

10 September 2014

Significant Increase in the Eagle Deposit Indicated Mineral Resource

highlights

- *PIOP Eagle Deposit Indicated Mineral Resource increased 243% to 291 Mt @ 54.8% Fe*
- *Excellent conversion from Inferred to Indicated resource – high confidence in geological model*
- *Latest results further underpin the Company's confidence in progressing the development of the project*
- *New resource estimates for the Champion, Blackjack, Delta and Ajax deposits at PIOP to be released in coming months*



Pilbara Iron Ore Project (PIOP)

Tenement M47/1451 (Blacksmith)

Flinders Mines Limited (FMS) 100%

Flinders Mines Limited (ASX: FMS) is pleased to announce an update to the Mineral Resource for the Eagle deposit at the Company's wholly-owned Pilbara Iron Ore Project (PIOP) in the Pilbara region of Western Australia.

Eagle Deposit

Extensive infill drilling and geological modelling undertaken over the past 5 months at the PIOP (Figure 1) has culminated in the release of the first

of a series of resource updates for deposits within the PIOP.

The updated total Mineral Resource for the Eagle deposit is 295.0 Mt @ 54.8% Fe. This is based on a +50% iron cut-off and consists of a significant increase (243 %) in the Indicated Mineral Resource to 291.4 Mt @ 54.8% Fe and an Inferred Mineral Resource of 3.6 Mt @ 53.9% Fe (Table 1, Figure 2). Further detailed information relating to the generation of the resource estimate is attached below in the JORC 2012 – Table 1.

Eagle Deposit Mineral Resource for + 50% Fe (09/09/2014)						
JORC Classification	Tonnage Mt	Fe%	SiO ₂ %	Al ₂ O ₃ %	P%	LOI%
Total Inferred	3.6	53.9	12.2	4.7	0.06	4.9
Total Indicated	291.4	54.8	9.2	4.8	0.08	6.8
TOTAL	295.0	54.8	9.2	4.8	0.08	6.8

Table 1 Eagle Deposit Indicated and Inferred Mineral Resource.

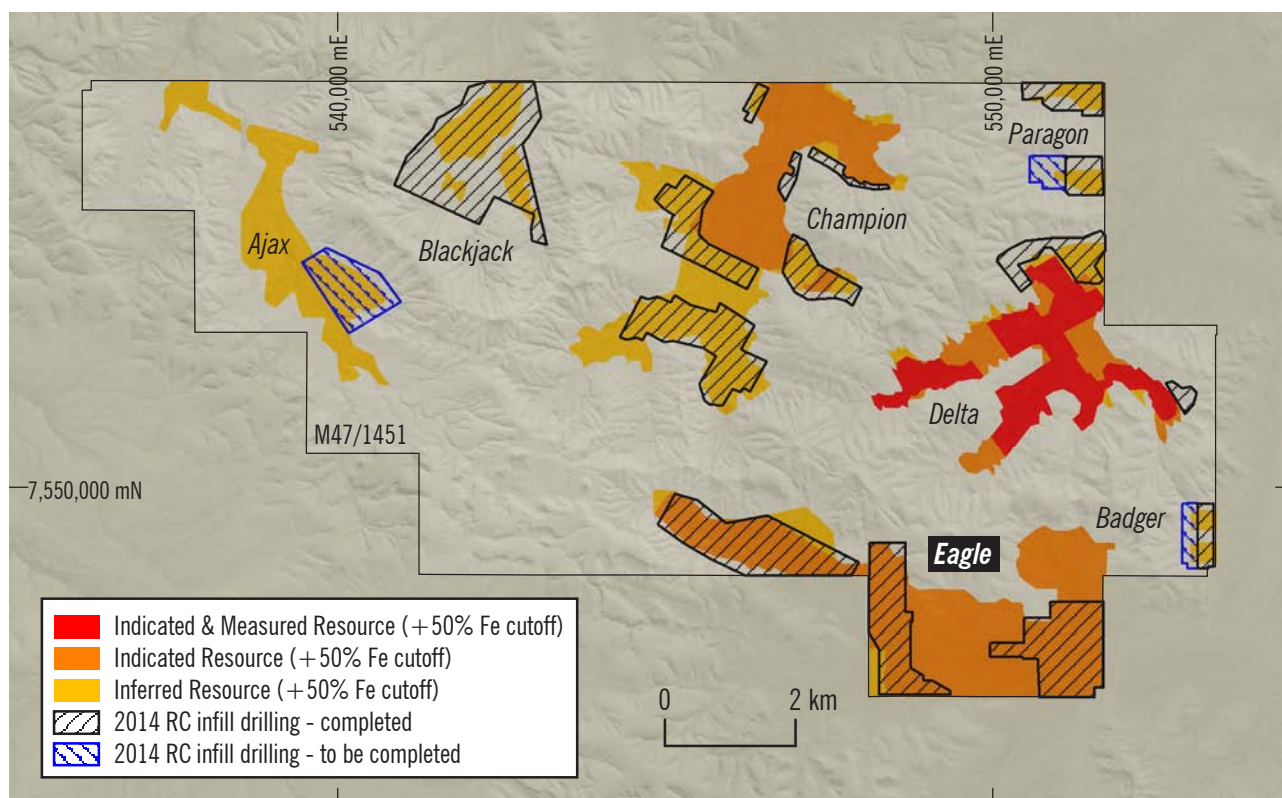


Figure 1 Location of the Eagle deposit within the broader Pilbara Iron Ore Project (PIOP).

The Mineral Resource is comprised of 44.2 Mt of Bedded Iron Deposit (BED) at 55.6% Fe, 120.6 Mt of Detrital Iron Deposit (DID) at 55.2% Fe and 130.2 Mt of Channel Iron Deposit (CID) at 54.2% Fe (Table 2). Examples of the relationship between different geological units are shown in the cross sections in Figure 3, 4 and 5.

The distribution of the Inferred and Indicated Mineral Resources for the Eagle deposit is shown in Figure 2. The majority of the Eagle Mineral Resource is now Indicated and is defined by areas with a nominal drill spacing of 100 by 125m. The small proportion of Inferred Mineral Resource is located peripheral to the Indicated Mineral Resource in areas where drill spacing is nominally 100 by 500m.

The previous Mineral Resource for the Eagle deposit was 293.5 Mt @ 54.4% Fe. This new resource represents a minor increase. The infill drilling undertaken this year was designed to increase the confidence of the resource to at least the Indicated

category rather than to increase the overall size of the resource. This is an important step in ensuring bankability of the mineable PIOP resource base.

This Mineral Resource update, when combined with those of the other deposits across the PIOP in coming months, will culminate in an update to the PIOP global resource and will be integrated into the Bankable Feasibility Study, currently due for completion by the end of June 2015.

The updated Eagle Mineral Resource Estimate announced today further underpins the Company's confidence in progressing the development of the Pilbara Iron Ore Project.

IAN GORDON
MANAGING DIRECTOR

10 September 2014

Deposit Type	Inferred Resource (Mt)	Indicated Resource (Mt)
Bedded Iron Deposit (BED)	0.9	43.3
Detrital Iron Deposit (DID)	2.6	118.0
Channel Iron Deposit (CID)	0.1	130.1
TOTAL	3.6	291.4

Table 2 Eagle Deposit Mineral Resource summary of mineralisation types.

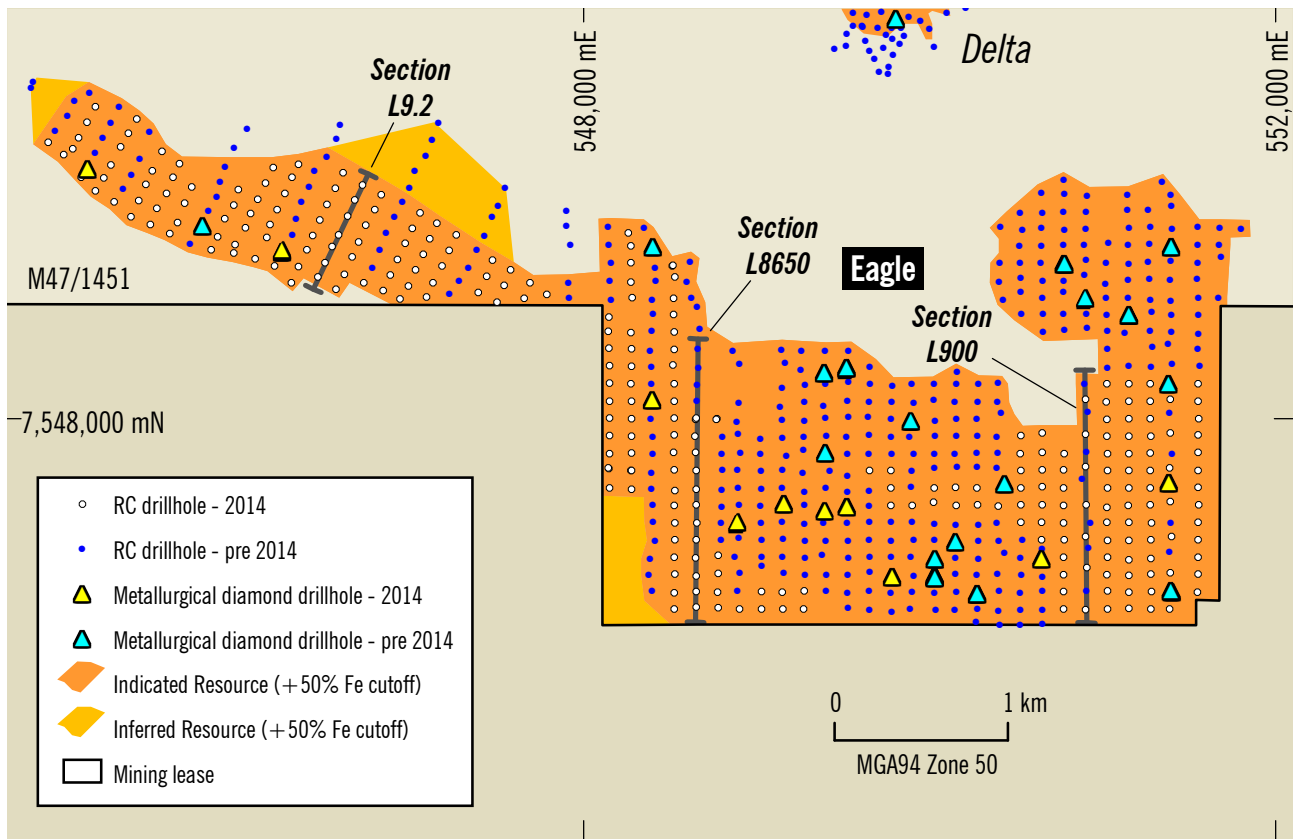


Figure 2 Eagle deposit drill hole plan.

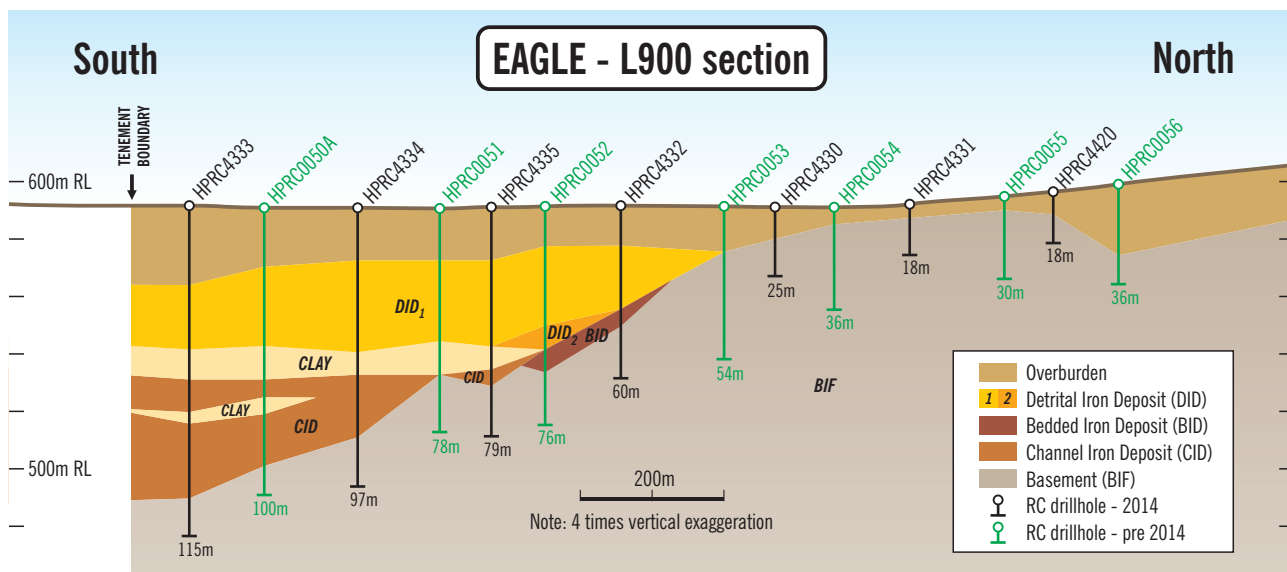


Figure 3 Line 900 cross section through Eagle deposit.

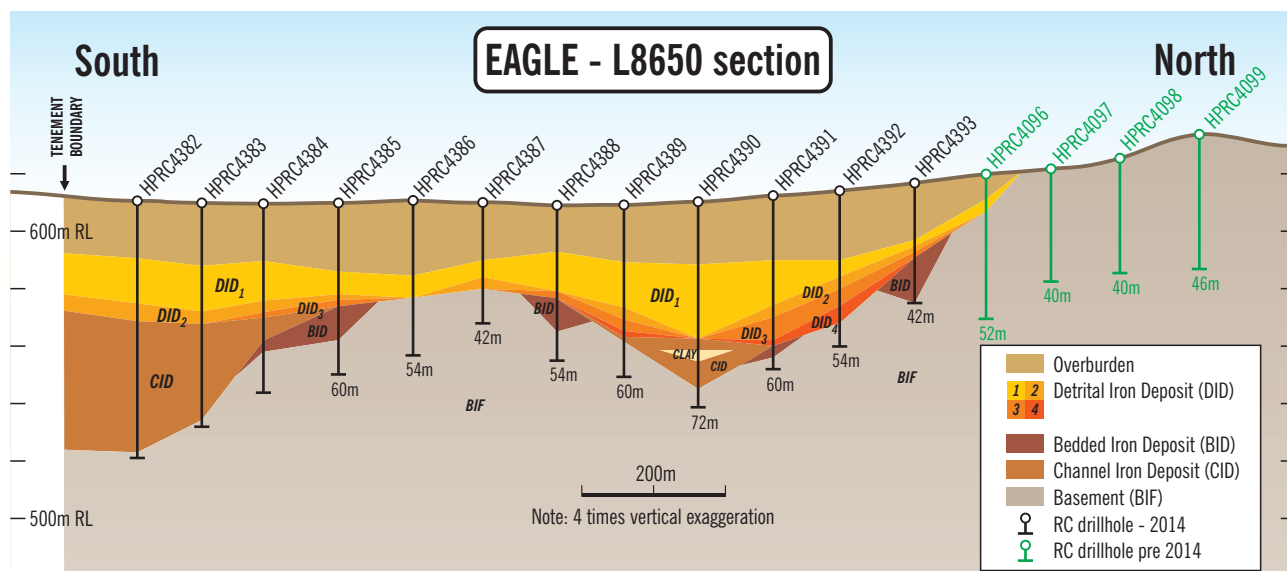


Figure 4 Line 8650 cross section through Eagle deposit.

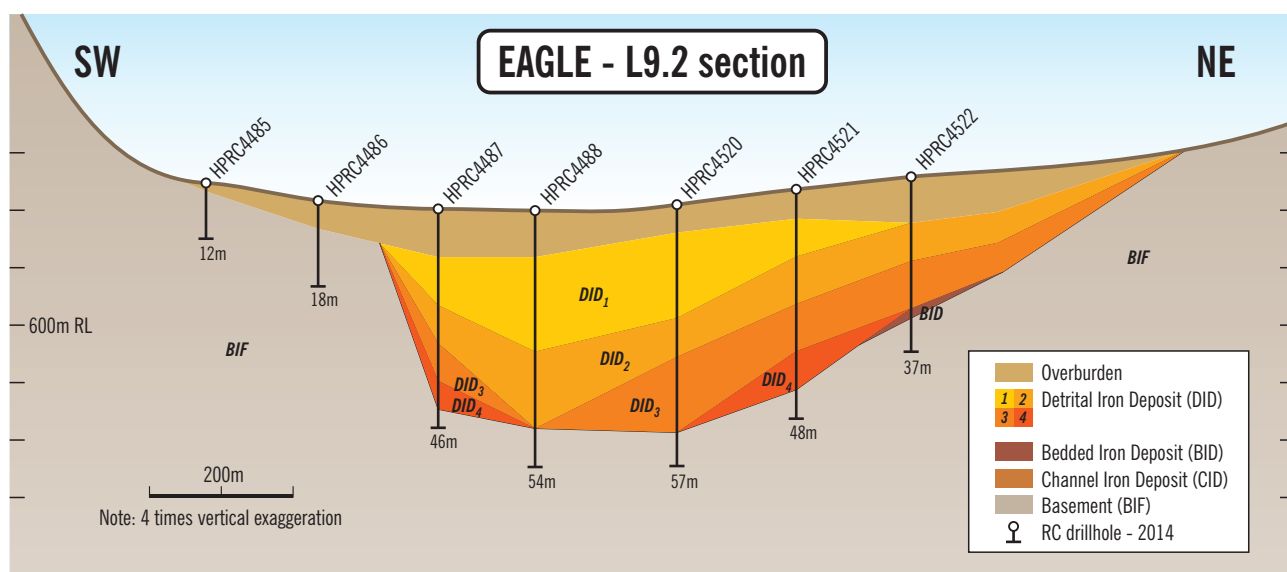


Figure 5 Line 9.2 cross section through Eagle deposit.

For further information please contact:

Ian Gordon

Managing Director
Ph: (08) 8132 7950
Email: info@flindersmines.com

Investor Relations

Duncan Gordon

Executive Director - Adelaide Equity Partners
Ph: (08) 8232 8800 or 0404 006 444
Email: dgordon@adelaideequity.com.au

Head Office

Level 1, 135 Fullarton Road
Rose Park
South Australia 5067

PO Box 4031
Norwood South
South Australia 5067

Ph: (08) 8132 7950
Fax: (08) 8132 7999
Email: info@flindersmines.com

www.flindersmines.com

QUALIFYING STATEMENTS

Forward-looking statements

This release may include forward-looking statements. These forward-looking statements are based on management's expectations and beliefs concerning future events as of the time of the release of this document. Forward-looking statements are necessarily subject to risks, uncertainties and other factors, some of which are outside the control of Flinders Mines Limited, that could cause actual results to differ materially from such statements. Flinders Mines Limited makes no undertaking to subsequently update or revise the forward-looking statements made in this release to reflect events or circumstances after the date of this release.

Competent Persons

The information in this report that relates to Exploration Targets and Exploration Results is based on information compiled by Dr Graeme McDonald who is a Member of The Australasian Institute of Mining and Metallurgy. The information that relates to the Mineral Resource Estimate has been compiled by Mr Paul Blackney of Optiro Pty Ltd. who is a Member of the Australasian Institute of Mining and Metallurgy. Both Dr McDonald and Mr Blackney have sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity that they are undertaking to qualify as a Competent Persons as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Dr McDonald and Mr Blackney consent to the inclusion in the report of the matters based on their information in the form and context in which it appears.

JORC 2012 - Table 1

Pilbara Iron Ore Project, September 2014

Section 1 - Sampling Techniques and Data

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

Criteria	Commentary
Sampling techniques	- Reverse Circulation (RC) drilling was used to collect 2m downhole samples for assaying. - Typically, a 4 to 5 kg sample was collected using a cone splitter. This sample was sent for major and trace element analysis via XRF of fused discs. All RC samples were submitted for analysis. - Grade standards (Certified Reference Materials – CRM's) and field duplicate samples were used to monitor analytical accuracy and sampling precision. - Diamond drilling methods were used to twin a number of the RC drillholes to test sample representivity and to collect samples for metallurgical test work. - All diamond drillholes employed triple tubed coring methods with half core samples used for QAQC purposes and whole core used for metallurgical test work.
Drilling techniques	- The vast majority of the downhole samples were collected from Reverse Circulation (RC) drill holes of approximately 140mm diameter utilising a face sampling hammer button bit. - PQ sized Diamond (DD) holes were drilled for metallurgical work and HQ sized holes for geotechnical and QAQC purposes. All geotechnical holes were angled and the core was oriented.
Drill sample recovery	- Sample quality and recovery of both RC and DD drilling were continuously monitored during drilling to ensure that samples were representative and recoveries maximised. - RC sample recovery was recorded as good (G) or poor (P) based on visual appraisal of sample size. 93% of all samples were logged as good. - Diamond core recoveries are routinely recorded in the database as a measure of length of core recovered versus the depth drilled. - Results of previous RC-DD twin holes indicate that there is no significant bias in the RC assays related to the presence of water, the sample particle size or the material types comprising the sample.
Logging	- Detailed geological logging of all RC and DD holes captured various qualitative and quantitative parameters such as mineralogy, colour, texture and sample quality. - RC holes were logged at 2m intervals. - The logging data is utilised for both Mineral Resource estimation and future mining and processing studies. - All diamond core was digitally photographed. - Logging data is collected via ruggedised laptops using Ocris logging software which applies inbuilt validation checks as data is entered. The data is subsequently downloaded into a dedicated Geobank database for storage.
Sub-sampling techniques and sample preparation	- RC drilling samples were collected in pre-labelled bags via a cone splitter mounted directly below the cyclone. - Wet and dry samples were collected via the same technique. - Samples were stored on site prior to being transported to the laboratory. Wet samples were allowed to dry before being processed. - Samples were sorted, dried and weighed at the laboratory where they were then crushed and riffle split to obtain a sub-fraction for pulverisation. The pulverised sample was reduced further and combined with various reagents prior to oven fusion to create a fused disc.

Criteria	Commentary
Quality of assay data and laboratory tests	• All RC samples were submitted to Ultra Trace laboratory in Perth, an accredited laboratory with the National Association of Testing Authorities (NATA). Ultra Trace completed both the sample preparation and analytical assaying. • All samples were analysed via X-Ray Fluorescence (XRF) of a fused disc for a standard suite of elements including: Fe, SiO₂, Al₂O₃, TiO₂, MnO, CaO, P, S, MgO, K₂O, Zn, Pb, Cu, BaO, V₂O₅, Cr, Ni, Co, Na₂O. • Multi-point Loss On Ignition (LOI) was determined at 425, 650 and 1000 degrees celsius via thermo-gravimetric analysis. • Field duplicates were collected and inserted anonymously into the sample stream at a rate of 4 per 100 samples. • Pulp standards (CRM's) were inserted into the sample stream as blind samples by field geologists at a rate of 5 per 100 samples. • No significant issues or concerns were apparent with the analysis of the field duplicates or standards. • Laboratory duplicates and standards were also used as quality control measures at different sub-sampling stages. No significant issues have been identified. • No formal analysis of sample size versus grain size has been undertaken, however, the sampling techniques employed are industry best practice. • Approximately 5% of all samples have been sent to an umpire laboratory as an independent check. No significant issues were identified and an excellent correlation exists between the laboratories.
Verification of sampling and assaying	• Significant intersections have been independently verified by company geologists using geological logging and observation of the mineral assemblage. • Twin hole (RC v DD) analysis demonstrates a high degree of intersection and grade compatibility between the dominant RC samples and the twinned core with no evidence of any significant grade bias due to drilling method. • Twins formed by RC drillhole pairs also show good correlation between the original and twin hole except for a small number of very early RC holes which were determined to have sample quality issues which resulted in their rejection and replacement during later drilling campaigns. • Assay data is loaded directly into the Geobank database which is managed by Flinders staff. Visual comparisons are undertaken between the recorded database assays and hard copy records at a rate of 5% of all loaded data. No errors have been identified. • Several unannounced audits of the assay laboratory were conducted while Flinders' samples were being processed. No issues or concerns were apparent.
Location of data points	• Drillhole collar locations have been surveyed using a Differential GPS with an accuracy of <5cm for easting, northing and elevation coordinates. • Collar surveys are validated against planned coordinates and the topographic surface. • Downhole surveys have not been carried out as the vast majority of the drillholes are vertical and relatively shallow meaning that any minor departures from the planned drilling direction will have minimal to no impact. • The primary grid used is Map Grid Australia 94, Zone 50 (GDA94). Vertical datum is the Australian Height Datum (AHD). • Topographic surface uses Lidar 50cm contours captured in 2009.
Data spacing and distribution	• The drill grid spacing varies between deposits. • For the majority of deposits, including Eagle, a nominal spacing of approximately 100m x 125m is achieved. The Delta deposit is drilled at a spacing of approximately 50m x 50m over much of its area while Ajax is approximately 100m x 500m.
Orientation of data in relation to geological structure	• As the mineralisation comprises predominantly flat lying valley infill deposits, the vertically orientated drilling represents an ideal sampling orientation. The underlying bedded deposits are hosted by sub-horizontal Banded Iron Formation meaning that the sampling is also near ideal.

Criteria	Commentary
Sample security	• Sample chain of custody is managed by Flinders. • Samples in calico bags are packed into polyweave bags and then placed into heavy duty bulk bags for transport to Tom Price. They are then transported via commercial freight directly to the laboratory. • Consignment notes for each submission are tracked and monitored.
Audits or reviews	• No formal audits or reviews have been undertaken. Optiro (independent Mineral Resource Consultant) has reviewed QAQC and twin hole analysis reports prepared by Flinders and undertaken independent validation of the database. No significant issues were identified.

Section 2 - Reporting of Exploration Results

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

Criteria	Commentary
Mineral tenement and land tenure status	• The Pilbara Iron Ore Project (PIOP) comprises two 100% FMS owned tenements, M47/1451 and E47/1560, located approximately 70km NW of Tom Price. • The tenements lie within the Eastern Guruma Native Title Determination. Flinders has a current Native Title Agreement in place.
Exploration done by other parties	• Very little previous exploration has been undertaken by other parties. Robe River Mining undertook regional scale iron exploration while a number of other parties have undertaken diamond exploration.
Geology	• Local bedrock geology is dominated by the Dales Gorge, Whaleback Shale and Joffre Members of the Brockman Iron Formation. Incised into this bedrock are channel systems which contain buried Channel Iron Deposits (CID) and Detrital Iron Deposits (DID). Some areas of the bedrock are also mineralised forming Bedded Iron Mineralisation.
Drill hole Information	• No new exploration results are reported. However, infill drilling on a 100 by 125 m grid this year has added 282 RC holes for 16,326 m to the Eagle deposit dataset. The current Eagle dataset now comprises 696 RC drillholes for 40,238 m. This report relates to Mineral Resources based on this drillhole dataset. • A diagram showing the location of drillhole collars is included in the accompanying release (Figure 2).
Data aggregation methods	• Data has been aggregated for Mineral Resource estimation based on physical features of the collected samples and their associated assay results to defined regions of similar geological and grade characteristics as discussed further in Section 3.
Relationship between mineralisation widths and intercept lengths	• The majority of drillholes are vertical and the ore body is predominantly horizontal, thus any intersection quoted represents an approximation of the true width of the mineralisation.
Diagrams	• Appropriate diagrams are included as part of the accompanying release, including a plan of drill hole collar locations and defined Mineral Resource areas as well as representative cross sections.
Balanced reporting	• See the reporting of the Mineral Resource estimate associated with this release.
Other substantive exploration data	• Nothing to report.
Further work	• Infill drilling across the deposits is ongoing. Metallurgical testwork based on core samples is also ongoing. Mineralisation remains open in a number of places and there are no plans to attempt to close this off at this stage.

Section 3 – Estimation and Reporting of Mineral Resources

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

Criteria	Commentary
Database integrity	Logging data is collected via ruggedised laptops using Ocris logging software which applies inbuilt validation checks as data is entered. The data is subsequently digitally downloaded into a dedicated Geobank database for storage. Assay data is loaded directly into the same database. Visual validations of the assay and geological data are ongoing during the modelling and estimation process. The database is currently managed by qualified Flinders' staff with access restricted commensurate to the tasks they undertake. A physical check of assays within the database versus hard copies is done at a rate of 5%. No errors have been identified.
Site visits	The Competent Person for Flinders Mines is a full time employee of Flinders Mines Ltd who has made multiple site visits when drilling operations are in progress to observe drilling progress, sample collection geological logging, and general sample handling and logistics. Personnel from Flinders Mineral Resource consultant, Optiro, have also visited and reviewed the project site, deposit geology, drilling progress, sampling methods and sample handling.
Geological interpretation	- Confidence in the geological interpretation of the deposit is high. The geological interpretation has been built up over multiple drilling campaigns and is based on geological logging and geochemistry of RC and DD samples. - Geological domains representing various types of Detrital Iron and Channel Iron Deposits (DID and CID) are defined using chemical and physical characteristics. Surfaces representing the base of each of these domains are compiled from sectional interpretations. These surfaces are used to constrain the estimation process. Each drillhole sample is assigned to one of these domains. - The stratigraphy of the deposits is well understood and any alternative geological interpretation is not likely to have a material effect on the overall resource estimate. The confidence in the stratigraphic interpretation and continuity of the BID mineralisation underlying the DIDs and CIDs would be improved with further closer spaced drilling.
Dimensions	Mineralisation at the Eagle deposit extends in an east-west direction for up to 7.5 km and has a maximum width in a north-south direction of 2.6 km. Mineralisation occurs from surface in some parts of the deposit and down to a maximum depth of 118m below surface.
Estimation and modelling techniques	Grade values were estimated into the above domains using 100mE by 100mN by 6mRL panels and ordinary kriging. Domain boundaries are all treated as 'hard' boundaries for grade estimation and these boundaries are volumetrically represented by sub-blocks no smaller than 10mE by 10mN by 2mRL.
Moisture	All tonnages are estimated on a dry basis. Moisture content measurements are being done as part of the current phase of metallurgical testwork.
Cut-off parameters	The tabulated Mineral Resource is reported above a cut-off grade of 50% Fe.
Mining factors or assumptions	It has been assumed that the traditional open cut mining method of drill, blast, load and haul will be used. This is consistent with current practice at similar deposits within the Pilbara.
Metallurgical factors or assumptions	Multiple phases of metallurgical testwork have been undertaken. Results indicate that a saleable product can be achieved via a simple crush, screen and/or deslime process.
Environmental factors or assumptions	All key Commonwealth and WA government on-tenement environmental approvals for the development of the project have been obtained. More detailed studies regarding possible waste and process residue disposal options are ongoing.
Bulk Density	- Bulk density has been calculated from physical PQ diamond core measurements via the water immersion method. In total over 700 samples across the range of geological units and deposits have been measured. Average density factors of between 2.62 t/m³ and 3.24 t/m³ have been applied to individual geological units across the project. Sample numbers for RC and DID1 domains are low and an assumed density factor of 2.7 t/m³ is used. This is not considered to be material as these domains are normally below the 50% Fe reporting cut-off. - The densities used are similar to known densities for like deposits across the Pilbara.

Criteria	Commentary
Classification	• The Eagle Mineral Resource is classified as Indicated and Inferred. Factors taken into account include drill spacing, geological and mineralisation continuity and estimation quality. • The Mineral Resource classification reflects the views of the Competent Persons.
Audits or reviews	• Optiro (Flinders Mineral Resource consultant) has conducted a number of basic data and geological interpretation reviews during the compilation of the Mineral Resource estimate. Optiro personnel have been to the deposit site to observe the local geology, drilling methods, sampling methods and logging methods that result in the data that supports the geological interpretation and Mineral Resource estimation process. All practices and methods observed are considered by Optiro to be consistent with the classification applied to the Eagle deposit. • No independent third party audits of the Mineral Resource estimate have been completed at this time.
Discussion of relative accuracy/confidence	• No direct testing of the relative accuracy and confidence of the Mineral Resource estimate has been undertaken at this time. It is noted that a significant amount of drilling data has been added to the drillhole database supporting this Mineral Resource estimate since it was previously reported in 2011. This additional data has resulted in only minor global tonnage and grade reporting differences, which suggests the Eagle deposit estimate is robust in global terms.