

# Middle Island Resources (ASX: MDI)

August 2018 Update



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# Middle Island Resources (ASX: MDI)

# **Update - August 2018**

**Note**: This report is based on information provided by the company as at August 6, 2018.

Investment Profile	
Share Price as at 3 August, 2018	A\$0.017
12 month L/H	\$0.013/\$0.076
Issued Capital:	
Ordinary Shares	697.9m
Listed Options	0.0m
Unlisted Options	30.0m
Performance Rights	0.0m
Fully Diluted	727.9m
Market Capitalisation	A\$11.86m
Cash - June 30, 2018	A\$1.55m
Liquid Investments - June 30, 2018	A\$0.83m

#### **Board and Management**

Mr Peter Thomas: Chairman

Mr Rick Yeates: Managing Director

Mr Beau Nicholls: Non-Eecutive Director

Mr Dennis Wilkins: Company Secretary and Alternate for Beau Nicholls

Major Shareholders	
Harmanis Holdings	10.03%
Rick Yeates	7.02%
Twynam Agricultural Group P/L	6.66%
Jetosea P/L	6.64%
BPM Cap Ltd	5.02%
Board and Management	10.92%
Top 20	69.58%



Senior Analyst - Mark Gordon

The investment opinion in this report is current as at the date of publication. Investors and advisers should be aware that over time the circumstances of the issuer and/or product may change which may affect our investment opinion.

# MATERIAL PROGRESS AT SANDSTONE

Middle Island Resources ("Middle Island" or "the Company)" has made significant progress on the 100% owned 537,000oz Sandstone Gold Project ("Sandstone" or "the Project") since our August 2017 initiation report.

Activities, for which results have predominantly been positive, have largely been concentrated on the Two Mile Hill deposit, with work including drilling and ore sorting metallurgical test work on the primary Tonalite Deeps mineralisation. The key aim of the work is to upgrade the current 24mt to 34mt (900,000oz to 1,500,000oz) Exploration Target to a JORC 2012-compliant Mineral Resource Estimate ("MRE") and to assess the viability of this as a low operating cost bulk underground mining operation (possibly through sub-level cave "SLC" mining). The results will be used in the ongoing underground mining concept study, and if results are positive this will be incorporated into the currently suspended Pre-feasibility Study ("PFS").

Plans for any operation at Two Mile Hill (and for that matter the entire Sandstone project) will be to use the current 600,000tpa plant to reduce capital costs. Mining will include a significant cut-back of the current open pit, and then depending upon the results of current studies to treat underground primary mineralisation that has been pre-concentrated through ore sorting. In addition to the requirement to use the current plant (and hence keep capital costs low), successful ore sorting should allow a significantly higher throughput underground operation to supply the mill, thus taking advantage of economies of scale in mining operating costs - given the expected 1.1g/t to 1.4g/t grade of the Tonalite Deeps mineralisation (although Reserve grades may be higher) any operation will need to be very low cost to be viable.

The Company has also been successful in looking for other possible sources of feed for the mill; this has included the acquisition of additional tenements including Wirraminna, Dandaraga and Neds, with these at various stages of advancement. Drilling has more than doubled the Wirraminna MRE, with earlier stage work at particularly Dandaraga highlighting the exploration potential. Talks have also been held with holders of current stranded deposits - the Sandstone facility is the only one within a 160km radius.

# **KEY POINTS**

**Potential large resource at Two Mile Hill:** The results of the more recent drilling at the Tonalite Deeps of Two Mile Hill has confirmed the scale of the system (including with mineralisation still open at depth below 730m) and the potential for a bulk underground mining operation; this drilling has also highlighted the presence of thick, higher grade zones within the overall mineralised package.

**Positive ore sorting work:** The results of ore sorting work to date on the Tonalite Deeps have been positive, with this showing, for higher grade mineralisation, the potential to increase mill feed grade by between 185% to 257% with gold recoveries of +93% with ~64% of material being discarded; the upshot is that any mining throughput would be significantly higher than the mill throughput, thus taking advantage of economies of scale in mining costs and limiting mill capital and reducing unit opex. Ore sorters are very low capital and operating cost modular, bolt-on equipment, and hence can be very cost effective with suitable styles of mineralisation. The potential of ore sorting was highlighted by a recent visit we made to the TOMRA facility in Sydney.

**Additional mineralisation sources identified:** Ongoing work is continuing to upgrade existing mineralisation else identify new targets for drilling within trucking distance of the existing plant; in addition there is potential for toll treating or acquiring additional stranded deposits in the region.

**Mill and infrastructure**: The mill ownership (with an expected refurbishment cost of A\$10.3 million), permitted tailings storage facilities, associated infrastructure and location on permitted mining leases are all key advantages, lowering capital costs and lead times for any operation.

**Sale of Burkina Faso project:** The signing of an option agreement for the sale of the Reo Project has removed the requirement for the time and expenditure for what is in effect a distraction.

**Leveraged to success:** With an EV of only  $\sim$ A\$10 million, Middle Island is well leveraged to exploration and development success.

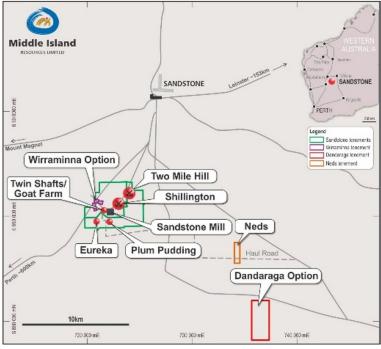
**Steady News Flow**: Ongoing activities should provide steady news flow through the rest of 2018 and into 2019.

# **ACTIVITIES UPDATE**

# **BACKGROUND**

MDI's activities are focused on the 100% owned Sandstone Gold Project (Figure 1), which the Company acquired from the liquidators of Black Oak Minerals (ASX: BOK, now delisted) in July 2016, with subsequent options signed to acquire 100% of the adjacent Wirraminna and Dandaraga tenements; in addition the Company has acquired 100% of the Ned's tenement.

Figure 1: Sandstone project location map



- The original Sandstone acquisition included a 600,000tpa CIP plant, site infrastructure (including a licenced tailings storage facility "TSF") and camp facilities in the nearby town of Sandstone; this infrastructure was previously used by Troy Resources Limited (ASX; TRY, "Troy") in its Sandstone operations, which shut down in 2010.
- The Sandstone facility is the only gold treatment plant within a 160km radius.
- ♦ Initial plans by the Company were to complete a Pre-feasibility Study ("PFS") in early 2017, with a view to a quick restart of gold operations at the site largely based on open cut mineralisation the PFS was suspended in December 2016 with the work as of that date indicating that the resources as they stood would not support a viable operation.
- The strategy subsequently changed to finding additional resources, with this work ongoing the Company has recently completed a drilling programme which will be used for an updated Mineral Resource Estimation ("MRE") for the upper part of the Two Mile Hill Tonalite Deeps deposit, along with an underground mining concept study focused on Two Mile Hill which will feed into an updated PFS.
- Proposed mining at Two Mile Hill will also include an initial cut back of the existing Two Mile Hill oxide/transitional open cut (required prior to any mining of the Tonalite Deeps), along with up front mining of other open cut resources including Shillington (for possible portal access), Shillington North, Wirraminna and additional, preferably higher grade low strip ratio mineralisation that may be identified prior to mining the Two Mile Hill deeps.
- Metallurgical work has included undertaking ore sorting test work on the Two Mile Hill tonalite mineralisation, with results to date being very encouraging.
- Given the right type of mineralisation, ore sorting can provide a very cost effective preconcentration process, with equipment being "bolt-on" and modular.
- The underground mining concept study will look at, amongst other things, sub-level caving, a relatively low cost underground bulk mining method that, combined with positive results from ore sorting could lead to a relatively large scale underground mine to take advantage of economies of scale, however that will, through ore sorting, provide mill feed more suited to the treatment capacity of the current 600,000tpa plant.

- ♦ An Australian example of SLC (or a derivative thereof) is Resolute's (ASX:RSG) Mt Wright gold mine at Ravenswood in North Queensland this is a sub-vertical breccia pipe with a diameter of ~350m and with a depth of more than 1,200m; Resolute is also due to start SLC operations at the Syama gold mine in Mali.
- ♦ SLC is or has been used to some extent in relatively low grade porphyry deposits in the Central West of New South Wales, including Ridgeway (Cadia, Newcrest) and North Parkes (CNOC) these deposits have similar geometries to Two Mile Hill, being sub vertical, with a relatively small surface area but large vertical extents; block caving however has been the main mining method used at these operations.
- Selective mining options of higher grade parts of the tonalite deeps mineralisation (possibly through open stoping) will also be investigated as part of the mining concept study.
- In addition to defining additional resources within the immediate Project area, MDI is also looking at nearby acquisition opportunities (in addition to the three recent acquisitions of Wirraminna, Dandaraga and Ned's) to add to the resource inventory that would be suitable for processing at the current facility.
- There is also the potential for toll treating or production sharing at the mill (with the Company already having preliminary discussions with several parties with suitable assets), which the Company expects would initially cost in the order of A\$10.3 million, including owners' costs to refurbish, with this figure provided by independent engineer GR Engineering Services.
- ♦ This figure however does not include the cost of ore sorting equipment or upgrades to the gravity and elution circuits that would be required to accommodate the higher grade/ production from the Two Mile Hill deeps; it is expected that these would be funded from early open pit cashflow.
- ♦ This cost includes installing a contract crusher that would treat all ore types when operated by Troy the crusher was capable of only treating mostly softer oxide material, with this limited by the crushing circuit and not the rest of the plant.
- The Company also holds the Reo Gold Project in Burkina Faso, however has entered into an option agreement to divest all interests; as such this project will not be discussed further.

# **SANDSTONE GOLD PROJECT - MIDDLE ISLAND 100%**

- Recent activities at Sandstone have been largely concentrated on Two Mile Hill, however work has been completed on other areas including Wirraminna, Davis and Dandaraga.
- The geology, setting and history of the Project is discussed more fully in our Initiation Report, available on the Company's website.

# **Mineral Resources**

♦ The latest MRE is presented in Table 1; this includes updates completed subsequent to our Initiation Report, including Wirraminna.

**Table 1: 2018 Sandstone Aggregate Mineral Resource Estimate** 

2018 Sandstone Aggregate Mineral Resource Estimate								
Deposit	Tonnes	Grade (g/t Au)	Contained Gold (oz.)	JORC Classification	JORC Classification			
Two Mile Hill – Open Pit	1,012,000	1.36	44,000	Indicated	2012			
Two Mile Hill – Open Pit	114,000	1.1	4,000	Inferred	2012			
Two Mile Hill – Tonalite (below 380m RL)	8,944,000	1.35	391,000	Inferred	2004			
Two Mile Hill – BIF (below 380m RL)	59,100	9.9	18,800	Indicated	2004			
Shillington – Open Pit	1,015,000	1.33	43,000	Indicated	2012			
Shillington – Open Pit	272,000	1.17	10,000	Inferred	2012			
Plum Pudding — Open Pit	50,000	1.6	2,572	Inferred	2004			
Wirraminna – Open Pit	307,000	1.5	14,600	Indicated	2012			
Wirraminna – Open Pit	243,000	1.1	8,400	Inferred	2012			
Total Indicated	2,393,100	1.56	120,400	Indicated				
Total Inferred	9,673,000	1.34	416,000	Inferred				
Total Resource	12,673,000	1.38	537,000	Indicated & Inferred				
Exploration Target	24 - 34Mt	1.1-1.4	0.9 - 1.5Moz	Exploration Target	2012			



This includes JORC 2004-compliant resources for Two Mile Hill; the Company has since published an Exploration Target as shown below and is also in the processing of updating the Two Mile Hill MRE to JORC 2012 compliance.

## **Two Mile Hill**

- As discussed in our Initiation Report, mineralisation at Two Mile Hill is hosted within a steeply west plunging "tonalite" stock, with a north-south strike length of 250m and widths of up to 90m; mineralisation has been intersected to 730m depth and still open.
- Two Mile Hill is characterised by broad zones of mineralisation, with drill intersections of 508.3m @ 1.38g/t Au, 372.7m @ 1.52g/t Au and 230.4m @ 1.62g/t Au amongst others these contain some sub-horizontal zones of higher grade mineralisation including 22m @ 5.95g/t Au, 50m @ 2.71g/t Au and 160m @ 2.31g/t Au.
- Over 99% of the mineralisation is hosted in flat-lying sheeted quartz veins, with this commonly being free, coarse gold (over 60% is recoverable using gravity) - coarse visible gold has been noted in several drillholes.
- Key activities subsequent to our Initiation Report at Two Mile Hill have been drilling and ore sorting test work, with the results of this being used in the ongoing mining study.
- The Company is adopting a staged strategy for the assessment of Two Mile Hill, with stages including:
  - The recently completed Stage 1 resource definition drilling to upgrade the current Exploration Target to Inferred Resources for the Tonalite Deeps ~280m vertical interval between 140m depth (base of quantified open pit mineralisation) and 420m.
  - Results of the work, including the updated Resource and ore sorting will be incorporated into the mining study, and, dependent upon the outcomes, the Stage II, 40m x 40m infill drilling will then be undertaken to upgrade the Inferred Resource, nominally to Indicated status.
  - Again the results of the Stage II work will be incorporated into the underground mining concept study, with outcomes then determining future activities.
- ♦ Later work may include Resource upgrade drilling of the lower Tonalite Deeps from 420m to 700m below surface, however this could potentially be funded through cash flow from any future operation predicated on a successful outcome of the mining study.

#### Drilling

- Drilling over the past 12 months has included the following:
  - A 230.9m extension to the Tonalite Deeps hole MSDD156, resulting in a total length of 730m,
  - Three diamond drillholes (MSDD157 to MSDD159, which targeted the high grade BIF mineralisation up dip from the tonalite contact,
  - A large diameter diamond drillhole (MSDD261) to collect bulk concentrates for ore sorting; and,
  - The Stage1 seven hole drilling programme targeting the Tonalite Deeps from between 140m and 420m below surface - this is now completed however assay results are awaited
- The hole MSDD156 extension increased the mineralised interval in the hole from 415.2m @ 1.34g/t Au to 508.3m @ 1.38g/t Au from 83.7m, highlighting the continuity of the mineralisation within the tonalite (Figure 2) this included a higher grade interval of 160m @ 2.31g/t Au from 432m, with this interval ending where the hole went into the bounding greenstones at 592m an attempt to steer this back into the tonalite using "navi" drilling, however this was unsuccessful.
- Holes MSDD157 to MSDD159 were designed to test the upper BIF unit up-dip from the high grade intercepts as shown in the right panel of Figure 2; unfortunately no appreciable mineralisation was intercepted, hence leading to the conclusion that the thicker high grade zones of mineralisation associated with pyrite do not extend up dip as hoped.
- On the other hand several other mineralised positions have been identified within the BIF elsewhere around the tonalite contacts.
- ♦ Hole MSDD161 was drilled to a depth of 284.5m with a mixture of PQ (~85mm diameter) and HQ (~65mm diameter) core, with the aim to collect a bulk sample for ore sorting test work.

- ◆ The hole intersected 100m @ 2.02g/t Au from 55m downhole (including 7m @ 18.1g/t Au from 121m depth), with grades and mineralisation style broadly consistent with other holes drilled into the Two Mile Hill tonalite.
- A geotechnical assessment was almost made of the core to look at the suitability for a range of possible underground mining methods, including SLC and open stoping - the results of this work will be incorporated into the mining study.
- The Stage I Two Mile Hill drilling programme is the resource upgrade programme for the interval from 140m to 420m below surface to an Inferred status as at the time of writing all seven holes, which include 994m of RC precollars and 1,115.2m of diamond tails for 2,109.2m, have been completed.
- Although assay results for the first hole only (MSDD262) had been received at the time of writing, the Company has stated that the styles of alteration and mineralisation in the holes are consistent with the other holes into the Tonalite Deeps, and that coarse visible gold had been seen in hole MSDD264.
- This drilling was also optimised to maximise the number of intersections into the upper and middle BIF units to target high grade mineralisation associated with pyrite replacement of magnetite peripheral to the tonalite contact.
- ♦ Hole MSDD262 returned a BIF intercept of 8m @ 14.5g/t Au from 334m, including 2m @ 54.0g/t Au from 340m in the sparsely drilled middle BIF unit, with this also being the first significant gold intersection within brecciated elements of the BIF units.

Widthered Based Westerned Tom @ 0.50gt Au from 56m

Tom @ 4.15gt Au

Tom 23.1mg 4.4ggt Au

Tom 33.mg 4.9ggt Au

Tom 24.1mg 2.72gt Au

Tom 35.mg 20.24gt Au

Tom 25.1mg 20.24gt Au

Tom 25.1mg 20.24gt Au

Tom 195.8mg 20.24gt Au

Tom 25.2gt Au

Tom 195.8mg 20.24gt Au

Tom 25.2gt Au

Tom 195.8mg 20.24gt Au

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Tom 25.2mg 20.24gt Au

Tom 195.8mg 20.24gt Au

Tom 195.8mg 20.24gt Au

Tom 195.8mg 20.24gt Au

Tom 195.8mg 20.24gt Au

Tom 25.2mg 20.24gt Au

Figure 2: Two Mile Hill drilling - hole MSDD156 on left, BIF intersections on right

Source: MDI

# **Exploration Target**

- As announced to the market on November 29, 2017 and shown in Table 1, Middle Island has calculated an Exploration Target of 24mt to 34mt @ 1.1g/t Au to 1.4g/t Au for the Tonalite Deeps, with this down to a depth of 700m this followed on from the results of hole MSDD156.
- ♦ The Target included the results of 3,052 gold assays from 2,897m of drilling in 18 holes on a nominal 40m x 40m spacing; bulk density has been estimated from 114 determinations with an average value of 2.7t/m³.
- ♦ The lower end of the 900,000oz to 1,500,000oz Target is based on the modelled surface projected to depth, drilled extents of the plug and the average of assays in all drilling, which is biased towards the top 200m of mineralisation, and appears to be generally lower grade than the tonalite as a whole, with, as exhibited in hole MSDD156, an apparent increase in grade with depth.

- The upper Target range includes an allowance for 'belling' of the stock at depth, based on gravity inversion modelling; grades are based on results from hole MSDD156 which is the only hole to be drilled down the axis of the tonalite and perpendicular to the mineralised quartz veining.
- An isometric view of the lower tonnage range is shown in Figure 3; this also shows the modelled mineralised BIF deposit in red.

Figure 3: Two Mile Hill Exploration Target lower tonnage solid looking SE

Source: MDI

# Metallurgy

- One of the key drivers of any potential underground operation at Two Mile Hill is metallurgy, with given the in-situ grade, successful ore sorting being required for a chance of a financially viable operation.
- As stated earlier, successful ore sorting will allow the current 600,000tpa plant to be used, whilst allowing for a significantly higher capacity underground mining operation to take advantage of economies of scale which is vital given the relatively low grade (and hence in-ground value) of the mineralisation.
- ♦ As stated earlier, over 96% of the gold occurs in quartz veins, with very little in the host tonalite; in addition the gold is relatively free milling, with ~60% being recovered through gravity separation and the balance through conventional cyanidation, and thus is suitable for treatment through the existing Sandstone plant.
- Cyanidation test work completed in 2017 highlighted excellent leach kinetics and recoveries of between 93% and 97% after the gravity separation; assuming ore sorting recoveries of ~93% results in an overall metallurgical recovery of up to 90%.
- The differences in properties between the wall rock tonalite and quartz veining make the mineralisation ideal for ore sorting, with this shown by the results of work completed to date.
- ♦ This work included initial sighter and scoping test work (which included X-ray/optical sorting work at TOMRA in Sydney and laser sorting work at Steinert in Perth) indicated that pre-concentration through ore sorting could increase grades by between 185% to 257%, with gold recoveries of above 93%, whilst rejecting up to 64% of the sorter feed.
- This work was carried out on relatively high grade composites, with a view to selective (open stoping) mining.

TOMRA

SOCIAL COLUMN

Figure 4: Initial Two Mile Hill ore sorting - vein material (L) and rejects (R)

Source: MDI

- On the basis of the results, the colour sorting (in conjunction with XRT to separate sulphides) was selected for further detailed commercial scale work, with samples from hole MSDD261 being sent to TOMRA for this - Figure 4 compares the upgraded feed (left) and waste (right) following sorting from the scoping work.
- In contrast to the initial work, samples for this latest round included a range of grades, with these ranging from 0.57g/t Au to 3.2g/t Au - these included 0.57g/t (low grade), 1.30g/t (ROM grade) and 3.20g/t (high grade) to more closely reflect an SLC mining approach.
- This work included grade and crush size variability tests, and, in addition to test work on primary ore, some tests have been completed on partially oxidised core to assess the behaviour of potential open pit material to ore sorting.
- ♦ Although broadly in line with the earlier work, the results of this work for the primary samples were variable, with upgrades of between 155% and 213%, recoveries of between 67% and 93% and product yields of between 39% and 51%.
- The variability may be impacted by the amount of gold reporting to fines (particularly in the case of nuggetty mineralisation in the higher grade composite), as well white rock flour "bruising" on unmineralised tonalite samples that led it to be accepted into the product through the colour sorting this can be identified by laser sorting, as well as discrimination of quartz in the tonalite from quartz veining.
- ♦ The sorting of the oxidised material (using an XRT unit only) resulted in little or no benefit.
- Dependent upon the results of the mining concept study, the Company plans to drill another PQ hole to provide material for further ore sorting test work - these planned tests will include laser sorting, with TOMRA recently commissioning a commercial scale laser sorting unit - aspects to be investigated include recovery variability and potential enhancement, with possible expected upgrade improvements in the order of 5% to 10%.

# **Underground Mining Concept Study**

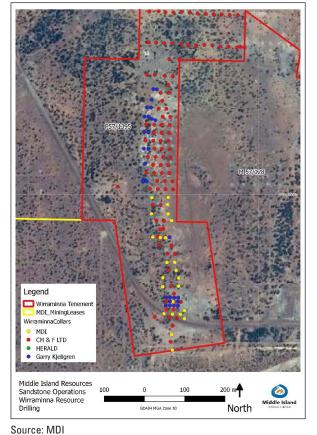
- A stated earlier, results from the ongoing work will feed into the ongoing underground mining concept study, which will form part of the PFS.
- The mining study is investigating bulk underground mining methods, including SLC, as well as the selective mining of higher grade zones.

#### Wirraminna

## **Drilling and MRE Upgrade**

- Drilling at Wirraminna included 24 RC holes for 1,939m and four diamond core tails for 175.9m, with the drilling used in the MRE upgrade as released to the market on December 6, 2017 (Figure 5).
- Better intercepts included (with true widths of mineralisation estimated to between 70% and 80% of the down hole intercepts presented below):
  - MSRC246 4m at 13.4g/t Au (from surface)
  - MSRC236 30m at 1.04g/t Au (from 46m), including 1m at 17.8g/t Au
  - MSRC252 13m at 1.45g/t Au (from 61m)
  - MSRC241 8m at 2.33g/t Au (from 34m), including 1m at 10.8g/t Au
  - MSRC157 7m at 2.43g/t Au (from 125m)
  - MSRC251 5m at 2.98g/t Au (from 16m), including 1m at 12.1g/t Au
  - MSRC244 11m at 1.35g/t Au (from surface)
- This drilling largely confirmed the results of historic drilling and the continuity of the mineralisation, however the diamond tails failed to validate a number of historically reported high grade gold intercepts due to a transformation error in the inherited database.
- As part of ongoing activities Middle Island has confirmed the location of, and now intends to twin, these previously reported high grade holes.
- Reported historic drilling has returned intersections of up to 11m @ 23.8g/t Au, 16m @ 14.6g/t Au and 19m @ 4.85g/t Au - these are interpreted as forming a high grade shoot at the core of the resource.
- The updated MRE (Table 1) has more than doubled the resource from the previous JORC 2004 MRE of 106,300t @ 2.07g/t Au (10,674oz Au) to 550,000t @ 1.3g/t Au for 23,000oz contained gold - this used a lower cut-off grade of 0.5g/t Au as compared to the previous MRE; in addition some 55% of the latest MRE is in the higher confidence indicated category, whereas the previous MRE was 100% inferred.
- The MRE covers 725m of north-south strike of steeply dipping ferruginous quartz lodestyle mineralisation, with widths of up to 30m, and with a maximum depth of 105m below surface; mineralisation is open at depth and to a lesser extent along strike.

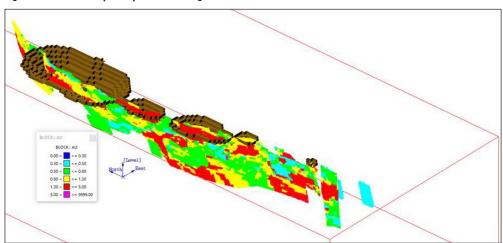
Figure 5: Wirraminna drilling



# **Pit Optimisation**

- ♦ A pit optimisation has been completed for Wirraminna using a A\$1,600/oz pit shell; this has resulted in an optimal pit shell in-pit inventory of 72,000t @ 1.97g/t gold with a waste:ore strip ratio of 9:1 (Figure 6).
- This equates to mill recovered gold of 4,200oz and a maximum depth of 45m from surface, with all material in the oxide zone.
- ♦ The planned verification of the higher grade intercepts could add significantly to this inventory.

Figure 6: Wirraminna optimal pit shell looking north-east

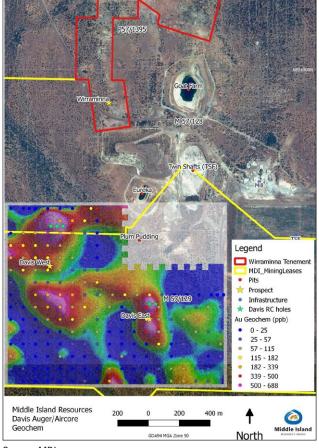


Source: MDI

# **Davis Prospect**

Recent work at the Davis prospect (Figure 7) included reconnaissance RC drilling at Davis East and Davis West, two of four auger/aircore gold geochemical anomalies at the Davis gold prospect.

Figure 7: Davis prospect auger/aircore geochemistry



The five hole, 386m programme intersected broad zones of ferruginous quartz veining within saprolitic ultramafic rocks (similar to mineralisation at Wirraminna and Eureka) with a best intercept of 1m @ 1.88g/t Au from 23m depth in hole MSRC259.

# **Dandaraga Option**

# **Tenure and Acquisition**

- Dandaraga comprises a single licence, E57/1028, which covers an area of 605ha and is located some 16km SE of the Sandstone Gold Project (Figure 1).
- The licence is situated just 4km south of the historic haul road linking the previously mined Lord Henry and Lord Nelson deposits with the 600,000tpa Sandstone mill, with the Company stating that the road is in good condition.
- As announced to the market on September 11, 2017, Middle Island has a three year option to acquire 100% of the tenement, with the ability to exercise the option at any time within the option period with a single cash payment of A\$200,000.

# **Geology and Historic Work**

- The geology at Dandaraga comprises a north-south trending sequence of interbedded BIFs, ultramafics, gabbros and dolerites, with the greenstone stratigraphy interpreted as being repeated due to east-dipping isoclinal folding that forms a series of steeply NNE plunging synclines and anticlines.
- The tenement is located at the south-eastern extremity of the Sandstone greenstone belt, with the eastern margin of the greenstones being variably assimilated by gneissic rocks of the Diemals Dome.
- Three groups of historic workings are present in the tenement, namely the Swede prospect (northern portion of the tenement), Agnes (central) and an unnamed group workings in the southern part; however more recent mapping by the Company has identified a number of other areas of potential economic interest.
- Of the previously recognised mineralisation, Agnes is of most immediate interest to the Company, with mineralisation hosted within a strongly weathered granophyric dolerite or gabbroic sill or flow conformable with the stratigraphy (Figure 8).



Figure 8: Stockwork quartz veining and altered selvages in dolerite, Agnes prospect.



- Although the recorded historic production of 67oz at a grade of 13.8g/t Au was from a large, oblique quartz vein, the presence of stockwork veining is considered far more significant.
- There is also a zone of strongly brecciated and quartz veined BIF adjacent to the prospect, in which coarse, visible gold has been identified.

- Given scree cover from the BIF ridge, the extent of the dolerite and stockwork veining are unclear, however quartz float extends for 200m to 300m along strike which incorporates a number of other workings and prospecting pits; in addition the area is proximal to a number of gold nugget occurrences.
- Historic work has included broad spaced and incomplete BLEG soil geochemistry, with this highlighting a broad, diffuse gold anomaly at Swede and a more discrete, higher tenor gold anomaly at Agnes.
- ♦ Drilling has included a number of shallow RAB drilling traverses undertaken by Herald Resources and Troy Resources, with these, like the soil geochemistry, being widely spaced and incomplete; more targeted RAB drilling was competed at Swede by WMC in the 1980's, and there is evidence of nickel exploration in the 1960s and 1970s.

# Work by Middle Island

- As reported in the June, 2018 quarterly report, the Company has completed a programme of soil sampling (160m x 40m spacing) and rock chip sampling along with detailed geological mapping assays are awaited.
- ♦ As mentioned above the current work has identified a number of areas of interest in addition to the previously known prospects.

# **Ned's Acquisition**

# Tenure and Acquisition

- Ned's includes a single 34ha tenement (P57/138) situated 10km SE of the Sandstone Gold Project and straddling the haul road connecting the Lord Henry and Lord Nelson deposits with the Sandstone Mill (Figure 1).
- ♦ The Company has acquired 100% of the tenement for a cash payment of A\$500.

# **Geology and Mineralisation**

- The interpreted geology comprises a north-south trending succession of largely ultramafic rocks, with a number of nugget patches spatially related to historic gold workings developed over quartz veins in ultramafic rocks.
- The area lies between the Indomitable and Vanguard trends that Alto Metals Limited (ASX: AME, "Alto") is currently concentrating gold exploration on.

# **REO GOLD PROJECT - BURKINA FASO**

- ♦ As announced to the market on May 16, 2018, the Company has entered into a formal Option to Purchase Agreement ("the Agreement") with TSX-V listed Tajiri Resources Limited ("Tajiri") to divest the Reo Gold Project in Burkino Faso.
- ♦ Terms of the 18 month agreement include:
  - A payment of US%150,000 and the issuance of 5,000,000 Tajiri shares to Middle Island within 15 days of signing of the Agreement (completed),
  - During the option period Tajiri must pay all expenses associated with maintaining the relevant permits in accordance with Burkinabe law,
  - Should Tajiri decide to exercise the option it will pay a further US\$150,000 to Middle Island; if this is not done within 12 months it will pay an advance payment of US\$50,000, with the balance of US\$100,000 payable if the option is exercised within the remaining six months of the term,
  - Upon exercise Middle Island will retain a 2% NSR on any minerals produced from the Reo Project; Tajiri will have the right to acquire the royalty from Middle Island for US\$5 million; and,
  - Should Tajiri elect not to exercise the option, the Company shall retain 100% of the Reo Project and all consideration already paid as part of the Agreement.

# **ONGOING AND FUTURE WORK**

- Current and upcoming activities are concentrated on Two Mile Hill, however work programmes will also be completed on other prospects as required.
- Results yet to be received from Two Mile Hill include the assays from the recent Stage I resource upgrade drilling; in addition the results of exploration work on other prospects, including Dandaraga and Ned's, are yet to be received.

- Upcoming activities at Two Mile Hill include:
  - Updating of the MRE,
  - Additional geotechnical test work,
  - Updating the mining concept study to incorporate results of ore sorting, the MRE and geotechnical studies; and,
  - The drilling of an additional large diameter hole for further ore sorting trials.
- ♦ Should the results of the above prove positive, the Company then plans to undertake Stage II of the resource definition diamond drilling, designed to further infill and upgrade the upper parts of the Tonalite Deeps mineralisation.
- Dependent upon priorities, results and funding, work is planned on a number of other prospects.
- This includes infill and extension RC drilling at Wirraminna, and maiden RC drilling at Cowan.
- Planned work at Dandaraga and Ned's will be dependent upon exploration priorities and the results of the recent mapping and soil geochemical sampling, and may include follow up RAB and/or RC drilling as necessary.
- ♦ Other work may include further RC drilling at Davis (Figure 1).

# PEER GROUP ANALYSIS

 Table 2 presents a group of ASX-listed gold developers and miners, with the majority being focused on Western Australia.

Table 2: Middle Island peers

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Company	Location	EV Undiluted (A\$m)	Global Resource (Mt)	Global Au Grade (g/t)	Company Equity Share	Contained Au Moz Coy Share	EV/oz Au equity share	Project Stage
Pantoro Limited	Australia	\$210.9	2.2	7.27	100%	0.50	\$418.73	Producing
Sumatra Copper Gold	Indonesia	\$90.3	5.8	1.94	100%	0.36	\$249.90	Producing
Southern Gold	Aust, Sth Korea	\$5.8	0.1	5.18	100%	0.02	\$246.04	UG Study Underway
Gascoyne Resources	Australia	\$197.3	52.8	1.39	100%	2.35	\$83.82	Producing
Rimfire	Australia	\$8.0	6.3	0.61	100%	0.12	\$63.93	Resource
Explaurum	Australia	\$31.9	11.3	1.91	100%	0.70	\$45.86	Exploration
Breaker Resources	Australia	\$27.7	11.9	1.66	100%	0.63	\$43.86	Exploration
Medusa Mining	Philippines	\$55.9	10.9	3.84	100%	1.35	\$41.50	Producing
Matsa	Australia	\$20.5	6.4	2.41	100%	0.50	\$41.45	Producing
Egan Street	Australia	\$15.0	1.4	8.75	100%	0.40	\$37.50	PFS Complete
Alto Metals	Australia	\$8.1	4.4	1.84	100%	0.26	\$30.89	Exploration
Spitfire (Merged)	Australia	\$61.6	27.9	2.31	100%	2.07	\$29.76	Development Studies
Kin Mining	Australia	\$30.0	22.3	1.42	100%	1.02	\$29.30	Development, Review
Tyranna	Australia	\$6.7	8.7	1.10	75%	0.23	\$29.12	Exploration
Primary Gold	Australia	\$36.7	53.4	0.89	100%	1.53	\$24.00	PFS Completed Taken Over
Middle Island	Australia	\$10.2	12.1	1.38	100%	0.54	\$18.98	Pre-Feasibilty
White Cliff Minerals	Kyrgyzstan	\$5.3	3.0	5.10	90%	0.44	\$11.96	Drilling
Stonewall Mining	South Africa	\$32.4	9.5	14.93	74%	3.38	\$9.57	Evaluation
Anova Metals	USA, WA	\$9.6	17.2	2.22	100%	1.23	\$7.80	Producer

Source: IRESS, Company Reports, IIR analysis

- ♦ As a comparison metric, we have used EV/equity resource ounce this however should be considered an indicative comparison only, with this being affected by any number of factors.
- In the group above the resource weighted average EV is A\$49/ounce, and with a general increase in value with project stage.

- ♦ This does not take into consideration the value of any other resource projects the companies may have; for instance White Cliff are concentrating activities on Ni-Co in Western Australia and Rimfire has base and specialty metals targets in addition to the Sorpresa Au-Ag mineralisation; we have also included the pro-forma merged Spitfire Materials-Excelsior Gold, with the proposed merger announced and currently in progress.
- Given the low enterprise value, the Company is well leveraged to exploration success, which is the key to driving share prices and company value.
- ♦ Recent discoveries in Australia that have led to large price moves including Nova-Bollinger discovery by Sirius in 2012 (\$0.05 to a peak of \$5.00/share) and the Doolgunna discovery by Sandfire in 2009, which had an initial run from \$0.05 to \$4.08/share, with subsequent movements to over \$8.00/share.
- ♦ Early stage successes on the gold side include Dacian, with their Mt. Morgan's discovery near Laverton initially driving the share price from ~\$0.40 in July 2015 to a peak of \$4.00 in August 2016, and Breaker, which initially saw price appreciation from \$0.04 to \$0.76 over a similar period.
- Subsequent project and price histories for these two companies however have been variable.

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