



## ASX ANNOUNCEMENT

**RELEASE DATE:** 5 July 2010

**TO:** Manager Companies  
Australian Securities Exchange  
Company Announcements Office

**CONTACT:** Lexton Graefe (08 9 322 5222)

**RE:** Askaf Iron Ore Project Development

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Dear Sir/Madam

Please see attached an update on the development plans for the Company's Askaf Iron Ore Project in Mauritania, West Africa.

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## Sphere Moves into the Development Phase for Askaf

Sphere Minerals Limited (Sphere) is pleased to provide an update on its Askaf project in Mauritania. The company is now targeting a low capex, fast-track development plan with first shipment in Q1/2012 based on the following parameters:

- **Production of 6Mt/a magnetite sinter feed blend (SFB) product**, based on a staged development strategy:
  - **2Mt/a Start-up Phase for US\$220 million** – target commissioning Q4/2011, with first shipment Q1/2012.
  - **4Mt/a Expansion Phase for incremental US\$320 million**, to be funded from cashflow – target completion 2015.
- Weighted average annual cash operating costs onto ship (FOB) are estimated at US\$32/tonne over the proposed life of the project.
- Semi-industrial scale pilot plant testwork to date demonstrates Askaf can produce a 65% SFB product from Askaf North using a well established, dry magnetic separation process.
- The Company currently has no debt and approximately A\$39 million in cash, sufficient to meet its near-term funding requirements under the plan. Discussions are progressing with offtakers & strategic investors to help fund the 2Mt/a Start-up Phase.
- Letter of Intent received from SNIM regarding access to its rail and port facilities for Askaf. Discussions commenced with SNIM on terms for rail and port access rights.

By adopting this fast-track staged development strategy, the Company can become a 2Mt/a iron ore producer 18 months earlier than previously planned, reaching annual capacity of 6Mt/a in 2015 compared with the initial Concept Study of 4 - 5Mt/a from Q2/2013. The staged approach allows the company to fund development of the Expansion Phase via cash flow, so minimising the potential dilution to shareholders.

Key near-term catalysts for project development include:

- *Upgrade current Inferred to Indicated Resource (due in September 2010)*
- *Define Probable Ore Reserve at Askaf North and complete pilot plant testwork (November 2010)*
- *Complete Front End Engineering Design (FEED) and award of engineering contract (December 2010)*
- *Secure all licences and approvals (Q1/2011)*
- *Commission process plant (Q4/2011)*
- *First shipment (Q1/2012)*

## **Askaf Project Background**

As advised to the ASX on 31 May 2010, Sphere Minerals Limited has been evaluating the options for the fast-track development of the Askaf Iron Ore Project in Mauritania.

The initial Concept Study undertaken by Prodemas/Promet in October 2009 was for a 4 - 5Mt/a SFB project at Askaf, with a development timeframe of Q2/2013 at an estimated cost of US\$360 million (or US\$90 per annual tonne of capacity).

Since then a range of project development options have been under evaluation to produce a 65% Fe SFB product from coarse-grained magnetite-quartzite, using simple, well established, and therefore significantly lower capital cost, dry magnetic separation.

## **New Staged Development Strategy**

Following definition of a 319Mt Inferred Resource at Askaf North<sup>1</sup>, ongoing metallurgical testwork, and a detailed review of the project development options by ProMet Engineers, the Company is now planning to implement a new staged development strategy for Askaf involving a fast-track 2Mt/a Start-up Phase, followed by a 4Mt/a Expansion Phase, to reach 6Mt of annual SFB capacity in 2015.

The rationale for the staged development strategy is:

1. For a capital outlay of US\$220 million, a 2Mt/a SFB project can be commissioned within 18 months, thereby taking advantage of the robust iron ore price outlook to generate strong cashflows 18 months earlier than would otherwise have been possible under the initial 4 - 5Mt/a project concept.
2. Cashflow generated from the Start-up Phase to fund the planned US\$320 million 4Mt/a Expansion Phase, thereby minimising the equity dilution needed to reach 6Mt/a. Total capital expenditure of US\$540 million is equivalent to the US\$90 per annual tonne of capacity, the same as the original Concept Study.

## **Low Capital Intensity**

The low capital intensity (<US\$100 per annual tonne of capacity) is due to a number of features which differentiate the Askaf project from most other global iron ore opportunities:

### *Ease of processing*

The coarse-grained nature of the magnetite-quartzite allows production of a SFB product (1.6mm top size) using conventional primary & secondary crushing, high pressure grinding rolls (HPGR) and a simple 2-stage dry magnetic separation (DMS) flowsheet. Most magnetite ores require fine grinding (often to much less than 0.1mm), wet processing and other expensive treatment to achieve a product that is generally sold as a pellet feed or pellets. Less processing and grinding equates to a much simpler processing plant and therefore lower capital and operating costs.

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<sup>1</sup> Lodged with ASX on 31 May 2010 "319Mt Maiden Inferred Resource for Askaf North Deposit"

### *Existing rail & port infrastructure*

SNIM has been exporting up to 12Mt/a of iron ore from the port of Nouadhibou since 1963 and is currently expanding rail capacity to 25Mt/a and port capacity to 45Mt/a. Rail capacity can be further expanded to at least 50Mt/a with additional rolling stock and rail sidings. Proximity to existing rail and port infrastructure is one of the key advantages of Sphere's iron ore projects in Mauritania compared with other iron ore projects.

### **Contract Mining during the Start-up Phase**

To minimise capital outlay and provide proven operations capability within a fast-track schedule, a mining contractor with appropriate remote African experience will be engaged for the Start-up Phase. Discussions with mining contractors are progressing and indicative costs have been incorporated into the Askaf operating costs for the Start-up Phase. An Owner's mining fleet has been incorporated into the Expansion Phase capital cost and operating costs have been reduced accordingly.

Work is now in progress with engineering firms, mine planners, mining contractors, laboratories, equipment suppliers, environmental and other consultants to progress the fast-track 2Mt/a Start-up Phase in accordance with the following scheduled milestones:

<i>Upgrade to Indicated Resources</i>	<i>Sept 2010</i>
<i>Complete Sanction Engineering Study</i>	<i>Sept 2010</i>
<i>Define Probable Ore Reserve (Askaf North) &amp; complete pilot plant testwork</i>	<i>Nov 2010</i>
<i>Complete FEED and award engineering contract</i>	<i>Q4 2010</i>
<i>Secure all licences and approvals</i>	<i>Q1 2011</i>
<i>Commence site civil/structural work</i>	<i>Q2 2011</i>
<i>Process plant commissioning</i>	<i>Dec 2011</i>
<i>First shipment</i>	<i>Q1 2012</i>

### **Funding Strategy**

The Company has sufficient cash on hand to meet its near-term funding requirements under the plan including placement of initial orders for long lead time equipment required to support the fast-track 2Mt/a Start-up. These long lead items are independent of the final project design, thus minimising technical risk. The Company will seek to source the balance of funding for the Start-up Phase from offtake related funding and strategic partners at the project level, thereby minimising dilution to shareholders. Discussions are progressing with potential strategic partners and offtakers in that regard.

The Expansion Phase will be funded from cashflow generated from the Start-up Phase.

## Capital & Operating Costs

Initial capital cost estimates for the fast-track 2Mt/a Start-up Phase and 4Mt/a Expansion Phase (total capacity 6Mt/a) have been developed by ProMet Engineers and are outlined in the table below.

	Start-Up Phase	Expansion Phase	TOTAL
CAPACITY	2Mt/a	4Mt/a	6Mt/a
Mining	15	50	65
Processing	36	89	125
Infrastructure	27	20	47
Other	20	31	51
Construction	44	59	103
<b>Total Direct Costs (US\$M)</b>	<b>142</b>	<b>249</b>	<b>391</b>
Owners Cost	30	20	50
Contingency	48	51	99
<b>Total Indirect Costs (US\$M)</b>	<b>78</b>	<b>71</b>	<b>149</b>
<b>GRAND TOTAL (US\$M)</b>	<b>220</b>	<b>320</b>	<b>540</b>

The 2Mt/a Start-up Phase incorporates:

- contract mining;
- a mobile crushing and screening circuit;
- HPGRs (which reduce power consumption and dust emissions);
- 2-stage dry magnetic separation (DMS); and
- mobile equipment for tailings disposal.

This project design supports the fast-track schedule, increases operational flexibility, and lowers the capital costs. The Start-up Phase design also supports a capital efficient Expansion Phase, for example by sizing conveyors for a 6Mt/a operation from the outset.

The Expansion Phase capital cost estimate includes allowances to replace the mobile crushing circuit with fixed gyratory and cone crushers, plus the inclusion of tertiary crushing, and replacing mobile tailings disposal with a fixed stacking tailings disposal system. This phase also accounts for an increase in DMS plant capacity as well as a planned move to Owner mining operations.

Initial FOB cash operating cost estimates for both operational phases have been developed by ProMet Engineers and are outlined in the table below.

	Start-Up Phase	Expansion Phase
PRODUCTION	2Mt/a	6Mt/a
Mining	14.00	8.39
Processing	12.30	9.64
Other	17.65	13.21
<b>Total (US\$/t)</b>	<b>43.95</b>	<b>31.24</b>

The 2Mt/a Start-up Phase includes some additional operating costs to support the fast-track approach, while providing for operational capability and minimal capital costs. This particularly relates to the utilisation of contract mining and mobile tailings disposal.

Operating costs in the Expansion Phase are reduced by employing Owner mining operations, and a fixed plant tailings disposal system. There are also some potential reductions in unit rates for rail and port charges through higher volumes.

A 3 year Start-up Phase plus an assumption that Expansion Phase costs were applied over a 15 year period would result in a weighted average FOB cost of US\$32/tonne over 18 years.

### Product Specification and Testwork

Preliminary laboratory and semi-industrial scale pilot plant testwork has been very encouraging and demonstrates that the Askaf magnetite-quartzite is similar in processing characteristics to SNIM’s Guelb el Rhein magnetite-quartzite, from which SNIM has been producing a sinter feed concentrate product since 1985.

The table below shows the results of three semi-industrial scale dry magnetic separation (DMS) pilot plant tests conducted on samples with head grades in a range that average close to, but slightly higher than the Inferred Mineral Resource head grade. The testwork was conducted in SNIM’s metallurgical laboratories at Guelb el Rhein.

Hole ID	Depth From (m)	Depth To (m)	Head Fe %	DMS Mass Recovery (%)	DMS Concentrate %Fe
AA024C	59	89	39.7	52.5	66.6
AA024D	89	134	37.5	45.8	66.9
AA027B	107	142	32.8	35.2	65.7
<b>Average</b>			<b>36.7</b>	<b>44.5</b>	<b>66.4</b>

The composite samples on which the testwork was performed were prepared from 3m drill samples, as shown in the table, using core from the recent Inferred Resource drilling campaign. These fresh magnetite-quartzite samples were prepared by milling to a topsize of 1.6mm and then separated in a 900mm DMS drum at a rotation speed of 9m/sec.

The results show that product grades of 65% (as targeted for the project) or better can be produced from the Askaf North magnetite-quartzite at high mass recoveries (over 40%) from simple dry magnetic separation methods alone. Further testwork is planned to confirm these results and determine the final flowsheet design.

The Company believes the market for coarse grained (+1mm top size) magnetite SFB product will grow, particularly in Asia and Europe, because of the need for a higher quality product to offset the decline in quality of traditional hematite and hematite-goethite sinter fines.

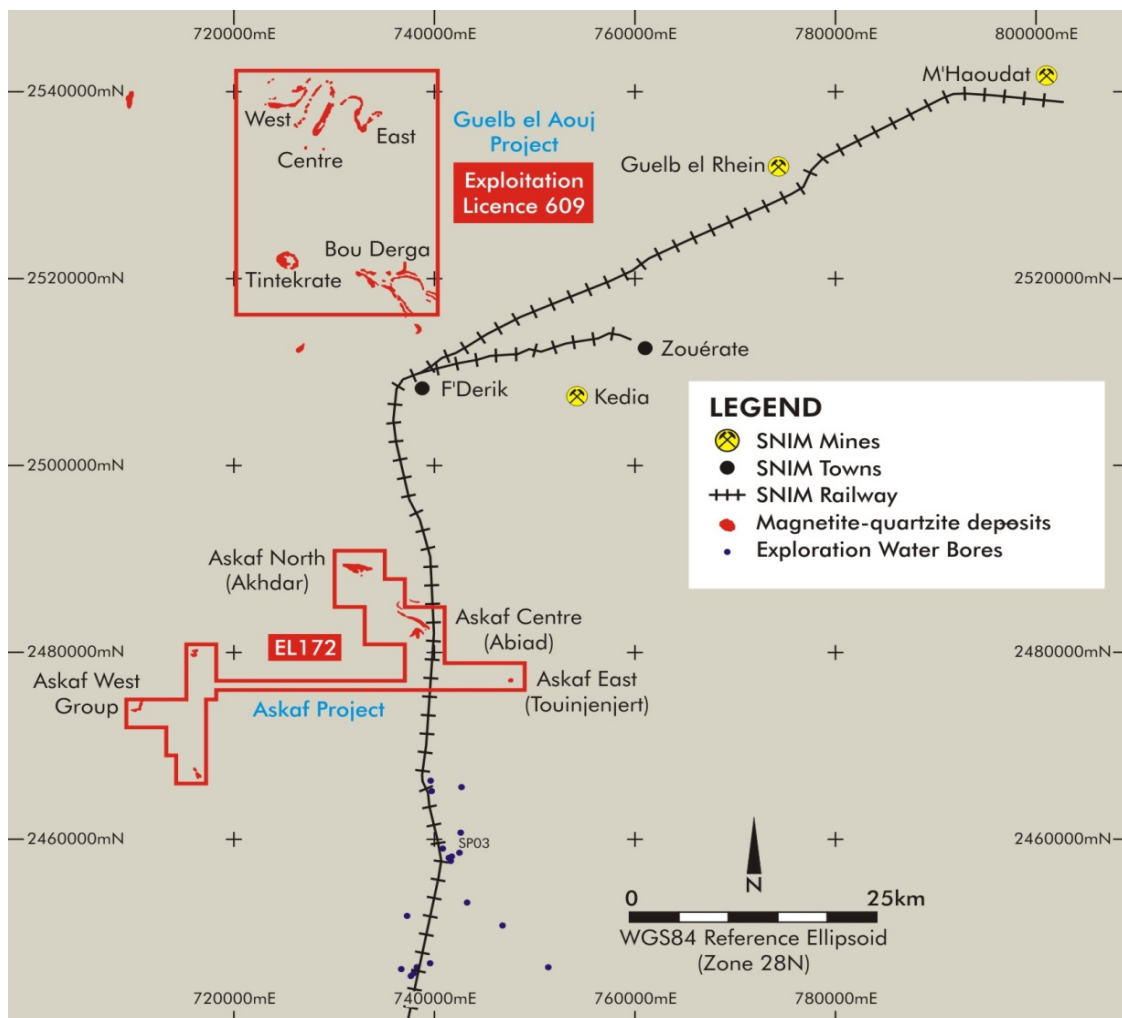
## Resource Base

The Askaf exploration licence (EL172) includes six coarse-grained magnetite-quartzite deposits, of which the largest is considered to be Askaf North, with its recently defined 319Mt Inferred Resource<sup>2</sup>. The staged development strategy is based on magnetite-quartzite mineralisation recently defined at Askaf North and assumes that this will be upgraded by current drilling to an Indicated Resource and hence Probable Ore Reserves.

Drilling is continuing at Askaf North with the objective of defining an Indicated Resource and hence a Probable Ore Reserve to support at least the first 18 years of planned production including the Expansion Phase. Whilst the Company is optimistic that this will occur, there is no certainty that a sufficient Ore Reserve will be defined from Indicated Resource.

Further drilling will be undertaken on the other five magnetite-quartzite deposits within EL172 (Askaf Centre, Askaf East and the three deposits in the Askaf West Group) in order to support potential further expansion in the future.

### Askaf Location Map



<sup>2</sup> Lodged with ASX on 31 May 2010 "319Mt Maiden Inferred Resource for Askaf North Deposit"

The location map above shows the Askaf North location relative to SNIM's existing mines and the Guelb El Aouj Project (in JV with SNIM). Askaf North is located only 8 km from the SNIM railway line. The photograph below shows drilling of the outcropping Askaf North deposit with Askaf Centre in the background.



### **Government Support for the Askaf Project**

The Government of Mauritania has already confirmed its support for the Askaf Project and is also a 78% shareholder in SNIM, the owner operator of the rail and port facilities. The Company has recently had confirmed to it that, under changes to the Mining Law made in 2009, the Government has the right to a 10% free-carried interest in any company which is awarded a new mining licence. All mining licences must be held by Mauritanian registered companies, and as such the Government will be granted a 10% interest in the Mauritanian registered company that will operate the Askaf Project.

The Government also has the option to acquire a further 10% paid interest in the operating company, although the law is not definitive on how this operates in practice. The Company's advice, based on similar legislation in other countries in the region, is that this acquisition may be made by purchasing shares from other shareholders at market price or a negotiated value, or it may be through capital subscription at the same time as other shareholders. A Mining Convention Agreement, establishing the fiscal framework for the Askaf operating company's activities, will be entered into in conjunction with the awarding of the Mining Licence, and the practical application of the additional 10% interest will be confirmed at that time.

Based on feedback to date, the Company is confident that the Government will provide its full support for the Askaf Project and for Sphere to become a significant iron ore producer.

## **Transport Letter of Intent from SNIM**

Sphere has also received a Letter of Intent from SNIM advising of its willingness to favourably consider providing access to their iron ore rail and port facilities for the Askaf Project, subject to capacity and terms to be agreed. The Company has commenced discussions with SNIM on capacity availability and commercial terms for rail and port access.

### ***Competent Person's Statement***

*The information in this report as it relates to the summarisation of Mineral Resources was prepared by Dr Schalk van der Merwe, the full-time Exploration Manager of Sphere Minerals Limited, who is a member of a Recognised Overseas Professional Organisation (ROPO), the South African Council for Natural Scientific Professionals (SACNASP). Dr van der Merwe has sufficient experience which is relevant to the styles of mineralisation and types of deposits under consideration and to the activity for which he is undertaking to qualify as Competent Person as defined in the 2004 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, and has consented to the inclusion of the above information in the form and context in which it appears.*