

ASX RELEASE (9 FEBRUARY 2023)

# **Tartana Copper Resource Increase to 45,000 tonnes**

### **Highlights:**

- Additional drilling in 2H CY 2022 leads to resource review of mineralisation below the Tartana open pit and in the northern oxide zone to 130 m depth
- Total resources of 45,000 tonnes of contained copper at 0.45% Cu using a 0.2% Cu cut-off grade
- Broad zones of mineralisation indicate potential for low strip ratio while preliminary ore sorting testwork indicates potential for approximate 100% upgrade to copper grade
- Mineralisation remains open at depth with previous drilling indicating copper mineralisation at 450 m depth.
- Next steps including drilling to provide samples for ore sorting testwork and confirm historical metallurgical testwork which reported high copper recoveries.
- Separate maiden Zinc resource for Queen Grade Zinc project to be released in coming days

R3D Resources Limited (ASX: **R3D**) (the **Company**), is pleased to announce that BMS Pty Ltd ("BMS") has estimated an increase in Tartana copper resources based on the Northern Oxide and Tartana in pit drilling programmes conducted in the September – November period last year.

R3D Managing Director Stephen Bartrop commented:

"We now have a sizeable copper resource on the Tartana mining leases which is building confidence in the future development of this large mineralised system. Next steps will involve diamond drilling to secure samples for further ore sorting and metallurgical flotation test work as part of scoping studies. We are also confident that the copper mineralisation will continue to significant depths based on our recent drilling and the disposition of other orebodies in the region.

"We are buoyed by continued improvements in the Copper price and ongoing structural increase in demand. This larger copper resource may also support an increase in the expected life of our Tartana Copper Sulphate plant once in production in the coming months.

"A separate maiden zinc resource for the Queen Grade zinc project, also within the Tartana mining leases is being prepared for announcement in the next few days."

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The Company reported a 'shallow' resource on the 21 September 2022 and also provided an update on the drilling on the 4 January 2023 announcing drilling had intersected 77 m at 0.62% Cu *inter alia.* The current resource increase includes copper mineralisation in the base of the open pit and in the Northern oxide zone where primary, transitional and oxide mineralisation continues north from the open pit but appears displaced to the west by a fault – a structure which may be important in the mineralisation event.

The mineralisation has been estimated to approximately 130 m depth and remains open at depth and in several other directions. In 2021 the Company drilled RDD002 which was a deep hole testing an easterly IP target but also 'clipped' copper the mineralisation near the edge of the mineralisation below the open pit before the hole deviated down bedding and was terminated (See ASX announcement dated 28 January 2022). However, it intersected 2 m @ 1.66% Cu, 32.6 g/t Ag and 106 ppm Bi prior to this deviation and which was approximately 450 m below surface.

The copper mineralisation is relatively simple with chalcopyrite – pyrite mineralisation in stockwork veins and along bedding planes in a steeply dipping shale and arkosic sandstone host rock. Alteration is dominated by sericite alteration with chlorite alteration in some areas.

The mineralisation style with the bulk of the mineralisation limited to sulphide veins in a relatively barren host rock, provides an opportunity to apply ore sorting technology for upgrading the average ore grade that may be processed by conventional sulphide processing. Copper mineralised samples (18.7 kg) have been supplied to Tomra to test for ore sorting involving crushing to 8 mm and then ore sorting the + 8mm twice. The - 8 mm fraction naturally upgrades given the sulphides often break more finely with the crushing. Encouragingly combining the fines with the upgraded ore sorted products returned an approximate 100% increase in the average copper grade and recovered more than 76% of the total estimated contained copper.

In terms of metallurgical testwork, historical copper flotation testwork is reported to have yielded high recoveries and which would be in line with the characteristics of the mineralisation. However, the Company will conduct its own flotation testwork to verify copper recoveries well as continue ore sorting testwork.

### **Mineral Resource Estimate**

BMS has estimated the following resources within the Oxide, Transitional and Fresh (or primary) mineralisation types (see Table 1). The resources have been estimated using a 0.2% Cu cut-off grade and are located below the existing open pit and in the northern oxide zone (See Figure 1). The estimate supersedes the previous shallow resource estimate reported to the ASX on the 21 September 2022.



Resource Category	Zone	Tonnes (Kt)	Cu Grade (%)	Density (t/m³)	Contained Cu (t)
Indicated	Transitional	1,563	0.51	2.63	7,972
Inferred	Oxide	152	0.34	2.63	518
Inferred	Transitional	1,252	0.47	2.63	5,884
Inferred	Fresh	7,072	0.43	2.63	30,407
Total		10,039	0.45	2.63	44,781

\* Reported Mineral Resource Estimate in Table 1 is estimated by inverse distance method

Table 1. Tartana Mineral Resource Estimate for Oxide, Transitional and Primary Mineralisation Types (from surface to 130m depth), using a 0.2% Cu cut-off grade

The resource grade and tonnage for the total primary and transitional ore at different cut-off grades is presented in Table 2. Recent metallurgical testwork on mineralisation below the pit has identified that most of the transitional ore is predominantly primary ore. In the northern oxide zone, metallurgical testwork is required to test the oxide mineralisation to determine the proportion of oxide copper minerals within this zone.

Cutoff Grade	de TRANSITIONAL & OXIDE		IDE RESOURCES	E RESOURCES TOTAL PRIMARY AND TRANSITIONAL				
(% Cu)	Tonnage (t)	Cu (%)	Contained Cu (t)	Tonnage (t)	Cu (%)	Contained Cu (t)		
0	4,082,062	0.38	15,577	13,214,997	0.37	48,935		
0.1	3,676,819	0.42	15,351	12,299,127	0.39	48,026		
0.2	2,971,516	0.48	14,371	10,037,553	0.45	45,008		
0.3	2,090,093	0.58	12,183	7,086,167	0.53	37,515		
0.4	1,503,603	0.67	10,090	4,623,416	0.63	29,080		
0.5	1,044,386	0.78	8,102	3,044,249	0.72	21,996		
0.6	707,985	0.88	6,225	1,981,924	0.81	16,137		
0.7	456,542	1.01	4,601	1,176,296	0.93	10,894		

Table 2. Transition and primary resources at different cut-off grades.

AMC mining consultants have previously completed preliminary open pit design on the shallow primary resource in the open pit floor and this will be extended to cover the deeper resource as well as the northern oxide zone.



## ASX RELEASE 9 FEBRUARY 2023



Figure 1. 1(a) Mineralisation outline at surface and position of section lines, outline of historical open pit and other infrastructure. 1(b & c) Sections through the historical open pit. 1(d) Section through the northern oxide zone.

Figure 2 below displays a section at S3 (see Figure 1a above) and highlights the block model used in the mineral resource estimation.





Figure 2. Section S3 showing drilling and the block model used in the mineral resource estimation.

### Further Information on the Resource Estimation

In accordance with Listing Rule 5.8.1 the Company provides the following information on the resource upgrade.

1. Geology and geological interpretation

The Tartana project is located in a belt of Silurian and Devonian age siltstone, fine-grained sandstone, chert and limestone (Chillagoe Formation) that trends north-west and is steeply dipping. The Chillagoe Formation is separated from the Proterozoic rocks to the west by the Palmerville Fault and which is a regionally extensive, major Basin-forming fault.

The siltstone and sandstone at Tartana have a weakly developed, steeply dipping cleavage formed during basin inversion. Folding is moderately plunging to the north-west. Also observed in the Tartana open pit and in drill core is a medium grained felsic intrusion that is weakly deformed. This intrusion is likely to be part of the Permo-Carboniferous suite, although, no absolute age dating has been reported. Regionally, the same belt of rocks hosts the Red Dome porphyry copper-gold, Mungana porphyry copper-gold-zinc deposit and the Redcap and King Vol skarn deposits.

The primary copper mineralisation in the historical pit is structurally controlled. Chalcopyrite is developed as veins in dilatant fractures. The main mineralised trends are sub-parallel to bedding striking around 150° southeast and dip steeply to the northeast. Other common mineralised fracture orientations include striking 80° and dipping 70° north and striking 70° and dipping 75° north. A number of shallower dipping chalcopyrite-bornite veins trending 145° and dipping 55° northeast have steep dipping footwall mineralised fractures, indicating normal fault movement. Other chalcopyrite veins sets are shallow dipping and may represent mineralisation in stress fractures above an intrusive at depth.



### 1. Sampling and sub-sampling techniques

In the Tartana resource defined area of the Tartana Flats the average sample length of all sampled holes is 1m and covers both recent RC drilling and historical RC and diamond drilling. RC samples were split to 1-2 kg sample size while historical diamond drill core was half sawn. Sub-sampling techniques and sample preparation involved washing all chips to removed drilling mud and polymers prior to logging, photographing and storing.

Composites of the drill hole assays were generated using Maptek Vulcan software with run lengths of 1m, which is consistent with the typical sample interval. These composites honour the geological wireframes. Checking was undertaken by generating an Isis file and visually inspecting the result of the composite.

Any assays with below detection limit negative values from -999 to 0 were adjusted to 0.0 in the composite file.

Specific components of the compositing include:

- Run lengths of 1 metre
- Data field Cu, Au, Zn, Pb and Ag were composited

The composite file was applied a tag for each composite with the character 700 (supergene) and 100 (mined) in the 'bound' column of the Isis file. This file was subsequently used in the estimation process.

### 2. Drilling techniques

The Company conducted a 28-hole (1,620m) RC drilling program in April – May 2022 and completed a further 20-hole (1294m) RC program which conducted in September – November 2022. This was designed to test the northern oxide zone, depth extensions to mineralisation in the pit as well as verify historical drilling. Historical drilling has been carried out by a combination of both RC and diamond drilling with the management of Mr Tom Saunders.

A combined total of 87 drill holes intersect the mineralised supergene in Tartana flats area and these holes were selected for compositing (specifically the collar, survey and assay tables) to establish wire frame modelling.

### 3. Drill Spacing and Other Criteria

### Indicated versus Inferred spacing

Cross sections were provided by R3D to model lithology and mineralisation wireframes for the Tartana flats area. The mineralisation was intersected on approximately 10 drilling sections and is currently known to a depth of at least 40m below the surface. The mineralisation has been drilled on a drill pattern of approximately 10-20 m by 30-60m and strikes approximately 330 degrees. The mineralised zone is interpreted as being flat lying.

Mineral resources have been calculated by BMS based on a bearing of 150 degrees. Mineralisation is present as a single mineralised supergene domain - defined using lithology logs, where possible, and Cu grades. The block



model was created using the one bdf file and the model contains only default values except for the variable domain, which was populated in relation to the domain wireframe in which the blocks reside.

A rotation of 150° bearing, 0° plunge and 0° dip was applied to the blocks.

A Vulcan block model was created to encompass the full extent of the deposit.

The classification of blocks into Indicated and Inferred Resources was a two stage process. The first stage categorised blocks based on the pass 1 flag variable. The second stage categorised blocks to construct smoothed, realistic 3D solids that defined a region of medium confidence based on grade and geological continuity (using guidelines in the JORC 2012 Code).

### 4. Sample analysis method

RC samples were dispatched to SGS Laboratories in Townsville and tests for copper and silver and gold when silver assayed > 10 ppm. SGS complete ore grade base metal assays where initial testing exceeds detection limits. SGS analysis codes and descriptions are outlined below.

SGS Code	Description
GO_FAA30V10	Au, FAS, ore grade, AAS, 30g-10mL
GO_IMS41Q100	4 Acid Digest (HCL/HCLO4/HF/HNO3), ICP-MS
GO_ICP41Q100	4 Acid Digest (HCL/HCLO4/HF/HNO3), ICP
G_WGH_KG	Weight of samples received

Historical drill sampling has used similar methodologies by SGS or ALS.

### 5. Estimation methodology

The 3D wireframe file of the single domain was created in Vulcan and snapped to the drill holes. 100 drillholes were used to inform the MRE with the Mineralised Envelope modelled using a supergene classification from geology logs based on the presence of secondary sulphides from the 2022 drilling programme. The 3D wireframe file of the single domain was created in Vulcan and snapped to the drill holes.

Hole Type	Drill hole Series	Drill hole Number	Resource Metres
RC	NARC	11	478
RC	TRC	78	2652
DD	TDH	7	762
DD	TRDH	4	730
Total		100	4622



- A Vulcan block model was created by BMS for the MRE with a block size of 5 m NW-SE × 5 m NE-SW
   × 5 m vertical with sub-cells of 1 m× 1 m × 1 m.
- The block model was constrained to a single domain. Parameters of the model are shown below.
- Copper was modelled through the block model.

Model Name	х	Y	Z
Origin	209000	8125300	400
Offset	-600	-300	-600
Offset	-100	100	0
Block Size (sub-blocks)	5 (1)	5 (1)	5 (1)

Variables	Description	
Cu	unCut Grade - reportable	
Min_Domain	Mineralisation domain	
Avg_dist	Average distance to samples	
zone	Insitu, mined etc	
holecount	Number of drill holes	
Numsam	Number of Samples used for Block grade interpolation	
BD	Bulk Density	
Mined	Mined or Insitu	
ох	oxidation	

- Inverse Distance (IVD) interpolation with an oriented ellipsoid search was used to estimate Cu and Au grade in the single domains for fresh rock as a check block model
- A first pass long axis radius of 29 m with a minimum number of informing samples of 10 was used. The major axis radius was increased to 58 m for the second pass. A third pass with an increased search radius of 1,032 m and a decrease in the minimum number of samples from 8 to 2 was required to fill blocks within the extremities of the resource wireframes (see tables below)
- ~30% of the resource volume filled in the 1st pass, ~60% in the 2nd pass and the remainder in the 3rd pass for Tartana Creek
- No high-grade copper cuts were applied to the Tartana mineralisation.
- A bulk density value of 2.63 t/m3 was applied to Tartana Supergene
- Search and estimation parameters below

Pass	Min Sample	Max Sample	Distance (m)
1	8	40	29
2	8	40	59
3	2	40	1032



Domain	Strike	Plunge	Dip	Discretisation
700	240	0.5	0.5	3x:3y:3z

- To check that the interpolation of the Block Model correctly honoured the drilling data and domain wireframes, BMS carried out a validation of the estimate using the following procedures:
  - -Comparison of volumes defined by the domain wireframes and the associated Block Model
  - -A comparison of the composited sample grade statistics with Block Model grade statistics for the single domain
  - -Visual sectional comparison of drill hole grades versus estimated block grades.
- The volumes were almost identical. The overall volume difference is less than 1%. BMS considered this to be an acceptable result.
- A visual section comparison was undertaken of drill hole grades versus estimated block grades, which revealed satisfactory comparable grades.

### 6. Cut-off grade(s), including the basis for the selected cut-off grade(s)

A range of reportable MRE cut-off grades were provided and no high-grade copper cuts were applied.

# 7. Mining and metallurgical methods and parameters, and other material modifying factors considered to date.

Mining is expected to be carried by bulk mining open cut methods. R3D has been refurbishing an existing heap leach – solvent extraction – crystallisation plant which produced copper sulphate pentahydrate for approximately a decade before being place on care and maintenance in 2014. In addition, the Company is investigating conventional sulphide ore processing opportunities within the region.

The Company has completed bottle roll tests on heap leach material to determine leachable copper content (see ASX announcement dated 22 July 2022). Follow up testwork found that most mineralisation within the open pit was primary mineralisation. Historical flotation testwork is reported to have yielded high copper recoveries on the mineralisation within the open pit, however, the company is conducting its own testwork to verify the earlier test work.

This announcement has been approved by the Disclosure Committee of R3D Resources Limited.



Further Information:

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### **About R3D Resources Limited**



R3D Resources is a significant copper-gold explorer and developer in the Chillagoe Region in Far North Queensland. R3D owns several projects of varying maturity, with the most advanced being the Tartana mining leases, which contain an existing heap leach – solvent extraction – crystallisation plant. Work has commenced to restart this plant to provide future cash flow through the sale of copper sulphate. In Tasmania, Tartana has secured permitting to excavate and screen for export low-grade zinc furnace slag/matte from its Zeehan stockpiles in Western Tasmania and has been shipping zinc slag to South Korea. These two projects have the potential to generate a strong cash flow to underpin the R3D's extensive exploration activities in the Chillagoe region.

### **Competent Person's Statement**

The information in this announcement that relates to Exploration Results and Mineral Resources is based on information compiled by Mr Wayne (Tom) Saunders who is a Fellow of the Australasian Institute of Mining and Metallurgy (AusIMM), and a Member of the Australian Institute of Geologists (AIG). Mr Saunders has sufficient experience that is relevant to the styles of mineralisation and types of deposit under consideration, and to the activity that is being undertaking to qualify as a Competent Person, as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves.' Mr Saunders consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.



The information in this announcement that relates to Exploration Results and Mineral Resources is based on information compiled by Mr Geoff Reed who is a Member of the Australasian Institute of Mining and Metallurgy (AusIMM (CP)), and a Member of the Australian Institute of Geologists (AIG). Mr Reed has sufficient experience that is relevant to the styles of mineralisation and types of deposit under consideration, and to the activity that is being undertaking to qualify as a Competent Person, as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves.' Mr Reed is a consultant of R3D Resources Limited, and consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

### **Disclaimer Regarding Forward Looking Statements**

This ASX announcement contains various forward-looking statements. All statements, other than statements of historical fact, are forward-looking statements. Forward-looking statements are inherently subject to uncertainties in that they may be affected by a variety of known and unknown risks, variables and factors which could cause actual values or results, performance or achievements to differ materially from the expectations described in such forward-looking statements.

R3D Resources does not give any assurance that the anticipated results, performance or achievements expressed or implied in those forward-looking statements will be achieved.



### Table 1. Drillholes and drillhole intersections used in the MRE

Drillhole	midx	midy	midz	from (m)	to (m)	Intersection (m)	Cu %
NARC01	208707.2	8125651.7	208.29	14.5	39.0	24.5	1.50
NARC01	208699.1	8125647.4	192.50	39.0	51.0	12.0	0.33
NARC02	208695.7	8125642.5	207.27	18.0	37.7	19.7	0.54
NARC02	208689.1	8125638.9	194.27	37.7	48.0	10.3	0.30
NARC03	208672.7	8125631.0	204.14	18.0	40.9	22.9	0.96
NARC03	208665.7	8125626.5	189.84	40.9	51.0	10.1	0.90
NARC04	208677.6	8125703.3	208.24	11.0	39.1	28.2	0.55
NARC04	208667.7	8125701.9	190.90	39.1	51.0	11.9	0.32
NARC05	208686.2	8125716.4	207.05	11.0	38.6	27.6	0.27
NARC05	208678.4	8125710.2	189.73	38.6	51.0	12.4	0.10
NARC06	208660.5	8125681.4	207.31	12.9	34.5	21.6	0.56
NARC06	208652.1	8125677.0	190.83	34.5	51.0	16.5	0.82
NARC11	208720.3	8125658.8	214.05	0.0	39.8	39.8	0.74
NARC11	208707.4	8125650.1	184.92	39.8	66.0	26.2	0.49
NARC12	208736.2	8125669.7	218.93	0.0	26.0	26.0	0.00
NARC16	208647.0	8125612.5	202.50	17.6	43.6	26.0	0.31
NARC16	208639.9	8125606.8	186.74	43.6	54.0	10.4	0.38
NARC21	208601.0	8125707.0	210.78	0.0	24.4	24.4	0.34
NARC21	208601.0	8125707.0	180.78	24.4	60.0	35.6	0.19
NARC22	208733.4	8125665.8	212.58	0.0	40.3	40.3	0.23
NARC22	208717.9	8125656.5	181.41	40.3	72.0	31.7	0.36
RB13	208738.0	8125667.0	223.59	0.0	15.0	15.0	0.11
TDH1	208637.1	8125586.9	201.84	12.6	45.1	32.5	0.20
TDH1	208672.2	8125609.6	129.42	45.1	179.8	134.7	0.39
TDH10	208629.6	8125673.3	45.86	172.0	253.0	81.0	0.31
TDH11	208425.4	8125834.5	45.08	189.0	257.0	68.0	0.44
TDH13	208629.4	8125660.5	124.63	48.1	187.3	139.2	0.34
TDH2	208485.1	8125755.9	127.50	48.8	179.8	131.1	0.32
TDH4	208772.1	8125505.2	123.95	85.0	158.5	73.5	0.52
TDH8A	208469.1	8125795.2	56.85	163.1	232.2	69.2	0.53
TRC059	208761.2	8125603.8	208.04	12.0	45.0	33.0	0.18
TRC060	208740.4	8125591.1	220.61	11.0	16.0	5.0	0.36
TRC061	208737.6	8125589.9	204.34	13.0	51.0	38.0	0.15
TRC061	208745.5	8125596.0	187.02	51.0	53.0	2.0	0.36
TRC062	208719.8	8125579.0	198.65	19.0	57.0	38.0	0.40
TRC062	208727.7	8125585.4	180.90	57.0	60.0	3.0	0.26
TRC063	208700.7	8125566.3	199.54	19.0	53.0	34.0	0.81
TRC063	208709.1	8125572.2	181.79	53.0	60.0	7.0	0.42
TRC064	208681.2	8125553.7	198.74	13.0	58.0	45.0	0.17
TRC064	208690.6	8125560.8	178.39	58.0	60.0	2.0	1.12
TRC065	208666.0	8125543.4	202.79	15.0	46.0	31.0	0.01
TRC066	208646.0	8125528.6	206.74	15.0	37.0	22.0	0.07



TRC067	208603.8	8125593.3	211.16	12.0	22.2	10.2	0.09
TRC068	208614.6	8125598.3	203.62	14.0	41.1	27.1	0.24
TRC069	208623.3	8125601.7	204.50	12.0	42.2	30.2	0.15
TRC069	208615.6	8125595.6	187.61	42.2	51.0	8.8	0.69
TRC070	208637.2	8125612.6	202.90	17.0	42.0	25.0	0.30
TRC071	208650.2	8125619.7	205.23	17.0	36.6	19.6	0.20
TRC071	208640.7	8125614.7	186.61	36.6	60.0	23.4	0.14
TRC072	208663.1	8125625.1	203.91	19.0	39.7	20.7	0.78
TRC072	208654.0	8125620.3	186.16	39.7	60.0	20.3	0.62
TRC073	208673.7	8125631.0	204.19	18.0	40.9	22.9	0.82
TRC073	208664.9	8125625.3	186.01	40.9	60.0	19.1	0.58
TRC074	208684.0	8125636.1	205.40	19.0	37.9	18.9	0.49
TRC074	208676.0	8125629.6	187.65	37.9	60.0	22.1	0.82
TRC075	208697.3	8125634.4	205.96	20.0	39.3	19.3	0.32
TRC075	208688.7	8125629.2	188.64	39.3	60.0	20.7	0.58
TRC076	208711.2	8125640.7	206.96	17.0	40.8	23.8	0.34
TRC076	208702.4	8125634.6	188.34	40.8	60.0	19.2	0.32
TRC077	208692.5	8125718.1	218.81	10.0	14.4	4.4	0.09
TRC078	208676.0	8125722.6	208.80	12.0	35.0	23.0	0.65
TRC079	208666.0	8125703.9	206.76	11.0	37.0	26.0	0.39
TRC079	208674.2	8125713.0	185.54	37.0	60.0	23.0	0.08
TRC080	208651.5	8125688.9	213.71	13.0	18.0	5.0	0.60
TRC081	208646.6	8125677.5	206.43	14.0	33.7	19.7	0.60
TRC081	208652.0	8125687.7	186.51	33.7	60.0	26.4	0.17
TRC082	208639.8	8125664.4	205.00	14.0	37.2	23.2	0.83
TRC082	208645.0	8125674.6	185.08	37.2	60.0	22.8	1.10
TRC083	208621.4	8125646.3	205.90	11.0	37.5	26.5	0.18
TRC083	208627.9	8125656.7	184.68	37.5	60.0	22.5	0.40
TRC084	208612.3	8125634.1	205.97	11.0	36.8	25.8	0.13
TRC084	208618.8	8125644.5	184.76	36.8	60.0	23.2	0.27
TRC085	208602.8	8125621.9	202.89	12.0	39.6	27.6	0.15
TRC085	208609.2	8125632.1	182.11	39.6	60.0	20.4	0.27
TRC086	208593.8	8125610.5	200.25	22.0	37.0	15.0	0.09
TRC086	208598.9	8125618.6	183.80	37.0	60.0	23.0	0.10
TRC088	208439.5	8125802.2	217.12	0.0	38.8	38.8	0.33
TRC088	208451.8	8125812.5	194.19	38.8	56.0	17.2	0.21
TRC089	208447.1	8125811.2	223.41	0.0	23.0	23.0	0.02
TRC090	208400.4	8125829.8	202.54	36.0	38.8	2.8	0.09
TRC090	208405.7	8125834.2	192.71	38.8	60.0	21.2	0.11
TRC091	208431.4	8125791.8	201.42	34.0	40.6	6.6	0.39
TRC091	208437.1	8125796.5	190.77	40.6	60.0	19.4	0.24
TRC092	208481.8	8125699.3	210.09	1.0	38.8	37.8	0.11
TRC092	208494.7	8125710.2	185.93	38.8	60.0	21.2	0.78
TRC093	208481.8	8125699.3	210.10	1.0	38.8	37.8	1.06
TRC093	208492.3	8125708.2	190.44	38.8	49.0	10.2	0.74
TRC096	208466.6	8125752.2	214.66	0.0	39.0	39.0	0.18



TRC098	208653.9	8125643.2	205.20	15.6	36.3	20.7	0.65
TRC098	208669.1	8125653.3	177.40	36.3	87.7	51.4	0.62
TRC098	208684.8	8125663.1	204.58	87.7	102.0	14.3	0.14
TRC099	208683.2	8125571.8	199.59	17.1	54.5	37.5	0.24
TRC099	208717.3	8125585.4	144.84	54.5	149.0	94.5	0.45
TRC100	208753.8	8125480.4	214.56	11.7	32.7	21.1	0.47
TRC101	208824.6	8125473.0	214.55	2.0	40.7	38.7	0.21
TRC101	208813.4	8125463.4	193.58	40.7	53.3	12.6	0.17
TRC11	208759.7	8125483.6	207.49	10.3	43.8	33.5	0.59
TRC12	208787.3	8125501.0	216.89	13.5	28.0	14.5	0.25
TRC13	208780.5	8125490.7	209.67	17.1	52.0	34.9	0.59
TRC14	208796.5	8125505.6	212.84	7.0	52.0	45.0	0.17
TRC15	208715.2	8125510.2	205.33	6.0	52.0	46.0	0.31
TRC16	208717.7	8125513.5	208.05	15.9	49.0	33.1	0.56
TRC17	208732.0	8125527.4	208.58	18.9	52.0	33.1	0.81
TRC18	208681.3	8125564.3	209.08	19.2	40.0	20.8	0.65
TRC19	208677.7	8125554.1	209.40	21.8	40.0	18.2	0.52
TRC20	208658.3	8125562.4	206.55	15.6	40.0	24.4	0.65
TRC21	208721.1	8125582.9	206.97	17.8	40.0	22.2	0.17
TRC22	208715.8	8125512.3	208.28	16.9	51.0	34.1	0.63
TRC23	208772.6	8125600.0	225.00	0.0	23.6	23.6	0.27
TRC24	208783.9	8125609.0	228.80	0.0	10.0	10.0	0.36
TRC25	208654.5	8125594.6	204.87	14.9	50.8	36.0	0.35
TRC25	208667.3	8125603.0	189.62	50.8	58.0	7.2	0.80
TRC26	208674.4	8125641.6	205.67	23.1	46.4	23.2	1.06
TRC26	208664.0	8125634.9	193.35	46.4	58.0	11.6	1.40
TRC27	208639.8	8125645.5	204.76	18.5	46.3	27.8	1.75
TRC27	208629.9	8125639.1	192.92	46.3	52.0	5.7	0.14
TRC28	208647.6	8125650.6	204.12	15.0	39.4	24.4	2.19
TRC28	208641.1	8125646.4	190.69	39.4	46.0	6.6	2.06
TRC3	208834.8	8125416.7	210.64	7.8	34.0	26.2	0.08
TRC30	208494.8	8125786.8	226.75	0.0	9.9	9.9	0.06
TRC31	208492.7	8125781.3	218.58	0.0	34.0	34.0	0.29
TRC32	208481.7	8125770.2	215.97	0.0	42.7	42.7	0.41
TRC32	208495.3	8125779.1	199.71	42.7	46.0	3.3	0.08
TRC33	208461.9	8125762.7	216.67	0.0	40.0	40.0	0.21
TRC35	208430.0	8125856.1	218.86	0.0	37.0	37.0	0.23
TRC4	208833.4	8125410.4	219.23	10.5	18.4	7.8	0.10
TRC47	208620.9	8125691.2	207.83	9.7	40.0	30.3	0.87
TRC48	208617.8	8125688.4	211.89	9.7	28.0	18.3	1.40
TRC49	208672.4	8125668.6	207.92	16.4	42.8	26.4	0.40
TRC49	208661.9	8125661.7	195.33	42.8	52.0	9.2	0.48
TRC5	208850.8	8125425.0	223.79	8.0	12.8	4.8	0.33
TRC5	208839.8	8125417.8	210.67	12.9	45.0	32.1	0.27
TRC50	208622.0	8125722.1	209.69	0.0	37.0	37.0	0.40
TRC51	208589.5	8125714.8	210.50	0.0	35.4	35.4	0.67





TRC51	208601.4	8125722.5	196.36	35.4	40.0	4.6	0.42
TRC52	208576.4	8125709.6	201.77	24.0	31.2	7.2	0.39
TRC52	208581.1	8125712.7	196.11	31.2	40.0	8.8	0.31
TRC53	208600.2	8125680.5	208.92	5.4	39.0	33.6	0.80
TRC54	208624.0	8125637.4	207.65	13.9	40.0	26.1	0.40
TRC55	208787.4	8125439.0	211.61	24.8	27.0	2.2	0.01
TRC55	208791.9	8125441.9	206.24	27.0	40.0	13.0	0.32
TRC56	208804.6	8125451.3	213.28	15.3	40.0	24.7	0.93
TRC58	208517.8	8125733.4	219.88	0.0	23.0	23.0	0.22
TRC8	208757.3	8125478.6	208.94	9.1	46.0	36.9	0.30
TRC9	208753.2	8125478.4	198.30	39.0	46.0	7.0	0.32
TRDH11	208590.0	8125715.0	210.47	0.0	23.6	23.6	0.54
TRDH11	208590.0	8125715.0	96.17	23.6	228.6	205.0	0.27
TRDH13	208696.7	8125695.4	208.80	10.2	39.5	29.2	0.07
TRDH13	208647.2	8125697.1	111.53	39.5	228.6	189.1	0.25
TRDH14	208737.0	8125566.8	201.71	14.0	56.1	42.0	0.26
TRDH14	208705.3	8125555.9	135.99	56.1	161.5	105.5	0.47
TRDH7	208679.0	8125608.0	202.47	16.7	38.7	22.0	0.17
TRDH7	208679.0	8125608.0	134.70	38.7	152.3	113.6	0.15



## **JORC Code, 2012 Edition**

Section 1 San	npling Techniques and Data
Criteria	Commentary
Sampling techniques	<ul> <li>RC – riffle splits Majestic</li> <li>Diamond – ¼ core cut – Outokumpu. ¼ to ½ core CEC – diamond core was used in the total Majestic MRE but only for zonal trends in the Transitional model.</li> <li>Rock chip – channel – Majestic</li> <li>R3D 2022 Program – RC splits</li> </ul>
Drilling techniques	<ul> <li>5.5in RC and Diamond Core</li> <li>R3D 2022 Program – RC utilizing truck mounted Drill Rig and Compressor</li> </ul>
Drill sample recovery	<ul> <li>Exceeds 98% through Transitional zone.</li> <li>86% RC total excluding 0-2 m when establishing a 2m casing in every hole.</li> <li>All samples were 3-5 kg.</li> <li>R3D 2022 Program – RC recoveries exceed 95% in bedrock, except where cavities from undocumented underground workings, whilst more variable in overlying fill material from 60=95%</li> </ul>
Logging	<ul> <li>Detailed logging</li> <li>The geology of all previous holes was standardized to the Majestic methodology which also matched the detailed geological mapping.</li> <li>R3D 2022 Program – logging has been completed for normal drill control</li> </ul>
Sub-sampling techniques and sample preparation	<ul> <li>Analabs Townsville:</li> <li>Dry, Fine Pulverise – GP032</li> <li>Cu by GA145 – Mixed Acid Ore Grade AAS.</li> <li>Co, As, Ag by Ga140 - where applicable</li> <li>Au by GG308 – 30g Fire assay fusion AAS finish.</li> <li>Specific Gravity – OM 605 Air Pycnometer</li> <li>R3D 2022 Program - All chips have been washed and cleaned of drill mud and polymers prior to logging, photographing and storing.</li> </ul>
Quality of assay data and laboratory tests	<ul> <li>Analabs Townsville – standard methods for copper ore grade assay</li> <li>Metallurgical samples – Cu by ICP587</li> <li>R3D 2022 Program – RC samples were dispatched to SGS Laboratories in Townsville and tested for copper, silver, and gold when silver assayed &gt; 10ppm.</li> <li>Contract with laboratory in place to complete ore grade base metal assays.</li> </ul>
Verification of sampling and assaying	<ul> <li>Internal duplicate samples (98%+ correlation)</li> <li>Check sampling during metallurgical testing. Composite metallurgical feed grade sampling matches 95% RC assaying</li> <li>R3D 2022 Program – No repeat assays or laboratory assays undertaken to date.</li> <li>R3D currently has external base metal standards on site. These were inserted at a rate of each 20<sup>th</sup> sample (5%) in the RC sampling. Repeat and other QAQC steps will be based on assay results.</li> </ul>
Location of data points	<ul> <li>Fully surveyed theodolite which was tied into mining and topographic features.</li> <li>Later differential GPS controls completed on some of the Solomon Copper infill drilling.</li> <li>R3D 2022 Program – Handheld GPS reading 10+ satellites with a nominal accuracy of 5m was used for initial location of collar. R3D has completed a drone LIDAR over the whole of the four mining leases. This will enable to improve accuracy of the collar location down to DGPS quality. A Public Survey Mark (PSM) is located between Tartana and King Vol for survey control.</li> </ul>
Data spacing and distribution	<ul> <li>50m lines 12.5 – 25m along lines.</li> <li>R3D 2022 Program – Sampling was completed at 1m intervals for the RC chips</li> </ul>



Criteria	Commentary
Orientation of data in relation to geological structure	<ul> <li>Right angles to prevailing geological strike</li> <li>Holes drilled angled 45-65. Average 60% true width</li> <li>R3D 2022 Program – The drilling was designed to test the steeply dipping copper zones at right angles to the surface strike.</li> </ul>
Sample security	<ul> <li>Onsite supervision at all times</li> <li>Delivered to laboratory designated secure transport.</li> <li>R3D 2022 Program – Security is in place at the mine site and a reliable transport agent has been engaged to transport the samples to the laboratory in Townsville.</li> </ul>
Audits or reviews	<ul> <li>Multiple audits conducted by Majestic staff as well as Solomon Copper both before and after commencement of mining.</li> <li>Tartana completed traverses across the Transitional exposures in the northern and central portions of the Tartana Flats pit.</li> <li>R3D 2022 Program – Auditing of previous drilling and surface geology and geochemistry is currently underway to validate such that R3D further elevate the Tartana sulphide mineralisation and oxide and Transitional JORC resources.</li> </ul>

# **Section 2 Reporting of Exploration Results**

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

Criteria	Commentary
Mineral tenement and land tenure status	<ul> <li>Four granted Mining Leases at Tartana - ML4819, 4820, 5312, and 20489.</li> </ul>
Exploration done by other parties – drilling only	<ul> <li>CEC – diamond drilling results used in the deeper majestic primary resource calculations</li> <li>Outukumpu – Deep diamond drilling Tartana Flats and partly Tartana Hill</li> <li>Dominion – limited to Queen Grade zinc – not in the Majestic Resource Statement</li> <li>Adam – Drilling at Queen Grade only</li> <li>Aztec – resampling and relogging at Queen Grade only</li> <li>Solomon Copper – RC and diamond completed on Tartana Hill. Postdate Majestic drilling. Shallow RC results match the majestic shallow RC results – however survey control and check assays were not completed.</li> </ul>
Geology	<ul> <li>Porphyry copper intruded into structurally deformed sediment.</li> <li>Within the Tartana Hill resource area – structural complexity was low.</li> <li>Mineralising intrusive currently exposed in the southern pit area.</li> <li>Weathered oxide copper – red ochre, limited malachite and azurite</li> </ul>



Drill hole Information	<ul> <li>5.5in RC completed by Majestic and Solomon Copper.</li> <li>All samples were collected ex cyclone and riffle split on site.</li> <li>Later metallurgical samples were resplit before larger samples were collected for check assay and test work.</li> <li>Majestic RC drilling completed by Drill Torque, Townsville in one campaign with no issues.</li> <li>NQ4 completed by Outokumpu</li> <li>BQ to NQ by CEC.</li> <li>Downhole surveys only completed by Outokumpu that demonstrated a consistent lift down hole. Corrections were applied to all CEC diamond hole traces but not to the Majestic RC holes due to their shallow depths. Application of the lift correction fixed major issues in the older non JORC CEC Ore Reserves and brought all Tartana Hill intersections into the one zone.</li> </ul>

Criteria	Commentary		
	R3D 2022 Program – RC drilling by AED contractors		
Data aggregation methods	<ul> <li>Completed on a range of cut off grades.</li> <li>Minimum intersection taken as four metres.</li> <li>Intersections in the collar of each hole were individually evaluated to exclude soil, dump and scree contamination or pad fill.</li> <li>R3D 2022 Program – Drill intervals were determined for zones averaging &gt;5,000 ppm copper</li> </ul>		
Relationship between mineralisation widths and intercept lengths	<ul> <li>Average 60% of true width.</li> <li>R3D 2022 Program – R3D sampled all mineralized zones (as defined by as a minimum of 1% total sulphide and/or shearing). Non mineralised sections (as defined by the geological chip inspection) will be completed only where they abut mineralized zones.</li> </ul>		
Diagrams	<ul> <li>Full maps, plans, cross sections</li> <li>R3D 2022 Program – see main body of report</li> </ul>		
Balanced reporting	<ul> <li>Yes. Multiple reports by multiple companies and independent geologists.</li> </ul>		
Other substantive exploration data	<ul> <li>Past mine data.</li> <li>All above companies completed additional exploration and development including geological mapping, geochemistry, surveying, geophysics and shallow to deep open hole percussion drilling. This drilling is excluded from any calculations due to poor recoveries.</li> <li>Tartana Hill and Tartana Flats mineralisation 9estensions to the north of the Hills open cut) are also well defined by detailed IP geophysics.</li> <li>Clutha also completed early drill and exploration – drill collars were not able to be located so has been excluded from the database.</li> </ul>		
Further work	<ul> <li>R3D 2022 Program – Incorporate this RC drill assay data into upgraded resource estimates at Tartana pit.</li> </ul>		



# **Section 3 Estimation and Reporting of Mineral Resources**

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)				
Criteria	Commentary			
Database integrity	<ul> <li>CEC old data – contained in open file reports registered with the Queensland Government. Converted to a standardized format by Outokumpu and retained in excel spreadsheets.</li> <li>All Majestic data was manually logged onto paper and then transferred to excel spreadsheets.</li> <li>All Majestic paper records are still in existence and held by the author.</li> <li>Majestic laboratory assays were supplied digitally as well as paper records.</li> <li>Later Solomon Copper data has been recorded on both paper files and excel spreadsheets.</li> <li>All Majestic RC and Solomon Copper diamond is fully photographed. Outokumpu diamond core was photographed but only select photographs of specific structural features have been retained.</li> <li>R3D 2022 Program – RC drilling data and assays compiled by R3D Resources</li> <li>R3D Resources have compiled all existing spreadsheets into a Vulcan database for modelling and for verification</li> </ul>			



Criteria	Commentary						
Site visits	<ul> <li>TS involved in the various programs such as Outokumpu, Aztec, Majestic and R3D campaigns as well as the early Solomon Copper development to bring the mine into production have been to site</li> </ul>						
Geological interpretation	<ul> <li>Sheeted vein and structural deformation along bedding planes with oblique structures outside of the resource area.</li> <li>Validated by mining.</li> <li>R3D has also completed structural mapping of the exposures on the open cut walls – but this is east of the resource area.</li> <li>The CPs also traversed the pit floor in the Transitional zone and noted significant copper mineralisation. As part of the current site environmental management the surface was ripped and also limed. Surfically malachite is now widespread but shallow in the exposed section of the Transitional zone.</li> </ul>						
Dimensions	• 620m	ו by 19	0m by 130m	indica	ated and infer	red mineral res	ource
Estimation and modelling techniques	and F	Fresh fro	om geology l	logs fr	om 2022 drilli	g Oxide, Transit ng programme	
	• The s		erame lile of	the si	Drill hole	was created in Resource	vuican
	Hole Type	Dri	II hole Series	S	Number	Metres	
	ŔĊ		NARC		11	478	
	RC		TRC		78	2652	
	DD		TDH		7	762	
	DD		TRDH		4	730	
	Total	Total			100	4622	
	block	k size o		Ξ×5r		for the MRE w m vertical with Z	
	Origin		209000	81	25300	400	
	Offset		-800		00	-600	
	Offset		-100	10	0	0	
	Block Size (sub- blocks)		5 (1)	5	(1)	5 (1)	
	Variabl Cu Min_Do Avg_di zone	omain	Descriptio unCut Gra Mineralisa Average o Insitu, mir	ade - i ation c distan	lomain ce to samples		



Numsam	Number of Samples used for Block grade interpolation
BD	Bulk Density

Criteria	Comr	nentary		
	Mineo	d Mined o	or Insitu	
	OX	oxidatio	n	
	sea Trai • A fir info incr incr min bloc tabl • - ~4 2nd • No Tari • A br	rch was used to es nsitional and fresh rst pass long axis r rming samples of eased to 90 m for eased search radii imum number of s cks within the extre es below) 10% of the resource 1 pass and the rem high-grade copper tana deposits	adius of 45 m with a 10 was used. The m the second pass. A us of 1,032 m and a amples from 8 to 2 v emities of the resource e volume filled in the	domains for Oxide, minimum number of ajor axis radius was third pass with an decrease in the vas required to fill ce wireframes (see 1st pass, ~30% in the ss for Tartana Creek o Tartana Creek or
			n parameters below	
	Pass	Min Sample	Max Sample	Distance (m)
	1	8	40	45
	2	8	40 40	90 1032
				etisation
	Domain 700 600 900 800	Plun           Strike           138           141           -0.0           151           -3.0	Dip 1 -32 3x:3 3 88 3x:3 0 69 3x:3	3y:3z 3y:3z 3y:3z 3y:3z 3y:3z
	hon out - and - with - esti • The diffe acc • A vi vers	oured the drilling of a validation of the Comparison of vo the associated Blu A comparison of Block Model grad Visual sectional of mated block grade e volumes were aln erence is less than eptable result. isual section comp sus estimated bloc	estimate using the folumes defined by the ock Model the composited sam le statistics for the si comparison of drill hores. nost identical. The or 1%. BMS considere	eframes, BMS carried ollowing procedures: e domain wireframes ple grade statistics ngle domain ole grades versus verall volume ed this to be an en of drill hole grades
Moisture	<ul> <li>Not appli</li> </ul>		zone sits in the wet ery issues were note	



Cut-off parameters	<ul> <li>Transitional zone. All Majestic holes that contributed to the Tartana Hills MRE where evaluated on:</li> </ul>		
	<ul> <li>Upper cut off - location in the weathering X water table taken as 5-10% oxidation.</li> </ul>		
	<ul> <li>Lower cut off – based on presence of relatively untarnished sulphide species (pyrite and chalcopyrite). Or below grade.</li> </ul>		

Criteria	Commentary
Mining factors or	<ul> <li>Within the horizon the presence of red ochre, Transitional copper minerals such as chalcocite, heavily tarnished primary sulphides or unexplained copper grades. Tartana is a low carbonate deposit and traditional copper oxide minerals such as azurite and malachite are rare.</li> <li>In all, 14 Majestic RC were included in the modelling.</li> <li>No minimum thickness was applied to the Transitional horizon as the upper surface is exposed in the pit.</li> <li>The same 3 X 3 m block was used in the X and y axis on 50m cross section spacing.</li> <li>Anisotropic IDP with an inverse power of 2. A search ellipse with a major axis of 40m and minor axis skewed 85 deg (Exact Majestic specifications)</li> <li>Tartana completed the same exercise using the identical specifications.</li> <li>Tartana also completed an additional exercise but adding in six Solomon Copper RC holes. This exercise gave a tonnes and grade figure within five percent of the previous model but was used as the final figure as it gave a more robust verification as the additional holes were infill between previous 50m line spacing.</li> <li>Already partly mined. Solomon Copper mined additional ore to the NE</li> </ul>
assumptions	of the Majestic MRE that did not have sufficient drill density at the time. Mine blocks were selected by a combination of pXRF sampling of exposed faces (wall and floor) plus blast hole assaying (pXRF plus laboratory assaying
Metallurgical factors or assumptions	<ul> <li>Fully tested in several methods.</li> <li>Majestic completed extensive sampling using the RC product testing all three zones. Results indicated excellent recoveries from the oxide and Transitional zones with low acid consumption.</li> <li>Solomon Copper mined only oxide ore due to their treatment methodology in relation to the production of copper sulphate pentahydrate.</li> <li>Tartana Resources have reviewed the Majestic testwork and have developed an upgraded copper sulphate pentahydrate circuit that utilizes both oxide and Transitional ore.</li> </ul>
Environmental factors or assumptions	<ul> <li>Fully operational mine with granted Environmental Authority</li> </ul>
Bulk density	<ul> <li>Measured and tested (picometer). Very little variance so a density of 2.63 was used for all Majestic calculations – 2.63 was again used by R3D.</li> <li>Mined</li> </ul>



Classification	<ul> <li>Inferred Resource.</li> <li>Given the Transitional horizon is exposed in the northern pit floor, has no strip ratio and has proven metallurgy; a resource/reserve upgrade only required shallow drill testing.</li> <li>2022 Program – Indicated and inferred resource</li> <li>Mineral Resource Estimates have been classified as Inferred according to JORC Code 2012 guidelines based on the drilling density, grade continuity and level of geological understanding</li> <li>Grade-tonnage curves representing all blocks in the model for copper are shown above</li> </ul>
Audits or reviews	Multiple audits whilst in production
Discussion of relative accuracy/ confidence	<ul> <li>Drill density sufficient for inferred.</li> <li>Sampling of 2 adits as well as costeans did increase the confidence factors in the original resource estimate.</li> <li>Confidence is also enhanced due to exposure of the resource in the</li> </ul>

Criteria	Commentary
	<ul> <li>northern portion of the Tartana Hill open cut.</li> <li>The Tartana deposit has been tested with high-quality drilling, sampling and assaying. Drilling and logging have defined a mineralised envelope to provide an accurate volume. The relative accuracy of the MRE is reflected in the reporting of the Mineral Resource. The Mineral Resource has been classified as an Inferred Mineral Resource as per the JORC Code (2012) guidelines</li> <li>These MREs are global in nature until relevant tonnages and relevant technical and economic evaluations are required and have been undertaken</li> </ul>

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