ASX RELEASE 9th December 2013

**ASX: MGV**

# Musgrave intersects massive nickel sulphide at Pallatu

- **Diamond drilling has intersected massive and disseminated nickel-copper sulphide at Pallatu in the Musgrave**
- **Down hole electromagnetic (EM) and further surface EM surveys are planned to test for additional conductors**
- **New EM conductor >1500m in strike length identified at Pallatu**

Musgrave Minerals Limited ("Musgrave Minerals" or "the Company") (ASX: MGV) is pleased to advise that it has intersected massive and disseminated nickel-copper sulphide in recent diamond drilling at the Pallatu target on the Deering Hills Project (Figure 1) in the far north-west of South Australia.

Musgrave Minerals holds a 100% interest in licence EL5317 that hosts the newly discovered nickel-copper sulphide mineralisation.

Musgrave drilled a total of five holes for 504m testing five separate conductive targets identified from surface EM surveys (Figure 2). Drilling intersected a combination of massive, matrix and disseminated sulphide in all five drill holes from as shallow as 35.7m down hole. The drilling has shown that the system is mineralised with peak assays up to 0.5% nickel, 0.8% copper and 0.6g/t Pt, Pd + Au (platinum, palladium + gold) over narrow intervals in fresh rock. A full summary of the results is shown in Table 1.

All five surface EM conductors drilled to date are interpreted to be sourced from a combination of massive and matrix sulphide and graphite which is intimately associated with the mineralisation (Figure 3). The mineralisation is hosted within sulphide bearing interpreted Giles Complex, gabbros and pyroxenites. Giles Complex gabbroic intrusives are known to host nickel sulphide mineralisation elsewhere in the Musgrave Province.

Musgrave Minerals Managing Director Rob Waugh said "This discovery is potentially very significant as it has defined a new mineralised intrusive system in the region. A re-assessment of ground EM data has highlighted a potentially significant and extensive subtle conductor at depth to the north of the current drilling. The new target identified as Pallatu 7 is

*19 Richardson Street, West Perth WA 6005*
*Telephone: (61 8) 9324 1061 Fax: (61 8) 9324 1014*
*Web: www.musgraveminerals.com.au Email: info@musgraveminerals.com.au*
*ACN: 143 890 671*

interpreted as approximately 1,500m long at a vertical depth of approximately 280m (Figure 4). This is right at the limit of the interpretability of the existing EM survey data and further ground EM will be required to better define this potentially significant conductor. The important question for us is; are we on the edge of something significant? Only further exploration, including additional EM and drilling will answer that question."

Down hole electromagnetic (DHEM) surveys and additional surface EM surveys are planned for early 2014 prior to potential drilling recommencing. EM is a key tool in the exploration for massive nickel sulphides as these are usually strong bedrock conductors. Future exploration will be focused on defining areas with the potential for the accumulation of high grade nickel-copper massive sulphide zones and Platinum Group Elements (PGE's).

The PGE results are also very encouraging and have highlighted the potential of the area to host economic PGE mineralisation.

The exploration target model is mafic/ultramafic hosted massive nickel-copper sulphide mineralisation similar to the large deposits at Voisey's Bay in Canada and Sirius' Nova deposit in the Fraser Range of Western Australia.

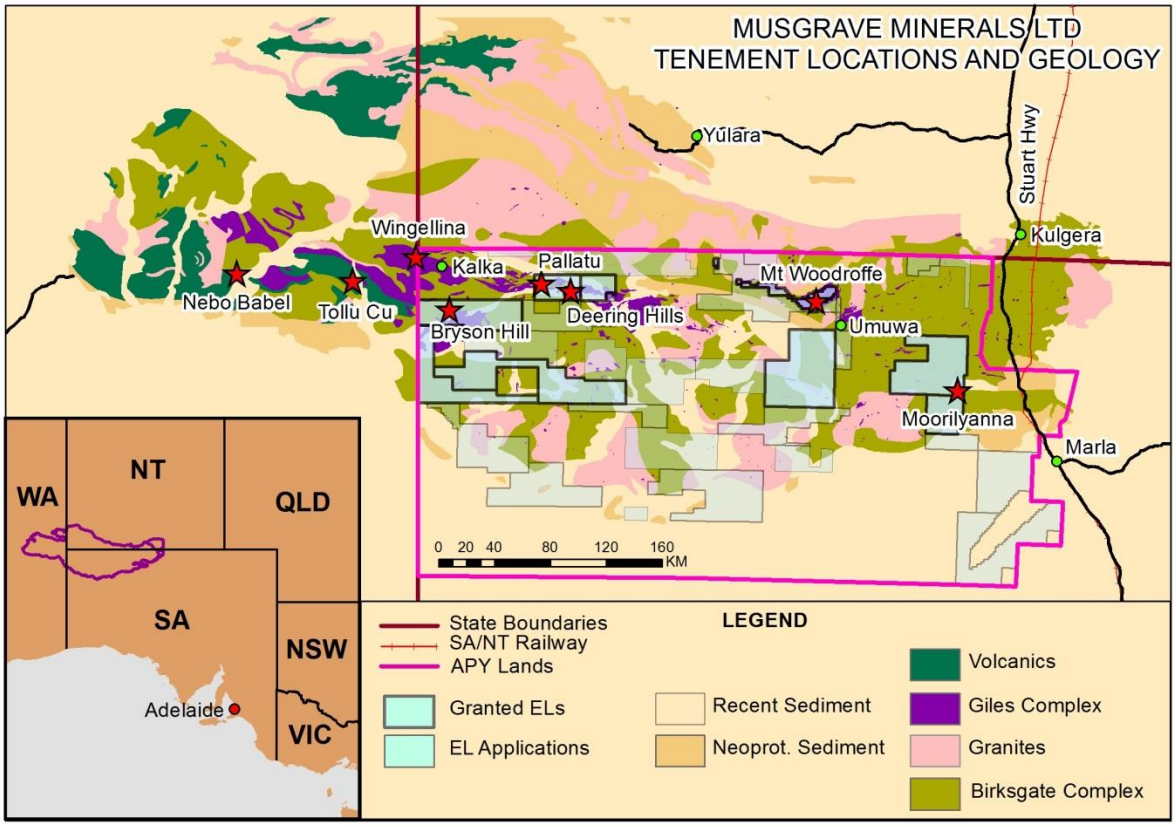


Figure 1: ***Location of Musgrave Minerals' Exploration Licences in the Musgrave Province***

Musgrave Minerals' unique knowledge of the region, use of new technologies, systematic and efficient approach to exploration and strong cash position means the Company is well placed to successfully follow-up on the new nickel-copper sulphide discovery at Pallatu.

In addition, Musgrave Minerals' has recently completed a 3,350m aircore drilling program testing new silver-zinc-lead and copper-gold targets at Menninnie Dam in the southern Gawler craton of South Australia. Assay results for this program are expected in January.

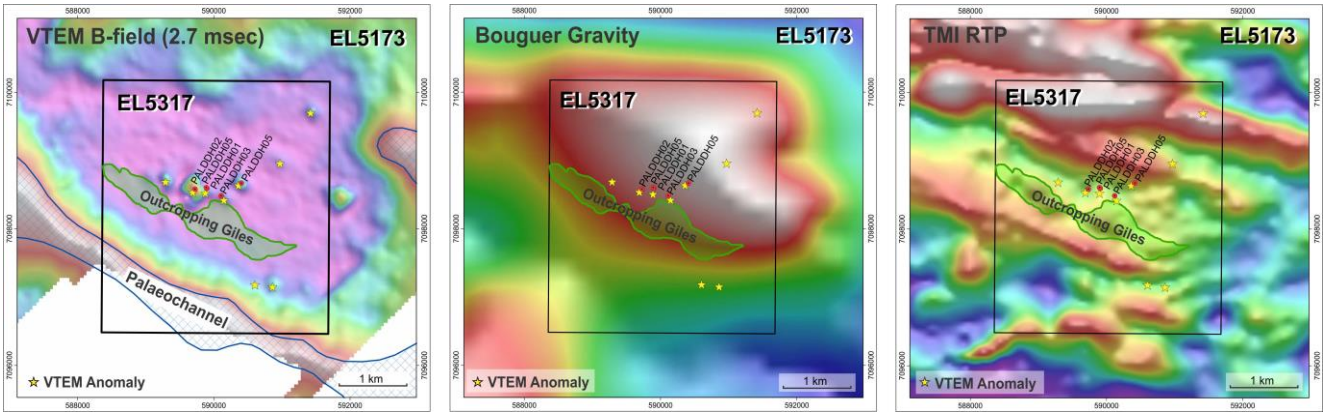


Figure 2: ***Image showing Pallatu licence with VTEM targets, co-incident bouguer gravity anomaly and magnetic anomalies in relation to the known Giles Complex mafic/ultramafic intrusives. The remainder of the licence is under shallow sand cover.***

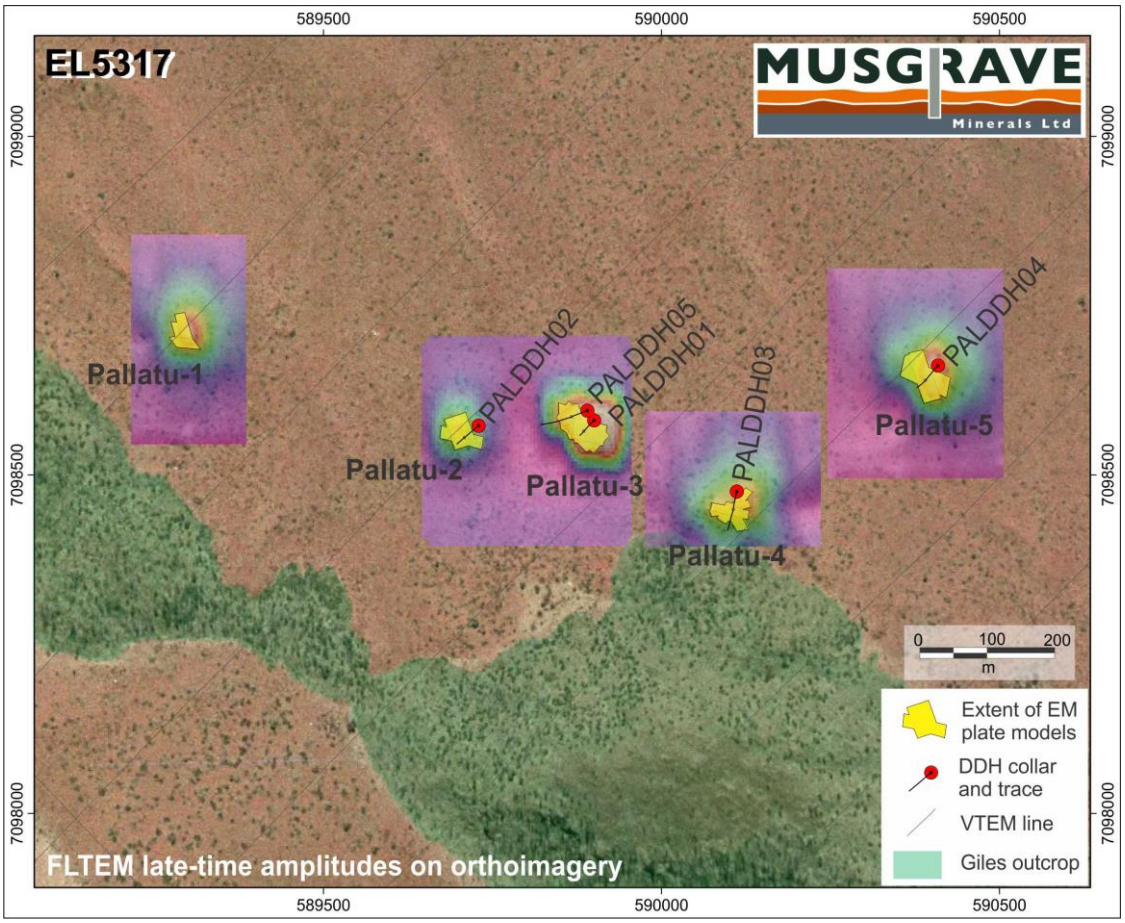


Figure 3: ***Image showing Pallatu ground EM targets and drill holes on Landsat backdrop. Giles Complex outcrop is shown in green. The remainder of the area is under shallow sand cover.***

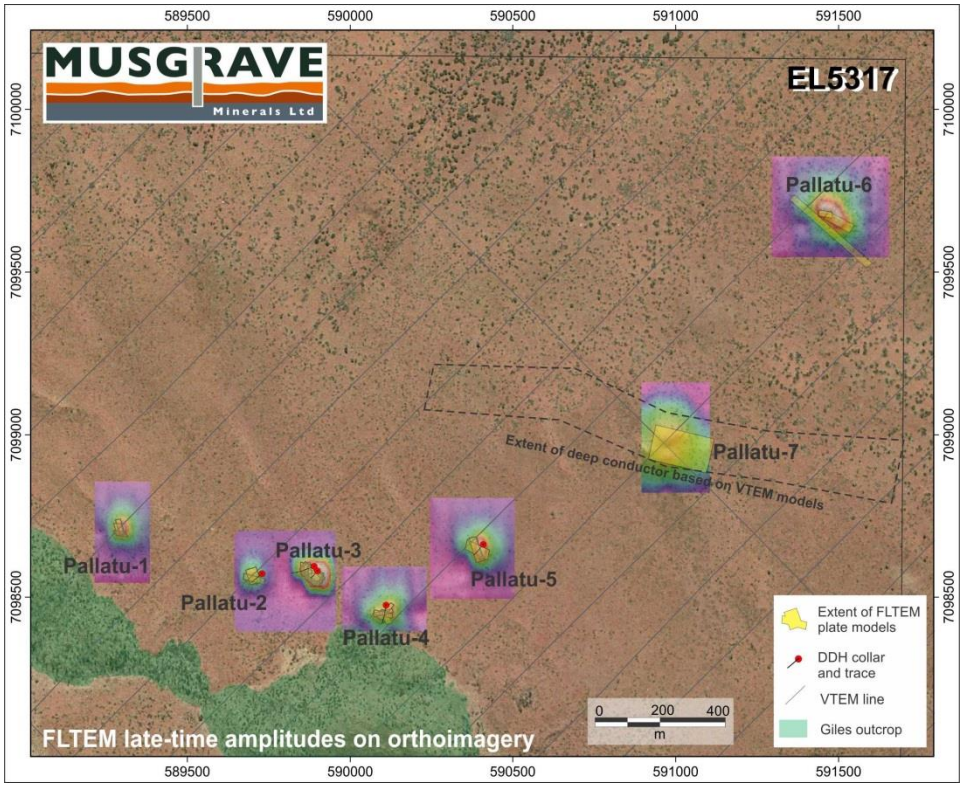


Figure 4: ***Image showing fixed loop ground EM (FLTEM) targets and drill holes on Landsat backdrop including the untested Pallatu 6 and 7 EM targets.***


Figure 5a: ***Massive sulphide in drill hole PALDDH001 from 41.6m down hole.***

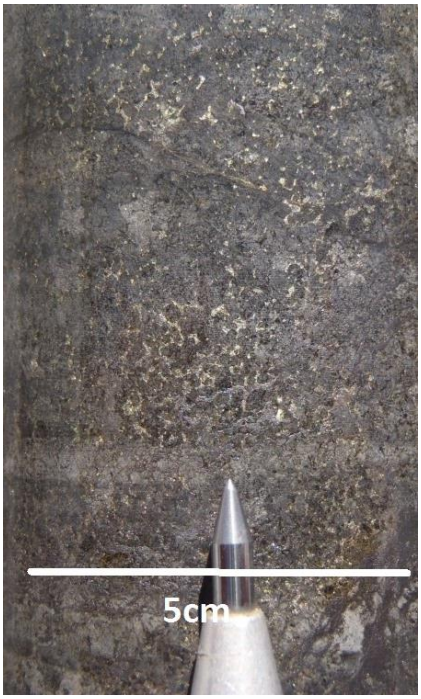


Figure 5b: ***Disseminated sulphide in drill hole PALDDH001 from 41.1m down hole.***

Figure 5: ***Photos of sulphide in diamond core from Pallatu.***

Figure 6: ***Photo of ground EM crew and diamond drill rig at Pallatu.***

***Enquiries:***
*Robert Waugh*
*Managing Director*
*Musgrave Minerals Ltd*
*0439 955 415*

*Robert Gundelach*
*Investor Relations*
*NWR Communications*
*0451 896 420*

***Competent Person's Statement***
*The information in this report that relates to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on information compiled and/or thoroughly reviewed by Mr Robert Waugh, a Competent Person who is a Fellow of the Australasian Institute of Mining and Metallurgy (AusIMM) and a member of the Australian Institute of Geoscientists (AIG). Mr Waugh is Managing Director and a full-time employee of Musgrave Minerals Ltd. Mr Waugh has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Waugh consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.*

***About Musgrave Minerals***
*Musgrave Minerals Ltd is an active Australian base metals explorer with a large exploration footprint in the Musgrave Province in South Australia, with tenements covering an area of approximately 50,000km$^2$. The Company also has an active advanced stage exploration project, Menninnie Dam in the prospective silver and base metals province of the southern Gawler Craton of South Australia. Musgrave has a powerful shareholder base with six mining and exploration companies participating as cornerstone investors.*

Appendix 1: ***Summary of Pallatu Diamond Drill Hole Locations and Significant Results***

| Drill Hole ID | Drill Type | Prospect | Easting (m) | Northing (m) | Az | Dip (degrees) | RL | Total Depth (m) | From (m) | Interval (m) | Ni (ppm) | Cu (ppm) | Pt+Pd (ppb) | Au (ppb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PALDDH001 | Diam | Pallatu | 589900 | 7098581 | 225.0 | -60 | 767 | 63.0 | 35.64 | 0.59 | 485 | 2168 | 27 | 22 |
| | | | | | | | | | 41.27 | 2.84 | 750 | 1276 | 12 | 12 |
| | | | | | | | Including | | 41.57 | **0.11** | **4956** | **1539** | **6** | **23** |
| | | | | | | | 767 | 63.0 | 46.60 | 0.79 | 511 | 1535 | 10 | 47 |
| PALDDH002 | Diam | Pallatu | 589729 | 7098573 | 230.0 | -60 | 765 | 84.0 | 46.65 | 1.05 | 409 | 2886 | 158 | 33 |
| | | | | | | | | | 49.0 | **0.47** | **424** | **1119** | **581** | **46** |
| | | | | | | | | | 50.17 | 0.8 | 452 | 1122 | 29 | 3 |
| | | | | | | | | | 51.32 | 5.53 | 418 | 2121 | 180 | 39 |
| PALDDH003 | Diam | Pallatu | 590111 | 7098476 | 190.0 | -60 | 773 | 120.0 | 53.76 | 4.46 | 379 | 1111 | 201 | 33 |
| | | | | | | | | | 77.39 | 2.29 | 436 | 1406 | 168 | 23 |
| PALDDH004 | Diam | Pallatu | 590409 | 7098662 | 230.0 | -60 | 759 | 90.0 | 54.27 | 0.78 | 413 | 1271 | 3 | 9 |
| PALDDH005 | Diam | Pallatu | 589890 | 7098596 | 250.0 | -60 | 766 | 147.0 | 41.90 | **0.40** | **527** | **8335** | **12** | **60** |

*Notes*

1. *An accurate dip and strike and the controls on mineralisation are yet to be determined and the true width of the intercepts is not yet known*
2. *All intervals recorded in Appendix 1 above are >0.1% Ni or 0.1% Cu and contain no more than 1m of internal dilution*
3. *NSA (no significant assay) – No assay above 0.1% Ni or 0.1% Cu*
4. *No high grade cut was used*
5. *ppm (parts per million)*
6. *ppb (parts per billion)*



# Musgrave Project
## JORC TABLE 1
## Section 1 Sampling Techniques and Data

| Criteria | 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.* | Sampling is undertaken using standard industry practices.<br><br>Diamond drill hole samples are selected on geological criteria and sampled on site, before being transported and analysed in Adelaide. |
| | *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* | Drill hole co-ordinates are in UTM grid (GDA94 Z52) and have been measured by hand-held GPS with an accuracy of ±4 metres. |
| | *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 (eg 'reverse circulation drilling was used to obtain 1m samples from which 3kg was pulverised to produce a 30g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.* | Diamond drilling was used to obtain samples which were analysed at geological intervals between 0.1m and 1.5m on either 1/3 or ½ core which was pulverized and analysed using MS/ICP for a base metals and precious metals.<br><br>Individual samples weigh less than 3kg to ensure total preparation at the laboratory pulverization stage.<br>The sample size is deemed appropriate for the grain size of the material being sampled. |
| *Drilling techniques* | *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).* | Diamond core is a combination of NQ2 and HQ. Drill core is orientated using a down hole spear and structural measurements recorded in "Geo-calculator" software program. |
| *Drill sample recovery* | *Method of recording and assessing core and chip sample recoveries and results assessed.* | Diamond core recoveries are logged and recorded in the database. No significant core loss issues were identified. |
| | *Measures taken to maximise sample recovery and ensure representative nature of the samples.* | Diamond core is reconstructed into continuous intervals on angle iron racks for orientation and reconciliation against core block markers. Rod and metre counts are routinely carried out by the driller. |
| | *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 bias has been observed between sample recovery and grade. |
| *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.* | Geotechnical logging was carried out on diamond core for recovery and RQD. All geological, structural and alteration related observations are stored in the database. |
| | *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* | Logging of lithology, structure, alteration, mineralisation, colour and other features of core or RC chips is undertaken on a routine basis. Both wet and dry photography of diamond core is undertaken on a tray by tray basis. |
| | *The total length and percentage of the relevant intersections logged.* | All drill holes are logged in full. |
| *Sub-sampling techniques and sample preparation* | *If core, whether cut or sawn and whether quarter, half or all core taken.* | Diamond core is cut and sampled on geological intervals. A diamond core saw was used to cut the core and selected half core intervals were submitted for analysis. |
| | *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* | N/A |
| | *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* | Sample preparation and base metal and precious metal analysis is undertaken by Intertek Genalysis, in Wingfield, South Australia. Sample preparation by dry pulverisation to 90% passing 75 micron. |
| | *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* | Field QC procedures involve the use of certified reference standards, duplicates and blanks at appropriate intervals. |
| | *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.* | Sampling was carried out using MGV protocols and QAQC procedures as per industry best practice. Duplicate samples are routinely checked against originals. |
| | *Whether sample sizes are appropriate to the grain size of the* | Sample sizes are considered appropriate for the |

| | | |
|---|---|---|
| | *material being sampled.* | commodities and elements explored and analysed for. |
| *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.* | Drill sample analysis is undertaken by Intertek Genalysis, in Wingfield, South Australia, multi element analysis by four acid total digest (hydrochloric, nitric, perchloric and hydrofluoric acid) and ICP-OES and ICP-MS to acceptable detection limits and Au, Pt & Pd by FA25/MS.<br>Analysis for a total of 37 elements is recorded. |
| | *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.* | No geophysical tools were used to estimate mineral or element percentages. |
| | *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.* | In addition to MGV standards, duplicates and blanks, Genalysis incorporate laboratory QAQC including standards, blanks and repeats as a standard procedure. Certified reference materials that are relevant to the type and style of mineralisation targeted are inserted at regular intervals.<br>ACME incorporate laboratory QAQC including standards, blanks and repeats as a standard procedure. |
| *Verification of sampling and assaying* | *The verification of significant intersections by either independent or alternative company personnel.* | At least two company representatives verify significant intersections including, either the Managing Director, Exploration Manager, Principal Geologist or Senior Geologist. |
| | *The use of twinned holes.* | No twin holes have yet been drilled by MGV. |
| | *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* | Primary data is collected using a standard set of Excel templates on a Toughbook laptop computer using lookup codes. Geological sample logging was undertaken on one metre intervals for RC drilling with colour, structure, alteration and lithology recorded for each interval. Data is verified before loading to a CSA Global database. Geological logging of all diamond core was undertaken. |
| | *Discuss any adjustment to assay data.* | No adjustments or calibrations were made to any assay data reported by MGV. |
| *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.* | All maps and locations are in UTM grid (GDA94 Z52) and have been measured by hand-held GPS with an accuracy of ±4 metres.<br>Down hole surveys are undertaken for all RC and diamond drill holes utilising a single shot camera recording at intervals varying between 12 and 30m. Drill hole dips vary. |
| | *Specification of the grid system used.* | Drill hole co-ordinates are in UTM grid (GDA94 Z52) |
| | *Quality and adequacy of topographic control.* | Drill hole RL's are approximate using hand held GPS. |
| *Data spacing and distribution* | *Data spacing for reporting of Exploration Results.* | Variable drill hole spacings are used to adequately test targets.<br>Ground EM lines were optimally positioned to survey individual targets. Fixed loop ground EM configurations were used with variable 25-50m station spacings to allow accurate conductor models to be derived. |
| | *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.* | The mineralisation has not yet been demonstrated to have sufficient continuity to support the definition of Mineral Resource and Reserves under the classification applied under the 2012 JORC Code. |
| | *Whether sample compositing has been applied.* | Composite samples on 5m intervals were undertaken outside visually mineralised zones to determine background responses. |
| *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.* | The precise dip and strike of the mineralisation is not yet known and it is unclear at this stage whether any sampling has a set bias. |
| | *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.* | No orientation based sampling bias is known at this time. |
| *Sample security* | *The measures taken to ensure sample security.* | Chain of custody is managed by MGV. Samples are stored on site and transported to Intertek Genalysis in Wingfield, South Australia by a licenced reputable transport company. When at Genalysis samples are stored in a locked yard before being processed and tracked through preparation and analysis using the Lab |



| | | |
|---|---|---|
| | | Track system. |
| *Audits or reviews* | *The results of any audits or reviews of sampling techniques and data.* | No external audits or reviews of modelling techniques and data have been undertaken. |

## Section 2 Reporting of Exploration Results

| Criteria | 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.* | All diamond drilling has been within wholly owned MGV tenement EL5317 within the Musgrave Project area.<br>The tenements are APY aboriginal freehold lands. |
| | *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.* | The tenement is in good standing and no known impediments exist. |
| *Exploration done by other parties* | *Acknowledgment and appraisal of exploration by other parties.* | No historical drilling has been undertaken by any third party in this tenement. |
| *Geology* | *Deposit type, geological setting and style of mineralisation.* | Musgrave is exploring for multi commodity style deposits consistent with low MgO magmatic Ni-Cu systems. |
| *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.* | Refer to appendix 1 in the body of this report. |
| *Data aggregation methods* | *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.* | Refer to notes below appendix 1 in the body of this report. |
| | *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.* | Refer to notes below appendix 1 in the body of this report. |
| | *The assumptions used for any reporting of metal equivalent values should be clearly stated.* | No metal equivalent values are currently used for reporting of exploration results. |
| *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 (eg 'down hole length, true width not known').* | An accurate dip and strike and the controls on mineralisation are yet to be determined and the true width of the intercepts is not yet known. |
| *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.* | Refer to figures 1, 2, 3, 4 and 5 and Appendix 1 in the body of this report. |
| *Balanced* | *Where comprehensive reporting of all Exploration Results is* | All drill results are reported. |



| | | |
|---|---|---|
| *reporting* | *not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.* | |
| *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 material results from geochemical and geophysical surveys related to these prospects have previously been reported.<br>Analysis for a total of 37 elements is undertaken including possible deleterious elements such as arsenic. Anomalous results are reported. |
| *Further work* | *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* | A range of exploration techniques are being considered to progress exploration including additional 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.* | Refer to figures 2, 3, 4 and 5 in the body of this report. |