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Company Announcements Office
ASX Limited

# STRONG ELECTROMAGNETIC CONDUCTORS IDENTIFIED AT CHALLA NORTH AND SOUTH COPPER/ZINC VMS TARGETS

- **One strong conductor identified at the Yalanga Bore prospect adjacent to historic drilling that intersected anomalous copper/zinc mineralization.**
- **Two strong conductors and two moderate conductors identified at the N6 prospect.**
- **The Company plans to commence Reverse Circulation (RC) drilling at both prospects within 8-10 weeks.**

Santa Fe Minerals Ltd **("Santa Fe", "SFM"** or **"the Company")** is pleased to advise that Moving Loop Electromagnetic Surveys (MLEM) have been completed at its Yalanga Bore (Challa South) and Rosemary Anne (Challa North) prospects. A Fixed Loop Electromagnetic Survey (FLEM) was completed at the N6 anomaly immediately south of the Rosemary Anne Prospect.

A strong conductor was defined at the Yalanga Bore prospect and four conductors were defined at the N6 anomaly.

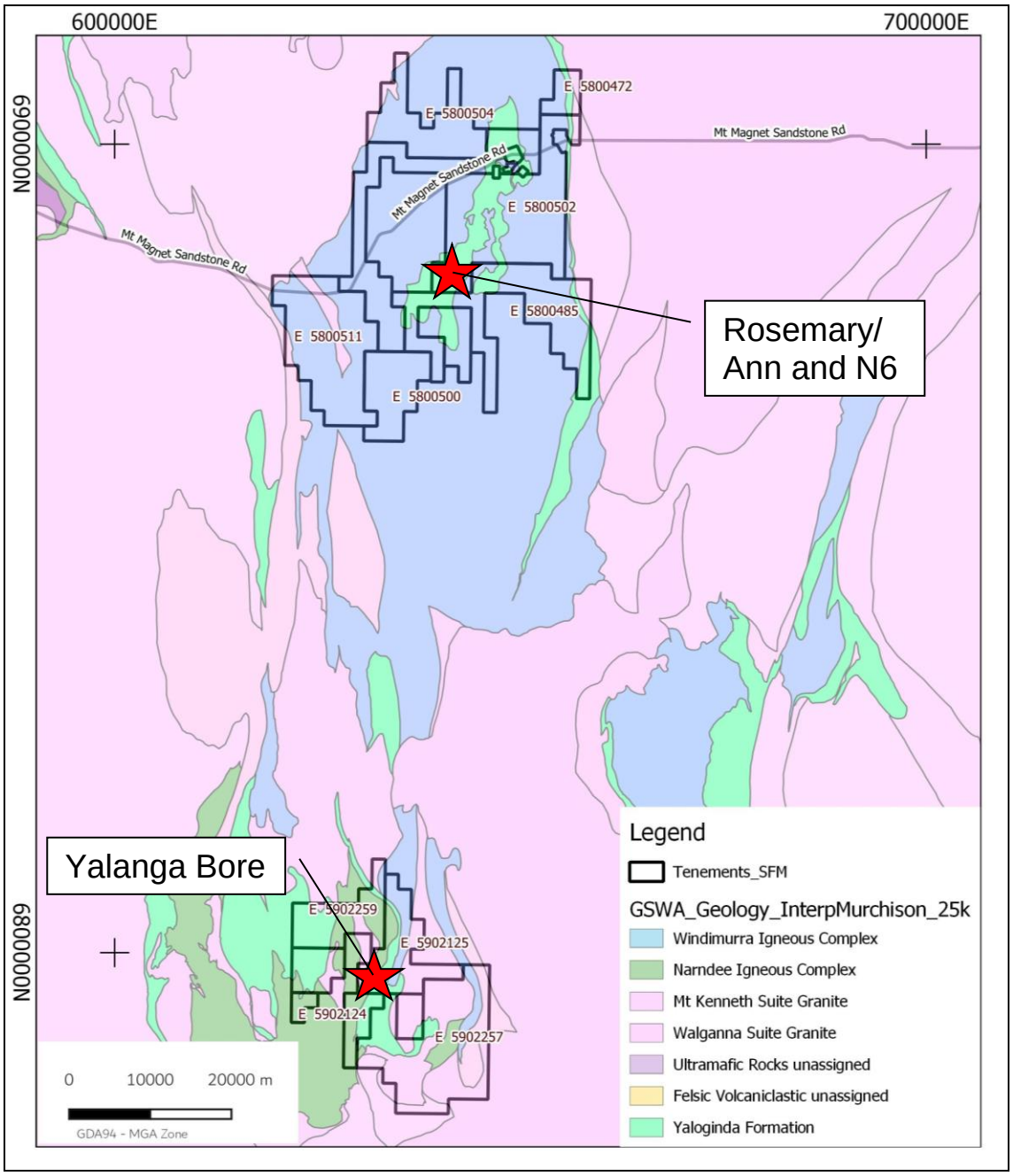


*Figure 1 - Challa Project Area and Santa Fe VMS Prospects*

**<u>Yalanga Bore Copper/Zinc prospect (E59/2125, 100% SFM) - Challa South</u>**

**Background**: Yalanga Bore was explored by Duval Mining (Australia) Limited **("Duval")** in 1983-84. The Duval work is documented in WAMEX report A15951 and comprised geological mapping, surface sampling, ground magnetics, a low powered electromagnetic system (EM37) and drilling. Drilling comprised 68 shallow RAB holes (2,224m), 4 percussion holes (370m), 4 rotary mud holes (153m) and one diamond tail (140m). The Company has located the diamond hole collar YDB1 and percussion holes (YBP69-YBP74) in the field however there are no corresponding samples available. Duval did not report the sampling and assay methods but did provide limited drill assay data showing a steeply dipping zone of elevated copper ranging from 500ppm to 7,950ppm and Zinc ranging from 1,000ppm to 6,850ppm. This zone was logged as gossan by the Duval geologists. One diamond drill hole (YBD1) was completed below the gossan zone with the

geological logs noting disseminated to semi massive pyrite, pyrrhotite, chalcopyrite and sphalerite. The diamond core is not available and was only selectively sampled by Duval with narrow moderately anomalous zinc and copper reported.

**MLEM Survey:** The Company completed a MLEM survey at Yalanga Bore that has successfully defined a strong conductor north of the zinc and copper mineralisation intersected in the historic Duval percussion and diamond drilling (Figure 2). The modelled conductor plate is shallow (100m) and immediately adjacent to the drilling however has not been effectively tested by the previous drilling.

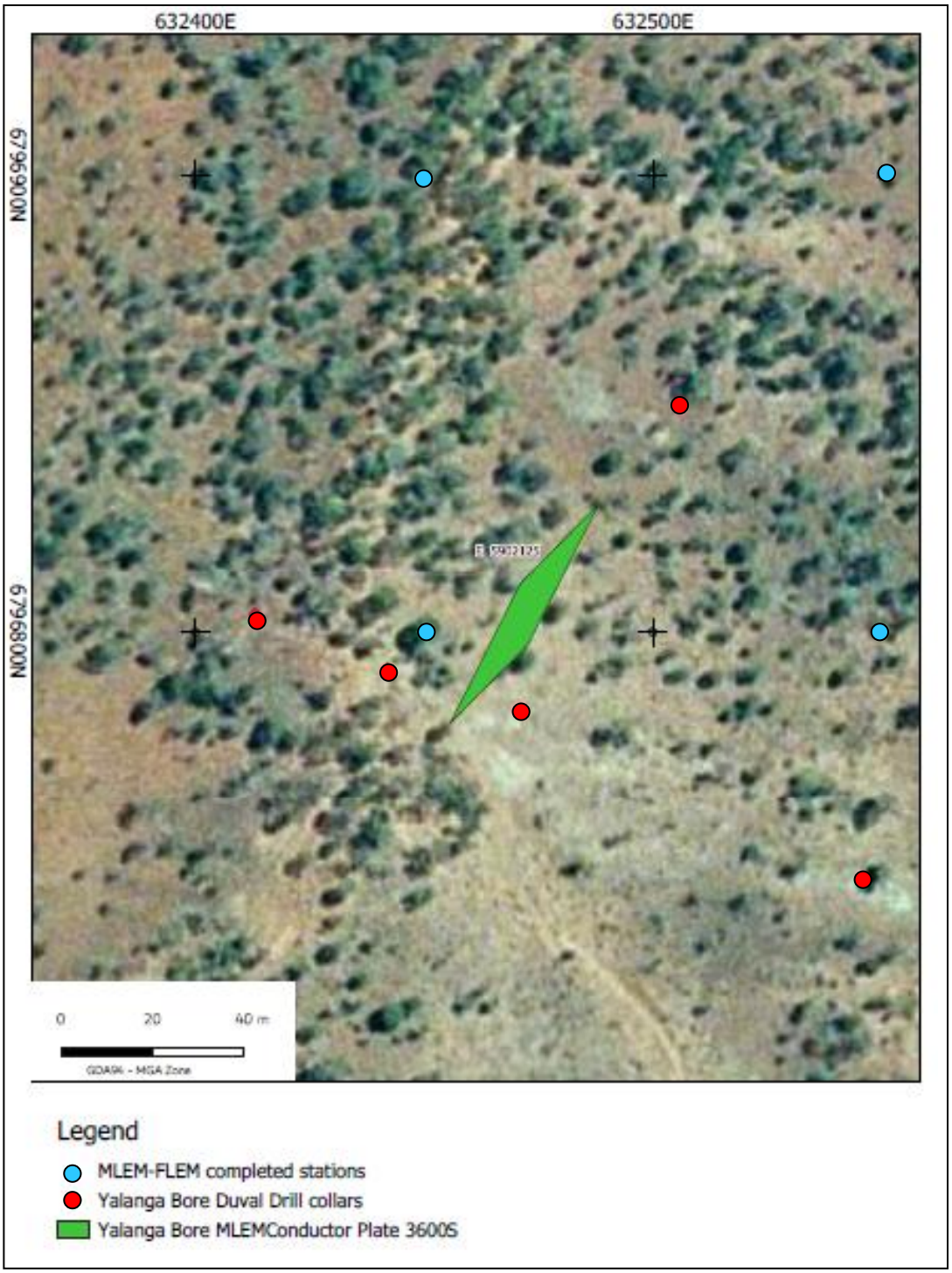


*Figure 2 - Yalanga Bore MLEM modelled plate and historic drill collars.*

**Next Steps**: The Company believes the copper and zinc results reported by Duval together with a strong conductor defined by the MLEM survey may indicate the presence of a Volcanic Massive Sulphide (VMS) copper-zinc deposit at depth below the weathered zone. An RC drilling program is being planned to test this in the December 2019 quarter.

**Rosemary/Ann and N6 Copper Zinc Prospects (E58/502, 100% SFM) – Challa North**

**Background**: CRA Exploration Pty Ltd (CRAE) explored the Rosemary / Ann prospect in 1983 (WAMEX report A13821). They completed geological mapping, rock chip sampling, ground magnetics and a low powered ground electromagnetic survey. The CRAE rock chip ledger records assay results of up to 1,850ppm Cu and 5,400ppm Zn from over 500m. No drilling is reported from these prospects. The Company collected two rock chips at the Rosemary prospect which returned 792ppm Zn, 536ppm Cu and 550ppm Zn, 364ppm Cu respectively.

In 2008 Maximus Resources Limited (Maximus) completed a regional broad spaced, 400m line, airborne EM survey over an area that included the Rosemary / Ann prospect. This work located the N6 conductor about 1.5km to the south of the Rosemary / Ann prospects (WAMEX open file report A81908) The N6 conductor is described as a discrete mid-time conductor evident as peaks on 5 of the 100m spaced infill lines. No follow-up groundwork was reported by Maximus. The Company believes the Rosemary / Ann prospect together with the N6 AEM conductor 1.5km to the south may indicate a VMS system at depth.

**MLEM and FLEM Survey:** The Company completed a MLEM survey over the Rosemary / Ann prospect and a FLEM survey over the N6 airborne EM conductor. Four conductors were located at the N6 anomaly (Figure 3). No conductors were located at the Rosemary Ann prospect. The four conductors at N6 are shallow dipping and range from strong to moderate intensity. The top of the modelled conductors' range in depth from 50-100m.

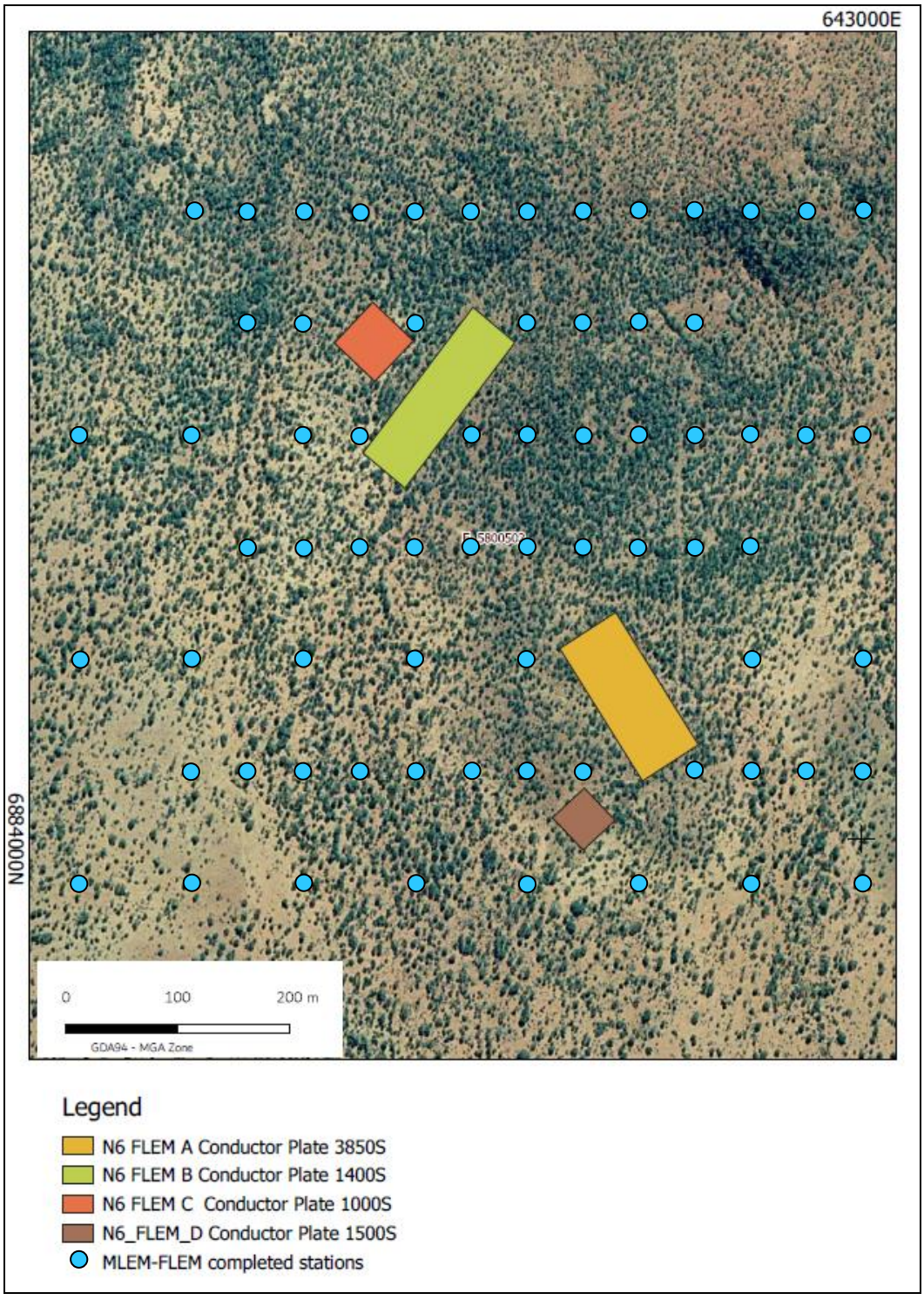


*Figure 3 - N6 Anomaly Modelled Conductor Plates*

**Next Steps**: The Company believes the conductors at the N6 anomaly may indicate the presence of a VMS copper- zinc deposit at depth. The Company is planning an RC drilling program to test these conductors in the December 2019 quarter.

*Table 1: MLEM and FLEM Conductor Plate Summary*

| Modelled Conductor Plates | | | | | |
|---|---|---|---|---|---|
| | Yalanga Bore | N6 Anomaly | | | |
| **Conductor** | YB_MLEM_C1_3800S | N6_FLEM_A_3850S | N6_FLEM_B_1400S | N6_FLEM_C_1000S | N6_FLEM_D_1500S |
| **Easting (top centre)** | 632480 | 642767 | 642603 | 642545 | 642738 |
| **Northing (top centre)** | 6796812 | 6884110 | 6884409 | 6884460 | 6884032 |
| **RL** | 368 | 383 | 407 | 428 | 373 |
| **Dip (°)** | 82 | 13 | 19 | 0 | 13 |
| **Dip direction (°)** | 301 | 132 | 98 | 103 | 212 |
| **Rotation (°)** | 31 | 75 | -30 | -30 | 75 |
| **Strike length (m)** | 40 | 140 | 165 | 50 | 40 |
| **Depth extent (m)** | 45 | 60 | 50 | 50 | 40 |
| **Conductance (S)** | 3800 | 3850 | 1400 | 1000 | 1500 |

Further updates will be provided over the coming weeks.

For investor queries, please contact:

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**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. All drilling and sampling information referred to in this announcement has previously been released to the ASX - see "Quarterly Activities and Cashflow Report" dated 29 July 2019. The Company is not aware of any new information or data that materially affects the information included in this announcement.*

# 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 |
|---|---|---|
| *Sampling techniques* | • *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*<br>• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*<br>• *Aspects of the determination of mineralisation that are Material to the Public Report.*<br>• *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.* | • A MLEM survey was completed at the Yalanga Bore and Rosemary-Ann prospects.<br>– Configuration: Moving-loop (MLEM), Slingram (200m east of loop)<br>– Line spacing: 200m, 100m infill<br>– Station spacing: 100m, 50m infill<br>– Tx loop size: 200mx200m<br>– Receiver: SMARTem<br>– Sensor: EMIT SMART Fluxgate<br>– Frequency: 1Hz<br>– Current: 65A<br>• A FLEM survey was conducted at the N6 Anomaly.<br>– Survey: Fixed-loop (FLEM), 3 loops<br>– Line spacing: 200m, 100m infill<br>– Station spacing: 100m, 50m infill<br>– Tx loop sizes: 600x300m<br>– Receiver: SMARTem<br>– Sensor: EMIT SMART Fluxgate<br>– Frequency:1Hz<br>– Current:35A |
| *Drilling techniques* | • *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.).* | • No new drilling reported. |
| *Drill sample recovery* | • *Method of recording and assessing core and chip sample recoveries and results assessed.*<br>• *Measures taken to maximise sample recovery and ensure representative nature of the samples.*<br>• *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.* | • No new drilling reported. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| *Logging* | • *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.*<br>• *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.*<br>• *The total length and percentage of the relevant intersections logged.* | • No new drilling reported. |
| *Sub-sampling techniques and sample preparation* | • *If core, whether cut or sawn and whether quarter, half or all core taken.*<br>• *If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.*<br>• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*<br>• *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.*<br>• *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.*<br>• *Whether sample sizes are appropriate to the grain size of the material being sampled.* | • No new drilling or sampling reported. |
| *Quality of assay data and laboratory tests* | • *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*<br>• *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.*<br>• *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.* | • N/A. |
| *Verification of sampling and assaying* | • *The verification of significant intersections by either independent or alternative company personnel.*<br>• *The use of twinned holes.*<br>• *Documentation of primary data, data entry* | • No new sampling reported. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | *procedures, data verification, data storage (physical and electronic) protocols.*<br>• *Discuss any adjustment to assay data.* | |
| *Location of data points* | • *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.*<br>• *Specification of the grid system used.*<br>• *Quality and adequacy of topographic control.* | • MLEM and FLEM station and loop locations are surveyed with a hand-held GPS with an accuracy of +/- 5m which is considered sufficient for MLEM data location accuracy. |
| *Data spacing and distribution* | • *Data spacing for reporting of Exploration Results.*<br>• *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.*<br>• *Whether sample compositing has been applied.* | • N/A. |
| *Orientation of data in relation to geological structure* | • *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*<br>• *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.* | • N/A. |
| *Sample security* | • *The measures taken to ensure sample security.* | • N/A. |
| *Audits or reviews* | • *The results of any audits or reviews of sampling techniques and data.* | • No audits or reviews. |

## Section 2 Reporting of Exploration Results

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

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| *Mineral tenement and land tenure status* | • *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.*<br>• *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.* | • Yalanga Bore: E59/2125 (CHALLA RESOURCES PTY LTD).<br>• Rosemary/Ann and N6: E58/502 (CHALLA RESOURCES PTY LTD).<br>• No National Parks. No Native Title. Current Pastoral Leases.<br>• The Rosemary/Ann Prospect is partially located in the SW corner of the Kantie Murdanna registered site 4742.<br>• The tenements are in good standing and no known impediments exist. |
| *Exploration done by other parties* | • *Acknowledgment and appraisal of exploration by other parties.* | • Duval: Yalanga Bore Prospect Final Report on E59/27 10/01/1985. WAMEX open file report A15951.<br>• CRA Exploration: 1984 Annual Report on MC 58/2448-2451, 58/2573-2599 Mt Carron Copper -zinc Prospect Kirkalocka, Western Australia. WAMEX open file report A13821.<br>• AEM Completed by Maximus Resources Limited 2008. |
| *Geology* | • *Deposit type, geological setting and style of mineralisation.* | • Volcanic Massive Sulphide copper -zinc deposits hosted in the Kantie Murdana Volcanics. |
| *Drill hole Information* | • *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:*<br>  ○ *easting and northing of the drill hole collar*<br>  ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*<br>  ○ *dip and azimuth of the hole*<br>  ○ *down hole length and interception depth*<br>  ○ *hole length.*<br>• *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.* | • No new drilling reported. |
| *Data* | • *In reporting Exploration Results, weighting* | • N/A. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| *aggregation methods* | *averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.*<br>• *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.*<br>• *The assumptions used for any reporting of metal equivalent values should be clearly stated.* | |
| *Relationship between mineralisation widths and intercept lengths* | • *These relationships are particularly important in the reporting of Exploration Results.*<br>• *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.*<br>• *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').* | • N/A. |
| *Diagrams* | • *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.* | • Appropriate diagrams summarising key data interpretations included in the body of this announcement. |
| *Balanced reporting* | • *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.* | • The interpretations expressed in the announcement are not considered to be overstated or misleading. |
| *Other substantive exploration data* | • *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.* | • All relevant data has been included within the report. |
| *Further work* | • *The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).*<br>• *Diagrams clearly highlighting the areas of* | • A range of exploration techniques will be considered to progress exploration including additional surface sampling and drilling.<br>• Refer to figures in the body of this |

| Criteria | JORC Code explanation | Commentary |
| --- | --- | --- |
| | *possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.* | announcement. |