A COMPETENT PERSONS REPORT ON THE MONTEPUEZ RUBY PROJECT, MOZAMBIQUE

Prepared For

Gemfields Plc

Report Prepared by

SRK Consulting (UK) Limited
UK6362

SRK Legal Entity:		SRK Consulting (UK) Limited
SRK Address:		5th Floor Churchill House 17 Churchill Way Cardiff, CF10 2HH Wales, United Kingdom.
Date:		July, 2015
Project Number:		UK6362
SRK Project Director:	Mike Beare	Corporate Consultant (Mining Engineering)
SRK Project Manager:	Gabor Bacsfalusi	Senior Consultant (Mining Engineering)
Client Legal Entity:		Gemfields Plc
Client Address:		54 Jermyn St, London, SW1Y 6LX.

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SRK Consulting (UK) Limited
5th Floor Churchill House
17 Churchill Way
City and County of Cardiff
CF10 2HH, Wales
United Kingdom
E-mail: enquiries@srk.co.uk
URL: www.srk.co.uk
Tel: + 44 (0) 2920 348 150
Fax: + 44 (0) 2920 348 199

EXECUTIVE SUMMARY
A COMPETENT PERSONS REPORT ON THE MONTEPUEZ RUBY PROJECT, MOZAMBIQUE

1 INTRODUCTION

SRK Consulting (UK) Limited (SRK) is an associate company of the international group holding company, SRK Global Limited (the SRK Group). SRK has been commissioned by the board of Gemfields Plc (hereinafter also referred to as the "Company" or "Gemfields") to prepare a Competent Persons' Report (CPR) on the Montepuez Ruby Project ("Montepuez" or "the Project") in Mozambique. Montepuez Ruby Mining Lda ("MRM") is the project operator, and a joint venture between Gemfields and Mwiriti Lda.

SRK has been requested by Gemfields to base the CPR on the MRM life of mine plan (LoMp) reviewed and adjusted by SRK where appropriate. This CPR has been prepared to support the reporting of Mineral Resources and Ore Reserve estimates in accordance with JORC Code (2012).

2 PROJECT DESCRIPTION

The Montepuez Ruby Project is located in Cabo Delgado province in north-eastern Mozambique, approximately 170 km west of Pemba.

The Montepuez deposits were discovered in 2009 where after there was a large influx of artisanal miners to the area. Gemfields' involvement commenced in June 2011 when a Joint Venture agreement was signed between Gemfields Plc and Mwiriti Lda, the original title holder.

Gemstones are currently mined from a series of shallow open pits. At present, 45% of the total rock handling production is being sourced from the Maninge Nice pit, a primary amphibolite deposit that extends up to 28 m below surface. The remaining 55% is sourced from the Mugloto pits which extract secondary gravel bed deposits originating from ancient river channels. In additiona to the Namanhumbir mine camp, the existing surface infrastructure at the Maninge Nice mining block includes:

- two open pits;
- access roads;
- a gravel washing plant (commissioned in November 2012);
- a stockyard for ore and overburden stockpiles;
- an engineering workshop and vehicle maintenance area; and
- ruby sorting house (including security barrack).

The Mugloto mining area includes the following infrastructure:

- five open pits;
- overburden stockpiles; and
- the Arkhe security camp at the entrance of the fenced area.

Additional infrastructure, upgrades and changes to existing surface infrastructure as part of the proposed Category A mining project will include the following:

- the current wash plant to be upgraded from 100 tph to 150 tph, operating at 120tph, and installation of a second wash plant with a 250 tph capacity which will operate at 200 tph, thereby increasing the overall project capacity to 320 tph;
- creation of new ore stockpile areas expanded onto currently undisturbed land; and
- the existing two-way haul road from Mugloto pits to the washing plant, on which the trucks are currently plying in a convoy system, will be replaced with two 12 m wide one-way haul roads for laden and empty traffic movements respectively.

The existing workforce currently consists of 617 persons comprising 51 expatriates and 566 locals, including 248 contract security personnel. The planned expansion will take the total number of employees to 1081.

2.1 Deposit Geology

The Montepuez ruby deposit is located in northeastern Mozambique. Rubies are found in two mineralisation types, namely primary amphibolite, and secondary gravel bed. The main source of rubies is the secondary mineralisation, although mining has occurred from the primary mineralisation. The secondary gravel bed horizon comprises variably rounded quartz and clastic fragments, and forms a semi-continuous horizon, at or near the basement contact. Typically, the gravel bed horizon is generally less than 2 m thick, with an average thickness of 0.36 m. The primary mineralisation is associated with a variably weathered amphibolite unit, which is currently being mined in the Maninge Nice area.

Rubies from the primary mineralisation are typically tabular hexagonal crystals, with a strong basal cleavage. The gemstones are highly fractured and included. Typically, the primary rubies are lighter, pink colour, and so are often classified as sapphires. In contrast, the secondary rubies are dark red in colour, more transparent, with fewer inclusions, and often rounded in shape.

Secondary mineralisation is currently interpreted to be related to a flood event, which was later reworked by a braided river system. The source of the secondary mineralisation is yet to be identified. It is thought that it lies outside of the area currently delineated by exploration drilling and pitting.

2.2 Data quantity and quality

MRM has been undertaking exploration at Montepuez since 2012. The main sources of information include auger and diamond drilling, small scale exploration pits and bulk sampling. This key data is supplemented by limited geological mapping, satellite imagery and geophysical and soil geochemistry surveys.

The auger drilling has been mainly used to target the secondary mineralisation with the aim of determining the thickness and nature of the gravel bed and the overlying material. Diamond drilling is predominantly aimed at determining the nature of the basement geology with the aim of defining the primary mineralisation at Maninge Nice, and understanding the bedrock geology. The main exploration tool used to determine ruby grade is through bulk sampling.

Drilling to date comprises a total of 1,090 drill holes for a total meterage of 15,028 m. This includes 922 auger holes for 7,243.2 m and 168 diamond holes for 7,785 m. Drillhole spacing is variable, across the Mugloto and Maninge Nice areas. The auger holes are drilled to an average depth of 7.9 m, whilst the diamond holes are drilled to an average depth of 46.3 m. All diamond and auger holes are drilled vertically, and have not been surveyed. MRM has also conducted close spaced exploration pitting. The exploration pits have an average depth of 3.9 m. A total of 823 exploration pits were completed between early 2012 and November 2013, for a total depth of 3,224.7 m. A total of 200 of the 823 exploration pits were terminated prior to reaching the planned depth, due to various technical difficulties, and these pits have been excluded from the database for modelling.

The main exploration tool used to determine ruby grade at the Project is through bulk sampling from a number of pits. To date, MRM has extracted both secondary and primary ruby mineralisation, from a total of 13 bulk sampling pits, focussed in the Maninge Nice and central Mugloto areas. In total, to the end of December 2014, approximately 3.16 Mt of material has been removed from the bulk sampling pits, including approximately 675 kt of mineralised material. The bulk sample material was processed through the onsite wash plant, and hand sorted to derive both the grade and quality of the contained gemstones. A total of 755 kt of ore material has been mined, with 414 kt processed. A stockpile of 351 kt is currently maintained. A total of 15,247 kct of gemstones were recovered during processing, across all grades. MRM has developed a classification scheme for the recovered gemstones, based on the size and quality of the individual gemstones.

MRM has implemented a logical logging and data capture procedure for diamond and auger drilling. This aims to ensure a consistent methodology for the process of capturing data, and so provide data which is suitable for the subsequent geological modelling. SRK has made a number of recommendations to MRM to improve the logging process to ensure that the most relevant data is captured in a consistent and user-friendly format.

Bulk and in situ density measurements of the top soil, clay, gravel bed and weathered basement are routinely recorded once a month in the bulk sampling pits, concurrently with the mining. No density samples have been taken from the core, or from the fresh basement rock at this stage.

2.3 Mineral Resources

The auger, diamond and exploration pit data were used as the basis of the geological modelling. The secondary, overburden unit and the primary, bedrock lithologies were modelled. In addition, topographic and basement contact surfaces were modelled. The geological models of the gravel bed and amphibolite units were used as the basis of the tonnage estimates.

Grade estimates for each of the mineralisation types were based on factoring of the production data, as supplied by MRM. The factors were applied to reflect the dilution which is present in the production grade, and to account for material removed by illegal artisanal mining. An average density value was applied for tonnage estimation.

Classification of the Mineral Resources reflects the inherent variability in the distribution of economic concentrations of rubies which necessitates bulk sampling because standard drilling techniques are inappropriate to provide sufficient data density to enable estimation of tonnages and grades.

Derivation of the Mineral Resources is largely dependent on the availability of the results of bulk samples or equivalent such as historical production statistics. A number of assumptions were therefore made, which impact on the declaration of the Mineral Resources. Based on the available data, SRK has assumed that the primary and secondary units remain constant to the extent of the modelled units with no changes in geology or mineralogy. Similarly, SRK has assumed that there is no changing in the mineralising system laterally or with depth. SRK has also assumed that the distribution of differing ruby quality classes is constant through the modelled units. SRK notes that the bulk sampling data indicates that there is a degree of variation in the secondary mineralisation in particular, and that this is a key aspect which requires additional understanding. SRK has included a number of key recommendations which will need to be addressed in order to mitigate the risk of the variable ruby quality.

The Mineral Resource Statement for the Montepuez deposit is given in Table ES 1; the Mineral Resources are reported inclusive of Ore Reserves. The Mineral Resource Statement presented is based on the geological modelling of the two mineralisation styles, and the application of factors derived from the bulk sampling. SRK considers that the Mineral Resource Statement as presented is reported in accordance with the JORC Code (2012). The Mineral Resource Statement is quoted as a 100% attributable basis. The Competent Person with overall responsibility for reporting of Mineral Resource is Dr Lucy Roberts, MAusIMM, PhD (geology), a Principal Consultant (Resource Geology) with SRK. Dr Roberts has the relevant experience in reporting Mineral Resources on various diamond and gemstone projects.

Table ES 1: SRK Mineral Resource Statement, as at 01 January 2015, for the Montepuez ruby deposit

Area	Mineralisation Type	Classification	Density (g/cm^3)	Tonnage (kt)	Grade (ct/t)	Contained Carats (ct ,000)
Maninge Nice	Primary	Indicated Mineral Resources	2.15	2,124	115.4	245,000
		Inferred Mineral Resources	2.15	378	115.4	44,000
	Secondary	Indicated Mineral Resources	1.53	305	349.8	107,000
		Inferred Mineral Resources	-			
	Stockpiles - Primary	Indicated Mineral Resources		91	115.4	10,600
	Stockpile - Secondary	Indicated Mineral Resources		60	58.9	3,500
Mugloto	Secondary	Indicated Mineral Resources	1.95	4,693	15.3	72,000
		Inferred Mineral Resources	-			
	Stockpile - Secondary	Indicated Mineral Resources		200	2.6	500
Total	**Primary**	**Indicated + Inferred**	**2.15**	**2,502**	**115.4**	**289,000**
	Secondary	**Indicated + Inferred**	**1.91**	**4,998**	**35.7**	**178,000**
	Stockpiles	**Indicated**		**351**	**41.6**	**14,600**

2.4 Exploration potential

MRM has a substantial exploration programme planned for the next few years. The 2014 Exploration Program covered around 36km2 (32km2 in Mugloto area & 4km2 in Maninge Nice). This is a small part of the 336 km2 of Concession Area. On the basis of the findings of 2014 Exploration program, it is envisaged that around 140 km2 is covered by outcrop areas and the rest amounting to 160 km2 remains to be explored. MRM has plans to cover this virgin area within a period of next 4 to 5 years by auger drilling under its planned exploration program. Besides this the exploration program will also target to delineate the primary source by diamond core drilling. The exploration program also includes a high-resolution airborne geophysical survey for understanding basement geology and modelling which will substantiate exploration plans for Primary Ore Zones.

3 MINING AND BULK SAMPLING

3.1 Current operation

The MRM operation, as part of the exploration program comprises a number of large bulk sampling pits split between the two main operating areas, Mugloto and Maninge Nice. Bulk sampling is carried out as a conventional open-pit gravel operation with excavators, loaders and trucks. Loaded trucks haul to the stockpiles at the wash plant while waste is backfilled into the mined out areas. Most of the material is free dig with some of the harder laterite needing to be ripped by a bulldozer.

MRM currently extracts total rock at an annualised rate of 2.1 Mtpa with mined primary and secondary mineralised zones contributing 399 ktpa of ore. The associated stripping ratio is estimated at 3.5 t_{waste}:t_{ore} for Mugloto area and at 1.0 t_{waste}:t_{ore} and 2.4 for t_{waste}:t_{ore} the primary and secondary mineralisation at Maninge Nice respectively. To date, a total of 3.16 Mt of material has been excavated from 13 bulk sampling pits between 5 m and 8 m deep, producing 675 kt of ore. At present, all ore excavation and haulage is undertaken by an MRM operated fleet which consists mainly of tipper trucks supported by excavators and bull dozers.

3.2 Future operations

In its LoMp, the MRM operation is progressing from a bulk sampling phase to full scale production. The principal targets comprise increasing the total mining capacity to 5.6 Mtpa by July 2017 and to achieve an annualised processing rate of 1.3 Mtpa of ore by July 2016. SRK considers this to be achievable and appropriate for the orebody as currently defined.

Additional machinery will be operated by a contract mining fleet and will provide sufficient waste stripping capacity for 3.0 Mtpa. The difference in waste movement is undertaken by an MRM owner operated fleet.

3.3 Ore Reserves

SRK has estimated Ore Reserves in accordance with the JORC Code (2012). These are presented in Table ES 2. As at 1st July 2015, SRK notes that the Montepuez ruby deposit has Ore Reserves, as presented in accordance with the JORC Code (2012), of 2,199 kt of primary material grading at 114.9 ct/t ruby and 25,350 kt of secondary material grading at 7.1 ct/t ruby.

Table ES 2: MRM Ore Reserve Statement

Classification	Mineralisation Type	Tonnage (kt_{dry})	Grade (ct/t)	Contained Carats (ct ,000)
Proved				
Maninge Nice	Primary	-	-	-
	Secondary	-	-	-
Mugloto	Primary	-	-	-
	Secondary	-	-	-
Probable				
Maninge Nice	Primary	2,199	114.9	252,557
	Secondary	1,837	58.3	107,013
Mugloto	Primary	-	-	-
	Secondary	23,514	3.1	72,050
Proved & Probable				
Maninge Nice	Primary	2,199	114.9	252,557
	Secondary	1,837	58.3	107,013
Mugloto	Primary	-	-	-
	Secondary	23,514	3.1	72,050
Total		27,549	15.7	431,620

The Competent Person (CP) with overall responsibility for reporting of Mineral Reserves is Mr Mike Beare CEng BEng ACSM MIMMM, a Corporate Consultant (Mining Engineering) with SRK. Mr Beare has 23 years' experience in the mining industry and has been extensively involved in the reporting of Mineral Reserves on various diamond and gemstone projects during his career to date.

4 PROCESSING

The processing of ores from the Montepuez deposits is relatively straight forward and involves standard industry proven mineral processing methods and equipment to recover rubies and associated semi-precious gemstones. The small process plant at the site was set up for large scale sample treatment to assess the precious gemstone content and quality of the different deposits. The preliminary flow sheet was based on the testwork performed at Mintek, South Africa. A significant quantity of rubies has been produced as part of this resource sampling and these have been graded and sold as part of the market assessment and as a source of revenue for MRM.

The existing plant has also been used to assess the processing characteristics of the ore in terms of clay and moisture content, the amount and size of contained gravel and gemstone, and the performance of different aspects of the proposed process and items of equipment. The planned expansion will require the current wash plant to be upgraded from 100 tph to 150 tph, which will operate at 120 tph, and the installation of a second wash plant with a 250 tph capacity, which will operate at 200 tph, increasing the overall project capacity to 320 tph. The new, permanent process plant will incorporate washing, screening and dense media separation (DMS) / optical sorters to recover the rubies, together with fine tailings dewatering.

After washing in the plant, the resulting gravity concentrate is sorted by hand to provide ruby grade and quality values for each pit. After removal of fines, the remaining gemstones are then subdivided into five broad quality categories:

- **Premium Ruby:** Any rough greater than 0.5g in weight and of desirable shape, clarity and red colour, with no or very few inclusions.
- **Ruby:** Less than 0.5g in weight, but of a desirable shape, clarity and red colour. Rough 0.5g or more in weight where the rough is either included or pink in colour which affects either recovery or appearance of the finished gem.
- **Low Ruby:** Gemstones with the required pinkish red to red colour, but translucent clarity with significant inclusions.
- **Corundum:** Opaque non-gem quality rough
- **Sapphire:** Generally very light pink to pink gemstones of variable shape and clarity. May contain orange and off colour gems.

Once split into these broad quality categories, the gemstones are further divided and subdivided into various groups based on clarity, colour, size, weight and shape.

The capital cost for the existing wash plant upgrade and the new 250 tph wash plant and sorting house, together with the support facilities included in the MRM LoMp, is USD22.95 M. This cost includes USD9 M for the 250 tph wash plant, USD2.6 M for the existing plant upgrade and USD9.1 M for civil engineering. Based on the information supplied, these costs are considered reasonable.

5 TAILINGS STORAGE

The existing system used for collection of the fine slurry streams from the existing wash plant consists of a series of small ponds. The settled solids are removed periodically by excavator. The supernatant water from these tailings is recycled to the wash plant.

The new wash plant combined with the uprated and modified existing plant will produce a significant quantity of fine tailings. MRM advised that the new plant will incorporate fines thickening. Based on the testwork performed to date, the thickened solids would have a relatively low solids concentration around 40% w/w.

MRM advised that its concept for tailings slurry handling would include a number of concrete ponds into which the thickened slurry will be deposited to allow further settling and water removal. The ponds would be used in a continuous rotation. The intent is that the settled muds would be excavated and transferred to the old worked out pits for final disposal with the coarser waste material.

SRK notes that the type of thickener used for dewatering should be fully evaluated during the initial design stage and high density or paste thickening should be considered. Additional testwork would be required for the final design.

SRK considers that the storage of tailings is not a significant issue for MRM; however, there may be more efficient and cost effective systems out there that may save money and provide a more practical solution.

6 INFRASTRUCTURE

The Project is well served with infrastructure. The site is several kilometres from a main highway

Power is sourced from the national transmission grid to transformers at the camp, Project gate and wash plant. Backup diesel generators are used when the fixed connection is interrupted to ensure operations remain unaffected.

Water supply at the Project is sourced from 7 boreholes on site which provide both potable and process water, although the bulk of process water is recycled, with boreholes providing make-up water.

7 ENVIRONMENTAL AND SOCIAL

The Project is situated in an area with no history of formal mining. In recent years, since the discovery of gemstones in the area, there has been an influx of artisanal miners from within Mozambique and other parts of Africa. The majority of these operate illegally.

The Project is a relatively small surface mining project that should have limited impact on the local environment providing that the environmental and social management initiatives are appropriately planned and implemented.

The largest environmental management risk is dealing with water quality related issues such as sediment and erosion control. SRK notes that this can be mitigated through a number of simple management measures, which are yet to be implemented.

MRM holds a valid Category B permit which allows the Project to carry out exploration and bulk sampling pending the receipt of a Category A permit to support large scale mining activity for the long term. In order to obtain this permit, MRM needs to obtain several other permits as follows:

- Land Use Permit (DUAT);
- Water Licence;
- Environmental Licence; and
- Resettlement Action Plan (RAP).

SRK notes that these applications are in progress. Therefore the permitting process should not be a material risk to MRM. However, it will require on-going close supervision and management effort to ensure it progresses smoothly.

Currently, mining and processing operations are simple and require no chemicals. The waste products from processing are chemically benign and generally require no special measures for handling or storage. After the production expansion is complete at MRM, it is expected that ferrosilicon and flocculants will be used in the plant and the remainder be disposed of as per procedures to be laid out following government guidelines.

An on-site dedicated environmental team is currently absent, and so needs strengthening, and will benefit from the planned appointment of an environmental manager. Without these key appointments, there is no capacity on site to implement the planned environmental and social management system (ESMS). MRM currently receives good external assistance from local consultants, but the operation requires a stronger on-site team to implement all of the documented commitments, and also to fulfil environmental management requirements

Environmental management at MRM mainly consists of the following key activities:

- ensuring that water from processing operations laden with silt does not reach local water courses;
- mined out areas are backfilled with waste; and
- following good, industry best practice with regard to general environmental housekeeping on site.

Management of social issues at the Project consist of:

- providing employees with secure jobs and range of social benefits such as schooling and healthcare;
- investing in some key local projects such as schools and clinics;
- preparing a Resettlement Action Plan (RAP) to move local people who reside on or close to the mining concession area; and
- managing the illegal miners who regularly invade the MRM concession to excavate pits in the search for gemstones.

8 FINANCIAL

For the economic analysis, SRK has constructed an independent technical economic model ("TEM"), described below. The TEM reflects production, capital and operating expenditures and revenues from the 1st July 2015 through to 2042 on an annual basis. Total ore treated over the LoMp amounts to 27.5 Mt at an average grade of 15.7 ct/t. The TEM is based on the MRM's financial model with adjustments based on SRK's views on the forecast production, capital and operating costs. In addition, the TEM:

- is expressed in real terms; this means un-inflated United States Dollars (USD) with no allowances for inflation or escalation on capital or operating costs, inputs or revenues;
- is presented at July 2015 money terms for Net Present Value ("NPV") calculation purposes;
- applies a Base Case discount rate of 10%;
- is based on commodity prices as provided by Gemfields;
- is expressed in post-tax and pre-financing terms and assumes 100% equity;
- uses a corporate tax rate of 32%; and
- includes a royalty at rate of 6% of revenue.

In respect of the commodity price, SRK has not undertaken a detailed price analysis, but has relied on the forecasts from the Company in this regard.

The LoMp assumes that overall production from all sources will average a rate of 1,330 ktpa. Over the LoM, based on the current indicated Resource, it is planned to produce 431.0 Mct, of which 5.8 Mct are Premium ruby and will generate USD5,959 M in gross revenue.

Prices set in the LoMp financial model for 2015-16 are quite conservative compared to the Company's projected prices used in the financial model, being much lower than prices that have already been achieved in both sales in high quality and low quality auctions. The weighted average price achieved in the December auction was $689 /ct which is higher than the premium price used in the model for 2015-16. The increase in real term prices after 2016, reflects the investment being made in marketing coloured gemstones and gradual increase in awareness of the quality of Mozambiquan Rubies. The increase closes the gap between actuals and the forecast steadily over the next 5 years. The price in real terms in high quality auctions are capped at $800 /ct for premium and $200 /ct for ruby by 2020 as the Company believes these prices are sustainable in the longer term.

Operating costs have been based on the MRM financial model adjusted by SRK. Average total operating costs are estimated at USD51.45 /t treated with total operating costs amounting to USD1,417 M over the LoM.

Total capital has been estimated at USD305 M. Capital for engineering and mining has been estimated at USD102 M and the wash plant at USD63 M. Sustaining capital for the on-going operations is estimated at USD82 M. Closure costs are estimated at USD20 M.

Figure ES 1 provides an analysis of Project cashflow over the life of mine. Table ES 3 provides a summary of the key financial parameters from the TEM.

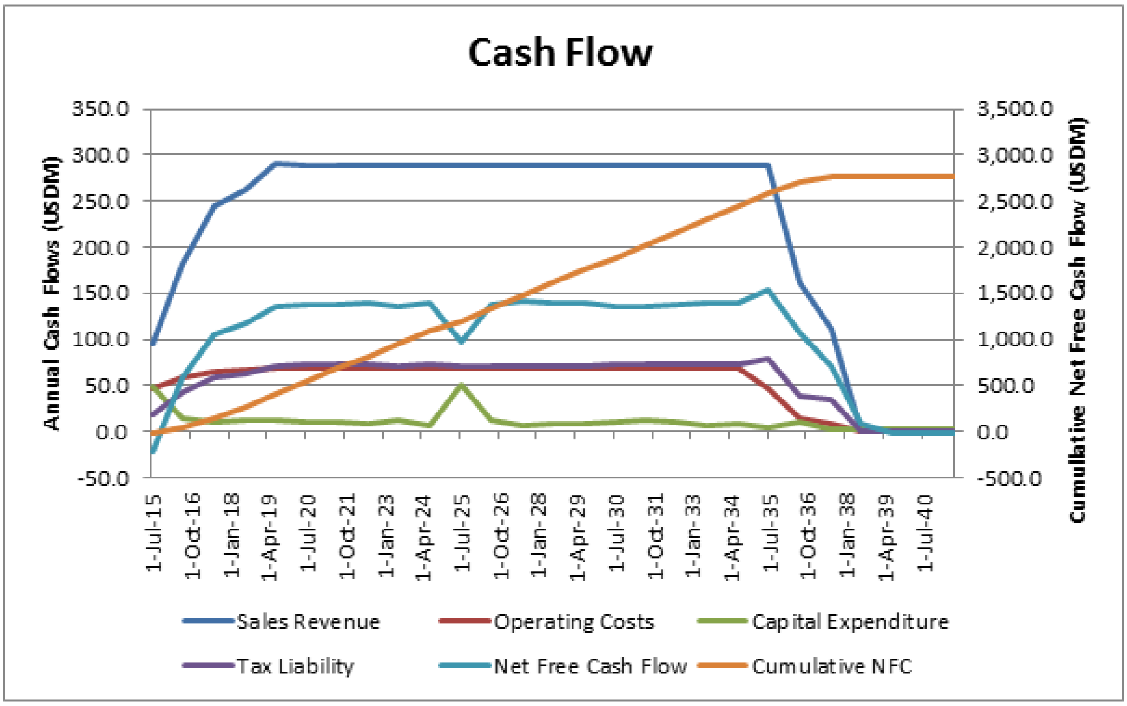

Figure ES 1: Net Cash Flow

Table ES 3: Summary of LoM Financial Parameters

		Total LoM	Annual Average
Sales Revenue	(USDM)	5,959	221
Operating Costs	(USDM)	1,417	52
Operating Profit - EBITDA	**(USDM)**	**4,542**	**168**
Tax Liability	(USDM)	1,478	55
Capital Expenditure	(USDM)	305	11
Working Capital	(USDM)	1	0
Net Free Cash Flow	**(USDM)**	**2,757**	**102**
Total Waste Mined	(kt)	87,939	3,518
Total Ore Mined	(kt)	27,196	1,088
S/R	(kt)	3.23	3.23
Total Ore Treated	(kt)	27,549	1,102
Grade	(ct/t)	15.7	15.7
Contained Ct	(ct 000's)	431,620	17,265
Total Sales	(ct 000's)	435,049	17,402
Mining and production costs	(USD/t Treated)	27.07	27.07
Administrative expenses	(USD/t Treated)	7.59	7.59
Management and auction fees	(USD/t Treated)	3.79	3.79
Mineral royalties and production taxes	(USD/t Treated)	13.01	13.01
Total Operating Costs	(USD/t Treated)	51.45	51.45
Revenue	(USD/ct)	13.70	13.70
Operating Costs	(USD/ct)	3.26	3.26
Operating Profit	**(USD/ct)**	**10.44**	**10.44**

Net present values of the cash flows are shown in Table ES 4 using discount rates from zero to fifteen percent in a post-tax context. SRK notes that at 10% discount rate the post-tax NPV is USD996 M. As the operation is a going concern, there is limited negative initial cash flow which results in a high internal rate of return (IRR) for the operation of 312%.

Table ES 4: NPV Profile

	Discount Rate	NPV USDm
Net Present Value	0.0%	2,757
	5.0%	1,577
	8.0%	1,185
	10.0%	996
	12.0%	849
	15.0%	682
Internal Rate of Return	311.7%	IRR

The Project's NPV is most sensitive to revenue (grade or commodity price). The Project has lower sensitivity to operating costs and is least sensitive to capital. The operating and capital cost sensitivity is illustrated in Table ES 5.

Table ES 5: Base Case Sensitivity Analysis for NPV at 10% and IRR

NPV 10% (USDm)		REVENUE SENSITIVITY				
		-20%	-10%	0%	10%	20%
OPEX SENSITIVITY	-20%	792	935	1,077	1,220	1,362
	-10%	754	896	1,037	1,178	1,319
	0%	716	856	996	1,136	1,276
	10%	679	817	956	1,095	1,234
	20%	641	778	916	1,053	1,191

NPV 10% (USDm)		REVENUE SENSITIVITY				
		-20%	-10%	0%	10%	20%
CAPEX SENSITIVITY	-20%	746	886	1,026	1,166	1,306
	-10%	731	871	1,011	1,151	1,291
	0%	716	856	996	1,136	1,276
	10%	702	842	982	1,122	1,262
	20%	687	827	967	1,107	1,247

NPV 10% (USDm)		OPEX SENSITIVITY				
		-20%	-10%	0%	10%	20%
CAPEX SENSITIVITY	-20%	1,107	1,066	1,026	986	945
	-10%	1,092	1,052	1,011	971	931
	0%	1,077	1,037	996	956	916
	10%	1,062	1,022	982	941	901
	20%	1,048	1,007	967	927	886

IRR		REVENUE SENSITIVITY				
		-20%	-10%	0%	10%	20%
CAPEX SENSITIVITY	-20%	220.4%	330.6%	539.3%	1097.0%	7829.2%
	-10%	185.2%	264.4%	394.1%	649.4%	1396.3%
	0%	159.8%	220.7%	311.7%	464.4%	777.5%
	10%	140.5%	189.5%	258.3%	362.9%	542.6%
	20%	125.4%	166.2%	220.8%	298.4%	418.4%

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SRK Consulting (UK) Limited
5th Floor Churchill House
17 Churchill Way
City and County of Cardiff
CF10 2HH, Wales
United Kingdom
E-mail: enquiries@srk.co.uk
URL: www.srk.co.uk
Tel: + 44 (0) 2920 348 150
Fax: + 44 (0) 2920 348 199

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1.1 Background

SRK Consulting (UK) Limited (SRK) is an associate company of the international group holding company, SRK Global Limited (the SRK Group). SRK has been commissioned by the board of Gemfields Plc (hereinafter also referred to as the “Company” or “Gemfields”) to prepare a Competent Persons’ Report (CPR) on the Montepuez Ruby Project (“Montepuez” or “the Project”) in Mozambique. Montepuez Ruby Mining Lda (MRM) is the project operator, and a joint venture between Gemfields and Mwiriti Lda.

SRK has been requested by Gemfields to base the CPR on the MRM life of mine plan (LoMp) reviewed and adjusted by SRK where appropriate. This CPR has been prepared to support the reporting of Mineral Resources and Ore Reserve estimates in accordance with JORC Code (2012).

1.2 Project Description

1.2.1 Location and Access

The Montepuez Ruby Project is located in Cabo Delgado province in north-eastern Mozambique, approximately 170 km west of Pemba as presented in Figure 1-1 and Figure 1-2. The concession area is 33,600 ha. The nearest village is Namanhumbir less than 1 km from the Project camp and approximately 6.6 km from the mining areas. The main operations offices, stores and accommodation are located at the Namanhumbir camp (Figure 1-2). The camp is accessed from the highway via a 1.2 km long dirt road. The road passes through Namanhumbir from the regional Route 242 which connects Pemba and Montepuez. The road is shared with local traffic for a further 6.6 km up to the Project gate.

1.2.2 Topography

MRM’s concession areas are located within a relatively flat area: the average elevation is approximately 450 mRL and the highest and lowest points on the concessions are 562 mRL and 366 mRL respectively. A non-perennial tributary, originating south of the Mugloto pits, drains southwards and underlies the illegal mining area south of Mugloto. Six additional tributaries, one of which originates in the Mugloto pits area and five that originate north of the Maninge North mining area drain southwards and run beneath the illegal mining area south of Maninge Nice pits. The non-perennial tributary west of Maninge Nice pit has been dammed to create a reservoir for the wash plant. Each of these two tributaries drain southwards from the illegal mining areas into a perennial stream that originates approximately 1 km southeast of Caraia and drains south easterly across the southern part of Mining Concession 4702C draining into the Rio Megaruma, which flows east and discharges into the Indian Ocean.

1.2.3 Climate

The climate in the Cabo Delgado is typically hot, humid and tropical with temperatures varying between 22 to 34°C. The District of Montepuez is dominated by a sub-humid and sub-arid climate. Two distinct seasons exist; the rainy season extends from November to April and the dry season from June to September. The annual average temperature is 18°C and the average rainfall is 945 mm/year. The average annual relative humidity and wind speed is 67% and 4.2 km/hour respectively.

1.2.4 Site Description

Gemstones are currently mined from a series of shallow open pits. At present, 45% of the total rock handling production is being sourced from the Maninge Nice pit, a primary amphibolite deposit that extends up to 28 m below surface. The remaining 55% is sourced from the Mugloto pits which extract secondary gravel bed deposits originating from ancient river channels. In addition to the Namanhumbir mine camp, the existing surface infrastructure at the Maninge Nice mining block includes:

- two open pits;
- access roads;
- a gravel washing plant (commissioned in November 2012);
- a stockyard for ore and overburden stockpiles;
- an engineering workshop and vehicle maintenance area; and
- ruby sorting house (including security barrack).

The Mugloto mining area includes the following infrastructure:

- five open pits;
- overburden stockpiles; and
- the Arkhe security camp at the entrance of the fenced area.

Additional infrastructure, upgrades and changes to existing surface infrastructure as part of the proposed Category A mining project will include the following:

- the current wash plant to be upgraded from 100 tph to 150 tph, operating at 120tph, and installation of a second wash plant with a 250 tph capacity which will operate at 200 tph, thereby increasing the overall project capacity to 320 tph;
- creation of new ore stockpile areas expanded onto currently undisturbed land; and
- the existing two-way haul road from Mugloto pits to the washing plant, on which the trucks are currently plying in a convoy system, will be replaced with two 12 m wide one-way haul roads for laden and empty traffic movements respectively.

Power is sourced from the national transmission grid to transformers at the camp, Project gate and wash plant. Backup diesel generators are used when the fixed connection is interrupted to ensure operations remain unaffected.

Water supply for the Project is sourced from 7 boreholes on site which provide both potable and process water. The bulk of process water is recycled, with boreholes providing make-up water. The existing workforce currently consists of 617 persons comprising 51 expatriates and 566 locals, including 248 contract security personnel. The planned expansion will take the total number of employees to 1081.

1.2.5 History

The Montepuez deposits were discovered in 2009 where after there was a large influx of artisanal miners to the area. Gemfields' involvement commenced in June 2011 when a Joint Venture agreement was signed between Gemfields Plc and Mwiriti Lda, the original title holders.

Gemfields subsequently formed Montepuez Ruby Mining Lda during August 2011. In February 2012 mining concessions were issued in the name of MRM, valid for 25 years. Environmental licenses issued in the name of MRM, valid for five years were also issued in 2012.

During August 2012, bulk sampling commenced on site with a fleet of equipment purchased by MRM. The wash plant and sorting house were both commissioned in November 2012. For the period July 2012 to the end of December 2014, total rock handling was 3.16 Mt, of which 675 kt was ore.

Figure 1-1: Project Location

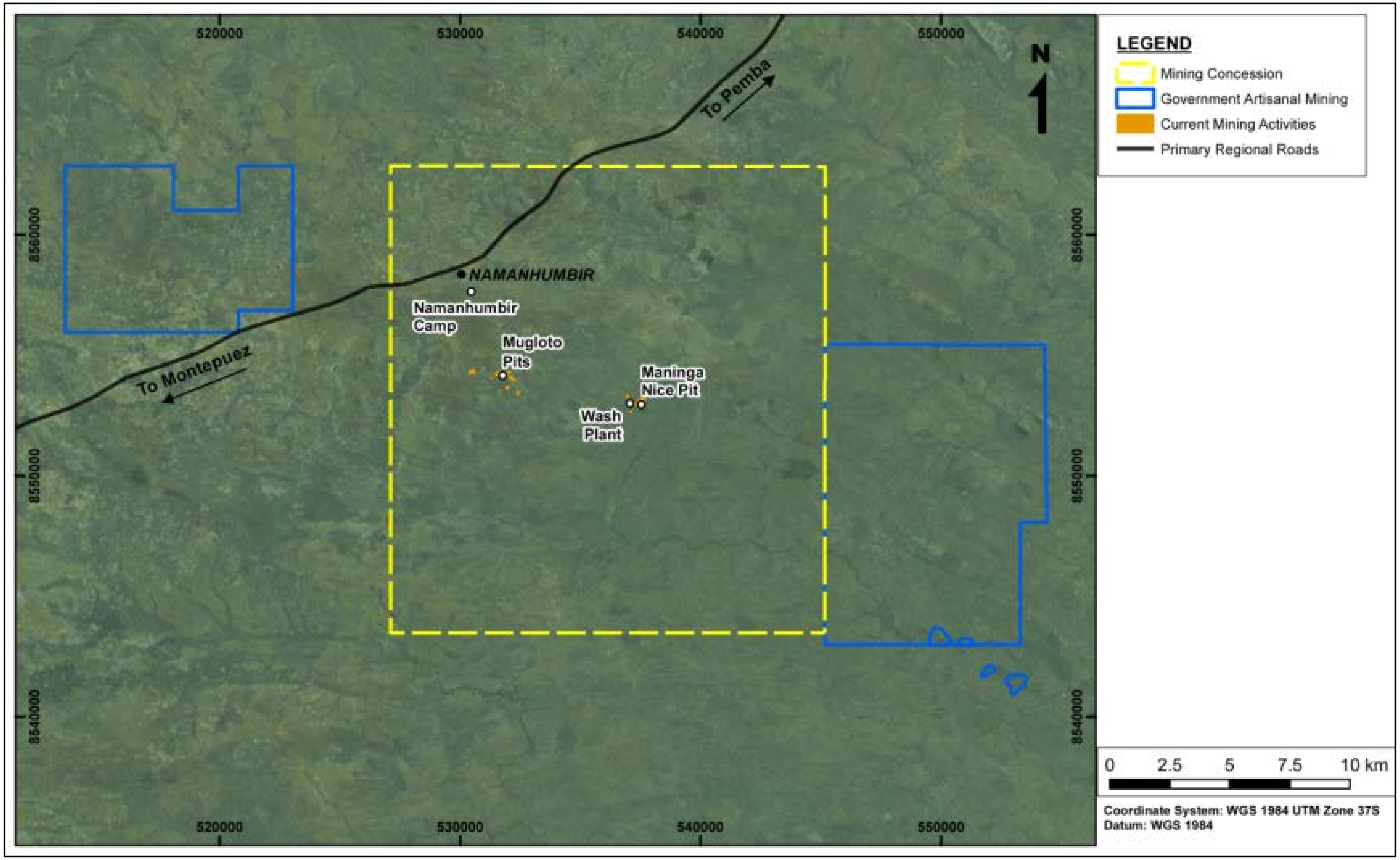


Figure 1-2: Project Setting Showing Licence

1.3 Requirement, Structure and Reporting Standard

1.3.1 Requirement

This CPR has been prepared to support the reporting of Mineral Resources and Ore Reserve estimates in accordance with JORC Code (2012).

1.3.2 Structure

The asset comprises the Montepuez operation and the associated licences. Accordingly, this CPR has been structured on a discipline basis where technical sections comprise: Geology; Mineral Resources; Mining Engineering; Ore Reserves; Mineral Processing; Infrastructure; Environment and Social; Commodity Prices and Macro-Economics; Technical-Economic Parameters; Risks and Opportunities; Financial Analysis; and Conclusions and Recommendations.

1.3.3 Compliance

In this CPR, the standard adopted for the reporting of the Mineral Resources and Ore Reserve statements is that defined by the terms and definitions given in the JORC Code (2012). The JORC Code (2012) is an internationally recognised reporting code and is acceptable to the FSA.

This CPR has been prepared under the direction of the Competent Persons as defined by the JORC Code, who assume overall professional responsibility for the Mineral Resource and Ore Reserve statements as presented herein. The CPR however is published by SRK, the commissioned entity, and accordingly SRK assumes responsibility for the CPR.

Notwithstanding the above, SRK notes the following:

- Where any information in the CPR has been sourced from a third party, such information has been accurately reproduced and no facts have been omitted which would render the reproduced information inaccurate or misleading;
- Drafts of the CPR were provided to the Company for the purpose of confirming both the accuracy of factual information and the reasonableness of assumptions relied upon in this CPR;
- This CPR has not undergone regulatory review; and
- SRK notes that gemstone deposits, owing to the distribution of economic concentrations of alluvial gravel beds are notoriously difficult to sample, estimate and classify as their thickness and grade are highly variable and their exact location very difficult to predict. Current drilling techniques are inappropriate to provide sufficient data density to enable direct estimation of gravel bed grade. Accordingly, drilling as currently employed can only provide information to determine the volume of the gravel beds. Derivation of Mineral Resources is largely dependent on the availability of the results of bulk samples or equivalent such as historical production statistics. All the above uncertainties and the use of extrapolated grade and geological information require that only an Indicated Mineral Resource category be assigned to the Mineral Resources at the Project.

1.4 Effective Date and Base Technical Information

The effective date (the "Effective Date") of this CPR is deemed to be 1 July 2015 with the Resources estimated at 1st January 2015 and the Reserves at 1st July 2015. SRK notes that some of the data captured is as of 1st March 2015, and this is indicated where required.

1.5 Verification, Validation and Reliance

This CPR is dependent upon technical, financial and legal input. In respect of the technical information provided, this has been taken in good faith by SRK, and other than where expressly stated, this has not all been independently verified. SRK has, however, conducted a detailed review and assessment of all material technical issues likely to influence the value of the Project, which has included the following:

- inspection visit to the Project during August 2014 which culminated in a report entitled "*A Review of Resource and Reserve Planning at the Montepuez Mine, Mozambique"* and dated October 2014;
- inspection visits to the Project in April 2015;
- discussion and enquiry following access to key project technical, head office and managerial personnel from April through May 2015;
- an examination of historical information for the Project;
- generation and reporting of a JORC Code compliant Mineral Resource and Ore Reserve statements; and
- a review and, where considered appropriate by SRK, modification of the LoMp for the Project.

SRK has also assumed certain macro-economic parameters and commodity prices and relied on these as inputs to determine the potential economic viability of the stated Mineral Resources.

Where fundamental base data in support of the Mineral Resource statements has been provided (geological information, assay information, exploration programmes) for the purposes of review, SRK has performed all necessary validation and verification procedures deemed appropriate in order to place an appropriate level of reliance on such information.

1.5.1 Technical Reliance

SRK places reliance on the Company and their respective technical representatives that all technical information provided to SRK, as of 1st May 2015, is accurate. The technical representative for the Company's Mineral Resources is Mr Ashim Kumar Roy, MSc, (Applied Geology) / MBA. Mr Ashim is the Head of Exploration and Geology (Africa) for the Company and is responsible for all technical matters in respect of Mineral Resources at the Company and has over 28 years' experience in the exploration and mining industry.

1.5.2 Financial Reliance

In consideration of all financial aspects relating to the Project, SRK has placed reliance on the Company and MRM that the following information as they may relate to the Project and the Company is appropriate as at 1st July 2015:

- operating expenditures as included in MRM's LoMp;

- capital expenditures as included in MRM's LoMp; and
- all statutory and regulatory payments as may be necessary to execute the LoMp.

The financial information referred to above has been prepared under the direction of Mrs Janet Boyce, Certified Public Accountant, on behalf of the Board of Directors of the Company. Mrs Janet Boyce is the Chief Financial Officer of the Company and has 13 years' experience in financial operations and management.

1.5.3 Legal Reliance

In consideration of all legal aspects relating to the Project, SRK has placed reliance on the representations by the Company and MRM that the following are correct as at 1st July 2015:

- the Directors of the Company and MRM are not aware of any legal proceedings that may have an influence on the rights to explore or mine for gemstones;
- that the Company and their subsidiaries are the legal owners of all mineral and surface rights relating to the Project; and
- no significant legal issue exists which would affect the likely viability of the Project and/or on the estimation and classification of the Mineral Resources and Ore Reserves as reported herein.

1.6 Limitations, Reliance on Information, Declaration, Consent and Copyright

1.6.1 Limitations

SRK is responsible for this CPR and declares that SRK has taken all reasonable care to ensure that the information contained in this report, is to the best of SRK's knowledge having made all reasonable enquiries, in accordance with the facts and contains no omission likely to affect its import.

SRK does not assume any responsibility and will not accept any liability to any other person for any loss suffered by any such other person as a result of, arising out of, or in connection with this CPR or statements contained therein.

The Company and MRM have confirmed in writing to SRK that to their knowledge the information provided by them (when provided) was complete and not incorrect or misleading in any material respect. SRK has no reason to believe that any material facts have been withheld. Further, the Company and MRM have confirmed in writing to SRK that they believe they have provided all material information.

The achievability of the LoMp and associated expenditure programme is neither warranted nor guaranteed by SRK. The LoMp and expenditure programme as presented and discussed herein has been proposed by the Company's management, and adjusted where appropriate by SRK, and cannot be assured. The LoMp and expenditure programme are necessarily based on technical and economic assumptions, many of which are beyond the control of the Company and MRM. Future cash flows derived from such forecasts are inherently uncertain and accordingly actual results may be significantly more or less favourable.

1.6.2 Reliance on Information

SRK believes that its opinion must be considered as a whole and that selecting portions of the analysis or factors considered by it, without considering all factors and analysis together, could create a misleading view of the process underlying the opinions presented in the CPR. The preparation of a CPR is a complex process and does not lend itself to partial analysis or summary.

SRK's opinion in respect of the Mineral Resources and Ore Reserves declared and the LoMp is effective at 1st July 2015 and is based on information provided by the Company and MRM throughout the course of SRK's investigations, which in turn reflect various technical-economic conditions prevailing at the date of this report. Further, SRK has no obligation or undertaking to advise any person of any change in circumstances which comes to its attention after the date of this CPR or to review, revise or update the CPR or opinion.

1.6.3 Declaration

SRK will receive a fee for the preparation of this report in accordance with normal professional consulting practice. This fee is not contingent on the outcome of the CPR and SRK will receive no other benefit for the preparation of this report. SRK does not have any pecuniary or other interests that could reasonably be regarded as capable of affecting its ability to provide an unbiased opinion in relation to the Mineral Resources or Ore Reserve.

Neither SRK, the Competent Persons, nor any of the directors of SRK, have at the date of this report, nor have had within the previous two years, any shareholding or other interest in the Company or MRM. Consequently, SRK, the Competent Persons and the directors of SRK consider themselves to be independent of the Company and MRM.

This CPR includes technical information, which requires subsequent calculations to derive subtotals, totals and weighted averages. Such calculations may involve a degree of rounding and consequently introduce an error. Where such errors occur, SRK does not consider them to be material.

1.6.4 Consent

Neither the whole nor any part of this report nor any reference thereto may be included in any other document without the prior written consent of SRK as to the form and context in which it appears.

1.6.5 Copyright

Copyright of all text and other matter in this document, including the manner of presentation, is the exclusive property of SRK. It is an offence to publish this document or any part of the document under a different cover, or to reproduce and/or use, without written consent, any technical procedure and/or technique contained in this document. The intellectual property reflected in the contents resides with SRK and shall not be used for any activity that does not involve SRK, without the written consent of SRK.

1.7 Qualification of Consultants

The SRK Group comprises over 1,600 staff, offering expertise in a wide range of resource engineering disciplines with 54 offices located on six continents. The SRK Group's independence is ensured by the fact that it holds no equity in any project. This permits the SRK Group to provide its clients with conflict-free and objective recommendations on crucial judgement issues. The SRK Group has a demonstrated track record in undertaking independent assessments of resources and reserves, project evaluations and audits, Mineral Experts' Reports, Competent Persons' Reports, Mineral Resource and Ore Reserve Compliance Audits, Independent Valuation Reports and independent feasibility evaluations to bankable standards on behalf of exploration and mining companies and financial institutions worldwide. The SRK Group has also worked with a large number of major international mining companies and their projects, providing mining industry consultancy service inputs. SRK also has specific experience in commissions of this nature.

This CPR has been prepared based on a technical and economic review by a team of 8 consultants sourced from the SRK Group's offices in the United Kingdom over a nine-month period. These consultants are specialists in the fields of geology, resource and reserve estimation and classification, open-pit mining, mineral processing, tailings management, infrastructure, environmental management and mineral economics.

The individuals who have provided input to this CPR, and are listed below, have extensive experience in gemstones and the mining industry and are members in good standing of appropriate professional institutions.

- Michael Beare, CEng, MIMMM ACSM BEng (mining);
- Gabor Bacsfalusi, BEng MAusIMM (CP) (mining);
- Dr Lucy Roberts, MAusIMM (CP), PhD (geology);
- James Haythornthwaite MSc, BSc, FGS (geology);
- David Pattinson, CEng, MIMMM, PhD (processing);
- Jamie Spiers MSc DIC, BSc (Hons) (tailings);
- Tim Fry CEng MICE BEng (infrastructure);
- Rowena Smuts MSc (environmental and social); and
- Keith Joslin (financial)

The Competent Person who has reviewed the Mineral Resources as reported by SRK is Dr Lucy Roberts. The Competent Person responsible for reporting Ore Reserves is Michael Beare who also takes overall responsibility for the CPR.

In order to prepare this CPR, the following site visits were undertaken:

- 18th – 24th August 2014: Gabor Bacsfalusi and Lucy Roberts visited site in order to advise on data collection for Resource and Reserve estimation; and
- 20th - 27th March 2015: James Haythornthwaite visited site to work on the geological model; and

- 30th March – 4th April 2015: David Pattinson, Rowena Smuts and Tim Fry visited site to review the processing, environmental and infrastructure disciplines. The aim of the visit was to collect project information and data, make a visual assessment and understand the current mining and processing operations for the purposes of providing guidance on environmental and social management for the Project.

2 GEOLOGY

2.1 Regional Geology

The Montepuez deposit is located in northeast Mozambique (Figure 2-1), in the Numano block, which comprises accretionary, west-thrust faulted and highly metamorphosed Mesoproterozoic and Neoproterozoic rocks. This area forms part of the southernmost extent of the Mozambique Craton and is bound to the south by the Nampula block. The crystalline basement is overlain by Permo-Jurassic Karoo sedimentary rocks in the northwest and by Jurassic-Neogene sediments of the Rovuma Basin to the east, adjacent to the coastline. Where exposed, the basement is composed of allochthonous intrusive ortho-gneissic and para-gneissic complexes, juxtaposed along thrust-fault contacts to form separate metamorphic terranes. These terranes are separated from those to the south by the northeast-southwest trending Lurio Belt.

Metamorphism occurred during two distinct tectonic events; namely the Mozambican Orogeny (between 1100 and 850 Ma) and East African Orogeny (between 800 and 650 Ma). The basement rocks were re-tectonised and emplaced at ~538 Ma by thrusts, transcurrent shear zones and folds as part of Pan-African intracontinental orogenic processes.

The Montepuez ruby deposit is hosted by the Montepuez Complex (Figure 2-2), a strongly ductile-deformed, wedge-shaped, metamorphic terrane. The Montepuez Complex is composed of orthogneisses ranging from granitic to amphibolitic in composition, and paragneisses comprising quartzite, meta-arkose, marble lenses, quartz-feldspar gneiss and biotite gneiss. These metamorphosed sedimentary rocks have been intruded by granite, granodiorite, and tonalite.

Intense deformation has resulted in a highly complex structural framework, the local units folded into tight and isoclinal folds dissected by a suite of mainly northeast to southwest trending shear zones. The current interpretation suggests that the Montepuez Complex is structurally controlled by a complex, double plunging, re-folded fold.

The Montepuez Complex is bounded by thrust faults to the north by the Nairoto Complex, the oldest rocks in the region composed of ductile-deformed metamorphosed intrusives, and to the west by volcano-sedimentary meta-suites of the Xixano Complex.

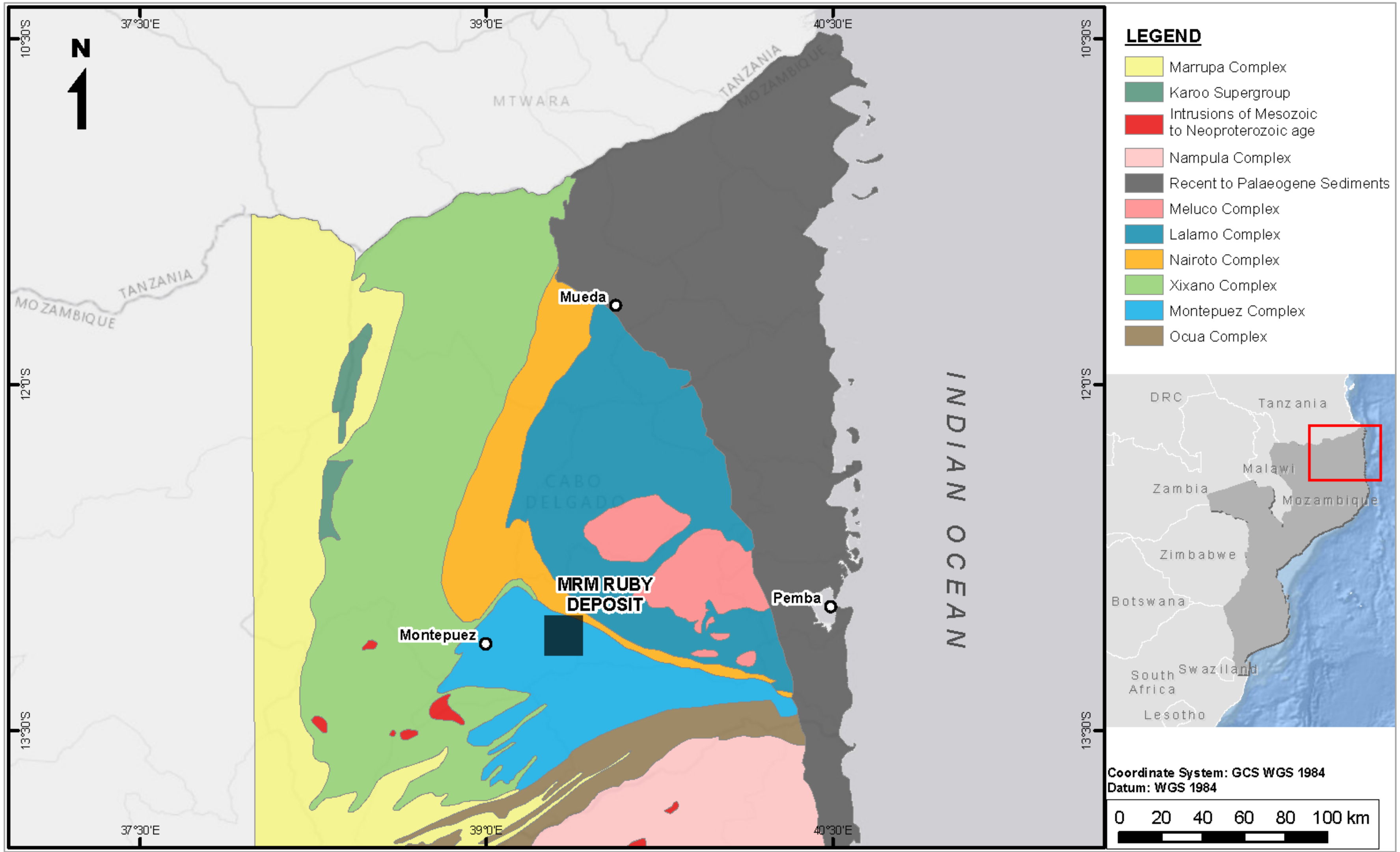


Figure 2-1: Regional geological map of Northern Mozambique

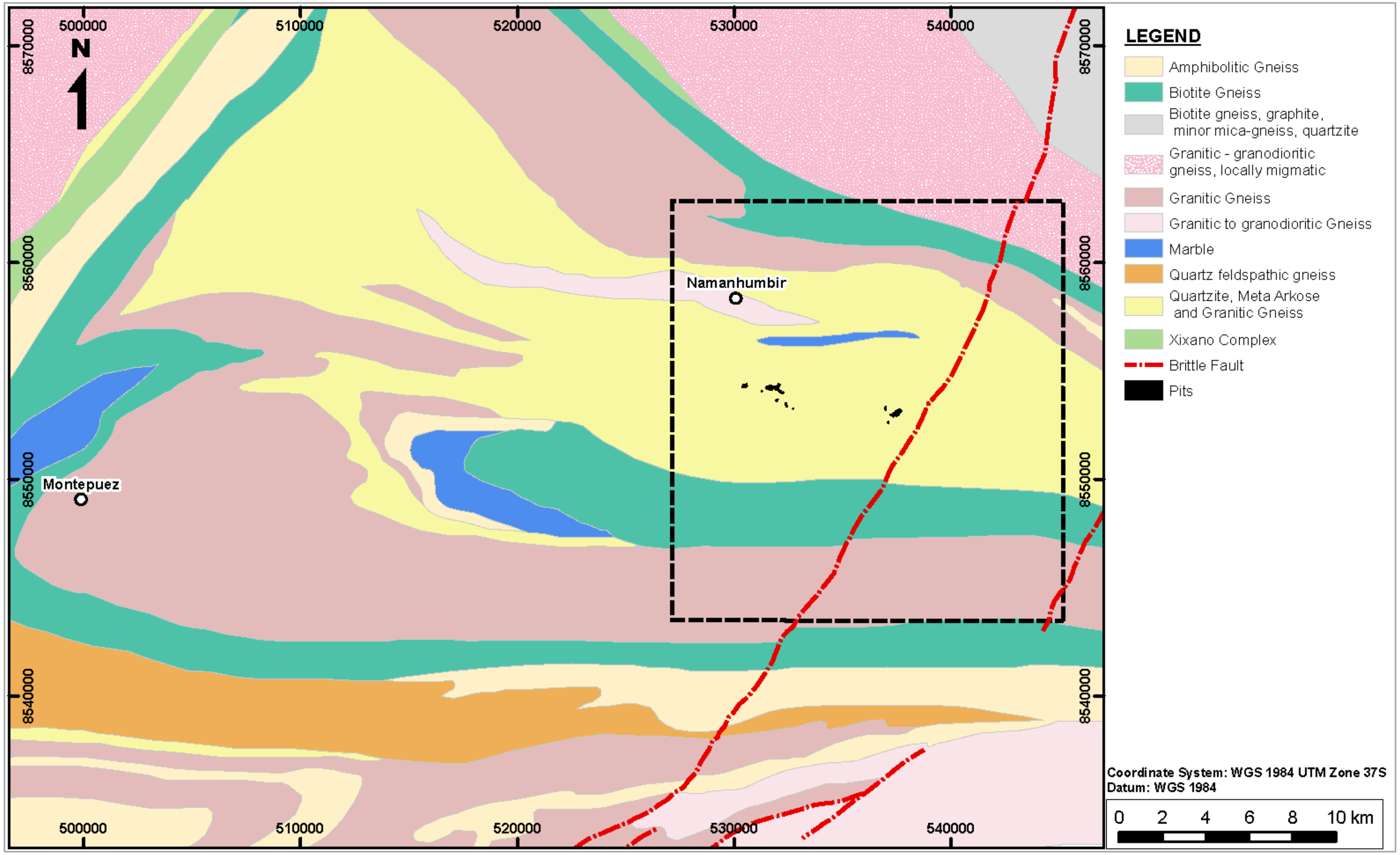


Figure 2-2: Semi-regional map of the Montepuez complex, overlain by the MRM Licence perimeter (black dashed line).

2.2 Deposit Geology

2.2.1 Lithologies

The local bedrock geology of the Montepuez deposit is characterised by a complexly deformed sequence of granitic to amphibolitic orthogneisses and carbonate, quartzite, biotite and hornblende paragneisses. This gneissic sequence may be broadly divided into four main lithological groups, namely amphibolite (Figure 2-3a), mafic gneisses, granitic gneiss and carbonate units, as described below.

Amphibolite:

A melanocratic, often gneissic unit dominated by amphibole, with lesser feldspar and mica and common garnet and/or corundum porphyroblasts. Distinct carbonate alteration of the amphibolite unit is common, manifest in intense carbonate veining, typically as mm-cm scale sub-planar veins parallel to the host rock foliation (Figure 2-3b), or less commonly as an anastomosing vein stockwork (Figure 2-3c). The carbonate altered amphibolite typically exhibits a pale colour and fine grain size relative to the unaltered equivalent. The amphibolite unit is weakly to moderately foliated and is generally characterised by a lesser degree of strain than the adjacent gneissic units.

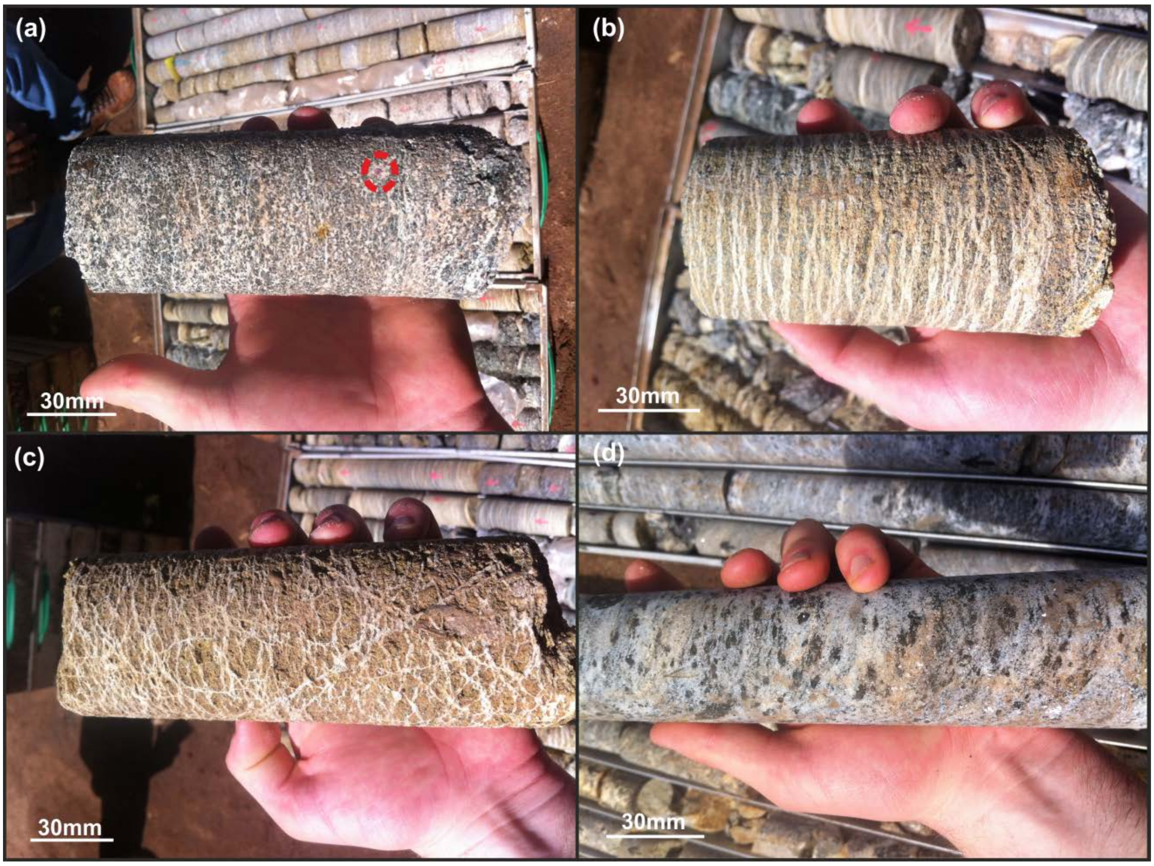


Figure 2-3: Montepuez bedrock lithologies

Notes to Figure 2-3

(from top left): a) Maninge Nice amphibolite, with visible ruby mineralisation (~2-3mm gem circled in red), b) Moderately weathered amphibolite with carbonate veining parallel to the dominant foliation, c) Highly weathered amphibolite with stockwork-style carbonate veining, d) Hornblende-biotite gneiss

Mafic Gneiss:

The bulk of the rock mass within the area of the Montepuez deposit comprises of a suite of mafic gneisses dominated by hornblende-biotite gneiss (Figure 2-3d) and biotite gneiss (Figure 2-4a). Both the biotite gneiss and hornblende biotite gneiss are composed of feldspar and quartz with an abundant mafic input dominated by hornblende and biotite, with lesser garnet and corundum. The key diagnostic differentiator between the biotite gneiss and hornblende biotite gneiss units is hornblende content, with hornblende-biotite gneiss comprising >30% of the amphibole species. Although both units are of variable grain size, the biotite gneiss is typically finer than the hornblende biotite gneiss, which is often defined by a more distinct compositional gneissic banding and characteristic clusters of hornblende porphyroblasts elongated parallel to the dominant foliation fabric. Much of the mafic gneiss suite is composed of a texturally distinct garnetiferous gneiss (Figure 2-4b) defined by abundant garnet +-/ corundum porphyroblasts in a coarse biotite or hornblende-biotite gneiss, with pronounced gneissic banding, generally at a 5 to10 mm scale.

Granitic Gneiss:

The bulk of granitic gneiss material intersected at the Maninge Nice and Mugloto areas is a massive to very weakly foliated, relatively coarse grained unit dominated by quartz and feldspar (Figure 2-4c). Less commonly, at Mugloto, the granitic gneiss is characterised by a gneissic banding of alternating amphibole-rich and felsic bands with quartz and feldspar porphyroblasts.

Carbonate:

The carbonate material (Figure 2-4d) within the gneissic package is typically coarse grained and is often found thinly interbedded with the mafic gneiss, granitic gneiss and amphibolite units. Much of the carbonate rock commonly shares diffuse contacts with the adjacent units, and variations in colour, considered a result of minor amphibole content, or Fe alteration related to contacting amphibolite units is not uncommon.

Other Units:

Other minor lithologies observed locally in outcrop and, rarely, in drillcore include quartzite, pegmatite and vein quartz. Due to their limited outcrop and drillcore exposure, at present the relationship between these lithologies and the main gneissic package is unclear. For this reason, these units have not been modelled.

Figure 2-4: Montepuez bedrock lithologies

Notes to Figure 2-4

(from top left): a) Biotite gneiss, b) Garnetiferous gneiss, c) granitic gneiss, d) Carbonate

2.2.2 Overburden Sequence

The fresh bedrock units described above are overlain by up to 18 m of overburden material with an average thickness of approximately 5 m. This overburden package broadly comprises (from top to bottom) soil / lateritic material transitioning to clay rich material with increasing clastic content at depth. The contact between the clay and overlying soil is transitional and defined by increasing phyllosilicates and quartz / rock nodules. A gravel bed horizon, which comprises variably rounded quartz gravel and clastic material (up to approximately 15 cm in diameter) in a clay-rich matrix, occurs as lenses that form a semi-continuous horizon, at or near the basement contact. The gravel bed, which is the host of the secondary ruby mineralisation, is generally less than 2 m thick, with an average thickness of 0.36 m.

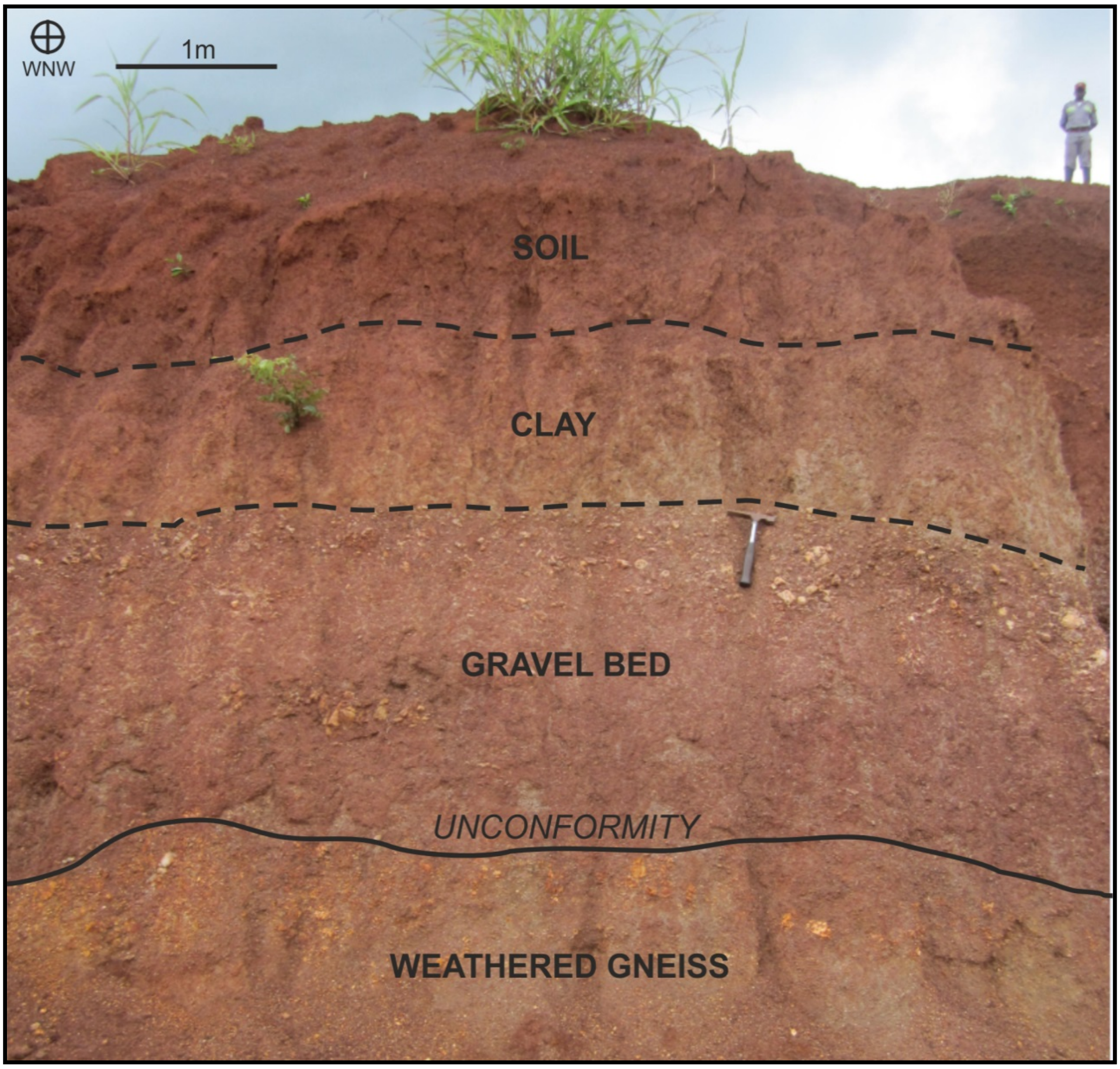


Figure 2-5: Overburden stratigraphy at the west face of Mugloto Pit 3

2.2.3 Structure and Stratigraphy

The Montepuez deposit has been subject to a complex deformation history, which is reflected in the structural complexity of the geometry of the sub-surface geological units. The gneissic sequence is variably foliated with variations in intensity from weakly to strongly foliated over distances of metres to tens of metres.

At the deposit-scale, the Montepuez deposit is interpreted to form a broadly east-west trending gentle-open fold system (Figure 2-6) with significant small-scale parasitic folding. The open folds are interpreted to form part of the northern limb of the complex, double-plunging, broadly east-west trending re-folded fold structure, as shown in Figure 2-2.

Interpretation of the topography and satellite data suggests that the deposit is intersected by a number of minor, discontinuous dominantly north-northwest to south-southeast trending shear zones, bounded to the south and east by larger scale east-west and north-northeast to south-southwest trending shear zones respectively.

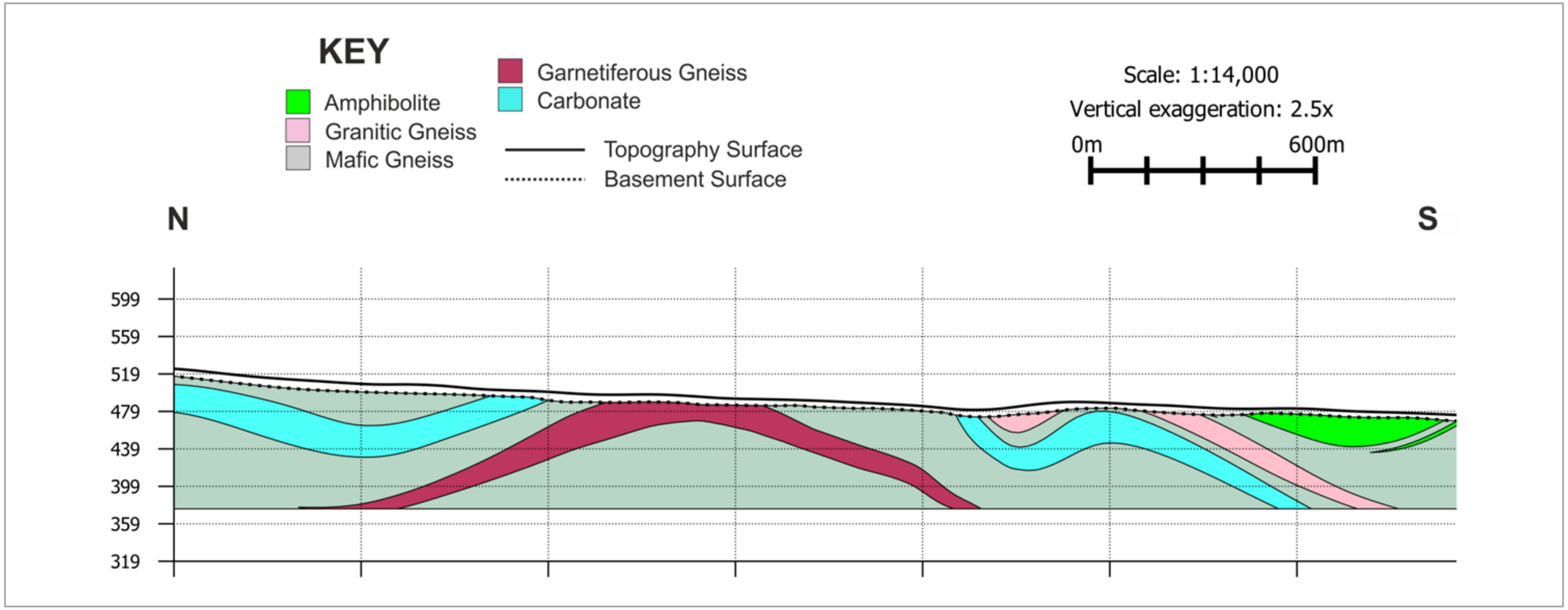


Figure 2-6: North-south section (vertical exaggeration = 2.5x) through the central Mugloto area displaying the interpreted gentle-open fold system

The broad stratigraphic sequence for Maninge Nice and Mugloto has been derived from the available data. At Maninge Nice, the mineralised amphibolite is underlain by approximately 3 to 9 m of folded granitic gneiss. This overlies a sequence of variably foliated mafic gneisses (biotite gneiss and hornblende-biotite gneiss) inter-layered with minor granitic gneiss intersections. A second major granitic gneiss layer, which is approximately 10 m thick, exists near the base of this sequence. To the north, coarse grained carbonate horizon outcrops in a broadly east-west orientation. This is bordered to the north by a number of discontinuous lenses of garnetiferous gneiss separated from the carbonate unit by approximately 50 to 100 m of mafic gneiss. The stratigraphic and geometrical relationship between this northern area and the gneissic sequence surrounding the Maninge gneiss amphibolite is unclear. The carbonate horizon and underlying material are considered to form the northern limb of an east-west trending, downwards closing fold, with an axial plane running through the centre of the Maninge Nice amphibolite.

The stratigraphy of the Mugloto area is not as well understood; however, a broad sequence similar to that observed in the Maninge Nice area is apparent (Figure 2-6). This is loosely defined by an amphibolite horizon, underlain by approximately 25 to 100 m of mafic gneiss, including numerous discontinuous lenses of garnetiferous material. Similar to Maninge Nice, a 10 to 50 m thick granitic gneiss horizon lies at the base of this mafic sequence. This is underlain by approximately 50 m of variably altered carbonate material, interlayered with mafic gneiss and some minor amphibolite lenses.

2.2.4 Mineralisation

Ruby mineralisation at Montepuez occurs in two settings, namely the underlying primary mineralisation, which is associated with amphibolites, and the overlying secondary mineralisation, hosted by the gravel bed. The current focus for exploration and production is the secondary mineralisation, which historically has been the source of higher quality gemstones; however, exploration and production has also targeted the primary mineralisation within the amphibolite.

Production of primary rubies has been restricted to the Maninge Nice area. Diamond drilling data suggests that primary ruby mineralisation is more abundant in this area. The primary rubies sourced from the Maninge Nice amphibolite form tabular hexagonal crystals, with a strong basal cleavage (Figure 2-7c). The recovered gemstones are typically highly fractured, and amphibole, mica and feldspar inclusions are common. Despite this, some of the primary crystals have internal clean and transparent regions that may be clipped to produce clean rough material. The primary rubies usually exhibit a lighter, pink colour, in comparison to the dark red secondary rubies, and thus most are typically classed as sapphire quality.

Where ruby mineralisation is intersected by diamond drilling, the ruby crystals are usually surrounded by a white feldspar rim (Figure 2-7a). Initial observations from the limited pit mapping suggest that the amphibolite-hosted ruby mineralisation is spatially associated with north-south trending feldspar and carbonate veins. These are considered to be related to dextral shear structures and also with stockwork-style pegmatite intrusives. Primary ruby mineralisation at Maninge Nice and Mugloto lies on the same structural trend as known ruby occurrences at Namahaca and Nacaca, which indicates the existence of a ruby rich mineralised trend.

Secondary rubies, which are confined to the gravel bed horizon in the overburden, are typically more transparent, less included and often of a darker red colour than primary rubies in the in situ amphibolite (Figure 2-7b and Figure 2-7d).

The current genetic model for the secondary ruby deposit proposes initial deposition within one or more major flooding events, followed by redistribution of the rubies by alluvial processes, such as those in a braided river system. Alluvial reworking resulted in the fragmentation of the more heavily included and fractured material into particle sized grains, concentrating the more durable clean material into the gravel bed deposits. As a result, the average gem quality of the secondary rubies is typically much higher than those contained within the primary amphibolite.

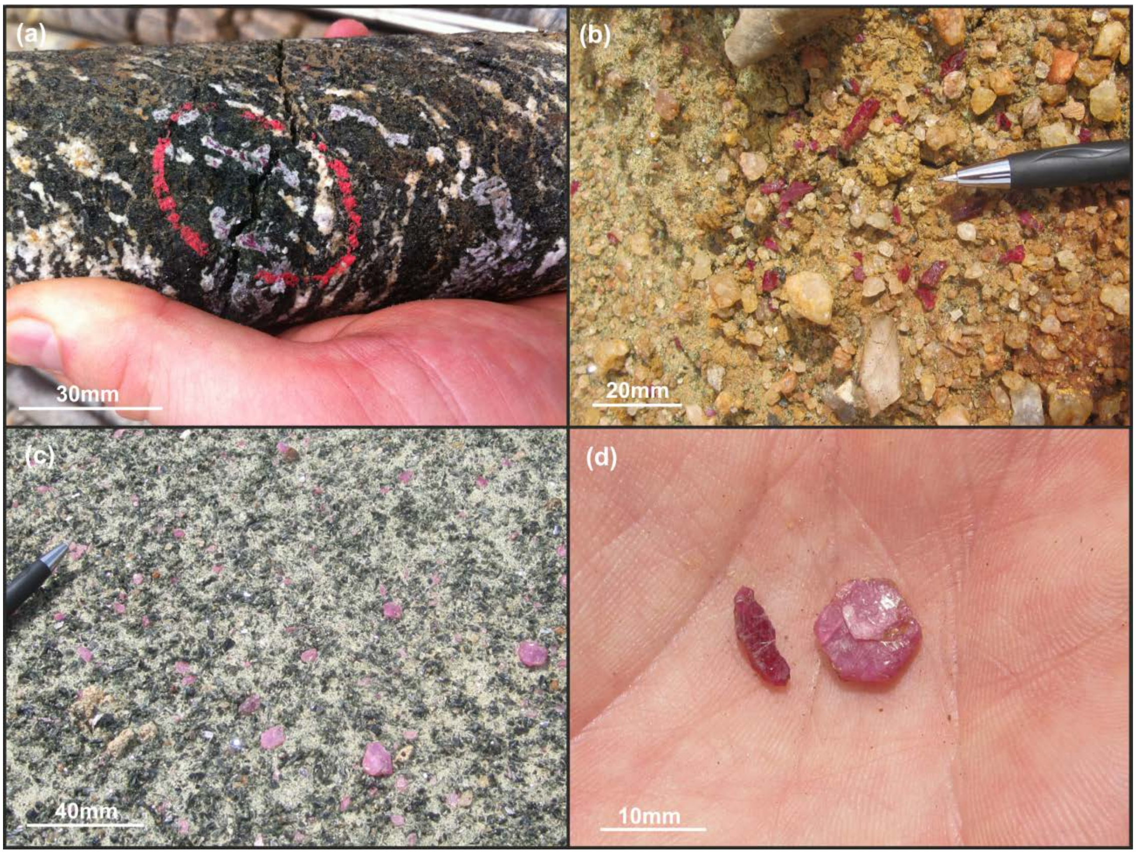


Figure 2-7: Montepuez primary and secondary ruby mineralisation

Notes to Figure 2-7

a) Amphibolite ruby mineralisation with a feldspar rim, in diamond drillcore, b) Ruby mineralisation in the secondary gravel bed, c) Primary amphibolite ruby mineralisation at Maninge Nice, d) A comparison of the Maninge Nice primary (left) and secondary (right) mineralisation styles

Within the gravel bed unit, the quality and quantity of ruby gemstones varies significantly across the deposit. MRM has put in place a classification system to record the quality of the rubies, in order to reflect this variation. This is described in detail in Section 3.8, but may be broadly categorised into Premium Ruby, Ruby, Low Ruby, Sapphire, Corundum and <4.6 mm qualities.

Generally, the grade (carats per tonne) is typically much higher at Maninge Nice than the area currently tested by bulk sampling at Mugloto. In contrast, the quality of ruby gemstones recovered from Mugloto is, on average, much more desirable than those from the Maninge Nice gravel bed. The rubies from the Mugloto gravel bed are predominantly of premium ruby and ruby quality gemstones, with the Maninge Nice secondary mineralisation mostly being of ruby, corundum, and sapphire quality. Within the Mugloto area, local variation in the grade and quality of the ruby gemstones contained within the secondary gravel bed is attributed in part to varying degrees of remobilisation within the interpreted paleochannels.

The interpretation of the secondary rubies initially being deposited within a flooding event makes the derivation of the primary source to the secondary ruby mineralisation relatively problematic. The difference in colour between the primary rubies at Maninge Nice, and the secondary rubies at both Maninge Nice and Mugloto, suggests that the Maninge Nice amphibolite is unlikely to be the main source of the Montepuez gravel bed mineralisation. At this stage, the location of the main source of the secondary ruby mineralisation is unclear, although it is considered that it lies outside of the area currently delineated by exploration drilling and pitting.

3 EXPLORATION AND DATA COLLECTION

3.1 Introduction

The main exploration methods being employed at the Montepuez deposit include auger and diamond drilling, small scale exploration pits, and bulk sampling from a number of bulk sampling pits. This key data is supplemented by limited geological mapping and geophysical and soil geochemistry surveys.

Auger drilling and exploration pitting is primarily used to target the secondary mineralisation with the aim of determining the thickness and nature of the gravel bed and the overlying material. Diamond drilling is predominantly aimed at determining the nature of the basement geology with the aim of defining the primary mineralisation at Maninge Nice, and understanding the bedrock geology in general. The main exploration tool used to determine ruby grade is through bulk sampling. The grade and quality are determined for each mined area through recovered ruby quantity and quality data from the sorting house.

3.2 Licenced Area

In February 2012, the Mozambican government granted MRM a mining and exploration license for the two adjoining Mining Concessions 4702C and 4703C making up the concession area (Concession Area), which cover an area of approximately 33,600 ha. These are dated 11 November 2011 and are valid for 25 years until 11 November 2036. The Concessions Area is bounded by the coordinates presented in Table 3-1. SRK notes that the licence coordinates are presented in the UTM 37 South WGS 84 coordinate system. A plan of the concession area is provided in Figure 1-2.

Table 3-1: MRM Concession Area Coordinates

POINT	EASTING	SOUTHING
A	527110.42	8562850.97
B	545184.62	8562827.32
C	545152.75	8543474.13
D	527111.90	8543498.06

3.3 Topography

At present, the highest resolution topographic data available for the Montepuez project area is the digital elevation model from the Shuttle Radar Topography Mission (“SRTM”), at a resolution of 90 mX by 90 mY (Figure 3-1).

3.4 Geological Mapping

Government Regional Geological Mapping:

The first programme of systematic modern regional geological mapping within a GIS framework in the area surrounding the Montepuez project was conducted by a consortium of the British Geological Survey (“BGS”), Norges Geolgiske Undersakelse (“NGU”), NorConsult AS an Eteng (“NorConsult”), between 2003 and 2005. This included reconnaissance geological mapping of ten 1:250,000 m scale map sheets in the provinces of Niassa and Cabo Delgado in the north of the country, bordering Tanzania. The work part of a wider Mineral Resources Management Capacity Building Project commissioned by the government of Mozambique, with funding from the World Bank and Nordic Development Fund amongst others.

GaiaPix Photogeological Interpretation:

During late 2012 to early 2013, MRM contracted GaiaPix to conduct photogeological mapping of the Montepuez area at both regional and local scales.

A regional photogeological interpretation of the area was constructed by applying pre-existing knowledge of the regional geology of the area to the interpretation of merged Landsat ETM and SRTM data. This resulted in a 1:150,000 scale geological map, covering an area of approximately 101 km by 63 km.

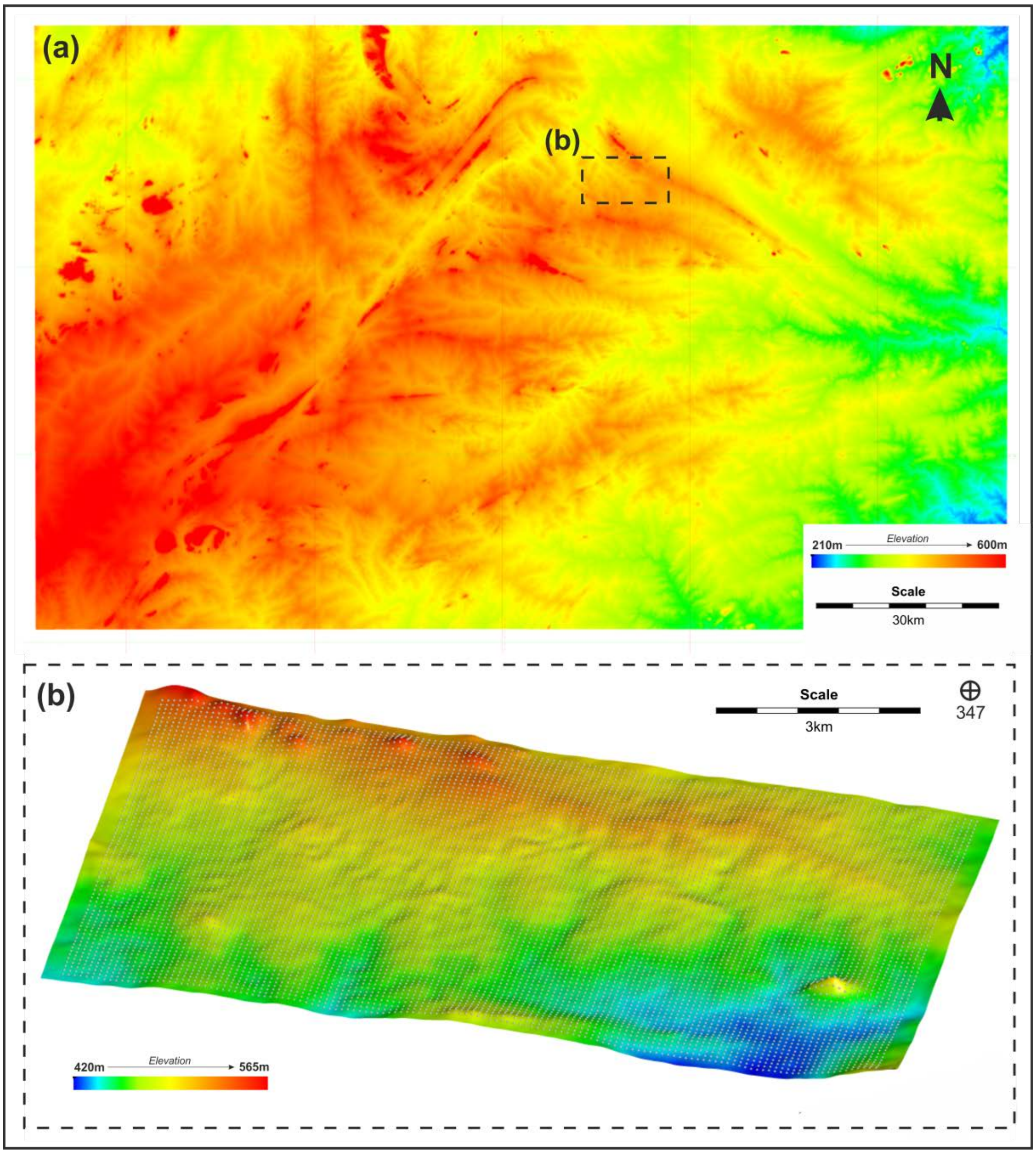


Figure 3-1: SRTM Survey Data

Notes to Figure 3-1

a) the semi regional SRTM topographic survey (coloured by elevation) and b) the local SRTM topography surface (coloured by elevation), shown relative to the SRTM survey points (in white) (X3 vertical exaggeration).

The local photogeological map is interpreted at a scale of 1:25,000, covering an area of 19.4 km by 18 km, focussing on the Maninge Nice and Mugloto areas. The interpretation is based SRTM data and GeoEye imagery. GaiaPix also conducted processing of regional ASTER data in order to produce regional mineral assemblage maps for illite, Mg OH carbonates, FeO, kaolin, pyrophyllite, alunite and silica.

The above interpretations were based on the analysis of the following satellite data:

- GeoEye: high spatial resolution radiometric data at various bands within the visible and near infrared part of the electromagnetic spectrum, commissioned specifically for the Project in November 2012.
- Landsat ETM Data: multispectral radiometric data, incorporating one satellite scene with seven bands in the visible, near infrared, shortwave infrared and thermal part of the electromagnetic spectrum, and a panchromatic band of the visible spectrum.
- ASTER Data: high resolution images across 14 bands of the electromagnetic spectrum, including the visible and very near infrared, the short wave infrared and the thermal infrared.
- SRTM Data: near-global digital elevation model data at a 90 m resolution.

In-house local mapping:

MRM has completed a number of iterations of the local geological map for the area currently delineated by drilling and exploration pitting. The area is approximately 11 km by 4 km. The MRM map is based on downhole logging data, complimented by geological and structural mapping data from limited outcrops in the north of the Concession Area. The map, which represents the key lithologies identified in MRM's downhole lithological logging database, is regularly updated as new data becomes available.

3.5 Geophysical Surveys

Terravision:

In April 2013, MRM contracted Terravision Radar ("Terravision") to conduct a ground penetrating radar ("GPR") survey of the Montepuez Project area. The GPR survey was completed along a number of curvilinear profiles, predominantly focussed on the area around Maninge Nice and Novo Mina. The results of the Terravision survey helped to provide an early estimation of the thickness of the overburden cover and highlighted the variation in the morphology of the basement surface. The survey also identified a number of potential local paleochannel (gravel bed) deposits and gave an early indication as to the degree of artisanal workings (identified as voids in the GPR profiles) affecting the gravel bed deposit.

Magnetic Survey:

To supplement the Terravision GPR electromagnetic survey completed in April 2013, MRM purchased regional total magnetic intensity ("TMI") survey data from the Council for Geoscience in South Africa, who are re-sellers on behalf of the Mozambique government. The data, which is on a 75 m grid, was later manipulated to derive a TMI analytic signal map.

In addition to the Terravision and magnetic surveys documented above, MRM also commissioned GeoEye to conduct a high resolution radiometric survey in November 2012. The results of this study were used to inform a local photogeological interpretation, which is documented in Section 4.3

3.6 Geochemical Surveys

MRM has also completed geochemical sampling and analysis, predominantly in the area around Maninge Nice and Glass A, with a small number of additional samples taken from a small zone (600 mX by 700 mY) at Ntorro Blocks 1 and 2. In general, the sample locations follow a broad 100 mX by 100 mY grid. At each sample location, a soil sample was collected from an approximately 30 cm deep hole and stored in a zip-lock sample bag. A total of 270 samples was collected and analysed for a suite of 32 elements. Elemental analysis was conducted on site, using a handheld XRF.

3.7 Drilling

3.7.1 Summary of the Drill Programme

Drilling to date at the Montepuez Concession Area comprises a total of 1,090 drillholes for a total meterage of 15,028 m (Figure 3-2). This includes 922 auger holes for 7,243 m and 168 diamond holes for 7,785 m. The auger drilling is on an approximate 200 m by 100 m grid in the Central Mugloto area and a wider 200 m by 200 m grid in the east and west of Mugloto. A small area of roughly 300 m by 250 m in the Mugloto Pit 3 area is defined by close spaced auger drilling at a rough 40 m by 40 m resolution. To date, no auger drilling has been completed in the Maninge Nice area. The distribution of diamond drill holes is relatively sporadic, being confined predominantly to the Maninge Nice, Novo Mina and central Mugloto areas. At Maninge Nice, the area surrounding the current bulk sampling pit is drilled on an approximate 100 m by 50 m grid, whilst at Novo Mina, the grid spacing averages 200 m by 100 m. In the central Mugloto area, diamond drilling is at a 400 m by 200 m resolution in the south, and a rough 500 m by 500 m gird in the north. Across the entire deposit, the auger holes are drilled to an average depth of 7.9 m, whilst the diamond holes are drilled to an average depth of 46.3 m. All diamond and auger holes are drilled vertically, and have not been surveyed.

To date, all of the auger drilling and 85 of the diamond holes were drilled by the South African external drilling contractor, Equator Drilling (“Equator”). The remaining diamond holes were completed by MRM’s in-house drilling team. The Equator holes were completed using a heavy duty Sandvik DE700 core drill, specially modified with an auger drill bit attachment for auger drilling. The in-house drilling was carried out using an RD30; a simple, trolley mounted wireline rig manufactured by Rock Drill India. The majority of diamond core is drilled at HQ diameter, with a small amount of NQ diameter core.

3.7.2 Exploration Pitting

In addition to auger and diamond drilling, MRM has also conducted close spaced exploration pitting in a number of key areas (Figure 3-3). The exploration pits are shallow holes with an average depth of 3.9 m and a typical size of 1 m^2 in cross section. The pits were excavated prior to auger and diamond drilling to provide an initial assessment of the depth and thickness of the secondary gravel bed mineralisation. The exploration pits were excavated by manual labour, and have since been filled in to avoid exploitation by artisanal workers. A total of 823 exploration pits were completed between early 2012 and November 2013, for a total depth of 3,224 m. It should be noted that a total of 200 of the 823 exploration pits were terminated prior to reaching the planned depth, due to various technical difficulties, as documented in Table 3-2.

The exploration pit data is predominantly focussed on the Maninge Nice and central Mugloto areas (Figure 3-2). At Maninge Nice, exploration pitting is concentrated in the area around the current Maninge Nice and Glass A pits and in a square grid (approximately 700 m by 900 m). In the central Mugloto, exploration pitting is concentrated in key areas, namely extending in a north-northwest to south-southeast direction in the area surrounding bulk sampling pits 1-6, and also in a smaller zone at Ntorro blocks 1, 2 and 3. The central Mugloto pits are arranged in grids at a spacing of 50 m by 50 m, 100 m by 50 m or 200 m by 100 m.

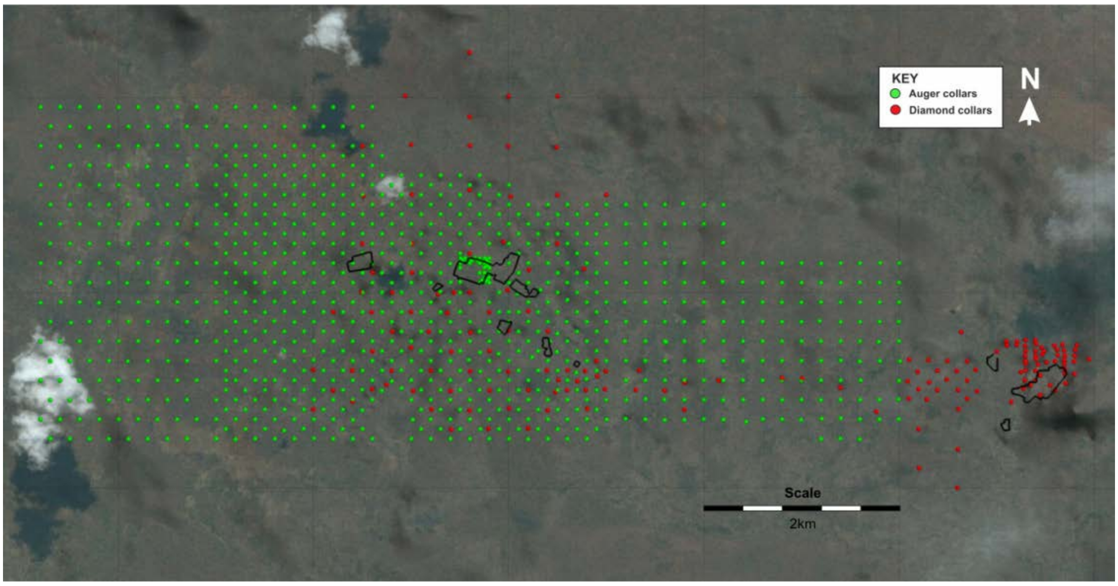


Figure 3-2: Diamond (red) and auger (green) drillhole collar locations shown relative to the current pit outlines (in black)

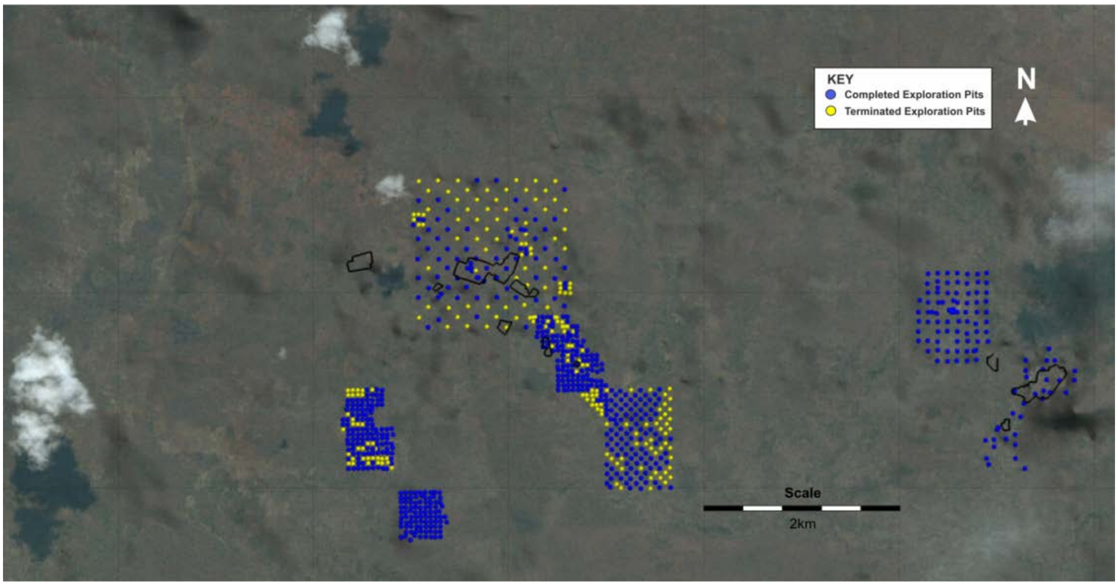


Figure 3-3: The completed (blue) and terminated (yellow) exploration pit collar locations shown relative to the current pit outlines (in black)

Table 3-2: Reason for exploration pit termination

Number of pits terminated	Reason for termination
175	*Encountered inordinately hard or consolidated laterite material, preventing further excavation by manual labour*
4	*Pit collapse*
19	*Water influx*
2	*Artisanal activity*

3.7.3 Collar Surveys

All drillhole and exploration pit collars were surveyed with standard hand-held GPS equipment. The collar X and Y values in the drillhole database relate to the GPS coordinates, whilst the elevation value is taken from the SRTM topography surface.

3.7.4 Downhole Surveys and Core Orientation

To date, all auger and diamond holes at MRM have been drilled vertically. No downhole surveying has been undertaken and none of the holes have been structurally oriented.

3.8 Bulk sampling

The main exploration tool used to determine ruby grade at the Project is through bulk sampling from a number of bulk sampling pits. To date, MRM has extracted both secondary and primary ruby mineralisation, from a total of 13 bulk sampling pits, focussed in the Maninge Nice and central Mugloto areas (Figure 3-4). For the period July 2012 to the end of December 2014, approximately 3.16 Mt of material has been removed from the bulk sampling pits, including approximately 675 kt of mineralised material. The mineralised material extracted from the bulk sampling pits is passed through the wash plant and subsequently sorted by hand in order to provide ruby grade and quality values for each pit.

At the sort house, the material recovered from the wash plant is initially split by hand into three categories, namely waste, garnet and rubies. The waste is discarded, and garnets stockpiled for future use, whilst the rubies are further split into various quality and size categories. This initially involves sieving the material to remove any gemstones less than 2.8 mm (classified as fines) and subsequently re-sieving to remove any gemstones less than 4.6 mm (classified as <4.6 mm). The remaining gemstones are then subdivided into five broad quality categories:

- **Premium Ruby:** Any rough greater than 0.5g in weight and of desirable shape, clarity and red colour, with no or very few inclusions;
- **Ruby:** Less than 0.5g in weight, but of a desirable shape, clarity and red colour. Rough 0.5g or more in weight where the rough is either included or pink in colour which affects either recovery or appearance of the finished gem.;
- **Low Ruby:** Gemstones with the required pinkish red to red colour, but translucent clarity with significant inclusions;
- **Corundum:** Opaque non-gem quality rough.
- **Sapphire:** Generally very light pink to pink gemstones of variable shape and clarity. May contain orange and off colour gems.; and

Once split into these broad quality categories, the gemstones are further divided and subdivided into various groups based on clarity, colour, size, weight and shape (see Table 3-3), resulting in several hundred final subdivisions.

Table 3-3: Premium ruby, ruby, low ruby, sapphire and corundum quality subdivisions

Ruby classification	Level 1 Subdivision	Level 2 Subdivision	Level 3 Subdivision
Premium ruby	*10 grades based on clarity and colour*	*10 weight grades*	/
Ruby (secondary material)	*10 grades based on clarity and colour*	*10 weight grades*	/
Ruby (primary material)	*Three grades based on degree of inclusions*	*6 size grades (<5.8 mm, 5.8-8 mm, 8-11 mm, 11-16 mm, 16-22 mm, +22 mm)*	*Three grades based on shape (flat, normal and thick)*
Low ruby	*Three grades based on colour (red, red-pink, pink-red)*	*Three size grades (<8 mm, 8-16 mm, +16 mm)*	/
Sapphire	*Three grades based on clarity*	*Three size grades (<8 mm, 8-16 mm, +16 mm)*	/
Corundum	*Three grades based on colour (red, red-pink, pink-red)*	*Three size grades (<8 mm, 8-16 mm, +16 mm)*	/

Figure 3-4: Current bulk sampling pit outlines in the Concession Area (excluding any historic pits since amalgamated into a single larger pit)

3.9 Data capture and storage

3.9.1 Introduction

MRM has put in place a logical logging and data capture procedure for diamond and auger drilling, to guide the on-site staff through the technical process. This aims to ensure a consistent methodology for the process of capturing data throughout the drilling campaign to allow for subsequent meaningful analysis. All logging is carried out by MRM geologists, and SRK considers the methodologies in place to be consistent with normal industry practice for this commodity type. That being said, SRK has made a number of recommendations to MRM to improve the logging process going forward to ensure that the most relevant data is captured in a consistent and user-friendly format.

3.9.2 Diamond Drilling

Core and core blocks are placed in core boxes by the geo-assistant. Upon receipt at the core shed, the drill core is cleaned or washed, if required, and core blocks are checked by MRM staff. The core is then photographed both wet and dry and a geo-assistant (Figure 3-5a).

None of the Montepuez drill core is oriented and, as such, it is not possible to draw a core orientation line onto the core. Instead, a downwards arrow is marked on the core at 20-30 cm intervals, to denote the drilling direction. Metre marks are drawn on the core once the downwards arrow has been completed. The metre marks indicate the downhole depth, taking into account the position of any core loss. All core mark-up is completed by a trained geo-assistant (Figure 3-5b).

Figure 3-5: Geo-assistant core photography (a) and core mark up (b) observed during the March 2015 SRK site visit

Subsequent to core mark-up, geological logging is carried out by an MRM geologist. Geological data is recorded in a detailed log spread sheet designed to capture key geological information for each interval. This includes lithology, mineralogy, weathering, alteration, colour, grain size, structure/texture and intrusive features including veining or minor igneous bodies. A new interval is started at each lithological contact, with a minimum logging thickness of 1 m. These are detailed in Table 3-4 and described in detail in Section 2.2.1. No samples are taken from the core, but in addition to bulk mineralogy, the presence of any key minor or trace minerals of interest, including rubies, corundum, garnet and pyrite are recorded. Any ruby mineralisation is circled in red to highlight for future reference.

Table 3-4: Montepuez diamond drillhole database lithology information

Lithological Logging Code	Number of Records (DD database)	Total Meterage (m) DD database
Soil	1,757	5,403.94
Laterite	508	1,441.46
Clay	1,341	2,633.58
Sandy with Quartz	116	216.50
Quartz Pebble	7	5.10
Gravel Bed	797	333.15
Biotite Gneiss	907	3,542.60
Hornblende Biotite Gneiss	294	2,284.25
Granitic Gneiss	70	548.10
Undifferentiated Gneiss	299	234.65m
Amphibolite	223	790.04m
Quartzite	62	79.80m
Carbonate	46	395.10m
Impure Carbonate	49	230.90m
Quartz Vein	21	15.45m
Pegmatite	22	48.30m

Basic geotechnical data including recovery and rock quality designation ("RQD") is also recorded by a geologist or geo-assistant, alongside the geology data in the geological logging sheet. Recovery is defined as the total length of core recovered as a percentage of the run length. RQD is defined as the core recovery percentage, only incorporating pieces of solid core greater than 10 cm in length measured along the centre line of the core.

Once the drill core has been geologically and geotechnically logged, it is placed in storage for future reference.

3.9.3 Auger Drilling

For auger drilling, geological logging of the overburden material and the top of the weathered basement is conducted by an MRM geologist at the rig. For each 0.5 to 1 m run, the geologist assesses the overburden material to measure the depth of any contacts, before it is removed from the drill bit and placed into a tray for logging of the lithology / overburden material type. Once logging is complete, a small representative sample (approximately 0.5 to 2 kg) is placed into a sample bag for each metre and the rest of the material is discarded. Within the gravel bed, a representative 2 kg sample is bagged for future reference, and the rest of the material is sent for washing. Drilling ceases when fresh, un-weathered rock is intersected and the drill can no longer penetrate.

At the wash plant, the gravel bed material recovered from the auger drilling is weighed, before being put through a small, portable jig. The washed material is then re-weighed and sent to the sort house to record any recovered rubies. The gravel bed sample weight, washed sample weight and recovered ruby weight is then recorded.

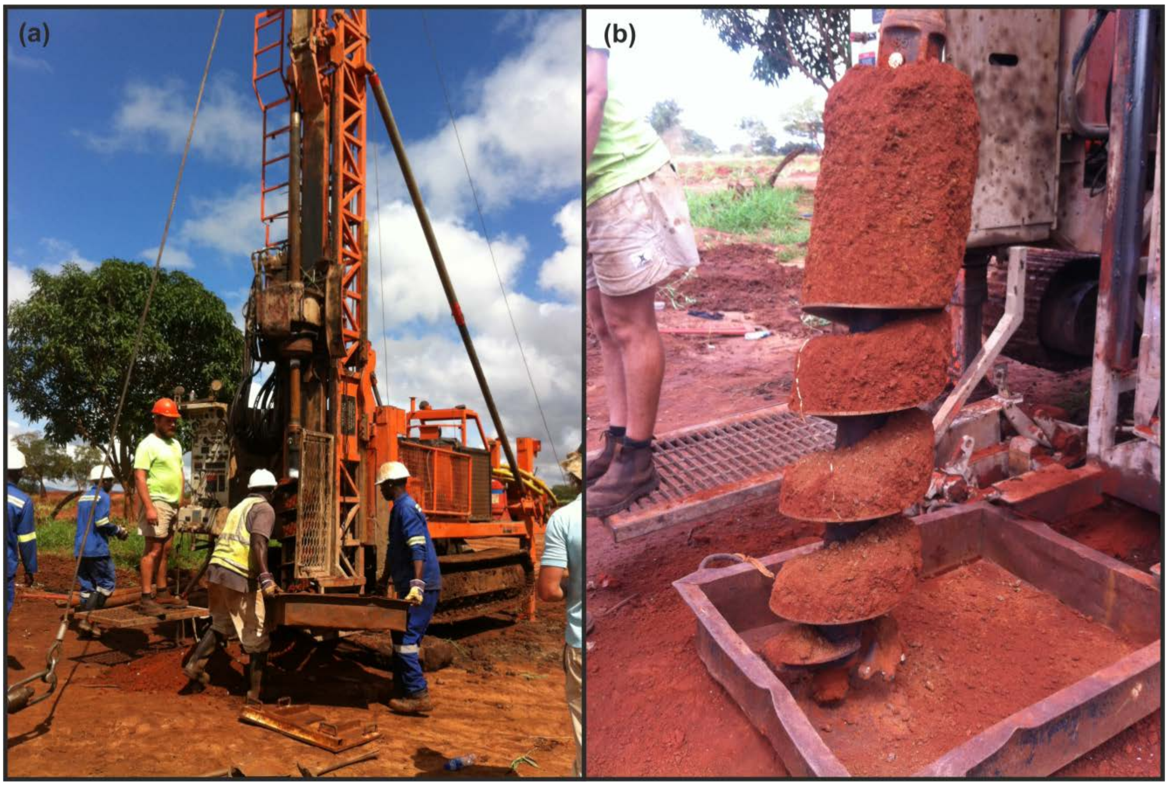


Figure 3-6: Auger drilling at Mugloto observed during the March 2015 SRK site visit, a specially modified Sandvik DE700 diamond rig (a) with an auger drill bit (b)

3.10 Density

Bulk and in situ density measurements of the top soil, clay, gravel bed and weathered basement are routinely recorded once a month in the bulk sampling pits, concurrently with the mining. For determining the bulk density of the top soil or gravel bed material, the geologist selects five locations along the length of the bench, and it is heaped by the excavator. Each heap is then manually sampled into a container of known volume. For each heap, the material is transferred from the container into a polyweave sack and transported to the Project camp for weighing. The density of each sample is calculated by dividing the sample weight by the volume of the container. The final density is then taken as an average of the five derived density values. The in situ density measurements are taken by hammering a metal cylinder of known volume into the desired material in the pit face. The cylinder is then rotated and removed from the face and emptied into a plastic sample bag. In the instance that the cylinder is not fully packed with material, the sample is re-taken. The sample bag is then transported to the Project camp for weighing and the density calculated by dividing the sample weight by the volume of the cylinder. This process is repeated five times, roughly equal distances apart within the selected sample area, and the final density is taken as an average of the five derived density values. To date, no density measurements have been taken from the Montepuez diamond drill core. There are no density values available for the fresh basement rock.

4 MINERAL RESOURCES

4.1 Deposit Modelling

The Montepuez geological model comprises two constituent parent domains relating to the differing styles of ruby mineralisation observed, namely the gravel bed host to the secondary mineralisation, and the amphibolite hosted primary mineralisation. The following section describes the modelling methodology applied to the two mineralisation styles.

4.1.1 Gravel Bed

Prior to constructing the gravel bed model, a basement surface wireframe, representing the base of the overburden material, was modelled. This was modelled from the logged base of overburden in all diamond holes, auger holes and exploration pits. This basement surface, which is interpreted to represent the paleotopography at the time of the gravel bed deposition, was then used as a framework to guide the gravel bed model.

Hangingwall and footwall surfaces of the gravel bed horizon (GB) were generated from the logged gravel bed in the auger holes and exploration pits. As requested, SRK excluded the 200 terminated exploration pits (see Section 3.7.2) during this phase of modelling. A 3D solid was then generated from the modelled hangingwall and footwall surfaces. In areas where no gravel bed was intersected, the model was manipulated to pinch out to a zero thickness mid-way between mineralised and un-mineralised holes.

Diamond drilling data was largely ignored for the gravel bed model. Comparison of the average logged gravel bed thickness in the auger holes, exploration pits and diamond holes, indicates that the logged gravel bed thickness in the diamond drill database is on average approximately 3.04 times the average thickness intersected in the auger holes and exploration pits (Table 4-1). This is thought to be the result of “washing out” of the gravel bed during the wet diamond drilling process, rendering the estimation of gravel bed thickness in the diamond holes highly problematic. The only area in which the diamond drill data was used in part to generate the gravel bed model was at Maninge Nice, where it was necessary to utilise the diamond drill data due to a data gap resulting from a lack of auger drilling. Here, the diamond drill database was used to indicate the presence (or otherwise) of the gravel bed horizon, with the thickness value being extrapolated from the nearest exploration pits.

Plan and sectional views of the gravel bed model are displayed in Figure 4-1 and Figure 4-2. SRK has modelled the gravel bed to reflect the basement surface.

Table 4-1: Comparison of the thickness of the logged gravel bed horizon in the auger holes, diamond holes and exploration pits

Data Type	Minimum logged GB thickness	Maximum logged GB thickness	Average logged GB thickness in m *(where GB is intersected)*
Exploration Pits	0m	1.50m	0.32
Auger Holes	0m	1.70m	0.41
Diamond Holes	0m	6.00m	1.11

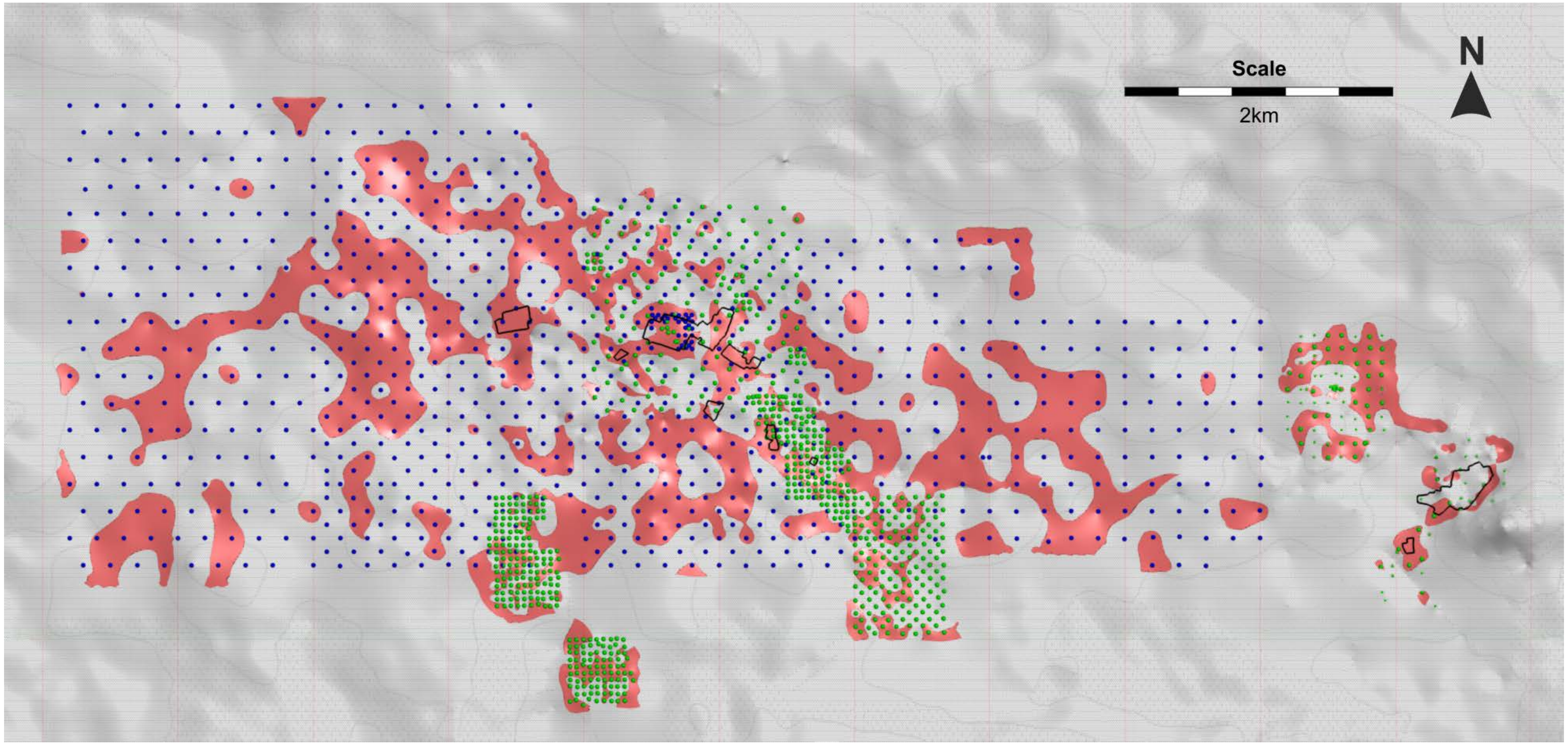


Figure 4-1: Plan view of the gravel bed model (in red) overlain on the basement surface, shown relative to the collar locations of auger drill holes (blue) and exploration pits (green)

Gravel Bed "Skin":

Due to the relatively thin average thickness of the gravel bed, and the inherent small-scale variability associated with the unit, it is not possible to mine the horizon in isolation. For this reason, the gravel bed grade and tonnage statistics in the MRM production data, relate to the gravel bed horizon, plus overburden waste mined as part of the same face. MRM has indicated that the standard mining practice is to take an average 0.3 m of waste both above and below the gravel bed, with a standard minimum mining thickness of 1.5 m (if the gravel bed is <0.9 m thick then the face height then reverts to 1.5 m). A gravel bed "skin" model was created to reflect this, based on the gravel bed model, expanded by 0.3 m on both the footwall and hangingwall sides, or set to a standard 1.5 m thickness where the gravel bed model is <0.9 m thick. SRK notes that the Mineral Resource, however, does not include this mining dilution.

4.1.2 Maninge Nice Amphibolite

The Maninge Nice amphibolite body, host to the primary mineralisation, was modelled through sectional polyline interpretations, and cropped below the modelled basement surface (Figure 4-3 and Figure 4-5). The model incorporates logged amphibolite in a total of 11 diamond drillholes and four exploration pits that terminate in weathered amphibolite. The geometry of the amphibolite unit may be described in terms of a near-flat lying, east-west trending lensoidal body. Within the context of the wider deposit geology, this lens is interpreted to lie in the hinge of a gentle, rounded synform with a broadly east-west trending axial plane, parallel to the regional structural trend.

The Maninge Nice amphibolite model was sub-domained into "Highly Weathered", "Moderately Weathered" and "Less Weathered" portions, based on the weathering codes in the MRM diamond drillhole geology log (Figure 4-3). The base of weathering extends beyond the deepest point of the principal amphibolite unit.

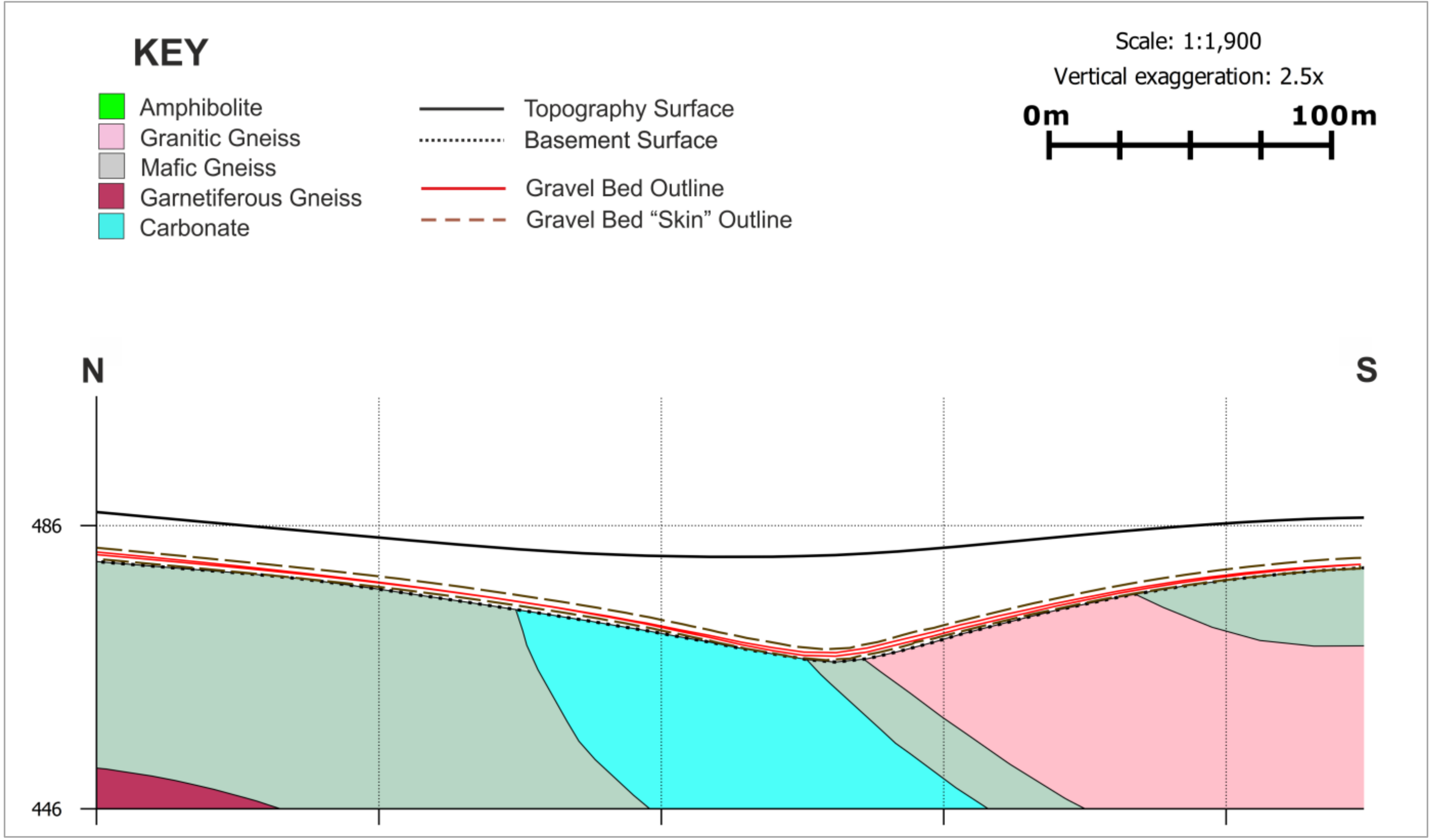


Figure 4-2: The modelled gravel bed (red) and gravel bed "skin" (dashed brown) shown relative to the basement geology model. Note that the gravel bed model broadly mirrors the trend of the basement surface

An additional, minor (approximately 10-15 m true thickness) and discontinuous, south-dipping amphibolite lens is intersected by a total of four diamond drill holes approximately 800 m east of the Maninge Nice pit. This additional amphibolite body has not been incorporated into the resource estimate, as there is currently no production data to confirm that the unit hosts any primary ruby mineralisation, and due to the inherent degree of uncertainty relating to the geometry of a unit modelled on the basis of sparse drillhole data.

4.1.3 Deposit Bedrock Model

To supplement the models of the primary and secondary mineralisation, a complete model of the bedrock was also produced (Figure 4-4). This provides enhanced visualisation of the sub-surface geology, with the aim improving the understanding of the local geology and to aid in future exploration planning. The geological model is based on a simplified version of the raw MRM logging codes and comprises amphibolite, granitic gneiss, carbonate, mafic gneiss (including both biotite gneiss and hornblende biotite gneiss) and garnetiferous gneiss, in addition to an overburden model including soil, clay and the gravel bed resource model.

The bedrock model is domained below the modelled basement surface, and uses the simplified geological logging codes in the diamond drill database, supplemented by auger logging data as the main control on model geometry. Between drillholes, modelling was guided by visual trends in the downhole lithological logging and the MRM surface mapping structural data (where available), with a strong emphasis placed on honouring the known regional / semi-regional geological/structural framework. Where possible, the bedrock geology was modelled to reflect the position and trend of the key lithological contacts in the local geology map generated by MRM.

The resulting geological model reflects the deposit geology interpretation highlighted in Section 2.2.3, characterised by a broadly east-west trending gentle-open fold system. Greater confidence in the geometry of the subsurface geology can only be achieved through additional exploration, preferably including structurally oriented diamond drilling, which should provide a much more robust basis for defining the trend of the various units between drillholes.

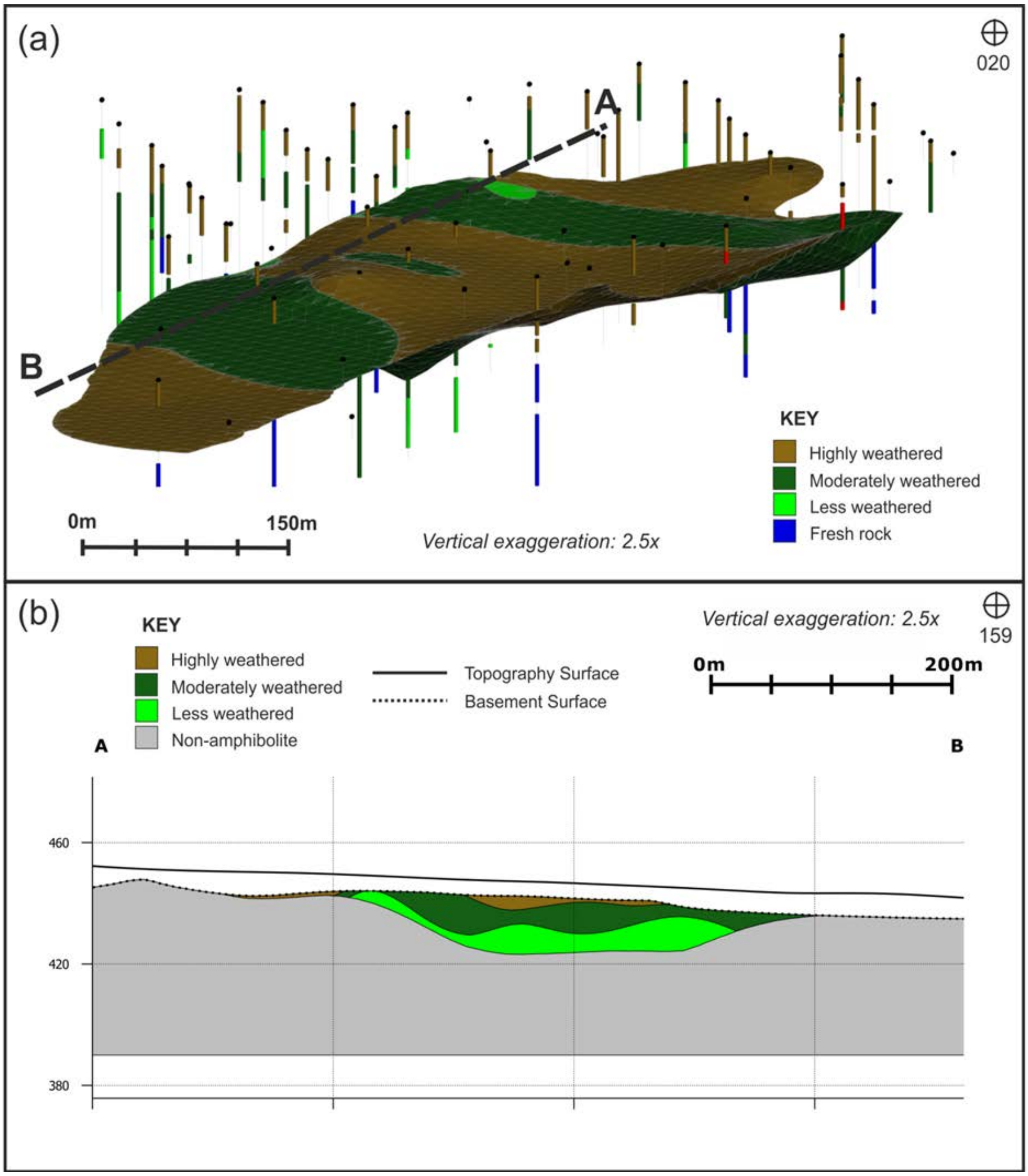


Figure 4-3: Oblique (a) and sectional (b) views of the Maninge Nice amphibolite model coloured by degree of weathering

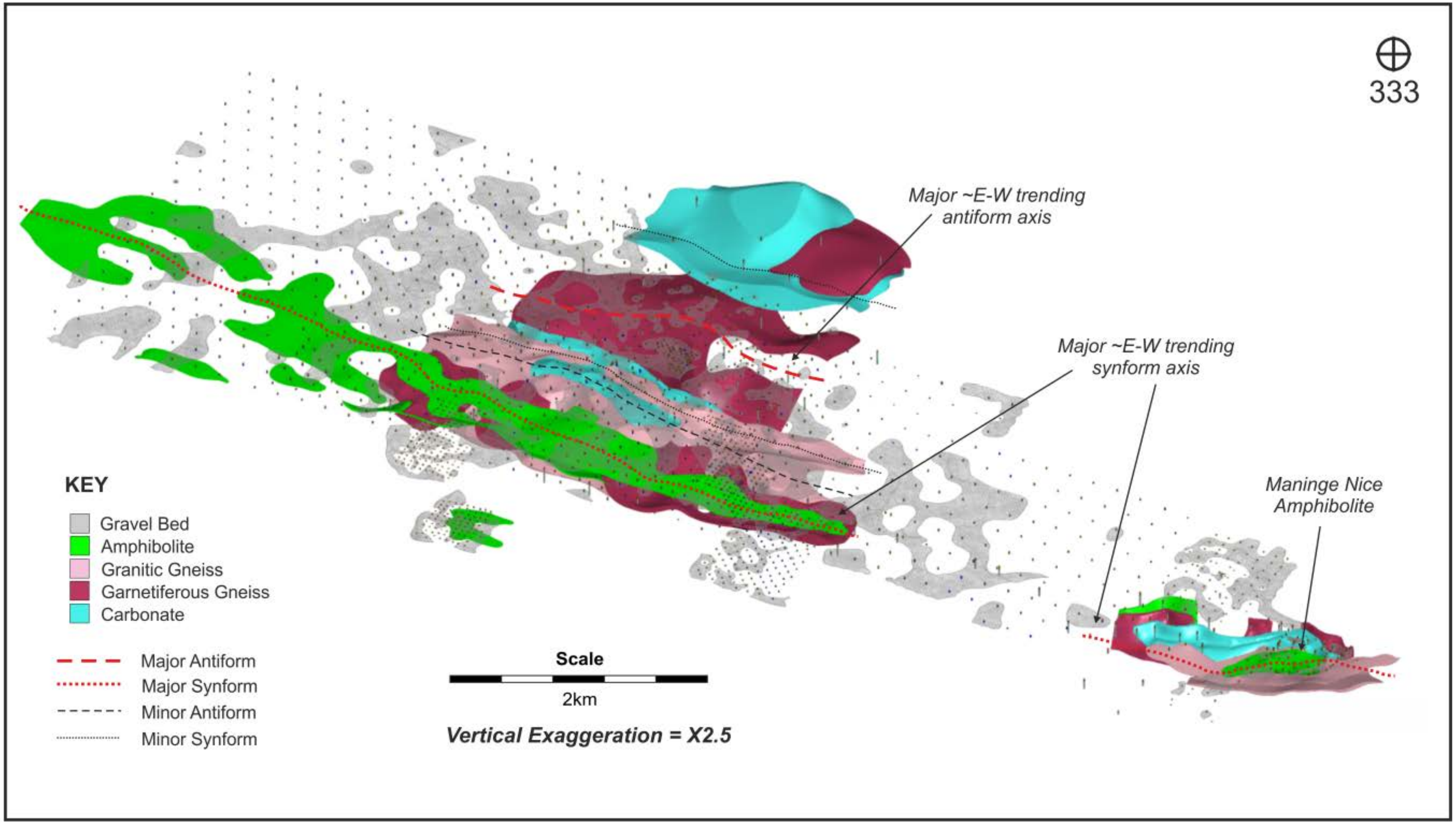


Figure 4-4: The Montepuez fresh rock model, overlain by the gravel bed resource model (in grey)

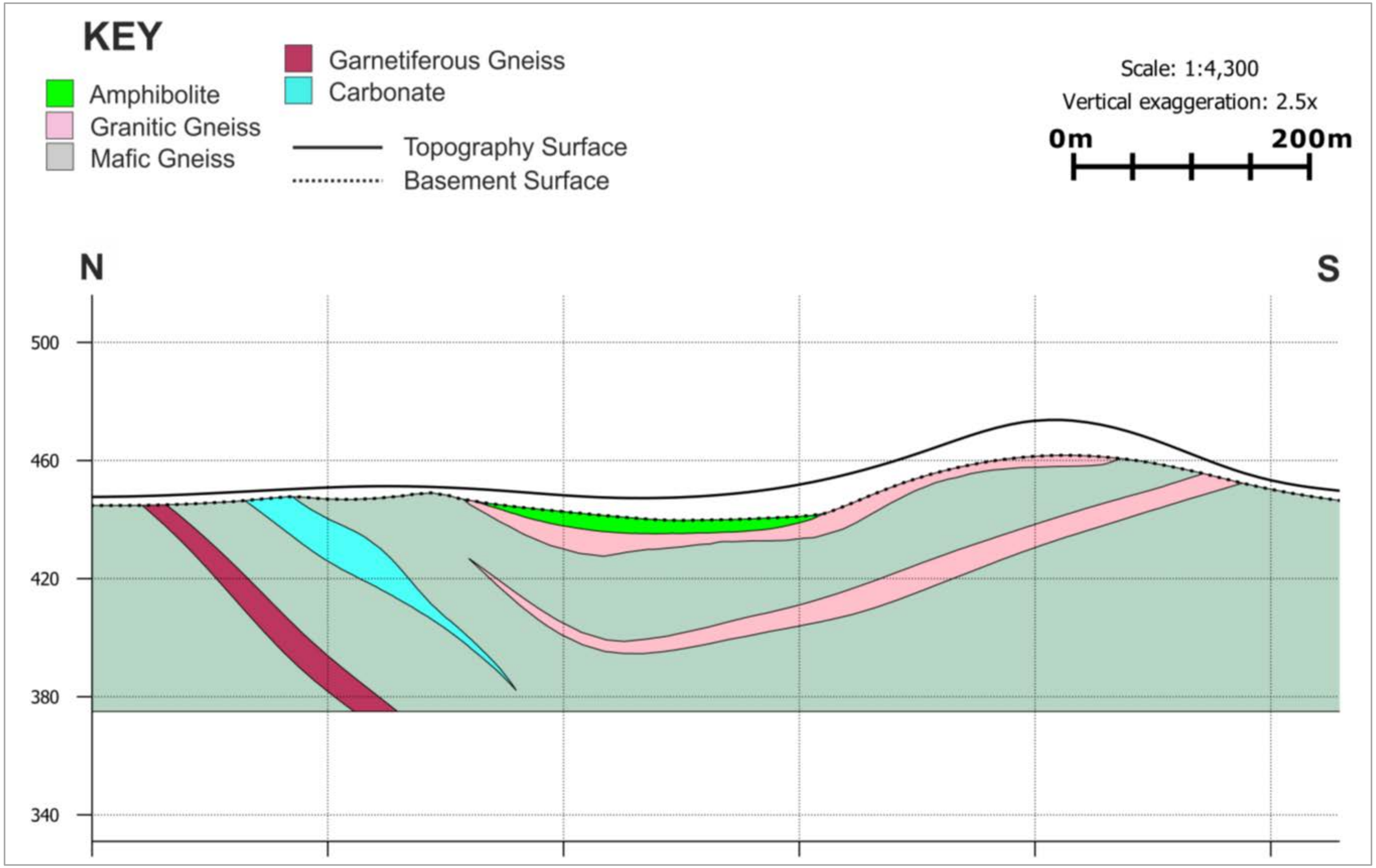


Figure 4-5: North-south cross section through the Maninge Nice area, displaying the amphibolite host to the primary mineralisation, in relation to the modelled granitic gneiss, mafic gneiss, carbonate and garnetiferous gneiss lithologies

4.2 Grade and Tonnage Modelling

4.2.1 Production data and derivation of grade factors

Production data covering all of the bulk sampling pits have been supplied by MRM. SRK has compared the models of the gravel bed and gravel bed skin to identify whether the 1.5 m skin modelling approach is appropriate.

The first stage was to determine the amount of gravel bed which the model has predicted for the bulk sampling pit. The pit outlines, as supplied by MRM, were queried against the model, with the volume of the gravel bed, and gravel bed skin being reported. The volumes, converted to tonnages using an in situ density of 1.88 g/cm^3, are shown in Table 4-2.

Table 4-2: Tonnages of gravel bed per bulk sampling pit, compared to production data

Pit Name	Material Type	To plant (t)	Mined (t)	Modelled Gravel Bed (t)	Modelled Gravel Bed+ skin (t)
Pit 1	Gravel Bed	11,189	12,250	151	2,324
Pit 1A	Gravel Bed	1,403	32,345	2,545	32,302
Pit 2	Gravel Bed	44,514	50,835	13,707	56,312
Pit 3	Gravel Bed	59,692	190,375	70,250	250,153
Pit 5	Gravel Bed	0	30,742	21,943	103,458
Total (Pits)		**116,797**	**316,547**	**108,596**	**444,549**

Table 4-2 indicates how the gravel bed and skin model reflects the production being achieved from the pits. For Pit 1, SRK acknowledges that the modelled tonnage is significantly less than that recovered, but notes that this part of the model is not well supported by drilling data, resulting in a high level of uncertainty. In Pit 3 and 5, the pits are still being mined so not all of the gravel bed has been recovered. For Pits 1A and 2, where mining has been completed, there is a good correlation between what has been modelled, and what has been mined. As the model of the gravel bed and skin appears to reflect what is being mined, SRK has used this as the starting point for producing a grade factor. The first stage is to determine the ratio of gravel bed to gravel bed and skin, to illustrate the amount of dilution being introduced (Table 4-3).

Table 4-3: Determination of skin/Gravel Bed factor from modelled tonnages within pit outlines

Pit Name	Material Type	Modelled Gravel Bed (t)	Modelled Gravel Bed+ skin (t)	Factor: Skin/Gravel Bed
Pit 1	Gravel Bed	151	2,324	15.37
Pit 1A	Gravel Bed	2,545	32,302	12.69
Pit 2	Gravel Bed	13,707	56,312	4.11
Pit 3	Gravel Bed	70,250	250,153	3.56
Pit 5	Gravel Bed	21,943	103,458	4.71
Total (Pits)	**-**	**108,596**	**444,549**	**4.09**
Whole Model	**Gravel Bed**	**2,199,800**	**13,066,000**	**5.94**

The factors are variable between the different pits, which are related to the thickness of the gravel bed, and therefore whether the skin is modelled at 0.3 m, or the full 1.5 m skin. The variability between the individual pits, and that of the whole model, SRK has used the factor derived from the whole model. The areas being mined are generally thicker than the majority of the model, which may indicate that the areas being mined are unrepresentative of the whole model.

This factor was then used to inflate the reported production grades, to remove the anticipated dilution. This is illustrated in Table 4-4. No factor was used for the amphibolite grades, as MRM does not anticipate dilution being a consideration during the mining of the primary material.

Table 4-4: Application of factor to production grades per pit, to undiluted grades

Area	Material Type	Production Grade (ct/t)	Factor: Skin/GB	In-situ Grade (ct/t)
Mugloto	Gravel Bed	2.57	**5.94**	15.3
Maninge Nice	Gravel Bed	58.9	**5.94**	349.8
Glass A	Gravel Bed	58.9	**5.94**	349.8
Maninge Nice	Amphibolite	115.4	**0**	115.4

The grades presented referred to as in situ grades, are those grades which will be recovered through the wash plant. The grades are based on 100% wash plant recovery, and therefore no processing loss is modelled.

4.2.2 Grade variability within the gravel bed

The production data show how there is a level of variation across the modelled gravel bed. The variation between Maninge Nice and Mugloto is well documented, but SRK notes that the grade of recovered rubies changes varies across Mugloto as well.

The production data from the trial pits, including the percentage of each ruby class are shown in Table 4-5 and Table 4-6.

Table 4-5: Grade production data per pit, with ruby classes as percentages

Pit Name	Material Type	Total Grade (ct/t)	Premium Ruby (%)	Ruby (%)	Low Ruby (%)	Corundum (%)	Sapphire (%)	4.6mm (%)
Pit 1	Gravel Bed	5.64	0.1	5.7	8.4	10.0	56.9	18.8
Pit 1A	Gravel Bed	0.11	2.5	97.5	0.0	0.0	0.0	0.0
Pit 2	Gravel Bed	1.90	1.6	8.2	8.2	4.9	54.7	22.4
Pit 3	Gravel Bed	2.56	28.6	60.3	0.9	0.7	7.3	2.1
Average (Mugloto)	**Gravel Bed**	**2.57**	**15.0**	**34.3**	**4.5**	**11.3**	**3.9**	**31.0**
Manigne Nice	Gravel Bed	59.3	0.02	7.6	12.8	17.3	50.9	11.4
Glass A	Gravel Bed	20.6	0.0	4.3	9.3	13.8	40.0	32.5
Average (Maninge Nice)	**Gravel Bed**	**58.9**	**0.0**	**7.6**	**12.8**	**17.3**	**50.8**	**11.6**
Manigne Nice	Amphibolite	115.4	0.0	3.7	6.7	4.9	51.8	32.9
Average (Maninge Nice)	**Amphibolite**	**115.4**	**0.0**	**3.7**	**6.7**	**4.9**	**51.8**	**32.9**

Table 4-6: Grade production data per pit, with ruby classes as grades (ct/t)

Pit Name	Material Type	Total Grade (ct/t)	Premium Ruby (ct/t)	Ruby (ct/t)	Low Ruby (ct/t)	Corundum (ct/t)	Sapphire (ct/t)	4.6mm (ct/t)
Pit 1	Gravel Bed	5.64	0.004	0.32	0.48	0.56	3.21	1.06
Pit 1A	Gravel Bed	0.11	0.003	0.11	0.00	0.00	0.00	0.00
Pit 2	Gravel Bed	1.90	0.03	0.16	0.16	0.09	1.04	0.42
Pit 3	Gravel Bed	2.56	0.73	1.55	0.02	0.02	0.19	0.05
Average (Mugloto)	**Gravel Bed**	**2.57**	**0.4**	**0.9**	**0.1**	**0.3**	**0.1**	**0.8**
Maninge Nice	Gravel Bed	59.3	0.01	4.53	7.58	10.26	30.16	6.73
Glass A	Gravel Bed	20.6	0.00	0.89	1.92	2.84	8.24	6.70
Average (Maninge Nice)	**Gravel Bed**	**58.9**	**0.0**	**4.5**	**7.5**	**10.2**	**29.9**	**6.8**
Maninge Nice	Amphibolite	115.4	0.00	4.32	7.68	5.69	59.73	37.96
Average (Maninge Nice)	**Amphibolite**	**115.4**	**0.0**	**4.3**	**7.7**	**5.7**	**59.7**	**38.0**

As the production data shows, there is a high degree of variation between the individual pits, and between areas within the deposit. There is also variability present in the total rubies recovered, and the splits between different ruby classes. In Mugloto, the amount of premium ruby recovered from Pit 3 is 28.6%, compared to 0.1% in Pit 1, 2.5% in Pit 1A, and 1.9% in Pit 2. A grade capped average for the whole of each mining area was applied. This approach was taken as there is a high degree of variation in ruby quality across the deposit. This is described further in Section 5.2. Reported historical production also includes recovered gemstones from other sources, as defined in Section 5.2, but these have not been taken into account during the assessment of grade variability in the gravel bed.

The final ruby grades were derived from the average diluted grades presented in Table 4-6, and the factors in Table 4-4. The undiluted, in situ grades are reflected in Table 4-7. The undiluted grades were coded into the block model, for use in the Mineral Resource reporting, and subsequent mine planning studies.

Table 4-7: Undiluted grade data per area, with ruby classes as grades (ct/t)

Area	Material Type	Total Grade (ct/t)	Premium (ct/t)	Ruby (ct/t)	Low Ruby (ct/t)	Corundum (ct/t)	Sapphire (ct/t)	4.6mm (ct/t)
Mugloto	Gravel Bed	15.3	2.3	5.2	0.7	1.7	0.6	4.7
Maninge Nice	Gravel Bed	349.8	0.1	26.6	44.6	60.4	177.6	40.4
Maninge Nice	Amphibolite	115.4	0.0	4.3	7.7	5.7	59.7	38.0

4.2.3 Block Modelling

In order to produce a model for input into the mining studies, SRK has generated a block model from the different domains. The block model was coded to reflect the different grade domains and areas, and coded with the undiluted grade data. For each of the tree areas, the grade in each block was as recorded in Table 4-7. As such, no direct grade estimates were generated, as SRK has based the anticipated grade on that produced to date.

4.2.4 Density and Tonnage Estimation

SRK applied the average in situ density values to generate a tonnage estimate. The density values applied per domain are shown in Table 4-8.

Table 4-8: In situ density data and modelled values

Area	Material Type	Number Samples	Density Value (g/cm^3)
Mugloto	Gravel Bed	8	1.95
Maninge Nice	Gravel Bed	1	1.53
Maninge Nice	Amphibolite	6	2.15

4.2.5 Artisanal Mining Activities

The Concession Area has been subject to exploitation by illegal artisanal miners in various areas, focussed on both the relatively easily accessible shallow secondary gravel bed mineralisation, as well as the underlying primary mineralisation present within north-south orientated river channels in the Maninge Nice and Ntorro areas and in the weathered amphibolite at Maninge Nice. As MRM improved security at Maninge Nice in 2012, the focus of the artisanal activity shifted to the lower grade, higher quality secondary mineralisation in the central Mugloto area. MRM has since further increased security measures across the Concession Area in order to gain a degree of control over the artisanal mining activities and to prevent excessive additional removal of material from the deposit. SRK considers the current security arrangements on site to be appropriate.

Through field mapping and interpretation of satellite imagery, MRM has mapped the broad areas affected by artisanal activity (Figure 4-6). These areas are typically sporadically dotted with small artisanal pits, on average approximately 1.3 m deep and 1.1 m wide. In order to ascertain the percentage of the total ruby mineralisation extracted by the artisanal workers within the broad outlines mapped by MRM, a detailed mapping programme of the artisanal excavations was completed by MRM staff in March 2015. This involved the selection of a number of representative areas within the artisanal outlines (Figure 4-6), across the Project area, and systematic tracing of these areas on foot in order to record the following information:

- Number of artisanal pits within the sample area.
- The average area (length*width) of each pit.
- The average depth of each pit.

This was completed over seven sample areas, each covering an area of 10,000 m^2. The results, presented in Table 4-9, suggest that within the broad artisanal outlines mapped by MRM, approximately 2 to 6% ruby mineralisation has been removed by artisanal workers. The average volume removed by artisanal mining activity was subtracted from the blocks within the areas mapped as being affected by mining.

Table 4-9: Artisanal pitting statistics within the artisanal outline sample areas

Area	Sample area (m2)	Number of artisanal pits	Average pit area (m2)	Average pit depth (m)	Total pitted area (m2)	Pitted area (%)
A	10,000	279	1.43	6.5	399	4.0
B	10,000	308	1.56	4.0	480	4.8
C	10,000	373	1.56	3.5	582	5.8
D	10,000	341	1.56	3.5	532	5.3
E	10,000	271	0.90	6.0	244	2.4
F	10,000	278	1.54	3.0	428	4.3
G	10,000	312	1.54	3.0	480	4.8
Total / Average	**70,000**	**2,162**	**1.44**	**4.2**	**3,146**	**4.5**

Figure 4-6: Plan view of the broad areas affected by artisanal excavation (in grey) in the area of the MRM bulk sampling operations (existing pits in orange). Sample areas A-G are outlined in black.

4.3 Mineral Resource Classification

Classification of the Mineral Resources reflects the inherent variability in the distribution of economic concentrations of rubies which necessitates bulk sampling because standard drilling techniques are inappropriate to provide sufficient data density to enable estimation of tonnages and grades. Conventional drilling as currently employed can only provide information to determine the volume of the different mineralisation types, and the locations relative to other lithologies and geological structures. Derivation of Mineral Resources is largely dependent on the availability of the results of bulk samples or equivalent such as historical production statistics.

A number of assumptions were therefore made during the geological modelling process. Based on the available data, SRK has assumed that the primary and secondary units remain constant to extents of the modelled units with no changes in geology or mineralogy. Similarly SRK has assumed that there is no change in the mineralising system laterally or with depth. SRK has also assumed that the distribution of differing ruby quality classes is constant through the modelled units. SRK notes that the bulk sampling data indicates that there is a degree of variation in the secondary mineralisation in particular, and that this is a key aspect which requires additional understanding. SRK has included a number of key recommendations which will need to be addressed in order to mitigate the risk of the variable ruby quality.

Grade data is sourced from bulk sampling production data so no direct grade estimate (from drilling) can be undertaken. Grade estimates are therefore entirely dependent on production data for validation. The global grade has been applied to the mineralisation types, as described. SRK notes that the quantity of rubies recovered from the primary and secondary mineralisation is known, but it cannot be specifically stated as being in certain local areas.

SRK considers that understanding the paleo-drainage regime, which has influenced the secondary mineralisation in particular, is key to understanding the grade and quality variability within the gravel bed. This will also influence the gravel bed morphology. SRK considers that the above assumptions, in particular the distribution of rubies within the gravel bed and amphibolite units, along with other aspects such as the assumed density are key factors in determining the classification applied to the Mineral Resources.

4.4 Mineral Resource Statement

The Mineral Resource statement for the Montepuez deposit is given in Table 4-10. The statement is split into the mineralisation types (primary and secondary), as well as the different geographical areas. The statement presented is based on the geological modelling of the two mineralisation styles, and the application of factors derived from the bulk sampling. SRK considers that Table 4-10 as presented is reported in accordance with the JORC Code (2012). SRK has summarised the assumptions used to derive the Mineral Resource statement in Appendix 1. In presenting this Mineral Resource, the following apply:

- Mineral Resources are quoted at appropriate in situ economic cut-off grades which satisfy the requirement of ‘potentially economically mineable’ for open-pit mining; furthermore, the commodity prices incorporated into the cut-off grade calculations for derivation of optimised shells are USD10 /ct which is an average price for all carats produced.

- Mineral Resources are quoted on a 100% ownership basis.

As at 1st January 2015, SRK notes that the Montepuez ruby deposit has Mineral Resources, as presented in accordance with the JORC Code (2012), of 2,502 kt of primary material, grading at 115.4 ct/t ruby and 4,998 kt of secondary material, grading at 35.7 ct/t ruby. The primary mineralisation is modelled to contain a total of 289 Mct and the secondary mineralisation, 178 Mct.

In addition to the in-situ material, MRM also maintains stockpiles of both the primary and secondary mineralisation types. These are sourced from both Maninge Nice and Mugloto. The stockpiles are monitored through RoM material added during production, RoM material moved to the processing plant, and through occasional surveying. The most recent survey completed, as provided to SRK, was in November 2014. The stockpile balances reported are based on the production data, due to a high degree of uncertainty regarding the surveying of the stockpiles, as reported by MRM.

Table 4-10: SRK Mineral Resource Statement, as at 1st January 2015, for the Montepuez ruby deposit

Area	Mineralisation Type	Classification	Density (g/cm^3)	Tonnage (kt)	Grade (ct/t)	Contained Carats (ct ,000)
Maninge Nice	Primary	Indicated Mineral Resources	2.15	2,124	115.4	245,000
		Inferred Mineral Resources	2.15	378	115.4	44,000
	Secondary	Indicated Mineral Resources	1.53	305	349.8	107,000
		Inferred Mineral Resources	-			
	Stockpiles - Primary	Indicated Mineral Resources		91	115.4	10,600
	Stockpile - Secondary	Indicated Mineral Resources		60	58.9	3,500
Mugloto	Secondary	Indicated Mineral Resources	1.95	4,693	15.3	72,000
		Inferred Mineral Resources	-			
	Stockpile - Secondary	Indicated Mineral Resources		200	2.6	500
Total	**Primary**	**Indicated + Inferred**	**2.15**	**2,502**	**115.4**	**289,000**
	Secondary	**Indicated + Inferred**	**1.91**	**4,998**	**35.7**	**178,000**
	Stockpiles	**Indicated**		**351**	**41.6**	**14,600**

The Competent Person with overall responsibility for reporting of the Mineral Resource is Dr Lucy Roberts, MAusIMM (CP), a Principal Consultant (Resource Geology) with SRK. Dr Roberts has the relevant experience in reporting Mineral Resources on various coloured gemstone projects.

4.5 Exploration

MRM has a substantial exploration programme planned for the next few years. The 2014 Exploration Program covered around 36km^2 (32km^2 in Mugloto area & 4km^2 in Maninge Nice). This is a small part of the 336 km^2 of Concession Area. On the basis of the findings of 2014 Exploration program, it is envisaged that around 140 km^2 is covered by outcrop areas and the rest amounting to 160 km^2 remains to be explored. MRM has plans to cover this virgin area within a period of next 4 to 5 years by auger drilling under its planned exploration program. Besides this the exploration program will also target to delineate the primary source by diamond core drilling.

The exploration program also includes a high-resolution airborne geophysical survey for understanding basement geology and modelling which will substantiate exploration plans for Primary Ore Zones. The LoMp includes a provision of USD2.5 M per year over the next four years. The exploration programme planned includes some topographic and geophysical surveys; however, the main focus will be on auger drilling. Some diamond drilling will also be completed. The anticipated expenditure for the planned drilling activities is illustrated in Table 4-11.

Table 4-11: Planned exploration activities and drilling expenditure

Drilling Type	Date	Time Period	Planned holes (number)	Planned Meters (m)	Anticipated Cost (USD/m)	Anticipated Cost (USDM)
Auger	March to December 2015	6 months	1,140	10,000	60	0.60
	January to July 2016	6 months	1,140	10,000	60	0.60
	July 2016 to June 2017	12 months	2,500	25,000	60	1.50
Total	**-**	**-**	**4,780**	**45,000**	**-**	**2.70**
Diamond	March to December 2015	6 months	60	3,000	150	0.45
	January to July 2016	6 months	100	5,000	150	0.75
	July 2016 to June 2017	12 months	200	10,000	150	1.50
Total	**-**	**-**	**360**	**18,000**	**-**	**2.70**
Total	**-**	**-**	**5,140**	**63,000**	**-**	**5.40**

The planned exploration is targeted at expanding the declared Mineral Resources, as opposed to infilling the existing Mineral Resource area. The planned exploration areas are illustrated in Figure 4-7, with the area which covers the current Mineral Resources (2014 Explored Area) shown in red.

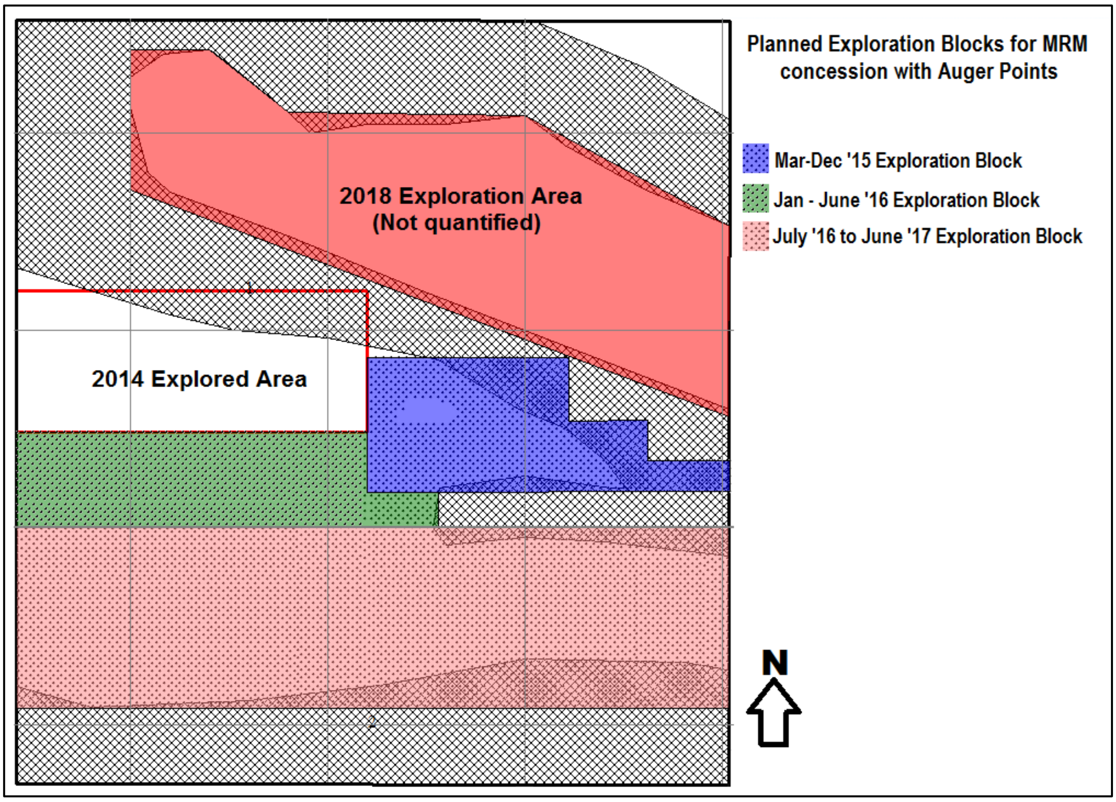


Figure 4-7: Planned exploration areas (source: MRM)

The planned exploration is aimed at expanding the current Mineral Resources. SRK considers this to be a valid approach, but cautions that additional information and understanding should also be gathered from the 2014 exploration area. There is a degree of uncertainty in the bed rock geology, as well as the distribution of the rubies within the gravel bed. Information can be gathered on these two aspects during the mining operations, and can also be used to refine the exploration programme as it continues.

4.6 SRK Comments

4.6.1 Conclusions

Based on the work carried out to date, SRK concludes the following:

- the drilling, sampling, logging, bulk sampling, and other data gathering methods used by MRM are appropriate and have yielded suitable data for use in the subsequent geological and grade modelling;
- adequate work has been undertaken at the Project to report an Indicated Mineral Resource in accordance with the JORC Code (2012);
- exploration potential to expand the currently defined Mineral Resource is considered to be significant and the planned program of exploration is warranted;
- the variability of grade across the deposit needs further investigation and analysis as mining progresses to improve planning;
- additional work is required to improve the understanding of both the bedrock and paelo-channel geology. These aspects have a direct control on the distribution if the ruby mineralisation, and so require a more detailed level of understanding; and

- the data gathered during bulk sampling are considered adequate at present. However, further information should be collected to improve the understanding of the bed rock geology and ruby grades, to improve the confidence of future mining plans.

4.6.2 Recommendations

Based on the work carried out to date, SRK recommends the following, in order to provide data that will assist in improving geological understanding and confidence in any future MRE updates:

- Reconcile the geological model against production data from the mining activities and gemstone sales to refine the modelling approach and optimise the sample spacing for defining the gravel bed;
- Structurally orientate any future diamond drillholes, to allow for the capture of key down hole structural data to provide a more robust basis for the interpretation of the subsurface bedrock geometry;
- Once sufficient oriented diamond drilling has been completed, commission a regional and local structural geology review of the Montepuez deposit, with particular focus on determining the structural controls on the amphibolite primary mineralisation domain;
- Use in-pit mapping, drilling, or sampling data, in conjunction with a though review of the regional and deposit scale geology of the deposit to derive an understanding of the paleochannel system. This will increase geological understanding and confidence in the secondary mineralisation, the gravel bed morphology, and the ruby grade/quality distribution;
- Complete downhole surveying of any new, inclined drillholes;
- Streamline the geological logging system for both diamond and auger drilling to ensure that the most relevant data is captured in a consistent and user-friendly format, including the recommendations given below. SRK understands that a number of these changes are already in the process of being implemented:
  - Auger drilling: expand on the current logging sheet to include the capture of data relating to the gravel bed clast size, shape, sphericity, material type etc. This may assist in determining any correlation between ruby grade/quality, gravel bed material characteristics and paleochannel location;
  - Diamond drilling: make some minor amendments to the logging system currently in place, including the capture of weathering and alteration data in two separate columns, recording of contact type information, introduction of a “lith 2” column, etc;
  - Record more detailed geotechnical information, preferably in a separate spreadsheet to the geological log;
  - Develop standardised project-specific set of logging codes and a fixed data input system that only allows the input of the agreed upon codes into the logging database;
  - Avoid systematic capture of data in the log sheet comments column;
- Begin to systematically record density from all new and pre-existing drill core. Ideally, a bulk density reading should be taken in every 4-5 m of competent core;

- Extend in situ and bulk density data gathering exercises to all lithologies encountered during mining, and increase frequency of sample taking. This will improve confidence in the density values used for tonnage estimation, and also identify and variation in the density across the deposit;
- Complete a high resolution airborne topographic survey to supersede the current SRTM survey, and provide a seamless, consistent link between the topography and pit elevation data;
- Complete detailed aerial photography of the prospect in order to improve on the accuracy of the artisanal working outlines;
- Systematically record information from the bulk sampling locations, including gravel bed thicknesses, morphology, basement morphology, sedimentary features or other geological information which would provide additional understanding of the depositional environment;
- Decrease auger spacing to be consistent with the central part of the Mugloto deposit, and ensure auger drilling is completed at Maninge Nice. The auger drilling is a quick and relatively inexpensive way of gathering data, and so should be used extensively throughout the licence area;
- SRK notes that mineralised material has been recovered from some bulk sampling areas, which is awaiting processing. This would provide valuable information on the variability of the ruby grade and quality across the Mugloto deposit, and so should be processed as a matter of priority;
- SRK considers that MRM should have a sufficiently high level of understanding of the grade and quality distribution of the rubies in both the primary and secondary mineralisation to characterise the variability across the deposit. SRK considers that this can be completed through additional bulk sampling activities in different parts of the deposit, through developing the understanding of the geology, and though the systematic recording of appropriate data. All of these aspects can be completed during the mining of the deposit, as part of the day to day production activities; and
- The planned program of exploration activities is carried out.

5 MINING AND BULK SAMPLING

5.1 Introduction

The following section includes discussion and comment on the mining engineering related aspects of the Project. Accordingly, focus is in respect of the historical mining operations, open-pit margin ranking analysis; mining methods; mine design, production scheduling, equipment selection, operating expenditure and capital expenditure.

Historical sales, production and cost information as presented in this section are sourced from the Company and MRM; this information is reported to assess the validity of the various technical aspects which support the MRM's LoMp.

In its LoMp, MRM has indicated its intention to increase production and transition the operation from a bulk sampling phase to full scale production. The principal targets comprise increasing the total mining capacity to 6.4 Mtpa by July 2017 and to achieve an annualised processing rate of 1.5 Mtpa by July 2016.

5.2 Historical Mining Operating Statistics

Table 5-1 presents the historical operating mining statistics for MRM through to 31 March 2015. Total tonnages mined include waste, primary and secondary mineralisation has increased significantly over the trial mining period. The bulk sampling program has been undertaken in two main mining areas, Mugloto and Maninge Nice and the material mined has been reported in 4 categories:

- **Primary**: Ore sourced from the amphibolite mineralisation;
- **Secondary**: Ore sourced from the alluvial gravel bed;
- **Mineralised Overburden** (**"**MOB**"**): Early stage trial mining separated and stockpiled overburden material to ensure higher gemstone recovery from the deposit; however as the understanding of the geology improved this practice has been abandoned as recovered gemstone grade and quality has reduced with improved mining practices from the gravel bed zones; and
- **Other:** Ore/waste washed or mined from non-production related sources such as development waste for the establishment of the plant site or washing of artisanal ore.

Table 5-1: Historical Mining Statistics

Operating Statistics	Units	Total	2012-13	2013-14	2014-15[1]
Waste Mined					
Maninge Nice	(kt)	1,115	63	659	393
Mugloto	(kt)	1,685	-	486	1,199
Other	(kt)	125	-	47	78
Total	**(kt)**	**2,926**	**63**	**1,192**	**1,671**
Ore Mined					
Maninge Nice - MOB	(kt)	44.9	10.3	34.6	-
Maninge Nice - Primary	(kt)	116	7	87	22
Maninge Nice - Secondary	(kt)	213	9	144	60
Mugloto - Secondary	(kt)	381	-	144	237
Other	(kt)		-	-	-
Total	**(kt)**	**755**	**27**	**409**	**319**
Strip Ratio					
Maninge Nice	(t:t)	3.0	2.4	2.5	4.8
Mugloto	(t:t)	4.4	-	3.4	5.0
Total	**(t:t)**	**3.7**	**2.4**	**2.8**	**5.0**
Processing					
Maninge Nice - MOB	(kt)	9.9	1.0	-	8.9
Maninge Nice - Primary	(kt)	24.3	2.6	14.5	7.1
Maninge Nice - Secondary	(kt)	223.0	9.7	40.3	173.0
Mugloto - Secondary	(kt)	156.9	-	97.8	59.1
Other	(kt)	8.6	0.0	5.6	3.0
Total	**(kt)**	**422.6**	**13.3**	**158.2**	**251.1**
Feed Grade					
Maninge Nice - MOB	(ct/t)	5.7	30.9	-	3.0
Maninge Nice - Primary	(ct/t)	103.1	0.4	161.8	21.0
Maninge Nice - Secondary	(ct/t)	54.9	107.3	95.2	42.6
Mugloto - Secondary	(ct/t)	2.8	-	2.9	2.8
Other	(ct/t)	101.0	30,706.3	12.9	2.5
Total	**(ct/t)**	**38.1**	**139.9**	**41.3**	**30.7**
Ruby Production					
Maninge Nice - MOB	(ct, '000)	57	30	-	26
Maninge Nice - Primary	(ct, '000)	2,500	1	2,349	150
Maninge Nice - Secondary	(ct, '000)	12,245	1,040	3,836	7,369
Mugloto - Secondary	(ct, '000)	445	-	282	163
Other sources	(ct, '000)	867	788	72	8
Total	**(ct, 000)**	**16,115**	**1,859**	**6,540**	**7,716**

[1]9 Month period to 31 March 2015

Table 5-2 presents the historian operating statistics from the reported grades for each of the gemstone quality categories established at MRM. Historically, the total gemstone weight by category has been recorded, however due to the volume of gemstones recovered individual gemstone sizes are not recorded. It is MRM's intent to record individual gemstone sizes for the Premium and Ruby categories for future production.

Table 5-2: Historical Washed Grade and Quality Statistics

Grade Statistics	Units	Total	2012-13	2013-14	2014-15[1]
Maninge Nice - MOB					
Tonnage	(kt)	9.9	1.0	-	8.9
Grade	(ct/t)	5.7	30.9	-	3.0
Premium Ruby	(ct/t)	0.0	0.0	-	-
Ruby	(ct/t)	1.0	8.6	-	0.1
Low Ruby	(ct/t)	1.3	9.2	-	0.4
Corundum	(ct/t)	1.7	13.1	-	0.4
Sapphire	(ct/t)	1.2	-	-	1.4
-4.6 mm	(ct/t)	0.6	-	-	0.7
Fines & Dust	(ct/t)	-	-	-	-
Mixed	(ct/t)	-	-	-	-
Maninge Nice - Primary					
Tonnage	(kt)	24.3	2.6	14.5	7.1
Grade	(ct/t)	103.1	0.4	161.8	21.0
Premium Ruby	(ct/t)	0.0	0.0	0.0	0.0
Ruby	(ct/t)	3.9	0.1	4.4	4.1
Low Ruby	(ct/t)	6.9	0.1	10.4	2.2
Corundum	(ct/t)	5.1	0.3	7.2	2.6
Sapphire	(ct/t)	53.4	-	87.0	4.4
-4.6 mm	(ct/t)	33.9	-	52.9	7.7
Fines & Dust	(ct/t)	-	-	-	-
Mixed	(ct/t)	-	-	-	-
Maninge Nice - Secondary					
Tonnage	(kt)	223.0	9.7	40.3	173.0
Grade	(ct/t)	54.9	107.3	95.2	42.6
Premium Ruby	(ct/t)	0.0	0.0	0.0	0.0
Ruby	(ct/t)	4.3	29.3	5.0	2.7
Low Ruby	(ct/t)	7.0	32.1	9.7	5.0
Corundum	(ct/t)	8.9	46.0	14.0	5.6
Sapphire	(ct/t)	27.5	-	45.5	24.8
-4.6 mm	(ct/t)	7.2	-	21.1	4.4
Fines & Dust	(ct/t)	-	-	-	-
Mixed	(ct/t)	-	-	-	-
Mugloto - Secondary					
Tonnage	(kt)	156.9	-	97.8	59.1
Grade	(ct/t)	2.8	-	2.9	2.8
Premium Ruby	(ct/t)	0.4	-	0.4	0.5
Ruby	(ct/t)	1.2	-	1.0	1.7
Low Ruby	(ct/t)	0.1	-	0.1	0.1
Corundum	(ct/t)	0.1	-	0.1	0.0
Sapphire	(ct/t)	0.7	-	0.9	0.3
-4.6 mm	(ct/t)	0.3	-	0.3	0.2
Fines & Dust	(ct/t)	-	-	-	-
Mixed	(ct/t)	-	-	-	-
Other					
Tonnage	(kt)	8.6	0.0	5.6	3.0
Grade	(ct/t)	101.0	30,706.3	12.9	2.5
Premium Ruby	(ct/t)	0.0	0.9	0.0	0.0
Ruby	(ct/t)	17.1	5,632.0	0.4	-
Low Ruby	(ct/t)	30.5	10,096.9	0.5	-
Corundum	(ct/t)	31.8	10,536.3	0.4	-
Sapphire	(ct/t)	1.9	-	2.9	-
-4.6 mm	(ct/t)	1.7	-	2.6	-
Fines & Dust	(ct/t)	0.3	114.9	-	-
Mixed	(ct/t)	17.7	4,325.3	5.9	2.5

[1] 9 month period to 31 March 2015

For the period ending 31 March 2015, the company (Table 5-3) produced 16.1 Mct of ruby at a combined cash cost of 1.81 US$/ct.

Table 5-3: MRM: Historical Operating and Capital Expenditures and Sales

Historical Expenditures and Sales	Units	Total	2012-13	2013-14	2014-15[1]
Mining					
Rock Mined	(kt)	3,681	90	1,601	1,990
Ore Processed	(kt)	423	13	158	251
Recovered Gemstones	(ct, 000)	16,115	1,859	6,540	7,716
Sales					
Ruby	(ct, 000)	5,920	-	1,820	4,100
Sales Price	(US$/ct)	20.65	-	18.43	21.64
Expenditures					
Cash Costs	(US$m)	29.1	5.9	10.9	12.3
	(US$/$t_{ore}$)	68.85	444.11	68.90	48.98
	(US$/ct)	1.81	3.17	1.67	1.59
Capital	(US$m)	21.7	8.3	5.9	7.5

[1]Mining physicals to 9 month period to 31 March 2015, sales to June 2015
[2]Cash costs include mining and production costs, capitalised waste stripping costs, selling, G&A expenses and exclude PPE-related capital expenditure, depreciation and mineral royalties.

5.3 Mine Design and Method

The Montepuez operation comprises a number of bulk sampling pits split between the two main operating areas, Mugloto and Maninge Nice. Based on the 9-month results to 31st March 2015, MRM extracts total rock at an annualised rate of 2.1 Mtpa with mined primary and secondary mineralised zones contributing 399 ktpa. The associated stripping ratio is estimated at 3.5 t_{waste}:t_{ore} for Mugloto area and at 1.0 t_{waste}:t_{ore} and 2.4 for t_{waste}:t_{ore} the primary and secondary mineralisation at Maninge Nice respectively. The site layout of the two main operating areas is shown in Figure 5-1.

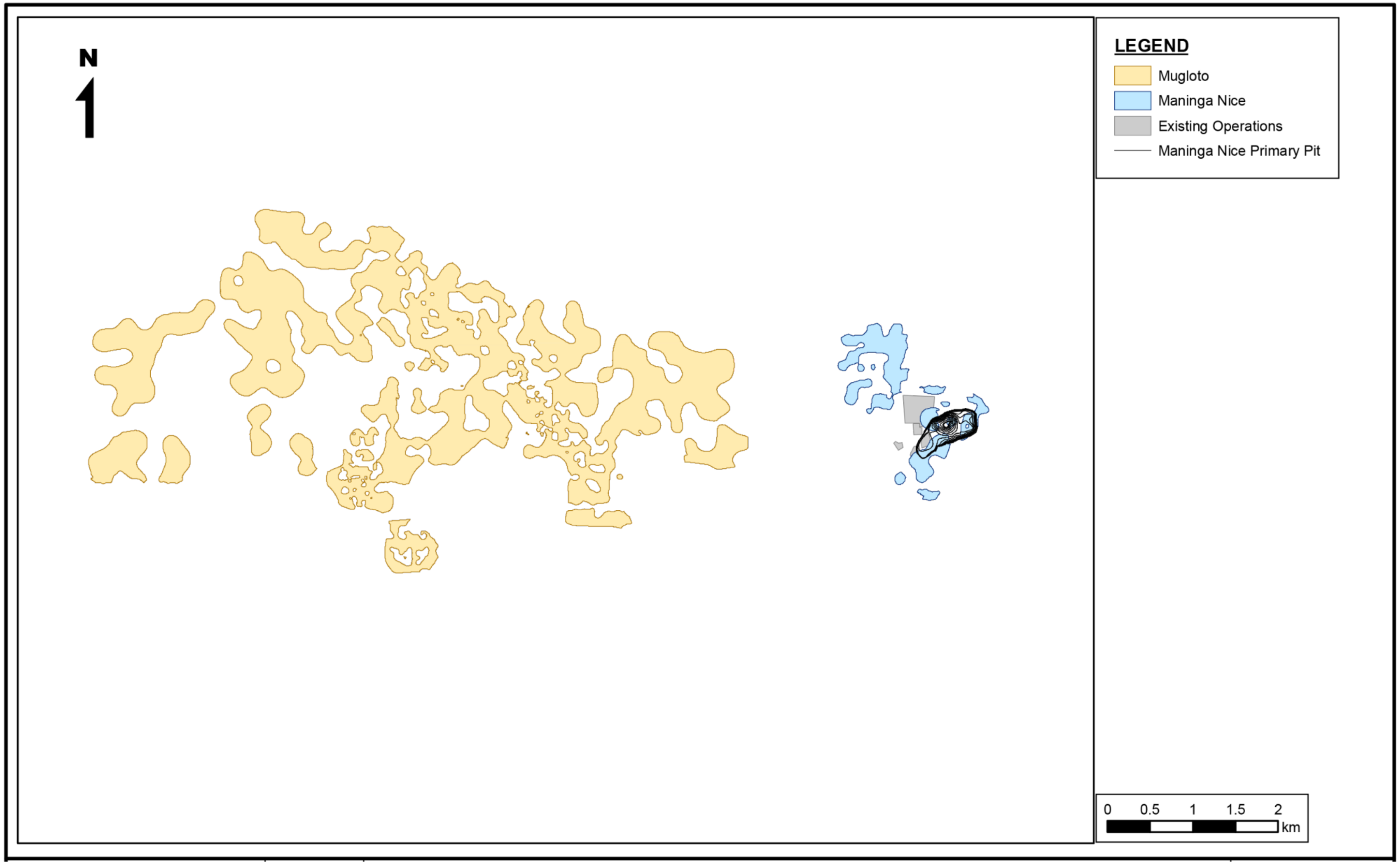


Figure 5-1: MRM Mining Areas

The mining method comprises conventional open-pit operations: excavate and load and haul to in-pit backfill, waste rock dump locations and the various stockpiles at the wash plant facility. Free dig techniques are employed in the weathered zones at the Project. Free dig techniques are possible in the amphibolite (primary mineralisation) where weathering is present. However, further testing is required to see if drilling and blasting will be required at greater depths. Based on the weathering logging of the primary mineralisation, the weathered zones, and therefore free dig portion, represents approximately 25% of this zone.

The Maninge Nice and Mugloto mining areas are segregated into sub-areas based on the secondary mineralisation extents derived from the auger drilling and trial pitting exploration.

The bulk sampling pits in Mugloto and Maninge Nice vary in depth between 5 m and 8 m. Overburden mining is undertaken in 2.5 m flitches. The flitch heights are reduced as the excavation approaches the gravel bed horizon as directed by site geologists. Overburden mining operations are undertaken on a 24 hour per day basis. Gravel bed mining is undertaken on variable flitch heights coordinated under visual geological control at the face. Flitch heights vary between approximately 1.0 m to 2.5 m based on the geometry and thickness of the gravel bed.

Boundary polygons have been used to constrain the extent of the mining based on geological interpretation of the gravel bed and primary mineralisation extents. SRK notes this method is appropriate to delineate the estimated volumes of ore and waste in the gravel bed mining areas as the pits are shallow negating any impacts which are typically associated with design considerations such as slope angles and ramp access. Waste stripping volumes for the primary mineralisation at Maninge Nice are based on a preliminary pit shell; however, it is noted that the dip of the mineralisation is shallow enough to allow access into the pit along the footwall. The ultimate pit depth is approximately 40 m.

5.3.1 Selective Mining Unit

A dilution skin (with no grade) is applied to the modelled secondary mineralisation based on the greater of:

1. 0.3 m dilution skin to both the roof and floor contacts; or
2. minimum total thickness of 1.5 m. The diluting grade density are been assumed at 1.74 t/m^3. The majority (65%) of the secondary mineralisation in-situ thickness ranges between 0.1 m and 0.4 m (Table 5-4).

Owing to the application of historical factors to derive run of mine (RoM) grades, no dilution or other grade adjustments factors are deemed necessary for the primary mineralisation.

Table 5-4: Secondary Mineralisation: In Situ Thickness Distribution

Thickness Bin	Maninge Nice (ha)	Mugloto (ha)	Total (ha)	Frequency (%)
0.0 - 0.1 m	5.5	91.3	96.8	12.3
0.1 - 0.2 m	11.1	177.6	188.6	24.0
0.2 - 0.3 m	14.0	179.8	193.8	24.6
0.3 - 0.4 m	9.1	117.5	126.6	16.1
0.4 - 0.5 m	6.9	70.5	77.4	9.8
0.5 - 0.6 m	2.9	41.7	44.6	5.7
0.6 - 0.7 m	2.0	28.9	30.9	3.9
0.7 - 0.8 m	1.0	13.5	14.5	1.8
> 0.8m	1.1	12.1	13.3	1.7

5.3.2 Grade Control and Reconciliation

Grade control is practically constrained to visual inspection and mining of the mineralised zones is only undertaken during daylight hours. Historical and current practice in respect of reconciliation is to record production on a mined, washed and recovered basis on a pit by pit basis.

5.3.3 Waste Rock Dumps

In the Mugloto area external waste dumps are used when opening new pits; however, the majority of the waste is backfilled into mined out areas.

Backfilling of the Maninge Nice pits are only possible in areas which do not overlie the primary mineralisation and consequently external waste rock dumps will be required. No formal waste dump strategy or design has been developed in this area, but will be addressed by MRM as part of the transition to a full scale operation.

5.3.4 Ore Stockpiles

An ore stockpiling strategy has been included in the MRM's plan to manage the expected variability in the gemstone grading distribution and the impacts of the wet season on productivity. The stockpiling strategy provides for six months of production to be stockpiled near the wash plant facility, the stockpile capacities are planned at approximately 90 kt, 40 kt and 900 kt from the Maninge Nice primary, Maninge Nice secondary and Mugloto secondary sources, respectively.

5.4 Economic Potential

SRK has undertaken a margin ranking assessment across the deposit to demonstrate the principal of 'potentially economically mineable' through the application of RoM cut-off grades reflective of open-pit mining methods. This assessment includes consideration of the following technical and economic factors:

- long term commodity prices and macro-economics;
- revenue based deductions include royalties, production taxes and auction fees;
- operating expenditures; and
- modifying factors.

Table 5-5: Margin Ranking Parameters

Parameters	Units	MRM	Basis
Operating Costs			
Mining Cost - Waste	(USD/t_{waste})	2.31	MRM Forecast - Contract Mining
Mining Cost - Ore	(USD/t_{ore})	7.54	MRM Forecast
Process Cost	(USD/t_{ore})	6.69	
G&A	(USD/t_{ore})	7.62	MRM Forecast
Management & Auction Fee	(%)	12.50	MRM Forecast
Mineral Royalties	(%)	6.00	MRM Forecast
Land Tax	(USD/t_{ore})	2.57	MRM Forecast
HQ - Gemstone Pricing			
Premium Ruby	(USD/ct)	600.00	MRM Forecast
Ruby	(USD/ct)	150.00	MRM Forecast
Low Ruby	(USD/ct)	-	MRM Forecast
-4.6 mm	(USD/ct)	2.00	MRM Forecast
Corundum	(USD/ct)	-	MRM Forecast
Sapphire	(USD/ct)	-	MRM Forecast
LQ - Gemstone Pricing			
Premium Ruby	(USD/ct)	-	MRM Forecast
Ruby	(USD/ct)	8.00	MRM Forecast
Low Ruby	(USD/ct)	1.00	MRM Forecast
-4.6 mm	(USD/ct)	2.00	MRM Forecast
Corundum	(USD/ct)	0.10	MRM Forecast
Sapphire	(USD/ct)	0.03	MRM Forecast
HQ Split - Maninge Nice			
Premium Ruby	(%)	100.0	Historical Production
Ruby	(%)	2.5	Historical Production
Low Ruby	(%)	-	Historical Production
-4.6 mm	(%)	2.5	Historical Production
Corundum	(%)	-	Historical Production
Sapphire	(%)	-	Historical Production
HQ Split - Mugloto			
Premium Ruby	(%)	100.0	Historical Production
Ruby	(%)	15.0	Historical Production
Low Ruby	(%)	-	Historical Production
-4.6 mm	(%)	15.0	Historical Production
Corundum	(%)	-	Historical Production
Sapphire	(%)	-	Historical Production

Table 5-5 presents the key parameters used to assess the economic potential of the MRM deposit. The optimisation parameters incorporated are as follows:

Long Term Commodity Prices and Macro-Economics: SRK notes that the Company's current reporting of sales revenue is derived from the auction results. The auction results are split between High Quality (HQ) and Low Quality (LQ) and then further classified into MRM gemstone grading categories which comprise Premium Ruby, Ruby, -4.6 mm, Low Ruby, Corundum and Sapphire in order of decreasing value.

Analysis of commodity prices is normally based on historical price-demand-supply assessment to establish a price relationship which in conjunction with forecast demand-supply analysis is then used to generate a price profile. The short and longer term component of this profile is then benchmarked against: the consensus market forecast sourced from the median of various research analysts; as well as the last three years' average price. In the case of gemstones, and specifically the ruby sector, historical rough prices are difficult to source. Accordingly, SRK has largely relied on the historical auction prices from the HQ and LQ auctions (Table 10-4) for the ruby sales as recorded by the Company and MRM and benchmarked this against the current long-term price forecast as suggested by the Company.

Revenue Deductions: Determination of recoverable revenue requires consideration for mineral processing recovery, royalties and selling charges. In this respect SRK notes that no deduction is made for process recovery (grades estimates are based on historical production), royalties are assumed at 6.0% (according to the Mozambique regulations) and a direct selling charge of 1.75% for auction expenses are levied in relation to commodity price.

Operating Expenditures: SRK has considered the operating expenditure forecasts as assumed by MRM in its LoMp; these include USD2.31 /t for waste mining up to 3.0 Mtpa provided by contract mining, USD7.54 /t for ore mining up to 1.3 Mtpa and USD6.69 /t for processing up to 1.3 Mtpa. Land taxes (levied at a rate of USD1 /ha) are calculated at USD3.4 M per annum.

Modifying Factors: A dilution skin has been modelled around the gravel bed to determine convert from the modelled tonnage and grade from an in situ to a RoM basis. Based on the current operational practices at the Project, a 0.3 m barren dilution skin to both the roof and floor contacts has been applied. The dilution skin has also been expanded to a minimum total thickness of 1.5 m where the secondary mineralisation is less than 0.9 m in thickness. The diluting grade density has been assumed to be 1.74 t/m^3.

Grade capping: This has been applied to the Mugloto secondary mineralisation to limit the grade of the higher value gemstones below the historically mined averages. The capping has been applied as a proportion of the average grade, these capping values compared with historical production is shown in Table 5-6. SRK notes that this grade capping has been applied to reduce the impact of high grade areas on the global reserve estimate. The capping factors that have been applied will need on-going refinement throughout the life of the mine to improve the accuracy of production planning estimates.

Table 5-6: Mugloto Secondary Grade Capping Splits

Quality Category	Units	Historical Average	Grade Capping Limit
Premium Ruby	(%)	15.2	8.0
Ruby	(%)	43.8	32.0
Low Ruby	(%)	3.8	4.5
Corundum	(%)	17.5	11.3
Sapphire	(%)	3.1	3.9
-4.6 mm	(%)	24.5	40.3

Cut-Off Grades: Table 5-7 provides the resulting cut-off grades as determined by SRK for open-pit mining methods at a range of commodity prices. The operating cut-off grade assumes an average stripping ratio of 3.2 t_{waste}:t_{ore}. SRK note that the cut-off grades presented for a range of average commodity prices, the breakeven commodity prices are reflective of the cash cost values presented in Table 5-8.

Table 5-7: Open Pit Cut-Off Grade Calculations

Commodity Price	Units	Commodity Price cut-off calculations				
Ruby	(US$/ct)	5.0	10.0	15.0	20.0	25.0
Royalty	(%)	6.0	6.0	6.0	6.0	6.0
Management & Auction Fees	(%)	12.5	12.5	12.5	12.5	12.5
Recovered Revenue	(US$/ct)	4.1	8.2	12.2	16.3	20.4
Operating Expenditure						
Operating1	(US$/$t_{ore}$)	24.27	24.27	24.27	24.27	24.27
Marginal	(US$/$t_{ore}$)	16.88	16.88	16.88	16.88	16.88
Cut-off-Grade						
Operating	(ct/t_{ore})	6.0	3.0	2.0	1.5	1.2
Marginal	(ct/t_{ore})	4.1	2.1	1.4	1.0	0.8

[1]Assuming a 3.2 t_{waste}:t_{ore} stripping ratio

Margin Ranking Analysis: Grade interpolation is limited to reliance on historical mining grades as previously described and as this is a single grade, determination of grade-tonnage curves is not appropriate. Notwithstanding this limitation, SRK has undertaken a margin ranking exercise in order to ascertain the margin in the various areas of the deposit. The margins are largely influence by the stripping ratio mineralisation thicknesses and mineralisation type.

The results indicate that the Maninge Nice primary and secondary ore types have a significant discount in margin as compared with the Mugloto ore. A summary of the operating margins in each of the production areas is shown in Table 5-8, it is noted that the margin ranking is based on the January 1 2015 topography and is inclusive of Inferred Classified Mineral Resources.

Table 5-8: Margin Ranking by Production Area

Margin Ranking	Units	Total	Maninge Nice Primary	Maninge Nice Secondary	Mugloto Secondary
Physicals					
Ore	(Mt)	27.8	2.5	1.8	23.5
	(ct/t)	176.8	115.4	58.3	3.1
	(Mct)	464	285	107	72
Margin					
Revenue	(US$/$t_{ore}$)	167.02	137.80	81.24	176.82
	(US$/ct)	10.00	1.19	1.39	57.66
Cash Cost	(US$/$t_{ore}$)	62.83	52.33	45.13	65.33
	(US$/ct)	3.76	0.45	0.77	21.30
Margin	(US$/$t_{ore}$)	104.19	85.47	36.11	111.49
	(US$/ct)	6.24	0.74	0.62	36.36

5.5 Production Scheduling

The current LoMp as outlined by MRM requires a ramp up from the 2014-2015 annualised total rock mining of 2.1 Mtpa total to 5.6 Mtpa and the annualised ore mining of 399 ktpa to 1.3 Mtpa. Mining of the increased tonnages is planned to commence in June 2015 and production is projected to extend until 2040, resulting in a life of mine of 24 years. The physicals for each of the mining areas are shown in Table 5-9.The production plan with a Q3 2015 start date shown in Table 5-10 is based on Mineral Resources estimate as at January 1 2015 and adjusted to exclude historical mining in Q1 2015 and the production forecast for Q2 2015.

Table 5-9: MRM: Life of Mine Physicals by Mining Area (Excludes Stockpiles)

Pit Physicals			Maninge Nice		Mugloto
	Units	Total	Primary	Secondary	Secondary
Physicals					
Stripping Ratio	(t:t)	3.2	1	2.4	3.5
Waste	(kt)	87,939	2,109	4,318	81,512
Ore	(kt)	27,196	2,107	1,799	23,289
Grades					
Total	(ct/t)	15.4	115.38	58.34	3.07
Premium Ruby	(ct/t)	0.2	0	0.01	0.25
Ruby	(ct/t)	1.5	4.32	4.48	0.98
Low Ruby	(ct/t)	1.2	7.68	7.48	0.14
-4.6 mm	(ct/t)	3.7	37.96	6.66	0.35
Corundum	(ct/t)	1.2	5.69	10.13	0.12
Sapphire	(ct/t)	7.6	59.73	29.58	1.24
Recovered Gemstones					
Total	('000 ct)	419,499	243,127	104,958	71,413
Premium Ruby	('000 ct)	5,740	6	20	5,713
Ruby	('000 ct)	40,007	9,094	8,061	22,852
Low Ruby	('000 ct)	32,877	16,178	13,461	3,238
-4.6 mm	('000 ct)	100,059	79,995	11,983	8,081
Corundum	('000 ct)	32,975	11,996	18,220	2,760
Sapphire	('000 ct)	207,840	125,858	53,214	28,769
Gemstone Split					
Premium	(%)	1.4	0	0	8
Ruby	(%)	9.5	3.7	7.7	32
Low Ruby	(%)	7.8	6.7	12.8	4.5
-4.6 mm	(%)	23.9	32.9	11.4	11.3
Corundum	(%)	7.9	4.9	17.4	3.9
Sapphire	(%)	49.5	51.8	50.7	40.3

Table 5-10: MRM Life of Mine Plan: 2015 to 2037

Life of Mine Plan	Units	Totals /Averages	Jul-15 Jun-16	Jul-16 Jun-17	Jul-17 Jun-18	Jul-18 Jun-19	Jul-19 Jun-20	Jul-20 Jun-25	Jul-25 Jun-30	Jul-30 Jun-35	Jul-35 Jun-40
Physicals											
Rock Expit	(kt)	115,496	6,153	5,921	5,647	5,647	5,647	28,233	28,233	28,233	1,782
Waste	(kt)	87,939	4,730	4,513	4,299	4,299	4,299	21,496	21,496	21,496	1,311
MN - Primary	(kt)	2,107	62	103	103	103	103	514	514	514	91
MN - Secondary	(kt)	1,799	54	89	89	89	89	446	446	446	51
Mugloto - Secondary	(kt)	23,289	1,297	1,199	1,138	1,138	1,138	5,689	5,689	5,689	314
Stripping Ratio	(t:t)	3.2	3.3	3.2	3.2	3.2	3.2	3.2	3.2	3.2	2.9
Rehandle	(kt)	27,549	803	1,330	1,330	1,330	1,330	6,649	6,649	6,649	1,479
Wash Plant											
Mugloto - Secondary	(kt)	23,514	687	1,138	1,138	1,138	1,138	5,689	5,689	5,689	1,208
	(ct/t)	3.1	3.0	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
	('000 ct)	72,050	2,084	3,473	3,482	3,486	3,488	17,443	17,444	17,444	3,705
MN - Primary	(kt)	2,199	62	103	103	103	103	514	514	514	182
	(ct/t)	114.9	108.1	111.9	113.8	114.6	115.0	115.3	115.4	115.4	115.4
	('000 ct)	252,557	6,715	11,515	11,702	11,791	11,832	59,314	59,345	59,346	20,997
MN - Secondary	(kt)	1,837	54	89	89	89	89	446	446	446	89
	(ct/t)	58.3	56.9	57.9	58.2	58.3	58.3	58.3	58.3	58.3	58.3
	('000 ct)	107,013	3,066	5,164	5,190	5,198	5,200	26,007	26,007	26,007	5,172
Stockpile Balances											
Mugloto - Secondary	(kt)	895	834	895	895	895	895	895	895	895	0
MN - Primary	(kt)	91	91	91	91	91	91	91	91	91	0
MN - Secondary	(kt)	37	37	37	37	37	37	37	37	37	0

5.6 Equipment Selection

MRM has established the LoM equipment selection and associated equipping schedule (Table 5-11) based on the assumed operating conditions and production schedules as developed for the MRM LoMp. The mining operation accounts for all mobile equipment necessary to facilitate load and haul and all ancillary equipment required to maintain the mining operations, haul roads and waste rock dumps.

Additional machinery will be operated by a contract mining fleet and will provide sufficient waste stripping capacity for 3.0 Mtpa. The difference in waste movement is undertaken by an MRM owner operated fleet. All ore excavation and haulage is undertaken by an MRM operated fleet.

The primary excavators selected are CAT336D hydraulic excavators with CAT 725 ADT's and CAT 730C ADT's for waste mining and TATA 2523 for ore mining. These units are also supported by CAT 950H wheel loaders, CAT D7R and D9R track dozers and CAT 140H graders. Equipment replacement cycles have been estimated at 18,000 engine hours for all the primary equipment excluding the TATA 2523 trucks which are estimated at 10,000 engine hours. SRK notes that the equipment fleet sizes and type are compatible with the estimated production schedule tonnage and haulage distances.

Table 5-11: Equipment Fleet Size

Unit	Apr-15 (#)	Jun-15 (#)	Jun-16 (#)	Jun-17 (#)	Jun-18 (#)
CAT 330D	4	4	2	0	0
CAT 336D	2	4	9	11	11
CAT 725	11	11	11	11	8
CAT 730C	6	6	16	21	24
TATA 2523	18	32	58	58	61
CAT 950H	2	2	2	6	5
CAT 428E	1	1	1	2	2
CAT D7R	1	1	1	2	2
CAT D9R	1	1	1	1	2
CAT 140H	1	1	1	1	2
Total	**47**	**63**	**102**	**113**	**117**

5.7 Ore Reserves

5.7.1 Introduction

SRK has estimated Ore Reserves in accordance with the JORC Code (2012). Details are provided in the following subsections with additional data provided in Appendix 1 where Sections 4 and 5 of the JORC Table 1 are presented.

5.7.2 Modifying Factors

The Modifying Factors applicable to the derivation of reserves comprise estimates for the selective mining unit and for grade capping. Details of the grade capping are provided in Table 5-6 in Section 5.4.

The Modifying Factors considered by SRK to be appropriate for the secondary mineralisation is based on the greater of: (1) a 0.3 m dilution skin to both the roof and floor contacts; or (2) a minimum total thickness of 1.5 m. The diluting grade density has been assumed at 1.74 t/m^3. Owing to the application of historical factors to derive RoM grades, no dilution or other grade adjustments factors are deemed necessary for the primary mineralisation.

Grade capping has been applied to the Mugloto secondary mineralisation to limit the grade of the higher value gemstone below the historically mined averages.

5.7.3 Ruby Prices

Table 5-12 summarise the average prices per carat applied in the financial model. These prices were provided by Gemfields based on auction sales of gemstones from the Project sold to date. Further justification to these prices is provided in Section 10.

Table 5-12: Commodity Prices Applied

Commodity Prices (S/ct)	2015	2016	2017	2018	2019+
Premium	600.00	660.00	726.00	798.60	800.00
Ruby High Quality Auction [1]	150.00	165.00	181.50	199.65	200.00
Ruby Low Quality Auction [1]	8.00	8.00	8.00	8.00	8.00
Low Ruby	1.00	1.00	1.00	1.00	1.00
-4.6	2.00	2.20	2.42	2.66	3.00
Corundum	0.10	0.10	0.10	0.10	0.10
Sapphire	0.03	0.03	0.03	0.03	0.03

5.7.4 SRK Ore Reserve Statement

SRK can confirm that the Ore Reserve statements presented in Table 5-13 have been derived from the Resource model authored by SRK. The break-even price required to support this statement over the period of the business plan is USD3.55 /ct in July 2015 terms. This is calculated as the price required to cover all cash operating costs but excluding distribution costs (that is, including all on site mining, processing, maintenance and G&A operating costs). SRK also confirms that no Inferred Mineral Resources have been converted to Ore Reserves and notes that the Mineral Resource statements reported above are inclusive of the Mineral Resources used to generate the Ore Reserves.

SRK has estimated Ore Reserves in accordance with the JORC Code (2012). These are presented in Table ES 2. As at 1st July 2015, SRK notes that the Montepuez ruby deposit has Ore Reserves, as presented in accordance with the JORC Code (2012), of 2,199 kt of primary material grading at 114.9 ct/t ruby and 25,350 kt of secondary material grading at 7.1 ct/t ruby. Further details are described in Section 5.4.

Table 5-13: MRM Ore Reserve Statement, as at 1 July 2015, for the Montepuez Ruby Deposit

Classification	Mineralisation Type	Tonnage (kt_{dry})	Grade (ct/t)	Contained Carats (ct, 000)
Proved				
Maninge Nice	Primary	-	-	-
	Secondary	-	-	-
Mugloto	Primary	-	-	-
	Secondary	-	-	-
Probable				
Maninge Nice	Primary	2,199	114.9	252,557
	Secondary	1,837	58.3	107,013
Mugloto	Primary	-	-	-
	Secondary	23,514	3.1	72,050
Proved & Probable				
Maninge Nice	Primary	2,199	114.9	252,557
	Secondary	1,837	58.3	107,013
Mugloto	Primary	-	-	-
	Secondary	23,514	3.1	72,050
Total		27,549	15.7	431,620

The Competent Person (CP) with overall responsibility for reporting of Ore Reserves is Mr Mike Beare CEng BEng ACSM MIMMM, a Corporate Consultant (Mining Engineering) with SRK. Mr Beare has 23 years' experience in the mining industry and has been extensively involved in the reporting of Ore Reserves on various diamond and gemstone projects during his career to date. Mr Beare was supported in the Reserves estimation by Gabor Bacsfalusi who is a CP for open pit planning work.

5.8 SRK Comments

5.8.1 Conclusions

Based upon the work undertaken to date, SRK concludes the following:

- The gravel mining operation at the Project is a simple low cost operation which is not expected to present any major technical or logistical challenges;
- The plan to keep at least six months of ore on the stockpile is considered appropriate given the expected variability of the gravel beds in terms of gemstone distribution;
- The capping applied to the grade modelling component of the Reserve estimation is based on the bulk sampling undertake to date. It requires further verification on an on-going basis from the results of on-going mining;
- Material from Maninge Nice is subsidised by production from Mugloto using the prices provided. SRK considers it may be appropriate to reduce the quantity taken from Maninge depending on the market of those gemstones. The current LoMp sources 16% of production tonnes from Maninge;
- There may be further scope to optimise mining costs through more detailed mine planning and scheduling; and

- Whereas the LoMp presents ruby production forecasts based on an Ore Reserve, SRK recognises the nature of gemstone deposits and variability of ruby grades. This is expected to result in variable ruby production and revenue on a monthly basis, and further on an annual basis.

5.8.2 Recommendations

Based upon the work undertaken to date, SRK recommends the following:

- More accurate mine scheduling and planning is carried out to optimise costs and contractor utilisation. Additional auger drilling could be used to provide more detail as to local variation of the gravel bed to assist short term planning;
- Return journeys of trucks are fully utilised to back-haul waste to the pits;
- Mining practices are improved to more accurately separate valuable top soil from other overburden; and
- Calibrate the reserve estimates by comparing the results of mined pits against the estimates of in situ tonnage from the auger drilling and pitting.

6 WASTE MANAGEMENT

6.1 Introduction

During April 2015, an SRK Process Engineer and Infrastructure Engineer visited site and discussed the waste management strategies in place at the MRM operations. Details of these discussions, including relevant documentation provided by the MRM have been used to compile a desktop review of the current waste management strategy onsite.

Waste is considered to include both (1) overburden waste rock from mining; and (2) coarse rejects and sludge, being the fine tailings from the wash plant.

As described in the Mining Section of this report, the operation consists of conventional open pit mining (excavate, load and haul) focussed on two main operating areas, Mugloto and Maninge Nice. A labelled aerial photograph of the Maninge pit and associated waste management areas is included in Figure 6-1 for reference. Stripped material intended for plant feed is currently stored in a series of stockpiles located immediately adjacent to the existing wash plant. Feed stockpiles are surveyed on a monthly basis for inventory purposes.

Figure 6-1: Maninge Nice Pit and Associated Waste Storage Areas

A significant volume of waste material is currently generated from mining operations. This material is dumped in a series of designated waste stockpiles close to the respective open pit locations.

Downstream of the wash plant area (described in the following sections) is a series of unlined classification ponds, which have been excavated to receive tailings generated from the wash plant. Excess fluids from the clarification ponds overflow into the larger holding pond structure (also referred to as the 'make-up pond'), from which water is recycled for use in the wash plant. As discussed in the infrastructure section of this report, a high-level site wide water balance has been prepared, which indicates that 93% of water used in the process plant is reused, with only periodic requirement to provide additional make up from boreholes. This would indicate that only small volumes are lost to the environment as part of the current process.

6.2 Sludge Management Guidelines

SRK notes that MRM is currently implementing a number of surface water management sediment control features such as perimeter interception ditches and silt traps installed around any of the haul feed or waste stockpile areas. This is to control the amount of silt entering local water courses.

An internal MRM reference document entitled 'Sludge Management Documents' outlines the MRM sludge management strategy. This can be summarised as follows:

- ensure that sludge is stored in an environmentally safe manner;
- a designated area needs to be identified for storing sludge from the current wash plant;
- retain any information regarding the generation, storage and treatment of sludge;
- vehicles carrying sludge will be kept clean and maintained; and
- sludge storage areas will be secured to prevent over spilling.

SRK notes that these guidelines do not include specific provisions for wash plant fines and coarse rejects, but provides a general commentary on methods for 'sludge' management.

6.3 Current Wash Plant Waste Streams

As discussed in the processing section of this report, MRM currently operates a wash plant at a production rate of 100 tph. MRM plans to upgrade the existing wash plant to increase production capacity from the 100 tph to 150 tph. A process flow diagram which summarises the waste streams associated with the wash plant is included in Figure 7-1.

Four waste streams are generated at the plant site:

1) -3 mm coarse reject material: free draining river gravel material, sorted in the initial dry screen. Current production rates for this material are approximately 48 tph. The drained solids contain less than 5 % moisture by weight;

2) +25 mm coarse reject material: washed gravel/cobbles generated from the wet screening process; production rate for this stream is approximately 2.2 tph. The drained solids contain less than 5 % moisture by weight;

3) -3 mm + 75 µm: gravel, sand and silt material generated from the dewatering screen (16 tph). The drained solids contain less than 5 % moisture by weight; and

4) -75 µm (tailings): silt and clay fines, generated from the feed screen and the washing screen at the final jig circuit (jig 50S). This material, silt and clay fines, is generated at a rate of 22 tph and currently flows as a slurry from a number of points in the circuit to the unlined clarification ponds adjacent to the wash plant. Based on figures from MRM the total slurry flowrate is around 360 m^3/hour and typically contains 5 to 6 % solids by weight.

Coarse reject material generated from streams 1, 2 and 3 above is collected from the respective stockpiles and loaded onto haul trucks for transport back to the designated wash plant areas as per procedure. The material is dumped in a series of waste stockpiles adjacent to each pit, to be used as backfill material when mining operations permit.

A waste management plan for this material has been put forward by MRM which includes progressively backfilling open pit voids as part of the on-going mining activities.

6.4 Proposed Plant Expansion - Waste Management Strategy

A second wash plant is proposed for the operation, which will increase the maximum operating throughput by 200 tph. A dense media separation (DMS) circuit will be installed at the new wash plant (to replace the jigs), which will separate the product from the final -75 µm tailings material.

Tailings from the DMS circuit will be combined with fines generated from the cyclone circuit before being passed through a thickening circuit, which will produce tailings with a solids concentration of 40% w/w (based upon settling tests completed by SGS consultants).

As part of the proposed expansion, a series of concrete lined clarification ponds will be installed in proximity to the wash plant. These are intended to store thickened tailings material generated from the thickener circuit. Although conceptual level details of the ponds have been provided to SRK, formal designs have not yet been put prepared.

It is intended that tailings supernatant will overflow from these ponds towards the main holding pond structure. Collected silt and sand tailings fractions will be cyclically cleaned from the ponds by excavator and trucked to open pit areas for disposal.

No volumetric analyses have yet been completed to verify if the proposed concrete holding ponds are sufficiently sized to accommodate the additional tailings generated from the second wash plant. In addition, no updates to the current site water balance have been prepared, to determine if the ponds contain appropriate accommodation space for tailings supernatant.

6.5 SRK Comments

6.5.1 Conclusions

Based upon the review of the information available related to waste management at the current operations and for the proposed expansion, SRK has made the following conclusions:

- During the wet season, significant volumes of surface runoff will flow into the proposed settling ponds, making regular clearance problematic. This could result in discharge of tailings slurry into the holding pond structure if not adequately managed and;

- The current coarse waste management strategy assumes that the majority of waste generated will be backfilled in redundant open pit areas. SRK notes that this is not likely to be feasible due to bulking of the coarse reject material post processing and trucking to the disposal zones. Swell factors of between 30 to 40% should be considered during volumetric calculations going forward.

6.5.2 Recommendations

Based upon a review of the information available related to waste management at the current operations and for the proposed expansion, SRK makes the following comments and recommendations:

- SRK recommends that a range of thickening options are considered for the tailings generated from the proposed new DMS circuit. Use of thickened, paste or filtered tails would simplify materials handling of the produced tails and minimise the volumes of water to be managed in the proposed concrete lined clarification ponds;
- As part of the proposed second plant, tailings will be produced at a solids content of 40% w/w. SRK notes that the post deposition (un-drained) settling characteristics of this material have not been verified; hence the settled dry density of the tailings is unknown, which is required for the purposes of volumetric assessment. Alternative options for tailings storage should be considered (such as a tailings dam) to ensure that all tailings produced at the operation can be safely stored and the associated water managed appropriately;
- SRK recommends that a stockpile management plan is put in place, so that deposition of coarse reject material generated from the wash plant is appropriately scheduled and optimised. Appropriate surface water management and sediment control features such as perimeter ditches and silt traps can be installed around waste storage areas;
- A progressive rehabilitation plan should be put in place for the open pit areas, which takes into account extraction scheduling for each phase. Care should be taken to ensure that coarse reject material is deposited in zones which do not sterilise potential future reserves;
- During the site visit, significant erosion gullies were noted on the holding pond main embankment structure. SRK recommends that a geotechnical assessment of this structure is carried out to determine both short and long term stability. The currently planned remediation methods should be immediately implemented, such as buttressing and erosion protection;
- Overall, an integrated coarse reject and tailings waste management strategy for both the existing and proposed wash plant should be considered, to avoid potential operational delays during the expansion phase. During the expansion phase, there are potential scheduling issues which could arise between backfill of open pits with mine waste and on-going mining activities. Dedicated areas should therefore be designated for each activity, to ensure that earthworks activities are scheduled appropriately going forward.

7 MINERAL PROCESSING

7.1 Introduction

The processing of ores from the MRM deposits is relatively straight forward and involves standard industry proven mineral processing methods and equipment to recover rubies and associated semi-precious gemstones. The small process plant at the site was set up for large scale sample treatment to assess the precious gemstone content and quality of the different deposits. The preliminary flow sheet was based on the testwork performed at Mintek, South Africa. A significant quantity of rubies has been produced as part of this resource sampling and these have been graded and sold as part of the market assessment and as a source of revenue for MRM.

In addition, as the plant is rated for nominally 100 tph, it has also been used to assess the processing characteristics of the ore in terms of clay and moisture content, the amount and size of contained gravel and gemstone, and the performance of different aspects of the proposed process and items of equipment.

MRM has decided to store all coarse rejects from the existing plant such that they can be reprocessed at a later date through the new plant. This is a precautionary measure to ensure that no gemstones are inadvertently lost. This material is being placed in the main stockpile area.

In general terms, the new, permanent process plant at site will be operated at 200tph (rated for 250 tph) and will incorporate washing, screening and gravity separation to recover the rubies, together with fine tailings dewatering. The existing plant will be modified, through the addition of new equipment, such that it can operate continuously in parallel with the new plant at nominally 120 tph. The combined average planned total throughput rate is 320 tph from both plants.

A second 250 tph module is being considered for increase production in the future, but is not part of the current operation.

7.2 Laboratory Testwork

Laboratory testwork has been performed by two laboratories: Mintek, Randburg, South Africa and Council of Scientific and Industrial Research - Institute of Minerals and Materials Technology (IMMT), Bhubaneswar-751 013, Odisha in India. SGS performed some settling tests on fine material and limited sorting tests were performed on both ore and concentrates by TOMRA and the suppliers of the Minex sorters.

7.2.1 Mintek Testwork

Mintek was contracted by MRM to conduct testwork together with a metallurgical scoping study on the Montepuez ruby deposit. Four samples were received; a mineralized amphibolite, a coarse +2 mm gravel sample, together with a barren rock and a soil sample. The testwork was conducted in two phases. Phase 1 involved sample characterisation tests, scrubbing tests to evaluate breaking up the clayey material and gravity concentration tests including Heavy Liquid Separation (HLS) and Mineral Density Separation (MDS) or jigging testwork on the coarser +1 mm fraction and Shaking Table testwork on the finer -1 mm fraction. Mineralogical evaluation was performed using X-ray Diffraction (XRD) analyses. In Phase 2, two samples, gravel and amphibolite, were used; 2 kg samples of ruby/corundum were added to the each of the two samples and HLS testwork performed.

The testwork showed that the amphibolite sample contained significant amounts of clay and the intense scrubbing was required to break-up the clay bound particles. The HLS results showed that it was possible to beneficiate the corundum minerals by gravity techniques. The bulk of the material was rejected as waste; at a low cut density of 2.8, as there were visually no corundum pieces at this cut density. The majority of the corundum reported at high specific gravity (SG) of 3.7 to 4.0. Mineralogical testwork also showed the ruby/corundum is liberated at high densities and the relatively small amount lost to the waste was found to be attributed to entrainment, where corundum is present as fine liberated particles in a much coarser low SG sample, as well as some particles finely inter-grown with gangue.

The metallurgical scoping study considered three options: jigging, DMS, and a combination of primary jigging followed by DMS. The DMS option could treat the deslimed feed material whilst jigging could be used as a pre-concentration step on the deslimed feed prior to DMS of the jig concentrate. Efficient jigging can only be performed on closely sized fractions, which means that the feed would have to be classified and treated in a number of parallel jig circuits. In addition, the efficiency of separation of a jig may result in some lost gemstones in the rejected material.

7.2.2 IMMT Testwork

The IMMT testwork was performed in 2014 on a gravel sample designated MRM-010.The sample was nominally -25 mm. The d_{80} of the sample was 13.8 mm and d_{50} was 4.0 mm. 85% was coarser than 1 mm and the balance contained material down to sub-micron sizes. HLS, performed on 12 size fractions between 20 mm and 45 µm, at an SG of 2.89, demonstrated that the heavier particles, including the gemstones, could be easily concentrated into the sinks fraction. The overall mass yield of the sinks fraction was 2.0%. The efficiency of gemstone recovery was not determined. Gravity testwork using a number of different pieces of equipment indicated that the separation could be achieved on +1 mm material using jigging. The mass yield from the jig was around 4.0%.

7.2.3 SGS Settling Tests

SGS performed laboratory setting tests on three samples from the MRM. The samples were Maninge Nice Amphibolite, Maninge Nice Gravel Bed and Mugloto Gravel Bed. The tests were performed on the -63 µm fraction. The results are presented in Table 7-1. The underflow solids were all less than 40% w/w solids and lime was required to achieve acceptable overflow clarity.

Table 7-1: Typical settling test results

	Feed solids	Flocculant dosage	Calculated underflow density	Lime addition for O/F clarity
	% w/w	g/tonne	%/w/w	
Maninge Nice Amphibolite	7.5	33	30.7	Y
Maninge Nice Gravel Bed	10	50	38.0	Y
Mugloto Gravel Bed	10	40	37.3	Y

7.2.4 Sorting Tests

Limited sorting tests have been performed for both ore and concentrates. Tests have been performed at the TOMRA test facility in Wedel, Germany and in Leuven, Belgium. In addition, optical sorting has been evaluated by Binder+Co AG suppliers of the Minexx sorters. In both cases, the testing indicated that automatic sorting of the gemstones from the ore or from pre-concentrated material was feasible and warranted further evaluation. More detailed testwork and evaluation will be required during the initial design phase.

7.3 Processing Facilities

7.3.1 Existing 100 tph Wash Plant

The existing wash plant has been used for batch treatment of large scale samples. The flow sheet is shown in Figure 7-1. Photographs of the main elements of the existing plant are shown in Figure 7-2 to Figure 7-7.

Fresh feed is loaded in to the feed hopper by a FEL. A static grizzly removes any oversize stone or large pieces of clay. The oversize from the feed grizzly is collected and periodically broken up and re-fed in to the feed hopper. The feed is conveyed to the primary triple deck wash screen fitted with 80 mm, 3 mm and 0.75 mm screen decks. The volume of feed on the feed conveyor is measured by instrumentation utilising laser technology and converted to a tonnage using measured bulk densities and moistures. High pressure water sprays on the screen remove finer clay particles and the resultant slurry gravitates to the fines master dewatering unit. The +80 mm oversize and -3 mm undersize are both collected and stockpiled. The -80 +3 mm fraction is collected and conveyed to a single stage log washer where additional water is added and the attritioning action of the unit breaks up most of the clay bound particles. The discharge of the log washer is fed to a double deck wet screen. The +28 mm oversize is discharged to a stockpile, while the -3 mm material is further screened at 0.75 mm, the -3 +0.75 mm is stockpiled, and the undersize discharges as slurry to the settlement ponds. The -28 +3 mm material is further screened at 10 mm prior to the jigging plant. Two parallel jig plants each comprising two jigs in series process the -28 +10 mm material and the -10 +3 mm material. The jig product is collected within the jig compartments and is periodically collected, bagged and transferred to the sort house. The jig discard solids are stockpiled. The plant and feed and waste stockpiles are located within a fenced area with restricted access and strict security. The jig concentrate containing the gemstones is transferred by security to the sort house where it is manually sorted and graded under strict security. All stockpiled material from different points in the circuit are retained and stored so that they can be reprocessed at a later time once the full scale plant, incorporating DMS, is available. All slurry streams emanating from the plant are routed via channels to a series of settlement ponds. Sludge collected in the ponds is periodically removed by excavator and the supernatant water is reused in the plant. It should be noted that the jigs require relatively clean water for efficient operation. No flocculent or coagulant is currently added to the ponds to assist solids settlement.

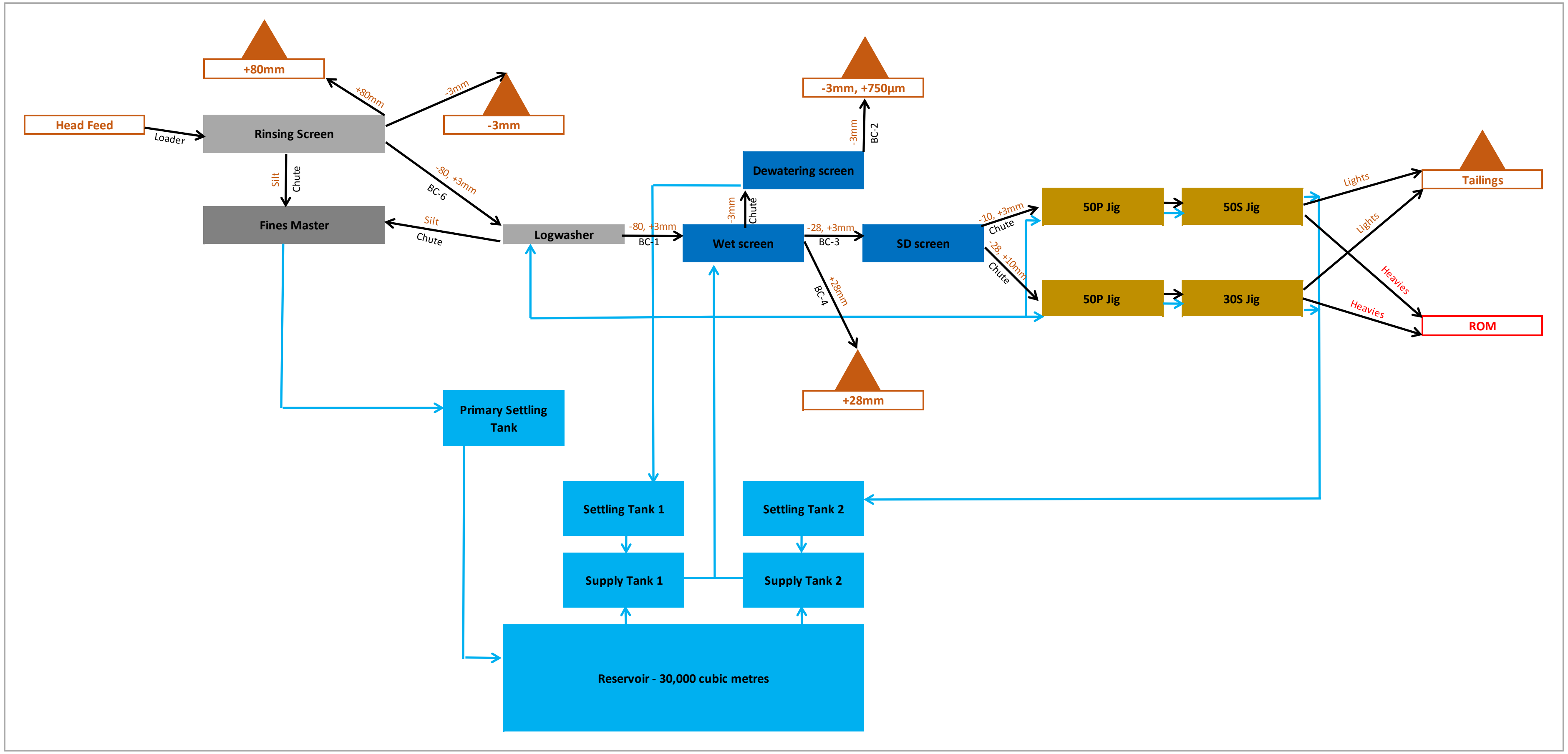


Figure 7-1: Existing plant flow sheet

Figure 7-2: Feed hopper and static grizzly

Figure 7-3: Primary washing screen

Figure 7-4: Fines master and final dewatering screen

Figure 7-5: Log washer

Figure 7-6: Log washer discharge screen and jig feed sizing screen

Figure 7-7: Jigs and discard piles

7.3.2 Historical Processing Operating Statistics

The existing wash plant has been operating since November 2012. The plant was intended to support preliminary bulk sampling work only, but has been gradually modified over time by the addition of new pieces of equipment to remove bottlenecks and to improve performance in terms of throughput and separation of gemstones. The plant operates on a semi-continuous basis treating large batched samples. During this period, the maximum hourly tonnage has gradually increased up to 95 tph and the maximum tonnage processed in a single month was 41.2 kt. The plant recovers gemstones using jigs and the mass yield of gemstones in 2013 was 0.560% and in 2014 was 0.074%.

7.3.3 Planned Modifications to Existing Plant

The existing plant will be modified to operate continuously in parallel to the proposed new 250 tph plant, located in the same area as currently used, with a nominal plant capacity of 120 tph. The following modifications are planned:

- installation of an additional log washer to operate in series with the existing unit;
- replacement of the jigs with a DMS module and/or optical sorting to process -28 +3 mm solids;
- integration of the fines handling and dewatering with the 250 tph plant;
- integration of the concentrate treatment with the new 250 tph plant;
- upgrading of conveyor transfer points to reduce spillage;
- integration of water circuits with the new 250 tph plant;
- improved instrumentation and process control; and
- upgrading of the plant ground floor to contain and deal with spillage.

The final modifications will be discussed with the selected engineering company.

7.3.4 New 250 tph plant

A new processing plant rated to treat 250 tph of fresh feed is planned for full scale operation. This plant is planned to operate at 200 tph. The flow sheet will reflect the existing plant except that the jigs will be replaced by DMS and/or optical sorter, two stages of log washing will be incorporated and the fines from the circuit will be dewatered by thickening. The plant will incorporate industry standard instrumentation and control measures for stable plant operation.

MRM has approached a number of design companies and, at the time of the site visit, was evaluating the proposals. MRM advised that a single company would be appointed to be responsible for the overall project management, engineering and construction of the plant and that they would incorporate specialist packages such as DMS and/or optical sorting, thickening, sorting, etc, in to the design. MRM advised that in order to ensure that the plant takes into account of the specific feed characteristics of the Montepuez ores and incorporates the requirements of MRM operations personnel, the selected engineering company would be based at site for the first two to three months of the Project.

Alternatives discussed at site were drum washing for clay removal, jigging followed by DMS of the jig concentrate and whole ore sorting. Alternative equipment options will be considered but any changes to the proven circuit will need to be justified before they are accepted.

A conceptual layout of the plant is shown in Figure 7-8. The plant site has been selected adjacent to the existing plant water lagoon as shown in Figure 8-2.

7.3.5 Further Plant Expansions

MRM advised that the plant layout will allow space for a second 250 tph module plant in the future if there is sufficient capacity in the gem market to absorb the additional production.

7.3.6 Sort House

A new sorting building will be constructed adjacent to the new plant. The building will incorporate all necessary security measures. The concentrate produced in the plant will be securely transferred by conveyor to the new facility to minimise the potential for theft. The sort house will incorporate state of the art optical sorting equipment to minimise manual sorting requirements.

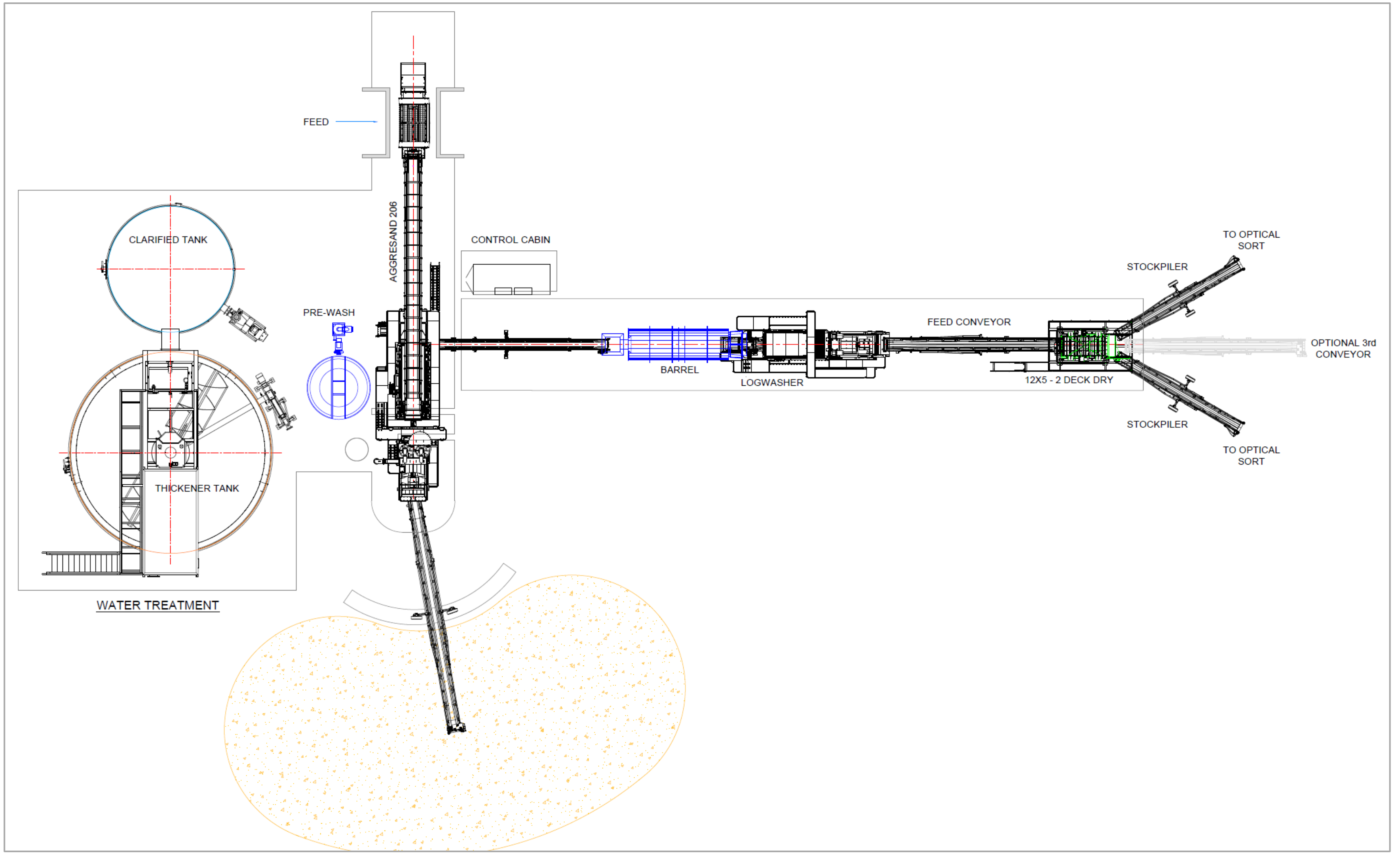


Figure 7-8: Conceptual layout for 250 tph plant

7.4 Tailings Treatment and Storage

The existing system used for collection of the fine slurry streams from the existing wash plant consists of a series of small ponds. The settled solids are removed periodically by excavator. The supernatant water from these tailings is recycled to the wash plant. The quality of water, in terms of entrained slime particulates, is very variable and would not be acceptable for a continuously operating facility. During the site visit, MRM advised that no flocculants or coagulants are added to the ponds to improve the solid/water separation. Return water containing a lot of slimes affects operation of the jigs and would be totally unacceptable for operation of the future DMS plant.

The new wash plant combined with the uprated and modified existing plant will produce a significant quantity of fine tailings. MRM advised that the new plant will incorporate fines thickening. Based on the testwork performed to date, the thickened solids would have a relatively low solids concentration around 40% w/w.

MRM advised that its concept for sludge (tailings slurry) handling would include a number of concrete ponds in to which the thickened slurry will be deposited to allow further settling and water removal. The ponds would be used in a continuous rotation. The intent is that the settled muds would be excavated and transferred to the old worked out pits for final disposal with the coarser waste material. The successful transport of this type of material at low percent solids may not be practical. In addition the supernatant water removed from these ponds may not be of sufficient quality for reuse in the wash plant.

While MRM stated that this concept for fines handling had been seen at a plant in South Africa, there are few specific details for the proposed circuit at Montepuez. The design is conceptual and represents a significant risk to continuous operation of the overall circuit and consequently to stable production of gemstones.

The type of thickener used for dewatering should be fully evaluated during the initial design stage and high density or paste thickening should be considered. Additional testwork would be required for the final design.

SRK recommends that MRM evaluates a more conventional tailings storage system and undertake the site investigations and preparatory works to ensure that this could be incorporated in a timely manner should this be found necessary.

7.5 Process Plant Operating Expenditures

The plant manning costs have been prepared in detail and are acceptable. Some of the costs are dependent on the final flow sheet selected and will be confirmed by the engineering company during following the initial evaluation. Excluding maintenance costs which are captured elsewhere the processing costs (including ferrosilicon for the DMS) are estimated to be USD2.81 /t of ore processed.

7.6 Process Plant Capital Expenditures

The capital cost for the existing wash plant upgrade and the new 250 tph wash plant and sorting house, together with the support facilities included in the MRM LoMp, is USD22.95 M, spread over four years between 2015 to 2018. This cost includes USD9 M for the 250 tph wash plant, USD2.6 M for the existing plant upgrade and USD9.1 M for civils. Based on the information supplied, these costs are considered reasonable.

Replacement capital of USD40 M for a complete plant re-build has been included in the LoMp during 2025.

7.7 SRK Comments

7.7.1 Conclusions

Based upon a review of the information for the current operations and for the proposed expansion, SRK has drawn the following conclusions:

- The current facility is considered fit for purpose and has been an invaluable tool to assess the processing characteristics of the ore. Lessons learnt from this plant will be incorporated in the larger, permanent plant;
- The provisions for capital cost in the LoMp are considered to be appropriate and will allow the planned plant to be constructed;
- SRK concurs with the approach suggested by MRM that the engineering company is resident at site for the first two to three months of the design to finalise the design basis and the flow sheet concepts; and
- The dewatering and handling of the sludge is at the conceptual stage. Failure to resolve this issue with a high degree of confidence in the operability of the proposed system could result in bottlenecks to the processing operation.

7.7.2 Recommendations

Based upon a review of the information available related to processing at the current operations and for the proposed expansion, SRK makes the following comments and recommendations:

- The dewatering, handling and storage of the fine tailings needs to be fully evaluated and the concept proven prior to final design. SRK recommends that alternative thickener types are evaluated for the final flow sheet and conventional or thickened tailings dam is considered for storage of this material. Additional testwork may be required, but it may have substantial benefits;
- The existing capital provisions are considered adequate; however, a more detailed capital cost budget should be developed during the initial phase of the project and used as part of the project controls;
- More detailed operating costs are prepared for the wash plant to assist future planning;
- A detailed, seasonal water balance should be prepared for the wash plant and site as a whole; and

- MRM plans to use a single engineering company to manage the modifications and the design and installation of the new wash plant. SRK recommends that a dedicated engineering team is assigned to work with the engineering company throughout the entire project to ensure that the finished plant reflects the requirements and expectations of MRM.

8 INFRASTRUCTURE

8.1 Introduction

Figure 8-1 presents the existing project layout and shows the different classes or access and haul road and the primary operational support areas. Figure 8-2 presents the existing Project support infrastructure and wash plant area and the proposed upgrade to the layout.

8.2 Roads

8.2.1 Existing

The Project offices and camp are currently accessed by a 1.2 km non-bituminous road which passes through the village of Namanhumbir from regional Route 242. Regional Route 242 connects Pemba and Montepuez..

SRK understands that MRM is in dialogue with the village authorities regarding the upgrading and realignment of the main access road to avoid passing through Namanhumbir.

A 4 km gravel road connects the Project gate with the maintenance area, sorting house and wash plant.

Gravel haul roads 16 m wide connect the wash plant with the Mugloto and Maninge-Nice mining areas (see Figure 1-2 and Figure 8-1) which are shared by both light and heavy vehicles. For security reasons, haul trucks currently travel to the wash plant in convoys comprising 7 to 8 vehicles.

8.2.2 Proposed

The proposed expansion will increase haul road traffic and to ensure the safety of the workforce and mobile equipment MRM proposes the following improvements:

- the existing two-way haul road to the Mugloto pits , currently allowing movement of ore in a convoy system, will be replaced with two 12 m wide one-way haul roads for laden and empty traffic movements;
- the existing 16 m wide two-way haul road to the Maninge Nice pit will remain unchanged;
- a new haul road will link the existing 100 tph and proposed 250 tph wash plants to remove interaction with light vehicles; and
- a new light vehicle road will connect the access road north of the Mugloto pit junction with the new sort house and existing wash plant.

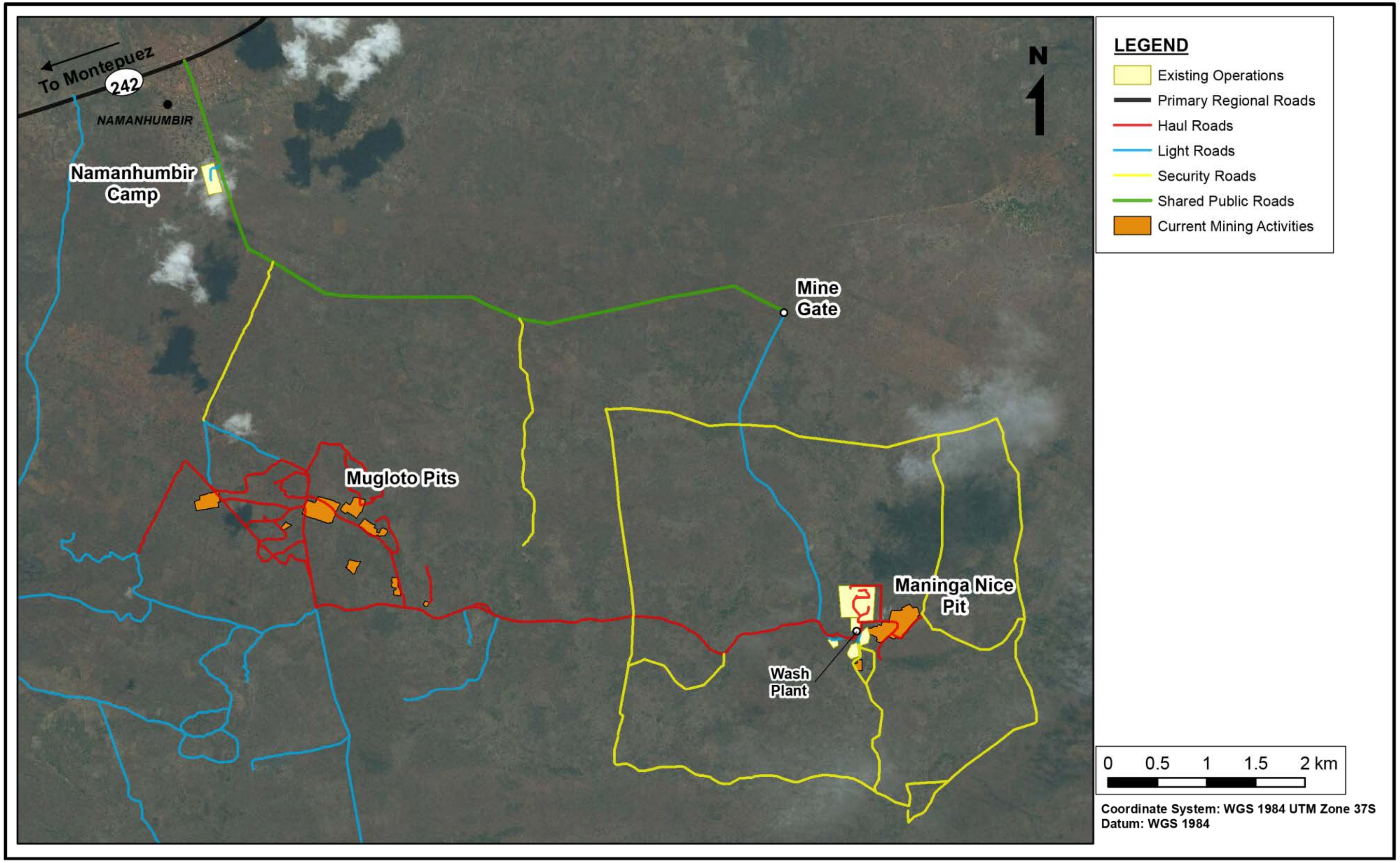


Figure 8-1: Existing Project Layout

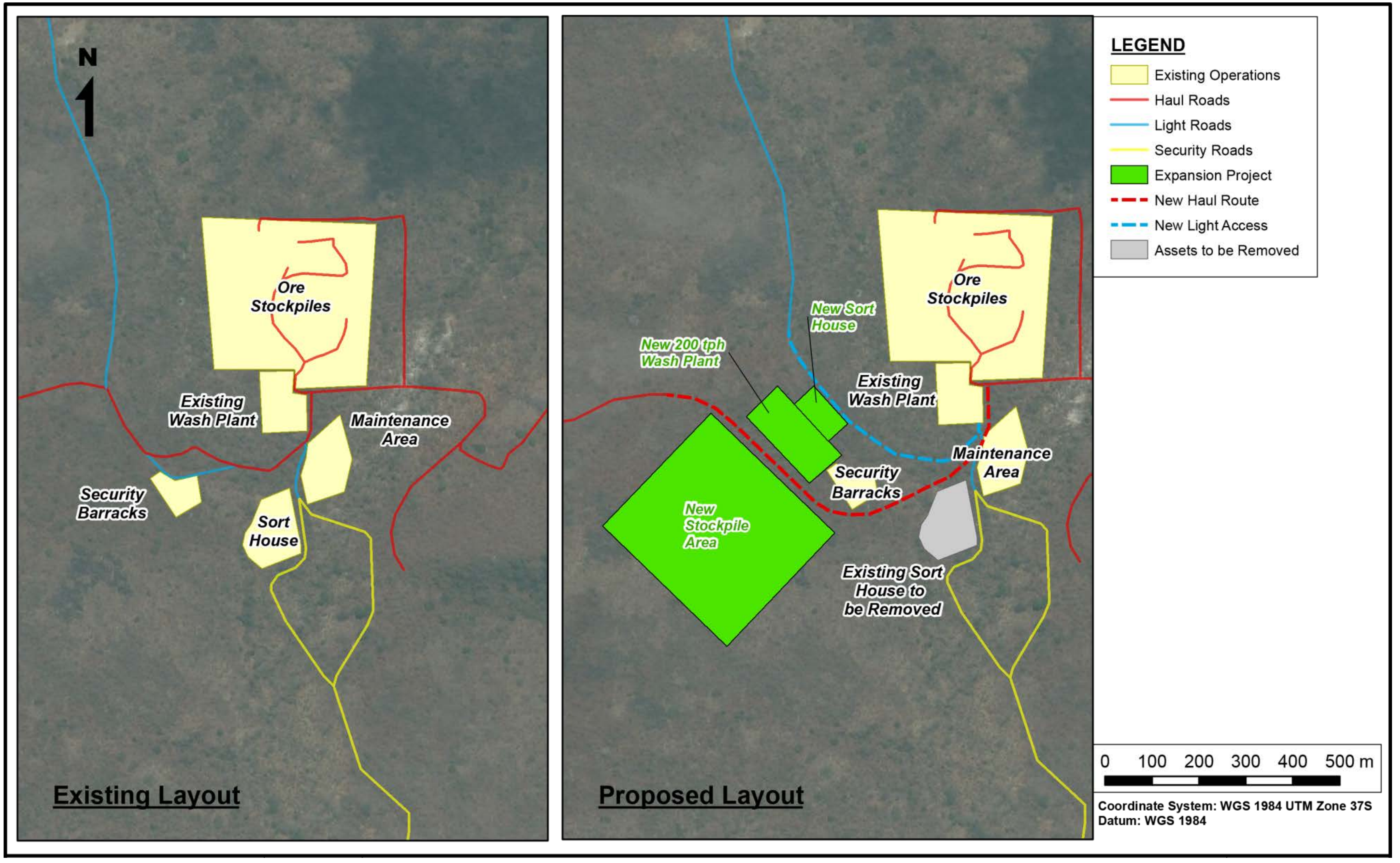


Figure 8-2: Project support infrastructure - existing and proposed operational layouts

8.3 Accommodation and Administration

The main Project offices, stores and accommodation are located at the Namanhumbir camp and comprises predominantly prefabricated and block work structures within a fenced compound. This facility will be expanded to support the proposed expansion project as presented in Figure 8-4.

SRK understands the existing in-house workforce currently consists of 369 persons comprising 51 expatriates and 318 locals. To support the proposed expansion the total headcount is expected to increase by 64% to comprise of:

- expatriates will increase from 54 to 76 (41% increase); and
- locals will increase from 563 to 1,005 (79%).

To accommodate the increase in personnel, an expansion of the existing Namanhumbir camp is planned (although only in-house employees whose home residence is located at least 40 km away from the Concession Area are guaranteed accommodation by MRM).. The expansion plan layout and proposed buildings were provided during the visit and, at present, the expansions phase to include functional / recreational areas and accommodation units. The building system for the new buildings is prefabricated steel and plaster.

8.4 Mobile Equipment Maintenance

All light and heavy mobile equipment is currently maintained in a common maintenance area comprising a double bay workshop, wash pad and lay down area. The existing workshop presented in Figure 8-3 is constructed from 40' long shipping containers which are also used for offices, stores, welfare, hose room and electrical workshops. A 12.5 t capacity mobile crane is used to maintain the larger equipment. The maintenance area has a single access for entry and egress and the workshop orientation requires vehicles to drive in and reverse out.

MRM owns and occupies all current mining equipment for overburden, ore and backfill operations. MRM plans, however, to outsource the overburden removal and backfill activities which are currently at tender; therefore, upon award, the mining contractor will develop its own maintenance area.

The existing MRM maintenance area will handle MRM light vehicles and the ore handling fleet. To support this arrangement, two additional workshop bays will be constructed.

SRK recommends that the maintenance area is partitioned to separate the maintenance of light and heavy equipment to ensure the safety of operatives and mobile equipment in accordance with international best practice. SRK also recommends exploring opportunities to allow vehicles to drive in-and drive-out to avoid reversing movements.

The store within the maintenance area is replenished weekly from the MRM primary warehouses at Namanhumbir camp.

Figure 8-3: Existing Maintenance Workshop

All non-hydrocarbon industrial waste from maintenance activities is currently stored at the rear of the maintenance area, some of which is located outside the perimeter fence-line adjacent to nearby water bodies. Waste hydrocarbons are currently stored in drums in an open area to the rear of the workshops. A contractor periodically collects and transports waste hydrocarbons to Pemba for treatment and safe disposal.

SRK notes that MRM plans to construct an improved secure area where different waste streams can be separated prior to disposal. This will include a better designed bunded hydrocarbon storage area with appropriate surface water management and pollution control measures.

All light and heavy vehicles are washed prior to maintenance activities on a raised earth platform. A pollution control unit is located adjacent to the wash pad; however, this unit needs improvement and is being upgraded to reduce water ponding and the potential for hydrocarbon spillage. SRK recommends that a conventional enclosed wash pad is constructed comprising a concrete platform with appropriate water management and pollution control measures.

SRK also recommends that concrete aprons are constructed wherever maintenance activities are planned with appropriate perimeter drainage channels to collect and reticulate captured water and spillages to a pollution control unit.

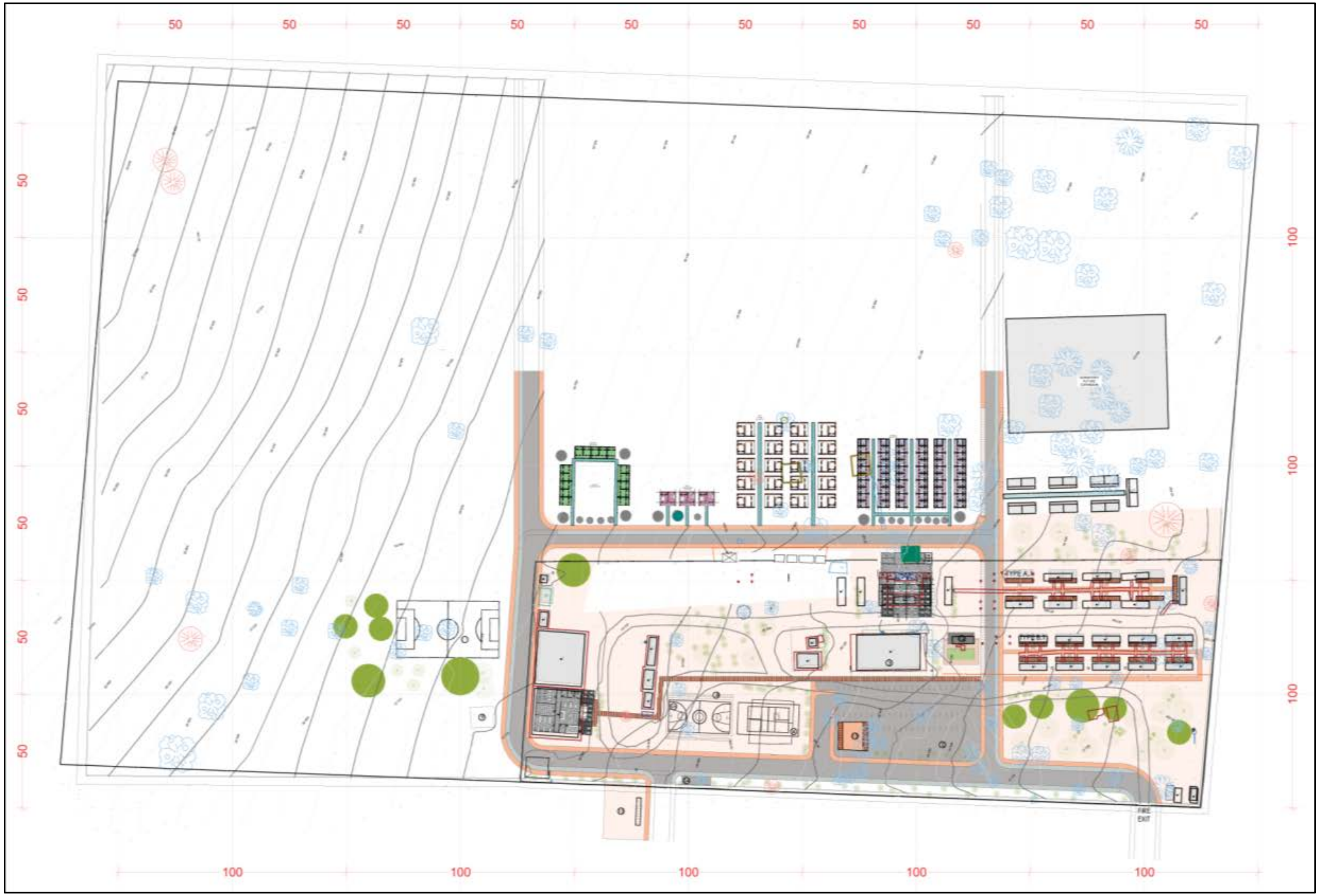


Figure 8-4: Proposed Namanhumbir Camp Expansion (after "Sketch Arquitectos")

8.5 Logistics and Stores

MRM imports goods, spares and consumables from a variety of suppliers to support the current operations. The mobile equipment maintenance suppliers are based in Maputo, whilst the Original Equipment Manufacturers ("OEM") for the wash plant are based in South Africa. The imported goods are received at either Nacala or Maputo ports and transported to the Project by road.

The primary logistics warehouse is located at the Namanhabir camp. MRM has defined all goods/spares into critical, medium and low importance categories. The primary warehouse has a 6-month inventory of critical spares and a 1-month inventory of medium/low importance spares. All perishable and non-perishable food is sourced locally and a delivered to site every 15 days.

Fuel is delivered daily by Petromoc in 10,000 litre capacity road tankers and stored in a 46,000 litre capacity bunded facility (Figure 8-5) which is owned, maintained and operated by Petromoc. Light vehicles refuel use the metered dispensing system adjacent to the fuel tanks whilst an MRM fuel bowser refuels heavy equipment within the mining and waste operating areas.

The fuel supply contract with Petromoc is based on a 5 year rolling contract (dated 2012) at a delivered cost of MZN46.0273/litre (USD1.30 /litre at a conversion of 1 :35.5USD:MZN) This final cost is composed of a base price ex Nacala plus the costs for transport, VAT and government tax added. Petromoc reserve the right to adjust the base fuel price should the government of Mozambique adjust the price which is set through legislation.

To support the 320 tph expansion, Petromoc will expand the fuel storage capacity to approximately 120,000 litres, although this will only be required to support the future MRM light and heavy ore mining fleets. The future mining contractor for overburden and backfill will be responsible for refuelling its mobile equipment fleet.

Petromoc also delivers all lubricants which are stored in a warehouse within the Namanhabir camp with a 2-month inventory and are supplied every week as discussed above.

Figure 8-5: Existing Fuel Storage

8.5.1 Product Handling

Material from the +3 mm >-10 mm and +10 mm >-20 mm jigs is received at the sort house where it is sorted by ruby category and weight. A replacement sort house will be constructed which will receive and handle all material from the existing and new wash plants.

Gems are currently exported by road to Pemba; however, MRM plans to use a helicopter to export once the production rate has increased to the envisaged 320 tph.

8.6 Emergency Response

The first aid centre is operated by a doctor and two nurses. MRM has a contract with Montepuez hospital for the treatment of MRM personnel. MRM plans to construct a helipad in 2016 to assist with product export and the emergency evacuation of MRM personnel.

8.7 Waste Management

All non-industrial waste including organic material and packaging is currently deposited in un-lined landfills adjacent to the Namanhumbir Camp. SRK recommends that a formal waste management strategy is developed in accordance with Mozambique regulations and international best practice to protect nearby water courses and the wider environment.

8.8 Security

Due to the nature the business, the security situation in the MRM concession, and the areas around the concession, can change quickly. To this effect, the MRM Board of Directors has recently approved a security plan, but continuously evaluates the situation and looks to amend and update the security plan as the project develops and increases its footprint.

The main security challenges which the updated security plan seeks to address are:

- illegal mining activity, which is the biggest challenge for MRM Security; and
- theft of rubies at various stages through the process.

The current security plan involves 154 personnel from “QRT”, “FIR” (for anti-illegal operations) and “ARKHE” guards. With the planned expansion that increases the surface footprint of the operations, the security plan proposed by MRM will have the following key components:

- subdivide the operational area into three security blocks / zones which are further subdivided into smaller zones for better control and coordination;
- each zone would have an operating base with elements of QRT, FIR and ARKHE; a dedicated expatriate security officer would be in charge of each security zone;
- additional radio communications between zones and operating bases; and
- necessary equipment to support the security operation including training, dedicate vehicles, communications and GPS devices, spotlights, torches and digital cameras / recorders.

8.9 Utilities

8.9.1 Power

Power to the Project is currently supplied by separate connections from the national transmission grid to transformers at Namanhumbir camp, the Project gate and wash plant. All connections are 33 kV which are predominantly stepped down to 400 V for local distribution.

The national transmission infrastructure is reported to be generally reliable with on average 6 to 8 hours of outages reported per month; however, some transmission lines were damaged during the recent wet season and at the time of the site visit in April 2015, the site had been without a fixed connection for 25 days. Backup diesel generators are used when the fixed connection is interrupted to ensure operations remain unaffected, comprising two 2 MVA generators located adjacent to the existing wash plant.

SRK understands that the tariff structure, comprising a fixed and variable component, is defined by the Mozambique government and varies annually. For the current operation, the electrical load is reported as 11.14 kW (1-phase) plus 445.85 kW (3-phase). An invoice supplied by MRM for November 2014 confirms a consumption of some 80,000 kWh for a total monthly operational cost of MZN325,000 (USD9,284 at current exchange rates). The consumption rate corresponds to the proposed operational hours and levels of plant utilisation / availability used in SRK's financial model.

8.9.2 Communications

The communication systems at the operation are closely linked to the existing and proposed security measures. Currently, the support infrastructure benefits from a WiFi connection and operatives utilise two way radio communications. Security monitoring utilises CCTV and biometric identification for personnel daily attendance records.

The proposed expansion plans also include upgrades and expansion to the communications networks includes a vehicle monitoring system (ore) and expanded access control and CCTV.

8.9.3 Fire/Dust Suppression

MRM operates conventional bowsers to suppress dust generation on all roads. Fire extinguishers are located at all operational and support assets with an 18,000 litre fire appliance planned to support the future operation.

SRK recommends that appropriate measures are developed to mitigate dust generation on waste, ore and reject stockpiles and this is documented within the proposed waste management plan.

8.9.4 Potable Water

There are 7 boreholes on site, of which five have received potable water certification. A single borehole supports the Namanhumbir camp with water pumped to elevated tanks for domestic and sanitary consumption (Figure 8-6). Raw water is treated by a small reverse osmosis plant in the kitchen prior to use by kitchen staff for food preparation. Drinking water is imported in bottles. SRK recommends that a more detailed seasonal water balance is developed to ensure that storage and water treatment infrastructure will be sufficient to support the increased workforce and this water balance is accompanied by adequate flow sheets to demonstrate sufficiency.

Figure 8-6: Namanhumbir Camp Potable Water Storage Tanks

8.9.5 Foul Water

Foul and domestic waste water from the Namanhumbir camp is collected and reticulated to septic tank and soak pit.

8.9.6 Processing Water

SRK understands that the existing wash plant recycles 93% of the water used with the make-up demand drawn from a nearby reservoir. The make-up reservoir is formed form an earth dam constructed in the valley of a seasonal water course. During the dry season, the reservoir is replenished by six boreholes; however, SRK understands that this has not been required since operations commenced in 2012.

During the site visit SRK witnessed extensive erosion of the dam itself and a deeply eroded channel surrounding the reservoir and dam toe. In order to prevent against a potential future dam failure MRM is developing an appropriate storm water solution including perimeter interception channels and a spillway to safely redirect excess volumes of surface water during peak storm events. In order to minimise quantities of fines reporting to the wash plant/s SRK recommends that appropriate clarification systems are developed and MRM is investigating.

MRM has generated a water balance for the planned operation which suggests there will be sufficient water supply from surface storage dams and borehole abstraction points. SRK has recommended that a more detailed water balance is developed to optimise the reservoir capacity to accommodate demands from the increased production. This is being undertaken by MRM and will include an assessment of downstream water users to understand potential limits on discharge flows and sediment control.

8.9.7 Surface Water Management

MRM is in the process of enhancing the infrastructure to capture, manage and discharge storm water on roads, earthworks slopes, pit slopes, stockpiles and the process make-up water reservoir dam. This will ensure that existing infrastructure, material stockpiles and mining operations are protected and the sediment transportation is minimised to prevent silting of downstream water courses.

Specifically for the reservoir dam, the proposed spillway needs to be constructed to allow excessive flows to bypass the reservoir without eroding the toe of the retaining dam.

8.10 Operating Expenditures

The cost of operating the camp and ancillary activities has been appropriately captured and is presented in Table 12-2 in Section 12.1. SRK has reviewed the costs and considers them to be appropriate for the location and type of operation.

8.11 Capital Expenditures

Capital investment in the camp and support facilities is planned to support the expansion and the associated increase in manpower. The estimated costs of this are presented in Table 12-3 in Section 12.1. As part of the CPR process, SRK has reviewed the costs and considers them to be suitable for the planned expansion.

8.12 SRK Comments

8.12.1 Conclusions

Based upon the work undertaken to date, SRK concludes the following:

- The Project is well served in terms of infrastructure. SRK cannot foresee any serious issues with current or planned arrangements;
- SRK considers some investments such as upgrading and re-aligning haul roads will benefit both MRM through enhanced productivity and local community through reduced traffic; and
- Water management is probably the most significant issue to address on an on-going basis. SRK notes that current and planned actions will ensure that infrastructure will not adversely impact on the Project’s performance.

8.12.2 Recommendations

Based upon the work undertaken to date, SRK recommends the following:

- MRM continues with its planned program of investment in infrastructure; and
- Investments in water infrastructure, roads and community support should be prioritised as these will have the most significant impact on the operation.

9 ENVIRONMENTAL

9.1 Introduction

The Montepuez operation is located in northern Mozambique approximately 170 km inland of Pemba as described in Section 1.2 with further detail in Section 4 and Section 7. Gemstones are currently extracted from gravels that are mined from a series of shallow open pits.

9.2 Environmental and Social Setting

The Maninge Nice Pit areas have intact Miombo woodland forest and remnants of forest vegetation reaching a height of approximately 15 to 20 m. At the Mugloto pit areas, the vegetation comprises long grasses and the natural Miombo woodland has been disturbed by subsistence farming activities for maize and other subsistence crops. The mining concessions are located 11 km south of the Quirimbas National Park.

The mining concessions are located within the districts of Montepuez and Ancuabe. Five villages (Mpene, Namanhumbir, Nanune, Nseue and Nthoro) are located within the mining concessions or on the periphery of the concession boundaries with a total estimated population of 8679 inhabitants. Only the inhabitants of Nseue, Ntoro and Mpene have been identified for resettlement totalling approximately 440 families and 1909 individuals. Subsistence crops commonly grown include maize, rice, beans, cassava, pumpkins and sorghum and fruit trees.

The Project is the first formal mining activity to take place in the Montepuez region. Approximately 1500 illegal miners are active in various parts of the mining concessions. Although the government has allocated two official Mining concessions' specifically for artisanal miners, situated one each on eastern and western side of MRM concessions, artisanal mining activities are not restricted to these areas. At any particular site there can be up to 700 illegal miners active at one time. Illegal mining activities extend from digging, through to transport of ore and purchase of rubies, to transport out of the country. Amongst the leadership of the illegal miners there is a distinct presence of foreigners, including foreigners from other parts of Africa and from Asia. These people are usually familiar with the gemstone business and have access to illegal gemstone buyers. Although inhabitants of local villages are reportedly not directly involved in these illegal mining activities they are involved in the sale of goods and services to illegal miners, including food, tools, clothes and flash lights.

A security force of 410 people, including 250 from Omega Risk Solutions (locally named ARKHE), 130 MRM secure the licence areas. Conflicts between security and illegal miners do occur when security forces reclaim mineral resources. MRM is sometimes notified for assistance when the illegal miners are faced with an accident leading to death inside a collapsed pit or tunnel.

9.3 Licencing and Permits

9.3.1 Mozambique Environmental Legislation

Mozambican environmental legislation is generally well developed. The Environmental Law No 20/97 and its Regulations establish the guidelines and rules applicable to all sectors of activity. These are complemented by the 'Environmental Regulations for Mining Activities' approved by Decree No 26/2004. Other important laws from an environmental and social perspective and of relevance to mining include the Mining Law No 20/2014 (dated 18 August 2014), the Land Law No 19/97, the Water Law No 16/1991 and the Wildlife and Forest Law No 10/91.

Mining holding permits (Article 7) are granted to applicants that satisfy the requirements in the mining law and in other applicable legislation. The Mining Law requires that mining activities are undertaken in conformance with environmental legislation. Article 11 states that the holder of a right to use and enjoyment of land may require an authorisation for mineral water exploitation, in accordance with applicable legislation.

Article 44 states that prior to the beginning of any development and extraction operation in the area covered by the concession, the mining concession holder is required to obtain the following primary environmental approvals:

- an Environmental Licence;
- a right to use and enjoyment of the land (Land Use Permit, termed a "DUAT"); and
- an approval for the compensation and resettlement plan.

9.3.2 Mining Concession Environmental Requirements

There are environmental requirements specified in legislation pertaining to mining concessions. The Mining Law (Article 36) states that holder of mining rights has obligations to comply with provisions contained in the Environmental Impact Study (EIA) and to develop necessary actions regarding environmental protection according to the EIA. Other relevant requirements are:

- Mining activities must be undertaken according to good mining practices to ensure preservation of biodiversity, minimise waste and protection against adverse effects to the environment (Article 68);
- Mining activities carried out under a mining concession are classified as Category A (Article 69); and
- An EIA is required for Category A mining activities (Article 70).

The Mining Law includes specification on mine closure. The National Institute of Mines (Article 26) is responsible for reviewing and approving rehabilitation and closure. Articles 43, 44, 47 and 71 refer to the requirement for environmental restoration and mine closure to be performed in accordance with a Rehabilitation and Closure Plan approved by the relevant authority. Article 71 also makes reference to how the performance bond, if required, should be used.

The Mining Law is supported by Mining Regulations which have been approved and a draft is currently being circulated (*personal communication,* Custodio Judiao, Zero Harm Consulting, 2 April 2015).

9.3.3 Environmental Licence

Several pieces of mining and environmental legislation guide the process to be followed when undertaking the EIA. They also guide the review of the Environmental Impact Assessment (EIA) reports by the Ministry of Lands, Environment and Rural Development (MTADR) and subsequent issuing of Environmental Licences by MTADR. Public participation is an essential part of the EIA process, which involves three phases:

- Phase 1: Letter of application and screening (officially named “Avaliação de Impacto” or “AI”);
- Phase 2: Terms of Reference for the EIA (officially named “Estudo de Pré-viabilidade Ambiental e Definição do Âmbito” or “EPDA”) – the EPDA must be approved by MTADR; and
- Phase 3: EIA (officially named “Estudo de Impacto Ambiental”); the EIA report must be approved by MTADR before an Environmental Licence can be issued.

9.3.4 Land Use Permit

Land in Mozambique belongs to the State. The State may grant to natural or legal persons the right to use and enjoy land subject to the social and economic use to which it is proposed to be put. In principle, the holder of a mining concession has the right to apply for land use title in accordance with Article 28 of the Land Law Regulations Decree 66/98 and Article 12 of the Mining Law. A land use permit issued in connection with a mining concession has the duration of that concession.

Most occupiers and users of land in potential mining areas do not have official title to the land, but the Land Law treats them as if they do have land rights. In rural and urban areas, the right to use and benefit from all or part of the land, whether or not official title has been issued and registered, may be revoked and thus extinguished in the public interest. The Land Law clearly states that such revocation is subject to the prior payment of a just indemnification and/or compensation.

The Land Law does not refer to the procedures to be followed when land rights are to be extinguished. It does confer allocation rights on different levels of Government and these apply to the revocation of rights as well. Where small areas of land are involved (<100 ha), the Provincial Governors can deal with such issues and declare land rights to have been withdrawn from an individual, entity or community. The Land Law does not refer to the possibility of appeal against revocation of rights.

9.3.5 Stakeholder Engagement

Mozambican mining, land and EIA legislation all require stakeholder engagement throughout the planning of a large-scale mining project. Consultation with local communities that will be affected by a mining development is particularly important. The legislation requires that there is formal disclosure of information about the Project (the proposed development, the EIA process, the EIA findings and proposals to address impacts) to the public and that the concerns of the public are heard, recorded and formally addressed.

Proponents of large-scale mining projects are encouraged to establish formal, documented agreements with the national and provincial government and the local communities on measures for the management of impacts of the Project.

9.3.6 Resettlement/Compensation

Article 30 of the Mining Law refers to the fair compensation for families or communities located on the available area that may partially or completely require relocation. The value is fixed in a Memorandum of Understanding (MoU) between the Government, the company and the community and if one of the parties requests it may need to be witnessed by a community-based organisation. The MoU is one of the requirements for the allocation of mining rights. The Government is responsible for ensuring the best terms and conditions in favour of the community, including the payment of fair compensation. The contents of fair compensation are described in Article 31 of the Mining Law. Article 41 refers to the compensation to land users for damage caused to land or property by prospecting and research activities. Reasonable capital cost allocation for resettlement has been made in in the MRM budget. SRK considers the planned level of expenditure to be appropriate for this kind of exercise.

9.3.7 Illegal Mining

The updated Mozambican Mining Law (2014) now includes a section on illegal mining. Article 79 states the extraction, treatment, processing and commercialisation of minerals without proper authorisation is punishable with 2 to 8 years imprisonment according to the Criminal Code. No 20 of 2014 (dated 18th August 2014).

9.3.8 Water Concessions

In terms of the Water Law, all water resources are the property of the State. The Montepuez Project requires a Water Concessions from the Regional Water Administration for various water uses. The two year temporary permit that expired in January 2015 has been renewed until June 2020.

9.3.9 Protected Nature Conservation Areas

Mining cannot take place within protected areas without a special permit from the GoM in terms of the Wildlife and Forest Law No 10/91. The protected areas are: national parks; game reserves; partial reserves; vigilance areas; controlled hunting and photographic safari areas; and forest reserves. The MRM Concession Area is not situated in a National Park or protected area.

9.3.10 Mining Contract

Article 8 of the Mining Law states that the Government may enter into a mining contract with the holder of a mining concession. The mining contract, among other clauses, should contain the following:

a) State participation in the mining venture;

b) Minimum local content;

c) local employment and technical-professional training programmes;

d) incentives for the increase of value of the minerals;

e) social responsibility activities to be developed by the mining holder;

f) memorandum of understanding between the Government, the company and the community(ies);

g) dispute settlement mechanisms, including provisions related to the settlement of any such disputes through arbitration; and

h) the way communities of the mining area are engaged and benefitted by the venture.

9.3.11 Status of Environmental and social studies and approvals

Mining Concession

In February 2012, the Mozambican government granted MRM a mining and exploration license for the two adjoining mining concessions 4702C and 4703C, which cover an area of approximately 33,600 ha. These are dated 11 November 2011 and are valid for 25 years until 11 November 2036. Bulk sampling began in August 2012. An extensive exploration programme is underway using both auger drilling and core drilling. The conditions attached to the concessions state:

- The beginning of any development work or mining in the area for which the mining concession was granted is subject to the presentation of:
- an Environmental Licence;
- authorisation for use and enjoyment of the land;
- mining activities will be undertaken in accordance with the mining operating program and the submitted and approved annual programs;
- mining is to start within a maximum of 48 months from the date of issuance of the last license or authorisation (required under Article 44 2e of the Mining Law);
- maintain level of production proposed in the mining plan approved by the ministry;
- demarcate the concession area within 90 days from the issuance of the mining concession;
- provide regular statistics on production and exportation performed;
- provide monthly information, quarterly and annual in accordance with Article 55;
- to comply with the requirements of environmental protection, management and restoration in accordance with the Environmental Regulations of Mining Activities; and
- compensate the holder of crops or property that will be lost or for physical resettlement.

Bulk sampling is currently taking place at the Project, under a Category ‘B’ permit. MRM is in the process of obtaining a 'right to use and enjoyment of land' in the form of a Land Use Permit (DUAT) and an approval for the compensation and resettlement plan (RAP). These two approvals are required, in addition to the Environmental License for a Category ‘A’ Project (full scale mining), before the beginning of any development and/or extraction operations on the Mining Concession in accordance with Article 44 of the Mining Law, 2014.

Environmental License

MRM was granted Environmental Licences by the Ministry of Environment (by the Governor of the Province of Cabo Delgado), for Category B Projects, on 9 March 2012 for mining on the Mining Concessions 4703C and 4702C (Environmental Licenses 006/2012 and 007/2012, respectively), which are short term licenses and expire on 28 November 2016. The Environmental Licenses were granted after the Mining Concessions were issued.

According to legislation, an Environmental License for a mining operation can be issued when the EIA report is approved and the RAP has been submitted and approved. Mwiriti Ltd produced a terms of reference (ToR) for the Category 'B' Project EIA. An Environmental Management Plan (EMP) was developed as part of the conditions of approval for Category 'B' Project Environmental Licenses.

An EIA for a Category 'A' Project has been prepared by the Mozambican consultancy, Zero Harm Consulting, in accordance with the Mozambican regulatory requirements for mining at the Montepuez Project. MRM has submitted this EIA in mid 2015. Baseline studies were therefore not focused on project impacted areas. Also, the impact assessment and management measures and management plans are quite general as a consequence. Furthermore, the EIA was compiled over a three month period in 2014 and seasonal variation was therefore not captured in the baseline data for the project study area. There is the risk that impacts are not clearly understood and therefore cannot be appropriately managed. Despite these findings, SRK expects that the EIA will obtain approval.

Land Use Permit (DUAT)

MRM has submitted its application for a DUAT and are awaiting approval by a council of ministers. SRK notes that MRM received an official letter (Certificate No.04/2014) from the provincial ministry of Agriculture stating the DUAT is in the process of being authorised.

Resettlement Action Plan (RAP)

A draft RAP for the Category A Project was prepared by Zero Harm Consulting, in accordance with Decree 31 (2012) and presented to government in a meeting on 24 June 2014. The draft RAP includes a completed asset survey and assessment of baseline conditions for the 2174 families (approximately 440 households, although these numbers may change) that will require resettlement. The document still needs to be submitted to government. Once land relocation site options have been identified by government, affected parties need to be consulted on alternative sites and specialist studies (such as soil and water studies and access to power) need to be undertaken to identify the best alternative. A consultative council, including representatives of the District of Montepuez and government officials, then decides on the best option. Compensation agreements then need to be negotiated with affected parties. A monitoring plan will be developed once the RAP is completed for the implementation of resettlement. SRK understands, from Zero Harm Consulting, the agreement of land relocation and compensation could take a further six to 12 months. The subsequent completion of the entire resettlement process might require a further two years.

Water Use License

MRM was granted a renewed Provisional Water Use License valid for 5 years from June 2015 for extraction of groundwater from seven holes, with a total abstraction volume limit of 131,200.16 m^3/day. Recommendations included regular monitoring of the water resource to avoid overexploitation and monitoring of water quality. No water quality monitoring was observed at the mining sites.

Other water uses such as industrial water use at the wash plant (3-7% of make-up water), impoundments for water supply, storm water dams, pollution control dams and slurry ponds; and discharges of water from site to natural watercourses are not included in the Water Use License.

9.4 Stakeholder Engagement and Social 'License' to Operate

MRM does not have an on-going formal programme for engagement of people who are affected by its current Montepuez operations and future development proposals. MRM does however engage communities for social and cultural events.

SRK notes there was some stakeholder engagement in the process of the DUAT between July and December 2012 and again in the first half of 2014 for in the EIA process for the Category 'A' Project. Evidence of comprehensive stakeholder engagement of all affected parties could not be independently verified by SRK. Two stakeholder meetings were held to discuss the EIA. On 31 March 2014, 20 participants including primarily government representatives, met to share information on the project, RAP and EIA ToR. Community representatives from nearby communities did not participate in this meeting and therefore their issues and concerns were not included in the EIA process. On 24 June 2014, 53 participants, including representatives of Namanhumbir, Ntoro and Mpene, met to discuss the findings of the EIA and to ensure their comments were incorporated in the final version of the report for submission to MTADR. Copies of the draft EIA were made available for review in December 2014, after the feedback meeting held in June, at six different locations.

An external stakeholder grievance procedure exists (the Draft RAP includes a grievance procedure flow chart), but there is no record of the implementation of the grievance procedure on the ground. Apparently no grievances related to the Draft RAP have been received by MRM thus far.

As noted in minutes of MRM's Board meeting (held on 13 December 2014), the company has formally committed 0.75% of its auction sales to corporate social responsibility initiatives and 0.25% to environmental initiatives specifically involving wildlife. Some initiatives that MRM has already contributed to include access to medical emergency facilities such as an ambulance, secondary educational opportunities for promising pupils, and vegetable gardening training and provision of supplies. However, formal documentation of these activities is missing. SRK notes that commitments to community development can be material to the project and need to be publicly recorded.

9.5 Approach to Environmental and Social Management

Gemfields has made a high level commitment to sustainability at the corporate level and has an Environmental Policy and a Societal Policy. A group sustainability team exists and the Board of Gemfields has an HSEC committee who are responsible for receiving and signing off revisions of this policy. The Environmental Policy commits to EIA, EMP and biodiversity assessment and action plan, EMS to conform to ISO140001 and commitment to continuous improvement and regulatory compliance; internal monitoring and measurement of environmental performance and third party audits to ensure conformance with regulations and an environmental management system.

In June 2014, Gemfields employed a person at head office responsible for Group Sustainability, Health, Safety and Risk. However, a dedicated environmental management system is yet to be developed and implemented at Montepuez Project to ensure corporate commitments and environmental and social legal obligations are met.

MRM senior management stated that they are in the process of employing an environmental manager at Montepuez Project. This is essential to ensure commitments made in the EIA for the Category ‘A’ Project and accompanying Environmental Management Plans are implemented.

The EIA and accompanying EMPs may need to be revised to address project specific impacts for Montepuez Category ‘A’ Project.

The EMP commitments for the Category ‘B’ Project, which were conditions of the Environmental Licenses granted, are now being implemented on site. Noteworthy commitments include:

- Adequate measures shall be taken for conservation and protection of streams;
- Topsoil should be properly stacked at specified dump sites with adequate measures and should be used for reclamation and rehabilitation of mined out areas. The top 20-30cm soil layer is not being stored separately from overburden for later re-vegetation;
- Regular monitoring of ground water quality and levels;
- Check dams and siltation ponds should be constructed to prevent silt and sediment from ore and overburden dumps reaching local water bodies;
- Disturbed and cleared areas should be replanted using indigenous and resistant (to high temperatures) species;
- Industrial waste management plan: waste separations (paper, cans, glass and hazardous waste);
- More frequent maintenance to be conducted on road to allow circulation of goods and people through the year, especially for rainy seasons to prevent mud formation;
- Operate during daylight and normal working hours; and
- Open pit will be dewatered to avoid pit lakes and development disease vectors (such as malaria).

The EIA includes a number of management plans the implementation of which will improve with the development of an on-site environmental management system and appointment of appropriate personnel and allocation of financial resources to implement commitments.

There is no record of any monitoring activities at Montepuez Project and no record of any internal or external audits since mining activities began in August 2012. SRK notes that these issues are currently being addressed.

9.6 Closure Planning and Cost Estimate

A closure plan and closure cost estimate will be developed for the operation as part of the EIA for A Category as per the Mozambican law. The costs of on-going rehabilitation for mined out areas are included in the financial model projections for MRM. In addition to this, MRM has allocated a provision of USD20 M for closure. This is to cover the cost of removal of all equipment from the site, rehabilitation of all the remaining disturbed areas on site and pay staff retrenchment costs.

SRK notes that rehabilitation of the open pits concurrent to mining operations is a key closure objective. In the past topsoil has not been stored separately from overburden and no active re-vegetation of the backfilled pits has been undertaken. SRK notes that management is planning to address this in the future and it is expected that rehabilitated areas will eventually be returned to agriculture following consultation with stakeholders and approval of the end land use with the regulatory authorities.

9.7 Key Issues

9.7.1 Primary Environmental and Social Approvals

MRM is in the process of obtaining the necessary primary environmental approvals to support large mining operations at Montepuez. Obtaining approval for the RAP could delay the issuing of a Category A Project mining licence. Furthermore, since the RAP still needs to be submitted it is uncertain whether it will meet government requirements. The DUAT needs to be obtained. The EIA for the Category 'A' Project mining needs to be approved.

9.7.2 Site Environmental and Social Management

During the site visit, SRK identified that MRM is yet to implement all of the required environmental management actions some of which are conditions of the existing environmental license. Specific environmental and social issues that require better management are highlighted below.

Surface water management and pollution control measures require improvement:

- Storage of non-hydrocarbon industrial waste and waste hydrocarbons adjacent to nearby water bodies needs to be addressed.
- Water ponding and hydrocarbon spillage at the vehicle wash pad needs to be addressed.
- Foul and domestic waste water from the Namanhumbir camp is collected and reticulated to septic tank and soak pit.

- No acid rock drainage metal leach (ARDML) investigation on waste rock and overburden was undertaken. The long-term stockpiling of overburden in the stock yard and on the periphery of the Maninge Nice pit stockpiles does have potential to pollute nearby water courses. Monitoring and control of run off is essential.
- The geochemical analyses of the soils indicate that the soils are typical of a well weathered African soil, therefore minimal to no impact would be expected from the leaching of constituents from the soils. However, it is noted that 12 samples of soil have very elevated levels of mercury that would not be expected from natural sources. Typically within the rocks that form the Earth's crust mercury has an average abundance of 0.08 mg/kg (Mason, 1966); the elevated values reported in the soil analyses ranged from 9 to nearly 14 mg/kg. It is therefore assumed that these elevated mercury levels occur as a result of some kind on mineralisation in the bed rock. Further investigation and clarification is recommended.

Storm water management requires improvement to avoid silting of downstream water courses and potential impacts on downstream water users:

- Extensive erosion of the reservoir and a deeply eroded channel surrounding the reservoir and dam toe were observed.
- Downstream water users of the mining operations have not been identified and mapped.
- The pits fill up with water after the rainy season.

Impacts of the mines water usage on surface and groundwater need to be assessed:

- A detailed seasonal water balance for the existing mining operations and proposed operations is still in preparation and requires finalisation.

Soil management requires improvement:

- Planned erosion control measures have not been fully implemented around overburden and waste stockpiles.
- The overburden (top 2-3 m) stockpiles need better erosion controls and large gulleys form during the rainy season. Some of these stockpiles may remain for the full 25 year life of mine. This soil needs to be prevented from reaching nearby local streams and contribute to increased sediment loads.

Dust management needs improvement:

- Dust management measures for the waste, ore and reject stockpiles require improvement to prevent windblown dust erosion.

Baseline biodiversity studies need to be undertaken prior to disturbance:

- The impacts of the Project on biodiversity are not well understood.
- There is no record of site specific biodiversity assessments having been undertaken prior to land clearing and development of mining pits. The impact on biodiversity therefore cannot be determined and appropriate revegetation cannot be undertaken without knowledge of the species composition and structure pre-disturbance. No biodiversity action plan or conservation plan has been developed despite the corporate level commitment to focus on biodiversity.

- The topsoil (top 20-30 cm) layer is only recently being stockpiled separately from overburden for concurrent re-vegetation of mined areas. Topsoil is a resource of high conservation value. It is a gene bank containing seeds of indigenous species. It is usually nutrient rich and has a good texture for plant growth. Topsoil should be applied to the backfilled pits to facilitate successful rehabilitation of disturbed land.
- MRM plans to outsource overburden removal and backfill activities which are currently under tender. SRK notes that the contractor therefore needs to be legally bound to comply with the permit conditions regarding storage of topsoil, backfilling and rehabilitation of disturbed land.

Community health and safety may be threatened by traffic accidents:

- The main access road to the Project camp and project offices passes through Namanhumbir. There is a risk of traffic accidents causing injury of local community members once the number of vehicles passing through the village increases. SRK notes that the planned re-alignment of the road passing through the village will be key to mitigating this risk. If agreement with the village authorities cannot be reached, then SRK recommends traffic control measures are implemented.

Illegal Mining/Security and Human Rights:

- MRM strives to take special precautions to ensure that no human rights abuses are incurred at Montepuez. SRK notes that security contractors have documented Standard Operating Procedures (SOPs) according to the security plan. MRM needs to ensure that public and private security contracts make proper reference to Voluntary Principles on Security and Human Rights. MRM have contracted Aegis Security and Investigations, USA to undertake risk assessments and develop the necessary policies, procedures and guidelines as described by the Voluntary Principles and maintain a record of their implementation.
- MRM does not have a documented record of conflicts between illegal miners and security forces. Although MRM is entirely defensive in its approach to guarding its mineral resource, it has a contingency plan in place working with state police to counter violent incidents and avoid bad publicity for MRM and the Company.

Expectations regarding job creation need to be addressed through on-going stakeholder consultation:

- The MRM Concession Area covers two districts. During one of the public consultation meetings, a query was raised as to distribution of benefits that would be received by the two districts. Since Montepuez is the first medium scale mining project in the region, the expectations regarding job creation may be high.

9.8 On-going Initiatives

SRK notes the following proactive steps are proposed and commenced by MRM. Specifically in respect of management of environmental and social matters MRM:

- is beginning an in-depth assessment of the artisanal (illegal) miners;

- plans to develop the RAP to include identification of resettlement areas by government and studies to assess alternatives and input regarding community preferences, agreement on proposed compensation package with affected households, finalisation of resettlement agreement and finalisation of RAP report;
- plans to let the communities grow crops and create plantations on the rehabilitated pits once mining activities in the respective areas have been completed;
- plans to create a scrap yard for waste metal;
- intends to contract a company from Pemba to collect waste fuel oil which is currently being stored on site;
- continues community development projects including: creating secondary education opportunities for talented school children, developing community organic vegetable gardens, providing drinking water and developing schools and medical clinics; and
- plans to create a concrete area for oil separation.

9.9 SRK Comments

9.9.1 Conclusions

Based on the investigations carried out for this CPR, SRK concludes the following:

- The Project is a relatively small surface mining project that should have limited impact on the local environment providing that the environmental and social management initiatives are appropriately planned and implemented;
- The largest environmental management risk is dealing with water quality related issues such as sediment and erosion control. SRK notes that this can be mitigated through a number of simple management measures, which are yet to be implemented;
- The permitting process should not be a material risk to MRM. However, it will require on-going close supervision and management effort to ensure it progresses smoothly;
- The on-site dedicated environmental team is currently absent, and so needs strengthening, and will benefit from the planned appointment of an environmental manager. Without these key appointments, there is no capacity on site to implement the planned environmental and social management system (ESMS). MRM currently receives good external assistance from local consultants, but the operation requires a stronger on-site team to implement all of the documented commitments, and also to fulfil environmental management requirements;
- The most significant risks at MRM are related to social issues:
  - conflict with illegal miners;
  - resettlement of local people who reside in the concession area; and
  - the potential for local people to perceive that MRM is not providing enough tangible benefits to the local community.

9.9.2 Recommendations

SRK recommends that the following activities be implemented to address the issues outlined in this review:

- a timeline for implementation of the on-going environmental and social activities be generated;
- identify gaps in the EIA and address this to ensure alignment with good international industry practice (GIIP);
- Establish and fully implement an ESMS, especially regarding water, soil and waste management and monitoring systems on site – addressing the specific obligations under the licences and GIIP;
- undertake detailed biodiversity and soil assessments before clearing of any further undisturbed areas;
- employ the planned staff to manage all environmental and social matters relating to MRM. This will cover stakeholder engagement and community engagement activities at site and environmental stewardship;
- develop a closure plan and closure cost estimate for the Category A Project operations;
- undertake regular internal audits and document these to provide evidence of how issues are being addressed;
- develop a Stakeholder Engagement Plan (SEP) and Community Development Plan (CDP) to guide stakeholder engagement and community development respectively;
- ensure that external contractors have commitments built into their contracts (such as appropriate topsoil stockpiling and rehabilitation); and
- verify that voluntary principles (VP) are incorporated in any contracts with security personnel.

10 COMMODITY PRICES AND MACRO-ECONOMICS

10.1 Introduction

Rubies, along with sapphires, belong to the corundum mineral type. It is the hardest of the coloured gemstones, second hardest among natural minerals after diamonds. Rubies are extremely rare and are believed to be associated with the plate tectonic processes, subduction and collision, found in a range of hues in only a few localities in the world.

Ruby value is primarily dependent on the vividness of colour and fluorescence, with the most valuable ruby colour traditionally being the so-called ‘pigeon’s blood’ which has been described as pure red. The red colour of the rubies is produced by chromium. Additionally, if the iron content present in corundum is low, the ruby becomes florescent. The silky iron rutiles present in the gem mask the possible windows and give the gem a uniform silky colour, very common for Burmese marble-type gemstones. When the iron level is high, a more transparent less fluorescent crystalline structure is formed, common for the Thailand basalt-related rubies. The iron content of amphibole-type Mozambique rubies falls in between the iron-rich Thai rubies and the iron-poor Burmese gems, producing gems distinguished by high transparency, vivid red colour and good fluorescence.

10.2 Ruby Formation and Mining

Ruby deposits are formed under metamorphic growth conditions. Ruby deposits can be classified into two main categories: either metamorphic or magmatic-related. Metamorphic deposits (referred to as ‘Met’), such as those in Myanmar, have specific metamorphic environments, such as marble in which the rubies are found. Magmatic-related deposits (referred to as ‘Mag’) require eruptive events to transport the rubies to the surface such as those gemstones from Cambodia and Thailand and the rubies are found in basalt. There is, however, a third, newer group, the amphibolite-type which has properties outside of the first two groups, such as the rubies from Malawi, Tanzania, Madagascar and Mozambique. These rubies are found in amphibole-related deposits and fill the gap in terms of chemical composition and colour, between the highly fluorescent rubies found in marble rocks and the weakly-fluorescent basalt-type rubies.

Rubies can be recovered from primary or secondary sources: the primary being the rocks where they are formed, or a secondary location where they have been transported. A large amount of rubies which were originally embedded in rock were washed out due to erosion and can be found in former and recent rivers, known as ‘alluvial deposits’. Corundum is largely found in alluvial deposits. Rivers can transport gemstone bearing rock many hundreds of kilometres. These deposits are found below the surface of the riverbed and manual labour is required to extract the rock and soil in order to examine it for gemstones. In ruby deposits such as those found in Mozambique, the alluvial deposits may be between 1 to 10 m below the surface.

10.3 Historical Background – Major Ruby Deposits

Historically, rubies have been mined in Southern Asia and more recently, Eastern Africa. New significant and commercially viable deposits were discovered in Mozambique in the beginning of the twenty first century.

High quality rubies have traditionally been produced in Myanmar (previously Burma) and Kashmir. Later, rubies were mined in Thailand, Madagascar and Tanzania. Myanmar has always been regarded as the world's most important source for rubies as well as the largest producer of by volume for a significant period of time. However, lack of investment in the industry and other factors resulted in exhaustion of the existing mines and decline in Myanmar's overall market share. Based on recent production and the work carried out at the Project, Mozambique is currently believed to be the most significant ruby find in the world since Myanmar.

10.3.1 Myanmar

Rubies were originally mined in the historic area of Mogok in the Mandlay region, a valley ('Valley of the Rubies') surrounded by mountains, reported by many as having some of the world's finest rubies as well as being the standard against which other ruby sources are compared. Since the mid-1990s, large deposits of lower quality rubies have also been found at Mong-Su in the Shan state. These rubies tend to be a deeper or darker in colour than the Mogok rubies. However, all of these resources have largely been exhausted. Furthermore, the mining of rubies and other gemstones in Myanmar has been the subject of international scrutiny and subsequent trade bans. In 2007, the EU imposed sanctions on precious gemstones and the United States imposed a ban on rubies and jade from Myanmar the following year. USA restrictions are still in place, while the EU lifted its measures in 2013 after government reforms. It must be noted that the Mogok mines, which have been closed for the past decade, have very recently been reopened. It is noted that foreign miners and investors are not able to invest in the sector since the government has only allowed for domestic firms to mine.

10.3.2 Kashmir

The mining operation in Kashmir is situated in an extremely remote and mountainous terrain, consisting of two main workings (at 14,300 feet [4,360 m] and 12,500 feet [3,810 m]) that are accessible only from May to October because of the severe weather. These factors contribute to Kashmir as a source of rubies having limited commercial viability.

10.3.3 Thailand – Cutting and Polishing Hub

Significant ruby deposits were found in Thailand in the second half of the twentieth century. The Thai gemstone treatment industry started developing because it was discovered that the darker red tone of a Thai ruby could be improved through heating. This, combined with other finds of rubies in Madagascar and the new Mong-Su deposit in Myanmar, which can also be enhanced, later resulted in Thailand becoming one of the major manufacturing hubs for coloured gemstones. The major corundum mining areas in Thailand are Chantabun and Battambang and the largest ruby cutting factories are in the Chanthaburi district as well as Bangkok. Thai rubies were important to the market because of the scarcity of Burmese rubies. However, Thailand has declined as a corundum supplier, yet it has firmly maintained its position as the world's premier cutting and polishing hub for corundum. Furthermore, as Thailand decreased as a major coloured gemstone supplier, Thai businesses acquired rough ruby (and sapphire) supplies from other regions as well as developing treatment methods to produce greater quantities and qualities of finished goods. It has been reported that 90% of the world's rubies pass through Thailand and it, together with India, are renowned for being the world's leading coloured gemstone manufacturing and trading centre.

10.3.4 Other Significant Ruby Deposits

There are a number of ruby deposits situated in approximately 20 countries. Afghanistan and Cambodia have some of the oldest known ruby deposits, yet production is sporadic and, like Kashmir, the locations are remote. Rubies were also found in Vietnamese district of Luc Yen in the 1980s and more recently in the Tanzanian provinces of Songea and Winza. However, the quantities were small and the quality of the ruby was inferior. In 1966, ruby districts were reported in Greenland and a mining company, True North Gems, is currently exploring the Aappaluttoq area. Newer deposits discovered have been Australia, Kenya (Mangari), Malawi (Chimwadzulu), Madagascar (Andilamena and Vatomandry), Colombia, Russia, and the United States (Montana). Sri Lanka is another district rich in corundum, but mainly produces sapphires of very good quality.

10.3.5 Mozambique Discovery

Due to the remoteness of Kashmir deposits and the difficulties associated with Myanmar, the discovery of rubies in the Montepuez district in Mozambique in 2009 was an important development for the coloured gemstone industry. Gemfields acquired 75% of the Project as well as a 25-year mining licence. Gemfields is currently the world's single largest producer of coloured gemstones and is listed on the London Stock Exchange Alternative Investment Market (LSE AIM). Gemfields has predicted that the Project should account for around 40% of the world’s ruby supply. In 2014, Gemfields reported that 8 Mct of ruby and sapphire were recovered at Montepuez. Gemfields plans to further its mining endeavours in Mozambique by exploring the Mugloto district.

The highlands of Northern Mozambique are dominated by a Precambrian basement section of the famous Mozambique Belt that extends up north to the Mediterranean. In this basement, large regions were metamorphosed at high temperature and high pressure during the Pan-African tectonic event, 800 to 550 million years, creating suitable conditions for the formation of gemstones. Deposits of the Pan-African Orogeny are much older than the Himalayan range gem deposits that are only 40 million years old. The ruby deposit of Montepuez is localised in the eponymous tectonic unity. This unit is mainly composed by strongly deformed gneiss and quartzite, with few marble lenses.

The production mostly consists of tabular hexagonal crystals, with some fine euhedral crystals from primary deposits, although such material is usually highly fractured and included. Rough gemstones showing abraded aspect due to weathering come from secondary deposits located over the primary deposit or along streams that passed over it. The material is composed of slightly tumbled crystals that are more transparent and less included than the rubies from primary deposits. This is due to the fact that rubies from secondary deposits are trapped during millions of years with other heavy minerals. Those heavily included and fractured are broken and turned into sand through weathering processes. In contrast, clean rubies are tumbled and concentrated in gem rich gravels. Therefore, the proportion of clean high quality gemstones is much higher in secondary / alluvial deposits.

The Montepuez rubies are invaluable to the ruby industry because of the range of sizes, quality and especially the wide range of colour and florescence of the gemstones potentially enabling the rubies produced to suit a large range of different markets and personal preferences. According to Vincent Pardieu, a renowned gemmologist, the main characteristics of Montepuez rubies are the following:

1. Purplish-red to red colorations with a slight milky haze;
2. Some exceptionally clean and clear crystals were observed. The exceptional quality gemstones represent about 1% of current yield; and.
3. The most common internal feature of Montepuez gems is the presence of rounded transparent crystals, which under analysis by the Gemmological Institute of America (GIA) proved to be amphibole (any class of rock-forming silicate typically occurring as fibrous or columnar crystals).

Dr A Peretti, founder of GRS Gem Research Swisslab AG, is of the opinion that the Mozambique material is marketable due to several important traits. Firstly, the Mozambican rough is distinguished by high transparency and availability of unheated vivid red colour material. Secondly, by the accessibility of 2 to 3 ct gemstones and singles over 5 ct in different shapes such as oval, cushion, pear and round cuts. These features are key to creating commercially important high end jewels. In his opinion, “Mozambique rubies set in jewellery reveal such stunning beauty that they have captured the market by storm without needing a romanticised introduction”.

Most of rubies from Mozambique do not require thermal enhancement, while unheated Myanmar rubies are extremely rare due to their gemmological traits. According to Dr Peretti, the pure vivid red hues and “Pigeon’s Blood” colour Mozambique rubies are of at least the same quality and indistinguishable from the best Mogok ruby. Furthermore, these gems are found in two varieties, fluorescent and non-fluorescent, and can be obtained in larger sizes over 10 ct, which is uncommon with top-quality Burmese rubies.

This new and consistent source of rubies has had a considerable impact on the international market. Gemfields reported that at its initial ruby auction in Singapore, a record – breaking USD33.5 M was raised in June 2014. Furthermore, at the prestigious 2014 Biennale des Antiquares, the Reine Makeda necklace by Cartier was presented which included a 15.29 carat, oval shaped ruby from Mozambique. These occurrences go a long way to distinguishing the gem quality ruby of this source from the ‘composite’ ruby product that has been associated with the Mozambique ruby.

10.4 Treatment of Rubies

A variety of treatments are applied to rubies to improve their quality to expand the market to a broader base, providing more commercial jewellery at competitive prices. This has had the effect of expanding demand and making the rubies more available and affordable in the market. More material available for sale has dramatically increased the demand for corundum in general (rubies and sapphires), as supplies were limited to those gemstones that possessed an attractive colour. In general, treated rubies are far more readily available than untreated gemstones and available to market at more affordable prices. Effective disclosure and consumer education on various gemstone treatments and the relative value of each type of gemstone continues to add value to the downstream market. The largest companies like Gemfields promote transparency and responsibility and are actively in educating both the downs-stream market and the consumer alike.

There are three common ruby treatments. Firstly, high temperature heating, common in the 1970s, where the rubies are heated in an oven in a controlled environment to improve the colour and/or clarity of the gemstone. These heat treatments drastically improve the colour and clarity of the gemstones especially so for the mid to lower priced, commercial jewellery. The blue and/or purplish hue is removed leaving a purer, red colour.

Glass fill treatment is the second most common process. This is the latest treatment which has been developed to dramatically improve the appearance of low-quality ruby by infusing it with a high refractive index lead glass. It is also used to smooth out the appearance of heavily fractured gemstones. This treatment is so extensive that the new term ‘Composite Ruby’ was developed by the AGL to clearly identify and disclose this material.

The third is deep colour diffusion heat treatment that consists of diffusing elements such as chromium (for rubies) and titanium (for sapphires) into the structure of the colourless corundum from outside to change the gemstone colour.

10.5 Ruby Market Mechanisms

Once rubies are cut and polished, they are sold on the wholesale market globally. Historically, rubies were sold on an artisanal basis. However, Gemfields has endeavoured to transform the way rubies (and coloured gemstones in general) are mined and sold by grading, referencing and then putting them up for sale on its own auction platform. The proprietary sorting and grading system combined with considerable investments to provide the global market with consistent ruby supply are likely to transform the market and allow designers and jewellery brands to create collections rubies which can be consistently supplied throughout the global market. Gemfields second auction held in December 2014 included the sale of 62,936 ct, realising USD43.3 M which set a new benchmark for the quality of African mines and also confirmed the quality of supply the Montepuez Project can provide. An exceptional 40.23 ct rough ruby (dubbed the “Rhino Ruby” given its size and characteristics) from Montepuez formed part of the December 2014 auction.

10.5.1 Export Value and Quantity of Ruby per country

The coloured gemstone market is in a phase of fast growth, primarily due to the major economies' recovery and growth combined with a fashion trend which has shifted towards coloured gemstones supported by Gemfields ability to supply a consistent supply of quality gemstones to the downstream markets and its intensive global marketing and communications efforts. According to the United Nations commodity Trade Statistics Database, the international coloured gemstone industry has been growing at a Compound Annual Growth Rate (CAGR) of 26% for the last five years (2009 – 2013) and currently stands at USD6.1 billion. The emerald, ruby and sapphire market make up 65% of the coloured gemstone market and currently stands at USD4 billion, with 20% CAGR over the period, 2009-2013. The information is still largely lacking but it is estimated that rubies and sapphires make up for 50% of the world's coloured gemstone market with the largest demand for rubies originating from Asia.

The gemstone industry is highly fragmented. Small to medium scale miners produce a large amount of the gemstones and do not declare their data. According to The Gem and Jewellery Institute of Thailand (2013), the country that is the global hub for the corundum treating and manufacturing, the three largest importers of coloured gemstones are the United States, China, and Hong Kong. In 2013, coloured gemstones were the fourth most important export product in gem and jewellery category in Thailand, accounting for 7.51% of the total export value and growing 23.81% from 2012.

With regards to Myanmar, previously the world's largest producer of rubies, it has been reported that rubies, along with other gemstones mined such as jade, is now the country's fifth largest export and are still attracting the highest prices at international auctions.

Madagascar became a major producer of ruby with the discovery of the Andilamena and Vatomandry deposits in 2000, although it was reported in 2013 by the United Nations Commodity Trade report that only USD30,711 worth of emeralds and rubies were traded in Madagascar.

Mozambique has replaced Myanmar as the world's largest producer of rubies and according to the Gemfields 2015 third quarter update, approximately 1.4 Mct of ruby and corundum was extracted (versus 1.1 Mct in the quarter ending 31 March 2014) from the Montepuez Project in Mozambique. It was reported by the 2014 United Nations Commodity Survey that the trade value of rubies and emeralds in Mozambique totalled USD78.4 M from 6,385,731 ct. This is a significant increase from 2013, where it was reported that the Mozambique trade value of rubies and emeralds totalled USD0.3 M, with a weight of 3,229,780 ct. This significant increase is due to the discovery and production of rubies at the Montepuez Project and subsequent Gemfields auctions in Singapore. The international interest in rubies was also confirmed by the results of Gemfields' initial auctions. The first auction in Singapore generated USD33.5 M and the second, USD43.3 M. Gemfields also hosted a lower quality ruby auction in Jaipur, India, in April 2015, raising USD16.1 M and more recently a higher quality auction in Singapore in June 2015 raised USD29.3 M.

10.5.2 Ruby Value

Due to its hardness, transparency, rarity and colour, ruby is considered to be one of the most valuable and expensive of all gemstones. It is accepted that large rubies are considerably rarer than diamonds of comparable quality and size. Rubies have been attracting outstanding prices at recent auctions. Rubies from Myanmar command the highest prices, this is partly due to the fact that these rubies hold colour in any lighting condition. The 'Burma brand' is heavily entrenched in the ruby market and still fetches the highest prices, even though the Mozambican ruby is comparable in colour quality. For instance, in 2014, the 'Graff ruby', a 8.62 carat Burmese ruby, from the collection of Greek financier, Dimitri Mavromatis, was bought by Laurence Graff for the record breaking price of USD8.6 M , making it just under USD1 M per carat. The 'Sunrise Ruby', a Cartier ring exhibiting a 25.59 ct pigeon's blood Burmese ruby, surrounded by diamonds, has been valued between USD12 – 18 M. For a non-heated Burmese ruby, a 2 ct ruby can fetch prices of 200% to 300% more than a treated gemstone. However, in the enhanced category of rubies, country of origin no longer plays a definitive role. *The Gem Guide* reports that heated Mozambique rubies under 3 ct are averaging prices approximately 75% of a heated Burmese ruby.

The ratio between diamonds and rubies at the present time is only about two to one, with the market price of a fine 1 ct ruby being approximately USD2,790, and that of a brilliant diamond of the same weight being approximately USD1,100, reaching values of USD2,200 to USD2,720 in only a few exceptional instances. The particular shade of colour shown by a ruby has a considerable influence on its value, with pale rose coloured ruby being worth USD110 at most, significantly less than the value of a gemstone of equal size, but of a deep red colour.

Dr Peretti believes that the market recognition of Mozambique ruby has steadily risen in recent years with the equivalent per-carat values of these gemstones having tripled. Mozambique gemstones are, however, still selling for about half the price of comparable Burmese (Myanmar) rubies. The consensus is that although Mozambican rubies will continue to be available well into the future, high auction price results for Burmese (Myanmar) rubies will ultimately continue to drive up ruby prices for all origins.

Table 10-1, Table 10-2 and Table 10-3 present the prices of 1.00 – 1.99 ct, corundum ruby (USD/ct.) from 2008 to 2015, respectively for treated rubies, untreated Burmese rubies and untreated Mozambique rubies. Figures for untreated Mozambique rubies are only available from 2014. The following categories have been used: 'Commercial', 'Good', 'Fine' and 'Extra Fine'. Figures represent averages of the ranges given by The Gem Guide for respective categories. It is important to note the steady rise of prices from 2012 to 2013, this is largely due to the discovery of ruby deposits in Mozambique. There was a slight drop in some heated goods between 2013 and 2014. This is can be largely attributed to the increased supply of heated polished rubies as the Chinese market focused on non-heated (unenhanced) gemstones. However, the price for heated rubies grew while prices for unheated rubies stabilized.

Table 10-1: Corundum Ruby (Heated) Prices USD/ct (1.00 – 1.99 ct)

Period	Commercial	Good	Fine	Extra Fine
2015	245	1,108	2,790	5,850
2014	185	923	2,325	4,875
2013	185	923	2,175	5,525
2012	185	820	1,950	5,175
2011	185	820	1,950	5,225
2010	185	820	1,750	4,600
2009	185	820	1,750	4,600
2008	185	820	1,750	4,600

Source: 'The Gem Guide'

Table 10-2: Corundum Ruby (Unheated Burmese) Prices USD/ct (1.00 – 1.99 ct)

Period	Commercial	Good	Fine	Extra Fine
2015	475	2600	6950	18000
2014	475	2600	6950	18000
2013	465	2063	6200	22313
2012	465	1950	5450	19950
2011	465	1950	5450	19950
2010	415	1550	3900	14700
2009	-	1550	3900	14700
2008	-	1550	3900	14700

Source: 'The Gem Guide'

Table 10-3: Corundum Ruby (Unheated Mozambique) Prices USD/ct (1.00 – 1.99 ct)

Period (July/August)	Commercial	Good	Fine	Extra Fine
2015	525	1,850	4,750	10,000
2014	525	1,850	4,750	10,000

**Source: 'The Gem Guide'*

Note: Significant difference in prices for untreated rubies in the Commercial category of Mozambique and Burma origin is due to the fact that lower end commercial rubies from Mozambique are rarely available and The Gem Guide does not track these prices categories for Mozambique rubies.

10.6 Ruby Grading

MRM sources two distinct types of rubies at the Project, these are from primary and secondary deposits. The characteristics of these products are different. Therefore, different grading processes are used. It should however be noted that the Company's ruby grading system is still evolving to some extent with each auction as more knowledge and experience is gained with various characteristics of Mozambican rubies.

10.6.1 Rubies from Primary Deposits

This tends to deliver higher grade production but of an overall lower value per carat. Most of these rubies are included with fractures meaning some of this material needs to be treated to make it more durable and hence saleable. After cleaning, the rubies are graded and sorted twice; by colour (very light pink to red) and clarity of the crystal (translucent to opaque) before and after treatment. After treatment, the fractures appear less visible and colour becomes more homogeneous resulting in fewer colour categories. In the Ruby category there are 5 sizes, 4 clarity grades and 6 colour grades. In the Low Ruby category 5 sizes and 3 quality grades and in Corundum there are 3 sizes and 3 quality grades. This totals 144 grades of rough material.

10.6.2 Rubies from Secondary Deposits:

This tends to deliver lower grade production but the gemstones generally have a much higher per carat value. The majority of the rubies are very clean with good to exceptional colour. This is as a result of their alluvial origin. Only the most durable, highest quality rubies survive the weathering, erosion, transport and deposition processes over millions of years.

Firstly, the rubies are cleaned to remove surface dirt. Secondly, the rubies are divided into three categories of colour: Dark, Open (medium tone bright red colour gemstones with vivid saturation) and included gemstones. Thirdly, each category is subdivided into two other groups by shape: tabular and non-tabular. Each category is further divided into 11 different sizes.

Lastly, all the groups mentioned above are separated into groups according to the saturation of colour – in total 14 distinct grades in 11 sizes resulting 154 grades excluding very flat gems which are graded separately.

10.6.3 Ruby Heat Treatment

No rubies are currently heated on-site. All treatment is carried out at facilities in India. MRM heated some of the commercial quality primary rough which was offered at the LQ auction with full disclosure in April and received a good market response to this material. The heating process is called borax heating and is a well understood and widely accepted treatment within the gemstone trade.

Some of the auction participants are not capable of conducting the process to optimally heat the ruby rough. The Company has learnt that offering properly treated rough at auctions makes this material more commercially attractive because no further treatment is required.

Due to the success of the heated rough material that has thus far been placed on offer at auctions the Company plans to continue to offer borax treated rough as part of the offering at LQ auctions as well as initial experimental heating trials for some of the darker tone secondary rough which is higher in quality but still requires some lower temperature heating to reduce the tone.

10.7 Historical Prices Achieved at Recent Auctions

The first Montepuez ruby auction, held in June 2014, comprised of a mixture of both higher and lower quality material, while the second and fourth auctions held in December 2014 and June 2015 respectively were composed of predominantly higher quality material. The April 2015 Jaipur auction was composed of predominantly lower quality material. SRK notes that approximately 40 companies attended Gemfields' third auction of rough rubies from the Project. The differences in auction mixes are a direct result of the Company's desire to build its understanding of the downstream market in order to optimise its long-term ruby auction format. Auction attendees were drawn from Austria, China, India, Israel, Sri Lanka, Thailand, the United Kingdom and the USA. The auction results of the four Montepuez auctions held to date are summarised below in Table 10-4.

At the April 2015 auction, it is noted that of the 66 lots offered at the auction, 51 lots were offered on an untreated basis while 15 lots were offered as having been heat-treated (as was the case in the June 2014 auction where Gemfields offered both untreated and treated material). All of the treated lots offered used industry-accepted treatment techniques and were offered and sold on a fully disclosed basis.

It is reported by the Company that the proceeds of this auction would be repatriated to Montepuez Ruby Mining Limitada in Mozambique, in which Gemfields owns 75%, and with royalties due to the Government of Mozambique being paid on the full sales price achieved at the auction.

Table 10-4: Summary of MRM Auction Results

Auction Results (Ruby & Corundum)	June 2014 Auction	December 2014 Auction	April 2015 Auction	June 2015 Auction
Dates	12-17 June 2014	3-8 December 2014	17-22 April 2015	16-21 June 2015
Location	Singapore	Singapore	Jaipur, India	Singapore
Type	Rough Ruby & Corundum (Higher and Lower Quality)	Rough Ruby (Higher Quality)	Rough Ruby & Corundum (Lower Quality)	Rough Ruby (Higher Quality)
Carats offered	2.03 Mct	85,491 ct	4.03 Mct	72,208 ct
Carats Sold	1.82 Mct	62,936 ct	3.99 Mct	47,451 ct
No. of lots offered	62	41	66	46
No. of lots sold	57	35	58	28
% of lots sold	92%	85%	88%	61%
% of lots sold by weight	90%	74%	99%	66%
% of lots sold by value	91%	97%	93%	87%
Total auction sales	USD33.5 M	USD43.3 M	USD16.1 M	USD29.3 M
Average per ct sales	USD18.43/ct	USD688.64/ct	USD4.03/ct	USD617.42/ct

10.8 Future Prices

Prices set in the LoMp financial model for 2015-16 are quite conservative compared to the Company's projected prices used in the financial model, being much lower than prices that have already been achieved in both sales in high quality and low quality auctions. The weighted average price achieved in the December auction was $689 /ct which is higher than the premium ruby price used in the model for 2015-16. The increase in real term prices after 2016, reflects the investment being made in marketing coloured gemstones and gradual increase in awareness of the quality of Mozambiquan Rubies. The increase closes the gap between actuals and the forecast steadily over the next 5 years. The price in real terms in high quality auctions are capped at $800 /ct for premium ruby and $200 /ct for ruby by 2020 as the Company believes these prices are sustainable in the longer term.

Augmentation of production capacity and improvement in understanding of the process of treatment of Ruby will have a positive impact on value of the product.

10.9 Challenges to the Ruby Market

It is noted that there are several challenges that the Company faces with the market for Rubies:

- In the coloured gemstone industry, a significant part of mining continues to be artisanal with small, local mining operations using very primitive methods. These organizations do not declare the amount of corundum mined. Consequently, estimates of the world's production are largely unavailable; and

- With regards to consistent ruby pricing, the issue of reconciling the price disparity which currently exists in the market between Burmese and non-Burmese rubies remains a challenge.

There is great potential in the market for Mozambique rubies. Gemfields is in the process of implementing necessary strategies to raise awareness and international demand for rubies from Mozambique

10.10 Gemstone Marketing Strategy

The following paragraphs have been provided by the Company to support their stated objective to secure 40% of the world ruby market.

The global market has recently witnessed a phenomenal rise in demand for coloured gemstones. This was primarily linked to the general trends in the fashion industry towards revealing the significance of colour, the growing economies of the developing world, increasing importance of ethics and transparency in business and realising the investment value of coloured gemstones.

The Company has invested significant sums of money marketing an industry that has never seen such if any formal coordinated marketing efforts in the past and revealing the value of the Mozambican rubies both to the trade and consumer.

To be able to market effectively, the Company had to be able to guarantee constant supply of these gemstones to the global market and make sure Mozambican rubies are available on the market in the key geographies. In order to achieve this, the Company keeps in the region of six months to one year ore stock balance at any given time and manages its inventory carefully to meet the growing market demand. Through its auction platform and cut and polished sales department the Company is able to directly reach to its target customers. The MRM operation has over 20 year’s life with the capacity to provide sustainable ruby supply to the market throughout this period and beyond.

The Company’s initial Mozambican ruby marketing efforts were focused on trade participants. Starting from 2013, the Company initiated targeted trade advertising campaigns through trade publications and presence at the major trade shows to support increased awareness and demand for its Mozambican rubies. The Company’s Global launch of its brand ambassador, Mila Kunis, in 2013, featured ruby jewellery advertising and collaboration with various jewellers to create show pieces using Mozambican rubies.

Currently, the Company continues to market Mozambican rubies as a high-end gemstone in collaboration with jewellers, artists and designers. The marketing and communications focus now has shifted towards the end consumer as firm foundations have already been created within the trade community. The Company will continue with trade education and auction participant support programmes; however the main marketing focus will be directed at the broader end customer base. Below are some of the planned initiatives going forward:

- The Company’s brand ambassador, Mila Kunis, has launched a ruby film featuring six international designers Mozambican ruby jewellery in London with a series of events between 23rd-25th June, including a dinner with retailers and investors, press interviews, a cocktail party and a photo shoot for a major UK publication;

- Ruby advertising will consist of innovate advertising campaigns, including the film. Originally with Mila Kunis and other more abstract art focussed campaigns. A solely Gemfields focused campaign will run simultaneously with other collaborative campaigns together with some targeted retailers and jewellers. This project will be both trade and consumer focussed;
- the Company are creating a jewellery collection in conjuction with a top US retailer that will have a high profile launch on 2nd December, which will then create assets that can be used in advertising and editorials;
- the Company will continue to develop ruby collections with jewellers in all markets that will be promoted through advertising, events, films and editorial. The Company has PR companies in the US, Zambia, Mozambique, China and the Middle East to facilitate these initiatives;
- the Company is planning to create an updated website incorporating rubies in a more meaning full way, along with the other gemstones it produces, supported by collaborations, inspiration and education;
- the Company will support the production of a 'coffee table' book on Ruby that will follow on from its earlier and highly acclaimed Emerald book.
- the Company is in talks with major museums in London with a view to hosting a 'Modern Masters of Europe' exhibition where the top 6 independent jewellers of Europe will be paired with 6 top artists in different fields and each given a space to design and display their creations under the theme 'Ruby', featuring at least one hero piece featuring Mozambican ruby jewellery;
- the Company will continue to sponsorship/exhibit at all key events in the trade and media that deliver opportunities to educate the market with respect to Mozambican rubies, e.g IIJS, Gem Awards, Trade shows, Salon QP, Women for Women gala event – She Inspires Art, etc.;
- the Company will continue to offer our numerous business partners business additional support in the form of promotional materials, training sessions and films.
- the Company will continue to promote coloured gemstones, focussing on rubies, on all our social media channels with include Facebook, Twitter, Instagram, Google Plus and a new blog which we will launch in July to celebrate July as the month of the ruby; and
- having researched the Chinese market a significant potential with respect to further increasing demand for rubies has been identified. To introduce Gemfields to the market Reuter PR has been hired and will start activities from 1st July 2015. Some of these will include trade and media trips to the mines, participation in trade shows, working with leading industry institutions (GAC and NGTC) to educate the trade on the gems themselves and lobbying to reduce gemstone import duties in line with diamonds.

In conclusion, the Company is paying significant attention to doing business in a responsible, transparent, ethical and broadly communicated way. From responsible environmental practices, recognised labour and social policies, to safe mining operations, transparent auction process, accountable government engagement all the way through to the final customers Gemfields believe that integrity is a key driver of demand for its product. By addressing major social, environmental, health & safety, transparency issues the Company believes it can satisfy its stakeholders' expectations and maximise value as a business.

11 RISKS AND OPPORTUNITIES

11.1 Introduction

The following section includes a summary of the principal risks and opportunities as they may relate to MRM and seeks to identify and quantify the potential impact should such a risk or opportunity materialise. In certain instances, the analysis is limited to qualitative assessment only and accordingly no direct financial impact can or has be determined.

In all likelihood, many of the identified risks and/or opportunities will have an impact on the cash flows as presented in Section 13 of this CPR. SRK has provided sensitivity tables for simultaneous (twin) parameters, which cover the anticipated range of accuracy in respect of commodity prices, operating expenditures and capital expenditures. SRK is of the view that the general risks and opportunities are, with the aid of the sensitivity tables, adequately covered. Specifically, these largely address fluctuations in operating expenditure and commodity prices.

In addition to those identified above, MRM is subject to specific risks and opportunities, which independently may not be classified to have a material impact (that is likely to affect more than 10% of MRM's annual post-tax pre-finance annual operating cash flow), but in combination may do so.

SRK has further reviewed the risks identified below in accordance with their potential likelihood and associated consequence of risk in order to derive an overall risk measure classified as low, medium or high. It is however important to note that the classification of specific risks with an overall risk measure of medium or high does not necessarily constitute a scenario which leads to *"project failure"*. Where appropriate, SRK has classified all specific risks with a medium risk or higher as the most material risks to which MRM is subject.

Certain of the specific risks identified comprise either generic risk elements which are adequately addressed by the various twin-parameters sensitivities analysis undertaken or which do not readily lend themselves to quantitative analysis. The specific risks which fall into such categories are: commodity price risk; foreign exchange and CPI risk; water management risk; occupational health and safety risk, and cost of production risk.

11.2 Risks

The MRM is subject to certain inherent risks and opportunities, which apply to some degree to all participants of the international mining industry. These include:

- **Commodity Price Fluctuations:** These many be influenced, inter alia, by commodity demand-supply balances for gemstones, specifically rough and cut rubies and sapphires. In all cases, these are critically dependent on the demand in the primary sales markets in which cut gemstones are consumed, an indication of which is the disposable income as generally reflected by the projected growth in GDP. Furthermore, the sales price varies significantly between both rough and cut gemstones and within the specific grade categories. Historical prices as recorded for the MRM production are largely based on a weighted average price received from auctions. Accordingly, SRK notes that increased production of coloured rubies and sapphires has the potential adversely impact the market price for rough and/or cut rubies and sapphires. Increased production could come from MRM or other parts of the world where gemstones could be mined.

- **Foreign Exchange and CPI Risk:** CPI for each specific country/currency is impacted by the assumed relationship between exchange rates and the differential in inflation between the respective currencies, that is, purchase price parity or non-purchase price parity. Given the low exposure to non USD related expenditures as noted by MRM, the overall foreign exchange risk is however considered immaterial;
- **Country Risk:** Specifically country risk including: political, economic, legal, tax, operational and security risks;
- **Legislative Risk:** Specifically changes to future legislation (tenure, mining activity, labour, occupational health, safety and environmental) within Mozambique;
- **Ore Reserve estimation risk:** the presence of premium quality gemstones may be more erratic than indicated from the bulk sampling undertaken to date. It is possible that certain parts of the deposits are richer than others and this has not yet been fully appreciated at this stage of the Project life;
- **Water Management Risk:** The principal risk relates to having sufficient water during dry periods to sustain gravel washing operations. The related issue to this is managing the impact of dewatering and discharge on water resources used by the local community;
- **Environmental and Social Risks** are largely related to issues surrounding artisanal mining in and around the concession area. The experience of other mining operations across the globe would indicate that there is always a risk of uncontrolled inundation of the mining areas by artisanal miners. Should this issue not have been properly identified and managed by the Company production may be prevented from taking place. Related to this is the risk that local communities become dissatisfied with MRM and engage in civil unrest forcing suspension of operations. Other environmental risks largely relate to certain deficiencies of environmental documentation and management. Areas of environmental documentation that could be improved include: development of a detailed closure plan in accordance with local regulations, enhancement of the baseline characterisation of the Project area; and development of a stakeholder engagement plan and management systems to include commitments for on-going relationships with the local communities; and
- **Economic Performance Risk** is largely addressed by the combination of the assessment economic performance criteria and the accompanying sensitivity tables as included in Section 12 of this CPR.

11.2.1 Risk Assessment Methodology

SRK has completed a risk assessment in respect of the MRM which largely draws upon the issues highlighted in Section 11.2. SRK notes that such assessments are necessarily subjective and qualitative, however, where quantification is possible, the consequence rating has been classified from minor to major:

- **Major Risk:** the factor poses an immediate danger of a failure, which if uncorrected, will have a material effect (>15% to 20%) on the Project cash flow and performance and could potentially lead to project failure;
- **Moderate Risk:** the factor, if uncorrected, could have a significant effect (10% to 15%) on the Project cash flow and performance unless mitigated by some corrective action; and

- **Minor Risk:** the factor, if uncorrected, will have little or no effect (<10%) on project cash flow and performance.

The likelihood of any specific risk materialising has also been assessed and falls into three categories:

- Likely: will probably occur;
- Possible: may occur; and
- Unlikely: unlikely to occur.

The degree or consequence of a risk and the likelihood of occurrence has been combined into an overall risk assessment the matrix for which is presented in Table 11-1.

Table 11-1: Overall Risk Assessment Matrix

Likelihood of Risk	Consequence of Risk		
	Minor	**Moderate**	**Major**
Likely	Medium	High	High
Possible	Low	Medium	High
Unlikely	Low	Low	Medium

11.2.2 Specific Risk Assessment

Table 11-2 presents the results of the specific risk assessment as considered applicable to MRM. On this basis, three key specific risks have been classified with an overall risk of medium and thereby material in the overall specific risks identified in Section 11.2.1 of this CPR.

Table 11-2: MRM Project Risk Assessment before mitigation

Hazard Risk	Likelihood	Consequence Rating	Overall Risk
Legislative Risk			
Revision to the current fiscal terms	Unlikely	Moderate	Low
Ore Reserve Risk			
Impact of erratic distribution of premium gemstones	Possible	Moderate	Medium
Environmental and Social Risk			
Impact of strained relations with local communities	Possible	Moderate	Medium

11.3 Opportunities

The principal opportunities with respect to the MRM are largely constrained to:

- **Mineral Resource** potential increases through completion of successful exploration drilling at the MRM and the broader area within the licence.
- **Ore Reserve** potential increase through:
  - refining current estimates with further exploration drilling and bulk mining to help to calibrate the estimation process and better define the presence of high value gemstones; and
  - upgrading of the Inferred Mineral Resources and unclassified material to Indicated and Measured through additional drilling.

- **Plant Throughput** improvement through implementation of an expansion beyond that planned in this LoMp. However, SRK notes that further production rate increases are likely to be contingent upon the capacity of the world market for rubies.

11.4 Summary Comments, Risks and Opportunities

The risk and opportunity assessment undertaken for MRM and specifically the current LoMp and accompanying Ore Reserves, indicates that there are opportunities to substantially increase the current Mineral Resource through further exploration. The principal risks which require management to mitigate their negative impacts are as follows:

- **Legislative and Permitting Risk.** MRM should maintain the current good relations with government to ensure permits are approved in a timely manner and to lobby for no negative changes to the mining fiscal regime;
- **Ore Reserve Estimation Risk**. The expected variation in mined grade from month to month will require some buffering between production and sales activities. MRM has stated an intention to hold a surface stockpile next to the plant equivalent to approximately 6 months to one year’s production to meet this objective. In addition, MRM is planning to hold significant quantities of rough gemstones in secure storage facilities. SRK considers this to be adequate, but has also recommended that mining blocks are delineated with further sampling prior to mining to predict future production more accurately.
- **Water management.** Hydrogeological investigations are required to assess long-term water requirements and careful day-to-day management is necessary to ensure that zero discharge of silty water to the environment is maintained;
- **Environmental and Social Risks.** MRM has made significant efforts to maintain good relations in the local communities through a number of social initiatives. SRK considers that the approach being applied is appropriate but needs to be maintained and enhanced through to be effective in the medium to long term.

12 ECONOMIC ANALYSIS

12.1 Introduction

For the economic analysis SRK has constructed an independent technical economic model (TEM), described below. The TEM reflects production, capital and operating expenditures and revenues from the 1st July 2015 through to 2042 on an annual basis. Total ore treated over the LoM amounts to 27.5 Mt at an average grade of 15.7 ct/t. The TEM is based on the MRM's financial model with adjustments based on SRK's views on the forecast production, capital and operating costs. In addition, the TEM:

- is expressed in real terms; this means un-inflated United States Dollars (USD) with no allowances for inflation or escalation on capital or operating costs, inputs or revenues;
- is presented at July 2015 money terms for Net Present Value (NPV) calculation purposes;
- applies a Base Case discount rate of 10%;
- as based on commodity prices as provided by Gemfields;
- as expressed in post-tax and pre-financing terms and assumes 100% equity;
- uses a corporate tax rate of 32%;
- Includes royalties at a rate of 6% of revenue;
- does not deduct royalties from the taxable profit for the determination of tax payable;
- includes Land Tax at USD1 /ha per year on 33,600 ha;
- management overheads and sale costs have been included at 1.75% of revenue;
- does not include auction fees directly as these are deemed to be covered within the management overhead;
- Montepuez has no historic assessed tax losses to be carried forward;
- commodity inventory has not been included;
- ignores VAT; and
- depreciates capital investment on an annual fixed percentage basis as per the fiscal regime of Mozambique. It has been assumed that all capital items have been fully depreciated and at the end of the mine life there is no terminal value to consider.

Sensitivities have been calculated with respect to revenue, capital and operating costs for the Net Present Value ("NPV"). Table 12-4 summarises the input parameters and presents some life of mine totals for the various cost centres.

In respect of the commodity price, SRK has not undertaken a detailed price analysis, but has relied on the forecasts from the Company in this regard. Prices for Premium Ruby, Ruby and -4.6 mm Product are presented in Table 12-1 and are forecast to escalate in real terms at 10% per annum up to USD800 /ct for premium ruby, USD200 /ct for ruby and USD3 /ct for -4.6 mm Product and then flat lined.

Table 12-1: Commodity Prices 2015/16

Commodity Prices (S/ct)	2015	2016	2017	2018	2019+
Premium Ruby	600.00	660.00	726.00	798.60	800.00
Ruby High Quality Auction [1]	150.00	165.00	181.50	199.65	200.00
Ruby Low Quality Auction [1]	8.00	8.00	8.00	8.00	8.00
Low Ruby	1.00	1.00	1.00	1.00	1.00
-4.6 mm	2.00	2.20	2.42	2.66	3.00
Corundum	0.10	0.10	0.10	0.10	0.10
Sapphire	0.03	0.03	0.03	0.03	0.03

Note 1. 3% of Maninge nice Ruby Carats & 15% of Mugloto Ruby Carats are sold in the High Quality Auction with remainder sold in the Low Quality Auction

The LoMp assumes that overall production from all sources will average an annual rate of 1,330 ktpm. Over the LoM based on the current indicated resource, it is planned to produce 431.0 Mct, of which 5.8 Mct are Premium ruby, and will generate USD5,959 M in gross revenue. SRK has rescheduled the mine plan resulting in a reduction in the stripping ratio from 3.8 t:t to 3.2 t:t.

Operating costs have been based on the MRM financial model and are summarised on a unit basis in Table 12-2. Average total operating costs are estimated at USD51.45 /t treated with total operating costs amounting to USD1,417 M over the life of mine. SRK has increased the other processing costs by USD0.39 /t treated to cover FeSi and flocculant requirements not previously included.

Table 12-2: Unit Operating Costs

Operating Costs	(USD/t total moved)	(USD/t moved owner)	(USD/t moved contract)	(USD/t Treated)
Mining and production costs	**6.48**	**13.73**		**27.07**
Labour costs - mining and production	1.28	2.71		5.35
Labour Mining	*0.57*	*1.21*		2.38
Labour Processing	*0.41*	*0.87*		1.71
Labour Security	*0.30*	*0.64*		1.26
Fuel costs	1.09	2.32		4.56
Fuel Mining	*1.04*	*2.20*		4.34
Electricity	*0.05*	*0.11*		0.22
Repairs and maintenance	1.42	3.02		5.95
Camp costs	0.27	0.57		1.12
Camp costs Mining	*0.13*	*0.27*		0.54
Camp costs Security	*0.14*	*0.29*		0.58
Blasting costs	0.00	0.00		0.00
Security costs	0.40	0.85		1.67
Other mining and processing costs	2.01	4.27		8.42
Waste Contractor Cost	*1.22*	*2.59*	2.31	5.11
Other Mining	*0.58*	*1.22*		2.41
Other Processing	*0.21*	*0.45*		0.89
Administrative expenses				**7.59**
Labour - G&A				1.96
Labour G&A for Mining Capitalisation				0.74
Other Labour G&A				1.22
Selling, marketing and advertising				0.01
Rent and rates				0.06
Travel and accommodation				0.56
Professional and consultancy				1.51
Office expenses				0.00
Share based payment (options)				0.00
Other administrative expenses				3.49
Management and auction fees				**3.79**
Management Fee				3.79
Auction Fee				0.00
Mineral royalties and production taxes				**13.01**
Royalty				12.98
Land Tax				0.03
Total Operating Cost				**51.45**

The total capital expenditure is estimated to be USD305 M over the LoM, as summarised in Table 12-3. Capital for engineering and mining has been estimated at USD102 M and the wash plant at USD63 M. Sustaining capital for the on-going operations is estimated to be USD82 M. Closure costs are estimated at USD20 M. SRK has made the following adjustments

- Plant rebuild costs in 2025 reduced from USD50 M to USD40 M and removed in total from 2035;

- DMS capital cost of USD2 M included in 2015; and
- Closure costs of USD20 M included in the last 5 years of operations and extending into 2041.

Figure 12-1 provides an analysis of Project cashflow over the LoM, while Table 12-4 provides a summary of the key financial parameters from the TEM and Table 12-5 to Table 12-7 present a summary of the results of the financial modelling.

Table 12-3: Capital Expenditure

Capital Costs		LoM (USDM)
Engineering and Mining		**101.88**
	CAT 336D	15.75
	CAT 725	4.20
	CAT 730C	36.75
	TATA 2523	19.67
	CAT 950H	9.40
	CAT 428E	1.50
	CAT D7R	2.00
	CAT D9R	4.60
	CAT 140H	1.15
	Other Vehicles	3.26
	Other Engineering & Mining	3.60
Exploration		**11.27**
Wash Plant & Sort Plant		**63.35**
	New plant set (including DMS/Jig) 250 tph	49.00
	Civil works for plant	8.00
	Additional DMS plant incl. water treatment	2.00
	Reservoir	1.80
	Other Plant	2.55
Security		**1.09**
I.T.		**0.37**
Other		**107.32**
	Prefab house/camp	4.20
	Resettlement action	16.00
	Heating facility	5.00
	2019+ sustaining capex	82.08
Closure		**20.00**
Total Capital		**305.28**

Figure 12-1 provides an analysis of project cashflow over the LoM. Table 12-5 to Table 12-7 presents a summary of the results of the financial modelling.

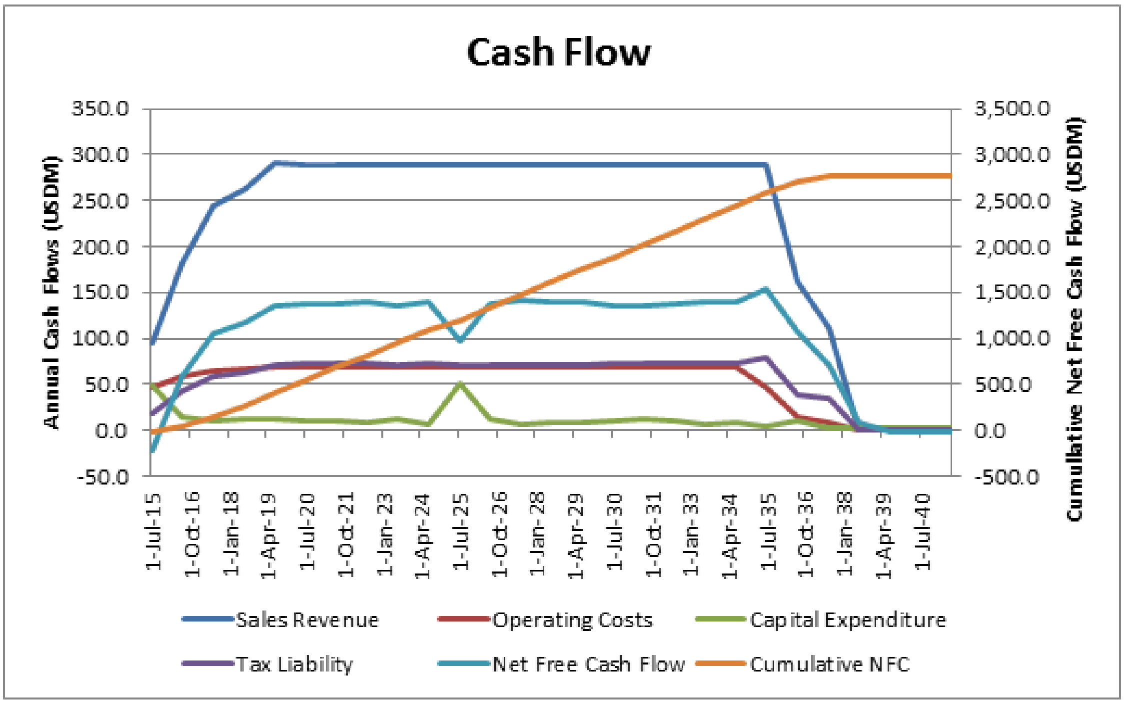


Figure 12-1: Net Cash Flow

Table 12-4: Summary of LoM Financial Parameters

		Total LoM	Annual Average
Sales Revenue	(USDM)	5,959	221
Operating Costs	(USDM)	1,417	52
Operating Profit - EBITDA	**(USDM)**	**4,542**	**168**
Tax Liability	(USDM)	1,478	55
Capital Expenditure	(USDM)	305	11
Working Capital	(USDM)	1	0
Net Free Cash Flow	**(USDM)**	**2,757**	**102**
Total Waste Mined	(kt)	87,939	3,518
Total Ore Mined	(kt)	27,196	1,088
S/R	(kt)	3.23	3.23
Total Ore Treated	(kt)	27,549	1,102
Grade	(ct/t)	15.7	15.7
Contained ct	(ct 000's)	431,620	17,265
Total Sales	(ct 000's)	435,049	17,402
Mining and production costs	(USD/t Treated)	27.07	27.07
Administrative expenses	(USD/t Treated)	7.59	7.59
Management and auction fees	(USD/t Treated)	3.79	3.79
Mineral royalties and production taxes	(USD/t Treated)	13.01	13.01
Total Operating Costs	(USD/t Treated)	51.45	51.45
Revenue	(USD/ct)	13.70	13.70
Operating Costs	(USD/ct)	3.26	3.26
Operating Profit	**(USD/ct)**	**10.44**	**10.44**

Table 12-5: Montepuez Ruby Project Cash Flow Summary Years 1 to 10

Year			Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Period - Beginning			1-Jul-14	1-Jul-15	1-Jul-16	1-Jul-17	1-Jul-18	1-Jul-19	1-Jul-20	1-Jul-21	1-Jul-22	1-Jul-23	1-Jul-24
	Units	Total/Ave											
Production Mining													
Total Waste	**(kt)**	**87,939**	**2,744**	**4,730**	**4,513**	**4,299**	**4,299**	**4,299**	**4,299**	**4,299**	**4,299**	**4,299**	**4,299**
Total Ore	**(kt)**	**27,196**	**520**	**1,413**	**1,391**	**1,330**	**1,330**	**1,330**	**1,330**	**1,330**	**1,330**	**1,330**	**1,330**
Total Material Moved	**(kt)**	**115,134**	**3,264**	**6,142**	**5,903**	**5,629**	**5,629**	**5,629**	**5,629**	**5,629**	**5,629**	**5,629**	**5,629**
Stripping Ratio	**(t:t)**	**3.23**	**5.28**	**3.35**	**3.24**	**3.23**	**3.23**	**3.23**	**3.23**	**3.23**	**3.23**	**3.23**	**3.23**
Processing													
Total Ore Treated	**(kt)**	**27,549**	**426**	**803**	**1,330**	**1,330**	**1,330**	**1,330**	**1,330**	**1,330**	**1,330**	**1,330**	**1,330**
Total Grade	**(ct/t)**	**15.67**	**22.11**	**14.77**	**15.15**	**15.32**	**15.40**	**15.43**	**15.45**	**15.45**	**15.46**	**15.46**	**15.46**
Total Content	**(ct 000's)**	**431,620**	**9,428**	**11,865**	**20,152**	**20,375**	**20,475**	**20,520**	**20,541**	**20,551**	**20,556**	**20,558**	**20,559**
Carats Sales Calculated													
Total Sales	**(ct 000's)**	**435,049**	**4,117**	**8,772**	**12,599**	**18,186**	**18,359**	**20,486**	**20,525**	**20,544**	**20,552**	**20,556**	**20,558**
Premium RUby	(ct 000's)	5,870	98	124	217	261	256	282	281	281	281	280	280
Ruby	(ct 000's)	41,219	521	807	1,261	1,766	1,765	1,960	1,960	1,960	1,960	1,960	1,960
Low Ruby	(ct 000's)	34,051	1,366	988	985	1,430	1,443	1,610	1,613	1,614	1,615	1,615	1,615
-4.6	(ct 000's)	104,014	16	1,034	2,988	4,314	4,361	4,871	4,883	4,889	4,892	4,893	4,893
Corundum	(ct 000's)	34,680	1,147	1,667	984	1,436	1,451	1,619	1,621	1,622	1,623	1,623	1,623
Sapphire	(ct 000's)	215,216	970	4,152	6,163	8,979	9,083	10,144	10,167	10,178	10,183	10,185	10,186
Commodity Prices													
Total Sales	**($/ct)**	**13.7**	**20.22**	**10.86**	**14.45**	**13.39**	**14.27**	**14.14**	**14.07**	**14.05**	**14.03**	**14.03**	**14.02**
Premium Ruby	($/ct)	787.2	667.88	600.00	660.00	726.00	798.60	800.00	800.00	800.00	800.00	800.00	800.00
Ruby	($/ct)	26.3	25.31	21.41	25.27	24.82	26.50	26.50	26.48	26.48	26.47	26.47	26.47
Low Ruby	($/ct)	1.0	2.07	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
-4.6	($/ct)	2.0	2.00	2.00	2.01	2.01	2.02	2.04	2.04	2.04	2.04	2.04	2.04
Corundum	($/ct)	0.1	1.60	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Sapphire	($/ct)	0.0	0.10	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Revenue													
Total Revenue	**(USDM)**	**5,959.1**	**83.2**	**95.3**	**182.1**	**243.6**	**261.9**	**289.7**	**288.9**	**288.5**	**288.4**	**288.3**	**288.3**
OPERATING COSTS, Real													
Mining and production costs	(USDM)	745.6	14.69	30.99	34.95	35.23	37.01	36.98	36.92	36.90	36.90	36.91	36.94
Administrative expenses	(USDM)	209.2	5.03	8.87	9.98	10.03	10.03	10.02	10.02	10.02	10.02	10.02	10.02
Management and auction fees	(USDM)	104.3	1.46	1.67	3.19	4.26	4.58	5.07	5.06	5.05	5.05	5.05	5.05
Mineral royalties and production taxes	(USDM)	358.3	6.69	5.75	10.96	14.65	15.75	17.42	17.37	17.35	17.34	17.33	17.33
Total Operating Costs	**(USDM)**	**1,417.4**	**27.9**	**47.3**	**59.1**	**64.2**	**67.4**	**69.5**	**69.4**	**69.3**	**69.3**	**69.3**	**69.3**
CAPITAL COSTS, Real													
Engineering and Mining	(USDM)	101.9	8.9	11.3	5.8	4.1	4.7	6.3	4.6	5.2	3.4	7.0	2.1
Exploration	(USDM)	11.3	4.3	3.1	2.7	2.7	2.8	0.0	0.0	0.0	0.0	0.0	0.0
Wash Plant & Sort Plant	(USDM)	63.4	4.9	23.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Security	(USDM)	1.1	1.7	0.9	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
I.T.	(USDM)	0.4	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	(USDM)	107.3	2.5	10.6	6.0	4.2	4.4	5.0	5.0	5.0	5.0	5.0	5.0
Closure	(USDM)	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal Capital	**(USDM)**	**305.3**	**22.4**	**49.1**	**14.9**	**11.3**	**12.0**	**11.3**	**9.6**	**10.2**	**8.4**	**12.0**	**7.1**
Contingency	(USDM)	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Contingency Rate	(%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Capital	**(USDM)**	**305.3**	**22.4**	**49.1**	**14.9**	**11.3**	**12.0**	**11.3**	**9.6**	**10.2**	**8.4**	**12.0**	**7.1**
Economics, Real: BASE DATE	**01 July 2015**												
Sales Revenue	(USDM)	5,959	83	95	182	244	262	290	289	289	288	288	288
Operating Costs	(USDM)	1,417	28	47	59	64	67	69	69	69	69	69	69
Operating Profit - EBITDA	(USDM)	4,542	55	48	123	179	195	220	220	219	219	219	219
Tax Liability	(USDM)	1,478	22	18	43	58	63	71	72	72	72	72	72
Capital Expenditure	(USDM)	305	22	49	15	11	12	11	10	10	8	12	7
Working Capital	(USDM)	1	-1	3	7	5	1	2	0	0	0	0	0
Management and auction fees	(USDM)	0	0	0	0	0	0	0	0	0	0	0	0
Net Free Cash Flow	**(USDM)**	**2,757**	**12**	**-22**	**58**	**104**	**118**	**135**	**138**	**137**	**139**	**135**	**140**

Table 12-6: Montepuez Ruby Project Cash Flow Summary Years 11 to 20

Year			Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Period - Beginning			1-Jul-25	1-Jul-26	1-Jul-27	1-Jul-28	1-Jul-29	1-Jul-30	1-Jul-31	1-Jul-32	1-Jul-33	1-Jul-34
	Units	Total/Ave										
Production Mining												
Total Waste	**(kt)**	**87,939**	**4,299**	**4,299**	**4,299**	**4,299**	**4,299**	**4,299**	**4,299**	**4,299**	**4,299**	**4,299**
Total Ore	**(kt)**	**27,196**	**1,330**	**1,330**	**1,330**	**1,330**	**1,330**	**1,330**	**1,330**	**1,330**	**1,330**	**1,330**
Total Material Moved	**(kt)**	**115,134**	**5,629**	**5,629**	**5,629**	**5,629**	**5,629**	**5,629**	**5,629**	**5,629**	**5,629**	**5,629**
Stripping Ratio	**(t:t)**	**3.23**	**3.23**	**3.23**	**3.23**	**3.23**	**3.23**	**3.23**	**3.23**	**3.23**	**3.23**	**3.23**
Processing												
Total Ore Treated	**(kt)**	**27,549**	**1,330**	**1,330**	**1,330**	**1,330**	**1,330**	**1,330**	**1,330**	**1,330**	**1,330**	**1,330**
Total Grade	**(ct/t)**	**15.67**	**15.46**	**15.46**	**15.46**	**15.46**	**15.46**	**15.46**	**15.46**	**15.46**	**15.46**	**15.46**
Total Content	**(ct 000's)**	**431,620**	**20,559**	**20,559**	**20,559**	**20,559**	**20,560**	**20,560**	**20,560**	**20,560**	**20,560**	**20,560**
Carats Sales Calculated												
Total Sales	**(ct 000's)**	**435,049**	**20,559**	**20,559**	**20,559**	**20,559**	**20,559**	**20,560**	**20,560**	**20,560**	**20,560**	**20,560**
Premium Ruby	(ct 000's)	5,870	280	280	280	280	280	280	280	280	280	280
Ruby	(ct 000's)	41,219	1,960	1,960	1,960	1,960	1,960	1,960	1,960	1,960	1,960	1,960
Low Ruby	(ct 000's)	34,051	1,615	1,615	1,615	1,615	1,615	1,615	1,615	1,615	1,615	1,615
-4.6	(ct 000's)	104,014	4,894	4,894	4,894	4,894	4,894	4,894	4,894	4,894	4,894	4,894
Corundum	(ct 000's)	34,680	1,623	1,623	1,623	1,623	1,623	1,623	1,623	1,623	1,623	1,623
Sapphire	(ct 000's)	215,216	10,186	10,187	10,187	10,187	10,187	10,187	10,187	10,187	10,187	10,187
Commodity Prices												
Total Sales	**($/ct)**	**13.7**	**14.02**	**14.02**	**14.02**	**14.02**	**14.02**	**14.02**	**14.02**	**14.02**	**14.02**	**14.02**
Premium Ruby	($/ct)	787.2	800.00	800.00	800.00	800.00	800.00	800.00	800.00	800.00	800.00	800.00
Ruby	($/ct)	26.3	26.47	26.47	26.47	26.47	26.47	26.47	26.47	26.47	26.47	26.47
Low Ruby	($/ct)	1.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
-4.6	($/ct)	2.0	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04	2.04
Corundum	($/ct)	0.1	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Sapphire	($/ct)	0.0	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Revenue												
Total Revenue	**(USDM)**	**5,959.1**	**288.3**	**288.3**	**288.3**	**288.3**	**288.3**	**288.3**	**288.3**	**288.3**	**288.3**	**288.3**
OPERATING COSTS, Real												
Mining and production costs	(USDM)	745.6	36.94	36.94	36.96	36.94	36.90	36.89	36.91	36.91	36.89	36.89
Administrative expenses	(USDM)	209.2	10.02	10.02	10.02	10.02	10.02	10.02	10.02	10.02	10.02	10.02
Management and auction fees	(USDM)	104.3	5.04	5.04	5.04	5.04	5.04	5.04	5.04	5.04	5.04	5.04
Mineral royalties and production taxes	(USDM)	358.3	17.33	17.33	17.33	17.33	17.33	17.33	17.33	17.33	17.33	17.33
Total Operating Costs	**(USDM)**	**1,417.4**	**69.3**	**69.3**	**69.4**	**69.3**	**69.3**	**69.3**	**69.3**	**69.3**	**69.3**	**69.3**
CAPITAL COSTS, Real												
Engineering and Mining	(USDM)	101.9	6.4	6.5	1.7	3.8	3.8	6.2	6.7	5.3	2.2	2.6
Exploration	(USDM)	11.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wash Plant & Sort Plant	(USDM)	63.4	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Security	(USDM)	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I.T.	(USDM)	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	(USDM)	107.3	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Closure	(USDM)	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal Capital	**(USDM)**	**305.3**	**51.4**	**11.5**	**6.7**	**8.8**	**8.8**	**11.2**	**11.7**	**10.3**	**7.2**	**7.6**
Contingency	(USDM)	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Contingency Rate	(%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Capital	**(USDM)**	**305.3**	**51.4**	**11.5**	**6.7**	**8.8**	**8.8**	**11.2**	**11.7**	**10.3**	**7.2**	**7.6**
Economics, Real: BASE DATE	**01 July 2015**											
Sales Revenue	(USDM)	5,959	288	288	288	288	288	288	288	288	288	288
Operating Costs	(USDM)	1,417	69	69	69	69	69	69	69	69	69	69
Operating Profit - EBITDA	(USDM)	4,542	219	219	219	219	219	219	219	219	219	219
Tax Liability	(USDM)	1,478	70	70	70	70	70	73	72	72	72	72
Capital Expenditure	(USDM)	305	51	12	7	9	9	11	12	10	7	8
Working Capital	(USDM)	1	0	0	0	0	0	0	0	0	0	0
Management and auction fees	(USDM)	0	0	0	0	0	0	0	0	0	0	0
Net Free Cash Flow	**(USDM)**	**2,757**	**98**	**138**	**142**	**140**	**140**	**135**	**135**	**137**	**140**	**140**

Table 12-7: Montepuez Ruby Project Cash Flow Summary Years 21 to 30

Year			Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30
Period - Beginning	Units	Total/Ave	1-Jul-35	1-Jul-36	1-Jul-37	1-Jul-38	1-Jul-39	1-Jul-40	1-Jul-41	1-Jul-42	1-Jul-43	1-Jul-44
Production Mining												
Total Waste	**(kt)**	**87,939**	**1,311**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Ore	**(kt)**	**27,196**	**455**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Material Moved	**(kt)**	**115,134**	**1,767**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Stripping Ratio	**(t:t)**	**3.23**	**2.88**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Processing												
Total Ore Treated	**(kt)**	**27,549**	**1,329**	**150**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total Grade	**(ct/t)**	**15.67**	**15.44**	**62.41**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Total Content	**(ct 000's)**	**431,620**	**20,531**	**9,344**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Carats Sales Calculated												
Total Sales	**(ct 000's)**	**435,049**	**20,552**	**17,603**	**10,164**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Premium Ruby	(ct 000's)	5,870	280	149	93	0	0	0	0	0	0	0
Ruby	(ct 000's)	41,219	1,959	1,529	774	0	0	0	0	0	0	0
Low Ruby	(ct 000's)	34,051	1,614	1,363	396	0	0	0	0	0	0	0
-4.6	(ct 000's)	104,014	4,893	4,402	3,761	0	0	0	0	0	0	0
Corundum	(ct 000's)	34,680	1,622	1,328	226	0	0	0	0	0	0	0
Sapphire	(ct 000's)	215,216	10,183	8,832	4,914	0	0	0	0	0	0	0
Commodity Prices												
Total Sales	**($/ct)**	**13.7**	**14.03**	**9.20**	**10.94**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Premium Ruby	($/ct)	787.2	800.00	800.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ruby	($/ct)	26.3	26.47	21.03	36.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Low Ruby	($/ct)	1.0	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-4.6	($/ct)	2.0	2.04	2.03	2.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Corundum	($/ct)	0.1	0.10	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sapphire	($/ct)	0.0	0.03	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Revenue												
Total Revenue	**(USDM)**	**5,959.1**	**288.2**	**162.0**	**111.2**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
OPERATING COSTS, Real												
Mining and production costs	(USDM)	745.6	15.87	0.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Administrative expenses	(USDM)	209.2	8.95	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Management and auction fees	(USDM)	104.3	5.04	2.84	1.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mineral royalties and production taxes	(USDM)	358.3	17.33	9.75	6.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Operating Costs	**(USDM)**	**1,417.4**	**47.2**	**14.4**	**8.6**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
CAPITAL COSTS, Real												
Engineering and Mining	(USDM)	101.9	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exploration	(USDM)	11.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wash Plant & Sort Plant	(USDM)	63.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Security	(USDM)	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I.T.	(USDM)	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	(USDM)	107.3	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Closure	(USDM)	20.0	0.0	10.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0
Subtotal Capital	**(USDM)**	**305.3**	**4.3**	**10.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**0.0**	**0.0**	**0.0**
Contingency	(USDM)	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Contingency Rate	(%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Capital	**(USDM)**	**305.3**	**4.3**	**10.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**0.0**	**0.0**	**0.0**
Economics, Real: BASE DATE	**01 July 2015**											
Sales Revenue	(USDM)	5,959	288	162	111	0	0	0	0	0	0	0
Operating Costs	(USDM)	1,417	47	14	9	0	0	0	0	0	0	0
Operating Profit - EBITDA	(USDM)	4,542	241	148	103	0	0	0	0	0	0	0
Tax Liability	(USDM)	1,478	79	39	35	0	0	0	0	0	0	0
Capital Expenditure	(USDM)	305	4	10	2	2	2	2	2	0	0	0
Working Capital	(USDM)	1	3	-8	-4	-10	0	0	0	0	0	0
Management and auction fees	(USDM)	0	0	0	0	0	0	0	0	0	0	0
Net Free Cash Flow	**(USDM)**	**2,757**	**154**	**107**	**70**	**8**	**-2**	**-2**	**-2**	**0**	**0**	**0**

12.2 Results

Net present values of the cash flows are shown in Table 12-8 using discount rates from 0 to 15% in a post-tax context. SRK notes that at 10% discount rate the post-tax NPV is USD996 M. As the operation is a going concern, there is limited negative initial cash flow which results in a high Internal Rate of Return (IRR) for the operation of 312%.

Table 12-8: NPV Profiles at Various Discount Rates

	Discount Rate	NPV USDm
Net Present Value	0.0%	2,757
	5.0%	1,577
	8.0%	1,185
	10.0%	996
	12.0%	849
	15.0%	682
Internal Rate of Return	311.7%	IRR

12.2.1 Sensitivity Analysis

Figure 12-2 shows an NPV sensitivity chart for Project operating costs; capital expenditure and revenue. The Project's NPV is most sensitive to revenue (grade or commodity price) as illustrated by the blue line in Figure 12-2. The Project has lower sensitivity to operating costs and is least sensitive to capital as indicated by the red line and the much flatter green line in Figure 12-2. The operating and capital cost sensitivity is further illustrated in Table 12-9. The sensitivity to the "Premium Ruby" content from the Mugloto pit is a key value driver and is illustrated in Table 12-10.

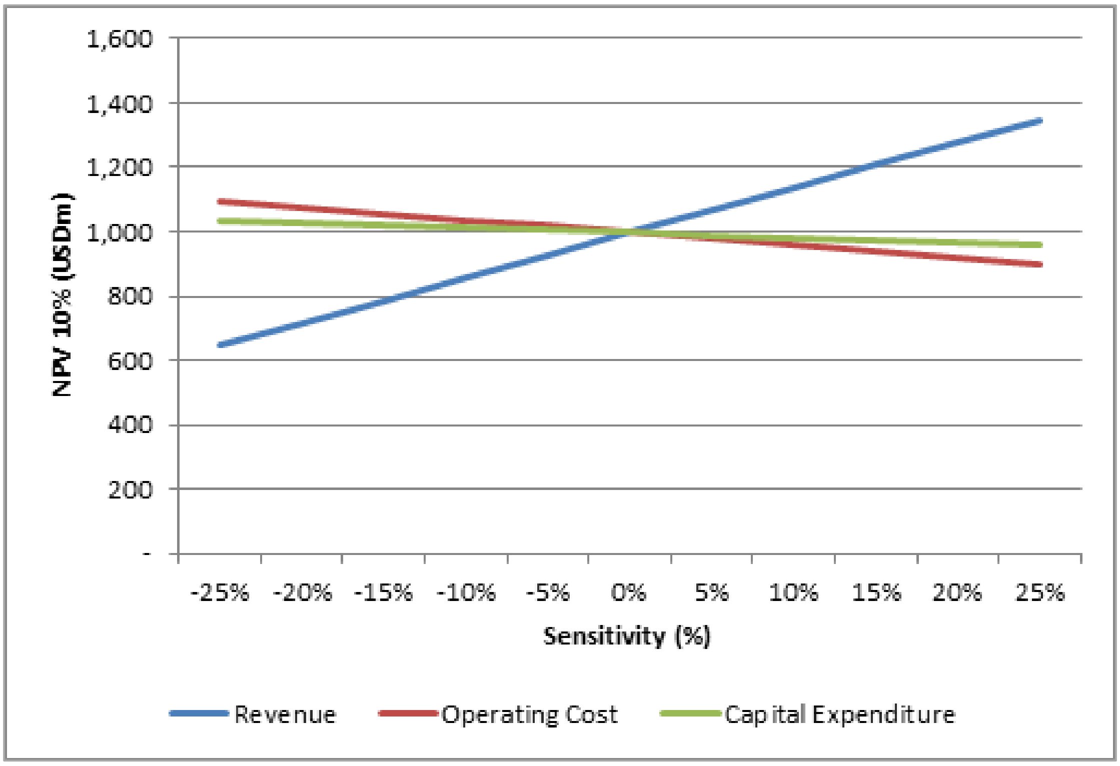


Figure 12-2: Base Case Sensitivity Analysis

Table 12-9: Base Case Sensitivity Analysis for NPV at 10% and IRR

NPV 10% (USDm)		REVENUE SENSITIVITY				
		-20%	-10%	0%	10%	20%
OPEX SENSITIVITY	-20%	792	935	1,077	1,220	1,362
	-10%	754	896	1,037	1,178	1,319
	0%	716	856	996	1,136	1,276
	10%	679	817	956	1,095	1,234
	20%	641	778	916	1,053	1,191

NPV 10% (USDm)		REVENUE SENSITIVITY				
		-20%	-10%	0%	10%	20%
CAPEX SENSITIVITY	-20%	746	886	1,026	1,166	1,306
	-10%	731	871	1,011	1,151	1,291
	0%	716	856	996	1,136	1,276
	10%	702	842	982	1,122	1,262
	20%	687	827	967	1,107	1,247

NPV 10% (USDm)		OPEX SENSITIVITY				
		-20%	-10%	0%	10%	20%
CAPEX SENSITIVITY	-20%	1,107	1,066	1,026	986	945
	-10%	1,092	1,052	1,011	971	931
	0%	1,077	1,037	996	956	916
	10%	1,062	1,022	982	941	901
	20%	1,048	1,007	967	927	886

IRR		REVENUE SENSITIVITY				
		-20%	-10%	0%	10%	20%
CAPEX SENSITIVITY	-20%	220.4%	330.6%	539.3%	1097.0%	7829.2%
	-10%	185.2%	264.4%	394.1%	649.4%	1396.3%
	0%	159.8%	220.7%	311.7%	464.4%	777.5%
	10%	140.5%	189.5%	258.3%	362.9%	542.6%
	20%	125.4%	166.2%	220.8%	298.4%	418.4%

Table 12-10: Sensitivity to Premium Ruby Content in Mugloto Pit

% Premium	NPV@10% USDM
1%	74
2%	206
3%	337
4%	469
5%	601
6%	733
7%	865
8%	996
9%	1,128
10%	1,260
11%	1,392
12%	1,524
13%	1,655
14%	1,787
15%	1,919

12.2.2 Payback Period

As the Project is a going concern, there is limited initial negative cash flow with positive cashflows from year 2 onwards (2016/17 period). Overall negative net cash flow of USD-30 M is incurred in 2015/16, details are illustrated in Figure 12-1.

12.2.3 Breakeven Points

Analysis undertaken in the financial model indicates that based on the current LoMp and its underlying assumptions the Project breaks even ($NPV_{10\%}$ =0) at an average price of USD3.95 /ct or an average grade of 4.2 ct/t.

12.3 SRK Comments

12.3.1 Conclusions

Based on the work carried out for this CPR, SRK concludes the following:

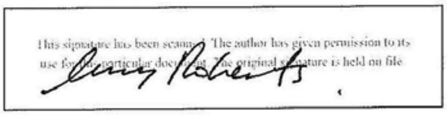
- Total capital has been estimated at USD305 M. Capital for engineering and mining has been estimated at USD102 M and the wash plant at USD63 M. Sustaining capital for the on-going operations is estimated at USD82 M. Closure costs are estimated at USD20 M;
- Average operating costs for the Project have been estimated to be USD51.45 /t treated;
- The Montepuez Ruby Project has favourable economics and based on the assumed commodity prices is considered robust in terms of the estimated operating margins and return on investment. The review work by SRK indicates an NPV of USD996 M at a discount rate of 10%. As the Project is a going concern, there is limited initial negative cash flow with positive cashflows from year 2 onwards 2016/17; and
- The Project's NPV is most sensitive to revenue (grade or commodity price); however, the overall economics of the Montepuez Ruby Project are considered to be robust.

12.3.2 Recommendations

Based on the work carried out for this CPR, SRK recommends the following:

- further refinement of capital cost estimates are undertaken in order to optimise Project profitability; and
- the financial model is updated regularly to reflect new information relating to revised mine plans, resource estimates and prices realised at auctions.

For and on behalf of SRK Consulting (UK) Limited



Dr Lucy Roberts,
Principal Consultant (Resource Geology),
SRK Consulting (UK) Limited

Mike Beare,
Corporate Consultant (Mining Engineering),
Project Director
SRK Consulting (UK) Limited

APPENDIX

A TECHNICAL APPENDIX 1

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	• The main exploration tool used to determine ruby grade at the Montepuez Project is through bulk sampling from a total of 13 bulk sampling pits (note that some of these have since merged into single, larger pits). • Localised soil geochemistry data has been collected on a 100m grid for a total of 270 samples analysed for a suite of 32 elements. Elemental analysis was conducted on site, using a handheld XRF (Niton Analyser XLST500). However, the application of this data has been limited to non-quantitative use. • Drilling (auger and diamond) and exploration pits have also been used to define the morphology of the mineralisation.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• Drilling to date at the MRM area comprises a total of 1,090 drill holes for a total meterage of 15,028 m. This includes 922 auger holes for 7,243 m and 168 diamond holes for 7,785 m. • To date, all of the auger drilling and 85 of the diamond holes have been completed using a heavy duty Sandvik DE700 core drill, specially modified with an auger drill bit attachment for auger drilling. The in-house drilling was carried out using an RD30; a simple, trolley mounted

Criteria	JORC Code explanation	Commentary
		wireline rig manufactured by Rock Drill India. • The majority of diamond core is drilled at HQ hole diameter, with a small minority of NQ diameter core. • All holes are drilled in a vertical direction. No down hole surveying has been undertaken and none of the holes have been structurally oriented. • The drill database is supplemented by close spaced exploration pitting in a number of key areas. The exploration pits are shallow holes with an average depth of 3.9m, excavated by manual labour. A total of 823 exploration pits were completed between early 2012 and November 2013, for a total depth of 3,224.7m. Note that a total of 200 of the 823 exploration pits were not completed to the planned depth due to various problems relating to water influx, pit collapse, artisanal activity and inordinately consolidated laterite material.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• Core is marked by ‘From’ and ‘To’ and the length recovered. Core blocks are inserted where loss has occurred to retain the position and quantum of any losses. • Core recovery of the overburden material is typically poor, rendering estimation of the thickness of the secondary gravel bed mineralization from core intercepts problematic. For this reason, the core holes have been largely ignored for the purposes of modelling the gravel bed unit. • Samples are not taken from core, due to the inherently nugget nature of ruby mineralization. Grade data from bulk sampling is the main exploration tool used to determine

Criteria	JORC Code explanation	Commentary
		ruby grade As a result, it is not possible to determine whether a relationship exists between sample recovery and grade, and any bias would not be of great relevance to the MRE process.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• For diamond core, geological logging is carried out by an MRM geologist. Geological data is recorded in a detailed log spreadsheet designed to capture key geological information for each interval. • A new interval is started at each lithological contact, with a minimum logging thickness of 1m. • The presence of any key minor or trace minerals of interest, including rubies, corundum, garnet and pyrite are also recorded in an Index Mineral spreadsheet. • For auger drilling, geological logging of the overburden material and the top of the weathered basement is recorded in a custom log sheet by an MRM geologist at the rig. • Geological logging was undertaken for all drillholes, from start to end of hole. • All logging is carried out by MRM geologists, and SRK considers the methodologies in place to be consistent with normal industry practice for this commodity type. .
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.*	• The main source of ruby grade data is from the bulk sampling operations. To date, >3.16 million tonnes of material has been removed from the bulk sampling pits, including >675,000 tonnes of ore material. SRK considers this sample size to be of sufficient representivity (within an area of reasonable geological continuity from the trial pits) to derive Mineral Resources.

Criteria	JORC Code explanation	Commentary
	• *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• No samples are taken from core, and no assays were undertaken. • For each auger hole, a representative ~2kg sample of the secondary gravel bed material is taken for future reference and the rest of the material is sent for washing. • At the wash plant, the gravel bed material recovered from the auger drilling is weighed, before being put through a small, portable mineral jig. The washed material is re-weighed and then sorted by hand to record any recovered rubies. The gravel bed sample weight, washed sample weight and recovered ruby weight is then recorded.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• No elemental assaying has been undertaken. • Washed ore material recovered from the bulk sampling pits is sorted by hand in order to provide ruby grade and quality values for each pit. • The recovered rubies are slit into numerous quality classifications based on size, weight, colour, clarity and shape, and the total weight (in carats) for each classification recorded on a monthly basis for each pit. • SRK considers the ruby classification process put in place by MRM to be consistent with industry standard.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• At the sort house, the material recovered from the wash plant is initially split by hand into 3 categories: waste, garnet and rubies. This is routinely checked by a qualified expert. All subsequent sorting of ruby stones is conducted by a qualified expert.

Criteria	JORC Code explanation	Commentary
		• No down hole elemental assaying has been undertaken.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• Collar X and Y values collected by GPS. • Collar elevation values are taken from the SRTM topography surface. • The highest resolution topographic data available is the digital elevation model from the Shuttle Radar Topography Mission (SRTM), at a resolution of 90mX by 90mY.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• The auger drilling is on an approximate 200mX by 100mY grid in the Central Mugloto area and a wider 200mX by 200mY grid in the east and west of Mugloto. A small area of roughly 300mX by 250mY in the Mugloto Pit 3 area is defined by close spaced auger drilling at a rough 40mX by 40mY resolution. • Diamond drilling is on an approximate 100mX by 50mY grid in in the area around the current Maninge Nice Pit, and 200mX by 100mY at Novomina. In the central Mugloto area, diamond drilling is at a 400mX by 200mY resolution in the south, and a rough 500mX by 500mY gird in the north. • At Maninge Nice and Novomina, exploration pitting is on a rough grid of 100mX by 100mY. The central Mugloto pits are arranged in grids at a spacing of 50mX by 50mY, 100mX by 50mY or 200mX by 100mY. • The bulk sampling pits are concentrated in an approximate 3km WNW trending corridor at central Mugloto, and in the Maninge Nice, Glass A and Novomina areas. • No down hole compositing has been applied to the auger hole, diamond hole or exploration pit logging.

Criteria	JORC Code explanation	Commentary
		• SRK consider the data spacing and distribution to be appropriate to the Mineral Resource classifications applied.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• All holes are drilled vertically. • Vertical drilling is unlikely to have introduced any bias into the modelling of the secondary gravel bed mineralisation, or the primary Maninge Nice amphibolite, which are both broadly flat-lying. • SRK recommend that MRM complete some structurally oriented, inclined holes to provide down hole structural data to assist in the interpretation of the wider subsurface bedrock geology.
Sample security	• *The measures taken to ensure sample security.*	• MRM employ security staff to police the illegal removal of ruby stones from the bulk sampling operations. • All members of staff and visitors are searched both when leaving any bulk sampling pit, and when leaving the wider Project-site. This also applies to the wash plant and sort house. • All material recovered from the bulk sampling operations is transported to the wash plant and sort house via a security escort. • Initial sorting of the washed material by local workers into waste, garnet and ruby categories is completed through a glass screen and each category placed into a locked container. • After sorting the rubies into the various classifications by the expert sorting staff, the sorted ruby stones are stockpiled in a secure location, cordoned and permanently guarded by multiple security staff.

Criteria	JORC Code explanation	Commentary
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• SRK is unaware of any audits or reviews which have been completed on the Montepuez project other than that completed by SRK in August 2014 as preparation for a subsequent MRE.

Section 2 Reporting of Exploration Results
(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• In February 2012 the Mozambican government granted MRM a mining and exploration license for the two adjoining Mining Concessions 4702C and 4703C, which cover an area of approximately 33,600 ha. These are dated 11 November 2011 and are valid for 25 years until 11 November 2036. • SRK is not aware of any material issues with licence tenure or third parties. • MRM still requires some subsidiary permits covering environmental matters, land use and water. SRK considers it unlikely that there will be any material permitting issues.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• No data sourced from third parties, unless otherwise stated, has been used in the generation of the Mineral Resource estimate.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Montepuez deposit is located in a strongly ductile-deformed metamorphic terrane comprising felsic-mafic

Criteria	JORC Code explanation	Commentary
		othogneisses and paragneisses intruded by a suite of granitic and granodioritic intrusions. • The local deposit geology mirrors the regional setting, being characterised by a complexly deformed sequence of granitic to amphibolitic orthogneisses and carbonate, quartzite, biotite and hornblende paragneisses, • This gneissic sequence is interpreted to form a broadly E-W trending gentle-open fold system, on the northern limb of a complex, double-plunging, broadly E-W trending re-folded regional fold structure. • Ruby mineralisation at Montepuez occurs in two settings, namely the underlying primary mineralisation, associated with an in-situ gneissic amphibolite unit, and the overlying secondary mineralisation, hosted by an overburden gravel bed horizon. • The primary rubies sourced from the amphibolite unit typically form pink – light-red coloured tabular hexagonal crystals, which are often highly fractured, with common amphibole, mica and feldspar inclusions. • Secondary rubies, confined to the overburden gravel bed horizon, are typically more transparent, less included and often of a darker red colour than primary rubies in the in-situ amphibolite. • Initial observations suggest that the amphibolite-hosted ruby mineralisation is spatially associated with N-S trending feldspar and carbonate veins related to dextral shear structures and also with stockwork-style pegmatite intrusives. • The current genetic model for the secondary ruby deposit

Criteria	JORC Code explanation	Commentary
		proposes initial deposition within one or more major flooding events, followed by redistribution of the rubies by alluvial processes within a braided river system.
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* o *easting and northing of the drill hole collar* o *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* o *dip and azimuth of the hole* o *down hole length and interception depth* o *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	• Listing this material would not add any further material understanding of the deposit, Exploration Target and Mineral Resource. Appropriately detailed plans and sections are detailed herein.
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• Not applicable. No Exploration Results are specifically reported. • No metal equivalents have been used.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	• Not applicable. The grade data applied to the Montepuez estimation is derived from bulk sampling, rather than drillhole intercepts. In any case, no Exploration Results, including mineralisation widths, are specifically reported. • The gravel bed and amphibolite units are known to be near flat-laying and broadly perpendicular to the diamond and auger drillholes and exploration pits, which are all vertical.

Criteria	JORC Code explanation	Commentary
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Various maps, sections and technical figures are presented herein.
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• Minimum, maximum and average logged gravel bed thickness values, divided by data type (auger holes, diamond holes and exploration pits) are presented herein.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• GPR electromagnetic survey completed by Terravision (external contractor) in April 2013. • Regional and semi-regional photogeological interpretations completed by GaiaPix (external contractor) in late 2012 – early 2013. The photogeological interpretations were based on the analysis of various satellite data including GeoEye, Landsat ETM, ASTER and SRTM. • Bulk and in-situ density measurements of the top soil, clay, gravel bed and weathered basement are completed once a month in the bulk sampling pits, concurrently with the mining process.
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Additional infill diamond drilling across the Mugloto area is on-going. • Auger drilling planned for the Maninge Nice area. • MRM plan to complete a detailed airborne topographic survey, coupled with high resolution aerial photography by June 2015.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	• SRK have validated the exploration pitting, diamond and auger drillhole data provided by MRM through standard validation checks in Microsoft Excel and subsequently through import via the ARANZ Leapfrog Geo drillhole data validation routine. • Any overlapping intervals, from depths > to depths, duplicate locations, out of place non-numeric values, missing collar and survey data, and any down hole intervals that exceeded the collar max depth were conveyed to MRM and fixed on-site by the database manager, prior to the data being used by SRK.
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 Competent Person site visit was undertaken by Dr Lucy Roberts in August 2014, to collect project information and data, check the quality of the data collection procedures put in place by MRM, and to provide guidance on the reporting of Mineral Resources for the Project.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	*Gravel Bed Secondary Mineralisation:* • The gravel bed model is based on logged gravel bed in the auger holes and exploration pits. • Diamond drilling data was largely ignored for the gravel bed model, due to poor recovery of the overburden material during diamond drilling. However, it was necessary to utilise the diamond drill data in the Maninge Nice area where there is no auger drilling. Here, the diamond drill database was used to indicate the presence (or otherwise) of the gravel bed horizon, with the thickness

Criteria	JORC Code explanation	Commentary
		value being extrapolated from the nearest exploration pits. • The trend of the gravel bed model (between drillhole intercepts) is guided by the modelled basement surface, interpreted to broadly represent the paleotopography at the time of gravel bed deposition. • Bulk sampling ruby recovery data suggests that the grade distribution is, in part, controlled by position with the paleochannels, with ruby quality and size decreasing and grade increasing downstream. *Maninge Nice Amphibolite Primary Mineralisation:* • The Maninge Nice amphibolite model is predominantly based on logged amphibolite in the diamond drill database, supplemented by exploration pits that terminate in fresh rock. • The geometry of the model is controlled by the local geological interpretation (gentle-open, E-W trending synform), largely based upon visual trends in the down hole lithological logging and the known regional structural framework. • Confidence would be improved by down hole structural data to help guide the orebody interpretation between drill holes.
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below*	• Numerous images and plots are included that adequately

Criteria	JORC Code explanation	Commentary
	surface to the upper and lower limits of the Mineral Resource.	describe the dimensions and geometry of the orebody, and variations in ruby quality across the deposit.
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* • *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	• Ruby recovery data from the bulk sampling pits is estimated into in-situ primary mineralisation (Maninge Nice amphibolite) and secondary mineralisation (gravel bed) wireframe models developed in Leapfrog Geo software. • Surface interpolations (using a trend based on the basement surface model) of the logged gravel bed hangingwall and footwall surfaces were combined to generate a 3D gravel bed solid. • A gravel bed "skin" model was also created to reflect the combined gravel bed and overburden waste mined as part of the same face. This was based on the standard MRM mining practice (gravel bed +0.3 m above and below, or a standard 1.5 m thickness where the gravel bed model is <0.9 m thick). • The Maninge Nice amphibolite was modelled through sectional polyline interpretations and cropped below the basement surface.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	• The densities reported are a dry basis, and so all tonnages are reported dry. No moisture content is reported.
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	• Using an average price for all carats produced of USD10 /ct the operating cut-off grade applied is 2.7 ct/t. Further details are described in Section 5.4.

Criteria	JORC Code explanation	Commentary
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	• The Modifying Factors considered by SRK to be appropriate for the secondary mineralisation is based the greater of (1) a 0.3 m dilution skin to both the roof and floor contacts or (2) a minimum total thickness of 1.5 m. The diluting grade density are been assumed at 1.74 t/m3. Owing to the application of historical factors to derive RoM grades, no dilution or other grade adjustments factors are deemed necessary for the primary mineralisation.
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	• Beneficiation of rubies and sapphires from MRM is a simple matter of washing the gravels to remove the clay and recovering the stones by gravity methods. Currently, jigs are used for this but in future DMS technology will be applied.
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	• MRM will progressively backfill mined out areas with solid waste from the gravel washing operation. Clay and silt will be settled out in dams that will also be eventually placed in mined out areas. The waste products from gravel washing are benign and are not expected to contain any toxic substances. After the placing the waste, topsoil will be laid over the mined out pits so that re-vegetation can commence. The key issue to manage at MRM will be silt and fines. MRM is implementing a wide variety of measures to prevent dirty water contaminating local water courses.

Criteria	JORC Code explanation	Commentary
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	• The densities reported are a dry basis, and so all tonnages are reported dry. No moisture content is reported. • In-situ density samples are taken from the pit, by hammering a metal cylinder of known volume into the desired material in the pit face. The sample is then placed in a bag, dried, and weighed to derive the density. • No density samples have been taken from the core or the basement lithologies.
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).* • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	• The approach to classification is discussed in Section 4.3. • The mineralisation has been classified into a combination of Inferred and Indicated Mineral Resources. • SRK notes that gemstone deposits, owing to the distribution of economic concentrations of mineralisation are notoriously difficult to sample, estimate and classify as current drilling techniques are inappropriate to provide sufficient data density to enable direct estimation of tonnages and grades.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	• No external audits have been completed.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource 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 resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative*	• SRK have had to make a series of assumptions regarding the grade and quality distribution within both the primary and secondary mineralisation styles. These are further

Criteria	JORC Code explanation	Commentary
	discussion of the factors that 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.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	discussed in Section 4.3 • No statistical or geostatistical analyses have been completed, and so cannot be used to quantify the relative accuracy or confidence of the grade estimates. • The confidence in the grade estimates is derived from bulk sampling • SRK has supplied a series of recommendations for improving knowledge and confidence in the geological and grade estimates.

Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

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.* • *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	• SRK developed a comprehensive MRE that served as a starting point for Project planning. • The Mineral Resources are reported inclusive of the 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.*	• Mike Beare did not visit site due to personal reasons. Gabor Bacsfalusi fulfilled the requirement together with other team members from SRK. Full details are presented in Section 1.7.

Criteria	JORC Code explanation	Commentary
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.*	• MRM is an operating Project, hence quality data from operations exists for operational and financial planning. SRK completed a thorough review of all aspects of the operation covering all relevant disciplines. SRK subsequently authored the MRE. In summary SRK considers that all disciplines are at FS level except processing and Project planning which are at PFS level.
Cut-off parameters	• *The basis of the cut-off grade(s) or quality parameters applied.*	• Using an average price for all carats produced of USD10 /ct the operating cut-off grade applied is 2.7 ct/t. Further details are described in Section 5.4.
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 (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.*	• A dilution skin is applied to the modelled secondary mineralisation based on the greater of (1) a 0.3 m dilution skin to both the roof and floor contacts or (2) a minimum total thickness of 1.5 m. This selective mining unit is compatible with the mining fleet. Owing to the application of historical factors to derive Run of Mine (RoM) grades, no dilution or other grade adjustments factors are deemed necessary for the primary mineralisation. • Mining is via free dig open pit methods from a series of shallow pits; • Primary deposits. These will go as deep as 30m but are not expected to require any special measures. • There are no geotechnical considerations required for the

Criteria	JORC Code explanation	Commentary
		secondary mineralisation due to their shallow nature. • Inferred mineral resources are included in the life of mine plan and account for 15% of the Maninge Nice primary mineralisation. • A dilution factor of 5.94 $t_{diluted}$:t_{insitu} has been used to convert from the bulk sampling production to the mineral resource in-situ estimate. • No mining recovery factors are deemed applicable as reported bulk sampling production is inclusive of losses. • The pits do not require any substantial infrastructure other than temporary haulage roads.
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?*	• SRK considers the current wash plant on site as entirely fit for purpose. • The technology is well-tested. • Substantial bulk sampling has been undertaken using the plant. This has informed MRM with regard to plant operating parameters. Further details are provided in Section 7.3.1. • The bulk samples taken to date focus on the centre of the deposits and are considered reasonably representative. However, more data needs to be gathered in respect to identifying paleochannels so that geological domains can

Criteria	JORC Code explanation	Commentary
		be accurately defined.
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 waste products from gravel washing are sand, clay and gravel. Testwork has shown these to be benign. No special measures or regulatory approvals are required for this material which will be placed into mined out areas as part of the mining process.
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.*	• All the necessary infrastructure is in place at MRM. Some investments are required to upgrade this for increased production but there are no material concerns in this regard.
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.* • *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.*	• Capital costs have been provided by Gemfields based on quotes. • Operating cost estimates are based on historical performance for owner operated activities. Contract mining rates are based on tender pricing estimates. • No deleterious elements have been found to be present • Transport charges off site are covered in the sales costs that have been applied. • Management and auction fees are based on historical estimates from historical costs • A 6% royalty on revenues is payable to the government
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.*	• The long term prices have been provided by Gemfields based on auction results • No deduction is made for process recovery (grades estimates are based on historical production), royalties are assumed at 6.0 % and a direct selling charge of 1.75% for auction expenses are levied in relation to commodity price. • The long term commodity prices and HQ/LQ stone splits are shown in Section 5.3
Market	• *The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply*	• The Company has provided a detailed market study presented in Section 10 of this report. SRK notes that the

Criteria	JORC Code explanation	Commentary
assessment	*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.*	Company has had significant success with the public auctions of ruby products since commencing operations in 2011 and has in place a very experienced management team who have had a long experience with gemstone mining and marketing from the Kagem operation in Zambia.
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 economic analysis is based upon: a resource estimation by SRK; a mining plan generated by MRM reviewed and adjusted by SRK. The model is in real terms with inflation ignored. Details on the model and results and provided in Section 12 of this report.
Social	• *The status of agreements with key stakeholders and matters leading to social licence to operate.*	• MRM has made substantial efforts to establish a so called 'social licence to operate' by establishing themselves in the community with a range of initiatives.
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.*	• Key project risks are discussed in Section 11.2 and comprise environmental and social risks, reserve risk and permitting risk. SRK considers these to be manageable. • All the key permits required for the Project are either in place or under application. SRK considers it to be unlikely that they will not be issued. • Regarding marketing arrangements, the Company has in place a system of auction sales that have raised considerable funds for the MRM operation. Details are provided in Section 10.7 • SRK considers that there are no unresolved matters upon which the extraction of the reserve is contingent.
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).*	• No Measured Mineral Resources have been estimated at the Project. Therefore no Proven Reserves can be generated. SRK considers that in order to estimate Measured Resources a far more detailed level of orebody knowledge will be required. • SRK considers the key issue to quantify accurately for Measured Resource estimation is the distribution of high

Criteria	JORC Code explanation	Commentary
		value stones at the Project.
Audits or reviews	• *The results of any audits or reviews of Ore Reserve estimates.*	• No external audits or reviews of the Resources and Reserves in this CPR have been conducted. SRK has relied on review work conducted internally and by the MRM Chief Geologist.
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.*	• SRK considers the level of sampling work carried out by MRM is sufficient for Probable Reserves in accordance with the JORC Code. SRK notes that the key value driver is the distribution of Premium stones. It is expected that on an annual basis the Project is considered likely to achieve its overall targets in terms stone production. However, on a monthly basis there is likely to be some considerable variation (10-50%) which will be smoothed during the sorting and stockpiling giving an expected accuracy of +/-20% on an annual basis. In Section 12.2.1 SRK has presented a sensitivity analysis that examines the impact of the NPV on the content of Premium ruby. An important point to note is that even at 1% Premium content the Project still has a substantial NPV. • SRK expects that on-going mining operations will allow the accuracy of resource estimates to be refined by additional reconciliation work on a monthly basis.

Section 5 Estimation and Reporting of Diamonds and Other Gemstones

(Criteria listed in other relevant sections also apply to this section. Additional guidelines are available in the 'Guidelines for the Reporting of Diamond Exploration Results' issued by the Diamond Exploration Best Practices Committee established by the Canadian Institute of Mining, Metallurgy and Petroleum.)

Criteria	JORC Code explanation	Commentary
Indicator minerals	• *Reports of indicator minerals, such as chemically/physically distinctive garnet, ilmenite, chrome spinel and chrome diopside, should be prepared by a suitably qualified laboratory.*	• MRM record the down hole from-to depths in diamond core of garnet and corundum (non-gem quality) mineralisation in a mineral occurrence log. However, no technical reports on indicator minerals proven to show a clear correlation with ruby mineralisation have been prepared. • At this stage, this is not considered necessary, as the ruby grade data applied to the resource statement is taken from direct ruby recovery data from bulk sampling.
Source of diamonds	• *Details of the form, shape, size and colour of the diamonds and the nature of the source of diamonds (primary or secondary) including the rock type and geological environment.*	• Ruby mineralisation at Montepuez occurs in two settings, namely the underlying primary mineralisation, associated with an in-situ gneissic amphibolite unit, and the overlying secondary mineralisation, hosted by an overburden gravel bed horizon. • The primary rubies sourced from the amphibolite unit typically form pink – light-red coloured tabular hexagonal crystals, which are often highly fractured, with common amphibole, mica and feldspar inclusions. • Secondary rubies, confined to the overburden gravel bed horizon, are typically more transparent, less included and often of a darker red colour than primary rubies in the in-situ amphibolite. • Initial observations suggest that the amphibolite-hosted ruby mineralisation is spatially associated with N-S trending feldspar and carbonate veins related to dextral shear

Criteria	JORC Code explanation	Commentary
		structures and also with stockwork-style pegmatite intrusives. • The current genetic model for the secondary ruby deposit proposes initial deposition within one or more major flooding events, followed by redistribution of the rubies by alluvial processes within a braided river system.
Sample collection	• *Type of sample, whether outcrop, boulders, drill core, reverse circulation drill cuttings, gravel, stream sediment or soil, and purpose (eg large diameter drilling to establish stones per unit of volume or bulk samples to establish stone size distribution).* • *Sample size, distribution and representivity.*	• To date, MRM have extracted >3.16 million tonnes of material from a total of 13 bulk sampling pits, concentrated in an approximate 3 km WNW trending corridor at central Mugloto, and in the Maninge Nice, Glass A and Novomina areas, targeting both Primary and Secondary mineralisation. The primary purpose of the bulk sampling operations is to produce representative ruby grade and quality data. • MRM have completed a total of 1,090 drillholes (auger and diamond) for a total meterage of 15,028m. • The drillhole database is supplemented by data from exploration pitting (shallow, manually excavated holes with an average depth of 3.9m) at Maninge Nice, Novomina and central Mugloto. Note that a total of 200 of the 823 exploration pits were not completed to the planned depth due to various problems relating to water influx, pit collapse, artisanal activity and inordinately consolidated laterite material. • The primary purpose of the auger drilling and exploration pitting is to target the secondary mineralisation with the aim of determining the thickness and nature of the gravel bed and the overlying material. • Diamond drilling is predominantly aimed at determining the nature of the basement geology with the aim of defining the

Criteria	JORC Code explanation	Commentary
		primary resource at Maninge Nice and eventually for targeting additional sources of primary mineralisation.
Sample treatment	• *Type of facility, treatment rate, and accreditation.* • *Sample size reduction. Bottom screen size, top screen size and re-crush.* • *Processes (dense media separation, grease, X-ray, hand-sorting, etc).* • *Process efficiency, tailings auditing and granulometry.* • *Laboratory used, type of process for micro diamonds and accreditation.*	• MRM operates a simple gravity based washing plant with two circuits processing ore at a rate of 320 tph. Detail is provided in Section 7. • The recovered stones from the wash plant are sorted by hand and split into numerous quality classifications based on size, weight, colour, clarity and shape, and the total weight (in carats) for each classification recorded on a monthly basis for each pit.
Carat	• *One fifth (0.2) of a gram (often defined as a metric carat or MC).*	• This is the definition of a carat used throughout.
Sample grade	• *Sample grade in this section of Table 1 is used in the context of carats per units of mass, area or volume.* • *The sample grade above the specified lower cut-off sieve size should be reported as carats per dry metric tonne and/or carats per 100 dry metric tonnes. For alluvial deposits, sample grades quoted in carats per square metre or carats per cubic metre are acceptable if accompanied by a volume to weight basis for calculation.* • *In addition to general requirements to assess volume and density there is a need to relate stone frequency (stones per cubic metre or tonne) to stone size (carats per stone) to derive sample grade (carats per tonne).*	• The sample grades presented throughout are in carats per tonne of material. This is derived from the bulk sampling of bulk samples in the wash plant. • The grade is derived from processing in the sort house, and reported in the Mineral Resources as total carats recovered. • Stone frequency work has not been undertaken at the Project. This is due to the large number of gemstones produced. SRK understands that MRM is planning to undertake this in the future.
Reporting of Exploration Results	• *Complete set of sieve data using a standard progression of sieve sizes per facies. Bulk sampling results, global sample grade per facies. Spatial structure analysis and grade distribution. Stone size and number distribution. Sample head feed and tailings particle granulometry.* • *Sample density determination.* • *Per cent concentrate and undersize per sample.* • *Sample grade with change in bottom cut-off screen size.* • *Adjustments made to size distribution for sample plant performance*	• Bulk and in-situ density measurements of the top soil, clay, gravel bed and weathered basement are routinely recorded once a month in the bulk sampling pits, concurrently with the mining process. • Details of density estimation are provided in Section 3.10. • The sampling undertaken at the Project has been using a production size of plant so no scaling adjustments are

Criteria	JORC Code explanation	Commentary
	and performance on a commercial scale. • *If appropriate or employed, geostatistical techniques applied to model stone size, distribution or frequency from size distribution of exploration diamond samples.* • *The weight of diamonds may only be omitted from the report when the diamonds are considered too small to be of commercial significance. This lower cut-off size should be stated.*	appropriate. • No geostats have been applied to the data. The results of the bulk sampling have been applied to the gravel bed volumes with appropriate adjustments to the Premium grade. • Wash plant concentrate is split by hand into three categories, namely waste, garnet and rubies. The waste is discarded, and garnets stockpiled for future use, whilst the rubies are further split into various quality and size categories. This initially involves sieving the material to remove any stones less than 2.8 mm (classified as waste fines) and subsequently re-sieving to remove any stones less than 4.6 mm (classified as <4.6 mm). The remaining stones are then subdivided into five broad quality categories Premium, Ruby, Low Ruby and -4.6mm.
Grade estimation for reporting Mineral Resources and Ore Reserves	• *Description of the sample type and the spatial arrangement of drilling or sampling designed for grade estimation.* • *The sample crush size and its relationship to that achievable in a commercial treatment plant.* • *Total number of diamonds greater than the specified and reported lower cut-off sieve size.* • *Total weight of diamonds greater than the specified and reported lower cut-off sieve size.* • *The sample grade above the specified lower cut-off sieve size.*	• The ruby grade and quality data applied to the resource estimate is derived from a total of 13 bulk sampling pits concentrated in an approximate 3km WNW trending corridor at central Mugloto, and in the Maninge Nice, Glass A and Novomina areas. SRK considers that the sample size recovered from the bulk sampling operations and the spatial arrangement of the bulk sampling pits is sufficient to produce ruby grade and quality data of sufficient representivity (within an area of reasonable geological continuity from the trial pits) to derive Mineral Resources. • The gravel bed model used to determine the volume of the secondary gravel bed resource is largely derived from auger drilling and exploration pitting data. • Auger drilling is on an approximate 200mX by 100mY grid in

Criteria	JORC Code explanation	Commentary
		the Central Mugloto area and a wider 200mX by 200mY grid in the east and west of Mugloto. A small area of roughly 300mX by 250mY in the Mugloto Pit 3 area is defined by close spaced auger drilling at a rough 40mX by 40mY resolution. At Maninge Nice and Novomina, exploration pitting is on a rough grid of 100mX by 100mY. The central Mugloto pits are arranged in grids at a spacing of 50mX by 50mY, 100mX by 50mY or 200mX by 100mY. • The volume of the primary amphibolite resource is based on a total of 11 diamond drillholes and 4 exploration pits in the Maninge Nice area. Here, diamond drilling is on an approximate 100mX by 50mY grid.
Value estimation	• *Valuations should not be reported for samples of diamonds processed using total liberation method, which is commonly used for processing exploration samples.* • *To the extent that such information is not deemed commercially sensitive, Public Reports should include:* o *diamonds quantities by appropriate screen size per facies or depth.* o *details of parcel valued.* o *number of stones, carats, lower size cut-off per facies or depth.* • *The average $/carat and $/tonne value at the selected bottom cut-off should be reported in US Dollars. The value per carat is of critical importance in demonstrating project value.* • *The basis for the price (eg dealer buying price, dealer selling price, etc).* • *An assessment of diamond breakage.*	• Valuation of the stones from MRM has been made by taking the rough from the bulk sampling programmes and selling it at public auction. These auctions have raised significant funds for the Project. Details are provided in Section 10.7. • An formal assessment of stone breakage due to the washing plant has not been undertaken. However, due to the lack of a crushing circuit and the apparent absence of broken stones during sorting this is not considered to be material.
Security and integrity	• *Accredited process audit.* • *Whether samples were sealed after excavation.* • *Valuer location, escort, delivery, cleaning losses, reconciliation with recorded sample carats and number of stones.* • *Core samples washed prior to treatment for micro diamonds.*	• All material recovered from the bulk sampling operations is transported to the wash plant and sort house via a security escort. • The ruby sort house is located on-site, in close vicinity of

Criteria	JORC Code explanation	Commentary
	• *Audit samples treated at alternative facility.* • *Results of tailings checks.* • *Recovery of tracer monitors used in sampling and treatment.* • *Geophysical (logged) density and particle density.* • *Cross validation of sample weights, wet and dry, with hole volume and density, moisture factor.*	the wash plant, and permanently guarded by multiple security staff. Tailings checks have been carried out by re-washing gravel in a small jig. Tracer stones have also been used to monitor plant performance. MRM also stockpiles processed material to carry out some bulk reprocessing which is planned for the future.
Classification	• *In addition to general requirements to assess volume and density there is a need to relate stone frequency (stones per cubic metre or tonne) to stone size (carats per stone) to derive grade (carats per tonne). The elements of uncertainty in these estimates should be considered, and classification developed accordingly.*	• SRK consider there to be a degree of uncertainty in the grade estimates, with the confidence being gained through the bulk sampling and sorting process. This records the distribution of stone qualities being recovered. • SRK has supplied a list of recommendations which can improve the data gathered, and so the confidence in the geological and grade