

21 November 2011

Companies Announcement Office  
Australian Securities Exchange Limited  
Level 6, 20 Bridge Street  
Sydney NSW 2000

## Major Resource Upgrade at Ondjou 693Mt at 24% Fe - Namibia

- **New resource represents a 33% increase in the previous JORC compliant estimate**
- **Resource estimate completed by Independent specialists – Golder Associates**
- **Mineralisation occurs in broad zones from surface with likely low stripping ratio**
- **Resource remains open both along strike and down dip**
- **Multiple new targets still to be tested over 100km+ of strike**
- **Avonlea immediately commences conceptual mine plan study**

Namibian explorer Avonlea Minerals Limited (ASX: AVZ FSE: 3AZ) (“Avonlea”) is pleased to advise of a 33% increase in the Company’s total JORC compliant inferred resource estimate to 693 million tonnes Fe at a head grade of 23.7% at its Ondjou Prospect (EPL 4286), located in Northern Namibia. This increase in the company’s Inferred JORC Resource has been drawn from the recently completed 2,500m diamond core drilling program and metallurgical test results. This inferred resource has been prepared in conjunction with independent consultants, Golder Associates Pty Ltd (“Golder”). Their report including calculations, assumptions and data set used for this inferred category of resource determination, is in accordance with the guidelines of the JORC Code (2004) as shown in Appendix One to this announcement.

**Table I: Inferred JORC Fe Resource Estimate – North and South zones**

	Million	Fe%	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	DTR Wt	Fe%	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	Grind
	Tonnes	Head	Head	Head	%	DTC	DTC	DTC	Size
<b>North zone</b>	584.4	23.6	43.2	3.9	19.5	64.6	7.5	0.45	P80/25 micron
<b>South zone</b>	108.4	24.5	43.5	3.7	20.2	60.6	11.6	0.52	P90/38 micron

Wt – Weight; DTC – Davis Tube Concentrate; DTR – Davis Tube Recovery

Table I is the combination of the North and South zones defined by Golder as delineated by separating the Reverse Circulation (“RC”) and Diamond Drilling (“DD”) drilling programs and different grind sizes are as described in Appendix one. The Inferred resource comprises mineralised diamictite (FEST), high and low grade magnetite zones.

Avonlea Minerals Limited ABN 81 125 176 703

Freemasons Hall, 181 Roberts Road Subiaco WA 6008 T + 61 8 9287 5900 F + 61 8 9287 4334

E: [admin@avonleaminerals.com.au](mailto:admin@avonleaminerals.com.au) W: [www.avonleaminerals.com.au](http://www.avonleaminerals.com.au)

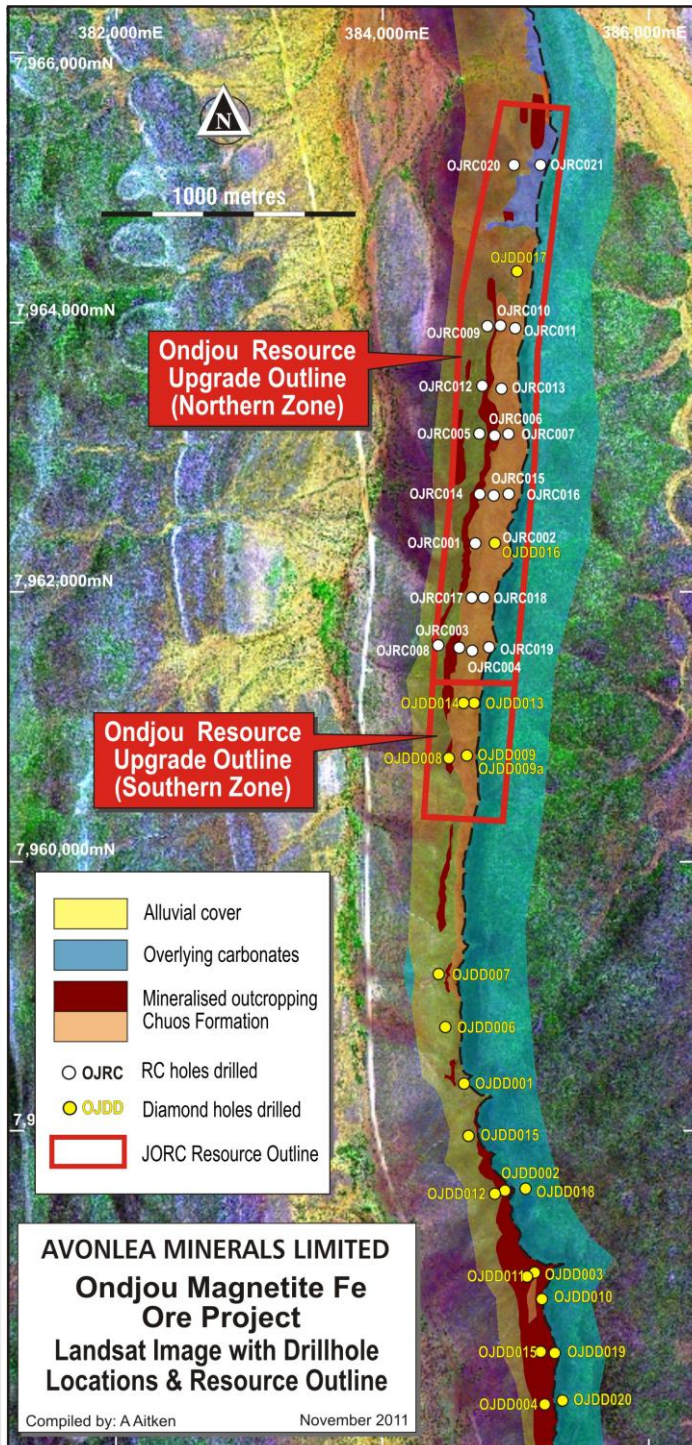


Figure 1: Inferred Resource outline, drill hole location and outcrop geology.

The current resource estimate outline is shown in Figure 1 is based on a strike length extension to the established area of mineralisation delineated in the Company's maiden JORC compliant resource estimate of 521 million tonnes at 24% Fe as announced to the ASX on 14 December 2010.

Avonlea has now commissioned a conceptual mine planning study for the Ondjou magnetite Fe project to review the potential mine plan and pit design that could be achieved with the current upgraded inferred JORC geological resource. The study will consider the optimisation of the current resource within a framework of mining, processing and production rates and costs to define potential mining pit shells, using the Whittle mining software package. This information is expected to assist with the review of the current resource model and assess the requirements to upgrade the resource from an inferred to an indicated JORC resource category.

Managing Director David Riekie commented:

*"Avonlea is pleased to report this uplift in the Inferred Resource estimate at our Ondjou Iron Ore Project in Namibia. The deployment of our low cost exploration strategy to delineate the updated resource estimate leaves exploration upside potential as the resource remains open along strike with further metallurgical testing."*

*Avonlea presently still has a number of licences in application over the same geological formation to the north and south of our Ondjou Prospect. Once granted, we intend to operate to unlock the prospectivity the Licence areas, using the same exploration methods we have previously applied with continuing success."*

Yours Faithfully



**David Riekie**  
**MANAGING DIRECTOR**



Further information regarding the licences and the current targets can be found on the Company's website [www.avonleaminerals.com.au](http://www.avonleaminerals.com.au)

## About Avonlea

Avonlea Minerals Limited (ASX: AVZ) is an Australian publicly listed exploration company based in Perth, Western Australia. It operates with a board experienced in African exploration and corporate matters.

AVZ through its local subsidiaries in Namibia has accumulated an exciting portfolio of Exclusive Prospecting Licences (EPL's). The company has applied for EPL's covering 9,500sq km (1,625kms remain pending) and are considered prospective for Specialty Minerals (Vanadium & Tin), Rare Earth Elements and Precious and Base Metals.

AVZ has delineated a JORC compliant Fe inferred Resource estimate of 693 million tonnes at 24% from its Ondjou Prospect in North Western Namibia. Exploration activity is continuing to expand on this base. In addition, the Company has released details of the potential Exploration Target size of between 2 to 3.4Bt (20 – 30%+ Fe) from this and its other Fe prospects.\*

*\*This exploration target mineralisation tonnage and grade is conceptual in nature as there has been insufficient exploration completed to define a Mineral Resource in accordance with the JORC Code (2004), and it is uncertain if further exploration will result in the determination of a Mineral Resource.*

*The information in this report that relates to Exploration Results is based upon information compiled by Mr Alex Aitken a member of the Australian Institute of Geoscientists. Mr Alex Aitken is a full time employee of the company. Mr Aitken has sufficient experience which is relevant to the style and mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent persons as defined in the 2004 'Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Aitken has consented to the inclusion in the report of the matters based on his information in the form and context in which it appears.*

*The 2011 Ondjou Magnetite Iron Inferred Mineral Resource Estimate was undertaken by Golder Associates Pty Ltd. Alan Miller is a member of the Australasian Institute of Mining and Metallurgy and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity undertaken to qualify as Competent Persons as defined in the 2004 Edition of the Australasian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves (The JORC Code, 2004 Edition). This Statement is intended for the sole and exclusive use of Avonlea Minerals Limited and must be accompanied by statements clarifying tenure, environmental, social and other material issues that may affect the economic exploitation of the mineralisation by Avonlea Minerals or any associated company.*

Avonlea Minerals Limited ABN 81 125 176 703

Freemasons Hall, 181 Roberts Road Subiaco WA 6008 T + 61 8 9287 5900 F + 61 8 9287 4334

E: [admin@avonleaminerals.com.au](mailto:admin@avonleaminerals.com.au) W: [www.avonleaminerals.com.au](http://www.avonleaminerals.com.au)

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Alex Aitken  
Avonlea Minerals Limited  
Freemasons Hall,  
181 Roberts Road  
SUBIACO WA 6008

## **MINERAL RESOURCE STATEMENT: ONDJOU MAGNETITE DEPOSIT, NAMIBIA**

Dear Alex

Golder Associates (Golder) has completed a resource model of the Ondjou magnetite deposit, using the available assay data as of November 2011. The resource estimate was classified in accordance with “the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2004 Edition)”.

Classification of the resource estimate was completed by Golder, as described below, based principally on data density, geological confidence criteria and representativeness of sampling.

The Mineral Resources were prepared under the supervision of Mr Alan Miller, of Golder Associates Pty Ltd (Golder). Mr Alan Miller is a member of the Australasian Institute of Mining and Metallurgy and has sufficient experience which is 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 JORC Code.

The *in situ* mineral resource is constrained to the mineralisation domain boundaries.

### **Geology**

The Ondjou Deposit is located in the Kunene Region, Opuwo District of northwest Namibia. The deposit is hosted by Chuos Formation diamictites and overlain by unmineralised cap carbonate sequences representing a major Neoproterozoic glacial event. The magnetite-bearing/magnetic unit trends north-south and dips to the east.

The current geological model has 12 interpretation sections; each section was based on two or three drill holes and spacing between sections is 350 m to 450 m. The average current drill spacing for Ondjou is 400 mN x 100 mE.

The mineralisation occurs mainly as fine grained, disseminated magnetite within distinguishable clast-poor, clast-rich and laminated diamictite units. The laminated magnetite units are strongly magnetic with a high percentage of magnetite as either very fine grained, laminated units or disseminated crystals within “Banded Iron Formation (BIF)-like” laminations. The magnetite occurs at the surface with very little oxidation and weathering.

The geological interpretation is based on several wireframed envelopes created from sectional interpretations. Every wireframe represent the different lithological and grade units within Ondjou deposit. Table 1 describes the criteria used in the geological interpretation. Figure 1 shows the wireframes defined for this deposit.



**Table 1: Geological model description and criteria**

Name	Description	Criteria
FEST	Mineralised Diamictite	DTR grade >10% Wt rec
HG	HG zone Laminated magnetite	DTR grades generally >20% Wt rec
LG	3 Internal Low Grade	DTR grade <15% Wt rec

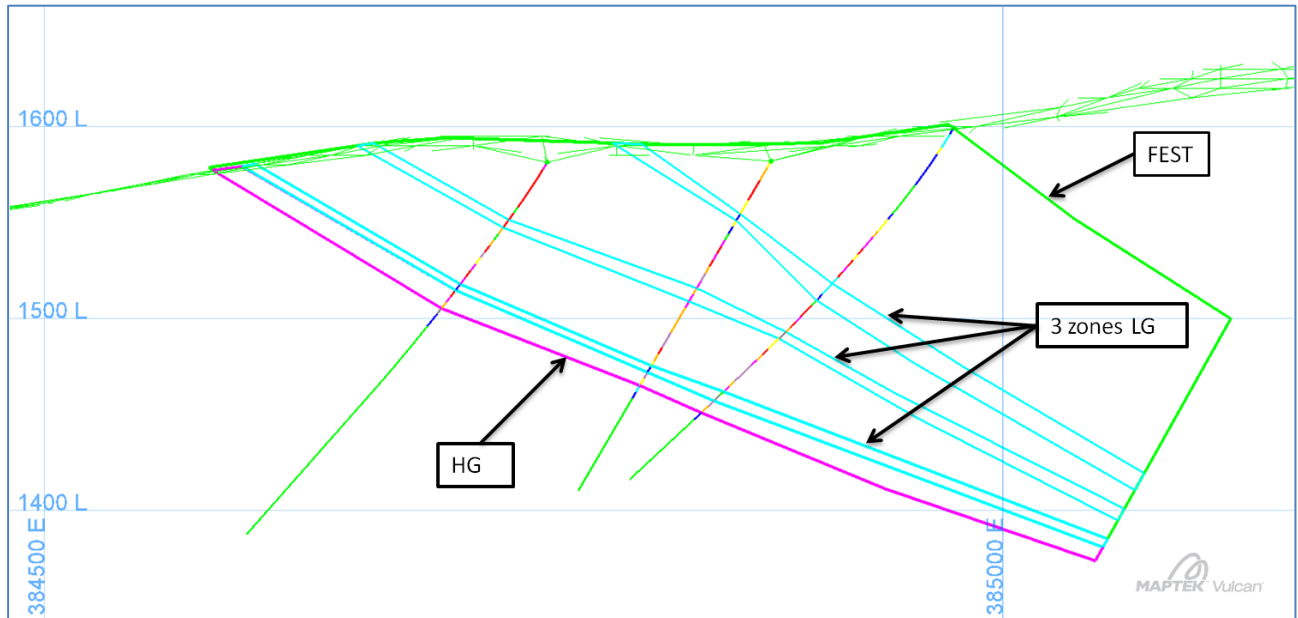


Figure 1: Ondjou Geological Interpretation, Section 7 963 200m N

## Assumptions and Methodology

This Mineral Resource estimate is based on a number of factors and assumptions:

- Two diamond drill holes (OJDD016 and OJDD017) were excluded from the Mineral Resource estimation of the North area due to the different grind size compared to the surrounding drill holes. Only RC drill holes were used in the estimation of the North area.
- Assays for the first RC drilling campaign was conducted by SGS Johannesburg, South Africa, using P90 of 38 µm with DTR wt% and XRF analysis.
- Second drilling program samples were analysed by Bureau Veritas - Canning Vale, Australia, with a grind size of P80 of 25 µm with the DTR wt% analysis with XRF on head and DTC completed by Ultratrace.
- A review of the QAQC data was carried out and results considered satisfactory considering the limited number of data available for this analysis.
- Statistical differences have been found in the DTR wt% and concentrate grades for the different grind sizes. This supports the usual conclusion that DTR wt% and concentrate grades based on different grind sizes are not additive. For estimation and reporting purposes two areas have been defined in order to keep grind size data separate.
- Geology was modelled in three dimensions to define geological domains that were used to flag the sample data for statistical analysis and estimation.
- The survey control for collar positions was reviewed and considered adequate for the purposes of this study.

- Statistical and geostatistical analysis was carried out on drilling data composited to 4 m downhole. This included variography to model spatial continuity in the geological domains.
- The Ordinary Kriging (OK) interpolation method was used for estimation of the major elements:
  - XRF Head: Fe, SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, P and LOI (Total)
  - Davis Tube Concentrate: Fe, SiO<sub>2</sub>, Al<sub>2</sub>O<sub>3</sub>, P, LOI and mass recovery
  - *In situ* Density
- Inverse Distance Square (IDS) interpolation method was used for estimation of the minor elements:
  - XRF Head: CaO, MgO, S, K<sub>2</sub>O, TiO<sub>2</sub>, MnO and Na<sub>2</sub>O
  - Davis Tube Concentrate: CaO, MgO, S, K<sub>2</sub>O, TiO<sub>2</sub>, MnO and Na<sub>2</sub>O
- Estimations for concentrate grades were weighted by Davis Tube recovery (DTR wt%) in order to appropriately reflect the relationship between DTR wt% and the DTC assays. Weighting was completed by calculating the accumulation (DTR wt% × DTC assay) and subsequently back calculating the DTC assay estimates by dividing by relevant estimated DTR wt% values.

## Mineral Resource Statement

The resource estimates were classified in accordance with the Australasian Code for Reporting of Identified Mineral Resources and Ore Reserves (JORC Code, 2004). The classification was considered appropriate on the basis of drill hole spacing, sample interval, geological interpretation and representativeness of all available assay data.

The Mineral Resource is based on the Ordinary Kriging interpolated block model *model\_ok16Nov2011.bmf*. The Ondjou Resource has been classified as Inferred. The Inferred Mineral Resource has been restricted to the mineralisation domain boundaries.

Due to DTR wt% being provided in two different grind sizes, estimation was performed separately. The different grind sizes are easily identified by collar position, which enable the definition of two areas: North and South. The areas were separated by northing coordinate 7 961 500 m.

The Ondjou Mineral Resources are reported below the topography and broken down by area, geological boundaries and cut-off grades of 10.0% and 0.001%DTR wt %. All estimated concentrate grades were weighted by DTR wt%. The resource subdivided by domain code is provided in Table 2 and Table 3 for cut-off grade of 10% DTR wt% and Table 4 and Table 5 for cut-off grade of 0.001% DTR wt%.

The Ondjou Deposit in the North area for cut-off grade of 10% DTR wt% has an Inferred Resource of 529.6 Mt at 23.8% Fe, 64.6% DTC Fe and 20.0% DTR wt%. The South area of the deposit for cut-off grade of 10% DTR wt% presents an Inferred Resource of 107.8 Mt at 24.5% Fe, 60.6% DTC Fe and 20.2% DTR wt%.

**Table 2: Ondjou *in situ* Inferred Mineral Resource subdivided by domain below the topography within the South area at a cut-off of 10.0% DTR Wt%, November 2011**

Inferred Resource - South				
	FEST	HG	LG	Total
Mt	96.8	5.0	6.0	107.8
Fe%	24.8	22.7	22.3	24.5
SiO <sub>2</sub> %	43.1	45.0	47.7	43.4
Al <sub>2</sub> O <sub>3</sub> %	3.6	4.4	4.8	3.7
P%	0.74	0.69	0.57	0.73
CaO%	3.8	3.9	3.4	3.8
MgO%	2.3	2.9	2.2	2.4
S%	0.25	0.25	0.22	0.25
K <sub>2</sub> O%	0.98	1.41	1.43	1.03
TiO <sub>2</sub> %	0.25	0.35	0.34	0.26
MnO%	0.12	0.13	0.13	0.12
Na <sub>2</sub> O%	0.77	1.12	0.47	0.77
LOI%	7.4	7.0	6.0	7.3
Recovered Mt*	20.0	0.8	0.6	21.8
DTC wt%	20.7	15.9	10.6	20.2
DTC Fe%	60.8	58.3	58.8	60.6
DTC SiO <sub>2</sub> %	11.4	14.1	13.0	11.6
DTC Al <sub>2</sub> O <sub>3</sub> %	0.51	0.70	0.60	0.52
DTC P%	0.14	0.12	0.17	0.14
DTC CaO%	0.67	0.92	0.88	0.69
DTC MgO%	0.43	0.66	0.58	0.45
DTC S%	0.04	0.05	0.10	0.04
DTC K <sub>2</sub> O%	0.10	0.14	0.11	0.11
DTC TiO <sub>2</sub> %	0.05	0.06	0.04	0.05
DTC MnO%	0.03	0.04	0.04	0.03
DTC Na <sub>2</sub> O%	0.16	0.21	0.13	0.16
DTC LOI%	-0.85	-0.59	-0.12	-0.82
SG (t/m <sup>3</sup> )	3.13	3.22	3.11	3.13

\* "Recovered" tonnage is the modelled *in situ* tonnage multiplied by DTR wt%.

**Table 3: Ondjou *in situ* Inferred Mineral Resource subdivided by domain below the topography within the North area at a cut-off of 10.0% DTR Wt%, November 2011**

Inferred Resource - North				
	FEST	HG	LG	Total
Mt	472.9	34.3	22.3	529.6
Fe%	23.7	26.9	20.8	23.8
SiO <sub>2</sub> %	42.9	38.7	46.2	42.8
Al <sub>2</sub> O <sub>3</sub> %	3.8	3.3	4.6	3.8
P%	0.68	1.03	0.60	0.70
CaO%	4.0	4.9	4.0	4.1
MgO%	2.7	2.4	2.6	2.7
S%	0.31	0.32	0.26	0.31
K <sub>2</sub> O%	1.20	0.90	1.17	1.18
TiO <sub>2</sub> %	0.26	0.25	0.30	0.27
MnO%	0.11	0.09	0.12	0.11
Na <sub>2</sub> O%	0.66	0.78	0.55	0.66
LOI%	8.1	7.1	8.2	8.1
Recovered Mt*	91.6	9.7	2.6	105.9
DTC wt%	19.4	28.3	11.6	20.0
DTC Fe%	64.7	65.0	61.1	64.6
DTC SiO <sub>2</sub> %	7.4	7.0	10.8	7.4
DTC Al <sub>2</sub> O <sub>3</sub> %	0.44	0.43	0.71	0.44
DTC P%	0.10	0.18	0.13	0.11
DTC CaO%	0.48	0.68	0.72	0.50
DTC MgO%	0.31	0.26	0.49	0.31
DTC S%	0.03	0.03	0.07	0.03
DTC K <sub>2</sub> O%	0.10	0.10	0.19	0.10
DTC TiO <sub>2</sub> %	0.04	0.05	0.06	0.04
DTC MnO%	0.02	0.02	0.03	0.02
DTC Na <sub>2</sub> O%	0.09	0.12	0.18	0.10
DTC LOI%	-1.80	-1.97	-1.42	-1.80
SG (t/m <sup>3</sup> )	3.23	3.35	3.05	3.23

\* "Recovered" tonnage is the modelled *in situ* tonnage multiplied by DTR wt%.



**Table 4: Ondjou *in situ* Inferred Mineral Resource subdivided by domain below the topography within the South area at a cut-off of 0.001% DTR Wt%, November 2011**

Inferred Resource - South				
	FEST	HG	LG	Total
Mt	96.8	5.0	6.6	108.4
Fe%	24.8	22.7	22.6	24.5
SiO <sub>2</sub> %	43.1	45.0	47.7	43.5
Al <sub>2</sub> O <sub>3</sub> %	3.6	4.4	4.7	3.7
P%	0.74	0.69	0.58	0.73
CaO%	3.8	3.9	3.3	3.8
MgO%	2.3	2.9	2.2	2.3
S%	0.25	0.25	0.21	0.25
K <sub>2</sub> O%	0.98	1.41	1.41	1.03
TiO <sub>2</sub> %	0.25	0.35	0.34	0.26
MnO%	0.12	0.13	0.13	0.12
Na <sub>2</sub> O%	0.77	1.12	0.46	0.77
LOI%	7.4	7.0	5.8	7.2
Recovered Mt*	20.0	0.8	0.7	21.9
DTC wt%	20.7	15.9	10.5	20.2
DTC Fe%	60.8	58.3	58.8	60.6
DTC SiO <sub>2</sub> %	11.4	14.1	12.9	11.6
DTC Al <sub>2</sub> O <sub>3</sub> %	0.51	0.70	0.60	0.52
DTC P%	0.14	0.12	0.17	0.14
DTC CaO%	0.67	0.92	0.87	0.69
DTC MgO%	0.43	0.66	0.58	0.45
DTC S%	0.04	0.05	0.10	0.04
DTC K <sub>2</sub> O%	0.10	0.14	0.11	0.11
DTC TiO <sub>2</sub> %	0.05	0.06	0.04	0.05
DTC MnO%	0.03	0.04	0.04	0.03
DTC Na <sub>2</sub> O%	0.16	0.21	0.13	0.16
DTC LOI%	-0.85	-0.59	-0.13	-0.81
SG (t/m <sup>3</sup> )	3.13	3.22	3.11	3.13

\* "Recovered" tonnage is the modelled *in situ* tonnage multiplied by DTR wt%.

**Table 5: Ondjou *in situ* Inferred Mineral Resource subdivided by domain below the topography within the North area at a cut-off of 0.001% DTR Wt%, November 2011**

Inferred Resource - North				
	FEST	HG	LG	Total
Mt	473.1	34.3	77.0	584.4
Fe%	23.7	26.9	20.9	23.6
SiO <sub>2</sub> %	42.9	38.7	46.6	43.2
Al <sub>2</sub> O <sub>3</sub> %	3.8	3.3	4.9	3.9
P%	0.68	1.03	0.58	0.69
CaO%	4.0	4.9	3.6	4.0
MgO%	2.7	2.4	2.4	2.6
S%	0.31	0.32	0.26	0.30
K <sub>2</sub> O%	1.20	0.90	1.47	1.22
TiO <sub>2</sub> %	0.26	0.25	0.33	0.27
MnO%	0.11	0.09	0.12	0.11
Na <sub>2</sub> O%	0.66	0.78	0.55	0.65
LOI%	8.1	7.1	7.6	8.0
Recovered Mt*	91.6	9.7	7.1	114.2
DTC wt%	19.4	28.3	9.2	19.5
DTC Fe%	64.7	65.0	62.5	64.6
DTC SiO <sub>2</sub> %	7.4	7.0	9.3	7.5
DTC Al <sub>2</sub> O <sub>3</sub> %	0.44	0.43	0.61	0.45
DTC P%	0.10	0.18	0.11	0.11
DTC CaO%	0.48	0.68	0.60	0.50
DTC MgO%	0.31	0.26	0.38	0.31
DTC S%	0.03	0.03	0.05	0.03
DTC K <sub>2</sub> O%	0.10	0.10	0.15	0.10
DTC TiO <sub>2</sub> %	0.04	0.05	0.05	0.04
DTC MnO%	0.02	0.02	0.03	0.02
DTC Na <sub>2</sub> O%	0.09	0.12	0.13	0.10
DTC LOI%	-1.80	-1.97	-1.25	-1.78
SG (t/m <sup>3</sup> )	3.23	3.35	3.11	3.22

\* "Recovered" tonnage is the modelled *in situ* tonnage multiplied by DTR wt%.

Yours faithfully

**GOLDER ASSOCIATES PTY LTD**



Karina Gonzalez  
Geostatistician

KG/ADM/hsi



Alan Miller  
Associate - Principal Resource Geologist

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