

# 30 May 2019

# **Excellent Walford Creek Metallurgy Results**

Aeon Metals Ltd ("Aeon" or "the Company") is pleased to provide an update on the progress of the metallurgical testwork for the Pre-Feasibility Study ("PFS") on the Company's 100%-owned Walford Creek Project.

## **HIGHLIGHTS**

- Comminution testwork results similar to previous parameters for Vardy PY3. Supports standard front-end of primary crusher, screening, then SAG/ball milling in closed circuit with a cyclone cluster. Primary grind size of 60 microns.
- Flotation circuit finalised. This will consist of a pre-float for ~10% of the cobalt/pyrite mineral, followed by copper, lead, zinc and cobalt/pyrite flotation. Additional variability work is planned to confirm parameters for the Marley Resource.
- Excellent indicative copper recoveries to concentrate of approx. 90%. A marketable copper concentrate grading at approx. 24% Cu.
- Indicative cobalt recoveries to pyrite concentrate (pre float and cobalt/pyrite concentrate) of approx. 75%.
- Recent focus on cobalt pyrite processing routes that minimise or eliminate excess acid production. This would deliver clear benefits through reduced project scope, potentially lower upfront capital and greater economic leverage to primary metal production.
- Results in this area have been very positive and it is expected that one
  of two routes (or a combination) will be utilised for the PFS: (i) limited
  roasting followed by atmospheric oxidative leach; or (ii) pressure
  oxidation.
- Work continues to finalise all metallurgical testwork and process flowsheet design for the Walford Creek PFS.

Aeon Managing Director, Hamish Collins, commented on the results:

"The recent met testwork confirms the world-class nature of the Walford Creek Project. The results demonstrate that a fairly standard flotation circuit is set to deliver excellent copper flotation recoveries and produce a marketable copper concentrate.

"Further, the work on cobalt pyrite processing options has also produced some very positive results. It is now expected that by adopting an alternative route, we will be able to greatly simplify project scope and lower risk, while potentially also realising additional economic benefits."

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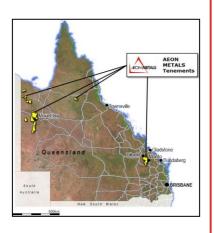
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### **ASX Code - AML**

Shares on Issue: 673m Share Price: \$0.25 Market Capitalisation: \$168m Cash (31 March 2019): \$2.6m

All mineral resources projects located in Queensland:



## Comminution

Additional comminution testwork has been conducted to define the comminution parameters in the Vardy PY1 Resource. The results are similar to previous results for Vardy PY3 and support a standard circuit consisting of a primary crusher, screening, followed by a SAG/Ball mill in closed circuit with a cyclone cluster. Primary grind size is expected to be 60 microns. Additional variability work is planned to confirm parameters in the Marley Resource.

The amenability of the ore to ore sorting has been investigated with the aim of removing part of the gangue material prior to grinding, and to provide the ability to upgrade the ore stream. The evaluation showed that the ore is amenable to sorting/upgrading using a Scantec real time analyser and it is anticipated that ore sorting could readily form part of the process flow sheet.

# **Flotation circuit**

Sufficient testwork has now been carried out to define the flotation circuit. Additional variability work is also being carried out on the Marley Resource as part of the PFS.

The flotation circuit will consist of a pre float for ~10% of the cobalt/pyrite mineral, followed by copper, lead, zinc and cobalt/pyrite flotation. Testwork results show:

- Indicative copper recoveries to concentrate are approx. 90%.
- A marketable copper concentrate of approx. 24% Cu can be produced.
- Indicative cobalt recoveries to the pyrite concentrate (pre float + cobalt/pyrite concentrate) are approx. 75%.



Figure 1: Copper concentrate



Figure 2: Copper flotation froth

## Roasting

The pilot roasting of the pyrite concentrate sample was completed by Outotec in Germany on 15 May 2019. The pilot roast was set at 650°C following assessment of batch roast testwork done for roasting between 550°C and 850°C. Data is currently being analysed.

# Leaching/purification

Preliminary acid leach of roaster calcine at the Outotec facility in Germany has consistently achieved cobalt recoveries from cobalt calcine of 90%. Further optimisation and a pilot hydrometallurgical testwork, including precipitation and purification of cobalt rich solutions, is now underway at the Outotec facilities in Finland.

# Alternative cobalt pyrite process route

As discussed in Aeon's March 2019 Quarterly Activities Report, alternative metallurgical investigation work is in progress in order to assess a cobalt pyrite concentrate processing route that does not produce excess acid requiring shipping off site. This has the obvious potential to deliver considerable benefits to the overall Walford Creek Project through reduced project scope, lower upfront capital and greater economic leverage to primary metal production.

Alternative testwork has been undertaken to test comparative cobalt recoveries utilising alternative metallurgical extraction methods. Results to date have been very positive. As a result, it is expected that one, or a combination, of the following pyrite concentrate processing routes will be utilised for the PFS:

- Atmospheric oxidative leach: A combination of a small roaster to roast only some of the pyrite concentate and then oxidative acid leach of the remaining pyrite concentrate with the sulphuric acid produced. This configuration would generate enough sulphuric acid (the roaster would be a scaled-down version of what was previously envisaged) for the leach circuit and remove the need to transport sulphuric acid from site for sale/disposal. Indicative results for cobalt extraction from the recent acid leach test work undertaken by ALS Burnie are approx. 60%. This is a significantly lower capital cost option to a roast-only option.
- Pressure Oxidation ("POX"): Six pressure oxidation tests (low pressure (9bar) and temperature (180°C)) have been conducted at ALS Burnie. This resulted in cobalt extraction from pyrite concentrate of greater than 95%. Variability testwork is currently underway.

## For investors, please contact:

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## **Competent Persons Statement**

The information in this report that relates to Exploration Results for the Walford Creek Deposit is based on information compiled by Mr. Dan Johnson who is a Member of the Australian Institute of Geoscientists and who has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he 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 (the "JORC Code"). Mr. Dan Johnson is a full-time employee of AEON Metals Limited and consents to the inclusion in the presentation of the Exploration Results in the form and context in which they appear.



# JORC Code, 2012 Edition – Table 1 Walford Creek

# **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.
- 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 (eg '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
   (eg submarine nodules) may warrant
   disclosure of detailed information.
- WMC: 1986-1994 completed diamond core and RC drilling on nominal 400 x 40m grid spacing. The holes were generally drilled vertically appropriately target the stratabound Pb-Zn mineralisation. Sampling procedures were in line with industry standards of the day (as documented in historic reports); all RC drilling was sampled at 1m intervals and drill core was split/sawn into approximately 1m half-core samples. All samples were analysed in-house by Atomic Absorption Spectrometry.
- was completed to infill the existing grid by WMC. RC drilling was used to obtain continuous 1m samples. Dry samples were split at the rig and wet samples speared. Approximately 2kg samples were weighed, dried, crushed and pulverised at a commercial laboratory for analysis by four-acid digest with an ICP finish.
- Aston to Aeon: 2010-2018 infill and extension diamond drilling with some precollars; good quality predominantly HQ core was obtained from which 1m sawn half-core samples were collected and weighed, dried, crushed and pulverised at a commercial laboratory for analysis by four-acid digest with an ICP finish. Drill core sample recoveries were recorded in the database. All above grade (termed Ore Grade) were assayed as such via OG62 four-acid digest by ALS. Drill core sample recoveries were recorded in the database. 2016 saw metallurgical samples taken using quarter cut HQ core and limited PQ.
- Aeon 2018: Genalysis Laboratory being used. Technique employs 4-acid digest with ICP finish and ore grade via fouracid digest (termed 4AH/OE by Intertek Genalysis).
- Where RC sampling has been undertaken, mostly for pre-collars to diamond drill holes, Aeon has utilised a

riffle splitter attached to a cyclone. Any wet samples were duly noted and the majority of RC ceased where the samples became wet. Limited RC sampling undertaken through ore zones. RC predominantly used to provide precollar for Diamond OR in some cases used to close off section as a back hole.

 Where half HQ core taken for metallurgical analysis, the half core is quarter cut for assaying.

# 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).

- 1986 to 1994 WMC: 45 Diamond holes 12,735m & 49 RC holes 3,678m; NQ & minor BQ Diamond drilling and RC, no mention of core orientation in any historic WMC report.
- 2004 to 2005 Copper Strike: 30 Reverse Circulation ("RC") holes 3,162m; RC drilling bit type/size not reported by
- 2010 to 2012 Aston Metals: 92 Diamond holes 14,929m; HQ Triple Tube Diamond drilling with some RC pre-collars. Core oriented, where possible, by Reflex ACT tool and structural data recorded in the database.
- 2014 Aeon Metals Limited: 19 RC, RCDD and DD (Diamond) holes completed for 6021m. HQ Triple Tube Diamond drilling with some RC pre-collars. Core oriented, where possible, by Reflex ACT 111 tool and structural data recorded in the database.
- In 2015 3 RC DD holes were completed for 871m at Walford.
- Between 2016 to 2018 Aeon Metals Limited completed further RC, RC precollar and DD. Minor PQ undertaken in 2016. The DD has been predominantly HQ Triple tube diamond drilling. Core oriented, where possible, by Reflex ACT 111 tool and structural data recorded in the database.

2016 = 4030m - 28 holes

2017 = May/June = 4487.15m Sept/Oct =2378.5m = 6865.65m - 48 holes

2018 = 36,032m - 147 holes

# Drill sample recovery

- 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.
- WMC: No known written record (however, any core loss intervals were recorded graphically in geological logs).
- Copper Strike: No written record.
   Copper strike have noted some areas of poor sample recovery through

 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.

- mineralised zones due to high water pressure, but noted that grades were comparable to WMC diamond drilling and therefore assumed any bias based on drilling technique and / or sample type was low.
- Aston and Aeon Metals: HQ Triple Tube drilling to improve recovery. Generally >90%; lower recoveries can in some cases be associated with higher mineral grades attributed to hydrothermal brecciation & dissolution in the Dolomite Unit rather than drilling or sampling practice.
- 2014 recoveries are considered to be better than 2012 recoveries.
- 2016 recoveries are considered the same or better than 2014. Shallow holes close to the fault generally have poorer recoveries.
- Recoveries of sample in the 2017 and 2018 have been similar and are considered good with greater than 90% recovery achieved for all drilling.

### 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.
- Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.
- The total length and percentage of the relevant intersections logged.
- WMC: Detailed hard-copy lithological logging of all holes transcribed by AML into an Access Database with a full set of logging codes acquired from BHP Billiton. Core photographs were taken but could not be recovered from the data archives. A few core photographs were made available to AML as scans.
- Copper Strike: Digital logging of all holes loaded into AML's Access database with a full set of logging codes acquired from Copper Strike. No chip tray photographs were made available.
- Aston and Aeon: Detailed digital geological and geotechnical logging of all holes with a full set of logging codes transcribed into an Access database; full set of core photographs.
- All logging has been converted to quantitative codes in the Access database.
- All relevant intersections were logged.

# Sub-sampling techniques and sample preparation

- If core, whether cut or sawn and whether quarter, half or all core taken.
- If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.
- For all sample types, the nature, quality and appropriateness of the
- WMC: Split/sawn half core under geological control and no record for RC; 1m RC samples and half core samples of typically 1m, but as small as 0.25m sent for in-house lab assay.
- Copper Strike: Dry RC samples were riffle split and wet samples speared; 1m samples (of approximately 2kg) sent to

- sample preparation technique.
- Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.
- 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.
- Whether sample sizes are appropriate to the grain size of the material being sampled.

- commercial laboratory with appropriate sample prep process.
- Aston and Aeon: Company procedures for core handling documented in a flow sheet; sawn half core under geological control; 1m samples sent to commercial laboratory with appropriate sample prep. Company procedure for RC sample handling documented in flowsheet; bulk 1m samples in most cases rotary split from rig with only some riffle split; sample dried, crushed and pulverised to appropriate levels; use of field duplicates and quarter core checks were completed and indicated comparable results with the original samples.
- In 2016 PQ and HQ core were collected for metallurgical samples. In 2017 and 2018, all mineral zones where it is considered that those zones will end up in the resource have been sampled for metallurgy. Sawn half core and limited quarter core has been submitted for various metallurgical testing, from mineralised intervals. The remaining half core sawn and quarter section samples have been sent for multielement analysis at ALS in 2016 and 2017 and Genalysis in 2018.
- All sampling methods and sample sizes are deemed appropriate.
- Sampling in 2017 and 2018 was conducted in the same manner as previous years.

# 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.
- 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.
- 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.
- WMC: In-house analysis by Atomic Absorption Spectrometry (digest recorded as PBKRS) as cited in annual reports of the day by WMC. The relevant QA/QC was not reported and the drill core is no longer available.
- Copper Strike: Appropriate analytical method using a 4-acid digest with ICP finish with ore grade analysis for Cu, Pb, Zn & Ag. Assaying was carried out by ALS, an accredited laboratory. CSE did not make use of any standards or run duplicate samples for QA/QC. Aston metals drilled 4 HQ Triple Tube diamond core twin holes with comparable results.
- Aston and Aeon pre-2017: analytical procedure documented as a flow-sheet; Appropriate analytical method using a 4acid digest with ICP finish. Ore grade analysis for Cu, Pb, Zn & Ag by OG62 method. Assaying was carried out by

- ALS, an accredited laboratory. Extensive QA/QC programme with standards, blanks, laboratory duplicates & secondary lab checks. Acceptable outcomes.
- Aeon 2017: analytical procedure documented as a flow-sheet; Appropriate analytical method using a 4acid digest with ICP finish. Ore grade analysis, where appropriate, for Cu, Pb, Zn, Ag, S and As by 4AH/OE. Assaying was carried out by Intertek Genalysis, an accredited laboratory. Extensive QA/QC as above.
- All assay methods for both Aston and Aeon were appropriate at the time of undertaking.
- Aeon has continued to undertake QA/QC including undertaking check analysis at a secondary laboratory.

Verification of sampling and assaying

- The verification of significant intersections by either independent or alternative company personnel.
- The use of twinned holes.
- Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.
- Discuss any adjustment to assay data.
- WMC: Hardcopy sampling and assay data has been compared with recent drilling work by Aston and Aeon. Aeon considers the data reliability to be reasonable.
- Copper Strike: Aston twinned 4 CSE holes to assess grade repeatability and continuity; results are comparable. All samples were submitted to an accredited laboratory, ALS. 1 hole was removed from the database because the geological logging and assay results appeared significantly at odds with several surrounding holes.
- Aston: Site visit to review core confirms mineral intercepts; Twinned holes (4) to test RC drilling by Copper Strike; results are comparable. Aeon have core handling procedures as flow-sheets.
- Aeon: Site visit by H&SC to review core confirms mineral intercepts;
- Aeon using same core handling procedures, including similar data entry and logging as previous with same codes.
- Aeon database managed by Elemental Exploration Pty Ltd using GEOBANK with all final data stored off site.
- The spacing of drill holes is considered appropriate with closer spacing and in some cases crossing holes undertaken in 2018 confirming grades in previous holes.

Location of data points

- Accuracy and quality of surveys used to locate drill holes (collar and down-
- WMC: Survey pickup of collar locations by EDM in 1992 and tied to the datum

- hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.
- Specification of the grid system used.
- Quality and adequacy of topographic control.
- grid point at drillhole WFDD1. The precision of pickups was ±100mm with respect to the datum on average. Downhole survey method not recorded; database contains azimuth and dip readings every 30-50m.
- Copper Strike: Drill hole location and orientation data determined by CSE staff. Collars were buried and therefore validation by subsequent Companies was not possible. Downhole survey methods were not recorded; database contains azimuth and dip readings based on collar and end of hole measurement.
- Aston: DGPS on all AML holes in MGA94
  Zone 54 grid projection by MH Lodewyk
  Surveyors, Mount Isa. AML also had
  WMC drill hole collar locations validated
  by DGPS with good accuracy. Down hole
  surveys were taken every 30m by
  REFLEX, EZI-SHOT.
- A detailed Digital Elevation Model (DEM) was generated by David McInnes, consulting geophysicist, as part of the process of developing the 2010 3D geological model. The DEM was generated using a combination of data from the drillhole collars (DGPS), the WMC Gravity survey (with a 3cm accuracy), with variable data point spacing of 100x100m – 500x500m, and high-resolution satellite data with an estimated 80m accuracy.
- Aeon: DGPS on all previous Aeon drill holes in MGA94 Zone 54 grid projection by MH Lodewyk Surveyors, Mount Isa in September 2014. 2016 holes have been picked up by DGPS by D Ericson at Diverse Surveyors, Mt Isa. Down hole surveys were generally taken every 30m by REFLEX (ACT 111) EZI-SHOT or as ground conditions permitted.
- Aeon has undertaken independent survey work to locate all 2017 and 2018 drill holes using a DGPS.
- Additional surveying of surrounding hills to the deposit has provided further new data in 2018 and has confirmed previously located baseline survey sites.

# Data spacing and distribution

- Data spacing for reporting of Exploration Results.
- 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
- Drillhole section spacing is nominally 25m to 50m in the eastern sections of the deposit known as Vardy becoming 50m or greater in Marley west of Vardy. In Amy west of Marley, hole spacing is often greater than 100m between sections with only limited cases where it is less

- estimation procedure(s) and classifications applied.
- Whether sample compositing has been applied.
- than that. On section spacing is approximately between 20m to 80m in Vardy and most of Marley. 100m spacing is considered appropriate for geological continuity, 50m spacing allows for reasonable assessment of grade continuity. 25m by 20m can lead to measured status depending on continuity of both geology and grade.
- Some holes have encroached closer than the nominal 25m by 20m due to hole deviation and also the necessity to relocate holes around geographical features and or vegetation.
- Very limited sample compositing undertaken.

# 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.
- 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.
- Drilling generally achieved a high angle of intercept with stratabound mineralisation and acceptable angles of intersection with structurally controlled mineralisation closer to the Fish River Fault. There is local variation of intercept due to geologically logged folding in the deposit.
- Any mineralisation related directly to structures with the same strike and dip of the Fish River Fault, has been intersected at a moderate angle.
- A broad alteration zone (with variable mineralisation) associated with both the stratabound mineral and the mineral proximal to the Fish River Fault has been intersected at reasonable angles.
- Drilling orientations are considered appropriate with no obvious bias. Holes have been steepened in the case of the most recent drilling and the angle of intercept is considered appropriate.

# Sample security

- The measures taken to ensure sample security.
- WMC: All assaying in-house. No documentation available on sample security.
- Copper Strike: All assaying completed by ALS Townsville. No documentation available on sample security.
- Aston and Aeon: RC chip samples in calico bags are sealed in polyweave bags. Drillcore is contained in lidded core trays, strapped down and transported by a dedicated truck to Mount Isa. The core is cut and sampled by company employees in the Mount Isa core yard and sent directly to ALS Mount Isa where assaying is completed. After analysis all samples are returned to Isa, stored in a lock up shed and digitally

archived. Core is stored in Mount Isa in a lock up shed. Previously sections of massive sulphide were kept in secure cool storage. Aeon - recent core crush of -9mm has been kept in cryovac bags with a nitrogen flush prior to sealing. This is aimed at eliminating the requirement to use cold storage for the core. The remaining core is stacked on pallets and then plastic wrapped prior to storage in a covered shed out of the weather. Visual inspection of drill core continues to show that assay grades match mineral assay distribution.

- 2016, 2017 and 2018 Metallurgical samples comprised sawn quarter/half core completed at an appropriate facility in Mt Isa by Aeon personnel. Core was then bagged and cryovac using nitrogen to expel oxygen and then protected in Mt Isa prior to use in test work at other secure sites including at
- All drillcore in core trays is wrapped in plastic and strapped to pallets on site at Walford and before transport to Mt Isa by either Aeon personnel in appropriate vehicles or via the local transport company from Doomadgee. This transport of core is considered satisfactory.

The results of any audits or reviews of reviews sampling techniques and data.

- WMC: Data transcribed from historic reports and subsequently validated by Aston with no material inconsistencies evident.
- Copper Strike: Supplied digital database checked by Aston against hard copy with no material discrepancies found.
- Aston: All data checked and validated prior to loading into the internal database by Aston geologists and external database managers. As part of the process of developing the geological model Aston reviewed all of the recent and historic data and consider it suitable for the purposes of resource estimation. A QA/QC audit by ALS found no major discrepancies in the assay data.
- Aeon all data now being received has undergone the same validation as used previously by Aston.
- A substantial QA/QC review has been completed by H&S Consultants as part of the resource estimate undertaken previously.
- QA/QC work continues to be

Audits

- undertaken by an independent database consultant and checked by both Aeon personnel and by the independent Resource geologist.
- Check analysis undertaken by ALS in 2018

# **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.
- 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.

- Walford Creek is located wholly within EPM 14220. The EPM is located 65km west-northwest of Doomadgee township and 340km north-northwest of Mount Isa.
- Following a transfer of title (dated 12 March 2013) EPM 14220 is held 100% by Aeon Walford Creek Limited formerly Aston Metals (Qld) Limited and the previous Joint Venture Agreements no longer apply. The tenement currently consists of 41 sub-blocks. The tenement is a granted Exploration Permit for Minerals and no known impediments exist.
- As it currently stands, no Native Title claim is in existence over EPM 14220, however AML continue to operate under the premises of the previous agreements negotiated with the Carpentaria Land Council Aboriginal Corporation "CLCAC" representing the Waanyi and Gangalidda-Garawa peoples and signed prior to commencement of exploration.

# Exploration done by other parties

- Acknowledgment and appraisal of exploration by other parties.
- Numerous companies have explored within the tenement area, largely concentrating on the discovery of a significant stratabound lead-zinc system.
- More recently, companies have been focused on targeting copper mineralisation in the hanging wall of the Fish River Fault.
- All exploration is considered to have been completed to a reasonable standard by experienced companies in a professional manner. Most exploration work has been appropriate but there are minor issues on historic documentation.
- Previous exploration of the Walford Creek Prospect is summarised below:

### 1984-1996 WMC

Re-evaluation of the Walford Creek area resulting in a major exploration program targeting Pb-Zn mineralisation near the Fish River Fault:

 Systematic grid-based mapping, rock chip and soil sampling.

- Detailed Tempest EM and aeromagnetic survey; gravity survey, 600 line km of SIROTEM.
- 45 diamond and 49 percussion holes totalling approximately 16,500m of drilling on 400 and 800 m spaced drill hole fences.
- Isolated higher grade Pb-Zn-Cu-Ag intersections but no coherent economic Pb-Zn resource.
- Brief JV with MIMEX from 1995-1996. MIMEX completed CSAMT, EM and IP over 9 conceptual targets but no drilling.

## 2004-2006 Copper Strike

Exploration program targeting copper mineralisation at the Walford Creek Prospect in and along the Fish River Fault:

- A small RC drilling program was commenced in 2004 but curtailed prematurely due to the 2004-2005 wet season.
- A significant RC drill program was completed during 2005.
- 30 holes were drilled for a total of 3,162m, of which 60.7m was diamond cored.
- Estimation of an Inferred Mineral Resource for the Walford Creek Project of 6.5 million tonnes at 0.6% Cu, 1.6% Pb, 2.1% Zn, 25 g/t Ag and 0.07% Co.

#### 2010 to 2012 Aston Metals Limited

Exploration undertaken by Aston followed on from the targeting approach adopted by Copper Strike in drilling along the Fish River Fault to test both the SEDEX lens and the associated copper/cobalt mineralisation close to the fault.

Aston Metals drilled a total of 92 Diamond holes 14,929m; HQ Triple Tube Diamond drilling with some RC pre-collars. The 2012 Indicated and Inferred Resources of 48.3 million tonnes at 0.39% Cu, 0.83% Pb, 0.88% Zn, 20.4 g/t Ag and 731 ppm Co.

All subsequent work since June 2014 has been undertaken by Aeon Metals.

# Geology

 Deposit type, geological setting and style of mineralisation.

- At the Walford Creek Prospect structurally controlled, vein/breccia hosted or replacement Cu ± Co mineralisation, with minor Pb-Zn-Ag and stratabound, diagenetic Pb-Zn-Ag ± Cu mineralisation, are hosted in dolomitic and argillaceous sediments of the Palaeoproterozoic Fickling Group, forming part of the Lawn Hill Platform stratigraphic sequence, along the east-west to east-northeast trending, steeply southdipping Fish River Fault.
- The mineralisation typically occurs as early diagenetic sphalerite-galena-(chalcopyrite) to late epigenetic chalcopyrite-(galena-sphalerite) associated with three stacked massive pyrite lenses and talus, hydrothermal and tectonic breccias in the hanging wall of the Fish River Fault.

- Mineralisation shows affinities to both early sedimenthosted SEDEX-type and late Mississippi Valley-type mineralisation styles.
- The wide diversity of mineralisation styles reflects multiple events in a long-lived re-activated structural setting that originated as a growth fault.
- Further interpretation of the geological model is ongoing and views will reflect the geological teams assessment as both the database grows in size and as the results are interpreted.
- Recent re-interpretation also shows strong analogies to some Zambian style sediment hosted copper deposits where elevated copper in association with high cobalt values is often a characteristic.

# Drill hole Information

- information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:
  - 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
  - o 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.

- Exploration results have not previously been reported in the public domain as Aston Metals, the previous company, was privately listed.
- Information on the pre-2016 drill holes is included in the 2015 Resource Estimate Report.
- Summary Information pertaining to the completed 2018 drilling holes is contained in the body of the relevant ASX releases.

Data aggregation methods

- In reporting
  Exploration Results,
  weighting averaging
- Exploration results have not previously been reported in the public domain as Aston Metals, the previous company, was privately listed.

- 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 examples of such aggregations should be shown in detail.
- The assumptions used for any reporting of metal equivalent values should be clearly stated.

- Aeon has not undertaken any cutting of grades as it currently believes that all the grades received are an accurate reflection of the sampled interval.
- Aeon has maintained realistic intervals of dilution when stating mineralised intercepts, however further refinement of what are considered realistic mining widths will be understood following further resource calculations.
- Aeon has not taken to stating significant intercepts as metal equivalents.
- The reported resource estimates have a copper equivalent value included. This is based on the following information
- Exchange rate Aus\$/US\$ = 72.5

Metal	Price	Recovery (%)
Cu	US\$6,614/ tonne	92
Pb	US\$2,205/ tonne	24
Zn	US\$2,756/ tonne	46
Ag	US\$16/ ounce	50
Со	US\$45,000/tonne	68

 Copper equivalent formula = (0.92\*Cu\_pc) (0.09\*Pb\_pc)+(0.21\*Zn\_pc)+(0.0042\*Ag\_ppm) +(0.0005\*Co\_ppm)

Relationship between mineralisation widths and intercept lengths

- 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 (eg 'down hole length, true width not known').

- Exploration results have not previously been reported in the public domain as Aston Metals, the previous company, was privately listed.
- Drill hole angle relative to mineralisation has been a compromise to accommodate the flat-lying stratabound massive sulphide bodies with associated replacement breccias and the steeper dipping epigenetic mineralisation proximal to the Fish River Fault. Generally the stratabound intercepts further from the fault are close to true width whereas the epigenetic and/or overprinting mineralisation intercepts can be apparent widths depending on drill angle. This is modelled in the wireframes for the resource work.

## Diagrams

- Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported
- Appropriate maps showing the nature and extent of the mineralisation are included in the 2013 Resource Estimation report by H&SC for all work prior to 2014.
- Appropriate maps and sections have been provided for the 2016 and 2017 work to date.
- Appropriate sections have been included for some of the significant intercepts recorded from the 2016 and 2017 drilling.

	These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	2018 holes have been drawn on sections and provided in the relevant ASX releases
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.	<ul> <li>Exploration results have not previously been reported in the public domain by Aston as the previous company was privately listed.</li> <li>All results reported on by Aeon are considered to be accurate and reflective of the mineralised system being drill tested.</li> </ul>
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; 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> <li>Aeon believes that the results and data provided give a meaning and material reflection of the geological lithologies and structure being tested at Walford Creek.</li> <li>Metallurgical test work both undertaken and continuing shows that acceptable levels of mineralisation for all the important elements can be satisfactorily extracted for Walford mineralisation.</li> <li>It should be noted that this metallurgical test work is ongoing.</li> </ul>
Further work	<ul> <li>The nature and scale of planned further work (eg 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,</li> </ul>	Aeon's future exploration will focus on upgrading and expanding upon the current Measure, Indicated and Inferred Resource Estimates at the Walford Creek Prospect, through further drilling within and immediately outside the resource area.

provided this information is not commercially sensitive.

# **Section 3 Estimation and Reporting of Mineral Resources**

(Criteria listed in section 1, and where relevant in section 2, also apply to this section. This section will be updated again for the new resource information in February 2019)

Criteria	JORC Code explanation	Commentary
Database integrity	<ul> <li>Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.</li> <li>Data validation procedures used.</li> </ul>	<ul> <li>All relevant data were entered into an H&amp;SC Access database where various validation checks were performed including duplicate entries, sample overlap, unusual assay values and missing data.</li> <li>Data linked to Surpac for wireframing, block model creation and resource reporting.</li> <li>Visual reviews of data were conducted to confirm consistency in logging and drillhole trajectories.</li> <li>Assessment of the data confirms that it is suitable for resource estimation.</li> </ul>
Site visits	<ul> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	<ul> <li>Simon Tear of H&amp;SC completed a site visit to the property and Mt Isa core handling facility during the May 2016 drilling. Visit included review of core for 6 holes.</li> <li>Simon Tear H&amp;SC visited in 2012 the project's core handling facility in Mt Isa and reviewed 5 diamond drillholes from the AML 2012 drilling.</li> </ul>
Geological interpretation	<ul> <li>Confidence in (or conversely, the uncertainty of ) the geological interpretation of the mineral deposit.</li> <li>Nature of the data used and of any assumptions made.</li> <li>The effect, if any, of alternative interpretations on Mineral Resource estimation.</li> <li>The use of geology in guiding and controlling Mineral Resource estimation.</li> <li>The factors affecting continuity both of grade and geology.</li> </ul>	<ul> <li>The Walford Creek Deposit is characterised by several different mineralisation styles dependent on the host rock and stratigraphic position.</li> <li>Primary base metal mineralisation is hosted in relatively flat lying sedimentary units. Sulphide mineralisation is dominant. The new resource estimates are primarily focussed on distinct, higher grade copper mineralisation related to specific stratigraphic hosts and proximity to the Fish River Fault</li> <li>A detailed stratigraphic reconstruction has been completed noting minor fault structures as splays and parallel faults to the main Fish River Fault.</li> </ul>

- Some oxidation of mineralisation has occurred with possible supergene enrichment noted for the PY1 and Dolomite unit ("DOL") zones.
- Mineralisation wireframes were designed on a nominal 0.15% Cu cutoff grade and geological criteria including host lithology and stratigraphical relationship, structural position, oxidation and geological sense.
- 3D wireframes and surfaces constructed include: updated mineral zones for copper for the PY1 Unit, the DOL Unit and the PY3 Unit, Fish River Fault, Chert Marker, BOPO and BOCO.
- Wireframe extrapolation is 25m to 50m beyond the last drillhole; termination of wireframes is generally due to a lack of copper grades and/or data.
- The geological interpretation has also included the definition of cobalt mineralisation as an enveloping mineral unit to the copper lodes. A nominal 150ppm cobalt cut was used in conjunction with silver grades and geological sense.
- The Amy deposit, to the immediate west of the western end of the Marley deposit, comprises very obviously PY3 mineralisation.
- The existing interpretation honours all the available data; an alternative interpretation is unlikely to have a significant impact on the resource estimates.

# Dimensions

 The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.

- Mineralisation can be modelled for 3.3km of strike length, with a range of down dip widths of 40 to 60m. The mineral lenses are part of a 160m thick variably mineralised sedimentary sequence. The individual mineral lodes have thicknesses ranging from 2m to 60m.
- The depths below surface to the top of the mineralisation vary for the different lodes but an approximate overall range is from 25m to 35m for the uppermost lode and 100 to 230m for the lowermost lode.
- The Amy deposit has a strike length of some 6km. Down dip extent ranges between 30 and 60m with thickness averaging 20-25m. Depth to the top

of mineralisation is in the 350 to 550m range.

# Estimation and modelling techniques

- The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.
- The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.
- The assumptions made regarding recovery of by-products.
- Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).
- In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.
- Any assumptions behind modelling of selective mining units.
- Any assumptions about correlation between variables.
- Description of how the geological interpretation was used to control the resource estimates.
- Discussion of basis for using or not using grade cutting or capping.
- The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.

- Mineral wireframes and geological surfaces are based on interpretations completed on sections with strings snapped to drill holes.
- Surpac mining software was used for the interpretation and block model reporting. The GS3M software was used for block grade interpolation.
- Wireframes were used to control the composite selection and the loading of subsequently modelled data into the block model.
- Geostatistics were performed for copper, lead, zinc, silver, cobalt, iron, sulphur, calculated pyrite, arsenic, cadmium and bismuth within individual mineralised lenses. A set of calculated pyrite content values was created from the base metal, iron & sulphur assays.
- Correlation between the main economic elements was weak indicating possible mineral zonation, which is not an uncommon feature with the type of mineralisation.
- Drillhole spacing ranges along strike from 25 to 50m and 30-80m on section.
- Parent block sizes were 10m in the X (east) direction, 5m in the Y (north) direction and 5m in the Z (RL) direction with no sub-blocking.
- Ordinary Kriging estimation method was used.
- 6,558 1m composites for the 5 copper lodes were extracted from the drillhole database constrained by the mineral wireframes residuals of <0.5m were discarded.</li>
- Copper was modelled within the copper lode wireframes and for the peripheral zones (10,590 1m composites) within the overall cobalt mineral wireframes. The remaining elements ie Pb, Zn, Ag, Co, As, Bi, Fe, S and a calculated pyrite value were modelled as 1m composites (17,015) within the overall cobalt mineral wireframes
- No top cutting was applied; the coefficients of variation for the relevant composite datasets suggest that the data is not sufficiently

- skewed or unstructured to warrant top cutting.
- 6 estimation search passes were used for all mineral lodes with an increasing search radius and decreasing number of data points.
- Search size: 30 by 20 by 7.5m (Measured), 60 by 40 by 15m (Indicated) to 100m by 80m by 20m (Inferred) with 12 minimum data decreasing to 6 and finally to 3
- The first and second passes used an octant based search where at least 4 octants had to be estimated; the remaining passes used a 2 octant based search.
- Variography was modest in all zones mainly due to a lack of drilling, particularly in the down dip direction in combination with localised thinness of some of the mineral zones and subtle undulations in the host stratigraphy.
- Search ellipses were orientated to follow the strike, dip and plunge trend of the individual units. 1 search domain was used for PY1, 9 search domains were used for the DOL units whilst 13 search domains were used for the PY3 unit.
- Model validation has consisted of visual comparison of block grades and composite values and indicated a reasonable match. Comparison of summary statistics for block grades and composite values has indicated a small risk of overestimation of grade for certain elements for certain lodes usually in the Inferred category but with no consistent pattern.
- There are relatively limited changes from the January 2018 H&SC global resource estimates for the Vardy and Marley Zones and this provides a good level of confidence in the resource estimates and their classification.

Moisture

- Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.
- Tonnages are estimated on a dry weight basis.

Cut-off parameters

- The basis of the adopted cut-off grade(s) or quality parameters applied.
- Resource estimates have been reported at a 0.5% copper cut off for block centroids within the relevant copper lode wireframe.

 The cut-off grade at which the resource is quoted reflects the intended bulk-mining approach.

# Mining factors or assumptions

Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.

- H&SC's understanding based on information supplied by Aeon is for an open pit mining scenario.
- The proposed mining method will be a truck shovel operation for the upper mineralisation in the PY3 and DOL lodes.
- Minimum mining dimensions are the parent block size of 10x5x5m.
- The current assumptions for the mining dilution (open pit and underground) and recovery for the open pit mine are 5% dilution and 95% recovery
- There is also the potential for an underground transverse retreat up hole bench stoping to target the lower PY3 mineral zone
- Geotechnical studies for both open pit mining and the selected underground mining method are currently at a PFS level.
- Pit hydrology has been investigated and incorporated into the mine design.

# Metallurgical factors or assumptions

The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.

- Significant metallurgical testwork has been completed on the project. This includes floatation for Cu, Pb, Zn and a roast & leach for the pyrite containing cobalt / Ag. This information was used to produce the PEA published in April 2017.
- A more detailed round of locked cycle, variability, roast and leach testwork was in progress during compilation of resource estimates.
- There is some evidence of metal zonation for Cu, Pb, Zn & Ag. The dominant minerals are chalcopyrite, galena & sphalerite for copper, lead and zinc respectively.
- Mineralogical testwork has identified that a majority of the cobalt resides within distinctive types of pyrite and is not necessarily linked to copper grades.
- Metal recoveries are likely to be of industry norm.
- The deposit type is similar to Mt Isa style.

# Environmental factors or assumptions

- Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.
- Baseline studies by Aeon are currently in progress
- The area contains large flat areas suitable for waste dumps and tailings facilities.
- No large river systems pass through the area.
- Water courses are generally restricted.
- There are abundant carbonate rocks, the Walford Dolomite, in the vicinity to provide material for control of any acid mine drainage.

## **Bulk density**

- Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.
- The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.
- Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.

- 7801 samples were generated from single 10cm pieces of core that had SG values determined using the "Archimedes Principle" on a dry weight basis (weight in air/weight in water method).
- Some localised vuggy material may have an overstated density due to samples not sealed in wax prior to measuring the weight in water.
- Density grade interpolation for the sedimentary package was undertaken using the Inverse Distance Squared method on the 7,801 samples derived from the drillhole database.
- Five sub-divisions were created with hard boundaries, namely surface cover, complete oxidation, partial oxidation, fresh Fish River Fault hangingwall and footwall. Several search passes were used with expanding search radii and decreasing number of data points in order to interpolate density grades for as much of the deposit as possible.
- Any remaining blocks with a metal grade within the mineral wireframes but no density value were allocated default values derived from a density data analysis.
- Similar search domains as for the metal grade interpolation were used to control the density modelling.

# Classification

- The basis for the classification of the Mineral Resources into varying confidence categories.
- Whether appropriate account has been
- Mineral resources have been classified on the estimation search pass category subject to assessment of other impacting factors such as

taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).

 Whether the result appropriately reflects the Competent Person's view of the deposit.

- drillhole spacing (variography), core handling and sampling procedures, QAQC outcomes, density measurements, geological model and previous resource estimates.
- Initially the search pass category for the copper lodes was reviewed with the observation of a 'spotted dog' effect particularly at the margins of the lodes. To counteract this H&SC used the search pass categories for the entire cobalt mineralisation dataset.
- The classification appropriately reflects the Competent Person's view of the deposit.

Audits reviews

 The results of any audits or reviews of Mineral Resource estimates.  An internal check model has been completed by H&SC using dynamic interpolation of the composites, both constrained by the copper wireframes and unconstrained. A reported difference of <5% was achieved..

Discussion relative accuracy/ confidence

- where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.
- The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.
- These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.

- The Mineral Resources have been classified using the search pass category for the cobalt mineralisation with Pass 1 = Measured, Pass 2 = Indicated and Passes 3 to 6 = Inferred
- An additional qualitative assessment of a number of factors including the complexity of mineralisation (including metal zonation), variography (data point spacing), the drillhole spacing, QA/QC data has also been included.
- The Mineral Resource estimates are considered to be accurate globally, but there is some uncertainty in the local estimates due to the current drillhole spacing and local geological complexities.
- The geological understanding has been substantially improved with the Aeon drilling campaign.
- No mining of the deposit has taken place so no production data is available for comparison.