ALT RESOURCES LIMITED

ARS – ASX ANNOUNCEMENT

ASX Announcement
ASX: ARS

7th February 2019

New Metallurgical Test Work Confirms up to 94% Gold Recovery from Emu and Southwark at Bottle Creek Gold Project

KEY POINTS:

- **94% recoverable gold and 65% recoverable silver using conventional cyanide leach processing on samples of Emu and Southwark oxide material**
- **Metallurgical recovery tests completed at a range of grind sizes from 80% passing 106 micron to 80% passing 45 micron. An optimum grind size of 80% passing 60 micron has been chosen for additional work.**
- **Rapid leach kinetics for both gold and silver after first 12 hours using existing site water**
- **Bond ball mill Work Index 10.6 in line with historical record of 10.9 recorded from the historical mining cycle at Bottle Creek**
- **Cyanide and lime consumption in line with existing WA CIP plant operations**

Alt Resources Ltd ("Alt" or "the Company") (ASX: **ARS**) is pleased to announce that it has completed initial metallurgical test work on oxide gold samples at the Emu and Southwark deposits from the Bottle Creek Gold Project in the Mt Ida region of Western Australia (*Figure 1*). The Bottle Creek Gold Project is the cornerstone asset of the Company's Mt Ida Gold Project.

Alt CEO James Anderson said, "This is a significant and very positive result at Bottle Creek confirming the historical performance by the previous miner Norgold and reinforcing our view that Bottle Creek is a robust, small scale open pit development project. The new metallurgy, along with recent pit optimisation work, paves the way to complete a treatment plant design to be located at Bottle Creek and move rapidly to the feasibility study."

"The project is looking favourable for a simple processing route, and these test results support our aim of developing a gold plant at Bottle Creek. It is another positive step towards the planned mining hub to service this northern end of the Mt Ida gold belt."

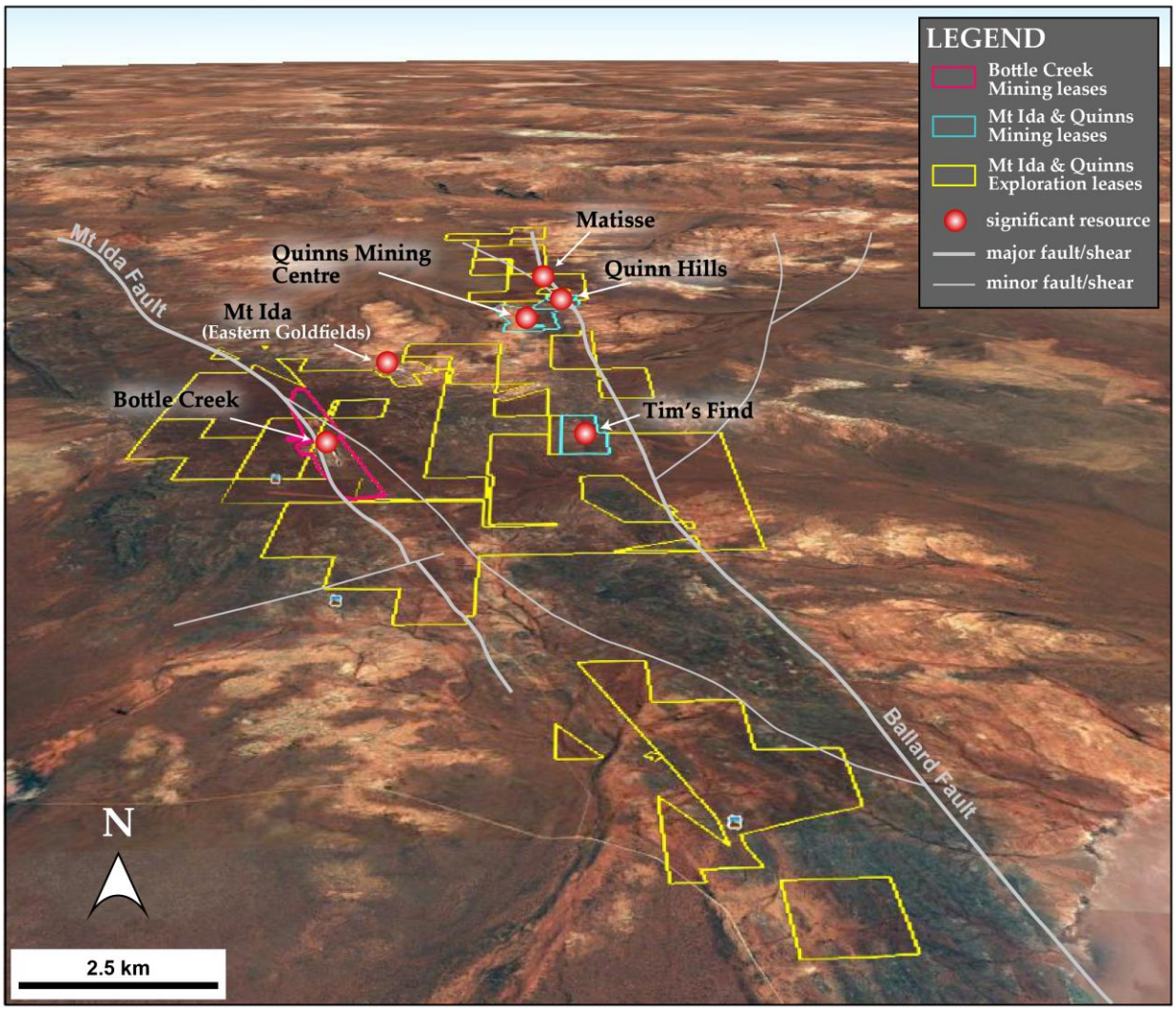


Figure 1: The Bottle Creek Gold Project, Mt Ida WA

BOTTLE CREEK METALLURGICAL TESTWORK SUMMARY

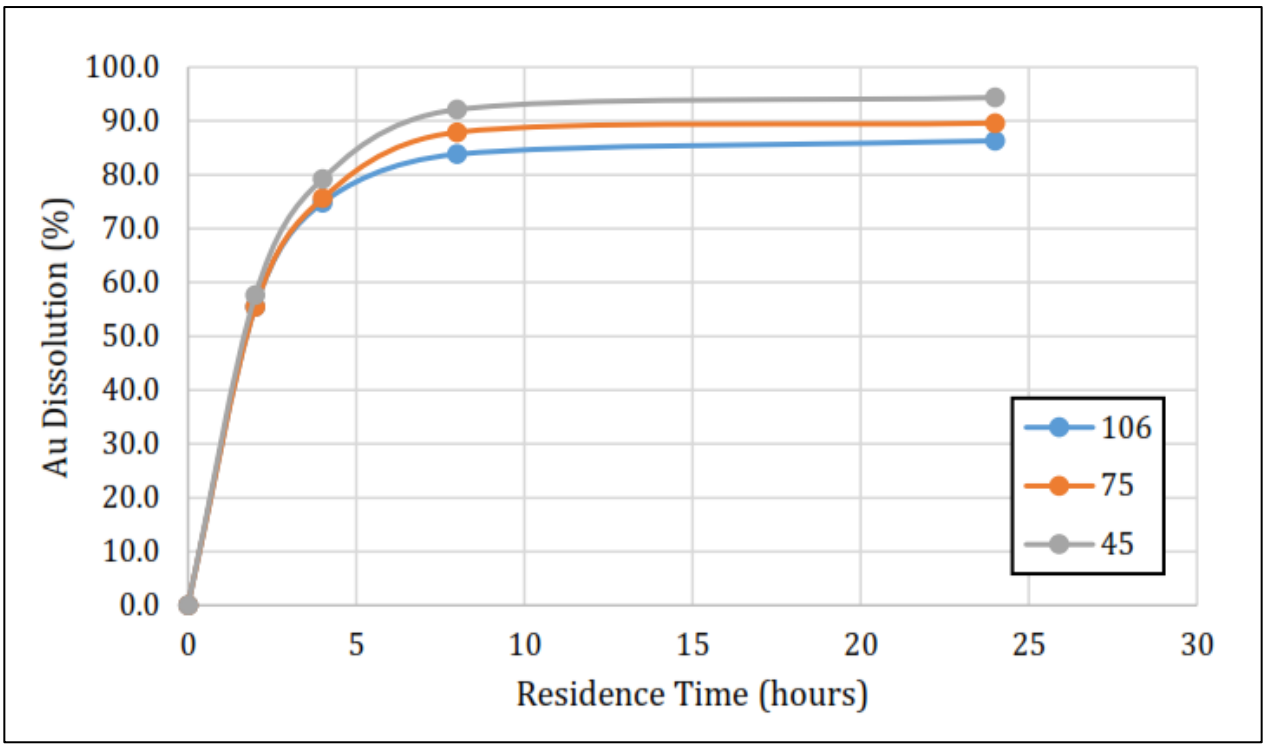
Oxide composite samples were collected from five representative diamond core drill holes drilled across the strike of the Emu and Southwark deposits at Bottle Creek (*Figures 2 & 3*) and provided to Australian Minmet Metallurgical Laboratories Pty Ltd (AMML). The samples were representative of the various ore types in the oxide zone, which would be the focus of any future open pit mining and processing activities. Samples were composited from diamond holes drilled by DDH1 Drilling in 2018 at the Emu and Southwark ore bodies announced to the market 28 August 2018[1]. Table 1 details the sample intervals combined in to a single 'bulk' composite sample, from which sub samples were utilised in the various tests completed by AMML. The metallurgical results confirm gold and silver recoveries in line with expectations utilising conventional cyanide leach techniques (full details outlined in AMML's test work report attached as appendix 1).

[1] https://www.altresources.com.au/wp-content/uploads/2018/08/Diamond-Drilling-Reveals-Gold-Silver-Continuity-at-depth-28Aug18.pdf

The test work program entailed four leach tests, two viscosity tests and a Bond Ball Work Index comminution test. Three tests, on different particle sized material (106, 75 & 45um), were completed utilising stirred kinetic cyanide leaching with ground water delivered to AMML laboratory from the Bottle Creek mine site. A conventional 24hr cyanide leach (*Appendix 1*) was also carried out to determine if preg robbing material is present in the ore. The CIL test showed no difference in Au dissolution compared to the non-carbon leach, indicating that no preg robbing material was present.

The test work has demonstrated very rapid leaching kinetics for both KL & CIL samples and favourable gold recovery consistent with expectations to produce a near maximum leaching of gold and silver within the first 12 hours (Figure 2). Cyanide consumption from the KL tests ranged from 1.37 to 1.45 kg/t (increasing with finer grind). A Bond Ball Mill Work Index of 10.6 kWh/dry tonne was determined, indicating the Bottle Creek oxide ore is relatively soft. Reports related to the initial mining at Bottle Creek, completed by Norgold in the 1990's, indicated a Bond Ball Mill Work Index of 10.9 kWh/dry tonne.

Figure 2: Gold dissolution vs Time (Kinetic Leach tests)



The test work was undertaken by AMML Metallurgical Laboratories in Gosford, NSW and was managed Tim Baily, Senior Metallurgist (Grad. Dip. Metallurgy, B Sc), M AusIMM and reviewed by William Flannery of Timora Pty Ltd. AMML's report is included as Appendix 1. Timora Pty Ltd has recommended additional testing to be completed at a 60 um grind, which is considered to be optimal based on the current results. AMML is currently undertaking this work which will be completed within the next 7 days.

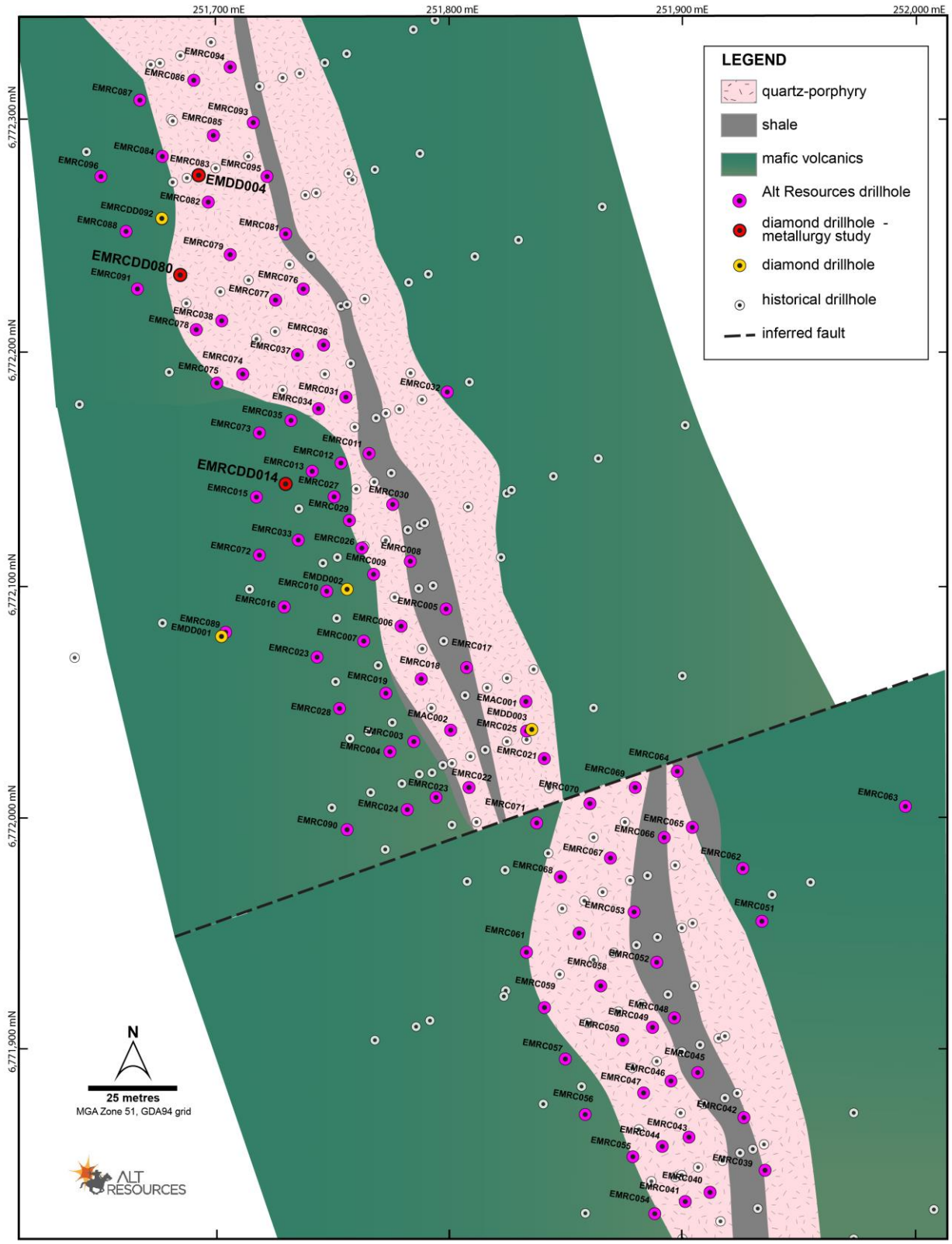


Figure 3: Locations of Emu Deposit diamond drill holes used in AMML metallurgical composite sampling highlighted as red dots

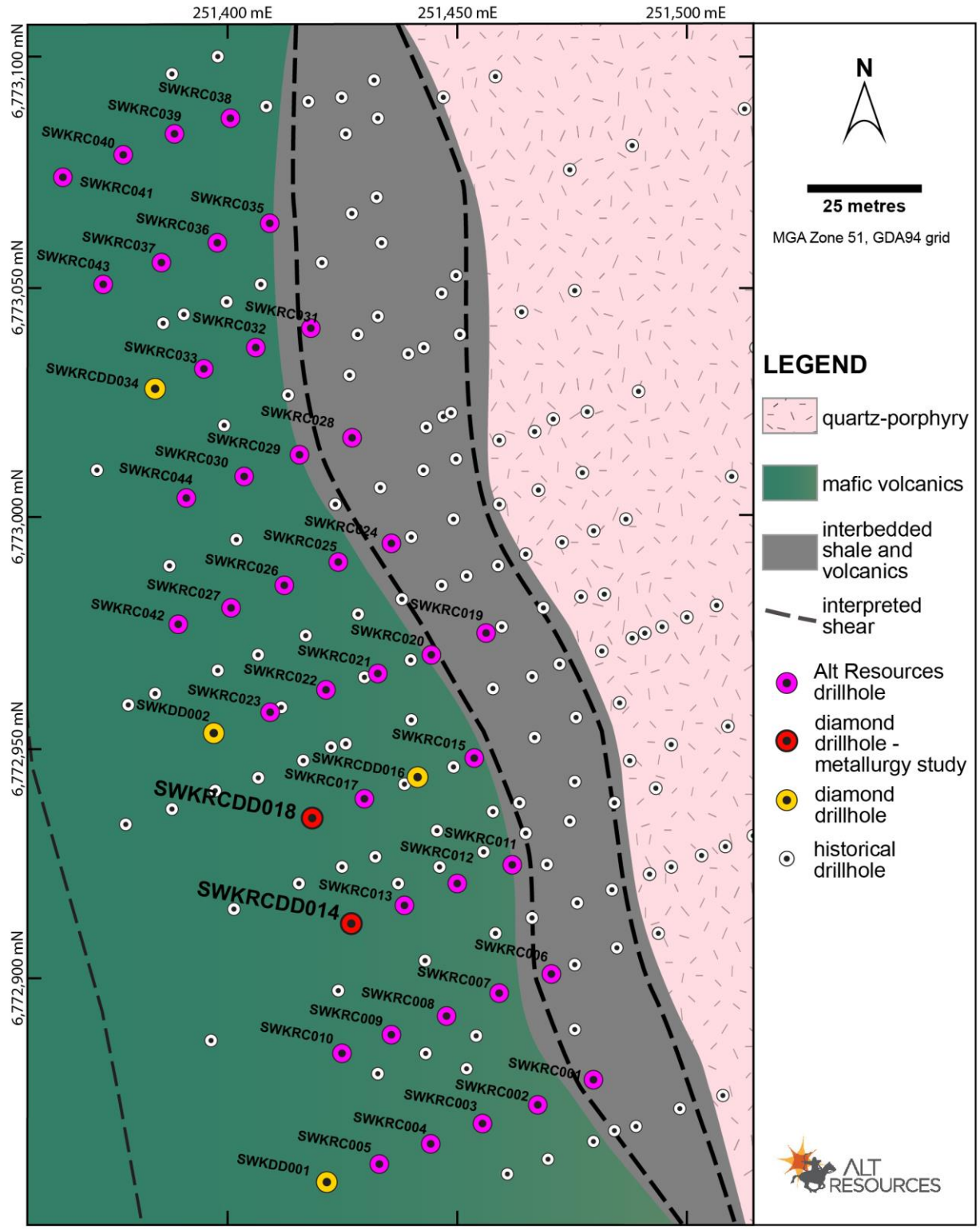


Figure 4: Locations of Southwark Deposit diamond drill holes used in AMML metallurgical composite sampling highlighted as red dots

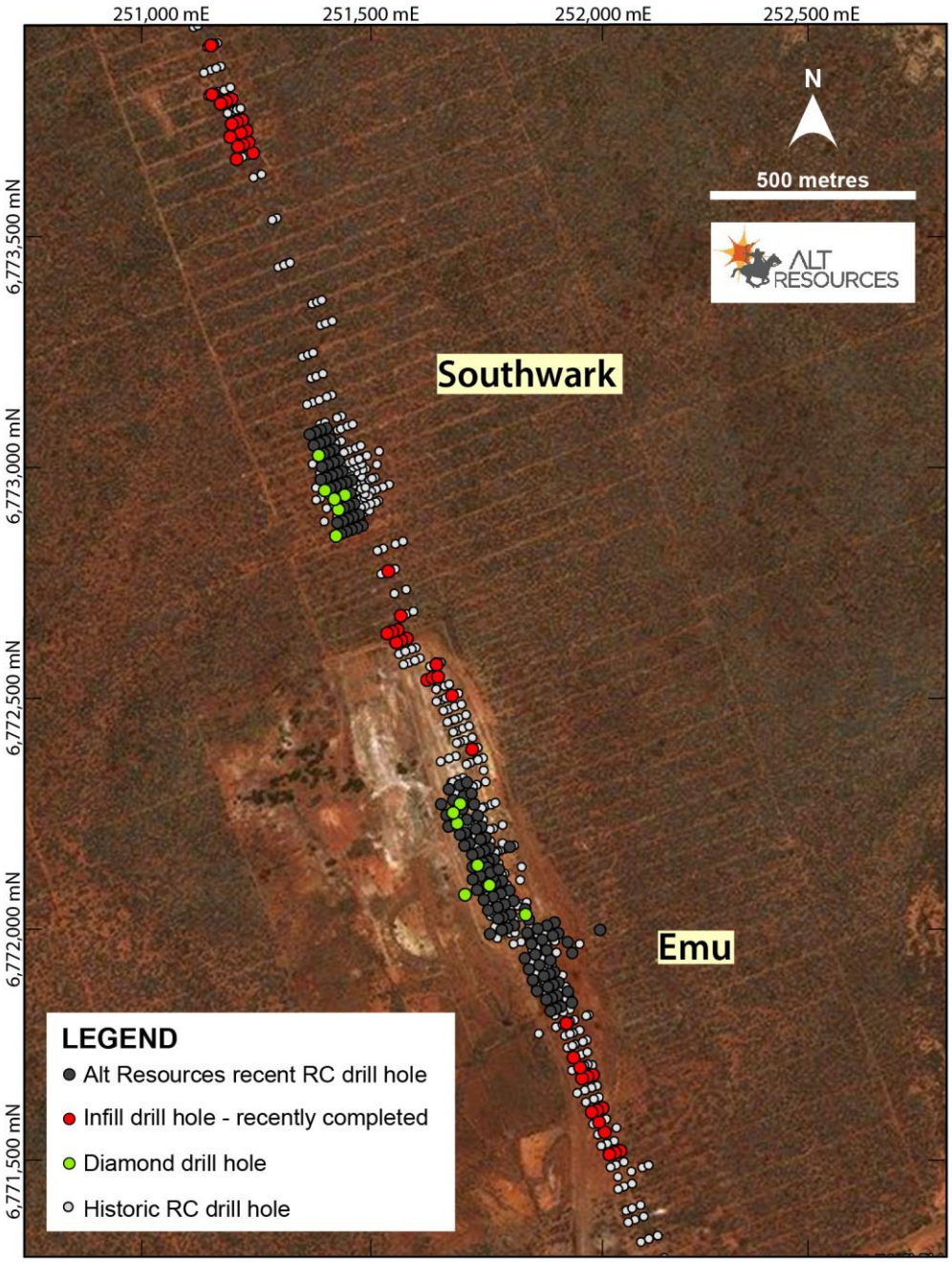


Figure 4: Plan view Emu and Southwark resource hole locations (select diamond holes for metallurgical test work)

Table 1: Drillhole collar table with intervals selected for metallurgical testing from diamond drilling completed by Alt Resources at the Bottle Creek project, described in this announcement.

Hole_ID	*Easting**	*Northing*	*RL*	*Dip*	*Azi**	*M from*	*M to*	*Type*	*Weight (kg)*
SWKRCDD018	*251,419*	*6,772,934*	*489.5*	*-60*	*069*	*86.5*	*90.5*	*Oxide*	*7.7*
SWKRCDD014	*251,427*	*6,772,911*	*489.4*	*-60*	*069*	*81.7*	*88.0*	*OXIDE*	*10.0*
EMRCDD014	*251,730*	*6,772,143*	*485.9*	*-60*	*069*	*86.0*	*93.0*	*OXIDE*	*14.0*
EMRCDD080	*251,685*	*6,772,234*	*481.2*	*-60*	*069*	*101.0*	*105.6*	*OXIDE/TRANSITION*	*9.1*
EMDD004	*251,692*	*6,772,276*	*481.2*	*-60*	*070*	*62.0*	*77.0*	*OXIDE*	*18.4*
								Total weight of composite sample:	*59.2*
*All coordinates in GDA94, zone 51									

NEXT STEPS

The Company aims to determine a viable mining and processing option for Bottle Creek. Since commencing operation on the project Alt has progressed the Bottle Creak project through three stages of drilling, supporting an initial resource estimation followed by an updated resource estimation in October 2018 (refer below), confirming the projects potential for development. Final interpretation of drilling completed later in 2018 will support a further resource update expected first quarter 2019.

The positive metallurgical results allow the Company to finalise pit optimisation work aimed at determining optimal plant capacity and indicative project economics, allowing metrics around plant design to be confirmed. Minecomp Pty Ltd and Timora Pty Ltd are assisting the company with this work with results expected to be available in the near term.

FUTURE CAPITAL REQUIREMENTS AND SHARE PLACEMENT

Pursuant to the positive metallurgical test results announced the Company intends to raise additional capital during the first quarter of 2019 to further advance and fund key studies relative to the development of the Bottle Creek gold project treatment and processing plant to be located at Mt Ida, WA. As the various independent scoping studies evolve they will be incorporated into the Bottle Creek Pre Feasibility Study (PFS).

The Company is proposing to undertake a capital raising during the first quarter of 2019 to raise up to $1.6M before issue costs at an issue price of $0.03 per fully paid ordinary share, placing a maximum number of 54M new shares in the capital of the Company.

The Placement will be made to investors qualifying under Section 708 of the *Corporations Act 2001* (Cth) (**Act**) and the Company will seek shareholder approval to complete the Placement.

Planned funds to be raised during this quarter will be allocated towards completion of:

- The Emu and Southwark pit optimisation and scoping study
- The Bottle Creek treatment plant design parameters and plant layout
- Treatment Plant preliminary hazard operations assessment
- Power generation requirement, electrical summary and operating philosophy
- Tailings storage facility design
- Working Capital for operations

Pursuant to the ongoing planning and development of the Bottle Creek treatment plant the Company will issue 15.2 million fully paid ordinary shares to Timora Pty Ltd (Timora) subject to shareholder approval. The Company is currently preparing the Notice of General Meeting (EGM) to be held in March. Timora is an independent gold treatment plant design development and procurement Company engaged by Alt to co-ordinate the Bottle Creek treatment plant development project. The shares will be issued to Timora at $0.03 and represents a 20% premium on the current price of the Company securities trading on the ASX.

Under the agreement, Timora will invest $456,000 into the Company by way of cash and fees for service and equipment supplied. Timora will pay $280,000 in cash and the equivalent of $176,000 will be issued in shares in consideration for services and equipment supplied. Additionally the Company will utilise its existing sophisticated and professional investor network to raise the balance of $1.32M.

BOTTLE CREEK and MT IDA RESOURCE

Alt acquired the Bottle Creek Gold Mine in November 2017 under an Option to Purchase Agreement[2] (Option) from the Vendor. Pursuant to the Option the Company has undertaken ~19,000 metres of reverse circulation drilling and 1160 metres of diamond drilling producing its maiden resource announced in August 2018[3] and a second resource upgrade announced in October 2018[4]. The Company produced the maiden resource and a second resource upgrade at Bottle Creek within 7 months of commencement of drilling in March 2018.

The total for Alt's **Bottle Creek Gold Project is 2.6Mt @ 1.9 g/t Au, for 160,000oz Au** including **2.5Mt @ 10.7 g/t Ag for 900,000oz Ag** which is shown in Table 3 and forms the basis of the recently completed Minecomp pit optimisation and design. Additional to the Bottle Creek resource are the Mt Ida South and Quinn's satellite resources (*Table 4*) which In combination with existing mineral resources at Bottle Creek deliver Alt's combined **Mt Ida Gold Project mineral resource Inventory which is now standing at 3.9 Mt @ 2.07 g/t Au, for 257,000 ounces Au and 900,000 ounces Ag** of which **122,000 ounces** is in the Indicated category on 6 granted existing mining leases.

The Company recently completed an additional ~5,500 of RC drilling announced to the market on 14 December 2018[5] and is currently upgrading the Southwark resource bringing it into the indicated category intending to deliver the Southwark resource into the mining inventory as probable ore reserve. The delay in bringing the Southwark resource into indicated was due to the digital terrain model (DTM) being incomplete. The Company surveyors have now finalised the DTM, which will allow the resource geologist to complete the Southwark resource and upgrade from inferred into the Indicated category.

Table 3: Summary of updated Mineral Resource Estimate for the Bottle Creek Project, incorporating the new estimate for the north and south Emu extensions and laterite cap at Southwark, using 0.5 g/t cut-off for gold. Tonnes, grade and ounces have been rounded to the nearest 1,000.*

Deposit	Category	Tonnes Au	Grade (g/t Au)	Oz (Au)	Tonnes Ag	Grade (g/t Ag)	Oz (Ag)
EMU	*Indicated*	991,000	2.23	71,000			
	Inferred	93,000	1.60	5,000	1,031,000	13.29	441,000
	Total	1,084,000	2.18	76,000	1,031,000	13.29	441,000
EMU EXTENSIONS							
	Inferred	972,000	1.59	50,000	972,000	7.99	250,000
SOUTHWARK	*Inferred*	562,000	1.86	34,000	520,000	12.52	209,000
TOTAL		**2,618,000**	**1.89**	**160,000**	**2,523,000**	**10.68**	**900,000**

**Rounding may result in apparent summation differences between tonnes, grade and contained metal content*

[2] https://www.altresources.com.au/wp-content/uploads/2017/11/ARS-ASX-Announcement-Bottle-Creek-acquisition-8Nov17.pdf
[3] https://www.altresources.com.au/wp-content/uploads/2018/08/Maiden-Gold-Resource-for-Emu-and-Southwark-increases-Bottle-Creek-Gold-Project-to-206800oz.pdf
[4] https://www.altresources.com.au/wp-content/uploads/2018/10/ASX_ARS-Resource-Upgrade-at-Bottle-Creek-18Oct18.pdf
[5] https://www.altresources.com.au/wp-content/uploads/2019/01/Alt-ASX-Final-BC-Phase-3-14Dec18.pdf

Table 4. Mineral Resource inventory for the Mt Ida Project at Au > 1 g/t. Tonnes and grade have been rounded. Data from Latitude Consolidated Ltd (LCD) Announcement, 14th September, 2016. Published by Alt Resources on the 16th January, 2018.

Deposit	Measured			Indicated			Inferred			Total		
	Tonnes	Grade (Au g/t)	Oz (Au)	Tonnes	Grade (Au g/t)	Oz (Au)	Tonnes	Grade (Au g/t)	Oz (Au)	Tonnes	Grade (Au g/t)	Oz (Au)
QUINNS PROJECT												
Boudie Rat				130,000	3.0	12,200				130,000	3.0	12,200
Forrest Belle	130,000	2.5	10,300				30,000	3.6	3,500	160,000	2.7	13,600
Boudie West							100,000	2.1	6,700	100,000	2.1	6,500
Belvidere				30,000	3.8	3,300				30,000	3.8	3,300
Boudie Beach				10,000	2.5	600				10,000	2.5	600
Quinn Hills				20,000	5.7	3,900				20,000	5.7	3,900
Matisse East							40,000	1.8	2,100	40,000	1.8	2,100
Matisse West							70,000	1.5	3,200	70,000	1.5	3,200
MOUNT IDA SOUTH PROJECT												
Tim's Find				360,000	2.6	30,900				360,000	2.6	30,900
Spotted Dog North							250,000	1.9	15,200	250,000	1.9	15,200
Spotted Dog South							70,000	2.2	5,100	70,000	2.2	5,100
Total	**130,000**	**2.5**	**10,300**	**550,000**	**2.9**	**50,900**	**560,000**	**2.0**	**36,100**	**1,240,000**	**2.5**	**97,300**

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About Alt Resources

Alt Resources is an Australian based mineral exploration company that aims to become a gold producer by exploiting historical and new gold prospects across quality assets and to build value for shareholders. The Company's portfolio of assets includes the newly acquired Bottle Creek gold mine located in the Mt Ida gold belt, the Paupong IRG Au-Cu-Ag mineral system in the Lachlan Orogen NSW, Myalla polymetallic Au-Cu-Zn project east of Dalgety in NSW and the Mt Roberts gold project located near the town of Leinster in WA.

Alt Resources, having acquired the Bottle Creek Gold Mine and historical and under-explored tenements in the Mt Ida Gold Belt, aims to consolidate the historical resources, mines and new gold targets identified within the region. Potential at Mt Ida exists for a centralised production facility to service multiple mines and to grow the Mt Ida Gold Belt project to be a sustainable and profitable mining operation.

Competent Persons Statement

The information in this report that relates to mineral exploration and exploration potential is based on work compiled under the supervision of Mr Todd Axford, a Competent Person and member of the AusIMM. Mr Axford is principal geologist of Geo-Co Pty Ltd and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity that she 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 Axford consents to the inclusion in this report of the information in the form and context in which it appears.

Mineral Resource Estimate

The information in this report that relates to mineral exploration and exploration potential is based on work completed by Mr. Stephen Godfrey, a Competent Person and member of the AusIMM and the AIG. Mr. Godfrey is a Senior Resource Geologist with Jorvik Resources and has acted as an independent consultant on the Bottle Creek Project Mineral Resource estimation. Mr. Godfrey has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity that 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. Godfrey consents to the inclusion in this report of the information in the form and context in which it appears.

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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 (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.*	• Diamond drillhole (DD) samples for drillholes described in this announcement (see Table 1) were collected by 1/2 cutting HQ diamond core from numbered and depth-labelled trays. Intervals were selected by the site geologist with reference to lithology and visual signs of mineralisation based on knowledge gained from referencing assayed RC holes in the area of the sampled DD hole. • During core cutting and sampling, the cut line was 5mm clockwise from the orientation line and the right-hand side of the core was routinely chosen for sampling, to avoid sample bias. • The entire drillhole length for each hole has been geologically logged in detail to determine visually the location of mineralised zones. •
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*	• Drilling contractor DDH1 Drilling completed all diamond holes for this program.

	type, whether core is oriented and if so, by what method, etc).	• DD drilling techniques have been completed using a standard bit, appropriate for sampling the degree and extent of mineralisation. • The drill rig used was a Sandvik Track Mounted DE710 producing HQ and NQ core. • A Reflex Act III tool was used every core run (maximum 6m intervals) to orientate drill core • An Axis Mining Technology north seeking gyroscope was used every ~30m by DDH1 to determine hole orientation. The drilling was supervised by experienced Alt geological personnel.
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.*	• Drill core recovery was determined by measuring the length of core returned to surface against the distance drilled by the drilling contractor. Core recovery averaged 89%. • In general, recovery throughout the drilling program has been good (as in point above), however where poor recovery was experienced, this was through the carbonaceous shale which is the host to mineralisation. Therefore, a minor relationship does exist between recovery and grade, however through repetition of holes (e.g. EMDD002 and EMDD002_1) and diamond twinning of RC holes, no sample bias appears to have occurred in preferential loss or gain of coarse or fine material.
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 holes have been geologically logged on geological intervals with recording of lithology, grain size, alteration, mineralisation, veining, structure, oxidation state, colour and geotechnical data noted and stored in the database. All holes were logged to a level of detail sufficient to support mineral resource estimation, scoping studies, and metallurgical investigations. • Veins and mineralisation are logged quantitively as percentage, all other variables are logged qualitatively. All core trays have been photographed, and these photos stored in a database. • All holes have been logged over their entire length (100%) including any mineralised intersections.
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.*	• Diamond core samples were cut along the long axis using an industry standard automatic core saw. HQ core was cut to a quarter length for sample bagging. Sample lengths vary depending on the geological nature of the rocks.

	• *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.*	• Detailed logging of the drillcore was conducted to sufficient detail to maximise the representivity of the samples when deciding on cutting intervals. • In general, recovery throughout the drilling program has been good (averaging 89%), however where poor recovery was experienced, this was through the carbonaceous shale which is the host to mineralisation. To be assured that samples were representative, even in areas of lower recovery, duplicated holes (e.g. EMDD002 and EMDD002_1) and diamond twinning of RC holes was conducted, and the results are reliably comparable. Therefore samples are considered to be representative. • At the Metallurgical Laboratory core samples were registered and then combined and control crushed to 100% passing 3.35mm, before thorough blending prior to riffle splitting of 1kg sub-samples for testing. • The crushing to -3.35mm prior to sub-sampling is appropriate to expect representative sub-samples.
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.Ba, Mo* • *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.*	• Head sample and Residue sample assays were completed by ALS Brisbane where the delivered sample is pulverised to -75µm, and then a 50g subsample analysed by AAS fire assay technique for Au only with a detection limit of 0.01 ppm. The 4 Acid digest followed by ME-ICP61 (33 element) analysis was also completed. With total Sulphur determined by method S-IR08 (Leco furnace). These are considered total methods. • Liquor gold and silver assays by extraction with AAS finish. • No geophysical or handheld field tools were used for analysis. • Due to the nature of the metallurgical testing, resulting in limited samples for external analysis ALS' internal procedures, including repeats and CRMs has been relied upon. As a qualitative check the determined met sample grade was compared to the typical grades in the resource drilling in the areas where metallurgical sample was collected. These compare favourably. The calculated head grades determined during the leach tests also compare favourably to the assayed head grade.

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.*	• The metallurgical work does not involve reporting significant intersections. • Twinned holes are not relevant to the metallurgical work • For this work all data management was completed by the Metallurgical Laboratory (AMML – Australian Minmet Metallurgical Laboratories Pty Ltd) • No assay data has been adjusted.
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.*	• Hole locations are surveyed prior to drilling using a Leica RTK GPS and GOLA standard survey marks, once the hole is completed it is resurveyed using the same techniques to mark the actual collar location. The expected accuracy is 0.15m in three dimensions. • The drill rig was orientated at surface using an Axis Mining Technology north seeking gyroscope and then at 12m (base of laterite), 30m and 30m increments thereafter. An EOH survey was taken if more than 10m downhole from the last survey. • The grid system used is MGA94 Zone 51 • The topographic control is judged as adequate and of high quality.
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 selected for the Metallurgical sample where distributed through the known resource area in such a way as to create a composite sample, expected to be representative of oxide ore to be processed (should mining proceed). • All intervals of core provided to the Metallurgical Laboratory was combined in to a single composite sample.
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*	• The true widths of intercepts are expected to be 65-75% less than the reported widths depending on both the orientation (dip) of both the mineralised zone, and drill hole. Holes are drilled near perpendicular to strike and no significant bias is expected due to azimuth.

	of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	• The interpreted mineralised zone trends approximately towards 340 degrees, and dips steeply (>70^{o}) to the west. Drilling inclined holes at -60 degrees will introduce a slight bias to true widths but not to sample assay results.
Sample security	• *The measures taken to ensure sample security.*	• Alt Resources keeps all samples within its custody, and within its lease boundaries until delivery to the laboratory for assay. Samples are typically collected while drilling to minimise possible contamination, and ensure unbroken sample chain of custody.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No external reviews of the sampling techniques have yet been undertaken. Internal reviews and audits are ongoing with each sample submission being analysed and reported on to ensure issues are quickly noted and rectified.

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.*	• The information in this release relates to the Bottle Creek Project, on mining leases M29/150 and M29/151, which is the subject of a purchase agreement between Alt Resources and a private vendor. The details of this purchase arrangement are outlined in the announcement made to the market on the 8th November, 2017 (https://www.altresources.com.au/wp-content/uploads/2017/11/ARS-ASX-Announcement-Bottle-Creek-acquisition-8Nov17.pdf) • There are no existing impediments to M29/150 or M29/151.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• The Bottle Creek old Project has seen little or no exploration prior to 1983. Modern gold exploration over the project has been conducted by Electrolytic Zinc (EZ) and Norgold as described below.

Activity	Year conducted	Company	Result
Stream Sediment sampling	1983-1987	Electrolytic Zinc	Defined 15km long Au-As-Sb anomaly associated with Bottle Creek mineralisation
Ironstone sampling			Definition of linear Au, As, Sb, B and Pb anomalies
Laterite sampling			Definition of 20km long As-Pb anomaly
Aerial photography			
Aerial magnetic survey			Positive magnetic anomaly associated with mineralised zone, from magnetite alteration.

			The highest magnetic anomalies overlie mineralised shoots
Costeaning			Significant gold intersections defined in areas of poor outcrop, but poor penetration due to hard sub-surface layers
RAB drilling			Defined major mineralised zone (Bottle Creek, including Emu, VB and XXXX) beneath lateritic cover
RC drilling			Definition of oxide gold resources at VB, Boags, Emu
DD drilling			Testing sulphide gold mineralisation beneath Emu and VB
Magnetometric resistivity (MMR) and Very Low Frequency electromagnetic (VLF-E) surveys			Neither technique defined the mineralised zone
Geological mapping	1986-1989	Norgold	Project-scale mapping at 1:25,000 scale, defined new prospective zone SE of Boags
RAB drilling			Exploration drilling of extensions to known mineralisation, defined parallel zone east of VB and south of Anchor.

		RC and DD drilling	Reserve drilling at VB, Boags and Emu Resource drilling at Anchor, XXXX, Southwark and surface laterite Sterilisation drilling for airstrip
		Soil Sampling	Extensions to areas of previous sampling, analysed for Au, Ag, As, Sb
		Airborne multi-spectral survey	Defined high density fracture patterns associated with mineralisation
		Mining	Mining at VB and Boags, 1988-1989. Production at Boags: 382,000t @ 1.75 g/t Au (21.6koz Au) Production at VB: 730,000t @ 3.1 g/t Au (72koz Au)
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Bottle Creek gold project lies on the western edge of the Norseman-Wiluna Province in WA, within the Ularring greenstone belt. West of the project, the area is characterized by banded iron formations interbedded with mafic volcanics. In the central and eastern parts of the project, a dominantly mafic-ultramafic volcanic and intrusive suite occurs. Minor volcaniclastic sediments are interbedded with the greenstones. The entire central and eastern zone has been intruded by felsic quartz porphyries. • Near Bottle Creek, the greenstone belt is folded into a tight, south-plunging anticline with a granite core • The project is defined by epigenetic, hydrothermal, shear-hosted gold+silver mineralisation. Mineralisation is hosted within a steeply dipping, sheared, carbonaceous black shale unit (the Emu Formation), close to the contact with the interbedded mafic volcanics and banded ironstones.	

		• Sulphide mineralisation is characterised by pyrite, pyrrhotite and magnetite, with minor tetrahedrite, sphalerite, arsenopyrite and chalcopyrite. Native gold and electrum are also present as fine, <45µm grains. • A strong regolith profile is developed in the mineralised zone, to a depth of approximately 85m in some areas. • 5 mineralised zones have been defined by historical exploration, including from south to north, Boags, VB, Emu, Southwark and Cascade.

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 Person should clearly explain why this is the case.*
		• See Table 1 and Figures 1, 3 and 4 above for drillhole information pertaining to significant intercepts utilised in the Metallurgical Testing.
		• No significant information has been excluded for drilling results reported in this document. Total drillhole depths have not been included and are not considered Material for understanding the locations of Metallurgical Samples related to the announcement.

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.*	• N/A • N/A. • N/A
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').*	• Based on extensive drilling throughout the Emu and Southwark deposits, mineralisation is interpreted to be striking north 20° west, and with a dip close to vertical, or dipping steeply west, as portrayed in Figures 1 and 3 in the text. Drilling was oriented perpendicular to this trend. Holes have been drilled at a 60 degree angle to approximate (as close as practicably possible) a true width intercept through the steeply dipping mineralised zone. • Reported sample intervals are downhole lengths; the true width is estimated to be approximately 65-75% of the downhole width, based on interpretations drilling.

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.*	• The location of drillholes at Emu and Southwark selected for metallurgical is shown in Figure 3 and 4, respectively. While figure 5 shows an overview of both deposit locations. •
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 results related to the reported test work are included.
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.*	**Metallurgical Testing** • Metallurgical testwork was carried using selected composited RC intervals by Electrolytic Zinc in the 1980's, as below: **Hole ID** — **Interval** — **Sample Number** **EMU-32** 54-58m 110721 **EMU-12** 24-28m 119717 **EMU-31** 90-99m 110720 **EMU-38** 33-60m 110722 **EMU-14** 69-90m 110718 **EMU-17** 34-44m 110719 • The six composite samples were submitted to Eltin Pty Ltd in Kalgoorlie for preliminary metallurgical. Cyanidation tests were carried out by Kalgoorlie Metallurgical Laboratories. • Testwork used the following parameters: • Nominal grind to 80% - 75 microns • 24 hour cyanidation test pH of 9.5 • splitting of cyanide residue into +75 micron and -75 micron fractions for liberation tests • production of rate curves for the test to establish recovery times • assessment of reagent usage for the test • Kalgoorlie Scheme water was used for the test • The following results were determined: • The samples are free milling • For a head grade greater than 4 g/t Au, recoveries of the order of • >90% can be expected at a grind of approximately 80% passing 75

microns

- Greater recoveries can be expected in a full size plant
- By cyaniding in the mill, the rate of gold dissolution can be significantly increased compared to the laboratory curves
- There is evidence of some soluble copper which will affect cyanide consumption
- Samples 110718, 110721 and 110722 require further work due to high cyanide resistant residues.

Specific Gravity

- Specific gravity analyses were performed by EZ using selected samples of PQ core
- Volume calculations were made with calipers and a complex programmable calculator programme to take in account uneven breaks
- The sections of core were weighed on a series of kitchen scales. The scales were recalibrated after every weighing using pieces of lead cut to size and weighed on a microbalance. The recalibration was undertaken over a range of weights each time.
- The quality of the core was noted for each block weighed. The complete mineralised zone was weighed along with representative sections of the wall rock.
- Principal results of the SG calculations are:

Mineralised Zone:

Surface ironstone	2.7-3.2
Ironstone	>2.1
Massive quartz	1.75-1.85
Sugary quartz	1.60-1.65

Wall rocks:

Laterite (clay)	1.9-2.0
Porphyry	2.2-2.3

Open File report by Electrolytic Zinc (a18217) notes that there is a vertical density stratification within the ore zone.

- splitting of cyanide residue into +75 micron and -75 micron fractions for liberation tests
- production of rate curves for the test to establish recovery times
- assessment of reagent usage for the test
- Kalgoorlie Scheme water was used for the test
- The following results were determined:
- The samples are free milling
- For a head grade greater than 4 g/t Au, recoveries of the order of >90% can be expected at a grind of approximately 80% passing 75 microns

- Greater recoveries can be expected in a full size plant
- By cyaniding in the mill, the rate of gold dissolution can be significantly increased compared to the laboratory curves
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		• Principal results of the SG calculations are: Mineralised Zone: Surface ironstone 2.7-3.2 Ironstone >2.1 Massive quartz 1.75-1.85
Further work	• *The nature and scale of planned further work (eg 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.*	• Further work will focus on assessing a viable mine plan and processing plant design as discussed in the announcement. • Additional Leach testing on 60 micron grind size material (utilising the same primary composite sample as for the reported work) is currently underway.

AMML

Report No.: 1039

ALT Resources - Gold Oxide Ore

For: ALT Resources

5th February 2019

Report: Nick Williams, Tim Baily

Use of the enclosed data is restricted only to material represented by the samples tested

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Summary

AMML was commissioned by ALT Resources to conduct a series of metallurgical tests on a gold bearing ore. The testwork program entailed four leach tests, two viscosity tests and a Bond Ball Work Index comminution test. Approximately 60kg of ore was received and this was crushed to 100% passing 3.35mm, blended and riffle split into testwork portions. The sample was designated as Oxide Ore. Around 40Lt of site water was also received to be used in the testwork.

Leach Testwork

A grind series leach was conducted to determine the change in dissolution for grinding liberated gold using the grind P_{80}'s of 106 µm, 75 µm and 45 µm. All tests were conducted using site water. The dissolution of both Au and Ag increased as the nominal particle size decreased. A carbon leach was conducted at 75 µm to determine the presence of preg robbing material in the feed. The CIL test showed no difference in Au dissolution compared to the non-carbon leach, indicating that no preg robbing material was present. The results from all leach tests on the Oxide Comp are summarised in Table 1.

Table 1. Leach Summary of Oxide Ore

Test Number Feed Grind P_{80}		KL1 106 µm	KL2 75 µm	KL3 45 µm	CIL1 75 µm
Au	Dissolution (%)	86	90	94	90
	Residue Assay	0.63	0.46	0.25	0.43
	Calc Head (ppm)	4.6	4.4	4.4	4.3
	Assay Head (ppm)	4.2	4.2	4.2	4.2
Ag	Dissolution (%)	56	58	65	68
	Residue Assay	8.60	8.70	6.60	6.70
	Calc Head (ppm)	19.6	20.8	18.9	20.7
	Assay Head (ppm)	21.6	21.6	21.6	21.6
Reagent Usage	NaCN (kg/t)	1.37	1.40	1.45	1.99
	Lime (kg/t)	1.68	1.46	1.77	3.93

Viscosity Testwork

Viscosity testwork was completed at grind P_{80}'s of 75µm and 45µm, both at 42% solids using site water. Figure 1 shows the viscosity and shear stress profiles at each grind size. The profiles indicate that viscosity was low at 42% solids at both grind sizes.

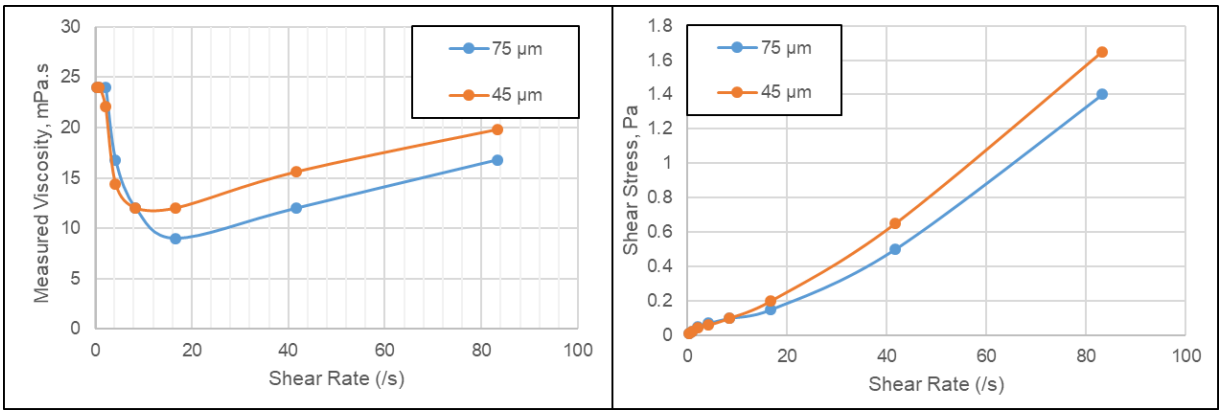


Figure 1. Viscosity and Shear Stress for Oxide Ore

Comminution

A standard Bond Ball Work Index test was completed to determine the hardness of the ore. The results showed that the ore was fairly soft with:

Bond Ball Mill Work Index	**10.6**	Kilowatt hours/dry tonne
P_{80} of the feed	1917	µm
Product P_{80}	78	µm

Table of Contents

1. Sample Receipt and Preparation

Five bags of core samples were received from various drill holes with a total weight of 59.2kg. Details are shown in Table 2. Approximately 40 Lt of site water was also received, half from VB Pit and half from Boags Pit. The water samples were combined for use in the testwork. Both water samples were reasonably clear with only a small amount of settled solids. The pH of the combined sample was 7.2.

Table 2. Oxide Composite Composition

Drill Hole	M from	M to	Ore type	Weight (kg)
SWKRCDD018	86.5	90.5	Oxide	7.7
SWKRCDD014	81.7	88.0	Oxide	10.0
EMRCDD014	86.0	93.0	Oxide	14.0
EMRCDD080	101.0	105.6	Oxide/Transition	9.1
EMDD004	62.0	77.0	Oxide	18.4
		Total weight Oxide Composite		59.2

All of the received drill hole samples were combined in their entirety and the composite sample was control crushed to 100% passing 3.35mm. The composite was then blended thoroughly and riffle split into 1kg testwork portions. The sample was designated as Oxide Composite.

2. Head Assay

A head sample was split from one of the testwork portions and pulverised for assay. The head sample and all subsequent testwork products were sent to ALS Brisbane for assay. Head assays included:

Au by fire assay

S by leco

33 element scan by 4 acid digest with ICP-AES finish.

The results are summarised in Table 3.

Table 3. Head Assays for Oxide Composite

Method	Element	Units	Oxide Comp
Au-AA27	Au	ppm	4.16
S-IR08	S	%	0.06
ME-ICP61	Ag	ppm	21.6
ME-ICP61	Al	%	0.38
ME-ICP61	As	ppm	1505
ME-ICP61	Ba	ppm	200
ME-ICP61	Be	ppm	<0.5
ME-ICP61	Bi	ppm	<2
ME-ICP61	Ca	%	0.03
ME-ICP61	Cd	ppm	0.8
ME-ICP61	Co	ppm	3
ME-ICP61	Cr	ppm	95
ME-ICP61	Cu	ppm	45
ME-ICP61	Fe	%	5.57
ME-ICP61	Ga	ppm	<10
ME-ICP61	K	%	0.12
ME-ICP61	La	ppm	<10
ME-ICP61	Mg	%	0.03
ME-ICP61	Mn	ppm	129
ME-ICP61	Mo	ppm	2
ME-ICP61	Na	%	0.06
ME-ICP61	Ni	ppm	13
ME-ICP61	P	ppm	60
ME-ICP61	Pb	ppm	363
ME-ICP61	S	%	0.07
ME-ICP61	Sb	ppm	102
ME-ICP61	Sc	ppm	3
ME-ICP61	Sr	ppm	44
ME-ICP61	Th	ppm	<20
ME-ICP61	Ti	%	0.27
ME-ICP61	Tl	ppm	<10
ME-ICP61	U	ppm	<10
ME-ICP61	V	ppm	22
ME-ICP61	W	ppm	10
ME-ICP61	Zn	ppm	69

3. Grind Determinations

Trial grinds were conducted on 1 kg portions at 50% solids to determine the required grind times for P_{80}'s of 106, 75 and 45µm. The grinds were carried out in a stainless steel rod mill. Each grind was screen sized to determine the P_{80} and a plot of grind P_{80} vs grind time was established as shown in Figure 2.

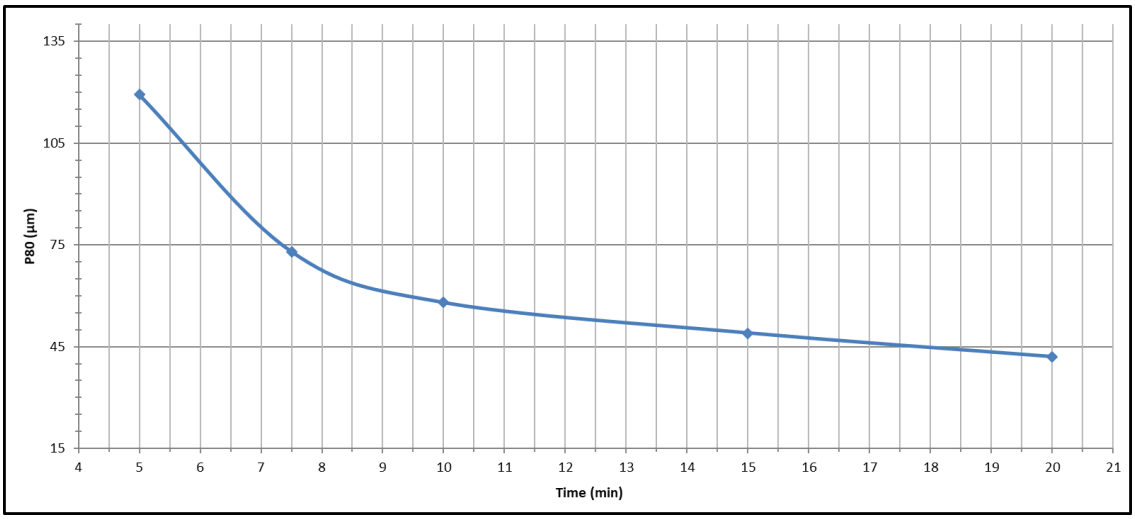


Figure 1. Grinding curve for Oxide Composite

A summary of required grind times is shown in Table 4 and the full trial grind data sheets are shown in Appendix 1.

Table 4. Grind Time Summary

Oxide Composite			
Target P_{80} µm	106	75	45
Grind Time (min)	5.6	7.4	17.7

4. Leach Testwork

4.1. Grind Series – Kinetic Leach

Three leach tests were conducted at P_{80}'s of 106, 75 and 45 µm under the following conditions:

- Stirred test at 40% solids using site water
- pH raised to 10 with lime
- Starting NaCN concentration of 0.1%, maintain above 0.05%
- Total residence time of 24 hours taking liquor samples at 2, 4, 8 and 24 hours
- Monitor pH, DO and NaCN concentration at each liquor sampling time

The results are summarised in Table 5 and the full data sheets are shown in Appendix 2. The dissolution of both Au and Ag increased with a decrease in nominal grind size, an increase in Au dissolution of 8% was achieved by grinding from 106 µm to 45 µm, at the same difference in grind size, an increase of 9% in Ag dissolution was achieved. NaCN consumption follows the same trend as dissolution however lime consumption was a bit more sporadic.

Table 5. Oxide Composite Grind Series Leach Data

Test Number Feed Grind P_{80}		KL1 106 µm	KL2 75 µm	KL3 45 µm
Au	Dissolution (%)	86	90	94
	Residue Assay	0.63	0.46	0.25
	Calc Head (ppm)	4.6	4.4	4.4
	Assay Head (ppm)	4.2	4.2	4.2
Ag	Dissolution (%)	56	58	65
	Residue Assay	8.60	8.70	6.60
	Calc Head (ppm)	19.6	20.8	18.9
	Assay Head (ppm)	21.6	21.6	21.6
Reagent Usage	NaCN (kg/t)	1.37	1.40	1.45
	Lime (kg/t)	1.68	1.46	1.77

The Au and Ag dissolution was plotted against the P_{80} of the feed material to generate Figure 3, which depicts the dissolution trend.

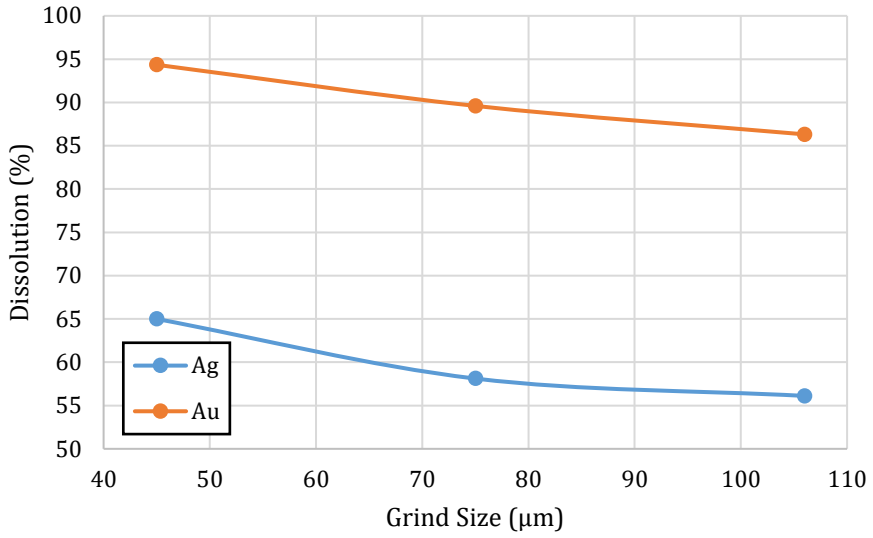


Figure 3. Grind Size vs Dissolution for Oxide Composite

The kinetic dissolution curves for gold at each grind size are shown in Figure 4. There doesn't appear to be an increase in dissolution rate over the first 2 hours as grind size is decreased. However, as grind size is decreased, dissolution continues to increase after the 2 hour mark. Over 97% of the total dissolution has occurred by the 8-hour point in the test at all grind sizes.

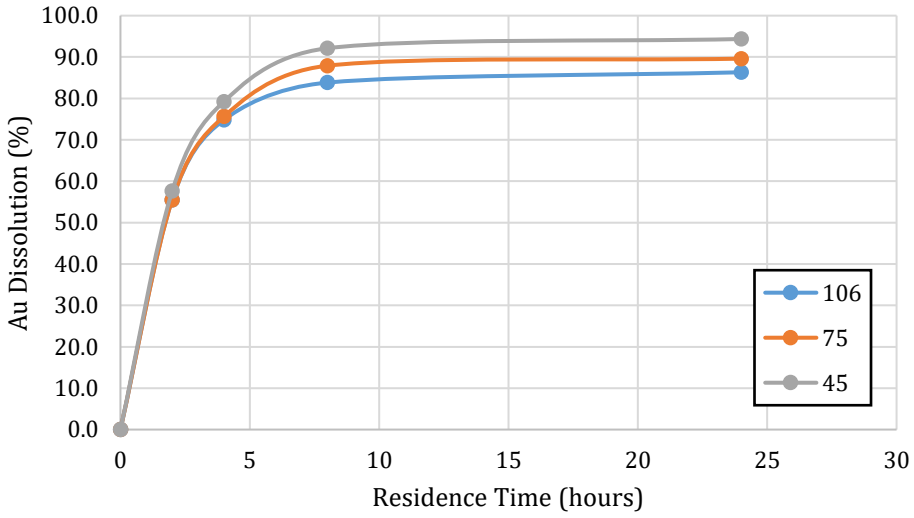


Figure 4. Au Dissolution vs Time

Figure 5 shows the kinetic dissolution of Ag, the difference in the slopes of the curves in the 0-2 hour section of the graph indicates that the reaction rate was increased by the grinding size reduction, most significantly when the P_{80} was reduced to 45 µm.

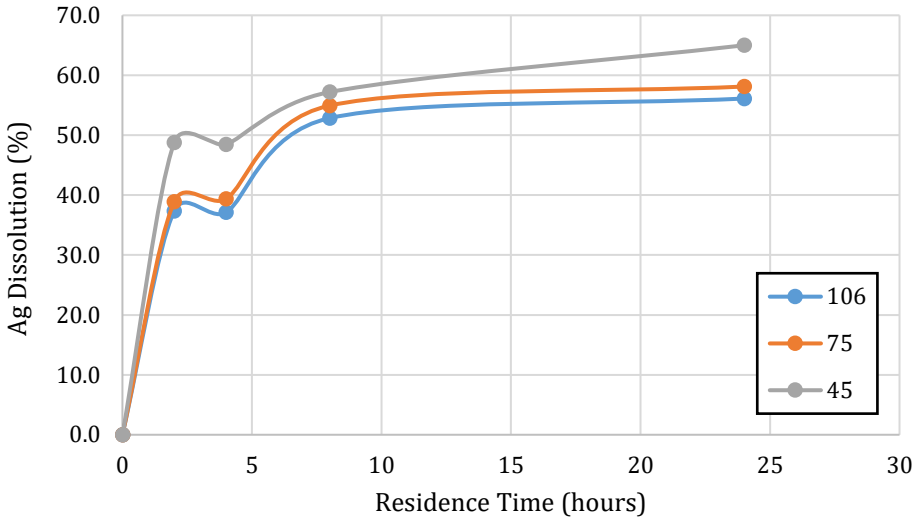


Figure 5. Ag Dissolution vs Time

4.2. Preg Robbing – CIL Test

A carbon-in-leach (CIL) test was conducted at a feed P_{80} of 75 µm under the same conditions as the 75 µm grind series test with the following exceptions:

- Bottle roll rather than stirred
- 15g activated carbon
- No kinetic liquor sampling

The results are tabulated in Table 6 and the full data sheet for the CIL test is shown in Appendix 2. Gold dissolution remained consistent between the CIL and kinetic tests suggesting that there was no preg robbing. However, the Ag dissolution was significantly increased in the CIL test which could indicate that there was some silver dropping out of solution in the kinetic tests.

Table 6. Leach Results for CIL and Standard Test

Test Number Feed Grind P_{80}		KL2 75 µm	CIL1 75 µm
Au	Dissolution (%)	90	90
	Residue Assay	0.46	0.43
	Calc Head (ppm)	4.4	4.3
	Assay Head (ppm)	4.2	4.2
Ag	Dissolution (%)	58	68
	Residue Assay	8.70	6.70
	Calc Head (ppm)	20.8	20.7
	Assay Head (ppm)	21.6	21.6
Reagent Usage	NaCN (kg/t)	1.40	1.99
	Lime (kg/t)	1.46	3.93

5. Viscosity Testwork

Viscosity testwork was conducted using a Brookfield dial viscometer model RVT. Samples were ground to the required P_{80}'s and three dial readings were taken at each shear rate on different revolutions. Site water was used in each test. An average was taken from these values and was used to generate the viscosity vs shear rate and shear stress vs shear rate graphs in Figure 6. The full data sheets are shown in Appendix 3.

A decrease in particle size led to an increase in viscosity, however these changes were reasonably low as was the overall viscosity at this solids density. The samples were in both cases prone to settling quite quickly which made accurate measurements difficult.

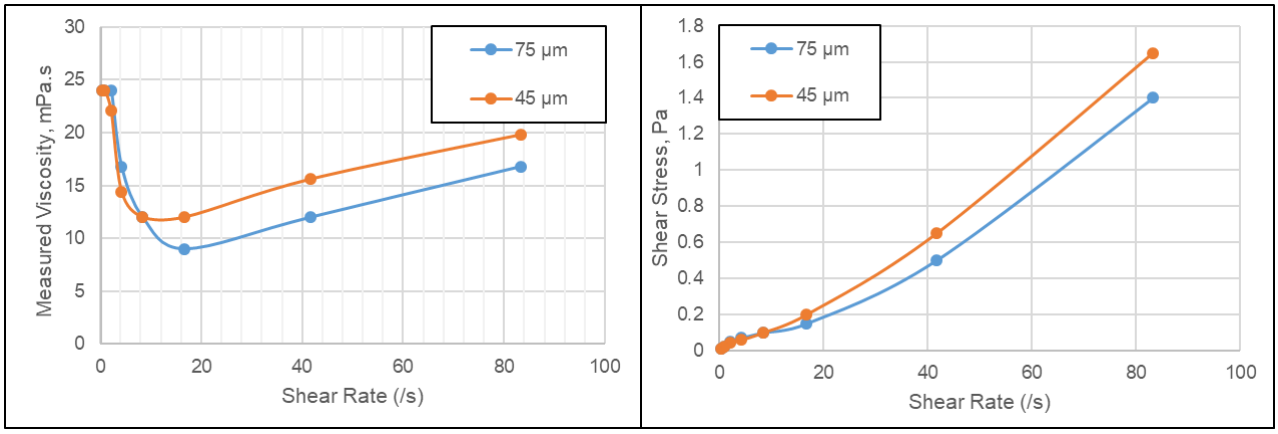


Figure 6. Rheology Curves for Oxide Composite

6. Comminution

A standard Bond Ball Work Index test was completed to determine the hardness of the ore with a target product size of P_{80} = 75µm. The full data sheet is shown in Appendix 4 and the results are summarised in Table 7. The work index was found to be 10.6 kWh/dry tonne which translates to a soft/medium ore hardness.

Table 7. Bond Ball Mill Work Index Summary

% PRODUCT IN THE FEED	24.0	%
IDEAL POTENTIAL PRODUCT	348.0	(g)
BULK DENSITY	1.740	(t/m3)
AVG % CIR. LOAD	254.1	%
AVG PRODUCT	1.992	(g/rev)
80% PASSING FEED SIZE	1917	(µm)
80% PASSING PROD'T SIZE	78	(µm)
BOND BALL MILL WORK INDEX (Kilowatt hours/dry tonne) :		**10.6**

Appendix 1 – Grind Establishment

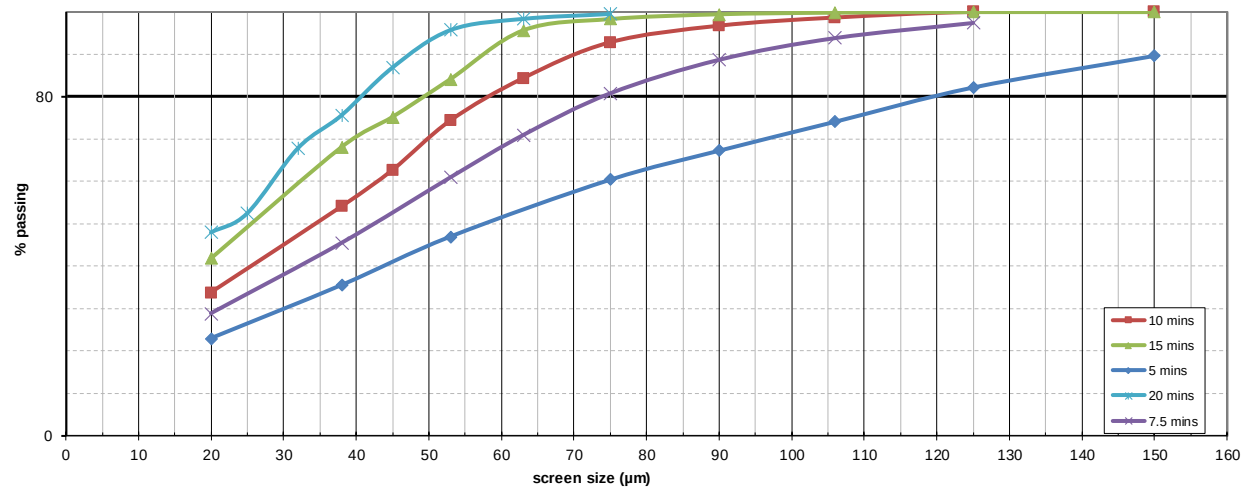
AMML **Trial Grind Data Sheet**

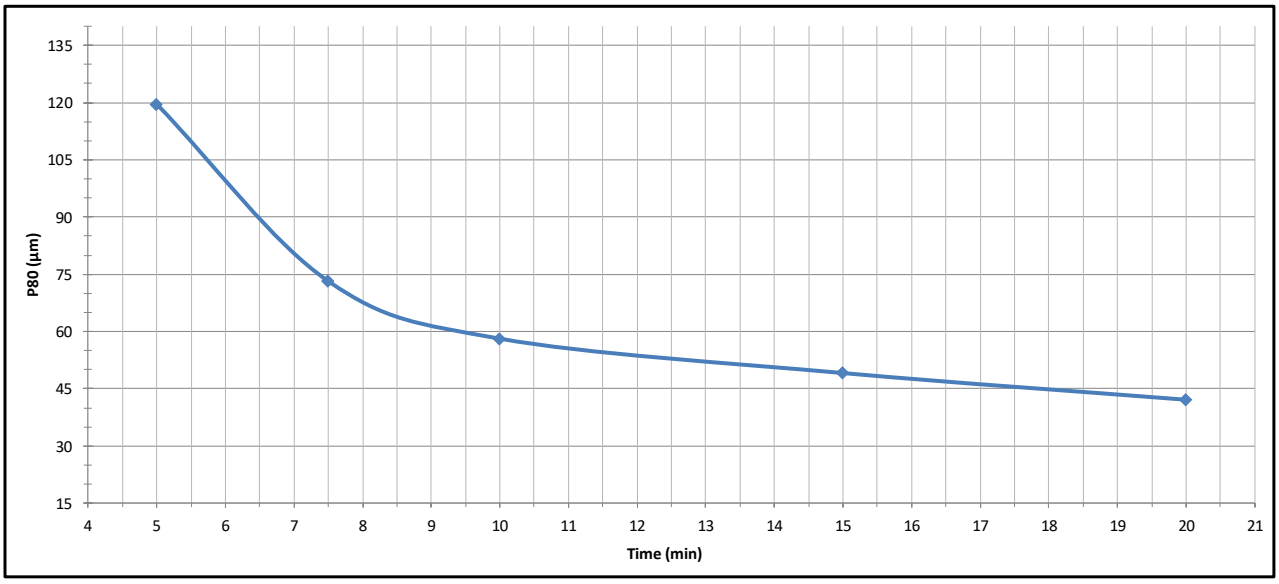
Australian Minmet Metallurgical Laboratories Pty Ltd

PROJECT NO.:	1039	**GRINDING MILL #:**	3		
PROJECT NAME:	ALT Resources	**RPM:**	60		
SAMPLE:	Oxide Ore	**RODS:**	17 (11/6)	SS Rod	
DATE:	4-Jan-19	**ROD CHARGE (kg)**	14.464		
OPERATOR:	NW	**SOLIDS (g):**	1000		
PROGRESSIVE?	NO	**WATER (mL):**	1000		
		GRIND % SOLIDS:	50		

Time (min)	P80 (µm)
5.0	119
7.5	73
10.0	58
15.0	49
20.0	42
Target P80	**106, 75, 60, 45**
Time (min)	**5.6, 7.4, 9.4 ,17.7**

Screen (µm)	5 mins			10 mins			15 mins			7.5 mins		
	Mass (g)	Mass %	% passing	Mass (g)	Mass %	% passing	Mass (g)	Mass %	% passing	Mass (g)	Mass %	% passing
150	20.3	10.3	89.7	0.00	0.00	100.0	0.00	0.00	100.0		0.00	100.0
125	14.8	7.48	82.3	0.00	0.00	100.0	0.00	0.00	100.0	5.06	2.50	97.5
106	16.0	8.09	74.2	2.56	1.32	98.7	0.26	0.13	99.9	7.25	3.57	93.9
90	13.6	6.85	67.3	3.73	1.93	96.8	0.73	0.38	99.5	10.4	5.14	88.8
75	13.6	6.86	60.5	7.56	3.90	92.8	2.18	1.13	98.4	16.1	7.93	80.9
63		0.00	60.5	16.4	8.48	84.4	5.18	2.68	95.7	20.0	9.87	71.0
53	26.6	13.4	47.0	19.3	9.96	74.4	22.2	11.5	84.2	20.2	9.98	61.0
45		0.00	47.0	22.7	11.7	62.7	17.3	8.95	75.3		0.00	61.0
38	22.7	11.5	35.6	16.6	8.59	54.1	13.7	7.09	68.2	31.4	15.5	45.5
20	24.9	12.6	23.0	39.3	20.3	33.8	50.8	26.3	41.9	33.8	16.7	28.9
-20	45.5	23.0		65.5	33.8		81.0	41.9		58.6	28.9	
Total	197.8	100.0		193.7	100.0		193.4	100.0		202.8	100.0	





Appendix 2 – Leach Data Sheets

AMML — Cyanidation Test Data Sheet

IDENTIFICATION		GRIND			LEACH	
Project:	1039	**Sample weight (g):**	1000		**Sample weight (g):**	1000
Sample:	Oxide Ore	**Water (mls):**	1000		**Water (mls):**	1500
Objective:	**0.1% NaCN**	**Mill:**	SS Rod	(mill 3)	**% solids:**	40
	Stirred kinetic leach	**% solids:**	50			
		Grind minutes:	5.6		**Date:**	09-Jan-19
Test Number:	KL1	**Target P_{80} (µm):**	106		**Operator:**	NW

Time hours	NaCN grams	hyd.lime grams	pH	diss. O2 mg/l	% NaCN	liquor mls	sample mls	mg/l Au	mg/l Ag	extr'n % Au	extr'n % Ag
		1.38	7.2	8.0							
0	1.50	0.91	10.0	7.8						0.0	0.0
2			9.9	8.9	0.074	1494	22.9	1.71	4.9	55.5	37.4
4		0.77	9.8	8.4	0.070	1461	29.0	2.33	4.9	74.8	37.1
8	0.36		9.7	8.3	0.056	1443	31.8	2.60	7.0	83.8	52.8
24			9.7	8.6	0.032	1366		2.77	7.7	86.3	56.1

RESIDUE ASSAYS

	g/t Au	ppm Ag
Assay 1	0.63	8.6

COMMENTS

Gold, silver, NaCN removed in sub-samples taken into account in balance
Initial NaCN 0.1%, maintain above 0.05%

GOLD METALLURGICAL BALANCE

product	amount	assay	mg Au	dist. %
	g	g/t Au		
liquor	1366	2.77	3.97	86.3
residue	1000	0.63	0.63	13.7
total		4.60	4.6	100.0

DISSOLUTION % SUMMARY

	Au	Ag
calculated	86.3	56.1

SILVER METALLURGICAL BALANCE

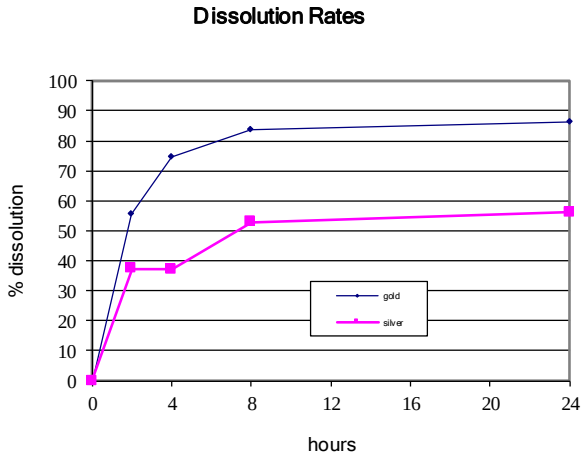
product	amount	assay	mg Ag	dist. %
	g	g/t Ag		
liquor	1366	7.7	11.00	56.1
residue	1000	8.6	8.60	43.9
total		19.6	19.60	100.0

REAGENT CONSUMPTION

kg/t NaCN	1.37
kg/t hyd. lime	1.68

HEAD ASSAYS COMPARISON

	g/t Au	g/t Ag
assay	4.16	21.6
calculated	4.60	19.6



AMML Cyanidation Test Data Sheet

IDENTIFICATION		GRIND			LEACH	
Project:	1039	**Sample weight (g):**	1005		**Sample weight (g):**	1005
Sample:	Oxide Ore	**Water (mls):**	1000		**Water (mls):**	1513
Objective:	**0.1% NaCN**	**Mill:**	SS Rod	(mill 3)	**% solids:**	40
	Stirred kinetic leach	**% solids:**	50			
		Grind minutes:	7.4		**Date:**	09-Jan-19
Test Number:	KL2	**Target P_{80} (µm):**	75		**Operator:**	NW

Time hours	NaCN grams	hyd.lime grams	pH	diss. O2 mg/l	% NaCN	liquor mls	sample mls	mg/l Au	mg/l Ag	extr'n % Au	extr'n % Ag
		1.39	7.2	8.3							
0	1.51	0.67	10.0	7.1						0.0	0.0
2			9.9	8.8	0.082	1504	23.7	1.64	5.4	55.5	38.9
4		0.80	9.8	8.3	0.070	1470	26.1	2.26	5.5	75.6	39.3
8	0.42		9.8	8.4	0.052	1454	26.0	2.62	7.7	87.9	54.9
24			9.7	8.3	0.034	1388		2.75	8.4	89.6	58.1

RESIDUE ASSAYS

	g/t Au	ppm Ag
Assay 1	0.46	8.7

COMMENTS

Gold, silver, NaCN removed in sub-samples taken into account in balance
Initial NaCN 0.1%, maintain above 0.05%

GOLD METALLURGICAL BALANCE

product	amount	assay	mg Au	dist. %
	g	g/t Au		
liquor	1388	2.75	3.98	89.6
residue	1005	0.46	0.46	10.4
total		4.4	4.4	100.0

DISSOLUTION % SUMMARY

	Au	Ag
calculated	89.6	58.1

SILVER METALLURGICAL BALANCE

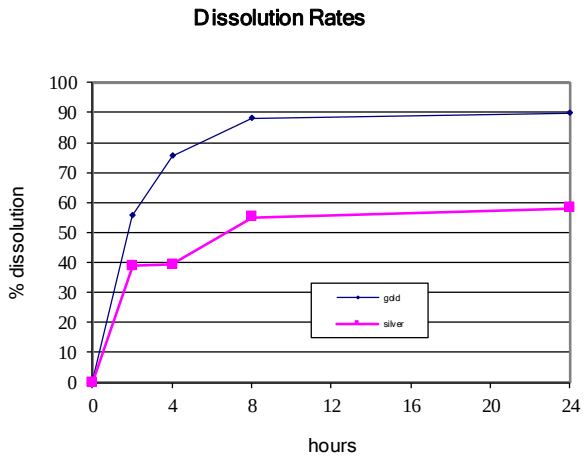
product	amount	assay	mg Ag	dist. %
	g	g/t Ag		
liquor	1388	8.4	12.13	58.1
residue	1005	8.7	8.74	41.9
total		20.8	20.87	100.0

REAGENT CONSUMPTION

kg/t NaCN	1.40
kg/t hyd. lime	1.46

HEAD ASSAYS COMPARISON

	g/t Au	g/t Ag
assay	4.16	21.6
calculated	4.42	20.8



AMML Cyanidation Test Data Sheet

IDENTIFICATION		GRIND			LEACH	
Project:	1039	**Sample weight (g):**	1002		**Sample weight (g):**	1002
Sample:	Oxide Ore	**Water (mls):**	1000		**Water (mls):**	1503
Objective:	**0.1% NaCN**	**Mill:**	SS Rod	(mill 3)	**% solids:**	40
	Stirred kinetic leach	**% solids:**	50			
		Grind minutes:	17.7		**Date:**	09-Jan-19
Test Number:	KL3	**Target P_{80} (µm):**	45		**Operator:**	NW

Time hours	NaCN grams	hyd.lime grams	pH	diss. O2 mg/l	% NaCN	liquor mls	sample mls	mg/l Au	mg/l Ag	extr'n % Au	extr'n % Ag
		1.54	7.1	7.4							
0	1.50	0.89	10.0	7.5						0.0	0.0
2			9.9	8.7	0.080	1511	23.8	1.69	6.1	57.6	48.8
4		0.88	9.8	8.1	0.068	1477	26.6	2.35	6.1	79.2	48.5
8	0.45		9.8	8.4	0.050	1458	31.2	2.73	7.2	92.1	57.2
24			9.6	8.4	0.032	1382		2.89	8.5	94.3	65.0

RESIDUE ASSAYS

	g/t Au	ppm Ag
Assay 1	0.25	6.6

COMMENTS

Gold, silver, NaCN removed in sub-samples taken into account in balance
Initial NaCN 0.1%, maintain above 0.05%

GOLD METALLURGICAL BALANCE

product	amount	assay	mg Au	dist. %
	g	g/t Au		
liquor	1382	2.89	4.18	94.3
residue	1002	0.25	0.25	5.7
total		4.42	4.4	100.0

DISSOLUTION % SUMMARY

	Au	Ag
calculated	94.3	65.0

SILVER METALLURGICAL BALANCE

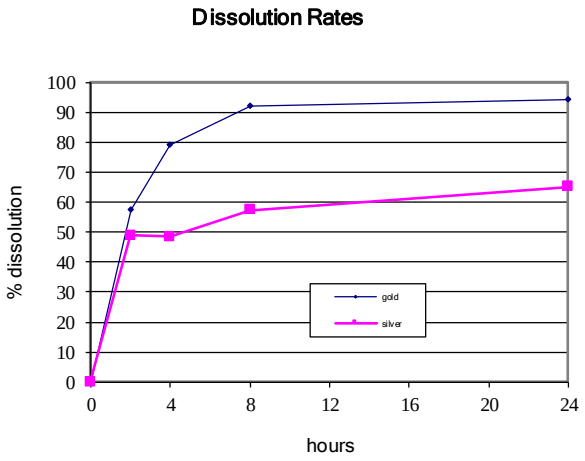
product	amount	assay	mg Ag	dist. %
	g	g/t Ag		
liquor	1382	8.5	12.28	65.0
residue	1002	6.6	6.61	35.0
total		18.9	18.89	100.0

REAGENT CONSUMPTION

kg/t NaCN	1.45
kg/t hyd. lime	1.77

HEAD ASSAYS COMPARISON

	g/t Au	g/t Ag
assay	4.16	21.6
calculated	4.42	18.9



AMML Cyanidation Test Data Sheet

IDENTIFICATION		GRIND		LEACH	
Project:	1039	**Sample weight (g):**	998	**Sample weight (g):**	998
Sample:	Oxide Ore	**Water (mls):**	1000	**Water (mls):**	1497
Objective:	**CIL test for preg robbing 0.1% NaCN**	**Mill:**	SS Rod (mill 3)	**% solids:**	40
		% solids:	50		
		Grind minutes:	7.4	**Date:**	09-Jan-19
Test Number:	CIL1	**Target P_{80} (µm):**	75	**Operator:**	NW

Time hours	carbon grams	NaCN grams	hyd.lime grams	pH	diss. O2 mg/l	% NaCN	liquor mls	mg/l Au	mg/l Ag	extr'n % Au	extr'n % Ag
			2.07	7.4	8.7						
0	15.0	1.50		9.9	8.5					0.00	0.00
4		0.86	1.85	9.7	7.7	0.064	1493			0.0	0.0
24				9.6	8.4	0.026	1435	0.01	0.20	0.00	0.00

ASSAYS				
			Assay 1	Assay 2
	residue	g/t Au	0.43	
		g/t Ag	6.70	
	carbon	g/t Au	257	258
		g/t Ag	915	915

COMMENTS

GOLD METALLURGICAL BALANCE				
sample	**amount**	**assay**	**mg Au**	**dist. %**
		g/t Au		
carbon	15.0	257.5	3.86	89.8
liquor	1435	0.01	0.01	0.2
residue	998	0.43	0.43	10.0
	total	4.30	4.30	100.0

SILVER METALLURGICAL BALANCE				
sample	**amount**	**assay**	**mg Ag**	**dist. %**
		g/t Ag		
carbon	15.0	915	13.7	66.3
liquor	1435	0.2	0.3	1.4
residue	998	6.7	6.7	32.3
	total	20.7	20.7	100.0

REAGENT CONSUMPTION	
kg/t NaCN	1.99
kg/t hyd. lime	3.93

HEAD ASSAYS COMPARISON		
	Au	**Ag**
assay	4.16	21.6
calculated	4.30	20.7

Appendix 3 – Viscosity Data Sheet

AMML **Viscosity Test Results**

Australian Minmet Metallurgical Laboratories Pty Ltd

PROJECT:	1039	**GRIND P80:**	See Below
SAMPLE:	Oxide Ore	**% SOLIDS:**	42%
DATE:	8/01/19		
OPERATOR:	NW	**PULP TEMP:**	24.0 °C

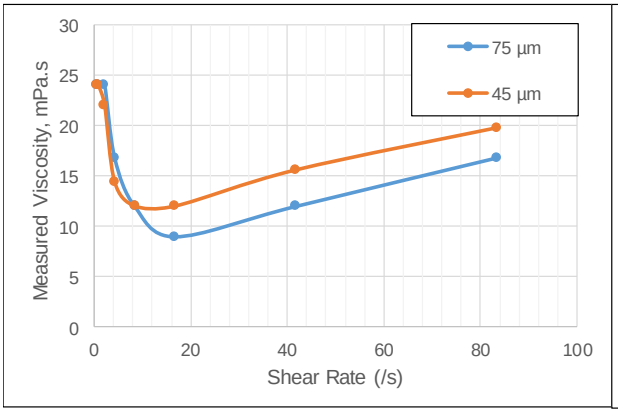
Testwork completed using Brookfield dial viscometer, Model RVT

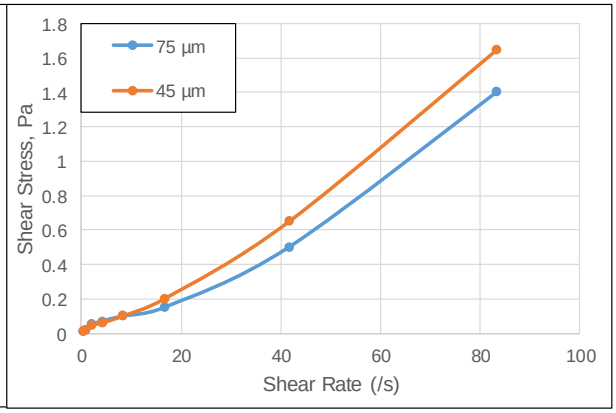
75 µm

Shear Rate s^{-1}	Spindle No.	Dial Reading	Viscosity mPa.s	Shear Stress Pa	Torque mNm
0.4	1	0.1	24	0.01	0.001
0.8	1	0.2	24	0.02	0.001
2.1	1	0.5	24	0.1	0.004
4.2	1	0.7	17	0.1	0.005
8.3	1	1	12	0.1	0.007
16.7	1	1.5	9	0.2	0.011
41.7	1	5	12	0.5	0.036
83.3	1	14	17	1.4	0.101

45 µm

Shear Rate s^{-1}	Spindle No.	Dial Reading	Viscosity mPa.s	Shear Stress Pa	Torque mNm
0.4	1	0.1	24	0.01	0.001
0.8	1	0.2	24	0.02	0.001
2.1	1	0.46	22	0.0	0.003
4.2	1	0.6	14	0.1	0.004
8.3	1	1	12	0.1	0.007
16.7	1	2	12	0.2	0.014
41.7	1	6.5	16	0.7	0.047
83.3	1	16.5	20	1.7	0.119





Appendix 4 – Bond Ball Work Index Data Sheet

AMML

Bond Ball Work Index Data Sheet

Australian Minmet Metallurgical Laboratories Pty Ltd

PROJECT NO. :	**1039**	**UNIT WEIGHT:**	**Weight (g)**	**1218**	
DATE :	**15/01/19**		**Volume (mL)**	**700**	
SAMPLE :	**Oxide Ore**		**Unit Weight**	**1218**	
OPERATOR :	**AB**				
TEST APETURE (µm):	**106**	**INITIAL REVS**		**150**	

Work Index procedures taken from B.H. Bergstrom, SME Mineral Processing Handbook, §30 (pp. 67-68)

PERIOD	TIME IN Mill	WT OF 700 mL (g)	WT OF NEW FEED (g)	WT OF O/SIZE (g)	WT OF U/SIZE (g)	NET WT OF U/SIZE (g)	NET WT OF U/SIZE PER REV (g)	CIRC'TING LOAD (%)	WT OF FRESH FEED ADDED TO NEXT CYCLE (g)	WT OF U/SIZE IN FEED TO NEXT CYCLE (g)
1	123	1218	1218	654	564	272	1.8	116.0	564	135
2	96	1218	564	843	375	240	2.0	224.8	375	90
3	104	1218	375	875	343	253	2.0	255.1	343	82
4	109	1218	343	873	345	263	2.0	253.0	345	83
5	110	1218	345		1218	1135	8.5	0.0	1218	292

% PRODUCT IN THE FEED	24.0	%
IDEAL POTENTIAL PRODUCT	348.0	(g)
BULK DENSITY	1.740	(t/m3)
AVG % CIR. LOAD	254.1	%
AVG PRODUCT	1.992	(g/rev)
80% PASSING FEED SIZE	1917	(µm)
80% PASSING PROD'T SIZE	78	(µm)

BOND BALL MILL WORK INDEX (Kilowatt hours/dry tonne) : **10.6**

BOND BALL MILL GRINDABILITY TEST FEED AND PRODUCTS SIZINGS

FEED TO PERIOD No. 1

Size (µm)	Weight (g)	Retained (%)	Passing (%)
		0.0	100
		0.0	100
2360	56.5	11.6	88.366637
2000	31.7	6.5	81.843064
1400	69.7	14.3	67.49326
850	68.6	14.1	53.376001
600	34.8	7.2	46.208302
300	51.2	10.5	35.680036
212	22.2	4.6	31.109419
106	34.6	7.1	23.98082
-	116.5	24.0	
TOTAL	485.9	100.0	

F 80 (µm) : 1917

EQUILIBRIUM PRODUCT

Size (µm)	Weight (g)	Retained (%)	Passing (%)
		0.0	100
106	6.5	1.9	98.08392019
90	34.9	10.2	87.83744131
75	33.9	10.0	77.87852113
63	35.7	10.5	67.40316901
53	28.0	8.2	59.19014085
45	25.9	7.6	51.59330986
38	18.4	5.4	46.18838028
-	157.4	46.2	
TOTAL	340.8	100.0	

P 80 (µm) : 78

FEED SIZING CALCULATION

	SIZE (µm)	Wt. PASSING (%)
HIGH	2000	81.8
LOW	1400	67.5

P80 µm = 1917.5

PRODUCT SIZING CALCULATION

	SIZE (µm)	Wt. PASSING (%)
HIGH	90	87.8
LOW	75	77.9

P80 µm = 78.1