

OM HOLDINGS LIMITED

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ASX Market Announcements
ASX Limited
4th Floor
20 Bridge Street
SYDNEY NSW 2000

Dear Sir/Madam

BOOTU CREEK MINERAL RESOURCES AND ORE RESERVE UPDATE AS AT 31 DECEMBER 2013

HIGHLIGHTS

- **Bootu Creek Mineral Resource as at 31 December 2013 was 23.5 million tonnes at a grade of 22.3% Mn, a net reduction of 3.6 million tonnes after allowing for the 2.4 million tonnes of ore processed through the Bootu Creek processing plant in 2013**
- **Bootu Creek Ore Reserve as at December 2013 was 12.5 million tonnes at an average diluted grade of 20.9% Mn, a net reduction of 0.8 million tonnes after allowing for the 2.4 million tonnes of ore processed through the Bootu Creek processing plant in 2013**

Bootu Creek	31 December 2013		31 December 2012		Change
	Mt	Mn%	Mt	Mn%	Mt
Mineral Resource	23.5	22.3	29.5	22.2	-6.0
Ore Reserve	12.5	20.9	15.7	20.6	-3.2

Table 1. Comparison of Mineral Resource and Ore Reserve at 31 December 2013 with 31 December 2012.

The Bootu Creek Mineral Resource and Ore Reserve estimates have been completed in accordance with the JORC Code (2012 Edition). Mineral Resources quoted are reported as inclusive of Ore Reserves.



Bootu Creek Mineral Resource as at 31 December 2013

At 15% Mn cutoff	Measured		Indicated		Inferred		Combined*	
	Mt	%Mn	Mt	%Mn	Mt	%Mn	Mt	%Mn
Deposit:								
Chugga-Gogo	1.9	23.3	5.4	22.6	0.3	24.3	7.6	22.8
Foldnose			0.6	21.1			0.6	21.1
Masai	0.7	23.1	2.3	21.7			3.0	22.0
Shekuma	0.5	25.0	2.6	24.9	0.0	21.6	3.1	24.9
Tourag	0.4	22.9	1.8	22.2			2.2	22.3
Yaka	0.1	23.1	3.3	22.1			3.5	22.2
Zulu							0.0	0.0
Zulu South			0.6	20.2			0.6	20.2
Renner West					0.3	22.1	0.3	22.1
Insitu Resource*	3.7	23.4	16.6	22.6	0.6	23.1	20.8	22.7
ROM Stocks	0.3	17.2					0.3	17.2
SPP Stocks	2.4	19.3					2.4	19.3
Total Resource*	6.3	21.6	16.6	22.6	0.6	23.1	23.5	22.3

* Rounding gives rise to unit discrepancies in this table

Table 2. Bootu Creek Mineral Resource Estimate as at 31 December 2013

A total of 2.4 million tonnes of ore was processed during 2013. Other significant components contributing to the reduced 31 December 2013 Mineral Resource include a reduction in the long term FOB Darwin Price, exclusion of the remaining Zulu resource model due to poor metallurgical performance and the partial exclusion of the Masai resource model affected by Restricted Work Areas (RWAs) protecting sacred sites. There was no new resource delineation drilling or resource estimation updates during 2013.

A total of 1.8 million tonnes of ore was mined from Shekuma, Tourag, Yaka and Zulu pits during 2013, and a further 0.6 million tonnes was depleted from low grade ore stockpiles.

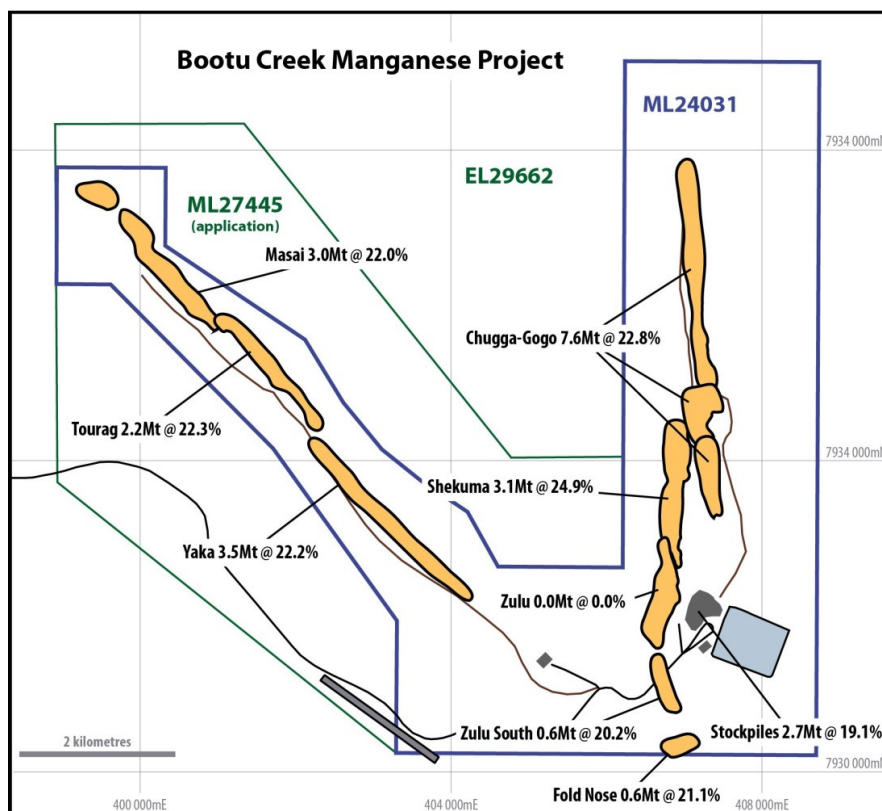


Figure 1. Bootu Creek Mineral Resource location plan, as at 31 December 2013

Mineral Resource estimation summary

The Bootu Creek manganese deposits are strata-bound, located at the contact between the underlying dolomite-siltstone Attack Creek Formation and the overlying ridge forming sandstone of the Bootu Formation of the Tomkinson Group, within the Palaeozoic Tennant Creek Inlier. The mineralised manganese bearing sandstone horizon is folded around the gentle NNW plunging Bootu Syncline, can be traced for 24km and dips around 30° towards the fold axis. The manganese is considered hydrothermal in origin and supergene enriched within a deeply weathered profile. The Bootu Creek manganese resource models have a combined strike length of 16 km, with individual models ranging from 0.7 km to 2.9 km. Mineralisation widths vary from 3 m to 15 m and ore mineralogy consists predominately of Pyrolusite and Cryptomelane in a silica rich gangue.

All Bootu Creek resource models, other than Renner West, are located within Mineral Lease ML24031, located 120 km north of Tennant Creek, Northern Territory, Australia. The Renner West Inferred Mineral Resource is located on EL28041 and located 70 km NW of the Bootu Creek mine site. Both tenements are granted, 100% owned by OMM and have no security of tenure issues at the time of reporting.

Resources at Bootu Creek (BC) are predominantly sampled by vertical 5.5" face sampling Reverse Circulation (RC) drilling (91%), with HQ3 diamond (DD) drilling (2%) and open percussion (PC) drilling (7%), based on a nominal 50 m x 25 m spaced grid. Minor areas at 100 m x 50 m were classified as Inferred Mineral Resources. Hole depths range from 5 m to 164 m and collar locations are picked up by Mine Surveyors using MGA94 co-ordinates. The 31 December 2012 BC resource dataset (no new resource delineation drilling carried out in 2013) comprised 3,055 drill holes for 169,520 m. The Renner West (RW) dataset had 142 drill holes for 6,212 m.

Sampling of RC holes is done on 1 metre downhole intervals and rotary split to produce approximately 3 kg samples. Intervals selected for analysis are generally limited to visible manganese mineralisation and adjacent host rock. Mineralised diamond core is quarter sawn to obtain 1 metre or geological intervals, with half core retained for density determination and metallurgical test work. All drill samples are crushed, dried and pulverised (total prep) to



produce a sub sample for XRF analysis. Field quality control procedures involve the use of field duplicates, certified BC standards (approx. 1:130 insertion rate) and use of a number of commercial laboratories for analysis.

The sample preparation of RC samples involve oven drying and full pulverisation before splitting off an XRF assay sub-sample. Diamond core assay samples are quarter sawn, jaw crushed and follow the same sample preparation technique. A pulp sub-sample is collected for analysis by XRF for the following elements: Mn, Fe, Al_2O_3 , SiO_2 , P, Pb, S, TiO_2 , MgO, K_2O , BaO, CaO, Cu and Zn. LOI (loss on ignition) is assessed by thermo-gravimetric determination. Laboratory QAQC involves the use of internal laboratory standards using certified reference material, blanks, splits and replicates as part of the in house procedures. OMM (OM Manganese Ltd) developed 6 reference standards in 2007 and 2010 for a range of grade values, using blends of Mn, Fe and quartz material. These were sent to 10 commercial laboratories with returned values in the $\pm 2\%$ range against the expected value. BC standards are submitted with each assay batch and results monitored to maintain an independent check on laboratory assays.

There is a high degree of confidence in the geological interpretation of the Bootu Creek manganese deposits gained through extensive close spaced drill testing, a relatively planar strata-bound geological setting and several years of active mining at this mature mining operation. Ore mineralogy was determined by XRD analysis and optical petrology on selected drill core, RC chip and mineral product (gravity concentrate) samples. Resource models were digitised and wire-framed from interpreted geological and assay drill cross sections provided by OMM. These wireframes were used to select resource intersections and composite data was extracted for Mn, Fe, SiO_2 , Al_2O_3 , BaO and P based on one metre sample increments.

The nugget effect from variography was found to represent only 20 - 30% of the total variability, suggesting a low inherent random behaviour for the manganese mineralisation and no grade capping was warranted.

The models were estimated using the Ordinary Kriging (OK) estimation technique with Surpac resource estimation software, and coded with attributes for material type, resource classification, model domain and against OMM survey pit pickups. Block Model Parent Cells are 25 m (Y) by 10 m (X) by 5 m (Z) and compare favourably with maximum drill spacing of 50 m by 25 m or 40 m by 20 m. The along strike search radius varied from 130 m in the shorter or faulted models through to 290 m for the highly continuous Chugga-Gogo. The number of samples was set at a minimum of 15 and a maximum of 32 for passes 1 & 2. Pass 3 used a minimum of 2 samples to fill model extents. Search ranges varied from 130 m up to 290 m in the deposits of up to 3 km strike length. The search ellipsoids were flattened disc shapes in the plane of the mineralisation with varying anisotropic ratios designed to model shallowly plunging manganese trends within the domains.

Current bulk density regression formulae are based on 366 waxed (or waxed equivalent) HQ3 core samples selected from 52 metallurgical composites distributed through all deposits included in the Ore Reserve. The bulk density measurements were determined in 2009 by Amdel (Perth) using the wet and dry methodology. Six density regressions were determined for Chugga/Gogo, Shekuma, Xhosa, Masai/Tourag, Yaka and Zulu deposits. Bulk density regressions for Foldnose and Zulu South deposits (not in Ore Reserve) are assumed as for Yaka, the nearest equivalent. Renner West also uses the Yaka (most conservative) regression option.

The mineralised domains have demonstrated sufficient continuity in both geological and grade continuity to support the definition of Mineral Resource and Ore Reserves, and the classifications applied under the JORC Code (2012 Edition). The nominal drillhole spacing of 50 m by 25 m was considered to provide adequate geological and grade continuity definition to assign an Indicated Mineral Resource classification to the majority of the deposits at Bootu Creek. Measured Mineral Resources were restricted to well drilled resource blocks within 15 m vertically of a mined pit floor, reflecting the high level of geological and grade confidence. Inferred Mineral Resources were classified for extensions to resources on a 100 m by 50 m spacing and for lower confidence deposit models such as Renner West.



Metallurgical assumptions are based on test work conducted on 93 composites selected from 79 diamond holes drilled into all deposits included in Ore Reserves. The test work consists largely of individual particle pycnometry (IPP) on lump ore and Heavy Liquid Separation (HLS) test work on fines. The heavy media treatment plant reconciliation factors, product yield regressions and recovery are updated annually.

The input data is comprehensive in its coverage of the mineralisation and does not favour or misrepresent in-situ mineralisation. Bootu Creek consists of a well-defined geological setting and this allows definition of mineralised zones based on a high level of geological understanding. The Mineral Resource models have been confirmed by open pit mining since 2006 which reconciles well against the resource estimates.

Bootu Creek Ore Reserve as at 31 December 2013

	Proved		Probable		Combined*	
Deposit:	Mt	%Mn	Mt	%Mn	Mt	%Mn
Chugga-Gogo	1.6	21.3	2.4	21.0	4.0	21.1
Masai	0.7	20.9	0.5	20.6	1.2	20.8
Shekuma	0.5	22.6	1.7	22.9	2.2	22.9
Tourag	0.4	20.8	0.7	21.1	1.0	20.9
Yaka	0.1	21.1	1.2	20.9	1.3	20.9
Zulu					0.0	0.0
Insitu Reserve*	3.3	21.3	6.5	21.5	9.8	21.4
ROM Stocks	0.3	17.2			0.3	17.2
SPP Stocks	2.4	19.3			2.4	19.3
Total Reserve*	6.0	20.3	6.5	21.5	12.5	20.9

*Rounding gives rise to unit discrepancies in this table

Table 3. Bootu Creek Ore Reserve Estimate as at 31 December 2013

The 31 December 2013 Ore Reserve estimate was 12.5 million tonnes at an average diluted grade of 20.9% Mn, a decrease of 3.2 million tonnes when compared to the 31 December 2012 estimate. This equates to a net loss of 0.8 million tonnes after allowing for the 2.4 million tonnes of ore processed through the Bootu Creek processing plant in 2013.

Exclusion of the Zulu resource model and partial exclusion of the Masai resource model resulted in a net loss of 0.8 million tonnes to the 31 December 2013 Ore Reserve. A net increase of 0.5 million tonnes in the optimised pit shells for Shekuma, Chugga-Gogo and Tourag pits was balanced by a net decrease of 0.5 million tonnes in optimised pit shells for Masai and Yaka pits. The main driver for changes in optimised pit shells results from the remodelled plant yield and recovery formula favouring higher grade resource blocks at the expense of lower grade resource blocks.

Ore Reserve Summary

The Bootu Creek mine has been operating since 2006 and Ore Reserve statements have been previously reported under JORC (2004 Edition). OMM has upgraded the reporting standard to JORC (2012 Edition) and a summary of the information used in the Ore Reserve estimation are as follows: The Optiro Pty Ltd December 2012 Mineral Resource estimates were optimised by Independent Mining Consultants as of 31st December 2013 utilising Whittle mining software to optimise economic open pit extents utilising revenue, mining, processing and logistical parameters provided by OMM. Mineral Resources quoted are reported as inclusive of Ore Reserves.

Conversion of Mineral Resources to Ore Reserves is based on optimisation parameters derived from analysis of current operating practices, technical studies, and ongoing mine and



processing performance and reconciliations. Optimised pit shells are then used to revise open pit mine designs and update the mine plan.

The current 15% Mn cut-off grade has been affirmed after several years of mining and processing Bootu Creek ore. Manganese product derived from the DMS (Dense Media Separation) plant feed is not linear in relation to the plant head grade, and product yield either decreases rapidly or fails to produce an acceptable product grade below the 15% Mn cut-off grade.

All current and planned mining is by open pit mining methods. Open pit slope angles, determined by an Independent Geotechnical Consultant, are at an overall angle, including berms, of 45° for hanging wall and end walls and 31.6° for footwall with batter angles not exceeding the bedding planes.

Diluted Grade is reviewed each year by reconciliation of the previous year's mine production. The Ore Reserve grade is quoted as a 'diluted' grade and is currently set at 90% of the contributing 'undiluted' Mineral Resource block grades. Mining Recovery is also reviewed each year with a reconciliation of the previous year's mine production. The Mining Recovery Factor is currently estimated at 100% (inclusive of dilution) of the contributing 'undiluted' Mineral Resource block tonnes.

The minimum mining unit is effectively 2.5 m vertically by 5 m across and 5 m along strike. The minimum drill intersection length applied in the Mineral Resource and Ore Reserve estimation is generally 4 m and is close to true width. Inferred Mineral Resources have not been utilised nor included in the Ore Reserves. The only significant deleterious element is Fe and that is managed by blending ore sources or product stockpiles.

There are no significant environmental impacts arising from mining or processing. Waste rock and processing tails are stored on site and are not acid generating. The only additive used in ore processing is ferrosilicon. Bootu Creek is an operating open pit mine site and processing plant. Waste Management Plans for waste rock and tailings storage have been submitted to, and have been approved by the Northern Territory Department of Mines and Energy.

Operating costs and sustaining capital are derived from analysis of the current Bootu Creek mining and processing operation and budget. Deleterious elements are managed within specified maximum limits and no specific pricing allowance is used. Price discounts are applied for a specified range of lower grade manganese products. Road and rail transportation charges are based on current contracted terms and rates. Refining charges are not relevant and product specification penalties are rare and have not been applied.

Production based royalties are payable to the original project vendor and the Northern Land Council (on behalf of Traditional Owners). These royalty charges are allowed for in project costing and applied in the pit optimisation process.

Factors effecting revenue include contained dtmu (dry metric tonne units) of manganese, and discounts for lower than benchmark manganese content. Manganese products are sold on an FOB basis from the Port of Darwin. Commodity price assumptions are based on Independent Analyst 5 year forecasts (Nov 2013) for Mn Price assumptions - CIF China GEMCO 44% of US\$5.60/dtmu with adjustments for selling and shipping costs, and for discounts specific to product specification. Exchange rate (AUD:USD) assumption is based on the current trading rate of 0.90 (Dec 2013). There are no saleable by-products. NPV ranges and sensitivity to variations are not included in the Ore Reserve estimation process.

All necessary agreements and authorities are in place with the Traditional Owners for mining and royalties (via the Northern Land Council) and for heritage clearance and sacred sites (via the Aboriginal Areas Protection Authority).

The Ore Reserve classifications are as follows: Proven Ore Reserves are restricted to in-situ Measured Resources contained within pit shells optimised at the current budget cost and revenue assumptions, plus surface Ore Stocks. Probable Ore Reserves are restricted to Indicated Resources contained within pit shells optimised at the current budget cost and



revenue assumptions. No Probable Ore Reserves are derived from Measured Resources. The Ore Reserve classification appropriately reflects the Competent Person's view of the deposit.

The information in this report which relates to Reporting of Exploration Results, Mineral Resources and Ore Reserves estimation is based on information compiled and checked by Mr Craig Reddell a full time employee of OM (Manganese) Ltd and by Mr Mark Drabble of Optiro Pty Ltd, both members of the Australasian Institute of Mining and Metallurgy. Mr Reddell and Mr Drabble have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as a Competent Person as defined in the JORC 2012 Edition of the "Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Reddell and Mr Drabble consent to the reporting of this information in the form and context in which it appears.



JORC TABLE 1

Section 1 Sampling Techniques and Data

Criteria	Explanation
Sampling Techniques - <i>Nature and quantity of sampling</i>	- Resources at Bootu Creek (BC) were sampled by 91% Reverse Circulation (RC) and 2% diamond (DD) with 7% open percussion (PC) drilling on a nominal 50m x 25m spaced grid or 100 m x 50 m where classified as Inferred Mineral Resources. - The 31 December 2013 BC resource dataset comprised a total of 3,055 drill holes for 169,520 m. The Renner West (RW) dataset had 142 drillholes for 6,212 m. - Collar locations are picked up by Mine Surveyors using MGA94 co-ordinates. - RC holes are sampled on 1 metre downhole intervals, rotary split to produce approximately 3 kg samples. Sample intervals selected for analysis are generally limited to visible manganese mineralisation and adjacent host rock. - All drill samples are crushed, dried and pulverised (total prep) to produce a sub sample for XRF analysis. Mineralised diamond core is quarter sawn to obtain 1 metre or geological intervals for XRF analysis, with half core retained for density determination and metallurgical test work. - Sampling is carried out under OMM protocols to ensure the representivity of drill samples.
Drilling Technique	- RC drilling with 4.5" drill rods and a 5.5" face sampling drill bit. - Diamond core generally drilled using a HQ3 core barrel. - Drilling is predominately vertical and the core is not oriented. - Holes range from 5 m to 164 m in depth.
Drill Sample Recovery	- RC drill sample recovery is visually estimated and recorded in geology drill log. Diamond core recovery is measured and recorded. - RC rods and the sample cyclone are cleared as frequently as required to maintain satisfactory drill sample recovery and representivity. - DD holes use HQ3 size triple tube core barrels to maximise sample recovery. - The mineralisation style and consistency of mineralised intervals are considered to preclude any issue of sample bias due to recovery.
Logging	- RC chip and diamond drill core samples are geologically logged to the level of detail required to support the Mineral Resource estimation. Logging records: lithology, mineralogy, weathering, mineralisation, alteration, colour and other features of the samples. - Geotechnical information is collected from the BC operations open pits. - All diamond drill core is photographed. - The total length of all exploration and resource delineation drilling is logged.
Sub-sampling	- Diamond core assay samples are quarter sawn, oven dried, jaw crushed and fully pulverised before splitting off an XRF assay sub-sample. - RC samples are rotary split to produce a sample of an approximately 3 kg in weight. High volume and high pressure air is used when RC drilling to ensure the sample return is kept as dry as possible. - RC samples submitted for assay are oven dried, jaw crushed and fully pulverised before splitting off an XRF assay sub-sample. - QC procedures involve the use of field duplicates, certified BC



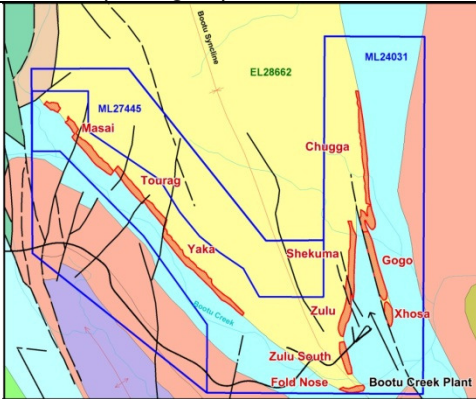
Criteria	Explanation
	standards (approx. 1:130 insertion rate) and use of a number of commercial laboratories. • Appropriate industry standard sample preparation techniques and quality control procedures (ISO4296/2) are utilised by the contracted onsite laboratory and offsite commercial laboratories to maximise sample representivity. • Drill sample field duplicates are taken to ensure sampling is representative of the insitu sample material collected. • Sample sizes are appropriate for the grain size of the material being sampled based on the mineralisation style, intersection thickness and percent assay ranges for the primary elements.
Quality of assay data and laboratory tests	• The analytical techniques use an XRF multi element suite for assaying Mn, Fe, Al₂O₃, SiO₂, P, Pb, S, TiO₂, MgO, K₂O, BaO, CaO, Cu and Zn. LOI (loss on ignition) is assessed by thermo-gravimetric determination technique. • No geophysical tools were used to determine any element concentrations used in any of the resource estimates. • Laboratory QAQC involves the use of internal laboratory standards using certified reference material, blanks, splits and replicates as part of the in house procedures. • BC independently developed 6 reference standards in 2007 and 2010 for a range of grade values, using blends of Mn, Fe and quartz material. These were sent to 10 commercial laboratories with returned values in the +/-2% range against the expected value. The BC standards are submitted with each assay batch and results are monitored to maintain an independent check on laboratory assays.
Verification of sampling and assaying	• Significant drill intersections are verified by alternative company personnel, generally the Geology Manager for OMM. • Twined holes were used in initial exploration/pre-feasibility phase but are not considered necessary in the current mature mining phase. • Data entry, verification and storage protocols are in place and managed by a dedicated GIS/Database Manager. • No adjustments of primary assay data (high grade cuts, etc.) are considered necessary.
Location of data points	• Drill collars used for Mineral Resource delineation are surveyed using the mine based DGPS survey equipment. • All locations are picked up and quoted in MGA94 grid format. • Mine lease topography is based on ortho-rectified aerial photography (2013) to produce a DTM based on a 5 m x 5 m centred grid with +/- 0.5 m RL accuracy.
Data spacing and distribution	• Data spacing is generally based on a 50 m x 25 m drill grid, with minor areas of 100 m x 50 m spacing. • The data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource classification being quoted and the Ore Reserve estimation. • Sample support is consistent with 1 m RC composite sample length applied and utilised for Mineral Resource estimation.
Orientation of data in relation to geological structure	• The manganese deposits at Bootu Creek are shallow dipping (average 30° dip), strata-bound and relatively planar. • Drill orientation is predominately vertical and any interaction with local faults or fold structures is not considered to introduce bias into the sampling results.
Sample Security	• Sample security is not considered a significant risk. • Most exploration samples are processed by the on-site laboratory and results are validated against the drill logs.



Criteria	Explanation
Audit or reviews	• No recent audits or reviews of sampling techniques, other than ongoing internal review, have been conducted. The database was reviewed by Optiro Pty Ltd for the 31 December 2012 Mineral Resource estimate.



Section 2 Reporting of Exploration Results

Criteria	Explanation
Mineral tenement and land tenure status	- All Bootu Creek resource models, other than Renner West, are located within Mineral Lease ML24031, located 120km north of Tennant Creek, Northern Territory, Australia. - The Renner West Inferred Mineral Resource is located on EL28041 and located 70km NW of the Bootu Creek mine site. - Both tenements are granted, 100% owned by OMM and have no security of tenure issues at the time of reporting.
Exploration done by other parties	Prospectors identified manganese outcrops and conducted small scale mining between 1955 and 1969. BHP Ltd conducted AEM and limited drilling in mid-1990's identifying manganese beneath shallow cover (<i>Ferenczi, 2001</i>).
Geology	- The Bootu Creek manganese deposits are strata-bound, located at the contact between the underlying dolomite-siltstone Attack Creek Formation and the overlying ridge forming sandstone of the Bootu Formations of the Tomkinson Group, within the Ashburton Province of the Palaeozoic Tennant Creek Inlier. - The mineralised horizon is folded around the gentle NNW plunging Bootu Syncline, can be traced 24km and dips around 30° towards the fold axis. The manganese is considered hydrothermal in origin and supergene enriched within a deeply weathered profile. - Ore widths vary from 3m to 15m and ore mineralogy consists predominately of Pyrolusite and Cryptomelane in a silica rich gangue.
Drill hole Information	Drill hole listings have not been included as they relate to Mineral Resources rather than exploration results.
Data aggregation methods	- Reported assays are length weighted with no top-cuts applied. - Higher grade mineralised zones internal to broader zones of lower grade material are reported as included intervals. - No metal equivalents are used for reporting exploration results.
Diagrams	These are included in the Mineral Resource statement. BC geology and deposit plan is shown for reference. 
Balanced reporting	All exploration results are reported.
Other substantive exploration data	Not applicable to the Mineral Resource estimates.
Further work	Not applicable to the Mineral Resource estimates.



Section 3 Estimation and Reporting of Mineral Resources

Criteria	Explanation
Database integrity	- All geology data was captured using Field Marshall software and imported into a Geobank SQL database (both Micromine data management software). Location data was imported from DGPS export files. Assay data was imported from the original laboratory issued csv/sif files. - Geology logs are validated for errors on import, locations are checked visually and assay data quality is ensured by the use of lab and field standards. Further internal validation for duplication, overlaps, etc is carried out using Surpac prior to any resource estimate.
Site visits	The Mineral Resource is located within an active mine camp and is visited regularly by OMM Competent Persons. Optiro Pty Ltd has not visited the site but has viewed samples, photographs of the pits and ore exposures, drillcore and infrastructure. Optiro Pty Ltd has updated the Mineral Resources annually since 2010.
Geological Interpretation	- There is a high degree of confidence in the geological interpretation of the Bootu Creek manganese deposits gained through extensive close spaced drill testing, a relatively planar strata-bound geological setting and several years of active mining at this mature mining operation. - Ore mineralogy was determined by XRD analysis and optical petrology on selected drill core, RC chip and mineral product (gravity concentrate) samples. - The geological controls at BC are well understood from mining activity and form the basis for the resource interpretations. - Factors affecting continuity of grade and geology include local high and low angle faulting, local internal and adjacent high Fe concentration, and intensity and depth of weathering.
Dimensions	- The Bootu Creek manganese resource models have a combined strike length of 16km, with individual models ranging from 0.7km to 2.9km - Bootu Creek resource models are generally limited in vertical depth by economic constraints (imposed by strip ratios and cost of mining) or by faulting, rather than depth termination of the mineralisation. Individual model depth extents range from 50m to 100m below surface. All mining is by open pit. - Bootu Creek resource model widths (true width) range from the minimum width of 3m to a maximum of around 15m. - The Renner West manganese deposit extends over a strike length of 450m and to a depth of around 25m below surface.
Estimation and modelling techniques	- Estimation and modelling was undertaken by independent resource consultants, Optiro Pty Ltd. - Resource models were digitised and wire-framed from interpreted geological and assay drill cross sections provided by OMM. These wireframes were used to select resource intersections and composite data was extracted for Mn, Fe, SiO₂, Al₂O₃, BaO and P based on one metre sample increments. 'Supervisor' geostatistical software was used for continuity analysis to determine variograms for grade estimation. Optiro Pty Ltd found that the 10% Mn population generated more robust variograms with lower nugget effects that were applied to the resource composite data during estimation. - The nugget effect from variography was found to represent only 20-30% of the total variability, suggesting a low inherent random behaviour for the manganese mineralisation and no grade capping was warranted. - Block models were estimated using Ordinary Kriging (OK), using



Criteria	Explanation
	Surpac resource estimation software, and coded with attributes for material type, resource classification, model domain and for OMM survey pit pickups. • Block Model Parent Cells are 25m (Y) by 10m (X) by 5m (Z) and compare favourably with maximum drill spacing of 50m x 25m or 40m x 20m and with along strike search radius varying from 130m in the shorter or faulted models through to 290m for the highly continuous Chugga-Gogo. • The number of samples was set at a minimum of 15 and a maximum of 32 for passes 1 & 2. The pass 3 minimum was set to 2 samples to fill model extents. • Search ranges varied from 130 m up to 290 m in the deposits of up to 3 km strike length. The search ellipsoids were flattened disc shapes in the plane of the mineralisation with varying anisotropic ratios designed to model shallowly plunging manganese trends within the domains. • Geological interpretation provided by OMM was used to construct the digital wireframe and control assay extraction from the database, but was not otherwise used to control the resource estimate. • The only assumed correlation between variables is that used for the density regression calculated against manganese grade. There is a noted inverse relationship between manganese vs silica and Al_2O_3. There is very little relationship between manganese and iron and correlations between other elements were poor. • No selective mining units were assumed in the estimates. • Graphical 3D validation of block grades versus composite samples, used to compare modelled grade trends against the spatial distribution of the samples, demonstrated that estimated low and high grades were consistent with the composite samples. Density was also checked to confirm interpolated block values honour the regression formulas. • Validation swathe plots by Optiro Pty Ltd show that the block model estimated grades honoured local grades. All volumetric checks were within 1% of wireframes. • The significant elements specific to product quality are assayed and modelled with the only potential issue being high Fe content in product, which is managed in the mine plan. • Mineral Resource estimates endorsed by Optiro Pty Ltd were depleted for mining and reported above a cut-off grade of 15% Mn.
Moisture	• All tonnage is estimated on a dry tonnes basis.
Cut-off parameters	• The current 15% Mn cut-off grade has been affirmed after several years of processing Bootu Creek ore. Manganese product derived from the DMS (gravity) plant is not linear in relation to head grade and product yield or grade decreases rapidly below the current cut-off grade.
Mining factors or assumptions	• Optiro Pty Ltd 31 December 2012 Mineral Resource estimates were optimised by Independent Mining Consultants utilising Whittle mining software to optimise economic open pit extents utilising long term revenue, mining, processing and logistical parameters provided by OMM. • All mining is, or is proposed, by open pit mining methods. • Parameters for determining economic extraction are based on data derived from the current mining and processing operations at Bootu Creek.
Metallurgical factors and assumptions	• Metallurgical assumptions are based on test work conducted on 93 composites selected from 79 diamond holes drilled into all



Criteria	Explanation
	deposits included in Ore Reserves. The test work consists largely of individual particle pyknometry (IPP) on lump ore and Heavy Liquid Separation (HLS) test work on fines. Plant reconciliation factors are also reviewed annually and factors including product yield regressions and recovery are updated annually.
Environmental factors or assumptions	- Bootu Creek is an operating mine site and processing plant with Mine Management Plans submitted and approved for waste rock and tailings storage by the Northern Territory Department of Mines and Energy. - No significant sulphides are present in ore or mine waste.
Bulk Density	- Current bulk density regression formulae are based on 366 waxed (or waxed equivalent) HQ3 core samples selected from 52 metallurgical composites distributed through all deposits included in the Ore Reserve. - The bulk density measurements were determined in 2009 by Amdel (Perth) using the wet and dry methodology. Six density regressions were determined for Chugga/Gogo, Shekuma, Xhosa, Masai/Tourag, Yaka and Zulu deposits. - Bulk density regressions for Foldnose and Zulu South deposits (not in Ore Reserve) are assumed as for Yaka, the nearest equivalent. Renner West uses the Yaka (most conservative) regression option.
Classification	- Measured Mineral Resource – this classification is restricted to well drilled resource blocks located within 15m (vertical) of a mined pit floor, reflecting a high level of geological and grade confidence. - Indicated Mineral Resource – classified based on established grade and geological continuity defined by the tabular nature of the Bootu Creek mineralised zones, the regular drill spacing of 50m x 25m or better, estimation parameters such as kriging efficiency and the demonstrated mining history in most of the deposits . - Inferred Mineral Resource - minor extensions on 100 m by 50 m spacing and lower confidence deposit models such as Renner West. - The Mineral Resource estimate appropriately reflects the view of the Competent Persons. - All Mineral Resource reporting is economically constrained by optimised pit shells on an annual basis using updated OMM costs and parameters (see Mining Factors and Assumptions).
Audits and reviews	- Independent resource consultant Optiro Pty Ltd conducted a Client Review of wireframes, block models, classification criteria, volumetric comparison, composite versus block model grades and XYZ plots. - The independent resource consultant conducted an internal Peer Review of methodology and an application matrix checklist. - Optiro Pty Ltd has independently verified the resource figures quoted in the December 2013 Mineral Resource statement.
Discussion of relative accuracy/confidence	- The relative accuracy of the Mineral Resource estimate is reflected in the reporting of the Mineral Resource as per the guidelines of the 2012 JORC Code. - The statement relates to global estimates of tonnes and grades. - Annual reconciliation of mined resource blocks are used to compare mine production with pre-mining Mineral Resource estimates, and where necessary to update mining factors and assumptions.



Section 4 Estimation and Reporting of Ore Reserves

Criteria	Explanation
Mineral Resource estimate for conversion to Ore Reserves	- The Optiro Pty Ltd 31 December 2012 Mineral Resource models were optimised by Independent Mining Consultants as of 31 December 2013 utilising Whittle mining software to optimise economic open pit extents utilising revenue, mining, processing and logistical parameters provided by OMM. - Mineral Resources quoted are reported as inclusive of Ore Reserves.
Site visits	The Ore Reserve is located within an active mine camp and is visited regularly by all Competent Persons, other than Optiro Pty Ltd.
Study status	- Bootu Creek manganese mine commenced production in 2006 and is an ongoing, mature manganese mining operation. - Conversion of Mineral Resources to Ore Reserves is based on parameters derived from analysis of current operating practices, technical studies, and ongoing mine and treatment performance.
Cut-off parameters	The current 15% Mn cut-off grade has been affirmed after several years of mining and processing Bootu Creek ore. Manganese product derived from the DMS (Dense Media Separation) plant feed is not linear in relation to the plant head grade and product yield either decreases rapidly or fails to produce an acceptable product grade below the 15% Mn cut-off grade.
Mining factors or assumptions	- Measured and Indicated Mineral Resource categories were optimised by Independent Mining Consultants using Whittle mining software to optimise current economic open pit extents, utilising current budget revenue, mining, processing and logistical parameters provided by OMM. - Optimised pit shells are then used to revise open pit mine designs and update the mine plan. - All current and planned mining is by open pit mining methods. - Geotechnical parameters including batter angles and berm widths and intervals have been derived from independent geotechnical studies. - Open pit slope angles, determined by an Independent Geotechnical Consultant, are at an overall slope angle (including berms) of 45° for hanging-walls and end walls and 31.6° for footwalls, with batter angles not exceeding bedding dips. - Diluted Grade is reviewed each year by reconciliation of the previous year's mine production. The Ore Reserve grade is quoted as a 'diluted' grade and is currently set at 90% of the contributing 'undiluted' Mineral Resource block grades. - Mine Recovery is also reviewed each year by reconciliation of the previous year's mine production. The Mine Recovery Factor is currently estimated at 100% (inclusive of dilution) of the contributing 'undiluted' Mineral Resource block tonnes. - Minimum mining unit is effectively 2.5m vertically by 5m across and 5m along strike. The minimum drill intersection length applied in the Mineral Resource and Ore Reserve estimation is generally 4m and is close to true width. - Inferred Mineral Resources have not been utilised nor included in Ore Reserves. - Bootu Creek is a mature manganese mining and processing operation, in continuous operation for over 8 years, with all of the necessary mining and processing infrastructures in place.
Metallurgical factors	The DMS treatment plant has been in operation since 2006 and has since been modified to maximise tonnes processed, product



Criteria	Explanation
or assumptions	yield and manganese recovery. • The heavy media plant is a well-tested technology and well suited to the manganese ores being processed. • Metallurgical test work was conducted on 93 composites selected from 79 diamond holes drilled into all deposits included in Ore Reserves. The test work consists of individual particle pycnometry (IPP) on lump ore and Heavy Liquid Separation (HLS) test work on fines. • The only significant deleterious element is Fe and that is managed by blending ore sources or product stockpiles. • Metallurgical assumptions are based on test work conducted on 93 composites selected from 79 diamond holes drilled into all deposits included in the Ore Reserve. Plant reconciliation factors are also reviewed annually and factors including product yield regressions and manganese recovery are updated annually. • Manganese oxide mineralogy is not relevant for the Ore Reserve estimation.
Environmental	• There are no significant environmental impacts arising from mining or processing. Waste rock and processing tails are stored on site are not acid generating. The only additive used in ore processing is ferrosilicon. • Bootu Creek is an operating mine site and processing plant with Waste Management Plans submitted for waste rock and tailings storage to, and approved by the Northern Territory Department of Mines and Energy.
Infrastructure	• Bootu Creek mine site is a mature manganese mining and processing operation with all mining, processing, rail and port infrastructure in place and operational.
Costs	• All major capital projects are completed and operational. • Operating costs and sustaining capital are derived from analysis of the current Bootu Creek mining and processing operation and 2014 budget. • Deleterious elements are managed within specified maximum limits and no specific pricing allowance is used. Price discounts are applied for a specified range of lower grade manganese products. • Commodity prices are discussed in Revenue factors. • Exchange rates are discussed in Revenue factors. • Road and rail transportation charges are based on current contracted terms and rates. • Refining charges are not relevant and product specification penalties are rare and have not been applied. • Royalties are payable to the original project vendor and the Northern Land Council (on behalf of Traditional Owners). The Northern Territory government royalty is on a net value basis (considered as a "tax") and as such is not included in the optimisation process. • Royalty charges are allowed for in project costing and applied in the pit optimisation process.
Revenue factors	• Manganese products are sold on an FOB basis from the Port of Darwin. • Factors effecting revenue include contained dtmu (dry metric tonne units) of manganese, and discounts for lower than benchmark manganese content or higher than specified iron content. • Commodity price assumptions are based on an Independent Analysts 5 year forecast (Nov 2013) for Mn Price assumptions - CIF China GEMCO 44% of US\$5.60/dtmu with adjustments for



Criteria	Explanation
	selling and shipping costs, and for discounts specific to product assay and size specifications. • Exchange rate (AUD:USD) assumption is based on the current trading rate of 0.90 (Dec 2013). • There are no saleable by-products.
Market assessment	• According to the International Manganese Institute (“IMnI”) China’s November 2013 year to date manganese ore imports reached 14.9 million tonnes, a 33% increase from the corresponding period in 2012. • Demand, supply, stock and future volume assumptions are considered in the Independent Analysts 5 year commodity price forecast (Nov 2013). • Customer and competitor factors are considered in the Independent Analysts 5 year commodity price forecast (Nov 2013). • Customer specification, testing and acceptance rely on an inbound assay. Occasional minor penalties may apply, but are not included in the Ore Reserve estimation.
Economic	• NPV ranges and sensitivity to variations are not included in the Ore Reserve estimation process.
Social	• All necessary agreements and authorities are in place with Traditional Owners for mining and royalties (via the Northern Land Council) and for heritage clearance and sacred sites (via the Aboriginal Areas Protection Authority).
Other	• The only significant naturally occurring risk is delays incurred from cyclone related flooding of the mine site or railway line to Darwin. • All material legal agreements and marketing arrangements are in place. • All government approvals (including the Mine Management Plan and Mineral Lease), licences, clearances and bonds necessary to operate the Bootu Creek mine site and processing plant are in place.
Classification	• Proven Ore Reserves are restricted to in-situ Measured Resources contained within pit shells optimised at the current budget cost and revenue assumptions, plus surface Ore Stocks. • Probable Ore Reserves are restricted to Indicated Resources contained within pit shells optimised at the current budget cost and revenue assumptions. • The Ore Reserve classification appropriately reflects the Competent Person’s view of the deposit. • No Probable Ore Reserves are derived from Measured Resources.
Audits and reviews	• An Independent Mining Consultant reviewed the validity of Client supplied mining unit cost assumptions, prior to commencing the Ore Reserve open pit optimisation. • An Independent Mining Consultant prepared and reviewed the outputs of the open pit optimisation process prior to inclusion in the Ore Reserve. • Physical geotechnical parameters used in the Ore Reserve process were as recommended by an Independent Geotechnical Consultant following ongoing review of Bootu Creek’s mining operations. • There has been no independent audit of the 31 December 2014 Ore Reserve estimates.
Discussion of relative	• The Competent Person representing OMM is satisfied with the relative confidence level of this Ore Reserve, as demonstrated by



Criteria	Explanation
accuracy/confidence	ongoing annual reconciliations, and has confidence in the predictability level going forward. • The above statement relates to a global estimate. • Annual reconciliation of mined Ore Reserve blocks is used to compare mine production with the mined Ore Reserve estimates, and where necessary to update mining recovery and dilution factors applied to the current Ore Reserve.

Yours faithfully
OM HOLDINGS LIMITED

Heng Siow Kwee/Julie Wolseley
Company Secretary



BACKGROUND INFORMATION ON OM HOLDINGS LIMITED

OMH listed on the ASX in March 1998 and has its foundations in metals trading – incorporating the sourcing and distribution of manganese ore products and subsequently in processing ores into ferro-manganese intermediate products. The OMH Group now operates commercial mining operations – leading to a fully integrated operation covering Australia, China and Singapore.

Through its wholly owned subsidiary, OM (Manganese) Ltd, OMH controls 100% of the Bootu Creek Manganese Mine (“Bootu Creek”) located 110 km north of Tennant Creek in the Northern Territory.

Bootu Creek has the capacity to produce 1,000,000 tonnes of manganese product annually. Bootu Creek has further exploration potential given that its tenement holdings extend over approximately 1,936km².

Bootu Creek’s manganese product is exclusively marketed by the OMH Group’s own trading division with a proportion of the product consumed by the OMH Group’s wholly-owned Qinzhou smelter located in south west China.

Through its Singapore based commodity trading activities, OMH has established itself as a significant manganese supplier to the Chinese market. Product from Bootu Creek has strengthened OMH’s position in this market.

OMH holds a 26% investment in Ntsimbintle Mining (Proprietary) Ltd, which holds a 50.1% interest in the world class Tshipi Borwa manganese project in South Africa.

OMH also holds the following strategic shareholding interests in ASX listed entities:

- 11% shareholding in **Northern Iron Limited** (ASX Code: NFE), a company presently producing iron ore from its Sydvaranger iron ore mine located in northern Norway; and*
- 4% shareholding in **Shaw River Resources Limited** (ASX Code: SRR), a company presently exploring for manganese in Namibia, Western Australia and Ghana*