

# New Structural Offset to Thursday's Gossan Porphyry Target Identified by Multi-Disciplinary Review

IP chargeability anomaly at the interpreted new location of the porphyry represents an exciting drill target at the Stavely Porphyry Copper-Gold Project, western Victoria

# Highlights

- Structural offset of the porphyry target zone in a northerly direction supported by multi-disciplinary evidence including:
  - ✓ New 3D structural model and kinematic indicators;
  - ✓ Sulphur isotope data indicating proximity of porphyry to the north below the offsetting structures; and
  - ✓ White mica infra-red spectrometry adsorption features indicating proximity
    of magmatic source to the north.
- Northernmost historical diamond / RC drill hole at Thursday's Gossan returned 32m at 0.8% copper and 0.4g/t gold and also displays the strongest sulphur isotope indication of proximity to a porphyry source below the offsetting structures.
- Sulphur isotope values at Thursday's Gossan are consistent with those observed at the Goonumbla (North Parkes) and Cadia Valley porphyry copper-gold systems in NSW.
- "To have new IP chargeability in those areas predicted by the structural model as the most likely location for the transposed potassic 'core' of the porphyry system gives us great confidence in these targets." Stavely Minerals MD, Chris Cairns

Stavely Minerals Limited (ASX Code: **SVY** – "Stavely Minerals") is pleased to advise that it has taken a key step forward in its search for copper-gold porphyry mineralisation at the **Stavely Project** in western Victoria (Figure 1), with a multi-disciplinary review of recent and historical exploration data confirming a **new structural offset target location** immediately north of recent drilling at the principal **Thursday's Gossan Prospect**.

Thursday's Gossan hosts a shallow, chalcocite-enriched blanket of copper mineralisation with an Inferred Mineral Resource of **28Mt at 0.4% copper** developed on a large coppergold mineralised porphyry system (*see Stavely Minerals' Prospectus dated 26 March 2014*).

Stavely Minerals completed a number of deep diamond drill holes last year seeking to locate the potassic altered 'core' to this porphyry system, where better developed copper-gold mineralisation could be expected.

As a result of a comprehensive review of this work, including input from leading global experts in their respective fields, the Company has developed a compelling new theory regarding the postulated location of this porphyry core — which has been supported by additional geophysical surveys completed in recent months.



This has provided a clear direction for the next stage of exploration activity at the Stavely Project, outlining a compelling new drill target to the north and potentially east of previous drilling.

The Company will provide further details regarding its proposed upcoming exploration activities at the Stavely Project in due course.

#### Summary

Multi-disciplinary analysis of drill core from the deep diamond holes completed by Stavely Minerals in 2014 indicates that this drilling was progressing towards the potassic 'core' of the porphyry system at the Thursday's Gossan Prospect before intersecting a low-angle structural zone, below which the character of the hydrothermal alteration demonstrated a marked change to a more distal position beneath the fault.

This marked change across the structural zone is supported by the near infra-red (NIR) wavelength absorption features of white micas displaying an abrupt transition from short wavelengths to longer wavelengths across the structure, particularly in drill hole SMD003.

This abrupt transition is interpreted to reflect a proximal magmatic signature above the structural zone to a distal signature below the zone in SMD003.

In contrast, the white mica NIR absorption features below the structural zone indicate increasing proximity to a magmatic source to the north. These data support the structural movement interpretation.

In addition, 23 sulphur isotope determinations taken from Stavely Minerals and previous explorers' diamond drill core broadly support this interpretation of increasing proximity to a porphyry magmatic source.

Above the low-angle fault structure, the sulphide isotope indications were of increasing proximity to the porphyry source to the south; whereas below the structure, the indications from the sulphur isotopes are that the porphyry source has been transposed from south to north.

The sulphur isotope values observed at Thursday's Gossan are consistent with those observed at the Goonumbla (North Parkes) and Cadia Valley porphyry copper-gold systems in central New South Wales and also porphyry copper-gold deposits in British Columbia such as Mt Polley, Red Chris and Afton.

All of these deposits are considered to be **alkalic copper-gold porphyry systems** which, while typically smaller spatially than calc-alkalic porphyries, are attractive exploration targets because they characteristically have higher grades – especially for gold – and are consequently amenable to less obtrusive yet highly cost-effective underground block caving mining methods.



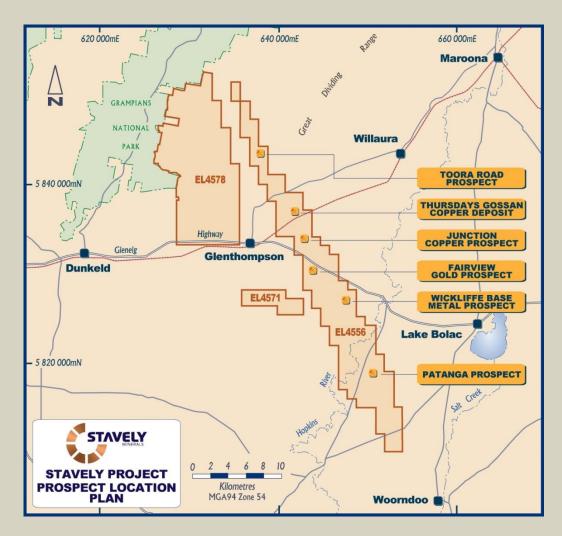


Figure 1. Stavely Project prospect location plan.

Structural logging and interpretation by structural experts Model Earth Pty Ltd has confirmed the low-angle structural offset interpretation and has identified kinematic indicators of a strike-slip movement of the block below the structural zone being offset to the north.

With the three independent disciplines of kinematic indicators, white mica NIR absorption features and sulphur isotope data in broad agreement that the lower block below the structure has been moved to the north – and considering that the lower block is likely to host the potassic 'core' to the alteration system where the best developed copper and gold grades could be expected – Stavely Minerals has recently extended its geophysical induced polarisation (IP) survey coverage to the north and east to identify potential zones of disseminated sulphide mineralisation below the structural zone in those areas.

New chargeability anomalies have been identified by these surveys and, with minor additional geophysical work to refine targets, will need to be drill tested. The target is an alkalic copper-gold porphyry similar to the Goonumbla (North Parkes) and Cadia Valley systems.



Stavely Minerals' previous experience in drill testing chargeability features has been very encouraging with an excellent correlation of the 3D chargeability model with disseminated sulphide mineralisation in drill core.

#### Background

In 2014, Stavely Minerals drilled three deep diamond drill holes to depths of between 522m to 637m into a geophysical induced polarisation (IP) chargeability anomaly at Thursday's Gossan (see Figures 2 & 3). The drill holes each demonstrated a very good correlation between the modelled chargeability anomaly zone and observed phyllic (silica-sericite-pyrite) alteration in the drill holes.

The classical model of porphyry copper-gold mineralisation would have the phyllic alteration zone located above and overprinting the potassic alteration zone, where the best developed copper-gold mineralisation could be expected.

Stavely Minerals' drill hole SMD003 in particular demonstrated very strong phyllic alteration and veining / sulphide assemblages of chalcopyrite, molybdenite and bornite, indicating close proximity to a better mineralised potassic core, before intersecting a low-angle structural zone at approximately 420m drill depth.

Below the structural zone, the alteration and sulphide assemblage changed measurably and indicated a more distal position relative to the anticipated porphyry core (Figure 4).

While this outcome was somewhat disappointing given that SMD003 appeared so close to success before hitting the offset structural zone, the three diamond drill holes completed by Stavely Minerals have collectively provided the first recognition of a low-angle structural offset. This goes a long way towards explaining why previous exploration at Thursday's Gossan failed to locate the better mineralised potassic alteration 'core'.

Since completing these three deep diamond drill holes, Stavely Minerals has:

- Re-logged and interpreted the lithology, alteration and mineralisation in the drill core with the assistance of Corbett and Menzies Consulting Pty Ltd;
- Commissioned a detailed structural review and 3D model, created by Model Earth Pty Ltd;
- Analysed all recent drill holes and critical remaining historical diamond drill holes using the Terraspec® Halo near infra-red (NIR) portable spectrometer to map out the alteration mineralogy and near infra-red adsorption features related to white mica crystallinity. The NIR data was processed and interpreted by Dr Scott Halley of Mineral Mapping Pty Ltd. The short wavelength white mica adsorption features are interpreted to reflect proximity to the porphyry magmatic fluid source the shorter the wavelength of the absorption feature, the closer the source;
- Completed  $\delta$ 34 sulphur isotope analysis on 11 samples from Stavely Minerals diamond drill holes and received sulphur isotope results from 12 samples collected from historical diamond drill holes by Geoscience Australia (GA).



Collectively, this work has resulted in some important breakthroughs for the Company's understanding of the Thursday's Gossan Prospect and the optimal location for the next round of drilling.

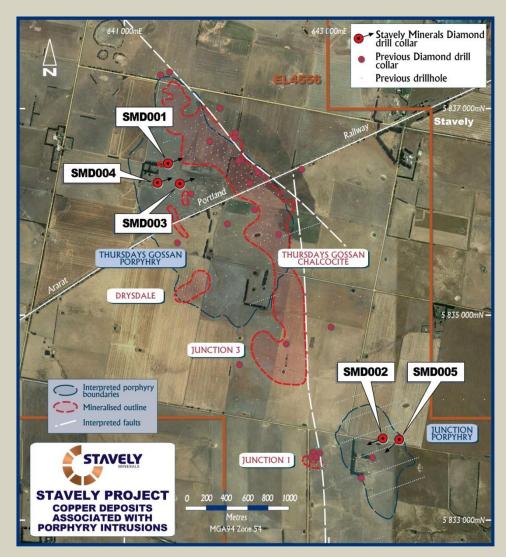


Figure 2. Thursday's Gossan plan showing chalcocite blanket resource outline projected to surface, porphyry outline, major faults and Stavely Minerals' deep diamond drill hole locations.

#### **3D Structural Model**

A data review and preliminary 3D model were generated by Model Earth Pty Ltd prior to a site visit to validate data, log available drill core and collect additional data in February 2015. A report and updated 3D model was subsequently completed.



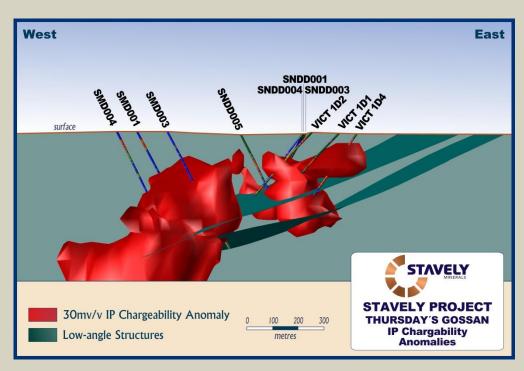


Figure 3. Thursday's Gossan section (looking north) showing IP 30mv/v chargeability shell (red), low-angle structures and drill holes with copper assay colour shading. Note Stavely Minerals' drill holes SMD001, SMD003 and SMD004 testing the large chargeability feature. This correlated well to phyllic (sericite-pyrite) alteration.

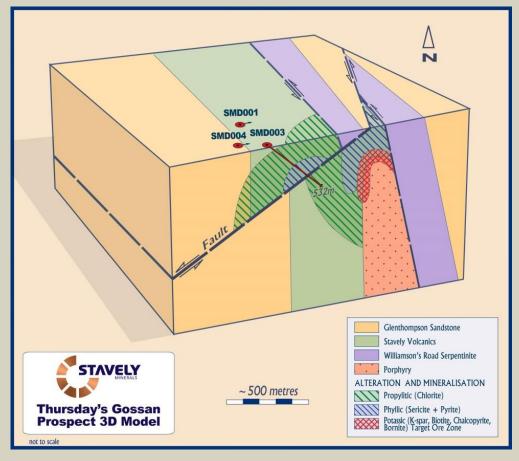


Figure 4. Thursday's Gossan interpretation model of a low-angle structural zone offsetting the hydrothermal alteration and copper-gold mineralisation.



#### Key findings are that:

- The sedimentary / volcanic host sequence (the Stavely Volcanic Belt) is likely to be generally west-dipping, and has been folded around sub-horizontal to north-plunging fold axes;
- The copper porphyry system(s) intruded into this folded geometry;
- The general geometry of the copper porphyry system is likely to be upright and not folded (but later offset by brittle fault zones);
- The available data suggests the Thursday's Gossan copper porphyry system(s) are offset by at least two low-angle sinistral strike-slip fault zones that dip NW to SW with the displaced rocks moving top-S to top-SE; and
- The total offset is difficult to estimate but could be in the order of hundreds of metres to 1-2km.

#### **NIR White Mica Absorption Data**

In late October 2014, Stavely Minerals' personnel analysed all recent drill holes and critical surviving historical diamond drill holes using the Terraspec® Halo near infra-red portable spectrometer to map out the alteration mineralogy and near infra-red absorption features related to white mica crystallinity.

The shorter wavelength white mica absorption features are interpreted to reflect proximity to the porphyry magmatic fluid source – the shorter the wavelength of the adsorption feature, the closer the source (Figure 5). The principle is that the distribution pattern from longer wavelength white micas to shorter wavelength white micas can provide a spatial vector to the 'core' of the hydrothermal alteration system and the better developed copper-gold mineralisation.

This technique is based on work by Dr Scott Halley and others; Dr Halley has consulted to Stavely Minerals in processing and interpreting HyLogger® and Terraspec® Halo NIR data. Halo data was collected at 1m intervals in unoxidised intervals of Stavely Minerals' drill core and selected intervals from surviving historic drill core. These data were combined with Hylogger® data previously collected on 11 historical diamond drill holes stored in the Werribee (Vic) core storage facility under an AusScope funded research programme.

It is apparent from the distribution of the white mica NIR absorption features that above the offsetting structure the shortest wavelengths are to the south and at depth indicating that prior to structural offset, the porphyry 'core' was in that direction (Figure 6).

However, beneath the offsetting structural zone, the wavelength distribution pattern demonstrates a clear progression from longer wavelengths in the south (e.g., SMD003) to the shortest wavelengths to the north in VSTD001. This supports the outcomes of the structural study, indicating that the lower block has been offset to the north.



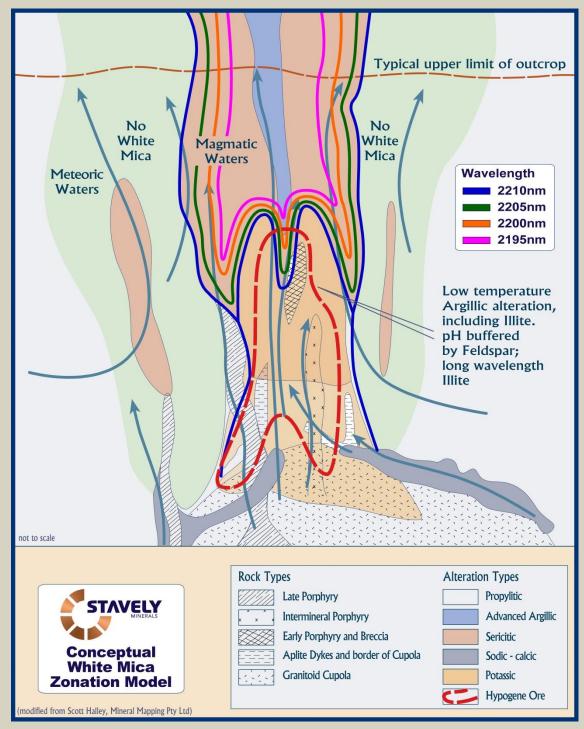


Figure 5. White mica wavelength absorption model showing direct magmatic fluid contribution (low pH) forming short wavelength white mica while white micas formed progressively outwards result from greater proportions of meteoric fluid mixing (more moderate pH).

The implication is that the lower block is likely to host the potassic altered porphyry 'core', which is expected to demonstrate the best developed copper-gold mineralisation, and that this 'core' has been structurally offset to the north and possibly some distance to the east also.

Of particular note is that drill hole VSTD001 is the most northern RC or diamond drill hole at the Thursday's Gossan Prospect.



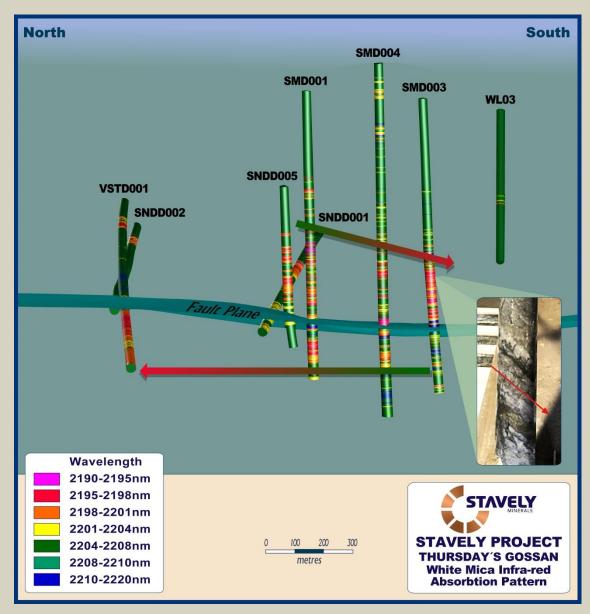


Figure 6. White mica wavelength absorption distribution in Stavely Minerals' and historical drill holes. View from below surface looking along the plane of the structure from the west to east. The distribution pattern supports the observed alteration intensity and sulphide mineralisation as increasing to the south and at depth above the low-angle structural zone. This is supported by 'D' vein orientations observed in SMD003 (inset). In contrast, the distribution below the structural zone appears to display a clear indication of increasing proximity to the north.

#### **Sulphur Isotope Data**

Sulphur isotope data has been collected for 23 samples from 8 diamond drill holes at the Thursday's Gossan Prospect. Geoscience Australia collected 12 samples from 5 diamond drill holes in late 2013. Stavely Minerals collected 11 samples from 3 diamond drill holes in late 2014. All samples were sent to the Central Science Laboratory at the University of Tasmania for  $\delta$ 34 sulphur isotope analysis.



The  $\delta 34$  sulphur isotope results range from 3.08% to -21.86% with an average of -3.44 while if the upper and lower outliers are removed the results range from -0.76% to -6.4%  $\delta 34$  sulphur (Appendix 1). It is worth noting that the -21.9% result may be spurious as it is so strongly negative relative to all the other results and needs follow-up. Also, the 3.08% result is likely to be syngenetic sulphide given the host is a submarine sequence of volcanics and inter-bedded sediments with this result indicating a major component of seawater sulphur.

The trimmed range of results of between -0.76% to -6.4% from the Thursday's Gossan Prospect is consistent with  $\delta$ 34 sulphur isotope results from alkalic copper-gold porphyry systems of economic significance in central New South Wales and British Columbia.

In simplistic terms, the more positive the result, the greater the contribution of meteoric fluids (rainwater) or seawater; the more negative the result, the greater the contribution of magmatic derived fluids. While  $\delta$ 34 sulphur isotope zonation is an emerging tool for exploration which needs further study, the implication is that the trend from neutral to mildly negative  $\delta$ 34 sulphur isotope results towards more strongly negative  $\delta$ 34 sulphur results can be used as a broad vector towards the magmatic (read porphyry) source and potentially better developed copper-gold mineralisation in the potassic altered 'core' of the hydrothermal system.

The  $\delta 34$  sulphur isotope results (Appendix 1) broadly demonstrate increasingly negative  $\delta 34$  sulphur isotopes in SMD003 as it progresses to depth (-1.4, -2.4, -4.2, -5.5‰) and then decreases beneath the structural offset zone (-3.0‰). The most negative  $\delta 34$  sulphur isotope results at the Thursday's Gossan Prospect (-21.9‰ and -6.4‰) are in VSTD001 to the north (this being the most northern RC or diamond drill hole at Thursday's Gossan).

The  $\delta$ 34 sulphur isotope data supports the structural interpretation and the NIR white mica absorption wavelength data in indicating that the most strongly negative sulphur isotope values (indicating a stronger magmatic sulphur source contribution) are in drill hole VSTD001 in the north of the prospect.

Of particular note in that context is that the northern portion of the Thursday's Gossan Prospect displays many of the best combined copper and gold results in the entire prospect. It is possible that a more productive gold-rich phase of porphyry intrusion may have been emplaced in this vicinity (Figure 7).



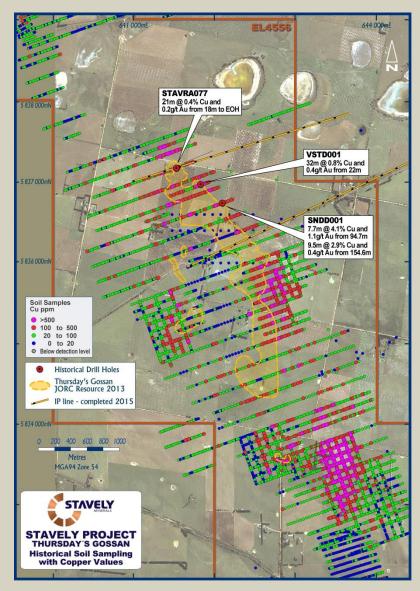


Figure 7. Thursday's Gossan location plan showing auger sample copper geochemistry, Mineral Resource outline, new IP survey lines and selected copper-gold drill intercepts.

Just south of VSTD001, diamond drill hole SNDD001 returned copper-gold results of:

- 7.7m at 4.14% copper and 1.08 g/t gold from 94.7m; and
- 9.5m at 2.93% copper and 0.44g/t gold from 154.6m.

Both intercepts are likely to represent leakage mineralisation along structures.

Diamond drill hole VSTD001 has one of the better copper-gold intercepts at the Thursday's Gossan Prospect with:

• 32m at 0.8% copper and 0.4g/t gold from 22m drill depth

And rotary air blast (RAB) drill hole STAVRA077 to the north of VSTD001 intersected:

• 21m at 0.4% copper and 0.2g/t gold from 18m drill depth to end-of-hole



While these shallower copper results may be subject to supergene enrichment processes, it is unlikely that the gold has undergone much in the way of enrichment and may reflect original primary mineralisation.

#### **Induced Polarisation (IP) Geophysical Surveys**

The original Stavely Minerals' IP survey coverage did not anticipate a possible structural offset to the porphyry system, and there was no coverage in areas to the north and east of the historical exploration areas.

Subsequent interpretations of Stavely Minerals' drilling have established a low-angle structural offset with the potassic 'core' to the porphyry system – expected to display better copper-gold mineralisation – likely to have been offset to the north/east. Consequently, the IP surveys have been extended in both directions with the extension of an existing line to the east (Line 261350mN) and the survey of a new line to the north (Line 10600mN) (Figure 7).

Both recent survey areas have identified new chargeability anomalies.

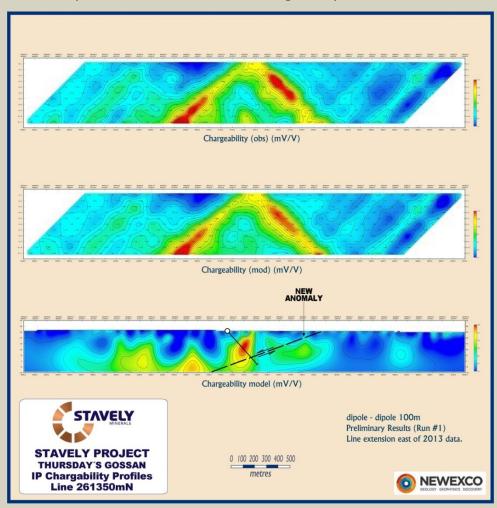


Figure 8. Chargeability profiles for IP Line 261350mN showing interpreted low-angle structure location and the 2014 drill target. Note the subtle chargeability feature to the east beneath the structure – this could be reflecting less chargeable chalcopyrite-bornite sulphide mineralisation in the potassic 'core'.



On Line 261350, the original chargeability anomaly is readily apparent in the lower Chargeability Model and was found to be accurately reflecting silica-sericite-pyrite alteration and mineralisation.

The approximate position of the low-angle structure is shown in the lower profile and a more subtle chargeability feature is located to the east under the structure. This could be interpreted as less chargeable chalcopyrite / bornite sulphide mineralisation associated with a potassic 'core' and will need drill testing after some additional IP to refine the target.

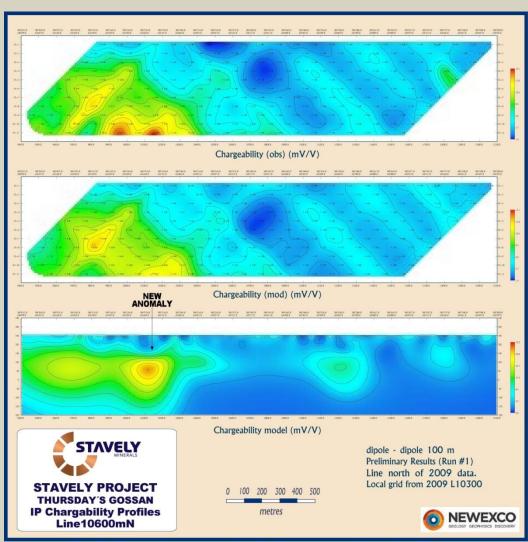


Figure 9. Chargeability profiles for IP Line 10600mN showing a new chargeability anomaly on this, the most northern IP survey line to date. The anomaly is in the immediate vicinity of mineralised RAB drill hole STAVRA077 (see Figure 7).

On Line 10600, a new chargeability anomaly is apparent and is located near anomalous Auger sample copper anomalism. The chargeability anomaly is in the vicinity of historical RAB drill hole STAVRA077, which returned assays of 21m at 0.4% copper and 0.2g/t gold from 18m drill depth to end-of-hole.



#### Discussion

Since completing a series of deep diamond drill holes at the Thursday's Gossan Prospect in late 2014, a large body of multi-disciplinary data has been acquired including:

- Interpretive logging of Stavely Minerals' drill holes in conjunction with re-logging of surviving historical diamond drill holes, with the assistance of Corbett and Menzies Consulting Pty Ltd;
- Structural re-logging and interpretation with the assistance of Model Earth Pty Ltd;
- NIR spectrometry characterising the alteration mineralogy with data processing and analysis with the assistance of Dr Scott Halley of Mineral Mapping Pty Ltd; and
- Sulphur isotope analysis by both GA and Stavely Minerals through the CSL at University of Tasmania.

The culmination of all this work is a compelling and coherent body of evidence indicating a low-angle structural offset to the Thursday's Gossan porphyry system. The majority (5 of 6) of kinematic indicators, the white mica NIR absorption feature distribution and sulphur isotope data distribution all provide supporting evidence that the porphyry 'core' has been offset to the north (and possibly to the east) below the low-angle structural zone.

It is postulated that the low-angle structural zone was at least partially active during a phase of sulphide mineralisation given the marked increase in sigmoidal 'D' veins intersected by drilling in proximity to the structural zone.

The structural zone may have a component of normal movement as part of an 'unroofing' event associated with uplift and erosion and that this 'unroofing' may be the catalyst for a second phase of porphyry intrusion by a rapid reduction in lithostatic load.

Evidence includes the occurrence of copper sulphide mineralisation across the structural boundary despite marked changes in alteration style, suggesting that much of the alteration was related to an early metals-poor hydrothermal event overprinted by a later metals-rich event associated with a second phase of porphyry intrusion (Corbett and Menzies, 2014).

Stavely Minerals' Managing Director, Mr Chris Cairns, said: "Since our deep diamond drilling programme finished late in 2014 we have been very busy extracting the most information we possibly can from those drill holes. The outcomes have been compelling in allowing us to develop a realistic model of structural offset, validated by a multi-disciplinary scientific approach.

"Additionally, the sulphur isotope results received are consistent with the target being an alkalic copper-gold porphyry system, which are characteristically smaller than the calcalkaline copper porphyries, but represent a more attractive economic proposition in the application of bulk underground methods due to the presence of higher grades, particularly for gold.



"To have new IP chargeability anomalies in those areas predicted by the structural model as the most likely location for the transposed potassic 'core' of the porphyry system gives us great confidence in these targets," he continued.

"While we haven't yet found the target 'core' of this porphyry system, to butcher a famous phrase, 'it can't run but it can hide' – and we are progressively hunting it down," Mr Cairns said.

**Chris Cairns** 

**Managing Director** 

*Menzies, D.C. and Corbett, G.J.,* Comments on Drill Core Inspected From Thursday's Gossan and Junction Prospects For Stavely Minerals Limited, September and November 2014. Stavely Minerals' internal report.

The information in this report that relates to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Mr Chris Cairns, a Competent Person who is a Member of the Australian Institute of Geoscientists. Mr Cairns is a full-time employee of the Company. Mr Cairns is the Managing Director of Stavely Minerals Limited, is a substantial shareholder of the Company and is an option holder of the Company. Mr Cairns has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being 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'. Mr Cairns consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

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## Appendix 1: $\delta$ 34 Sulphur isotope results

Dragnost	DDH	Batch	Field ID	From	δ <sup>34</sup> S	Dominant	Description
Prospect Thursday	ООП	Daten	Field ID	(m)	0 3	phases	Description Sulfide mineralisation, Ccp
Gossan	SNDD-01	1	TG001/05	98.10	-3.95	Ccp+(Sulf, Sil)	, ·
Thursday Gossan	SNDD-01	1	TG001/13	191.60	3.08	Py+(Sil)	Hornfelsed ultramafic rock
Thursday Gossan	SNDD-01	2	TG001/18	249.10	-4.25	Py+(Sil)	Py stringer
Thursday Gossan	VSTD001	2	V001/00	256.00	-21.86	Sil+(Mixed sulfides)	Silicate "sand" witn minor admixture of sulfides; Suspect initially strongly weathered sample
Thursday Gossan	VSTD001	1	V001/03	299.30	-6.4	Ccp+(weathered sulfides+Sil)	Quartz-sulfide vein, Mo suspected
Thursday Gossan	VSTD002a	1	V002a/02	279.80	-1.49	Ру	Py vein within quartz-sericite alteration halo
Thursday Gossan	VSTD002a	2	2167510	295.00	-3.98	Ру	Disseminated or fracture controlled pyrite
Thursday Gossan	VSTD005	1	V005/02	296.90	-1.64	Py+Qtz	Quartz-pyrite-veinlet
Thursday Gossan	VSTD005	1	V005/03a	302.20	-0.76	Ccp+(Qtz)	
Thursday Gossan	VSTD005	1	V005/04	399.00	0.41	Ccp+(Sil)	
Thursday Gossan	VSTD006	2	V006/01	270.60	-2.75	Ру	Strongly weathered Ser-Kaol altered rock
Thursday Gossan	VSTD006	2	V006/03	282.00	-4.63	Ру	
Thursday Gossan	SMD001	3	HFA4	253	-2.93	Сср+ру	
Thursday Gossan	SMD001	3	HFA7	379	-2.06	Сср+ру	
Thursday Gossan	SMD001	3	HFA9	491	-1.48	Сср+ру	
Thursday Gossan	SMD003	3	HFA1	135.8	-1.46	Сср+ру	
Thursday Gossan	SMD003	3	HFA2	197.4	-2.37	Сср+ру	
Thursday Gossan	SMD003	3	HFA6	341	-4.23	Сср+ру	
Thursday Gossan	SMD003	3	HFA10	500.8	-5.52	Сср+ру	
Thursday Gossan	SMD003	3	HFA11	513	-3.03	Сср+ру	
Thursday Gossan	SMD004	3	HFA8	471.05	-2.11	Сср+ру	
Thursday Gossan	SMD004	3	HFA12	521	-1.03	Сср+ру	
Thursday Gossan	SMD004	3	HFB1	630.1	-2.12	Сср+ру	
Py - pyrite;							

Py - pyrite; Sph sphalerite; Ccp chalcopyrite; Mo molybdenite; Sil -

silicates; Qtz - quartz



# 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	Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.	Diamond Drilling Sampling of diamond drill core from Stavely Minerals SMD001, SMD003 and SMD004 holes was conducted for the purpose of sulphur isotope analysis. The samples were obtained by either using a small drill to drill out the sulphide or the sulphide was plucked out by hand. Care was taken to only sample the chalcopyrite and not to extract any other sulphide minerals or silicate material.  Historical Drilling Historical diamond drill hole VSTD001 was drilled by Newcrest in 2002 to a depth of 520.7m to target the porphyry core. The hole was oriented at -50° towards azimuth 256°. The drilling was conducted by Silver City drilling. The first 62m were drilled by aircore. HQ core was drilled between 62m and 255.7m and NQ core between 255.7m and 520.7m. Two metre composite samples were taken to a depth of 62m and then one metre samples to eoh. The samples were analysed for Au, Ag, As, Bi, Cu, Mo, Pb, S, S and Zn. The entire hole was geologically logged.
		Historical aircore hole STAVRA077 was drilled by North Limited in 1994 to a depth of 39m at the Thursday's Gossan Prospect. The hole was drilled vertically. Three metre composite samples were analysed for Au, Cu, Pb and Zn. The entire hole was geologically logged.
		Historical diamond hole SNDD001 was drilled by Beaconsfield Gold Mines Pty Ltd in 2008 to a depth of 321.9m. The hole was oriented at -50° towards magnetic azimuth 265°. The drilling was conducted by Silver City Drilling. The primary target was the serpentite zone immediately east of the best and widest supergene mineralisation of the Thursday's Gossan, and to test both the contact structure between the serpentinite and porphyry, and at the bottom of the hole to test for a NE mineralised structure. HQ triple tube was drilled from 0m to 56.6m and then NQ to 321.9m. No sampling was done for the first 21m. From 21m to 321.9m composite samples based on lithology were analysed for Au, Ag, Co, Cu, Ni, Pb and Zn. The entire hole was geologically logged.
		Resource Estimate Resource estimate underpinned by diamond drilling (DD), aircore drilling (AC), reverse air blast drilling (RAB) and reverse circulation drilling (RC) samples: Pennzoil (1 RC, 14 RAB holes): 2m Samples selected where mineralisation observed. 13 RAB holes sampled every alternate 2m intervals. No details on sampling methods. North (4 DD, 1 AC, 85 RAB) and Newcrest (3 DD): Diamond holes ½ core sampled. No details on sampling of RC, RAB and Aircore holes. Beaconsfield Gold (2 DD, 78 AC): Diamond holes ½ core

STAVELY
MINERALS

Criteria	JORC Code explanation	Commentary
		sampled. Aircore holes were sampled by spearing of material on 2m or 3m intervals where no mineralisation was observed and on 1m intervals where mineralisation was observed.  TGM Group (26 AC): No details.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Sample representivity was ensured by a combination of Company Procedures regarding quality control (QC) and quality assurance/ Testing (QA).
	Aspects of the determination of mineralisation that are Material to the Public Report - In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	No sample preparation is available for the historical drilling.
Drilling techniques	Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, facesampling bit or other type, whether core is oriented and if so, by what method, etc).	Historical Drilling Historical hole VSTD001 was drilled by Newcrest in 2002 using a diamond drill rig. The drilling was conducted by Silver City drilling. The first 62m were drilled by aircore. HQ core was drilled between 62m and 255.7m and NQ core between 255.7m and 520.7m.  Historical hole STAVRA077 is an aircore hole drilled by North Limited in 1994. No other drilling details are known.  Historical hole SNDD001 was drilled by Beaconsfield Gold Mines Pty Ltd in 2008 using a diamond drill rig. The drilling was conducted by Silver City Drilling with a Mantis 700 rig. HQ triple tube was drilled from 0m to 56.6m and then NQ to 321.9m.  Resource Estimate Drilling details for the TGC resource drill hole dataset:
		2g dotaile for the 100 resource drill flote dataset.



Criteria	JORC Code explanation	Comm	entary					
		Drill Type	Company	Count	Av. DFrom to	Av. Dto to Min.	Av. Min. Int	Av. Cu (ppm)
					Min. Top (m)	Base (m)	Length (m)	
		AC	BCD North	78 1	32 20	56 62	24 42	4080 3090
		ACT-1-1	TGM Group	26	33	55	22	3496
		AC Total	BCD	105 2	32 86	<b>56</b> 93	<b>24</b> 7	3926 23586
		DD	CRAE	2	41	54 85	13	3237
			Newcrest North	4	56 37	63	29 26	3927 3541
		DD T-t-I	Pennzoil	1	20	28	8	5250
		DD Total RAB	North	12 85	49 31	69 46	20 15	<b>7070</b> 2948
			Pennzoil	14 99	22 30	35 45	13 <b>15</b>	2587
		RAB Total	BCD	8	27	45	17	<b>2897</b> 4498
		RC	Pennzoil	1	2	34	32	11944
		RC Total Total A	ll Drilling	9 225	24 32		19 20	5326 3697
Drill comple	Mothed of recording and	Histori	aal Drill	lina				
Drill sample recovery	Method of recording and assessing core and chip		cal Drill	_	worios w	ere logged	d and rec	orded for
recovery	sample recoveries and				SNDD001.		a and 160	oraea ioi
	results assessed.							
			rce Esti			DD boloo		
						DD holes		
	Measures taken to maximise	No deta	ails are a	availa	able for th	e historica	I drill hole	s.
	sample recovery and ensure							
	representative nature of the samples.							
	samples.							
	Whether a relationship exists	No deta	ails are a	availa	able for th	e historica	l drill hole	s.
	between sample recovery							
	and grade and whether							
	sample bias may have occurred due to preferential							
	loss/gain of fine/coarse							
	material.							
Logging	Whether core and chip	Histori	cal Drill	lina				
Logging	samples have been				nond hole	s SNDD0	001 and '	VSTD001
	geologically and geotechnically logged to a	The historical diamond holes SNDD001 and VSTD001 have been geologically and geotechnically logged.						
		Historical aircore hole STAVR077 has been geologically						
	level of detail to support	logged.						
	appropriate Mineral Resource	Resou	rce Esti	mate	<u> </u>			
	estimation, mining studies	Lithology logs through mineralisation available for all						
	and metallurgical studies.	holes.	,, ,		J			
		Incomplete oxidation-state and interval colour logging						
						supergen		ı loggilig
	Whather legging is qualitative	,				. •		timotos
	Whether logging is qualitative or quantitative in nature. Core	All logg	ing is qu	uanti	ialive, bas	sed on visu	dal field es	simales.
	(or costean, channel, etc)							
	photography.							
		Lieteria	ol bola	0 1/	CTD004	CNIDDOO	1 ond C	TAMPOZZ
	The total length and percentage of the relevant				n their ent	SNDD00 <sup>-</sup>	i aliu S	IAVKU//
	intersections logged.	nave b	Jen loge	,cu ii	. trion Gill	Oty.		
Cub same lin	33	Гол Г	An wins I I		CNIDDOCA	l half		amla -l Ni
Sub-sampling techniques	If core, whether cut or sawn and whether quarter, half or				SNDD001 VSTD00	l half core	was san	npiea. No
and sample	all core taken.	ustalis	are give	11 101	VO1000	1.		
preparation					, ,			
	If non-core, whether riffled, tube sampled, rotary split, etc	No de   STAVR	etails a	are	given for	or histori	cal airco	ore hole
	and whether sampled wet or	STAVE	A011.					
	and whether sampled wet of							



Criteria	JORC Code explanation	Commentary
	dry.	
	For all sample types, the nature, quality and appropriateness of the	Historical Drilling  No details of sample preparation are given for the historical drilling.
	sample preparation technique.	Resource Estimate Pennzoil (1 RC, 14 RAB holes): No details on sampling and sample preparation methodology. North (4 DD, 1 AC, 85 RAB) and Newcrest (3 DD): No details sample preparation methodology. Beaconsfield Gold (2 DD, 78 AC): No information on sample preparation methodology. TGM Group (26 AC): No details.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	No details of quality control procedures are given for the historical drilling.
	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.	No details are given for the historical drilling.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The sample sizes are considered to be appropriate to correctly represent the sought mineralisation.
Quality of assay data and laboratory tests	y data appropriateness of the assaying and laboratory procedures used and whether	Sulphur Isotope Analysis Sulphur Isotope analysis was conducted at the Central Science Laboratory, University of Tasmania. The samples were weighed on a precision "Sartorius Microbalance SE2".
		The samples were analysed using an Isotope Ratio Mass Spectrometer (IRMS) - an "IsoPrime 100" from isoprime and an Elemental Analyser - a "vario PYRO cube" from Elementar Analysensysteme.
		Nitrogen, Carbon and Sulphur (NCS) combustion, to analyse $\delta^{15}$ N, $\delta^{13}$ C and $\delta^{34}$ S, is a capability of the vario MICRO, ISOTOPE and PYRO cubes. The vario PYRO cube has the following setup for NCS mode: two packed reactor tubes (combustion and reduction), two 'purge and trap' desorption columns (for $SO_2$ and $CO_2$ ) and an inlet for both the sample and reference gas to enter the IsoPrime100 IRMS. After combustion the bulk sample gas passes through the system and columns and is stripped of $H_2O$ , in the water traps, as well as $SO_2$ and $CO_2$ , in the 'Purge and Trap' Columns. The $N_2$ component gas is not trapped in a column and is the first to enter the IRMS. After the $N_2$ reference and sample peaks have been collected the $CO_2$ desorption column is heated to $110^{\circ}C$ and the $CO_2$ sample gas is released, passing through a second water trap and into the IRMS. The final gas to be released is $SO_2$ which occurs when the desorption column is heated to $220^{\circ}C$ , this sample gas then bypasses the $CO_2$ column (where it could potentially be retained), passes through a second water trap and enters the IRMS.



Criteria	JORC Code explanation	Commentary
		The dilutor can be used to lower the gas loads entering the IRMS source.
		Sulphur isotope analyses have potential applications in the exploration of alkali porphyry-style deposits, with zones of depleted delta sulphide values most prospective for high-grade mineralisation.
		Historical Drilling Samples from historical diamond hole SNDD001 were analysed at Amdel Laboratory. Gold was analysed by Fire assay and the multi-elements by aqua regia with ICPOES finish.
		Resource Estimate Pennzoil (1 RC, 14 RAB holes): A base metal suite was assayed via AAS (digestion not specified) and Au was assayed via fire assay.
		North (4 DD, 1 AC, 85 RAB) and Newcrest (3 DD): A base metal suite was assayed via Mixed Acid digest, AAS detection and Au was assayed via fire assay.
		Beaconsfield Gold (2 DD, 78 AC): OnSite Laboratory Services (Bendigo) analysed all samples for Cu by aqua regia digest ICP-OES detection and repeated assays for samples returning greater than 5000ppm Cu by Mixed Acid Digest ICP-OES detection. Au was assayed via fire assay.
		TGM Group (26 AC): No details. "Cherry-picking" of best assays from reassayed samples (85 of 160 substituted) has introduced a +10% relative bias for 9 holes used in the resource estimate.
		No QC samples were inserted into any of the sample batches from the Thursday Gossan drilling. No laboratory QC data was made available for assessment as part of this resource estimate.
		Beaconsfield Gold undertook a limited (selective) umpire laboratory programme (29 samples), entire residual material assaying (94 intervals) and 66 sub-sample assays of residual material (66 intervals). These projects provide limited insight into sampling and assay reliability. This data indicates that:
		Both significant bias and precision issues are suspected in the Beaconsfield Gold dataset (OnSite Laboratory) and that there appears to be a period of instrument malfunction or systems/procedural breakdown at grades greater than 3000ppm Cu at the laboratory.
		The spear vs total sample dataset shows a significant relative bias in favour of the spear sample, manifesting greatest within samples containing higher copper grades.
	For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times,	Terraspec Halo NIR spectrometer The TerraSpec Halo near Infra-red (NIR) spectrometer has a full-range spectrometer measuring the visible and short wave infrared regions (350-2500 nm). The instrument package includes calibration reference materials.



Criteria	JORC Code explanation	Commentary	
	calibrations factors applied and their derivation, etc.	Spectrometer analyses identification of hydrat typical of advanced arg propylitic hydrothermal	s are particularly effective for ed (or hydroxyl bearing) clays illic through sericitic (phyllic) and alteration and therefore highly zones in porphyry systems.
		absorption spectra, an	based on their characteristic NIR d by comparison with standard S mineral spectral database.
		dominant minerals were mica (sericite) waveleng	r metre of core was recorded. The e reported as well as the white gth. The unit was calibrated with reference fused disks at each n periodically prompted.
		Each spectral analysis to	ook approximately 60 seconds.
			on a hole by hole basis and raw d to Mineral Mapping Pty Ltd for ation.
		Ground IP Survey	
		Survey Specification	
		Array: Line spacing: Rx Dipole Separation: Tx Dipole Separation: Max N separation: Coordinate System: Base Frequency: Total chargeability integr Typical Current: Max Current: Min Current: Equipment	Dipole - Dipole 400 m nominal 100 m 100 m 11 Stavely Local Grid 0.125 Hz ration time: 0.860 ms 25 A 38 A 18 A
		Transmitter Make: Output: Max Current: Max Voltage: Current at max Voltage: Motor Generator:  Receiver Make:	WB-50 50 kVA 100 A 4000 V 8A 6 cyl Perkins Turbo Diesel
		Channels: Sample Rate: Software:	96
		Electrodes Type: Size: Holes: Orientation: Pattern:	aluminium plate 1200 x 150 x 6 mm auger along line dipole – dipole
	Nature of quality control procedures adopted (eg standards, blanks, duplicates,	No quality control data a	vailable for historical drilling.



Criteria	JORC Code explanation	Commentary
	external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Resource Estimate  Beaconsfield Gold undertook a limited (selective) umpire laboratory programme (29 samples), entire residual material assaying (94 intervals) and 66 sub-sample assays of residual material (66 intervals). These projects provide limited insight into sampling and assay reliability.
	The use of twinned holes.	Resource Estimate No assessment of twin holes was undertaken.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	No details provided for historical drilling.
	Discuss any adjustment to assay data.	No adjustments or calibrations were made to any assay data used in this report.
Location of data points	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.	Resource Estimate Holes within the Thursday Gossan area are recorded as being surveyed under three systems: AMG66 zone 54S, MGA zone 54 and GDA94 zone 54S. All coordinates were converted to GDA94 zone 54S by previous workers. These conversions have not been checked by NPT or HA. The August 2013 estimate is undertaken using the supplied GDA94 54S grid references.
		Beaconsfield Gold holes were located by hand held GPS. No information on survey methods for other workers.
	Specification of the grid system used.	The grid system used is GDA94, zone 54.
	Quality and adequacy of topographic control.	At Thursday's Gossan Porphyry Prospect topographic control is achieved via use of DTM developed from a 2008 airborne magnetic survey conducted by UTS contractors measuring relative height using radar techniques.
Data spacing and	Data spacing for reporting of Exploration Results.	The drill hole spacing is project specific, refer to figures in text.
distribution	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	Resource Estimate Area showing the thickest and highest tenor of mineralisation tested at nominal 50m centres by predominantly vertical holes.  Areas less well mineralised tested mostly at 100m centres by vertical drill holes
	Classifications applied.  Whether sample compositing has been applied.	Historical Drilling Sample compositing based on lithology was applied for historical drill hole SNDD001.
		Three metre compositing was applied for historical drill



Criteria	JORC Code explanation	Commentary
		hole STAVRA077.
		A combination of one metre and two metre composite sampling was applied for VSTD001.
Orientation of	Whether the orientation of	Resource Estimate
data in relation to geological	sampling achieves unbiased sampling of possible structures and the extent to	Drill orientation appropriate for testing of flat-lying mineralisation.
structure		Underlying geology indicates that primary mineralisation may be sub vertical. Supergene mineralisation is controlled by pre-existing geology, groundwater movement and surface/weathering events. It is unknown from the current dataset if there is any sub-vertical fabric within the supergene mineralisation and if so then vertical holes will not adequately sample this feature of the mineralisation.
	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.	Thursday's Gossan Porphyry Prospect There is insufficient drilling data to date to demonstrate continuity of mineralised domains and determine if any orientation sampling bias can be identified in the data.
Sample	The measures taken to	Thursday's Gossan Porphyry Prospect
security	ensure sample security.	Samples for the sulphur isotope analysis were posted via Australia Post by Stavely Minerals' personnel to the Central Science Laboratory, University of Tasmania. Samples were secured in small zip-lock plastic bags which were in turn collectively placed in a larger zip-lock sample bag, wrapped in bubble-wrap and placed in a small cardboard box taped shut with packing tape and labelled for destination and sender.
		Resource Estimate No available data to assess security.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	Thursday's Gossan Porphyry Prospect No audits or reviews of the data management system has been carried out.
		Resource Estimate Basic checking of data integrity.

# **Section 2 Reporting of Exploration Results**

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

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park	Thursday's Gossan Porphyry Prospect The diamond drilling at Thursday's Gossan and Junction is located on EL4556, which forms the Stavely Project. The mineralisation is situated within exploration licence EL4556. The Stavely Project was purchased by Stavely Minerals (formerly Northern Platinum) from BCD Resources Limited in May 2013. Stavely Minerals hold 100% ownership of



Criteria	JORC Code explanation	Commentary
	and environmental settings.	the Stavely Project Tenements. The Stavely Project is on freehold agricultural land and not subject to Native Title claims.
		New Challenge Resources Pty Ltd retains a net smelter return royalty of 3% in EL4556, although there is an option to reduce this to 1% upon payment of \$500k.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a	Thursday's Gossan Porphyry Prospect A retention licence – RL2017 was applied for over the entire extent of EL4556 in May 2014.
	licence to operate in the area.	The tenement is in good standing and no known impediments exist.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Thursday's Gossan Porphyry Prospect Exploration activity became focused on Thursday's Gossan and the Junction Prospects following their discovery by Pennzoil of Australia Ltd in the late 1970's. North Limited continued to focus on Thursday's Gossan in the 1990s. North's best drill result at Thursday's Gossan came from VICT1D1 which gave 161m of 0.26% Cu from 43m, including 10m of 0.74% Cu from 43m from a supergene-enriched zone containing chalcocite.
		The tenement was optioned to CRA Exploration between 1995 and 1997. CRAE drilled several deep diamond drill holes into Thursday's Gossan, including DD96WL10, which intersected 186m from 41m of 0.15% Cu and DD96WL11, which intersected 261.7m from 38.3m of 0.13% Cu.
		EL4556 was further explored by Newcrest Operations Limited under option from New Challenge Resources Ltd between 2002 and 2004. Their main focus was Thursday's Gossan in order to assess its potential as a porphyry copper deposit. One of their better intersections came from drill hole VSTD001 on the northern edge of the deposit which gave 32m at 0.41g/t Au and 0.73% Cu from 22m in supergene-enriched material.
		The Stavely Project was optioned to Beaconsfield Gold Mines Pty Ltd in 2006 who flew an airborne survey and undertook an extensive drilling programme focused on several prospects including Thursday's Gossan. One of their diamond drill holes at Thursday's Gossan, SNDD001, encountered zones with quartz-sulphide veins assaying 7.7m of 1.08g/t Au and 4.14% Cu from 95.3m and 9.5m of 0.44g/t Au and 2.93% Cu from 154.6m along silicified and sheared contacts between serpentinite and porphyritic intrusive rocks.
		Once Beaconsfield Gold Mines Pty Ltd had fulfilled their option requirements, title of EL4556 passed to their subsidiary company, BCD Metals Pty Ltd, who undertook a gravity survey and extensive drilling at prospects including Thursday's Gossan. They also commissioned a maiden Mineral Resource estimate for Thursday's Gossan.
		All work conducted by previous operators at the



Criteria	JORC Code explanation	Commentary
		Thursday's Gossan is considered to be of a reasonably high quality.
Geology	Deposit type, geological setting and style of mineralisation.	Resource Estimate Pennzoil: 1 RC, 14 RAB holes North: 4 DD, 1 AC, 85 RAB holes TGM Group: 26 AC holes Beaconsfield Gold: 2 DD, 78 AC holes Beaconsfield Gold: Resource Estimate undertaken by Coffey Mining Pty Ltd (2008)  Thursday's Gossan Porphyry Prospect The Thursday's Gossan and Junction Prospects are located in the Mount Stavely Volcanic Complex (MSVC). Intrusion of volcanic arc rocks such at the Mount Stavely
		Volcanic Complex by shallow level porphyries can lead to the formation of porphyry copper ± gold ± molybdenum deposits.
		The Thursdays Gossan Chalcocite deposit (TGC) is considered to be a supergene enrichment of primary porphyry-style copper mineralisation. Mineralisation is characterised by chalcopyrite, covellite and chalcocite copper sulphide mineralisation within a sericite, illite and kaolin clay alteration assemblage. Copper mineralisation is within a flat lying enriched 'blanket' of overall dimensions of 4 kilometres north-south by up to 1.5 kilometres east-west by up to 60 metres thick with an average thickness of approximately 20 metres commencing at an average depth below surface of approximately 30 metres. The majority (circa 60%) of the Mineral Resources reside within a higher grade zone of approximate dimensions of 1 kilometre x 300 metres by 35 metres thick.
		The Thursday's Gossan area hosts a major hydrothermal alteration system with copper-gold mineralisation over a 10 kilometre long corridor. The Junction porphyry target is defined by a coincident magnetic high, strong soil copper geochemistry, RAB drilling copper anomalism. Stavely Minerals believes the technical evidence indicates there is significant porphyry copper-gold mineralisation potential at depth at Thursday's Gossan.
		Resource Estimate Supergene enrichment of hydrothermally altered host rocks, where fine grained chalcocite and covellite have partially replaced pyrite and chalcopyrite grains.
Drill hole Information	A summary of all information material to the understanding	Resource Estimate 225 holes drilled in the prospect.
	of the exploration results including a tabulation of the following information for all Material drill holes:  o easting and northing of the drill hole collar o elevation or RL	Collar locations not verified however plot within acceptable levels from SRTM derived topographic surface.
		Downhole surveys for describing hole trace and sample locations available for 4 of 40 angled holes. 185 vertical holes drilled.
	(Reduced Level – elevation above sea level in metres) of the	Pennzoil assayed intervals logged with visible sulphide mineralisation.
	drill hole collar  o dip and azimuth of the	Sampling interval breakdown:

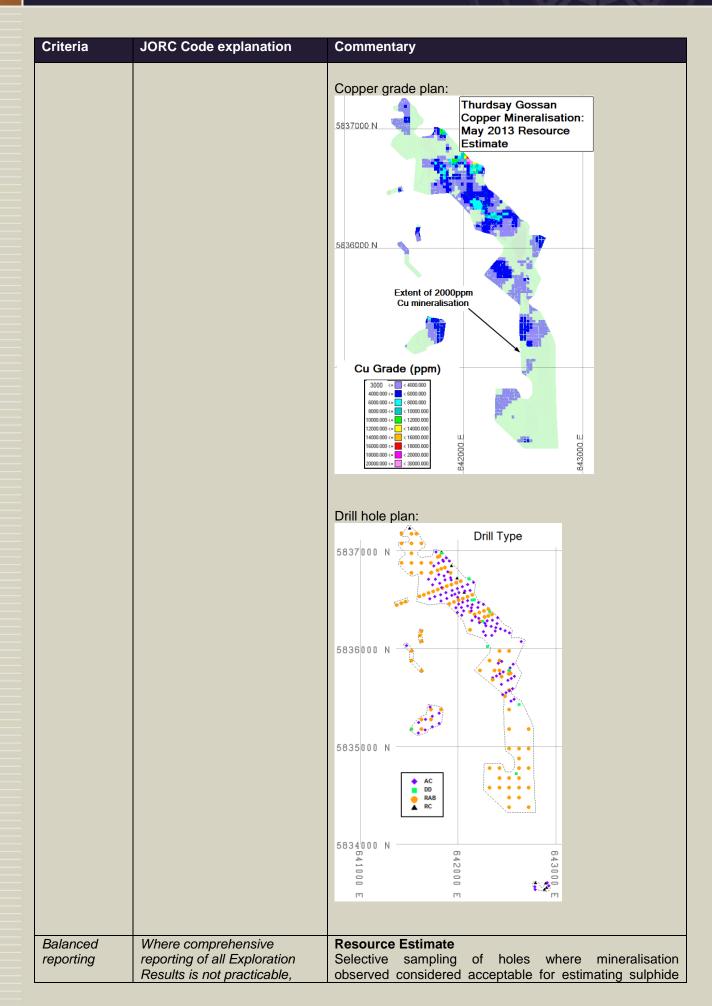


Criteria	JORC Code explanation	Comm	entary					
			Count of Sample Lengths					
	hole	Drill Type	Company	0.1 4				T-4-1
	o down hole length and		non	0 to 1m	1 to 2m	2 to 3m	3 to 5m	Total
	interception depth	AC	BCD North	833	258	177	1	1269
	<ul> <li>hole length.</li> </ul>	AC	TGM Group		21	187		187
		AC Total	rdivi droup	833	279	364	1	1477
		AC TOTAL	BCD	3	4	1	1	9
			CRAE	1	10	2	1	13
		DD	Newcrest	38	25			63
			North	96	4			100
			Pennzoil	8				8
		DD Total		146	43	3	1	193
		DAD	North		1	436	2	439
		RAB	Pennzoil	1	92			93
		RAB Total		1	93	436	2	532
		RC	BCD	136		1		137
		I I I	Pennzoil		16			16
		RC Total		136	16	1		153
		Т	otal	1116	431	804	4	2355
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion		lete oxid to detern ary moistunat all bar ised inter- ary data average. easuremente. bulk densements.	ation-state inine base ure data one hole val.  vailable for taken taken taken taken taken tention of sity meas	e and available encount or 2 DD from Edition drying statement	interval rgene zo e for 28 tered wa noles. Beaconsf samples. s than c	colour one). AC/RC ater throu ield Gol May b Iry bulk	holes ugh the d hole e more density
Data	does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Pacau	roo Estim	2010				
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.	Assays	·	ted to 3m	for reso	urce esti	mation.	
	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.	In repo are use Length corresp	ed for any weighted	ng oration re non-unifo d average interval g	orm inter e is (sur	section s	sample le	engths. erval x



Criteria	JORC Code explanation	Commentary
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalent values are used for reporting exploration results.
Relationship between mineralisation widths and intercept lengths	These relationships are particularly important in the reporting of Exploration Results.  If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	Thursday's Gossan Porphyry Prospect There is insufficient drilling data to date to demonstrate continuity of mineralised domains and determine the relationship between mineralisation widths and intercept lengths.  Resource Estimate No obvious association other than, as expected with supergene mineralisation, globally thicker mineralisation has higher tenor of copper.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').	Refer to the Tables and Figures in the text.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Refer to Figures in body of text. A plan view of the drill hole collar locations is included.  Resource Estimate  No historic or client produced diagrams available for review.  Thickness plan:  TGC - Resource Model Thickness Contours  Thickness Contours







Criteria	JORC Code explanation	Commentary
	representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	resources.  Alternative sampling and "cherry picking" practices assessed as having negligible effect on global estimate but will be a limiting factor in lifting local resources to higher than Inferred classification under the JORC Code (2012 Edition)  66 of the 225 holes terminate within mineralisation; however surrounding holes adequately define the base of mineralisation.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	All relevant exploration data is shown on figures and discussed in the text.  Resource Estimate  A further 683 holes within and surrounding the prospect area were utilised for defining the resource mineralisation.
Further work	The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).  Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Thursday's Gossan Porphyry Prospect.  Additional ground IP will be conducted at Thursday's Gossan to refine the modelled IP data. The chargeability anomalies, together with the structural interpretation, alteration mapping and sulphur isotopes will all be used as a vector to the target porphyry mineralisation.  Further diamond holes will be drilled to systematically vector towards the expected well-developed copper-gold mineralisation at Thursday's Gossan.  Resource Estimate  Evaluation of area for discovery of styles of mineralisation other than the defined supergene mineralisation.

# **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	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.  Data validation procedures used.	Data management protocols and provenance unknown.  Limited cross checks with paper records of drill hole and assay data.  Relational and spatial integrity assessed and considered acceptable.
Site visits	Comment on any site visits undertaken by the Competent	Not undertaken by CP



Criteria	JORC Code explanation	Commentary
	Person and the outcome of those visits.	CP has viewed photos of chip trays with mineralisation taken by Stavely Minerals' Personnel.
	If no site visits have been undertaken indicate why this is the case.	
Geological interpretation	Confidence in (or conversely, the uncertainty of ) the geological interpretation of the mineral deposit.  Nature of the data used and of any assumptions made.  The effect, if any, of alternative interpretations on Mineral Resource estimation.  The use of geology in guiding and controlling Mineral Resource estimation.  The factors affecting continuity both of grade and geology.	Single planar flat-lying horizon of supergene mineralisation containing areas where mineralisation thickens and copper grade tenor increases. A 0.2% Cu cut was utilised to domain the extents of the better mineralisation and this domain used as a hard boundary for grade interpolation.
Dimensions	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 Resource.	Extends intermittently for a strike length of 4000m (NS) a breadth of 1500m and vertically up to 60m thick. The model includes prospects known as Thursday Gossan Chalcocite Copper, Junction and Drysdale.  The block model and grade estimate encompasses the extent of the mineralisation.
Estimation and modelling techniques	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.  The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.  The assumptions made regarding recovery of byproducts.  Estimation of deleterious elements or other non-grade	Copper grades were interpolated into a VulcanTM non-regular block model with 20x20x10 metre parent blocks—subblocked to 2.5x2.5x2.5 metre minimum block dimensions.  3m composite intervals utilised.  No high grade sample treatment applied.  Single pass ID2 interpolation run employed utilising 200m sample search within the plane of mineralisation (97.8% of blocks within the TIN domain estimated).  Minimum of 10 and maximum of 20 composites utilised to estimate grade.  The Mt Ararat resource is classified as Inferred under the guidelines set out in the 2012 JORC Code.

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Criteria	JORC Code explanation	Commentary
	variables of economic significance (eg sulphur for acid mine drainage characterisation).	
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	
	Any assumptions behind modelling of selective mining units.	
	Any assumptions about correlation between variables.	
	Description of how the geological interpretation was used to control the resource estimates.	
	Discussion of basis for using or not using grade cutting or capping.	
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content	27 of 28 AC/RC holes with moisture information recorded wet drilling conditions through the mineralisation. It is unknown if the wet conditions has introduced bias or contamination into the dataset as relevant/detailed information is not available.
		Available core recovery data suggests that biases caused by both loss and enrichment may be affecting the resource dataset.
Cut-off parameters	The basis of the adopted cut- off grade(s) or quality parameters applied.	The resource estimate is reported at 0.2%, 0.3% and 0.5% Cu cuts and by three mineralised thicknesses domains - <10m, 10-20m and >20m thick. These breakdowns and grade tonnage plots are reported to allow differing economic assessment on the project.
Mining factors or assumptions	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 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	Not applied, however resource is reported at three thicknesses for input into this discipline.



Criteria	JORC Code explanation	Commentary
	case, this should be reported with an explanation of the basis of the mining assumptions made.	
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.	Not evaluated as risks associated with historic data over- riding feature affecting the confidence of the estimate.
Environmental factors or assumptions	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.	Not evaluated as risks associated with historic data over-riding feature affecting the confidence of the estimate.
Bulk density	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.  The bulk density for bulk	A single tonnage factor of 2.10 tonnes/m <sup>3</sup> was applied to all mineralisation deemed appropriate for oxidised clayrich material with sulphides.



Criteri	a	JORC Code explanation	Commentary
		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.	
		Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	
Classi	ification	The basis for the classification of the Mineral Resources into varying confidence categories.	The estimate is classified as Inferred under the JORC Code (2012 Edition). Absence of QA/QC, the indicated sampling and assaying issues and absence of important data for evaluating other risks to the estimate (such as
		Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	recover and moisture versus grade) are key factors in assigning an Inferred Classification.
		Whether the result appropriately reflects the Competent Person's view of the deposit.	
Audits review		The results of any audits or reviews of Mineral Resource estimates.	No Audit or Review of estimate undertaken.
Discus relative accura confide	acy/	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.	Not undertaken other than that stated under the classification section.
		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	





Criteria	JORC Code explanation	Commentary
	evaluation. Documentation should include assumptions made and the procedures used.	
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	