



28 July 2017

## EXPLORATION UPDATE

**Hammer Metals Limited** (Hammer or the Company) (ASX: **HMX**) wishes to provide an update on current exploration activities over its Mount Isa Project in Northwest Queensland.

- RC drilling program has commenced at the Kalman West and Revenue copper-gold prospects.
- Follow-up of VTEM anomalies identifies 12 potential drilling targets; highlighting a zone of elevated gold soil and rock chip geochemistry along a 1.2km strike length of the Pilgrim Fault in the Serendipity area.
- The Dronfield RC and diamond drilling program to test the western and eastern geophysical anomalies was completed and final assays received. Strong magnetite veining and alteration with sporadic low-grade copper mineralisation intersected in each hole coincident with the geophysical anomalies.

### Planned RC Drilling Program

RC drilling has commenced at the Kalman West Cu-Au-Pb-Zn(-graphite) Prospect and the Revenue Cu-Au Prospect southeast of Mount Isa.

Revenue is located 30km southwest of Kalman in a similar geological and structural position as Overlander 28 km to the north. Up to three holes are planned to test a zone of Cu-Au mineralisation.

Kalman West is located approximately 1km west of the Kalman Cu-Au-Mo-Re Deposit. Geochemical sampling has outlined a multi-element soil anomaly partially coincident with a zone of graphitic schist and a high priority VTEM target. Up to five holes are planned at the prospect to test a combined soil anomaly which has peak values of 210ppb Au, 900ppm Cu, 1100ppm Zn and 2000ppm Pb.

Initial assay results are expected to be received in mid to late August.

The planned RC drilling at Hammertime has been deferred whilst an assessment of the broader Mount Philp breccia project which encompasses Hammertime is conducted.

### Pilgrim Fault VTEM Survey – Target Review

An airborne VTEM Max (Versatile Time Domain EM) and magnetic survey over a 23km strike length of the Pilgrim Fault corridor extending from China Wall in the north to Python in the south was completed by Geotech International in late 2016.

Field investigation of the anomalies interpreted by Southern Geoscience is now complete with several of the target areas considered sufficiently prospective to warrant either drilling or further definition and assessment.

During field inspection, observations were recorded at 994 sites and 158 rock chip samples were collected. Copper mineralisation or iron oxide gossan was observed in thirteen areas.



The VTEM anomalies typically, but not always, occupy zones of carbonaceous siltstone, mica schist or graphitic schist. These zones have recessive topography and recent cover that complicates surface geochemical assessment. Further sampling and partial leach assay is recommended for selected covered areas.

Contacts between these recessive, conductive units and adjacent competent units such as calc-silicates or igneous rocks attract north-south shearing and alteration. Copper +/- gold mineralisation frequently occurs along these contacts, offset from the VTEM anomalies by up to 200m. Sometimes a causal relationship between the VTEM targets and the alteration and mineralisation is not readily apparent.

Twelve areas are currently considered potential drill targets. Additional targets are prospective but require further sampling and assessment due to subtle anomalism or alluvial / colluvial cover. Most of these targets could be tested with angled RC drillholes of between 100m and 250m depth.

Anomalies of particular interest include:

#### **China Wall**

At **PF2**, 8km north of Kalman, discordant shears dilate the copper mineralised contact between carbonaceous metasediments and calc-silicates. A 400m long sheared outcropping alteration zone has drill potential, with scope for strike-extensions under cover. The area exhibits sporadic soil copper and gold anomalism, and reconnaissance rock chips samples returned up to 3.2% Cu, 0.47g/t Au, 3.3ppm Ag, 1320ppm Ce, 730ppm La and 9ppm Sn.

**PF1**, A gabbro body 400m northwest, has a coherent soil copper anomaly and contains scattered hematite and malachite alteration. Rock chip sampling returned up to 15% Cu and 0.88g/t Au. The area is under consideration as a drill target.

**PF12** is situated on a folded carbonaceous metasediment / calc-silicate contact. A discordant soil Cu, Au anomaly 100m west near a granite contact coincides with rock chip assays up to 12% Cu and 0.33g/t Au and 4.4ppm Ag. The area is slated for further field assessment and extension sampling with a view to drill testing.

#### **Pharaoh East**

**PF24** is situated on a bend in the Kalman Shear, 3km north of Kalman. Historic copper workings are accompanied by anomalous Cu and Au in soils and rock chips with up to 5.2% Cu and 0.51g/t Au. The area hosts strong redrock and magnetite alteration. The old workings are a drill target and 500m of strike to the south is slated for further assessment.

#### **Pharaoh**

At the Pharaoh prospect two groups of historic copper workings occur along the Kalman West shear zone, 3km north of Kalman. Alteration and copper mineralisation is focused on the intersection of the north-striking Kalman shear with north east striking cross faults. Sporadic soil Cu and Au anomalism coincides with rock chip assays of up to 14% Cu and 2.6g/t Au. Kings Minerals tested the southern group with one drillhole (K-115), returning up to 0.90% Cu and 1.0g/t Au over a one metre interval. The mineralisation is interpreted as occupying steep narrow shoots, which may not have been effectively tested. The richer northern group has not been drill-tested and is under consideration for future drilling.



### **Kalman West**

**PF5** occupies part of a 5km long graphitic schist zone hosting the Kalman West Shear. A broad, dilated schist zone with quartz veining occupies an 800m long sinistral jog in the shear zone, sandwiched between felsic intrusive bodies. This dilation zone appears to be part of a large north east trending zone of cross faulting and dilation that extends through to the Kalman deposit. Copper anomalism along the western schist contact has been partially drill-tested. The schist package has been targeted for future RC drill-testing and metallurgical sampling for Cu, Au, Pb and graphite.

### **Pelican**

**PF20, 21 & 23** occupy a 1.7km long zone of carbonaceous metasediments and calc-silicates with significant folding and displacement adjacent to the regional Pilgrim Fault. Coherent soil and rock chip Cu and Au anomalies also include Mo, Sn and U anomalism indicative of Kalman-style mineralisation. The anomalous areas have been tested with several short historic drill campaigns with mixed results. PN205C drilled by Mount Isa Mines Ltd in 2008 returned a best intercept of 24m @ 1.0% Cu, 0.34g/t Au from 28m, including 10m @ 1.6% Cu, 0.49g/t Au from 30m. Rock chip assay results include 22% Cu and 6.7g/t Au.

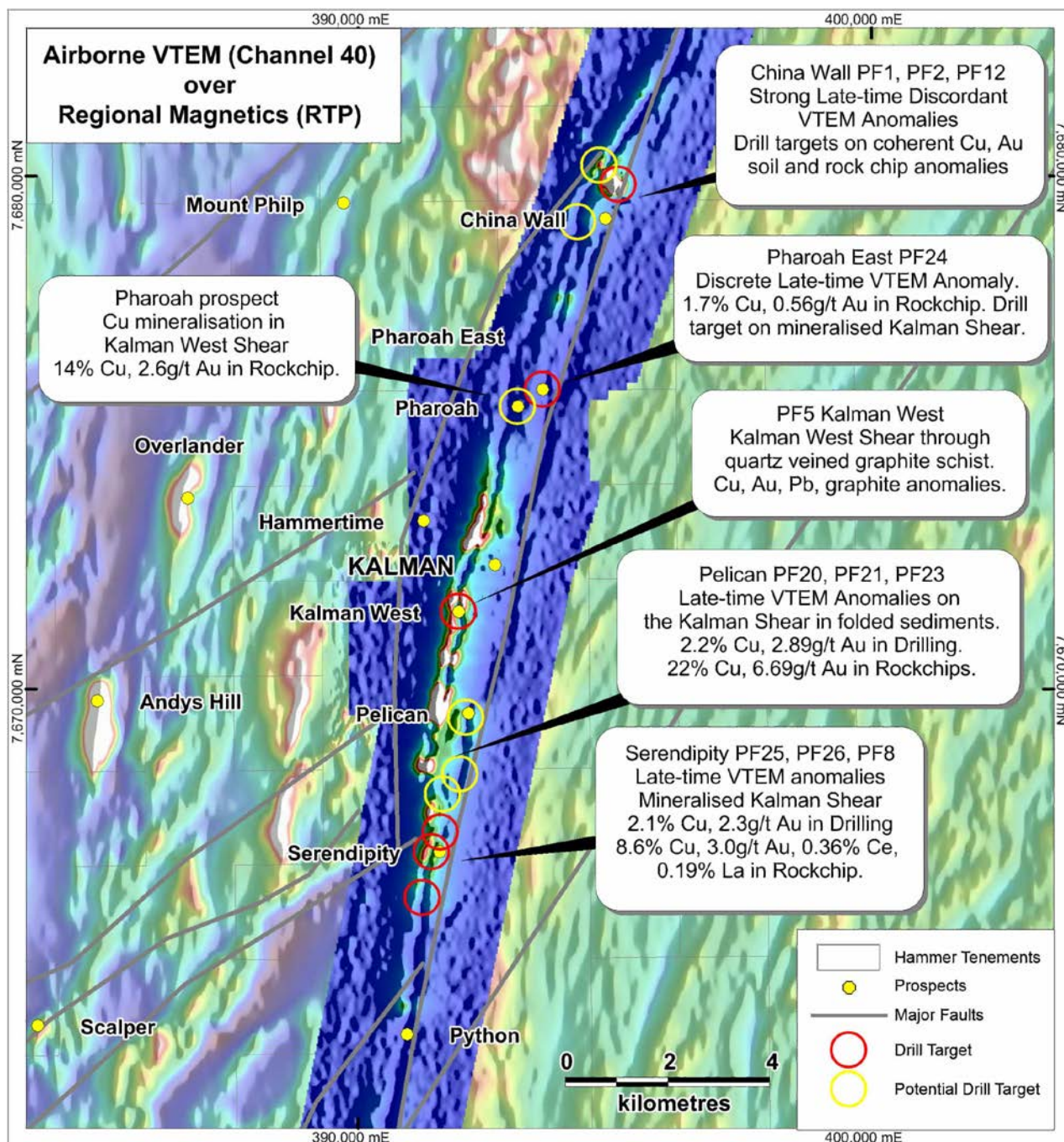
Recent reconnaissance mapping indicates that previous drill planning may not have adequately accounted for the structural complexity. The area is being re-assessed with a view to future drill-testing.

### **Serendipity**

**VTEM targets PF25 & 8** are situated near copper-gold mineralised carbonaceous siltstone along the Pilgrim Fault at the Serendipity prospect. The mineralised zone has been drill-tested on one section. An intercept of 25m @ 0.5g/t Au from 137m in K-90 (including 1m @ 2.3g/t Au), the easternmost hole on the section coincides with the Pilgrim Fault quartz veining.

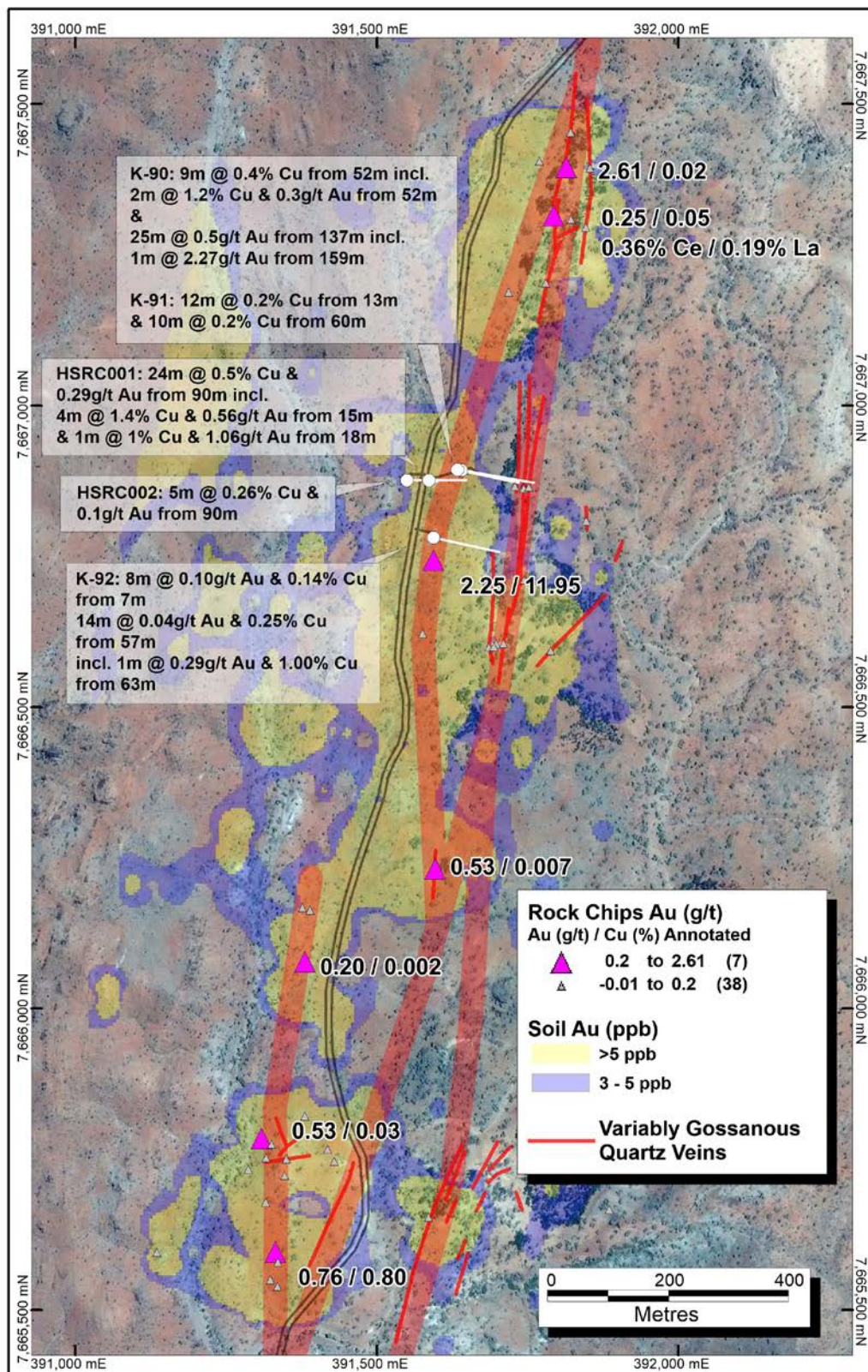
Additional rock chip sampling returned several anomalous results up to 2.6g/t Au along the trend. One of the anomalous areas at the northern end of the trend also returned highly anomalous copper values and the light REE's cerium (up to 3550ppm) and lanthanum (up to 1860 ppm). The gold anomalism in the rock chips and soils extends for 1.2km along the fault.

**PF26** features a copper-mineralised shear along a quartzite / carbonaceous metasediment contact 1.4km south of the Serendipity prospect. The target structure outcrops for 300m and disappears under cover in both directions. Reconnaissance rock chip samples returned assays of up to 2.7% Cu and 0.76g/t Au. The target is under consideration for drill-testing and further assessment of covered extensions is recommended.



Pilgrim Fault survey VTEM channel 40 image overlaid on reduced to pole, total magnetic intensity image and showing major targets





**Serendipity area – VTEM targets PF25, 8 & 26. Soil and rock chip sampling has outlined a 1.2km anomalous gold trend.**



## Dronfield Drilling Program

The three-hole diamond and RC drilling program at the Dronfield copper-gold project southeast of Mount Isa was completed in mid-July. A total of 1010 metres of diamond and 246 m of RC were drilled in the three holes.

The Dronfield targets are located 25km southeast of Kalman on EPM 18084, which is subject to a farm-in agreement with Kabiri Resources Pty Ltd. Hammer has earned an 80% interest in EPM 18084 from Kabiri by spending \$250,000 on exploration. The tenement forms part of the Farm-in and Joint Venture Agreement with Newmont Exploration Pty Ltd. This drilling will be partially subsidised by a \$100,000 Collaborative Drilling Initiative ("CDI") Funding Grant from the Queensland Department of Natural Resources.

The first two (diamond) holes tested the western geophysical anomaly and the third RC hole tested the eastern geophysical anomaly. Both diamond holes, HDD001 (537m) and HDD002 (473m) intersected strongly magnetite-actinolite and red rock altered granodiorite of the Wimberu Granite (part of the Williams Batholith) over large parts of the hole. The alteration is consistent with other IOCG deposits in the region. Sulphide mineralisation where present is dominantly pyrite-chalcopyrite with levels generally ranging between trace to 1% with thin zones (<5m) where the total sulphide content can approach 5% in total. HDRC004, which was drilled into the eastern anomaly, intersected magnetite and red rock altered granodiorite with microgranite lenses.

Significant results from the program are tabulated below.

Hole	E	N	RL	TD	Dip	Az (true)		From	To	m	Au_ppb	Cu_ppm
HD001	402370	7651425	335.1	536.8	-50	314		297	309	12	4	1062
							incl.	297	298	1	27	9260
							&	307	309	2	7	5155
								312	313	1	4	1060
								318	319	1	3	1060
HD002	402408	7651780	327.7	473.3	-55	276.4		32	34	2	184	118
								34	35	1	12	1200
HDRC004	405296	7651174	340.8	246	-55	300		24	29	5	39	2113
							incl.	25	26	1	51	4140
								175	184	9	20	979
							incl.	175	177	2	45	1485
							&	183	184	1	41	3800
								207	215	8	47	1038
							incl.	207	208	1	131	1480
								211	215	4	49	1165
Note (1). All locations have been captured in GDA94 Zone 54 Datum												
Note (2) All samples analysed for gold via fire assay with AAS finish and a four acid digest followed by low level ICP AES and MS analysis												

**Table 1: Significant intercepts from the Dronfield drilling program**



**Hammer Metals Limited** (ASX: HMX) Hammer Metals holds a strategic tenement position covering approximately 3,200km<sup>2</sup> within the Mount Isa mining district, with 100% interests in the Kalman (Cu-Au-Mo-Re) deposit, the Overlander North and Overlander South (Cu-Co) deposits, the Millennium (Cu-Co-Au) deposit as well as the recently acquired Elaine-Dorothy (Cu-Au) deposit. Hammer is an active mineral explorer, focused on discovering large copper-gold deposits of the Ernest Henry style and has a range of prospective targets at various stages of testing.

For further information, please contact:

Alex Hewlett | Executive Director & CEO  
[info@hammermetals.com.au](mailto:info@hammermetals.com.au)

Russell Davis | Executive Chairman  
M: +61 (0) 419195087

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

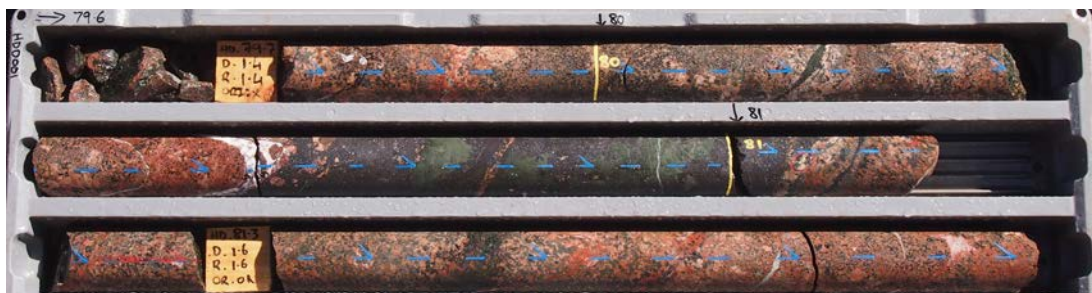
#### **Exploration Results**

The information in this report as it relates to exploration results and geology was compiled by Mr. Mark Whittle, who is a Member of the AusIMM and a consultant to the Company. Mr. Whittle who is a shareholder and option-holder, has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr. Whittle consents to the inclusion in the report of the matters based on the information in the form and context in which it appears.

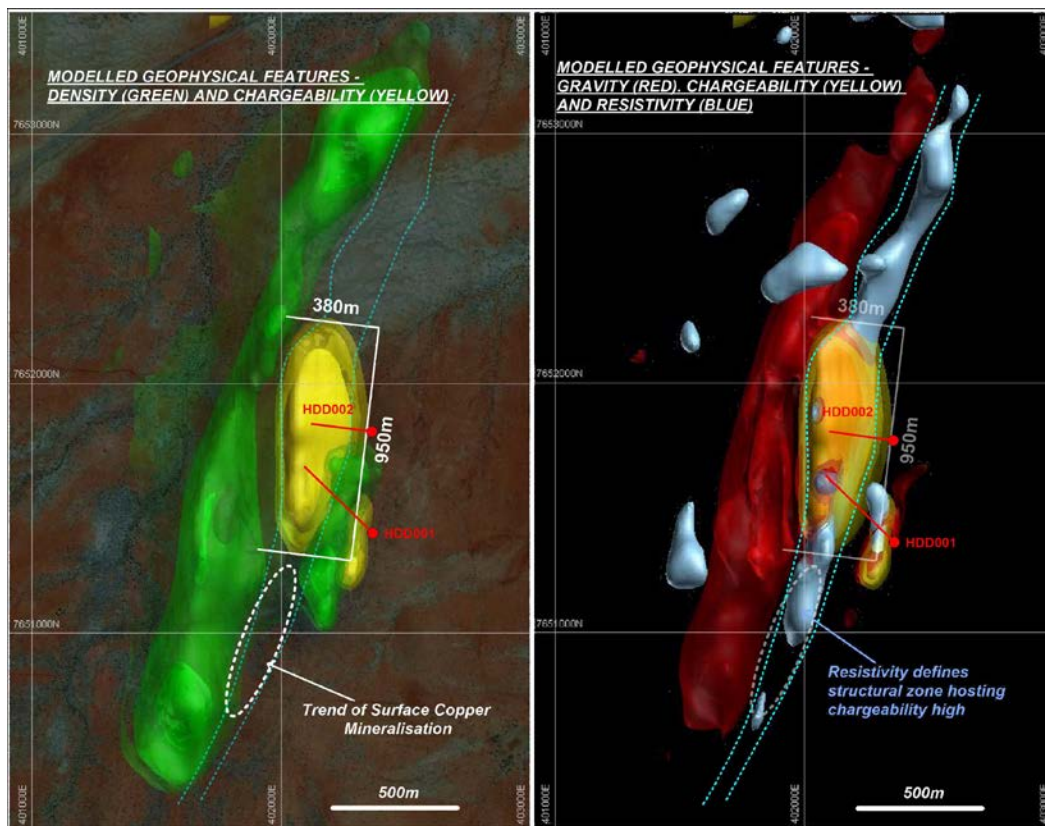




Drill Rig on HDD001

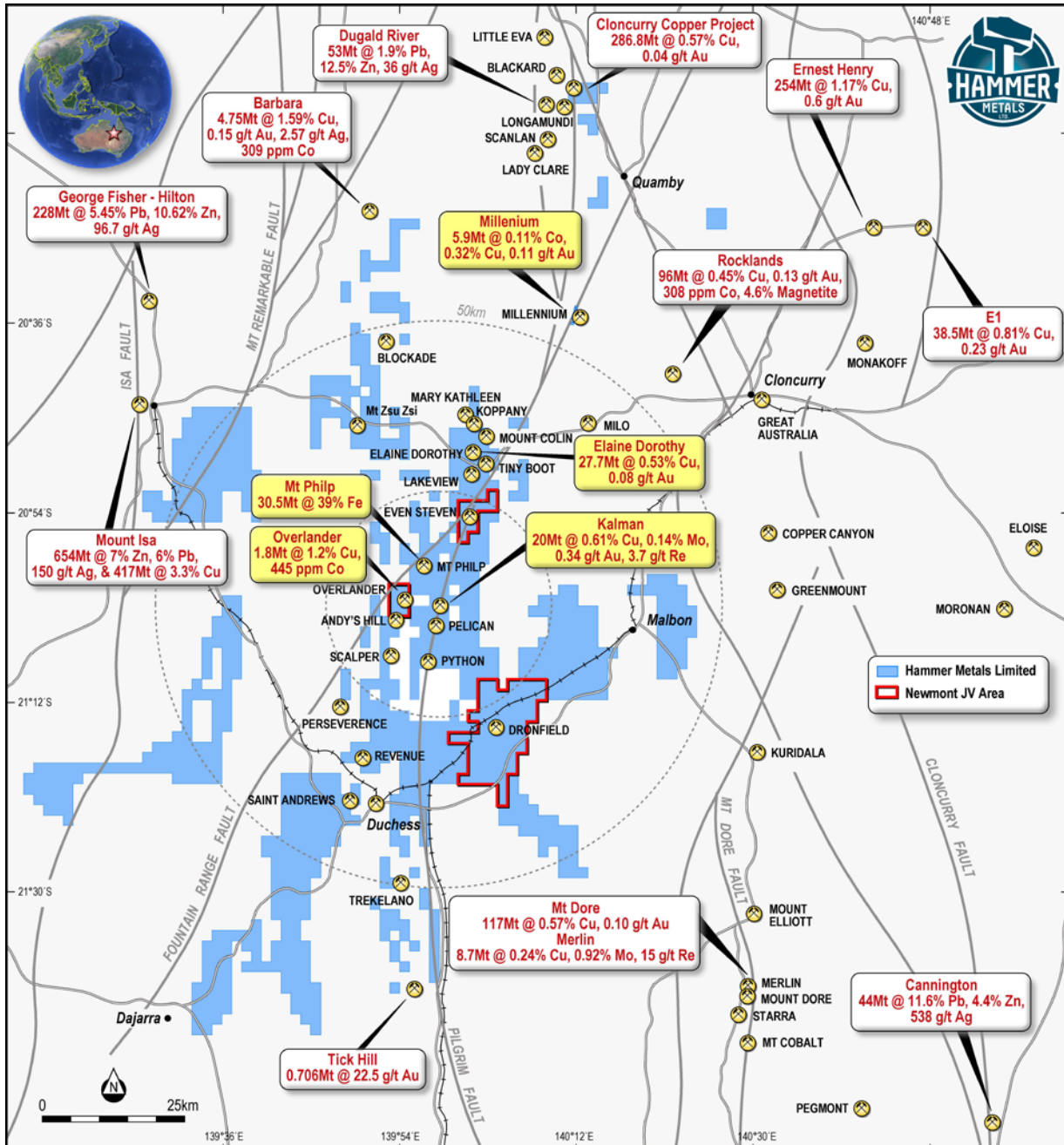


Semi-massive magnetite-actinolite-chlorite-hematite alteration is a common component of the Dronfield western anomaly system (HDD001, 81m)



Modelled geophysical features of the Dronfield Western Anomaly with the locations of HDD001 and HDD002. The chargeability response shown in yellow (ranges between 35mv/v to +65mv/v)





### Mount Isa Project



### Rock Chip results from the Serendipity area

Sample	E	N	RL	Au g/t	Cu %	Ag ppm	Ce ppm	La ppm	Co ppm	K %	Mo ppm	Sn ppm	U ppm
PF0848	391793	7667315	443	0.25	0.05	0.56	3550	1860	2.1	0.17	3.12	0.5	44.6
PF0849	391822	7667309	442	-0.01	0.02	0.29	57.9	34.3	6.5	0.16	3.3	0.5	3.1
PF0850	391846	7667296	440	-0.01	0.00	0.03	14.6	7.4	2.1	0.1	1.64	0.5	3
PF0855	391853	7667394	433	-0.01	0.04	0.07	26.8	18	30.2	0.02	7.32	0.9	18.7
PF0857	391821	7667453	423	-0.01	0.01	0.04	32	19	10.6	0.14	4.05	0.5	4.8
PF0865	391335	7665539	379	0.08	2.65	2.41	54.4	23.1	29.8	5.32	29	2.4	20.9
PF0866	391323	7665550	386	0.08	2.65	2.41	54.4	23.1	29.8	5.32	29	2.4	20.9
PF0873	391332	7665596	391	0.76	0.80	0.81	37.8	17.5	12.8	1.52	9.72	1.2	9.3
PF0883	391135	7665596	390	-0.01	0.00	0.03	63	28.7	11.9	0.22	1.57	3	4.2
PF0891	391287	7665734	392	-0.01	0.17	1.64	28.8	13.2	54.2	3.47	96.8	0.9	65
PF0892	391309	7665785	397	0.53	0.03	2.73	44.6	22.9	14	6.36	7.35	2.9	8.9
PF0893	391380	7665822	401	0.01	0.04	0.19	39.4	25.1	7.8	5.33	10.55	3.1	3.6
PF0894	391418	7665766	404	-0.01	0.00	0.05	29.8	27.2	9.6	3.55	0.83	2.7	5.5
PF0895	391430	7665747	404	-0.01	0.00	0.04	24.3	8.3	27.3	1.27	0.61	2.3	2
PF0898	391381	7666078	404	0.2	0.00	0.85	51.9	24.4	6.5	2.87	21.8	1.8	4.3
PF0901	391376	7666167	411	-0.01	0.00	0.11	58.5	27.6	5.8	4.21	1.02	2	3.6
PF0902	391389	7666163	408	-0.01	0.00	0.13	30.8	19.2	9	0.02	21.4	5.8	2.3
PF0917	391886	7665667	394	-0.01	0.00	0.02	30.8	20.3	3.6	0.36	3.2	0.3	3.1
PF0928	391336	7665580	386	-0.01	0.01	0.2	34.4	17	2.4	1.62	1.19	1.1	3
PF0929	391315	7665680	396	0.01	0.03	0.2	74.9	34.6	10.9	3.37	1.07	2.4	6.9
PF0933	391316	7665753	397	0.01	0.00	0.17	4.39	1.4	0.6	0.4	0.9	0.5	14.5
PF0936	391325	7665775	400	0.03	0.00	0.93	27.8	14.7	1.3	2.41	8.29	1.4	4.2
PF0939	391347	7665723	415	0.09	0.00	0.04	20.4	10.6	1.5	1.71	1.36	0.7	1.2
PF0941	391350	7665750	410	0.03	0.00	0.09	7.89	4.5	0.8	0.55	2.85	0.5	1.1
PF1282	391729	7666866	414	0.02	0.01	0.07	5.78	3.4	1.9	0.12	4.31	0.6	6.2
PF1284	391744	7666863	418	0.05	0.05	0.12	37.4	18.2	8.1	0.17	18	0.6	25.4
PF1285	391752	7666865	417	-0.01	0.04	0.11	18.7	9.8	3.2	0.04	7.78	0.5	12.4
PF1289	391847	7666809	406	-0.01	0.00	0.01	16.5	8.6	3.6	0.3	1.78	0.7	6.6
PF1292	391788	7666593	410	0.01	0.03	0.27	34.4	18.5	179.5	0.12	34.2	0.6	8.6
PF1293	391710	7666606	429	0.05	0.00	0.28	23.5	18.6	1	0.06	2.13	0.5	1.2
PF1295	391698	7666604	429	0.01	0.00	0.15	23.2	15.6	1.2	0.11	2.16	0.4	1
PF1296	391685	7666600	428	0.01	0.02	0.21	47	27.3	1.8	0.08	3.53	0.5	2.3
PF1297	391694	7666601	429	-0.01	0.05	0.16	30.6	16.1	22.1	0.17	10.15	0.8	10.9
PF1298	391597	7666232	403	0.53	0.01	0.16	17.6	9.6	4.6	0.28	2.21	0.6	4
PF1299	391594	7666744	401	2.25	11.95	0.66	43.1	22.3	281	0.11	34.3	4.2	7.3
PF1300	391675	7666712	414	0.01	0.01	0.13	9.53	4.6	1.8	0.34	2.95	0.4	2.2
PF1301	391694	7666709	419	0.01	0.02	0.15	15.1	7.1	1	0.14	1.72	0.5	0.9
PF1302	391744	7666711	422	0.04	0.06	0.11	21.5	16	2.9	0.07	3.92	0.7	3.6
PF0860	391718	7667188	409	-0.01	0.10	0.04	11.5	2.8	23.4	0.09	2.02	0.6	27.1
PF0861	391780	7667203	428	0.07	0.05	0.23	17.9	9.6	8.7	0.25	5.86	0.5	27.3
PF0862	391814	7667395	428	2.61	0.03	0.6	21.7	12.2	16.3	0.36	3.56	0.7	7.5
PF0863	391769	7667405	415	0.02	0.16	0.36	50.9	23.7	62.2	1.17	24.2	0.6	19.2
PF0940	391585	7665654	402	-0.01	0.01	0.09	60.6	34.6	28.4	0.04	11.55	1.9	3.1
PF1303	391576	7666622	411	0.02	0.02	0.03	16.8	8.5	59.5	0.08	10.5	-0.2	8.6
PF1304	391576	7666622	411	0.02	0.01	0.12	23.9	10.8	4.6	0.1	1.74	0.5	2.2
Note (1) All samples analysed for gold via fire assay with AAS finish and a four acid digest followed by low level ICP AES and MS analysis													
Note (1) All locations captured in GDA94 Zone 54 Datum													



## JORC Code, 2012 Edition

### Table 1 report – Exploration Update – Dronfield drilling and Serendipity rock chip results

- This table is to accompany an exploration update documenting results from a three-hole drill program at Dronfield (EPM18084) and rock chip results from the Serendipity Prospect (EPM13870).

#### Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections in this information release.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul style="list-style-type: none"> <li>• <i>Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</i></li> <li>• <i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i></li> <li>• <i>Aspects of the determination of mineralisation that are Material to the Public Report.</i></li> <li>• <i>In cases where ‘industry standard’ work has been done this would be relatively simple (eg ‘reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay’). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.</i></li> </ul>	<p><b>DRILLING</b></p> <ul style="list-style-type: none"> <li>• Samples were selected using geological criteria (visual inspection) and portable XRF analysis.</li> <li>• For HDD001 and HDD002, the entire length of each hole was submitted for assay either as 1 or 2 metre intervals.</li> <li>• For HDRC004, the entire length of the hole was sampled either as 1 or 4 metre intervals.</li> <li>• The interval length was based on the copper response (via portable XRF) and the degree of alteration and mineralisation based on visual observation.</li> </ul> <p><b>ROCK CHIP SAMPLING</b></p> <ul style="list-style-type: none"> <li>• Rock chip samples were grab samples. The sampling method is to take a 3-4kg sample perpendicular to the strike of the zone of interest.</li> <li>• All samples submitted for assay underwent a fine crush with 1kg riffled off for pulverising to 75</li> </ul>





Criteria	JORC Code explanation	Commentary
		micron. Drilling samples were submitted for 4 acid digest followed by fire assay for gold (50-gram charge) and ICP analysis for a range of elements including copper, silver, cobalt and molybdenum. The samples were also analysed for rare earth elements.
<i>Drilling techniques</i>	<ul style="list-style-type: none"> <li>• <i>Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).</i></li> </ul>	<p>DRILLING</p> <ul style="list-style-type: none"> <li>• HDD001 and HDD002 – HQ3 (Approximately 61.1mm) and NQ2 (Approximately 47.6mm)</li> <li>• HDRC004 (nominal 5.5" diameter holes).</li> </ul>
<i>Drill sample recovery</i>	<ul style="list-style-type: none"> <li>• <i>Method of recording and assessing core and chip sample recoveries and results assessed.</i></li> <li>• <i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i></li> <li>• <i>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Diamond core recoveries were typically in excess of 95% with minor exceptions occurring at the top of each hole.</li> <li>• Recovery of RC samples was visually estimated. Average recovery of the samples was estimated to be in the range of 80-90%.</li> <li>• HDRC04 was drilled dry using a booster and auxiliary compressor. Care was taken to avoid sample contamination.</li> <li>• No sample recovery bias was observed through mineralised zones.</li> </ul>
<i>Logging</i>	<ul style="list-style-type: none"> <li>• <i>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.</i></li> <li>• <i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</i></li> <li>• <i>The total length and percentage of the relevant intersections logged.</i></li> </ul>	<p>DRILLING</p> <ul style="list-style-type: none"> <li>• All drill core and chips were geologically logged in detail by Hammer Metals geologists recording lithology, alteration and mineralisation, weathering, colour, structure, and any other features of the sample to a level of detail to support appropriate studies.</li> <li>• Diamond core was photographed and stored appropriately.</li> <li>• A representative sub-sample of RC chips was collected and stored in a chip tray. Chips trays were photographed.</li> <li>• Holes were logged in full.</li> </ul>

Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation	<ul style="list-style-type: none"> <li>• <i>If core, whether cut or sawn and whether quarter, half or all core taken.</i></li> <li>• <i>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</i></li> <li>• <i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i></li> <li>• <i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i></li> <li>• <i>Measures taken to ensure that the sampling is representative of the insitu material collected, including for instance results for field duplicate/second-half sampling.</i></li> <li>• <i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i></li> </ul>	<p>DRILLING</p> <ul style="list-style-type: none"> <li>• For HDD001 and HDD002 samples consist of half sawn core. In the case of duplicates, the sample consisted of quarter core.</li> <li>• For HDRC004 samples consist of 1m rotary splits. In the case of 4m composites the samples were created by repeated riffle splitting of 1m samples to obtain an appropriate sample weight for analysis.</li> <li>• Sample collection and size is considered appropriate to the target-style and laboratory analytical methods employed.</li> <li>• Standard reference samples and blanks were each inserted into the laboratory submissions at 25 sample intervals. ALS applied industry-standard QAQC procedures throughout the sample stream.</li> <li>• The sample sizes submitted for analysis were appropriate for the style of mineralisation sought and methods employed.</li> </ul> <p>ROCK CHIP SAMPLING</p> <ul style="list-style-type: none"> <li>• The rock chip sampling method and 3-4kg sample weight is appropriate for the recon exploration level of work and the analytical methods employed.</li> </ul>
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> <li>• <i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i></li> <li>• <i>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</i></li> <li>• <i>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision</i></li> </ul>	<p>DRILLING</p> <ul style="list-style-type: none"> <li>• All drilling samples were analysed by ALS for a range of elements by ME-ICP61 or ME-MS62r after a 4-acid digest. Gold was analysed by Au-AA22. Chlorine and fluorine analyses were conducted on 20% of samples via ALS method ME-IC881.</li> <li>• Cu values greater than 1% were re-analysed by ME- OG62. Any other elements which exceeded their maximum analytical limits were re-analysed by the relevant over-grade methods tailored for the element.</li> <li>• Standard reference samples and blanks were inserted at 25 sample</li> </ul>

Criteria	JORC Code explanation	Commentary
	<i>have been established.</i>	<p>intervals. ALS Laboratories also maintained a regime of check samples, duplicates, standard reference samples, blanks and calibration standards.</p> <p><b>ROCK CHIP SAMPLING</b></p> <ul style="list-style-type: none"> <li>All rock chip analyses were analysed by ALS for a range of elements by ME-ICP61 or ME-MS62r after a 4-acid digest. Gold was analysed by Au-AA26.</li> <li>Where the presence of graphite was suspected the sample was also analysed by ALS method C_IR18 for total graphitic carbon.</li> </ul>
Verification of sampling and assaying	<ul style="list-style-type: none"> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<p><b>DRILLING AND ROCK CHIP SAMPLING</b></p> <ul style="list-style-type: none"> <li>All results were checked by alternative company personnel.</li> <li>These holes have not been twinned.</li> <li>All field logging is done into laptops on site and later checked and entered into the company database.</li> <li>Assay files are received electronically from the laboratory. Repeat results are kept independent and are not averaged. Below-detection limit (BDL) results are saved in the database as -BDL values. BDL results are converted to half the detection limit value on export from the database to enable any downstream compositing.</li> </ul>
Location of data points	<ul style="list-style-type: none"> <li>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<p><b>DRILLING</b></p> <ul style="list-style-type: none"> <li>Drill hole collars were measured using a hand-held GPS unit with an estimated positional accuracy of approximately 5 metres.</li> <li>Datum used is UTM MGA 94 Zone 54.</li> <li>RL's for the drill hole collars are initially captured by GPS and subsequently adjusted using local digital elevation models (created using the most accurate RL information available).</li> <li>Hole positions will be re-surveyed with DGPS. At this time, higher quality</li> </ul>



Criteria	JORC Code explanation	Commentary
		elevation data will be generated.
		<p>ROCK CHIP SAMPLING</p> <ul style="list-style-type: none"> <li>Datum used is UTM MGA 94 Zone 54 captured via hand held GPS.</li> </ul>
Data spacing and distribution	<ul style="list-style-type: none"> <li>Data spacing for reporting of Exploration Results.</li> <li>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</li> <li>Whether sample compositing has been applied.</li> </ul>	<p>DRILLING AND ROCK CHIP SAMPLING</p> <ul style="list-style-type: none"> <li>Drill density and rock chip sampling is testing specific targets and is not sufficient to establish grade continuity.</li> </ul> <p>DRILLING</p> <ul style="list-style-type: none"> <li>In the situation where visual inspection and portable XRF suggested an interval was not mineralised then a 2m (in the case of HDD001 and HDD002) or 4m composite (in the case of HDRC004) was deemed appropriate.</li> </ul>
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</li> </ul>	<p>DRILLING</p> <ul style="list-style-type: none"> <li>Drill holes are oriented as close to perpendicular as possible to the interpreted orientation of the geophysical targets.</li> </ul> <p>ROCK CHIP SAMPLING</p> <ul style="list-style-type: none"> <li>Rock chips samples are oriented perpendicular to the strike of the target lithology.</li> </ul>
Sample security	<ul style="list-style-type: none"> <li>The measures taken to ensure sample security.</li> </ul>	<ul style="list-style-type: none"> <li>Pre-numbered bags are used and transported by company personnel to the ALS Laboratory in Mount Isa. ALS transports samples to its laboratories in Townsville, Brisbane and in the case of drilling F and CI assays Vancouver.</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>The results of any audits or reviews of sampling techniques and data.</li> </ul>	<ul style="list-style-type: none"> <li>No audits or reviews have been undertaken.</li> </ul>



## Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
<i>Mineral tenement and land tenure status</i>	<ul style="list-style-type: none"> <li><i>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.</i></li> <li><i>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</i></li> </ul>	<p><b>DRILLING</b></p> <ul style="list-style-type: none"> <li>The Dronfield diamond drilling is located on EPM18084 which is 80% owned by Mt Dockerell Mining Pty Ltd and 20% by Kabiri Resources Pty Ltd.</li> <li>Mt Dockerell Mining Pty Ltd is a 100% owned subsidiary of HMX.</li> <li>EPM18084 is also subject to a joint Venture with the Newmont Australia Group.</li> </ul> <p><b>ROCK CHIP SAMPLING</b></p> <ul style="list-style-type: none"> <li>Rock chips were taken on EPM13870, which is wholly owned by Mt Dockerell Mining Pty Ltd, a 100% owned subsidiary of HMX.</li> </ul>
<i>Exploration done by other parties</i>	<ul style="list-style-type: none"> <li><i>Acknowledgment and appraisal of exploration by other parties.</i></li> </ul>	<ul style="list-style-type: none"> <li>Drill holes depicted in the Serendipity figure with a K prefix were drilled by Kings Minerals NL, the previous owner of EPM13870.</li> </ul>
<i>Geology</i>	<ul style="list-style-type: none"> <li><i>Deposit type, geological setting and style of mineralisation.</i></li> </ul>	<p><b>DRILLING</b></p> <ul style="list-style-type: none"> <li>Drill targets are located within the Wilberu Granite – a Proterozoic intrusive complex which is part of the Williams Batholith in the eastern fold belt of the Mount Isa Inlier.</li> <li>The mineralisation style discussed in this release is Iron-Oxide Copper Gold (IOCG). The closest example of this style is the Ernest Henry Deposit to the north of Cloncurry.</li> </ul> <p><b>ROCK CHIP SAMPLING</b></p> <ul style="list-style-type: none"> <li>Rock chip samples were sourced from zones of altered Corella Formation in close proximity to the Pilgrim Fault Zone. The Corella Formation is a Proterozoic calc-silicate unit.</li> <li>The style of target being sought is</li> </ul>

Criteria	JORC Code explanation	Commentary
		<p>large tonnage Cu-Au-Mo-Re IOCG variant.</p> <ul style="list-style-type: none"> <li>The closest example of this style of mineralisation is the Kalman Cu-Au-Mo-Re Deposit located less than 20km to the north in the same geological setting. Variants of this deposit type are the Merlin and Mt Dore Deposits located near Selwyn in the Cloncurry region.</li> </ul>
<i>Drill hole Information</i>	<ul style="list-style-type: none"> <li><i>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:</i> <ul style="list-style-type: none"> <li><i>easting and northing of the drill hole collar</i></li> <li><i>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</i></li> <li><i>dip and azimuth of the hole</i></li> <li><i>down hole length and interception depth</i></li> <li><i>hole length.</i></li> </ul> </li> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>See the attached tables. The reader should note that the location data is subject to change as a result of a higher accuracy survey planned to be conducted prior to any resource estimates being conducted.</li> </ul>
<i>Data aggregation methods</i>	<ul style="list-style-type: none"> <li><i>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.</i></li> <li><i>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</i></li> <li><i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i></li> </ul>	<p>DRILLING</p> <ul style="list-style-type: none"> <li>Intervals quoted in this release are reported primarily on their copper grades.</li> <li>Intercepts have been quoted based primarily on a 0.1% Cu cut-off.</li> </ul>
<i>Relationship between mineralisation widths and</i>	<ul style="list-style-type: none"> <li><i>These relationships are particularly important in the reporting of Exploration Results.</i></li> <li><i>If the geometry of the mineralisation</i></li> </ul>	<p>DRILLING</p> <ul style="list-style-type: none"> <li>In both plan and section drill-holes are oriented close to perpendicular to the interpreted position of the</li> </ul>



Criteria	JORC Code explanation	Commentary
<i>intercept lengths</i>	<p><i>with respect to the drill hole angle is known, its nature should be reported.</i></p> <ul style="list-style-type: none"> <li><i>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').</i></li> </ul>	<p>modelled geophysical features.</p> <ul style="list-style-type: none"> <li>The drilling is not at a sufficient density to enable any grade continuity to be established. The true width of any quoted intercept is not known with any certainty.</li> </ul>
<i>Diagrams</i>	<ul style="list-style-type: none"> <li><i>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</i></li> </ul>	<ul style="list-style-type: none"> <li>See attached figures</li> </ul>
<i>Balanced reporting</i>	<ul style="list-style-type: none"> <li><i>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.</i></li> </ul>	<p><b>DRILLING</b></p> <ul style="list-style-type: none"> <li>Intersections have been quoted at 0.1% Cu cut-off grades</li> </ul> <p><b>ROCK CHIP SAMPLING</b></p> <ul style="list-style-type: none"> <li>Rock chip samples have been highlighted where the gold grade exceeds 0.2g/t. However, all rock chip samples have been shown on the relevant figure and the results of these samples have been tabulated.</li> </ul>
<i>Other substantive exploration data</i>	<ul style="list-style-type: none"> <li><i>Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.</i></li> </ul>	<ul style="list-style-type: none"> <li>Refer to the release.</li> </ul>
<i>Further work</i>	<ul style="list-style-type: none"> <li><i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></li> <li><i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></li> </ul>	<ul style="list-style-type: none"> <li>At Serendipity, it is envisioned that the area will be subject to further exploration drilling in 2017-2018.</li> <li>At Dronfield further investigation of the geophysical anomalies will be undertaken in 2017-2018.</li> </ul>