

# Steam Engine Gold Deposit High grade rock chip samples extend Steam Engine potential

Announcement

## HIGHLIGHTS:

- Follow-up rock chip sampling east of the Eastern Ridge Lode confirms additional high-grade gold mineralisation and points to significant new gold potential.
- Rock chips taken from a 1.2 km length gossanous alteration zone returned 7.6 g/t and 1.9 g/t Au, which complements historic rock chip samples that returned 4.3 g/t and 3.6 g/t Au taken 500m to the north east within the same alteration zone.
- Alteration zone located 1.2 kms east of Eastern Ridge Lode parallels the Steam Engine and Eastern Ridge lodes and may represent a new third gold lode zone.
- No previous drilling on the alteration zone; no exploration conducted over the last 25 years.
- Current 2,500m RC and diamond infill drilling program will be extended with an additional 995m of drilling designed specifically to expand near-surface mineral resources at Steam Engine.

**Superior Resources Limited (ASX:SPQ)** reported to the market today that a reconnaissance field visit to follow up historic reports of gold mineralisation along an alteration zone located 1.2 kilometers east of the Eastern Ridge lode, has indicated strong potential for an additional gold lode zone (Figure 1).

The Company recently followed up historic reports of gold mineralisation within an alteration zone adjacent to the known Steam Engine gold lodes on the basis that the feature may represent a new third lode zone for the Steam Engine Gold Deposit.

The alteration zone (referred to as the "Dinner Creek Lode") crops out at surface over a continuous distance of at least 1.2 kilometres and is parallel to the Steam Engine and Eastern Creek lodes (Figure 1). Similar altered rocks are exposed within a creek several hundred meters along strike further to the north, away from the outcrop area.

Two rock chip samples taken from a brecciated part of the alteration zone returned **7.6 g/t Au** and **1.9 g/t Au** (Figure 2).

The results add to historically reported rock chip samples that returned 4.3 g/t Au and 3.6 g/t Au. These samples were taken 500 metres to the north east and within the same alteration zone.

The Company's Managing Director, Peter Hwang commented: "The new Dinner Creek Lode is an exciting development for the Steam Engine Project and confirms the Project's exceptional growth potential, both laterally at surface and at depth. This new zone hasn't seen any exploration work for at least 25 years, which can also be said for much of the areas adjacent to the known lodes."

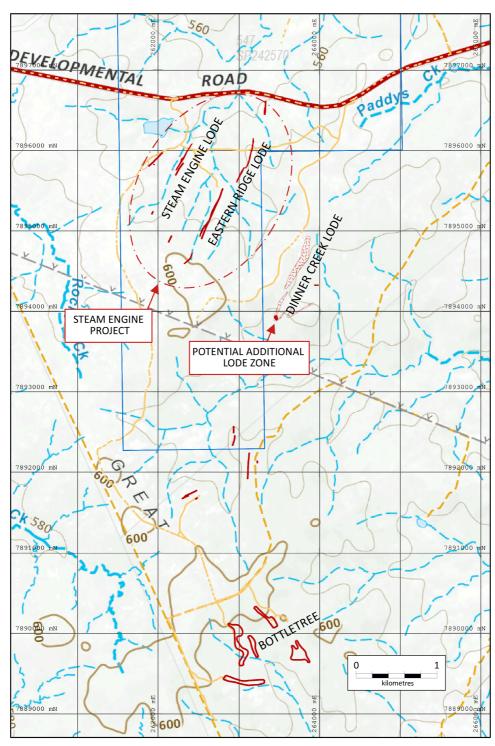
"The Steam Engine Gold Project currently consists of two main lode zones that have good continuity and are open along strike and at depth. The upgraded Mineral Resource Estimate is based on only 30 percent of the historically

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mapped lode strike length. If the Dinner Creek Lode shows the same consistency, it would result in a substantial upgrade to the Mineral Resource Estimate and significantly expand the scope of a potential mining operation."

"In the meantime, the current resource drilling program is well-advanced and we expect assay results from the initial batch of samples to be received this week. We have also extended the drilling program by adding 995 meters of additional RC and diamond drilling, which will be aimed at expanding near-surface Mineral Resources that would be suitable for open-pit extraction. The extended program is on schedule to be completed within the next few weeks, following which, we anticipate delivering an upgraded Mineral Resource and the results of the Scoping Study shortly afterwards."



*Figure 1. Plan showing the location of the Dinner Creek Lode alteration zone relative to the drilled portions of the Steam Engine and Eastern Ridge lodes.* 



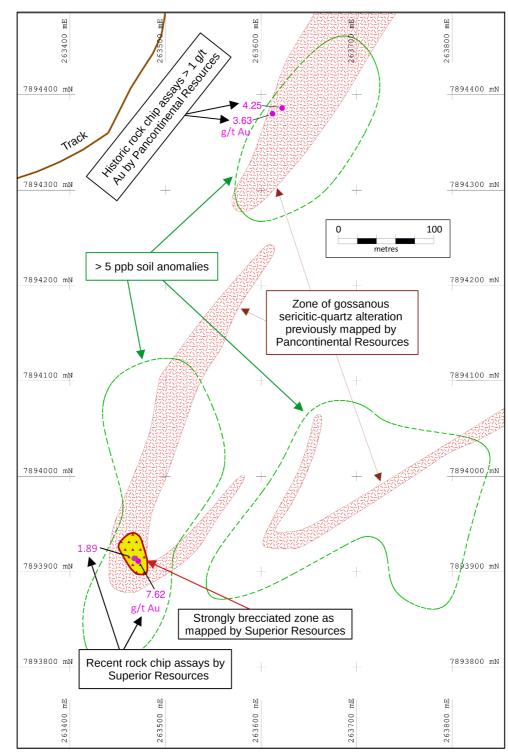


Figure 2. Plan showing the southern portion of the Dinner Creek Lode alteration zone and the locations and gold assay values (in g/t) of the recent rock chip samples. Historic rock chip samples including gold assay values (in g/t) are also shown.

# Rock Chip samples from Dinner Creek Lode

Two recent rock chip samples from outcrops at the Dinner creek prospect have returned values of 1.9 g/t and 7.6 g/t gold from a gossanous, strongly brecciated zone within a zone of gossanous sericitic-quartz alteration that has previously been mapped by Pancontinental Resources during 1993/4. This zone is located within the Eland Metavolcanics, some two kilometres south-east of the Steam Engine Lode zone and some 4 kilometres north of the Bottletree porphyry copper zone (Figure 1).



The strongly brecciated zone has been mapped by the Superior and is approximately 40 metres by 20 metres in size (Figure 2).

A review of historic rock chip sampling by Pancontinental Resources Limited indicates that two of their previous rock chip samples returned assays of 4.3 g/t and 3.6 g/t gold along the zone of gossanous sericitic-quartz alteration (Figure 2).

Historic bleg soils carried out by Pancontinental Resources Limited during 1993/4 have located anomalous areas (>5ppb gold) over a number of portions of the gossanous sericitic-quartz alteration. Investigations of these past assay locations and soil anomalies will be carried out to establish if they are also related to any zones of strong brecciation.

A sphalerite sample from the area was sent off to the CSIRO for lead isotope analysis and was reported by Pancontinental to be consistent with a primitive signature similar to that observed from the rocks hosting Cu-Au mineralisation in the Lachlan fold belt of NSW.

# Follow-up work

The rock chip samples will be followed up shortly with a systematic program of rock chip sampling and field mapping. Depending on the results of this work, a program of drill-testing of the Dinner Creek Lode will be conducted to define the extent of mineralisation within the zone.

## <ENDS>

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#### About Superior Resources Limited

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 and the Greenvale Ordovician rock sequences. The Carpentaria Zinc Province one of the world's richest mineral producing regions and the Company is focused on multiple Tier-1 equivalent exploration targets. At Greenvale, the Company holds ground covering the majority of the Ordovician sequences in the region, which includes at least three significant copper-gold porphyry and VMS prospects, an advancing high-grade gold deposit and a regionally large magmatic sulphide nickel-copper-cobalt prospect.

#### **About Greenvale Project**

The Greenvale Project covers a region of volcanic and intrusive rocks of Ordovician Age that are similar in type and age to the porphyry copper belt in New South Wales. The New South Wales belt of rocks host the large Cadia and North Parkes porphyry copper mines. The sequence of rocks in the Greenvale area are likely to be the northern-most extension of the remnant New South Wales Ordovician Macquarie Arc rocks.

Superior's Greenvale Project is highly prospective for VMS and porphyry copper, gold, zinc and silver deposits and contains at least ten mineral prospects (Figures 13 and 14). The project is located within an area of notable economic significance, being proximal to the Kidston, Balcooma, Surveyor and Dry River South deposits.

#### **About Steam Engine Gold Deposit**

The Steam Engine Gold Deposit is an extensive mesothermal gold lode system on which an Indicated and Inferred Mineral Resource Estimate of 1.27 million tonnes at 2.3 g/t for 94,000 ounces of gold has been established (refer ASX announcement 29 April 2020). The Resource has been modelled on only 30 percent of at least 2.5 kilometres of strike length of outcropping lode and only modelled to relatively shallow depths.



Currently, three gold lode zones have been identified: (1) the Steam Engine Lode; (2) the Eastern Ridge Lode; and (3) the Southern Zone of lodes. The deposit has the potential to contain significant greater tonnages high-grade gold ore shoots that may extend to significant depths. The mineralisation is hosted within structures that are sheared to a greater extent than many similar lode gold deposits, which increases the potential for significant thicknesses of gold lode mineralisation.

The Eastern Ridge Lode zone, being the longest lode structure, potentially represents the primary ore conduit. Although the lode has been mapped at surface to be at least 1.4 kilometres long, gold surface soil geochemistry indicates that the structure is closer to at least 4 kilometres long. Many shorter structures exist on the hanging wall side of the Eastern Ridge lode zone, such as the Steam Engine lode and numerous other zones have mainly only been identified from historic gold soil sampling.

Large portions of the world's economic deposits of gold are found in vein systems of this kind and they can hold impressive amounts of valuable ore. The veins and shoot zones typically can extend to significant depths with gold grades typically higher than other types of gold deposits.

**Reporting of Exploration Results and Mineral Resources:** The reporting of some exploration results in this report reflects information that was originally reported in market announcements as referenced in various parts of this report. The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant original market announcement.

Other information contained in this report that relates to exploration results 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

Information contained in this report that relates to Exploration Activities is based on information evaluated by Mr Peter Hwang, an executive director and shareholder of Superior Resources Limited and a Member of the Australian Institute of Geoscientists. Mr Hwang has sufficient experience which is relevant to this style of mineralisation and type of deposit under consideration and to the activity being undertaken 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 Hwang consents to the inclusion in this report of the matters based on the 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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# **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 were rock chip samples taken from outcrop.</li> <li>Samples are random rock chips taken from outcrop. Representivity is not possible with this kind of sampling.</li> <li>Historical Sampling</li> <li>Information relating to historical results was sourced from and 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> <li>Historic rock chip samples reported in the Dinner Creek Lode area were taken by Pancontinental Resources (1993/4). It is not possible to determine the reliability of these historical assay results.</li> </ul>
Drilling techniques	• Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	<ul><li>Current Drilling</li><li>No drilling reported.</li></ul>



Criteria	JORC Code explanation	Commentary
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>No drilling reported.</li></ul>
Logging	<ul> <li>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	Current Drilling <ul> <li>No drilling reported.</li> </ul>
Sub-sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	Current Drilling <ul> <li>No drilling reported.</li> </ul>
Quality of assay data and	<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</li> </ul>	<ul> <li>Current Sampling</li> <li>All rock chip samples were submitted to ALS laboratories in Townsville for gold and multi-element analysis.</li> </ul>



Criteria	JORC Code explanation	Commentary
laboratory tests	<ul> <li>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> <li>Samples were crushed, pulverised to ensure a minimum of 85% pulp material passin 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 four acid dige and ICP emission spectroscopy technique for the following 33 elements: Ag, Al, As, E Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Si, Sr, Th, Ti, U, V, W, Zn (ALS code ME-ICP61).</li> <li>ALS used a series of standards, blanks, and duplicates for the QC of the elements</li> </ul>
		assayed.
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>	<ul><li>Current Drilling</li><li>No drilling reported.</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 Sampling</li> <li>Rock Chip locations were obtained using handheld GPS with approx. three metre or better accuracy.</li> <li>The area is located within UTM Zone 55, GDA94 datum.</li> </ul>
	Quality and adequacy of topographic control.	
		<ul> <li>Historical Sampling</li> <li>Pancontinental controlled exploration of the Dinner Creek Lode area using a local gr and also used GPS locational data for the reported rock chip assays.</li> </ul>
		• The area lies within UTM Zone 55, GDA94 datum.
Data spacing	Data spacing for reporting of Exploration Results.	No drilling reported.
and distribution	<ul> <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> <li>No previous drilling has been carried out where the rock chip samples were located</li> </ul>



Orientation of data in relation to geological structure Sample security Audits or reviews	<ul> <li>Whether the sampling of known, cons</li> <li>If the relatio orientation orientation or introduced or reported if n</li> <li>The measure</li> <li>The results or and data.</li> </ul>
Section 2 Report (Criteria listed Criteria	ting of Explorati
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Mineral tenement and land tenure status	<ul> <li>Type, referen including ag as joint vent interests, his environment</li> <li>The security with any kno in the area.</li> </ul>

Criteria	JORC Code explanation	Commentary
Drientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</li> </ul>	Not applicable
Sample security	• The measures taken to ensure sample security.	<ul><li>The rock chip samples were delivered directly to ALS.</li><li>Sample security measures within ALS laboratories are considered adequate.</li></ul>
Audits or reviews	• The results of any audits or reviews of sampling techniques and data.	<ul> <li>No audits or reviews of the sampling techniques and data have been undertaken to date.</li> </ul>

# tion Results

ding section also apply to this section.)

Criteria	JORC Code explanation	Сот	mmentary
Mineral tenement and	• Type, reference name/number, location and ownership including agreements or material issues with third parties such	•	The areas reported lie within Exploration Permit for Minerals 25659 and 26165, held 100% by Superior Resources Limited.
land tenureas joint ventures, partnerships, overriding royalties, interests, historical sites, wilderness or national park environmental settings.	interests, historical sites, wilderness or national park and	•	Superior Resources Limited holds much of the surrounding area under granted exploration permits.
	• The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate	•	Superior Resources Limited has agreements or other appropriate arrangements in place with landholders and native title parties with respect to work in the area.
	in the area.	•	No regulatory impediments affect the relevant tenements or the ability of Superior Resources Limited to operate on the tenements.
Exploration done by other parties	<ul> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	•	All sampling reported in this report has been completed and reported in accordance with the current regulatory regime.



Compilation in digital form and interpretation of the results of that work in digital form

The gold mineralisation occurs within a number of north-northeast trending, westdipping pyritic quartz-muscovite-carbonate schist lodes within metamorphosed

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. The Dinner Creek lode is located some 2 kilometres southeast of the Steam Engine lode zone and some 4 kilometres north of the Bottletree

has been completed by a Competent Person for the Company.

intermediate to basic intrusives and metasediments.

The Dinner Creek Lode gold mineralisation is hosted within a shear zone.

Criteria	JORC Code explanation
Geology	• Deposit type, geological setting and style of mineralisation.
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>
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> </ul>
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Not Applicable

**Commentary** 

porphyry copper zone.

Not Applicable

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	JORC Code explanation	Commentary
	<ul> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	
Relationship between mineralisatio n 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>	• Not Applicable
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>Only a limited number of recent rock chips were taken. Only one has not been reported on here and is from the Steam Engine prospect, it did not obtain any significant assays.</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>	• None.
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</li> </ul>	• Follow up work is planned for the Diner Creek lode zone including further scouting for Breccia zones along the alteration zone.