



Suite 1/9 Hampden Road
Nedlands WA 6009
Tel: +61 8 9386 8382
Fax: +61 8 6183 4892
ABN: 59 151 155 734
www.santafeminerals.com.au

19 December 2019

Company Announcements Office
ASX Limited

**REVERSE CIRCULATION DRILLING COMMENCES AT CHALLA BASE METAL
VMS TARGETS**

- Combined total of 900m metres of drilling to be conducted at the Mt Carron (N6) copper-zinc target and the Yalanga Bore copper-zinc target.
- Mt Carron is a 500m long combined FLEM target 1.4kms south of the historic Rosemary/Ann copper-zinc prospect.
- The Yalanga Bore base metal target is a MLEM conductor adjacent to an area of historic shallow drilling with strong copper zinc anomalism.

Santa Fe Minerals Ltd (“**Santa Fe**”, “**SFM**” or “**the Company**”) is pleased to advise Reverse Circulation (RC) drilling has commenced at its Mt Carron copper-zinc Volcanic Massive Sulfide (VMS) target. Following completion, the drill rig will then move to test the Yalanga Bore copper-zinc (VMS) target.

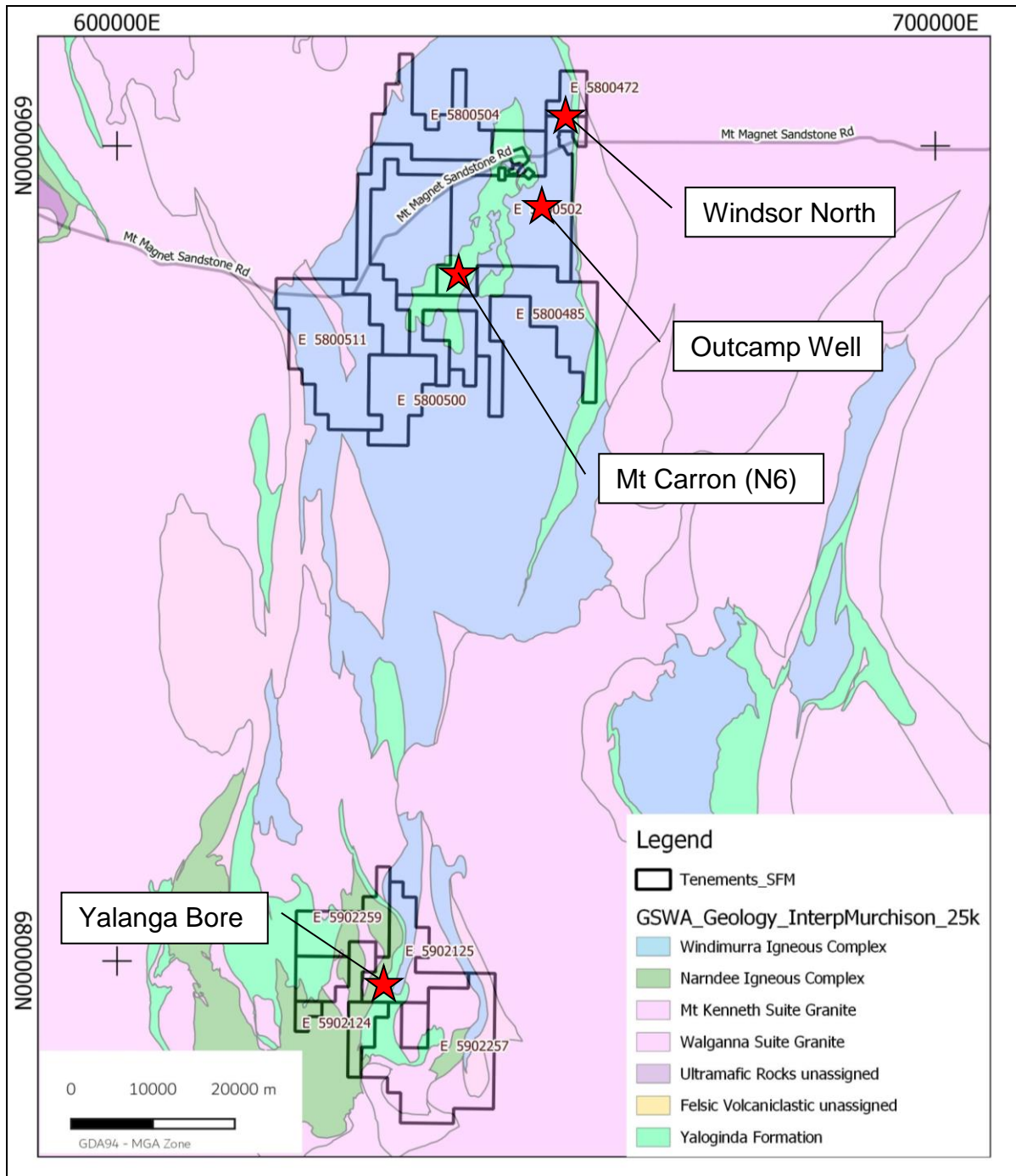


Figure 1 - Challa Project Area

Mt Carron Copper-Zinc Target (100% SFM) - Challa North

A Fixed Loop Electromagnetic (FLEM) survey completed over the Mt Carron (N6) target in the September quarter (ASX report dated 16th September 2019) returned two strong and two moderate conductors in an area of 500m x 200m. The top of the modelled conductors ranges from 50-100m depth. The Mt Carron target has not previously been drilled and is located 1.4km south of the outcropping Rosemary/Ann copper zinc prospect. Four RC holes are planned to test the conductors for copper-zinc mineralisation (Table 1 and Figure 2).

Table 1: Proposed RC drill holes.

Conductor	Hole ID	MGA50E	MGA50N	Incl	Az	Depth to Target	Total Depth
N6_FLEM_A_3850S	MCRC0001	642840	6884140	-60	270	100m	130m
N6_FLEM_B_1400S	MCRC0002	642610	6884297	-50	350	80m	110m
N6_FLEM_C_1000S	MCRC0003	642576	6884435	-90	360	50m	80m
N6_FLEM_D_1500S	MCRC0004	642806	6884019	-60	270	120m	150m

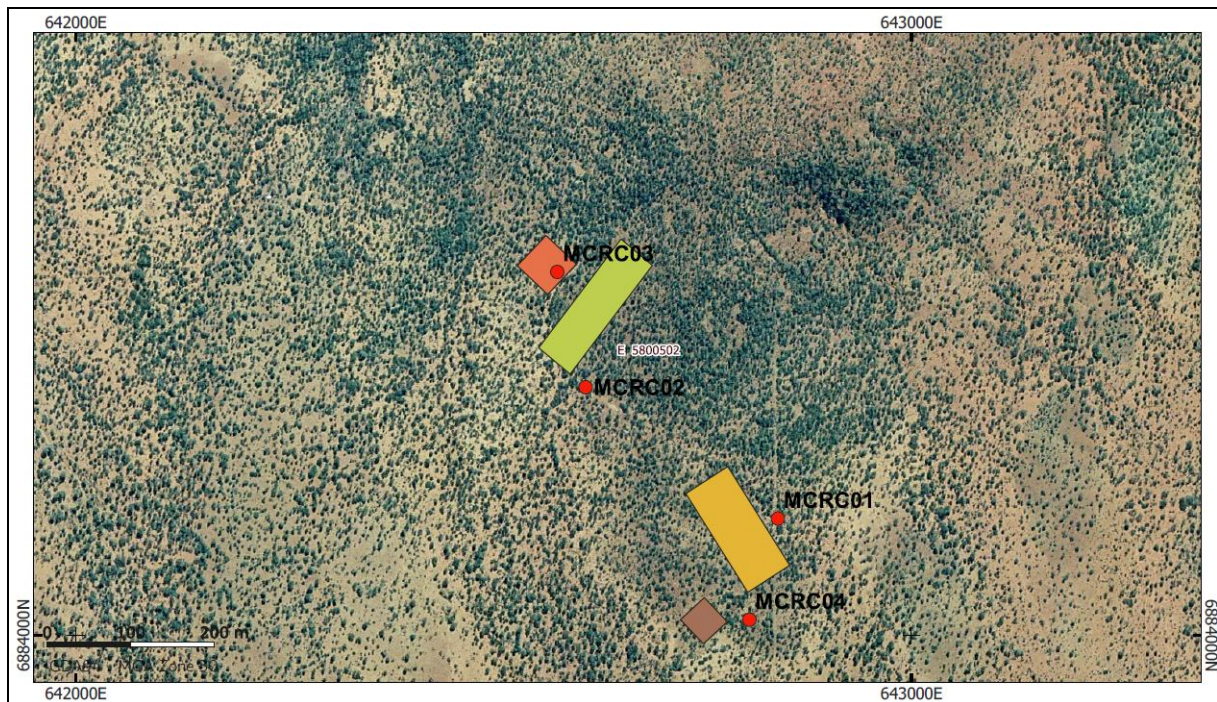


Figure 2 - Mt Carron Copper- Zinc target showing the position of the modelled FLEM conductors and the collars of the proposed RC drill-holes.

Yalanga Bore Copper-Zinc Target (100% SFM) - Challa South

A Moving Loop Electromagnetic MLEM survey completed at Yalanga Bore in the September quarter identified a steeply dipping conductor adjacent to historic shallow drilling with reported strongly anomalous copper and zinc (ASX report dated 16 September 2019). The modelled position of the MLEM conductor would not have been tested by the previous drilling. A maximum of three RC holes are planned to test for copper-zinc mineralisation. Hole YBRC01 will be drilled initially, with a decision to be made on drilling YBRC02 and YBRC03 based on drill hole logging at YBRC01 - See Table 2 and Figure 3.

Table 2: Yalanga Bore Proposed RC holes

Conductor	Hole ID	MGA50E	MGA50N	Incl	Az	Depth to Target	Total Depth
YB_MLEM_C1_3800S	YBRC01	632430	6796845	-60	135	120m	150m
YB_MLEM_C1_3800S	YBRC02	632415	6796800	-60	135	120m	150m
YB_MLEM_C1_3800S	YBRC03	632453	6796872	-60	135	120m	150m

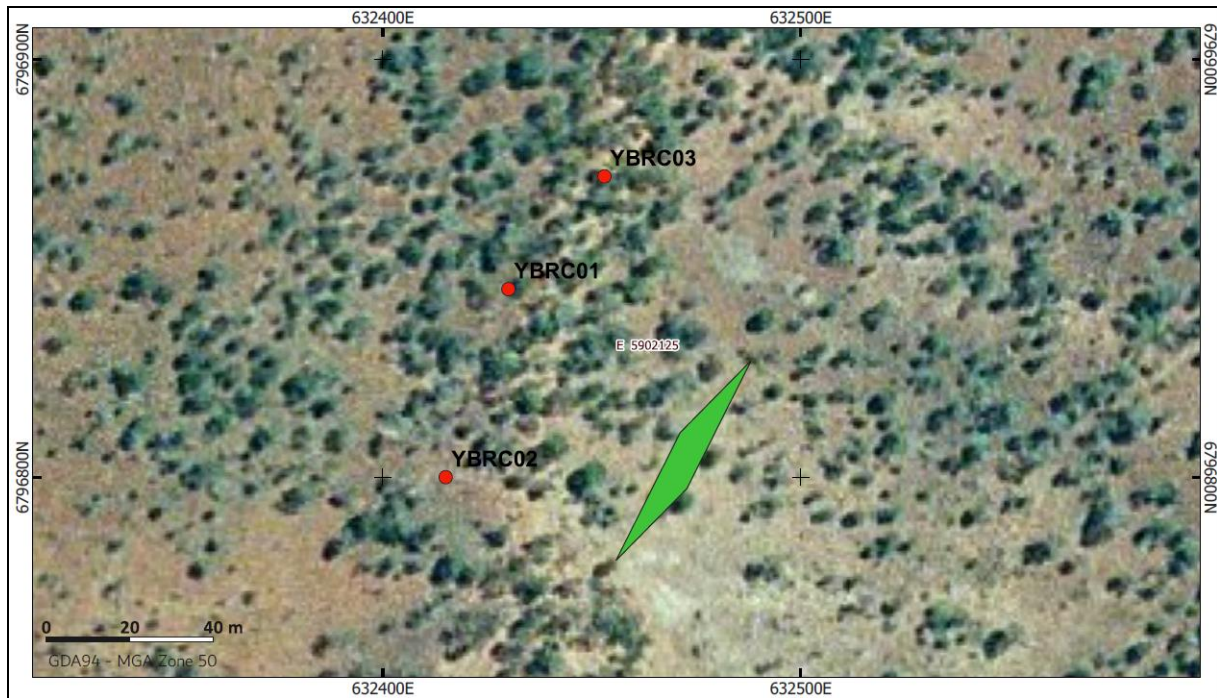


Figure 3: Yalanga Bore MLEM conductor and proposed RC collar positions. The drill holes will be orientated at -60 /135.

This current drilling program is expected to be completed in 7-10 days with assay results anticipated in early 2020. Subject to positive results, further drilling will be required.

For further information on the Mt Carron and Yalanga Bore prospects, please see ASX announcement “Strong Electromagnetic Conductors Identified at Challa North and South Copper/Zinc VMS Targets” dated 16 September 2019.

Windsor North and Outcamp Well Air Core Drilling Results

A total of 24 AC drill holes for 1,648m was completed at the Windsor and Outcamp Well targets, much less than the planned 49 holes and 3,000m (See announcement dated 21 October, 2019). The reduced program was due to thicker than anticipated cover sequence of lacustrine clays locally in excess of 80m depth. All assays have been returned with no significant results. This has downgraded the potential of these prospects and no further exploration is anticipated at this stage.

For investor queries, please contact:

Doug Rose
 Managing Director
 Santa Fe Minerals Limited
 +61 409 465 511

COMPLIANCE STATEMENT

The information in this report that relates to Exploration Results is based on information compiled by Mr Reginald Beaton who is a Member of the Australian Institute of Geoscientists. Mr Beaton is an employee of Santa Fe Minerals Limited and has sufficient experience which is relevant to the style of mineralisation under consideration to qualify as a Competent Person as defined in the 2012 Edition of the ‘Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves’. Mr Beaton consents to the inclusion in the report of the matters based on the information compiled by him, in the form and context in which it appears.

The Company confirms that it is not aware of any new information or data that materially affects the information in the original reports, and that the form and context in which the Competent Person’s findings are presented have not been materially modified from the original reports.

Appendix 1 – Windsor Windsor North and Outcamp Well Air Core Drill Collar Table

Hole_ID	Max_Depth	GDA_East	GDA_North	Mag_Azimuth	Dip	Lease_ID	Prospect	Date	Contractor
WAC001	54	655432	6903495	90	-60	E58/502	WINDSOR NORTH	21/10/2019	HARMEC
WAC002	60	655377	6903495	90	-60	E58/502	WINDSOR NORTH	21/10/2019	HARMEC
WAC003	63	655327	6903497	90	-60	E58/502	WINDSOR NORTH	21/10/2019	HARMEC
WAC004	69	655281	6903496	90	-60	E58/502	WINDSOR NORTH	22/10/2019	HARMEC
WAC005	75	655183	6903503	90	-60	E58/502	WINDSOR NORTH	22/10/2019	HARMEC
WAC006	69	655085	6903498	90	-60	E58/502	WINDSOR NORTH	22/10/2019	HARMEC
WAC007	63	654986	6903499	90	-60	E58/502	WINDSOR NORTH	22/10/2019	HARMEC
WAC008	87	654941	6903496	90	-60	E58/502	WINDSOR NORTH	23/10/2019	HARMEC
WAC009	82	654884	6903499	90	-60	E58/502	WINDSOR NORTH	23/10/2019	HARMEC
WAC010	96	654787	6903500	90	-60	E58/502	WINDSOR NORTH	24/10/2019	HARMEC
WAC011	96	654686	6903498	90	-60	E58/502	WINDSOR NORTH	24/10/2019	HARMEC
WAC012	84	654585	6903504	90	-60	E58/502	WINDSOR NORTH	24/10/2019	HARMEC
WAC013	62	653635	6891897	0	-90	E58/502	OUTCAMP WELL	25/10/2019	HARMEC
WAC014	63	653449	6891891	0	-90	E58/502	OUTCAMP WELL	25/10/2019	HARMEC
WAC015	64	653247	6891788	0	-90	E58/502	OUTCAMP WELL	25/10/2019	HARMEC
WAC016	72	653054	6891775	0	-90	E58/502	OUTCAMP WELL	26/10/2019	HARMEC
WAC017	72	652852	6891723	0	-90	E58/502	OUTCAMP WELL	26/10/2019	HARMEC
WAC018	81	652661	6891669	0	-90	E58/502	OUTCAMP WELL	26/10/2019	HARMEC
WAC019	72	652455	6891626	0	-90	E58/502	OUTCAMP WELL	26/10/2019	HARMEC
WAC020	78	652261	6891578	0	-90	E58/502	OUTCAMP WELL	27/10/2019	HARMEC
WAC021	48	651453	6891392	0	-90	E58/502	OUTCAMP WELL	27/10/2019	HARMEC
WAC022	32	651262	6891349	0	-90	E58/502	OUTCAMP WELL	27/10/2019	HARMEC
WAC023	38	651073	6891294	0	-90	E58/502	OUTCAMP WELL	27/10/2019	HARMEC
WAC024	56	651653	6891420	0	-90	E58/502	OUTCAMP WELL	27/10/2019	HARMEC

JORC Code, 2012 Edition – Table 1 report template

Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
<i>Sampling techniques</i>	<ul style="list-style-type: none"> 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 down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling. Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 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. 	<p>Air Core (AC) drilling was undertaken to provide the samples.</p> <p>Samples were collected every 1m of drilling via a cyclone mounted on the drill rig. The 1m drill samples were laid out on the ground next to the rig. Composite samples were then collected over a 4m interval using an aluminum scoop. Each sample of about 2-3kgs is stored in a pre-numbered calico bag.</p> <p>All the 4m composite samples were submitted to a Laboratory (Bureau Veritas – Perth) to be crushed pulverized and assayed.</p>
<i>Drilling techniques</i>	<ul style="list-style-type: none"> Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.). 	<ul style="list-style-type: none"> The drilling method was industry standard AC. The drilling was completed by Harmec Pty Ltd using a track mounted rig.
<i>Drill sample recovery</i>	<ul style="list-style-type: none"> Method of recording and assessing core and chip sample recoveries and results assessed. Measures taken to maximise sample recovery and ensure representative nature of the samples. Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material. 	<ul style="list-style-type: none"> A visual assessment of the sample recovery was completed by the Supervising Geologist. The sample recovery is considered adequate for this early stage of exploration. Standard AC drilling practice was used to ensure maximum sample recoveries. For this early stage of exploration there is no study of the sample bias relationships available.

Criteria	JORC Code explanation	Commentary
<i>Logging</i>	<ul style="list-style-type: none"> <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> <i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</i> <i>The total length and percentage of the relevant intersections logged.</i> 	<ul style="list-style-type: none"> AC drill chips were logged on site by a Geologist sufficiently experience in the geological terrain being explored. An industry standard logging system was used recording sample recovery, weathering, lithology, mineralization and alteration. The logging is qualitative in nature and each hole was logged to its completed depth. Bottom of hole chips were washed and stored in chip trays for reference.
<i>Sub-sampling techniques and sample preparation</i>	<ul style="list-style-type: none"> <i>If core, whether cut or sawn and whether quarter, half or all core taken.</i> <i>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</i> <i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i> <i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i> <i>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.</i> <i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i> 	<ul style="list-style-type: none"> Samples were collected in buckets for every 1m of drilling and laid out on the ground. A 2-3kg composite 4m sample was then collected with an aluminum scoop and stored in a pre-numbered calico bag. For this early stage exploration, the sampling technique is considered appropriate to determine the presents of mineralization. A field duplicate sample was collected every 30 samples and a Certified standard sample was also inserted every 30 samples. The sample size is considered sufficient to determine the presence or absence of mineralization
<i>Quality of assay data and laboratory tests</i>	<ul style="list-style-type: none"> <i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i> <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> <i>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.</i> 	<ul style="list-style-type: none"> Samples were submitted to Bureau Veritas Minerals Pty Ltd, 58 Sorbonne Crescent Canning Vale WA. Standard sample preparation and assay techniques were used. The samples were digested with Aqua Regia with Au, Ag, As, Mo, Pb, Sb determined by Inductively Coupled Plasma (ICP) Mass Spectrometry. Cr, Cu, Ni, Zn were determined by Inductively Coupled plasma (ICP) Optical Emission Spectrometry. SFM submitted duplicate and standard samples with each batch. The laboratory monitored QC via duplicates and standards
<i>Verification of sampling and</i>	<ul style="list-style-type: none"> <i>The verification of significant intersections by either independent or alternative company personnel.</i> 	<ul style="list-style-type: none"> No significant intersection reported. No Twinned holes completed.

Criteria	JORC Code explanation	Commentary
<i>assaying</i>	<ul style="list-style-type: none"> • <i>The use of twinned holes.</i> • <i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i> • <i>Discuss any adjustment to assay data.</i> 	<ul style="list-style-type: none"> • Logging and sample were record on standard sample and logging sheets and then entered in the SFM digital database. • No adjustment of assays data was done.
<i>Location of data points</i>	<ul style="list-style-type: none"> • <i>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.</i> • <i>Specification of the grid system used.</i> • <i>Quality and adequacy of topographic control.</i> 	<ul style="list-style-type: none"> • Hand-held GPS will be used to locate the drill holes collars. • The Grid system is GDA94 Z50 • The terrain is flat and topographic control was provided by government topographic maps.
<i>Data spacing and distribution</i>	<ul style="list-style-type: none"> • <i>Data spacing for reporting of Exploration Results.</i> • <i>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.</i> • <i>Whether sample compositing has been applied.</i> 	<ul style="list-style-type: none"> • The AC drill hole spacing is broad and is considered appropriate for the early stage nature of the drilling and large size of the target area. • The drill spacing is not sufficient to establish either grade or continuity of mineralization. • No data compositing has been applied.
<i>Orientation of data in relation to geological structure</i>	<ul style="list-style-type: none"> • <i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i> • <i>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.</i> 	<ul style="list-style-type: none"> • The AC drill line is approximately perpendicular to the interpreted structure to be tested. • Insufficient data is available to determine if the orientation has resulted in a sample bias.
<i>Sample security</i>	<ul style="list-style-type: none"> • <i>The measures taken to ensure sample security.</i> 	<ul style="list-style-type: none"> • SFM personnel supervised the drilling and sampling and Sub-Contractors were engaged to transport the samples to the laboratory in Perth.
<i>Audits or reviews</i>	<ul style="list-style-type: none"> • <i>The results of any audits or reviews of sampling techniques and data.</i> 	<ul style="list-style-type: none"> • No audits or reviews completed.

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"> Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area. 	<ul style="list-style-type: none"> No National Parks. No Native Title. Current Pastoral Leases. Challa North: E58/502, (CHALLA RESOURCES PTY LTD). The tenement is in good standing and no known impediments exist.
<i>Exploration done by other parties</i>	<ul style="list-style-type: none"> Acknowledgment and appraisal of exploration by other parties. 	<ul style="list-style-type: none"> Maximus Resources Ltd 2006 Annual Report for the period 1/7/2005 to 30/06/2006, E58/232, E58/235, E58/236, E58/237, E58/240, E58/274. Narndee Project - WAMEX report A73503.
<i>Geology</i>	<ul style="list-style-type: none"> Deposit type, geological setting and style of mineralisation. 	<ul style="list-style-type: none"> Shear hosted and quartz stock work gold mineralisation
<i>Drill hole Information</i>	<ul style="list-style-type: none"> A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: <ul style="list-style-type: none"> easting and northing of the drill hole collar elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar dip and azimuth of the hole down hole length and interception depth hole length. If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case. 	<ul style="list-style-type: none"> A list of all the AC drilling completed is provided in an appendix to this report.
<i>Data aggregation methods</i>	<ul style="list-style-type: none"> 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. 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 	<ul style="list-style-type: none"> No aggregated intersections are reported.

Criteria	JORC Code explanation	Commentary
	<p>examples of such aggregations should be shown in detail.</p> <ul style="list-style-type: none"> The assumptions used for any reporting of metal equivalent values should be clearly stated. 	
<i>Relationship between mineralisation widths and intercept lengths</i>	<ul style="list-style-type: none"> These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. down hole length, true width not known'). 	<ul style="list-style-type: none"> No significant AC mineralization reported.
<i>Diagrams</i>	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> Appropriate diagrams summarizing key data interpretations included in the body of this announcement.
<i>Balanced reporting</i>	<ul style="list-style-type: none"> Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results. 	<ul style="list-style-type: none"> The interpretations expressed in the announcement are not considered to be overstated or misleading.
<i>Other substantive exploration data</i>	<ul style="list-style-type: none"> Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances. 	<ul style="list-style-type: none"> All relevant data has been included within the report and ASX announcements: "Strong Electromagnetic Conductors Identified at Challa North and South Copper/Zinc VMS Targets" dated 16 September, 2019 and "Aircore Drilling Commences at Challa Gold Targets" dated 21 October, 2019.
<i>Further work</i>	<ul style="list-style-type: none"> The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive. 	<ul style="list-style-type: none"> A range of techniques will be considered to progress exploration including drilling. Refer to figures in the body of this announcement.