

## EARAHEEDY PROJECT – IMBIN BASE METAL EXPLORATION UPDATE

Lodestar Minerals Limited (“Lodestar” or “the Company”) (ASX:LSR) provides the following update on exploration activities at its 100%-owned Imbin base metal project, 170km north of Wiluna, Western Australia (see Figure 1).

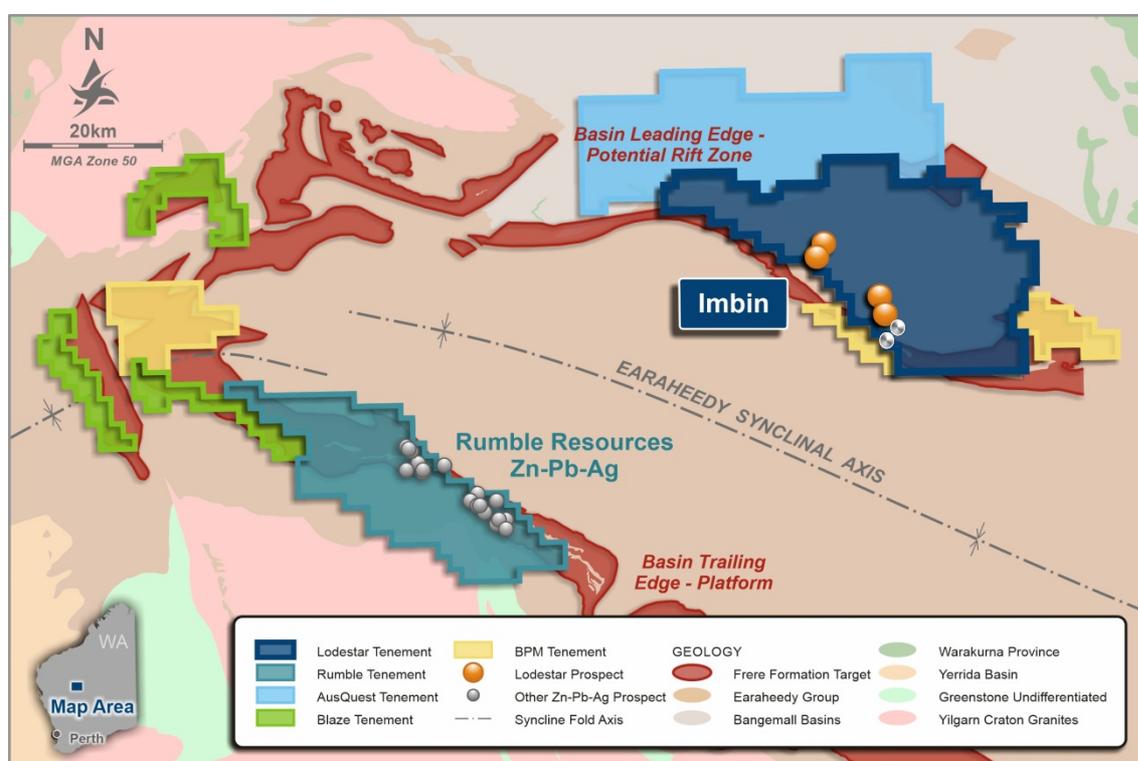


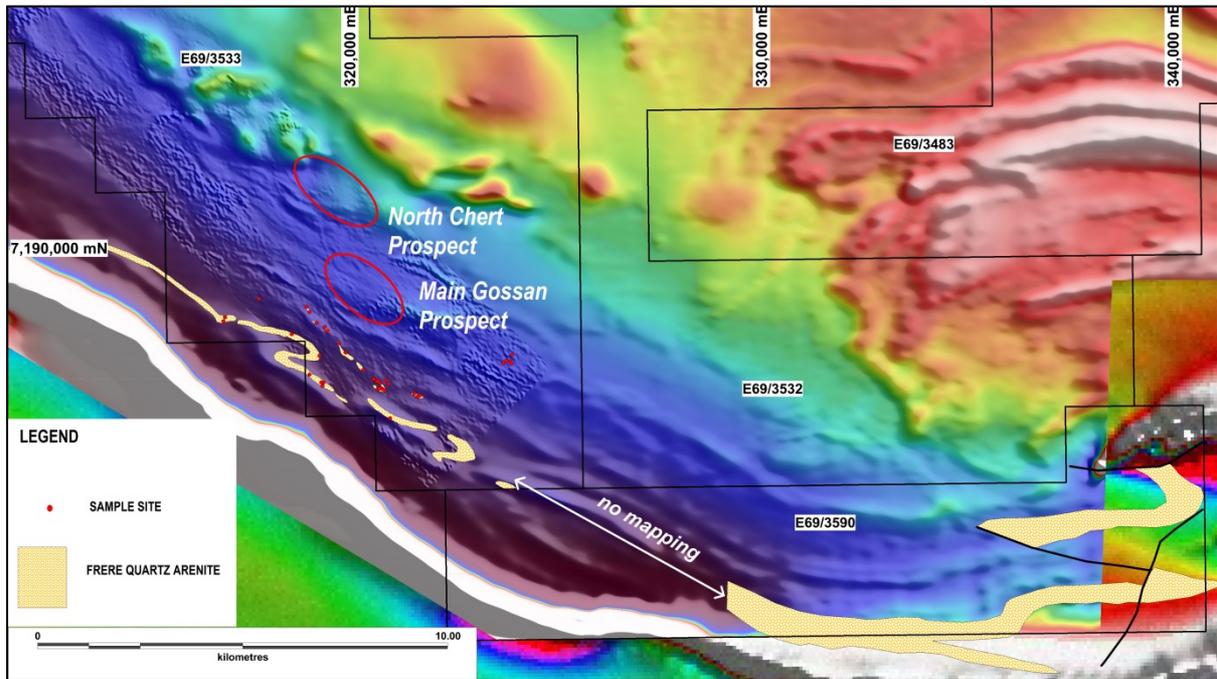
Figure 1 LOCATION PLAN – LODESTAR'S IMBIN PROJECT AND ADJACENT TENEMENTS.

The planned airborne EM survey using NRG's Excite™ Airborne Electromagnetic (AEM) system is on schedule to commence around 20<sup>th</sup> June. The survey, the first of its kind to be flown over the project tenements, will cover a 20km long corridor of historic Cu-Au anomalies and base metal enriched siliceous ironstones to locate conductors that may represent high-value massive sulphide drill targets.

Historic exploration at Imbin has focused on copper and gold mineralisation within the lower Yelma Formation or the iron ore potential of granular iron formations (GIF) in the overlying Frere Formation. Previous explorers have confirmed that the key Zn-Pb quartz arenite target (mapped as dipping to the north at 15-80 degrees on Lodestar's tenements) underlies the Frere iron formation (a similar stratigraphic position to that hosting Rumble Resources' Zn-Pb-Ag mineralisation on the south western margin of the Earahaedy Basin) and a number of Zn and Pb anomalies have been identified (see Table 1 and Figure 2).

Sons of Gwalia were the first to recognise and map the arenite unit<sup>1</sup> and report anomalous lead values, up to 480 ppm Pb in rock chips from the “Yelma quartzite unit”. Later exploration by Mount Isa Mines (MIM)<sup>2</sup> discovered gossanous veins south-east of the Main Gossan prospect that reported up to 0.29% Pb and 0.22% Zn. The veins, located in the geological footwall to the target Frere quartz arenite, may represent re-mobilised mineralisation sourced from adjacent stratigraphy.

Planned field work, centred on the Cu-Au corridor and first-pass soil geochemistry that will test approximately 10km of strike of the quartz arenite unit on a 500m by 100m grid, is awaiting heritage clearance.



**Figure 2 MAPPED FRERE QUARTZ ARENITE AND ROCK SAMPLE SITES, IMBIN PROJECT, background magnetic image (MGA94 Zone 51), geological mapping sourced from DMIRS open file WAMEX reports A34445 & A101451.**

**Table 1 Historic rock chip sampling results from the Imbin Project (these results are reproduced from historic exploration reports and have not been verified by Lodestar).**

SAMPLE_ID	EAST_MGA	NORTH_MGA	Zn_ppm	Pb_ppm	Date	Company
9GR081	319950	7187420	310	480	1991	Sons of Gwalia
9GR082	319790	7187640	120	370	1991	Sons of Gwalia
9GR083	319050	7177400	180	85	1991	Sons of Gwalia
9GR084	319070	7188400	70	95	1991	Sons of Gwalia
9GR085	319000	7188530	110	40	1991	Sons of Gwalia
9GR087	319390	7186590	160	35	1991	Sons of Gwalia
9GR088	319360	7186680	60	15	1991	Sons of Gwalia
9GR089	319420	7186680	15	5	1991	Sons of Gwalia
9GR090	319070	7186870	15	10	1991	Sons of Gwalia
9GR091	319310	7187330	40	15	1991	Sons of Gwalia
9GR092	319250	7188140	130	20	1991	Sons of Gwalia
9GR094	318640	7187860	30	nil	1991	Sons of Gwalia
9GR096	317850	7188730	105	20	1991	Sons of Gwalia

<sup>1</sup> See DMIRS open file report (WAMEX) A34445.

<sup>2</sup> See DMIRS open file report (WAMEX) A56029.

SAMPLE_ID	EAST_MGA	NORTH_MGA	Zn_ppm	Pb_ppm	Date	Company
9GR097	316980	7188180	25	130	1991	Sons of Gwalia
9GR098	317020	7188270	25	35	1991	Sons of Gwalia
9GR105	320840	7186520	60	90	1991	Sons of Gwalia
9GR106	320650	7186750	140	145	1991	Sons of Gwalia
9GR107	320710	7186710	305	120	1991	Sons of Gwalia
9GR109	321030	7185800	25	20	1991	Sons of Gwalia
9GR110	320900	7186480	75	135	1991	Sons of Gwalia
9GR111	321700	7186330	30	55	1991	Sons of Gwalia
9GR173	321760	7186360	15	40	1991	Sons of Gwalia
9GR174	321620	7186410	170	140	1991	Sons of Gwalia
9GR176	320930	7186730	215	10	1991	Sons of Gwalia
9GR177	320990	7186640	525	90	1991	Sons of Gwalia
9GR178	320730	7186520	15	115	1991	Sons of Gwalia
9GR179	320770	7186530	30	225	1991	Sons of Gwalia
9GR180	320790	7186660	60	55	1991	Sons of Gwalia
9GR181	320730	7186710	25	10	1991	Sons of Gwalia
9GR182	320630	7186760	15	25	1991	Sons of Gwalia
9GR183	320380	7186980	40	185	1991	Sons of Gwalia
9GR184	319950	7187410	30	70	1991	Sons of Gwalia
9GR186	319510	7187940	30	125	1991	Sons of Gwalia
9GR187	319450	7188030	45	40	1991	Sons of Gwalia
WA80362	323997	7187360	970	2900	1997	MIM
WA81012	323977	7187140	1700	2050	1997	MIM
WA81016	323952	7187185	960	2400	1997	MIM
WA81017	323857	7187210	2200	2850	1997	MIM
WA81022	323777	7187155	1350	1950	1997	MIM

## Contacts

Bill Clayton	Media enquiries
Managing Director <a href="mailto:info@lodestarminerals.com.au">info@lodestarminerals.com.au</a> +61 8 9435 3200	Michael Vaughan, Fivemark Partners <a href="mailto:michael.vaughan@fivemark.com.au">michael.vaughan@fivemark.com.au</a> +61 422 602 720

## About Lodestar

Lodestar Minerals is an active Western Australian gold and base metal explorer.

Lodestar's projects comprise the advanced Nepean Nickel Project JV, the Ned's Creek JV and the 100% owned Camel Hills, Imbin, Jubilee Well and Bulong projects.

The Imbin Project is a major strategic land holding in the emerging Earraheedy Province, site of Rumble Resource's recent and potentially world-class Zinc-Lead discoveries. The Imbin Project is located on

the northern margin of the prospective basin and is the site of significant historic copper intersections in drilling and approximately 20km of strike of the target Yelma-Frere unconformity.

Lodestar discovered multiple zones of syenite intrusion-related gold mineralisation at the Ned's Creek Project on the Yilgarn craton margin, 150km west of Imbin. Vango Mining Limited is earning a 51% interest in the Ned's Creek JV by contributing \$5M of expenditure over 3 years.

Bulong and Jubilee Well are recent acquisitions in highly endowed gold districts; first-pass drill programs are being planned.

### **Competent Person Statement**

*The information in this report that relates to Exploration Results is based on information compiled by Bill Clayton, Managing Director, who is a Member of the Australasian Institute of Geoscientists and has sufficient experience of relevance to the styles of mineralisation and the types of deposits under consideration, and to the activities undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Clayton consents to the inclusion in this report of the matters based on the information in the form and context in which it appears.*

# JORC Code, 2012 Edition – Table 1 report template

## Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul style="list-style-type: none"> <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>	<ul style="list-style-type: none"> <li>Sons of Gwalia carried out surface exploration and drilling for base metals and gold up to 1992. 265 rock chip samples were collected from the Imbin project area.</li> <li>Mount Isa Mines Exploration Pty. Ltd. (MIM) collected a further 698 rock chip samples from the area up to 1997.</li> <li>There is no reported information on the procedural details of the sampling or sample size submitted for analysis.</li> </ul>
Drilling techniques	<ul style="list-style-type: none"> <li>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.).</li> </ul>	<ul style="list-style-type: none"> <li>Surface sampling only.</li> </ul>
Drill sample recovery	<ul style="list-style-type: none"> <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 style="list-style-type: none"> <li>Surface sampling only.</li> </ul>
Logging	<ul style="list-style-type: none"> <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> </ul>	<ul style="list-style-type: none"> <li>Sample locations and descriptions are recorded in written ledgers.</li> </ul>

Criteria	JORC Code explanation	Commentary
	<ul style="list-style-type: none"> <li>• Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</li> <li>• The total length and percentage of the relevant intersections logged.</li> </ul>	
Sub-sampling techniques and sample preparation	<ul style="list-style-type: none"> <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>	<ul style="list-style-type: none"> <li>• Samples from both Sons of Gwalia and MIM were submitted to Genalysis Laboratories in Perth, sample preparation procedures are not reported.</li> </ul>
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> <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>	<ul style="list-style-type: none"> <li>• Laboratory processes are not reported, samples from both episodes of exploration were analysed using standard methods by commercial laboratories.</li> <li>• Sons of Gwalia samples were analysed for gold using aqua regia digest AAS/carbon rod finish and a detection limit of 1ppb Au; Analysis for As, Cu, Pb, and Zn was by total acid digest with AAS, ICP optical or mass spectrometry finish. The aqua regia/AAS method is considered highly effective for extraction of gold and suitable for first pass exploration.</li> <li>• MIM samples were similarly analysed for gold by aqua regia digest and AAS/carbon rod finish. Pb and Zn were analysed using an aqua regia digest and AAS finish – this method may not attain a complete digest of refractory minerals.</li> <li>• No geophysical instruments were used.</li> <li>• The quality control measures are not reported.</li> </ul>
Verification of sampling and assaying	<ul style="list-style-type: none"> <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>	<ul style="list-style-type: none"> <li>• Historic sample results have not been verified.</li> <li>• Sample locations, sample descriptions and assay results were compiled in written ledgers from which information has been extracted.</li> <li>• No adjustments to assay data were undertaken.</li> </ul>

Criteria	JORC Code explanation	Commentary
<i>Location of data points</i>	<ul style="list-style-type: none"> <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 style="list-style-type: none"> <li>• Sons of Gwalia sample locations are given in local coordinates. Sons of Gwalia geological mapping onto aerial photography is overlain with sample locations and tenement boundaries, enabling the sample data to be geo-referenced to MGA94 Zone 51 coordinates, location accuracy is probably within 50m.</li> <li>• MIM provide sample locations in AMG84 Zone 51 coordinates which have been converted to MGA94 Zone 51.</li> <li>• Topographic variation is not significant at the current stage of exploration.</li> </ul>
<i>Data spacing and distribution</i>	<ul style="list-style-type: none"> <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>	<ul style="list-style-type: none"> <li>• Surface sampling only to identify anomalies.</li> </ul>
<i>Orientation of data in relation to geological structure</i>	<ul style="list-style-type: none"> <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 style="list-style-type: none"> <li>• Any structural and geological controls are not known at the current stage of exploration..</li> </ul>
<i>Sample security</i>	<ul style="list-style-type: none"> <li>• The measures taken to ensure sample security.</li> </ul>	<ul style="list-style-type: none"> <li>• Measures to ensure sample security are not reported.</li> </ul>
<i>Audits or reviews</i>	<ul style="list-style-type: none"> <li>• The results of any audits or reviews of sampling techniques and data.</li> </ul>	<ul style="list-style-type: none"> <li>• No independent audit or review has been carried out.</li> </ul>

## Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
<i>Mineral tenement and land tenure status</i>	<ul style="list-style-type: none"> <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</li> </ul>	<ul style="list-style-type: none"> <li>• Tenements E69/3533 (application) and E69/3590 are located in the Warburton Mineral Field of Western Australia, 170km north east of the township of Wiluna. Lodestar owns a 100% interest in the tenements which occupy unallocated crown land north of the Granite Peaks pastoral lease. The tenements lie within the Birriliburu People determined area and the Wiluna #2 determination area. Lodestar has</li> </ul>

Criteria	JORC Code explanation	Commentary
	<p><i>known impediments to obtaining a licence to operate in the area.</i></p>	<p>signed a land access and mineral exploration agreement with the Mungarlu Ngurrarankatja Rirraunkaja Aboriginal Corporation representing the Birriliburu People and a similar agreement with the Tarlka Matuwa Piarku Aboriginal Corporation representing the Wiluna People.</p> <ul style="list-style-type: none"> <li>E69/3590 is held by Lodestar Minerals Pty Ltd and was granted on 12/12/2019 and expires on 11/9/2024. The tenement is in good standing and no known impediments exist. E69/3533 is an application by Lodestar Minerals Limited which is expected to be granted following the conclusion of the land access and mineral exploration agreement.</li> </ul>
<p><i>Exploration done by other parties</i></p>	<ul style="list-style-type: none"> <li><i>Acknowledgment and appraisal of exploration by other parties.</i></li> </ul>	<ul style="list-style-type: none"> <li>Several episodes of exploration for gold, diamonds and base metals has been carried out in the area, include surface geochemistry, aeromagnetics, EM surveys, vacuum, RAB, RC and diamond drilling. Systematic exploration completed by Sons of Gwalia, Aztec Exploration and MIM defined and tested the main targets, identifying anomalous gold and significant copper mineralisation in drilling at the Main Gossan prospect. Follow up drilling by Empire Resources has (to 2011) in the main targeted the outcropping, siliceous ironstones representing sulphide-bearing strata within complexly deformed metasediments and discrete magnetic anomalies within the regional aeromagnetic data.. Large areas under shallow aeolian sand cover remain unexplored.</li> </ul>
<p><i>Geology</i></p>	<ul style="list-style-type: none"> <li><i>Deposit type, geological setting and style of mineralisation.</i></li> </ul>	<ul style="list-style-type: none"> <li>The tenements are located on the north eastern margin of the Earraheedy Basin, a NW-trending asymmetric east-plunging synclinal basin 250km long and 150km wide. The northern margin has been locally strongly deformed by folding and faulting and was formerly known as the /Stanley Fold Belt. Early explorers assigned the sedimentary sequence in the Imbin Project to the “Troy Creek Beds” that were thought to pre-date the Earraheedy Basin. The sediments have since been assigned to the Yelma Formation. MIM state that conformable dolerite sills intrude the sequence in the area of the North Chert prospect, raising the possibility of syn-sedimentary volcanic activity on the northern margin. Bunting (1986) regards the northern margin as tectonically active, the presence of mafic intrusives and ultramafic rocks indicates potential for a rifted margin and Besshi-style VMS mineralisation.</li> </ul>

Criteria	JORC Code explanation	Commentary
<i>Drill hole Information</i>	<ul style="list-style-type: none"> <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: <ul style="list-style-type: none"> <li>○ easting and northing of the drill hole collar</li> <li>○ elevation or RL (Reduced Level – elevation above sea level in metres) 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> </ul> </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>	<ul style="list-style-type: none"> <li>• Surface sampling only.</li> </ul>
<i>Data aggregation methods</i>	<ul style="list-style-type: none"> <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 style="list-style-type: none"> <li>• No data aggregation, surface sampling only.</li> </ul>
<i>Relationship between mineralisation widths and intercept lengths</i>	<ul style="list-style-type: none"> <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 style="list-style-type: none"> <li>• Surface sampling only.</li> </ul>
<i>Diagrams</i>	<ul style="list-style-type: none"> <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 style="list-style-type: none"> <li>• A plan showing reported sample locations is included in the announcement.</li> </ul>
<i>Balanced reporting</i>	<ul style="list-style-type: none"> <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 style="list-style-type: none"> <li>• Historic exploration results relevant to the identified targets are listed in Table 1.</li> </ul>
<i>Other substantive</i>	<ul style="list-style-type: none"> <li>• Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical</li> </ul>	<ul style="list-style-type: none"> <li>• No other substantive data to report.</li> </ul>

Criteria	JORC Code explanation	Commentary
<i>exploration data</i>	<i>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.</i>	
<i>Further work</i>	<ul style="list-style-type: none"> <li><i>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></li> <li><i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></li> </ul>	<ul style="list-style-type: none"> <li>Lodestar continues to review all the Imbin Project data to identify targets and determine if additional drilling is warranted. Drill targets remain at the historic Main Gossan and North Chert prospects, other areas have received only shallow, first-pass drilling.</li> </ul>