

# Manganese Diamond Drilling Update

Core samples ready for assaying and beneficiation testwork

# Highlights:

- 7 shallow diamond drill holes completed at Horseshoe South and Brumby Creek Prospects
- Manganese mineralisation observed in the **core is consistent with the geological interpretation** from earlier drilling
- Full core to be submitted for high-resolution (10cm) non-destructive XRF analysis
- Core samples to be used in **beneficiation and comminution testwork**
- Completion of **Mineral Resource Estimates** to follow beneficiation testwork
- All activities are fully funded by OM (Manganese) Limited

Bryah Resources Limited ("Bryah" or "the Company") is pleased to provide this update on the diamond drilling program recently completed at its Bryah Basin Manganese Joint Venture project (70% Bryah/30% OM (Manganese) Limited ("OMM")), which is located approximately 150 km north of the town of Meekatharra in central Western Australia (see Figure 1).

# **Diamond Drilling**

A diamond drilling program to recover core for analysis and metallurgical testwork was recently completed.

In total 7 holes were completed with 2 holes for 65 metres drilled at the Horseshoe South Extended area (see Figure 2) and 5 holes for 135.9 metres drilled at the Brumby Creek Project (see Figure 3). Details of the drill holes is contained in Table 1.

All drill core has been transported to Perth where it has been geologically logged and several samples have been tested to establish bulk densities for use in the up-coming mineral resource estimates.

Observations from geological logging of the core confirms manganese mineralisation is consistent with observations from nearby RC drill holes.

Drill hole BRDD005 was drilled to test a high-grade zone of manganese identified by RC drilling at Area 74 within the Brumby Creek Project (See Figure 4).

The summary geological log for BRDD005 is shown in Table 2 and photos of the entire drill core are shown in Figures 5 - 8. Zones of blue-grey high-grade manganese are clearly visible and are generally separate from the red-brown iron rich shale zones within the drill core.

### Address

Level 1, 85 Havelock Street West Perth WA 6005 Tel: +61 8 9321 0001 Email: info@bryah.com.au ASX Code: BYH ABN: 59 616 795 245 Shares on issue: 153,540,508 Latest Share Price: \$0.059 Market Capitalisation: \$9.0M

### Projects

Bryah Basin – Copper, Gold, Manganese Gabanintha – Gold, Copper *bryah.com.au* 





Figure 1: - Tenement Location Plan

Over the coming weeks the drill core will be analysed as whole core using continuous nondestructive XRF scanning. This novel technology will allow chemical assay data at 10cm intervals along the core to be acquired and evaluated. Interpretation of data at this resolution will be an important part of the ultimate design of the beneficiation testwork program.

Hole	Easting	Northing	RL	Dip &	Total
ID	mE	mN	(m)	Azimuth	Depth (m)
HEDD001	656404	7184452	589.2	-50°/300°	30
HEDD002	656365	7184318	571.8	-50°/300°	35
BRDD001	645334	7190702	549.2	-50°/270°	32
BRDD002	645067	7192145	557.7	-50°/110°	25
BRDD003	645585	7191731	566.6	-50°/290°	16.2
BRDD004	645513	7191888	560.4	-50°/290°	27
BRDD005	645314	7190678	546.6	-80°/270°	35.7
				TOTAL	200.9

#### Table 1 - Drill Hole Locations





Figure 2 - Horseshoe South Extended Pit Area Drill Hole Location Plan





Figure 3 - Brumby Creek Project Drill Hole Location Plan





Figure 4 - Brumby Creek (Area 74) Drill Section 7190675mN

#### Table 2 - BRDD005 Summary Geological Log

Hole No	From Depth (m)	To Depth (m)	Interval (m)	Comments
BRDD005	0	0.4	0.4	Quaternary Cover
BRDD005	0.4	6.7	6.3	Shale
BRDD005	6.7	11.5	4.8	Moderate/Good Manganese
BRDD005	11.5	12.9	1.4	Shale
BRDD005	12.9	14.6	1.7	Moderate Manganese
BRDD005	14.6	15.1	0.5	Shale
BRDD005	15.1	21.7	6.6	Moderate/Good Manganese
BRDD005	21.7	22.8	1.1	Clay
BRDD005	22.8	28.6	5.8	Moderate/Good Manganese
BRDD005	28.6	29.7	1.1	Shale
BRDD005	29.7	32.1	2.4	Weak/Moderate Manganese
BRDD005	32.1	35.7	3.6	Shale





Figure 5 - BRDD005 Drill Core (0 – 10.0m down hole depth)





Figure 6 - BRDD005 Drill Core (10.0 - 19.86m down hole depth)





Figure 7 - BRDD005 Drill Core (19.86 - 30.41m down hole depth)





Figure 8 - BRDD005 Drill Core (30.41 - 35.7m down hole depth)

# **Beneficiation Testwork**

It is likely that some manganese mineralisation will have to be beneficiated to make a saleable product grade (35% Mn - >40% Mn) at the prospects and the drill core samples will be used to determine the most efficient beneficiation path. At this stage it is expected that beneficiation testing will include Ore-sorting and Dense Media Separation trials.

The samples will also be used to obtain initial comminution data for use in future studies.

Historically manganese ore from the Horseshoe South mine, Horseshoe South Extended and the nearby Horseshoe flats have produced saleable manganese products. In the period 2009-2011 a Dense Media Separation treatment plant was used to process material from Horseshoe South and Horseshoe South Extended to produce manganese ore.

# **Mineral Resource Estimates**

The collection of this drill core complements the Reverse Circulation (RC) resource drilling completed in November 2020<sup>1</sup>. Drill spacing in the November 2020 program was generally 25m x 25m to confirm the geological and grade continuity at the prospects in preparation for updated 3D modelling and mineral resource estimations.

Once the beneficiation testwork using this core has been completed, the Company intends finalising mineral resource estimates for the Horseshoe South, Brumby Creek and Black Hill areas.

<sup>&</sup>lt;sup>1</sup> See BYH ASX announcements dated 17 December 2020 and 5 January 2021 for full details.



## **Bryah Basin Manganese Joint Venture**

In April 2019, Bryah executed a Manganese Farm-In and Joint Venture Agreement ("Agreement") with OMM, a wholly owned subsidiary of ASX-listed OM Holdings Limited (ASX:OMH)<sup>2</sup>. The Agreement applies to the rights to manganese only over approximately 660 km<sup>2</sup> in the Bryah Basin (see Figure 1).

Between April and August 2019, OMM funded \$500,000 of project expenditure which yielded highly encouraging drilling results<sup>3</sup>. In August 2019, OMM elected under the Agreement to proceed and the Joint Venture ("JV") was formed with OMM secured an initial 10% JV interest.

Under Stage 2 of the Agreement, OMM can progressively fund \$2.0 million of exploration expenditure in four tranches, to earn up to a 51% interest in the JV by 30 June 2022. OMM has completed Tranche 2 funding of \$500,000 and now holds a 30% JV interest. OMM is proceeding with Tranche 3 funding of a further \$500,000 to increase its JV interest to 40%.

Bryah is Project Manager of the JV until OMM has earned a 51% JV interest and has elected to be Project Manager.

The board of directors of Bryah Resources Limited has authorised this announcement to be given to the ASX.

For further information, please contact:

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<sup>&</sup>lt;sup>2</sup> See BYH ASX Announcement dated 23 April 2019 for full details

<sup>&</sup>lt;sup>3</sup> See BYH Quarterly Activities Report dated 31 October 2019 for full details



#### About Bryah Resources Limited

Bryah Resources Limited is a copper-gold-manganese focused explorer with 2 projects located in central Western Australia, being the 1,185km<sup>2</sup> Bryah Basin Project and the 170km<sup>2</sup> Gabanintha Project. The Bryah Basin is host to the high-grade copper-gold mines at DeGrussa, discovered by Sandfire Resources Limited in 2009, and at Horseshoe Lights, which was mined until 1994. The Bryah Basin also has several historical and current manganese mines including the Company's Horseshoe South mine. The Company has a joint venture agreement with OM (Manganese) Limited in respect to its manganese rights only in respect to approximately 660 km<sup>2</sup> of its Bryah Basin tenement holdings.

At Gabanintha, Bryah holds the rights to all minerals except Vanadium, Uranium, Cobalt, Chromium, Titanium, Lithium, Tantalum, Manganese & Iron Ore (Excluded Minerals). Australian Vanadium Limited retains 100% rights in the Excluded Minerals on the Gabanintha Project. Bryah has announced a maiden Inferred Mineral Resource at the Tumblegum South Prospect at Gabanintha of **600,000 tonnes @ 2.2 g/t Au for 42,500 oz Au**.

#### Competent Persons Statement – Mineral Resource Estimation

The information in this announcement that relates to Mineral Resources (see BYH ASX announcement dated 29 January 2020) is based on and fairly represents information compiled by Mr Ashley Jones, Consultant with Kamili Geology Pty Ltd. Mr Jones is a member of the Australasian Institute of Mining and Metallurgy (AusIMM).

The Company confirms that it is not aware of any new information or data that materially affects the information included in that announcement and all material assumptions and technical parameters underpinning the Mineral Resource estimate with that announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Persons findings are presented have not materially changed from the original announcement.

#### **Competent Persons Statement**

The information in this announcement that relates to Exploration Results is based on information compiled by Mr Tony Standish, who is a Member of the Australian Institute of Geoscientists. Mr Standish is a consultant to Bryah Resources Limited ("the Company"). Mr Standish has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Tony Standish consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears.

Where the Company refers to Exploration Results in this announcement (referencing previous releases made to the ASX), the Company is not aware of any new information or data that materially affects the information included in the relevant market announcements.

#### Forward Looking Statements

This report may contain certain "forward-looking statements" which may not have been based solely on historical facts, but rather may be based on the Company's current expectations about future events and results. Where the Company expresses or implies an expectation or belief as to future events or results, such expectation or belief is expressed in good faith and believed to have a reasonable basis. However, forward looking statements are subject to risks, uncertainties, assumptions and other factors which could cause actual results to differ materially from future results expressed, projected or implied by such forward-looking statements. Readers should not place undue reliance on forward looking information. The Company does not undertake any obligation to release publicly any revisions to any "forward looking statement" to reflect events or circumstances after the date of this report, or to reflect the occurrence of unanticipated events, except as may be required under applicable securities laws.



# Appendix 2 - Manganese Diamond Drilling

# JORC Code, 2012 Edition – Table 1 Exploration Results

# Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul> <li>Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.</li> </ul>	No sampling of drill core has been undertaken to date.
Drilling techniques	• Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).	<ul> <li>Core generally PQ3 (83mm) in diameter, except in hole BRDD005 when drilling conditions dictated casing off and downsizing to HQ3 (61mm) from 17.6m.</li> <li>West Core Drilling completed the drilling.</li> </ul>
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>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.</li> </ul>	<ul> <li>Drill core sample recoveries for the PQ3 and HQ3 core were measured and recorded in drill log sheets.</li> <li>No sampling has been undertaken to date.</li> <li>Drill core orientation was recorded when possible at the end of each drill run (line on bottom of core). Due to the near surface drilling oxidised lithology, very few orientation marks were successfully recorded.</li> <li>Several of the diamond drill (DD) holes twin existing RC holes.</li> </ul>
Logging	<ul> <li>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.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> </ul>	<ul> <li>Geological logging of the drillholes included; lithology, grainsize, texture, structure, deformation, mineralisation, alteration, veining, colour, weathering.</li> <li>DD logging is both qualitative and quantitative in nature.</li> <li>The total length of the DD holes was logged. Where no sample was returned due to cavities/voids it was recorded as such.</li> </ul>



Criteria	JORC Code explanation	Commentary
	The total length and percentage of the relevant intersections logged.	All DD core was photographed
Sub-sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality, and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>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.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	No sampling has been undertaken.
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>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.</li> <li>Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.</li> </ul>	No sampling has been undertaken.
Verification of sampling and assaying	<ul> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	No sampling has been undertaken.



Criteria	JORC Code explanation	Commentary
Location of data points	<ul> <li>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.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul> <li>All collars have currently been surveyed with a differential GPS when set out by Bryah staff and will be independently surveyed by surveyors using a differential GPS for accurate collar location and RL. The digital data has been entered directly into the company Access database.</li> <li>Downhole surveys have been completed on all the DD drill holes by the drillers. They used a Reflex Ez-Gyro downhole as a multi-shot tool to collect the surveys approximately every 5m down the hole inside the rods and at the completion of the hole.</li> <li>The grid system for the Bryah Basin prospect is MGA_GDA94 Zone 50.</li> <li>Topographic control is based upon known survey datums located within the area.</li> </ul>
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>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.</li> <li>Whether sample compositing has been applied.</li> </ul>	• Drill holes were designed to twin existing RC holes or known mineralised zones between existing RC drill holes. The prior RC drilling is at a spacing sufficient to undertake a resource estimate.
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>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.</li> </ul>	<ul> <li>The attitude of the lithological units varies greatly both within the prospects and between prospect to prospect.</li> <li>The sedimentary package at Brumby Creek strikes roughly north-south but due to folding can dip at a range of attitudes and directions. Manganese mineralisation can follow and/or overprint sedimentary bedding.</li> <li>No drilling orientation and sampling bias has been recognized at this time and it is not considered to have introduced a sampling bias.</li> </ul>
	The measures taken to ensure sample security.	<ul> <li>No sampling has been undertaken.</li> <li>Drill core transported to Bryah's Perth storage facilities was logged in detail and found to be in good condition.</li> </ul>
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	<ul> <li>The Company database has been compiled from primary data by independent database consultants and was based on original assay data and historical database compilations.</li> <li>A regular review of the data and sampling techniques is carried out internally.</li> </ul>



# 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	<ul> <li>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.</li> <li>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.</li> </ul>	<ul> <li>The relevant tenements (E52/3237 and M52/806) are 100% owned or beneficially held by Bryah Resources Limited. OM (Manganese) Limited holds a 30% joint venture interest in respect to the manganese rights only on this tenement.</li> <li>At the time of reporting, there are no known impediments to obtaining a licence to operate in the area and the tenements are in good standing.</li> </ul>
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	<ul> <li>The manganese deposits in the region were discovered during the gold rush period between 1897 and 1911 however were of little interest to explorers at the time.</li> <li>Mining operations between 1948 and 1967 received the focus of early exploration.</li> <li>Manganese exploration conducted by BHP Limited, King Mining Corporation Ltd, Valiant Consolidated Ltd and various others since the 1960's was concentrated mainly around the historic pits at Elsa Group, Millidie, Horseshoe South, Mudderwearie and Ravelstone.</li> <li>Tuart Resources Limited and Peak Hill Manganese Pty Ltd undertook regional exploration over a large portion of the Bryah and Padbury Basins in the period after 2000, identifying numerous manganese anomalies from satellite imagery and aerial photography. Only limited on-ground exploration of many of these anomalies was undertaken.</li> </ul>
Geology	Deposit type, geological setting, and style of mineralisation.	<ul> <li>These manganese occurrences are within the Lower Proterozoic Bryah and Padbury Basins. Manganese deposits are a product of prolonged weathering and oxidation of sedimentary rocks and chemical concentration and re-deposition of manganese within ancient drainage systems. Most of the manganese deposits are remnants of former drainage palaeochannels. Although detailed surveys have not been completed, the location of most manganese deposits appears to be at about the elevation of the former palaeosurface. These deposits are now left as hilltop mesas or cappings (inverted relief).</li> </ul>



Criteria	JORC Code explanation	Commentary
Drill hole Information	<ul> <li>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:</li> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in m) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> <li>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.</li> </ul>	Refer to Table 1 of this ASX Announcement for details of DD hole locations, etc.
Data aggregation methods	<ul> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>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.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul> <li>No high-grade cuts have been applied to the reporting of exploration results.</li> <li>No metal equivalent values have been used.</li> </ul>
Relationship between mineralisation widths and intercept lengths	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').</li> </ul>	<ul> <li>In this program there was some variation in the drill spacing and hole orientation.</li> <li>No sampling has been undertaken.</li> </ul>
Diagrams	<ul> <li>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.</li> </ul>	<ul> <li>See attached figures within this announcement.</li> </ul>
Balanced reporting	<ul> <li>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.</li> </ul>	<ul> <li>No sampling has been undertaken.</li> </ul>
Other substantive exploration data	<ul> <li>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.</li> </ul>	<ul> <li>No other exploration data available.</li> </ul>



Criteria	JORC Code explanation	Commentary
Further work	<ul> <li>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	Non-destructive XRF scanning will be undertaken ahead of beneficiation and communition testwork