



10 July 2019

# Update on upcoming drilling program at Nicholson Project JV with South32

- Drilling program to systematically test up to eight large high priority geophysical conductivity targets with potential to deliver world-class discoveries similar to McArthur River, Century and Mount Isa lead-zinc-silver deposits
- Fully funded by South32 to complete drilling program in first stage of joint venture (JV)
- Substantial field preparation and logistics well advanced towards establishing drill program infrastructure
- Aboriginal cultural heritage survey completed
- Awaiting drill rig availability estimated for late July 2019

Superior Resources (ASX:SPQ) announced today further progress at its Nicholson Project JV with South32, with the completion of initial field reconnaissance at priority drill sites and an aboriginal cultural heritage survey (Figure 1). Drilling program infrastructure and rig access construction is underway in preparation for drilling.

Diamond drilling of up to eight large high priority geophysical conductivity targets will commence immediately following the completion of access route construction.

Superior's Managing Director Peter Hwang said: "The relationship with South32 has enabled the JV to complete advanced remodeling of geophysical data with results that greatly enhance the quality and prospectivity of the conductors that we have targeted. We will soon be drill-testing several high priority VTEM conductivity targets with at least 4,000m of drilling planned to be completed and reported by the end of this year."

He added: "The targets that we plan to drill this year are substantial in size and have the potential to deliver a McArthur River or Mount Isa sized deposit with the targets interpreted to be located within the prospective Mount Les Siltstone.



We are pleased that the JV is off to a great start and are looking forward to the program ahead of us as we embark on the first systematic drilling of large-scale Mount Isa style targets in this part of the Carpentaria Zinc Province."

The progress at the north-west Queensland project follows the signing of an earn-in and JV agreement with major miner South32, a significant milestone for Superior's lead-zinc strategy and one that validates the project's potential to host a world-class base metals deposit (refer ASX announcement 29 May 2019).

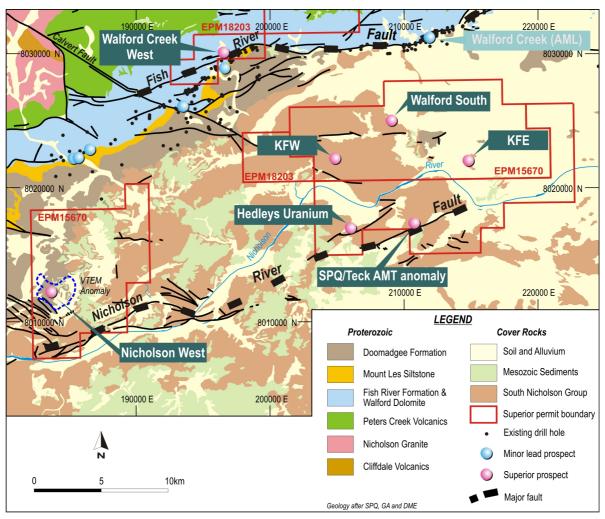


Figure 1. Nicholson Project tenements and key prospect locations.

#### **High priority conductivity targets**

An airborne VTEM (Versatile Time Domain EM) survey over 260-line kilometers of part of the Nicholson Project was completed by Geotech Airborne Pty Ltd in 2007. The original data was recently remodeled and interpreted by geophysical consultants — Aarhus Geophysics. The applied Aarhus method is designed for detection and delineation of subsurface contrasts in conductivity and resistivity. In particular, the responses can be interpreted from the collected data to detect sub surface accumulations of massive sulphide deposits.



The conductivity remodeling has significantly improved the quality of modelled information at depth and has also improved the vertical resolution of conductive formations. In particular, the results have upgraded the Company's original high priority Nicholson West conductivity target as well as identified a new high priority and highly conductive target, Nicholson River target (Figure 2), both of which are located within the same geological strata.

The Nicholson River and Nicholson West targets are interpreted to dip shallowly to the south (parallel to the regional stratigraphy), which is consistent with field observations made to the north of the prospect area. A southwest-northeast trending fault structure is interpreted to be developed between the two anomalies.

Importantly, the Nicholson River and Nicholson West targets can be interpreted in vertical conductivity sections to be coincident with the Mount Les Siltstone, which is the prospective mineralisation host that is known in the region to host Sedimentary Exhalative (SEDEX) style deposits (e.g. the Walford Creek Cu-Pb-Zn-Co-Ag – Aeon Metals).

Most of the conductivity targets that are planned to be drilled in the current program are of sufficient size to be similar to a McArthur or Century-sized deposit.

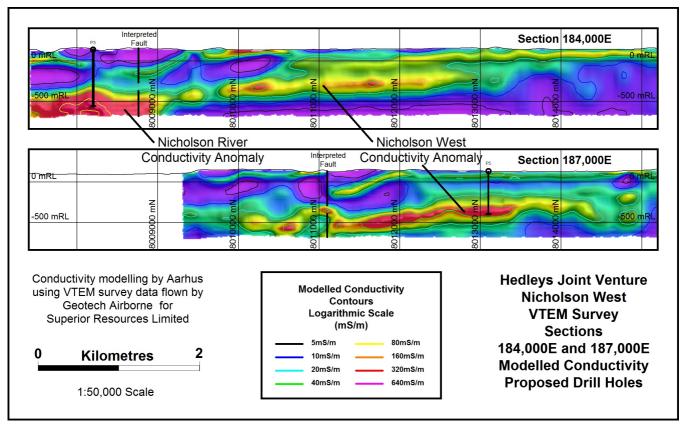


Figure 2. VTEM Aarhus modelled conductivity sections on lines 184,000E and 187,000E showing the Nicholson West and Nicholson River conductivity anomalies and interpreted major southwest-trending fault. Proposed drill holes P3 and P5 are also shown.





Figure 3. Aerial photograph of part of the Nicholson Project area.

Mr Hwang added: "Superior is focused on identifying potential world-class discoveries that offer maximum value for shareholders. With demand rising for base metals amid Asia's ongoing industrialisation, the outlook is excellent for our Company and we look forward to delivering the benefits to all stakeholders."

#### <ENDS>

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#### **About Superior Resources**

Superior Resources Limited (ASX:SPQ) is a public Australian company exploring for large lead-zinc-silver, copper, gold and nickel-cobalt deposits in northern Queensland which have the potential to return maximum value growth for shareholders.

The Company has a dominant exploration position within the Carpentaria Zinc Province, one of the world's richest mineral producing regions and is focused on multiple Tier-1 equivalent exploration targets.

#### **About Nicholson Project**

The Nicholson Project is a "Tier 1" zinc-lead exploration project that provides the Company with industry-leading opportunities to discover a world-class Mount Isa Style Lead-Zinc-Silver deposit. The project is located in the Carpentaria Zinc Province, which contains 20% of the world's zinc resource inventory. In the region immediately surrounding Mount Isa, rocks prospective for Mount Isa Style deposits are exposed at or close to surface and as a consequence, have been intensely explored. In contrast, the Nicholson Project is in an equally prospective region that is relatively unexplored. In this region the prospective rock sequences are covered by varying depths of younger sediments. This is the most likely area within Queensland to make the next Mount Isa discovery.

**Reporting of Exploration Results:** The information in this report that relates to Exploration Results and associated interpretations contained in this report is based on information compiled by Mr Ken Harvey, a non-executive director and shareholder of Superior Resources Limited and a Member of the Australian Institute of Geoscientists. Mr Harvey has sufficient experience which is relevant to this style of mineralisation and type of deposit under consideration and to the activity he is undertaking to qualify as a Competent Person under the 2012 edition of the "Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Harvey consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

Forward looking statements: This document may contain forward looking statements. Forward looking statements are often, but not always, identified by the use of words such as "seek", "indicate", "target", "anticipate", "forecast", "believe", "plan", "estimate", "expect" and "intend" and statements that an event or result "may", "will", "should", "could" or "might" occur or be achieved and other similar expressions. Indications of, and interpretations on, future expected exploration results or technical outcomes, production, earnings, financial position and performance are also forward-looking statements. The forward-looking statements in this presentation are based on current interpretations, expectations, estimates, assumptions, forecasts and projections about Superior, Superior's projects and assets and the industry in which it operates as well as other factors that management believes to be relevant and reasonable in the circumstances at the date that such statements are made. The forward-looking statements are subject to technical, business, economic, competitive, political and social uncertainties and contingencies and may involve known and unknown risks and uncertainties. The forward-looking statements may prove to be incorrect. Many known and unknown factors could cause actual events or results to differ materially from the estimated or anticipated events or results expressed or implied by any forward-looking statements. All forward-looking statements made in this presentation are qualified by the foregoing cautionary statements.

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## **JORC Code, 2012 Edition**

## **Table 1 report - Exploration Update**

- This table is to accompany an ASX release updating the market on exploration progress at the Nicholson Pb-Zn-Ag Project.
- New information presented herein relates to a recently reprocessed geophysical survey. The details of this survey and processing methods are presented below in Section 2 under the heading "other substantive exploration data"

## **Section 1 Sampling Techniques and Data**

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

Criteria	section apply to all succeeding sections in this  JORC Code explanation	Commentary
Sampling techniques	<ul> <li>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.</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 (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.</li> </ul>	<ul> <li>Geotech Ltd was contracted to complete a VTEM survey over Superior's Nicholson Project (2007).</li> <li>Modelling and reinterpretation of the VTEM survey geophysical data was undertaken by Aarhus Geophysics Aps</li> <li>Aarhus Workbench software was utilised for the inversion modelling and imaging.</li> <li>Aarhus has provided a set of resistivity (RDI) / conductivity (CDI) sections along all modelled VTEM survey lines</li> </ul>
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,	• No drilling is reported in this announcement



Criteria	JORC Code explanation	Commentary
	etc).	
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>	No drilling is reported in this announcement
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> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	No drilling is reported in this announcement
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 insitu 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 drilling is reported in this announcement
Quality of assay data and	• The nature, quality and appropriateness of the assaying and laboratory procedures used and	• No drilling is reported in this



Criteria	JORC Code explanation	Commentary
laboratory tests	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.	announcement
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 drilling is reported in this announcement
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>Datum used is UTM GDA 94 Zone 54.</li> <li>RL information will be merged at a later date utilising the most accurately available elevation data.</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>	The original VTEM survey at the Nicholson Project was flown at a 1km spacing. Flight lines were orientated north south.
Orientation of data in relation to	Whether the orientation of sampling achieves unbiased sampling of possible	No drilling was completed in the phase of works



Criteria	JORC Code explanation	Commentary
geological structure	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.	No quantitative measurements of mineralised zones have been reported.
Sample security	• The measures taken to ensure sample security.	• Chain of Custody is managed by the Company's geophysical contractors and geophysical consultants.
		• The data is QA/QC checked by a qualified geophysicist
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	• The geophysical data associated with this report has been subject to data import validation.
		<ul> <li>Geophysical data has been reviewed by company personnel and geophysical consultants.</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 Nicholson Project comprises EPM15670 and EPM18203, held by Superior Resources Ltd (100%).</li> <li>EPM15670 and EPM18230 are also subject to a joint venture agreement with South32 (ASX: S32). See announcement released 29/05/2019 for details.</li> </ul>
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other parties.	• NA
Geology	• Deposit type, geological setting and style of mineralisation.	• The Nicholson Project is targeting Mount Isa style lead-zinc-silver mineralisation.
		• The host rocks are Proterozoic



Criteria	JORC Code explanation	Commentary
		sediments of the Fickling Group, comprising the Doomadgee Formation which unconformably overlies the Mount Les Siltstone and the Walford Dolomite.
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:         <ul> <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>	• NA
Data aggregation methods	<ul> <li>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.</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>	NA



Criteria	JORC Code explanation	Commentary
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 (eg 'down hole length, true width not known').</li> </ul>	<ul> <li>No drilling was completed in the phase of works.</li> <li>No sampling was completed in the phase of works.</li> </ul>
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 attached figures
Balanced reporting	• Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	All relevant information is presented.
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.	<ul> <li>The applied Aarhus method is designed for detection and delineation of subsurface contrasts in conductivity and resistivity. In addition, the responses can be interpreted from the collected data to detect sub surface accumulations of massive sulphide.</li> <li>The survey tested approximately 7km across the South Nicholson Basin</li> </ul>
		<ul> <li>The original VTEM survey tested approximately 260-line kilometres of the South Nicholson Basin.</li> </ul>
Further work	<ul> <li>The nature and scale of planned further work (eg 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</li> </ul>	Reverse Circulation with Diamond core tail drilling is planned at the Nicholson Prospect aimed at testing conductivity targets.



Criteria	JORC Code explanation	Commentary	
	this information is not commercia sensitive.	lly	