

## Further high-grade copper-gold and cobalt-bismuth intersected at Hermitage

Assay results from Phase 2 diamond and reverse circulation (RC) drilling support the emerging Hermitage copper-gold discovery at Emmerson's 100%-owned project area at Tennant Creek.

### Key highlights include:

- Diamond drill hole HERCDD010 (angled scissor hole) intersected:
  - **94.4m at 2.74% copper, 5.58g/t gold, 17.88g/t silver, 0.44% bismuth** (from 85m) including:
    - **17.8m at 1.57% copper, 0.22g/t gold, 0.17% cobalt, 0.11% bismuth** (from 85m) including:
      - **5.8m at 3.4% copper, 0.53g/t gold, 0.33% cobalt and 0.24% bismuth** (from 95.4m)
    - **21.2m at 2.62% copper** (from 129m)
    - **5.8m at 11.06% copper, 0.98g/t gold, 0.15% cobalt and 0.27% bismuth** (from 150.2m)
    - **21.6m at 4.11% copper, 25.91g/t gold, 74.89g/t silver and 1.83% bismuth** (from 157m) including:
      - **9.4m at 7.27% copper, 58.02g/t gold and 3.74% bismuth** (from 159.4m) including:
        - **4.8m at 19.44% copper, 214.39g/t gold, 103.8g/t silver, 13.75% bismuth and 0.12% cobalt** (from 164m)
- RC drill hole HERC009 intersected:
  - **41m at 1.05% copper** (from 96m) including:
    - **3m at 1.36% copper and 1.34g/t gold** (from 111m)
    - **9m at 2.50% copper and 0.17% cobalt** (from 120m)
- RC drill hole HERC008 intersected:
  - **24m at 1.03% copper and 0.10% cobalt** (from 117m)
- Assays pending for drill holes HERCDD005 and HERCDD006

### Emmerson's Managing Director, Rob Bills commented:

*"This phase 2 drill program has exceeded expectations in terms of confirming the initial high grade copper discovery (drill hole HERC003 of 116m at 3.4% copper and 0.88g/t gold), with the addition of high-grade gold, cobalt, and bismuth. Encouragingly, the gold, silver and bismuth grades increase with depth with the best intersection (4.8m at 19.4% copper, 214.4g/t gold, 103.8g/t silver, and 13.75% bismuth) being immediately above and truncated by the fault... with potential to extend these grades with further drilling below the fault.*

*The addition of cobalt and bismuth in these latest assay results adds to the inventory of future facing metals relevant to the battery, superconductor, magnet, and 3D printing, suite of metals.*

*The relatively constrained plan/horizontal footprint is on scale with many of the other Tennant Creek orebodies – the differentiator being that Hermitage is shaping up as a high grade, multi commodity discovery.*

*Following the receipt of the final assays in this program, the geological model will be updated, and more drilling planned to test the extent of the high-grade mineralisation, particularly beneath the fault."*



**Photo 1:** Phase 2 drilling at Hermitage – the Emmerson Team after finishing a challenging drilling campaign.

### **Hermitage Project – Phase 2 drilling intersects high grade gold, copper, cobalt, and bismuth**

Hermitage is one of a cluster of 100% Emmerson owned prospects (Figure 1) where the application of new exploration technologies are unlocking new discoveries. This Phase 2 drill program not only builds on the previous high-grade results but also expands the potential down plunge beneath the fault where copper has been intersected outside of the ironstones. A hall mark of the Tennant Creek ore bodies is the correlation of elevated metal grades with magnetite-hematite ironstones, thus future drilling will focus on pinpointing continuation of the central ironstone beneath the fault.

The preliminary geological model at Hermitage consists of tabular to pipelike breccias within ironstones that plunge steeply to the north and continue below the post mineral fault. Whilst the dimensions have yet to be fully ascertained as new zones of ironstone continue to be intersected, the horizontal footprint is on scale with many of the major Tennant Creek orebodies (Figures 2 and 4). The metal zonation within the central brecciated pipe suggests the grades of copper, gold and bismuth are increasing with depth (Figure 3).

Historically the Tennant Creek Mineral Field (TCMF) has a record of producing high grade bismuth however it is only recently that this metal has been recognised as a battery metal with green credentials. China refines about 90% of the world's bismuth and is the world's largest consumer. Bismuth is classified as a critical metal on the British Geological Survey and Geoscience Australia register and is considered a "green" substitute for lead. New uses for bismuth include superconductors, display screens, lithium iron batteries, permanent magnets, the nuclear power industry, Maglev trains and 3D printing. (Source: Bismuth Preliminary Market Entry Study; John P Sykes Director, Greenfields Research Ltd).

Prior to Emmerson, the Hermitage project has not seen any systematic modern exploration with the last campaign ending in the 1990s. The project consists of a cluster of 100% Emmerson owned prospects that include North Star, Jasper Hills, Katherine Star and Northern Star in Mining Lease (ML) 30177 along with Edna Beryl, Thrace, and Macedon in ML705 (Figure 5). These prospects occur within a broad gravity corridor that consist of denser, hematitic shales and jasper which host high-grade copper, gold, and cobalt mineralisation within magnetite-hematite ironstones. From previous seismic surveys, this gravity corridor likely corresponds to a deep (+10km), north verging thrust fault – a similar structural setting to the other large deposits in the TCMF.

The Phase 2 drilling results have greatly enhanced the ranking and potential for economic gold, copper, cobalt, and bismuth mineralisation across the Northern Project Area, particularly within this northern gravity ridge. A high-resolution drone aeromagnetic survey is currently underway over the NPA and is anticipated that the results will assist in pinpointing further such styles of high-grade copper-gold-cobalt and bismuth mineralisation.

### **Next Steps – an exciting pipeline of projects for 2022 at Tennant Creek**

- Receive outstanding assay results for the Phase 2 drilling at Hermitage and compilation / planning for the next stage of exploration.
- Generation of new projects in the Southern Project Area (the SPA is the subject of the Exploration Earn-In and Joint Venture with TCMG) utilising the recent high-resolution drone aeromagnetic survey.
- Drilling for extensions and updating the resource model for the Golden Forty Mine and surrounds in the Southern Project Area which feeds into the Small Mines JV with TCMG and where Emmerson receives a 6% gold production royalty.
- Further geophysical drone surveys across key areas of the Northern Project Area.

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**This release has been authorised by the Board of Emmerson Resources Limited.**

## **About Emmerson Resources, Tennant Creek and New South Wales**

Emmerson has a commanding land position and is exploring the Tennant Creek Mineral Field (TCMF), one of Australia's highest-grade gold and copper fields that has produced over 5.5Moz of gold and 470,000t of copper from deposits including Warrego, White Devil, Orlando, Gecko, Chariot, and Golden Fort. These high-grade deposits are highly valuable exploration targets, and to date, Emmerson's discoveries include high-grade gold at Edna Beryl and Mauretania, plus copper-gold at Goanna and Monitor. These discoveries were found utilising new technology and concepts and are the first discoveries in the TCMF for over two decades.

**A recent rush of new tenement applications by major and junior explorers in the Tennant Creek district, not only highlights the prospectivity of the region for copper and gold but also Emmerson's strategic 1,700km<sup>2</sup> land holding.**

In addition, Emmerson is exploring across four early-stage gold-copper projects in NSW, identified (with our strategic alliance partner Kenex/Duke Exploration) from the application of 2D and 3D predictive targeting models – aimed at increasing the probability of discovery. Duke can earn up to 10% (to pre BFS) of any project generated providing certain success milestones are met.

The highly prospective Macquarie Arc in NSW hosts >80Moz gold and >13Mt copper with these resources heavily weighted to areas of outcrop or limited cover. Emmerson's four exploration projects contain many attributes of the known deposits within the Macquarie Arc but remain underexplored due to historical impediments, including overlying cover (farmlands and younger rocks) and a lack of effective exploration.

### **Regulatory Information**

*The Company does not suggest that economic mineralisation is contained in the untested areas, the information contained relating to historical drilling records have been compiled, reviewed, and verified as best as the Company was able. As outlined in this announcement the Company is planning further drilling programs to understand the geology, structure, and potential of the untested areas. The Company cautions investors against using this announcement solely as a basis for investment decisions without regard for this disclaimer.*

### **Competency Statement**

*The information in this release on Exploration Results is based on information compiled by Dr Ana Liza Cuison, MAIG, MSEG. Dr Cuison is a Member of the Australian Institute of Geoscientists and has sufficient experience which is relevant to the style of mineralisation and types of deposits under consideration and to the activity which she 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. Dr Cuison is a full-time employee of the Company and consents to the inclusion in this report of the matters based on her information in the form and context in which it appears.*

### **Cautionary Statement**

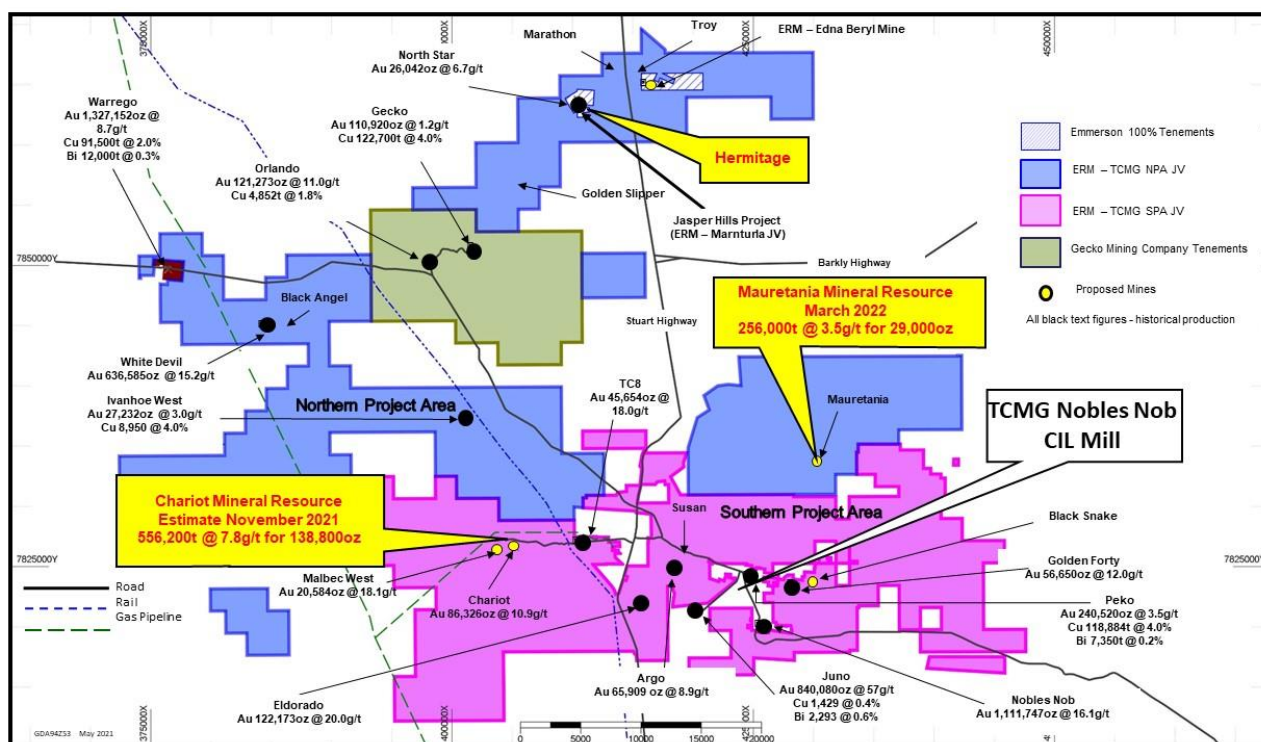
*The Exploration Targets described above are conceptual in nature. It must be noted that there has been insufficient exploration to estimate a Mineral Resource and it is uncertain if further exploration will result in the estimation of a Mineral Resource.*

### **Forward-Looking Statements**

*This document may include forward-looking statements. Forward-looking statements include, but are not limited to, statements concerning Emmerson Resources Limited's anticipated future events, including future resources and exploration results, and other statements that are not historical facts. When used in this document, the words such as "could," "estimate," "plan," "expect," "intend," "may," "potential," "should," and similar expressions are forward-looking statements. Although Emmerson believes that its expectations reflected in these forward-looking statements are reasonable, such statements involve risks, assumptions, uncertainties, and other important factors, many of which are beyond the control of the Company, and which may cause actual results, performance, or achievements to differ materially from those expressed or implied by such statements.*

*The Company does not undertake any obligation to update forward-looking statements even if circumstances or management's estimates or opinions should change. Forward-looking statements are provided as a general guide only and should not be relied on as an indication or guarantee of future performance. Given these uncertainties, investors should not place undue reliance on forward-looking statements. The Company cautions investors against using this announcement solely as a basis for investment decisions without regard for this disclaimer.*

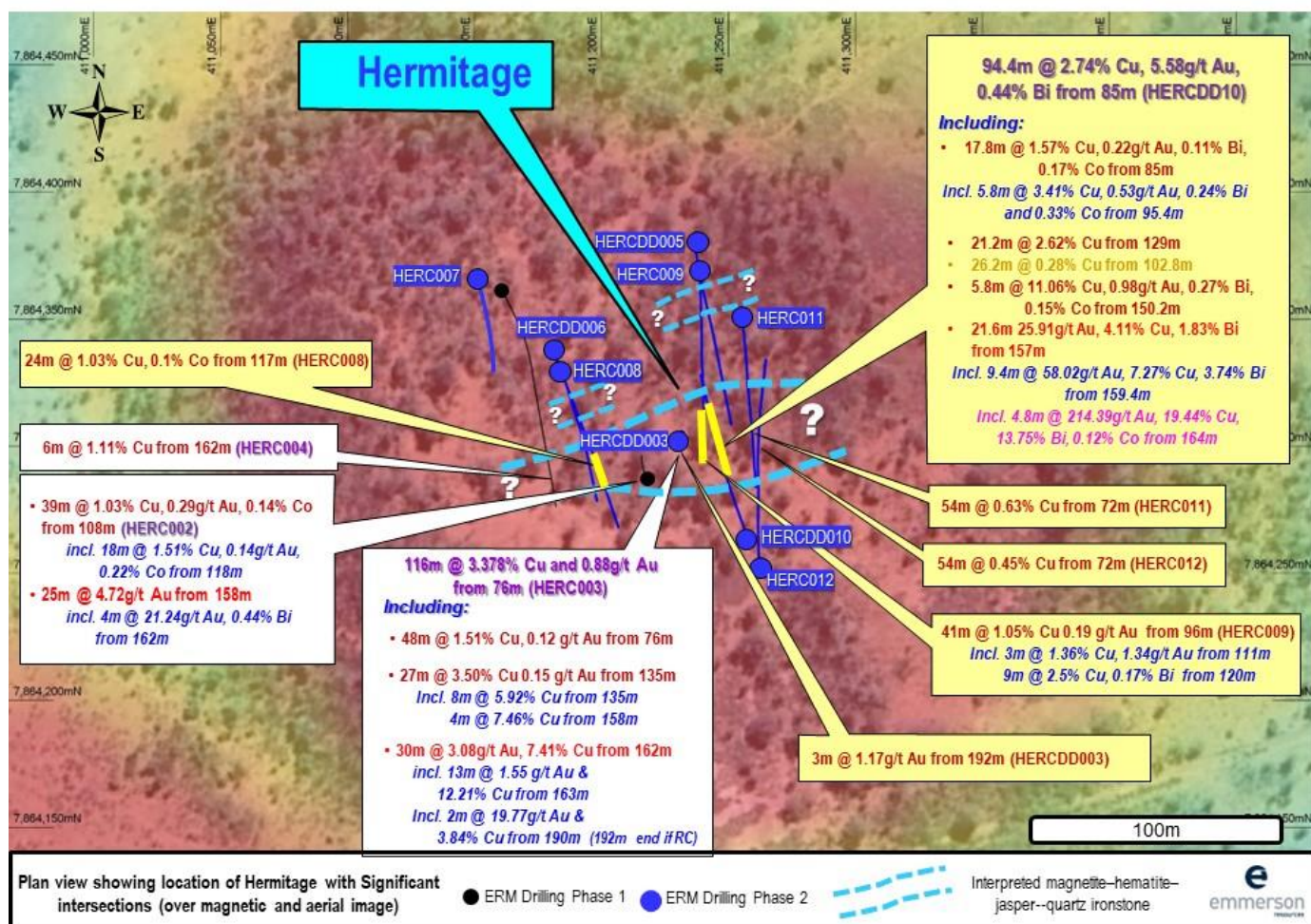




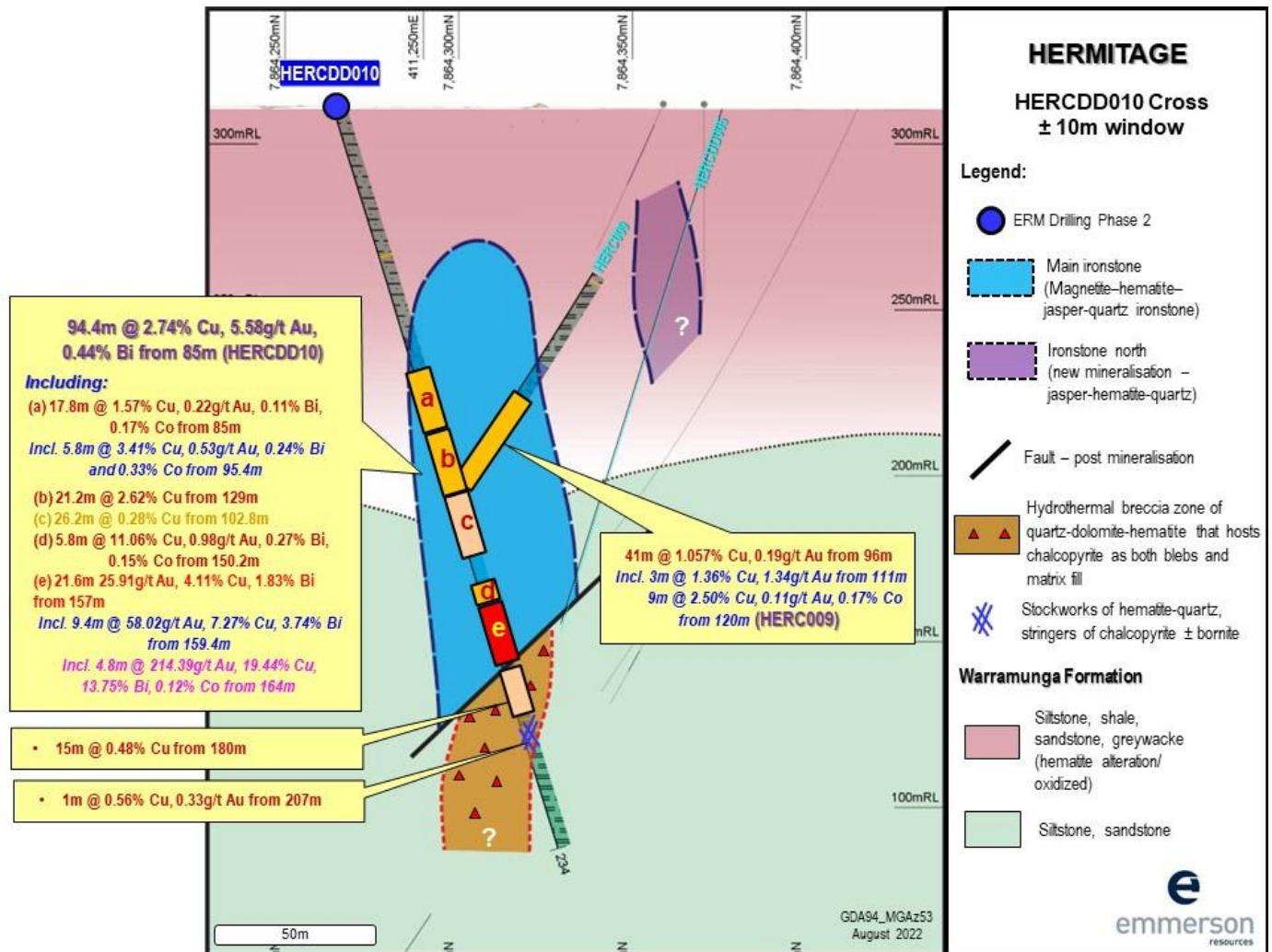
**Figure 1:** Map of the Emmerson Tennant Creek Project showing the Northern Project Area (NPA), and Southern Project Area (SPA), which is covered by the Exploration Earn-in JV and Small Mines JV. Yellow dots are potential small mines and/or remnant resources. Noting that Emmerson retains 100% of the Jasper Hills, Hermitage, North and Northern Star, Katherine Star, Thrace, Macedon and Edna Beryl projects.

Note:

- Quoted production from major historical deposits after Ahmad, M. and Munson, T.J. (2013). Geology and mineral resources of the Northern Territory, Special Publication 5, p. 9:37.
- For Chariot mine and Malbec West mine, quoted production from Giants Reef Mill Reconciled Production to end of month September 2005 (internal report).



**Figure 2:** Phase 2 drill program at Hermitage with recent assay results (yellow call out boxes) plus phase 1 results (ASX 8 December 2021- white call out boxes). Noting the interpreted ironstone within the D1/D2 shear zone and regional gravity ridge. The red colour corresponds to the magnetic high from the TMI magnetics.



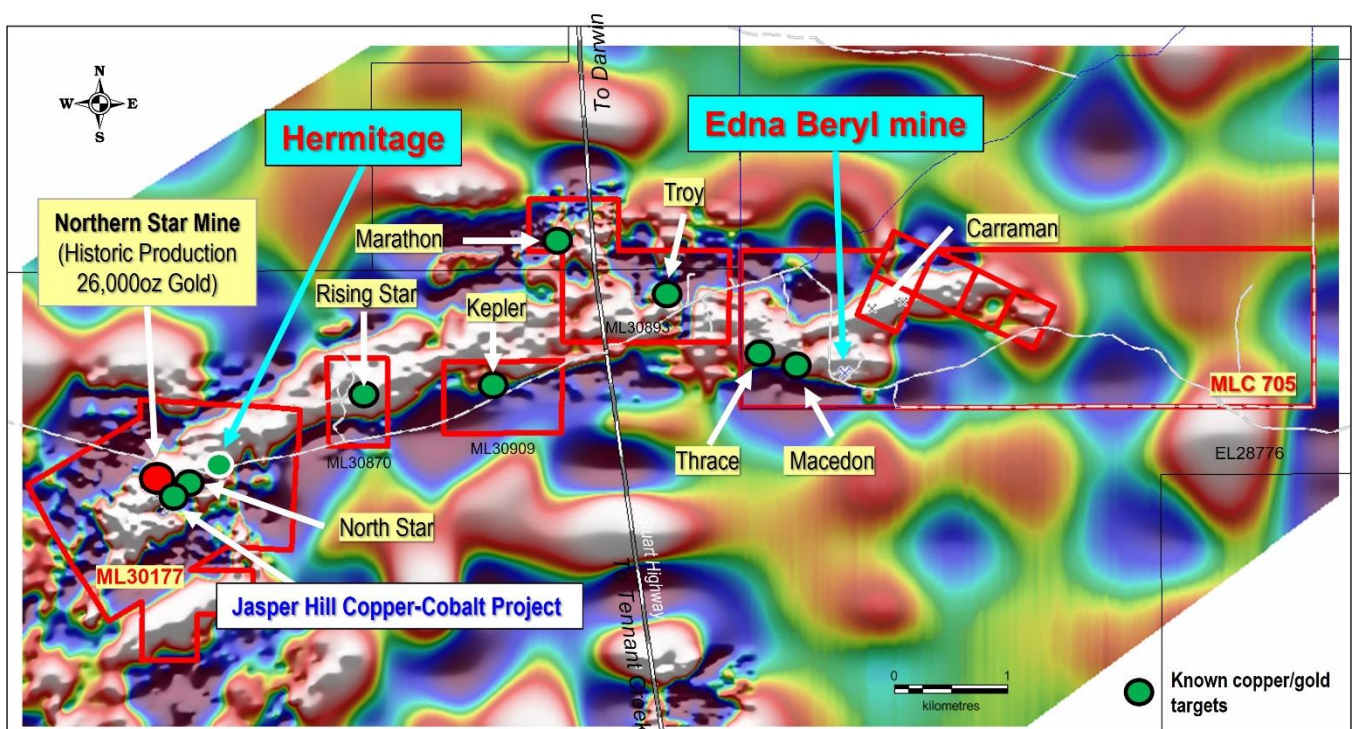
**Figure 3:** Schematic cross section in HERCDD010 showing the metal zonation correlated with the central ironstone (blue) and the copper mineralization (outside of the main ironstone) below the post mineral fault(brown).



## Geometries of Major Tennant Ck Orebodies



**Figure 4:** Geometries of Major Tennant Creek Orebodies, noting the typical constrained plan/horizontal footprint.



**Figure 5:** Map of the northern corridor with gold, copper, and cobalt projects. Background colour is the residual gravity map (white) representing the northern gravity (high) ridge. Noting that ML 30177 and MLC 705 are outside of the JV and 100% owned by Emmerson.



**Table 1: Hermitage (ML30177) Drilling Significant Intersections**

Hole ID	East (MGA94_53)	North (MGA94_53)	RL AHD	Dip (deg)	AZI MAG (deg)		From (m)	To (m)	Width (m)	% Recovery	Au (g/t)	Ag (ppm)	Bi (ppm)	Co ppm	Cu (%)	Fe (%)	Mo (ppm)	Pb (ppm)	Sb (ppm)	Zn (ppm)	Sample Type
HERCDD010	411257.6	7864263.5	312.6	-73	332.98		85.0	179.4	94.4	54.0	5.58	17.88	0.44%	793.7	2.74	22.4	71.0	78.3	10.6	239.9	
						incl.	85.0	102.8	17.8	83.1	0.22	2.44	0.11%	0.17%	1.57	24.2	120.3	66.5	8.9	373.4	0.5HQ
						incl.	95.4	101.2	5.8	91.7	0.53	5.74	0.24%	0.33%	3.41	24.1	181.0	151.7	12.0	504.1	
						incl.	102.8	129.0	26.2	56.1	0.09	0.64	278.97	125.5	0.28	23.8	19.0	19.5	5.5	361.9	0.5HQ/ 0.5NQ2
						incl.	129.0	150.2	21.2	53.3	0.09	1.33	51.47	563.7	2.62	22.0	69.6	15.4	11.0	76.7	0.5NQ2
						incl.	150.2	156.0	5.8		0.98	14.74	0.27%	0.15%	11.06	23.3	60.9	108.2	13.2	162.5	3m Composite
						incl.	157.0	178.6	21.6	46.3	25.91	74.89	1.83%	524.5	4.11	18.9	86.9	213.8	17.9	118.8	0.5NQ2
						incl.	159.4	168.8	9.4	52.7	58.02	30.10	3.74%	697.4	7.27	21.0	137.4	415.6	30.1	104.4	
						incl.	164.0	168.8	4.8	34.0	214.39	103.80	13.75%	0.12%	19.44	10.9	399.8	0.15%	79.2	110.9	
							180.0	195.0	15.0	100.0	0.02	0.78	27.26	370.0	0.48	27.0	18.4	3.8	6.4	226.3	0.5NQ2
HERCDD003	411229.7	7864303.1	312.4	-88	99.6		192.0	195.0	3.0	40.0	1.17	2.91	168.3	263.4	0.75	18.4	487.3	28.9	9.4	114.0	0.5NQ2
HERC008	411183.1	7864331.5	312.2	-69	152.62		117.0	141.0	24.0		0.03	0.47	518.0	0.10%	1.03	19.56	27.66	6.06	20.0	102.3	3m Composite
HERC009	411239.0	7864368.6	312.1	-65	171.82		96.0	137.0	41.0		0.19	0.74	345.1	720.7	1.05	23.9	69.9	46.1	9.1	160.6	3m Composite
						incl.	111.0	114.0	3.0		1.34	0.28	66.8	303.6	1.36	24.1	108.6	32.8	11.5	194.0	3m Composite
						incl.	120.0	129.0	9.0		0.11	2.34	953.3	0.17%	2.50	26.4	93.4	55.4	9.0	189.7	3m Composite
HERC011	411255.0	7864351.7	312.2	-62	165.12		72.0	126.0	54.0		0.03	0.14	8.8	254.7	0.63	24.2	13.0	5.9	3.7	93.3	3m Composite
HERC012	411261.8	7864252.4	312.8	-68	352.19		87.0	141.0	54.0		0.04	0.21	5.9	364.5	0.45	19.9	10.1	5.1	3.6	96.3	3m Composite

Note:

- (1) HERC008, HERC009, HERC0011 and HERC012 are 3m composite samples.
- (2) HERC010 from 150.2m -153m is a 2.8m composite sample; and 153m - 156m is a 3m composite sample.
- (3) All RC and core samples - multi element analysis method by Aqua Regia digestion 10g/ICP MS (AR10/OM).
- (4) Ore Grade repeats for Cu, Bi, Zn, Pb, Bi, Co and Ag analysis by Four Acid digest/OES ( 4AH/OE).
- (5) For Au >1ppm analysis by 25g fire assay/ICP-OES (FA25/OE04).
- (6) For Copper interval - minimum cut-off of 0.3% Cu. No maximum cut-off. Maximum of 7m internal dilution.
- (7) Intersections are reported as downhole lengths and not true width.
- (8) HERCDD005 and HERCDD006 - assay results pending.

**Table 2: Hermitage (ML30177) Drilling Collar Details**

Hole ID	Total Depth	Hole Type	MGA94_z53 Easting	MGA94_z53 Northing	RL	Dip	Azi_Mag	Date Drilled	Prospect	Tenement
HERCDD003	6.4	Diamond tail	411229.7	7864303.1	312.4	-88	99.6	14/04/2022	Hermitage	ML30177
HERCDD005	219.7	RC/Diamond	411236.7	7864379.1	312.0	-72	164.8	19/04/2022	Hermitage	ML30177
HERCDD006	196.5	RC/Diamond	411181.0	7864336.6	312.2	-75	149.4	30/04/2022	Hermitage	ML30177
HERCDD010	234.5	RC/Diamond	411257.6	7864263.5	312.6	-73	333.0	14/05/2022	Hermitage	ML30177
HERC007	107.0	RC	411152.5	7864369.5	312.0	-65	164.4	6/05/2022	Hermitage	ML30177
HERC008	168.0	RC	411183.1	7864331.5	312.2	-69	152.6	9/05/2022	Hermitage	ML30177
HERC009	137.0	RC	411239.0	7864368.6	312.1	-65	171.8	10/05/2022	Hermitage	ML30177
HERC011	155.0	RC	411255.0	7864351.7	312.2	-62	165.1	2/06/2022	Hermitage	ML30177
HERC012	215.0	RC	411261.8	7864252.4	312.8	-68	352.2	6/06/2022	Hermitage	ML30177



## Appendix 1

The exploration results contained within the above company release are in accordance with the guidelines of The Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code, 2012).

### Section 1: Sampling Techniques and Data – Hermitage Project Area – Reverse Circulation and Diamond Drilling

(Criteria in this section apply to all succeeding sections)

Criteria	JORC Code Explanation	Commentary
Sampling techniques	<ul style="list-style-type: none"> <li>Nature and quality of sampling (e.g., cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as downhole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where ‘industry standard’ work has been done this would be relatively simple (e.g., ‘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 (e.g., submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul style="list-style-type: none"> <li>Hermitage Exploration Target (also called Explorer 26) are drilled with Reverse Circulation (RC) drilling, then to Diamond Drillhole (DDH) tail. Nine holes have been completed for a total of 1,439.1m: HERCDD003, HERCDD005, HERCDD006, HERCDD010, HERC007, HERC008, HERC009, HERC011 and HERC012.</li> <li>The first hole, HERCDD003 is a diamond tail of HERC003 drilled in 2021 (ASX Nov 2021). HERCDD005, HERCDD006, HERC008, HERC009 and HERC011 are angled holes to test east and west extensions and test the thickness of the main ironstone. HERCDD0010 and HERC012 are scissor holes drilled at an angle to test the extent of the ironstone to the east and test the orientation of the fault intersected in HERCDD005. HERC007 was abandoned at 107m due to excessive swing in azimuth.</li> <li>A 3m composite sample directly off the cyclone is riffle split to separate and produce two samples, with one side going into a pre-numbered calico sample bag, effectively providing a 3m composite sample for analysis. The other half were then be placed back into the original sample bag and left on site.</li> <li>3m composite samples weighs from 2 – 5kg, from which a representative sample is pulverised to produce a 25g charge for analysis by Aqua Regia digestion/ ICP MS (AR10/OM).</li> <li>Diamond core sampled on geological intervals cut into half core to provide sample weights of approximately 4.0kg. Individual core samples are crushed and pulverised to produce a 25g charge for analysis by Aqua Regia digestion/ ICP MS (AR10/OM).</li> </ul>
Drilling techniques	<ul style="list-style-type: none"> <li>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, whether core is oriented and if so, by what method, etc).</li> </ul>	<ul style="list-style-type: none"> <li>RC and diamond drilling accounts for 100% of the current reported drilling at Hermitage Exploration Target.</li> <li>The rig is a Sandvik DE810 Multipurpose AWD truck mounted drill rig drill.</li> <li>RC drilling used 5.5-inch face sampling bit.</li> <li>HERCDD003 = diamond tail (NQ2) = 4.8m.</li> <li>HERCDD005 = RC precollar = 64.2m, diamond tail: (HQ tiple tube) = 1.7m; then to NQ2 = 153.8m; TOTAL DEPTH = 219.7m.</li> <li>HERCDD006 = RC precollar = 131.5m, diamond tail NQ2 = 65m; TOTAL DEPTH = 196.5m.</li> <li>HERCDD010 = RC precollar = 83m, diamond tail HQ = 34.7m; NQ2= 116.8m, TOTAL DEPTH = 234.5m.</li> </ul>

Criteria	JORC Code Explanation	Commentary
		<ul style="list-style-type: none"> <li>The core was oriented using down hole core orientation equipment provided by the drilling company.</li> <li>HERC007 = RC hole, total depth = 106m.</li> <li>HERC008 = RC hole, total depth = 168m.</li> <li>HERC009 = RC hole, total depth = 137m.</li> <li>HERC011 = RC hole, total depth = 155m.</li> <li>HERC012 = RC hole, total depth = 215m.</li> </ul>
<i>Drill sample recovery</i>	<ul style="list-style-type: none"> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Core recoveries are fair for reported RC precollar drilling and DDH drilling.</li> <li>RC samples are visually checked for recovery, moisture, and contamination.</li> <li>Any issues or concerns are recorded in the sampling ledger.</li> <li>Diamond drill core recovery for the following holes: <ul style="list-style-type: none"> <li>HERCDD003 = diamond tail = 4.8m = 40% Recovery.</li> <li>HERCDD005 = diamond tail = 155.5m = 95% Recovery.</li> <li>HERCDD006 = diamond tail = 65.5m = 97% Recovery.</li> <li>HERCDD010 = diamond tail = 144.6m = 74% Recovery.</li> </ul> </li> <li>The RC cyclone and splitter are routinely cleaned with more attention spent during the drilling of damp or wet samples.</li> <li>Diamond core recovery was marked after each drill run using plastic/wooden blocks calibrating depth by the drilling contractor. The driller adjusting rig procedures as necessary including rotation, fluid, pressure to maintain sample integrity.</li> <li>Emmerson field technician then measure/check the recovery after each run, RQD and fracture count, and core loss has been recorded on the original diamond logging sheets (Geotech sheet) and entered into the database.</li> <li>No detailed analysis was conducted to determine relationships between sample recovery of metal grades.</li> <li>Emmerson consider that there is evidence for sample bias that may have occurred due to preferential loss/gain of fine/coarse material, especially on zones where water was intersected in the RC drilling and in zones where there is a low recovery in diamond core.</li> </ul>
<i>Logging</i>	<ul style="list-style-type: none"> <li>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.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul style="list-style-type: none"> <li>All holes drilled at Hermitage Exploration Target are geologically logged.</li> <li>Standard operating procedures are employed by Emmerson for logging RC and DDH holes.</li> <li>RC and DDH geological logging data is directly entered using Logchief into field laptop computer. Standardised codes are used for lithology, oxidation, alteration, minerals, and veins; presence of sulphide information are recorded.</li> <li>RC drill chips are collected every 1m interval from the green plastic bag, sieved, cleaned, and scooped and placed in the RC chip trays corresponding to the depth/interval of being samples.</li> </ul>

Criteria	JORC Code Explanation	Commentary
		<ul style="list-style-type: none"> <li>• DDH logging includes structural logging records orientation of veins, fractures, and lithological contacts for DDH. Geotechnical logging records the RQD, core lengths, recovery, and fracture count and hardness. Specific density is recorded for all lithological types and entered in the database.</li> <li>• Diamond and RC holes were logged both qualitative (discretionary) and quantitative (% volume).</li> <li>• DDH diamond were photographed (wet and dry).</li> <li>• All RC pre-collar were photographed on chip trays (wet and dry).</li> <li>• Magnetic susceptibility data were collected for both diamond core and RC every 1m meter as per standard procedure using a Terraplug KT-10 magnetic susceptibility meter.</li> <li>• All RC intervals (total length = 1,066.6m) are geologically logged 100%.</li> <li>• All DD tail (total length = 372.5m) are geologically and geotechnically logged 100%.</li> </ul>
<i>Sub-sampling techniques and sample preparation</i>	<ul style="list-style-type: none"> <li>• If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>• If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>• For all sample types, the nature, quality, and appropriateness of the sample preparation technique.</li> <li>• Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>• Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling.</li> </ul>	<ul style="list-style-type: none"> <li>• Standard sampling operating procedures are used for sampling RC samples and diamond core.</li> <li>• The 3m composite samples weigh from 2 – 5kg.</li> <li>• RC sampling: 3m composite sample directly off the cyclone is riffle split to separate and produce two samples, with one side going into a pre-numbered calico sample bag, effectively providing a 3m composite sample for analysis. The other half were then be placed back into the original sample bag and left on site.</li> <li>• Diamond core sampling: Diamond core was halved using an automatic core saw at Emmerson's Tennant Creek exploration office. The core interval for sampling was marked by Emmerson geologist during logging, taking into account the contact of mineralization and alteration. Samples were collected from the same side of drill core and dispatched for assay. The remaining half core is retained and stored at Emmerson's core yard located at Tennant Creek for future viewing and cross-checking of assay values against the actual geology. Half core samples are submitted for analysis, unless a field duplicate is required, in which case quarter core samples are submitted.</li> <li>• Diamond core sample weight varies between 3 – 5kg.</li> <li>• The RC and core sample sizes are considered to be appropriate to correctly represent the mineralization on the style of mineralisation.</li> <li>• Standards, Blanks and Duplicates are routinely inserted in the sampling batch for QAQC purposes.</li> <li>• Emmerson field QC procedures involve the use of certified reference material (CRM's) inserted at every 20 samples.</li> <li>• Duplicates are collected every 20 samples.</li> <li>• Blanks are inserted every 100 samples.</li> </ul>
<i>Quality of assay data and laboratory tests</i>	<ul style="list-style-type: none"> <li>• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> </ul>	<ul style="list-style-type: none"> <li>• The RC pre-collar samples were submitted to Intertek Laboratory in Darwin for preparation and analysis. The sample preparation of samples follow industry best practice.</li> </ul>



Criteria	JORC Code Explanation	Commentary
	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>All RC and core samples are analysed by AR10/OM method. A 10g of finely pulverised sample is digested with aqua regia acid and the resulting solution analysed for elemental concentration by ICPOES/MS instrumentation.</li> <li>For Ore Grade Repeats where Ag&gt;200g, Cu, Zn, &gt;1%, Pb&gt;0.5%, Bi &gt;500ppm, Fe&gt;50% and Co&gt;1000ppm, samples were analysed by Ore Grade Four Acid digest/OES (4AHBr/OM) method. A portion of finely pulverised sample is digested using a mix of 4 acids(HNO<sub>3</sub>, HClO<sub>4</sub>, HF &amp; HCl) in Teflon labware. The resulting solution after being made to a fixed volume is analysed for element concentration by inductively coupled plasma optical emission spectrometer (ICPOES).</li> <li>For samples with &gt;1ppm Au, the pulp samples were sent to Maddington, Perth for analysis using FA25/OE04 method. A 25 g finely pulverised sample is assay for Au by the fire assay fusion and cupellation process with the resulting solution analysed for gold content by ICPOES.</li> <li>No downhole geophysical tools or handheld XRF instruments are used to determine grade.</li> <li>Magnetic susceptibility data are collected every 1m meter as per standard procedure using a Terraplus KT-10 magnetic susceptibility meter.</li> <li>Laboratory checks include CRM's and/or in-house controls, blanks, splits, and replicates that are analysed with each batch of samples submitted. These QC results are reported along with sample values in the final analytical report.</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>	<ul style="list-style-type: none"> <li>Laboratory data is received in digital format and uploaded directly to the database.</li> <li>Assay data from the lab is received as .csv. The results is the loaded by Database contractor into industry-standard database (Datashed). Sample data sheets were used to merge the assay results with the sample intervals for each hole.</li> <li>Assay data and intercepts are cross-check internally by Group Exploration Manager (GEM, Competent Person).</li> <li>The GEM of ERM has visually verified significant intersections reported in the RC and core samples.</li> <li>Assay data and intercepts are cross-check internally by GEM.</li> <li>Drill Hole Data including meta data, any gear left in the drill hole, lithological, mineral, downhole survey, sampling, magnetic susceptibility are collected and entered to Logchief.</li> <li>All digital logs, sample ledgers, assay results were uploaded to a secure server (Datashed). The merged and complete database is then plotted imported to Micromine software for assessment.</li> <li>Data back-ups are employed to external drive.</li> <li>Geochemical data is managed by ERM using and external database administrator and secured through a relational database (Datashed).</li> </ul>

Criteria	JORC Code Explanation	Commentary
		<ul style="list-style-type: none"> <li>No adjustment were made on original assay data for the purpose of reporting grade and mineralized intervals.</li> <li>No twin drill holes have been completed at the Hermitage Exploration Target.</li> </ul>
<i>Location of data points</i>	<ul style="list-style-type: none"> <li>Accuracy and quality of surveys used to locate drillholes (collar and downhole 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>	<ul style="list-style-type: none"> <li>Collar locations and details are shown in Table 2 within the main text.</li> <li>All reported drill hole collars are surveyed using a differential GPS and by a suitably qualified company contractor.</li> <li>Collar survey accuracy is <math>\pm 30</math> mm for easting, northing and elevation coordinates.</li> <li>Downhole survey measurements are collected every 30m using True North seeking Gyro (Reflex). Once the hole is completed, the hole is surveyed with a Sprint IQ Gyro (multishot) survey every 5m or 10m from collar to end of hole.</li> <li>All coordinates are based on Map Grid Australia Zone 53H Geodetic Datum of Australia 1994.</li> <li>Topographic measurements are collected from the final survey drill hole pick up.</li> </ul>
<i>Data spacing and distribution</i>	<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>	<ul style="list-style-type: none"> <li>Drill density in the Hermitage Exploration Target area is variable, ranging from 10m to 30m apart.</li> <li>The mineralised areas are yet to demonstrate sufficient grade or continuity to support the definition of a Mineral Resource and the classifications applied under the 2012 JORC Code.</li> <li>Emmerson considers the Hermitage gold and copper mineralisation to be an Early to Medium Stage Exploration Target.</li> <li>No sample compositing was applied.</li> </ul>
<i>Orientation of data in relation to geological structure</i>	<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>	<ul style="list-style-type: none"> <li>Recently completed exploration drilling is drilled perpendicular to the interpreted strike of the Hermitage ironstone. The angle of the holes are oblique to the interpreted ironstones. However, the holes traversed through the hanging wall and footwall of the ironstones.</li> <li>No orientation-based sampling bias has been identified in the data at this point.</li> <li>Review of available drill data, historical reports and geological maps suggest that the Hermitage Exploration Target has been drilled at the correct orientation.</li> </ul>
<i>Sample security</i>	<ul style="list-style-type: none"> <li>The measures taken to ensure sample security.</li> </ul>	<ul style="list-style-type: none"> <li>RC 3m composite samples are collected and bagged in a pre-determined Sample Number by field technician at the drill site.</li> <li>Cut core and RC samples are placed in sealed calico bags with predetermined sample number. The samples are placed in sealed polyweave bags and then larger bulka bags for transport to the sample preparation facility in Intertek Darwin laboratory.</li> <li>The GEM fills a Submission Form with the sample numbers and send the SubForm digitally to the Lab.</li> <li>The assay laboratory confirms that all samples have been received and that no damage has occurred during transport.</li> <li>Sample receipt is logged into Emmerson's sample ledger.</li> </ul>

Criteria	JORC Code Explanation	Commentary
		<ul style="list-style-type: none"> <li>• While samples are being prepared in the laboratory they are considered to be secured.</li> <li>• Tracking is available through the internet and designed by the laboratory to track the progress of batches of samples.</li> <li>• All RC chips and diamond core are stored in Emmerson yard in Tennant Creek.</li> </ul>
<i>Audits or reviews</i>	<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 formal audits or reviews have been completed on the samples being reported.</li> </ul>



## Section 2: Reporting of Exploration Results – Hermitage Project Area – Reverse Circulation and Diamond Drilling

Criteria	JORC Code explanation	Commentary
<i>Mineral tenement and land tenure status</i>	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>The Hermitage Exploration Target lies wholly within Mineral Lease 30177 (ML30177).</li> <li>The Hermitage Exploration Target is located 37kms north of Tennant Creek Township and 4kms west of the Stuart Highway.</li> <li>The Hermitage Exploration Target is situated on map sheet SE53-14 Tennant Creek 1:250,000 and sheet 5759 Flynn 1:100,000 at GDA94_Z53 coordinate 411234mE/7864300mN.</li> <li>ML30177 is located within Perpetual Pastoral Lease 946, known as Phillip Creek Station.</li> <li>ML30177 is 100% held by Santexco a 100% subsidiary of Emmerson Resources Limited.</li> <li>As the Exploration Target is on Perpetual Pastoral Lease exploration is subject to terms and agreements under Emmerson's ILUA.</li> <li>The ILUA entered between Emmerson Resources and the Central Land Council on behalf of the Aboriginal landowners provides for the protection of site and the payment of compensation.</li> <li>Exclusion Zones are identified within ML30177 however does not impact on the Hermitage Exploration Target.</li> <li>ML30177 is in good standing and no known impediments exist.</li> </ul>
<i>Exploration done by other parties</i>	<ul style="list-style-type: none"> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul style="list-style-type: none"> <li>There is no record of production from the Hermitage Exploration target and there are no workings except for several shallow pits on the most easterly ironstone outcrop.</li> <li>AGGSN conducted a ground magnetometer survey over the area in 1937 which defined an anomaly and later became Geopeko's Explorer 26. Later airborne and ground magnetic survey confirmed the presence of the anomaly.</li> <li>Geopeko (A Division of Peko Wallsend Operations Ltd) was granted EL4536 in July 1984 and conducted an airborne magnetic survey over the area and identified several anomalies, one of them was called Explorer 26. The prospect was gridded with ground magnetics. Geopeko drilled a total of 11 holes from 1987 to 1988, and intersected significant copper, gold, and bismuth mineralization from several holes.</li> <li>North Flinder Mines Ltd (in JV with Poseidon Gold Ltd) entered into a JV with Geopeko in 1991. NFM explored the area from 1991 to 1997. Work completed by NFM included gravity survey, vacuum and RAB drilling, and ground magnetic survey and one diamond drillhole.</li> <li>ML30177 North Star was granted to Emmerson Resources in April 2014, Hermitage is one of the targets located inside ML30177.</li> </ul>
<i>Geology</i>	<ul style="list-style-type: none"> <li>Deposit type, geological setting, and style of mineralisation.</li> </ul>	<ul style="list-style-type: none"> <li>The geological understanding of the Tennant Creek Mineral Field (TCMF) has been advanced by detailed mapping, dating of stratigraphic units and regional geophysical interpretation.</li> </ul>

Criteria	JORC Code explanation	Commentary
		<ul style="list-style-type: none"> <li>Tennant Creek Au-Cu-Bi mineralization, typically hematite-magnetite-quartz-jasper ironstones are hosted in the Lower Proterozoic Warramunga Formation.</li> <li>Hermitage is one of a cluster of prospects that occurs within the northern corridor, and which encompass Northern Star, Jasper Hills, Katherine Star and North Star within ML30177 and regionally also Rising Sun, Marathon, Kepler, Troy, Thrace, and Macedon. All these prospects occur within the northern gravity corridor which reflects a combination of denser, haematitic shales and ironstones.</li> <li>Few outcrops in the Hermitage area are dominated by hematite-quartz ironstone, silicified hematite-rich siltstone, and jasper units.</li> <li>The structure of the area is roughly east west and a north-east trend.</li> <li>The Hermitage deposit is comprised of at least two parallel veins.</li> <li>The main ironstone at Hermitage comprises of vuggy, boxwork texture of hematite <math>\pm</math> magnetite, quartz-jasper, with malachite as fracture fill/breccia fill and vug fill and blebs of native copper occurring in the oxide zone to transitional zone. In the primary zone, the ironstone is mostly brecciated hematite-magnetite-quartz-chlorite, with chalcopyrite occurring as blebs, fracture fills and stringers. Locally, native gold is found as specks in chlorite-hematite-magnetite zone. Dolomite-quartz cut by hematite stringers occur locally inside the main Hermitage ironstone.</li> </ul>
<i>Drillhole information</i>	<ul style="list-style-type: none"> <li>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drillholes: <ul style="list-style-type: none"> <li>Easting and northing of the drillhole collar.</li> <li>Elevation or RL of the drillhole collar.</li> <li>Dip and azimuth of the hole.</li> <li>Downhole length and interception depth.</li> <li>Hole length.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Drill hole information, collar detail and Significant Intersections is provided in the main text, Table 1, Table 2, Figure 2, and Figure 3.</li> </ul>
<i>Data aggregation methods</i>	<ul style="list-style-type: none"> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g., cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>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.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul style="list-style-type: none"> <li>Mineralized intersections are reported as down hole intervals.</li> <li>Significant Intersections are shown in Table 1. Cut-off grades have been used for reporting of exploration drill results and are defined below Table 1. Non-significant assay values were not individually reported. <ul style="list-style-type: none"> <li>HERC008, HERC009, HERC0011 and HERC012 are 3m composite samples.</li> <li>HERC010 from 150.2m -153m is a 2.8m composite sample; and 153m - 156m is a 3m composite sample.</li> <li>For Copper interval - minimum cut-off of 0.3% Cu. No maximum cut-off. Maximum of 7m internal dilution.</li> </ul> </li> <li>HERCDD005 and HERCDD006 assay results are still pending.</li> </ul>

Criteria	JORC Code explanation	Commentary
		<ul style="list-style-type: none"> <li>These results are exploration results only and no allowance is made for recovery losses that may occur should mining eventually result, nor metallurgical flow sheet considerations. No metal equivalent values reported.</li> </ul>
<i>Relationship between mineralization widths and intercept lengths</i>	<ul style="list-style-type: none"> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drillhole angle is known, its nature should be reported.</li> <li>If it is not known and only the downhole lengths are reported, there should be a clear statement to this effect (e.g., 'downhole length, true width not known').</li> </ul>	<ul style="list-style-type: none"> <li>The magnetite – hematite – quartz ± jasper ironstones at Hermitage trend east-west. Mineralization at the Hermitage Exploration Target is hosted in hematite - jasper ± magnetite ironstone is usually vuggy in the oxidized zone. Below the base of oxidation, magnetite – hematite ± quartz ± jasper is brecciated, locally massive.</li> <li>The Hermitage ironstones is subvertical and strikes ~east-west to 080° azimuth.</li> <li>Ironstone intersections from previous and recent drilling showed a lateral extent of ~95m and vertical extent of ~100m-140m for the Hermitage main ironstone, and is still open to the east, west and at depth.</li> <li>Mineralized intersections are reported as down hole intervals.</li> <li>The true width of the main ironstone intersected so far has variable width/thickness from 10m to 40m.</li> </ul>
<i>Diagrams</i>	<ul style="list-style-type: none"> <li>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 drillhole collar locations and appropriate sectional views.</li> </ul>	<ul style="list-style-type: none"> <li>Refer to Figure 2 and Figure 3 in body of text for location of holes.</li> </ul>
<i>Balanced reporting</i>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Drilling results are reported as cut-offs shown in Table 1.</li> </ul>
<i>Other substantive exploration data</i>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>North Flinders Mines Ltd completed an “in house” Resource Estimate and Geological Report for the Hermitage Exploration Target.</li> <li>Emmerson are cautious and do not believe a historical Resource Estimate can be reported in accordance with the current 2012 JORC Code.</li> <li>Various geophysical surveys have been conducted over the Hermitage Exploration Target. These include magnetic and gravity surveys.</li> </ul>
<i>Further work</i>	<ul style="list-style-type: none"> <li>The nature and scale of planned further work (e.g., tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul style="list-style-type: none"> <li>Further work on the reported exploration targets will involve: <ul style="list-style-type: none"> <li>Assessment of assay results.</li> <li>Update the geological model and interpretation of ironstone from recent drilling.</li> <li>Preliminary resource estimate potential for Hermitage (non-JORC).</li> <li>A new ultra-high resolution (UHR) drone magnetic survey has commenced in the Northern Star Area to Whippet mineralised corridor, including the Hermitage, to identify further extensions to the ironstones that host high-grade gold and copper.</li> <li>Follow up drilling.</li> </ul> </li> </ul>