



Quarterly Report

For the quarter ending
31 December 2010

HIGHLIGHTS

IRON ORE – PILBARA PROJECT (WA)

- *Successful completion of the Pilbara Iron Ore Project (PIOP) prefeasibility study which was completed on time and on budget during December.*
- *Study confirms long life, large scale mining operation that is both technically feasible and provides for a compelling investment case.*
- *A 20-year mine life with low operating cost can be sustained producing up to 15 Mtpa iron ore.*
- *Flexibility in expansion allowing to commence higher production operations immediately or earlier than currently scheduled.*
- *A low capital expenditure of \$488 million to commence the operation at 5 Mtpa.*
- *Further potential to add value through evaluation of CID material and removal of early life mining constraints.*
- *Successful completion of the second phase of the PIOP drilling program during December.*
- *Initial assays received for BID drill targets have provided confirmation of the presence of high quality surface mineralisation on the flanks of the valleys in the Delta deposit.*

IRON ORE – CANEGRASS PROJECT (WA)

- *Successful completion of an RC drilling program at the Canegrass Magnetite Project (CMP) with 39 holes totalling 9048 metres being drilled.*
- *Metallurgy testwork program is well advanced.*

CORPORATE

- *Strong cash position, with available funds of \$45.2 million, at 31 December 2010.*

PILBARA IRON ORE PROJECT

A significant milestone has been achieved during the last quarter of 2010 with the completion and the subsequent release in January 2011 of the prefeasibility study findings.

The key outcomes of the study are summarised below.

MINING, PROCESSING AND INFRASTRUCTURE

- Flinders Mines has the basis for the development of a large scale, high quality Pilbara iron ore mine that is economically robust and technically viable.
- The ore resource can support the production of 229 Mt of final fines products at an average grade of 60.7% Fe and 57.0% Fe for DID and BID products respectively. The BID product will be 'direct shipped' with the DID requiring minor beneficiation prior to shipping.
- A peer review of the integrated mining study was completed which supported the findings of the study. No flaws were found or additional recommendations made.
- Economic modelling shows the project has potential to produce robust cash flows which total approximately A\$25 billion over the 20-year mine life and has an estimated Net Present Value of approximately A\$2.2 billion using a 10% discount rate.
- Mine production is planned to commence at 5 Mtpa with an expansion to 15 Mtpa in year 5 with a traditional truck and excavator mining operation being planned. This approach allows for optimal ore blending from all Blacksmith tenement pits. The ore deposits are shallow and largely above the water table providing for a competitive mining cost base which is reflected by the 2.5:1 strip ratio during the first five years of operation.
- A capital expenditure of A\$488 million is required for the 5 Mtpa start up with and additional expenditure for A\$641 million required to triple production to 15 Mtpa. The initial capital expenditure includes provisions such that future expansion to 15 Mtpa can easily be integrated into the facilities established under the 5 Mtpa case. While the basis of the PFS was for an expansion to 15 Mtpa in year 5, it is feasible for the operation to commence at this rate from the outset or earlier than provided for in the PFS.

ENVIRONMENT AND APPROVALS

- Baseline environmental studies were finalised and results were presented to the Western Australian Department of Mines and Petroleum, Department of Water, and Department of Environment and Conservation. The extent to which additional studies may be required will be finalised in Q1 2011.
- Rehabilitation of drill pads and access tracks in the Anvil area were completed.
- The Department of Mines and Petroleum accepted the FMS Exploration Environmental Management Plan for the Pilbara Iron Ore Project.
- An independent peer review of the Pilbara Iron Ore Project Approval and Tenure Schedule was completed with no issues of materiality identified.

FUTURE WORK PROGRAM

The next quarter will primarily focus on activities which will prepare Flinders Mines for a potential move to a Definitive Feasibility Study. These activities fall into three broad areas as follows:

- Reaching agreement with potential providers of port and rail access that provides Flinders Mines with a path to market.
- Value improvement studies that have potential to further enhance project value.
- The upcoming drilling program in order to further define the PIOP resource.

EXPLORATION AND EVALUATION ACTIVITIES

DRILLING ACTIVITIES

Flinders successfully completed the second phase of its 2010 drilling program at its flagship Pilbara Iron Ore Project (PIOP), on schedule, early in December (Figure 2).

Drilling of the 'Phase Two' program commenced late in September, with one Reverse Circulation (RC) rig working continuously over the period, completing 232 drillholes for 14,738 m. In addition to this program is the drilling completed during the first half of the year, bringing the total drilling completed at the PIOP for 2010 to 725 drillholes for a total of 36,443 m.

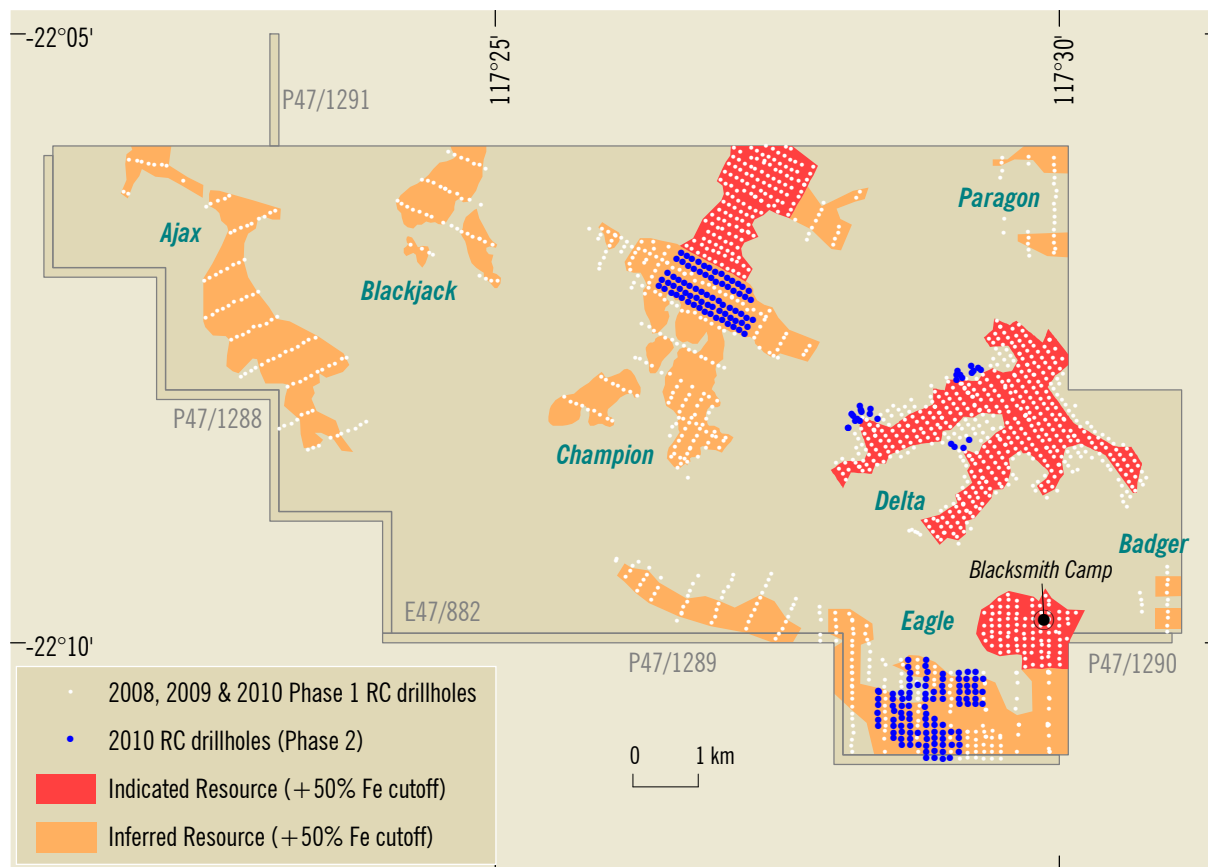


Figure 2 Location of the 2010 drilling program, Pilbara Iron Ore Project.

Since Flinders first commenced exploration drilling for iron ore at the PIOP in August 2008, it has completed a total of 1,800 drillholes (combined RC and diamond core), for a total of 89,632 m, across its Blacksmith and Anvil tenements.

The two primary objectives of the 'Phase Two' drilling program were to:

- 1 Convert the resource from Inferred to Indicated status in the Eagle Central and Champion Central deposits through higher density infill drilling.
- 2 Test potential Bedded Iron Deposit (BID) targets on the flanks of the known detrital/channel (DID/CID) mineralisation in the Delta Deposit.

The majority of the assay results from the Phase Two program have now been received (Table 1).

Indicated drilling

Infill drilling has confirmed the Inferred Resources at both Eagle Central and Champion Central. In particular, Eagle Central has returned some excellent thicknesses of mineralisation such as 58 m @ 56.2% Fe (60.7% Fe calcined) in HPRC4154 and 42 m @ 58.5% Fe (63.4% Fe calcined). Interpretation has commenced on these areas in preparation for carrying out resource estimation later in 2011.

2011 drill plans completed

Planning has been completed for the upcoming 2011 drilling programs, which are anticipated to commence late in February. Two RC rigs will initially focus on a drill-out of the Delta deposit, to convert current Indicated Resource to Measured Resource status. Additional drilling will also be carried out on the recently intersected BID mineralisation on the valley flanks of Delta and assessing additional targets in this area. One diamond core rig will be dedicated to a separate program aimed at sourcing additional material for ongoing geometallurgical testwork.

Table 1 Significant intersections of mineralisation from PIOP Phase Two drilling 2010.

Hole	Area	From (m)	To (m)	Interval (m)	Fe (%)	SiO ₂ (%)	Al ₂ O ₃ (%)	P (%)	LOI (%)	CaFe* (%)
Infill drilling										
HPRC4137	Eagle	78	104	26	58.2	6.9	2.5	0.12	6.6	62.3
HPRC4142	Eagle	26	60	34	58.9	2.8	2.8	0.10	9.6	65.2
HPRC4153	Eagle	38	80	42	58.5	4.5	3.4	0.11	7.8	63.4
HPRC4154	Eagle	46	104	58	56.2	7.8	3.7	0.10	7.4	60.7
HPRC4148	Eagle	36	64	28	58.1	4.7	3.2	0.10	8.1	63.2
HPRC4161	Eagle	48	70	22	57.3	4.7	4.4	0.09	8.3	62.5
HPRC4167	Eagle	46	68	22	57.2	5.5	4.4	0.08	7.4	61.8
HPRC4178	Eagle	48	68	20	57.1	5.4	3.5	0.08	8.6	62.5
HPRC4201	Eagle	26	44	18	58.0	3.5	3.9	0.11	8.9	63.7
HPRC4221	Eagle	2	22	20	54.3	6.0	4.0	0.13	11.3	61.2
HPRC4222	Eagle	16	40	24	58.2	5.4	3.9	0.10	5.6	61.7
HPRC4224	Eagle	16	40	24	58.3	5.6	4.1	0.07	5.8	61.9
HPRC4232	Eagle	34	58	24	58.6	4.5	4.1	0.11	6.9	62.9
HPRC4234	Eagle	28	44	16	55.7	6.7	4.1	0.10	8.9	61.2
HPRC4236	Eagle	22	38	16	56.5	6.0	3.6	0.07	8.8	62.0
HPRC0911	Champion	14	32	18	56.9	4.7	3.4	0.10	9.7	63.0
HPRC0917	Champion	40	54	14	57.9	5.1	3.7	0.13	7.5	62.6
HPRC0795	Champion	12	36	24	55.4	7.6	5.0	0.07	7.3	59.7
BID drilling										
HPRC3065	Delta	0	30	30	59.7	3.5	1.6	0.11	8.8	65.5
HPRC3066	Delta	0	38	38	59.0	4.9	2.1	0.10	7.8	64.0
HPRC3069	Delta	0	34	34	60.2	3.7	2.5	0.11	7.1	64.8
HPRC3072	Delta	26	40	14	59.0	4.4	2.1	0.16	8.4	64.4

* Calcined iron, estimated on an LOI free basis, $CaFe = (Fe\% / (100 - LOI)) * 100$

CANEGRASS MAGNETITE PROJECT

Activities on the Canegrass Scoping study have continued during the quarter and are focussed on metallurgical testwork and the identification of potential products. It is expected that the metallurgical testwork will be completed during Q2 2011, which in turn will drive the future schedule of the Canegrass Magnetite Project.

Metallurgical testwork commenced during the quarter included:

- Phase 2 LIMS testwork has been finalised and product sizing and assays for LIMS products have been completed on all composites.
- WHIMS testwork was completed
- Flotation testwork on two composites was completed.

2010 DRILLING ACTIVITIES

Drilling commenced at the Canegrass project in September with the aim of defining a titanomagnetite resource. The drilling targeted four discrete magnetic

features that represent several stratigraphic horizons with differing geochemical and geometallurgical properties. A program of RC drilling was designed to delineate an Inferred Resource while testing the continuity of the stratigraphy both along strike and down dip (Figure 3). The RC drilling program at Canegrass was completed on schedule, early in December. A total of 39 drillholes were completed for 8,048 m.

Geological interpretation of the complex stratigraphy is well underway, based on lithological and geophysical data collected down hole. Final assays have been received and a summary of significant intersections is shown in Table 2. The lower part of the sequence is characterised by thinner intersections richer in iron, titanium and vanadium. For example, FCRC0010 with an intersection of 40 m from 104 m @ 36.8% Fe, 16.6% Si, 7.7% Ti and 0.80% V. The upper part of the sequence is characterised by thicker intersections with lower vanadium. For example, FCRC0002 with an intersection of 136 m from 78 m @ 32.7% Fe, 26.9% Si, 6.3% Ti and 0.02% V.

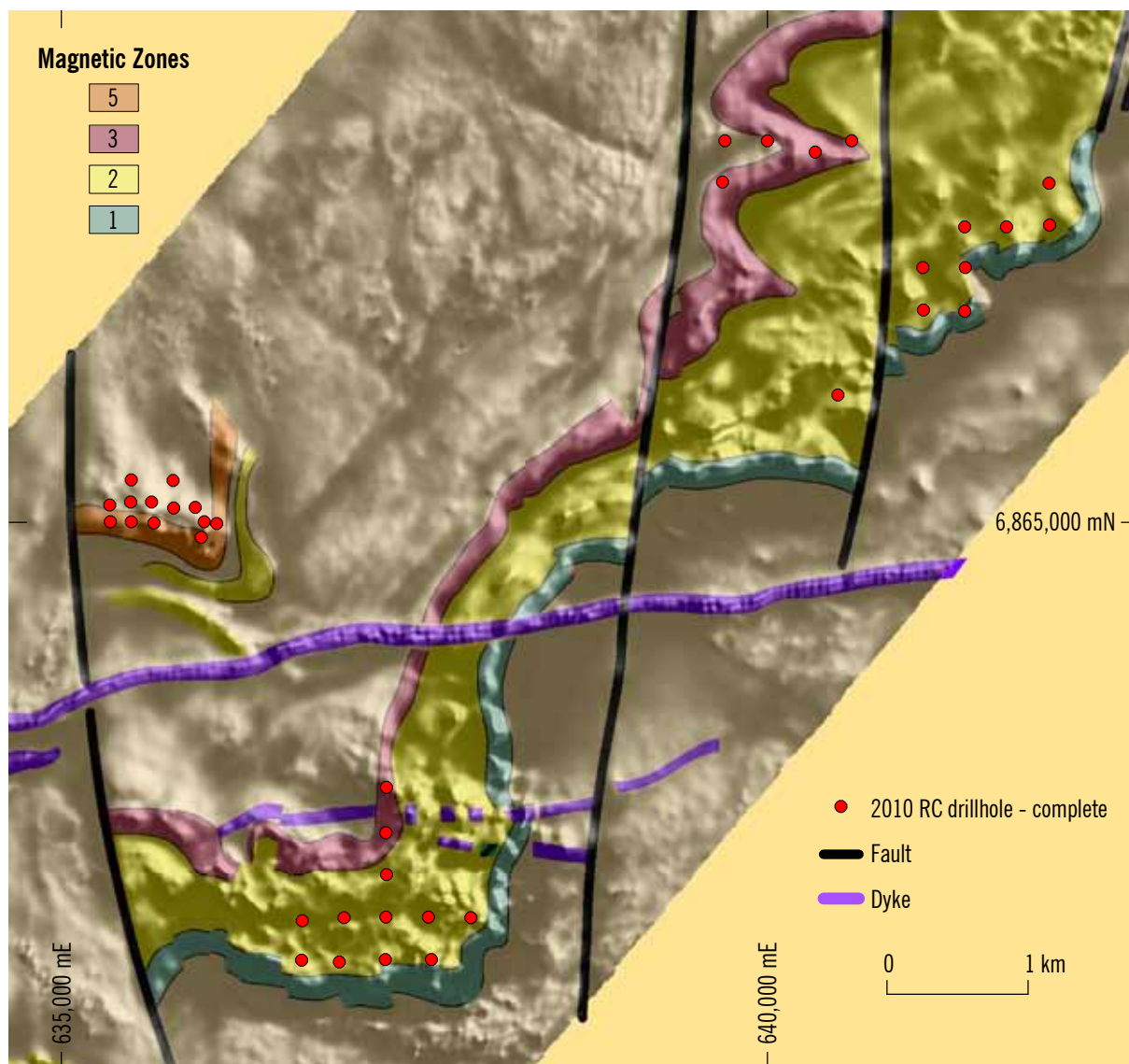


Figure 3 Location of 2010 drilling program, Canegrass.

Table 2 Significant intersections of mineralisation from Canegrass drilling 2010.

Hole	From (m)	To (m)	Interval (m)	Fe (%)	SiO ₂ (%)	Al ₂ O ₃ (%)	P (%)	TiO ₂ (%)	V ₂ O ₅ (%)	LOI (%)
FCRC0002	78	214	136	32.7	26.9	5.1	0.10	6.3	0.02	2.5
FCRC0006	172	230	58	30.6	29.7	6.1	0.07	5.4	0.03	1.3
FCRC0008	118	200	82	30.5	29.2	6.0	0.19	4.9	0.02	2.5
FCRC0009	164	234	70	31.8	28.4	5.2	0.17	5.3	0.02	1.8
FCRC0010	104	144	40	36.8	16.6	8.6	0.01	7.7	0.80	2.7
FCRC0012	186	214	28	35.1	19.1	8.7	0.01	6.9	0.74	1.6
FCRC0015	204	232	28	36.8	18.2	8.1	0.01	7.8	0.79	0.38
FCRC0025	154	184	30	31.7	21.2	11.8	0.01	6.6	0.70	2.9
FCRC0028	38	64	26	36.9	18.8	7.2	0.01	7.4	0.77	1.3
FCRC0030	156	220	64	34.7	19.4	10.6	0.01	7.2	0.74	1.4
FCRC0036	28	90	62	33.2	28.3	5.1	0.24	5.2	0.02	0.15

Intersections are based on a 25% Fe cut off with minimal internal dilution.

OTHER COMMODITIES

The non-iron tenements are planned to be divested into Flinders Exploration, whose Initial Public Offer has been extended until March 2011. Minor exploration has taken place for diamonds and phosphate during the quarter. Reviews have continued over the tenements assessing the prospectivity for base metals and gold.

DIAMONDS

Exploration continued at the Springfield and Pilbara projects. A microgravity survey was completed as part of preparations for bulk sampling of diamondiferous kimberlites at Springfield. Stream samples collected at the Pilbara project were processed and observed for diamonds and no microdiamonds were recovered.

PHOSPHATE

A mapping program was undertaken on two phosphate and radiometric anomalies near Orroroo. A selection of samples were assessed for key deleterious elements in phosphate fertiliser and all concentrations were found to be below the levels for the National Code of Practice for Fertilizer Description.



Gary Sutherland
Chief Executive Officer

31 January 2011

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The information that relates to iron ore project drilling data and geological interpretations is based on information compiled by Mr Nick Corlis who is a Member of The Australian Institute of Geoscientists. Mr Corlis is Exploration Manager – Iron, of the Company. The information that relates to the Mineral Resource Estimate has been compiled by Mr Stephen Godfrey of Golder Associates Pty Ltd who is a Member of the Australasian Institute of Mining and Metallurgy and the Australian Institute of Geoscientists. The information that relates to diamonds and phosphate project drilling data and geological interpretations is based on information compiled by Dr David Tucker who is a Member of the Australasian Institute of Mining and Metallurgy. Dr Tucker is Exploration Manager – Diamonds and Phosphate, of the Company. Mr Corlis, Mr Godfrey and Dr Tucker each 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 Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Corlis, Mr Godfrey and Dr Tucker consent to the inclusion in their names in the matters based on their information in the form and context in which it appears.

Appendix 5B

Mining exploration entity quarterly report

Introduced 1/7/96. Origin: Appendix 8. Amended 1/7/97, 1/7/98, 30/9/2001, 01/06/10.

Name of entity

Flinders Mines Limited

ABN

46 091 118 044

Quarter ended ("current quarter")

31 December 2010

Consolidated statement of cash flows

Cash flows related to operating activities		Current quarter \$A'000	Year to date (6 months) \$A'000
1.1	Receipts from product sales and related debtors		
1.2	Payments for		
	(a) exploration & evaluation	(4,818)	(9,207)
	(b) development		
	(c) production		
	(d) administration	(1,422)	(2,617)
1.3	Dividends received		
1.4	Interest and other items of a similar nature received	1,455	2,273
1.5	Interest and other costs of finance paid		
1.6	Income taxes paid		
1.7	Other	107	107
	Net Operating Cash Flows	(4,678)	(9,444)
Cash flows related to investing activities			
1.8	Payment for purchases of:		
	(a) prospects		
	(b) equity investments		
	(c) other fixed assets	(20)	(67)
1.9	Proceeds from sale of:		
	(a) prospects		
	(b) equity investments		
	(c) other fixed assets		
1.10	Loans to other entities	-	(150)
1.11	Loans repaid by other entities		
1.12	Other (provide details if material)		
	Net investing cash flows	(20)	(217)
1.13	Total operating and investing cash flows (carried forward)	(4,698)	(9,661)

+ See chapter 19 for defined terms.

Appendix 5B
Mining exploration entity quarterly report

1.13	Total operating and investing cash flows (brought forward)	(4,698)	(9,661)
	Cash flows related to financing activities		
1.14	Proceeds from issues of shares, options, etc.	10	12
1.15	Proceeds from sale of forfeited shares		
1.16	Proceeds from borrowings		
1.17	Repayment of borrowings		
1.18	Dividends paid		
1.19	Other		
	Net financing cash flows	10	12
	Net increase (decrease) in cash held	(4,688)	(9,649)
1.20	Cash at beginning of quarter/year to date	49,846	54,807
1.21	Exchange rate adjustments to item 1.20		
1.22	Cash at end of quarter	45,158	45,158

Payments to directors of the entity and associates of the directors

Payments to related entities of the entity and associates of the related entities

		Current quarter \$A'000
1.23	Aggregate amount of payments to the parties included in item 1.2	162
1.24	Aggregate amount of loans to the parties included in item 1.10	

1.25 Explanation necessary for an understanding of the transactions

Non-cash financing and investing activities

2.1 Details of financing and investing transactions which have had a material effect on consolidated assets and liabilities but did not involve cash flows

2.2 Details of outlays made by other entities to establish or increase their share in projects in which the reporting entity has an interest

+ See chapter 19 for defined terms.

Financing facilities available

Add notes as necessary for an understanding of the position.

	Amount available \$A'000	Amount used \$A'000
3.1 Loan facilities		
3.2 Credit standby arrangements		

Estimated cash outflows for next quarter

	\$A'000
4.1 Exploration and evaluation	716
4.2 Development	614
4.3 Production	
4.4 Administration	855
Total	2,185

Reconciliation of cash

Reconciliation of cash at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts is as follows.

	Current quarter \$A'000	Previous quarter \$A'000
5.1 Cash on hand and at bank	2,532	3,226
5.2 Deposits at call	42,626	46,620
5.3 Bank overdraft		
5.4 Other (provide details)		
Total: cash at end of quarter (item 1.22)	45,158	49,846

Changes in interests in mining tenements

	Tenement reference	Nature of interest (note (2))	Interest at beginning of quarter	Interest at end of quarter
6.1 Interests in mining tenements relinquished, reduced or lapsed				
6.2 Interests in mining tenements acquired or increased				

+ See chapter 19 for defined terms.

Appendix 5B
Mining exploration entity quarterly report

Issued and quoted securities at end of current quarter

Description includes rate of interest and any redemption or conversion rights together with prices and dates.

	Total number	Number quoted	Issue price per security (see note 3) (cents)	Amount paid up per security (see note 3) (cents)
7.1 Preference +securities <i>(description)</i>				
7.2 Changes during quarter (a) Increases through issues (b) Decreases through returns of capital, buy-backs, redemptions				
7.3 +Ordinary securities	1,820,329,571	1,820,329,571		
7.4 Changes during quarter (a) Increases through issues (b) Decreases through returns of capital, buy-backs	180,000	180,000	\$0.055	\$0.055
7.5 +Convertible debt securities <i>(description)</i>				
7.6 Changes during quarter (a) Increases through issues (b) Decreases through securities matured, converted				
7.7 Options <i>(description and conversion factor)</i>	400,000 462,500 1,449,999 300,000		<i>Exercise price</i> \$0.017 \$0.084 \$0.045 \$0.055	<i>Expiry date</i> 20/03/2012 05/03/2013 03/02/2014 26/08/2014
7.8 Issued during quarter				
7.9 Exercised during quarter	180,000		\$0.055	26/08/2014
7.10 Expired during quarter				
7.11 Debentures <i>(totals only)</i>				

+ See chapter 19 for defined terms.

7.12	Unsecured notes (totals only)		
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Compliance statement

- 1 This statement has been prepared under accounting policies which comply with accounting standards as defined in the Corporations Act or other standards acceptable to ASX (see note 4).
- 2 This statement does give a true and fair view of the matters disclosed.



Sign here:

(Company Secretary)

Date: 31 January 2011

Print name: David W Godfrey

Notes

- 1 The quarterly report provides a basis for informing the market how the entity's activities have been financed for the past quarter and the effect on its cash position. An entity wanting to disclose additional information is encouraged to do so, in a note or notes attached to this report.
- 2 The "Nature of interest" (items 6.1 and 6.2) includes options in respect of interests in mining tenements acquired, exercised or lapsed during the reporting period. If the entity is involved in a joint venture agreement and there are conditions precedent which will change its percentage interest in a mining tenement, it should disclose the change of percentage interest and conditions precedent in the list required for items 6.1 and 6.2.
- 3 **Issued and quoted securities** The issue price and amount paid up is not required in items 7.1 and 7.3 for fully paid securities.
- 4 The definitions in, and provisions of, *AASB 1022: Accounting for Extractive Industries* and *AASB 1026: Statement of Cash Flows* apply to this report.
- 5 **Accounting Standards** ASX will accept, for example, the use of International Accounting Standards for foreign entities. If the standards used do not address a topic, the Australian standard on that topic (if any) must be complied with.

+ See chapter 19 for defined terms.