ASX RELEASE

26 November 2015

SPHERE MINERALS LIMITED (ASX:SPH)

COMPLETION OF THE EL AOUJ EAST FEASIBILITY STUDY AND UPDATES TO THE ORE RESERVES AT EL AOUJ EAST AND ORE RESERVES AT ASKAF NORTH

Sphere Minerals Limited (Sphere) is pleased to announce the completion of a Feasibility Study for the development of its 50% owned El Aouj Iron Ore Project based on the El Aouj East deposit. The project is based on the production of a sinter feed product derived from fresh magnetite ore beneficiated to produce a 66.5%Fe concentrate.

Previous announcements highlighted that Sphere has undertaken an extensive exploration programme within the El Aouj tenement on behalf of El Aouj Mining Company and has progressively declared Mineral Resources, compliant with the JORC code, that total 4.4 billion tonnes (refer to previous ASX announcements referenced in the footnote[1]).

El Aouj Mining Company SA (EMC) has now completed a Feasibility Study based on the Mineral Resources of the El Aouj East deposit. As a result of this work by BBA and Ausenco, an updated Ore Reserve is declared for the El Aouj East Deposit (see attachment). The total Ore Reserve in the El Aouj East deposit now stands at 930 million tonnes (Mt), which is all comprised of 'fresh' magnetite ore at an average grade of 35% Fe. This Ore Reserve is based on a total Mineral Resource at El Aouj East of 2,050 million tonnes at an average grade of 36%Fe as declared in December 2013. This Mineral Resource consisted of 1,870 million tonnes of fresh magnetite ore and 180 million tonnes of oxide/weathered ore.

The El Aouj Feasibility Study demonstrates Sphere's ongoing commitment to the Joint Venture entity to progress this major project in Mauritania and has demonstrated that:

- The project scale has been optimised for the first stage of development at an approximate capacity of 11.3 million saleable tonnes per annum with a target concentrate grade of 66.5% Fe.

- The resource life of El Aouj is significant. The life of the Stage 1 of the operation is 41 years, without the need to develop the El Aouj Centre deposit or the Tintekrate and Bou Derga deposits. Once the Stage 1 project is established the process plant and mine design has incorporated the option to double the capacity of the mine to 22 Mtpa.
- The magnetite product is similar in specification to material already produced and sold by SNIM on the international seaborne market.
- The process flow sheet used to beneficiate the ore is based on dry magnetic separation.
- The capital and operating costs developed in the Feasibility Study are competitive.
- El Aouj Mining Company SA is currently evaluating proposals for a FEED Study that would advance the project.

Sphere has also reviewed the Askaf North Ore Reserves in recognition of the challenging Iron Ore market conditions. Prices have been based on International Consensus pricing of iron ore on the international market, benchmarked to the long term IODEX62 price. No other changes have been made to the technical scope or financial elements of the Askaf Project, as originally outlined in the 2012 Feasibility Study and the 2014 FEED planning as part of the original commencement of the Askaf North project. Economics show no viable investment case based on the existing CAPEX and OPEX estimates and hence Ore Reserves have been reduced to zero (232 Mt reported at 31 December 2014).

Competent Persons' Statement

The geological interpretation, wireframe model and the drill hole dataset used in the resource estimation of the El Aouj Centre magnetite deposit is based on, and fairly represents information and supporting documentation prepared by Dr Schalk van der Merwe, Consultant Geologist to Sphere Minerals Limited. Dr van der Merwe 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 that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the Australasian Code for reporting of Exploration Results, Mineral Resources and Ore Reserves (2012 Edition). Dr van der Merwe consents to the inclusion in this report of the geological interpretation and the drill hole dataset and the supporting information in the form and context in which it appears.

The Mineral Resource estimation and classification of the El Aouj Centre magnetite deposit is based on, and fairly represents, information and documentation prepared by Mr Alan Miller. Mr Miller was a full-time employee of Golder Associates Pty Ltd, and is now an independent consultant and a Member and Chartered Professional of the Australasian Institute of Mining and Metallurgy (AusIMM). Mr Miller has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the Australasian Code for reporting of Exploration Results, Mineral Resources and Ore

Reserves (2012 Edition). Mr Miller consents to the inclusion in this report of the Mineral Resource estimation and classification and the supporting information in the form and context in which it appears.

The Ore Reserve statement for El Aouj was prepared by Jean-Francois St-Onge Eng. formally of BBA, member of the Ordre des Ingénieurs du Québec, , as the competent person for the purposes of complying with the JORC Code. Mr St-Onge has sufficient experience that is relevant to the style of mineralisation and mine planning being undertaken to qualify as a Competent Person as defined in the Australasian Code for reporting of Exploration Results, Mineral Resources and Ore Reserves (2012 Edition).

The Competent Person responsible for the Askaf North Ore Reserves is Mr Malcolm Cox. Mr Cox is a Fellow of the Australasian Institute of Mining and Metallurgy. Mr Cox has sufficient experience that is relevant to the styles of mineralisation and type of deposits under consideration and to the activity being undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Cox consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

[1] ASX Announcement, 13 December 2013, "Mineral Resource Update for Guelb el Aouj Magnetite Iron Ore Deposit, Mauritania" The Competent Person for the geological information was Dr Schalk van der Merwe and the Competent Person for the resource estimate was Mr Alan Miller. The cut-off grade used was 20% DT80 wt% for the fresh mineralisation and 20% head Fe for the weathered mineralisation.

[1] ASX Announcement, 27 June 2014, "Sphere Increases Mineral Resources at El Aouj Centre Magnetite Iron Ore Deposit, Mauritania". The Competent Person for the geological information was Dr Schalk van der Merwe and the Competent Person for the resource estimate was Mr Alan Miller. The cut-off grade used was 20% DT80 wt% for the fresh mineralisation and 20% head Fe for the weathered mineralisation.

[1] ASX Announcement, 4 October 2013, "Maiden Inferred Mineral Resource Estimate for Tintekrate Magnetite Deposit, Mauritania. The Competent Person for the geological information was Dr Schalk van der Merwe and the Competent Person for the resource estimate was Mr Alan Miller. The cut-off grade used was 20% DT80 wt% for the fresh mineralisation and 20% head Fe for the weathered mineralisation.

[1] ASX Release, 27 July 2012. Quarterly Activities Report for the Quarter Ending June 2012. The Competent Person for the geological information was Dr Schalk van der Merwe and the Competent Person for the resource estimate was Mr Alan Miller. The cut-off grade used was 20% DT80 wt% for the fresh mineralisation and 20% head Fe for the weathered mineralisation.

[2] ASX Announcement, 30 January 2015, "Annual Statement of Mineral Resources and Ore Reserves"

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Subject: Ore Reserves Statement

1. INTRODUCTION

BBA has completed an Ore Reserves estimate update for the El Aouj Mining Company's (EMC) El Aouj East Magnetite Project as part of a feasibility study (El Aouj Feasibility Study EAFS report October 2015). The Ore Reserves estimates are based on the November 2014 Final Resources Model Parameters prepared by Golder Associates ("Golder").

The Mineral Resource estimates were prepared and classified in accordance with the Australasian Code for Reporting of Identified Mineral Resources and Ore Reserves (JORC Code, 2012).

2. PROJECT DESCRIPTION

2.1 Geological block model

The November 2014 geological block model (gea_OK112013_all_incl_waste_all.csv) was developed by Golder using geological interpretations provide by Sphere. It is a sub-blocked model that was later re-blocked by BBA to account for mining dilution and ore losses at the ore/waste contacts.

Table 1 gives the mineral resources for the El Aouj East deposit reported by Golder (for fresh mineralization only), above a cut-off grade of 20% DT80 DTR.

Table 1: In Situ fresh mineralization resources by class where DT80%>20%

Resource classification	Mt (dry)	Fe %	SiO_2 %	Al_2O_3 %	CaO %	MgO %	S %	Na_2O %	K_2O %	LOI %
Measured	400	36	44	1.1	0.9	0.069	0.033	0.075	0.55	-0.6
Indicated	1170	36	44	1.1	1.2	0.069	0.042	0.086	0.52	-0.7
Inferred	300	36	44	1.1	1.2	0.060	0.042	0.108	0.50	-0.9
Total	1870	36	44	1.1	1.1	0.068	0.040	0.087	0.52	-0.7

Table 2 gives the mineral resources for the El Aouj East deposit reported by Golder (for weathered mineralization only), above a cut-off grade of 20% Fe grade.

Table 2: In Situ weathered mineralization resources by class where Dt80%>20%

Resource classification	Mt (dry)	Fe %	SiO_2 %	Al_2O_3 %	CaO %	MgO %	S %	Na_2O %	K_2O %	LOI %
Measured	70	34	46	1.6	0.5	0.7	0.008	0.060	0.71	1.2
Indicated	80	35	45	1.2	0.8	1.2	0.011	0.060	0.52	0.8
Inferred	30	35	45	1.8	0.4	0.9	0.011	0.060	0.70	0.9
Total	180	36	45	1.5	0.6	1.0	0.010	0.060	0.63	1.0

2.1.1 Model regularization comparison

BBA Inc. carried out a regularization study that compared six (6) different mining block sizes. After analysis and comparison, BBA and EMC selected a 20 m x 20 m x 14 m model for mine planning purposes. The 14 m bench height was determined to offer significant savings over the life-of-mine, particularly for drilling and blasting activities.

Table 3 below summarises the resources contained in the 20 m x 20 m x 14 m Mining Block Model prepared by BBA.

Table 3: Updated El Aouj 20 m x 20 m x 14 m mining block model resources

Resource classification	M Tonnes	DTR	FE	SiO_2	Al_2O_3	Density
Fresh mineralization (cut-off 20% DT80 DTR)						
Measured total	402	43.9	35.1	44.6	1.4	3.41
Indicated total	1,159	44.0	34.8	45.0	1.4	3.40
Inferred total	296	44.5	34.9	45.0	1.5	3.41
Total fresh resources	1,856	44.1	34.9	44.9	1.4	3.40
Oxide mineralization (cut-off 20% Fe)						
Measured total	70	23.1	32.9	47.0	2.0	3.06
Indicated total	74	24.7	33.7	46.1	1.7	3.08
Inferred total	26	23.0	33.8	45.8	2.2	3.08
Total oxide resources	170	23.8	33.4	46.4	1.9	3.07

Compared to the geological resource model, the mining model has 6.6% ore loss and 5.1% dilution for fresh mineralization resources resulting in a 3.0% relative lower DT80 DTR grade.

Table 4 summarises the ore loss and dilution factors for the El Aouj East 20 m x 20 m x 14 m Mining Block Model.

Table 4: Updated El Aouj 20 m x 20 m x 14 m mining block model ore loss and dilution

Resource classification	Mining recovery	Ore loss	Dilution	Rom reduction	Grade reduction
Fresh Mineralization					**DT80 DTR**
Percent (%)	93.4%	6.6%	5.1%	1.5%	3.0%
M Tonnes or Units		124	90	28	1.38

2.2 Open pit optimisation

BBA used MineSight to carry out the open pit optimisations and subsequent mine planning work for the Feasibility Study. MineSight is a commercial mine planning software package that has been used across the mining industry since 1975. The built-in pit optimiser uses the Lerch-Grossman 3D algorithm that determines the ultimate economic pit limits that will deliver the highest undiscounted value.

Four sets of optimisation cases were carried out for the Feasibility Study. They are summarised as follows:

- Case 1: 66.5% Fe Concentrate, Measured, Indicated & Inferred treated as ROM feed, US$80 Base Case IODEX 62 Price.
- Case 2: 66.5% Fe Concentrate, Measured, Indicated treated as ROM feed, US$80 Base Case IODEX 62 Price. (Inferred treated as waste)
- Case 3: 67.5% Fe Concentrate, Measured, Indicated & Inferred treated as ROM feed, US$80 Base Case IODEX 62 Price.
- Case 4: 66.5% Fe Concentrate, Measured, Indicated & Inferred treated as ROM feed, US$140 Base Case IODEX 62 Price.

Table 5 summarises the results.

Table 5: Comparison of case 1, case 2, case 3 and case 4 RF 1.0 pit shells

Optimisation	Rock	Waste+ Oxide	MQU*	MQL*	ROM	Product	ROM SR	Prod SR
	Mt	Mt	Mt	Mt	Mt	Mt	t/t	t/t
Case 1 RF 1.0 Pit	4,776	2,945	734	1,097	1,831	854	1.61	3.45
Case 2 RF 1.0 Pit	3,706	2,173	612	921	1,533	706	1.42	3.08
Case 3 RF 1.0 Pit	4,801	2,967	734	1,100	1,834	826	1.62	3.59
Case 4 RF 1.0 Pit	4,973	3,120	736	1,117	1,853	865	1.68	3.61

*See Section 2.3 for explanation of MQU and MQL.

The results presented for Case 4 above are considered the “Ultimate” in-pit resources for the El Aouj East deposit. This scenario recovers nearly 100% of the fresh resources contained in the Mining Block Model. However, the economic assumptions and the use of Inferred resources as ROM feed mean that this was not an appropriate choice for the purposes of the Feasibility Study. These pit limits were used to guide the placement of infrastructure, stockpile and waste dumps so as not to compromise future extractability of the resources.

Case 2 was, therefore, selected as the base case for the Feasibility Study and BBA performed additional optimisation scenarios on this case using the revenue factor (“RF”) approach. After detailed analysis, a pit shell corresponding to a RF of 0.78 was retained as the “Final” pit for the Feasibility Study. The resources contained within this pit are shown in Table 6 below.

Table 6: Final optimised pit selected for the Feasibility Study

Optimisation	Rock	Waste+ Oxide	MQU	MQL	ROM	Product	ROM SR	Prod SR
	Mt	Mt	Mt	Mt	Mt	Mt	t/t	t/t
Pit 23 (RF = 0.78)	2,495	1,409	412	674	1,086	502	1.30	2.81

Note: ROM excludes Inferred Resources > 20% DT80 DTR

2.3 Mine design

The outcrop expression of the Guelb el Aouj East deposit is identified by two prominent ridges of ‘meta-BIF’ on the western and eastern limbs of the deposit and a closure of the southern synform. The erosion resistant magnetite-quartzite material rises up to 250 m above the surrounding plain. Magnetite-Quartzite is subdivided into two main layers. Magnetite-Quartzite Upper (MQU) and Magnetite-Quartzite Lower (MQL). MQ2 and MQ3 are included in the MQU whereas MQ1 is included in MQL. These limbs are shown by the typical cross-section in Figure 1.

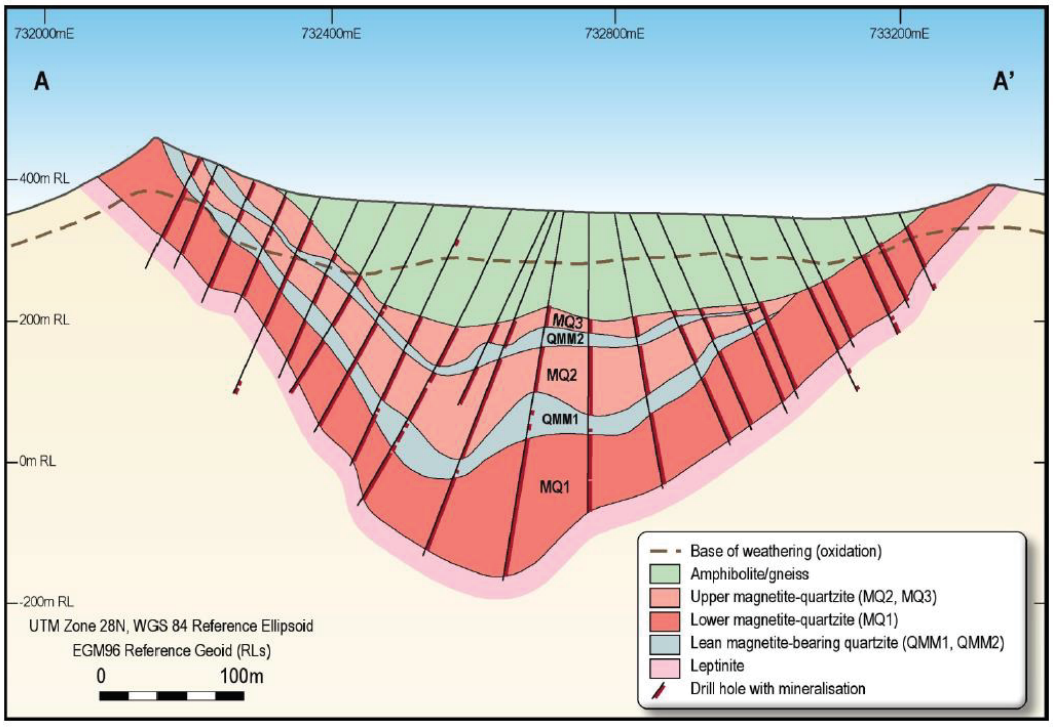


Figure 1: Typical geological cross-section

2.3.1 Pit design parameters

The design parameters that were used for the pit design are summarised in Table 7. These parameters apply to both fresh and weathered mineralization.

Table 7: Mine design parameters

Parameter	Value
Interim wall design parameters	
Benching Arrangement	3 x 14 m
Final Wall Berm Width	14 m
Inter-Ramp Angle (IRA)	65° (SRK 2015)
Bench Face Angle (BFA)	85° (SRK 2015)
Bench Drilling Offset	1.5 m
Effective Face Angle (BFA)	83°
Ramp Width (single-lane)	22 m
Ramp Width (dual-lane)	34 m
Maximum Ramp Grade	10%

Parameter	Value
Final wall design parameters	
Benching Arrangement	3 x 14 m
Final Wall Berm Width	16 m
Inter-Ramp Angle (IRA)	60° (SRK 2015)
Bench Face Angle (BFA)	83° (SRK 2015)
Bench Drilling Offset	2.0 m
Effective Face Angle (BFA)	80°
Ramp Width (single-lane)	22 m
Ramp Width (dual-lane)	34 m
Maximum Ramp Grade	10%

2.3.2 Pit design

The pit design used for the feasibility study is a multi-pushback pit and contains 99.6% of Measured and Indicated ore. Pushbacks are derived from intermediate pit shells obtained from the pit optimisation. BBA evaluated the minimum mining width that would be deemed acceptable for mine operations and considered the operating dimensions of a 220 t-class haul truck and 34 m^3 shovel (typical match for the 220 t class). The minimum mining width required for productive operation is approximately 40 meters. From this, BBA determined that the minimum pushback width was 60 metres, while the preferred pushback width (i.e. when possible without requiring significant additional waste stripping) was 100 metres. A total of 9 engineered staged pushbacks were designed for the feasibility study and are summarised in Table 8 (note the table colours correspond to the phases shown in Figure 2 below.

Table 8: Reserves by mining phase

Phase	ROM Feed	Fe	DT80 DTR	LIB DTR	Product	Waste	S/R Rock
Units	***kt***	***%***	***%***	***%***	***kt***	***kt***	**-**
Phase 1	46 859	36.7	46.7	53.6	24 413	81 304	1.74
Phase 2	153 102	35.2	43.4	50.8	72 026	140 117	0.92
Phase 3	104 297	35.5	44.0	50.6	48 182	111 701	1.07
Phase 4	37 514	35.9	45.0	50.6	17 381	53 469	1.43
Phase 5	105 610	35.1	44.7	50.9	49 762	114 483	1.08
Phase 5B	29 636	34.8	41.5	48.5	12 407	72 047	2.43
Phase 6	254 291	34.4	43.1	49.3	111 742	380 105	1.49
Phase 7	112 123	33.9	42.7	48.3	47 268	213 601	1.9
Phase 8	87 621	34.2	43.0	48.6	37 501	181 084	2.1
LOM Total	931 053	34.9	43.6	49.9	420 681	1 347 911	1.4

Figure 2 shows a 3D view of the 9 pushbacks. Figure 3 shows a plan of the final pit design.

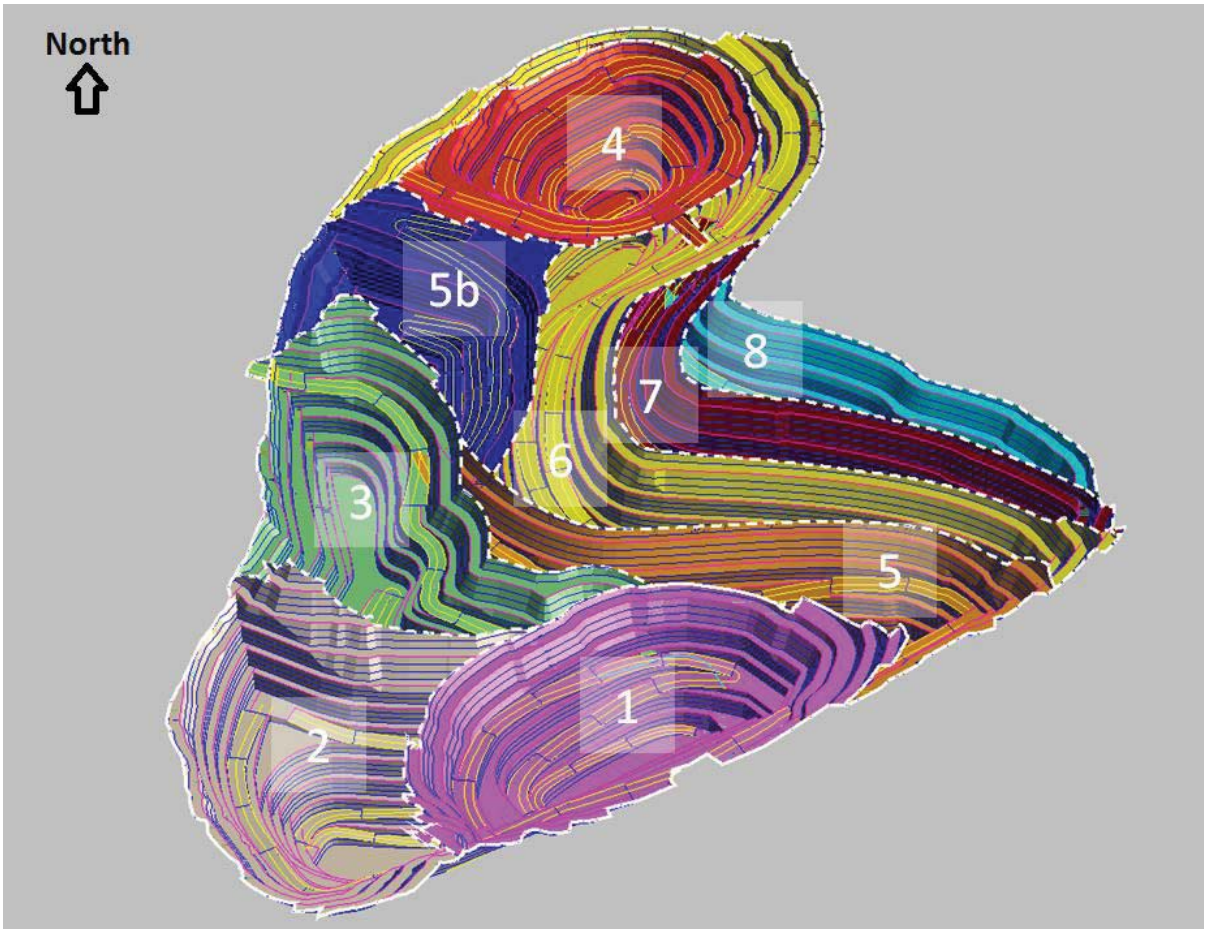


Figure 2: 3D view of pushbacks

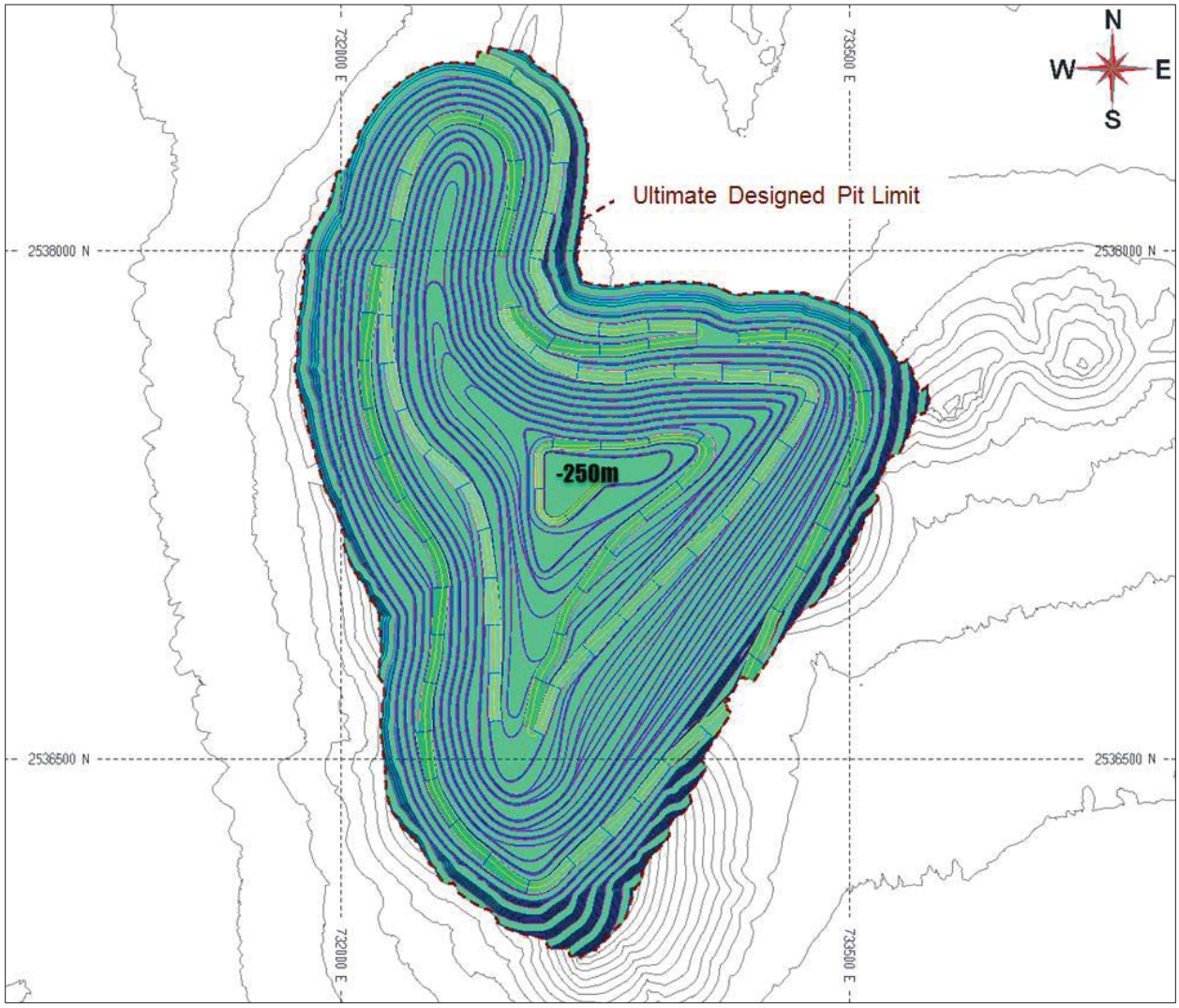


Figure 3: El Aouj east pushback 9 (final pit)

2.4 Site Layout

2.4.1 Crusher location

Figure 4 is a photograph of the El Aouj East Project looking from south to north. It shows the V shape of the ridges that are the outer limbs of the deposit and which define its limits and create the ridges.

Figure 3 above and Figure 4 below show a natural funnel through the eastern ridge line, which is also the lowest point where the final pit intercepts with the surface topography. This is a suitable

location for the pit exit and the crusher as it lowers ore haulages. Other locations would be higher in elevation and would result in an increase in haul costs.

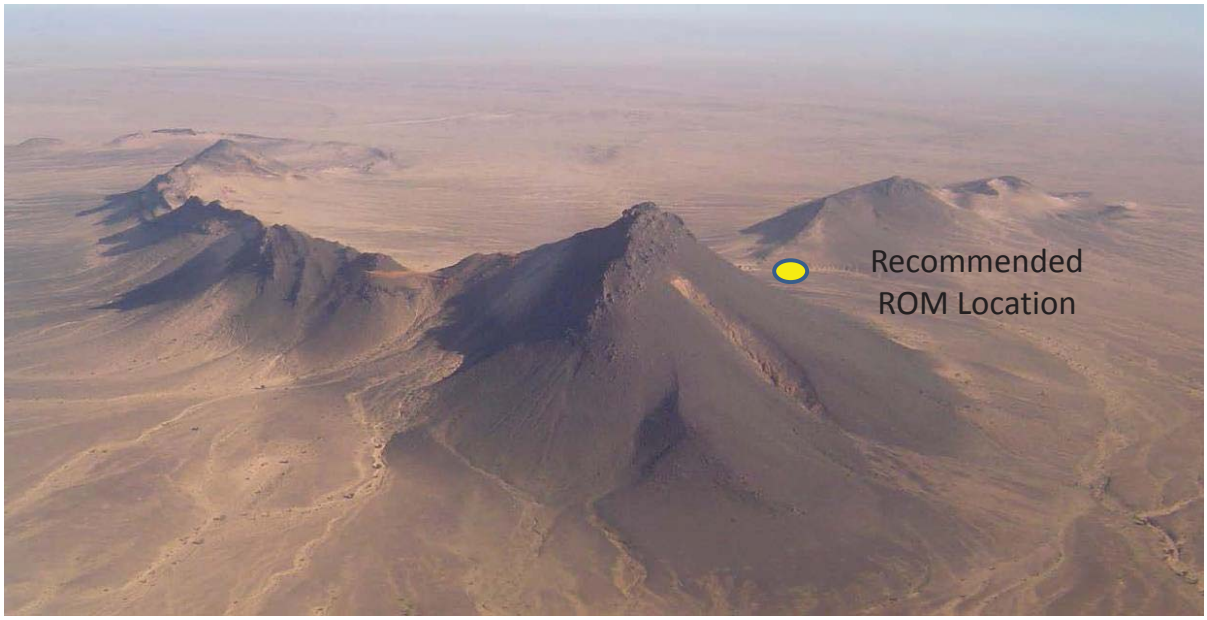


Figure 4: View of El Aouj looking from the South

2.4.2 Waste dump and oxide stockpile locations

BBA has designed four piles: two (2) stockpiles for oxide mineralization and two (2) dumps for waste material. Waste rock dumps are composed of oxide waste rocks and waste rocks. The dumps were designed on the west and south west side of the pit. For safety and practical operation purposes, BBA used an offset of 100 m from the pit crest to the designed dump footprints.

Figure 5 shows a plan for the final dumps.

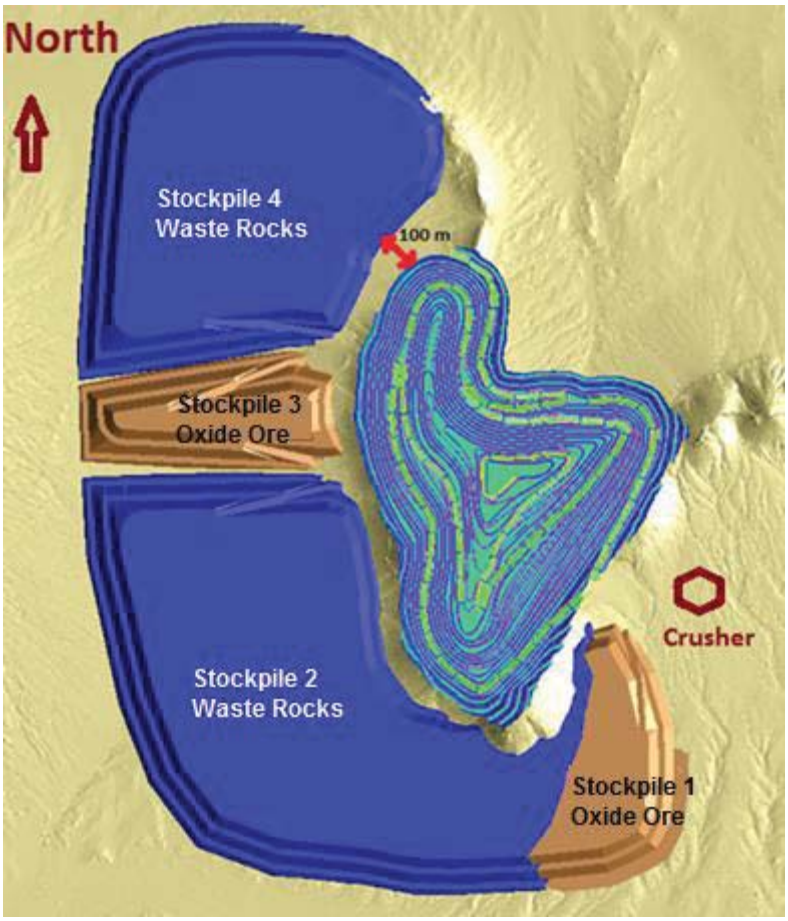


Figure 5: Final dumps

The design parameters for both oxide and waste dumps are summarised in Table 9.

Table 9: Dump and stockpile design parameters

Parameters	Value*
Batter angle (Face angle)	37 ˚
Lift height	40 m
Berm width	35 m
Maximum height	105 m
Final overall slope angle	24.5 ˚
*Parameters may vary for safety, operational or environmental reasons	

2.5 Production scheduling

In order to reduce the CAPEX and OPEX requirements, BBA developed an optimised Mine Plan that prioritised the following criteria:

- Maintaining an MQL / MQU ratio in the ROM feed from 50 / 50 to 100 / 0 in order to optimise the quantity of ore sent to the Mill;
- Targeting 100% mill utilization;
- Minimizing the strip ratio during the first years of operation in order to defer the waste mining costs;
- Respecting the ramp-up for the ROM feed and pre-production/operations;
- Where possible, smoothing the tonnage per year in order to avoid short-term production peaks or slumps that would translate into the need to increase or reduce the fleet size.
- Stockpiling the oxide mineralization as it is not compatible with the current dry magnetic separation process.

The LOM plan was broken down into the following three phases:

- Mine Pre-Stripping;
- Mine Production;
- Post Production and Reclamation.

Table 9 highlights the LoM plan on an annual basis for the first two phases listed above. Figure 6 and Figure 7 shows these results graphically.

Table 10: LoM production planning (Year 1 to Year 41)

	Total Mill			Inferred Ore		TH1, TH2, TH3	Oxide Waste	Waste Rock	Grand Total	Strip Ratio	Strip Ratio
Period	Tonnes	66.5% Fe Conc		Tonnes	66.5% Fe Conc	Tonnes	Tonnes	Tonnes	Tonnes	Incremental	Cumulative
01	2 738 447	1 462 137	53%	110 601	59 853	26 777 811	24 779 840	1 645 872	56 052 570	19.47	19.47
02	18 717 521	9 279 046	50%	0	0	15 673 660	21 603 775	10 492 943	66 487 899	2.55	4.71
03	23 658 808	12 334 954	52%	7	5	24 451 846	9 528 359	4 756 133	62 395 153	1.64	3.10
04	23 253 987	11 486 754	49%	4 186	2 302	18 780 776	15 487 539	4 368 415	61 894 902	1.66	2.61
05	23 410 075	10 882 754	46%	269 313	152 114	10 716 022	15 151 263	10 503 305	60 049 978	1.57	2.34
06	24 217 233	11 350 987	47%	218 807	115 954	10 395 493	8 190 857	11 438 370	54 460 760	1.25	2.12
07	23 999 642	11 274 221	47%	0	0	13 936 076	8 622 561	6 815 241	53 373 520	1.22	1.96
08	23 759 292	10 745 416	45%	0	0	7 886 149	16 116 255	9 282 293	57 043 989	1.40	1.88
09	23 596 998	9 928 700	42%			3 870 510	17 608 004	11 232 420	56 307 932	1.39	1.82
10	23 407 889	10 320 147	44%			3 168 507	18 194 150	12 725 144	57 495 690	1.46	1.78
11	24 038 570	10 736 219	45%	26 945	13 494	2 830 555	19 086 476	9 776 416	55 758 962	1.32	1.73
12	23 460 029	10 889 875	46%			5 925 433	12 449 332	11 220 165	53 054 958	1.26	1.69
13	22 898 961	10 205 496	45%			4 590 780	14 276 378	11 455 350	53 221 470	1.32	1.66
14	23 155 587	10 819 370	47%				5 586 041	21 248 124	49 989 752	1.16	1.62
15	23 284 510	10 422 654	45%			78 057	1 601 997	26 037 837	51 002 401	1.19	1.59
16	23 671 334	9 998 976	42%			37 213	7 622 232	21 378 087	52 708 866	1.23	1.57
17	23 974 687	10 357 666	43%	49 071	25 560	2 064 173	17 120 372	7 968 945	51 177 248	1.13	1.54
18	23 118 621	11 178 182	48%			825 837	21 572 474	5 508 414	51 025 346	1.21	1.52
19	24 181 467	11 110 919	46%	72 838	35 695	999 614	16 742 515	13 581 045	55 577 478	1.30	1.51
20	24 130 990	11 885 374	49%	141 041	76 808	32 939	3 618 102	33 949 864	61 872 936	1.56	1.51
21	23 978 717	11 973 371	50%	501 575	254 198		11 459 233	29 404 309	65 343 834	1.73	1.52
22	24 338 722	11 970 766	49%	1 065 612	547 796		3 278 079	39 714 953	68 397 366	1.81	1.53
23	24 120 900	11 289 976	47%	862 135	454 078		632 328	43 105 053	68 720 415	1.85	1.55
24	23 740 400	10 571 576	45%	224 760	117 645			44 853 362	68 818 522	1.90	1.56
25	23 687 242	10 591 258	45%	18 026	10 374			35 270 702	58 975 970	1.49	1.56

	Total Mill			Inferred Ore		TH1, TH2, TH3	Oxide Waste	Waste Rock	Grand Total	Strip Ratio	Strip Ratio
Period	Tonnes	66.5% Fe Conc		Tonnes	66.5% Fe Conc	Tonnes	Tonnes	Tonnes	Tonnes	Incremental	Cumulative
26	23 349 230	10 108 153	43%				9 557 735	23 209 022	56 115 987	1.40	1.56
27	23 160 521	10 011 485	43%				18 550 368	13 646 444	55 357 332	1.39	1.55
28	23 180 201	10 069 805	43%				4 064 071	29 730 661	56 974 933	1.46	1.55
29	22 875 425	9 546 936	42%				127 744	33 670 740	56 673 909	1.48	1.54
30	23 553 995	10 204 515	43%					33 589 424	57 143 419	1.43	1.54
31	23 769 324	10 809 254	45%					34 411 068	58 180 392	1.45	1.54
32	23 536 559	10 704 230	45%					35 778 714	59 315 273	1.52	1.54
33	23 454 906	9 281 224	40%				17 719 547	17 260 644	58 435 097	1.49	1.53
34	22 090 034	9 595 206	43%				5 609 226	30 059 153	57 758 413	1.61	1.54
35	23 050 896	9 729 913	42%					30 618 785	53 669 681	1.33	1.53
36	22 661 047	9 588 946	42%					33 956 559	56 617 606	1.50	1.53
37	20 053 200	9 005 938	45%					37 005 692	57 058 892	1.85	1.54
38	22 016 487	8 642 906	39%					33 241 437	55 257 924	1.51	1.54
39	21 856 010	8 592 622	39%					7 361 037	29 217 047	0.34	1.51
40	23 191 699	10 563 778	46%					5 927 014	29 118 714	0.26	1.47
41	22 803 218	11 200 971	49%					3 573 618	26 376 836	0.16	1.44
Grand Total	931 143 378	420 722 680	45%	3 564 918	1 865 874	153 041 450	345 956 850	840 772 773	2 274 479 369	1.44	1.44

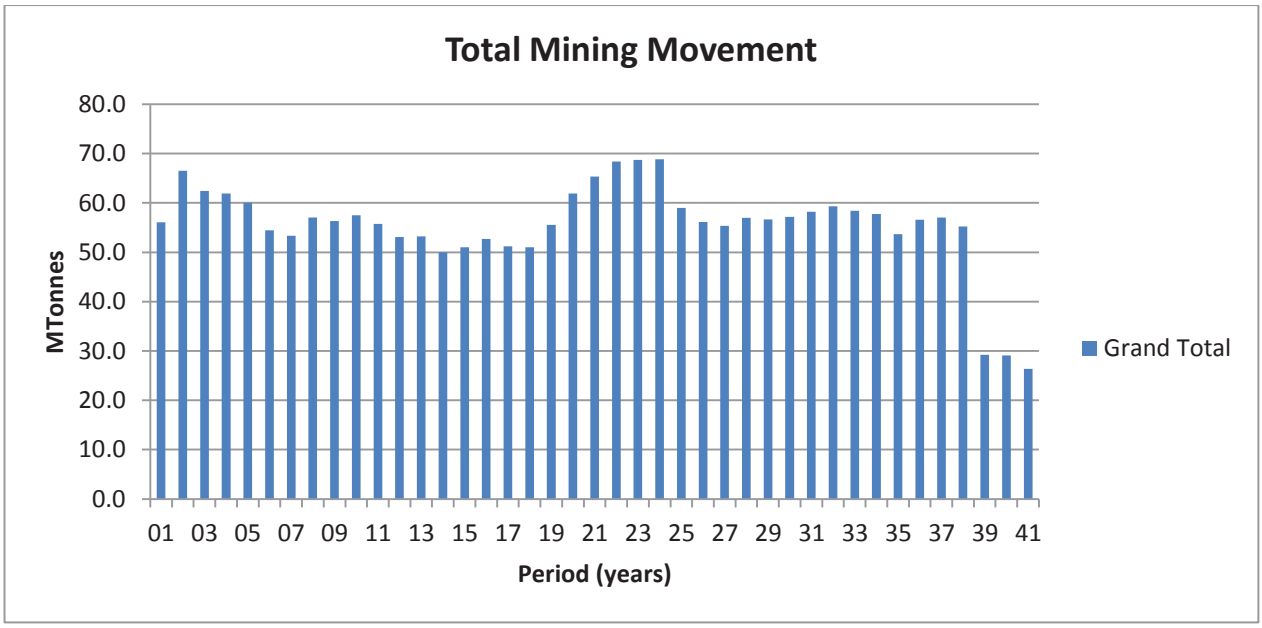


Figure 6: Yearly material movements.

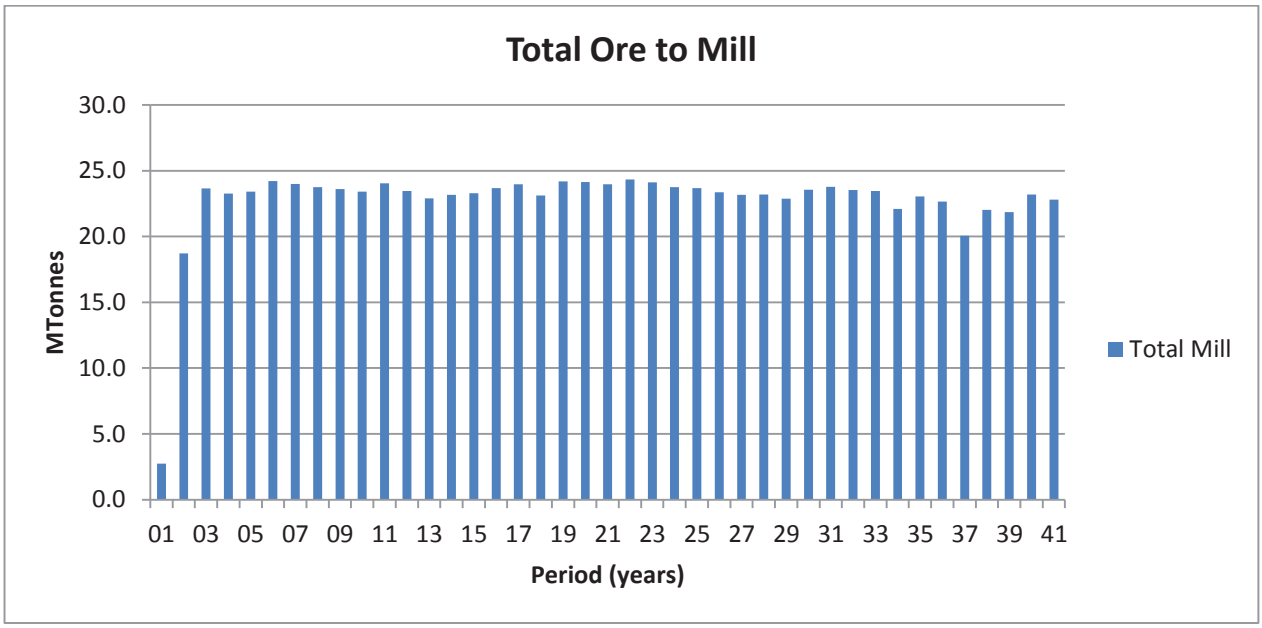


Figure 7: Yearly ore to mill

2.6 Ore and waste mining

The ore and waste will be mined using 14 m benches. This gives good productivity and reasonable selectivity for El Aouj. El Aouj has a maximum annual material movement of 68.8 Mt and an average movement of about 55.5 Mt/year or 152 kt/day. These are very large tonnages and require commensurately large mining equipment.

For El Aouj the equipment size ranges currently being investigated are excavators from 34 m^3 class machines and trucks in the 220 t-class. These are chosen as they are large, well tested and with an adequate supply of parts. Although SNIM operates slightly smaller equipment at their operations, some synergies for parts supply and logistics may be possible.

For the purpose of this, study it has been assumed that a Cat 6060 or similar machine (27 m^3) and a P&H or L-1850 wheel loader (18 m^3) will be used for excavating the material. Bucket capacities have been adjusted to account for the material density of El Aouj East. These units will mine both ore and waste and will be interchangeable.

Haulage units are considered to be nominal 227 t rear dumps such as the Cat 793F.

The major mining fleet maximum requirements are summarised in Table 11:

Table 11: Mine fleet and support equipment list

Function	Function	Model	PP Y0	PR Y1	PR Y5	PR Y10	PR Y15	PR Y20
Loading	Shovel	Cat 6060 FSD	2	3	3	3	3	3
	Large Wheel Loader	P&H L-1850	1	1	1	1	1	1
Hauling	Primary Haul Truck	Cat 793F	8	11	17	17	22	28
Drilling	Rotary Production Drill	Atlas Copco PV-351	2	4	4	4	4	4
	Pre-split DTH and secondary blasting Drill	Atlas Copco D-65	1	1	2	2	2	2

Function	Function	Model	PR Y25	PR Y30	PR Y35	PR Y41	Max Unit
Loading	Shovel	Cat 6060 FSD	3	3	3	2	3
	Large Wheel Loader	P&H L-1850	1	1	1	1	1
Hauling	Primary Haul Truck	Cat 793F	31	33	37	27	37
Drilling	Rotary Production Drill	Atlas Copco PV-351	4	4	4	3	4
	Pre-split DTH and secondary blasting Drill	Atlas Copco D-65	2	2	2	1	2

2.7 Manpower

EMC has selected a 12-hour shift option with a four panel crew. This option is the most efficient for these types of operations.

2.8 Operating and capital cost

2.8.1 Capital cost

BBA has developed a capital cost estimate for the loading, hauling, drilling, blasting and auxiliary equipment.

The capital cost estimate is based on the construction of a Greenfield mining facility. The estimates were developed from first principals and were supported by vendor quotes and adjusted based on the experience of BBA's mining engineers with similar projects.

Table 12 presents the summary of total estimated capital costs for the mining portion of the project.

Table 12: Total estimated initial capital costs (M$)

Mine Capital Costs	Units	Initial CAPEX (Y0 to Y3)	Sustaining LOM CAPEX	Replacement CAPEX
Loading Equipment	M$	56.7	0.0	134.4
Hauling Equipment	M$	93.8	100.4	247.9
Drilling & Blasting Equipment	M$	24.2	0.0	67.2
Auxiliary Equipment	M$	42.5	8.1	139.6
Other Equipment	M$	7.0	0.0	10.3
Total Mine CAPEX	**M$**	**224.1**	**108.4**	**599.41**

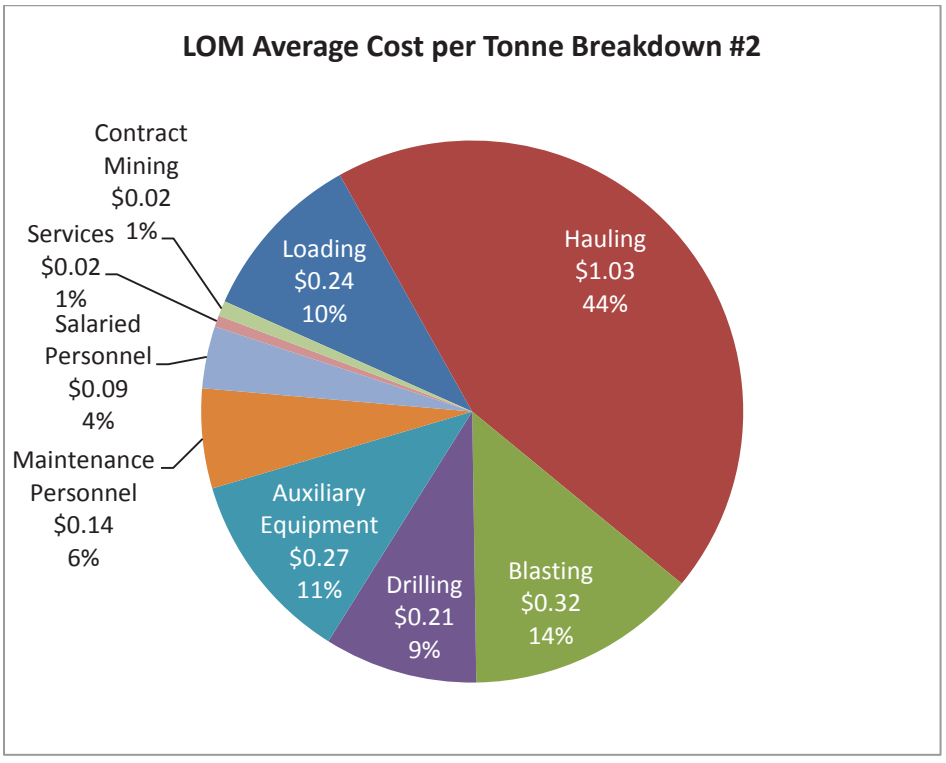
2.8.2 Summary of operating costs over life

Table 13 and Figure 8 show the mine operating cost summary for the project over the life of mine.

Table 13: Mine operating costs (breakdown #1)

OPEX summary	LOM total	Cost per tonne
Loading	$545 268 128	$0.24
Hauling	$2 353 989 437	$1.03
Blasting	$738 055 073	$0.32
Drilling	$488 584 137	$0.21
Auxiliary Equipment	$615 126 345	$0.27
Maintenance Personnel	$317 854 178	$0.14
Salaried Personnel	$198 023 045	$0.09
Services	$36 290 083	$0.02
Contract Mining	$48 595 200	$0.02
Total OPEX	**$5 341 785 626**	**$2.35**

Figure 8: Mine operating costs breakdown by major per tonne



3. ORE RESERVE STATEMENT

This section details the ore reserves as determined by the feasibility study for the El Aouj Iron ore mine.

Table 14 summarises the ore reserves within the engineered pit.

Table 14: Reserves in the final pit design

	Total ROM (Mt)	Fe (%)	DT80 DTR (%)	DT80 Fe (%)	DTLib (65) (%)
Proved	380.0	35.2	43.8	69.6	50.5
Probable	551.2	34.6	43.4	69.0	49.6
Total	**931.1**	**34.8**	**43.6**	**69.2**	**50.0**

An additional 3.6 Mt of Inferred resources are included within the designed pit as well as 152 Mt of oxidised resources within the pit. These materials are destined for stockpiles and may be processed at some future date.

The Reserve was prepared by Jean-François St-Onge, P. Eng. of BBA as the Competent Person.

4. COMPLIANCE WITH THE JORC CODE ASSESSMENT CRITERIA

The JORC Code (2012) describes a number of criteria that must be addressed in the documentation of Ore Reserves estimates, prior to public release of the information. These criteria provide a means of assessing whether or not parts of or the entire data inventory used in the estimate are adequate for that purpose. The Ore Reserves estimate stated in this document was based on the criteria set out in Table 1 of that Code.

JORC Code, 2012 Edition – Table 1, Section 4 Estimation and Reporting of Ore Reserves	
Mineral Resource estimate for conversion to Ore Reserves	
Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve. *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	The Mineral Resource models for the Guelb el Aouj East were developed by Golder Associates Pty Ltd and explained in the Golder Mineral Resource Estimation Report, dated June 2014. WGM, BBA's sub-contractor, has reviewed the resources estimate as part of the mining section of the FS and deemed it to be adequate. Mineral Resources are reported inclusive of Ore Reserves. The Mineral Resources are based on assay data from drill holes on October 15, 2013
Site Visits	
Comment on any site visits undertaken by the Competent Person and the outcome of those visits. *If no site visits have been undertaken, indicate why this is the case.*	A site visit by the Competent Person was undertaken in November 2014. The El Aouj East site was inspected as well as SNIM's operating magnetite mine El Rhein. Drill core and the laboratory were also inspected and discussions held with the professional staff based in the Zouerate office.
Study Status	
The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves. *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.*	The current study is a Feasibility Study and is examining a Sinter Feed Blend (SFB) process. The feasibility study has considered the metallurgical assessment to convert the Mineral Resources to Ore Reserves and has considered all the other required Modifying Factors.
Cut-Off Parameters	
The basis of the cut-off grade(s) or quality parameters applied.	A cut-off grade of 20% DTR has been used for developing the geological model. No oxidised or Inferred material has been included in the Ore Reserves. The economic cut-off is below the geological cut-off used. The base product price could drop to about $62/t before the cut-off reached 20% DTR.

JORC Code, 2012 Edition – Table 1, Section 4 Estimation and Reporting of Ore Reserves	
Mining Factors or Assumptions	
The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design). *The choice, nature and appropriateness of the selected mining method(s) and other mining parameters, including associated design issues such as pre-strip, access, etc.* *The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.* *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).* *The mining dilution factors used.* *The mining recovery factors used.* *Any minimum mining widths used.* *The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.* *The infrastructure requirements of the selected mining methods.*	The Resource model was regularised to an SMU of 20 m × 20 m × 14 m. This caused a dilution of 5.1%, an ore loss of 6.6% and a drop in DTR of 3%. No further ore losses or ore dilutions were considered as part of the mine planning because the regularization process generated appropriate loss and dilution factors. The Ore Reserves are reported within a pit design that is based on open pit optimisation. Various optimisations were carried out, including Measured, Indicated, as well as Inferred Mineral Resource categories. The selected pit shell was based on the Measured and Indicated only category although the inclusion of the Inferred would have been insignificant to the design. The overall pit slopes used for the design are based on feasibility level geotechnical studies (SRK 2015). The stage cutbacks were approximately 200 m with the minimum pushback width of 60 m. This is a standard truck and shovel iron ore operation located in a relatively remote area, although there are existing nearby iron ore operations, including rail and town facilities.

JORC Code, 2012 Edition – Table 1, Section 4 Estimation and Reporting of Ore Reserves	
Metallurgical Factors or Assumptions	
The metallurgical process proposed and the appropriateness of that process to the style of mineralisation. *Whether the metallurgical process is well tested technology or novel in nature.* *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.* *Any assumptions or allowances made for deleterious elements.* *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.* *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?*	The metallurgical recovery through the proposed processing plant is based on Davis Tube Liberation Grind Size Testing ("DTLib"). This test determines the mass recovery at a target concentrate grade of 65% Fe by carrying out a series of grinds with increasing grind times until a Davis Tube concentrate grade of 65% Fe is achieved. This level of analysis was carried out on 3 m drill hole intervals that provided a high level of resource understanding relating to the grain size and grind size required of the ore to produce the target grades. Further bulk testing was carried out at the SGA Laboratories in Germany to test the dry magnetic processing route at batch and pilot scales. The bulk testing samples were carefully selected by a very experienced geologist (with the required background in the ore body), from available drill hole core to provide an ore body average sample. The testwork results, combined with the DTLib (65) mass recovery carried in the mining block model, provide the confidence to rely on the metallurgical factors developed and thus represented in the mining block model. A further assumption has been made that the bulk sample pilot test mass recovery results are discounted by a 0.97 scaling factor between the testwork algorithm and a "real world" industrial plant. The bulk testwork and the algorithm developed provided the basis for selecting possible target grades from 65% to 67% Fe for the sinter feed blend products possible using the dry magnetic separation process. The dry magnetic separation process has been used at the SNIM El Rhein mine for the last 30 years. The ore characteristics at El Rhein are very similar to those at El Aouj. The specification of the product ore concentrate is similar to that already marketed by SNIM to European and Asian steel mills. Market acceptance is expected due to the relatively high target grade of 66.5%Fe.
Environmental	
The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	The sustainable development, environmental and socio-economic aspects of El Aouj are being examined within the Environmental and Socio-Economic Impact Assessment (ESIA) process that has been completed as part of the FS. The ESIA itself is summarised in a section of the FS report. This involves technical impact assessments and identification of mitigation and monitoring requirements as necessary, and the summary of the principles of the environmental and socio-economic management and closure plans.

JORC Code, 2012 Edition – Table 1, Section 4 Estimation and Reporting of Ore Reserves	
Infrastructure	
The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	SNIM are the owners of the existing iron ore handling port at Nouadhibou and the existing 700 km of rail infrastructure connecting the Zouerate area with Nouadhibou. Part of the EMC JV consortium agreement between SNIM and Sphere was a commitment by SNIM to provide the port and rail logistics. Negotiations have commenced with SNIM with respect to updating commercial arrangements regarding port and rail access. A rail and port term sheet with agreed positions on key commercial terms is expected to be finalised for the completion of this FS.
Costs	
The derivation of, or assumptions made, regarding projected capital costs in the study. *The methodology used to estimate operating costs.* *Allowances made for the content of deleterious elements.* *The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co- products.* *The source of exchange rates used in the study.* *Derivation of transportation charges.* *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.* *The allowances made for royalties payable, both Government and private.*	Projected capital and operating costs for mining have been developed based on production schedules over more than 40 years to achieve a production rate of approximately 11 Mt/a of product. Estimation of the production rates and operating costs have been developed from first principles and benchmarked against existing operations in Canada, Australia, South Africa and Mauritania. Costs include allowances for mining, processing, administration, railing to the port and shipping. All costs and revenues are in USD. A price of US$63.70/dmt (equivalent to a US$1.04/dtmu at 62%Fe) from the long term IODEX62 price has been used in the financial model, with a US$0.88/dmt (calculated from a US$0.50/dmt penalty per 1%Si in concentrate over 4.5%Si, with the concentrate Si% expected to be 6.3%). A royalty of 1.5% payable to the Mauritanian Government is applied to the selling price less sea freight and marketing, commencing in the first year saleable product is produced. This figure is derived from the applicable Mauritanian law. Transport costs from mine to port are still under negotiation with SNIM to finalise an all up cost for the rail transport and port loading charges. The estimation of sea freight rates has been based on the experience of both JV partners in the bulk material seaborne freight market. Rail and port cost is currently estimated at US$11.34/dmt

JORC Code, 2012 Edition – Table 1, Section 4 Estimation and Reporting of Ore Reserves	
Revenue Factors	
The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc. *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.*	Revenue is based on a magnetite concentrate of 66.5% Fe. This product is expected to have limited deleterious elements based on the bulk sample test work – the main diluent in the concentrate product is Silica at 6.3%. Pricing derivations have been based on a marketing analysis summarised in the FS report. Forecasts used focus on published views from a mix of analysts and general appreciation by El Aouj Mining Company SA. At 63.70$/dmt (IODEX62) for the Life of Mine, the net FOB revenue is estimated to be 51.66$/dmt of product. The post-tax break even cash flow would be 53.02$/dmt (IODEX62). The post-tax break even NPV @ 10% will be at 61.95$/dmt (IODEX62).
Market Assessment	
The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future. *A customer and competitor analysis along with the identification of likely market windows for the product.* *Price and volume forecasts and the basis for these forecasts.* *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.*	China is the key to understanding the iron ore market. The changes in China have had a considerable negative effect over the last 12 months compared to the previous 5 years. China is no longer growing at all in 2015, and is likely to record a reduction in steel making quantities. The developed world's consumption of steel is forecast to remain flat at 381-370, illustrating risk on the downside. The only positive part of the forecast is related to the developing world where steel consumption is forecast to raise from 497Mt up to 583 Mt per annum. The marketing study suggests that the proposed El Aouj sales will need to "replace" tonnage from other mines rather than be absorbed easily by the overall growth in the demand for iron ore. Therefore, the production will be competing based on its quality, as other projects are also scheduled to be commissioned or expanded. The low detrimental element content of the El Aouj product will be a differentiator in these difficult market conditions.

JORC Code, 2012 Edition – Table 1, Section 4 Estimation and Reporting of Ore Reserves	
Economic	
The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc. *NPV ranges and sensitivity to variations in the significant assumptions and inputs.*	The financial modelling indicates that the El Aouj East Project is likely to produce a positive NPV @ 10% discount rate at 63.70$/dmt (IODEX62) iron ore prices with an IRR of 11.3%. However, sensitivity analysis has also shown that the projects economics is highly sensitive and will not show a positive post-tax NPV @ 10% discount rate below 61.95$/dmt (-4% variation). Furthermore, the post-tax Cash flow will be negative at a price below 53.02$/dmt (IODEX62) which represents a -17% variation from the base case (63.70$/dmt).
Social	
The status of agreements with key stakeholders and matters leading to social licence to operate.	This operation is a joint venture between SNIM and Sphere Minerals, a subsidiary of Glencore. SNIM is the local mining arm of the Mauritanian Government. Mining is a well-accepted industry within the county. The Government of Mauritania is actively attracting foreign investment in an effort to accelerate the expansion of the Mauritanian economy. The legislated mining fiscal regime is one of the most attractive in West Africa. The mining licence is in place for the project.

JORC Code, 2012 Edition – Table 1, Section 4 Estimation and Reporting of Ore Reserves	
Other	
To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves: • *Any identified material naturally occurring risks.* • *The status of material legal agreements and marketing arrangements.* • *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.*	There is a risk that the mining area is close (30 km) to the Western Sahara border where previous military clashes occurred regularly in the 1970s between separatist groups striving for an independent Western Sahara country clashed with the Mauritanians. The UN brokered a cease fire more than 20 years ago that has been honoured, and Mauritania as a State has renounced any claim on the Western Sahara territory. There are currently risks associated with the instability in north Mali, but these are mitigated by a strong military presence in the region to protect the existing iron ore industry (which generates approximately 40% of the country's GDP) as well as the new projects currently being encouraged in the region. The 700-1,000 km between Mali and Zouerate of open desert is monitored and patrolled. The major government agreements and approvals are already in place and there are no foreseen impediments to gaining the future approvals required. The Environmental Permit required should be achieved before a final investment decision is contemplated as this is supported by defined timeframes in the legislation. The El Aouj Project is owned 100% by a local Mauritanian company El Aouj Mining Company SA (known as EMC or El Aouj Mining) via rights granted by the Government of Mauritania in the Exploitation Permit EL 609 on April 27, 2008, based on a decree of the Council of Ministers (#2008-087). This 'right to mine' was re-affirmed by the Government on 22 July 2013 in an Arrete issued by the Minister of Mines that, in effect, re-set the required start date for development activities to January 2017. As part of the ESIA process URS has prepared the ESIA Terms of Reference (ToR), which has been approved by the Government. URS has also prepared a draft ESIA document to submit to the Ministry of Mines which is then sent on to the Ministry of the Environment, as designated competent ministry, for review and approval. The timing for this application is shortly after or near the conclusion of the FS. The approval of the ToR marks the regulatory initiation of the ESIA process and the first public consultation meetings were held in January 2015 with community and government representatives at Zouerate, Touajil and F'Derik. Strong support for the project was evident at these consultation meetings.

JORC Code, 2012 Edition – Table 1, Section 4 Estimation and Reporting of Ore Reserves	
Classification	
The basis for the classification of the Ore Reserves into varying confidence categories. *Whether the result appropriately reflects the Competent Person's view of the deposit.* *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	There is Measured, Indicated and Inferred Resources within the model. The Measured and Indicated Resources within the designed pits have been converted to Proved and Probable Ore Reserves (Measured to Proved, Indicated to Probable). No Inferred material was included in the Ore Reserves. The Competent Person does not believe there is any reason to downgrade any of the material.
Audits or Reviews	
The results of any audits or reviews of Ore Reserve estimates.	No independent reviews of the Ore Reserves have been undertaken at the moment the Ore Reserves statement was being prepared.
Discussion of Relative Accuracy/Confidence	
Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate. *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.* *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	The Ore Reserve has been completed to a minimum of a FS standard; hence confidence in the resulting figures is high. Benchmarking of many mining parameters and costs has been done with existing operations in Mauritania, Canada, and Australia. As part of this FS a geological review was undertaken to assess that the Geological model, the basis of the Ore Resources model, was sound. This review was performed by a third party, WGM, sub-contracted by the mining consultant BBA. The result of their review indicates that the estimation of the resources as well as the procedures used to quantify and classify the resources was performed to industry best practices. The most sensitive modifying factor in the study relates to the economic factors, more specifically the revenue factor estimated using a long term Iron Ore price. The current market volatility decreases the confidence of the Ore Reserves estimate since it could offset the economics of the project as it currently stands. This is however common in the mining industry, which has been through many cycles of increasing and decreasing commodity prices. The Ore Reserve currently stands at an Iron ore base price IODEX62 of 63.70$/dmt, but would not likely be economical below 61.95$/dmt or would require a scale down of the project to mine only the higher grade areas, or lower strip ratio areas, if this could prove feasible.

9/11/2015

Prepared by:
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OIQ Member No. 111717

Askaf Iron Ore Project

Ore Reserves Statement

8 November 2015

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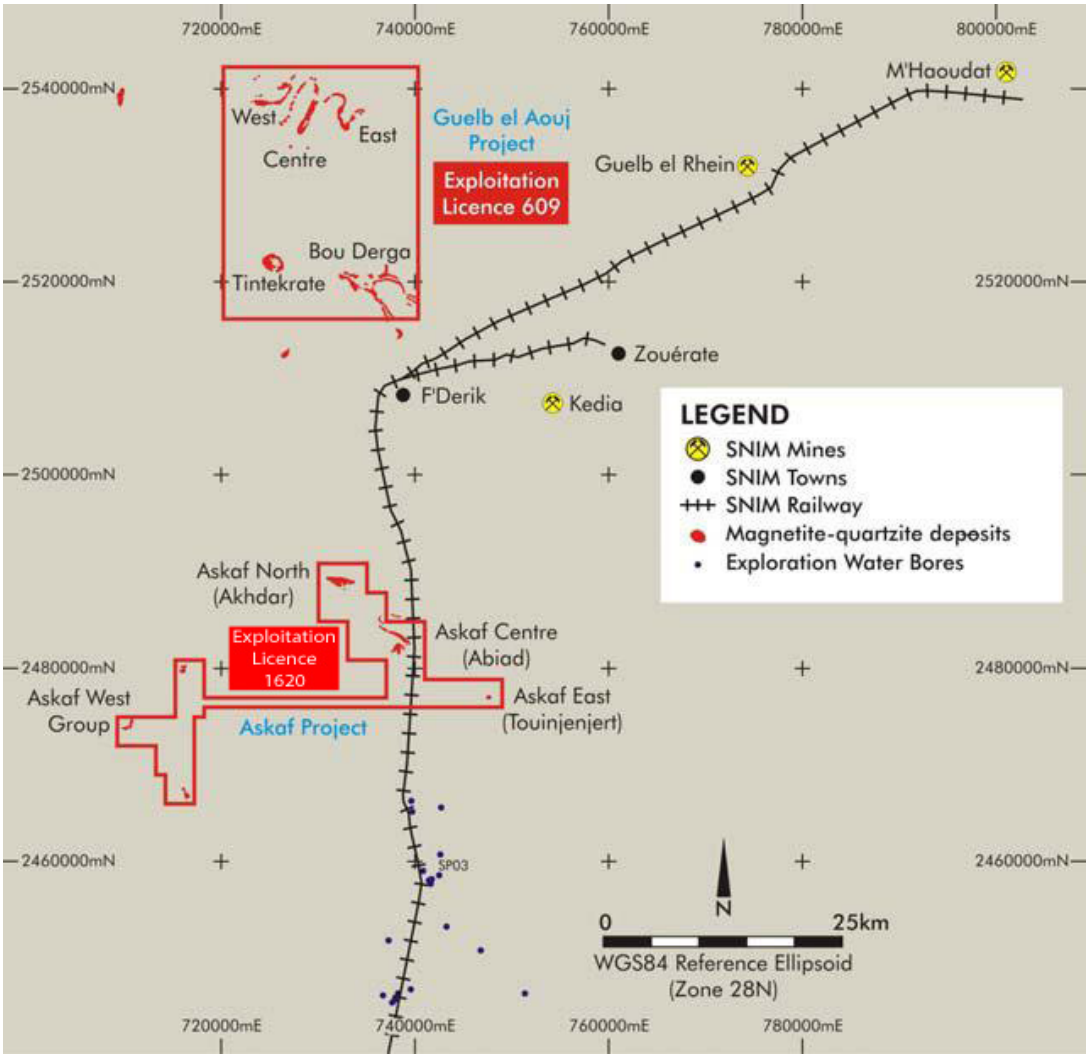
1 Introduction

The Askaf mine site is contained within the area defined by the exploitation licence EL 1620 (previously Exploration Licence EL172), located 25 km south of the town of F'derick and adjacent to the existing iron ore railway owned and operated by Société Nationale Industrielle et Minière (SNIM). The 194 km^2 Askaf licence includes six magnetite-quartzite deposits. The only deposit captured by this report is the Askaf North deposit. Other deposits in EL1620 may present future opportunities for expansion or an extended mine life, however their exploitation is not captured by this assessment. The regional aspect is shown in Figure 1-1 showing the EL1620 limits, the El Aouj exploration license, the mining towns of F'derick and Zouerate and the existing operating mines from SNIM.

Figure 1-1: Askaf Deposits and the Regional Context



1.1 Project Summary

The Askaf North Project is designed to produce approximately 7.5 Mtpa of sinter fines blend (SFB) – an iron concentrate (containing 66% Fe) that is saleable on the world market. It is similar to the product of SNIM's Guelb El Rhein plant that has been operating since the late 1980s. The Project, as defined, has a mine life of some 16 years. In order to produce 7.5 Mtpa of saleable product approximately 15.5 Mtpa of ore is required to be mined. Additionally approximately 25 Mtpa of waste rock (overburden and oxidised ore) needs to be excavated, resulting in approximately

40 Mt of fresh rock being mined annually. The mining method is open cut, utilising trucks and excavators for the primary material movement.

2 Askaf North Project Reserve Estimation

2.1 Material Changes from Previous Estimate

The Ore Reserve estimate has been re-stated to reflect long term iron ore price assumptions that have been updated in response to a significant change in the outlook for the long term iron ore market. No other changes have been made to the technical scope or financial elements of the project, as originally outlined in the 2012 Feasibility Study and the 2014 FEED planning as part of the original commencement of the Askaf North project. Prices have been based on International Consensus pricing of iron ore on the international market, benchmarked to the long term IODEX62 price.

Ore Reserve Statement: Update for Askaf North Ore Deposit, Mauritania

	Proved Ore Reserves		Probable Ore Reserves		Total Ore Reserves	
	Update Estimate	Previous Estimate	Update Estimate	Previous Estimate	Update Estimate	Previous Estimate
Ore (Mt)	-	0	-	50	-	190
Iron (%)	-	36	-	34	-	35
DTC wt (%)	-	46	-	44	-	45
DTC Iron (%)	-	70	-	70	-	70
Oxidised Ore (Mt)	-	-	-	42	-	42
Iron (%)	-	-	-	35	-	35
DTC wt (%)	-	-	-	33	-	33
DTC Iron (%)	-	-	-	69	-	69

The Ore Reserves have been compiled in accordance with the 2012 Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code).

DTC wt (%) – Davis Tube Concentrate mass recovery.

DTC Iron (%) – Davis Tube Concentrate assay %Fe.

Davis Tube test work has been conducted at a grind size of 95% passing 80 micron.

The rounding used for the values in this report reflects the confidence in the different levels of resource and reserve classifications.

Askaf North: Askaf North Deposit is an east-west striking synformal structure defined by a magnetite-quartzite (MQ) unit that ranges in true thickness from approximately 140m in the western hinge zone to approximately 30m along the eastern part of the southern limb.

Changes from the previous statement are the result of a re-evaluation of the economics of the mine following an update to the international long term price outlook for iron ore. Economics show no viable investment case based on the existing CAPEX and OPEX estimates and hence Ore Reserves have been reduced to zero.

Competent Person's' Statement

The Competent Person responsible for the Ore Reserves mentioned in this report is Mr Malcolm Cox. Mr Cox is a Fellow of the Australasian Institute of Mining and Metallurgy. Mr Cox has sufficient experience that is relevant to the styles of mineralisation and type of deposits under consideration and to the activity being undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Cox consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

Malcolm Cox

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Criteria	**JORC Code explanation**	**Commentary**
Mineral Resource estimate for conversion to Ore Reserves	• *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.*	• The Mineral Resource model for the Askaf North deposit was developed by Golder Associates Pty Ltd (Golders) as part of the work commissioned for the Askaf North Project Feasibility Study. This Mineral Resource estimate was release publically by Sphere Minerals Limited in January 2013.
	• *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	• Mineral Resources are reported inclusive of Ore Reserves.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	• Competent Person was based in Mauritania and has visited the site multiple times during the past 2 years.
Study status	• *The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.* • *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.*	• Askaf North Project has been studied at Feasibility Study level including consideration of all modifying factors. In addition Front End Engineering Design (FEED) has been carried out on the project design and fixed price construction contract bids were obtained during 2014 for the construction of the project.
Cut-off parameters	• *The basis of the cut-off grade(s) or quality parameters applied.*	• A cut-off grade of 20% Davis Tube Recovery (DTR) has been used for developing the geological model and mine planning, for both fresh and oxidised ore.
Mining factors or assumptions	• *The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).*	• The resource model was regularised to a block size 12.5m x 12.5m x 12m. No further ore loses or ore dilution was considered as part of the mine planning process because the regularisation process generated appropriate loss and dilution factors.
	• *The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.*	• The Ore Reserves are estimated within a detailed pit design which has been based on an open pit optimisation. The optimisation was carried out including Measured, Indicated and Inferred Mineral Resource categories. The pit

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	• *The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.* • *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).* • *The mining dilution factors used.* • *The mining recovery factors used.* • *Any minimum mining widths used.* • *The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.* • *The infrastructure requirements of the selected mining methods.*	shell was further reduced to highlight a smaller pit shell that achieved a significantly higher return on investment by the removal of a significant waste pushback in the later stages in the original design. The final pit design included no Inferred Mineral Resources. • The detailed pit slopes used for the design were the based on Feasibility Study level Geotechnical studies (Golders 2012) • The Askaf North Project is a standard truck and shovel iron ore operation and, although located in a remote part of the world, experience gained in the nearby Society Nationale Industriel et Miniere (SNIM) operations was used to guide the design of the facilities and operations. • There are nearby rail, port and town facilities already used for iron ore operations and exports.
Metallurgical factors or assumptions	• *The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.* • *Whether the metallurgical process is well-tested technology or novel in nature.* • *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.* • *Any assumptions or allowances made for deleterious elements.* • *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.* • *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?*	• The metallurgical recovery through the proposed processing plant is based on extensive Davis Tube Liberation Grind Size Testing. This test determines the mass recovery at the target concentrate grade of 65% Iron by carrying out a series of grinds with increasing grind times until a Davis Tube concentrate grade of 65% Iron is achieved. This test work is then calibrated to laboratory and pilot plant test work of representative bulk samples. • The metallurgical process is based on the dry magnetic separation process that has been successfully used at the nearby SNIM operations since the 1980s. The ore characteristics at the nearby operations are very similar to those at Askaf North. • Metallurgical variability in the orebody was then represented by the Davis Tube Liberation Grind Size results.
Environmental	• *The status of studies of potential environmental impacts of the mining and processing operation. Details of*	• The sustainable development, environmental and socio-economic aspects of Askaf North were examined

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	waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	within the Environmental and Socio-Economic Impact Assessment (ESIA) process that was carried out in 2012 and 2013, including various stages of community engagement. • The ESIA was finalised in late 2013 and submitted to the relevant authorities for approval. Approval was granted within the timeframes laid down in the relevant Mauritanian legislation. • Closure planning for the final landforms in relation to the open pit, the waste rock dumps and the dry tailings storage facilities was determined in the Feasibility Study. It is anticipated that the pit will be left open, and will require a bund and fence to protect people and animals from accidently falling into it. Waste rock dumps are likely to be left in place with some additional contouring. The tailings facility will be progressively capped to reduce wind erosion effects. • Preliminary assessment of the analytical data regarding sulphide content of the ore body does not indicate that acid rock drainage (ARD) is likely and therefore no specific measures to mitigate this are proposed. Further leaching tests and confirmation of the lack of ARD potential will be carried out before construction of these dumps commences.
Infrastructure	• *The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	• SNIM are the owners of the existing iron ore handling port at Nouadhibou and the existing 700km rail infrastructure connecting the Zouerate area with Nouadhibou. A term sheet for a services contract was negotiated for the Askaf North Project with SNIM for access to the rail and port facilities.
Costs	• *The derivation of, or assumptions made, regarding projected capital costs in the study.* • *The methodology used to estimate operating costs.* • *Allowances made for the content of deleterious elements.* • *The source of exchange rates used in the study.* • *Derivation of transportation charges.*	• Projected capital and operating costs for mining have been developed based on production scheduled over approximately 15 years to achieve a production rate of approximately 7.5Mt/a of product. • Capital cost is based on executable contract negotiated for the construction of the mine and delivery of the necessary equipment. • Estimation of the production rates and

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	• *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.* • *The allowances made for royalties payable, both Government and private.*	operating costs has been based on an executable mining contract for the mine area. Other operating costs were developed from first principles. All costs were benchmarked against existing operations in Australia, South Africa and Mauritania. • Iron Ore prices and penalties were based on input from the Glencore Iron Ore Marketing Department. Glencore has a significant iron ore trading business on the international sea-borne market, including trade of iron ore from existing Mauritanian operations. • Foreign exchange rates are based on Glencore internal economic outlook forecasts and international consensus forecasts. • Costs include allowances for mining, administration, railing to the port and shipping. • Transportation charges were based on the term sheet for a services contract for the Askaf North Project with SNIM for access to the rail and port facilities. • Allowances for royalties and government charges were based on the signed Mining Convention that applies to Askaf North Project that was negotiated in 2007. This convention sets royalty rates, tax rates, tax holiday periods etc.
Revenue factors	• *The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.* • *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.*	• Prices have been based off International Consensus pricing of iron ore on the international market, benchmarked to the long term IODEX62 price
Market assessment	• *The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.* • *A customer and competitor analysis along with the identification of likely market windows for the product.*	• China is currently the key to understanding the iron ore market. Crude steel consumption, and hence production, in China is pushed by the varied needs of population, government and industry to create wealth. There has been a significant slowing in the rate of growth of the iron ore demand resulting

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	• *Price and volume forecasts and the basis for these forecasts.* • *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.*	in a very large oversupply of production. • Glencore actively trades iron ore on the international seaborne market today, including similar iron ore to Askaf North that is produced by SNIM in Mauritania. This provides an ability to assess the market acceptance issues related to this particular product. The products targeted by Askaf North are expected to fit neatly into the demand for high quality sinter feed products that will be part of the blend of feed required. High Iron, with very low alumina levels, will help steel mills create sinter blends that can cope with the lower Iron and higher alumina products forecast to come from Western Australia as production from this region increases.
Economic	• *The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.* • *NPV ranges and sensitivity to variations in the significant assumptions and inputs.*	• The financial modeling indicates that the Askaf North Project is likely to produce a negative Net Present Value (NPV) at the required discount rate for a range of long-term iron ore prices.
Social	• *The status of agreements with key stakeholders and matters leading to social licence to operate.*	• Formal stakeholder engagement has been carried out in Mauritania already for a number of years. Initially this was in preparation for ESIA work, but ore lately has been focused on keeping the local community and government officials aware of progress with the projects. Mining is well accepted in the country, being the mainstay of the economy with production currently coming from iron ore, gold and copper. • The ESIA was formally approved by the government in 2013 and allows mining to proceed. The mining licence is in place for the project.
Other	• *To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:* • *Any identified material naturally occurring risks.* • *The status of material legal agreements and marketing*	• The mining area is close (30km) to the Western Sarah border where previous military clashes occurred in the 1970s between separatist groups striving for an independent Western Sahara and Mauritanians. The United Nations brokered a ceasefire more than 20 years ago that has been honoured, and Mauritania has renounced any claim on

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	arrangements. • *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.*	the Western Sahara territory. • There are currently risks associated with the instability in northern Mail, and across the Sahel in general, but these are mitigated by a strong military presence in the region to protect the existing iron ore industry as well as the new projects currently being encouraged in the region. The desert region between Mauritania and the Malian and Algerian borders is monitored and patrolled. • All relevant approvals, permits and licenses are in place to enable construction and operations to commence without further delay.
Classification	• *The basis for the classification of the Ore Reserves into varying confidence categories.* • *Whether the result appropriately reflects the Competent Person's view of the deposit.* • *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	• There are only Measured and Indicated Mineral Resources in the mine model.
Audits or reviews	• *The results of any audits or reviews of Ore Reserve estimates.*	• An independent review of the Ore Reserves estimate was carried out in August 2014 (SRK Consulting (UK) Limited 2014), which supported the mine planning work carried out to support the financial assessment.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.* • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include*	• The studies underlying all elements of this project have been carried out to Feasibility Study standard and even carried to FEED and execution contracts. The nearby SNIM operated magnetite mine, as well as the international operations of Glencore, provide a high level of confidence in the Ore Reserve Assessment.

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	assumptions made and the procedures used. • *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.* • *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	