

# Steam Engine Gold Mineral Resource Upgraded 11% Scoping Study Planned Amid Record AUD Gold Prices

#### **HIGHLIGHTS:**

- Steam Engine Gold Deposit's Mineral Resource upgraded by around 11% to total in-situ JORC (2012) Indicated and Inferred Resource of 1.27 million tonnes at 2.3 g/t gold (approximately 94,000 ounces), including:
  - o Indicated: 370,000 tonnes @ 2.5 g/t gold (approx. 33,000 ounces); and
  - Inferred: 900,000 tonnes @ 2.2 g/t gold (approx. 64,000 ounces)
- Mineral resource based on 800m of at least 2.5km known lode strike length (at surface) and down to maximum depths of 170m (Steam Engine Lode) and 70m (Eastern Ridge Lode)
- Gold lodes are open to the north and at depth (Steam Engine Lode) and open in all directions at Eastern Ridge Lode, providing good potential for a significant gold deposit
- Drilling program to upgrade and expand the resource planned to commence after land access finalised
- Accelerated scoping study with a view to early mining development and toll treatment commenced, amid record AUD gold prices

Queensland-based gold and base metals explorer Superior Resources Limited (ASX:SPQ) announced today a JORC 2012 mineral resource upgrade for its Steam Engine Gold Deposit, part of the Company's 100%-owned Greenvale Project.

The mineral resource estimate has been expanded and upgraded to indicated and inferred, resulting in an approximate 11% increase in the in-situ gold mineral resource. The total in-situ resources now stands at:

- > 1.27 million tonnes at 2.3 g/t gold (approximately 94,000 ounces), including:
  - o Indicated Resources: 370,000 tonnes @ 2.5 g/t gold (approx. 33,000 ounces); and
  - Inferred Resources: 900,000 tonnes @ 2.2 g/t gold (approx. 64,000 ounces).

Commenting on the upgraded mineral resource, Superior's Managing Director, Peter Hwang said:

"We have long considered Steam Engine to have excellent near-term development potential, given its location and the nature of the resource. Now with the current record high Australian dollar gold prices and positive long-term forecasts for the safe haven metal, this strategy for early development has become compelling."

"In response, we are accelerating scoping level studies based on an open pit and toll treatment operation as well as a drilling program to further upgrade and expand the resource. The results from the work completed so far are very promising."

"Efficiency as to time and cost will be key to realising successful early development of any viable resource at Steam Engine. Consistent with our low overhead principles, we are fortunate to have the ability to defray most

E manager@superiorresources.com.au



of the significant costs of this process through our senior management's specialised technical, legal and financial capabilities."

He added: "Steam Engine shows all indications to be a quality and potentially sizeable gold deposit, demonstrating good grades and continuity developed within extensive shear zone structures. Together with the positive gold market, this is good news for the Company within a difficult market environment."

"Significantly, together with its size and development potential, Steam Engine may also be the key to unlocking the world-class potential that is inherent in our greater Greenvale and Nicholson Projects."

#### **Steam Engine Mineral Resource Upgrade**

The spot gold price has climbed around 10 per cent this year, reaching a high of US\$1,734 per ounce (A\$2,700), a record in Australian dollar terms, amid safe haven buying due to the effects of the COVID-19 pandemic. Analysts have predicted higher prices ahead, with ANZ Research forecasting US\$1,900/oz by June 2020 and Bank of America raising its 18-month price target to a record US\$3,000/oz.

In light of the current positive gold price predictions, a study of the Steam Engine Gold Deposit was commenced with consideration given to the potential for an accelerated early mining and toll treatment operation. The study focused only on the Steam Engine and Eastern Ridge lode zones and commenced with re-modelling of the Mineral Resource.

Block models have been created to determine the Mineral Resource and applicable confidence categories. The Mineral Resource is being further evaluated for its potential for toll treatment using a pit optimisation based on aa AUD\$2,000 gold price. The pit optimisation results will be released as part of a Scoping Study.

The Company has determined that the results of the work completed to date warrant advancing the project to a Scoping Study to determine the potential viability for toll treatment of the resource.

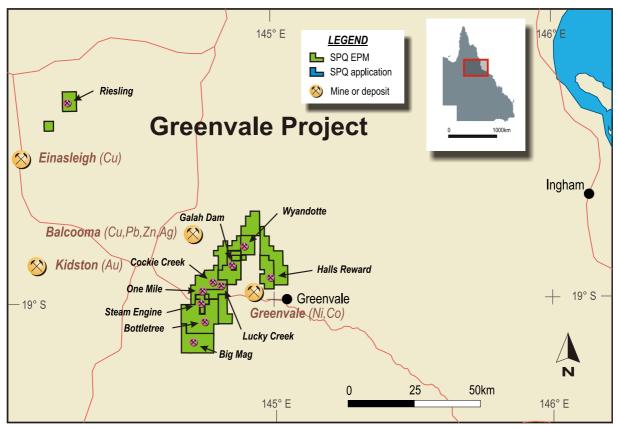


Figure 1. Location of the Steam Engine Gold Deposit and other prospects within the Greenvale Project.



# **Overview of the Steam Engine Deposit**

The Steam Engine Gold Deposit is located within EPM26165, approximately 210km west-northwest of Townsville in Northeast Queensland, Australia (Figure 1).

Gold mineralisation is developed within several north-northeast trending, west-dipping pyritic quartz-muscovite-carbonate schist lodes within metamorphosed intermediate to basic intrusives and metasediments. Several gold-bearing lodes occur in the area, with the Steam Engine Lode being the most notable from the relatively limited exploration work on the project. The Eastern Ridge lode is located approximately 500 metres east of the Steam Engine lode. A further zone of gold mineralisation is located between and to the south of the Steam Engine and Eastern Ridge lodes (Figure 2).

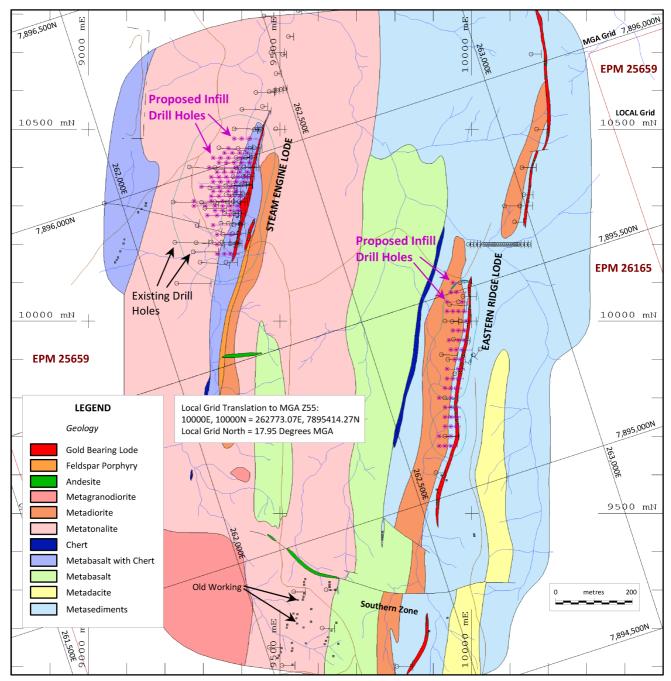


Figure 2. Steam Engine Gold Deposit – Geology Plan, showing gold lodes (in Red) and existing and planned drill holes.



Total drilling carried out on the Steam Engine and Eastern Ridge lode zones totals 87 holes for 6,588 metres of drilling. The majority of this drilling is from previous drilling programs carried out during the 1980's and 1990's by Noranda and more recent drilling by Beacon Minerals in 2007. During 2017, Superior completed 6 reverse-circulation (RC) drill holes into the Steam Engine and Eastern Ridge lode zones.

#### **Mineral Resource Statement**

A revision of the Mineral Resources at the Steam Engine project has resulted in a JORC (2012) Indicated and Inferred Mineral Resource Estimate for the Steam Engine Gold Deposit of 1.27 million tonnes at 2.3 g/t gold, comprising:

- o Indicated Resource of 370,000 tonnes @ 2.5 g/t gold; and
- o Inferred Resource of 900,000 tonnes @ 2.2 g/t gold.

A breakdown of this resource is shown in Table 1.

**Table 1. Steam Engine Gold Deposit Resource Table** 

Classification	Cut-off Grade	Tonnes	Grade (g/t)	Gold (ounces)
Steam Engine (Main Zone)				
Indicated	0.5	370,000	2.5	30,000
Inferred	0.5	420,000	2.3	31,000
SUBTOTAL		790,000	2.4	61,000
Steam Engine (Footwall Zone	Steam Engine (Footwall Zone)			
Inferred	0.5	210,000	1.6	11,000
Eastern Ridge				
Inferred	0.5	270,000	2.7	23,000
TOTALS FOR STEAM ENGINE	TOTALS FOR STEAM ENGINE AND EASTERN RIDGE ZONES			
Indicated		370,000	2.5	30,000
Inferred		900,000	2.2	64,000
TOTAL RESOURCE	ES	1,270,000	2.3	94,000

A plan of the Mineral Resource wireframe and relative locations is shown in Figure 3 along with a 3D block model and cross sections in Figures 4 to 8.



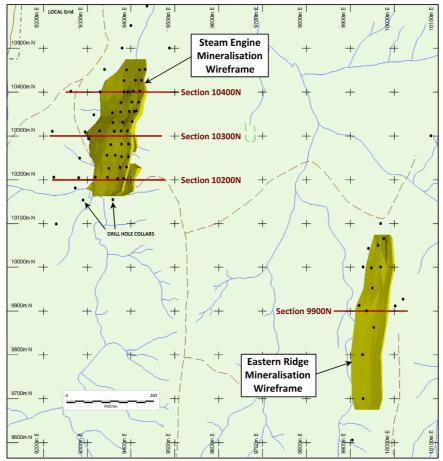


Figure 3. Plan View of Steam Engine and Eastern Ridge lode wireframes. Cross section locations are also indicated.

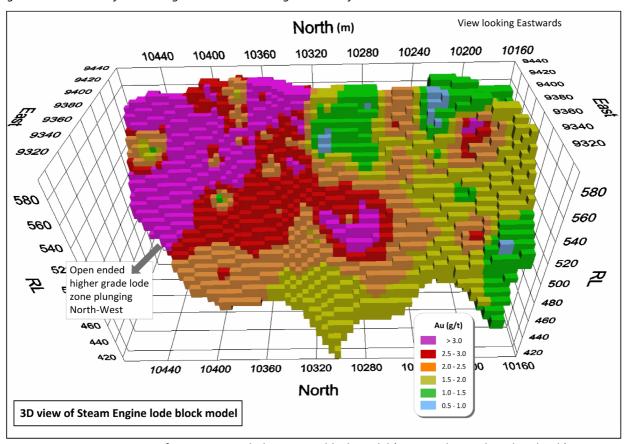


Figure 4. 3D view of Steam Engine lode resource block model (open to the north and at depth).



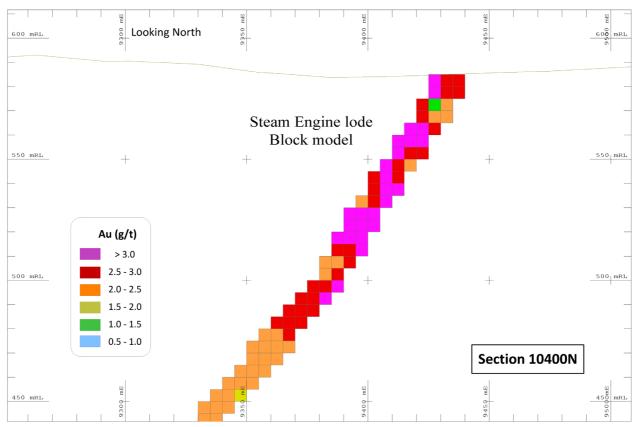


Figure 5. Section 10400N, open at depth (refer Figure 3 for location).

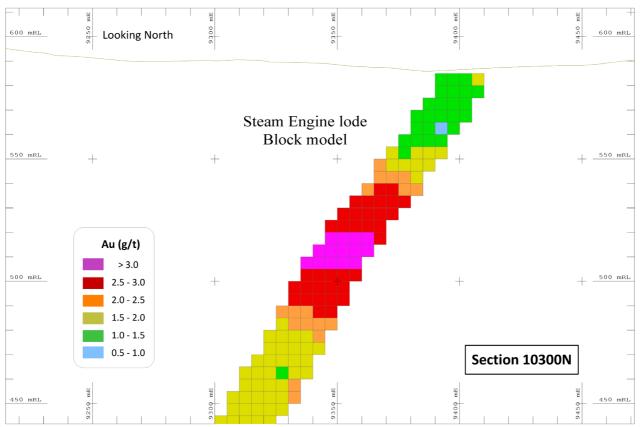


Figure 6. Section 10300N, open at depth (refer Figure 3 for location).



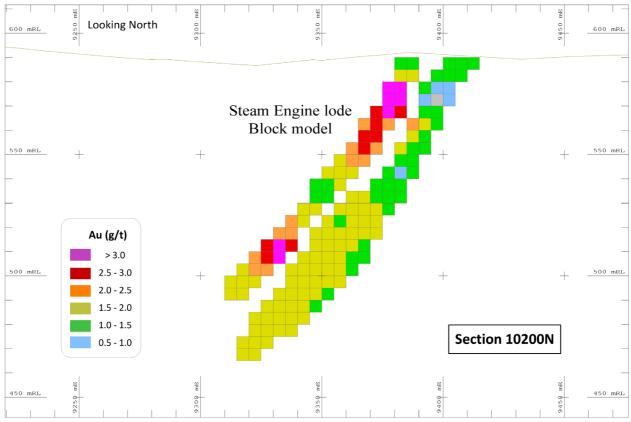


Figure 7. Section 10200N, open at depth (refer Figure 3 for location).

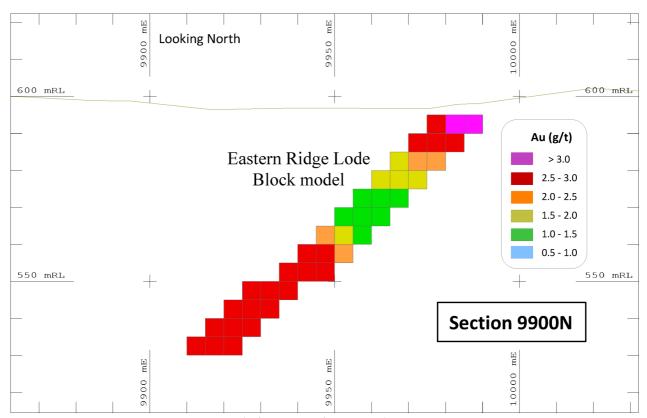


Figure 8. Section 9900N, open at depth (refer Figure 3 for location).



# **Summary of Resource Estimate and Reporting Criteria**

(See also Appendix 2: JORC Code, 2012 Edition - Table 1)

#### Geology and Geological Interpretation

At the Steam Engine Gold Deposit, the gold mineralisation occurs within several north-northeast trending, west-dipping pyritic quartz-muscovite-carbonate schist lodes within metamorphosed intermediate to basic intrusives and metasediments (Figure 2).

Several gold bearing lodes occur in the area of which the Steam Engine Lode is the most notable. The Steam Engine lode has a surface strike length of approximately 500 metres. The Eastern Ridge lode is approximately 500 metres eastwards of the Steam Engine lode. The Eastern Ridge lode has a surface strike length of approximately 1,400 metres. The lodes are typically interpreted as being of the mesothermal vein type.

The gold bearing lode zones are located within a shear zone and show strong continuity and a persistent dip to the west (the Steam Engine lode typically dips around 50° to 60° to the west). The Eastern Ridge lode typically dips at about 40° to 50° to the west.

#### **Drilling**

The drilling data for the Steam Engine and Eastern Ridge lode zones includes 15 recently drilled reverse circulation (RC) drill holes carried out by Superior (6 holes during 2017) and Beacon Minerals (9 holes during 2007), together with historic RC and diamond drill holes done by Noranda Australia (1980's – 1990's) (Figures 9 and 10). Drilling carried out on the Steam Engine and Eastern Ridge lode zones to date totals 87 drill holes for 6,588 metres of drilling.

Drilling at the Steam Engine lode zone comprises 51 RC drill holes for 3,149 metres of drilling as well as 12 diamond core drill holes for 1,914 metres of drilling.

Drilling at the Eastern Ridge lode zone comprises 24 RC drill holes for 1,525 metres of drilling.

#### Sampling and Assaying

The sampling used in the resource estimation was derived from both RC and diamond core drilling. The RC chip samples were split prior to assaying. The diamond core was halved to produce an assay sample. Sample sizes of predominantly 1 metre in length have been used over the most significant areas of the gold mineralisation. (Note: downhole assay data for six of Noranda's drill holes (LSRC039, 040, 041, 045, 046 and 047) from the Steam Engine lode zone are not recoverable. However, composite gold intersections for these holes have been recovered. No significant change to the resource estimate in this portion of the resource is likely to result from this very limited amount of data loss.)

All assays have been conducted by commercial laboratories, using industry standard methods available at the time of drilling.



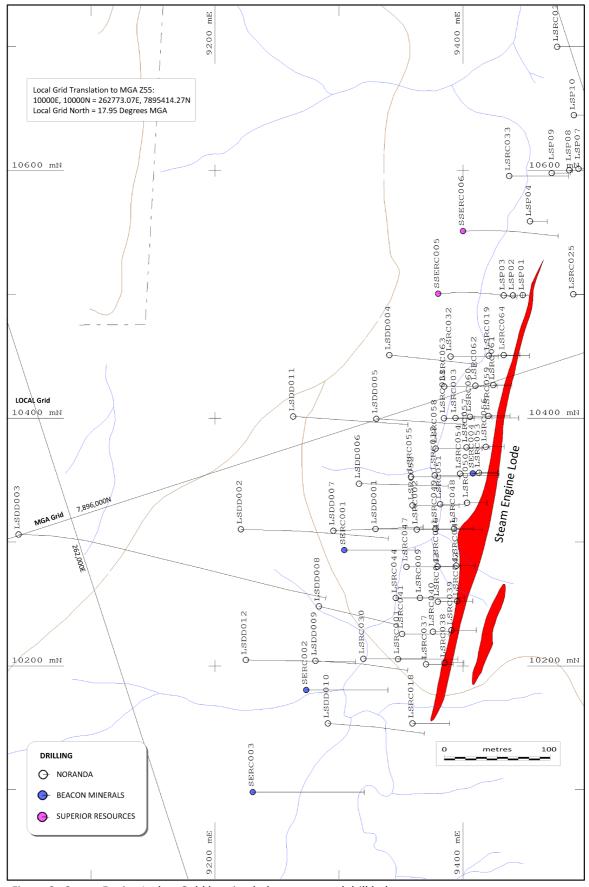


Figure 9. Steam Engine Lode – Gold bearing lode outcrop and drill holes



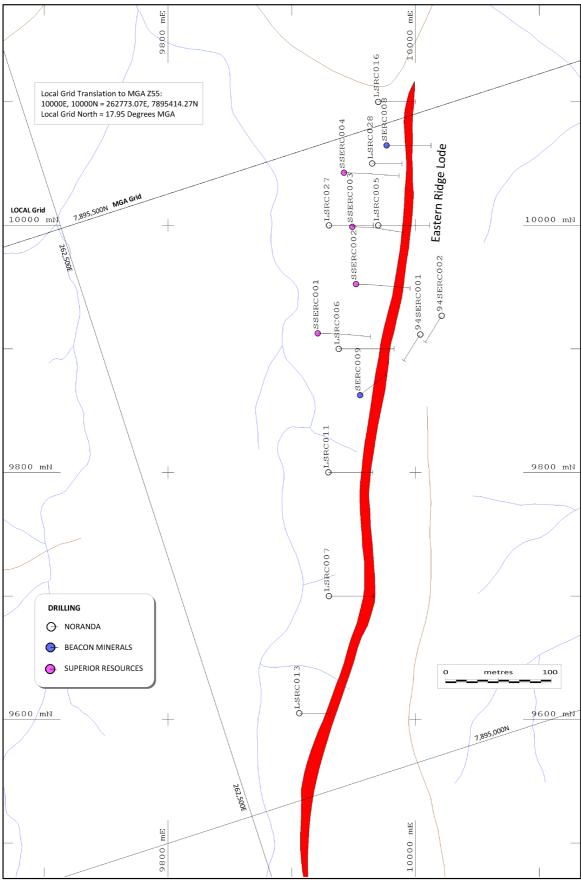


Figure 10. Eastern Ridge Lode – Gold bearing lode outcrop and drill holes



#### **Drill Hole Locations**

Noranda used a local grid control for drilling and completed accurate surveying of the drill hole collars on this grid with RLs being surveyed to a local height datum. Down-hole surveying of most of the diamond drill holes was completed by Noranda, but RC holes were not surveyed down-hole.

Superior surveyed most of the Noranda drill hole collars using a DGPS system. This surveying validates the accuracy of Noranda's reported collar locations and provides a reasonably accurate translation of the old Noranda grid coordinates to MGA Z55 as follows:

Common Point: 10,000E; 10,000N = 262,773.07E; 7,895,414.27N

Local Grid North: 17.950 MGA.

DGPS Elevation + 26.867m = Noranda Local Datum.

#### Data Compilation and Validation

The resource estimate is based on data compilations carried out in previous resource estimations conducted by competent persons working for Superior Resources Limited.

Data validation for this Mineral Resource estimate was carried out by the inspection of the previous reports dating back to the earliest phases of drilling. Further data validation processes were also carried out in mining software to make the data ready for use. No material inconsistencies were identified, and the data was deemed satisfactory for Mineral Resource estimation purposes.

#### Sectional Interpretations

Where available, previous interpretations were used as a guide to the sectional interpretations used for the resource estimate, together with the relevant drill hole geology and surface geology information. Sectional interpretations where made of all zones of mineralisation displaying good continuity and sufficient grade, which included the main Steam Engine Zone mineralisation, a portion of the Steam Engine footwall zone and a portion of the Eastern Ridge Zone mineralisation.

A general intersectional cut-off of 1 g/t was used. The gold intersections were generally calculated using an individual assay cut-off of around 0.7 g/t gold. Intersections of 1 g/t gold and above are considered to have reasonable prospects of eventual economic extraction. The other major economic factor taken into account was the width of the gold intersection. Zones of greater width were generally considered to hold better potential for extraction at depth. However geological factors, internal waste intervals and a minimum width of the mineralised zone were also taken into account and used to develop potential mineable situations and practical mineable widths for the Mineral Resource. Some intersections of less than 1 g/t were also included where necessary for the purposes of mineralisation continuity.

Plans showing the locations of recent and historic drilling are shown in Figures 9 and 10 together with a cross section though both the Steam Engine (Figure 11) and Eastern Ridge lodes (Figure 12).



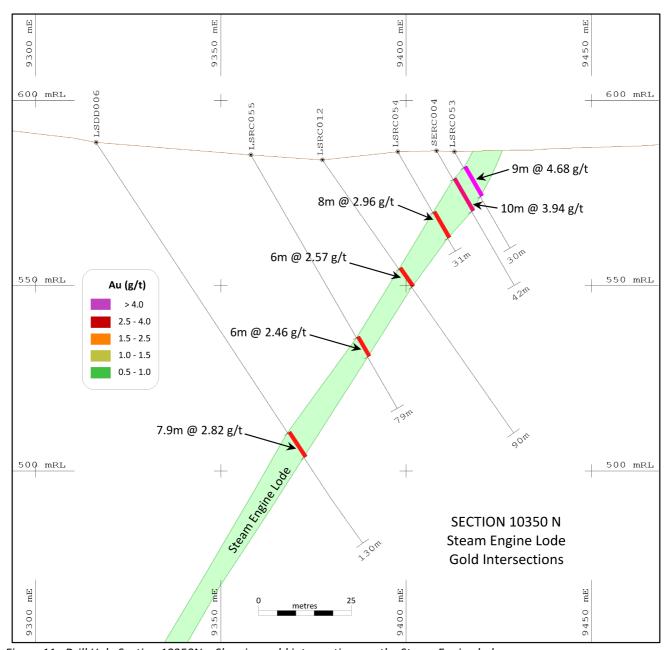


Figure 11. Drill Hole Section 10350N-Showing gold intersections on the Steam Engine lode



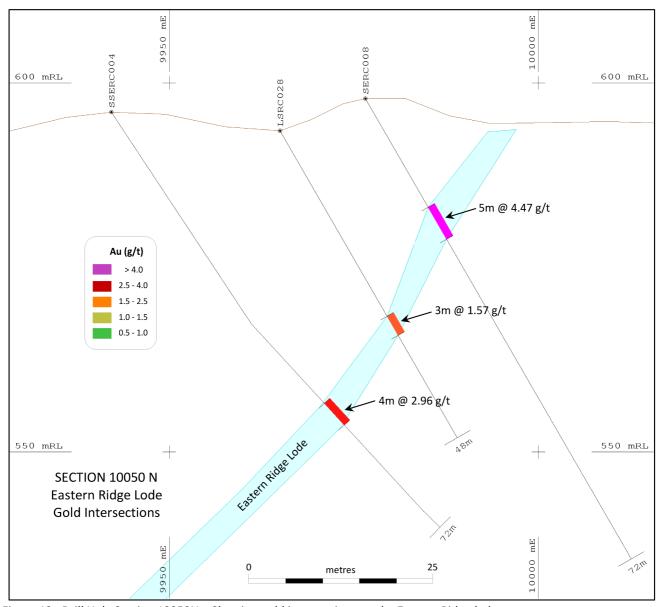


Figure 12. Drill Hole Section 10050N – Showing gold intersections on the Eastern Ridge lode



#### Wireframing of the Resource Mineralisation

The sectional interpretations where used to form 3D wireframe models of the gold mineralisation (refer Figure 13 showing the Steam Engine lode wireframe). The wireframing process involves a 3D interpretation of the way in which the sectional outlines are joined together. This process is open to some level of interpretation. Where more than one simple interpretation can be made, it will only significantly impact on the resource where another interpretation would significantly change the tonnage of the resource. With increased density of drilling this uncertainty is greatly reduced.

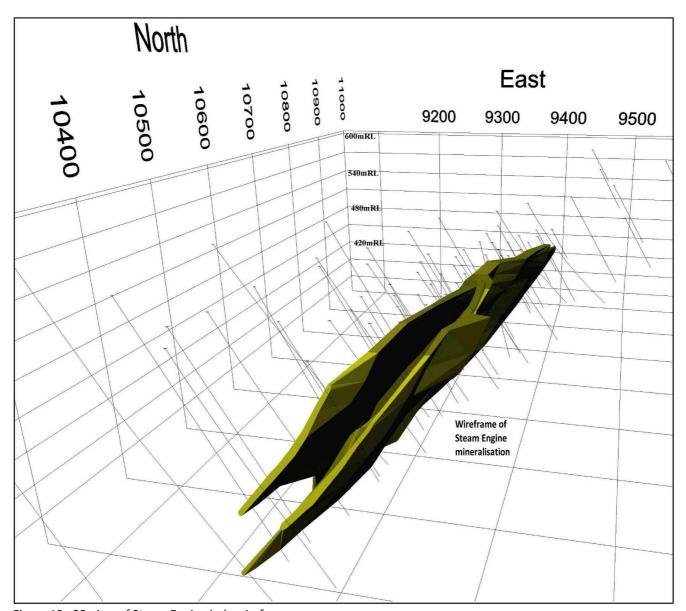


Figure 13. 3D view of Steam Engine lode wireframe

#### **Block Modelling**

Inverse distance weighted (IDW) block models were used to make the Mineral Resource estimates of the wireframed gold mineralisation. The block models consisted of 5x5x5 block models. An inverse power of 3 was used to more closely map the grade distributions in 3D (somewhat similar to contouring in 3D).



The resource wireframes were then used to allocate the proportions of the blocks that lie within the wireframed zones, to allow accurate estimation of the tonnes and grade. As part of the cross checking, inspections of the created block model against the sectional and long section view reflected a close fit with the grade fluctuations in the drilling. Checks were then also made between the wireframe volumes and the block model calculated volumes to ensure that they matched.

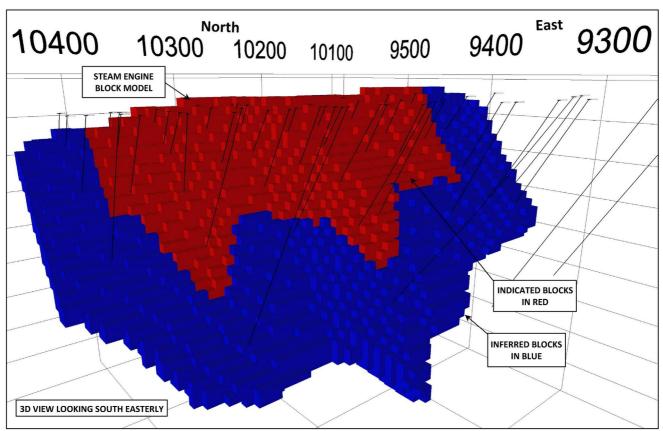


Figure 14. 3D View of Steam Engine lode block model showing the Indicated and Inferred zones

#### Resource Classification

The Mineral Resource classification is based on the confidence in the geological model, the continuity of the mineralisation zones, and the drilling density. The block models were then further defined to estimate the Mineral Resources by the respective classifications. No area was found to justify a Measured classification, however some of the better drilled portions of the Steam Engine lode were classified as Indicated Resource (refer Figure 14), with much of the Mineral Resource at this stage classified as Inferred Resource.

Some sections of the Mineral Resource that in previous estimation were classified as Inferred Resource, have been re-classified into Indicated Resource, where the drilling densities are sufficient to do so. This has been done on the basis that the numerous phases of Noranda's previous drilling together with more recent drilling by Beacon Minerals and Superior. Superior's drill holes have reconfirmed the grades of the previous drilling phases sufficiently to indicate a significant degree of confidence in the grades reported.



### **Next Steps**

The Superior team will be accelerating the project to a Scoping Study with a view to determining whether a feasibility level of study is warranted.

A first-stage infill drilling program is proposed for the Stream Engine project to upgrade most of the gold lode zones within optimised pit models to Measured and Indicated resources (refer Figure 2 and the locations of the proposed drill holes). To minimize costs, RC drilling is proposed for most of the holes. Several diamond core holes will be drilled to enable metallurgical, structural and other geological studies to be undertaken. This would be subsequent to a positive outcome from the Scoping Study as mentioned above.

In addition, the following work programs are planned:

- Pit optimisation studies;
- Metallurgical studies;
- Geotechnical studies;
- Toll treating negotiations;
- Financial modelling;
- Preliminary mining and rehabilitation planning; and
- Preliminary environmental studies.

Subject to results, this work may be followed by a Pre-Feasibility study, together with a Production Target for any remaining Mineral Resources that may require further infill drilling.

Mr Hwang added: "Steam Engine presents a pathway to near-term cashflow generation for Superior, with gold in demand from investors due to the current global economic downturn. Together with our other projects including the highly prospective Nicholson, Bottletree and Big Mag projects, we are well placed to generate increased value for shareholders as we unlock the world-class potential of our assets."

#### <ENDS>

#### For more information:

Peter Hwang Managing Director Tel: +61 7 3847 2887

www.superiorresources.com.au manager@superiorresources.com.au



# **About Superior Resources**

Superior Resources Limited (ASX:SPQ) is an Australian public company exploring for large lead-zinc-silver, copper, gold and nickel-copper-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.

Reporting of Mineral Resources: Information contained in this report that relates to Mineral Resources is based on information compiled by Mr Kevin Richter, an employee of Superior Resources Limited, who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Richter 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'. Mr Richter 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.

**Disclaimer:** Superior and its related bodies corporate, any of their directors, officers, employees, agents or contractors do not make any representation or warranty (either express or implied) as to the accuracy, correctness, completeness, adequacy, reliability or likelihood of fulfilment of any forward-looking statement, or any events or results expressed or implied in any forward looking statement, except to the extent required by law. Superior and its related bodies corporate and each of their respective directors, officers, employees, agents and contractors disclaims, to the maximum extent permitted by law, all liability and responsibility for any direct or indirect loss or damage which may be suffered by any person (including because of fault or negligence or otherwise) through use or reliance on anything contained in or omitted from this presentation. Other than as required by law and the ASX Listing Rules, Superior disclaims any duty to update forward looking statements to reflect new developments.



# **APPENDIX 1**

# JORC Code, 2012 Edition – Table 1

# Section 1 Sampling Techniques and Data

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

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>	<ul> <li>Current Sampling</li> <li>Samples are obtained from reverse circulation (RC) drilling.</li> <li>All samples are collected as drilled via a riffle splitter attached to the drill rig cyclone.</li> <li>Drill holes are sampled and collected as 1m riffle split samples. All samples were passed through a cyclone and then through a 7/8th to 1/8th splitter. Bulk 1m samples were collected as the 7/8th split, whereas the 1/8th split was collected as an analytical sample over 2m. Analytical sample size was in the order of 2.5kg to 3kg.</li> <li>All RC holes were drilled using a standard face sampling hammer with bit size of 114mm (Four &amp; half inch). The drill bit sizes used in the drilling were consistent in size and are considered appropriate to indicate the degree and extent of mineralisation.</li> <li>Sample intervals that lack metalliferous anomalism are not reported are not considered to be material.</li> <li>The magnetic susceptibility of all samples was measured in the field.</li> <li>Portable XRF analyses were systematically recorded in controlled environment at Terra Search offices in Townsville.</li> <li>1m representative samples of intervals with visible mineralisation were assayed for gold at ALS laboratories in Townsville. 2m representative samples of intervals without visible mineralisation, derived from compositing two samples from consecutive 1m intervals, were also assayed for gold at ALS laboratories in Townsville. Where gold mineralisation was detected in the 2m composite samples, 1m samples were submitted for further assaying.</li> </ul>



Criteria	JORC Code explanation	Commentary
		<ul> <li>1m samples were also submitted for multi-element assaying using aqua regia digestion.</li> </ul>
		<ul> <li>Assaying for gold was via fire assay of a 50 gram charge.</li> </ul>
		<ul> <li>Sample preparation at ALS laboratories in Townsville for all samples is considered to be of industry standard procedure.</li> </ul>
		<ul> <li>Historical Sampling</li> <li>Information relating to historical results relies on data contained in reports submitted to the Queensland Department of Natural Resources and Mines as part of the Company Report System attaching to the grant of Exploration Permits.</li> </ul>
		• The sampling techniques, where reported, used standard industry approaches. These include: 1. splitting off a sample of material delivered to the top of the hole during RC drilling to produce a sample for assay accompanied by geological logging of the sample. 2. Halving of drill core from diamond drilling to produce an assay sample accompanied by geological logging of the core.
		<ul> <li>Assaying of samples was completed by commercial laboratory methods that were appropriate at the time the samples were collected. Sample intervals of 4m were commonly used for initial determination of the presence of gold by a geochemical method followed by more detailed sampling of mineralised intervals at usually 1m intervals using a more precise method.</li> </ul>
		<ul> <li>Whilst it is not possible to determine the reliability of historical assay results, no issues arose during compilation and interpretation of the results that would suggest that the assay results were not reasonable.</li> </ul>
Drilling	Drill type (e.g. core, reverse circulation, open-hole hammer,	Current Drilling
techniques	techniques rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails,	<ul> <li>Drilling from surface was performed using standard RC drilling techniques.</li> </ul>
	face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	<ul> <li>Drilling was conducted by Kelly Drilling using a Schramm 450WS with a 900cfm/350psi compressor and 700 psi on-board booster.</li> </ul>
		<ul> <li>All RC holes were drilled using a standard face sampling hammer with bit size of 114mm (Four &amp; half inch).</li> </ul>
		All holes were surveyed using a Reflex Gyro north-seeking gyroscopic instrument to



Criteria	JORC Code explanation	Commentary
		obtain accurate down-hole directional data.
		<ul> <li>Historical Drilling</li> <li>Reverse Circulation (RC) and Diamond Drilling (DD) are the only drill types relied on in this report.</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>Current Drilling</li> <li>Sample recovery was performed and monitored by Terra Search contractor and Superior Resources' representatives.</li> <li>RC recovery as well as degree of cross-sample contamination were logged on a metre basis. Overall recoveries were excellent. RC samples were all dry.</li> <li>The volume of sample collected for assay is considered to be representative of each</li> </ul>
		<ul> <li>1m interval.</li> <li>RC drill rod string delivered the sample to the rig-mounted cyclone which is sealed at the completion of each 1m interval. The riffle splitter is cleaned with compressed air at the end of each 1m interval and at the completion of each drill hole.</li> </ul>
		<ul> <li>There is no apparent relationship between sample recovery and grade of mineralisation.</li> </ul>
		<ul><li>Historical Drilling</li><li>Recoveries for RC drill holes were not recorded.</li></ul>
		<ul> <li>Recoveries for diamond drill core samples were recorded for most holes drilled at Steam Engine. These recoveries were usually of the order of 100% indicating that recoveries should not be an issue if the results are used for estimating resources.</li> </ul>
		No relationship is evident between sample recovery and grade.



Criteria	JORC Code explanation	Commentary
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>	<ul> <li>Current Drilling</li> <li>Geological logging was conducted during the drilling of each hole by a Terra Search geologist having sufficient qualification and experience for the mineralisation style expected and observed at each hole.</li> <li>Geological logging data entered via a well-developed logging system designed to capture descriptive geology, coded geology and quantifiable geology. All logs were checked for consistency by the Terra Search Principal Geologist. Data captured through Excel spread sheets and Explorer 3 Relational Data Base Management System.</li> </ul>
		<ul> <li>The logging of RC chips is both qualitative and quantitative. Alteration, weathering and mineralisation data contain both qualitative and quantitative fields.</li> </ul>
		<ul> <li>All holes were logged in their entirety at 1m intervals. All logging data is digitally compiled and validated before entry into the Superior database.</li> </ul>
		<ul> <li>The level of logging detail is considered appropriate for resource drilling.</li> </ul>
		<ul> <li>Magnetic susceptibility data for each 1m sample interval was collected in the field.</li> </ul>
		<ul> <li>Geological logging of most of the drill holes is available in the Company Report System.         Logs for holes drilled at fill-in 25m sections have not been located at this stage as         mentioned in the report. The available logging appears to be of a standard to support         resource estimation. No geotechnical logs have been reported and it is assumed that         these were not done. Diamond drill hole logs usually include structural data that has         been compiled in digital form.</li> </ul>
		<ul> <li>The logging is generally of a qualitative nature. No core or chip photography is available in the reports.</li> </ul>
		For the logs available logging of all material has been completed.
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</li> </ul>	<ul> <li>Current Sampling</li> <li>The sample collection methodology is considered appropriate for RC drilling and was conducted in accordance with best industry practice.</li> <li>Split 1m samples are regarded as reliable and representative.</li> </ul>



Criteria	JORC Code explanation	Commentary
Citteria	of the sample preparation technique.  • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.  • Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.  • Whether sample sizes are appropriate to the grain size of the material being sampled.	<ul> <li>RC samples are split with a riffle splitter at 1m intervals as drilled.</li> <li>Samples were collected as dry samples.</li> <li>Quality Assurance (QA)/Quality Control (QC) protocols were instigated such that they conform to mineral industry standards and are compliant with the JORC code.</li> <li>Terra Search's input into the (QA) process with respect to chemical analysis of mineral exploration samples includes the addition of blanks, standards and duplicates to each batch so that checks can be done after they are analysed. As part of the QC process, Terra Search checks the resultant assay data against known or previously determined assays to determine the quality of the analysed batch of samples. An assessment is made on the data and a report on the quality of the data is compiled.</li> <li>Terra Search quality control included determinations of duplicate samples every 50 samples or so to check for representative samples. There was a conscious effort on behalf of the samplers to ensure consistent weights for each sample. Comparison of assays of duplicates shows good reproducibility of results.</li> <li>The above techniques are considered to be of a high quality and appropriate for the nature of mineralisation anticipated. The 2-3kg sample size is appropriate for the rock being sampled. The sample sizes are considered to be appropriate to represent the style of the mineralisation, the thickness and consistency of the intersections.</li> </ul>
		<ul> <li>Historical Sampling</li> <li>The diamond drill core has been halved, as is standard practice for most explorers.</li> <li>Details of the approach taken for sampling of RC drill holes are not available but it is expected to be of industry standard for the time.</li> </ul>
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,</li> </ul>	<ul> <li>Current Sampling</li> <li>All samples were submitted to ALS laboratories in Townsville for gold and multi-element analysis.</li> <li>Samples were crushed, pulverised to ensure a minimum of 85% pulp material passing through 75 microns, then analysed for gold by fire assay method Au-AA26 using a 50-gram sample.</li> <li>A sub-sample of each was also subject to multi-element analysis using aqua regia</li> </ul>



Criteria	JORC Code explanation	Commentary
	blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	digest and ICP emission spectroscopy technique for the following elements: Ag, As, Ba, Bi, Ca, Cd, Co, Cu, Fe, Mg, Mn, Mo, Ni, P, Pb, S, Sb, Zn (ALS code ME-ICP41).
		<ul> <li>The primary assay method used is designed to measure both the total gold in the sample as per classic fire assay, as well as the total amount of economic metals tied up in sulphides and oxides such as Cu, Pb, Zn, Ag, As, Mo, Bi as per aqua regia digest ICP finish.</li> </ul>
		<ul> <li>Some major elements which are present in silicates, such as K, Ca, Fe, Ti, Al and Mg are not liberated by aqua regia digest. In this sense, the aqua regia digest is a partial analytical technique for elements locked up in silicates.</li> </ul>
		<ul> <li>Magnetic susceptibility measurements utilising Exploranium KT10 instrument, zeroed between each measurement.</li> </ul>
		<ul> <li>Certified geochemical standards and blank samples were inserted into the assay sample sequence. Laboratory assay results for these quality control samples are within 5% of accepted values.</li> </ul>
		<ul> <li>As reported above, assaying of samples was completed by commercial laboratory methods that were appropriate at the time the samples were collected. Sample intervals of 4m were commonly used for initial determination of the presence of gold by a geochemical method followed by more detailed sampling of mineralised intervals at usually 1m intervals with assaying for gold by a more precise method.</li> </ul>
		<ul> <li>Assay data submitted with the reports include some duplicate assaying. It is unknown in detail what quality control procedures were adopted.</li> </ul>
Verification of sampling and assaying	<ul> <li>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> </ul>	<ul> <li>Current Sampling</li> <li>Significant intersections have been verified by at least two Terra Search geologists against representative drill chips collected and the drill logs.</li> <li>No holes were twinned.</li> </ul>
	Discuss any adjustment to assay data.	<ul> <li>No adjustments to assay data were undertaken.</li> <li>All drill hole logging and sampling data continue to be uploaded and validated by Terra</li> </ul>
		Search and Superior staff. Validation is checked by comparing assay results with



Criteria	JORC Code explanation	Commentary
		logged mineralogy e.g. percent of metallic sulphides minerals in comparison to metal assays.
		<ul> <li>Data is collected by qualified geologists and experienced field assistants and entered into excel spreadsheets.</li> </ul>
		<ul> <li>Data is imported into Microsoft Access tables from the Excel spreadsheets with validation checks set on different fields. Data is then checked thoroughly by the Operations Geologist for errors. Accuracy of drilling data is then validated when imported into MapInfo.</li> </ul>
		<ul> <li>Data is stored on a server in the Company's head office, with regular backups and archival copies of the database made.</li> </ul>
		<ul> <li>No adjustments are made to the data. Data is imported into the database in its original raw format.</li> </ul>
		<ul> <li>Limited more recent drilling by Beacon Minerals Limited confirms the drill gold intersections obtained by Noranda Australia Limited as shown in Figure 7. Other drill hole results reported by Beacon support the order of gold grades at both the Steam Engine and Eastern Ridge lodes.</li> </ul>
		<ul> <li>No twinned holes have been drilled by Superior Resources at this time.</li> </ul>
		<ul> <li>It is evident that most of the historical drill hole data was captured on paper and stored on paper. The compilation of that data in digital form has been completed by the competent person with plotting of the data on both plans and sections also held in digital form.</li> </ul>
		<ul> <li>No adjustments have been made to historical sample assay data as there was no apparent reason for such adjustment.</li> </ul>
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> </ul>	<ul> <li>Current Drilling</li> <li>Drill hole collars have been recorded in the field using hand held GPS with three metre or better accuracy.</li> </ul>
	<ul> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul> <li>Current drill hole collar locations and topographic RL control were further defined using a Trimble Differential GPS (DGPS). Location accuracy is in the order of 0.15m X-Y</li> </ul>



Criteria	JORC Code explanation	Commentary
		and 0.3m in the Z direction.
		<ul> <li>Down hole surveys were conducted on all holes using a Reflex GYRO with surveys taken inside the RC rods and recorded every 5m. The instrument measures to within 1/100 degree of inclination and magnetic azimuth.</li> </ul>
		<ul> <li>The area is located within UTM Zone 55, GDA94 datum.</li> </ul>
		Historical Drilling
		<ul> <li>Noranda Australia controlled exploration of the Steam Engine area using a local grid. As the property advanced a surveyor was used to provide a more accurate local grid control with a local height datum being implemented. Data has been compiled using the local grid coordinates. Drill holes completed by Beacon Minerals Limited are reported using handheld GPS collar coordinates with a likely accuracy of about ± 5m. An accurate translation from GPS coordinates to local grid coordinates has been used to convert the Beacon drill hole data to local coordinates. Many of the drill hole collars are still evident at the prospect allowing validation of the drill hole locational data by DGPS before being used for resource estimation work.</li> <li>The area lies within UTM Zone 55, GDA94 datum.</li> </ul>
Data spacing and	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>Whether the data spacing and distribution is sufficient to</li> </ul>	<ul> <li>Drill hole spacing is variable but mainly at 25m and 50m section lines at the Steam Engine area; and 50m and 100m lines at the Eastern Ridge area.</li> </ul>
distribution	establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.  • Whether sample compositing has been applied.	<ul> <li>The drill hole spacing is sufficient together with the strong continuity of the Steam Engine and Eastern Ridge lodes to allow Mineral Resource estimation for significant portions of these lodes. Classifications are restricted to inferred, except for the central portions of the Steam engine lode where drilling density is highest.</li> </ul>
		<ul> <li>Most intersections reported in this report are weighted composites of smaller sample intervals as is standard practice.</li> </ul>
Orientation of data in	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is</li> </ul>	<ul> <li>The orientation of the drill holes is ideal for reporting of results and estimation of mineral resources.</li> </ul>
relation to geological structure	<ul> <li>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</li> </ul>	No orientation sample bias has been identified at this stage.



Criteria	JORC Code explanation	Commentary
	reported if material.	
Sample	<ul> <li>The measures taken to ensure sample security.</li> </ul>	Chain of custody was managed by Terra Search Pty Ltd
security		Samples were transferred by them to ALS.
		Sample security measures within ALS laboratories are considered adequate.
Audits or reviews	<ul> <li>The results of any audits or reviews of sampling techniques and data.</li> </ul>	<ul> <li>No audits or reviews of the sampling techniques and data have been undertaken to date.</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	Type, reference name/number, location and ownership including agreements or material issues with third parties such	<ul> <li>The areas reported lie within Exploration Permit for Minerals 26165 and held 100% by Superior Resources.</li> </ul>
land tenure status	as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.	<ul> <li>Superior Resources holds much of the surrounding area under granted exploration permits.</li> </ul>
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate	<ul> <li>Superior Resources has agreements or other appropriate arrangements in place with landholders and native title parties with respect to work in the area.</li> </ul>
	in the area.	<ul> <li>No regulatory impediments affect the relevant tenements or the ability of Superior Resources to operate on the tenements.</li> </ul>
Exploration done by other	<ul> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul> <li>All of the historical drilling reported in this report has been completed and reported in accordance with the current regulatory regime.</li> </ul>
parties		<ul> <li>Compilation in digital form and interpretation of the results of that work in digital form has been completed a Competent Person for Superior Resources.</li> </ul>
Geology	Deposit type, geological setting and style of mineralisation.	The Steam Engine and Eastern Ridge gold deposits are hosted within a shear zone.
		<ul> <li>The gold mineralisation occurs within a number of north-northeast trending, west- dipping pyritic quartz-muscovite-carbonate schist lodes within metamorphosed</li> </ul>



Criteria	JORC Code explanation	Commentary
		<ul> <li>intermediate to basic intrusives and metasediments.</li> <li>A number of gold bearing lodes occur in the area of which the Steam Engine Lode zone is the most notable. The Eastern Ridge Lode zone is located some 500m east of the Steam Engine Lode zone.</li> </ul>
		<ul> <li>The gold mineralisation occurs in lode zones and is thought to be of the mesothermal vein type.</li> </ul>
		<ul> <li>The important features of the Steam Engine and Eastern Ridge lodes are their continuity and a persistent dip to the west.</li> </ul>
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) 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>	Drill Holes collar tables with significant intersections are included in previous ASX announcements, including the announcement dated 14 August 2017.
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>Exploration results are reported as a length weighted average of all the assays of the hole intersections.</li> <li>No top cutting has been applied, as there are a limited number of high-grade gold assays that influence the calculated intersection grades. This is a feature of the Steam Engine Gold Deposit.</li> <li>No metal equivalent values are reported.</li> </ul>



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 (e.g. 'down hole length, true width not known').</li> </ul>	<ul> <li>For the Steam Engine lode zone an interpreted westerly dip of approximately 50 to 60° and drill holes which generally dip to the east at around 60° (or less) result in true widths at or above 0.87 times the intersection lengths as reported.</li> <li>For the Eastern Ridge lode zone an interpreted westerly dip of approximately 40 to 50° and drill holes that generally dip to the east at around 60° (or less) result in true widths at or above 0.9 times the intersection lengths reported.</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>	Included.
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>Drill Holes collar tables with significant intersections are included in previous ASX announcements, including the announcement dated 14 August 2017.</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>An interpreted geological map of the Steam Engine area is included in the report. The maps included also show drill hole collars and traces. The critical geological information is that the gold mineralised lodes are hosted in a shear zone as reported.</li> </ul>
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>	<ul> <li>An infill drilling program is proposed for the Stream Engine project to prove up most of the gold lode zone areas to Measured and Indicated resources (refer Figure 2, showing the locations of the proposed drill holes). It is envisaged that much of the drilling would be Reverse Circulation drilling to help reduce costs, but a number of holes would also need to be Diamond Core drill holes, to allow for additional metallurgical, structural, and other geological studies.</li> <li>A proposed first stage of this drilling is likely to infill a significant portion of the Mineral Resources. Other than the drilling program at least the following additional work programs would be included:         <ul> <li>Metallurgical studies</li> </ul> </li> </ul>



Criteria	JORC Code explanation	Commentary
		<ul> <li>Geotechnical studies</li> <li>Toll treating negotiations</li> <li>Preliminary mining and rehabilitation planning</li> <li>Preliminary environmental studies</li> </ul>

# Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	<ul> <li>Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.</li> <li>Data validation procedures used.</li> </ul>	<ul> <li>This report is based on data compilations carried out in previous resource estimations conducted by competent persons working for Superior Resources.</li> <li>Further data validation for this report was carried out by inspection of previous reports dating back to the earliest phases of drilling.</li> <li>Data validation processes were also carried out using mining software to make the data ready for use.</li> </ul>
Site visits	<ul> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	<ul> <li>Two site visits by a competent person to confirm drill hole locations and to undertake geological and mineralisation interpretations, and to plan for additional drill holes.</li> </ul>
Geological interpretation	<ul> <li>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</li> <li>Nature of the data used and of any assumptions made.</li> </ul>	<ul> <li>A higher level of confidence exists for the Steam Engine main lode zone, than for the Steam Engine footwall lode zone (due to patchy grades) and for the Eastern Ridge lode zone (due to less drilling).</li> </ul>
	<ul> <li>The effect, if any, of alternative interpretations on Mineral Resource estimation.</li> </ul>	The geological Interpretations agree with the previous interpretation by Noranda.
	<ul> <li>The use of geology in guiding and controlling Mineral Resource estimation.</li> <li>The factors affecting continuity both of grade and geology.</li> </ul>	<ul> <li>The data includes drill hole data and surface exposures, but there are no current underground ore exposures.</li> </ul>
		No alternative interpretations are evident or have been considered.
		Lode geology is fundamental to the interpretations.
		The lack of underground exposures and the soil cover in the area may obscure



Criteria	JORC Code explanation	Commentary
		crosscutting faults, but significant displacement on these mineralisation zones is not apparent in the sectional data.
Dimensions	<ul> <li>The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral.</li> </ul>	These are apparent on the various sections included with this report.
Estimation and modelling techniques	<ul> <li>The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.</li> <li>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</li> <li>The assumptions made regarding recovery of by-products.</li> <li>Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).</li> <li>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</li> <li>Any assumptions behind modelling of selective mining units.</li> <li>Any assumptions about correlation between variables.</li> <li>Description of how the geological interpretation was used to control the resource estimates.</li> <li>Discussion of basis for using or not using grade cutting or capping.</li> <li>The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</li> </ul>	<ul> <li>Further detail on the resource estimation process is included earlier in this announcement.</li> <li>Inverse distance block modelling was used for the resource estimations. When properly constrained by wireframing, block modelling is a good method for the estimation of this kind of resource. An inverse power of 3 was used to more closely map the grade distributions present in vein zones. An appropriate search radius was used for individual lode zones, based on the average drilling density.</li> <li>Check estimates were carried out using global estimates from the wireframes. These gave similar tonnages to the global block model estimates. While the wireframe estimate uses weighting of the intersectional grades it does not use any weighting in relation to distance from those intersections. However, as a comparative method it shows that the tonnages are correct and even gave relatively close gold grade values to the block model.</li> <li>Checks against previous resource estimations also showed similar tonnages and grades over the Steam Engine portion of the resource that has been previously estimated by Superior Resources.</li> <li>The estimate is for gold only. No by products are considered likely.</li> <li>Incomplete assay data from early drilling does not allow estimation of other elements. Some arsenic occurs within the gold mineralisation where it has been assayed.</li> <li>There are no extreme grade variations evident in the data.</li> <li>Interpolation for inferred resources has allowed for up to approximately 100 metres along strike between drill holes in some cases, if it conforms to the current geological</li> </ul>
		<ul> <li>Extrapolation for inferred resources (outside of the drilling extents) has allowed for up to approximately 60 metres of extension, predominantly on dip, where holes either</li> </ul>



Criteria	JORC Code explanation	Commentary
		side along strike have indicated the continuation of the mineralisation. However, extension down dip was moderated by the width of the mineralisation, and if that mineralisation was considered wide enough to be feasible for future extraction.
		No intersection data below 1m true thickness was used in the estimation.
		No correlation between variables.
		The lode geology was a fundamental element of the modelling and controlled the modelling process.
		No grade cutting was considered necessary.
		<ul> <li>Validation was carried out by checking each stage of the modelling process against the resource intersections and assay values. As mentioned above global wireframe estimates also gave close values to the block modelling process.</li> </ul>
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	• In the absence of any specific gravity data, the tonnages were estimated on an assumed SG of 2.7. This appeared to be a reasonable value given the sulphide content of the lodes.
Cut-off parameters	<ul> <li>The basis of the adopted cut-off grade(s) or quality parameters applied.</li> </ul>	<ul> <li>An arbitrary intersection cut-off grade of 1g/t was used based on a likely cut-off grade for open cut gold mining in the area.</li> </ul>
Mining factors or assumptions	<ul> <li>Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the JORC Code explanation Commentary process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.</li> </ul>	<ul> <li>Open cut mining appears to be the most likely extraction method. The depth to which that might be possible is uncertain until further studies have been done.</li> <li>Internal dilution zones within the mineralised downhole intervals were included in the estimates.</li> <li>A minimum width of the mineralised zone (including waste as necessary) was used to develop what are hoped to be mine practical widths down to a minimum of ~2m in some cases (at the Eastern Ridge lode zone).</li> <li>Further mining dilution effects will need to be considered during the reserve estimation process.</li> </ul>



Criteria	JORC Code explanation	Commentary
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	<ul> <li>No metallurgical work has been completed on the mineralisation to date</li> <li>It is assumed that the resource will be treatable for gold extraction. This type of mineralisation typically has very good rates of gold extraction. However, testing of these factors will need to be carried out prior to any reserve estimation. The work for this would best be undertaken during the next phase of drilling.</li> </ul>
Environmental factors or assumptions	<ul> <li>Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.</li> </ul>	These factors have yet to be studied and some preliminary work for this would be carried out during the next phase of drilling.
Bulk density	<ul> <li>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.</li> <li>The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.</li> <li>Discuss assumptions for bulk density estimates used in the</li> </ul>	<ul> <li>At this stage the density for the resource has been assumed at an SG of 2.7, which is considered to be a close figure for this type of rock and mineralisation in situ.</li> <li>Tests will need to be carried out in the next phase of drilling to determine more accurate estimates for the average density.</li> </ul>
Classification	<ul> <li>evaluation process of the different materials.</li> <li>The basis for the classification of the Mineral Resources into varying confidence categories.</li> <li>Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations,</li> </ul>	<ul> <li>Confidence levels for classification were based on similar classifications that have beer made on similar deposits and by the degree of continuity of the lode zone, the density of the existing drilling, and the apparent reliability of the data (having been confirmed by different drilling and assaying phases).</li> </ul>



Criteria	JORC Code explanation	Commentary
	<ul> <li>reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).</li> <li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li> </ul>	<ul> <li>Some sections of the resource that in previous estimation were classified as Inferred have been re-classified into Indicated, where the drilling densities are sufficient to do so. This has been on the basis that the numerous phases of Noranda's previous drilling, and more recent drilling by Beacon Minerals and Superiors Resources drill holes, have reconfirmed the grades of the previous drilling phases sufficiently, to indicate a significant degree of confidence in the grades reported.</li> </ul>
		The result appropriately reflects the competent person's current view of the deposit.
Audits or reviews	<ul> <li>The results of any audits or reviews of Mineral Resource estimates.</li> </ul>	No audits have been undertaken at this stage.
Discussion of relative accuracy/ confidence	<ul> <li>Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.</li> <li>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</li> <li>These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</li> </ul>	<ul> <li>The factors that could affect the relative accuracy or confidence of the estimates include all drilling data quality issues, data density, modelled grade continuity and the used resource model assumptions. All of these are adequately discussed in the information above.</li> <li>This approach provides an estimate within any area of the lode that is locally based.</li> <li>No comparisons with production data are possible.</li> </ul>