

ASX ANNOUNCEMENT

22 December 2010



Flinders Mines Limited Activities update

Pilbara Iron Ore Project (PIOP), Western Australia

Tenements E47/882 (Blacksmith) and
E47/1560 (Anvil)

Flinders Mines Limited (FMS) 100%

PREFEASIBILITY STUDY UPDATE

Flinders Mines Limited (ASX: FMS) is pleased to provide the following update on the progress of its Prefeasibility Study (PFS) at the Company's Pilbara Iron Ore Project (PIOP) in Western Australia.



As advised in the Company's Quarterly Report dated 28 October 2010, the PFS conducted by WorleyParsons included an assessment of mining, processing, infrastructure solutions and environmental approvals.

Flinders Mines advises that WorleyParsons has now submitted the PFS Report to the Company, on schedule and under budget. The report has been subjected to external peer review and will now be subjected to internal review processes for submission to the Flinders Mines Board. It is anticipated that these processes will be finalised during January 2011 at which time the results of the PFS will be released to market.

2010 PHASE TWO DRILLING PROGRAM COMPLETED

Flinders Mines also advises that it successfully completed the second phase of its planned 2010 drilling program at the Company's flagship Pilbara Iron Ore Project (PIOP), on schedule, early in December.

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. The completion of this program brings the total 2010 drilling at PIOP to 725 drillholes for a total of 36,443 m.

Since Flinders Mines 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 further increase geological confidence in the Resource from Inferred to Indicated status in the Eagle Central and Champion Central deposits and to test potential Bedded Iron Deposit (BID) targets on the flanks of the known detrital/channel (DID/CID) mineralisation in the Delta Deposit.

To date, approximately 70% of the assay results from the Phase Two program have been received, with the outstanding balance expected to be received in early January 2011. The assays received to date have provided further confirmation of the presence of thick, high quality channel iron mineralisation in the Eagle Central and Champion Central deposits (e.g. HPRC4153 with 42 m @ 58.5% Fe (63.4% Fe calcined) and HPRC4142 with 34 m @ 58.9% Fe (65.2% Fe calcined)).

No assays have yet been received for the BID targets drilled toward the end of the program at the Delta deposit, however, visual observations taken from the drill cuttings have been encouraging.

Planning has been completed for the upcoming 2011 drilling programs, which are anticipated to commence in mid-February. All required drill rigs for the programs have been secured through Flinders Mines' preferred drilling contractor. Two RC rigs will initially focus on a drill-out of the Delta deposit, to convert current Indicated Resource to Measured Resource status. Additionally, one diamond core rig will be dedicated to a separate program aimed at sourcing additional material for ongoing metallurgical testwork.

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

Hole	Area	From	To	Interval	Fe	SiO ₂	Al ₂ O ₃	P	LOI	CaFe
HPRC4137	Eagle Central	78	104	26	58.2	6.9	2.5	0.12	6.6	62.3
incl	Eagle Central	94	104	10	61.8	3.0	1.4	0.17	6.4	66.1
HPRC4142	Eagle Central	26	60	34	58.9	2.8	2.8	0.10	9.6	65.2
HPRC4143	Eagle Central	42	50	8	58.1	5.4	3.1	0.10	7.4	62.7
HPRC4153	Eagle Central	38	80	42	58.5	4.5	3.4	0.11	7.8	63.4
incl	Eagle Central	42	62	20	62.7	2.0	2.0	0.10	5.6	66.5
HPRC4154	Eagle Central	46	104	58	56.2	7.8	3.7	0.10	7.4	60.7
incl	Eagle Central	50	76	26	59.1	3.7	3.7	0.08	7.4	63.8
HPRC4148	Eagle Central	36	64	28	58.1	4.7	3.2	0.10	8.1	63.2
incl	Eagle Central	40	46	6	64.6	1.7	1.6	0.09	3.4	66.8
HPRC4150A	Eagle Central	72	102	30	58.4	5.4	3.0	0.13	7.3	63.1
incl	Eagle Central	86	102	16	61.0	3.0	1.8	0.17	7.1	65.7
HPRC4157	Eagle Central	40	64	24	58.4	5.3	4.3	0.07	6.2	62.2
incl	Eagle Central	46	62	16	59.7	3.8	3.1	0.08	7.1	64.3
HPRC4157	Eagle Central	70	86	16	53.8	7.7	5.0	0.17	9.5	59.4
HPRC4161	Eagle Central	48	70	22	57.3	4.7	4.4	0.09	8.3	62.5
HPRC4167	Eagle Central	46	68	22	57.2	5.5	4.4	0.08	7.4	61.8
HPRC4168	Eagle Central	50	60	10	56.5	5.0	4.5	0.07	9.0	62.1
HPRC4178	Eagle Central	48	68	20	57.1	5.4	3.5	0.08	8.6	62.5
HPRC4179	Eagle Central	42	52	10	57.0	5.5	3.0	0.11	9.3	62.8
HPRC4186	Eagle Central	46	62	14	56.0	6.1	4.1	0.08	8.9	61.5
HPRC4187	Eagle Central	44	52	8	61.3	3.4	2.6	0.09	5.4	64.8
HPRC4192	Eagle Central	2	12	10	55.5	6.6	2.8	0.10	10.6	62.0
HPRC4194	Eagle Central	2	14	12	54.9	6.6	2.8	0.07	11.4	62.0
HPRC4201	Eagle Central	26	44	18	58.0	3.5	3.9	0.11	8.9	63.7
HPRC4221	Eagle Central	2	22	20	54.3	6.0	4.0	0.13	11.3	61.2
HPRC4212	Eagle Central	42	52	10	56.8	5.1	4.0	0.11	8.8	62.3
HPRC4222	Eagle Central	16	40	24	58.2	5.4	3.9	0.10	5.6	61.7
incl	Eagle Central	22	32	10	62.3	3.0	2.4	0.10	3.1	64.3
HPRC4224	Eagle Central	16	40	24	58.3	5.6	4.1	0.07	5.8	61.9
incl	Eagle Central	26	30	4	61.7	3.2	3.5	0.06	4.0	64.3
HPRC4232	Eagle Central	34	58	24	58.6	4.5	4.1	0.11	6.9	62.9
incl	Eagle Central	44	58	14	58.9	2.6	2.7	0.15	9.7	65.3
HPRC4234	Eagle Central	28	44	16	55.7	6.7	4.1	0.10	8.9	61.2
HPRC4236	Eagle Central	22	38	16	56.5	6.0	3.6	0.07	8.8	62.0

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

Canegrass Magnetite Project

2010 DRILLING PROGRAM COMPLETED



The Company is pleased to announce that the recent RC drilling program at its Canegrass Magnetite Project (CMP) has been completed on schedule, early in December.

This drilling program was designed to test the continuity of stratigraphy, both laterally and down-hole, while also targeting several discrete magnetic anomalies. In total, 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 for the recent drilling are expected to be received toward the end of December 2010.

A metallurgical test work program is currently underway for the CMP, utilising samples collected during earlier drilling programs.

A handwritten signature in black ink, appearing to read 'Gary Sutherland'.

GARY SUTHERLAND
CHIEF EXECUTIVE OFFICER

22 December 2010

For further information please contact:

Gary Sutherland
Ph: 08 8132 7950
Email: gsutherland@flindersmines.com

Duncan Gordon – Investor relations,
Ph: 08 8232 8800 or 0404 006 444
Email: dgordon@adelaideequity.com.au

JORC compliance

The information in this report that relates to Exploration Results, Mineral Resources and Ore Reserves is based on information compiled by Mr N Corlis (who is a member of the Australian Institute of Geoscientists). Mr Corlis is an employee of Flinders Mines Limited. He has sufficient experience that is relevant to the style of mineralisation and types of deposit under consideration and consents to inclusion of the information in this report in the form and context in which it appears. Mr Corlis qualifies as a Competent Person as defined in the 2004 Edition of the "Australasian Code for reporting of Exploration Results, Mineral Resources and Ore Reserves".