



Middle Island Resources Limited ACN 142 361 608

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Middle Island Resources Ltd ACN 142 361 608 ASX code: MDI www.middleisland.com.au

Capital Structure: 698 million ordinary shares 38,300,000 unlisted options

Cash

\$2.0m* (as at 31 December 2017) *After \$0.5m deferred Sandstone acquisition payment made in advance.

Directors & Management: Peter Thomas Non-Executive Chairman Rick Yeates Managing Director Beau Nicholls

Non-Executive Director **Dennis Wilkins** Company Secretary

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ASX Release – 15 January 2018

Outstanding results from Ore Sorting trials on the Two Mile Hill tonalite deeps deposit at the Sandstone gold project, WA

- Positive Ore Sorting testwork campaign demonstrates Two Mile Hill Tonalite Deeps deposit amenable to pre-concentration sorting, with a high selectivity of gold mineralisation using X-ray and optical sensors.
- Scoping level testwork indicates that sorting can deliver a 185%-257% increase in grade with gold recoveries in excess of 93%.
- Up to 64% of the sorter feed material may be rejected delivering significant benefits, including reduced haulage and process operating costs, and tailings disposal and water requirements.
- POW lodged to provide PQ diameter diamond core for more definitive testwork on larger composite samples.
- Multistage XRT/Colour/Laser sorting being scheduled to qualify the positive results received from initial testwork.
- Validation would likely lead to a significant positive impact on project economics.
- Two Mile Hill tonalite deeps deposit is located 4km north of the Company's 600,000tpa Sandstone gold processing plant and comprises an Exploration Target of 24Mt to 34Mt at 1.1g/t to 1.4g/t Au (0.9M-1.5Moz of gold).
- The indicative ore sorting results will be incorporated into an underground mining concept study to be prepared during the March quarter.



SANDSTONE GOLD PROJECT (WA)

Initial Ore Sorting Trials- Two Mile Hill Tonalite Deeps Deposit

Middle Island Resources Limited (Middle island, MDI or the Company) is pleased to advise that it has received positive results from preliminary ore sorting testwork conducted on drill core from the Two Mile Hill tonalite deeps deposit at the Company's 100% owned Sandstone gold project in WA.

The Two Mile Hill tonalite deeps deposit is located 4km north of the Company's 600,000tpa Sandstone gold processing plant. The deposit comprises an Exploration Target of 24Mt to 34Mt at 1.1g/t to 1.4g/t Au (0.9M-1.5Moz of gold - refer ASX Release 29 November 2017) situated between 140m and 700m vertical depth, below which it remains open.

An ore sorting study was initiated following encouraging mineralogical assessment on ore sourced from the Two Mile Hill deeps deposit (refer ASX release 11 October 2017). The aims of the test work were to determine if a mill feed upgrade was achievable and the optimum processing route to do so.

Continuous intervals of quarter NQ2 core from four selected holes were compiled by Middle Island for sorting trials completed by Tomra (Sydney) and Steinert (Perth). The selection process for testwork intervals did not apply an upper cut-off grade, with the drilled composite grade averaging 3.44g/t Au based on 50g fire assay analyses.

The drill core was combined and then lightly jaw crushed (-30mm/+10mm) to produce a suitable feed size for sorting. The -10mm material (fines) is deemed mill feed.

Screening, sampling and assaying on the Tomra sorting products was undertaken by Australian Laboratory Services (ALS) in Perth. Sample splits for the Tomra gold assays were undertaken on +10mm products, as the material was subsequently re-combined for the following Steinert sorting trials. Sampling and assays on the Steinert sorting products were undertaken by the Nagrom metallurgical laboratory in Perth. The Steinert products were crushed to -2mm before 1kg sub-samples were split for gold analysis.

With one exception, all product and reject gold analyses involved 1kg bottle rolls with AAS readings and residue assays.

Ore Sorting Background

Ore Sorting is a simple pre-concentration process that facilitates 'upgrading' of ore and mineralised waste. Examples of sorting operations (diamonds, uranium, tungsten) in mining can be traced back more than 25 years. However, significant recent improvements in sorting technology (sensors and data processing speed) have broadened the potential application of the process. Sorting is particularly effective for managing dilution from mining operations, upgrading low grade stockpiles, reducing haulage costs for satellite operations and, most importantly, improving processing costs and efficiencies.

Nexus Bonum Pty Ltd, a consulting group with considerable experience in sorting technology and its application to mining projects, has been retained by Middle Island to advise on all aspects of the sorting programme.





Key elements of Ore Sorting technology include:-

- High-tech sensors to identify ore and waste, based on a range of technologies including X-ray, Electromagnetic, Colour, Laser and Near-Infrared.
- High speed processing of information (material, shape, size, colour, and location of objects).
- Precise sorting by air jets or mechanical fingers.
- Product specific equipment design, often including multiple sensors to maximise sorting efficiency.

The Ore Sorting process and technology are presented in diagrammatic form in Figure 1 below.



Courtesy Tomra

Tomra Testwork

The Tomra testwork, summarised in Table 1 below, was undertaken on 78kg of -30mm/+10mm material following screening to remove fines. A primary sort using X-ray transmission (XRT) was followed by a Colour scavenge on the product and waste fractions generated.

Table 1 Tomra Ore Sorting testwork summary			
Composite Sample Fraction	Gold (g/t)	Mass (%)	Gold (%)
Screened Fines -10mm (Product)	6.38	7.3%	19.4%
XRT (Product)	6.41	24.0%	64.5%
XRT (Waste)/Colour (Product)	3.03	9.7%	12.3%
XRT (Waste)/Colour (Waste)	0.15	59%	3.7%
Total	2.38	100%	100%
Fines + Ore Sorter Product	5.61g/t	41%	96.3%
Waste	0.15g/t	59%	3.7%

Note: 1,000g bottle rolls and residue assays were used for all analyses, except the XRT Product/Colour Waste fraction, which employed a 500g bottle roll due to the limited fraction size. Screening, sampling and analyses were completed by Australian Laboratory Services (ALS) Perth.



The -10mm screen upgrade to 6.38g/t Au is significant as it recovered 19.4% of the gold in just 7.3% of the mass in this test. The Tomra results show that 64.5% of the gold was recovered in 24% of the mass by XRT sorting following screening. Colour sorting of the XRT product did not result in any significant further upgrade. However, Colour sorting of the XRT waste fraction recovered a further 12.3% of the gold **to yield a total screening (fines) plus sorting gold recovery of 96.3% in 41% of the mass.**

The data indicates that a mined grade of 2.38g/t Au could be upgraded to a plant feed grade of 5.61g/t Au by screening and XRT/Colour sorting. The waste, at 0.15g/t Au, contained only 3.7% of the gold in 59% of the mass.

Steinert Testwork

A second sorting trial using a Steinert sorter in Perth was carried out to assess if Laser sorting would be more effective than Colour sorting, as Tomra currently do not have a laser sensor on their test unit in Sydney. The Steinert sort, summarised in Table 2 below, was conducted on the recombined Tomra products (73kg), following sub-sampling for gold analyses.

The 73kg recombined composite sample was run through a Laser at different settings to produce two concentrates. The Laser waste fraction was then scavenged twice by the XRT sensor to produce high grade (HG) and medium grade (MG) fractions.

Table 2 Steinert Ore Sorting testwork summary			
Composite Sample Fraction	Gold (g/t)	Mass (%)	Gold (%)
Screened Fines -10mm (Product)	6.38	7.7%	7.1%
Laser (Product Con 1)	9.16	6.0%	8.0%
Laser (Product Con 2)	3.56	8.2%	4.2%
XRT (HG)	15.8	32.6%	74.5%
XRT (MG)	0.29	26.5%	1.1%
Tail	1.83	19.0%	5.0%
Total	6.90	100%	100%
Fines + Ore Sorter Product	11.9g/t	54%	93.9%
Waste (including XRT MG)	0.93g/t	46%	6.1%

Note: 1,000g bottle rolls with residue assays were used for all analytical work. Sampling and analyses by Nagrom metallurgical laboratory Perth.

The Steinert results indicate that 12.2% of the gold was recovered in 14.2% of the mass by Laser (concentrates combined). Scavenging of the Laser waste fraction with XRT recovered a further 75.6% of the gold (HG + MG) to yield a total screening + sorting gold recovery of 95% in 81% of the mass. However, the MG material is below the marginal cut-off for processing and would not be recovered, **resulting in a 93.9% recovery of gold in 54% of the mass**.

It should be noted that a significant difference between the calculated head grades on the Tomra (2.38g/t Au) and Steinert (6.90g/t Au) sorts was observed. This is attributed to sampling differences (coarse and crushed splits for Tomra and Steinert analyses respectively) and the coarse nature of gold within the Two Mile Hill tonalite deeps deposit. This is demonstrated by the presence of visible gold in drill core and high gravity gold recoveries (~60%) returned from metallurgical testwork (ASX release 6 September 2017). While the application of 1,000g bottle roll analyses on ore sorter products serve to mitigate grade inconsistencies, such discrepancies are inevitable in circumstances where coarse, free gold is present.





Middle Island Managing Director, Mr Rick Yeates:

While the ore sorting characterisation testwork is only preliminary, initial results are outstanding, with Nexus Bonum principal, Mr Geoffrey Laing, describing the indicative performance as one of the best he has witnessed.

The opportunity to generate a 185%-257% increase in sorter product grade, whilst retaining >93% of the gold, is an outstanding result. Should this outcome be replicated by more definitive testwork on larger composite samples, ore sorting has the potential to make a significant positive impact on the economics of the Two Mile Hill tonalite deeps deposit. The expected equivalent decrease in unit haulage and mill operating costs will also feed back into the economic mining cut-off grade, thereby potentially increasing the material available for mining and processing.

Ore sorting is a prime example of how new (or enhanced) technologies can transform the economics of mining and processing operations, and Middle Island is proud to be an early adopter of this significant technological opportunity.

A POW application has been lodged in order to complete a large diameter (PQ) diamond core hole to provide material for more definitive ore sorting trials. On the basis of the successful initial ore sorting testwork, a POW has also been lodged to drill out the upper levels of the tonalite deeps deposit (notionally to an Indicated Resource status) to approximately 450m depth, in the first instance.

We look forward to keeping shareholders updated on progress with these exciting programmes and trials on the Two Mile Hill tonalite deeps deposit at the Sandstone gold project during the March and June quarters of 2018.

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Forward Looking Statements

Statements contained in this release, particularly those regarding possible or assumed future performance, costs, dividends, production levels or rates, prices, resources, reserves or potential growth of Middle Island, industry growth or other trend projections are, or may be, forward looking statements. Such statements relate to future events and expectations and, as such, involve known and unknown risks and uncertainties. Actual results and developments may differ materially from those expressed or implied by these forward looking statements depending on a variety of factors.

Competent Persons' Statement

Information in this report relates to exploration and ore sorting trial results based on information compiled by Mr Geoffrey Laing, Mr Hugo Viviani and Mr Rick Yeates. Messrs Laing, Viviani and Yeates are each Members of the Australasian Institute of Mining and Metallurgy. Mr Laing and Mr Viviani are consultants to Middle Island Resources Limited, while Mr Yeates is a fulltime employee of the Company. Each has sufficient experience which is relevant to the nature of work and style of mineralisation under consideration to qualify as Competent Persons as defined in the 2012 edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Messrs Laing, Viviani and Yeates consent to the inclusion in the release of the statements, based on their information, in the form and context in which they appear.

Appendix 1

The following Table and Sections are provided to ensure compliance with the JORC Code **Section 1 Sampling Techniques and Data**

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.	 The diamond drill core samples comprised of quarter NQ core, to create a composite sample for ore sorting test work.
	• Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	• Core recovery was excellent. Core was re-aligned prior to splitting and the left-hand side half core section was consistently sampled. For the quarter core the right-hand side half core was split with the left-hand side core consistently sampled.
	 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. 	• The quarter NQ core was sent to ALS laboratories to be prepared and crushed to +10mm and -30mm size fractions. The -10mm fraction was assayed by 1000gram cyanide bottle roll with an AAS finish and residue assay, and reported as fines. The crushed samples were sent to Tomra and processed through XRT and Colour sorting sensors to create a product and a reject material. A 1,000g course split was taken from each product and waste fraction generated by the Tomra sort, pulverised and assayed via 1,000g bottle roll with an AAS finish and residue assay. The remaining product and waste fractions were re-combined and sent to Steinert for another sort trail using XRT and laser sensors. The final products and waste fractions were pulverised to -2mm and a 1,000g split taken for bottle roll analysis with an AAS finish and residue assay.
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).	• The oriented diamond drill core is NQ (47.6mm) in diameter.

Criteria	JORC Code explanation	Commentary
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. 	 Diamond core recovery data was measured for each drill run/interval and captured in a digital logging software package. The data has been reviewed and the core recovery was effectively 100% throughout. The water table was encountered at a 40 – 60m hole depth but Middle Island had no issues with the water table effecting 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. 	 No relationship between sample recovery and grade has been established.
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. 	 The diamond core was logged for lithology, weathering, structure, mineralogy, mineralisation, alteration, colour, RQD and geotechnical parameters. Logging was carried out according to Middle Island Resources internal protocols at the time of drilling. Diamond core was logged continuously to record all relevant features, regardless of length. Core was also photographed wet and dry within each core tray.

Criteria	JORC Code explanation	Commentary
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. 	 The half core was cut by diamond saw the quarter core retained in the core trays for reference purposes. Quarter core samples were bagged in composite intervals designed to create a sample approximating the perceived average of higher grade zones within the deposit. All samples were collected and taken to the ALS laboratory in Perth, W.A for sample preparation. The samples were dried and crushed to +10mm and -30mm before being sent to Tomra and subsequently Steinert for ore sorting trials. A course split was taken from the Tomra products and waste fractions before the sample was recombined for the Steinert ore sorting trials. All reported Tomra assays were pulverised and completed by the ALS lab in Perth, W.A via 1,000g cyanide bottle rolls with an AAS finish and residue assay. ALS is an internationally accredited laboratory. All reported Steinert assays were completed by Nagrom laboratories in Perth, W.A. Nagrom is an internationally accredited laboratory. Continuous intervals of quarter NQ diamond core were collected and composited from four separate holes (TRCD 727 - 311-327m, TRCD 730 - 201-218m), TRCD 732 - 276-288m and TDD 034 - 182-228m) to create an ore sorting composite sample fully representative of higher grade portions of the deposit.
		of mineralisation.
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. 	 Middle Island Resources, adopted 1,000g bottle rolls with an AAS finish and residue assay for the ore sorting products and waste fractions. This technique is considered suitable for coarse gold mineralisation characterising the deposit. No other measurement tool/instrument was used to derive assays. Not Applicable.

Criteria	JORC Code explanation	Commentary
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. 	 Sampling was undertaken by experienced geologists from Middle Island Resources who confirmed the intersections as prospective for gold mineralisation. Not Applicable Sampling data were imported and validated using a GBIS database software system by an experienced database consultancy. Assay data were not adjusted; however, re-assays were requested on inconsistent results. While suboptimal where coarse gold is anticipated, a coarse split of the Tomra fractions is sub-optimal, but required to preserve the integrity of the re-combined composite sample prior to the Steinert sorting trials. The Steinert assays were derived from splits of material reduced to -2mm. As a result of the differing splitting sizes, and the known coarse gold in the deposit, inconsistencies in assay results between the Tomra and Steinert sorts are evident, but all possible steps were adopted to mitigate these inconsistencies.
Location of data points	 Accuracy and quality of surveys used to locate drill holes (collar and downhole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. Specification of the grid system used. Quality and adequacy of topographic control. 	 Surface collar coordinates were surveyed via DGPS. Given magnetism inherent in the host rock, a high quality downhole gyro was used to determine the dip and azimuth of the diamond holes at 25m intervals. MGA94 Zone 50. The topographic surface was calculated from previous mine survey pickups.
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. 	 Original core samples are reported at 1m sample/assay intervals. The ore sort test work is reported on each split product and reject fraction derived from the composite sample. The data spacing is adequate to provide continuity of grade for exploration drilling. Core samples were composited to create an 80kg sample for ore sorting trials.
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 orientations were appropriate to intersect the geology and mineralisation at an optimum angle (normal to the predominant vein orientation) and therefore provide a representative sample of essentially true width. The company does not believe that any sample bias had been introduced which could have a material effect on the results.

Criteria	JORC Code explanation	Commentary
Sample security	• The measures taken to ensure sample security.	 Middle Island Resources ensured individual samples were given due attention. The samples were collected and composited by experienced company geologists and transported to the ALS laboratory by company personnel. ALS is an internationally accredited laboratory.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	 The database was validated and audited by Expedio database consultants. Field data collected is logged and validated in a custom field logging tool. The ore sorting trials were overseen by the company's contract metallurgist and an independent specialist consultant from Nexus Bonum Pty Ltd.

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 sampled diamond core is derived from Mining Lease M57/128, which is 100% owned by Sandstone Operations Pty Ltd, a wholly-owned subsidiary of Middle Island Resources Limited.
	• 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.	• As of 5/12/2016 Sandstone Operations Pty Ltd was the sole owner of the project, including Mining Lease M57/128.
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	 Previous exploration was undertaken and reported by Herald Resources Limited and Troy Resources Limited during their respective tenure of the Sandstone gold project.
Geology	• Deposit type, geological setting and style of mineralisation.	 The Two Mile Hill deposit is hosted within a late stage, near vertical intrusive tonalite stock that intrudes the local stratigraphy of mafic volcanics and BIF.

Criteria	JORC Code explanation	Commentary
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 tables and text within the release. Not applicable.
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 	Not applicable.Not applicable.
	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.	Not applicable.
	• The assumptions used for any reporting of metal equivalent values should be clearly stated.	Not applicable.
Relationship between	• These relationships are particularly important in the reporting of Exploration Results.	Not applicable.
mineralisation widths and intercept lengths	 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'). 	• The mineralised, late-stage, near vertical, ovoid, intrusive tonalite stock is elongate in a north-south orientation, within which mineralised quartz veining has a sub-horizontal disposition. As such, the drilled intercepts are broadly normal to the dominant mineralised vein orientation.
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 table and text within 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.	Not applicable

Criteria	JORC Code explanation	Commentary
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. 	Not applicable.
Further work	• The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).	 Further ore sorting test work is planned, utilising a larger composite sample size to assess ore sorting characteristics at a broader range of grades and crush sizes.
	• Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	• Not applicable