# HANNANS

20 August 2013

# **ASX & MEDIA ANNOUNCEMENT**

# MAIDEN JORC RESOURCE AT PAHTOHAVARE

# **Highlights:**

- Maiden JORC Inferred Mineral Resource Estimate for Pahtohavare: •
  - 2.3Mt @ 1.74% Cu, 0.6g/t Au (2.31% CuEq<sup>1</sup>)
- Initial JORC Inferred Mineral Resource Estimate is a compilation of historic data only at this • stage
- JORC Inferred Mineral Resource Estimate expected to grow with additional drilling being • undertaken by Hannans

Hannans Reward Ltd (ASX:HNR) (Hannans) is pleased to announce the maiden |ORC Inferred Mineral Resource Estimate and JORC Exploration Target update for its 100% owned Pahtohavare Project located in northern Sweden (refer Figure 6).

The independent consultants, SRK Consulting Sweden AB (SRK), completed this Mineral Resource Estimate in accordance with the principles of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2012 Edition (JORC 2012).

Hannans' Managing Director, Mr Damian Hicks, commented, "The resource and exploration target update represents the culmination of 12 months of historic data compilation and validation by Hannans at the Pahtohavare Project. It is pleasing to finally get some hard numbers around what ore and potential remains at the two underground deposits and to also see a significant oxide copper-gold resource at Central. We will look to build on the current resources at all four deposits but the priority is at Central where RC drilling has recently been completed."

Area	Resource Category	Mt	Cu (%)	Au (g/t)	Cu Eq (%)	Mining Scenario	Material
Central	Inferred	1.4	1.8	0.6	2.4	Open Cut	Oxide
Southeast	Inferred	0.8	1.7	0.5	2.1	Open Cut + Underground	Sulphide
South	Inferred	0.1	1.3	0.6	1.9	Underground	Sulphide

COMBINED	Inferred	2.3	1.7	0.6	2.3		
Table I: JORC Ir	nferred Resourc	e <sup>i</sup> -Pahtoh	avare Proj	ect. (Open	pit resources	calculated using	a Whittle optimised
cut-off grade of 0	.56% CuEq <sup>1</sup> fo	r oxide m	naterial and	d 0.43% Ci	uEq <sup>1</sup> for sulphi	ide material. Und	lerground resources

calculated using a 1.48% CuEq<sup>1</sup>).

Oxide: CuEq = (1.12 x Au (ppm) grade) + (0.98 x Cu% grade)

Sulphide: CuEq = (0.97 x Au (ppm) grade) + (0.99 x Cu% grade)

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<sup>&</sup>lt;sup>1</sup>Copper equivalent (CuEq) has been calculated using metal selling prices of USD\$3.56 / Ib for Cu and USD\$1,510 / Oz for Au, along with metal recoveries of 90% for Au and 65% for Cu in sulphide material and 80% for Au and 50% of Cu in oxide material. The following equations were used:



Figure 1: Pahtohavare deposit location map

## JORC RESOURCE ESTIMATE

The current resource estimate for Pahtohavare was undertaken to reconcile the historic pre-mining resource calculations and post-mining close-out reports both of which were used to generate the previous Exploration Target<sup>2</sup>. Following a comprehensive review and validation of historic data from Pahtohavare, detailed 3D geological modelling was completed. Copper mineralisation wireframes were subsequently generated using a 0.4% Cu cut-off. A tonnage and grade inventory (see Table 2 below) of the total material contained within the mineralised wireframes was produced following depletion for mining (including assumed stopes). The tonnage and grade inventory has not been subject to economic assessment and therefore has not demonstrated 'reasonable prospects for eventual economic extraction' as is required for reporting a mineral resource under the 2012 JORC Code but is shown below for transparency.

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<sup>&</sup>lt;sup>2</sup>Previous JORC Exploration Target of 4.8-6.2Mt @ 2-2.78% Cu, 1.23-2.23g/t Au was calculated by Mr Thomas Lindholm of GeoVista AB who reviewed historic diamond drilling, geophysics, geological interpretation from the Swedish Geological Survey and historic mining reports. The potential quantity and grade of this exploration targets was conceptual in nature and it was deemed at the time of calculation that there was insufficient interpretation to define a JORC Mineral Resource and it was uncertain if further interpretation will result in the determination of a JORC Mineral Resource. This exploration target has previously been released to the ASX.

Area	Volume (m³)	Tonnage (Mt)	Cu %	Au (ppm)	CuEq' %
Central Sulphide	31,000	0.1	1.1	0.4	1.5
Central Oxide	640,000	1.7	1.8	0.6	2.4
Southeast Sulphide	1,248,000	3.8	0.9	0.2	1.1
South Sulphide	102,000	0.3	0.9	0.4	1.3
East Sulphide	1,166,000	3.5	0.5	0.01	0.5
Total	3,187,000	9.3	0.9	0.2	1.1

Table 2: Global tonnage/grade inventory (all material within mineralisation wireframes based on a 0.4% Cu cut-off grade).



Figure 2: Cu (ppm) Grade-tonnage curve for all material in block model





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SRK subsequently undertook a Whittle analysis and high-level evaluation of possible underground mining scenarios on the block model in order to determine the potential for eventual economic extraction from open pit and underground mining methods. Reasonable metal prices, mining and processing parameters (refer Table 3 below) and costs have been estimated to determine a JORC Inferred Mineral Resource according to JORC definitions.

Geotechnical Parameters				
Overall Slope Angles	45 <sup>0</sup>			
Metal Selling Prices				
Copper Price	USD\$7,850 / t or USD\$3.56 / lb			
Gold Price	USD\$1,510 / Oz			
Mining Cost Factors				
Total Open Pit Mining Cost (Base RL)	3.2 USD\$/t-moved			
Base RL for optimisation	475 m			
Incremental Mining Cost below BRL	0.05 USD\$/t/10m			
Underground Mining Cost	50 USD\$/t-ore			
Processing Cost Factors (includes G&A)				
Flotation	12 USD\$/t-ore			
Cyanidation	I.0 USD\$/t-ore			
Other Cost Factors				
Distance to Point of Sale (Smelter)	400 km			
Rail Transport Cost	0.05 USD\$/t-km or 20.0 USD\$/t-conc			
Royalties	0.2%			
Mining Parameters				
Mining Recovery	97%			
Mining Dilution	3%			
Ore Production Capacity	300,000 tpa			
Minimum Operating Width	35 m			
Processing Parameters				
Ore Processing Capacity	300,000 tpa			
Recovery Cu (Oxide/Sulphide)	50/65%			
Recovery Au (Oxide/Sulphide)	80/90%			
Concentrate Grade	25%			

 Table 3: Whittle optimisation parameters

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The open pit JORC Inferred Mineral Resource is restricted to all material falling within a Whittle pit shell, and above a  $CuEq^1$  cut-off grade of 0.56% for oxide material, and 0.43% for sulphide material. The underground JORC Inferred Mineral Resource is restricted to all sulphide material underneath the Whittle shell above a  $CuEq^1$  cut-off grade of 1.48%. The Whittle analysis and optimisation for the mineralisation at Pahtohavare produces a JORC Inferred Mineral Resource of 2.3Mt @ 1.74% Cu, 0.6g/t Au, 2.31% CuEq^1.

The new JORC Inferred Mineral Resource for Pahtohavare is lower than the previous Exploration Target<sup>2</sup>largely due to the lack of available depletion wireframes for underground stopes/caves resulting in large areas of the underground areas at Southern and South Eastern being sterilised. Wide wireframes (0.4% Cu lower-cut) and inclusion of internal dilution may have also resulted in the drop in grade from the previous Exploration Target.

### EXPLORATION TARGET

In addition to the JORC Inferred Mineral Resource, SRK also generated a JORC Exploration Target (see Table 4 below) for the Eastern Mineralisation. This is a result of the historic drilling being on a sparse and variable grid, and due to lack of historic drill core re-assaying. SRK estimated grades and tonnages to provide an analysis of the potential. As a result, SRK has delineated an Exploration Target of between 2–4Mt of material grading between 0.3–0.7% Cu (with negligible Au grades) for the Eastern area, based on blocks within the digitised mineralisation wireframes, but not reported above a cut-off grade. The potential quantity and grade is conceptual in nature and there has been insufficient exploration to estimate a Mineral Resource and it is uncertain if further exploration will result in the estimation of a Mineral Resource. Based on the copper equivalent cut-off grades used to report the Resources in the Resource statement, only a minor portion of the currently outlined Eastern area would be above the cut-off grade used for Resource reporting. However, this material may have elevated Zn and Pb grades, which were not taken into account during the Resource estimation process.

Area	Category	Mt	_Cu (%)
Eastern	JORC Exploration Target	2-4	0.3-0.7
Table 4: JORC Exploration	Target <sup>ii</sup> -Pahtohavare		

# CENTRAL OREBODY

The Central orebody has a current JORC Inferred Mineral Resource of 1.4Mt @ 1.81% Cu, 0.6g/t Au, 2.45% CuEq<sup>1</sup>, which is entirely an oxide resource. The current resource does not include any of the recently drilled RC holes but these will be included in future resource updates along with any diamond holes that are drilled. Preliminary oxide metallurgical testwork will be initiated during the second half of 2013.



Figure 4: Whittle optimised open-pit shell for Central Orebody (25m grid)

#### SOUTH EASTERN & SOUTHERN OREBODIES

Whilst the current focus is on the Central orebody, the two underground deposits at Pahtohavare also have significant upside with both orebodies open at depth. There is no drilling beneath the deepest mined level at Southern despite 3D geological modelling indicating the orebody is open down-dip and down-plunge. A significant amount of drilling has been completed at the South Eastern orebody which has identified ore beneath the lowest mined level and has been included in the current resource calculation where it sits above the Whittle-optimised cut-off grade of 1.48% CuEq<sup>1</sup>.



Figure 5: Open pits in relation to underground workings (25 m grid), Southern (left) and South Eastern (right)

# PAHTOHAVARE OVERVIEW

The Pahtohavare project is located 8km south-west of Kiruna, a full-service mining town in Norrbotten County, northern Sweden. Kiruna is located approximately 1,200km north of Sweden's capital Stockholm. The project is also very well positioned with regard to major infrastructure; including sealed roads, power and open-access railway (refer image below.

Copper mineralisation was first discovered at Pahtohavare in 1984 by the state-owned exploration company Swedish Geological AB and later mined by Finnish mining company, Outokumpu in 1984. Three deposits were defined at Pahtohavare (refer image below) namely;

- Central (oxide, carbonate and sulphide ore);
- Southern (sulphide ore); and
- South-Eastern (sulphide ore).

Mineralisation has also been identified in an area referred to as the Eastern Zone.



Figure 6: Project Location Summary Map

## For further information please contact:

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#### COMPETENT PERSONS STATEMENTS

- The information in this document that relates to exploration results is based on information compiled by Amanda Scott, a Competent Person who is a Member of the Australian Institute of Mining and Metallurgy (Membership No.990895). Amanda Scott is a full-time employee of Hannans Reward Ltd. Amanda Scott has sufficient experience, which is relevant to the style of mineralisation and types of deposits under consideration and to the activity which has been undertaken 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 (JORC Code). Amanda Scott consents to the inclusion in the report of the matters based on her information in the form and context in which it appears.
- The information in this document that relates to the Pahtohavare Mineral Resource and Exploration Target is based on information compiled by Mr Benjamin Parsons, a Competent Person who is a Member and Chartered Professional of the Australasian Institute of Mining and Metallurgy (Membership No. 222568). Benjamin Parsons is a full time employee of SRK Consulting, and has no interest in, and is entirely independent of Hannans Reward Limited. Benjamin Parsons 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 JORC 2012. Benjamin Parsons consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.
- The information in this document that relates to the Pahtohavare Mineral Resource and Exploration Target is based on information compiled by Mr Johan Bradley, a Competent Person who is a Chartered Geologist with the Geological Society of London (Membership No. 1014008), and a European Geologist (EurGeol). Johan Bradley is a full time employee of SRK Consulting, and has no interest in, and is entirely independent of Hannans Reward Limited. Johan Bradley 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 JORC 2012. Johan Bradley consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.
- The information in this document that relates to the Rakkurijärvi and Rakkurijoki Mineral Resources is based on information compiled by Mr Thomas Lindholm, a Competent Person who is a Fellow of the Australasian Institute of Mining and Metallurgy (Member 230476). Thomas Lindholm is a full time employee of GeoVista AB, and has no interest in, and is entirely independent of Hannans Reward Limited. Thomas Lindholm 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 JORC 2012. Thomas Lindholm consents to the inclusion in the report of the matters based on the information in the form and context in which it appears

#### <sup>i</sup>JORC Inferred Resource-Accompanying Statements:

<sup>1.</sup> The effective date of the Mineral Resource is 12 July 2013

<sup>2.</sup> Mineral Resources are reported in relation to a conceptual pit shell. Mineral Resources are not Ore Reserves and do not have demonstrated economic viability. All figures are rounded to reflect the relative accuracy of the estimate.

<sup>3.</sup> The quantity and grade of reported Inferred Mineral Resources in this estimation are uncertain in nature and there has been insufficient exploration to define these Inferred Mineral Resources as an Indicated or Measured Mineral Resource; and it is uncertain if further exploration will result in upgrading them to an Indicated or Measured Mineral Resource category.

<sup>4.</sup> Copper equivalent (CuEq) grades were calculated using metal prices of USD\$3.56 per pound of copper (Cu), and USD\$1,510 per troy ounce of gold (Au), along with metal recoveries of 90% for Au and 65% for Cu in sulphide material and 80% for Au and 50% of Cu in oxide material

<sup>5.</sup> Open pit Mineral Resources are reported above the Whittle pit shell and above a cut-off grade of 0.56% CuEq for oxide material and 0.43% CuEq for sulphide material.

<sup>6.</sup> Underground Mineral Resources are reported below the Whittle pit shell, and above a cut-off grade of 1.48%

CuEq for sulphide material.

- 7. Mineral Resources for the Pahtohavare project has been classified according to the JORC Code (2012) by Ben Parsons (MAusIMM (CP)), an independent Competent Person as defined by JORC.
- 8. The Mineral Resource estimate has not been affected by any known environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.

#### " JORC Exploration Target-Accompanying Statement:

- 1. The Eastern area of Pahtohavare has not been classified as a Mineral Resource, but is considered by SRK to be an Exploration Target. This is a result of the historic drilling being on a sparse and variable grid, and due to lack of historic drill core re-assaying.
- SRK estimated grades and tonnages to provide an analysis of the potential. As a result, SRK has delineated an Exploration Target of between 2–4 Mt of material grading between 0.3–0.7% Cu (with negligible Au grades) for the Eastern area, based on blocks within the digitised mineralisation wireframes, but not reported above a cutoff grade.
- 3. The potential quantity and grade is conceptual in nature and there has been insufficient exploration to estimate a Mineral Resource and it is uncertain if further exploration will result in the estimation of a Mineral Resource.
- 4. Based on the copper equivalent cut-off grades used to report the Resources in the Resource statement, only a minor portion of the currently outlined Eastern area would be above the cut-off grade used for Resource reporting. However, this material may have elevated Zn and Pb grades, which were not taken into account during the Resource estimation process

Section I Sampling	Techniques and Data		
Sampling Techniques	Drillholes were sampled based on observed mineralisation, and the intervals determined by geologic contacts. The assaying was conducted by a well-respected laboratory in Luleå (SGAB), using ½ core samples, with ICP-MS (base metal) and fire assaying (gold).		
	No further information is available regarding measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.		
Drilling techniques	All historic drilling (1980s) was drilled using diamond drilling techniques (non-orientated). The early drilling used a wire-line 46 mm diameter hole, which changed to 76 mm due to poor recovery in the Central area.		
Drill sample recovery	Core recovery recorded by geologist logging core. Due to poor recovery using 46 mm drillhole, changed to 76 mm drillhole, increasing the recovery.		
	There is no direct correlation between core loss and grade.		
Logging	Geological logging was conducted to a reasonable standard, noting alteration, structures, lithology, mineralisation (style, mineral, intensity), core loss.		
	No geotechnical logging was undertaken.		
	Logging is qualitative, and no core photos were taken.		
	All holes drilled were logged from start to end of hole.		
Sub-sampling techniques and sample preparation	Core was generally cut using a core-saw, with $\frac{1}{2}$ core taken for assaying. Some oxidised sections were sampled using trowels due to the incompetent nature.		
	Little information is available regarding the sample preparation of the historical sampling. SGAB reportedly utilised industry standard techniques. SRK cannot verify this.		
	SRK are not aware of any quality control procedures adopted during sampling.		
	Sample sizes are considered appropriate compared to the grain size of the sampled material.		

#### JORC Code, 2012 Edition-Table 1

Quality of assay data and laboratory tests	Both methods utilised historically (ICP-MS and fire assay) were industry standard methods to analyse Cu-Au mineralisation. The methods are considered appropriate, although exact details are lacking. The techniques are considered total.
	The modern re-assaying conducted by SCR utilises a certified laboratory for assaying, with methods considered appropriate and total.
	Geophysical tools utilised were reported to be of industry standard; SRK cannot verify this.
	Due to the lack of quality control procedures (QAQC), acceptable levels of accuracy (i.e. lack of bias) and precision have not been established for the historic drilling. The modern re- assaying conducted by SCR utilises QAQC samples in the form of CRM standards and coarse duplicates.
Verification of sampling and	SRK inspected 6 drillholes in order to compare logged lithologies and assayed mineralisation intercepts with drill core. No issues were found.
assaying	SCR has conducted a check-assay campaign to verify historic assay results, with a total of 9 out of 319 holes re-assayed. The results show moderate to good correlation of assay results.
	SCR plan to utilise twinned drillholes to further verify the historic data.
	Primary data (collar coordinates, down-hole surveys, geological logs and assay results) are stored in Excel spreadsheets currently.
	SRK found minor errors (mainly due to conversion of grid coordinates) in the data provided, which were discussed and changed where necessary.
Location of data points	Drillhole collars were surveyed using industry standard techniques in the 1980s, and have been checked using modern RTK GPS technology. The differences found were immaterial to the MRE. Few holes in the database contained elevation coordinates (Z), and so all collar locations were pressed to the topographic surface for consistency. The topographic surface utilised was created using a 50 m grid survey, and so is also of low resolution. The relatively flat nature of the topography in the project area ensures the resolution is not detrimental to the MRE. Down-hole surveys were not conducted, mainly due to the short nature of the drillholes (generally <200 m deep). Mine workings (open pit and underground) were surveyed and documented on paper plans and sections. These have been digitised by SRK. Areas in between sections have not been surveyed, and so have been inferred. The level of detail of the resulting 3-D wireframes is therefore low, and caution should be taken when reporting using these wireframes. Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), tranches mine working and other locations used in Mineral Resource estimation
	All coordinates reported in this report are in the Swedish RT90 (2.5 gon W) coordinate system.
Data spacing and distribution	The general drillhole spacing is as follows (along strike x along drilling gate): Central = $50 \times 25-50$ m; Southeast = $25 \times 25$ m (but with many oblique sections reducing spacing); South = $50 \times 25$ m; East = variable but >100 x 50 m.
	Following a geostatistical study, a spacing of 50 m is deemed sufficient to allow for geological and grade continuity to be established, and for at least Inferred Resources to be declared.
Orientation of data in relation to geological structure	The majority of drillholes were orientated to intercept normal to the strike of the mineralisation. The steeply dipping nature of the mineralisation in some areas meant the generally $60^{\circ}$ -dipping holes were not completely perpendicular. In the Southeast area, due to the variable dip and strike, the drilling gates were variable. Some key offsetting faults appear to be parallel to the drilling gates, and so have not been intercepted. These structures can usually be inferred from geophysical surveys.
Sample security	Although the security procedures of core are not known for the historical drilling period, the majority of core is now stored in secure core sheds in Malå or Kiruna. Secure transport is used to ship to samples to the laboratory.
Audits or reviews	SRK is not aware of any audits or reviews of the sampling procedures and protocols.

Section 2 Reportin	g of Exploration Results
Mineral tenement and land tenure status	Two exploration licences cover the area covered by the MRE: Pahtohavare nr 2 and Pahtohavare nr 4; both are valid until 2015. No security, legal or environmental issues regarding land tenure have been noted.
Exploration done by other parties	The majority of exploration was conducted by the SGU in the 1980s-1990s – these form the vast majority of holes used for the MRE (307/311). During mining operations conducted by Outokumpu in the 1990s, 39 more holes were drilled – limited details exist for these holes at present. An additional 4 holes were drilled by Lundin Mining AB in 2005 – collar locations, geological logs and assays are available for these holes (these represent the remaining holes used in the MRE).
	In addition, geophysical surveys were conducted by the SGU in the 1980s, along with a joint venture of Rio Tinto and Anglo American in the 2000s.
Geology	A classification of mineralisation style has yet to be agreed, but the Cu-Au mineralisation is thought to be hydrothermal in nature and associated with structural discontinuities.
	The mineralisation is located within the 'Greenstone group' composed of basic lavas and intrusions, basic tuffs and tuffites and acid volcanics. Locally, the majority of mineralisation is hosted in a hydrothermally-altered package of albite-quartz, along with graphite schist.
	The different areas of the project are associated with different parts of a kilometre scale antiform, with the Central and East units falling on the northeast limb, the Southeast unit around the fold hinge, and the South unit in the southeast limb.
Drill hole Information	A tabulation of drillhole locations, surveys and assaying results has not been tabulated due to the vast quantity of data.
	In total, 311 holes drilled by the SGU and Lundin combined are utilised for the estimation, 256 of which contain assay information (the remainder were not in the area of focus of the MRE).
Data aggregation methods	Drillhole compositing has been applied for all drillholes prior to estimation. The composites were created between wireframe surfaces to a standard length of 5 m (all residual lengths <1 m were discarded (6% of the samples)).
	Grade capping was applied to the composite drillhole file to reduce grade variability further, with all samples greater than 10% Cu and 5 ppm Au reset to those values (affecting 5/8200 Cu samples, and 9/8200 Au samples). This was based on a study of logarithmic probability plots.
	Copper equivalent (CuEq) has been calculated using metal selling prices of USD\$3.56 / lb for Cu and USD\$1,510 / Oz for Au, along with metal recoveries of 90% for Au and 65% for Cu in sulphide material and 80% for Au and 50% of Cu in oxide material. The following equations were used:
	Oxide: CuEq = (1.12 x Au (ppm) grade) + (0.98 x Cu% grade)
	Sulphide: CuEq = (0.97 × Au (ppm) grade) + (0.99 × Cu% grade)
Relationship between mineralisation widths and intercept lengths	In general, the drillholes were drilled with a dip between 45 - 60 <sup>0</sup> (57 <sup>0</sup> average). The mineralisation dip varies greatly, especially in the Southeast area, but in general dips between 45 - 85 <sup>0</sup> . Therefore, mineralisation intercepts in the drillholes are rarely true widths.
Diagrams	Appropriate maps and sections (with scales) are included in the main body of the report.
Balanced Reporting	To demonstrate examples of grade of mineralisation at Pahtohavare, the following represent drillhole intercepts (non-composited) within interpreted mineralisation: Hole 84001: 27 m @ 0.46% Cu 0.005 ppm Au
	Hole 87001: 28 m @ 1.0% Cu, 0.1 ppm Au Hole 88015: 11.7 m @ 0.8% Cu, 0.2 ppm Au Hole 88093: 20.4 m @ 3.7% Cu, 3.3 ppm Au Hole 88221: 13.4 m @ 0.8% Cu, 0.3 ppm Au Hole 05002 (Lundin): 31.8 m @ 2.9% Cu, 1.0 ppm Au

Other substantive exploration data	Several geophysical surveys have been undertaken, as referenced in the main body of the report.
Further work	The planned exploration programme by SCR is detailed in the main body of the report. To summarise, the following areas are to be tested in 2013:
	Down-plunge extension at Central
	• Far east geophysical anomaly (potentially Pb-Zn rich)
	• Infill drilling at Central to 25 x 25 m grid
	• Conceptual drilling to test along strike extensions at Central, and footwall mineralisation
	In total, 6,500 m of drilling is planned (5,000 m RC, 500 m diamond).
Section 3 Estimation	on and Reporting of Mineral Resources
Database integrity	SRK reviewed the database and discussed with SCR staff. Minor errors found were adjusted accordingly.
	Once the drilling database data was imported into Datamine Studio 3 software for analysis, no adjustments were made.
	SRK conducted the following data validation:
	• Comparing drillhole collar locations to check-survey locations and topographic survey.
	Checking raw assay and logging sheets to the database and drill core.
	<ul> <li>Datamine's drillhole re-surveying tool quickly identifies any overlapping or duplicate interval problems, along with checking for missing data.</li> </ul>
	Comparing SCR check assays to historic assays
	Comparing SCR check density measurements to historic measurements
Site visits	Competent Person Johan Bradley visited the SGU core archive in Malå where historic drill core is stored on 22 April 2013. Mr Bradley also visited the project site on 25 June 2013 to inspect the property, and SCR drill core facilities.
	Mr Bradley found no issues relating to this MRE during either site visit.
Geological interpretation	The confidence in the geological interpretation for the Central and South areas is high due to the relatively simple nature of the geology. The confidence is lower in the Southeast area due to the higher complexity of geology, and lower in the East area due to the lack of drilling.
	Geology and mineralisation interpretation was based on geological logs from drillholes, along with sectional interpretations by SCR geologists, and previous owner SGU geologists.
	SRK simplified the geological logging codes in order to create a feasible geological model in the 3-D environment.
	SRK used a wireframing cut-off of 4000 ppm (0.4%) Cu to create 3-D shapes of the mineralisation, based on a natural grade population break. The Au is generally well-correlated to the Cu.
	Using a lower Cu cut-off would expand the width of the interpreted mineralisation in some areas, but would not alter the geometry of the interpreted mineralisation wireframes materially. Using a lower cut-off would increase the tonnage, but lower the grade of the deposit.
	The dip and strike of the geology, along with geologic contacts were used to determine the geometry of the interpreted mineralisation wireframes.
	In several areas, faulting has been interpreted to offset the geology and mineralisation. Otherwise, wireframes were defined by intercepts of mineralisation in drillholes.

Dimensions	The extent of the mineralisation is shown below (along strike length x (maximum depth from surface x width):				
	• Central: 320 m x 170 m x 2 – 35 m (variable)				
	<ul> <li>Southeast: 360 m (broken into 23 separate, smaller lenses ranging from 10 – 100 m in length) x 450 m x 2 - 45 m (variable)</li> </ul>				
	• South: 350 m x 250 m x 2 - 30 m (variable)				
	• East (south): 350 m x 350 m x 2 - 30 m (variable)				
	• East (north): 50 m x 250 m x 15 - 20 m (variable)				
Estimation and modelling	Geostatistical analysis produced reasonable variograms, which were used to estimate the grades using Ordinary Kriging methodology. The following assumptions were made:				
techniques	Interpolated grades: Cu (ppm) and Au (ppm) estimated independently				
	<ul> <li>Domains: 5 domains created – 4 sulphide domains for Central, Southeast, South and East; 1 oxide domain for Central.</li> </ul>				
	• Grade capping: Cu capped to 10%, Au capped to 5 ppm (after compositing).				
	Capped to reduce variability, and based on breaks seen on logarithmic probability plots.				
	Estimation parameters:				
	<ul> <li>Minimum samples = 4</li> </ul>				
	<ul> <li>Maximum samples = 12 (Central), 20 (Southeast, East), 15 (South)</li> </ul>				
	<ul> <li>Maximum samples per drillhole = 3</li> </ul>				
	<ul> <li>Search ellipse radii = 50 m (along strike x 50 m (down-dip) x 10 m (across-strike)</li> </ul>				
	<ul> <li>Maximum extrapolation distance from data points = one drillhole spacing (~25 - 100 m)</li> </ul>				
	<ul> <li>Software used: Datamine Studio 3 for majority of wireframing, and estimation, and Leapfrog for some wireframing</li> </ul>				
	No quantifiable mining production records are available, only total tonnage and grade mined historically.				
	Previous MREs are historical, and have not been compared to this MRE.				
	The assumptions made regarding recovery of by-products have been taken from metallurgical and processing reports from previous owners.				
	At this stage, no deleterious elements or other non-grade variables of economic significance have been estimated into the model.				
	A block size of 12.5 (X) x 12.5 (Y) x 10 m (Z) was used in the model. This compares to the average drill spacing of $25 - 50$ m in X and Y, and an assumed bench height of 10 m.				
	Geological interpretation was used to control the resource estimates by restricting the use of sample intervals outside the interpreted mineralisation wireframes.				
	The interpolated grades were validated by visually comparing input composite sample grades to block grades, statistically comparing grades by domain, and by validation (Swath) plots plotting grade in blocks and samples by Easting and Northing.				
Moisture	Tonnages are estimated on a dry basis, using a bulk in-situ density. No moisture content has been measured.				
Cut-off parameters	The open pit Mineral Resource is restricted to all material falling within a Whittle pit shell, and above a CuEq cut-off grade of 0.56% for oxide material, and 0.43% for sulphide material. The underground Mineral Resource is restricted to all sulphide material underneath the Whittle shell above a copper equivalent cut-off grade of 1.48%.				

Mining factors or assumptions	Pit slope angle 45°; Copper selling price 3.56USD\$ / lb, gold selling price 1,510 USD\$/ Oz; Total Open Pit Mining Cost (above base RL 475 m) 3.2 USD\$ / t moved; Incremental Mining Cost below BRL 0.05 USD\$ / t / 10m; Underground Mining Cost 50 USD\$ / t ore; Flotation 12 USD\$ / t ore, Cyanidation 1.0 USD\$ / t ore; Distance to Point of Sale (Smelter) 400 km; Rail Transport Cost 0.05 USD\$ / t / km; Royalties 0.2%; Mining recovery 97%; Mining dilution 3%; Ore Production Capacity 300,000 tpa; Minimum Operating Width 35 m; Ore Processing Capacity 300,000 tpa; Recovery Cu (Oxide/Sulphide) 50/65%; Recovery Au (Oxide/Sulphide) 80/90%; Concentrate Cu grade 25%.
Metallurgical factors or assumptions	Metal recoveries of 90% for Au and 65% for Cu in sulphide material and 80% for Au and 50% of Cu in oxide material were used by SRK based on historic mine reports.
Environmental factors or assumptions	No environmental factors or assumptions have been taken into account.
Bulk density	<ul><li>173 modern density measurements recorded by SCR were used. Standard Archimedes principal to calculate dry bulk density including porosity.</li><li>Density was assigned to the block model using average values per major lithology and for oxide and sulphide material separately.</li></ul>
Classification	Qualified Person Ben Parsons has classified the Pahtohavare project as containing Inferred Mineral Resources only. The main reason for not designating Indicated Resources is the historic nature of the drilling database utilised, and the limited re-sampling conducted to date. All the following relevant factors were taken into account: confidence in block estimates, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data.
Audits or reviews	There have been no audits or reviews of Mineral Resource estimates.
Discussion of relative accuracy/ confidence	A statement of the relative accuracy and confidence level in the Mineral Resource estimate is not deemed appropriate in this case. The Inferred classification category is mainly determined by the age of the data, as documented.