboratory by Marmota and Challenger Geological Services staff.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No audit of data has been completed to date.

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 licence to operate in the area.*	• Aurora Tank (EL 5589) is 100% owned by Marmota Limited. EL 5589 is located approximately 100 km southwest of Coober Pedy in South Australia. • There are no third party agreements, non-government royalties, historical sites or environmental issues. • Exploration is conducted within lands of the Antakirinja Matu-Yankunytjatjara Native Title Determination Area. • The tenement is in good standing.

Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Exploration in the Commonwealth Hill region has been carried out by a number of exploration companies previously including;
		  • Kennecott Explorations (Australia) Pty Ltd (1968-69)
		  • Dampier Mining Co. Ltd (1978-79)
		  • Afmeco Pty Ltd (1980-83)
		  • Stockdale Prospecting Ltd (1986-87)
		  • SADME (1996-97)
		  • Minotaur Gold NL (1993-99)
		  • Redport Ltd (1997-2002)
		  • Apollo Minerals (2013-15)

Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Goshawk zone of Aurora Tank is situated in the Christie Domain of the western Gawler Craton. The Christie Domain is largely underlain by late Archaean Mulgathing Complex which comprises of meta-sedimentary successions interlayered with Banded Iron Formations (BIF), chert, carbonates and calc-silicates. • Marmota is targeting Challenger-style Late Archaean gold whilst being open for occurrence of a variety of other mineralisation styles which may also exist in the tenement area.

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 the understanding of the report, the Competent*
		• Drill hole locations are shown on Figure 1 of the attached announcement

Criteria	JORC Code explanation	Commentary
	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.*	• Any intersections are calculated by simple averaging of 1 m assays. In situations where core loss occurred within mineralised intervals, weighted averages have been applied. • No metal equivalents are 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').*	• Drill coverage is not currently considered sufficient to establish true widths due to uncertainty regarding mineralisation dip and strike. • Mineralisation intersections are downhole lengths; true width is unknown.
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.*	• See Figures in release attached.
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.*	• Cut-off of 1.0 g/t gold was applied in reviewing assay results and deemed to be appropriate at this stage in reporting of exploration results. • Reporting is considered balanced.
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.*	• See attached ASX Release. Geological observations are included in that report. • Preliminary metallurgical testwork was carried out. This consisted of 48 hour cyanide leach bottle rolls which were sampled for assay at intervals of 2, 6, 24 and 48 hours. The solid tailings were filtered, washed and dried and submitted for assay. Results were plotted on gold recoveries versus leach time graphs.
Further work	• *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• See attached release. • Marmota is currently reviewing results received to date from this drilling campaign and considering additional work programs including resampling mineralised zones at sub 1m intervals, additional infill drilling and more metallurgical testwork.