

Mt Gunson Copper-Cobalt Project Update

Gindalbie Metals Ltd (ASX:GBG- "Gindalbie" or "The Company") is pleased to announce revised Mineral Resources for the Windabout and MG14 deposits and ongoing progress in its other evaluation activities at the Mt Gunson Copper-Cobalt Project in South Australia.

As previously announced, Gindalbie has entered into a Farm-in Agreement with Terrace Mining Pty Ltd, a wholly owned subsidiary of Torrens Mining Limited ("Torrens") to acquire up to 75% of the Mt Gunson Copper-Cobalt Project by way of farm-in.

Mineral Resource Update

In September 2017, Gindalbie and Torrens undertook a campaign to drill 34 holes for a total 368 metres of HQ metallurgical core at the MG14 and Windabout deposits. Although the drilling campaign was primarily to obtain samples for metallurgical testwork, the drilling also enabled the Company to update the Mineral Resources according to the guidelines of the 2012 edition of the JORC Code.

Highlights

- Both MG14 and Windabout deposit Mineral Resource estimates have now been estimated according to the guidelines of the 2012 edition of the JORC Code, including direct QA/QC supervision by Gindalbie and Torrens.
- The deposits contain significant Cu, Co and Ag mineralisation with 1.83Mt at 1.24% Cu, 334ppm Co and 14g/t Ag at MG-14 and 17.67Mt at 0.77% Cu, 492ppm Co and 8g/t Ag at Windabout reported at a cut-off grade of 0.5% Cu equivalent.
- Excellent copper equivalent grades at both deposits with 1.83Mt at 1.67% Cu Eq at MG-14 and 17.67Mt at 1.41% Cu Eq at Windabout, reported at a cut-off grade of 0.5% Cu equivalent.

The Mineral Resource estimates for the Windabout and MG14 Deposits are tabulated below.

Indicated Mineral Resources - Windabout and MG14 Deposits

Cu Eq > 0.5% cut off					Cu Eq > 1.0% cut off				
Mt	Cu %	Co ppm	Ag g/t	Cu Eq %	Mt	Cu %	Co ppm	Ag g/t	Cu Eq %
17.67	0.77	492	8	1.41	11.86	0.95	599	10	1.73

Table 1: Windabout Indicated Resource

Cu Eq > 0.5% cut off					Cu Eq > 1.0% cut off				
Mt	Cu %	Co ppm	Ag g/t	Cu Eq %	Mt	Cu %	Co ppm	Ag g/t	Cu Eq %
1.83	1.24	334	14	1.67	1.59	1.33	360	15	1.80

Table 2: MG-14 Indicated Resource

Source: Mt Gunson Project Mineral Resource Estimate, January 2018

Tonnes have been rounded. Discrepancies in totals may exist due to rounding.

Cu equivalent has been calculated from Cu and Co metal selling prices, recoveries and other assumptions contained in the appendices of this announcement.

SECURITIES EXCHANGE ANNOUNCEMENT

19 January 2018



Additional Project Activities

In addition to the Mineral Resource estimate update reported here, the Company continues to progress associated evaluation and exploration activities at Mt Gunson, as summarised below.

Metallurgical Testwork

- A metallurgical testwork programme undertaken by metallurgical consultants, Strategic Metallurgy, is currently underway, and has moved through sample preparation and de-sliming testwork into the flotation testwork and optimisation phase. The principal objective being to improve sulphide flotation recoveries, results are expected in the second quarter of 2018.

Mining Options Study

- A mining study undertaken by mining and metallurgical consultants Mining & Process Solutions (MPS) has commenced and is focused on mine design, optimisation and planning for the MG14 and Windabout deposits. Mining method selection at Windabout will be a key part of the study with the current resource modelling work indicating zones of high grade ore that could be scheduled for earlier mining at a higher cut off grade during the life of the operations.

Exploration

- MPS is conducting a separate concept study to assess the viability of the Emmie Bluff Cu-Co-Ag prospect, located on the northern part of the tenements. Emmie Bluff has a historical non-JORC compliant mineral estimate which will be used to assess viability of the prospect. If positive, this may provide a significant exploration target for additional work.
- A major exploration targeting campaign across the tenement package, which comprises over 800km² of prospective ground, is underway to assess the potential for both additional sedimentary hosted mineralisation and IOCG mineralisation.
- The South Australian government, in partnership with Geoscience Australia, has recently completed a high-resolution airborne geophysical and terrain imaging programme over the Mt Gunson tenements, with the results expected imminently. The magnetic, radiometric and elevation data gained by this programme, combined with historic and new data compilation, will be used to refine and optimise exploration targeting work at Mt Gunson.

Commentary

Chris Stevens, CEO of Gindalbie commented, "I am delighted that the Mineral Resource estimates at the Mt Gunson Copper-Cobalt Project have been brought up to contemporary standards and will now form the basis of detailed mining studies as part of the scoping study update. I would like to thank the team who undertook the work; the teams from Gindalbie and Torrens are working extremely well together, and are dedicated to advancing the detailed evaluation of this project as we are in a climate of significant price increases for our target metals, copper and cobalt."

SECURITIES EXCHANGE ANNOUNCEMENT

19 January 2018



Summary of material information relating to Mineral Resources - Windabout and MG14 Deposits

A summary of material information contained within the Attached JORC Table 1 (Appendix) is provided below with regards to the Mineral Resource in line with requirements of ASX listing rule 5.8.1.

Geological interpretation:

- The Windabout and MG14 deposits are sediment-hosted Copper-Cobalt-Silver sulphide deposits formed through the replacement of diagenetic pyrite within dolomitic shales of the Tapley Hill Formation.

Resource drilling history:

- The Windabout and MG14 deposits have been delineated entirely by drilling, both diamond and RC. Numerous drilling campaigns were completed between 1970 and 1995 by CSR, ACC, Pacminex and Stuart Metals. Post - 2007 drilling was completed by Gunson Resources Ltd and Gindalbie.

Drilling statistics:

- Windabout pre-2007 drilling 198 drill holes drill holes for 16,933m.
- Windabout post 2007 drilling 23 holes for 1,384m.
- MG14 pre-2007 drilling 185 drill holes drill holes for 6,865m.
- MG14 post 2007 drilling 25 holes for 904m.

Sampling techniques

- Tapley Hill Formation and lower Whyalla Sandstone were selected for geochemical analysis.
- Typically, 0.5m samples of 1-2kg were taken from diamond saw cut drill core or riffle split RC samples whilst respecting geological boundaries.

Estimation methodology:

- Resource estimation was undertaken by Tim Callaghan using ordinary kriging for Cu, Co and Ag constrained by a geology solid model. Ag was estimated by regression analysis of Cu-Ag for the Windabout deposit. Excellent grade correlation was observed with previous estimations.

Cut-off grade:

- It is the opinion of Gindalbie and Torrens that both the Cu and Co are recoverable and can be sold. As such, a copper equivalent cut-off grade of 0.5% Cu equivalent has been selected and reported. Please see the attached Appendix for detailed information on Cu equivalent grade calculations.

Modifying factors, mining and metallurgy:

- Initial results from metallurgical test work commissioned by Torrens in 2015 suggested that a process of conventional sulphide flotation followed by a glycine/cyanide leach would be capable of producing overall recoveries of about 90%, for copper, with high cobalt recoveries from flotation.
- Geotechnical studies completed by Barratt, Fuller and Partners in 1995 indicated that the majority of the waste rock overburden can be excavated without drill and blast, giving a free digging Open Pit operation. In 2015, Torrens commissioned an independent study into bulk mining methods, which suggested overburden removal may be amenable to electrically-powered open-cast coal mining methods.

SECURITIES EXCHANGE ANNOUNCEMENT

19 January 2018



Drilling techniques:

- The most recent drilling campaign, which formed the basis for this update, employed Rotary Open hole drilling with a triple-tube HQ diamond core drilling tail. Previous drilling is summarised below:

Windabout

Company	Type	Date	Holes	Metres
CSR	RC	1985	10	911
Stuart	RC	1994-1996	168	14,471.60
Stuart	HQ	1995	8	718.8
Stuart	NQ	1996	12	832.1
Gunson	HQ	2010	5	395.5
Gindalbie	HQ & RC	2017	18	1,383.80*
Total			221	18,712.70

MG14

Company	Type	Date	Holes	Metres
Stuart	RC	1995	14	525.5
Pacminex	NQ	1975	34	1,239.20
Pacminex	PQ	1975	15	451.5
Pacminex	HQ	1973	11	381.3
Pacminex	RC	1973	2	59
Pacminex	Other		2	290.2
Pacminex	Undefined		10	600.6
ACC	NQ	1989	38	1,424.50
ACC	HQ	1990	59	1,893.40
Gunson	HQ	2008-10	10	325.4
Gindalbie	HQ & RC	2017	15	578.2*
Total			210	7768.8

*Metres reflect a combination of rotary mud open-hole drilling with HQ diamond Core tails. Total 33 of 34 holes used for Resource estimation. Additional hole drilled to obtain metallurgical core only.

Full details pertaining to the Mineral Resources are provided in the attached Appendix at the end of this release.

Appendix:

Technical Memorandum, Mt Gunson Cu-Co-Ag Project Windabout – MG-14 Mineral Resource Estimation ASX Release, January 2018

ENDS

On behalf of:

Mr Keith Jones
Chairman

Ms Rebecca Moylan
Company Secretary
Telephone: +61 8 9480 8700
www.gindalbie.com.au

SECURITIES EXCHANGE ANNOUNCEMENT

19 January 2018



COMPETENT PERSON AND JORC CODE

This report was prepared in accordance with the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' ("JORC Code") by Tim Callaghan, who is a Member of the Australian Institute of Mining and Metallurgy ("AusIMM"), has a minimum of five years' experience in the estimation and assessment and evaluation of Mineral Resources of this style and is the competent Person as defined in the JORC Code. This announcement accurately summarises and fairly reports his estimations and he has consented to the resource report in the form and context it appears.

FORWARD LOOKING STATEMENTS

Some statements in this report regarding estimates or future events are forward-looking statements. They involve risk and uncertainties that could cause actual results to differ from estimated results. Forward looking statements include but are not limited to, statements concerning the Company's exploration program, outlook, target sizes and mineralised material estimates. They include statements preceded by words such as "expected", "planned", "target", "scheduled", "intends", "potential", "prospective" and similar expressions.



Tim Callaghan – Resource and Exploration Geology
3 Main Rd Penguin 7318
ph. 0428 888 896 email: timcallaghan@netspace.net.au

TECHNICAL MEMORANDUM

MT GUNSON CU-CO-AG PROJECT WINDABOUT – MG14 MINERAL RESOURCE ESTIMATION ASX RELEASE, JANUARY 2018

The Windabout and MG14 Cu-Co-Ag deposits are located in the Mt Gunson district of South Australia on EL5636, 100% owned by Torrens Mining Ltd (Torrens). Gindalbie Metals Ltd has entered into a farm-in agreement with Torrens to earn up to 75% of the Mt Gunson tenement package. The funding arrangement includes this mineral resource estimation of the MG14 and Windabout deposits.

The Windabout and MG14 deposits are sediment-hosted copper-cobalt-silver sulphide deposits formed through the replacement of diagenetic pyrite within dolomitic shales of the Tapley Hill Formation. Both deposits have similar origins, morphology and mineralogy and are about 6.5km apart. The historic Cattle Grid Cu-Cu-Ag mine, which operated for 10 years from 1974, is centred about 1km south of MG14.

The Windabout deposit forms a flat, tabular, triangular shaped sheet extending approximately 2km east-west and 1km north-south, varying in thickness between 2 and 8m. The deposit is hosted mainly by black shales of the flat-lying Tapley Hill Formation and is located under a cover sequence of semi consolidated Whyalla Sandstone, at a depth between 55 and 85m.

The MG14 deposit also forms a tabular, horizontal, triangular shaped sheet hosted by the Tapley Hill Formation, extending 1.4km east-west by 0.4 km north. The deposit is 3-8m in thickness and is located approximately 20-25m below surface beneath the Whyalla Sandstone.

Mineralisation in both deposits consists of fine grained, chalcocite-bornite-chalcopyrite-covelite-pyrite-carrollite-galena-sphalerite in a gangue of dolomite, clay/sericite, quartz and siderite.

The depth and morphology of the mineralisation is amenable to low cost rip, load and haul open cut mining. Metallurgical test work completed by Ian Wark Research Institute in 2009 indicates a recovery of 66.7% from sulphide flotation. Test work commissioned by Torrens suggests that a process of conventional sulphide flotation, followed by a glycine/cyanide leach for copper, would be capable of producing overall recoveries of about 90%. Gindalbie Metals is currently undertaking an updated metallurgical testwork programme to confirm flowsheet designs to be carried forward into pre-feasibility studies.

The MG 14 and Windabout deposits were first identified in the 1970's after step out drilling from the Cattle Grid deposit. Much of the data used for this estimate was acquired by diamond and RC drilling completed between 1973 and 1995 by previous operators. The Windabout Database contains 221 drillholes (167 RC the remainder diamond) for 18,712.7m and the MG14 database contains 210 mainly diamond drillholes



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

for 1168.8m. An additional 15 HQ diamond holes were drilled by Gunson Resources Limited in 2007 and 2010 and a further 33 by Gindalbie in 2017.

Historic diamond core was cut with a diamond saw on 0.5m splits. Historic RC holes were riffle split and assayed on 0.5m splits within mineralised zones. Recent drill core was crushed, and a sub-sample split for pulverizing and analysis. Historic drill samples were analysed at various commercial and mine site laboratories. Analytical methods are not fully documented but assumed to be wet chemical (AAS) analysis. Recent drill core was assayed by Bureau Veritas by XRF, with check analyses at Nagrom by ICP_OES.

QAQC of the recent drilling program used industry standard insertion of certified reference standards, blanks, duplicates and external laboratory analysis. All QAQC measures indicate that the recent drilling data is of excellent quality and suitable for resource estimation. There was very limited QAQC data available for the Windabout Historic data and none for MG14. Percentile plots of 0.5m composited data comparing recent and historic data sets highlight a negative bias to the historic data. This suggests the estimated grade may be slightly lower than the real value due to the reliance of much of the estimation on the historic data. Drilling, logging and analytical procedures are not considered to present any material risk to the estimation of Mineral Resources on a global level.

Bulk density determinations were made on drill core samples from the Gindalbie drilling program using the Archimedes method on wet core to determine the sample volume then drying and weighing the sample to determine the dry bulk density. The average of the bulk density determinations minus the top and bottom samples was assigned to the blockmodel (2.2).

An ordinary kriged block model resource estimation has been completed for both the Windabout and MG14 deposits, based on historic and recent diamond and RC drilling. Solid models of mineralised domains were created on 50m or 100m north-south drill sections from downhole lithology and drill hole grades. Sectional continuity for both deposits is excellent and poses no material risk to resource estimation.

Analyses for Cu, Co and Ag from the drillhole samples were composited on 0.5m lengths. Univariate statistical analysis demonstrates a low coefficient of variation and no top cutting was considered necessary, with the exception of a few high Co values in the Windabout deposit which were cut to 2555ppm.

Two blockmodels were constructed using a 25mN x 25mE x 1mRL parent block with sub-celling to 6.5m in the x and y directions and 0.5m in the z direction. Only parent block grades were estimated. The search ellipse was determined from Cu, Co and Ag variography and the interpolation was constrained by the wireframe boundary.

The Windabout and MG14 Mineral Resources (the resources) are classified and reported according to the guidelines of the 2012 edition of the JORC Code are listed in Tables 1 and 2.



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

Table 1. Windabout Indicated Resource									
Cu_eq > 0.5% cutoff					Cu_eq > 1.0% cutoff				
Mt	Cu %	Co ppm	Ag g/t	Cu_eq %	Mt	Cu %	Co ppm	Ag g/t	Cu_eq %
17.67	0.77	492	8	1.41	11.86	0.95	599	10	1.73

Table 2. MG14 Indicated Resource									
Cu_eq > 0.5% cutoff					Cu_eq > 1.0% cutoff				
Mt	Cu %	Co ppm	Ag g/t	Cu_eq %	Mt	Cu %	Co ppm	Ag g/t	Cu_eq %
1.83	1.24	334	14	1.67	1.59	1.33	360	15	1.8

Note: tonnes have been rounded to reflect the relative uncertainty in the estimate. It is the opinion of Torrens Mining and Gindalbie Metals Ltd that both Cu and Co are recoverable and can be sold. See appendices for Cu_equivalent calculation.

Classification of the Windabout and MG14 deposits takes into account data quality and distribution, spatial continuity, confidence in the geological interpretation and estimation confidence. Because of the high confidence in the simple geological model, grade continuity, drill hole spacing and data integrity, both the MG14 and Windabout resources have been classified as Indicated Resource. The deposit was not classified as a Measured Resource due to the heavy reliance on historic data without QAQC reports, and the apparent negative bias between historic and recent drilling data sets.

The resources are reported at a 0.5 and 1.0% Cu equivalent cut offs to provide a range of resource figures for financial analysis and mineral reserve estimation. A Cu equivalent has been used to reflect, in Gindalbie Metals and Torrens Mining's belief is the value of recoverable and salable Cu and Co in the resource. Ag also has the potential to add significant value to the project, however Ag analyses in the estimation and metallurgical test work are as yet insufficient to include in a metal equivalent calculation.

The estimation was validated by visually checking the interpolation results against drill hole data in plan and section, comparing input and output statistics and comparing with previous estimates. The estimate is considered to be robust on the basis of the above checks.

Both deposits contain zones of higher copper and cobalt grades and the deposits may be amenable to mining at higher cutoff grades.



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

COMPETENT PERSON AND JORC CODE

This report was prepared in accordance with the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' ("JORC Code") by Tim Callaghan, who is a Member of the Australian Institute of Mining and Metallurgy ("AusIMM"), has a minimum of five years' experience in the estimation and assessment and evaluation of Mineral Resources of this style and is the competent Person as defined in the JORC Code. This announcement accurately summarises and fairly reports his estimations and he has consented to the resource report in the form and context it appears.

FORWARD LOOKING STATEMENTS

Some statements in this report regarding estimates or future events are forward-looking statements. They involve risk and uncertainties that could cause actual results to differ from estimated results. Forward looking statements include but are not limited to, statements concerning the Company's exploration program, outlook, target sizes and mineralised material estimates. They include statements preceded by words such as "expected", "planned", "target", "scheduled", "intends", "potential", "prospective" and similar expressions.



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

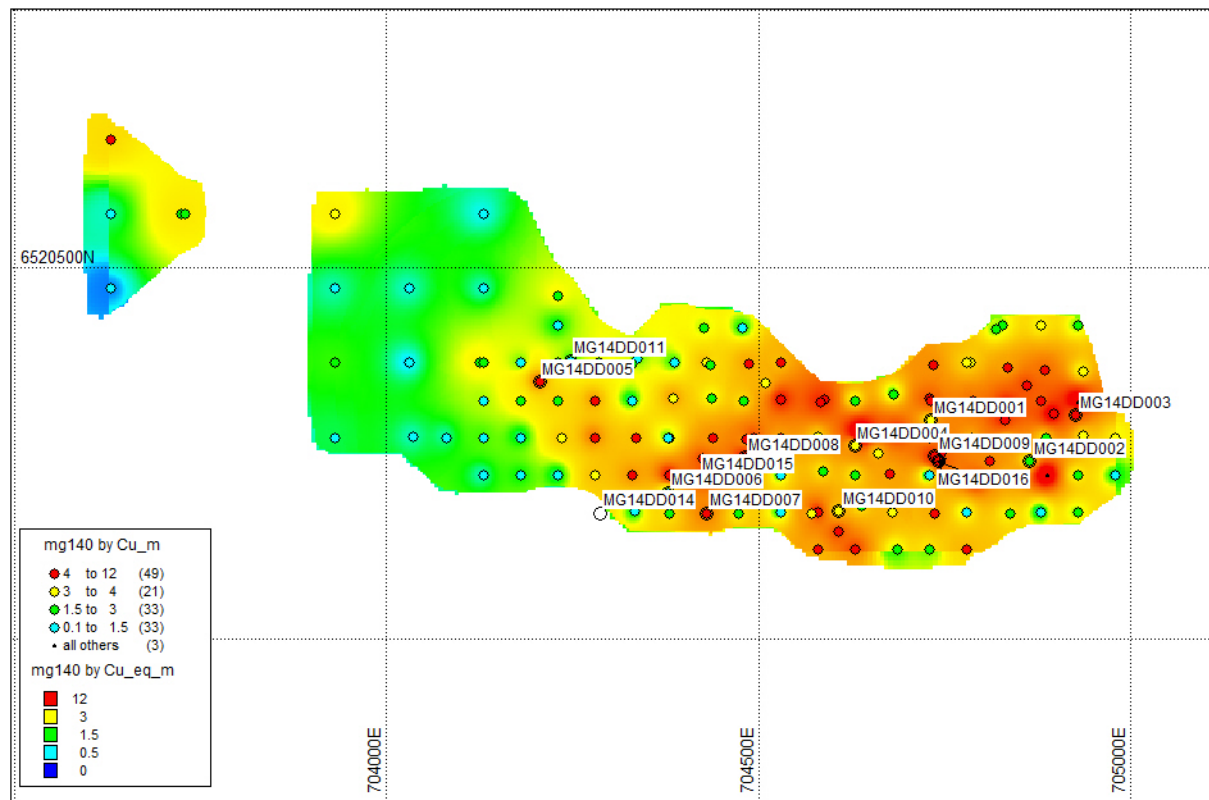


Figure 1. MG14 Deposit drill hole location plan and Cu equivalent x thickness m image.



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

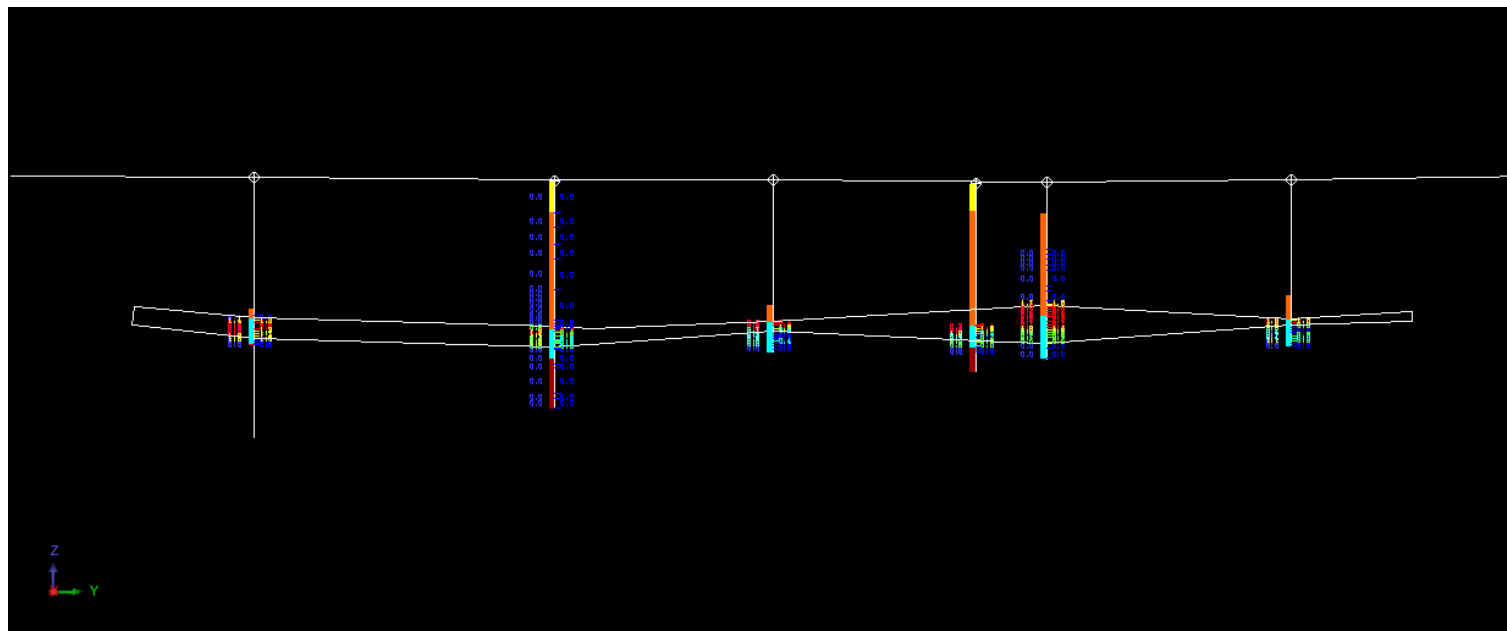
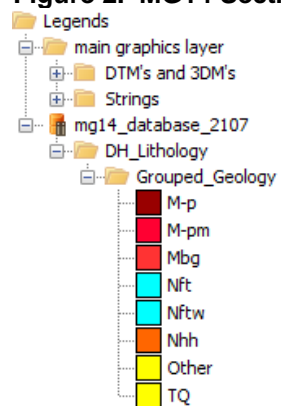


Figure 2. MG14 Section 704630





Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

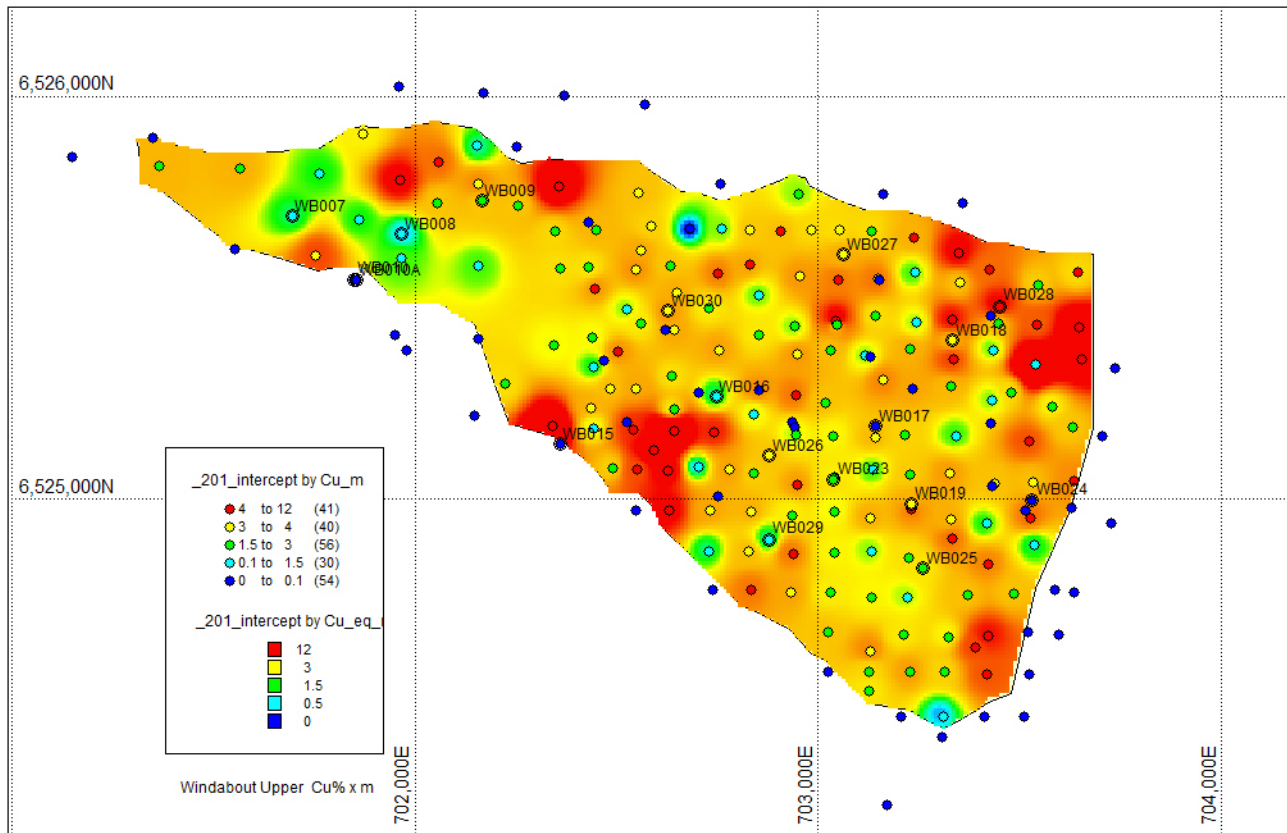


Figure 3. Windabout Upper Mineralised Zone drill hole location plan and Cu equivalent x thickness m image.



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

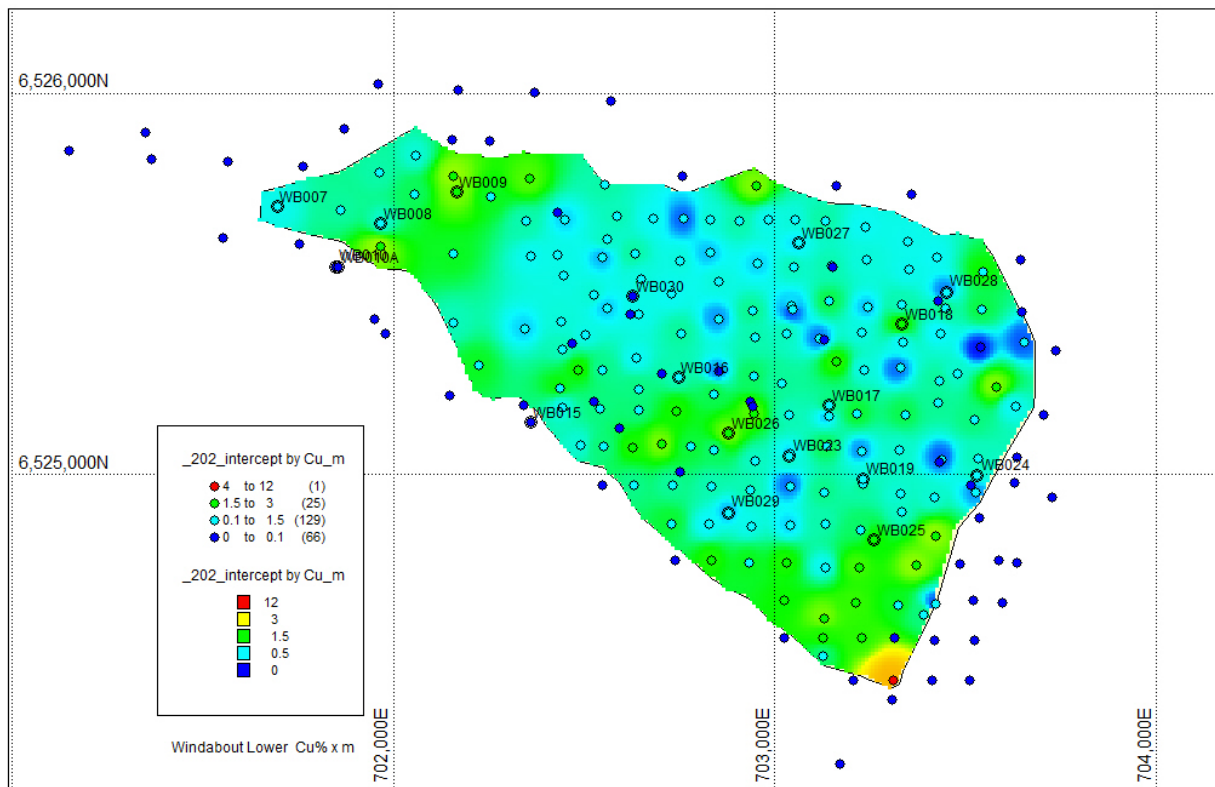


Figure 4. Windabout Lower Mineralised Zone drill hole location plan and Cu equivalent x thickness m image.



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

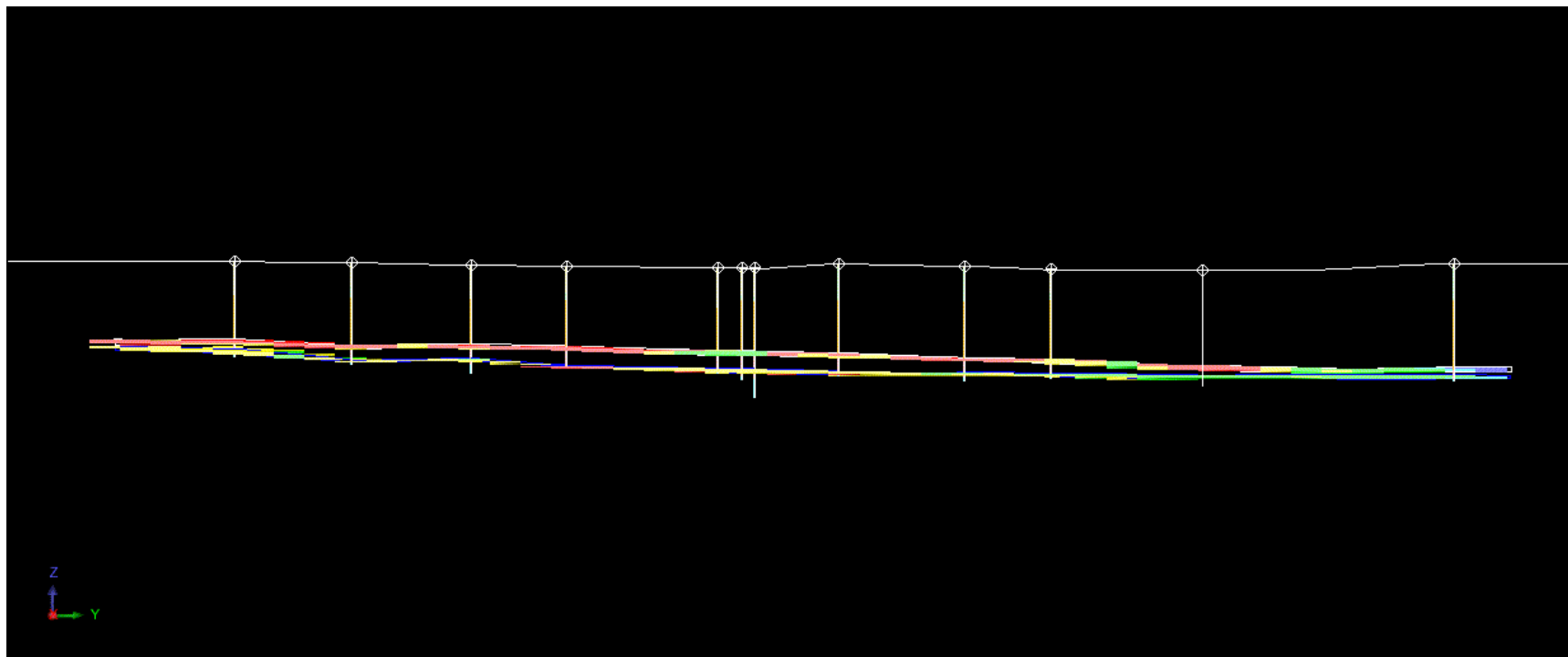


Figure 5. Windabout Section 702940E, Lower and Upper mineralised zones on the top and bottom of the Tapley Hill Formation.



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

APPENDICES

Copper Equivalent Calculation

The net smelter return copper equivalent (Cu_Eq.) calculation adjusts individual grades for all metals included in the metal equivalent calculation applying the following modifying factors: metallurgical recoveries, payability factors (concentrate treatment charges, refining charges, metal payment terms, net smelter return royalties and logistic costs) and metal prices in generating a copper equivalent value for cobalt (Co). Gindalbie Metals has selected to report on a copper equivalent basis, as copper is the metal that contributes the most to the net smelter return copper equivalent (Cu Eq.) calculation. It is the view of Gindalbie Metals that all the metals used in the Cu Eq. formula are expected to be recovered and sold.

Where: **Metallurgical Recoveries** are derived from test work carried on the MG14 and Windabout Deposits. The Metallurgical Recovery for each metal is shown below in Table 1. **Metal Prices and Foreign Exchange** assumptions are set as per internal Gindalbie price forecasts and are shown below in Table 1.

Table 1 Metallurgical recoveries and Metal Prices

Metal	Metallurgical recoveries	Metal Price
Copper	60%	US\$6,600/t
Cobalt	85%	US\$55,000/t
FX rate: A\$0.73/US\$1.00		

Payable Metal Factors are calculated for each metal and make allowance for concentrate treatment charges, transport losses, refining charges, metal payment terms and logistic costs. It is the view of Gindalbie Metals that two-separate saleable base metal concentrates will be produced. Payable metal factors are detailed below in Table 2.

Table 2 Payable Metal Factors

Metal	Metallurgical recoveries	Factor
Copper	Copper concentrate treatment charges, copper metal refining charges, copper metal payment terms (in copper concentrate), logistics costs and net smelter return royalties	70%
Cobalt	Cobalt concentrate treatment charges, copper metal refining charges, copper metal payment terms (in cobalt concentrate), logistics costs and net smelter return royalties	75%

The copper equivalent grade is calculated as per the following formula: $Cu\ Eq. = Cu\ \% + (Co\ ppm \times 0.0012)$. The metal equivalent factor used in the copper equivalent grade calculation has been derived from $(metal\ price/exchange\ rate) \times Metallurgical\ Recovery \times Payable\ Metal\ Factor$, and have then been adjusted relative to copper (where copper metal equivalent factor = 1).



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

For personal use only

JORC Table 1 Section 1. Sampling Techniques and Data																																												
Criteria	JORC Code Explanation	Commentary																																										
Sampling Techniques	<ul style="list-style-type: none">Nature and Quality of sampling (e.g. cut channels, random chips or specific specialized industry standard measurement tools appropriate to the minerals under investigation, such as downhole gamma sondes, or hand held XRF instruments etc.).Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.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 (e.g. 'reverse circulation drilling was used to obtain 1m samples from which 3kg was pulverized to produce 30g 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 sampling types (e.g. submarine nodules) may warrant disclosure of detailed information.	<ul style="list-style-type: none">The Windabout and MG14 deposits has been delineated entirely by drilling, both diamond and RC. Numerous drilling campaigns were completed between 1970 and 1995 by CSR, ACC, Pacminex and Stuart Metals. Post - 2007 drilling was completed by Gunson and Gindalbie.Windabout pre-2007 drilling 198 drill holes drill holes 16,933mWindabout post 2007 drilling 23 holes for 1,384m.MG14 pre-2007 drilling 185 drill holes drill holes 6,865mMG14 post 2007 drilling 25 holes for 904m.Tapley Hill Formation and lower Whyalla sandstone were selected for geochemical analysisApproximately 0.5m samples of 1-2kg were taken from diamond saw cut drill core or riffle split RC samples whilst respecting geological boundaries																																										
Drilling Techniques	<ul style="list-style-type: none">Drill type (e.g. core, reverse circulation, open hole hammer, rotary air blast, auger, bangka, sonic etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face sampling bit or other type, where core is oriented and if so by what method	Windabout <table><tr><td>Company</td><td>Type</td><td>holes</td><td>m</td><td>Date</td></tr><tr><td>CSR</td><td>RC</td><td>10</td><td>911.0</td><td>1985</td></tr><tr><td>Stuart</td><td>RC</td><td>168</td><td>14,471.6</td><td>1994-96</td></tr><tr><td>Stuart</td><td>HQ</td><td>8</td><td>718.8</td><td>1995</td></tr><tr><td>Stuart</td><td>NQ</td><td>12</td><td>832.1</td><td>1996</td></tr><tr><td>Gunson</td><td>HQ</td><td>5</td><td>395.5</td><td>2010</td></tr><tr><td>Gindalbie</td><td>HQ</td><td>18</td><td>1,383.8</td><td>2017</td></tr><tr><td>Total</td><td></td><td>221</td><td>18,712.7</td><td></td></tr></table>			Company	Type	holes	m	Date	CSR	RC	10	911.0	1985	Stuart	RC	168	14,471.6	1994-96	Stuart	HQ	8	718.8	1995	Stuart	NQ	12	832.1	1996	Gunson	HQ	5	395.5	2010	Gindalbie	HQ	18	1,383.8	2017	Total		221	18,712.7	
Company	Type	holes	m	Date																																								
CSR	RC	10	911.0	1985																																								
Stuart	RC	168	14,471.6	1994-96																																								
Stuart	HQ	8	718.8	1995																																								
Stuart	NQ	12	832.1	1996																																								
Gunson	HQ	5	395.5	2010																																								
Gindalbie	HQ	18	1,383.8	2017																																								
Total		221	18,712.7																																									



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

For personal use only

		<table><tr><th colspan="5">MG14</th></tr><tr><th>Company</th><th>Type</th><th>holes</th><th>m</th><th>Date</th></tr><tr><td>Stuart</td><td>RC</td><td>14</td><td>525.5</td><td>1995</td></tr><tr><td>Pacminex</td><td>NQ</td><td>34</td><td>1,239.2</td><td>1975</td></tr><tr><td>Pacminex</td><td>PQ</td><td>15</td><td>451.5</td><td>1975</td></tr><tr><td>Pacminex</td><td>HQ</td><td>11</td><td>381.3</td><td>1973</td></tr><tr><td>Pacminex</td><td>RC</td><td>2</td><td>59.0</td><td>1973</td></tr><tr><td>Pacminex</td><td>Other</td><td>2</td><td>290.2</td><td></td></tr><tr><td>Pacminex</td><td>undef</td><td>10</td><td>600.6</td><td></td></tr><tr><td>ACC</td><td>NQ</td><td>38</td><td>1,424.5</td><td>1989</td></tr><tr><td>ACC</td><td>HQ</td><td>59</td><td>1,893.4</td><td>1990</td></tr><tr><td>Gindalbie</td><td>HQ</td><td>15</td><td>578.2</td><td>2017</td></tr><tr><td>Gunson</td><td>HQ</td><td>10</td><td>325.4</td><td>2008-10</td></tr><tr><td>Total</td><td></td><td>210</td><td>7,768.8</td><td></td></tr></table>	MG14					Company	Type	holes	m	Date	Stuart	RC	14	525.5	1995	Pacminex	NQ	34	1,239.2	1975	Pacminex	PQ	15	451.5	1975	Pacminex	HQ	11	381.3	1973	Pacminex	RC	2	59.0	1973	Pacminex	Other	2	290.2		Pacminex	undef	10	600.6		ACC	NQ	38	1,424.5	1989	ACC	HQ	59	1,893.4	1990	Gindalbie	HQ	15	578.2	2017	Gunson	HQ	10	325.4	2008-10	Total		210	7,768.8	
MG14																																																																								
Company	Type	holes	m	Date																																																																				
Stuart	RC	14	525.5	1995																																																																				
Pacminex	NQ	34	1,239.2	1975																																																																				
Pacminex	PQ	15	451.5	1975																																																																				
Pacminex	HQ	11	381.3	1973																																																																				
Pacminex	RC	2	59.0	1973																																																																				
Pacminex	Other	2	290.2																																																																					
Pacminex	undef	10	600.6																																																																					
ACC	NQ	38	1,424.5	1989																																																																				
ACC	HQ	59	1,893.4	1990																																																																				
Gindalbie	HQ	15	578.2	2017																																																																				
Gunson	HQ	10	325.4	2008-10																																																																				
Total		210	7,768.8																																																																					
Sample recovery	<ul style="list-style-type: none">Method of recording and assessing core and chip sample recoveries and results assessed.Measures taken to maximize sample recovery and ensure representative nature of the samples.Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred.	<ul style="list-style-type: none">Core reconstituted, marked up and measured recovery for Gindalbie drilling.Recoveries generally excellent (95-100%)No relationship between recovery and grade was observedHistoric holes recoveries not available.																																																																						
Logging	<ul style="list-style-type: none">Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.Whether logging is qualitative or quantitative in nature. Core (or costean, channel etc.) photography.	<ul style="list-style-type: none">Geological logging has been carried out on all holes by experienced geologists and technical staff.Holes logged for lithology, weathering, and mineralisation.All holes photographed wet and dry before cutting.Logs loaded into excel spreadsheets and uploaded into access database.Pre-20107 paper logs entered into access database by experienced geologists.																																																																						



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

Sub-Sample techniques and sample preparation	<ul style="list-style-type: none"> • If core, whether cut or sawn and whether quarter or half taken. • If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub sampling stages to maximize representivity of samples. • Measures taken to ensure that the sampling is representative of the insitu material collected, including for instance results of field duplicate/second half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled 	<ul style="list-style-type: none"> • Standard lithology codes used for all drillholes. • Whole core crushed on 0.3 – 1.0m samples while respecting geological contacts. • Riffle split sample weights approx. 500g are considered appropriate for fine, homogenous mineralisation. • Historic samples diamond saw cut half core or riffle split RC. • Duplicate samples reconcile well with primary samples.
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> • The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • For geophysics tools, spectrometers, hand held XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibration factors applied and their derivation etc. • Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established. 	<ul style="list-style-type: none"> • Post-2007 analyses were conducted at Bureau Veritas using a fused disc XRF technique, or Amdel by ICP_OES. Fused disc XRF is considered a total technique, as it extracts and measures the whole of the element contained within the sample. • Pre-2007 total analyses are undefined but believed to be acid or aqua regia digest and AAS typical of the times. • Soluble Sn, Cu, Pb, Zn and Ag analysed by acid leach followed by AAS. • Gindalbie's drilling campaign assay samples submitted to rigorous Independent laboratory check sampling. • Certified reference material, blanks or duplicate samples were employed in Gindalbie' drilling samples.



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

		<ul style="list-style-type: none"> No QAQC procedures identified for legacy data. Quartile-Quartile plots of legacy v recent drilling indicate a negative bias in the legacy data for Cu and Co.
Verification of sampling and assaying	<ul style="list-style-type: none"> The verification of significant intersections by either independent or alternative company personnel The use of twinned holes Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols Discuss any adjustment to assay data 	<ul style="list-style-type: none"> Drill core analysed with mineralizer at Bureau Veritas prior to sampling. Field logging supported with hand portable XRF to identify mineralised zones. Metallurgical test work completed on Gindalbie's and Gunson drill core. Twinned holes completed in all historic and recent drilling programs for metallurgical sampling and data verification. Generally excellent geological and grade correlation between twinned holes. Data collected by qualified geologists and experienced field assistants and entered. Data migrated to Microsoft access tables from excel spreadsheets. Data checked by the database and resource geologists for errors. Post 2007 certified analytical data provided in digital and hard copy format. Negative values in the database have been adjusted to the detection limit for statistical analysis.
Location of data points	<ul style="list-style-type: none"> Accuracy and quality of surveys used to locate drill holes (collar and downhole surveys) trenches, mine workings and other locations used in mineral resource estimation Specification of grid system used Quality and accuracy of topographic control. 	<ul style="list-style-type: none"> All Post 2007 drill collars surveyed by licensed surveyor using differential GPS. Some Pre-2007 drill collars surveyed by licensed surveyor, with many located to within several metres by local grid tape and compass. Partial validation of historic drillholes by licensed surveyor. All coordinates GDA94 Zone 53 RL's as MSL No down hole surveys required for short vertical



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

		<p>holes.</p> <ul style="list-style-type: none"> The Digital Terrain Model generated from drill collars.
Data Spacing and distribution	<ul style="list-style-type: none"> Data spacing for exploration results Whether data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for Mineral Resource and Ore Reserve estimation procedures and classifications applied. Whether sample compositing has been applied 	<ul style="list-style-type: none"> Drillhole intersection spacing approximately 50 by 50m for MG14 deposits. Drillhole spacing approximately 100 by 100m for the Windabout deposit. Drill spacing is considered to be appropriate for the estimation of Indicated Mineral resources for both the Windabout and MG14 deposits. Samples have been composited on 0.5m intercepts for the resource estimation.
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. If the relationship between drilling orientation and the orientation of key mineralised structures is considered to have introduced sampling bias, this should be assessed and reported if material. 	<ul style="list-style-type: none"> All of drill holes used for this estimation were drilled vertically, perpendicular to the flat lying MG14 and Windabout mineralisation. Drill hole orientation is not considered to have introduced any material sampling bias.
Sample Security	<ul style="list-style-type: none"> The measures taken to ensure sample security 	<ul style="list-style-type: none"> Drill core sealed in plastic tubes to prevent moisture loss and transported to Bureau Veritas by commercial courier. Sample intervals selected by Alex Maddern of Strategic Minerals. All samples ticketed and processed by Bureau Veritas with sample locations recorded digitally by Alex Maddern. Pre-2007 sample security is not documented.
Audits or Reviews	<ul style="list-style-type: none"> The results of any audits or reviews of sampling techniques and data 	<ul style="list-style-type: none"> Field sampling, sub sampling and QAQC techniques were reviewed by Tim Callaghan of Resource and Exploration Geology.



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

JORC Table 1 Section 2. Reporting of Exploration Results		
Criteria	JORC Code Explanation	Commentary
Mineral tenement and land tenure status	<ul style="list-style-type: none">Type reference, name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.The security of tenure held at the time of reporting along with known impediments to obtaining a license to operate the area	<ul style="list-style-type: none">The MG14 and Windabout deposits, located on EL 5636 (100% owned by Torrens Mining Ltd) form part of the Mt Gunson Project, which also includes EL's 5103 and 5333 for a total area of 824km².The Adelaide Chemical Company acquisition mid from excised ML's not owned by Torrens Mining. 1980's with Oxide copper leaching operations producing approximately 1 tonne of cement copper per day.Torrens have entered into Farm-in arrangement with Gindalbie Metals which includes funding of diamond drilling and metallurgical testwork on the MG14 and Windabout deposits by GindalbieTenements are subject to native title agreements yet to be negotiated if mining proceeds.
Exploration done by other parties	<ul style="list-style-type: none">Acknowledgement and appraisal of exploration by other parties	<ul style="list-style-type: none">Outcrops of Cu-oxides discovered in 1873 and mined intermittently to 1937.1941 and 1943, 32,380t of ore grading 3.5% Cu was mined for Broken Hill Associated smeltersModern exploration commenced in the 1960's through Ausminex, later acquired by CSR.CSR commenced mining in 1970 on the Main Open Pit at 400,000tpa.Cattle Grid sulphide deposit in 1972.Between 1974 and 1984, 127,000t of copper and 62t of silver was produced from 7.2Mt of ore mined in the Cattle Grid open pit.The Windabout, MG14 and Cattle Grid South deposits were discovered during this phase of mining.Stuart Metals NL intensive infill drilling 1994-95



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

		<p>with feasibility study completed in 1996.</p> <ul style="list-style-type: none"> • Gunson Resources 2000-2016 feasibility studies and metallurgical testwork. • Torrens acquisition in 2016 and Gindalbie Farm-in agreement 2017.
Geology	<ul style="list-style-type: none"> • Deposit type, geological setting and style of mineralisation 	<ul style="list-style-type: none"> • The Windabout and MG14 deposits are sediment-hosted Copper-Cobalt-Silver sulphide deposits formed through the replacement of diagenetic pyrite within dolomitic shales of the Tapley Hill Formation.
Drill Hole Information	<ul style="list-style-type: none"> • A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes <ul style="list-style-type: none"> • easting and northing of the drill hole collar • elevation or RL of the drill hole collar • dip and azimuth of the hole • downhole length and interception depth • hole length • If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case 	<ul style="list-style-type: none"> • Drill collar details and significant intersections for all drill holes are located in Appendix 2 of this report.
Data aggregation methods	<ul style="list-style-type: none"> • In reporting of Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cutoff grades are usually material and should be stated. • Where aggregate intercepts include short lengths of high grade results and longer lengths of low grade results, the procedure used for aggregation should be stated and some 	<ul style="list-style-type: none"> • Exploration results and resource estimation figures have been reported on a 0.5% Cu and 1.0% Cu cutoff. • A lower cut-off grade of 0.5% Cu equivalent has been applied for mineralised domain modelling. • A Cu equivalent has been determined from Mine gate break even Cu and Co prices. Cu US\$6,600, Co US\$55,000, Exchange rate 0.73 US\$/Au\$, Cu recovery 60%, Co recovery 85%, Mining recovery



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

	<p>examples of such aggregations should be shown in detail</p> <ul style="list-style-type: none"> The assumptions used for any reporting of metal equivalent values should be clearly stated. 	<p>90%, dilution 5%, payable Cu 70%, Payable Co 75%, Operating cost Au\$26.</p> <ul style="list-style-type: none"> $Cu_{eq} = Co_{ppm} \times 0.0012$
Relationship between mineralisation widths and intercept lengths	<ul style="list-style-type: none"> These relationships are particularly important in the reporting of Exploration Results with respect to the drill hole angle is known, its nature should be reported. If it is not known and only the downhole lengths are reported, there should be a clear statement to this effect (e.g. down hole length, true width not known) 	<ul style="list-style-type: none"> All drillhole lengths are true widths. All drillholes modelled 3 dimensionally for resource estimation.
Diagrams	<ul style="list-style-type: none"> Appropriate maps and sections (with scales) and tabulated intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill collar locations and appropriate sectional views. 	<ul style="list-style-type: none"> See body of the announcement for relevant plan and sectional views.
Balanced reporting	<ul style="list-style-type: none"> Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/ or widths should be practiced to avoid misleading reporting of Exploration Results 	<ul style="list-style-type: none"> Not applicable
Other substantive exploration data	<ul style="list-style-type: none"> 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 results, bulk density, groundwater, geochemical and rock characteristics, potential deleterious or contaminating substances. 	<ul style="list-style-type: none"> The depth and morphology of the mineralisation is amenable to low cost rip, load and haul open cut mining. Geotechnical and Mining study completed by Barratt and Fuller Partners in 1995. Metallurgical test work completed by Ian Wark Research Institute in 2009 indicates a recovery of 66.7% from sulphide flotation. Test work commissioned by Torrens suggest that



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

		a process of conventional sulphide flotation followed by a glycine/cyanide leach would be capable of producing overall recoveries of about 90%.
Further work	<ul style="list-style-type: none"> The nature and scale of planned further work (e.g. test 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. 	<ul style="list-style-type: none"> Resource infill drilling is planned to coincide with further technical studies as part of a Definitive Feasibility Study. Windabout and MG14 deposits essentially closed off. Good potential for brownfields and regional discoveries with further exploration.

JORC Table 1, Section 3, Estimation and Reporting of Mineral Resources.		
Criteria	Explanation	Status
Database Integrity	<ul style="list-style-type: none"> Measures to ensure the data has not been corrupted by, for example transcription or keying errors, between its initial collection and its use for Mineral Resource estimation. Data Validation and procedures used. 	<ul style="list-style-type: none"> Data provided as excel spreadsheets Access database created for resource estimation. Historic data validated by checking paper logs and assay sheets by contract geologists. Post 2007 data received electronically and loaded into database Data integrity validated with Surpac Software for EOH depth and sample overlaps and transcription errors. 0.5m composite statistical analysis checked for significant variations or anomalous figures. No material errors identified.
Site Visits	<ul style="list-style-type: none"> Comment on any site visits by the competent person and the outcome of any of those visits. If no site visits have been undertaken indicate 	<ul style="list-style-type: none"> A site visit made during the September 2017 drilling program, during which the Author participated in drill logging and sample packaging.



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

	why this is the case.	<ul style="list-style-type: none"> Periodic advice on infill drilling and QAQC procedures have been provided.
Geological Interpretation	<ul style="list-style-type: none"> Confidence in (or conversely the uncertainty of) the geological interpretation of the mineral deposit. Nature of the data used and any assumptions made. The effect if any of alternative interpretations on Mineral Resource estimation The use of geology in guiding and controlling the Mineral Resource estimation The factors effecting continuity of both grade and geology 	<ul style="list-style-type: none"> High confidence in simple sediment hosted strataform mineralisation. No alternative geological interpretations were attempted for this estimation. Geology model does not vary significantly from historic geology interpretations. Geology/grade contour used for mineralised domain modeling.
Dimensions	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> The Windabout deposit forms a flat tabular, triangular shaped sheet extending approximately 2km east-west and 1km north-south, varying in thickness between 2 and 8m. The deposit is located under a cover sequence of semi consolidated Whyalla Sandstone at a depth between 55 and 85m. The MG14 deposit also forms a tabular, triangular shaped sheet hosted in the flat lying Tapley Hill Formation, extending 1.4km east west by 0.4 km north. The deposit is 3-8m in thickness and is located approximately 20-25m below surface beneath the Whyalla Sandstone.
Estimation and Modelling techniques	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Block modeled estimation completed with Surpac™ software licensed to Tim Callaghan. Wire-framed solid models created from drillholes on 50m or 100m sectional interpretation. Solid models snapped to drill holes Minimum width of 1m downhole @ 0.5% Cu_eq Internal dilution restricted to 1m with allowances for geological continuity.



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

	<p>parameters used.</p> <ul style="list-style-type: none"> • 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 by products • Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterization). • In the case of blockmodel interpolation the block size in relation to the average sample spacing and search employed. • Any assumptions behind modeling of selected mining units • Any assumptions about correlation between variables • Description of how the geological interpretation was used to control the resource estimates. • Discussion of the 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 the use of reconciliation data if available. 	<ul style="list-style-type: none"> • Data composited on 0.5m intervals including Cu, Co, Ag, S, Pb, Zn, total C. • Top cutting based on CV and grade histograms. Only Windabout UMZ Co top cut to 2555ppm. • Metal association indicates very good correlation between Cu, Co, and Ag. • MG14 block model extends between 6,520,000 to 6,520,800N, 703,450 to 705,200E and 0 to 100m RL. Block sizes 25m x 25m x 0.5m with sub-celling to 6.25m in the x and y directions and 0.5 in the z direction. • The Windabout block model extends between 6,524,200 to 6,526,100N, 701,000 to 704,050E and -20 to 100m RL. Block sizes 25m x 25m x 0.5m with sub-celling to 6.25m in the x and y directions and 0.5 in the z direction • Variogram models are well constructed with low to zero nugget effect and long range of 40 to 60m to sill for major geological domains. • Search ellipse set at 200m spherical range to ensure >95% of blocks populated. • Ordinary kriged estimation for Cu, Co and Ag constrained by geology solid model. • Ag estimated by regression analysis of Cu-Ag for Windabout deposit. • Excellent grade correlation with previous estimations.
Moisture	<ul style="list-style-type: none"> • Whether the tonnages were estimated on a dry basis or with natural moisture, and the method of determination of moisture content. 	<ul style="list-style-type: none"> • The estimate based on a dry tonnage basis
Cut-off Parameters	<ul style="list-style-type: none"> • The basis of the adopted cutoff grades or cutoff parameters 	<ul style="list-style-type: none"> • Cut off grades have been determined from mining recoveries (90%), metallurgical recoveries (60-85%), estimated industry costs (\$26/t), prevailing mineral



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

For personal use only

		<p>price (Cu US\$6,600, Co US\$55,000) and exchange rate estimations (\$US/\$A0.73).</p> <ul style="list-style-type: none"> • A block cutoff of 0.5% Cu has been applied for the reporting of the mineral resources
Mining Assumptions	<ul style="list-style-type: none"> • 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 made when estimating Mineral Resources may not always be rigorous. When this is the case, this should be reported with an explanation of the basis of the mining assumptions made. 	<ul style="list-style-type: none"> • Mining studies completed by Barratt and Fuller Partners, for 1995 BFS. • Conventional free digging Open Pit operation. • Torrens commissioned an independent study into bulk mining methods in 2015 which suggested electrically-powered open cast coal mining methods may be amenable for overburden removal. Torrens plans to mine the flat-lying shale-hosted mineralised horizons at both MG14 and Windabout, with a diesel-powered Continuous Miner, a method which would involve little or no blasting and enable minimal ore dilution to be achieved.
Metallurgical assumptions	<ul style="list-style-type: none"> • 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 made regarding metallurgical treatment processes and parameters made when estimating Mineral Resources may not always be rigorous. When this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made. 	<ul style="list-style-type: none"> • Metallurgical testwork completed by Ian Wark Research Institute in 2009 indicates a recovery of 66.7% for copper could be achieved from sulphide flotation. • Initial results from the test work commissioned by Torrens suggest that a process of conventional sulphide flotation followed by a glycine/cyanide leach would be capable of producing overall recoveries of about 90%, for copper, with high cobalt recoveries from flotation.
Environmental assumptions	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • A previously disturbed historical mining environment around the proposed mine and processing site that may be amenable for future processing facilities. • Majority of waste rock likely to remain in open pit storage facility.



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

For personal use only

	<p>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 for 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.</p>	<ul style="list-style-type: none"> Initial studies of acid generating characteristics of mine sequence rock-types required.
Bulk Density	<ul style="list-style-type: none"> Whether assumed or determined. If assumed the basis for the assumptions. If determined the methods used, whether wet or dry, the frequency of measurements, the nature size and representativeness of the samples. The bulk density for bulk materials must have been measured by methods that adequately account for void spaces (vughs, porosity etc.), moisture and difference between rock and alteration zones within the deposit. Discuss assumptions for bulk density estimates used in the evaluation process of the different materials. 	<ul style="list-style-type: none"> Bulk density derived from diamond drill core using the Archimedes method at Bureau Veritas. Core is un-oxidised and free of cavities Wet SG determinations were completed on the samples by weighing the wet selected samples in air then weighing them in water with the wet bulk density determined by the Archimedes method. The samples were then dried in air. The dry bulk density was determined as: <p>dry weight / (wet weight - wet weight in H₂O)</p>
Classification	<ul style="list-style-type: none"> The basis for the classification of the Mineral Resource into varying confidence categories. Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in continuity of Geology and metal values, quality, quantity and distribution of the data). Whether the result appropriately reflects the Competent Persons view of the deposit. 	<ul style="list-style-type: none"> Confidence in the geological model, data quality and interpolation is sufficient for classification of s Indicated Resources. The reliance on historical data without adequate QAQC prevents higher classification as there is some uncertainty in the data. The resource classification appropriately reflects the views of the Competent Person
Audits or Reviews	<ul style="list-style-type: none"> The results of any Audits or Reviews of the Mineral Resource estimates. 	<ul style="list-style-type: none"> No audits or reviews have been completed for this estimation
Discussion of relative	<ul style="list-style-type: none"> Where appropriate a statement of the relative 	<ul style="list-style-type: none"> The simple geological model is robust between



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

accuracy/confidence	<p>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 of the estimate.</p> <ul style="list-style-type: none">• These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	<p>sections.</p> <ul style="list-style-type: none">• Drill spacing, variography and data variability provide confidence in the estimate which is reflected in the resource classification.• Resource grades supported by ID2 estimation.• No production data is available for reconciliation.
---------------------	---	---



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

Windabout Drill Hole details

BHID	y	x	z	Azm	Dip	Depth	From	To	Length (m)	Cu %	Co ppm
LW107	6525167	702741	99.3	0	-90	89	66	70	4	1.25	1153
LW108	6525174	702542	101.7	0	-90	89	66	70.5	4.5	1.24	856
LW111	6524960	702935	103.6	0	-90	88	64	66.5	2.5	0.80	457
LW112	6524953	703128	104.6	0	-90	105	66	69.5	3.5	0.95	569
LW113	6525156	703343	106.9	0	-90	91	71	73.5	2.5	0.34	280
LW114	6525145	703522	104.9	0	-90	84	65	70	5	1.00	646
LW115	6525346	703336	102.4	0	-90	91	68.5	72.5	4	1.51	717
LW116	6525547	703149	100.6	0	-90	96	77	79.5	2.5	1.56	1212
LW117	6525360	702949	102.7	0	-90	93	74	76.5	2.5	1.40	953
LW118	6525371	702754	104	0	-90	97	78	81	3	1.08	773
LW119	6525181	702342	100.4	0	-90	68	56	63	7	1.52	1137
LW120	6525274	702546	100.8	0	-90	94	70	73.5	3.5	0.93	616
LW121	6525170	702642	102.7	0	-90	91	68	72.5	4.5	1.84	3753
LW122	6525258	702945	104.6	0	-90	91	72	75.5	3.5	1.17	821
LW123	6525539	703351	103	0	-90	97	77.5	81.5	4	0.86	355
LW124	6525531	703547	105.6	0	-90	93	76	80	4	0.71	375
LW125	6525334	703539	105.1	0	-90	91	73	81	8	0.02	2550
LW127	6525358	703116	101.6	0	-90	90	73	75	2	0.62	435
LW128	6525553	702955	99.1	0	-90	94	76.5	80.5	4	0.93	580
LW129	6525561	702750	97.6	0	-90	91	78.5	82.5	4	1.04	650
LW130	6525569	702548	98.2	0	-90	96	80.5	82.5	2	1.64	1400
LW131	6525574	702360	99.4	0	-90	97	76	80	4	0.53	378
LW132	6525776	702357	95.5	0	-90	91	80	88	8	1.24	564
LW133	6525782	702157	94.3	0	-90	89	73	79	6	0.56	472
LW134	6525793	701962	94	0	-90	82	66.5	74.5	8	0.81	640
LW135	6525808	701763	95.9	0	-90	75	61.5	63.5	2	0.51	180
LW136	6525597	701965	99.6	0	-90	86	67	73	6	0.18	103
LW137	6525581	702156	99.9	0	-90	91	68.5	72.5	4	0.34	98
LW138	6525760	702554	98.4	0	-90	91	84	88	4	0.94	283
LW141	6525757	702952	105.1	0	-90	95	84	88	4	0.55	23
LW148	6525383	702344	101.5	0	-90	90	68	72	4	0.44	223
LW150	6525368	702502	105	0	-90	98	77	83	6	0.69	343
LW151	6525160	702944	101.4	0	-90	85	67	71	4	0.40	200
LW152	6525153	703142	101.7	0	-90	87	67.5	70.5	3	1.05	573
LW153	6524950	703329	101.9	0	-90	76	59	64	5	0.66	391
LW154	6524953	703527	101.9	0	-90	73	65.5	69	3.5	1.19	863



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

LW156	6524972	702731	103.6	0	-90	83	63.5	69	5.5	0.69	332
LW157	6524768	702933	106.7	0	-90	77	63	67	4	0.82	575
LW158	6524755	703132	104.3	0	-90	72	59	61	2	0.91	556
LW159	6525177	702443	102	0	-90	80	62	66	4	0.36	305
LW161	6525606	701753	100.2	0	-90	70	64	68	4	0.94	1125
LW162	6525822	701564	96.9	0	-90	77	64	74	10	0.23	265
LW164	6525828	701365	100.1	0	-90	70	65	67.5	2.5	1.16	844
LW166	6525736	702055	95.3	0	-90	84	68	71	3	0.88	628
LW167	6525878	702153	96	0	-90	77	73	74	1	0.93	9
LW168	6525728	702255	95.2	0	-90	91	76	79	3	0.77	707
LW169	6525669	702449	96.3	0	-90	96	81	84	3	0.94	711
LW170	6525440	703243	101.5	0	-90	89.5	73.5	75	1.5	0.83	613
LW171	6525438	703446	103.6	0	-90	89	71.5	74	2.5	1.01	756
LW172	6525247	703431	102.9	0	-90	84	67.5	69	1.5	0.96	435
LW173	6525273	703235	103.8	0	-90	90	71.5	74	2.5	1.25	940
LW174	6525407	702852	100.9	0	-90	90	73.5	76	2.5	0.89	474
LW175	6525507	702853	98.7	0	-90	90	77	79.5	2.5	0.49	269
LW176	6525513	702650	99.1	0	-90	93	79	81.5	2.5	1.31	808
LW177	6525421	702643	102	0	-90	94	78.5	81	2.5	1.28	868
LW178	6525522	702447	99.4	0	-90	95	77	81	4	1.05	447
LW179	6525693	701861	98.4	0	-90	83	67	68.5	1.5	0.36	487
LW181	6525401	702438	104.2	0	-90	98	75.5	78	2.5	0.61	446
LW182	6525327	702444	101.6	0	-90	93	69.5	71.5	2	0.39	274
LW183	6525228	702435	101.6	0	-90	84	64	67.5	3.5	0.99	514
LW184	6525222	702642	101.4	0	-90	91	70	72.5	2.5	1.01	385
LW185	6525307	702635	102.2	0	-90	93	74	76.5	2.5	0.89	552
LW186	6525211	702841	100.4	0	-90	88	68.5	70	1.5	0.98	635
LW187	6525271	702852	102.7	0	-90	91	71	74.5	3.5	1.07	726
LW188	6525063	702841	102.2	0	-90	87	66.5	70	3.5	0.79	441
LW189	6525054	703039	102.4	0	-90	84	67.5	70	2.5	0.74	448
LW190	6524869	703039	103.4	0	-90	80	62.5	65.5	3	0.53	443
LW191	6524670	703025	106.6	0	-90	73	62	64.5	2.5	0.98	816
LW192	6524855	703225	101.7	0	-90	74	57.5	60	2.5	0.91	542
LW193	6524838	703423	101.4	0	-90	72	61	64	3	1.44	769
LW194	6524755	703222	103.2	0	-90	72	58.5	60.5	2	0.62	504
LW195	6524663	703212	105	0	-90	70	58.5	61.5	3	0.59	520
LW196	6525041	703532	102.4	0	-90	77	67	69.5	2.5	1.33	621
LW197	6525060	703229	101	0	-90	80	63	65	2	1.22	905
LW198	6525908	701872	93.1	0	-90	70	65	66.5	1.5	2.26	28
LW199	6525287	702222	99.59	0	-90	64	54	57	3	0.82	427



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

LW200	6525076	702489	102.58	0	-90	66	59	62	3	0.77	611
LW201	6525071	702627	101.95	0	-90	85	60.5	66	5.5	1.34	842
LW202	6525073	702779	102.66	0	-90	87	66	69	3	1.04	804
LW203	6524870	702828	106.06	0	-90	78	61	63	2	1.66	786
LW204	6524622	703128	106.93	0	-90	70	58.5	61	2.5	1.56	1020
LW205	6524571	703127	108.9	0	-90	65	58	60	2	1.49	540
LW206	6524761	703371	101.48	0	-90	64	54	57	3	0.67	822
LW207	6525046	703634	103.4	0	-90	70	64	66	2	2.52	790
LW208	6525434	703544	104.98	0	-90	86	71.5	75.5	4	1.22	764
LW209	6525443	703044	100.1	0	-90	86	71.5	75.5	4	2.23	1010
LW210	6525666	703132	102.93	0	-90	89.3	81.5	83.5	2	1.04	830
LW211	6525668	702982	100.22	0	-90	90	79	81.5	2.5	1.26	363
LW212	6525670	702832	99.84	0	-90	91	82	85.5	3.5	1.02	307
LW213	6525672	702682	98.16	0	-90	93	84	85.5	1.5	0.00	2
LW215	6525838	702058	93.88	0	-90	79	71	75.5	4.5	1.04	606
LW216	6525231	703580	105.11	0	-90	81	69	72	3	0.58	446
LW217	6525563	703644	112.25	0	-90	84	79.5	80.5	1	4.21	64
LW218	6524660	703423	103.62	0	-90	67	62	65	3	1.46	1883
LW219	6524571	703227	106.45	0	-90	66	57	60.5	3.5	0.72	858
LW220	6524524	703125	105.76	0	-90	58	54	55.5	1.5	1.39	847
LW222	6524972	702631	103.85	0	-90	72	56.5	61.5	5	1.67	722
LW223	6524565	703419	104.68	0	-90	66	60	62	2	2.37	1706
LW231	6524571	703313	104.96	0	-90	57.4	56.1	57.4	1.3	2.30	900
LW232	6524658	703322	103.96	0	-90	63.2	56.4	57.9	1.5	1.26	757
LW233	6524775	702833	106.34	0	-90	68.5	60	63	3	1.81	624
LW234	6524770	703031	105.15	0	-90	78	62.8	64.2	1.4	1.43	879
LW235	6524767	703486	101.3	0	-90	67	61.5	65	3.5	0.72	583
LW237	6524871	702728	104.94	0	-90	74.4	63.5	65	1.5	0.40	250
LW238	6524863	702937	105.15	0	-90	81.6	66.5	69.2	2.7	1.67	926
LW239	6524871	703133	102.38	0	-90	75.3	58	60.9	2.9	0.51	230
LW240	6524904	703334	104.28	0	-90	79	60.5	64	3.5	1.24	801
LW241	6524885	703537	104.28	0	-90	70	66	67	1	0.63	475
LW242	6524969	702835	104.02	0	-90	83.2	64.8	67.4	2.6	1.22	765
LW243	6524969	703040	104.1	0	-90	78.7	66.6	69.6	3	0.54	333
LW244	6524976	703232	102.71	0	-90	79	60	64	4	1.31	470
LW246	6525037	702947	102.72	0	-90	81.9	64.2	66.9	2.7	1.51	699
LW247	6525074	703135	101.52	0	-90	84	66	68.5	2.5	0.49	207
LW248	6525063	703326	100.64	0	-90	77	60	63.5	3.5	0.93	714
LW249	6525158	703038	101.93	0	-90	84	66.5	68.5	2	0.91	538
LW250	6525160	703215	103.35	0	-90	87	69	72	3	0.94	450



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

LW252	6525178	703630	104.18	0	-90	76	66.5	69	2.5	0.87	868
LW253	6525240	703017	105.3	0	-90	89	72	75.5	3.5	0.86	476
LW254	6525298	703160	103.72	0	-90	89	72	74.5	2.5	1.48	1108
LW255	6525280	703329	102.97	0	-90	86	68	71	3	0.85	761
LW256	6525079	702704	101.88	0	-90	87	77.5	80	2.5	0.08	79
LW257	6525370	703031	101.92	0	-90	89	73	76	3	0.85	707
LW258	6525373	703227	101.62	0	-90	88	71.5	74	2.5	1.18	871
LW259	6525371	703435	103.64	0	-90	87	70	72	2	0.73	279
LW260	6525348	703653	106.01	0	-90	77	67	71.5	4.5	1.69	1527
LW261	6525471	702526	100.18	0	-90	95	79	81	2	0.61	440
LW262	6525476	702728	99.82	0	-90	92	78.5	80.5	2	1.10	558
LW263	6525430	702943	100.09	0	-90	88	72.5	75.5	3	0.57	158
LW264	6525456	703143	100.51	0	-90	87	73	76.5	3.5	0.76	323
LW265	6525446	703333	102.48	0	-90	91	72	78	6	1.34	490
LW266	6525426	703646	105.44	0	-90	77	69	75.5	6.5	1.73	564
LW267	6525578	702633	98.35	0	-90	92	80.5	83	2.5	0.98	804
LW268	6525582	702830	98.3	0	-90	90	78	81	3	1.34	553
LW269	6525546	703049	99.53	0	-90	88	74.5	78.5	4	1.11	631
LW270	6525565	703240	101.73	0	-90	89	78.5	79.5	1	1.05	650
LW271	6525570	703424	104.55	0	-90	91	78	81	3	1.82	716
LW272	6525664	702348	96.64	0	-90	91	76.5	80	3.5	0.82	338
LW273	6525678	702585	97.23	0	-90	91	83.5	86	2.5	1.28	435
LW274	6525669	703052	100.84	0	-90	91	80	82.5	2.5	1.24	326
LW275	6525649	703236	103.73	0	-90	90	80.5	83.5	3	1.88	28
LW276	6524940	703418	102.47	0	-90	70	59	61	2	0.60	145
LW277	6525075	702551	102.02	0	-90	74	60	65	5	1.19	516
LW278	6525274	702483	101.4	0	-90	91	68.5	74.5	6	0.50	290
LW279	6525611	703349	105.33	0	-90	93	78	83	5	1.51	805
LW280	6525435	702560	101.6	0	-90	95	78.5	81	2.5	0.80	502
LW281	6525575	702430	97.51	0	-90	94	78	81	3	0.68	445
LW282	6525673	702759	98.29	0	-90	91	84.5	87.5	3	0.49	191
LW283	6525664	702907	99.98	0	-90	91	80.5	84.5	4	1.11	153
LW284	6524460	703310	102.19	0	-90	55.6	52.8	54.1	1.3	0.25	19
LW286	6525264	703478	103.8	0	-90	81	66	68	2	1.40	525
MGD63	6525040	703439	101.1	0	-90	71.9	59.1	61.5	2.45	1.26	653
MGD64	6525432	703046	100.1	0	-90	83.9	74.2	76.2	2	1.46	977
MGD65	6525617	702561	98.3	0	-90	92.9	82.7	84.8	2.14	1.47	1059
MGD66	6525121	702593	102	0	-90	79.53	62.9	68.2	5.25	1.94	1096
MGD67	6524631	703390	104.2	0	-90	67.22	61.7	64.8	3.04	1.42	1325
WB007	6525704	701697.2	97.21	0	-90	76.1	66	69	3	0.28	85



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

WB008	6525659	701966.5	97.42	0	-90	85.4	71.5	73	1.5	0.09	120
WB009	6525742	702165.7	95.2	0	-90	87.2	73.5	76	2.5	1.03	737
WB016	6525256	702748.6	99.7	0	-90	89.2	71.5	73.5	2	0.33	142
WB018	6525396	703331.3	102.51	0	-90	91.9	74.3	76.5	2.2	1.47	807
WB019	6524988	703231.3	102.19	0	-90	77.8	63	65.5	2.5	1.22	750
WB023	6525047	703037.8	102.42	0	-90	84.7	67.7	70	2.3	1.15	563
WB025	6524829	703258.4	101.37	0	-90	70.4	58	60.5	2.5	0.83	534
WB026	6525109	702877.7	101.3	0	-90	85.6	66.3	68.5	2.18	1.49	644
WB027	6525608	703061.3	100.49	0	-90	89.8	79.7	82.5	2.85	1.34	540
WB028	6525479	703449.1	103.48	0	-90	87.6	72.2	76	3.8	1.84	1118
WB029	6524900	702876.9	105.09	0	-90	79.5	65.5	68	2.5	0.21	112
WB030	6525468	702628	100.18	0	-90	82.1	79.3	82.1	2.78	1.43	735
CW001	6524971	703514	101.9	135	-70	78.8	no significant intersection				
CW002	6525456	703429	103.6	135	-70	101.9	no significant intersection				
CW003	6525191	702525	101.7	135	-70	93	no significant intersection				
CW004	6525421	702620	102	143	-74	96.3	no significant intersection				
CW005	6525546	703150	100.6	135	-70	104.8	no significant intersection				
CW006	6525689	702429	96.3	135	-70	102	no significant intersection				
CW007	6525271	702852	103.5	0	-90	67	no significant intersection				
CW008	6525273	703235	103.8	0	-90	75	no significant intersection				
LW040	6525190	702934.2	101.25	0	-90	105	no significant intersection				
LW052	6525032	703431.1	100.65	0	-90	78	no significant intersection				
LW053	6525371	701980	100	0	-90	63	no significant intersection				
LW060	6525265	702704	99.78	0	-90	102	no significant intersection				
LW061	6524241	703169.7	101.55	0	-90	94	no significant intersection				
LW062	6525180	702942.3	101.25	0	-90	91	no significant intersection				
LW063	6525008	702750.6	103.12	0	-90	88	no significant intersection				
LW064	6525346	702468.1	102.75	0	-90	103	no significant intersection				
LW065	6525354	703128.9	101.7	0	-90	97	no significant intersection				
LW076	6525899	701350.2	98.77	0	-90	88	no significant intersection				
LW109	6524973	702549	107.2	0	-90	72	no significant intersection				
LW110	6524776	702738	107.6	0	-90	63	no significant intersection				
LW126	6525156	703703	107.3	0	-90	66	no significant intersection				
LW139	6525735	703357	104.4	0	-90	84	no significant intersection				
LW140	6525758	703161	104.2	0	-90	86	no significant intersection				
LW142	6525783	702756	102.5	0	-90	83	no significant intersection				
LW143	6525981	702569	97.8	0	-90	90	no significant intersection				
LW144	6526002	702370	95.4	0	-90	80	no significant intersection				
LW145	6526009	702169	93.7	0	-90	79	no significant intersection				
LW146	6526026	701961	92.6	0	-90	76	no significant intersection				



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

LW147	6525398	702155	97.9	0	-90	69.5	no significant intersection
LW149	6525208	702146	99.5	0	-90	52	no significant intersection
LW155	6524940	703727	103.2	0	-90	58	no significant intersection
LW160	6525407	701950	98.8	0	-90	58	no significant intersection
LW163	6525326	703736	105.6	0	-90	61	no significant intersection
LW165	6525849	701150	100.5	0	-90	74	no significant intersection
LW180	6525621	701554	97.4	0	-90	60	no significant intersection
LW214	6525874	702252	98.39	0	-90	79	no significant intersection
LW221	6524572	703025	108.19	0	-90	65	no significant intersection
LW224	6524564	703522	104.58	0	-90	62	no significant intersection
LW225	6524769	703636	104.11	0	-90	57	no significant intersection
LW226	6524461	703413	104.17	0	-90	60.5	no significant intersection
LW227	6524410	703308	101.76	0	-90	56	no significant intersection
LW228	6524461	703511	108.14	0	-90	62	no significant intersection
LW229	6524663	703598	103.74	0	-90	64	no significant intersection
LW230	6524461	703206	102.22	0	-90	52.8	no significant intersection
LW236	6524774	703587	102.82	0	-90	57	no significant intersection
LW245	6524978	703629	101.39	0	-90	59.5	no significant intersection
LW251	6525187	703428	103.38	0	-90	83	no significant intersection
LW285	6524670	703521	102.22	0	-90	66	no significant intersection
WB010	6525545	701849.2	98.72	0	-90	1	no significant intersection
WB010A	6525544	701854.3	98.72	0	-90	68.8	no significant intersection
WB015	6525139	702359.1	101	0	-90	67.2	no significant intersection
WB017	6525182	703142.1	102.78	0	-90	86	no significant intersection
WB024	6524998	703529.8	101.11	0	-90	73.5	no significant intersection



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

MG14 Drillhole details

hole_id	y	x	z	Azm	Dip	Depth	From	To	Length m	Cu%	Co ppm	Ag g/t
CMG9R	6520169.01	704379.96	86.17	0	-90	36	29.5	34	4.5	0.51	286	6.3
LY3	6520248.97	704745.23	82.42	0	-90	246.4	24.75	29.5	4.75	1.64		14.6
MDD01	6520222.05	704676.52	83.21	0	-90	38.5	26.3	30	3.7	1.34	400	11.9
MDD02	6520571	703725	94.8	0	-90	43	39.12	41	1.88	1.22	579	12.2
MDD03	6520371	704125	87.33	0	-90	42	32	34	2	1.24	545	16.3
MDD04	6520377.42	704337.29	85.8	0	-90	41	29.6	31.56	1.96	0.56	217	6.8
MDD05	6520271	704336.05	85.21	0	-90	38.3	28	30.5	2.5	1.71	520	17.3
MDD07	6520461	704230	89.1	0	-90	40.8	33.5	35	1.5	1.64	322	12.0
MDD08	6520471	704130	88.9	0	-90	40.6	34.5	35.5	1	0.57	176	8.5
MDD09	6520471	704030	89.9	0	-90	47.3	38	39	1	0.69	58	9.0
MDD10	6520371	704030	87.7	0	-90	43.6	35	36	1	0.40		
MDD11	6520271.38	704035.45	87.01	0	-90	41	34.8	36	1.2	0.63	40	9.0
MDD14	6520269.89	704235.92	85.89	0	-90	38.6	28.5	30.5	2	1.84	446	12.3
MDD16	6520271	703930	88	0	-90	40	34.5	35.5	1	0.80	323	9.0
MDD17	6520471	703930	89.1	0	-90	48.8	39.5	40.5	1	0.72	210	12.0
MDD21	6520471	703630	92.6	0	-90	48.5	40.5	41	0.5	0.51	12	7.0
MDD22	6520571	703630	92.9	0	-90	44	42.5	43.5	1	0.76	213	11.5
MDD23	6520271	704980	82.13	0	-90	27.6	22.5	23.5	1	3.07	496	46.5
MDD26	6520362.33	704885.13	82.73	0	-90	30.2	24.7	29	4.3	0.95	722	10.5
MDD27	6520371.66	704784.38	83.4	0	-90	31.5	28.5	30.5	2	1.76	263	16.0
MDD30	6520370.66	704486.7	85	0	-90	33.5	27	31	4	1.06	341	10.3
MDD31	6520371.18	704387.94	85.54	0	-90	36.6	30	31.5	1.5	0.80	253	8.0
MDD32	6520371	704285.99	86.49	0	-90	38.5	29.5	32	2.5	0.97	120	15.4
MDD33	6520269.81	704886.84	82.17	0	-90	32.5	29.5	31.5	2	1.42	490	14.0
MDD34	6520270.77	704787.31	82.47	0	-90	34.4	27.5	32.5	5	0.76	339	9.4
MDD35	6520277.54	704687.44	83.27	0	-90	31	24.5	30	5.5	1.71	283	17.4
MDD36	6520272.7	704580.47	83.57	0	-90	33.5	28.5	33	4.5	0.69	265	9.3
MDD37	6520270.91	704494.24	84.32	0	-90	32.2	26	32	6	1.28	239	13.8
MDD38	6520217.22	704837.62	81.72	0	-90	30.5	26.5	28.5	2	2.13	583	22.8
MDD42	6520221	704980	81.2	0	-90	26.2	22.5	24.3	1.8	0.70	22	15.2
MDD43	6520221	704930	82.1	0	-90	30	24.5	26	1.5	1.48	490	11.7
MDD44	6520319	704930	81.5	0	-90	26.6	21	25	4	3.88	61	55.3
MDD45	6520321	704880	82.1	0	-90	32.2	25.5	28.5	3	1.95	732	18.7
MDD46	6520171	704880	81.3	0	-90	37	24.5	25	0.5	1.35	10	24.0
MDD47	6520221	704630	83.52	0	-90	33	27.3	29	1.7	1.70	362	14.7
MDD48	6520321	704630	83.6	0	-90	32.1	26.8	28	1.2	1.66	633	16.8
MDD49	6520171	704680	83.3	0	-90	31.8	26.4	30.5	4.1	0.93	299	8.6



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

MDD50	6520121	704630	84	0	-90	32.2	27	31	4	1.76	519	14.3
MDD51	6520371	704230	86.3	0	-90	34.2	30.6	32	1.4	1.28	457	10.1
MDD52	6520371	704180	86.72	0	-90	37	31.61	33	1.39	0.87	510	13.8
MDD53	6520418	704427	87.6	0	-90	35.7	31.5	33	1.5	1.09	471	11.0
MDD54	6520421	704230	87.1	0	-90	36.6	32.5	34	1.5	0.74	88	7.0
MDD55	6520418	704479	88.1	0	-90	36.75	31.1	32	0.9	0.82	527	9.4
MDD59	6520421	704880	86.7	0	-90	30.2	28	29.5	1.5	2.03	167	18.3
MDD60	6520421	704930	85.7	0	-90	29.2	25.7	27	1.3	1.66	44	22.9
MDD64	6520371	704780	83.4	0	-90	32.65	29	31	2	2.00	357	10.3
MDD66	6520171	704780	82.3	0	-90	27.9	24	26	2	0.61	520	8.5
MDD67	6520221	704730	82.6	0	-90	33	27.9	29.5	1.6	0.09	109	6.4
MDD68	6520121	704780	83.3	0	-90	26.7	23	25.5	2.5	1.69	391	14.2
MDD69	6520121	704730	83.4	0	-90	29.4	26.5	28	1.5	1.43	847	14.0
MDD70	6520121	704686	83.7	0	-90	32.4	27.7	30.5	2.8	0.61	219	6.8
MDD71	6520422.5	704828	87.5	0	-90	30.8	30	30.8	0.8	2.86	49	35.0
MDD72	6520121	704580	84.4	0	-90	33	28.7	31	2.3	2.47	163	16.6
MDD73	6520171	704580	84.1	0	-90	34	26	32.5	6.5	0.96	679	9.3
MDD74	6520221	704530	84.2	0	-90	30.8	28.5	30	1.5	0.61	372	8.3
MDD75	6520221	704480	84.6	0	-90	33	25.9	31.5	5.6	0.47	344	7.4
MDD76	6520221	704380	85.1	0	-90	31.5	26	30.5	4.5	1.95	485	13.3
MDD78	6520271	704380	85.1	0	-90	32.5	29.5	31	1.5	0.38	1040	7.0
MDD80	6520221	704280	85.5	0	-90	31.6	27.3	31.6	4.3	0.86	259	9.7
MDD81	6520271	704280	85.5	0	-90	32.7	28	30.5	2.5	2.11	684	16.6
MDD82	6520321	704280	85.8	0	-90	33.2	29.2	31	1.8	2.43	794	19.1
MDD83	6520321	704330	85.4	0	-90	33.5	29.5	30.5	1	0.70	275	7.5
MDD84	6520321	704230	86	0	-90	33.2	30.05	31.5	1.45	1.98	922	16.1
MDD85	6520321	704180	86.5	0	-90	32.7	30	32	2	1.04	485	10.0
MDD86	6520321	704130	86.7	0	-90	35.2	31.36	33.5	2.14	0.62	420	6.8
MDD87	6520271	704080	86.7	0	-90	38.3	33	34	1	0.49	305	5.5
MDD88	6520271	704130	86.3	0	-90	33.5	30.6	32.5	1.9	0.69	222	7.7
MDD89	6520271	704180	86.2	0	-90	33.9	30.5	31.5	1	0.53	373	8.5
MDD90	6520221	704230	86.2	0	-90	33.8	28.8	30	1.2	0.51	233	6.2
MDD91	6520221	704180	86.8	0	-90	34.2	30	31	1	0.90	425	8.5
MDD92	6520221	704130	87	0	-90	35.1	31	32	1	0.60	148	7.5
MDD93	6520221	704429	85.1	0	-90	32.6	25	32.6	7.6	1.09	310	10.6
MDD94	6520271	704379	85.1	0	-90	33.9	29.2	30	0.8	1.04	973	11.3
MDD96	6520221	704331	85.8	0	-90	33	28.9	31.5	2.6	1.59	786	16.2
MG14D	6520179.04	704637.69	83.47	0	-90	43.77	28.58	32	3.42	0.73	301	7.9
MG14DD001	6520293.55	704730.672	82.35	0	-90	27.5	24	25.8	1.8	1.69	491	16.4
MG14DD002	6520238.88	704863.485	81.45	0	-90	28.9	26.1	27.5	1.4	1.48	812	17.9



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

MG14DD003	6520301.3	704926.813	81.35	0	-90	26.5	21.95	24.2	2.25	3.42	238	54.1
MG14DD004	6520260.07	704629.078	82.86	0	-90	36.2	27.2	31.2	4	0.82	397	8.9
MG14DD005	6520346.09	704206.352	86.17	0	-90	38.9	29.83	32	2.17	2.37	894	20.0
MG14DD006	6520196.74	704379.141	85.47	0	-90	36.1	30	33.62	3.62	0.29	199	7.8
MG14DD007	6520169.36	704430.137	85.25	0	-90	35.45	27.5	32.5	5	0.90	488	11.7
MG14DD008	6520244.4	704481.606	84.32	0	-90	32.4	25.2	31.5	6.3	1.21	538	12.9
MG14DD009	6520245.76	704736.845	82.28	0	-90	29.35	23.5	27.74	4.24	2.29	456	15.7
MG14DD010	6520172.96	704608.212	83.69	0	-90	35.65	27.1	32.1	5	0.61	283	6.9
MG14DD011	6520374.31	704248.381	86.33	0	-90	39.1	31.35	32.5	1.15	0.88	379	9.1
MG14DD015	6520218.92	704418.247	85.02	0	-90	35.8	27.7	32.5	4.8	1.23	317	14.2
MG14DD016	6520239.22	704741.779	82.25	0	-90	29.25	23.5	27.25	3.75	2.46	320	16.8
MG22B	6520271	704730	82.47	0	-90	30	23	26	3	2.38	122	29.2
MG23/2	6520273.74	704638.76	83.22	0	-90	34.2	23	31	8	2.63	46	33.4
MG24	6520169.48	704737.27	82.66	0	-90	32	24.5	28.5	4	1.39	68	16.0
MG26	6520267.55	704836.55	82	0	-90	30.6	25.5	30	4.5	1.09	104	12.9
MG27	6520369.07	704734.86	83.67	0	-90	34.4	27	31	4	1.42	254	14.9
MG30	6520671	703630	90	0	-90	60	40	45	5	0.84		
MG44	6520270.66	704530.41	83.92	0	-90	35.5	25	28	3	1.94	133	20.0
MG45	6520171	704530	84.64	0	-90	34	28	31	3	0.38	70	10.3
MG49	6520360.33	704935.79	82.49	0	-90	26	21	23	2	1.65	10	30.8
MG50	6520364.6	704835.52	82.87	0	-90	32	26.5	30	3.5	1.47	216	19.9
MG502	6520225.89	704586.56	83.57	0	-90	36.7	28.3	30.3	2	1.05	650	12.3
MG503	6520212.09	704795.23	82.09	0	-90	29	22.4	26.4	4	2.20	572	13.4
MG504	6520221.04	704888.13	81.47	0	-90	28.3	20	25.5	5.5	2.93	133	27.8
MG505	6520302.63	704896.91	81.94	0	-90	30.5	23.6	27.6	4	2.84	479	32.3
MG506	6520316.51	704837.49	82.31	0	-90	42.5	26.7	31.7	5	1.36	673	14.3
MG507	6520323.11	704730.52	83.1	0	-90	33.4	26	30	4	1.36	666	13.1
MG508	6520321.95	704530.71	83.88	0	-90	36.4	26.6	32.6	6	1.34	468	15.7
MG509	6520319.54	704480.4	84.48	0	-90	34.9	27.1	29.1	2	1.41	495	14.5
MG510	6520323.84	704437.64	84.62	0	-90	36.1	28.1	29.6	1.5	1.25	450	12.7
MG511	6520323.18	704385.99	84.95	0	-90	36.4	28.8	31.3	2.5	1.58	726	15.7
MG52	6520371.63	704529.84	85.01	0	-90	34	27	30	3	1.53	203	16.3
MG53	6520168.78	704837.57	81.7	0	-90	27	21	23	2	1.38	250	13.0
MG60	6520571	704130	88	0	-90	51.75	37.7	39	1.3	0.43		6.3
MG62	6520571	703930	89	0	-90	57.25	40	43	3	1.14		15.3
MG63	6520571	703730	94.62	0	-90	57.5	39.5	41.5	2	1.46	303	16.0
MG64	6520371	704130	87.57	0	-90	50	32.8	34.5	1.7	0.95	409	12.1
MG65	6520370	704330	85.87	0	-90	44	29	31	2	1.30	225	15.0
MG66	6520171.55	704334.44	86.08	0	-90	37	30.5	32.5	2	0.64		8.5
MG67	6520371	703930	88	0	-90	52.5	36.5	38	1.5	1.16		10.7



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

MG69/1	6520270.13	704439.03	84.69	0	-90	35.62	27.5	30.5	3	1.73	406	15.0
MG69/2	6520371	704430	84.68	0	-90	36.3	26.5	29	2.5	1.32	748	16.0
MG70	6520171	704930	80.5	0	-90	26.85	23	24	1	2.34	55	40.0
MG71	6520273.27	704937.15	81.94	0	-90	27.65	24.5	26	1.5	2.37	300	20.0
MG78	6520368.81	704435.57	85.22	0	-90	36.25	28	30	2	1.07	690	22.5
MG79	6520329	704681.54	83.46	0	-90	26.25	23.85	25.05	1.2	1.25	35	24.0
MG80	6520321.89	704588.35	83.84	0	-90	33.6	27	32.5	5.5	1.15	584	29.3
MG93	6520320.1	704787.44	82.92	0	-90	31.6	27	31.5	4.5	1.30	364	16.0
MGD50	6520255	704960	81.8	0	-90	28	24.6	25.65	1.05	3.65	41	53.2
MGD51	6520340	704860	82.5	0	-90	31.9	25.8	29.75	3.95	1.60	645	17.8
MGD52	6520345	704510	84.6	0	-90	34.2	28.46	32.15	3.69	0.98	379	9.9
MGD53	6520250	704660	83.3	0	-90	32.5	27.01	31	3.99	0.86	352	10.7
MGD54	6520240	704810	82.1	0	-90	28	25.5	28	2.5	1.66	924	16.7
MGD58	6520294	704832	82.2	0	-90	32.6	25.97	31.62	5.65	1.07	654	
MGD59	6520320	704731	83.1	0	-90	32.8	26.18	30.2	4.02	1.36	665	
MGD60	6520319	704584	83.3	0	-90	34.98	25.76	32.12	6.36	1.09	498	
MGD61	6520242	704425	85	0	-90	34.9	25.6	29.8	4.2	1.60	458	
MGD62	6520144	704608	84	0	-90	35.55	26.73	31.7	4.97	1.45	393	
MGRC100	6520416	704819	87.49	0	-90	33	29.5	31	1.5	1.32	57	
MGRC96	6520169	704474	85.3	0	-90	34	27	31	4	0.44	340	
MGRC97	6520169	704571	84.14	0	-90	35	25	31.5	6.5	0.48	314	
MGRC98	6520268	704483	84.65	0	-90	35	26	32	6	0.67	383	
MDD06	6520371	704230	89.1	0	-90	38.4	no significant intersection					
MDD12	6520269.89	704235.92	85.89	0	-90	34.2	no significant intersection					
MDD13	6520271	704132	86.11	0	-90	40.3	no significant intersection					
MDD15	6520371	703830	88.8	0	-90	44.4	no significant intersection					
MDD18	6520471	703830	91.3	0	-90	40.5	no significant intersection					
MDD19	6520471	703830	91.3	0	-90	42	no significant intersection					
MDD20	6520471	703730	93.4	0	-90	45.5	no significant intersection					
MDD24	6520321	704980	82.02	0	-90	27.5	no significant intersection					
MDD25	6520356.57	704985.72	82.73	0	-90	25.3	no significant intersection					
MDD28	6520371	704680	83.48	0	-90	26.5	no significant intersection					
MDD29	6520372.23	704579.45	84.81	0	-90	31.9	no significant intersection					
MDD39	6520321	704980	81.73	0	-90	25.6	no significant intersection					
MDD40	6520271	705030	81.3	0	-90	24.2	no significant intersection					
MDD41	6520221	705030	81.3	0	-90	24.8	no significant intersection					
MDD56	6520421	704530	87.6	0	-90	32.2	no significant intersection					
MDD57	6520421	704730	86	0	-90	30.65	no significant intersection					
MDD58	6520418	704781	86.4	0	-90	33.75	no significant intersection					
MDD61	6520421	704828	87.5	0	-90	33.65	no significant intersection					



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

MDD62	6520421	704330	87.2	0	-90	36.7	no significant intersection
MDD63	6520371	704680	84.3	0	-90	27.5	no significant intersection
MDD65	6520371	704780	87.2	0	-90	30.6	no significant intersection
MDD77	6520221	704380	85.5	0	-90	32.9	no significant intersection
MDD79	6520221	704330	85.8	0	-90	27	no significant intersection
MDD95	6520221	704381	85.5	0	-90	33.4	no significant intersection
MDD97	6520221	704331	85.8	0	-90	31.6	no significant intersection
MG14DD012	6521160.28	703377.818	92.49	0	-90	60.75	no significant intersection
MG14DD013	6520955.67	703568.201	93.1	0	-90	50.8	no significant intersection
MG14DD014	6520169.04	704287.362	86.32	0	-90	35.55	no significant intersection
MG15D	6520171	704130	87	0	-90	34.8	no significant intersection
MG16	6520687	704282	88.1	0	-90	42	no significant intersection
MG17	6521171	703130	87.9	0	-90	66	no significant intersection
MG17B	6521172	703131	87.9	0	-90	64	no significant intersection
MG18	6520671	702630	84	0	-90	106.6	no significant intersection
MG19	6521171	703630	86	0	-90	33	no significant intersection
MG21	6520170	703130	92	0	-90	72	no significant intersection
MG21B	6520171	703130	92	0	-90	66	no significant intersection
MG22A	6520271	704730	82.47	0	-90	30	no significant intersection
MG23	6520273.74	704638.76	83.22	0	-90	34	no significant intersection
MG25	6520171	705030	80.53	0	-90	22.5	no significant intersection
MG28	6520171	703630	89	0	-90	39.8	no significant intersection
MG29	6520671	702130	86	0	-90	48	no significant intersection
MG3	6520158	705133	80.42	0	-90		no significant intersection
MG31	6520671	703130	89	0	-90	87	no significant intersection
MG46	6520071	704530	85.25	0	-90	26	no significant intersection
MG47	6520071	704630	84.44	0	-90	27	no significant intersection
MG48	6520071	704730	83.51	0	-90	26	no significant intersection
MG501	6520221	704379.9	85.5	0	-90	37.1	no significant intersection
MG51	6520369.81	704630.78	84.43	0	-90	36	no significant intersection
MG54	6520371	705130	81.92	0	-90	23.8	no significant intersection
MG55	6520571	705130	82	0	-90	20.7	no significant intersection
MG56	6520571	704930	84.29	0	-90	24.75	no significant intersection
MG57	6520571	704730	84.34	0	-90	30	no significant intersection
MG58	6520571	704530	86	0	-90	29.5	no significant intersection
MG59	6520571	704330	87	0	-90	46.5	no significant intersection
MG61	6520771	704130	89	0	-90	49.9	no significant intersection
MG68	6520371	703730	89.63	0	-90	36.2	no significant intersection
MG72	6520471	704930	83.27	0	-90	21.75	no significant intersection
MG73	6520471	704830	84	0	-90	25.12	no significant intersection



Tim Callaghan – Resource and Exploration Geology

3 Main Rd Penguin 7318

ph. 0428 888 896 email: timcallaghan@netspace.net.au

MG74	6520471	704730	86.32	0	-90	29.41	no significant intersection
MG75	6520471	704630	87.86	0	-90	29.6	no significant intersection
MG76	6520471	704530	86.71	0	-90	25.63	no significant intersection
MG77	6520471	704430	87	0	-90	33.79	no significant intersection
MGRC94	6520162	704975	81.37	0	-90	21.5	no significant intersection
MGRC95	6520119	704522	85.62	0	-90	26	no significant intersection
MGRC99	6520418.63	704728.146	86.23	0	-90	33	no significant intersection