

## ASX ANNOUNCEMENT

13 December 2021

# Butchers Creek Metallurgical Test Work Confirms Gold Recoveries Above 96%

### Highlights

- Butchers Creek ore is deemed amenable to a low-cost processing route incorporating a standard CIL cyanide leach plant
- Whole of ore leaching achieved gold dissolution of 96.4 % after only 24 hours leach time
- Composited sample exhibited straightforward non-refractory metallurgical characteristics
- Physical characteristics indicate soft to medium hardness for ore readily amenable to conventional crushing
- From these results, a simplified flowsheet presents a potential low-cost treatment facility and ore which is amenable to toll treatment

Meteoric Resources NL (ASX: MEI) (“Meteoric” or “the Company”) is pleased to announce the initial results of metallurgical test work carried out on recently drilled core from the sulphide zone at the Butchers Creek Deposit, the centerpiece of the Company’s wholly owned Palm Springs Project in Western Australia.

The current metallurgical test work program was designed as a series of sighter tests to gauge the complexity required to recover gold from Butchers Creek using standard sulphide ore screening techniques. Samples of half core from Butchers Creek holes BCRD 484 (Composite #1) and BCRD486 (Composite #2) were sent to ALS laboratories in Perth where the two composites were formulated.

#### **Dr. Andrew Tunks, Meteoric’s Managing Director commented:**

*“These initial metallurgical test results of Composite #1 from Butchers Creek have produced an outstanding result in that a low cost simple “whole of ore” flowsheet using CIL only is indicated as being suitable for our project. Excellent cyanide leach recoveries in excess of 96%, with the potential to improve on this result, were achieved without the added complication, capital and operating cost imposed by either gravity recovery or flotation.*

*The most important outcome from this test work is the high leach recovery achieved on straight “whole of ore” leaching, which indicates the gold is well liberated and not locked up or influenced by the presence of moderate amounts of sulphides.*

Such a high recovery number will feed directly into the current scoping study and will have a substantial impact on mine design and capital and operating cost estimates, The outcomes from the scoping study will drive the Company's Halls Creek strategy in 2022 and will be released in the first quarter 2022.

## Metallurgical Test Programme

Each Composite was formulated at ALS Laboratories in Perth from half HQ core sent from site. All test work was done under the supervision of Trinol Pty Ltd in Perth.

Prior to compositing, half-core samples were set aside to measure the physical characteristics - UCS, Crushing Index (CWi) and Ball Milling Index (BBMi).

Head samples were examined by XRD to gauge the extent of sulphide minerals present, then subjected to the following standard test regime:

- Grind Establishment
- Gravity followed by direct cyanide leach
- Gravity recovery followed by flotation, ultra-fine grinding to 10 microns of the concentrate and leaching of the tailings
- Whole of ore leaching
- The full ALS metallurgical testing flowsheet is included below in Appendix 1

## Composites

Composite 1 was made up from Hole BCRD 484 (Table 1):

**Table 1.** Composite 1 from Hole BCRD 484 (284-315m)

Sample ID	Sample Type	Composite ID	As Received Weight (kg)	Composite Gold g/t	Assay Sulphur %
BCRD 484	Half Core	Palm Springs BCRD 484 Fresh Composite #1	48.3	<b>1.42</b>	<b>1.44</b>

Composite 2 was made up from hole BCRD 486 (Table 2):

**Table 2.** Composite 2 from Hole BCRD 486 (289-318m)

Sample ID	Sample Type	Composite ID	As Received Weight (kg)	Composite Gold g/t	Assay Sulphur %
BCRD 486	Half Core,	Palm Springs BCRD 486 Fresh Composite #2	42.5	<b>TBD</b>	<b>TBD</b>

\*Testing on Composite #2 is still in progress.

## Mineralogy

The XRD analyses for Composite #1 shown below (Table 3), confirms moderately sulphidic ore containing just over 1% combined sulphides. The ore also contains calcite and carbonate, ~4% by mass, which will assist with moderating potentially acid forming properties of the tailings and reduce lime consumption in the process.

**Table 3.** XRD analysis of Composite #1

Mineral or Assembly	Composite # 1	
	Mass %	
Pyrrhotite	1	
Pyrite and/or hematite	< 1	
Clay mineral	< 1	
Chlorite	16	
Muscovite	1	
Plagioclase	38	
K-feldspar	24	
Quartz	16	
Calcite	2	
Siderite type carbonate	2	

## Physical Properties

The measured physical properties (Table 4) indicated a weak to moderate hardness for ore which would not pose issues in terms of the design or selection of conventional crushing and grinding equipment.

**Table 4.** Physical properties of ore

Property	Value		Comment
UCS	14.9 – 30.0	MPa	Weak to moderate
CWi	Ave. 6.0	kWh/t	Low
BBMi	Ave. 17.0	kWh/t	Moderately hard

## Leach Tests

**Table 5.** Leach Tests

Test Detail Composite #1	Grind	Gold Assay	g/t		Au Extraction	
			Individual	Head	Gravity	24 hr cyanide
Gravity/Direct Cyanide leach	75	1.22/1.58/1.59/1.29	1.42	37.4%	93.4%	94.5%
Gravity/Flotation/UFG Conc./Direct Cyanide leach	75	1.22/1.58/1.59/1.29	1.42	38.5%	96.5%	97.3%
<b>Whole of ore leach</b>	<b>75</b>	<b>1.22/1.58/1.59/1.29</b>	<b>1.42</b>	<b>0</b>	<b>96.4%</b>	<b>94.7%</b>

All leach tests (Table 5) were completed at a conventional grind size of p80 = 75 microns. Gravity recovery was determined in a mini-Knelson Concentrator and the results of 37% - 39% gravity recoverable gold would ordinarily be extremely encouraging. However, the overall recoveries at 24 hr. leach time, even in conjunction with flotation, are only marginally improved from 96.4% to 96.5% and as such, gravity and flotation would not be justifiable. This will be the subject to further close examination as development of the Palm Springs Project continues.

The most encouraging result was obtained from the “whole of ore” leach tests, which produced a recovery of 96.4% after a leach time of only 24 hours. It was noted that the recovery dropped off at 48 hours and this may be influenced by mild preg robbing properties. This observation will be the subject of further examination as there are techniques to counter preg robbing influences if they are present and could result in better recoveries.

**The most important outcome from this test work is the high leach recovery achieved on straight “whole of ore” leaching, which indicates the gold is well liberated and not locked up or influenced by the presence of moderate amounts of sulphides.**

### Further Work

Composite #2 test work is currently being completed at ALS and the results are expected next month.

These results will be incorporated with Composite test #1 and fed into the current scoping study that is underway with independent consultants, Auralia Mining Consulting. Results from the studies will be available in Quarter 1 2022.

This announcement has been authorised for release by the Directors of the Company.

### For further information, please contact:

#### Dr Andrew Tunks

Managing Director

Meteoric Resources

E: [aitunks@meteoric.com.au](mailto:aitunks@meteoric.com.au)

T: +61 400 205 555

#### Victoria Humphries

Investor and Media Relations

NWR Communications

E: [victoria@nwrcommunications.com.au](mailto:victoria@nwrcommunications.com.au)

T: +61 431 151 676

#### Competent Person Statement

*The information in this announcement that relates to exploration results is based on information reviewed, collated and fairly represented by Mr Peter Sheehan who is a Member of the Australasian Institute of Mining and Metallurgy and a consultant to Meteoric Resources NL. Mr Sheehan has sufficient experience relevant to the style of mineralisation and type of deposit under consideration, and to the activity which has been undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Sheehan consents to the inclusion in this report of the matters based on this information in the form and context in which it appears.*

*The information in this release that relates to metallurgy and metallurgical test work has been reviewed by Mr Noel O'Brien, FAusIMM, MBA, B. Met Eng. Mr O'Brien is not an employee of the Company but is employed as a contract consultant. Mr O'Brien is a Fellow of the Australasian Institute of Mining and Metallurgy, he has sufficient experience with the style of processing response and type of deposit under consideration, and to the activities undertaken, to qualify as a competent person as defined in the 2012 edition of the “Australian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves” (The JORC Code). Mr O'Brien consents to the inclusion in this report of the contained technical information in the form and context as it appears.*

APPENDIX 1.

Figure 1. Metallurgical Test Program Flowsheet – Butchers Creek Comminution Test Work

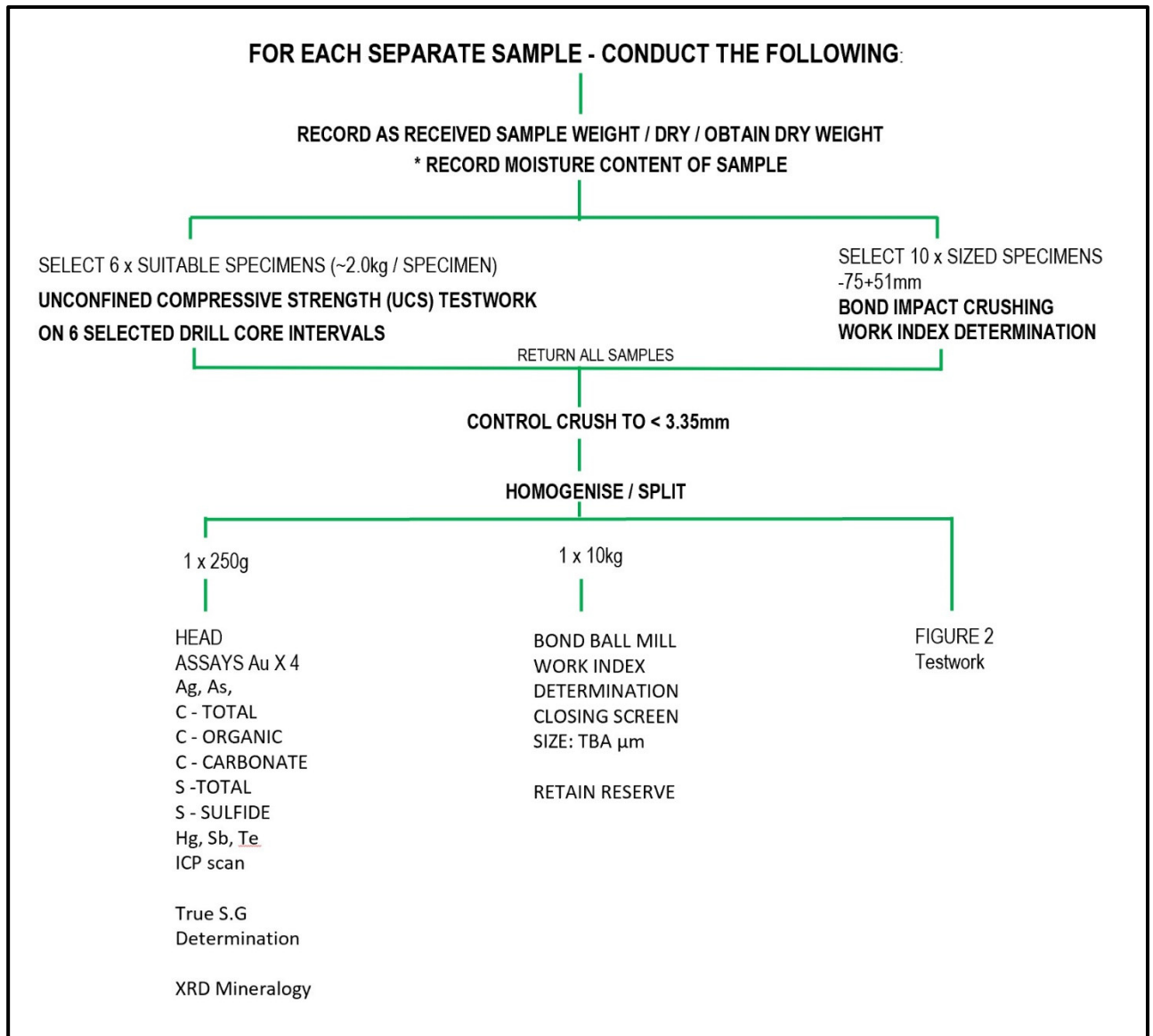
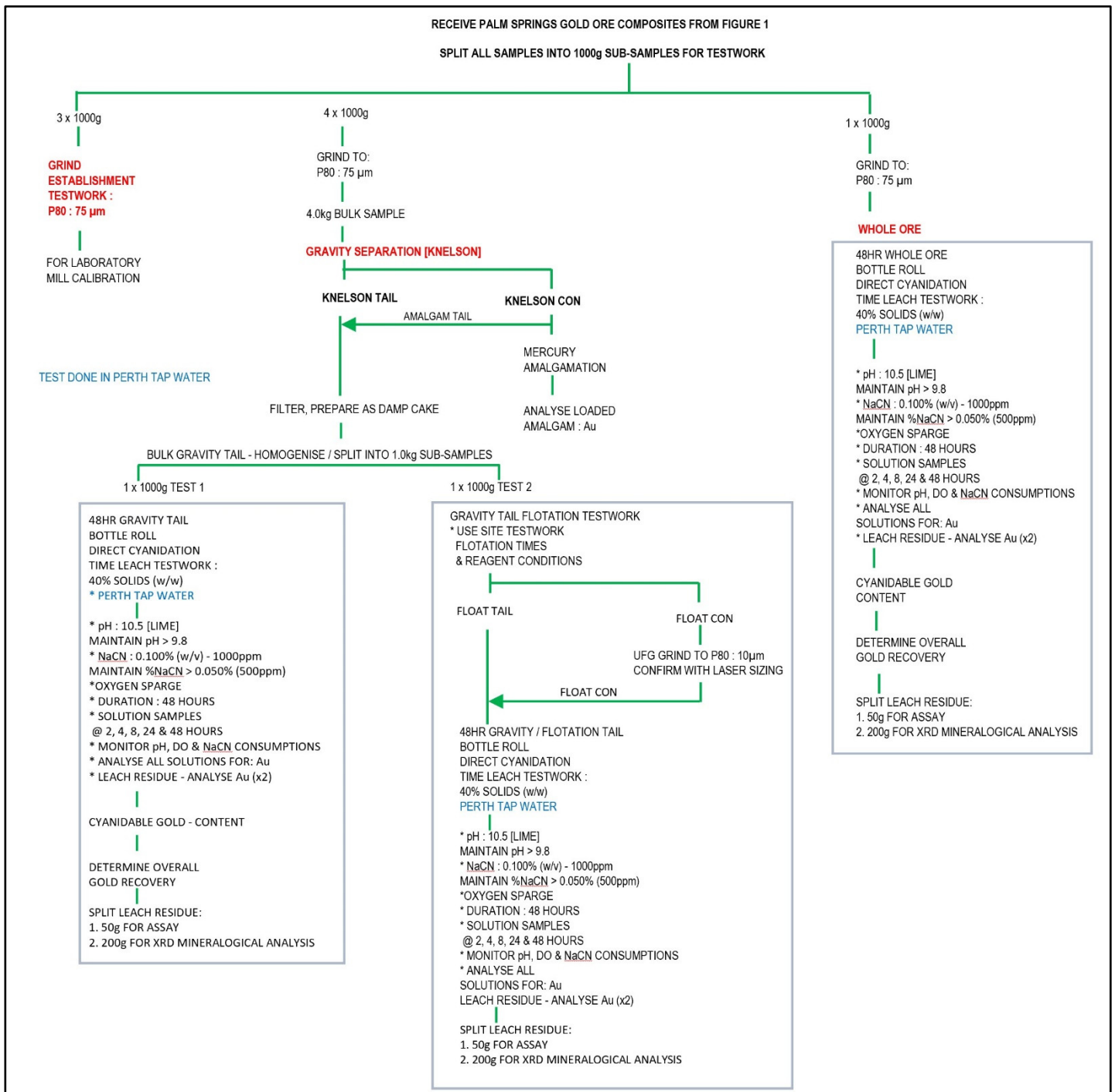


Figure 2. Metallurgical Test Program Flowsheet – Butchers Creek Extraction Test Work



## Appendix 2 - JORC Code, 2012 Edition Table 1

### Section 1 Sampling Techniques and Data

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

Criteria	Commentary
<i>Sampling techniques</i>	<ul style="list-style-type: none"> <li>REVERSE CIRCULATION (RC) drilling was used to obtain 1 m samples from which 3-5 kg was split out, then sent to the laboratories to be pulverised to produce a 50 g charge for fire assay.</li> <li>DIAMOND CORE (DD) drilling was used to obtain 1 m samples from which 3-5 kg was cut, then sent to the laboratories to be pulverised to produce a 50 g charge for fire assay.</li> </ul>
<i>Drilling techniques</i>	<ul style="list-style-type: none"> <li>RC drilling was carried out using a McCulloch DR950 with 3.5' rods and a 5.7/8' face sampling hammer.</li> <li>DD drilling was completed using a McCulloch DR950 drilling rig which produced HQ3 diameter core.</li> <li>The core was oriented using the TruCore UPIX tool and structural measurements were collected in zones of mineralisation and/or zones of interest.</li> </ul>
<i>Drill sample recovery</i>	<ul style="list-style-type: none"> <li>Core loss is systematically measured and recorded by the Field Technician when the core is received from the rig. Additionally, it is often recorded by the Geologist in the Comments section of the summary logging sheets. Core recovery was excellent with &gt;98% recoveries in fresh rock.</li> <li>The condition of RC drill chips are recorded in the Comments section of the sample sheets if there was 'wet sample' or 'no sample' return. Two (2) holes experienced excessive water and were abandoned (at &gt;300m depth). Only the last 2-3 metres returned 'wet' samples.</li> <li>The utilisation of a high capacity RC drill rig (listed above) ensures recoveries are maximized in the deep RC drilling.</li> <li>No relationship (positive or negative) was observed between recovery and gold grade. There is no reason to believe any sample bias has been introduced as a result of the recovered sample fraction.</li> </ul>
<i>Logging</i>	<ul style="list-style-type: none"> <li>RC drill holes were geologically logged on 1m intervals and in sufficient detail to support descriptions of rock types and mineralisation presented in the Announcement above.</li> <li>DD drill holes were logged based on lithology/alteration boundaries and in sufficient detail to support descriptions of rock types and mineralisation presented in the Announcement above.</li> <li>Logging is qualitative in nature recording: oxidation, texture, rock type, structure type and alpha angles, alteration type and intensity, sulphide type and percentages.</li> <li>All DD and RC drill holes were logged in their entirety for the 2020 drilling program.</li> </ul>
<i>Sub-sampling techniques and sample preparation</i>	<ul style="list-style-type: none"> <li>DD Core for sampling was systematically sawed in half (using a cut line as a reference) and Half Core was generally submitted to the laboratory for analysis. The same side of the cut line was submitted for analysis to maximise representivity. Where Duplicate samples were required, the half core was sawed in half again and quarter core for the relevant interval was submitted to the laboratory for analysis.</li> <li>RC chips were split by individual metre at the drill rig into 3-5kg sub samples using a cone splitter.</li> <li>Both sampling methods are considered appropriate for Au determination given the sample size and are supported by Standard Industry practices.</li> </ul>
<i>Quality of assay data and laboratory tests</i>	<ul style="list-style-type: none"> <li>Analysis was carried out by Australian Laboratory Services (Perth, WA), an accredited Laboratory, namely. Au determination was by Fire Assay (50g charge).</li> <li>No additional methods or tools for sampling are considered in the text.</li> <li>Quality control samples were inserted every 20 samples with a mixture of standards, blanks and duplicates. For RC a duplicate sample was taken from the cone splitter. For DD where quarter core was sampled, quarter core was submitted as a duplicate sample. Where half core was sampled, quarter core was submitted as a duplicate sample. Where whole core was sampled, no duplicate samples were submitted.</li> </ul>

Criteria	Commentary
<i>Verification of sampling and assaying</i>	<ul style="list-style-type: none"> <li>• Significant intersections in the above announcement were cross checked by site geologists by revisiting the individual chip trays or diamond drill core and making a visual comparison of observed alteration with reported gold grades, and/or against recorded drill hole logs.</li> <li>• Significant intersections in historic drill holes in the area of the existing pit were supported by grade control drilling. The author is encouraged by reported recovered mill reconciled grades of 2.09g/t Au versus a stated resource grade of 2.10g/t Au. While this is not definitive it does lend weight to accurate drilling grades.</li> <li>• Several historic RC holes (BCRC*) were twinned by historic diamond holes (BCD*). For several holes both grade and intersection width varied significantly. This will be followed up in subsequent work.</li> <li>• MEI completed several twin drill holes of historic drill holes in the 2020 drilling program with results and geostatistics to be reported upon when complete (upon receipt of all outstanding assays).</li> <li>• Drill hole information was recorded on a combination of paper logs and excel spreadsheets in the field, then transferred into an access database at the completion of the program. Data checks are run by Project manager subsequent to loading the data looking for incomplete or incorrect intervals in the database.</li> <li>• Assay data has not been adjusted.</li> </ul>
<i>Location of data points</i>	<ul style="list-style-type: none"> <li>• Drill hole collars have been picked up with a handheld GPS and recorded using MGA94 datum.</li> <li>• MNG Survey based in Kununurra provided survey control for the drill program and all 2020 drill hole collars will be picked up using a DGPS using MGA.</li> <li>• Current topographic control (20m contours) plus collar pickups are considered adequate as a basis for the design and reporting of exploration drilling.</li> </ul>
<i>Data spacing and distribution</i>	<ul style="list-style-type: none"> <li>• Drill spacing over the historical resource at Butchers Creek is generally 40m between collars, drilled on sections 20m apart.</li> <li>• Drill spacing for 2021 program is up to 80m between collars, drilled on sections 40m-50m apart.</li> <li>• The drill spacing is considered sufficient to support exploration results.</li> <li>• No compositing has been applied to exploration results.</li> </ul>
<i>Orientation of data in relation to geological structure</i>	<ul style="list-style-type: none"> <li>• Mapping of the pit floor and walls during open cut mining by PMA identified a complex vein system. The structural orientation of mineralized vein system at Mt Bradley is poorly understood. All MEI's 2021 DD holes were orientated with structural and lithological data recorded in the logging to better understand any veining.</li> <li>• The drill orientation for all holes at Mt Bradley is dominantly at right angles to the strike of the stratigraphy but not necessarily the vein array. The majority of holes at Butchers Creek are angled with an easterly drill azimuth, which is optimal to test both steep and shallow west dipping mineralisation. Several vertical holes are shown on section.</li> </ul>
<i>Sample security</i>	<ul style="list-style-type: none"> <li>• All sampling of MEI's 2021 drilling program was supervised and carried out by experienced geologist and technician. Both RC and DD samples were bagged in calico bags onsite, with 4 calico's bags containing samples were transferred into a poly-weave bag and then into a large bulka bag for transport via road from Halls Creek to ALS in Perth using a reputable transport company.</li> <li>• The security of the sampling process is considered to be appropriate by the author.</li> </ul>
<i>Audits or reviews</i>	<ul style="list-style-type: none"> <li>• No audits or reviews have been conducted on the project.</li> </ul>



## Section 2 Reporting of Exploration Results

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

Criteria	Commentary
<i>Mineral tenement and land tenure status</i>	<ul style="list-style-type: none"> <li>• Shown in Appendix 2.</li> </ul>
<i>Exploration done by other parties</i>	<ul style="list-style-type: none"> <li>• A Low-Level aerial Magnetic-Radiometric survey was flown over 30% of the project area in Dec 1996.</li> <li>• Southern Geoscience completed a litho-structural analysis of the aeromagnetic and identified 16 exploration targets for gold mineralisation.</li> <li>• Two regional stream sediment surveys were completed Geochemex (1996) and Stockdale (1997) and 440 sites sampled.</li> <li>• PMA completed infill stream sediment sampling of 16 target areas and three high priority areas were identified.</li> <li>• Prior to Meteoric, there hasn't been any systematic exploration or drilling of these tenements since mine closure in June 1997.</li> </ul>
<i>Geology</i>	<ul style="list-style-type: none"> <li>• The project is located within the Halls Creek Mobile Zone and includes numerous gold occurrences, the majority of which are associated with quartz vein systems developed within anticlinal hinges and adjacent to fault zones. The Butchers Creek mine sequence is composed of Lower Proterozoic turbiditic sediments, trachyandesitic volcanics of the Olympio Formation, Butchers Ck Member and basic sills and dykes, which are tightly folded and metamorphosed to greenschist facies.</li> <li>• Mineralisation is associated with the quartz vein arrays associated with the brittle deformation of massive trachyandesite, particularly where its highly altered, with a high sulphide occurrence.</li> <li>• Gold mineralisation is associated with anticlinal fold hinges, which plunges at 20-30degrees to the south from the southern limit of the open cut. The folded trachyandesite is within a tightly folded overturned anticline, with the western limb dipping 70 west and eastern limb dipping 85 degrees west dipping, beside a major north trending regional shear zone.</li> </ul>
<i>Drill hole Information</i>	<ul style="list-style-type: none"> <li>• Provided in Table 1 of main report.</li> </ul>
<i>Data aggregation methods</i>	<ul style="list-style-type: none"> <li>• Mineralized Intercepts provided in Appendix 1 are uncut, have a minimum width of 2m, use a lower-cut 0.5g/t Au, and allow a maximum of 2m internal dilution.</li> <li>• Generally, where &gt;75% of the contained metal for an intercept is contained with &lt;25% of the width, short lengths with high-grades are reported as "including...".</li> <li>• No Metal Equivalents are used.</li> </ul>
<i>Relationship between mineralisation widths and intercept lengths</i>	<ul style="list-style-type: none"> <li>• All assay intervals are down hole intersections, the true width isn't reported.</li> <li>• The drill orientation for reported holes is dominantly at right angles to the strike of the stratigraphy, but not necessarily the vein array. The majority of holes at Butchers Creek are angled with an easterly drill azimuth, which is optimal to test both steep and shallow west dipping mineralisation. Several vertical holes are shown on section.</li> <li>• Mineralisation is interpreted to dip 70°-80° towards the (grid) west, drilling is generally oriented 60°-80° to (grid) east. Therefore, true widths are likely to be ~25% narrower than reported downhole widths.</li> </ul>
<i>Diagrams</i>	<ul style="list-style-type: none"> <li>• Refer to body of the announcement for Cross-Sections and Drill Collar plots.</li> </ul>
<i>Balanced reporting</i>	<ul style="list-style-type: none"> <li>• Mineralised Intercepts for all drill holes reported in the above report are presented in the Appendices.</li> </ul>
<i>Other substantive exploration data</i>	<ul style="list-style-type: none"> <li>• There is no other substantive exploration data that is meaningful and material to the current Release.</li> </ul>
<i>Further work</i>	<ul style="list-style-type: none"> <li>• Refer to the body of announcement.</li> </ul>