Technical Review of China Hanking's Mine Projects in Fushun City and Benxi City, Liaoning Province, China

Report prepared for

China Hanking Holdings Limited

Report Prepared by

srk consulting

SRK Consulting China Ltd.

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for

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EXECUTIVE SUMMARY

China Hanking Holdings Limited (together with its subsidiaries, "China Hanking", "the Company" or "the Client") commissioned SRK Consulting China Ltd. ("**SRK**") to undertake an independent expert review of all relevant technical aspects of the Company's three iron operating mines and associated five ore processing plants in Fushun City and one operating iron mine with one ore processing facility in Benxi City, Liaoning Province, People's Republic of China (PRC). The SRK Independent Technical Report ("**ITR**") was required for inclusion in documents for its proposed listing ("**Proposed Listing**") on the Main Board of the Stock Exchange of Hong Kong Limited ("**HKEx**").

OUTLINE OF WORK PROGRAM

The work program involved two phases:

- Phase 1: to review information provided, conduct a site visit to inspect China Hanking's properties, hold discussions with the company employees, geological brigade professionals and consultants who conducted the geological exploration and feasibility study, and conduct a limited verification program of survey engineering, sampling and resource estimation of these properties.

- Phase 2: to analyse the data provided by the Company and generated by SRK, to compile a draft report, and finalise the report in consideration of the Client's feedback.

RESULTS

Overall

The Company is a major private mining enterprise in Liaoning Province, PRC. Liaoning Province is one of the major iron concentrate production bases in mainland China. In 2010, the statistical data show that the Company possesses the largest resources and reserves in the region, and in 2010 produced approximately 1,315,000 tonnes ("**t**") of iron concentrate at a grade of greater than 65% total iron ("**TFe**"). Currently, the Company has three operating iron mines covering four mining licences, and five ore processing plants located in Fushun; and one operating iron mine situated in Benxi City, Liaoning

Province, PRC. Details of these operating iron mines with design capacities and actual productions in 2010 are described below:

Mines and Concentrators	Design Capacity (tpa)	2010 Actual Production (t)	Status
Aoniu Mine (held by Aoniu Mining)			
Aoniu operating mine (raw ore)	1,200,000	1,856,739	Production
No. 1 concentrator (iron concentrate)	300,000	318,721	Production
No. 2 concentrator (iron concentrate)	300,000	323,673	Production
Bangze concentrator (iron concentrate)	60,000		Stopped
Mengjia Mine* (held by Benxi Mining)			
Mengjia operating mine (raw ore)	800,000	1,321,284	Production
Mengjia concentrator (iron concentrate)**	300,000	256,780	Production
Xingzhou Mine*** (held by Xingzhou Mining)			
Xingzhou operating mine (raw ore)	5,000,000	352,739	Production
Xingzhou concentrator (iron concentrate)	1,170,000	78,145	Production
Jingmao Iron Mine (held by Maogong Mining)			
Maogong operating mine (raw ore)	300,000	963,441	Production
Jingjia operating mine (raw ore)	50,000	0	Production
Maogong concentrator (iron concentrate)	150,000	148,607	Production
Jingjia concentrator (iron concentrate)	150,000	189,073	Production

Note:

* Also referred to as Benxi iron mine in this report.

** The Company operated the Mengjia concentrator near the Mengjia Mine until September 2010. The Company sold this concentrator to Benxi Hanking Iron Processing Co., Ltd. in September 2010 and has since engaged it to process ore mined at Mengjia Mine.

*** Also referred to as Luobokan Mine in this report.

The mines and concentrators operated by the Company in Liaoning Province are well integrated and well managed operations. The operating standards at all sites are generally comparable to good national and/or international industry practice.

On 30 June 2011, the JORC Code comparable Indicated and Inferred Mineral Resources were 60.51 million tonnes ("**Mt**") with average TFe and mFe grades of 30.75% and 25.26%, and 46.31 Mt at average TFe and mFe grades of 31.39% and 23.96%, respectively. In addition, the low-grade Indicated Resource is 63.72 Mt at average TFe and mFe grades of 22.76% and 17.48%, respectively. By

considering the mining loss and mining dilution factors, the qualified mineral resources can be converted into JORC Code comparable Probable Ore Reserves as: 68.94 Mt with average TFe and mFe grades of 26.16% and 21.06%, respectively. The low-grade Probable Ore Reserve is 70.83 Mt at average TFe and mFe grades of 19.45% and 14.94%.

The mines are either open pits or underground operations accessed by shafts and adits. The mining methods are relatively simple. Generally, for the open pit mining, the mining recovery rates are 95% and the mining dilutions are 18 to 28%. For underground mining, the short-hole shrinkage and sublevel caving mining methods have been adopted with mining recoveries of 75 to 88% and mining dilutions of 17 to 25%.

A conventional ore processing flow sheet includes dry and wet magnetic concentrating processes to produce high-quality iron concentrates. In 2010, the ore processing plants achieve average grades of iron concentrates between 65.05% and 66.72% with iron recovery rates ranging from 71.63% to 94.02%.

The strengths of the Company include high self-sufficiency from established vertical integration based on mining and developing mineral deposits, to on-site processing allowing economical operations with production of good quality concentrates.

The Company's mines, concentrators and support facilities have achieved reasonably acceptable accident statistics. SRK considers that the Company is committed to safety training and providing safety equipment and monitoring. Statistics compare well with other mining companies in China.

Workforce numbers at the Company were 1,393 on 30 June 2011. This figure includes the following employees: 140 in company headquarters administration, 180 in the mine management department, 315 in the mining departments, 577 in the ore processing plants and tailings dams, 94 in the workshops for maintenance, and 87 employees in the safety departments. Annual staff turnover is estimated at 5% of the workforce. Based on past experiences, there have been no problems with sourcing skilled workers. SRK considers that the workforce number can completely meet the Company's production capacities.

A number of the Company's technical management personnel have worked at the mine for more than three years. They have a thorough knowledge of the geology and mining conditions in the mine, and can employ suitable techniques and experience from a range of plants.

As part of their development program, the Company has committed to a greening program at the mines and plants with improvements in dust control, waste water and sewage treatment. Once implemented, these practices will demonstrate the Company's responsible approach towards environmental protection.

Geology

Regionally the project is located in the middle of a geological dome in the Tieling-Jingyu-Fushun, Northeastern China. Outcrops in this district are represented by metamorphic rocks of Archaean age. The lithology of upper Archaean outcrops is characterized by acid volcanic rocks and mafic volcanic-sedimentary rocks containing with magnetite-quartzite. The magnetite-quartzite forms the iron deposit

known as Anshan-type banded iron formation ("**BIF**") deposits. Aoniu, Jingjia, Maogong, Xingzhou and Mengjia Mines are all of this-type iron deposits. The magmatic rock is mainly gneissic granite with wide distribution in this area.

Aoniu Mine:

There are three mining blocks in the mine area namely Aoniu, Lishu and Yaobao mining blocks. For the Aoniu mining block, there are five separate mining zones.

A total of 59 iron ore (mineralised) bodies are defined in the mining license area, of which there are five larger ore bodies defined in Aoniu mining block, i.e. ore bodies of Fe1, Fe2, Fe13, Fe14 and Fe15. There are two ore bodies delineated in each block of Lishu and Yaobao blocks. Generally the mineralized bodies appear layered and/or lenticular-like at various size scales. Geometrical characters of the main ore bodies at Aoniu mine are shown as in the table below:

Mining Block	Orebody	Length (m)	Thickness (m)	Down-depth (m)	TFe (%)
Aoniu	Fe1	1,020	12.0	117	33.35
	Fe2	1,320	15.9	150	35.95
	F13	220	13.0	100	35.83
	Fe14	430	17.0	100	34.06
	Fe15	350	16.6	220	33.61
Lishu	Fe3	148	3.5	30	26.45
	Fe4	127	5.0	30	34.55
Yaobao	Fe1	280	2.3	20	31.88
	Fe2	220	4.0	15	29.86

Jingjia Mine:

Three ore bodies of Fe1, Fe 2 and Fe3 are defined at the Jingjia deposit; they also show as layered or lenticular shapes. The characters of these ore bodies are described in the following:

Orebody Fe1 is located between the exploration lines 5# and 7# in the north part of the mine area, with dipping to W or NW angles of 49° to 56°. The orebody is about 76 m long and 10 m wide. The middle part of orebody is wider than the two ends. The average grade of total iron (TFe) in Fe1 is 33%.

Orebody Fe2 is located between the exploration lines 1# and 6# in the south part of the mine area. Generally, the orebody is 169 m long and 22 m wide. The orebody is dipping to NW with dip angles varying from 50° to 68°. The average grade of TFe is 25%.

Orebody Fe3 is located between the exploration lines 28# and 3# in the west part of the mine area, with strike of NE direction and dipping to NW. The orebody in the mine area is about 500 m long, 300 m down deep and 30 m wide on average. There is no down-depth engineering controlled. The average grades of TFe and mFe are about 32.12% and 29.01%, respectively.

Maogong Mine:

There is a total of 11 ore bodies defined at Maogong Mine (Fe1–Fe3, Fe6–Fe9, Fe13, Fe14, Fe16 and Fe17) of which Fe3, Fe7, Fe8, Fe9, Fe16 and Fe17 are the main ore bodies. Similar to the Jingjia Mine, the shape of ore bodies is mainly tabular and lenticular, with swelling distribution and bifurcation.

The ore bodies are mainly distributed between exploration lines of No. 1# and No. 21# with trending NW and dipping to NE; they are about 40 to 100 m long and 10 to 50 m wide. The burial depth is between 0 and 184 m. Except for ore bodies Fe3 and Fe7, all ore bodies are buried in comparatively shallow zone. The ore TFe grades range from 28.85% to 37.29%, with an average grade of 34.97%. The characters of the main ore bodies at Maogong mine are shown in the following table:

Orebody	Length (m)	Thickness (m)	Down-depth (m)	Shape	Grade (TFe)
Fe1	120	26	>25	Bedded, Lenticular	35.97
Fe2	64	19	>25	Bedded, Lenticular	28.85
Fe3	430	10	193	Bedded, Lenticular	32.90
Fe6	45	10	>25	Bedded, Lenticular	34.73
Fe7	272	37	>25	Bedded, Lenticular	37.29
Fe8	340	25	>25	Bedded, Lenticular	35.75
Fe9	310	40	100	Bedded, Lenticular	36.06
Fe13	40	28	>25	Bedded, Lenticular	34.73
Fe14	58	31	>25	Bedded, Lenticular	34.73
Fe16	380	50	>25	Bedded, Lenticular	37.76
Fe17	214	32	>25	Bedded, Lenticular	34.73

Luobokan Mine:

There are nine mineralized bodies delineated within and between the two mineralized zones of No. 1 and No. 2 at Luobokan Mine area. The No. 1 zone comprises orebody #1, #2 and #3, of which the orebody #3 is the main orebody. The No. 2 zone contains ore bodies of #7 and #8. The four relatively small orebodies #4, #5 #6 and #9 exist between the No. 1 zone and No. 2 zone.

Of the nine ore bodies, orebody #3 is the main mineralized body which takes more than 60% of the total mineral resource. It is divided into two parts named as ore bodies #3-1 and #3-2. Both ore bodies are about 1,300 m long along strike, 8 to 60 m wide and at 180 to 550 m depth. The average mFe high-grade is 22.67%, and the average mFe low-grade is 15.96%.

Mengjia Mine:

Two ore bodies (Fe10 and Fe11) are defined in the mine area. Orebody Fe11 has two secondary ore bodies Fe11-1 and Fe11-2. Orebody Fe10 is the main orebody in Mengjia Mine with a NE strike and a dip to the SE. Orebody Fe11 strikes nearly SN and dips to W at the north end and strikes SW and dips to NWW in the south end. Details of the two ore bodies are as follows.

Orebody Fe10 as a major orebody is located between the exploration lines 34# and 43#. It is about 900 m long and 20 to 50 m wide (36 m wide in average). The orebody strikes NE and dips to SE with dip angles of 62° to 87°. The average TFe grade is 26.39%.

Orebody Fe11 is located in the west part of the mine area. It is composed by two parallel ore bodies of Fe11-1 and Fe11-2. The orebody Fe11-1 is about 400 m long, 5 to 10 m wide and at 200–250 m depth with an average grade of 25.87% TFe. Orebody Fe11-2 is about 500 m long, 7 to 20 m wide and at 250–330 m depth with an average grade of 26.17% TFe. The average TFe grade of orebody Fe11 is 26.02%.

Resource and Reserve Estimates

SRK has inspected all the operating mines and concentrators, observed iron ore and other outcropping lithologies, and checked some mining area collars with a hand-held GPS device. SRK also reviewed all original geological database including the geological survey and mapping data at different scales; drill hole logging; sampling methodologies and sample preparation and assaying; assay quality assurance and quality control (QA/QC); the geological interpretation, mineral resource estimation procedures and parameters applied by Chinese Geological Brigades. The Geological Brigades are qualified and certified Chinese independent geological consultants, who have used methods and procedures which comply with Chinese standards for resource estimation.

The five iron mines are ''Anshan-Type'' banded iron formation deposits and the iron grades are generally consistent throughout the mineralized bodies. SRK considers that these exploration programs would provide a reasonable basis to estimate the mineralized bodies at these iron mines, and that the analytical methods used for the deposits produced acceptable results with no material bias.

The historical monthly mining and concentrating production records from 2008 to 2010 of the Company's mines were reviewed. The statistics of the ore grades were reviewed to check the iron grade consistency between the mineralized blocks/bodies reported in the geological reports or resource verification reports and the mined ore blocks/bodies at Aoniu, Maogong, Luobokan and Mengjia Mines. Considering the mining recovery rates and dilution factors, the differences are within 15% and are acceptable.

SRK conducted comparisons of results between the average grades of the ore bodies described in the exploration reports or resources verification reports and those of SRK's check samples assayed by Intertek laboratory. The results of data verification indicate that the original database is sound and reliable for the purposes of resource estimation.

Based on reviewing the deposit geology, original drilling and sampling data, and procedures and parameters used for the estimation of mineral resources, SRK is of the opinion that the mineral resources estimated under the 1999 Chinese resource category system for the Aoniu, Jingjia, Maogong, Luobokan

and Mengjia iron deposits by Chinese Geological Brigades are comparable to the JORC Code Mineral Resource categories. The economic portion of the Measured and Indicated Mineral Resources can accordingly be used to estimate Proved and Probable Ore Reserves.

Mineral Resource Estimate

The JORC Code comparable Mineral Resource estimates as of 30 June 2011 for all of the iron mines are summarized in the table below. The JORC Code comparable Indicated and Inferred Mineral Resources are 60.51 Mt with average TFe and mFe grades of 30.75% and 25.26%, and 46.31 Mt with an average TFe and mFe grades of 31.39% and 23.96%, respectively. In addition, the low-grade Indicated Resource is 63.72 Mt at average TFe and mFe grades of 22.76% and 17.48%. Only the Indicated Resources can be used for ore reserve estimation and mine planning.

Mine	Category	Resources (t)	TFe (%)	mFe (%)
Aoniu	Indicated	8,262,009	32.59	29.90
	Inferred	11,454,000	33.20	30.46
Jingjia	Indicated	11,038,548	32.29	29.12
	Inferred	1,518,240	30.15	27.30
Maogong	Indicated	265,262	35.56	30.35
	Inferred	2,790,722	36.95	30.46
Luobokan	Indicated	32,712,440	30.88	23.45
	Inferred	27,980,020	30.65	20.62
	Indicated*	63,722,270	22.76	17.48
Mengjia	Indicated	8,229,902	26.14	22.44
	Inferred	2,570,000	26.14	22.44
Total	**Indicated**	**60,508,161**	**30.75**	**25.26**
	Inferred	**46,312,982**	**31.39**	**23.96**
	Indicated*	**63,722,270**	**22.76**	**17.48**
Indicated+Indicated*+Inferred		**170,543,413**	**27.94**	**25.99**

* signifies the low-grade Mineral Resource

Ore Reserve Estimate

The comparable JORC Code Ore Reserves based on the mining recovery rate and dilution rate for the five iron mines were estimated based on the previous production records and feasibility studies. The Luobokan and Mengjia Mines are planned to transfer to underground mining from open-pit mining, and therefore the designed mining recovery and dilution rates have been used for Ore Reserve estimation.

As at 30 June 2011, the Probable Ore Reserves were 68.94 Mt with average TFe and mFe grades of 26.16 and 21.06%. The low-grade Probable Ore Reserve was 70.83 Mt at average TFe and mFe grades of 19.45% and 14.94%. Details of the Probable Ore Reserves for each mine are shown in the following table.

Mine	Category	Reserves (t)	TFe (%)	mFe (%)
Aoniu	Probable	10,085,847	25.36	23.27
Jingjia	Probable	12,426,645	30.15	24.57
Maogong	Probable	298,618	30.01	25.61
Luobokan	Probable	36,359,877	26.39	20.05
	Probable*	70,827,303	19.45	14.94
Mengjia	Probable	9,773,009	20.91	17.95
Total	**Probable**	**68,943,997**	**26.16**	**21.06**
	Probable*	**70,827,303**	**19.45**	**14.94**
Probable+Probable*		**139,771,300**	**22.50**	**17.96**

* signifies the low-grade Probable Reserve.

Based on the remaining ore reserves at some mines are relatively small, SRK recommends that the Company should not only carry out more exploration to define more ore bodies at these mines, but also reuse the previous dry separated waste rocks to increase the dry magnetic separation yield rate.

Exploration Potential

SRK noticed there are abundant inferred resources in the mining license areas, which would suggest more exploration work including in-fill drilling should be carried out in the mining license areas to verify them and upgrade the resources category, and also define more mineralised ore bodies and mineral resources. The Company has accepted SRK's recommendations and proposes to carry out the exploration program in its five-year development plan. SRK also note that there is great potential to find more iron resources outside the mining licences' areas. For an example, about 2,000,000 t ore resource of the orebody Fe11 just outside the Mengjia mining licence area has been estimated by the relevant Chinese geological brigade. Benxi Mining has planned to enlarge Mengjia mining licence to cover that area.

SRK recommends that the QA/QC protocol should be well organized by the Company in future exploration, which involves drilling, sampling, sample preparation, assaying, internal and external check, insertion of control samples i.e. blanks, standards and duplicates. The Company should keep the sample rejects and pulps for future check. The Company should upgrade its resources to JORC Code defined resources. The Company has accepted the SRK's suggestions in future exploration.

In addition, SRK was informed that China Hanking has applied an area of 81.77 km^2 for Aoniu Mining and 35.36 km^2 for Maogong Mining as potential prospecting mineralisation areas based on the airborne survey anomaly result. The local Fushun County authority has approved the application on 10 May 2011.

Mining

Mining proposed at Aoniu, Jingjia, Maogong, Xingzhou and Mengjia Mines is technically viable based on the location and geometry of the ore bodies. Conventional mining methods are currently used and they are open pit and shallow-hole shrinkage and sublevel caving stoping methods.

The technical parameters of the open pit mining method for the five mines' open pits are considered by SRK to be appropriate. For the underground mine, the sublevel caving with bottom sill pillar method and the shallow-hole shrinkage mining method are adopted and are also considered by SRK to be appropriate.

The sublevel caving with bottom sill pillar method is used for the mining operation of orebody over 4 m thick, and the stope is implemented along the orebody strike. The stope length and width are respectively 40 m and the height is the same as that of the sublevel. Single side or double-side ore gathering trenches are adopted with chute spacing of 6 m. The bottom pillar is 11 m high. The protection pillars are planned to be recovered after the mining operation of main orebody is completed.

The shallow-hole shrinkage mining method is used for the mining of ore bodies less than 4 m thick, and the stope is implemented along the orebody strike. The stope length is 40 m, the width is the oblique length of chamber room, and the height is the same as that of sublevel. The rib pillar is 8 m wide.

The mining recoveries and dilutions using open-pit and undergrounding mining methods and the average stripping ratios at the four mines from the 2008, 2009 and 2010 mining production records, are summarized below. SRK recommends that the Company should enhance the technical management on mining operation activities to reduce the dilution rates for the mines.

	Aoniu Mine	Maogong Mine	Luobokan Mine		Mengjia Mine	
Item	Open-pit	Open-pit	Open-pit	Underground	Open-pit	Underground
Stripping Ratio	1.96	1.06	0.73		2.18	
Recovery Rate	95%	95%	95%	85%	95%	85%
Dilution Rate	28.5%	18.5%	20.4%	17%	28.1%	25%

The Company's operations are technically viable with sufficient reserves and resources to provide growth potential. Infrastructure is sound and capable of supporting the proposed expansion project. There is opportunity for further growth and optimisation, and the Company has indicated it is keen and has the vision to expand production.

Metallurgical and Ore Processing

The Company's five iron mines are of the typical "Anshan-type", banded magnetite-quartz formation. The ore minerals are mainly magnetite with minor hematite and gangue minerals are mainly quarts with hornblende and pyroxene. The harmful elements of sulphur, phosphorus, silicon and tantinum in the ore are very low in concentration. Given that magnetite can be easily separated at the five mines, a conventional ore processing flow sheet, including dry and wet concentrating, is used to produce high-quality iron concentrates. The following table shows the technical index details of each ore processing plant in 2010.

Item		Unit	Aoniu Concentrator		Concentrator		Xingzhou Concentrator	Mengjia Concentrator
			No. 1	No. 2	Maogong	Jingjia		
Treated Raw Ore		t	995,406	1,002,944	378,046	547,567	338,836	1,360,576
Ore (Feed) Grade		%	24.67	24.79	27.62	25.40	17.45	17.20
Dry separation	Ore Concentrate	t	794,835	799,514	357,689	504,166	312,016	1,063,926
	Yield	%	79.85	79.72	94.62	92.07	92.08	78.20
	Grade	%	29.02	29.59	28.82	27.01	18.35	20.11
	Recovery rate	%	93.93	95.15	98.73	97.91	96.83	91.43
Wet separation	Yield	%	40.10	40.48	41.55	37.50	25.05	24.14
	Recovery rate	%	92.19	90.97	95.23	92.10	88.78	78.35
Concentrate		t	318,721	323,673	148,607	189,073	78,145	256,780
Grade (concentrate)		%	66.72	66.49	66.06	66.33	65.05	65.28
Total recovery rate		%	86.60	86.56	94.02	90.17	85.97	71.63
Raw ore/Concentrate		t/t	3.12	3.10	2.54	2.90	4.34	5.30

SRK observed that the ore processing methods/flowsheets and applied equipment in all of the concentrators are rational and environmentally friendly as the ore are treated via physical processes without adding any reagents.

Licenses and Environmental Assessment

SRK has sighted the current and relevant Business Licences for each project/company. The following table summarises the status of approvals and permitting for the Aoniu, Jingmao (Jingjia and Maogong), Xingzhou and Benxi Mine Projects, where the 'Y' denotes the report is completed or the permit is granted, and 'N' means the report/permit has not been completed or is not available, 'NYR' means that report/permit is not yet required for the current operation, 'NS' denotes that the permit has not been sighted and 'n/a' indicates that it is not applicable.

Item	Mining Licence	Environmental Impact Assessment Report (EIA)	Approval for EIA	Water and Soil Conservation Plan (WSCP)	Approval for WSCP[1]	Final Checking and Acceptance Approval[2]	Land Use Permit[3]	Discharge Permit[4]	Water Use Permit
Fushun Hanking									
Aoniu Mine (1.2 Mtpa)	Y	Y	Y	Y	Y	Y	Y	n/a	Y
Aoniu Concentrator (0.6 Mtpa)	n/a	Y	Y	Y	Y	Y	Y	n/a	Y
Hanking Maogong									
Maogong Mine (0.8 Mtpa)	NS[5]	Y[6]	NS	Y	Y	Y	Y	n/a	Y
Maogong Concentrator (0.15 Mtpa)	n/a	Y (0.04 Mtpa)	Y (0.04 Mtpa)	Y	Y	Y	Y	n/a	Y
Fushun Jingjia									
Jingjia Concentrator (0.15 Mtpa)	n/a	Y	Y	Y	Y	Y	Y	n/a	Y
Xingzhou Mining									
Luobokan Mine (1.0 Mtpa)	Y	Y	Y	Y	NS	NYR	Y	n/a	Y
No. 1 Concentrator (0.09 Mtpa)[7]	n/a	Y (0.03 Mtpa)	n/a (0.03 Mtpa)	Y	NS	Y (0.03 Mtpa)	Y	n/a	Y
No. 2 Concentrator (0.35 Mtpa)[7]	n/a	Y	NS	Y	NS	Y	Y	n/a	Y
Benxi Mining									
Mengjia Mine (0.8 Mtpa)	Y	Y	Y	Y	Y	NYR	Y	n/a	Y
Mengjia Concentrator (0.3 Mtpa)	n/a	Y	Y	Y	Y	Y	Y	n/a	Y

1 Approval for WSCP is from Water and Soil Bureau
2 Formal approval to commence operations
3 Operational Land Use Permits
4 Discharge Permit exemption notices have been sighted for all projects
5 Maogong Mine 0.8 Mtpa Ming Licence to be issued in August 2011, Incorporates Jinglia Mine
6 Maogong Mine 0.8 Mtpa EIA Report incorporates Jingjia Mine
7 Plant 2 being upgraded to 1.2 Mtpa, Plant 1 shutdown (decommissioned by end of 2011)

SRK cannot make any legal determination in respect to the status of approvals and permitting for the Aoniu, Jingmao, Xingzhou and Benxi Mine Projects. SRK makes the following technical comments in respect to the status of approvals and permitting for the Aoniu, Jingmao, Xingzhou and Benxi Mine Projects:

- SRK notes that Jingjia Mine is being incorporated into Maogong Mine. SRK has sighted the application for the expansion of the Maogong Mining Licence area to include the Jingjia Mining Licence area. This application states that the approved production rate for this new Mining Licence will be 0.8 Mtpa. At the time of the August 2011 site visit, Maogong Mining has stated that the new mining licence for new 0.8 Mtpa Maogong Mine (including Maogong and Jingjia Mines) would be issued during August 2011 and also that the approval for the

EIA report for the 0.8 Mtpa Maogong Mine has not yet been received. Maogong Mining has also stated that the WSCP for the 0.8 Mtpa Maogong Mine will be produced during in October 2011.

- The Environmental Impact Assessment (EIA) Table report and approval provided for the Maogong Processing Plant is for the original 0.04 Mtpa project in 1996. SRK has not sighted the EIA report and approval for the expansion project to the current 0.15 Mtpa Maogong Processing Plant project.

- However, SRK notes that this expansion project is an optimisation of the existing operations and does not include any capital upgrade of the existing facilities. Maogong Mining has stated that the Maogong Processing Plant was designed for 0.04 Mtpa. However, the ore is able to be beneficiated at a high rate, so an extended processing/operating time was all that required to achieve the 0.15 Mtpa production rate (i.e. no equipment upgrade was required). SRK has also sighted an environmental compliance certificate for the Maogong Mining, issued by the Fushun county Environmental Protection Bureau (EPB) on 15 January 2011, which states "*Maogong Mining has not been punished due to breaking any environmental law or regulations. The construction and production of the Company is all consistent to the national environmental protection law*".

- SRK was informed during the site visit in August 2011 that Maogong Mining has started a plan for one new ore processing plant with capacity of 2.0 Mtpa. Based on the current iron resource and great exploration potential at Maogong Mine, SRK believes that the plan is practical and that the production capacity can be achievable.

- SRK notes that at the time of the January 2011 site visit, construction had commenced at the Xingzhou Processing Plant No. 2 to upgrade the plant production (ore processed) capacity from 0.35 Mtpa to 3.0 Mtpa. Xingzhou Mining has stated (12 April 2011) that the EIA report and water and Soil Conservation Plan (WSCP) were currently being prepared for this 3.0 Mtpa production capacity and the expanded plant facilities. SRK has also sighted an environmental compliance certificate for Xingzhou Mine, issued by the Fushun City Dongzhou District EPB on 20 August 2010, which states "*Xingzhou Mining has not been punished due to breaking any environmental law or regulations since it has been established. The construction and production of the Company are all consistent to the national environmental protection law*". At the time of the August 2011 site visit, Xingzhou Mining stated that the construction for Xingzhou Processing Plant No. 2 will be completed by October 2011.

- SRK was provided with a notice from the Liaoning Province Development and Reform Committee (14 September 2010), which states that "*The mining license has been obtained, the Company may commence the first stage work (i.e. planning and design) according to this notice, the relevant land use permit, EIA and other documents shall be obtained ASAP. When all the conditions for the project construction obtained, they shall be submitted to us for approval*". SRK also notes that the current mining licence has not yet been amended to the 3 Mtpa production level (amendment anticipated for October 2011), and that the 3 Mtpa EIA,

WSCP and Land Use Permits are to be approved by the relevant local/provincial bureaus. At the time of the August 2011 site visit, Xingzhou Mining stated the EIA report for the 3Mtpa production level expansion is in progress.

- In addition, SRK notes that at the time of the August 2011 site visit, Xingzhou Mining has completed the feasibility study on a 5.0 Mtpa capacity of mining and ore processing plant conducted by Yantai Design and Research Engineering Co. Ltd of Shandong Gold Group. It involves three-stage processing plant construction including completion of 1.2 Mpta by the end of October 2011, 1.8 Mpta by the end of October 2012 and 2.0 Mtpa by the end of 2014. Xingzhou Mining has informed SRK that the EIA report and WSCP will be prepared for this 5.0 Mpta production capacity and the expanded plant facilities in 2013.

- SRK has not sighted the approval for the WSCP for the Xingzhou Mine project (i.e. approval by the local relevant water and soil bureau).

- SRK notes that at the time of the January 2011 site visit, the environmental Final Check and Acceptance approval for the 0.8 Mtpa Mengjia Mine had yet been granted and the mine is still in trial production. Benxi Mining has stated that the Final Check and Acceptance process was in progress, but have not provided SRK with an anticipated timeframe for its completion. However, SRK has sighted an environmental compliance certificate for Benxi Mining, issued by the Benxi City Pingshan District Environmental Protection Bureau on 10 February 2011, which states "*Benxi Mining has not been punished due to breaking any environmental law or regulations. The construction and production of the Company all consistent to the national environmental protection law*".

- SRK has sighted operational Discharge Permit exemption notices for all of the projects.

The inherent environmental risks for the Aoniu, Maogong, Luobokan and Mengjia Mine are:

- Land disturbance, rehabilitation and site closure.

- Water management (i.e. tailings/mine water and stormwater).

- Waste rock stockpiling/waste rock dump management.

- Tailings storage (i.e. TSF design, construction and operation).

- Dust management.

- Land contamination (i.e. hydrocarbon storage and handling).

The above inherent environmental risks are categorised as moderate/tolerable risks (i.e. requiring risk management measures). The environmental risks for the Aoniu, Maogong, Luobokan and Mengjia Mine Projects are generally being managed well. However, to be in line with relevant recognised international industry practices and to ensure that these environmental risks are maintained as "moderate/tolerable risks", consideration should be given to developing and implementing the following management measures:

- Internal/operational monitoring of the site environmental discharges/potential impacts.

- Operational environmental management planning.
- Site closure planning.
- All hydrocarbon storage and handling facilities to have secondary containment.
- Contaminated site assessment and remediation process.

Social Assessment

The main social aspects for each project are outlined as follows:

- ***Aoniu Mine Project:***

  — The Aoniu Project is located in the Aoniu Village, Hou'an Town approximately 56 km south east of Fushun City, Liaoning Province. The surrounding land use is a combination of agriculture and some mining.

  — The Han cultural group is predominant within the general project area with no other significant cultural minority groups present. SRK has not sighted any information in relation to the presence of any significant cultural heritage sites within or surrounding the Aoniu project area.

  — The main administrative body for the Aoniu Project is the Liaoning Provincial Government, with some delegation of the project development/operational regulation to the Fushun City, Fushun County and Hou'an Town. Aoniu Mining has stated that the current relationship with these local and provincial governments is positive and that no non-compliance notices and or other documented regulatory directives in relation to the project's development/operation have been received.

- ***Jingmao Mine Project:***

  — The Jingmao Project is located in the located in the Shiwen Town, Fushun County, approximately 20 km south of Fushun City, Liaoning Province. The surrounding land use is a combination of mining, mineral processing (smelting) and agriculture.

  — The Han cultural group is predominant within the general project area with no other significant cultural minority groups present. SRK has not sighted any information in relation to the presence of any significant cultural heritage sites within or surrounding the Jingmao project area.

  — The main administrative body for the Jingmao Project is the Liaoning Provincial Government, with some delegation of the project development/operational regulation to the Fushun City and Fushun County. Fushun Jingjia Maogong Mining has stated that the current relationship with these local and provincial governments is positive and that no non-compliance notices and or other documented regulatory directives in relation to the project's development/operation have been received.

- ***Xingzhou Mine project:***

  — The Xingzhou Project is located in the Nianpan Town, Dongzhou District, Liaoning Province. The surrounding land use is a combination of agriculture and mining.

  — The Han cultural group is predominant within the general project area with no other significant cultural minority groups present. SRK has not sighted any information in relation to the presence of any significant cultural heritage sites within or surrounding the Xingzhou project area.

  — The main administrative body for the Xingzhou Project is the Liaoning Provincial Government, with some delegation of the project development/operational regulation to the Fushun City. Xingzhou Mining has stated that the current relationship with these local and provincial governments is positive and that no non-compliance notices and or other documented regulatory directives in relation to the project's development/ operation have been received.

- ***Benxi Mine Project:***

  — The Benxi Mine Project is located within the Betai Town, Pingshan District, approximately 18 km north east of Benxi City, Liaoning Province. The project is primarily surrounded by the Beitai Steel Factory and other mining facilities.

  — The Han cultural group is predominant within the general project area with no other significant cultural minority groups present. SRK has not sighted any information in relation to the presence of any significant cultural heritage sites within or surrounding the Benxi Mine project area.

  — The main administrative body for the Benxi Mine Project is the Liaoning Provincial Government, with some delegation of the project development/operational regulation to the Benxi City, Fushun County and Pingshan District Town. Benxi Mining has stated that the current relationship with these local and provincial governments is positive and that no non-compliance notices and or other documented regulatory directives in relation to the project's development/operation have been received.

Land access agreements and compensation payments with each of the respective villages have been completed for the Aoniu, Jingmao, Xingzhou and Benxi Mine Projects.

Public consultation has been completed on the development of each project. The public consultation process undertaken for each project is described in the respective project EIA reports. The general public consultation process comprised public notices/meetings and undertaking a public survey/ questionnaire of residents within the local and/or surrounding residential areas. The results of this public consultation were recorded in the respective project EIA reports. These results showed a general positive support for the development of the Aoniu, Jingmao, Xingzhou and Benxi Mine Projects.

Occupational Health and Safety

The Company's project has been assessed in accordance with a series of decrees from the State and Provincial Safety Supervision Bureau and methods for inspection and completion acceptance over safety facility constructions in non-coal mines.

The company safety records indicate that there are four serious injuries and thirteen minor injuries from January 2008 to December 2010. The four serious injuries that were recorded as broken fingers were due to operating a machine contrary to instructions. The overall safety statistics of the Company compare well with other mining companies in China.

Operating Cost

Major cost inputs to the project are water and power, salaries, consumables (raw materials) and on and off site administration costs. The cash operating costs including mining operation (cost of per tonne ore) and ore processing (cost of per tonne iron concentrate) in 2008, 2009, 2010 and 2011.1–6 are listed in the following table. Consumption of reagents and other materials in the costs are based on prices obtained by suppliers in China. Information regarding salary scales was used to calculate labour costs. Power consumption and costs were based on local standards.

		Aoniu		Maogong		Jingjia		Xingzhou		Mengjia	
Year	Unit	Mining	Concentrator	Mining	Concentrator	Mining	Concentrator	Mining	Concentrator	Mining	Concentrator
2008	RMB/T	29.12	165.59	44.30	117.63	34.00	134.36	52.44	417.77	62.421	171.60
2009	RMB/T	39.06	137.41	30.42	127.07	27.28	142.56	57.01	281.75	46.289	164.80
2010	RMB/T	30.36	141.74	24.84	124.15	18.52	77.20	61.83	251.61	32.911	183.65
2011.1–6	RMB/T	32.23	151.28	21.54	156.33			69.87	301.87	33.96	205.81

Capital Cost and Investment

The Company plans to invest approximately RMB1,962.6 million between 2011 and 2015 at the four mines to expand current mining and processing capacities, upgrading the capacities of tailing storage facilities and other supporting facilities. Of the investments, approximately RMB125 million is for Aoniu Mine (expanding the mining and ore processing capacity to 3,000,000 tpa by 2014), RMB195 million for Maogong Mine (expanding the mining and ore processing capacity to 2,000,000 tpa by 2013), RMB1,522.6 million for Luobokan Mine (expanding the mining and ore processing capacity to 5,000,000 tpa by 2015) and RMB120 million for Mengjia Mine (expanding the mining and ore processing capacity to 1,400,000 tpa by 2014; see Table 10-3 for more detail). In SRK's opinion, the proposed capital investments are sufficient and likely to achieve the Company's stated targets if the capital is available.

Risk Analysis

Mining is a relatively high risk industry. In general, the risk may decrease from exploration, development, to production stage. The Company's projects are production projects. Risks exist in different areas. SRK considers various technical aspects which may affect the feasibility and future cash flow of the project, and conducts a risk assessment which has been summarized in following table.

Risk Issue	Likelihood	Consequence	Overall
Geology and Resource			
Lack of Significant Resource	Unlikely	Moderate	Low
Lack of Significant Reserve	Unlikely	Moderate	Low
Significant Unexpected Faulting	Unlikely	Major	Medium
Mining			
Significant Production Shortfalls	Unlikely	Major	Medium
Production Pumping System Adequacy	Unlikely	Moderate	Low
Significant Geological Structure	Possible	Moderate	Medium
Excessive Surface Subsidence	Unlikely	Minor	Low
Poor Pit Slope Condition	Unlikely	Moderate	Low
Poor Mine plan	Unlikely	Moderate	Low
Poor Road Transportation/safety	Possible	Moderate	Medium
Ore Processing			
Lower Yields	Unlikely	Minor	Low
Lower Recovery	Unlikely	Minor	Low
Higher Production Cost	Possible	Moderate	Medium
Plant Reliability	Unlikely	Moderate	Medium
Environmental Risk			
Land disturbance, Rehabilitation and Site Closure	Certain	Moderate	Medium
Water Management (tailings/mine water and stormwater)	Possible	Moderate	Medium
Waste Rock Stockpiling/Dump Management	Possible	Moderate	Medium
Tailings Storage (TSF design, construction and operation)	Possible	Major	Medium
Dust Management	Likely	Moderate	Medium
Land Contamination (hydrocarbon storage and handling)	Likely	Moderate	Medium
Capital and Operating Costs			
Project Timing Delays	Possible	Moderate	Medium
Capital Cost Increases	Possible	Moderate	Medium
Capital Costs — Ongoing	Possible	Moderate	Medium
Operating Costs Underestimated	Possible	Moderate	Medium
Revenue Decreases	Possible	Moderate	Medium

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DISCLAIMER

The opinions expressed in this report have been based on information supplied to SRK by the Company. The opinions in this report are provided in response to a specific request from the Company. SRK has exercised all due care in reviewing the supplied information. While SRK has compared key supplied data with expected values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. SRK does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them.

Opinions presented in this report apply to the site's conditions and features as they existed at the time of SRK's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this report, about which SRK have had no prior knowledge nor had the opportunity to evaluate.

1 INTRODUCTION AND SCOPE OF REPORT

China Hanking Holdings Limited (together with its subsidiaries, "China Hanking", or "the Company" or "the Client") commissioned SRK Consulting China Ltd ("**SRK**") to undertake an independent technical assessment of the exploration, geology and resources/reserves, mines, ore processing plants, environmental permitting and approvals of the Company's three operating iron mines and five ore processing plants in Fushun City and one operating iron mine and one ore processing plant in Benxi City, Liaoning Province, PRC. The SRK's Independent Technical Report ("**ITR**") is required for inclusion in documents for a proposed listing ("**Proposed Listing**") on The Main Board of the Stock Exchange of Hong Kong Limited ("**HKEx**").

The Company has four subsidiary mining companies including: Fushun Aoniu Mining Co. Ltd ("**Aoniu Mining**"), Fushun Hanking Maogong Mining Ltd ("**Maogong Mining**"), Fushun Xingzhou Mining Co. Ltd ("**Mining Xingzhou Mining**"), and Benxi Hanking Mining Co. Ltd ("**Benxi Mining**"). Aoniu Mining, Maogong Mining, Xingzhou Mining and Benxi Mining are wholly owned by the Company. The proposed target group structure for the listing is shown in Figure 1-1. SRK was informed that the Company engages Benxi Hanking Iron Processing Co., Ltd. to process, an affiliate of the Company the Mengjia iron ore.

SRK has been informed that Maogong Mining has applied to put the Maogong mining license and Jingjia mining license together into one Maogong mining license. The new Maogong mining license area has been increased to 2.3733 km^2. This application has approved by the Liaoning Province Bureau of Land and Resources on December 13, 2010 (see Appendix I).

In this report, the geological characteristics of Maogong Mine and Jingjia Mine are still described separately and the resources and reserves of the two mines are estimated and reported respectively as well.

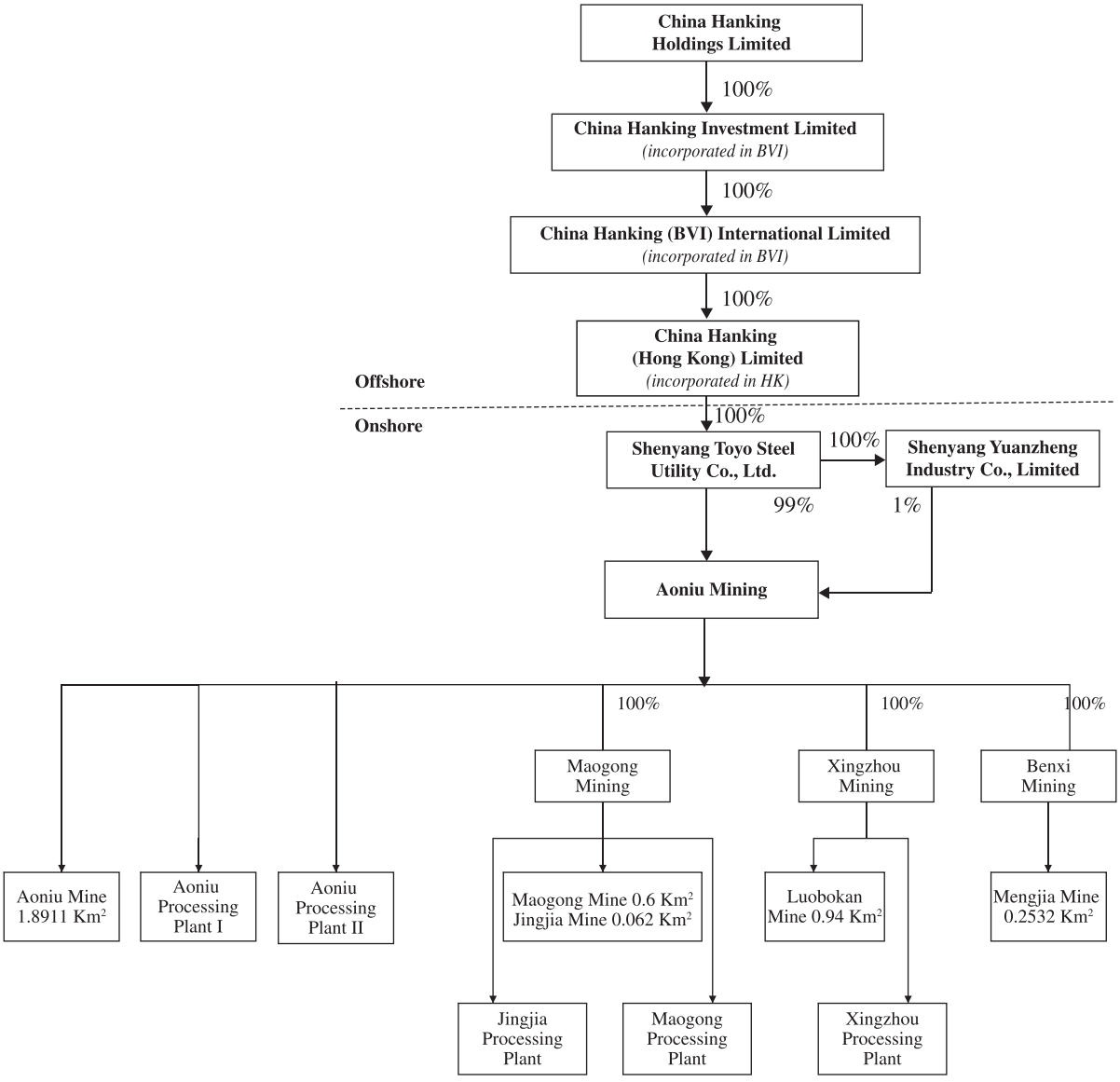

Figure 1-1: Structure of China Hanking Holdings Limited

2 PROGRAM OBJECTIVES AND WORK PROGRAM

2.1 Program Objectives

The program objectives were to review available data, participate in a site visit, collect checking samples, and provide the Company with both a verbal and written report.

Summary of Principle Objectives

The principle objective of this report is to provide the Company with an Independent Technical Report ("**ITR**") suitable for inclusion in documents for the purpose of the proposed listing ("**Proposed Listing**") of shares of the Company on the main board of the Stock Exchange of Hong Kong Limited ("**HKEx**").

Outline of Work Program

The work program involved two phases:

Phase 1: to review information provided, complete a site visit and inspect the Company's properties, hold discussions with the Company's employees, geological brigade professionals and consultants who conducted the geological exploration and feasibility study, and conduct survey engineering, collect samples and complete resource estimate verifications on these properties.

Phase 2: to analyse the data provided by the Company and generated by SRK, prepare a draft report, and then finalise the report in consideration of the Client's feedback.

2.2 Reporting Standard

This Report has been prepared to comply with the Rules governing the Listing of Securities on the HKEx ("**Listing Rules**"). The Report has also been prepared to the standard of a Technical Assessment Report under the guidelines of the VALMIN Code. The VALMIN Code is the code adopted by the Australasian Institute of Mining and Metallurgy (AusIMM) and the standard is binding upon all AusIMM members. The VALMIN Code incorporates the JORC Code for the reporting of Mineral Resources and Ore Reserves.

This Report is not a Valuation Report and does not express an opinion as to the value of mineral assets. Aspects reviewed in this Report do include product prices, socio-political issues and environmental considerations; however SRK does not express an opinion regarding the specific value of the assets and tenements involved.

2.3 Limitations Statement

SRK is not professionally qualified to opine upon and/or confirm that the Company has 100% control of the underlying tenements and/or has any unresolved legal matters relating to any transfer of ownership or associated fees and royalties. SRK has therefore assumed that no legal impediments regarding the relevant tenements exist and that the Company has legal rights to all underlying tenements as purported. Assessing the legal tenure and right to prospects of the Company is the responsibility of legal due diligence conducted by entities other than SRK.

2.4 Work Program

The work program for this project consisted of the review of data provided by the Company; site visit to the Company's mining properties in Fushun County, Liaoning Province, PRC; the inspection of operations; collection of related documents; discussions with employees, geological brigade professionals and consultants to the Company; verifications on the original survey engineering, samples and resources of these properties; and analysis of data and preparation of this report.

2.5 Project Team

The SRK team members and their technical area of responsibility and titles are shown in Table 2-1.

Table 2-1: SRK Team Members and Responsibility

Consultant	Title and Responsibility
Dr. Yiefei Jia	Principal Consultant (Geology and resource, overall reporting)
Jinhui Liu	Senior Geologist (Geology and resource review and data verification)
Pengfei Xiao	Senior Geologist (Geology and resource review and data verification)
Zhongxin Guo	Senior Mining Engineer (Mining review)
Haixiang Zhang	Senior Mining Engineer (Mining review)
Hong Gao	Senior Ore Processing Engineer (Processing review)
Peter Smith	Principal Consultant (Geo-environmental review)
Dr. Anson Xu	Principal Consultant (Internal Peer review and quality control)
Mike Warren	Principal Consultant (External Peer review and quality control)

Yiefei Jia, ***PhD, MAusIMM***, is a principal consultant (geology) with a specialty of exploration of mineral deposits. He has more than 18 years experience in the field of exploration, development, and resource estimate of precious metal (gold, silver, and PGE) and base metal (lead, zinc, copper, vanadium, titanium, and iron), as well as other metal deposits in different geological settings in North America, Australia and China. He also has extensive experience in project management, exploration design and resources assessment and has coordinated a number of due diligence projects with technical reports either for fund raising or overseas stock listing such as on HKEx. ***Dr. Jia was the project manager of this report.***

Jinhui Liu, ***B.Sc., M.Sc., MAusIMM***. Graduated from China University of Geosciences in 2004, Jinhui has been engaged in exploring and survey of deposit and computer applications. He is skilful in application of Micromine, Surpac, Erdos, ENVI, PCI, ArcGIS, MapInfo, MapGIS and AutoCAD and is also familiar with OpenGL programming and Geology Database design. Jinhui Liu has over 4-years experience and specialises in Resource Estimation as well as GIS and RS applications. Jinhui will be reviewing the geology and resource of the project. ***Jinhui assisted Dr. Jia in reviewing the geology and data verification.***

Pengfei Xiao, *MSc,* (Geophysics) of Chinese Academy of Sciences, is an SRK Geologist. In the past few years, Pengfei has undertaken training on Petrology, Tectonics, and Geophysical exploration; he has also taken part in geological mapping. As a main participant, he has worked on Geophysical exploration and Geological survey in some metal minerals and coal projects, including a key project sponsored by National Nature Science Foundation of China. ***Mr. Xiao assisted Dr. Jia in reviewing the geology and data verification.***

Zhongxin (Gerard) Guo, *P.Eng*, a senior Mining Engineer, has over 20 years' experience in engineering studies, mine engineering and mine operations. Prior to joining SRK China, Mr. Guo has held position of senior mining engineer with Stantec Engineering Ltd. Mining Practice Area, McIntosh Engineering Ltd., and SRK Consulting (Canada) Inc., working on a variety of projects for a wide range of clients such as Vale, Inco, Xstrata Nickel, Barrick Gold, Goldcorp, FNX Mining, Lake Shore Gold, and De Beers spanning regions from Americas to Africa. Domestically, he held position of engineering director with Mine and Gold Branch, Changsha Engineering and Research Institute of Nonferrous Metallurgy (CINF), leading design and consultancy of key national and provincial/ministry projects. In addition, he also assumed responsibilities of leading strategic planning initiatives for developments at new and existing lead, zinc, gold, silver, antimony and mercury mines. Areas of expertise include mine planning, feasibility studies, cost estimation, economic evaluations, risk analysis and due diligence audits. He is a member of Professional Engineers Ontario and a member of Canadian Institute of Mining, Metallurgy and Petroleum. ***He was responsible for the mining review of this project.***

Hong Gao, *BEng, MGSC, MCGA, MAusIMM*, is a senior mineral processing engineering in SRK China with over 30 years experience in metallurgical testing, mineral processing plant design, equipment installation, and processing plant management. He had led ore amenability testing studies in dozens of mines in Xinjiang and he led design and equipment installation of dozens of mineral concentrators. ***He reviewed the mineral processing aspects of this project.***

Peter Smith, *BSc, MAusIMM* is a principal consultant (environmental) with SRK Consulting China. He is an environmental scientist with over 17 years experience in environmental management for the mining and mineral processing industries. This experience has been gained mainly from within Australia and China but he has also undertaken environmental due diligence reviews for projects in Mongolia, Uruguay and Serbia. He has been involved in all aspects associated with exploration, mining and processing and has particular expertise in environmental due diligence reviews, environmental auditing, environmental impact assessment, project approvals and permitting, environmental management systems, rehabilitation and closure planning, and environmental risk assessment. ***Mr. Smith was responsible for the review of environmental permitting and approvals.***

Dr. Anson Xu, *PhD, MAusIMM*, is a principal consultant with a specialty in exploration of mineral deposits. He has more than 20 years experience in exploration and development of various types of mineral deposits including copper-nickel sulphide deposits related to ultrabasic rocks, tungsten and tin deposits, diamond deposits, and in particular, various types of gold deposits, vein-type, fracture-breccia zone type, alteration type, carlin type. He was responsible for resource estimations of several diamond deposits, and review of resource estimations of several gold deposits. He has recently completed several due diligence projects for clients in China, including gold, silver, lead-zinc, iron, bauxite, and copper projects, and several technical review projects, as well as Canadian NI43-101 and HKEx IPO technical reports. ***Dr. Xu completed the internal peer review of the report to ensure its quality.***

Mike Warren, ***BSc (Mining Eng), MBA, FAusIMM, FAICD***, is a mining engineer with over 30 years experience. He specialises in open pit and underground mining analysis, due diligence reports and mine evaluations. Mr. Warren is a JORC Code competent person and Principal Consultant (Project Evaluation) with SRK Australasia. ***He completed the external peer review of the report to ensure its quality.***

Many documents were provided in Mandarin. The SRK team included translators, Mr. Bo Song and Mr. Frank Li who have some experience in the environmental industry.

The SRK team was provided with some historical data and technical reports during inspecting the mine sites. These documents were provided in both digital and printed form. The team members visited the Aoniu, Liaonan, Xingzhou and Jingmao mines that are covered by six mining licenses, and processing plants in Fushun County, Liaoning Province of China over a seven day period in May 2010 and four-day period in January 2011. During the site visit the team inspected the physical aspects of the project, held discussions with employees and consultants of the Company and collected additional data. After data analysis, the team members provided written reports which were compiled into a draft report and was reviewed by Dr. Anson Xu as required by SRK's peer review and quality management procedures. The draft report was also reviewed for factual content by the Company.

Statement of Qualification of the competent person, Dr. Yiefei Jia:

As the author of portions of the Report for Aoniu Mining on certain mineral properties in Liaoning province, the People's Republic of China, I, Yiefei Jia, do hereby certify that:

— I am employed by, and carried out the assignment for SRK Consulting China Limited, located at:

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8 Jianguomen Nei Dajie
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100005
Phone: 86-10-8512 0365; Fax: 86-10-8512 0385; Email: yjia@srk.cn

— I graduated with a Bachelor's degree in Geology and Geochemistry from Jilin University, China (B.Sc.) in 1987, a Master's degree in Geochemistry from Jilin University, China (M.Sc.) in 1990, and a Doctor's degree in Geology and Geochemistry from the University of Saskatchewan, Canada (Ph.D.) in 2001. I was awarded a Post Doctoral Fellowship from the Natural Science and Engineering Research Council of Canada ("**NSERC**") from April 2002 to March 2004 to work as a Research Scientist at the Australian National University. From 2004 to 2005, I worked for the Mining and Exploration Division of the Commonwealth Scientific and Industrial Research Organisation ("**CSIRO**") as a research fellow.

— I am a member of the Australasian Institute of Mining and Metallurgy (AusIMM) (No. 230607).

— I have been directly involved in geological research and mineral exploration for more than 18 years.

— I have read the definition of "competent person" set out in HKEx listing rules and certify that by reason of my education, affiliation with a professional associations (as defined in the listing rules) and past relevant work experience, I fulfil the requirements to be a "competent person" for the purposes of the technical report.

— I visited the Company's properties in May 2010 and January 2011.

— I am the primary author responsible for the preparation and compilation of the report, and supervising Mr. Pengfei Xiao to prepare geology and resource section.

— I have had no previous involvement with the the Company's Project. I have no interest, nor do I expect to receive any interest, either directly or indirectly, in the Company's projects, nor in the securities of the Company.

— I am not aware of any material fact or material change with respect to the subject matter of the Technical Report that is not reflected in the Technical Report, the omission to disclose which makes the Technical Report misleading.

— I am independent of the Company, its directors, senior management and advisers applying all of the tests in sections 18.21 and 18.22 of the listing rules of HKEx.

— I consent to the filing of the Technical Report with HKEx and other regulatory authority and any publication by them, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.

Mr. Mike Warren, Dr. Anson Xu, Mr. Jinhui Liu, Mr. Zhongxin Guo, Mr. Hong Gao and Mr. Peter Smith are also independent competent persons on overall quality control, geology and resource, mining, ore processing and environmental and social issues. Their qualifications have been outlined in the short bios above.

2.6 Statement of SRK Independence

Neither SRK nor any of the authors of this Report has any material, present or contingent interest in the outcome of this Report, nor do they have any pecuniary or other interest that could be reasonably regarded as being capable of affecting their independence or that of SRK.

SRK's fee for completing this Report is based on its normal professional daily rates plus reimbursement of incidental expenses. Payment of that professional fee is not contingent upon the outcome of the Report.

None of SRK or any authors of this report have any direct or indirect economic or beneficial interest (present or contingent) in any contained in this Report or any assets which had been acquired, or disposed of by, or leased to any member of the Company or any of its subsidiaries within the two years immediately proceeding the issue of this Report.

None of SRK or any authors of this report has any shareholding, directly or indirectly in any member of the Group or any right (whether legally enforceable or not) to subscribe for or to nominate persons to subscribe for securities in any member of the Group or is an associated company of the Company. None of the authors of this Report is an officer, employee or proposed officer of the Company or any group, holding or associated company of the Group.

2.7 Warranties

The Company has warranted to SRK that full disclosure has been made of all material information and that, to the best of their knowledge and understanding, such information is complete, accurate and true. SRK has no reason to doubt these warranties.

2.8 Consents

SRK consents to this Report being included, in full, in documents for the purpose of the Proposed Listing, in the form and context in which the technical assessment is provided, and not for any other purpose.

SRK provides this consent on the basis that the technical assessments expressed in the Executive Summary and in the individual sections of this Report are considered with, and not independently of, the information set out in the complete Report and the cover letter.

2.9 Indemnities

As recommended by the VALMIN Code, the Company has provided SRK with an indemnity under which SRK is to be compensated for any liability and/or any additional work or expenditure resulting from any additional work required:

- Which results from SRK's reliance on information provided by the Company or to the Company not providing material information; or

- Which relates to any consequential extension workload through queries, questions or public hearings arising from the Report.

2.10 SRK Experience

SRK is an independent, international consulting group with extensive experience in preparing independent technical reports for various stock exchanges around the world (see *www.srk.com* for a review). SRK is a one-stop consultancy offering specialist services to mining and exploration companies for the entire life cycle of a mining project, from exploration through to mine closure. Among SRK's more than 1,500 clients are most of the world's major and medium-sized metal and industrial mineral mining houses, exploration companies, banks, petroleum exploration companies, agribusiness companies, construction firms and government departments.

Formed in Johannesburg, South Africa, in 1974 SRK now employs more than 1,000 professionals internationally in 42 permanent offices on six continents. A broad range of internationally recognized associate consultants complements the core staff.

SRK employs leading specialists in each field of science and engineering. Its seamless integration of services, and global base, has made the company a world's leading practice in due diligence, feasibility studies and confidential internal reviews.

The SRK Group's independence is ensured by the fact that it holds no equity in any project and that its ownership rests solely with its staff. This permits the SRK Group to provide its clients with conflict-free and objective recommendations on crucial judgment issues.

SRK China was established in early 2005, and has mainly worked on Chinese mining projects independently or together with SRK's other offices, mainly SRK Australasia (see *www.srk.cn* and *www.srk.com.au* for a review). SRK China has prepared a number of independent technical reports on mining projects for various companies who acquired Chinese projects or went public listings on overseas stock exchanges, as showing in Table 2-2.

Table 2-2: Recent Reports by SRK for Chinese Companies

Company	Year	Nature of Transaction
Yanzhou Coal Limited (Company listed on the Stock Exchange of Hong Kong Limited)	2000	Sale of Jining III coal mine by parent company to the listed operating company
Chalco (Aluminium Corporation of China)	2001	Listing on the Stock Exchange of Hong Kong Limited and New York Stock Exchange
Fujian Zijin Gold Mining Company	2004	Listing on the Stock Exchange of Hong Kong Limited
Lingbao Gold Limited	2005	Listing on the Stock Exchange of Hong Kong Limited
Yue Da Holdings Limited (Company listed on the Stock Exchange of Hong Kong Limited)	2006	Proposed acquisition of shareholding in mining projects in P.R. China
China Coal Energy Company Limited (China Coal)	2006	Listing on the Stock Exchange of Hong Kong Limited
Sino Gold Mining Limited	2007	Dual listing on the Stock Exchange of Hong Kong Limited
Xinjiang Xinxin Mining Industry Company Limited	2007	Listing on the Stock Exchange of Hong Kong Limited
Espco Technology Holdings Limited	2008	Acquisition of shareholding in Tongguan Taizhou Gold-Lead projects in P.R. China
China Shenzhou Mining and Resources Inc	2008	Listing (SHZ) on the American Stock Exchange
Green Global Resource Ltd	2009	Acquisition of shareholding in iron project in Mongolia
Ming Fung Jewellery Group Holdings Ltd	2009	Acquisition of shareholding in gold projects in Anhui and Hebei Provinces, P.R. China
Continental Holdings Ltd	2009	Acquisition of a gold project in Henan Province, P.R. China
CNNC International Ltd	2010	Acquisition of an uranium mine in Africa
New Times Energy Corporation Ltd	2010	Acquisition of shareholding in gold projects in Hebei, Province, P.R. China
CITIC Dameng Resources Holdings Limited	2010	Listing on the Stock Exchange of Hong Kong Limited

2.11 Forward Looking Statements

Estimates of Mineral Resources, Ore Reserves and mine and ore processing plant production are inherently forward-looking statements, which, being projections of future performance will necessarily differ from actual performance. The errors in such projections result from inherent uncertainties in the interpretation of geologic data, variations in the execution of mining and processing plans, the ability to meet construction and production schedules due to many factors including weather, availability of necessary equipment and supplies, fluctuating prices and changes in regulations.

The possible sources of error in forward-looking statements are addressed in more detail in the appropriate sections of this report. Also provided in the report are comments on the risks inherent in the different areas of mining and processing operations.

3 LOCATION AND PROJECTS

3.1 Location and Access

The four operating mines are all located in Liaoning Province, northeast of China, among which, the Aoniu, Maogong, Jingjia and Xingzhou (Luobokan) mines are situated in the administrative area of Fushun City, and the Benxi (Mengjia) mine is located near the city of Benxi.

The cities of Fushun and Benxi are approximately 35 km east and 80 km south of Shenyang City, the capital of Liaoning Province, respectively, as shown in Figure 3-1.

Figure 3-1: Location Maps Showing Project Locations

Access to the mines is excellent via provincial concrete roads and highways. There are railways available in the nearby two cities of Fushun and Benxi. All five of the mine sites are within one hour drive distance from the city centre. Driving from Fushun or Benxi to Shenyang takes about one hour, via highways. There is a Taoxian international airport situated 20 km from the centre of Shenyang City.

3.2 Climate and Physiography

The climate in the project area is characterised by a continental monsoon climate. Summer is relatively hot at temperatures of 20 to 30 degree centigrade (°C), while winter is very cold at temperatures ranging from -20°C to -28°C and the lowest is up to -40°C. The annual average precipitation is 837 mm mainly concentrated in summer season. The frost season is usual from the late November to April of the following year.

Regionally, the mine district is located in the southwest part of Changbaishan Mountain belonging to a medium-low mountainous region, and the elevations range from 300 m to 500 m above the sea level (ASL) with a relief of 200 m.

3.3 Economy and Infrastructure

Both Fushun and Benxi are major cities of Liaoning Province, with relatively developed agriculture in Northeastern China, and in particular the iron and coal industries in Northeastern China.

The local economy at the mine sites is heavily based on agriculture and forestry. Recently, the industrial economies especially mining are rapidly developed. The labour market is rich.

3.4 Mining Licenses

The Company has four operating iron mines and five mining licenses. Three operating mines with four mining licenses are located in Fushun City, Liaoning Province and one operating mine with one mining license is situated in Benxi City, Liaoning province. Currently, the Aoniu, Luobokan, Maogong and Mengjia all have a valid mining license. Also SRK has been informed that Maogong Mining has applied to put the Maogong mining license and Jingjia mining license together into one Maogong nining license. The new Maogong mining license area has been increased to 2.3733 km^2. This application was

approved by the Liaoning Province Bureau of Land and Resources on December 13, 2010. Detailed information of these mining licences is listed in Table 3-1. Copies of all original permits are provided in Appendix I.

Table 3-1: Details of Properties Owned by China Hanking

Mine	Mining License No.	
	Aoniu Fe Mine	***Luobokan Fe Mine***
	C2100002009032120009568	C2100002009102110041604
Mine owner	Fushun Hanking Aoniu Mining Co. Ltd	Fushun Xingzhou Mining Co. Ltd
Address	Aoniu Village, Hou'an Town, Fushun County, Liaoning Province	Taigou Village, Nianpan Town, Dongzhou District, Fushun City, Liaoning Province
Mine name	**Fushun Hanking Aoniu Mining Co. Ltd**	**Fushun Xingzhou Mining Co. Ltd**
Ore type	Iron	Iron
Mining type	Open-Pit/Underground Mining	Open-Pit/Underground Mining
Production capacity	1,200,000 tpa	1,000,000 tpa
Area	1.8911 km^2	0.94 km^2
Mining depth	From 100 m to 490 m Level	From -320 m to 140 m Level
Valid period	November 10, 2010 to November 10, 2015	October 20, 2009 to October 20, 2011
Economic structure	Limited-liability company	Limited-liability company
Issued by	Liaoning Bureau of Land and Resources	Liaoning Bureau of Land and Resources
	Maogong Fe Mine	***Mengjia Fe Mine***
	C2100002009062120025973	C2100002010052120066092
Mine owner	Fushun Hanking Miaogong Fe Mining Ltd	Benxi Hanking Mining Co. Ltd
Address	Maogong Village, Shiwen Town, Fushun County, Liaoning Province	Beitai Office, Pingshan District, Benxi City, Liaoning Province
Mine name	**Fushun Hanking Maogong Fe Mining Ltd***	**Benxi Hanking Mining Co. Ltd**
Ore type	Iron	Iron
Mining type	Open-Pit/Underground Mining	Open-Pit/Underground Mining
Production capacity	300,000 tpa	800,000 tpa
Area	0.6 km^2	0.2532 km^2
Mining depth	From 110 m to 150 m Level	From 210 m to -245 m Level
Valid period	July 5, 2010 to November 5, 2013	April 18, 2011 to February 26, 2015
Economic structure	Limited-liability company	Limited-liability company
Issued by	Liaoning Bureau of Land and Resources	Liaoning Bureau of Land and Resources
	Jingjia Fe Mine	
	C2100002009062120025972	
Mine owner	Min Yang	
Address	Jingjia Village, Shiwen Town, Fushun County, Liaoning Province	
Mine name	**Fushun Hanking Maogong Fe Mining Ltd***	
Ore type	Iron	
Mining type	Open-Pit	
Production capacity	50,000 tpa	
Area	0.062 km^2	
Mining depth	From 180 m to 240 m Level	
Valid period	April 9, 2010 to August 9, 2010	
Economic structure	Limited-liability company	
Issued by	Liaoning Bureau of Land and Resources	

* *Note*: SRK has been informed that Maogong Mining has applied to put Maogong mining license and Jingjia mining license together into one Maogong mining license. The new Maogong mining license area has been increased to 2.3733 km^2. This application was approved by the Liaoning Province Bureau of Land and Resources on December 13, 2010. A copy of the proved application is provided in Appendix I.

4 GEOLOGICAL AND MINERAL INVENTORY ASSESSMENT

4.1 Regional Geology

Regionally, the area of interest is located in the middle of the dome of the Tieling-Jingyu-Fushun, and the north edge of China-Korea plate. The major outcrops in this area are Archaean metamorphic rocks system (Figure 4-1). The major lithology of upper Archaean outcrops is acid volcanic rocks and mafic volcanic-sedimentary rock containing with magnetite-quartzite, in which the magnetite-quartzite forms the iron deposits named as Anshan-type banded iron formation deposits. The magmatic rock is mainly gneissic granite which is widely development in this area.

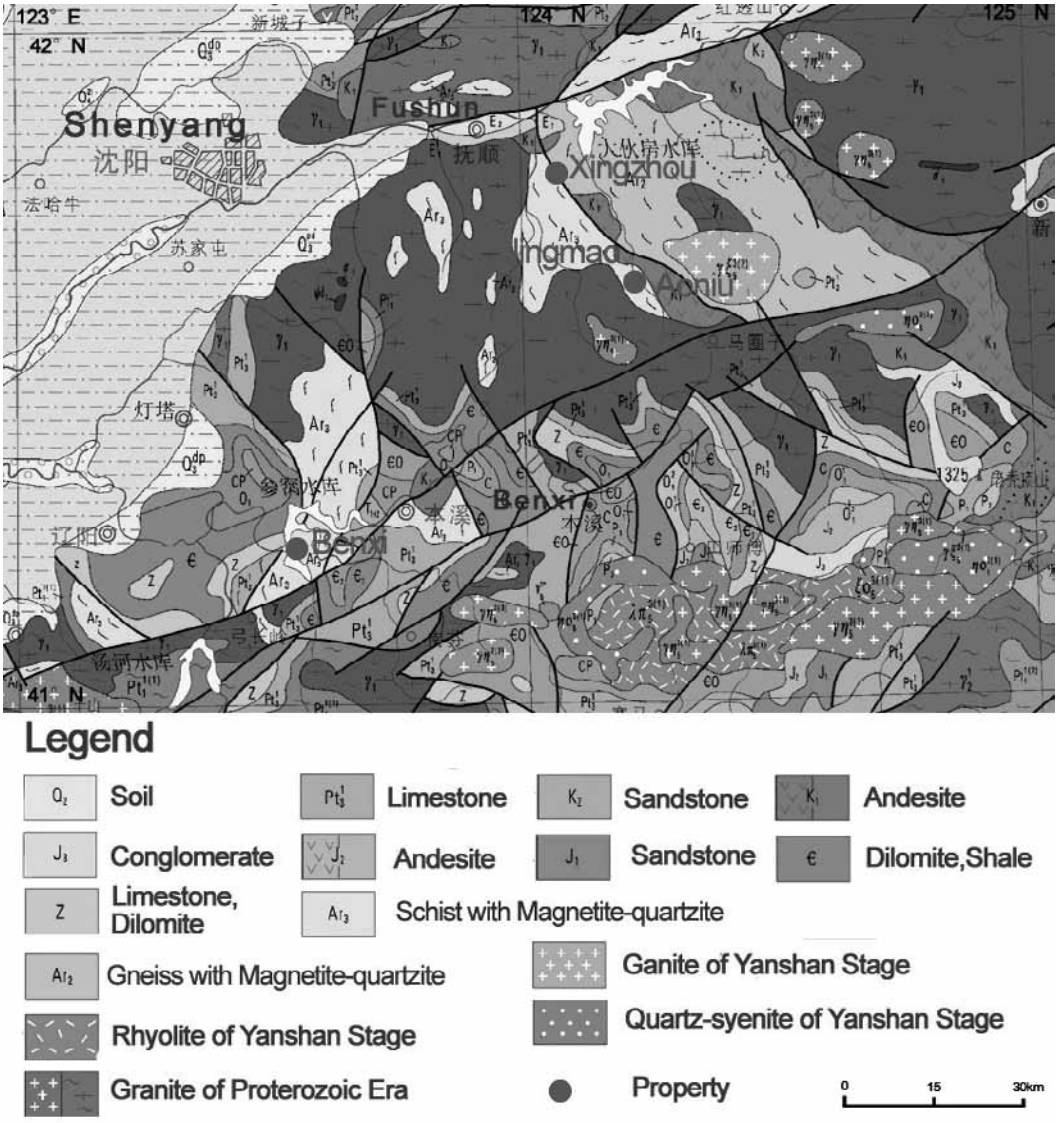

Figure 4-1: Regional Geological Map of the Company's Mining Projects

4.2 Aoniu Mine

4.2.1 *Mine Geology*

Regionally, Aoniu Mine is situated in the east segment of the northern margin of the North-China platform and the south of the Hunhe deep fault.

4.2.1.1 *Stratigraphy*

The strata of Aoniu Mine area are very simple, only including Tongshicun formation of Archaean Anshan group and the Quaternary sedimentary sequence. *Tongshicun formation of Archaean Anshan Group* is the major ore-bearing layer in this area. The Lithology of this stratum mainly consists of biotite plagioclase gneiss, plagioclase biotite gneiss and mixed biotite granulite etc. *Quaternary sediment* is mainly composed of gravel and clay.

4.2.1.2 *Tectonics*

Normally, the outcrops in this area are the Anshan Group rocks. They strike NW-SE, dip to SW with dip angles of 60° to 80°. The fault structure is not well-developed. The iron mineralization belts and the strata are basically continuous in the mine area.

4.2.1.3 *Magmatism*

The migmatite is well-developed in the region with outcrops covering about the 50% of total area, which mainly includes Archaean granite. The dykes are dominantly pyroxene diorite, quartz syenite, diabase and lamprophyre which intruded in the Cretaceous.

4.2.2 *Orebody Geology*

There are three mining blocks at Aoniu mine; Aoniu mining block, Lishu mining block and Yaobao mining block. The Aoniu mining block has five separate mining zones/areas named Nos. I, II, III, IV and V mining areas. The Lishu mining block has two mining areas named Lishu I and Lishu II, and the Yaobao mining block has one mining area as shown in the Figure 4-1.

A total of 59 iron mineralization bodies are defined in the mining license area, of which there are five larger scale mineralization bodies, namely Fe1, Fe2, Fe13, Fe14 and Fe15 bodies. Figure 4-2 is a simplified geological map of Aoniu Mine. The mineralization bodies appear layer- and lens-like at various size scales. The characteristics of the major mineralized bodies are listed in Table 4-1 and are also shown in following cross-section maps of Figure 4-3 and Figure 4-4.

Table 4-1: Characters of Major Mineralized Bodies at Aoniu Mine

Mining Block	Orebody	Length (m)	Thickness (m)	Down-depth (m)	TFe (%)
Aoniu	Fe1	1,020	12.0	117	33.35
	Fe2	1,320	15.9	150	35.95
	F13	220	13.0	100	35.83
	Fe14	430	17.0	100	34.06
	Fe15	350	16.6	220	33.61
Lishu	Fe3	148	3.5	30	26.45
	Fe4	127	5.0	30	34.55
Yaobao	Fe1	280	2.3	20	31.88
	Fe2	220	4.0	15	29.86

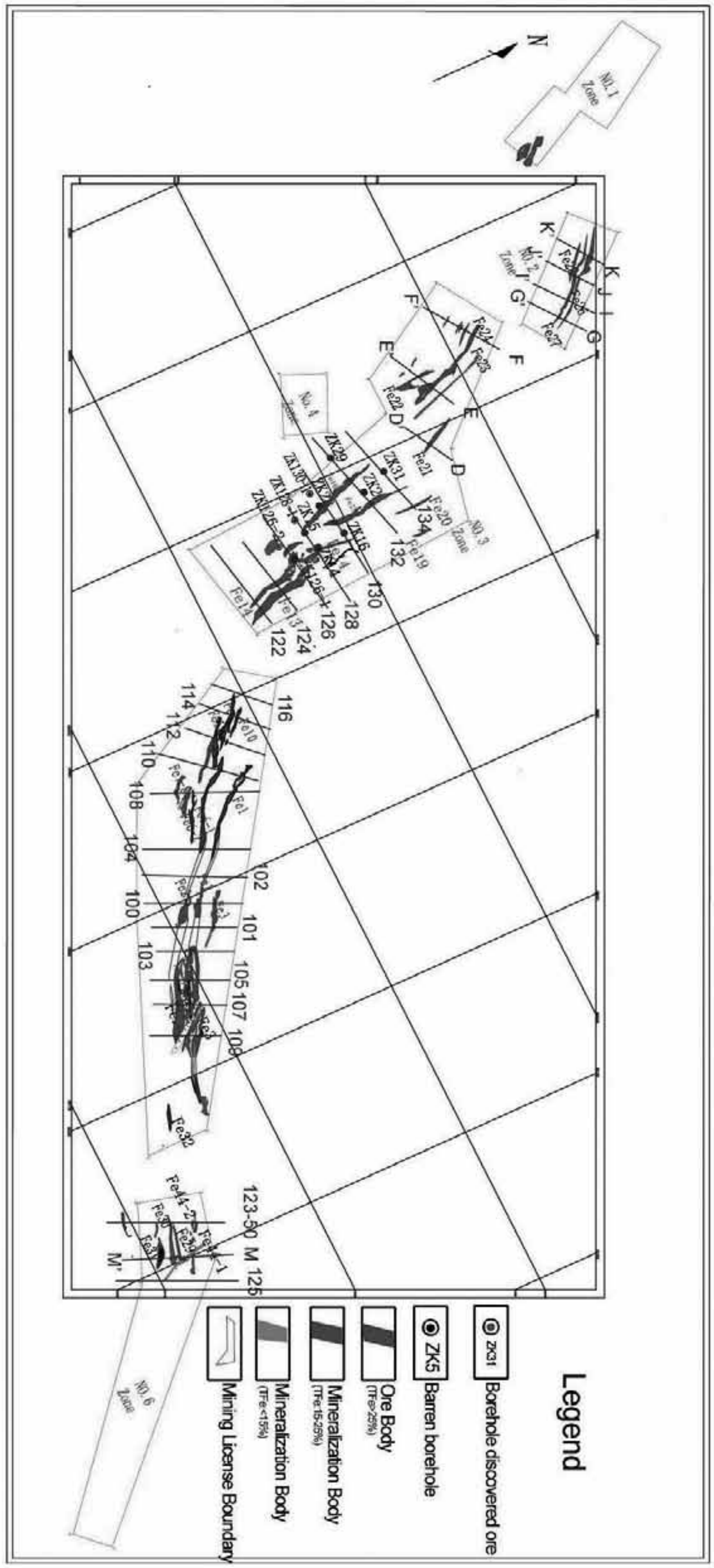

Figure 4-2: Geological Map of Aoniu Mine

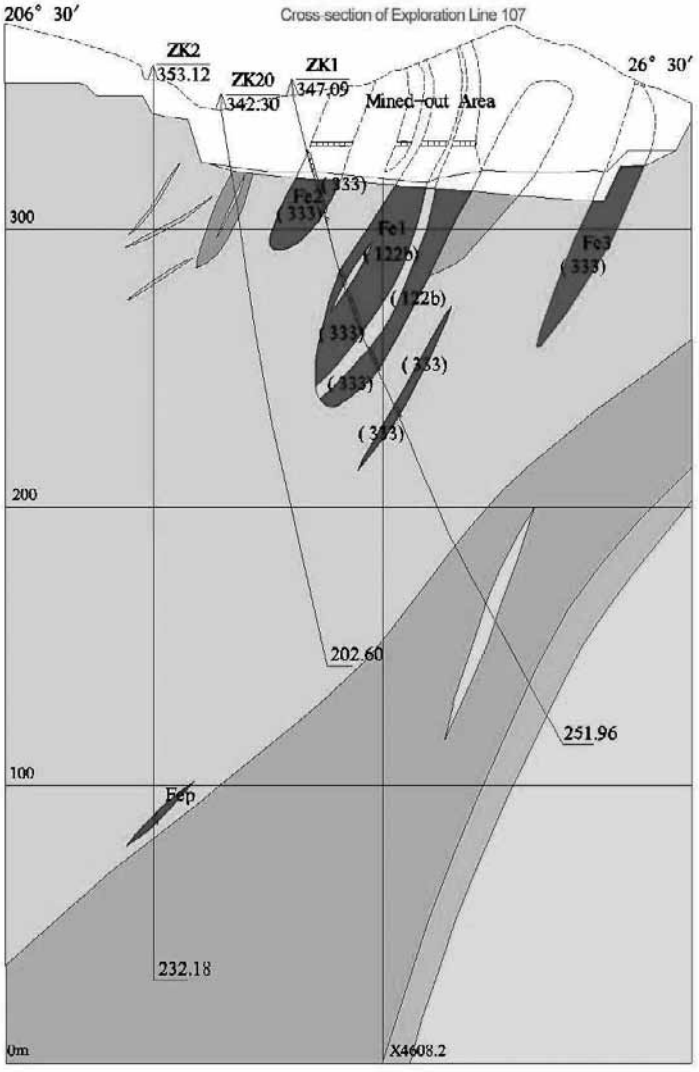

Figure 4-3: Cross-section of Exploration Line 107# at Aoniu Mine

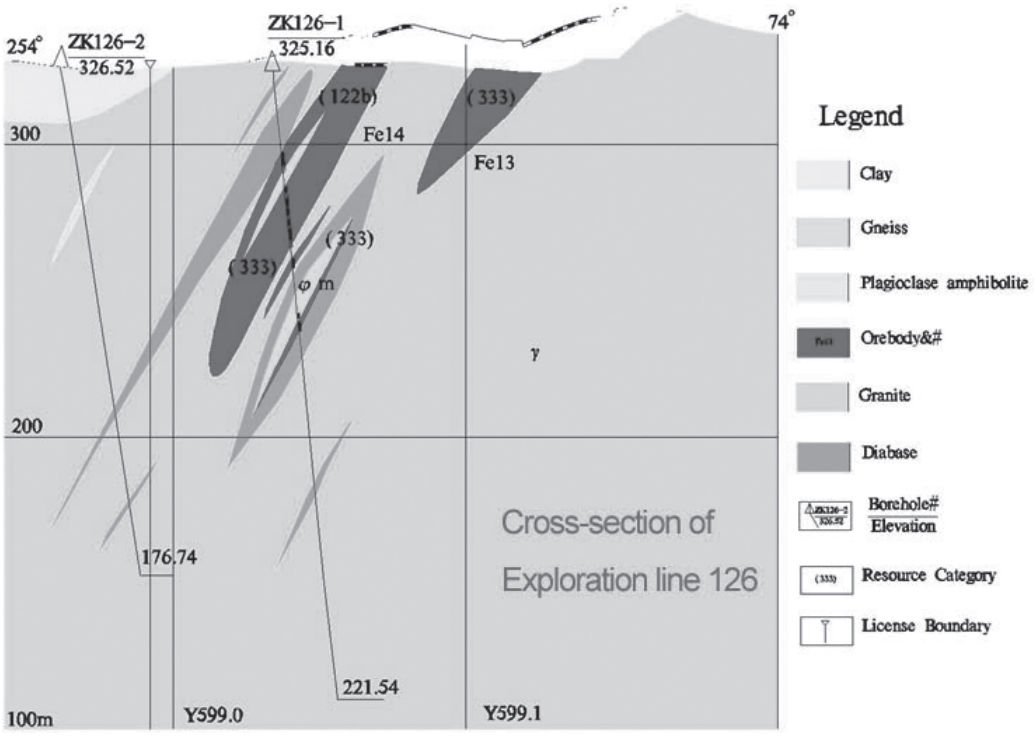

Figure 4-4: Cross-section of Exploration Line 126# at Aoniu Mine

4.2.3 *Mineralogy*

4.2.3.1 *Ore Type*

The iron ore is classified as magnetite lean ore, and two kinds of natural iron ore types have been discovered in Aoniu Mine. They are the major banded magnetite-quartzite ore type and the minor pyroxene hornblende magnetite-quartzite type ore. Figure 4-5 gives the two typical iron ore mined in Aoniu Mine.

Figure 4-5: Typical Iron Ore in the Aoniu Mine

4.2.3.2 *Ore Composition*

The ore minerals are mainly magnetite, and minor limonite and pyrrhotite as well as chalcopyrite. The gangue minerals are mainly quartz, amphibole, and chlorite, with smaller amounts of tremolite, feldspar and agustite. Details of the major ore and gangue minerals are described as following.

Magnetite: it appears as automorphic or irregular hypidiomorphic texture with the directional arrangement and continuous distribution, with consisting of 35 to 40% of the rock mass.

Quartz: it shows long column hypidiomorphic texture with particle size 0.5 to 1.5 mm, consisting of 35 to 40% of the rock mass.

Amphibole: it appears as xenonorphic granular texture with particle size 0.5 to 1.2 mm and consisting of 7 to 15% of the rock mass.

Plagioclase: it shows long column hypidiomorphic texture with particle size 0.5 to 1.5 mm and consisting of 5 to 10% of the rock mass.

There are three ore structure types which are massive structure, banded structure and dissemination structure, and the major ore structure is banded structure.

4.2.3.3 *Host Rocks and Waste Rocks*

The host rocks in Aoniu Mine are hornblende mixed granite and hornblende plagioclase gneiss. The roof rocks are hornblende gneiss and the hornblende mixed granite, and the footwall rocks are hornblende plagioclase gneiss, biotite hornblende plagioclase gneiss and hornblende mixed granite.

The waste rock in the orebody is hornblende plagioclase gneiss, and is generally shown as vein-like distribution, with the thickness of 3 to 8 centimeters.

4.2.4 ***Sampling, Assay and Quality Assurance and Quality Control (QA/QC)***

4.2.4.1 *Drilling*

Between 1972 and 1974, drilling exploration was carried out. A total of 32 boreholes were completed with a total footage of 6,778.61 m were carried out by No. 10 Geological Brigade of Liaoning Province, in which there were 24 boreholes intersected the mineralization bodies. At present, there are only 22 boreholes available for resource estimation. The average core recoveries of the 22 boreholes are 62% for whole cores and 85% for mineralised cores.

During March and June 2008, five diamond boreholes were conducted by No. 10 Geological Brigade of Liaoning Province in the Aoniu Mine area, of which three boreholes intersected the iron mineralization.

From June to August 2008, eight diamond boreholes were drilled by Metallurgy and Geological Exploration Bureau of Liaoning Province, however, no iron mineralization was defined in this drilling program.

From March to November 2010, thirty-six diamond boreholes with a total footage of 4,202.43 m and tunnelling exploration with a total footage of 400 m long were drilled by No. 6 Geological Brigade of Liaoning Province in the Aoniu Mining license area; all the boreholes intersected the iron mineralization. The average recovery rates are 90% for the drill cores and 95% for the mineralized cores.

4.2.4.2 *Sampling*

Tunnel samples were taken from trenches by using the continuous channelling method; the channel section size is 10 cm wide by 5 cm deep. Each sample length is between 2.0 m and 4.0 m. The drilling cores were split into two halves; one half was sent to laboratory for assaying and the other half stored in core boxes in for further reference. The sample length is generally 3.0 m long. SRK was informed that all of the core boxes before 2008 were discarded and were kept in warehouse for the latest exploration between March and November 2010.

Sample preparation and analysis were conducted by the Analytical laboratory of No. 10 Geological Brigade of Liaoning Bureau of Geology and Exploration during the 1972 and 1974 drilling exploration. For March to November 2010 drilling and tunnelling exploration, a total of 490 samples (90 samples from cores and 400 samples from tunnels) were sent to the local analytical laboratory of Aoniu Mining for assaying. For the quality control, 74 samples were selected for internal checking, which conducted by the local laboratory of Aoniu Mining, and 25 samples were selected for external checking and analysed by No. 9 Geological Brigade of Liaoning Province. Both results are acceptable pursuant to relevant analytical regulations of Ministry of Land and Resources of China.

4.2.5 ***Resource and Reserve Estimation under Chinese Code***

In 1999, the Chinese Government established a new resource category system, the Chinese National Standard for Solid Mineral Resources/Reserves Classification (GB/T17766-1999). It is a three-digit system, where the last digit indicates the geological certainty: 1 stands for measured mineral resource; 2 for indicated mineral resource; 3 for inferred resource; and 4 for predicated resource. Aoniu, Jingjia, Maogong, Luobokan and Mengjia Mines have all adopted this resource category system. This system is somewhat different from the criteria used in defining a resource under the JORC Code. The comparison between different systems is provided in Appendix II.

4.2.5.1 *Technical Parameters for Resource Estimate*

The parameters used in the Aoniu Resource estimate by Metallurgy and Geological Exploration Bureau of Liaoning Province are listed in following description.

— Cut-off grade: TFe% ≧ 20%

— Minimum average industrial grade: TFe% ≧ 25%

— Minimum mineable thickness: 2.0 m

— Maximum band allowed: 2.0 m

4.2.5.2 *Method of Resource Estimate*

Where the dip angle of the orebody is within 70° to 80°, the cross-section method is applied for the resource estimate, as listed in the following description.

Related parameters and procedures are as below:

— Ore density: 3.5 tonnes per cubic metre (t/m^3) based on the original geological exploration between 1972 and 1974.

— Ore average grades:

- Length weighted average for exploration engineering line;
- Thickness weighted average for area;
- Area weighted average for ore block;
- Ore block volume weighted average for orebody;
- Orebody ore weighted for whole deposit.

— Areas of ore blocks were defined on a cross section map by computer software.

— Volume of ore blocks were calculated by using a standard formula based on different shapes.

V = [S1 + S2 + (S1 × S2)1/2] × L/3, when (S1-S2)/S1 40%;

V = (S1+S2) × L/2, when (S1-S2)/S1 ≤40%;

V = S × H/3, when ore block as cone shape;

V = S1 L/2, when ore block as wedge shape

Where V is the volume of ore block, S1 and S2 are the areas of ore sections; L is the distance of section interval or expansion distance.

— Resources of ore bodies were estimated by a standard formula: Q = V × D, where Q, V and D are the resources, volumes and density respectively.

4.2.5.3 *Resource Category*

According to the resource verification report conducted by the No. 6 Geological Brigade of Liaoning Province in November 2010, 122b category resources are defined by 100 m (along the strike direction) × 100 m (along the down dip), and 333 category resource is defined by the extrapolation of the 122b resources.

4.2.5.4 *Resource Estimate*

The Resource of Aoniu Mine within the mining license was estimated by No. 6 Geological Brigade of Liaoning Province in November 2010 and this resource estimate result was examined and filed by Liaoning Fuyuan Mineral Resource and Reserve Assessment Company Ltd on 15 March 2011. The resource estimated results are summarized in Table 4-2.

Table 4-2: Estimated Resources at Aoniu Mine as of 30 November 2010 — Chinese Code

Zone	Mineralized Blocks	Category	Resource (t)	TFe (%)	mFe (%)
Aoniu	41 Ore Blocks	122b	9,476,000	32.59	29.90
		333	10,892,000	33.33	30.58
Lishu	15 Ore Blocks	333	427,000	30.48	27.97
Yaobao	3 Ore Blocks	333	135,000	31.53	28.93
Total		**122b**	**9,476,000**	**32.59**	**29.90**
		333	**11,454,000**	**33.20**	**30.46**

Based on the monthly mining records, a total of 1,212,991 t in 122b category resource was mined-out and lost from 1 December 2010 to 30 June 2011 (see Table 4-3). By 30 June 2011, the remaining iron resources in 122b and 333 categories were estimated at 8.26 Mt at average grades of 32.59% TFe and 29.90% mFe, and 11.45 Mt at average grades of 33.20% TFe and 30.46% mFe, respectively (Table 4-3).

Table 4-3: Remaining Resources at Aoniu Mine, as of 30 June 2011 — Chinese Code

Zone	Mineralized Blocks	Category	Resource (t)	TFe (%)	mFe (%)
Aoniu	41 Ore Blocks	122b	8,262,009	32.59	29.90
		333	10,892,000	33.33	30.58
Lishu	15 Ore Blocks	333	427,000	30.48	27.97
Yaobao	3 Ore Blocks	333	135,000	31.53	28.93
Total		**122b**	**8,262,009**	**32.59**	**29.90**
		333	**11,454,000**	**33.20**	**30.46**

SRK was informed that Aoniu Mining has applied an area of 81.77 km^2 as a potential prospecting mineralisation area based on the airborne survey anomaly result. The local Fushun County authority has approved the application on 10 May, 2011.

4.3 Maogong Mine

4.3.1 *Mine Geology*

The Geological settings of Jingjia and Maogong mines are presented as Figure 4-6. In the mines area, outcrops are mainly represented by Tongshicun Formation, Anshan Group of the Archeozoic period, with biotite granulite, plagioclase amphibolite and magnetite quartzite. Quaternary system covers large area of the tenements.

4.3.1.1 *Jingjia Mine*

Jingjia Mine is situated in the west side of Shahe Fault, a north-west (N-W) trending fault which is parallel to the major Hunhe fault. The country rocks of the deposit are metamorphic complex and migmatite of the Archaean Anshan Group.

There are no major faults or folds in the mine area. The north-east (NE) orientated structures are relatively more developed with some minor folds and dykes.

The magmatism is characterized by two types of rocks. One is the Archaean metamorphic pluton, represented by large area of migmatite and mixed granite, and the other is diabase dykes trending NE and dipping to north-west (NW).

The ore bodies occur in metamorphic rock series of the Archaean Anshan Group, which is dominated by biotite-amphibolite-plagioclase gneiss, and secondarily represented by amphibolite-granite-migmatite. The hangingwall of orebody is represented by amphibolites-gneiss and occasional amphibolite-granite migmatite; and the footwall of orebody is characterized by biotite-amphibolite-plagioclase gneiss and partly amphibolite-granite migmatite.

The outcrops in the Jingjia Mine area are the basement series of the Anshan Group, which had undergone several periods of tectonic activities. The folds were formed in the period with obvious layers, and the main tectonic axis is approximately at NE 30° to 60°.

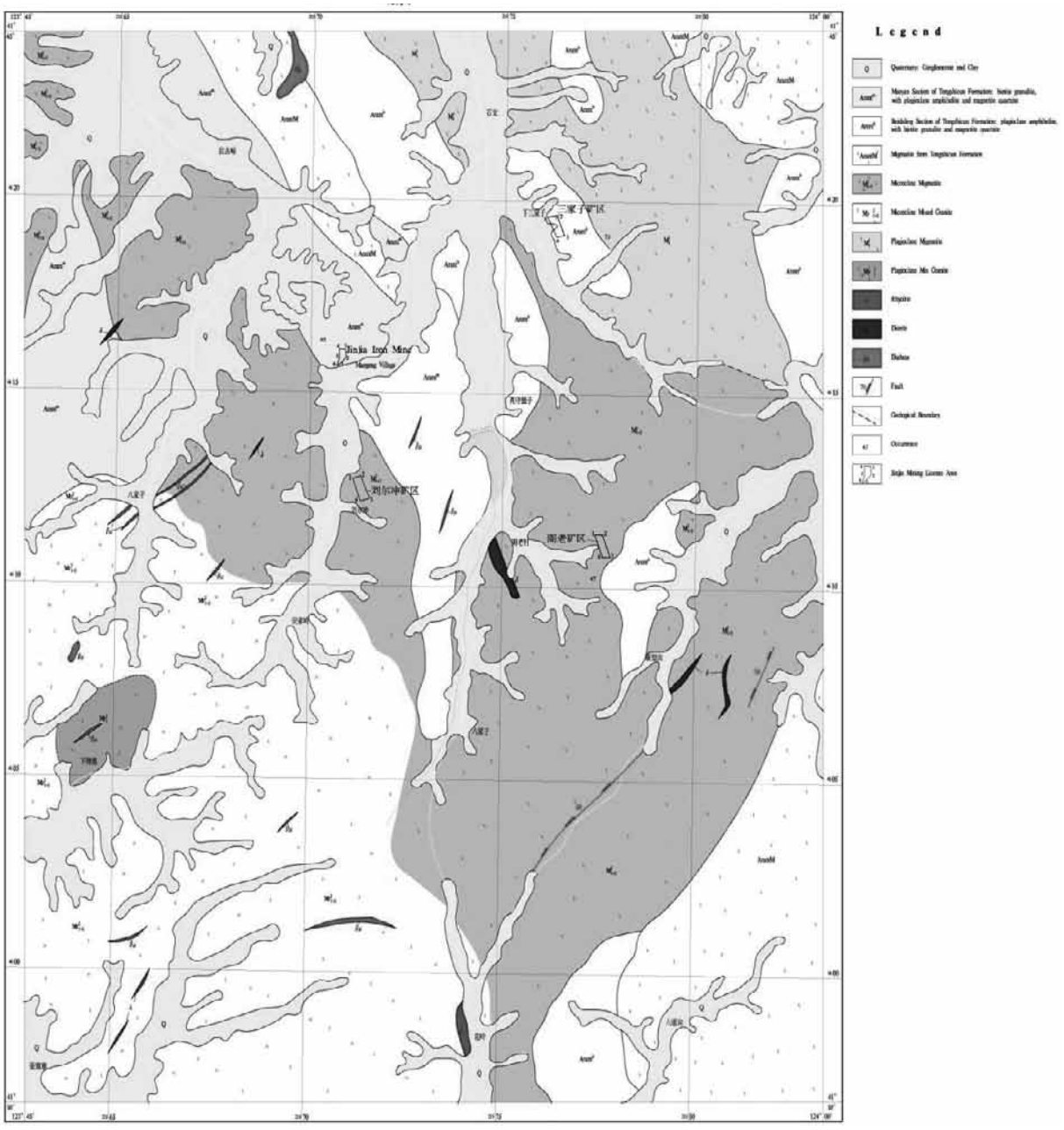

Figure 4-6: Geological Settings of Jingjia and Maogong Mines

4.3.1.2 *Maogong Mine*

The geological settings of Maogong Mine are almost the same as Jingjia Mine as they are closely neighbouring mines.

SRK noticed that Maogong Mining has applied to expand the mining license of Maogong mine and the application has been approved by the Bureau of Land and Resources Bureau ("**BOLAR**") of Liaoning province. Figure 4-7 shows the geological settings of Maogong mine with the new boundaries as outlined with red lines (the blue lines are old license boundaries).

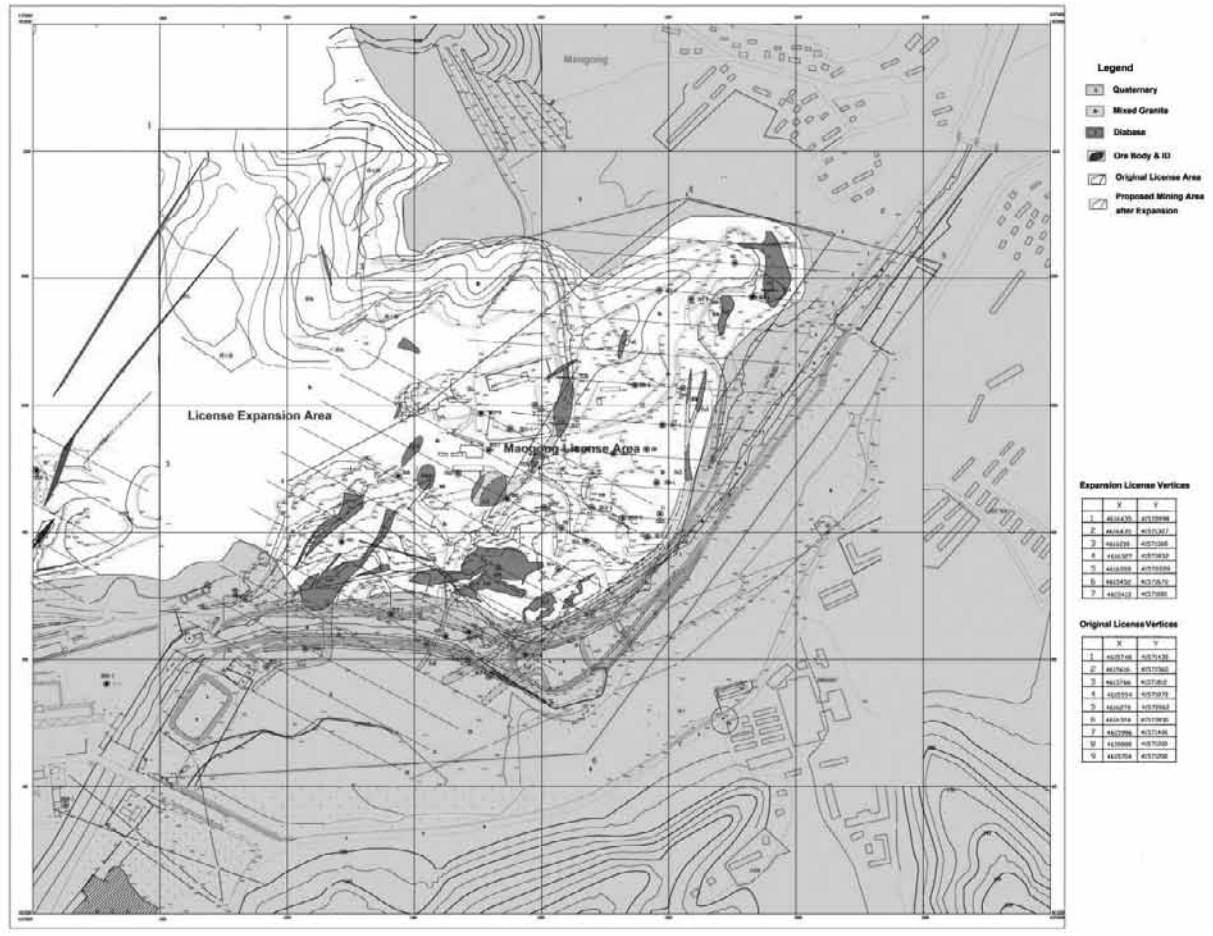

Figure 4-7: Geological Settings of Maogong Mine

4.3.2 *Orebody Geology*

4.3.2.1 *Jingjia Mine*

Jingjia Mine belongs to small-scale deposit according to the geometrical characters such as length, width and thickness and grade variation. There are three ore bodies named Fe1, Fe2 and Fe3 defined in the Jingjia Mine area and the largest one is orebody Fe2. The ore bodies are layered shapes.

Orebody Fe1 is located between the Exploration Line 5# and Line 7# in the north part of the mine area, trending north-easterly (NE) and dipping to northwest (NW) at angles of 49° to 56°. The orebody is about 76 m long and 10 m wide. The middle part of orebody is wider than the two ends. Observed from the pit, the lithology in the west side of the orebody shows gradual change and transition from migmatite, while the east side, the contact of orebody and biotite-amphibolite-plagioclase gneiss shows good conformity with clear boundary. The mineralization is continuous without destroying by the faults. According to the sampling and analysis, the average grade of total iron (TFe) in Fe1 is about 33%.

Orebody Fe2 is located between the Exploration Line 1# and Line 6# in the south part of the mine area. Generally the orebody is stable with length at 169 m and width of 22 m. The orebody Fe2 also trends NE and dips to NW, with dip angles varying from 50° to 68°. In the deep area the ore body is controlled by drilling with Holes ZK0-1 and ZK4-1. Observed from the pit, the orebody and wall rock (migmatite) shows gradual change and transition. The structure in the internal part of orebody is complicated with developed small folds, which suggests that there are multi-stages of folds overlaying occurred to orebody Fe2. The average grade of total iron (TFe) in Fe2 is about 25%.

Orebody Fe3 is located between the Exploration Line 28# and Line 3# in the west part of the mine area, with strike of NE direction and dipping to NW. This orebody controlled by drills in the mine area is about 500 m long, 300 m down-deep and 30 m wide on average. Locally, the Fe3 orebody has been defined by drill holes on -100 m level and this orebody is still open along its strike and dip. The orebody and wall rock shows conformity. The average grades of TFe and mFe of the Fe3 orebody are about 32.12% and 29.01%, respectively.

The characters of ore bodies in Jingjia Mine are shown as the following Table 4-4.

Table 4-4: Characters of Ore bodies at Jingjia Mine

Orebody	Length (m)	Average Width (m)	Down-depth (m)	Shape	Elevation (m)
Fe1	76	10	>25	Layered, Lenticular	227 to 252 ASL
Fe2	169	22	>65	Layered, Lenticular	180 to 195 ASL
Fe3	500	30	>300	Layered, Lenticular	0 to -218 ASL

4.3.2.2 *Maogong Mine*

There are 11 ore bodies defined in Maogong Mine, in which the Fe3, Fe7, Fe8, Fe9, Fe16 and Fe17 are the main ore bodies. Similar to Jingjia Mine, the shape of ore bodies is mainly tabular and lenticular, with swelling distribution and bifurcation. The length of ore bodies ranges from 40 to 500 m. The small ore bodies are controlled by single surface exploration means.

The ore bodies are mainly distributed between No. 1# and No. 21# exploration lines with NW-trending and dipping to NE. The thickness ranges from 10 to 50 m. The burial depth is between 0–184 m. Except for Fe3 and Fe7, all the other ore bodies are buried in a comparatively shallow zone. The TFe grades range from 28.85% to 37.29%, with an average grade of 34.97%. The characters of the ore bodies at Maogong mine are shown as the following Table 4-5.

Table 4-5: Characters of Ore bodies at Maogong Mine

Orebody	Length (m)	Thickness (m)	Down-depth (m)	Shape	Grade (TFe)
Fe1	120	25.6	>25	Layered, Lenticular	35.97%
Fe2	64	19.0	>25	Layered, Lenticular	28.85%
Fe3	430	10.0	193	Layered, Lenticular	32.99%
Fe6	45	10.0	>25	Layered, Lenticular	34.73%
Fe7	272	36.6	>25	Layered, Lenticular	37.29%
Fe8	340	24.6	>25	Layered, Lenticular	35.75%
Fe9	310	40.0	100	Layered, Lenticular	36.06%
Fe13	40	28.0	>25	Layered, Lenticular	34.73%
Fe14	58	31.0	>25	Layered, Lenticular	34.73%
Fe16	380	50.0	>25	Layered, Lenticular	37.76%
Fe17	214	32.0	>25	Layered, Lenticular	34.73%

The ore bodies in Maogong mine are relatively more complicated than those in Jingjia Mine. Generally the ore bodies plunge to the southwest with varying shapes and different depths. Figure 4-8 and Figure 4-9 show the typical cross-section map and an overview of orebody Fe16, respectively at Maogong mine.

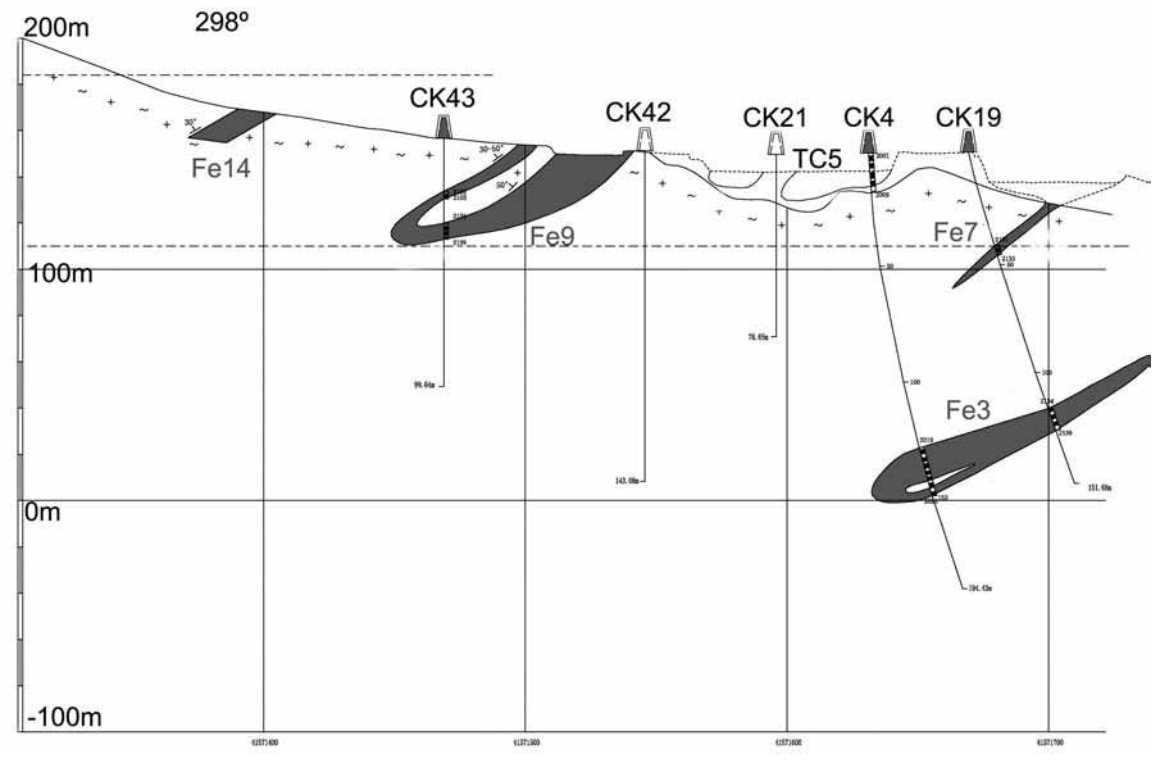

Figure 4-8: Cross-Section Map of Exploration Line 13# at Maogong Mine

Figure 4-9: An Overview of Orebody Fe16 at Maogong Mine

4.3.3 ***Mineralogy***

4.3.3.1 *Ore Type*

The ore types of Jingjia and Maogong mines can be classified as two groups according to the natural types of ore, namely banded magnetite quartzite and amphibolite-pyroxene-magnetite quartzite.

According to the industrial classification, the ore are in magnetite type. The deposits belong to the Anshan-type, sedimentary metamorphic deposits.

4.3.3.2 *Ore Composition*

The ore compositions at Jingjia and Maogong mines are similar. The ore minerals are mainly magnetite with less limonite, pyrrhotite and chalcopyrite. The gangue minerals are represented by quartz, hornblende (amphibole) and chlorite, with occasional tremolite, microcline and trace of apatite.

Magnetite: it is the major ore mineral, which accounts about 35–40% of the rock mass. It appears as euhedral and irregularly subhedral granular texture, with regular directional array and distributed evenly. The magnetite is inter-embedded with gangue minerals i.e. quartz. The disseminated grain size generally varies from 0.2 mm to 2.0 mm or more.

Pyrrhotite: it is a brownish-bronze iron sulphide mineral, characterized by weak magnetic properties and used as iron ore and in the manufacture of sulphuric acid. Pyrrhotite is an important ore mineral consists of 0.5–1.0% of the rock mass. Most of the pyrrhotite is generated from metasomatism in later stage. With uneven distribution, the content of pyrrhotite is relative higher in deeper parts of the orebody rather than at surface, where pyrrhotite easily becomes to limonite after oxidization.

Quartz: is the major gangue mineral with content of approximately 35%–40% of the rock mass. Quartz appears crystalline, anhedral crystals with grain sizes variable from 0.5 to 1.5 mm. Quartz occurs associated with magnetite, pyroxene hornblende, and chlorite, and formed a mosaic texture with paragenetic/associated minerals.

Hornblende: is an amphibolic mineral, commonly green or bluish green to black in color, formed in the late stages of cooling in igneous rock. As a main mineral containing ferro-silicate, the content of hornblende in the ore varies from 7% to 15%. The hornblende appears as euhedral long-column crystal, with grain size varying from 0.5 to 1.2 mm.

Plagioclase: is another main gangue mineral, it occupies about 5% to 10% of the rock mass. The plagioclase appears as euhedral long-column crystal, with grain size varying from 0.5 to 1.5 mm.

Chlorite: is a generally green or black secondary mineral, often formed by metamorphic alteration of primary dark rock minerals, which appears as a spot of green and resembles mica. Chlorite is one of the major minerals of altered rocks, which present fine grained, crystalloblastic texture. It is the alteration products from pyroxene, hornblende and biotite. Chlorite is intercalated with other minerals like quartz, calcite, and feldspar.

On the basis of chemical analysis of ore at Jingjia and Maogong mines, the main beneficial component is soluble iron (SFe). The chemical compositions of the ore are shown in Table 4-6.

Table 4-6: Chemical Composition of Ore at Jingjia and Maogong Mines

Composition	Content (%)	Composition	Content (%)
TFe	31.66	MgO	1.460
SFe	30.98	MnO	0.035
FeO	11.29	S	0.019
SiO_2	52.58	P	0.010
$A1_2O_3$	0.60	CaO	0.900

4.3.3.3 *Ore Structure and Texture*

The ore is characterised by the mainly banded structure (see Figure 4-10), disseminated structures and stock-work and veinlets at the Jingjia and Maogong mines. Banded structure is widely distributed in the ore, and the widths of most bands are between 1 and 3 mm, however some of them are more than 3 mm and even several centimetres.

Textures of ore in the deposits area are characterised by euhedral or subhedral crystal granular and replacement remnant textures.

Figure 4-10: Typical Banded Structure Ore at Maogong Mine

The analysis of ferrous oxide (FeO) showed that the oxidization of ore is at relative lower grade, and most of the ore belongs to primary ore which could be easily processed.

4.3.3.4 *Host Rock and Waste Rock*

The wall rocks of Jingjia and Maogong deposits are mainly represented by migmatite, biotite-amphibolite-plagioclase gneiss, and secondly by the amphibolite-granite migmatite. The hanging wall of orebody is represented by amphibolites-gneiss and occasional amphibolite-granite migmatite; and the hangingwall of orebody is characterized by biotite-amphibolite-plagioclase gneiss and partly amphibolite-granite migmatite.

Biotite-Amphibolite-Plagioclase Gneiss: the layer is from 3 m to 170 m thick, which shows conformity contact with the orebody, with clear contact boundaries. There are biotite-plagioclase gneiss and lens of antinolite schist and chlorite schist. Locally there is mixed redissolving happened.

Granite Migmatite: is mainly formed by amphibolite-plagioclase gneiss after migmatization, and occurred along the layer of gneiss. There is unconformity contact between the Granite migmatite and the orebody.

4.3.3.5 *Beneficial and Harmful Elements*

The composition analysis showed that the potential beneficial elements include Ni, B, Mo, Cu, Cr, and Co with trace contents, without utilization value.

The harmful elements include As, Zn Sn but all within the ideal range of the contents. The harmful compositions include SiO_2, AI_2O_3, CaO and MgO. According to the combined analysis results of surface samples in 1999, the content of sulphide is between 0.01% and 0.03%; and the phosphor content is at the range of 0.02%–0.25%. The average content of CaO is about 1.17% in Jingjia Mine (0.90% in Maogong mine), and the average content of MgO is about 2.36% (1.46% in Maogong mine). All the harmful compositions are with reasonable contents according to the specifications.

4.3.4 ***Exploration, Sampling, Assaying and QA/QC***

4.3.4.1 *Historical Exploration*

Jingjia Mine:

The systematic exploration on the Jingjia Mine area started in 1958, when the regional airborne magnetic survey was conducted by the brigade of airborne magnetic survey of Geological Ministry. As a result, the anomalies of Jingjia-Maogong Mine area were discovered at the area near Maogongpu.

Following with the geological prospecting conducted by Benxi Geological Brigade of Liaoning Provincial Geological Bureau, the mineral resource of Jingjia-Maogong area was estimated at 4.5 Mt in the C Category.

Between 1959 and 1961, No. 101 Brigade of Geological Exploration, Liaoning Provincial Metallurgy Industry Bureau ("**No. 101 Brigade**") carried out the exploration in the area, and estimated the mineral resources in Jingjia-Maogong mine area at approximately 3.9 Mt with (C1 +C2) Categories.

In 1988, No. 10 Geological Brigade of Liaoning Geology and Mineral Resources Bureau ("**No. 10 Brigade**") conducted general exploration in the area with trenching, pitting and systematic sampling and analysis in the mining pit. The mineral resources were estimated at 1.8 Mt with C and D Categories in total.

In 1999, No. 10 Brigade submitted a report named "Analysis Report of Resources in Jingjia-Maogong Mine Area" (Orebody Fe1 and Orebody Fe2), which was approved by Geology and Mineral Resources Bureau of Fushun City, Liaoning Province with approval documentation "FuDiChuPi [1999] No. 15". The approved remaining resources in Jingjia Mine (ore bodies Fe1 and Fe2) licensed area was estimated at 490.9 kt in D or 333 Category dated to October 1999. The average TFe grade of orebody Fe1 is 33.59%, and the orebody Fe2 has an average grade of TFe at 25.81%. The historical depletion of ore was estimated at about 311.8 kt.

In 2008, the additional geological exploration was carried out in Jingjia Mine area, with two drill holes in the Exploration Lines 0# and 4#, with a total footage of 170.72 m. There are 8 additional basic samples were assayed with results of average grade at 27.69% and the highest one at 28.43% for the orebody Fe2.

In November 2008, Geological Survey Institute of Liaoning Non-ferrous (GSILN) conducted the resources verification work and re-estimated the balance resources. The resource balances dated to 30 September 2009 were estimated with 122b Category 242.8 kt and 333 Category 155.2 kt at average grade of TFe 29.22%. The resources were approved by BOLAR of Liaoning Province in December 2009 with documentation [2009] 712.

Since April 2011, No. 6 Geological Brigade of Liaoning Province Bureau of Land Resources ("No. 6 Geological Brigade") has been conducting drilling program at the Jingjia mine area. A total of 63 holes with 15,000 m footage were planned in early 2011. Until August 2011, 35 holes with 7,200 m footage were completed. The average recovery rate of drill cores was 98%. Currently, the No. 10 Geological Brigade re-estimated the resource at Jingjia mine utilising 448 core-sample results from 26 holes with 5,280 m footage. The resource balances dated to June 30 2011 were estimated with 122b Category 11,038.55 kt at an average grade of 32.29% TFe and 29.12% mFe, and 333 Category 1,518.24 kt at an average grade of 30.15% TFe and 27.30% mFe.

Maogong Mine:

The historical exploration in Maogong mine was almost conducted simultaneously with Jingjia Mine in the periods of 1958–1999.

In 1999, No. 10 Brigade submitted two reports named "Analysis Report of Resources at Ore Bodies Fe1, Fe9, Fe12 and Fe15 in Maogong Mine Area" and "Analysis Report of Resources in Jingjia-Maogong Mine Area" (Orebodies Fe7 and Fe8) respectively, which were approved by Geology and Mineral Resources Bureau of Fushun City Liaoning Province with approval documentation "FuDiChuPi [1999] No. 15". The approved remaining resources in Maogong mine (Ore Bodies Fe1, Fe7, Fe8, Fe9, Fe12 and Fe15) licensed area was estimated with 1,143.7 kt in C and D (332 and 333) Categories dated to October 1999. The average TFe grade of the ore bodies is 32.0%. The historical depletion of ore was estimated at 438.7 kt of C Category.

In 2008, the additional geological exploration was carried out in Maogong mine area, mainly focused on Exploration Lines 3#, 6#, 7#, 8#, 9#, 11#, 12#, 14#, 17#, 18#, 20# and 21#. Twenty-four boreholes were completed with a total length of 2,342.08 m. There are 168 basic samples from drill cores were assayed with results of average TFe grade at 34.72% and the highest one at 45.72% TFe.

In 2008, GSILN conducted the resources verification work (at depth level 184 to 110 m ASL) and re-estimated the balance resources. In November 2008, a resources verification report for Maogong mine was compiled and the resources were approved by BOLAR of Liaoning Province in December 2008 with documentation [2008] 711. The approved resources at 11 ore bodies in Maogong mine were 524.1 kt with 332 Category, and 729.2 kt ore with 333 Category. The average grade of TFe is 33.50%.

In 2009, GSILN re-studied the historical geological reports and prepared a resources verification report for the 11 ore bodies within the proposed expanding boundaries. In March 2009, a report named "Resources Verification Report after Boundary Expanding in Maogong Mine" was submitted.

4.3.4.2 *Exploration, Sampling, Assaying and QA/QC*

Jingjia Mine:

The exploration type of Jingjia Mine was categorized as Type III according to Chinese exploration classification, with a grid of 100 m (along strike) × 100 m (along dip) to control the 122b resources. The extrapolations to 25 m outside from controlled ore bodies are regarded as 333 resources.

The main method for Jingjia Mine exploration is drilling, which was arrayed following with the grid of 100 m × 100 m. It is reported that the previous drilling was in compliance with Chinese Geological Exploration Specifications for Solid Mineral Resources — GB13908-92.

Reportedly the drill core recovery is 98% of the twenty-eight holes (5,450.97 m) completed in Jingjia Mine in 2008 and 2011. The recoveries of mineralised cores are 99.4% for the 28 drill cores. The down-hole survey was conducted at the error of less than 1/1,000. The opening diameter for drilling was 110 mm, and holes were finished with diameter from 75 mm to 60 mm (core diameter 54 mm). A simple hydrological survey was conducted as well. SRK was informed that the drilling cores were split to halves; one halves were sent to laboratory for assaying and the other half were well packed with clear marks and kept by mine personnel, however all drill cores were later discarded.

The surface exploration was represented by trenching and overburden stripping, with some pitting to disclose the magnetic anomalies. The trenches and adits were sampled using channel sampling method; samples in trenches generally were collected along its bottom and almost all channel sample length is at the range of 2 m–4 m with a section size 10 cm (wide) × 5 cm (deep).

Grab samples were collected from trenches, drill core and open pits, sample size is about 10 cm (long) × 10 cm (wide) × 10 cm (high) were packed and sent to laboratory soon after sampling.

Other samples: Polished thin section: Collected from a number of different working, sample size is 3 × 6 × 9 cm. Another kind of sample is also collected from new outcrop ore, with size of 4 × 7 × 10 cm.

The sample preparation follows a standard procedure: firstly the sample was crushed down to a size of -30 mesh then split using quartering method to 500 g sample which was pulverized to -200 meshes. The pulverized sample was mixed completely and about 20 g for each sample was selected for assaying.

The samples from the 2008 additional exploration were prepared and assayed by the laboratory of Jingjia Mine. In 1959–1961, samples were sent to the laboratory of No. 101 Brigade. The samples taken in 1999 and 2011 were prepared and analysed by the laboratory of No. 10 Brigade.

All samples in 1999, 2008 and 2011 were assayed for TFe, using classical chemical method (titration). In addition, some samples were assayed also for mFe, FeO, CaO, MgO, S, and P.

Reportedly samples collected from trenches, open pit and drilling cores were performed strictly according to generally accepted rules. Also packing, labelling and transportation samples to assigned laboratory observed those regulations.

In 2011, a total of 488 samples were collected, prepared and analysed by the laboratory of No. 10 Brigade. For quality control, 40 samples were also chosen and analysed for internal checking by this laboratory. Forty samples were chosen for external checking and sent to No. 10 Analytical Laboratory of Liaoning Province Geology and Mineral Exploration Bureau, and both results returned were acceptable. The analytical quality complied with the Chinese National Analytical Standards.

SRK noticed that all laboratories of the geological brigades hold Chinese national accreditation. Also SRK noticed than the Company holds the certification (the 3rd rank) for geological exploration.

Maogong Mine:

The exploration type of Maogong mine was categorized as Type III according to Chinese exploration specifications, with a grid of 100 m × 100 m to control the 332 resources. The extrapolations to 25 m outside from controlled ore bodies are regarded as 333 resources. The main method for Maogong mine exploration was drilling, which was arrayed following with the grid of 100 m × 100 m. It is reported that the previous drilling was in compliance with Chinese Geological Exploration Specifications for Solid Mineral Resources — GB13908-92.

During 1959–1961 the No. 101 Brigade conducted 15 drill holes exploration (a total of length of 2,035.88 m). Reportedly the mineralised core recoveries were relatively lower between 62% and 81% with an average recovery of 69.36%.

In 2008, No. 101 Brigade carried out 24 boreholes at Maogong mine. The most mineralised core recoveries were more than 80%, and with some lower ones at 60%–75%. The down-hole survey was conducted at the error of less than 1/1,000. The opening diameter for drilling was 110 mm, and holes were finished with diameter from 75 mm to 60 mm (core diameter 54 mm). There was simple hydrological survey conducted.

SRK was advised that the drilling cores were split to halves; one halves were sent to laboratory for assaying and the other half were well packed with clear marks and kept by mine personnel. The surface exploration was represented by trenching and overburden stripping, with some pitting to disclose the magnetic anomalies. The trenches and adits were sampled using channel sampling; samples in trenches generally were collected along its bottom and almost all channel sample length is at the range of 2 m–4 m with sample section size 10 × 5 cm.

Grab samples were collected from trenches, drill core and open pits, sample size is about 10 × 10 × 10 cm were packed and sent to laboratory soon after sampling.

The sample preparation follows a standard procedure: firstly the sample is crushed down to a size of -30 mesh then split using quartering method to 500 g sample which is pulverized to -200 meshes. The pulverized sample is mixed and 20 g of it is selected for assaying. There is estimated about 4% loss rate of processing and error of splitting is 2%.

A total of 243 samples from the 2008 additional exploration program were prepared and assayed by the laboratory of Maogong mine. In 1959–1961, 75 samples were sent to the laboratory of No. 101 Brigade. The samples taken in 1999 were prepared and analysed by the laboratory of No. 10 Brigade.

All samples in 1999 and 2008 were assayed for TFe, using classical chemical method (titration), additionally some samples were assayed also for mFe, FeO, CaO, MgO, S, and P.

There is no storage for duplicate or rejected samples neither at the mine site nor at the Company's facilities has been observed. Also SRK was advised during an interview with the Company's personnel that all rejected during preparation samples in laboratories were already disposed.

SRK noticed that all laboratories of the geological brigades hold Chinese national accreditation. It is unknown if the laboratory of Maogong mine has the accreditation for sample preparation and assaying although SRK noticed that the Company holds the certification (the third grade) for geological exploration. The details about the quality assurance and quality control on the assaying are not available to SRK.

4.3.5 *Resource and Reserve Estimation under Chinese Code*

4.3.5.1 *Jingjia Mine*

Related Technical Parameters

The recent estimates of resources for Jingjia Mine were conducted by GSILN in 2008. According to Chinese Specification for Geological Survey on Iron Deposit (DZ/T0200-2002), the cut off grade for primary ore is usually set as 20% of TFe, and the minimum mineable thickness is assigned as 2 m. The following parameters for the resource estimation were adopted by the GSILN.

— Cut-off grade: TFe% ≧ 20%

— Average industrial grade: 25% TFe

— Minimum mineable thickness: 2 m

— Maximum band thickness: 2 m

Method of Estimates

GSILN used the conventional cross-section method for the resources estimation in Jingjia Mine, which is similar to the method adopted in Aoniu resource estimation.

The parameters are determined by following with principles below:

— Ore density: 3.4 tonnes per cubic metre (t/m^3) based on the weighting results of 31 original samples in 1999.

— Ore average grades:

- Length weighted average for exploration engineering line;
- Thickness weighted average for area;
- Area weighted average for ore block;
- Ore block volume weighted average for orebody;
- Orebody ore weighted for whole deposit.

— Areas of ore blocks were defined on a cross section map by computer software.

— Volume (V) of ore blocks were calculated by using a standard formula based on different orebody patterns.

$V = (S1+S2+ (S1 \times S2)1/2) \times L/3$ when $(S1-S2)/S1 \geqq 40\%$

$V = (S1+S2) \times L/2$ when $(S1-S2)/S1 < 40\%$

$V = S \times H/3$ when cone shape ore block

$V = S1 \times L/2$ when wedge shape ore block

Where V is the volume of ore block, S1 and S2 are the areas of two neighbouring sections; L is the distance of section interval or expansion distance.

— Resources of ore bodies were estimated by a standard formula: $Q = V \times D$, where Q, V and D are the resources, volumes and density respectively.

Results of Estimates

According to the resource estimation done by GSILN, 122b Category resources were defined/controlled by exploration grid of 100 × 100 m, and 333 category resource was defined by extrapolation (point extrapolation with 1/2 spacing of the exploration lines, or line extrapolation with 1/4 spacing of the grid) from the 122b resources. Dated 30 September 2008, the remaining mineral resources of 122b and 333 categories reported by GSILN were shown in Table 4-7. There has been no mining operation since 30 September 2008.

Table 4-7: Estimated Resources at Jingjia Mine, as of 30 June 2011 — Chinese Code

Ore bodies	Category	Resource (t)	TFe (%)	mFe (%)
Fe1, Fe2, Fe3	122b	11,038,548	32.29	29.12
Fe1, Fe2, Fe3	333	1,518,240	30.15	27.30

4.3.5.2 *Maogong Mine*

Related Technical Parameters

The recent estimates of resources for Maogong Mine were conducted by GSILN in 2009. According to Chinese Specification for Geological Survey on Iron Deposit (DZ/T0200-2002), the cut off grade for primary ore is set as 20% of TFe as well. The other technical parameters for the resource estimation were adopted by the GSILN as below.

— Cut-off grade: TFe%≧20%

— Average industrial grade: 25% TFe

— Minimum mineable thickness: 2 m

— Maximum band thickness: 2 m

Resource Estimate

Dated as March 1, 2009, the remaining resources of 332 and 333 categories reported by GSILN are shown in Table 4-8. The 332 and 333 category resources at Maogong mine were approximately 2.11 Mt at average grades of 35.56% TFe and 30.35% mFe, and 2.79 Mt at average grades of 36.95% TFe and 30.46% mFe, respectively.

Table 4-8: Estimated Resources at Maogong Mine, as of 1 March 2009 — Chinese Code

Ore bodies	Category	Resource (t)	TFe (%)	mFe (%)
Fe2-3, Fe7-9, Fe16	332	2,109,584	35.56	30.35
Fe1-3, Fe6-9, Fe13-14, Fe16-17	333	2,790,722	36.95	30.46

Based on the monthly mining records, a total of 1,844,322.5 t in 332 category resource was mined out from 1 March 2009 to 30 June 2011. By 30 June 2011, the remaining iron resources in 332 and 333 categories were estimated at 265,262 t at an average grade of 35.56% TFe and 30.35% mFe, and 2.79 Mt at an average grade of 36.95% TFe and 30.46% mFe, respectively (Table 4-9).

Table 4-9: Remaining Resources at Maogong Mine, as of 30 June 2011 — Chinese Code

Ore bodies	Category	Resource (t)	TFe (%)	mFe (%)
Fe2-3, Fe7-9, Fe16	332	265,262	35.56	30.35
Fe1-3, Fe6-9, Fe13-14, Fe16-17	332	2,790,722	36.95	30.46

SRK was informed that Maogong Mining has applied an area of 35.36 km^2 as a potential prospecting mineralisation area based on the airborne survey anomaly result. The local Fushun County authority has approved the application on 10 May 2011.

4.4 Luobokan Mine

4.4.1 *Mine Geology*

Currently, Luobokan Mine is owned by Xingzhou Mining. The general exploration programming was conducted by No. 10 Geological Brigade from March to November 2005. The No. 10 Geological Brigade had continued the more geological exploration at the mine with a resource verification report during September 2010 and March 2011. The following description is summarised from the geological reports compiled by the No. 10 Geological Brigade of Liaoning Province in November 2005 and March 2011.

4.4.1.1 *Stratigraphy*

The strata of Luobokan Mine area, similar to the geological setting of Aoniu mine, are very simple, only including the Archaean Tongshicun Formation metamorphic rock system and the Quaternary, as following described.

Archaean Tongshicun Formation: Generally, it strikes NNW distribution. The lithology of this stratum mainly consists of biotite plagioclase gneiss, garnet biotite gneissic hornblende plagioclase, hornblende plagioclase gneiss, hornblende gneiss, magnet bearing garnet amphibolites, magnet quartz-amphibolite, and magnet amphibolite-quartzite etc.

Quaternary: is mainly composed of gravel and clay.

4.4.1.2 *Tectonics*

Normally, the strata are deformed shown as syncline with the axis direction NNW. The fault structure is not well-developed.

4.4.1.3 *Magmatism*

The migmatite in the mine area includes medium-acidic and basic dykes mainly occurring as hornblende syenite porphyry, diorite porphyry, diabase and pegmatite.

4.4.2 *Orebody Geology*

According to the exploration report prepared by the No. 10 Geological Brigade for Luobokan Mine in March 2011, nine mineralized bodies were delineated within and between two mineralized zones of No. 1 and No. 2 at Luobokan Mine area as shown in Figure 4-12 and Figure 4-12.

The No. 1 zone lies between the south of the Pingshanzi Village and the northwest of the Luobokan Village. The north part is covered by the Quaternary sediment, and the south part has already been opened for excavation. The No. 1 zone comprises orebody #1, #2 and #3, of which the orebody #3 is the main orebody.

The No. 2 zone lies between the west of Luobokan Village and the east of Taigou village, covered by the Quaternary alluvium. It comprises ore bodies #7 and #8. In addition, the ore bodies #4, #5, #6 and #9 exist in exploration lines from 9# to 12# between the No. 1 zone and No. 2 zone. Table 4-10 lists the main characteristics of mineralised ore bodies. The detailed characters of the major mineralised bodies are described below.

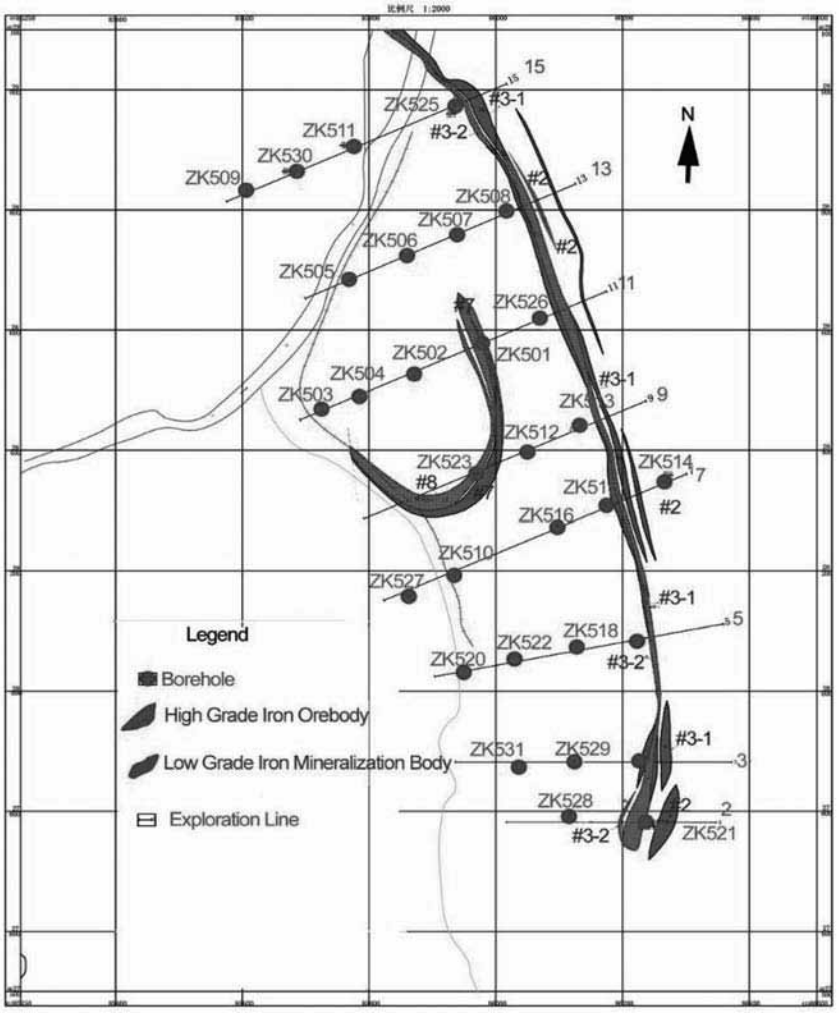

Figure 4-11: Geological Map of Lubukan Iron Mine

Table 4-10: Characteristics of Mineralised Ore Bodies at Luobokan Mine

Orebody ID	Length (m)	Maximum depth (m)	Thickness (m)	Average mFe (%) of Block	
				High-Grade	Low-Grade
#1	800	580	5 to 13	22.76	15.42
#2	1,400	450	8 to 25	22.70	15.28
#3	1,300	580	8 to 60	22.67	15.96
#4	388	375	13 to 54	22.13	16.24
#5	280	255	5 to 29		18.30
#6	280	300	2 to 17		18.49
#7	380	600	7 to 32	24.82	19.77
#8	524	540	1 to 21		16.24
#9	100	90	4		15.15

Orebody #3 is the largest orebody occupying 60% of total resource, which is divided into two parts named as #3-1 and #3-2. The #3-1 orebody is about 1,300 m long, 8 to 40 m wide and at a depth of 180 m in the south and 550 m in the north. The #3-2 orebody is also 1,300 m long, 8 to 40 m wide and at a depth of 180 to 580 m. The ore rock of #3 orebody is mainly magnetite quartz-amphibolite. The average high- and low-grades of the orebody are 22.67% mFe and 15.96% mFe, respectively.

Orebody #2 is situated in the central part of the mineralized zones, defined by a total of 17 boreholes along its strike (1,400 m long). In the southern part, the orebody is defined near the exploration lines 2#and 3#, and in the northern part it is defined between exploration lines 11# and 17#. The average high- and low-grades of the orebody are 20.70% mFe and 15.28% mFe, respectively.

Orebody #7 is located between exploration lines 9# and 15#. It is 380 m long, 7.27 to 32.49 m wide and at a depth of 600 m. The orebody is shown as the hornblende quartz magnetite and quartz amphibolite magnetite assemblages. The average high-grade ore is 24.82% mFe, and the average low-grade ore is 19.77% mFe.

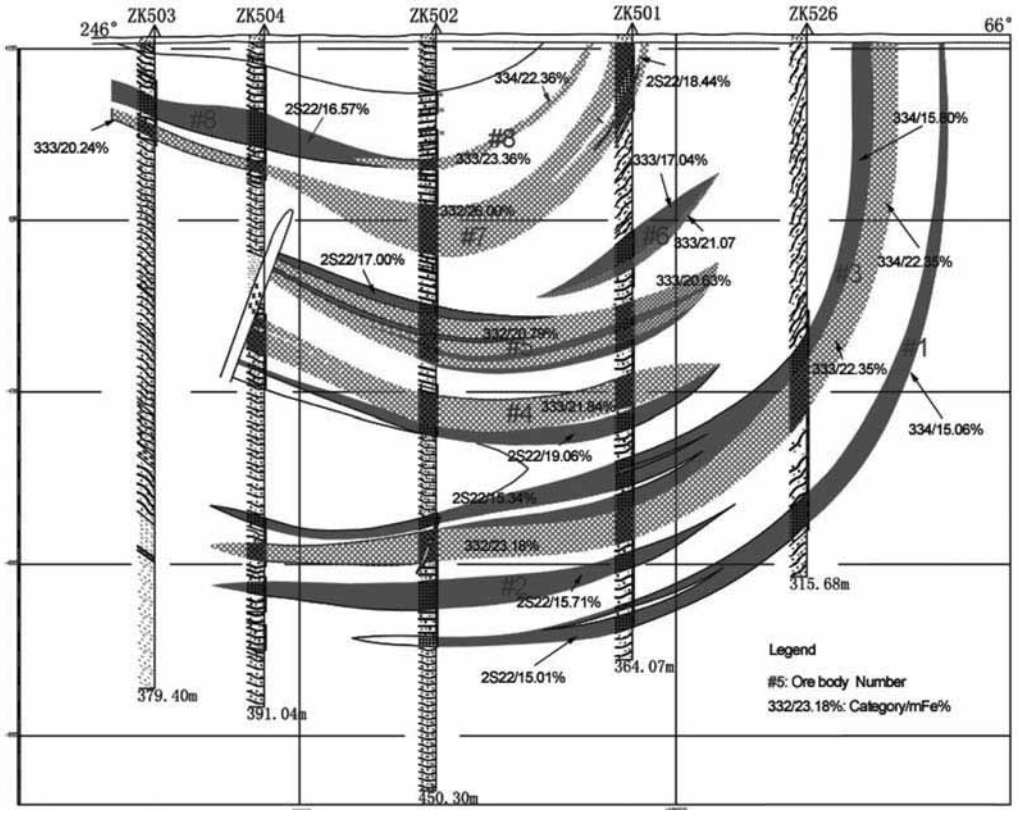

Figure 4-12: Cross-Section Map of Exploration Line 11#

4.4.3 *Mineralogy*

The ore in the Lubukan iron mine consists of hornblende/pyroxene-quartz magnetite and quartz-hornblende magnetite, appearing as grey-white colour, grey-dark and green. The ore is characterised by banded structure and middle-fine crystalloblastic texture.

The ore minerals are mainly magnetite, and less amount of pyrite, pyrrhotite and trace chalcopyrite. The gangue minerals are mainly amphibole and pyroxene in the #1 and #2 ore bodies and mainly quartz in the #3, #4, #5, #6, #7, #8 and #9 ore bodies.

4.4.4 *Exploration, Sampling, Assaying and QA/QC*

Historical Exploration

The early stage exploration on the deposit potential at Luobokan area was initialled in 1958 with airborne magnetic survey carried out by former No. 906 Brigade of Geology Ministry, it was then followed up with regional prospecting by Benxi Geological Brigade in 1958 and 1959.

The prospecting was continued with geophysical works and drillings (3 boreholes) in 1971, it was performed by the former Fushun Geological Brigade. The iron mineralisation was assessed at that time. More detailed regional mapping at a scale of 1:50,000 was conducted by Changchun Institute of Geology during 1989 and 1990.

In 2003, No. 10 Geological Brigade estimated the iron resources the deposit on basis of drilling works, and Xingzhou Mining was issued with the mining licences in December 2003.

From March to November 2005, No. 10 Geological Brigade conducted the general exploration on the deposit, and a geological report named "*General Exploration Report of Luobokan Mine Area, Fushun, Liaoning Province*" was submitted. The geological report and resources estimation was approved by the Bureau of Land and Resources of Liaoning province ("**Liaoning BLR**") in 2006.

Exploration, Sampling, Assaying and QA/QC

The latest exploration was carried out by No. 10 Geological Brigade from September 2010 to March 2011, and a geological report namely "*Resource Verification Report after Expansion of Licence Area, Luobokan Mine, Fushun, Liaoning Province*" has been submitted to the Company. During the third site visit to the Company during 18–20 April 2011, SRK was provided with this report and was informed that the Company and No. 10 Geological Brigade had submitted it to Liaoning BLR for review.

According to the resource verification report, the drilling program was carried out by No. 10 Geological Brigade, and all the core samples were prepared and analysed by the laboratory of No. 10 Geological Brigade.

The exploration carried out during September 2010 and March 2011 includes geological and topographical mapping, magnetic survey and drilling. A total of 26 holes with total footage of 5,564.26 m were newly drilled in a grid of 100–200m by 100–200 m.

Downhole surveys were performed every 50 m for inclined-opening holes and every 100 m for perpendicular holes. The average core recoveries were 97% for the whole cores and 100% recovery rates for mineralised intervals.

The final diameter of the drill cores were 48 mm. Drill cores were sampled by splitting into two halves with relatively even mineralisation and were taken 3 to 4 m long for sample preparation and analysis. A total of 621 drill core samples were prepared following a standard procedure including weighting, drying, crushing, splitting and pulverization. The primary terms of assaying were total iron (TFe) and magnet iron (mFe) and conventional and recognized chemical titration method was adopted by the laboratory of No. 10 Geological Brigade.

The internal check was carried out to a selection of 50 samples by the laboratory of No. 10 Geological Brigade. The external check with 30 samples was performed by the laboratory of No. 101 Geological Brigade of Non-ferrous Geological Bureau of Liaoning Province. Both assay results were repeatable with tolerable derivations.

In regard to the new exploration verification of resources reported by No. 10 Geological Brigade in March 2011, SRK has made a part of inspection and verification during the site visit by physically sighting the remaining drill cores, the borehole seals, visiting the laboratory of No. 10 Brigade and selecting some pulp duplicates for re-assaying. SRK found that:

— Boreholes were well sealed with cement with proper markers, however some of them was destroyed by the local residents during construction activities;

— The left drill cores were well stowed in wooden boxes with signs of the sample turns and boxes numbering. It was also noticed that currently the drill cores were exposed outside, as mine site is under construction and the Company is planning to build facilities for sample storage;

— The laboratory has kept all the pulp duplicates of the primary samples, which may provide an advantage supply for the requirements of repeatable checking on primary assays.

4.4.5 ***Resource and Reserve Estimation under Chinese Code***

The latest resources estimation under Chinese code was conducted by No. 10 Geological Brigade in March 2011, on the basis of the exploration completed in November 2005 and during the period of September 2010 to March 2011.

4.4.5.1 *Related Technical Parameters*

The parameters used in the Lubukan iron mine Resource estimate for the high-grade iron ore by Metallurgy and Geological Exploration Bureau of Liaoning Province are listed in following description.

— Cut-off grade: mFe%≧15%;

— Minimum average industrial grade: mFe%≧20%;

— Minimum mineable thickness: 4.0 m;

— Maximum band allowed: 3.0 m;

For the low-grade iron ore, the following parameters are applied for the resource estimation.

— Cut-off grade: mFe%≧10%;

— Minimum average block grade: mFe%≧15%;

— Minimum mineable thickness: 4.0 m;

— Maximum band allowed: 3.0 m;

4.4.5.2 *Method of Resources Estimate*

The similar method as used in Aoniu Mine is applied in the Luobokan resource estimate. A total of 36 bulk density samples were measured, for the high-grade iron ore bodies, the bulk density is 3.49 t/m^3, and for the low-grade iron ore bodies, the bulk density is 3.36 t/m^3.

4.4.5.3 *Resource Categories*

According to the general exploration report submitted by No. 10 Geological Brigade in March 2011, the resource category is 332 and 2S22 were defined by 200 (along the strike direction) × 200 m (along down-dip) for ore bodies #1, #2 and #3, and 100 (along the strike direction) × 100 m (along down-dip) for other ore bodies. Category 333 resource was defined by extrapolation of the 332 and 2S22 category resource. The 2S22 category resource means the low-grade iron resource.

4.4.5.4 *Resource Estimate*

The latest mineral resource of Lubukan iron mine was estimated by No. 10 Geological Brigade of Liaoning Province in March 2011, and the resource estimate result is expected to prove and file by Liaoning Fuyuan Mineral Resource and Reserve Assessment Company Ltd in June 2011. The resource estimated results of high-grade iron ore and low-grade iron ore are summarized in Table 4-11.

Table 4-11: Estimated Resources at Luobokan Mine, as of 31 March 2011 — Chinese Code*

Orebody	Category	Resource (t)	TFe%	mFe%
	High-Grade Ore			
#3, #4, #7	332	33,557,820	30.88	23.45
#1, #2, #3, #4, #7	333	27,980,020	30.65	20.62
	Low-Grade Ore			
#1 to #9	2S22	63,722,270	22.76	15.91

Note: * The estimated resource was included the mined out and lost resource from starting mining operation on 1 November 2005 to 13 March 2011 at Luobokan Mine.

Based on the monthly mining records, a total of 845,380 t in 332 category resource was mined out and lost from 1 November 2005 to 30 June 2011. By 30 June 2011, the remaining iron resources in 332, 333 and 2S22 categories were estimated at 32.71 Mt at average grades of 30.88% TFe and 23.45% mFe, 27.98 Mt at average grades of 30.65% TFe and 20.62% mFe, and 63.72 Mt at average grades of 22.76% TFe and 17.48% mFe, respectively (Table 4-12).

Table 4-12: Remaining Resources at Luobokan Mine, as of 30 June 2011 — Chinese Code

Ore body	Category	Resource (t)	TFe%	mFe%
	High-Grade Ore			
#3, #4, #7	332	32,712,440	30.88	23.45
#1, #2, #3, #4, #7	333	27,980,020	30.65	20.62
	Low-Grade Ore			
#1 to #9	2S22	63,722,270	22.76	17.48

4.5 Mengjia Mine

4.5.1 *Mine Geology*

The outcrops of Benxi Mengjiapuzi ("**Mengjia**") mine are represented by Cigou Formation of Archaean Anshan Group and the Quaternary sedimentary sequences.

Cigou Formation (Arcg) consists of the amphibolite-magnetite quartzite, amphibolite granulite, amphibolites quartz schist and plagioclase amphibolite. The amphibolite quartz schist is widely distributed in the mine area and the ore bodies are hosted in the magnetite quartzite. The Quaternary (Q) is mainly represented by alluvium and diluvium, distributed in the valley and along the slope (Figure 4-13).

Monocline structure is dominated in the mine area, with all layers inclined in the same direction. Generally the occurrence of strata in the mine is characterized by NE-trending and dipping to southeast with angles at 70 to 88°. There are no major faults defined in the mine area.

The magmatism is not well-developed in the mine area. There are only some small-scale diorite and granite-pegmatite dykes locally distributed along the direction of stratification. Figure 4-13 shows the geological settings of Mengjia Mine.

The iron mineralisation at Mengjia Mine is hosted in the strata of the Cigou Formation of Archaean Anshan Group, specifically in the amphibolite granulite and amphibolite quartz schist.

The deposit is of sedimentary metamorphic type. The strata in the mine area have experienced regional dynamic-hydrothermal metamorphism; with amphbolite facies represented amphibolite granulite and amphibolite quartz schist.

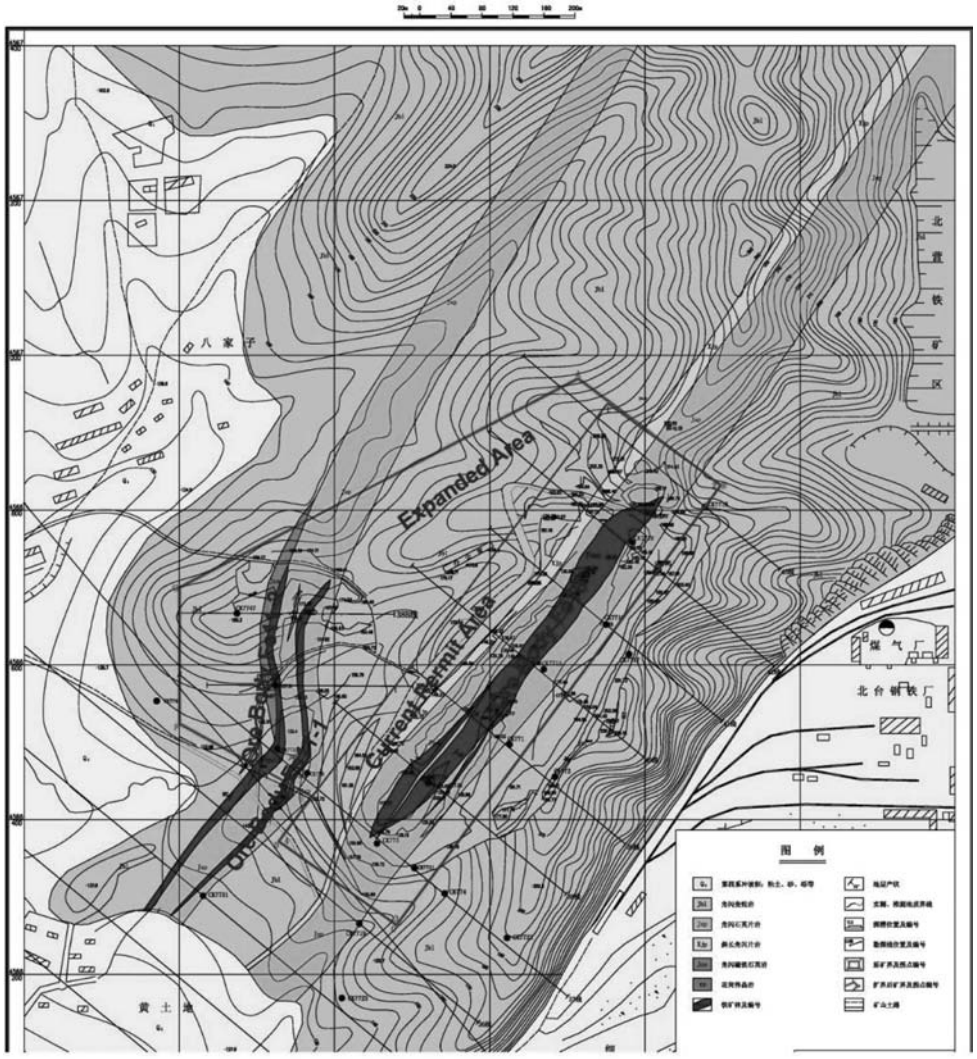

Figure 4-13: Geological Map of Mengjia Mine

4.5.2 ***Orebody Geology***

Two ore bodies were defined in the mine area, namely Fe10 and Fe11. The Fe11 has two secondary ore bodies of Fe11-1 and Fe11-2. The orebody Fe10 is the main orebody in Mengjia Mine, with NE-trending and dipping to SE with dip angles of 62°–87°. The orebody Fe11 strikes SN and dips to W in the north part and trends SW and dips to NWW in the south part. Details of the ore bodies are as follows.

Orebody Fe10 is a major orebody located between the Exploration Lines of 34# and 43#. In the north part of Exploration Line 37#, the orebody is partly exposed at surface and some is weathered and altered. The orebody is about 900 m long and 20 to 50 m wide (36 m wide in average). The hanging-wall and foot-wall rocks of the orebody are represented by amphibolite granulite and amphibolites quartz schist. The average grade of the orebody is 26.39% TFe. Figure 4-14 shows an overview of the orebody Fe10 at exploration line 39#.

Orebody Fe11 is located in the west part of the mine area. It is composed of two parallel ore bodies of Fe11-1 and Fe11-2. The orebody Fe11-1 is about 400 m long 5 to 10 m wide and at a depth of 200–250 m, with an average grade of 25.87% TFe. The orebody Fe11-2 is about 500 m long, 7 to 35 m wide and at a depth of 250–330 m, with an average grade of 26.17% TFe.

Figure 4-14: An Open-Pit Showing the Orebody Fe10 at Exploration Line 39#

4.5.3 *Mineralogy*

4.5.3.1 *Ore Types*

There are two types of ore in Mengjia Mine; they are the magnetite quartzite type and the amphibolite quartzite and occasional biotite magnetite quartzite type. The deposit belongs to sedimentary metamorphic iron deposit (Anshan-type).

4.5.3.2 *Structures and Textures*

The main ore structures at Mengjia Mine are banded structure and disseminated structures. The stockwork and veinlets structures also exist. Banded structure is widely distributed in the ore. The thickness of most bands is between 1 and 3 mm, however some of them are more than 3 mm even several centimetres.

Ore textures in the Mengjia Mine are characterised by euhedral or subhedral crystal granular and replacement remnant texture are discovered in the ore.

4.5.3.3 *Mineral Components*

The analytical results of samples from drilling and surface engineering show that the grades of TFe in Mengjia Mine are mostly at the range of 25% to 35%.

In 1978, a total of 853 samples (including 501 samples from ore bodies Fe10 and Fe11) were assayed. The average grade of TFe is at 26.56% at Mengjia Mine. A statistic table of the results is shown in Table 4-13.

Table 4-13: TFe Contents of Ore bodies at Mengjia Mine*

Orebody	Sample Counts	TFe <20%		TFe 20–25%		TFe 25–30%		TFe 30–35%		TFe >35%		Average Grade %
		Nos.	Pro. %	Nos.	Pro. %	Nos.	Pro. %	Nos.	Pro. %	Nos.	Pro. %	
Fe10	328	34	10.37	73	22.26	147	44.82	70	21.34	4	1.22	26.39
Fe11	173	21	12.14	35	20.23	75	43.35	39	22.54	3	1.73	26.02
Total	501	55	10.98	108	21.56	222	44.31	109	21.76	7	1.40	26.14

* Nos. — Sample counts (number of samples), Pro.% — the proportion in percentage.

Table 4-13 shows that about 44% of the samples are assayed as at the grade range of TFe 25%–30%; this is the most frequent range for the mineralization of Mengjia Mine, which is consistent with an average grade of about 26%. Only a few of samples are at the range of ">35%", which indicates that Mengjia Mine is of relatively lower grade.

The ore composition at Mengjia Mine shows that the content of SiO_2 is at 47.52%, and for the harmful elements, S and P, their contents are very low at 0.034% and 0.068% respectively (see Table 4-14).

Table 4-14: Ore Composition at Mengjia Mine

Ore Body	TFe %	SiO_2%	P %	S %
Fe10	26.39	47.40	0.070	0.033
Fe11-1	25.87	47.38	0.067	0.024
Fe11-2	26.17	47.79	0.069	0.045
Average	26.14	47.52	0.068	0.034

4.5.3.4 *Wall Rock and Waste Rock*

The wall rocks of Mengjia deposits are amphibolite granulite and amphibolites quartz schist. There are clear boundaries between ore bodies and wall rocks. The oxidization in the mine area is in a relative low grade.

4.5.4 ***Sampling, Assaying and Quality Assurance and Quality Control (QA/QC)***

4.5.4.1 *Historical Exploration*

The first systematic exploration was conducted in Mengjia Mine after 1958. The historical exploration was divided into four stages.

During 1978–1979, No. 104 Brigade of Geological Exploration, Liaoning Provincial Metallurgy Industry Bureau (No. 104 Brigade) carried out the exploration in the mine area. At that time, eight ore bodies were defined including Fe1, FE2, Fe3, Fe10, and Fe11 in Mengjia licensed area. The exploration covered an area of 2.52 km^2, with a total 54 drill holes (16,284.02 m). There were 18 and 10 drill holes completed for exploring the ore bodies Fe10 and Fe11 respectively. As a result, No. 104 Brigade estimated the resources in B+C1 categories for Fe10 and Fe11 at 24.9 Mt.

In 2001, Mine Design Institute of Benxi Iron Company (MDIBIC) was commissioned by the government of Pinshan District, Benxi City to undertake the feasibility study on Mengjia Mine. A report named "Feasibility Study of Orebody Fe10, Mengjia Mine, Beitai Town, Pinshan District of Benxi City" was submitted.

In 2004, MDIBIC prepared a developing and utilizing plan for Orebody Fe10.

In 2005–2008, No. 8 Geological Brigade of Liaoning Province studied the depletion and the remained resources. The results showed that from 2005 to the end of 2008, there were 2,868,470 t of ore depleted and the remained resources of 122b Category was 2,043,000 t.

The recent resources verification was conducted by the Consulting Center of Mining Development (CCMD), Benxi City in 2009.

4.5.4.2 *Exploration, Sampling, Assaying and QA/QC Protocol*

The exploration for the Mengjia is similar to other of the Company's mines. The historical explorations were reported with mounds of documentation. The reports were compiled in different stages by the domestic experts and were also approved by relevant authorities.

The historical exploration were reported strictly following with the exploration specifications, from topographic survey, geological mapping, to trenching, pitting, drilling and sampling, as well as assaying.

The conventional QA/QC protocols for Chinese domestic mines were strict, however it emphases the documentation/paper reporting by qualified unit such as geological brigades and companies who obtained the accreditation for geological exploration, and the work of keeping physical field materials such as drill cores, core rejects, duplicate samples, internal and external assaying pulps, were usually ignored by the mine personnel.

SRK was told by Mengjia personnel that the remaining drill cores were sent to Metallurgical testings previously. The duplicate samples and rejects are no longer available as they were normally kept by the mine for only a short time.

4.5.5 ***Resource and Reserve Estimation under Chinese Code***

4.5.5.1 *Related Technical Parameters*

The recent estimates of resources for Mengjia Mine were conducted by CCMD in 2009. According to Chinese Specification for Geological Survey on Iron Deposit (DZ/T0200-2002), the cut off grade for primary ore is usually set as 20% of TFe, and the minimum mineable thickness is assigned as 2 m. The following parameters for the resource estimation were adopted by CCMD.

— Cut-off grade: TFe% ≧ 20%;

— Minimum average industrial grade: TFe% ≧ 25%;

— Minimum mineable thickness: 2.0 m;

— Maximum band allowed: 2.0 m;

4.5.5.2 *Method of Resources Estimate*

The parallel vertical cross-section method was applied for the resources estimation. A total of 31 bulk density samples were measured, and the density for the Mengjia iron ore is 3.24 t/m^3.

4.5.5.3 *Resource Categories*

The 122b Category resources were defined by CCMD within the exploration grid of 200 m by 200 m, and the 333 Category resources were inferred by the mineralization in single borehole or extrapolated from 122b Category resources.

4.5.5.4 *Resource Estimate*

Dated by 31 December 2008, the remained resources of 122b and 333 categories in Mengjia Mine area (includes the proposed expanded area) reported by CCMD are shown in Table 4-15.

Table 4-15: Estimated Resources at Mengjia Mine, as of 31 December 2008 — Chinese Code

Ore body	Category	Resource (t)	TFe%	mFe%
Fe10 and Fe11	122b	10,171,000	26.14	22.44
Fe10 and Fe11	333	2,570,000	26.14	22.44

Based on the monthly mining records, a total of 1,941,098 t in 122b category resource was mined out and lost from 1 January 2009 to 30 June 2011. By 30 June 2011, the remaining iron resources in 122b and 333 categories were estimated at 8.23 Mt at average grades of 26.14% TFe and 22.44% mFe, and 2.57 Mt at average grades of 26.14% TFe and 22.44% mFe, respectively (Table 4-16).

Table 4-16: Remaining Resources at Mengjia Mine, as of 30 June 2011 — Chinese Code

Ore body	Category	Resource (t)	TFe%	mFe%
Fe10 and Fe11	122b	8,229,902	26.14	22.44
Fe10 and Fe11	333	2,570,000	26.14	22.44

SRK note that about 2,000,000 t ore resource of the orebody Fe11 just outside the Mengjia mining licence area in the southwest area was estimated by the relevant Chinese geological brigade. According to SRK's suggestion, Benxi Mining has planned to enlarge the Mengjia mining licence to cover that area.

4.6 Mineral Resource/Ore Reserve — JORC Code

4.6.1 *Mineral Resource/Ore Reserve — JORC Code Classification System*

The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, prepared by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia in September 1999 and revised in December 2004 ("**the JORC Code**") is a mineral resource/ore reserve classification system that has been widely used and is internationally recognized. By SRK's site visit, review on the original databases and check samples, The JORC Code is cited by SRK to report the Mineral Resources and Ore Reserves of the Company's Aoniu, Jingjia, Maogong, Luobokan and Mengjia Mines in this technical report.

A mineral resource is defined in the JORC Code as an identified in-situ mineral occurrence from which valuable or useful minerals may be recovered. Mineral resources are classified as Measured, Indicated or Inferred according to the degree of confidence in the estimate:

- A Measured resource is one which has been intersected and tested by drill holes or other sampling procedures at locations which are close enough to confirm continuity and where geoscientific data are reliably known;

- An Indicated resource is one which has been sampled by drill holes or other sampling procedures at locations too widely spaced to ensure continuity, but close enough to give a reasonable indication of continuity and where geoscientific data are known with a reasonable level of reliability; and

- An Inferred resource is one where geoscientific evidence from drill holes or other sampling procedures is such that continuity cannot be predicted with confidence and where geoscientific data may not be known with a reasonable level of reliability.

An ore reserve is defined in the JORC Code as that part of a Measured or Indicated Mineral Resource which could be mined and from which valuable or useful minerals could be recovered economically under conditions reasonably assumed at the time of reporting. Ore reserve figures incorporate mining dilution and allow for mining losses and are based on an appropriate level of mine planning, mine design and scheduling. Proved and Probable Ore Reserves are based on Measured and Indicated Mineral Resources, respectively. Under the JORC Code, Inferred resources are deemed to be too poorly delineated to be transferred into an ore reserve category, and therefore no equivalent possible ore reserve category is recognized or used.

The general relationships between Exploration Results, Mineral Resources and Ore Reserves under the JORC Code are summarized in Figure 4-15. The Ore Reserves are quoted as comprising part of the total Mineral Resource rather than the Mineral Resources being additional to the Ore Reserves quoted. The JORC Code allows for either procedure, provided the system adopted is clearly specified. In this report, all of the Ore Reserves are included within the Mineral Resource statements.

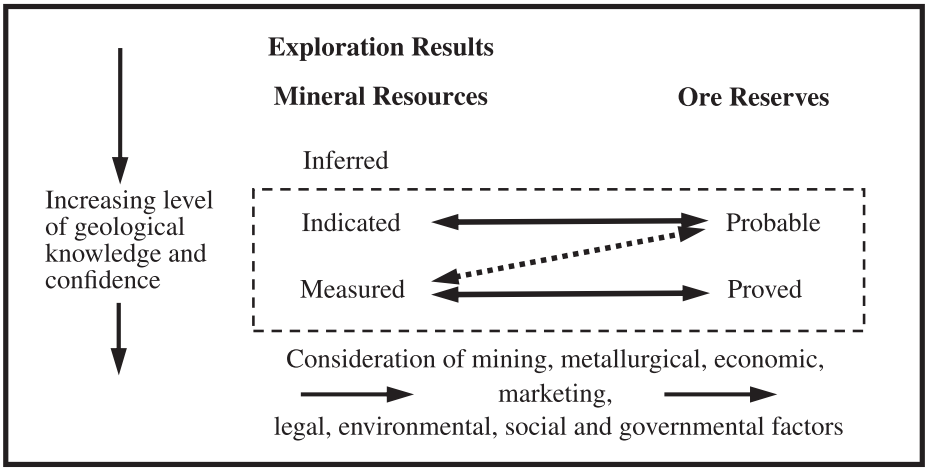

Figure 4-15: Schematic Mineral Resources and Their Conversion to Ore Reserves

4.6.2 ***SRK Verification***

4.6.2.1 *Review on Original Geological Database*

SRK reviewed all original geological database including geological survey and mapping at different scales; drill holes logging; sampling methodologies and sample preparation and assaying; assay quality control and quality assurance (QA/QC); the geological interpretation, mineral resource estimation procedures and parameters applied by Chinese Geological Brigades.

The conventional geological reporting including QA/QC protocol for Chinese domestic mines was strict although it is somewhat different from the Western's.

— It emphases the documentation/paper reporting by qualified unit such as geological brigades and companies who obtained the accreditation for geological exploration but not competent persons;

— All the regular exploration work should be conducted according to the specifications issued by Land and Resources Ministry from central government (formal Geology and Mineral Resources Ministry);

— The exploration should be conducted by qualified exploration units i.e. geological brigades and supervised by relevant governmental authorities i.e. provincial geological bureaus or land and resources bureaus;

— Relevant authorities who supervise the exploration or mining activities will organize experts to review the reports or applications, and approve the geological reports including resource estimates if there is no dissenting opinion from all experts. The approved resources/reserves will be recorded by the government.

— The QA/QC protocol is normally requested to be in compliance with Chinese exploration specifications. However the work of keeping physical field materials such as drill cores, core rejects, duplicate samples, internal and external assaying pulps, were usually ignored by the geologists or other mine personnel.

As these iron mines are "Anshan-Type" banded iron formation deposits and the iron grades are generally consistent throughout the mineralized bodies, SRK considers that these exploration programs would provide a reasonable basis to estimate the mineralized bodies at these iron mines, and that the analytical methods used for the deposits produced acceptable results with no material bias.

Based on reviewing the deposit geology, drilling and sampling data, and procedures and parameters used for the estimation of mineral resources, SRK is of the opinion that the mineral resources estimated under the 1999 Chinese resource category system for the Aoniu, Jingjia, Maogong, Luobokan and Mengjia iron deposits by Chinese Geological Brigades are comparable to the JORC Code Mineral Resource categories. The economic portion of the Measured and Indicated Mineral Resources can accordingly be used to estimate Proved and Probable Ore Reserves.

4.6.3 ***Site Inspection and Historical Production Review***

In May 2010, January 2011 and April 2011 the SRK team visited the Aoniu Mining office in Fushun City, and all mines including Aoniu, Maogong, Jingjia, Xingzhou and Benxi mines. The data verification work completed by SRK included:

— Site visit to the Company's mining areas, inspections of iron ore and other outcropping lithologies;

— Checking of some mining area collars with hand-held GPS device;

— Visiting the mining activities and processing plants;

— Collection of samples from field and concentrators and all the samples were despatched to Intertek Laboratory located in Beijing for TFe, mFe, S and P contents determination. Intertek Laboratory is one of internationally-recognized analytical laboratories;

— Detailed discussion with the Company's personnel (from management and from the all mine sites);

— Reviewing all available geological reports and monthly production forms.

The historical monthly production forms of the Company's mines have been reviewed and simple statistics of the ore grades were made to check the mineralization of the mines.

Aoniu Mine

Monthly mining statistical figures since December 2008 to March 2011 have been reviewed, which show relatively steady-going mining activities in the past. No significant variation occurred to the average grades of mined-out ore. Figure 4-16 shows the average grades of original ore mined by two different teams (Concentrator #1 and Concentrator #2) in recent 28 months (December 2008 to March 2011). All of the numbers (monthly average grades) are at the range of 24%–31%, showing stable distribution of the ore grades in Aoniu mine area.

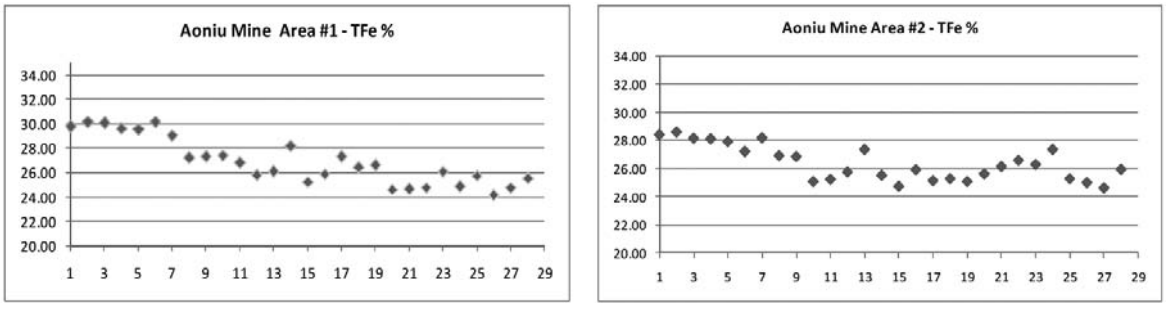

Figure 4-16: Average Grades of Monthly Mined Ore at Aoniu Mine

The average grade of total iron (TFe) derived from mined ore at Aoniu mine in recent 28 months is 26.52%, which is comparatively lower than the average grade of ore in Aoniu mine (about 34.46% reported by the Geological Brigade). The difference is about 7.94% TFe, and the proportional difference is approximately 23%.

The large difference may partially be caused by the high dilution of ore during mining, with some lean ore even barren gaps taken to account, mixed with the ore. It may also be because the average grade of ore in the specific mined areas is much lower than in the richer ones.

Maogong and Jingjia Mines

SRK was informed by the Company's personnel that the Jingjia mining operation has been suspended as the resources has almost been depleted. Mining labourers from Jingjia Mine were used for Maogong mining activities recently. The production statistics of Jingjia-Maogong mines reflects the historical mining in Maogong mine area. Shown as Figure 4-17, the average grades of Jingjia-Maogong mines are not so stable, as shown in particular in the left chart of the figures below. Comparatively the right chart shows higher average grade than the left one, and the mineralization is shown as being relatively more stable at a range from 26% to 34%.

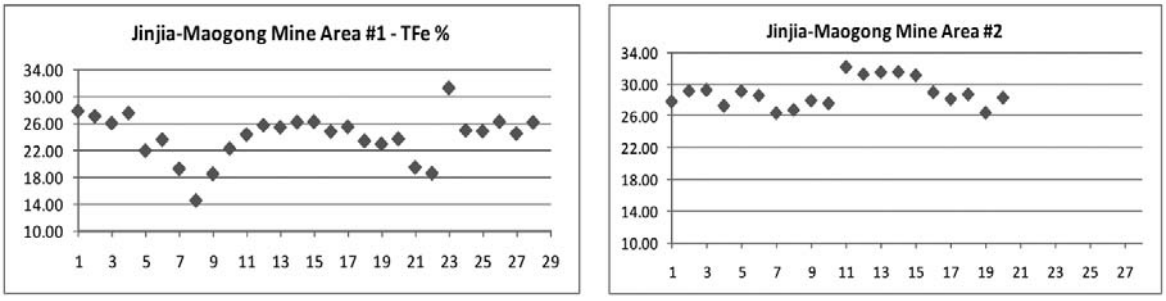

Figure 4-17: Average Grades of Monthly Mined Ore at Jingjia and Maogong Mines

The average grade in Jingjia-Maogong mine derived from the historical production records is about 26.94% of TFe, which is of 6.54% (absolute difference) lower than 33.48%, the reported average grade of Jingjia-Maogong resources. The proportional difference is about 19.5%, which may considered as an acceptable result though it is not quite consistent with the reported one considering relatively higher mining dilution.

Luobokan Mine

Luobokan Mine was operated by the Company from March 2009 and the mining activities was suspended in May 2009 then continued in December 2010. The historical records show the monthly average grades of ore mined in recent 21 months are at the range of 14%–23%, with an average number at 18.07%. Figure 4-18 shows the monthly average grades of mined-out ore in Xingzhou Mine.

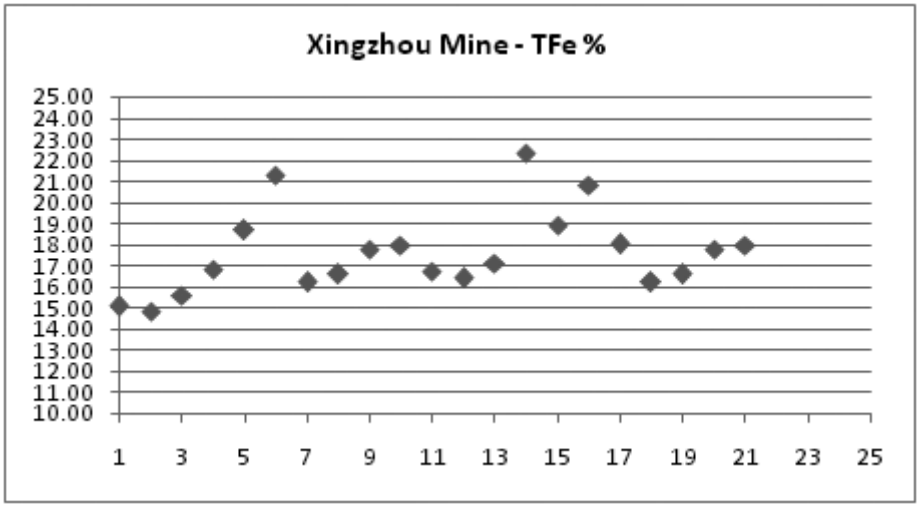

Figure 4-18: Average Grades of Monthly Mined Ore at Xingzhou Mine

The result of average grade at 18.07% derived from production records in recent two years is a bit lower than the grade at 18.63% estimated from the figures of geological resources in the brigade's report. The relative difference is about 3% and is considered as a reasonable result if taking the dilution factor into account.

Mengjia Mine

The monthly production records in recent 28 month since December 2008 show the ''average grades'' of ore in Benxi Mine are at the range 13%–24%, with an average number at 18.70%. In the geological report provided by the Company, the average grade of ore in Benxi Mine is nearly 26%. The difference of average grade between production records statistics and previous geological reporting is about 7.30%, with a proportional difference about 28%. Figure 4-19 shows the average grades of monthly mined-out ore from Benxi Mine.

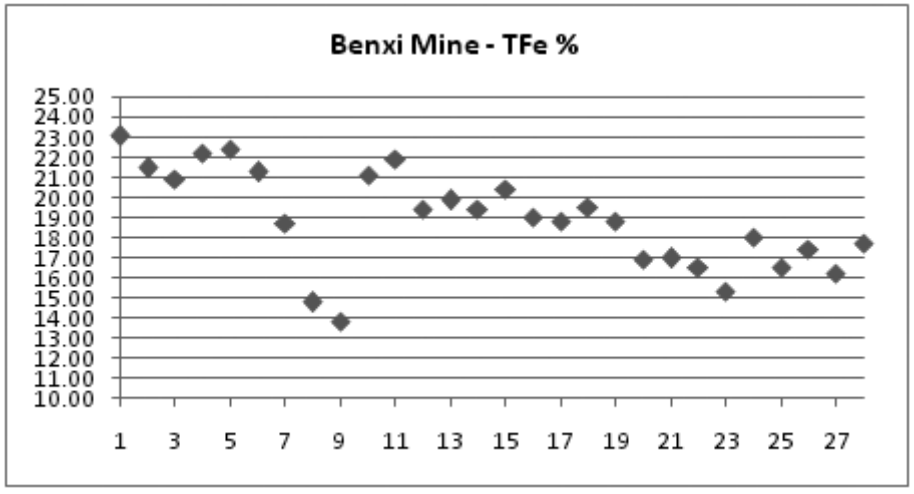

Figure 4-19: Average Grades of Monthly Mined Ore at Benxi Mine

4.6.4 *SRK Check Samples*

To perform some limited checking of the grade of the mineralized bodies for the Company's project, SRK randomly took 23 samples for the outcrops of the ore bodies in the the Company's properties and sent all the samples to Intertek Beijing Laboratory for TFe and mFe content analysis in June 2010. Visual observation, digital photos and Global Positioning System (GPS) measurements were used to conduct and record the results of this inspection.

SRK compared the check sample results with the average grade of the ore bodies described in the exploration reports or resources verification reports. The assaying results have been given in Table 4-17.

Table 4-17: Comparison of SRK Check Sample Results with Orebody Average Grades

SRK Hand Sample			Average Grade of Orebody			
Sample#	TFe (%)	mFe (%)	TFe (%)	mFe (%)	Orebody#	Mine Name
A-001	39.73	37.01	34.2	—	Fe1	Aoniu
A-002	31.47	29	34.2	—	Fe1	Aoniu
A-003	26.91	24.34	34.2	—	Fe1	Aoniu
A-004	36.88	35.04	35.71	—	Fe13	Aoniu
A-005	37.16	34.92	34.33	—	Fe14	Aoniu
A-006	32.74	30.27	34.33	—	Fe14	Aoniu
A-007	31.88	29.19	34.19	—	Fe15	Aoniu
A-008	40.4	36.93	34.19	—	Fe15	Aoniu
MG-001	35.87	34.45	37.76	—	Fe16/15	Maogong
MG-002	35.18	34.45	37.76	—	Fe16/15	Maogong
MG-003	36.46	34.94	35.75	—	Fe8	Maogong
MG-004	36.55	34.11	35.75	—	Fe8	Maogong
MG-005	35	31.87	34.73	—	Fe18	Maogong
XZ-001	22.84	14.51		15.22	Fe1	Luobokan
XZ-002	21.69	10.24		15.22	Fe1	Luobokan
XZ-003	27.21	15.08		15.22	Fe1	Luobokan
XZ-004	33.49	22.51		20.67	Fe1	Luobokan
BX-001	29.19	27.14	26.39	21.42		Mengjia
BX-002	33.64	30.2	26.39	21.42		Mengjia
BX-003	30.19	26.8	26.39	21.42	Fe10	Mengjia
BX-004	30.57	28.01	26.39	21.42		Mengjia
BX-005	29.23	27.17	26.39	21.42		Mengjia
BX-006	34.81	31.33	26.17	22.37	Fe11-2	Mengjia

Figure 4-20 and Figure 4-21 show the results of the Intertek laboratory analysis with the average grade of different ore bodies summarized by the the Company's report, which represent the low correlation to the original assaying for the ore bodies. SRK believes that the discontinuous iron mineralization and random sample have caused this result. However, SRK is confident in that there is a relative good iron mineralization for the Company's properties.

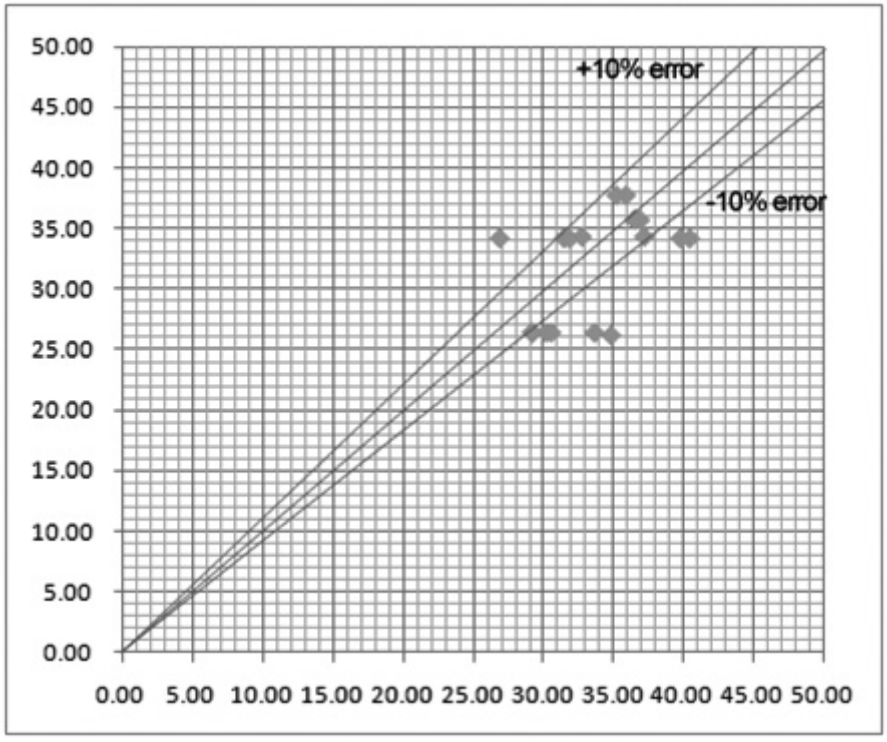

Figure 4-20: SRK Hand Samples vs Average grade of Ore bodies (TFe %)

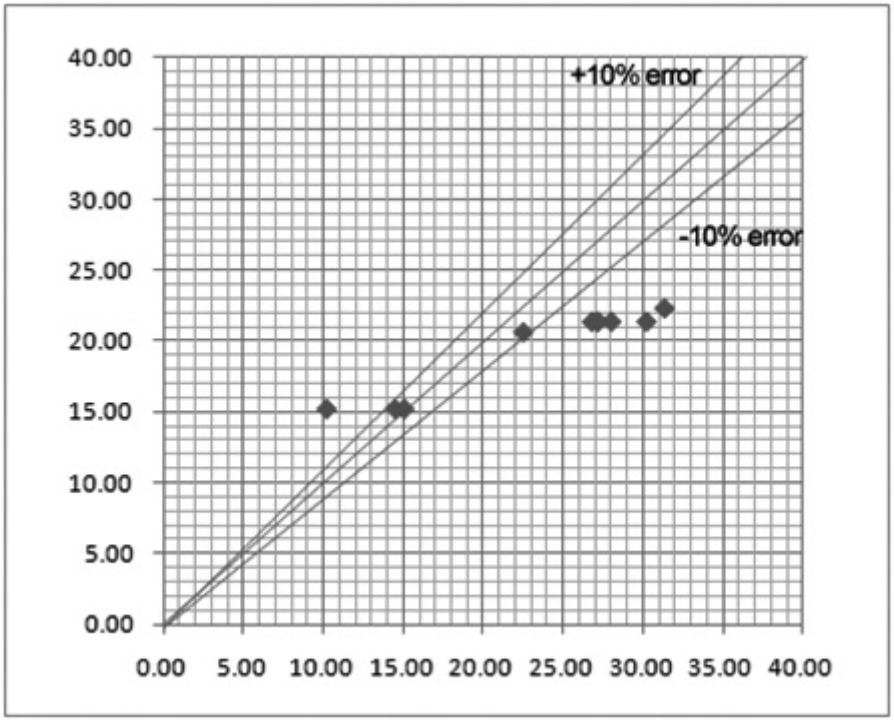

Figure 4-21: SRK Hand Samples vs Average grade of Ore bodies (mFe %)

These results of data verification indicate that the original database is sound and reliable for the purposes of resource estimation.

4.6.5 ***Comparable JORC Code Resource and Reserve Estimation***

Based on reviewing the deposit geology, drilling and sampling data, and procedures and parameters used for the estimation of mineral resources, previous production data, and SRK's check samples at the five mines, SRK is of the opinion that the mineral resources estimated under the 1999 Chinese mineral resource system for the five iron deposits by Chinese Geological Brigades are comparable to the JORC Code Mineral Resource categories. In general, the Chinese categories of 122b, 332, and 2S22 may refer to JORC Code Indicated Resource, and category 333 may refer to Inferred Resource. The comparison of the Chinese and JORC Code systems is provided in Appendix II. The economic portion of the Measured and Indicated Mineral Resources can accordingly be used to estimate Proved and Probable Ore Reserves.

4.6.5.1 *JORC Code Comparable Resource Statement*

The resource estimates comparable to the JORC Code as of 30 June 2011 for the five iron mines in total are summarized in Table 4-18. The JORC Code comparable Indicated and Inferred Mineral Resources are 60.51 Mt with average TFe and mFe grades of 30.75% and 25.26%, and 46.31 Mt with an average TFe and mFe grades of 31.39% and 23.96%, respectively. In addition, the low-grade Indicated Resource is 63.72 Mt at average TFe and mFe grades of 22.76% and 17.48%. Only the Indicated resources can be used for ore reserve estimation and mine planning.

Table 4-18: Resources at Five Mines — Comparable JORC Code, as of 30 June 2011

Mine	Category	Resources (t)	TFe (%)	mFe (%)
Aoniu	Indicated	8,262,009	32.59	29.90
	Inferred	11,454,000	33.20	30.46
Jingjia	Indicated	11,038,548	32.29	29.12
	Inferred	1,518,240	30.15	27.30
Maogong	Indicated	265,262	35.56	30.35
	Inferred	2,790,722	36.95	30.46
Luobokan	Indicated	32,712,440	30.88	23.45
	Inferred	27,980,020	30.65	20.62
	Indicated*	63,722,270	22.76	17.48
Mengjia	Indicated	8,229,902	26.14	22.44
	Inferred	2,570,000	26.14	22.44
Total	**Indicated**	**60,508,161**	**30.75**	**25.26**
	Inferred	**46,312,982**	**31.39**	**23.96**
	Indicated*	**63,722,270**	**22.76**	**17.48**
Indicated+Indicated*+Inferred		**170,543,413**	**27.94**	**25.99**

* signifies the low-grade Mineral Resource

4.6.5.2 *JORC Code Comparable Ore Reserve Estimation*

The comparable JORC Code Ore Reserves are estimated based on the mining recovery rates and dilution rates from last three years mining production records (Table 4-19). For the Luobokan and Mengjia Mines, all mining operations will transfer to underground mining from open-pit mining, and therefore the mining recovery and dilution rates are used for Ore Reserve estimation.

Table 4-19: Statistical and mining designed mining recovery and dilution rates

Item	Aoniu Mine	Maogong Mine	Luobokan Mine		Mengjia Mine	
	Open-pit	Open-pit	Open-pit	Underground	Open-pit	Underground
Recovery Rate	95%	95%	95%	85%	95%	85%
Dilution Rate	28.5%	18.5%	20.4%	17%	28.1%	25%

By 30 June 2011, the Probable Ore Reserves are 68.94 Mt with average TFe and mFe grades of 26.16% and 21.06%. The low-grade Probable Ore Reserve is 70.83 Mt at average TFe and mFe grades of 19.45% and 14.94% (Table 4-20).

Table 4-20: Ore Reserve at Five Mines — Comparable JORC Code, as of 30 June 2011

Mine	Category	Reserves (t)	TFe (%)	mFe (%)
Aoniu	Probable	10,850,847	25.36	23.27
Jingjia	Probable	12,426,645	30.15	24.57
Maogong	Probable	298,618	30.01	25.61
Luobokan	Probable	36,359,877	26.39	20.05
	Probable*	70,827,303	19.45	14.94
Mengjia	Probable	9,773,009	20.91	17.95
Total	**Probable**	**68,943,997**	**26.16**	**21.06**
	Probable*	**70,827,303**	**19.45**	**14.94**
Probable+Probable*		**139,771,300**	**22.50**	**17.96**

* signifies the low-grade Probable Reserve.

4.7 Potential for further Exploration

SRK noticed there are abundant inferred resources in the mining license areas, which would suggest more exploration work including in-fill drilling should be carried out in the mining license areas to verify them and upgrade the resources category, and also define more mineralised ore bodies and mineral resources. The Company has accepted SRK's recommendations and proposes to carry out the exploration program in its five-year development plan. SRK also note that there is great potential to find more iron resources outside the mining licences' areas. For an example, about 2,000,000 t ore resource of the orebody Fe11 just outside the Mengjia mining licence area has been estimated by the relevant Chinese geological brigade. Benxi Mining has planned to enlarge the Mengjia mining licence to cover that area. In addition, the thickness of orebody 10 within the mining licence between exploration lines 40# and 41# is defined to be about 60 m (original 20 to 40 m) during mining development, which indicates the orebody 10 has great potential to enlarge its mineral resource.

SRK recommends that the QA/QC protocol should be well organized by the Company in future exploration, which involves drilling, sampling, sample preparation, assaying, internal and external check, insertion of control samples i.e. blanks, standards and duplicates. The Company should keep the sample rejects and pulps for future check. The Company should upgrade its resources to JORC Code defined resources. The Company has accepted the SRK's suggestions.

5 MINING ASSESSMENT

5.1 Aoniu Mine

5.1.1 *Introduction*

Aoniu Mining has eight mining areas. During SRK's site visit, three of them were using the open-pit mining method, including Chaliangou Mining Area (Mining area I), Waibogou-Dalizigou-Maozhuagou Mining Area (Mining area II) and Xiaobeigou Mining Area (Mining area III). Dahanjiagou Mining Area (Mining area IV) and Dashiyinggou Area (Mining Area V) have been mined by open-pit mining for years. Lishu I, Lishu II and Yaobu Mining area have not conducted any mining activities.

5.1.2 *Mining Tenure*

Mining license was granted to Aoniu Mining on 10 December 2010, which composed of 9 mining areas and is delineated by 65 staking points. The mining license covers a total area of 1.8911 km^2. The details of this mining license are summarized in Table 3-1.

5.1.3 *Mining Technical Conditions*

5.1.3.1 *Geography and Climate*

Aoniu Mine is located in the southern section of Changbai Mountains and in the branches of Qianshan Mountain, being in the eastern mountainous area of Liaodong peninsula, cycled by surrounding hills. The mining area is classified as a warm temperate continental climate, affected by the east-west monsoon and topography, it is rainy and hot in summer and dry and cold in winter. Annual averaging temperature is 8.3°C, the lowest temperature is -35°C, and the highest reaches 40.3°C. The prevailing wind is in northeastern direction, and the speed reaches 1.7 m/s on average and 21.5 m/s at the maximum. July and August are rainy season. The yearly average precipitation is around 837 mm, daily maximum precipitation is 180.3 mm, continuous maximum precipitation is 963.5 mm, relative humidity is 65%, and average evaporation is 963.5 mm. It snows from November to the next March. Freezing period may last for 112 to 161 days, and the earth freezing thickness may reach 1.3 m.

Transportation of mine mainly depends on Shenji (Shenyang-Jilin) Railway, National Highway 202 and Benhuan (Benxi-Huanren Manchu Autonomous County) Provincial-level Highway. Traffic condition, water and power supply are convenient. Shenyang-Weiziyu and Fushun-Pingdingshan bus transportation lines are just 2 km from the northern area of the mine. Shenji Railway and National Highway 202 are about 56 km from the north of the mine. Sealed road is built in the mining area, by which the processing plant is connected.

5.1.3.2 *Regional Structure*

The regional structure mainly consists of fault and fold structure. The faults can be divided into two groups: ① the NE strike fault represented by the Hun River fault and ② the NW strike fault, being the secondary fault of the NE fault, called Suzi River fault and Sha River fault. The main structure is NW fault in strike, in which the structure is isoclinals fold (anticlinorium and synclinorium) in the Tongshi Village formation, with three large anticlines in the west of Tongshi Village (Yangshuyuanzi, Mamagou, and Heibei Anticlines) and one Aoniu-Beilingzi anticline in the east part.

The main structure in the mine area is Aoniu-Beilingzi anticline, and the rock formation strikes generally North West and bends to south west with partly complex folds. The rock formation has been cut by fault development is not strong, and the fault strikes generally northwest or north north east, with most of them filled by intermediate-acid dykes.

The occurred Anshan Group base rocks have obvious same layer fold due to the historical tectonic movements, with the structural line of almost northwest–southeast, mostly strike of 210–250°, the dip of 60–80° except for partially turning at the Maogong area, but the strike is still steady to the west, which is the south wing of the Jiulingzi Anticline, and the anticline axis is at the north of the mine area.

The faults are not well-developed, the iron ore belt and the formation are continually distributed. There are only two small faults in the north of the ore area which crosscut the orebody Fe30, with fractured and mylonitized rocks found in some individual portions. No major joints and fissures are found, with only 190° striking bedding joints and two nearly EW striking compressive and tensional joints, as well as two striking 40 to 60° and 300 to 340° compressive and contorted joints caused by shear stress.

5.1.3.3 *Geotechnical Conditions*

Mining area has a simple geotechnical condition. Hanging wall rocks consists of hornblende gneiss (partially appeared as granulite) and small quantity of hornblende granite chorismite. Footwall rocks are mainly composed of hornblende plagioclase gneiss and biotite plagioclase gneiss, and the hornblende granite chorismite. Protodikonov's hardness coefficient of hanging wall and footwall rocks is f = 7–8, belonging to medium hard and relative stable rock. Hardness coefficient of ore is f = 7–14, belonging to hard rock. Hanging wall and footwall of orebody are stable. Orebody surrounded fissure and joint are not developed.

5.1.3.4 *Hydrogeological Conditions*

The central part of Aoniu mine is of medium — low mountainous area having a medium grade dissecting depth, with the highest elevation of +538 m ASL within the mining area and the local erosion datum of +300 m ASL. Metamorphic rock here consists of fissure aquifer rock, having a weak water yielding property. Joints here are not developed, and ground water activity is not active. Quaternary strata are not developed, distributing in the valley of Danangou, Damiaogou and Xiaomiaogou, with 4–6 m of thickness, consisting of diluvial gravel, and loam and loam, having a good permeability and water bearing property.

Ground water is mainly recharged by rainfall. Due to the large gradient and small permeability of rock, most of rain water runs off the ground, giving little charge to the base rock. Only snow water can give certain significant recharge to the ground water. There is no fixed surface water system, except for some intermittent rivers with the maximum runoff of 6.8 m^3/s in the rainy season. Because part of orebody in middle (Danangou) and west (Xiaomiaogou) mining area is located below erosion datum of +300 m and under the Quaternary strata, mining activity may be affected by the surface water. The Company should pay attention to the large water yielding fracture belt during mining.

5.1.4 *Open-Pit Mining*

5.1.4.1 *Current Mining Status*

During SRK's site visit, three mining areas were in open-pit mining operations, including Chaliangou mining area (mining area I), Waibogou-Dalizigou-Maozhuagou mining area (mining area II) and Xiaobeigou mining area (mining area III). Dahanjiagou mining area (mining area IV) and Dashiyinggou mining area (mining area V) were mined before. All the mining areas are developed by using truck haulage approach.

As of the end of June 2011, in mining area I, the lowest mining level is at 347 m elevation, and the highest mining level is at 400 m elevation, with slope height of about 60 m; for mining area II, the lowest mining elevation is at 260 m while the highest is at 455 m, and the slope height is 195 m; the lowest mining elevation is 300 m, and the highest mining elevation is 410 m, with the slope height of 107 m in the mining area III; for mining area IV, lowest mining elevation is at 388 m while the highest is at 465 m, and the slope height is about 77 m; mining area V has the lowest mining elevation of 390 m, the highest of 440 m, and slope height of about 50 m.

The present real production capacity of the mine is 1.8 Mtpa. Table 5-1 shows the historical production records at Aoniu mine.

Table 5-1: Previous Production Records at Aoniu Mine

Year	Mined (t)	Stripped (t)	Stripping ratio (t/t)	Diluted grade (%)	Ore loss (%)
2007	1,235,889	3,260,261	2.64	29.98	4.12
2008	1,512,492	2,441,494	1.61	26.90	4.01
2009	1,583,958	3,967,429	2.50	24.37	3.88
2010	1,856,739	3,279,079	1.77	24.73	2.81

5.1.4.2 *Open-Pit Technical Parameters*

Considering wall rock properties, geotechnical and hydrological geology, combined with existing allocated equipment, slope height, life of mine, and industrial benchmark, designed ultimate slope angle is 37 to 58°. The detailed slope parameters are listed in Table 5-2.

Table 5-2: Slope Parameters at Aoniu Mine

Index	Value
Bench height*	10 m
Bench slope angle	65 to 70°
Safety berm width	3 to 5 m
Haulage berm width	10 m
Minimum working platform width	16 to 20 m
Open-pit bottom width	16 to 25 m

Note: * Combine two adjacent benches to form 20 m high of bench as mining goes to the final open-pit limit.

Designed open-pit bottom elevation and stripping ratio of each mining area are listed in Table 5-3, open pit boundary data is listed in Table 5-4, and the ultimate pit layouts are shown in Figure 5-1 and Figure 5-2.

Table 5-3: Open-Pit Bottom Elevation and Stripping Ratios at Five Mining Areas

Item	I	II	III	IV	V
Bottom elevation (m)	340	265	290	385	380
Averaging stripping ratio (m^3/m^3)	3.0	4.9	2.8	2.4	2.4
Economic stripping ratio (m^3/m^3)	5.6		6.8	6.1	5.4

Table 5-4: Open-Pit Boundary at Five Mining Areas

Item	I	II	III	IV	V
upper size: L(m) × W (m)	170 × 105	320 × 220	341 × 141	181 × 117	360 × 55
bottom size: L(m) × W (m)	143 × 16	270 × 18	195 × 25	146 × 25	330 × 20
ultimate slope angle (°)		52			
hanging wall (°)	50		47	37	50–58
footwall (°)	42		48	55	52–65
final slope angel in the west (°)	56		49	56	40
final slope angle in the east (°)	45		45	58	40
highest elevation (m)	400	510	410	465	440
lowest mining elevation (m)	340	301	290	395	380

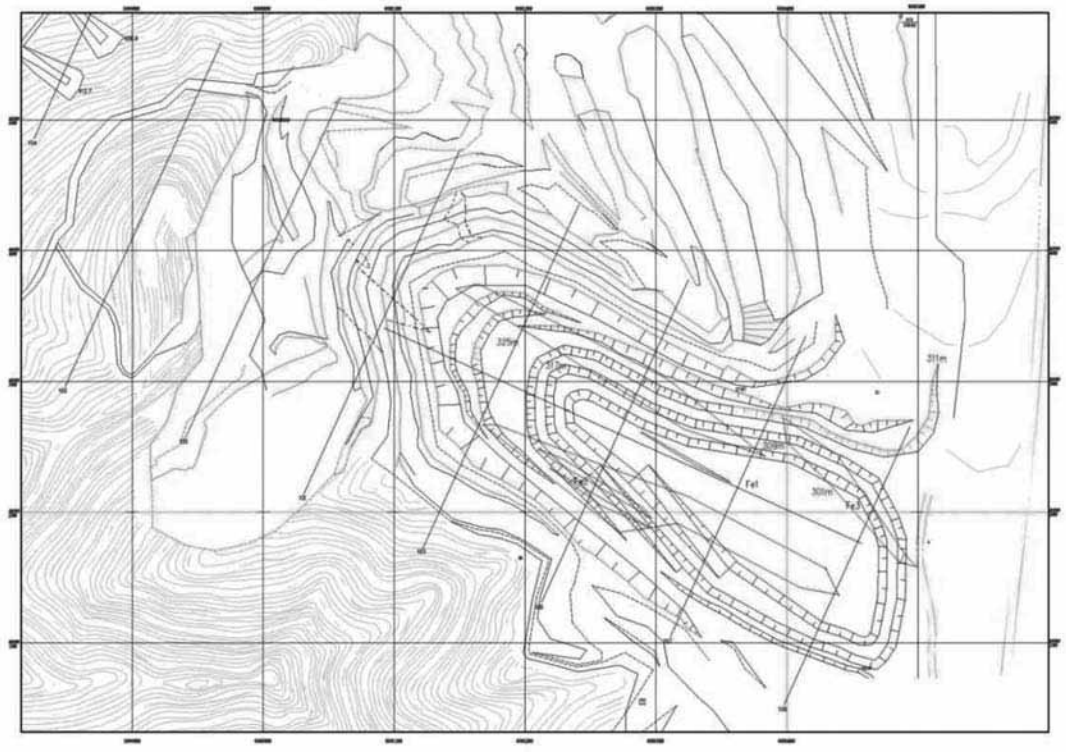

Figure 5-1: Final Pit Layout of Open-Pit II

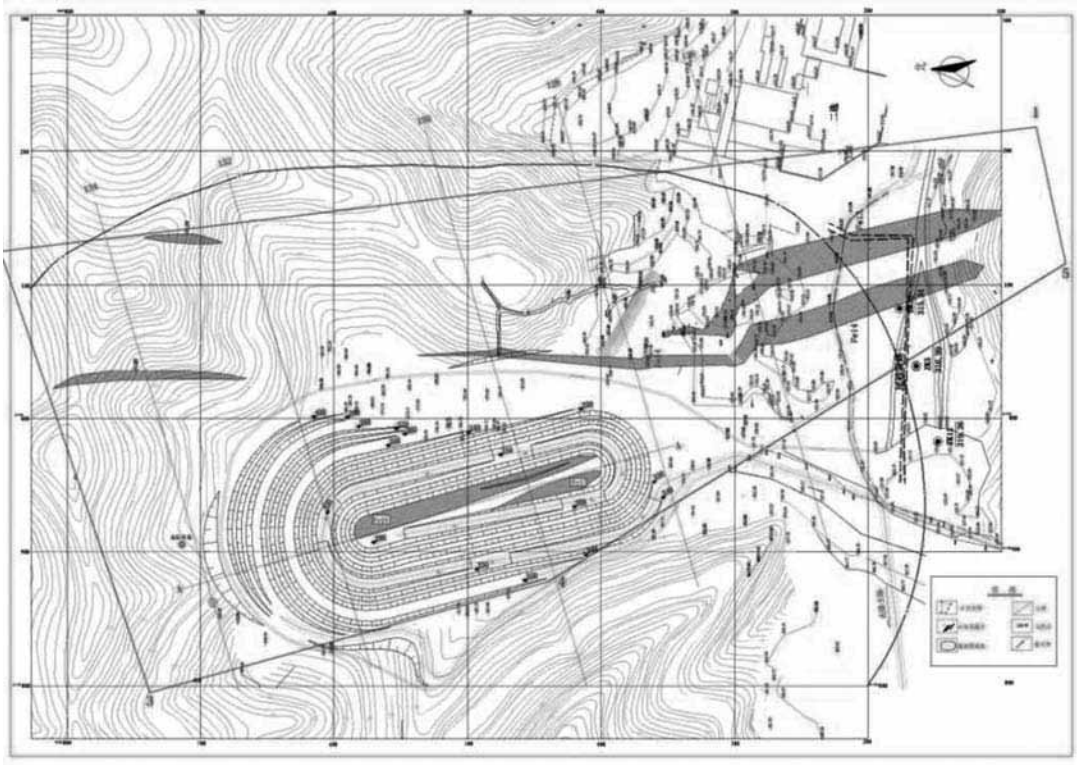

Figure 5-2: Final Pit Layout of Open-Pit III

5.1.4.3 *Mining Method*

Drilling and blasting

Two sets of KQG150, three of CLQ/120G, three of HCR1200-ED, and one of CM358 type drills are used for blasting hole drilling, and hole diameter is 120–150 mm. Drilling pattern for mining is 4.0 m × 3.5 m, and that for stripping is 4.5 m × 4 m. #2 rock explosive or ANFO is used for blasting. Surface detonating system uses short initiation time detonating tube.

Loading

According to the orebody occurrence, 13 units of Hitachi ZX330, 1 unit of PC220LC-7, 1 unit of R225LC-2, 1 unit of Hitachi, and one of 320C hydraulic excavators are used, with the minimum working front of 100 m. Considering the practice of mining and stripping, 3 ZL-50 type front-end loaders are allocated as auxiliary loading equipment for mining, stripping, material haulage, and slope maintenance.

Ore and waste handling

Open-pit mining adopts truck haulage development approach. The haulage roads within the mine are categorized as the 3rd grade mine roads, with 10 m of width and 8%–12% gradient of macadam pavement. Aoniu presently has 16 Hongyan Jingang brand dump trucks, 9 Ouman brand dump trucks, 2 Jiefang Mine dump trucks, and 1 Binghua brand dump truck. The equipment fleet is listed in Table 5-5.

Table 5-5: Main Equipment at Open-Pit

Equipment	Model	Quantity
down-hole drill rig	KQG150	2
down-hole drill rig	CLQ/120G	3
fully hydraulic drill rig	HCR1200-ED	3
down-hole drill rig	CM358	1
hydraulic pressure excavator	Hitachi ZX330	13
hydraulic pressure excavator	Hitachi ZX320C	1
Tipper truck		28

Ore excavated from mining area I is hauled to processing plants No. 1 and No. 2, which are 1,700 m and 4,300 m away from the mining area I, respectively. Part of waste rocks is used for tailing dam construction, and remaining is given to the nearby villagers for free.

Ore excavated from mining area II is hauled to processing plants No. 1 and No. 2, which are 1,200 m and 4,000 m apart from the mining area II, respectively. Waste rock is hauled to TSF of processing plant No. 1 and stored at the southern area of processing plant No. 1, Shanjian southern waste dump, and another two waste dumps at south and north of Maozhuagou, which are 800 m, 400 m, 400 m and 300 m from mining area II, respectively.

Ore excavated from mining area III is hauled to 1,000 m away of processing plant No. 2 while the waste rocks are hauled to Bachagou waste dump, which is 2,000 m away from mining area III.

Ore excavated from mining area IV is hauled to processing plants No. 1 and No. 2, which are 3,000 m and 5,500 m away, respectively, while the waste rocks are hauled to waste dump, which is 1.5 km from mining area IV.

Ore excavated from mining area V is hauled to 2.5 km away of processing plant No. 1 which is in the southeast of open pit while the waste rocks are hauled to the waste dump which is 350 m east from mining area V.

The ore loss is 5%, and the mining dilution is 28.5%

5.1.4.4 *Waste Dump and Dumping Method*

Truck hauling and bulldozer levelling are used for waste rock dumping, which means that stripped waste is hauled to the waste dump along the waste hauling road and levelled by the bulldozer. Waste rocks are dumped in layers from bottom to the top. Designed dumping bench height is 15 m, natural repose angle for waste rock dumping is 27°–39°, working platform width is 50 m, dumping front length is 220 m, and each layer is 15 m high with slope angle of 38°.

Waste rocks are dumped by truck directly or dumped to the bench crest and then bulldozed by dozer. Initial platform foundation of waste dump is selected at appropriate position avoiding valley crossing, then waste rocks are dumped, levelled and compacted along the direction which is perpendicular to the contour to form the dump. Considering the capacity and type of truck, the weight of dozer and maximum dumping volume, initial platform was designed to be 50 m × 60 m. From a perspective of foundation expansion, waste should be dumped along the direction of contour. As the initial platform is formed, waste can be dumped along the direction perpendicular to the contour in order to form a stable platform. Waste rocks are dumped in layers from bottom to the top and stored from upstream to downstream in each layer.

Waste dump of mining area I is located in the southwest of Processing plant No. 1 having an effective storage capacity of 0.243 million m^3.

Mining area II has four waste dumps, including processing plant No. 1 TSF and area south of processing plant No. 1, Sanjian waste dump, Maozhuagou South, and Maozhuagou North waste dump, with the designed storage capacity totalling 10.30 million m^3. As of the end of June 2010, there remained 4.05 million m^3 of storage capacity.

Waste rocks stripped from mining area III are stored in Bachagou waste dump, with designed capacity of 4 million m^3. As of the end of December 2010, capacity of 3.20 million m^3 remained.

Waste dump of mining area IV is designed 200 m east of mining area IV, which has a relative large storage capacity of 1.416 million m^3, with 1.5 km of hauling distance from the pit.

Waste dump of mining area V is designed at the valley where is 330 m east of mining area V, having 0.1293 million m^3 of storage capacity.

Remained capacity of waste dumps is able to accommodate about 4 years of waste rock storage if stripping volume of mine is calculated at 7.8 Mtpa.

5.1.4.5 *Mine Drainage*

Before the open-pit goes into closed level, an intercepting drain ditch is constructed outside the pit for water drainage. The Designed section of the intercepting drain ditch is of trapezoid, with 1.1 m deep, 2.0 m wide on the top, 1.0 m wide on the bottom, and the minimum gradient of 0.03%.

As the open-pit mining goes to the closed level, a temporary water sump and mobile submersible pump are equipped for internal water drainage within the pit. Mobile submersible pump is moved down with progress of mining activity. Water can be stored at the pit bottom for 3 days. Presently, both mining area II and mining area III are mined by depression open-pit. Mining area II is equipped with two WQ150/60 submersible pumps, with one used in normal rainy season and the other also used while in the flooding season. Mining area III is equipped with one WQ150/60 and one WQ50/30 submersible pumps, keeping the former working and the latter spared.

5.1.4.6 *Slope Management*

Aoniu Mine has established slope management regulations, and the slope safety design has also been specified in the mine design. However, during the site visit, SRK also noticed that the current slope does not match the standards, i.e., part of the platform is too narrow, the slope is too sharp, the platform is not levelled, the drainage facilities are not complete, and the slope design parameters have a lack of basis, so there is potential risk. Therefore, SRK suggests:

- The Company will establish the slope inspection regime with professional staff to check the slope on schedule, and once any potential slipping risks or large rocks and umbrella rocks found on the slope, the Company must fix these problems in time. For those potential slipping areas, a monitoring system (such as survey prisms) will be setup to monitor and predict the rock movements.

- To establish complete drainage system for the open-pit to reduce the surface and ground water damage to the slope.

- To enhance the site management and to take extra care of the blasting, loading, surveying conducted near the slope and develop the slope strictly following the design, especially the following factors such as bench height, berm width, bench angle, and final slope angle.

5.1.4.7 *Power Supply*

There is little electrical equipment in the pit. Instead, mainly mobile air compressors and water pumps are employed.

The power supply for Mining area II is from processing plant No. 1, with 10 kV high voltage power transmitted to the 500 kVA transformer. The transformer has 5 low voltage distribution boards undertaking power supply tasks for two sets 45 kW water pumps, one 160 kW air compressor, and lighting bulbs.

The power supply for Mining area III is from processing plant No. 2, with 10 kV high voltage power transmitted to the 315 kVA transformer. The transformer has two low voltage distribution boards, supplying power for one 160 kW air compressor and the lights.

5.1.4.8 *Explosive Supply*

The explosives and facilities are supplied and transported by the Civil Blasting Company, and the remaining is returned to the blasting company on a same day basis.

5.1.4.9 *Mine Safety*

According to the natural situation, to minimize the waste rock hauling distance, the waste rock dumps are built in the valleys or slopes near the pit. However, SRK also suggests that the following aspects need to be improved:

- To build stable cut-off ditches and drainage facilities around the dump. To build drain ditches on the top of the waste rock dump to collect the catchment on the surface and the slope.
- To build the retaining facilities for the rock fall or debris.
- To equip sufficient and qualified emergency facilities for the dumping truck such as steel wires and fire extinguishers.

Most of the facilities in and around the mine area are in the blasting affected area; therefore the Company should relocate these facilities outside. For those unable to be relocated, the protective facilities should be setup, and the personnel should be evacuated prior to blasting and return to the working places afterwards.

5.1.5 ***Mine Plan***

The production profile for the existing open-pit operations and concentrate (TFe grade: 66%) production in Aoniu mine are indicated in Table 5-6.

It is SRK's opinion that, in order to realize the above listed production plan, the Company should invest more drilling, loading, hauling, and other ancillary equipment and strengthen equipment maintenance and management. Then, the production principle of "mining and stripping carried out simultaneously with stripping first" should be strictly followed, a detailed and applicable long-term mine plan should be worked out based on maximizing NPV, and the Company should also pay attention to the implementation of the plan in daily mine production. Finally, the mine should prioritize the resources upgrading to extend life of mine.

Table 5-6: Production Profile of Nine-Year Plan

Item	Unit	2011	2012	2013	2014	2015
Mined Ore	(1,000 t)	1,200	1,200	1,200	1,200	1,200
Ore Grades	%	32.43	32.43	32.43	32.43	32.43
Concentrate	t	524,776	524,776	524,776	524,776	524,776
Item	**Unit**	**2016**	**2017**	**2018**	**2019**	
Mined Ore	(1,000 t)	1,200	1,200	1,200	369	
Ore Grades	%	32.43	32.43	32.43	32.43	
Concentrate	t	524,776	524,776	524,776	161,356	

5.1.6 ***Conclusions and Recommendations***

Aoniu Mine has good resources and convenient transportation and water and power supply conditions, and geotechnical and hydrological geology of the deposits is simple. The Company also has a dedicated team of professionals and workers, as well as safety production regulations and full-time safety management staff, with a good safety record. However, SRK notes that there are still several aspects to be improved:

- Hydrological geology exploration of mine is still in a fairly low level. Small rivers and streams flow through nearby mining area I and II, and bench slope face has a relatively large water seepage volume. Thus, the Company should conduct an overall hydrogeological study on the mining area and deposit in order to understand the hydraulic connection between rivers and mine water and forecast water in-rush. In addition, open-pit water interception and drainage equipment and facilities should also be improved to ensure production safety.

- During production, geological exploration should be enhanced, especially resource exploration on both wings and deep area of ore bodies. Additionally, a study on the ore-forming principle of deep area, upgrade of resources, and expansion of inferred resources need to be addressed to extend life of mine, strengthen risk mitigation abilities, and improve market competitiveness.

- Safety berm width, bench slope angle and bench height are incompliant with the requirements stipulated by the design. SRK suggests the Company strengthening production quality management, especially the quality of drilling, blasting, loading, and surveying, meeting the design standards.

- Compared with the designed average stripping ratio, the actual stripping ratio in the past 3 years did not match up the designed quantity requirements. In the future production, the principle of "mining and stripping simultaneously with stripping first" should be followed, stripping volume should be increased, and slope cutting handling should be conducted for the steep slope areas. During mining, mining design and safety regulations should be implemented to maintain the stability of the slope and keep the sustainable development.

- The Company is planning to expand the mining and processing capacity to 3 Mtpa. In order to meet the capacity, Aoniu Mining should carry out more exploration programs to define more ore bodies and increase ore resource and reserve at Aoniu mine.

According to the feasibility studies on mining area II and III compiled by Yantai Design and Research Co., Ltd. of Shandong Gold Group, the final slope angle of open-pit is designed to be ranging from 45° to 56° with 58° in certain areas and 65° of maximum. Considering most of domestic and overseas open-pits ultimate slope angle less than 50°, existing data of geotechnical and hydrological geology, and ore and rock physical-mechanical properties, SRK suggests the Company retaining qualified geological exploration department or research institution conducting rock mechanics research, collecting information on geotechnical conditions and hydrological geology, so that ore and rock mechanical properties can be furthermore clarified to finalize a rational open-pit slope parameters and a management method can be made on unstable slope.

5.2 Maogong Mine

5.2.1 *Introduction*

Maogong Mine (Maogong Mine including Maogong Mine and Jingjia Mine) is located in the northeast of Liaoning province. The mine is 20 km south of Fushun city and under administration of Maogong village of Shiwen town, Fushun county. The project geographic coordinates are east longitude of 123°51'18"–123°51'55" and north latitude of 41°40'18"–41°40'41". As the production in Jingjia property has been halted since October 2007 due to the poor ore quality, the assessment below mainly focuses on Maogong property. SRK noticed that the Company still used the name of Fushun Jingjia Mining (Jingjia Mining) in the last few years, actually operated in the southwestern portion of the Maogong property. SRK noticed during the latest site visit between 2nd and 6th August 2011 that an 800,000tpa feasibility study was conducted by Yantai Design and Research Institute of Shandong Gold Group Co. Ltd ("YDRISGG") in July 2011, based on the expanded mining tenure.

5.2.2 *Mining Tenure*

The new Maogong mining license including Maogong and Jingjia Mines covers an area of 2.3733 km^2, which consists of 15 stakes with mining depth ranging from 259 m to 0 m ASL. The original mining licenses are summarized in Table 3-1.

5.2.3 *Mining Technical Conditions*

5.2.3.1 *Geography and Climate*

The elevation of project area is between 300 m and 420 m ASL, with a relief of 120 m. The ground vegetation/flora is well developed in the mine area, with a forest covering rate of 67%. The annual average temperature is 7.6°C, and the annual average precipitation is 837 mm.

The Shenyang-Jilin railway line and No. 202 national highway are about 20 km north of the mining tenure.

5.2.3.2 *Structural Settings*

The mine area is located in west of the Shahe fault which is the secondary fault striking North West of Hunhe large fault. The surrounding rocks are Archaean Anshan Group metamorphic rocks and migmatites.

No large faulting or folding structure found in the mine area. The north east striking structures are well developed, which are densely parallelly spread micro closed folds and veins.

The strike of normal magnetite quartzite stripes is different from that of the orebody, which indicates that many structural transformations taken place.

There are two kinds of magmatic rocks in the mine area, including Archaean metamorphic intrusive rocks, which are large area migmatite, mixed granite with gray and light flesh pink colors, mid-coarse crystalloblastic texture and granitic crystalloblastic texture, and massive and gneissic structure and the diabase veins, with strike of north east, plunge of north west, dip of 40°–50° or almost vertical, color of gray green, and diabase and massive structure.

5.2.3.3 *Geotechnical Conditions*

The geotechnical conditions of Maogong Mine and Jingjia Mine are simple. The hanging wall rocks consist of biotite hornblende gneiss and a small amount of hornblende granite, and the footwall rocks are biotite hornblende gneiss. Protodikonov's coefficient of hardness of these rocks ranges from 7 to 8, which is comparatively stable while the hardness coefficient of ore is between 7 and 14, which is hard, with undeveloped fracture fissures and joints, imposing slight impact on mining operation.

The physical properties of wall rocks, intercalate and orebody are shown in Table 5-7.

Table 5-7: Physical Property of Ore and Rock

Location	Lithology	Coefficient of Hardness (f)	Density (t/m^3)	Swell Factor
Wall Rock and Intercalate	Hornblende Plagioclase Gneiss and Granite	7 to 8	2.7	1.6
Orebody	Magnetic Quartzite	7 to 14	3.4	1.6

5.2.3.4 *Hydrogeology*

Maogong mine and Jingjia Mine are located in the low mountainous area that is moderately incised. The maximum elevation in project area is +190 m ASL, and the erosion datum is +130 m ASL, with most Maogong deposits above. The regional water aquifer comprises loosen rock fractural water, base rock fractural water and surface water. Generally, the regional hydro-geological conditions are simple, and surface water and precipitation are the main factors that impact the gushing water quantity, which should be prevented through appropriate approaches, especially surface water. The normal precipitation and rainstorm run-offs are respectively estimated to be 1,782 m^3/d and 1,3464 m^3/d.

As surface subsidence and displacement may occur during underground mining, base rock water quantity and precipitation leakage are both included into the groundwater flow, which is estimated in Table 5-8.

Table 5-8: Groundwater Flow Estimation

Groundwater Flow (m3/d)					
		Water Leakage in Subsidence Area		Total Waterflow	
Level (m)	Base Rock Waterflow	Normal	Maximum	Normal	Maximum
0 m	600	160	2,000	760	2,600

5.2.4 ***Open-Pit Mining Method***

There exist outcrops for most ore bodies in Maogong Mine, and therefore open-pit mining is adopted. Based on the "Maogong Mine Feasibility Study" completed by Hanking Mining and Metallurgical Design Institute Co, Ltd. in February 2010, open-pit mining will be adopted for all the ore bodies, except for the part below 120 m elevation of Fe3 orebody, which will be mined by underground methods due to its depth.

5.2.4.1 *Current Mining Status*

The main ore bodies of Maogong Mine under production comprise Fe7, Fe8, Fe12, Fe16 and Fe17, with mining elevation ranging from 150 m to 100 m. As of the end of June 2010, the bottom width of Maogong Mine open-pit is between 40 and 70 m, and the lowest mining elevation is 90 m, with slope height of about 110 m.

Currently, the Maogong processing plant is located at the east of No. 12 and No. 13 exploration lines within Maogong property. However, the mining of Fe9, Fe13 and Fe14 ore bodies is severely restricted by the processing plant location, which will be relocated according to the plan. In addition, the Guchengzi River will be diverted to the south for the future mining operation of Fe7, Fe8 and Fe16 ore bodies. The main historical production data is shown in Table 5-9.

Table 5-9: Previous Production Records at Maogong Mine

Item	Mined (t)	Stripping (t)	Stripping ratio (t/t)	Diluted grade (%)	Ore loss (%)	Dilution (%)
2007	344,417	472,586	1.37	28.21	4.21	8.56
2008	745,732	556,507	0.75	24.75	3.94	8.91
2009	878,948	1,466,572	1.67	27.93	3.78	6.05
2010	963,441	739,290	0.77	26.31	1.94	7.22

5.2.4.2 *Determination of Ultimate Limit*

The orebody of Maogong Mine plunges to NW with dipping from 30 to 50°. The orebody laterally trends to southwest along the slope direction and uplifts in the northeastern end. Most of the ore bodies are lightly eroded with shallow burial depth over the erosion baseline. Therefore, open-pit mining is adopted.

The bottom elevation of designed pit is 60 m, and the top bench elevation is 170. The pit is 110 m high, and the depressed pit is designed below +130 m elevation. The main technical parameters of open-pit are as follows:

- Final Slope Angle：≤42°
- Bench Slope Angle：70°
- Bench Height：10 m
- Haulage Berm Width：10 m
- Safety Berm Width：4 m; and
- Cleaning Berm Width：10 m

Straight line -retraced routing is implemented for the upper section haulage, and spiral-retraced routing is adopted for the lower section. The open-pit orebody will be mined top- down by levels, with designed bench height of 10 m and minimum work platform width of 25 m. The workface is developed perpendicularly to the orebody strike, and the length of work front line is 150–300 m.

The ultimate pit layout is shown in Figure 5-3.

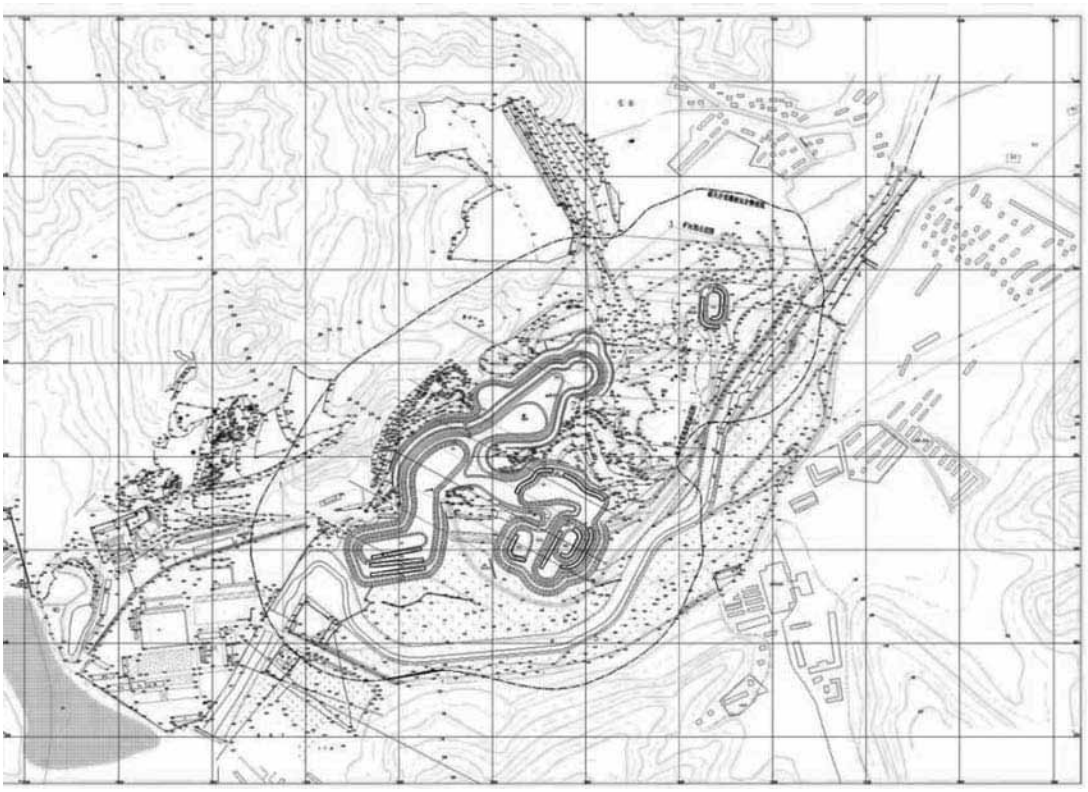

Figure 5-3: Layout of Maogong Mine Ultimate Limit

5.2.4.3 *Mining Method*

Drilling: One G150Y down-hole drill and one ZLQ down-hole drill are used for the drilling operation, with complement of one DPQ750XH mobile screw air compressor and one XAVS786CD diesel-powered screw air compressor. The blasting hole parameters are as follows: (1) resistance line of 3.0–3.5 m, (2) hole spacing of 3.0–3.5 m, and (3) hole depth of 11 m.

The post-blasting land levelling will be conducted by excavators.

Blasting: Porous millisecond blasting is adopted with supplement of buffer blasting, pre-splitting or smooth blasting near the final highwall. #2 rock explosive is used for dry hole blasting while emulsion explosive is used for water hole blasting. No secondary blasting is conducted in the pit. Instead, the YBJ-1 hydraulic breaker is designed to be used for massive rock breaking.

Loading: Hydraulic excavators are used for loading operation in the mine, and the main equipment is listed in Table 5-10.

Haulaging: The dump trucks are used for stripping and mining operation with the hauling distance of 2,000 m for ore and that of 1,000 m for waste rocks. The main trucks modes and quantities are listed in Table 5-10.

Table 5-10: Mining Equipment Fleet at Maogong Mine

Loading Equipment	Quantity	Hauling Equipment	Quantity
ZX330-3H Hydraulic Excavator	2	Ouman Dump Truck	8
ZX230 Hydraulic Excavator	1	CA3258PKJJ Dump Truck	3
ZX240 Hydraulic Excavator	1	Haowo 290 Dump Truck	3
DH225LC-V Hydraulic Excavator	1	Jiefang Dump Truck	2
ZL50 Front-End loader	3		

Two-lane roads are constructed in the mine with width of 7 m and maximum longitudinal gradient of 9%. The minimum length of transition trench is 40 m and minimum turning radius of 15 m.

The ore losses are 5%, and the mining dilution is 18.5%.

5.2.4.4 *Waste Dump and Dumping Method*

The total waste rock quantity of the open-pit is 3.8 million m^3. The starter dump is located in the north of mine area for the waste rock storage, and then the waste will be back-filled into the mined-out pit in the future. The bottom elevation of starter dump is 169.9 m ASL, and the top elevation is 190 m ASL, with height of 20 m and a land area of 32.98 mu (1 mu = 667 m^2).

Once the dump is full, the waste rocks will be back-filled into the mined-out pit, which will be levelled and cleaned to remove the top soil and plants. The top soil will be utilized for rehabilitation. The waste rocks will be stockpiled with slope angle of 1:1.5, and a retaining wall will be set up on the slope bottom. A safety boundary of 20 m will be reserved, with drainage ditches constructed 3 m away. In addition, the interception ditches will also be constructed with the bottom width of 1.5 m, depth of 1.5 m, and high wall slope angle of 1:1.

5.2.4.5 *Mine Drainage*

The waste water will be centralized before drainage, and submerged pump is implemented in the pit. A 50WQ65-30-11 sewage pump is planned to be used in the early stage, and the relevant pump parameters are as follows: (1) Q = 65 m^3/h, (2) H = 30 m, and (3) Motor: 11 kW, 380V.

The pit waste water is discharged to the surface ditch, and the pump can be set up on +80 m level as the pit depth progresses.

5.2.4.6 *Slope Management*

The current bench slope angle does not comply with the design requirement. SRK suggests that the bench slope angle, berm width and height should be optimized in accordance with designs, and regular cleaning and maintenance should also be conducted to ensure the slope safety and stability.

5.2.4.7 *Power Supply*

The power supply is from the Maoyan 10 kV substation 1 km away. The voltage of industrial power is 380V, and that of lighting power is 220V. The main equipment includes air compressors and water pumps.

5.2.4.8 *Explosive Supply*

The explosives and facilities are supplied and transported by the Civil Blasting Company, with the remaining being returned to the Company on a same day basis.

5.2.4.9 *Mine Safety*

Much of the equipment and facilities of the mine, such as Maogong processing plant, Maogong waste rock dumps, and warehouses, are within the mine blast clearance area, SRK recommends that the Company move these outside the blast area. For the fixed facilities, before the blast the Company should give the notice, so that protective devices can be applied and relevant operators can be evacuated to a safe area.

5.2.5 ***Underground Mining Method***

Underground mining and vertical shaft development are planned to be adopted for Fe3 orebody in Maogong Mine, with designed production rate of 150,000 tpa.

5.2.5.1 *Development*

Based on the orebody occurrence and mine production rate, a vertical shaft with cage hoisting is to be adopted, and the relevant parameters are as follows:

- Shaft Diameter: 4.5 m;
- Top Elevation: 138 m;
- Bottom Elevation: -20 m;
- Depth: 158 m; and
- Central Coordinates: X = 4,616,020, Y = 41,571,925.

Steel cage guide is adopted with installation of 2JK-3/20X single rope duo drum winding hoist, balance hammer, and 1.2 m^3 mine cars. The vertical shaft is used for hoist of 150,000 tpa of ore, 30,000 tpa of rocks, materials, equipment, and workers, as well as air intake and the egress.

The relevant parameters of the returned air shaft, also used as the second egress, are as follows:

- Shaft Diameter: 2.5 m;
- Top Elevation: 130 m;

- Bottom Elevation: 0 m;
- Depth: 130 m;
- Central Coordinates: X = 4,615,700, Y = 41,571,780.

The longitudinal section of development is demonstrated in Figure 5-4.

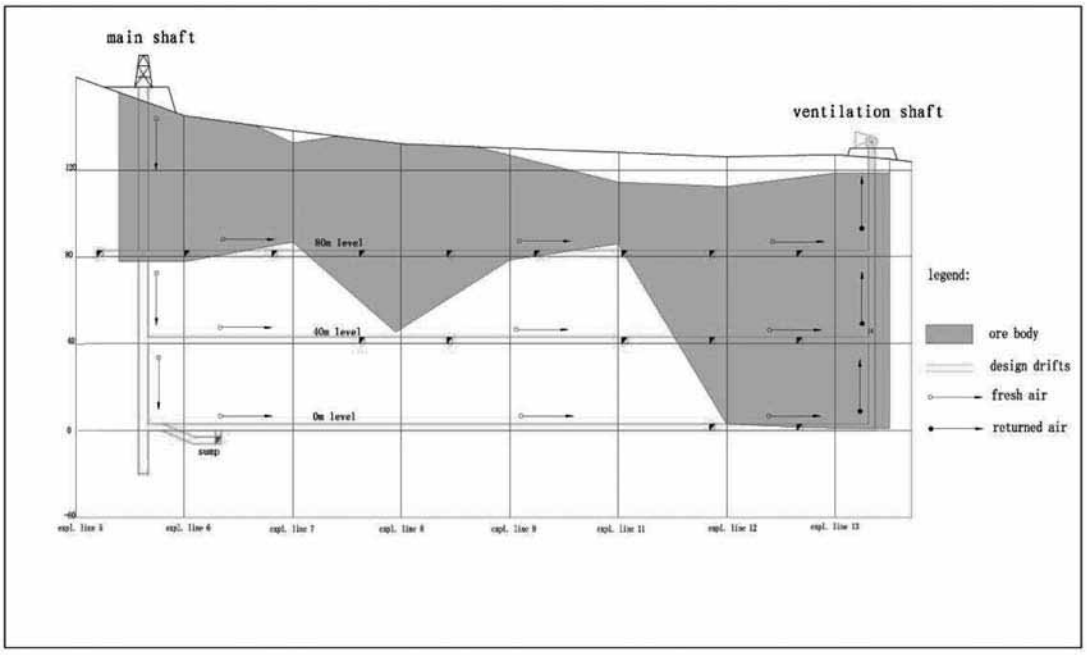

Figure 5-4: Underground Development System at Maogong Mine

5.2.5.2 *Underground Mining Methods*

Based on the orebody occurrence and geotechnical conditions, sublevel caving with pillars (90% of total throughput) and short-hole shrinkage (10% of total throughput) are designed to be implemented. The electric scrapers will be used for ore mucking. The level interval is 40 m, including 0 m, 40 m, 80 m, and 120 m levels.

Sublevel Caving with Bottom Sill Pillar Method

The sub-level caving method is used for the mining operation of orebody over 4 m thick and the stope is implemented along the orebody strike. The stope length and width are respectively 40 m and the width of the orebody, and the height is the same as that of the sublevel. Single side or double sides ore gathering trench is adopted with chute spacing 6 m. The bottom pillar is 11 m high. The protection pillars will be recovered after the mining operation of main orebody is completed. The average production capacity of the stope is 60,000 tpa. The mining method graph is shown in Figure 5-5.

A medium-deep hole rock drill of YGZ-90 is adopted, equipped with TJ25 rock-drill support.

Viscous granular explosives and BQF-100 loading vessel are used for blasting with initiation by non-electric delayed detonator. In addition, the 2DPJ-55KW scrapers equipped with 0.5 m^3 bucket are used for ore mucking, with productivity of 60,000 tpa/pc. A total of three scrapers are required.

Short-Hole Shrinkage Mining Method

This method is used for the mining operation of orebody less than 4 m thick, and the stope is implemented along the orebody strike. The stope length is 40 m, the width is the oblique length of chamber room, and the height is the same as that of sublevel. The rib pillar is 8 m wide. The mining method graph is shown in Figure 5-6.

The average productivity of this mining method, which is mainly used for mining of orebody corners, is 30,000 tpa. Two YT28 rock-drills are selected, and #2 rock explosive is used for short-hole blasting.

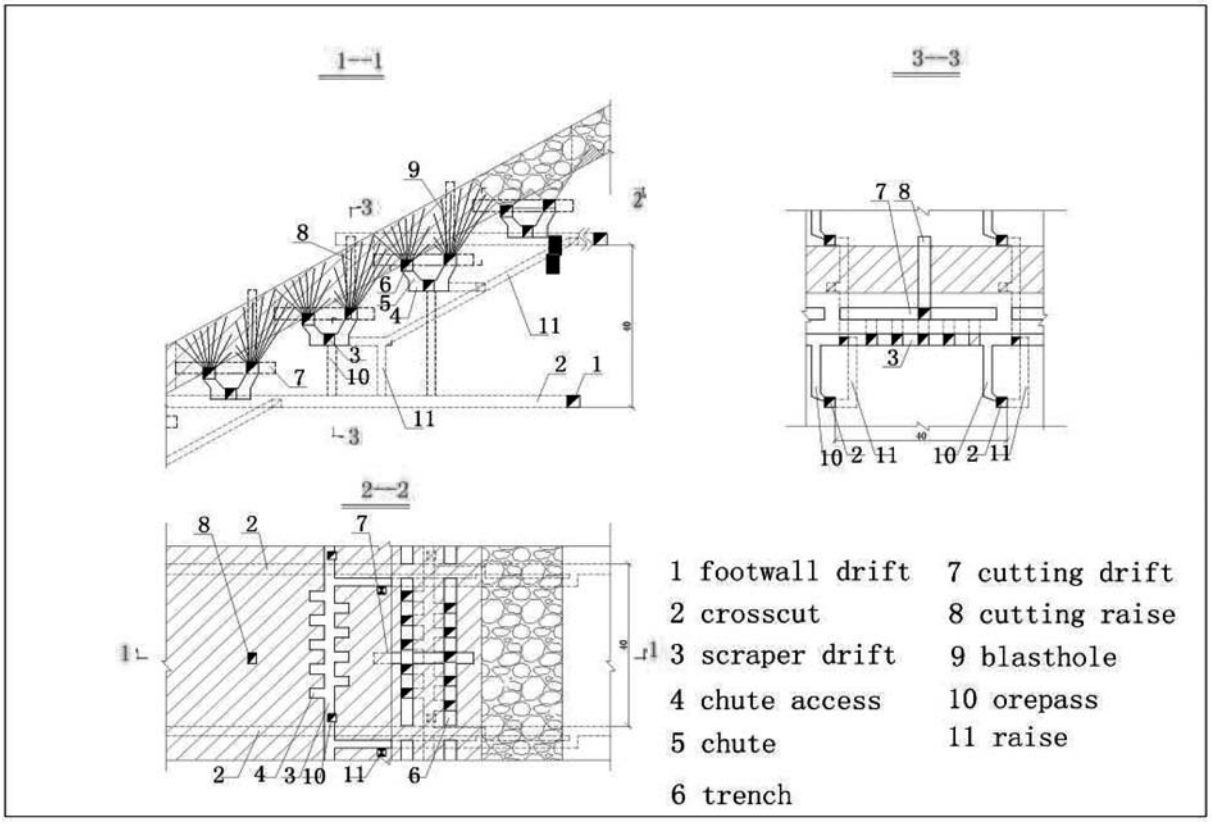

Figure 5-5: Sublevel Caving with Bottom Sill Pillar

The 2DPJ-30KW scraper winch is adopted with 0.3 m^3 bucket for ore mucking. The ore mucking productivity is 30,000 tpa/pc. Therefore, two scrapers are required based on the production requirements.

Ore and Rock Handling

After loading in the ore chutes, the ore is transferred through the haulage roadway in lower panel by the mine car for unloading in the main shaft yard. Then the empty mine car is driven back to the crosscuts to complete a whole haulage cycle.

The rocks for infrastructure construction and preparation are transferred by train from lower panel to the main shaft. The 1.2 m^3 side dumping mine car on curve track driven by 7 t trolley locomotive is used for ore haulage, and the 1.2 m^3 side dumping mine car on curve track driven by 3 t trolley locomotive is used for haulage of rocks, materials, equipment and explosives.

A cage equipped with balanced hammer is used as hoisting system for 150,000 tonnes of ore, 30,000 tonnes of rock, workers, materials, and equipment. 2JK-3/20E single rope winching hoist, with adoption of 3# single rope duo drum cages with balance hammer and steel guide. The cage dead-weight is 5 t, and balance weight is 8.9 t.

The ore losses are 25%, and the mining dilution is 20%.

5.2.5.3 *Ground Control*

The overburden of certain thickness must be maintained during the stoping operation, and hanging wall caving should be conducted timely to guarantee the stoping safety.

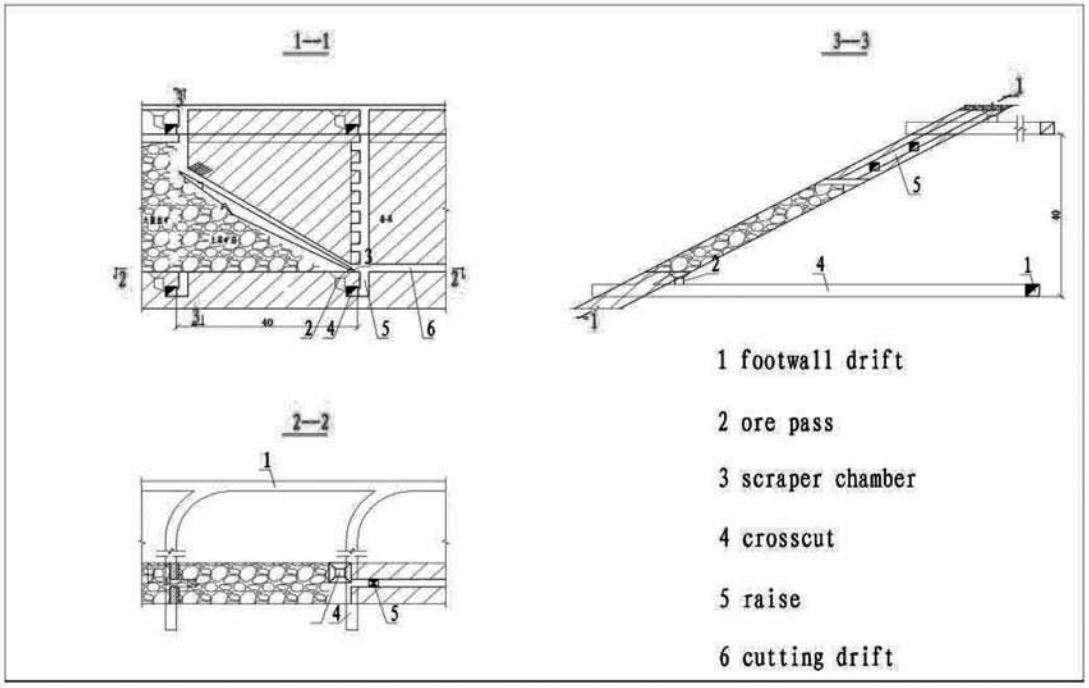

Figure 5-6: Short-hole Shrinkage Mining Method

5.2.5.4 *Ventilation System*

A negative pressure ventilation system is employed, with fresh air intake via the main shaft to underground workface and then returned air exhausted through the returned air shaft to surface, installing one main fan on surface. The fresh air demand is 38.6 m^3/s, negative pressure is 664 Pa, while calculated air quantity is 44.39 m^3/s, and negative pressure is 964 Pa. The K series energy-saving fans are adopted, with model of K-40-4-No. 14, motor power of 90 kW, and input voltage of 380V. The blowers are installed near the exit of the ventilation shaft.

Single end development with adoption of secondary fan ventilation is implemented in the working area to discharge the returned air to surface.

5.2.5.5 *Waste Water Drainage*

Water pump station and water bin are constructed at 0 m level to pump the mine waste water to the surface pool. There are four D46-30 × 7 multistage centrifugal pumps (one pump operated in normal production; three pumps operated in maximum production) installed in the pump station. Two Φ108 × 4 pipelines are implemented. One pipeline is put into use in the normal water pumping period, and the other will be used for maximum water pumping quantity. Two independent water bins are set up with total length of 50 m, total volume of 350 m^3 and effective volume of 280 m^3.

5.2.5.6 *Compressed Air Supply*

There are 8 piece of SA-90A mobile spiral air compressors underground, and the relevant parameters are as follows:

- Air capacity: 16 m^3/min;
- Pressure: 0.75 MPa;
- Motor power: 90 kW; and
- Voltage：380V.

Six air compressors are put into operation, with the other two air compressors on standby. The total air supply capacity is 96 m^3/min, which is sufficient for underground production.

5.2.5.7 *Water Supply*

A 300 m^3 water dam has been constructed in the project area; and Φ108 × 4 seamless steel pipe is adopted to supply water from the dam to underground work faces. Pressure relief valves are installed on the pipelines to guarantee the facility operation. In addition, the water supply valves are implemented every 50 to 100 m in the roadway for fire prevention, and the support spacing of water supply tubes is 6 m.

5.2.5.8 *Power supply*

The power supply of Maogong Mining is from the Maoyan 10 kV substation 1 km away. It is planned to build a 10 kV high voltage distribution chamber in the mine area and supply the shaft hoist, ventilation fans, and underground work faces. The power distribution system adopts 380V neutral point insulation system, and the power supply to underground traction system is supported by the traction rectification devices, with the single line elastic suspension method.

5.2.5.9 *Explosive Supply*

The explosives and facilities are supplied and transported by the Civil Blasting Company, and there are no powder magazines built in the mine area, with only a 0.5 t explosive distribution station built on 80 m level with the storage quantity of within three days explosive quantity demand.

5.2.5.10 *Mine Safety*

Part of the ore bodies is below the Guchengzi River bed and the river dam, so the mining can commence only after the river diversion. To ensure the production safety, enough safety pillars must be preserved to prevent the river water flow into the underground.

For those areas with unclear hydrogeological conditions, the hydrogeologists will implement detailed investigation and log on water flow of different rock conditions, listing these records and data for analysis and study to find the ground water regime. On the other hand, for those potential faults or unclear hydrogeological condition locations, the mining can be commenced only after the test water holes are drilled to prevent the water burst.

5.2.6 ***Mine Plan***

The ore between 0 m and 120 m levels of Fe3 orebody will be mined according to the design, and the mining sequence is as follows:

- Vertically: upper and medium level to medium and lower level;
- Horizontally: upper panel to lower panel; and
- Based on the design, stoping operation should be conducted longitudinally towards air intake direction.

The production profile for the existing open-pit operations and concentrate (TFe grade: 66%) production in Maogong Mine are indicated in Table 5-11.

Table 5-11: Production Profile of Ten-Year Plan

Item	Unit	2011	2012	2013	2014	2015
Mined Ore	(1,000 t)	300	300	300	236.4	150
Ore Grades	%	33.57	33.57	33.57	29.93	27.84
Concentrate	t	137,332	137,332	137,332	96,487	56,945
Item	**Unit**	**2016**	**2017**	**2018**	**2019**	**2020**
Mined Ore	(1,000 t)	150	150	150	150	112.4
Ore Grades	%	27.84	27.84	27.84	27.84	27.84
Concentrate	t	56,945	56,945	56,945	56,945	42,680

5.2.7 *Conclusions and Recommendations*

The Guchengzi River flows through the mine area, and the dynamic water state varies with the season changes. The orebody Fe7, Fe8 and part of Fe16 are below the river bed, so it is very difficult for open-pit mining. The Company should relocate the river channel to south as soon as possible to make sure that the river does not affect the mining operation. Also, to ensure the safety of underground mining, enough protective pillars will be kept to prevent the water burst into the stopes.

Many buildings and other facilities are in the blasting area, and the Company will need to relocate these facilities to safe places. For those unable to be relocated facilities, people will be informed and evacuated to safe location before blasting, with effective protection measures. Meanwhile, the explosive quantity will be strictly controlled to reduce the impact to the surrounding buildings by fly-rock.

This iron ore deposit is No. III exploration type, the orebody occurrence and shape vary, and the current resource tonnes and grades are insufficient. The deep orebody exploration is also not sufficient. Therefore, SRK suggests the Company to conduct more deep exploration to increase resources.

The previous stripping is not enough, and thus in the future mining, the Company should compile detailed and workable medium- and long-term mine plan and increase the stripping quantity, with trimming the sharp slopes. The mine design and safety regulations must be strictly followed, such as leaving enough width of the berm and the correct slope angle, also the cleaning of the berm to keep the slope stable, and prevent collapse and slipping.

The hydrogeological conditions are simple and do not cause significant impacts on the pit water inflow. However, the rainfall should be noticed, including the open-pit water catchment and the river inflow. SRK suggests the Company begin taking measures to manage the surface water, such as increasing the drainage capacity and implementing the safety inspection during rainy season. For those areas with unclear hydrogeological conditions, the survey and exploration must be conducted along with the underground mining development. For those potential fault zones, the drill holes must be conducted prior to the excavation. The Company will verify inflow quantity of each section to ensure the production safety.

The Maogong processing plant located east of the mining area exploration line 12–13 restricts the mining of ore bodies Fe9, Fe10, Fe11, Fe13 and Fe14, so it should be relocated on schedule for the future production transition. Also, the current mining development should create proper conditions for the mining of orebody Fe10, Fe11, Fe13, Fe9 and Fe14, such as leaving wide enough berm on proper elevation in order to catch and retain the falling rocks. And a strategic mine plan on the Fe10, Fe11, Fe13, Fe9, and Fe14 ore bodies should be conducted as early as possible, addressing the development planning and production sequencing while ensuring a sustainable production rate.

Current Maogong waste rock dump is located north of the mining area, which is nearby the ore bodies Fe3 and Fe5 and the open-pit. According to the ***Maogong Mine Feasibility Study Report*** compiled by Hanking Mining and Metallurgy Design Institute Co., Ltd. in February 2010, the section above 120 m of orebody Fe3 will be mined by open-pit. Therefore the waste dump is a potential risk on the Fe3 open-pit mining. SRK suggests ceasing dumping waste rocks to the orebody Fe3 and the open-pit nearby, and to keep a certain distance from the dump, the orebody Fe3, and the open-pit, making sure that the rocks not to fall to the open-pit, and also building solid and reliable cut-off ditch and drainage facilities for flood prevention to prevent the debris flow and the slipping.

5.3 Luobokan Mine

5.3.1 *Introduction*

Following obtaining the exploration right for the Luobokan property in 2001, Fushun Xingzhou Mining Co., Ltd. (Xingzhou Mining) completed the detailed prospecting and identified the Luobokan Iron deposit as mid-scale in 2005. ***Liaoning No. 10 Geological Brigade submitted the Liaoning Province Fushun City Luobokan Mine area detailed survey report***. On 22nd February 2006, Liaoning Fuyuan Mining Resource and Reserve Assessment Co., Ltd. reviewed the report, and on 20th March 2006, the Department of Lands and Resources of Liaoning province reviewed the report and was recorded as Liao land resources reserve No. [2006] 051. In November 2006, Xingzhou Mining is issued their mining license by the Bureau of Land and Resources of Liaoning province. In June 2008, Hanking Aoniu Mining Co., Ltd. (Aoniu Mining) acquired 70% stakes of Xingzhou Mining to form a joint-venture. In June 2010, Aoniu Mining acquired the remaining 30% stocks of Xingzhou Mining.

Following the application for expanding the mining license scope, in March 2009, the Bureau of Lands and Resources of Liaoning province issued ***approval of Xingzhou mining, Luobokan mining scope*** by Liao land resources scope No. [2009] 0030. As a result, in December 2009, the Company obtained the mining licence for the targeted mining area.

In July 2009, based on the above documents, Xingzhou Mining retained Shandong Gold Group Yantai design and Research Engineering Co., Ltd. to compile ***Xingzhou Mining, Luobokan Mine 0.6 Mtpa preliminary mining design***.

In order to obtain economic effect and support later stage mine construction, Luobokan Mine will be developed by Xingzhou Mining with upper part mined by open pit and underground construction conducted at the same time as open-pit mining. Moreover, the Company will try to increase productivity to get a better profit at a relatively small construction investment and operation costs. June 2010, retained by Xingzhou Mining, the YDRISGG compiled ***Xingzhou Mining 3 Mtpa Iron Mine Mining and Processing Feasibility Study***, on which SRK's technical report is based.

SRK noticed during the latest site visit between 2nd and 6th August 2011 that a ***Xingzhou Mining 5Mtpa Iron Ore Mining and Processing Feasibility Study*** was completed by YDRISGG in July 2011.

5.3.2 *Mining Tenure*

Xingzhou Mining obtained the mining right within the scope of Taigou village, Nianpan town, Dongzhou district, Fushun city and held a legal mining licence. Details of the new mining license are listed in Table 3-1.

According to the Industrial laws and regulations, the mining licence can be renewed after the required documents are submitted. The mining licence shall be amended on time if the related conditions change.

5.3.3 *Mining Technical Conditions*

5.3.3.1 *Geography and Climate*

The mine is located in east of Luobokan village and north of Pingshanzi village, Dongzhou District, Fushun City, Liaoning Province. The coordinates are easting longitude 124°01'32"–124°02'26" and northing latitude 41°47'30"–41°46'42" ◦

The Fushun to Houan road passes by the north of the mine area, and the road conditions are good. In addition, the mine is 11 km and 55 km away from the Shen-Ji railway and Shenyang.

The climate is temperate continental monsoon climate having four distinct seasons, and the temperature varies from -20°C to -28°C with the minimum of -40°C in winter and from 20 to 30°C with the maximum of +40°C. Generally, the rainfall is sufficient, averaging 826.44 mm per annum, and the wind direction is northeast in common, but the strongest wind comes from southwest. The frozen period starts from November to the next April. The frozen depth is 1.2–1.4 m. The basic seismic magnitude of Fushun is grade VII. The field topography of the mine area is gentle, with no landslides or mud debris recorded in the history.

5.3.3.2 *Structural Settings*

There is a U-shaped syncline in the northwest end of the mine area, with the axis strike of NNW, the dip of east wing nearby the surface of almost vertical, while the dip of the syncline close to the core of nearly horizon.

There is no large fault found in the mine area. Specifically, the ore belt No. 1 is stable and had not been interrupted by fault, only partly emplaced by diabase. But in orebody No. 2 there occurs intermittent magnetic anomalies, with many negative magnitude locations, and small faulting structures, given the dips of compressive schistosity face of mostly 70°–80° and partially 60° and 30°.

5.3.3.3 *Geotechnical Conditions*

The orebody occurs in the metamorphic supercrust rocks of the Archaean. The ore is composed of hornblend magnetite quartzite and quartzite hornblende magnetite, and the hanging wall and footwall rocks mainly comprise magnetite garnet quartzite hornblend amphibolites, with little gneiss, categorized as hard rocks, so the geotechnical conditions are simple.

The main physical and mechanical properties: swell factor of ore and rocks is 1.6, rock hardness is f = 8-14, ore density is 3.48 t/m^3, and rock density is 2.7 t/m^3.

5.3.3.4 *Hydrogeological Conditions*

The mining area is located in the hilly southern extension area of Changbai Mountain, with the height difference of 40 m and the highest altitude of 150 m. Most of the mine area is below the open valley alluvial layers. The geomorphology is valley basin. The lowest erosion base level is 102.3 m, and the highest flood level was 108.58 m.

There is sufficient surface water developed in this area. 1.1 km long of Pingshan River passes by the northwest of the mining area after merging with Dongzhou River, whose length is 1 km, width of the river bed is 130–200 m, and width of the water flow is 30–50 m. The water volume is controlled by the season, and the flow volume difference between upstream and downstream in the mine area is 0.3076 m^3/d.

Ground water types comprise loosen rock fissure water and base rock fissure water. The quaternary loosen fissure ground water: the aquifer thickness is 2.6–10 m, which distribute as stripe along the river. The near river bed part is composed of mid-coarse sand with minor gravel. The farther part is composed of silt and fine sand. This layer has good permeability of 4.89–614.2 m/d, and the gushing water is 2,620.8 m^3/d. The rock nature is even, the geomorphology is a little inclined, and the run-off is good. It is the main aquifer of the mine area, having direct hydraulic connection with the base rock fissure water regime.

Base rock fissure water is mainly composed of rock layer with poor permeability of 0.019 m/d, and the gushing water quantity is 2.912–18.72 m^3/d. The inflow condition is poor, mainly fed by the quaternary loosen fissure ground water. It is predicted that the normal run-off quantity above 0 m is 1,299 m^3/d, with the maximum of 1,800 m^3/d.

Most of the orebody is below the erosion base level. The surface water flows through the north-western part of the mine area, and the orebody is covered by 2.6–10 m thick quaternary loosen fissure aquifer. The water quantities are abundant for both aquifers with close hydraulic connection between, so the hydrogeological conditions are complicated.

5.3.4 *Open Pit Mining*

5.3.4.1 *Current Status of Open-Pit Mining*

Following obtaining the mining license in November 2006, Xingzhou Mining has conducted small-scale open-pit mining on the outcropped orebody.

As of the end of June 2011, two open-pits have been constructed, including open-pit No. 1 and No. 2, while the overburden stripping of west open-pit is underway as per Xingzhou Mining 3 Mtpa Mine and Processing Feasibility Study. Open-pit No. 1 is located at nearby exploration line No. 2 to No. 3, whose top dimension is about 189 m long, 84 m wide, with 36 m deep on average and 94 m of pit bottom elevation. Open pit No. 2 is located close to exploration line No. 5 to No. 9, whose top size is about 260 m long, 65 m wide, with 14 m of mining depth and +110 m of pit bottom elevation. During the site visit, SRK noted that open-pit No. 1 and open-pit No. 2 are in production suspension due to civil dispute with local people. The historical production data are shown in Table 5-12.

Table 5-12: Previous Production data at Luobokan Mine

Year	Mined (t)	Stripped (t)	Stripping ratio (t/t)	Diluted grade (%)	Ore loss (%)	Dilution (%)
2008	75,838	29,285	0.39	19.21	4.31	8.14
2009	123,369	91,400	0.74	26.48	4.15	8.31
2010	215,954	225,792	1.05	17.41	2.03	7.42

5.3.4.2 *Open Pit Technical Parameters*

Considering mechanical properties of rock and ore, strata structure, geotechnical conditions, and hydrological geology, as well as the benchmark on similar practical cases of open-pit iron mines, the designed open-pit parameters in "***Xingzhou Mine 3 Mtpa Mining and Processing Project Layout***" conducted by Shenyang Gold Group Yantai Design and Research Engineering Co. Ltd in July 2010 are listed in Table 5-13, and the ultimate limit of the open-pit is shown in Figure 5-7.

Table 5-13: Open Pit Technical Parameters at Luobokan Mine

Parameters	Unit	East Open Pit	West Open Pit
top size: Length	m	1,368	435
top size: Width	m	203 to 314	234
bottom size: Length	m	1,222	256
bottom size: Width	m	32 to 130	76
pit bottom elevation	m	40	50
pit depth	m	90	50
stripping bench height	m	10	10
minimum working bench width	m	32	32
safety bench width	m	5	5
clearing berm width	m	8	8
haul road width	m	8	8
final bench slope angle	°	65	65
working bench slope angle	°	65	65
final slope angle	°	33.6 to 36.3	20.2–45.3

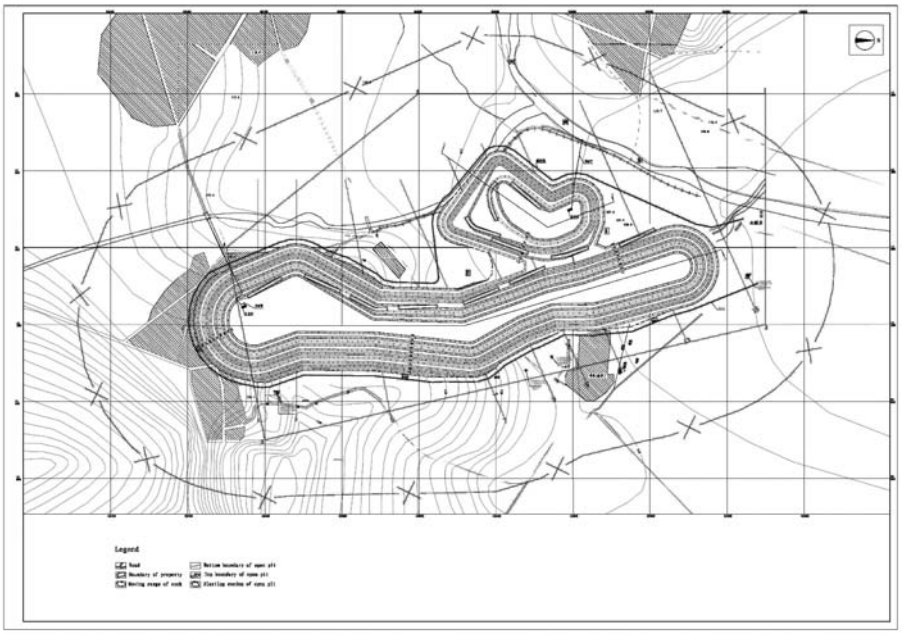

Figure 5-7: Layout of Luobokan Mine Final Limit

5.3.4.3 *Open-Pit Mining Method*

According to pit topography, pit size and mining depth, integrated with elevation difference of more than 50 m from mining area to processing plant, the rail transportation is not suitable to be adopted. Therefore, open pit will be developed by truck. Main trench of open pit is arranged between East and West pit, which is connected to main roads and quite closely to the processing plant. Ore transportation road is constructed as the 3rd grade mine road and is of macadam pavement. Road is designed to have a maximum longitudinal gradient of 10% and arranged in run-around type. The spiral ramp to the east and west open pit will be arranged nearby +100 m haulage bench around exploration line No. 11 at a spiral type.

Drilling: Considering mining scale, ore and rock properties and practice of similar enterprises, HCR1500-EW down- hole drill is adopted. Drilling capacity for mining is 93.3 m/d, and drilling capacity for stripping is 106.7 m/d. After calculation, total of 10 such drills are needed, 8 of which are for work and 2 of which are for standby.

Medium-long hole blasting is adopted with hole diameter of 150 mm. Blasting holes are arranged in a plum blossom shape with minimal toe spacing of 4.5 m, hole spacing of 4.5 m, line spacing of 4 m and hole extra-depth of 0.9 m.

Four KQ-80 type down-hole drills are designed for slope grading and bottom cutting, three of which will be used for work and one for standby.

Blasting: Porous millisecond blasting is adopted for medium-long hole blasting with supplement of buffer blasting, pre-splitting or smooth blasting near the final highwall. The hole spacing is designed to be 1.5 m and a decoupled charging method can be adopted. Mine uses #2 rock explosive and emulsion explosive which are loaded by hand and initiated by detonator. Nonel tube is adopted for the secondary blasting.

Loading: Eight sets of 4 m^3 excavators are designed for rock loading. Considering the practice of mining and stripping, another three sets of ZL-50 type loaders will be equipped for pit mining, stripping, materials transportation, slope protection and other works.

Three sets of bulldozers are arranged for drilling and blasting area land levelling, road construction and excavators assistance.

Haulaging: BZKD52 type 50 t dump truck is designed for rock and ore transportation with hauling distance of 3 km. Calculation indicated that six sets of such trucks are needed for ore transportation and twenty-three sets for rock haulage.

Road for ore and rock transportation is designed to be 8 m wide with maximum longitudinal gradient of 8–10% and is of macadam pavement.

According to orebody occurrence and equipment and techniques equipped for stripping and mining operations, integrated with actual production indexes of mine, mining losses rate and dilution rate are designed to be 5% and 6%.

5.3.4.4 *Waste Dump and Dumping Method*

In order to guarantee a smooth production and mine safety and reduce farm land occupation, stripped waste rock can be back filled to closed pit. Based on data provide by the mine, the Company presently has 3 closed open pits: (1) Dingzhuang pit which is about 2.5 km away from the new pit; (2) Taigou pit which is about 2.2 km away from the new pit and (3) Dahongcao pit which is about 3.62 km at a direct line from the new pit. All of those pits can totally consume 14,304.00 million m^3 waste rocks. The tailing starter dam and final dam may consume 0.3 million m^3 waste rocks. Remaining rock will be temporally dumped to southwestern area of open pit, and finally back-filled to the open-pit as mining is finished. Waste dumps will not be separately designed.

As waste rocks are hauled for tailing dam construction, bulldozers are used for land and road levelling. In order to guarantee safety operation of loading, 2% reverse gradient will be kept at bench platform.

5.3.4.5 *Mine Drainage*

Surface water will be discharged by gravity. A water interception ditch will be constructed around the pit which is 10–15 m away from the pit upper limit, with bottom width of 1.0 m and upper width of 2.0 m, by which water will be drainaged to the channel.

Water sump and drainage equipment are designed to be installed at the pit bottom, and the collected pit water will be pumped the surface by water drainage pipeline.

According to ***Xingzhou Mining 3 Mtpa Mine Mining and Processing Project Feasibility Study*** compiled by Shandong Gold Group Yantai Design and Research Engineering Co., Ltd., east pit is constructed with temporary pump station above +40 m elevation, and fixed pump station at +40 m elevation. Three sets of YQ550/115/3-280/W type pumps are used with the main parameters: flow rate Q of 550 m^3/h, head H of 115 m and motor power N of 280 Kw. One will be used for work and two for standby. All three will be fully operated during storm. Water drainage pipes use $\Phi 245 \times 7$ type seamless steel tubes, with one for work and two for standby.

5.3.4.6 *Slope Management*

Luobokan Mine has a simple geotechnical condition, the mining depths of two open-pits are not deep, and slopes are relatively stable. However, bench height and bench slope angle in certain areas of open-pit No. 1 are large, and safety berm has not been set based on the standards, and therefore the Company should pay more attention to the slope management to ensure safety. The slope status is shown in Figure 5-8.

Figure 5-8: An Overview of Current Slope Status of No. 1 Open Pit at Luobokan Mine

5.3.4.7 *Power Supply*

Power is sourced from 66 kV Shengli line, which is 3 km away from the processing plant and is connected to mining area by 66 kV overhead wire. Another 10 kV 35 kV LG-3 × 150 overhead wire is also used as back-up power with a transmission distance of 4 km.

5.3.4.8 *Explosive Supply*

Mine is 7 km from Yanghu Civil Blasting Materials Center. Explosive magazine is not designed at mine. All blasting materials needed should be applied and surplus should be returned to the Center at the day of blasting.

5.3.5 ***Underground Mining Method***

Orebody is irregularly abounded. It is relatively thin and steep above 0 m, while it is thick and flatly dipping below 0 m. The maximum buried depth reaches 410 m. Therefore, deep orebody is suitable to be excavated by underground mining.

Combined open pit and underground mining is designed, which is to excavate upper orebody by open pit and deep orebody by underground mining. Because open pit has relatively short infrastructure construction duration, it is designed to conduct open pit mining first. At the same time, underground infrastructure construction will also be conducted.

Construction of Luobokan Mine commenced in November 2009. As of the end of June 2010, the main shaft had been sunk to 30 m in depth, the auxiliary shaft had been sunk to 20 m in depth, and the south ventilation shaft had been sunk to 20 m deep under the original 0.6 Mtpa underground mining. However, SRK opines that the completed shaft sinking will not meet the requirements of the 3 Mtpa underground mining as a result of the production rate change, and therefore the forecasted commissioning date has to be postponed to July 2014 since the current construction schedule has been delayed, and the shafts sizes have also been expanded to adapt the new production scale.

5.3.5.1 *Development*

The mine is to be developed by main shaft, auxiliary shaft and waste rock shaft. Ventilation adopts centralized two-winged diagonal ventilation system. SRK agrees with the development approaches.

The main shaft is situated in the east of processing plant; its net diameter is 5.6 m with portal centre coordinates of X = 4,628,222.690 and Y = 41,583,961.960. Portal elevation is at +164 m. Shaft bottom is arranged at -420 m. It is 584 m deep and is arranged to set up JKM-4 × 4 type tower-mounted multi-rope winder and 11 m^3 double skip for hoisting with -330 m level of crushing chamber, -370 m level of loading pocket and -420 m level of fine ore recovery system. The fine ore will be hoisted to -280 m level by cage shaft, in which, a ladder-way is arranged as the second egress.

The waste rock shaft is arranged beyond the subsidence scope of orebody in footwall which is in the south of the exploration line No. 9, with the net shaft diameter of Φ4.0 m and center coordinates of X = 4,628,477.802 and Y = 41,586,319.112. The portal elevation is +114 m, and the shaft bottom is arranged on -350 m, with the shaft depth of 464 m. A JKMD-2.8 × 4 type ground-mounted multi-rope winder and counter weight assisted 5.6 m^3 skip hoisting is adopted, with -280 m of crusher fees level, -310 m level of loading pocket -350 m level of fine ore recovery system.

The auxiliary shaft is arranged beyond the subsidence scope of orebody in footwall which is in the north of the exploration line No. 9, with a net diameter of Φ7.0 m and center coordinates of X = 4,628,545.000 and Y = 41,586,284.000. The shaft portal is located on +112 m and the bottom level is on -380 m, with the shaft depth of 492 m. The eight levels are respectively arranged at +20 m, -40 m, -100 m, -160 m, -220 m, -280 m, -310 m and -350 m with level interval of 60 m, -310 m level of belt ore loading system, and -350 m level of fine ore recovery. A JKMD-3.25 × 4 type ground-mounted multi-rope winder and 5,200 × 3,000 single deck cage hoisting system is employed. The auxiliary shaft is mainly used for hoisting of miners, equipment and materials, as well as fine ore recovery.

South ventilation shaft is located in the footwall between exploration line No. 2 and No. 3, having a diameter of Φ4.0 m, shaft centre coordinates of X = 4,627,833.132 and Y = 41,586,378.244, portal elevation of +135 m, bottom elevation of -100 m, depth of 235 m, and level interval of 60 m including level of +20 m, -40 m and -100 m designed to be constructed, in which blind ingates and ladder compartment will be constructed as the second egress and ventilation shaft. In order to speed up infrastructure construction, south ventilation shaft is equipped assisting temporary waste rock haulage during construction period.

North ventilation shaft is located in the footwall of exploration line No. 15, having a diameter of Φ4.5 m, shaft centre coordinates are X = 4,629,054.108 and Y = 41,586,073.141, portal elevation of +110 m, bottom elevation of -290 m, depth of 400 m, and level interval of 60 m with level of +20 m, -40 m. -100 m, -160 m, -220 m and -280 m designed to be arranged, in which blind ingates and ladder

compartment will be equipped as the second egress and ventilation shaft. In order to speed up infrastructure construction, north ventilation shaft is equipped assisting temporary waste rock haulage during construction period.

A main haulage drift is to be constructed from -280 m level to main shaft with a 14 t locomotive driving 10 m^3 mine car system, by which ore will be hoisted to the surface to feed the primary ore bin by belt conveyor. The waste rock will be hauled to the surface by waste rock shaft and sent to waste rock dump by locomotive.

Main transportation roadway uses 14 t locomotive driving 10 m^3 mine car to send ore to the ore pass of main shaft, by which ore will be hauled to the surface.

Ore of levels will be sent to ore pass dumping point through crosscut and outside-vein roadway by 4 m^3 mine cars driven by 14 t locomotive, then transferred to ore pass of main shaft by locomotive and hauled to surface by main shaft. Waste rock of levels will be sent to ore pass of waste rock shaft, then hauled to surface and transported to waste dump for storage by car.

A longitudinal section of development is shown in Figure 5-9.

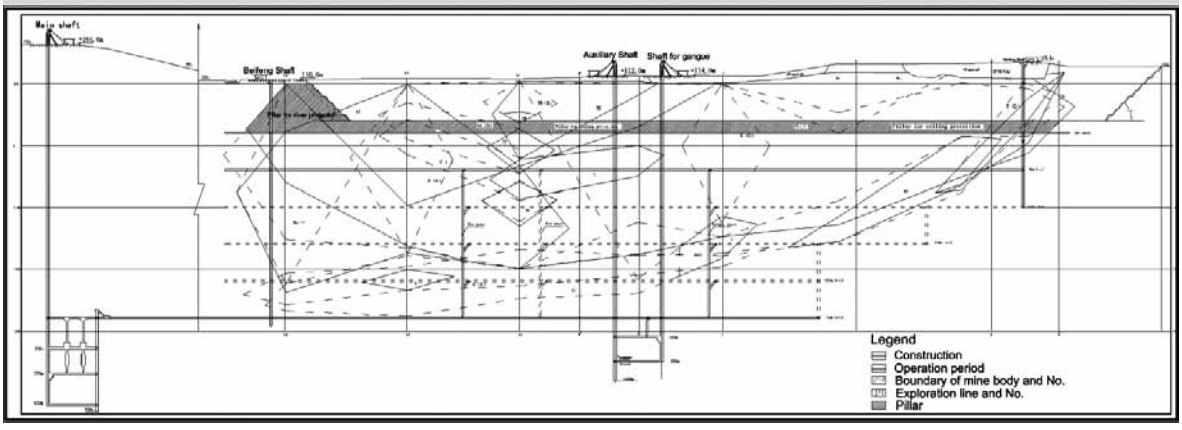

Figure 5-9: Long-section of Development

5.3.5.2 *Mining Methods*

According to orebody occurrence and mining technical conditions in conjunction with a close distance away from Pingshangzi Village and Dongzhou River and the reality of a large quantity of farming lands, caving mining method is not applicable here. Although the mechanized overhand cut-and-fill mining method has the advantages of less capital costs, low drilling technical requirements and small quantity of mining preparation and cutting workload, it still bears many disadvantages of low ore block productivity and high mining costs. The sub-level open stoping with large diameter and long hole (subsequent tailings backfill) needs a relatively high investment on drilling equipment and strict requirements on deep hole drilling, but the ore block efficiency is high, and the mining costs are relatively low. Therefore, it is quite suitable for large-medium scale mine production where surface subsidence is not allowed, the orebody is thick and wide, and the rock strength is strong. SRK agrees with the blast hole mining methods recommended by the design institute.

Long-hole Open Stoping (Orebody Thickness Larger Than 20 m)

- Block parameters

  Ore blocks are aligned transversely with a length of 60 m, height of 60 m and width of 20 m. Rib pillar, top and bottom sill pillars are designed to be 8 m.

- Mined-out area handling

  Mined out area will be handled by subsequent backfilling using tailings. As the mining activity is completed, backfilling preparation will be commenced. Filtering cloth covered plastic pipes are prepared in the ore mucking crosscuts of upper sublevel. In the ore mucking access of lower sublevel, water interception wall for backfilling will be constructed. Tailings will enter to the stope through tailings backfilling pipe along ore mucking crosscut. Waste rock is filled from upper to lower sublevel and enters to the stope at the same time with tailings along ore mucking crosscut. The 4 m high area from stope bottom will be filled by cemented tailings in a recipe of 1:4, so that the bottom sill pillar can be recovered easily. Remaining stope will be backfilled by waste rock and tailings.

- Pillar recovery

  Bottom and rib pillars are designed to be arranged as per the design. As stoping and backfilling in the target stope and the stope below are completed, the bottom pillar will be recovered by retreat using medium-deep hole blasting. The recovered height of bottom pillar is limited to 5 m. Rib pillar will work as supporting pillar in the backfilling process and not be recovered to prevent surface subsidence and movement.

Sublevel Open Stoping (Orebody Thickness Less Than 20 m)

- Block parameters

  Ore blocks are to be aligned longitudinally with a length of 60 m, width of the orebody thickness and height of 60 m. The bottom sill pillar will not be arranged, and the top sill pillar and rib pillar are designed to be 9 m and 10 m. Slot is 10 m wide, and sublevel is 15 m high.

- Lateral development

  The haulage drifts are developed along the strike in the footwall of the orebody, which is 5–7 m offset from the orebody boundary to meet the requirements of ore haulage and electrical vehicle operations. However, in SRK's opinion, this distance needs to be expanded to about 10–12 m.

- Mined-out area handling

  The backfilling method is tailing fill method. As a stope is mined out, a small raise is driven from the access in the service raise to the above level ore mucking crosscut, and then a small filling raise in the top sill pillar is developed corresponding to the mucking

crosscut position of the above level. As the mining completes, the ore mucking crosscut and the connecting access to the service ventilation raise are sealed, and backfill are carried out using the waste rocks mixed with tailings accordingly.

- Pillar recovery

  Fan-shape medium-deep holes are arranged to crossheading of miners haulage and ventilation raise. One single blasting will be used for pillar recovery. The recovery sequence is from lower level mining room to upper one.

The ore losses are 12%, and the mining dilution is 17%.

The schemes of two mining methods are shown in Figure 5-10 and Figure 5-11.

It's SRK's opinion that the stoping efficiency recommended is too high to realize, and therefore the scoop type and fleet need to be optimized to achieve the production target.

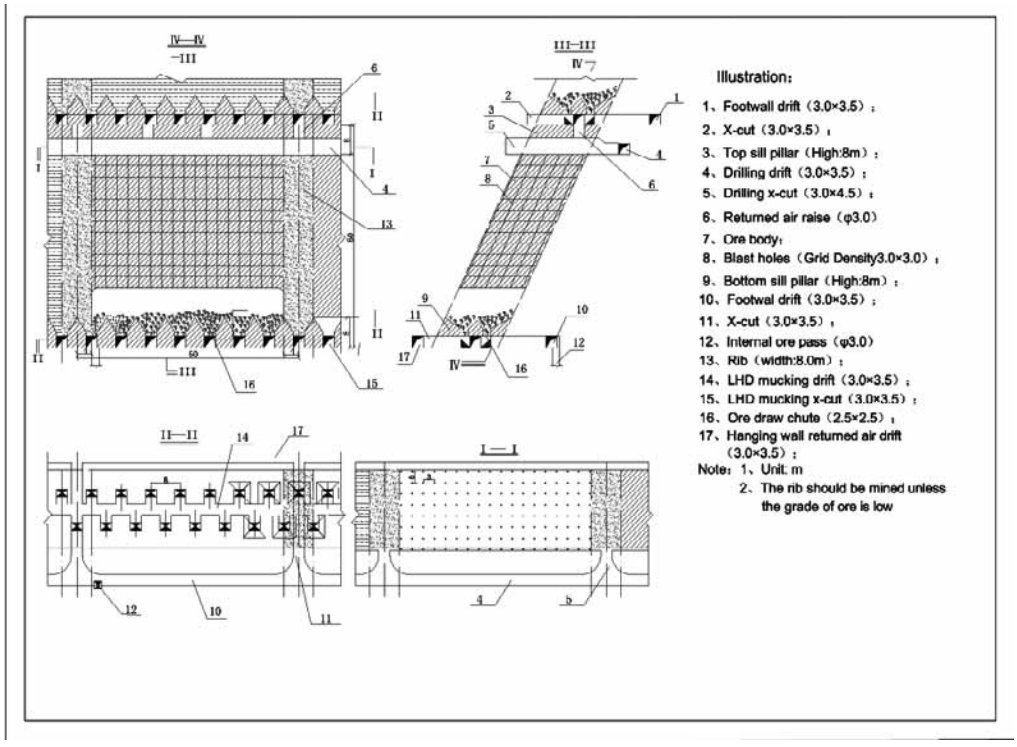

Figure 5-10: Long-hole Open Stoping (Orebody Thickness >20 m)

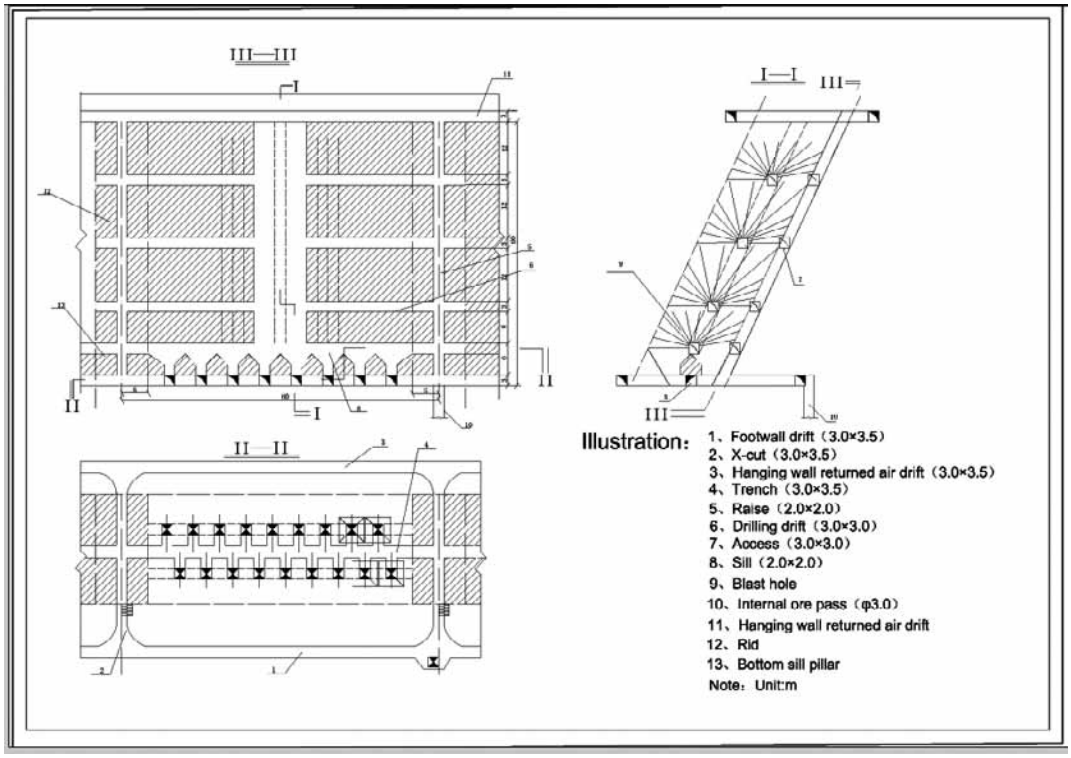

Figure 5-11: Sublevel Open Stoping (Orebody Thickness <20 m)

5.3.5.3 *Compressed Air Supply*

According to the design, the compressed air will be centrally supplied. The air compressor room will be constructed in the industrial field, and the air supply pipe is paved to the underground levels along the auxiliary shaft supplying air to the underground air consuming equipment.

Three sets of LU250W-7.5 type screw compressors are selected, each of which has an air capacity of 45.3 m^3/min, working pressure of 0.75 Mpa and motor power of 250 kw. In normal production period, two of them will be used for operation and one as standby. A $\Phi 219 \times 7$ seamless steel tube is used.

5.3.5.4 *Water Supply*

Water is supplied to the underground levels along auxiliary shaft from surface pond. As the shaft is relatively deep, which may cause high water supply pressures, pressure-reducing valve is designed to the ingate of level, so that water can be supplied after pressure drop.

5.3.5.5 *Water Drainage*

Centralized water drainage is adopted. A permanent pump station and water sump is designed at -350 m level of auxiliary shaft to pump the mine waste water to the surface high level pond. Three sets of D500–57 × 9 type water pumps are employed, with the main parameters of $Q = 500$ m^3/h, $H = 513$ m and $\eta = 0.81$, motor power of 900 kW.

Under normal water inflow circumstances, one pump is used for work, one for standby and one for maintenance. Water can be discharged in 18.9 h. When water inflow comes to the maximum, two pumps are used for operation, and water discharge can be finished in 12.22 h. Two ψ325 × 12 seamless steel tubes are to be paved along the auxiliary shaft with tube sockets. The vertical shaft and pump station are connected by pipeline access.

Water inflow from the auxiliary shaft bottom water sump is 10 m^3/h. Bottom water sump of the auxiliary shaft can be arranged below -350 m level, where water will be discharged as waste water reaches -350 m level.

5.3.5.6 *Ventilation*

Mechanized negative pressure ventilation system is employed, with a centralized two-winged diagonal alignment. Fresh air is introduced from the auxiliary shaft, and exhaust air of levels is discharged to the surface through the south and north ventilation shafts. Fans are arranged at portal of the south and north ventilation shafts.

The returned air quantity in the north ventilation shaft is 97 m^3/s under the air pressure of 1,150 Pa. One set of DK45-8-No. 22 type axial flow fan will be installed in the main fan room being constructed at the portal of the north ventilation shaft, based on air quantity and negative pressure. Relevant parameters of axial flow fan are: rated capacity of 49.1–126.6 m^3/s, static pressure of 1,302–2,563 Pa and motor power of 2 × 200 KW.

The returned air volume in the south ventilation shaft is 97 m^3/s under air pressure of 1,335 Pa. One set of DK45-8-No. 22 type axial flow fan will be installed in the main fan room being constructed at the portal of the south ventilation shaft, based on air volume and negative pressure. Relevant parameters of axial flow fan are: rated capacity of 49.1–126.6 m^3/s, static pressure of 1,302–2,563 Pa and motor power of 2 × 200 KW. The fan also has reversing blowing ability.

SRK opines that the recommended air volume is not enough to meet the ventilation needs underground, so a ventilation study is required to be conducted.

5.3.5.7 *Backfilling*

The mined out area is designed to be backfilled by tailings supplied from the mill.

A central backfilling method is adopted, with the backfilling station being built on the industrial site, the backfilling pipes laid along the backfilling boreholes to +20 m level, and tailing flurries are pumped after having been stirred to the stope along service raise after buffering on +20 m level drift.

Waste rocks generated from the upper level are used for the lower level backfilling through ore excavation crosscut. Also, lower level waste rocks will be hauled to upper level and then sent to lower level mined out area for backfilling along ore excavation crosscut.

As per the mining method, to ensure the safety of pillar excavation, the bottom backfilling must be consolidated fill with high compressive strength, with the ratio of cement to tailing = 1:4 achieving the strength of filled material body of 3–4 MPa and filled tailing slurry density of 70%, while the rest void is all backfilled with 70% density tailing slurry with the strength of filled material body of 1 MPa.

5.3.5.8 *Power Supply*

The power supply is from Shengli Line that is 3 km away from the processing plant by 66 kV aerial cable. In addition, the other 10 kV power sourced from Dongzhou substation by 35 kV LGJ-3 × 150 aerial cables with transmission distance of 4 km will be considered as standby power to secure the underground water drainage, haulage, ventilation and emergency lighting.

A 66 kV/10 kV step-down substation is designed between the processing plant and the main shaft, by which 66 kV voltage of power will be transmitted to 10 kV prior to supply underground power demands. A 10 kV power distribution station will be built to equip a 15 sets of high voltage switchgear cabinets, which are in charge of power distribution to the haulage equipment of the main and auxiliary shafts and ones both on surface and underground substations.

5.3.5.9 *Explosive Supply*

Underground explosive magnitude is designed nearby the north ventilation shaft on -40 m level, with the capacity of 10 t explosive and 15,000 pieces of detonators.

5.3.5.10 *Mine Safety*

The surface water in the mine area develops well, including the Pingsha River and Dongzhou River flowing through the mine area, and the underground mining method is post backfilling sublevel stoping method, with large water inflow quantity. To solve the hydrogeological issues and to ensure the safe production, SRK suggests the Company implementing detailed investigation and records to every water flow of different rock conditions, listing these records and data for analysis and study to find the water-bearing regime. On the other hand, the waterproof pillars beneath the Dongzhou River should be well designed, particularly, for East wing of the orebody, which is close to Dongzhou River area, the excavation can be commenced only after the test water holes are drilled to prevent the water burst.

The underground mining method is post backfilling sublevel open stoping, and the mined out areas are backfilled with tailing and waste rocks. Therefore, SRK suggests the Company conducting a full tailing backfilling test to improve the backfilling quantity, especially backfilling intensity and density, to ensure the ground control success.

5.3.6 *Mine Plan*

The production profile for the existing open-pit and planned underground operations above 0 m elevation, and concentrate (TFe grade: 66%) production in Luobokan Mine are indicated in Table 5-14.

Table 5-14: Production Profile of Seven Year Plan

Item	Unit	2011	2012	2013	2014	2015	2016	2017
Mined Ore	(1,000 t)	800	800	800	679	1,700	2,600	3,000
Ore Grades	%	28.4	28.4	28.4	26.01	25.7	25.7	25.7
Concentrate	t	209,704	209,704	209,704	162,898	403,242	616,723	711,604
Item	**Unit**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	
Mined Ore	(1,000 t)	3,000	3,000	3,000	2,400	1,600	516	
Ore Grades	%	28.4	28.4	28.4	26.01	25.7	25.7	
Concentrate	t	711,604	711,604	711,604	569,283	379,522	122,443	

SRK opines that the mine needs to conduct their strategic mine plan to optimize development schedule and stoping sequence both vertically and laterally to guide short-term mine operations. SRK also suggests that the Company should conduct a feasibility study on 5 Mtpa mining and processing capacity for Luobokan Mine, based on its currently remaining ore reserve.

5.3.7 *Conclusions and Recommendations*

SRK agrees the interface recommended transiting the mine operations from open-pit mining to underground.

Data of geotechnical geology and rock and ore physical mechanical properties obtained by the Company are not sufficient, which will affect not only mine plan optimization, but also mine safety. SRK suggests that the Company should commission qualified geological exploration team or research institution to conduct a ore and rock mechanical properties research, collect geotechnical information, and obtain quantitative indexes of rock and ore properties, so that orebody and wall rock stress changing laws can be acknowledged, open pit slope angle can be finalized and optimized, and ground control and open-pit slope stability can be managed, to achieve optimal development layouts, mining methods, as well as the mining technical parameters. Additionally, during the production, surface displacement monitoring facilities should be set up to ensure mine area safety.

Because surface water is developed in this area due to the Pingshan River and Dongzhou River passing by, and underground mining will use post filling and sublevel open stoping, in order to solve water problems generated in the production, control a potential water disaster, and ensure safe production environment, it is suggested that the Company should carry out hydrogeological exploration, especially hydrogeological conditions in the pit, to provide necessary data guiding mining activities. Besides, a long-term surface and ground water monitoring program should also be conducted to forecast water inrushing quantity of each level and compile relevant prevention measures and project designs. Finally, further study should be conducted on the water prevention pillar size arranged in the Doungzhou River-affected area, and based on the principle of "exploration first, drifting afterwards" to compile water exploration design on the Dongzhou River surrounding area, i.e., west area of the mining area.

The designed mining area is out of the existing mining license approved scope, and it is recommended that the Company should update its mining license so as to make it compliant with the design.

The Company should pay attention to the critical paths management during the construction progress so as to ensure the schedule and quality of the infrastructure construction.

Presently, the geological exploration in certain mining areas is still at a low extent; therefore, the relevant exploration should be strengthened at the same time as infrastructure construction and production to improve exploration and resources classification, by which resources can be accordingly upgraded.

Orebody occurrence changed relatively greatly in the mining area, with a nearly vertically dipping in the upper part and a flatly dipping in the lower part. During actual production, the Company should be well acknowledged by orebody occurrence variation to improve ore recovery.

As the open-pit mining is operated, the underground mine construction will also be conducted at the same time. Therefore, the Company should well organize the production of open-pit and construction of underground mine. The closed management should be adopted for underground infrastructure construction to ensure production safety. The underground and open-pit workers should be evacuated to the safety place, and necessary production measures should be conducted to underground facilities during open-pit explosion. In order to prevent underground construction from the influence of open-pit blasting, the shock blasting should be used, and the mobile crusher should be adopted for the secondary crushing.

As Pingshanzi Village is located in the open-pit blasting scope, effected villagers should be moved before open-pit mining. In order to keep a safety production, Pingshanzi River should be channelled at least 100 m away from the open-pit boundary, and the village road paved in the blasting scope should also be re-routed. Additionally, within the surface subsidence area, villagers should also been moved out, and the village road should be re-routed as well.

5.4 Mengjia Mine

5.4.1 *Introduction*

Mengjiabuzi (Mengjia) Mine is located in Mengjiabuzi village of Beitai town, Pingshan district, Benxi city. It is approximately 13 km southwest of Benxi city center, the Liao-Xi railway passes the south edge of the mine, and it is 1.5 km away from the railway station. Benxi-Liaoyang second-class road passes the edge of the mining area, and there is direct road access to the mining area. The access is quite convenient.

Benxi Mining Co., Ltd. (Benxi Mining) was established in December 2003. Benxi Mining acquired Mengjia Mine No. 10 orebody mining right by auction in 2003, and the open pit mining started on April 2005.

During the previous excavation, as the surface stripping was not enough to maintain sustainable production, the Company delegated Benxi Steel design and research institute Co., Ltd. to compile ***Mengjia Mine deep open-pit mining basic design***, in which the mining scope is orebody No. 10, the pit bottom depth is +70 m, and therefore the current production is following the design.

On 10 January 2009, Benxi mining development consulting and service centre verified the Mengjia Mine expansion resources of Benxi Mining. The purpose was to verify the resources and mining technical conditions between +100 m and -110 m of Fe No. 10, Fe No. 11-1 and Fe No. 11-2. On May 2009, Benxi Mining retained Shandong Gold Group Yantai design and research engineering Co., Ltd. to conduct a feasible study on the expanded mining scope.

5.4.2 *Mining Tenure*

The mining license of Mengjia Mine has been renewed on June 2010, and the details of the new mining license are listed in Table 3-1.

5.4.3 *Mining Technical Conditions*

5.4.3.1 *Geography and Climate*

The mine located in the mountainous area of Liaoning East region belongs to shallowly cutting erosion region. The Mengjia mining area is located in the hilly region between grade 1 and grade 3 terraces on the north side of Xi River with a U-shaped turn. The northeast of the mining area is higher and the southeast is lower, with the altitude ranging from 140 to 235 m and the relative relief of 95 m. There is limited vegetation cultivated in the mining area. The mountainous top is cone-shaped with the slope of 15° to 20°, which is good for water permeation. The level of erosion base is 125 m.

The Xi River passes 220 m southeast of the mining area, and the runoff of the river is sufficient to supply the mine. The mine area is in the northern humid temperate zone, with significant monsoon climate, four distinctive seasons, wide range of temperature variations, where the highest temperature is 36°C, the lowest temperature is -32°C, the average is 8°C, and freezing period starts from November to next April. The thickness of frozen soil layer varies from 0.81 m to 1.49 m. The annual rain fall ranges from 511.3 to 1,108 mm, mainly from June to August.

5.4.3.2 *Structural Settings*

Regional Structure: The local formation is monoclinal structure, with strike of northeast, plunge of southeast, and dips of 70° to 88°. No large faults found in the mine area.

Orebody Structure Features: There are five ore bodies in the Mengjiabuzi mining area, in which the Fe No. 10 orebody is the largest one, trending from N40°E to the east, while the Fe No. 11 orebody trends from south to north at the north end and from west to south at the south end. The orebody plunges from west to northwest. The shape and dip of the ore bodies are of steady characteristics.

The surrounding rocks are simple, mainly hornblende-leptynite rocks and hornblende-quartz schist. The boundary of orebody and surrounding rocks is clear, the orebody is complete with slight oxidation, and therefore there is no oxidation zone.

In the orebody, there are several magnetic intercalated layers including hornblende-quartz schist, anorthosite amphibolite and pegmatite gangue. The thickness varies from 2 to 3 m, with the maximum of 5 m, and the intercalated gangue rate is 6.96%.

5.4.3.3 *Geotechnical Conditions*

The strata belong to a monocline structure. The occurrence is striking northeast 30°–45°, plunging southeast and northwest and dipping 70°–88°. No large fault is found in the mining area.

The hanging wall rocks are mainly hornblende-quartz schist and biotite leptynite, whereas the orebody is hornblende magnetic quartzite. All these rocks are hard ones with high compressive strengths. There are little fractures in the rock (below the weathering zone), the rock is relevantly complete without significant weak layer and fracture zone found, and therefore the orebody is stable with good geotechnical conditions.

In general, the orebody and the surrounding rocks are relatively stable with the good geotechnical conditions.

Main rock physical mechanical parameters are: the ore density, 3.24 t/m^3; the surrounding rock density, 2.75 t/m^3; the hardness coefficient (f), 8–14; and the swell factor, 1.63.

5.4.3.4 *Hydrogeological Conditions*

The aquifer system in the mine area consists of quaternary gravel stone pore aquifer, weathered fracture aquifer and Archaean Anshan Group magnetite quartzite structural fracture weak aquifer. The ore type of the orebody Fe No. 10 is magnetite quartzite and hornblende magnetic quartzite, which occur in the hornblende leptynite and hornblende quartzite-quartz schist without structural fracture, and therefore the aquosity and permeability are significantly reduced, with the water inflow quantity of 0.026 L/s.m and the permeability coefficient of 0.154 m/d, categorized as fairly weak water-bearing zone. In the No. 11 orebody, the water inflow quantity is 0.15 L/s.m., and the averaging permeability coefficient is 0.118 m/d, categorized as moderate water-bearing zone. Due to the fact that the orebody is partially exposed on surface, the rain fall is discharged in valley zone in a pervious manner.

The impermeable layer includes: (1) biotite leptynite impermeable layer, which is beneath the quaternary gravel stone pore aquifer, without fracture development; and (2) hornblende leptynite and hornblende quartzite, which are the surrounding rock of the No. 10 and 11 ore bodies, without fracture development except slight leakage only partially found during the drilling.

The main reasons for water-bearing deposits are mainly due to the rain fall and runoff water. Additionally, the quaternary gravel stone aquifer, weathered fracture aquifer and the magnetic quartzite fracture aquifer are also the main sources of water.

In conclusion, the main source of the water appearance is rainfall, and the hydrogeological condition is simple with weak fracture water, and the water type is HCO-Ca.

Pit water gush prediction: +70 m pit normal water flow quantity is 1,160 m^3/d, and the maximum water flow quantity is 1,750 m^3/d; and -110 m pit normal water flow quantity is 1,780 m^3/d, and the maximum water flow quantity is 2,670 m^3/d.

5.4.4 *Open-Pit Mining Method*

5.4.4.1 *Current Status of Open-Pit Mining*

Mengjia Mine started production in 2003. Table 5-15 shows the historical production data at Mengjia Mine. The mining method is open-pit excavation. As of the end of June 2011, the width of the pit is 15 to 40 m, the length of the pit bottom is about 435 m, the bottom elevation is 75 m, and the top elevation is 220 m. The vertical height of the slope is 40 to 117 m, and the maximum slope angle is 65°.

Table 5-15: Previous Production data at Mengjia Mine

Year	Mined (t)	Stripped (t)	Stripping ratio (t/t)	Diluted grade (%)	Ore loss (%)	Dilution (%)
2007	738,801	2,918,037	3.95	23.11	3.90	8.07
2008	1,246,825	2,430,605	1.95	20.01	3.81	8.25
2009	1,527,192	3,449,840	2.26	16.03	3.71	8.63
2010	1,321,284	3,077,624	2.33	17.20	1.19	7.36

Current open-pit excavation is following Benxi Mining, Mengjia Mine deep open-pit mining basic design compiled by Benxi Steel design and research institute Co., Ltd., in which the mining scope is focused on orebody No. 10.

The open-pit mining employs spiral ramp development approach by using Steyr tipper truck. The main trench starts from elevation of 180 m extending downward. The mining workface is aligned along plunge and pushed back along strike. The mine adopts multiple benches excavation, with top-down mining sequence. On each bench, a trench is excavated on the southern end, and the mining is pushed back towards the northern boundary within the ultimate limit.

5.4.4.2 *Determination of Ultimate Limit*

According to the existence conditions of the orebody and other relevant factors surrounding the pit, the bottom elevation was determined to be 90 m ASL, with the total length of 500 m and the width of 22 m–36 m. The height of each bench is 10 m, but at the end of excavation, two work benches will be combined into one, and therefore the final combined bench height will be 20 m. The slope angle of upper benches is 65° while that of lower benches is 60°. Safety berms are set on level 200 m, 180 m, 140 m, and 120 m, given the safety berm width of 4 m. Cleaning berms are set on level 160 m and 90 m, with the cleaning berm width of 8 m. The ramp gradient is 9–10%, given the road width of 10 m, but the maximum length of 10% gradient ramp is limited to 200 m. The final slope angle is 52.6° for the upper benches and 48.8° for the lower benches. The average stripping ratio is 2.1 t/t. The ultimate pit layout is demonstrated in Figure 5-12.

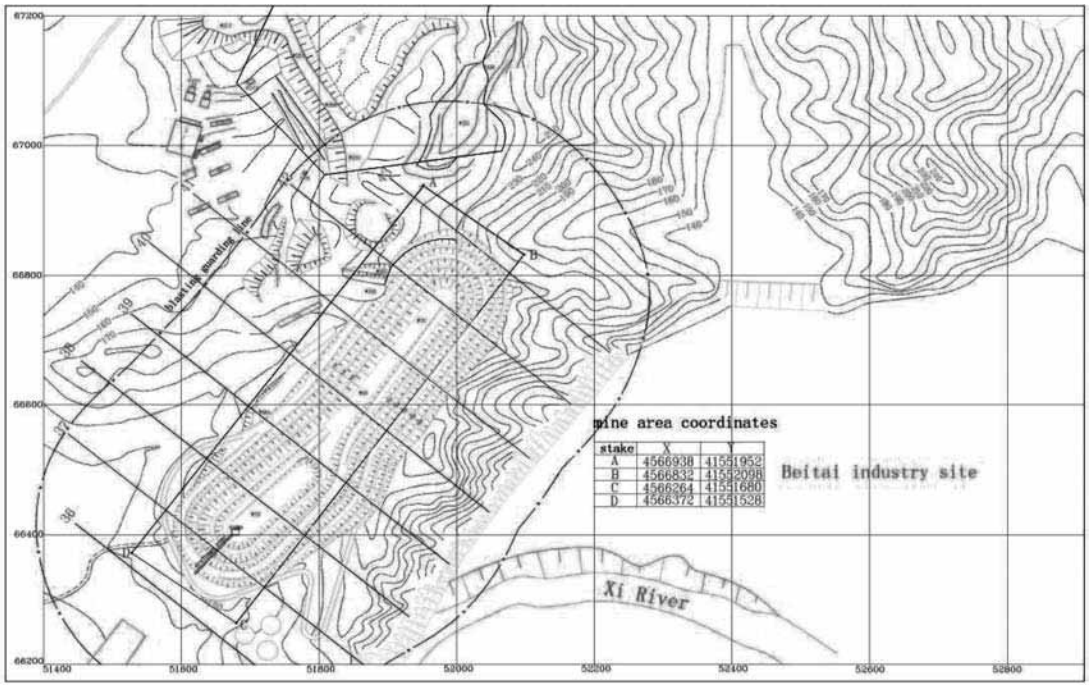

Figure 5-12: Layout of Mengjia Mine Ultimate Limit

5.4.4.3 *Open-Pit Mining Method and Equipment*

Drilling and blasting: Two sets of CL351 crawler mounted high pressure drilling machines are employed to drill deep holes, whose diameter is 120 mm. Y19 drilling machine is used for secondary blasting drilling(see Table 5-16).

The blasting method is deep hole blasting, with the hole depth of 11.5 m, the hole grid pattern of 3.5–4.0 m × 3.5–4.0 m, using #2 rock explosive. Charge length is 6.5 m, and stemming length is 5 m, manipulated manually. The detonating materials include relayed detonator, detonating tube and detonating cord.

Loading: Among 10 fleets of hydraulic pressure excavators are 3 sets SK-230-6E, 6 sets SK-350LC, and 1 set Daewoo 230. In addition, 4 sets tired front-end loaders are used as ancillary loading equipment auxiliary mining, stripping, lifting, hauling and slope maintenance.

Materials handling: The mined ore is loaded and hauled to the processing plant 800 m away, and the waste rocks are loaded and hauled to the waste rock dump 1,400 m away.

There are 17 sets dumping trucks and 2 sets Oman dumping trucks for ore and rocks haulage. The road gradient is generally 8 to 10%, the longest trench is 250 m, and the road width is 10 m. On the pit bottom, the road width is 7 m while the road gradient designed is 10% with the road width of 5 m due to the short road service life.

Table 5-16: Mining Equipment

Equipment	Model	Fleet
Crawler mounted high pressure drill rig	CL351	2
Hydraulic pressure excavator	SK-230-6E	2
Hydraulic pressure excavator	SK-350LC	5
Hydraulic pressure excavator	Daewoo 230	1
Front-end loader		4
Dumping truck		15
Oman dumping truck		2

The ore losses are 5%, and the mining dilution is 28.1%.

According to ***Benxi Mining, Mengjia Mine deep open-pit mining preliminary design***, if the open-pit mining starts from levels of 140–110 m to 90–70 m, the upper slope must be expanded and transited. Although in recent years the stripping quantity was large, it still not reached the design quantity. The stripping ratio of recent three years (2007 of 3.9 t/t, 2008 of 2.7 t/t, and 2009 of 2.8 t/t) has not achieved the design ratio 4 t/t, and compared with the mine plan. To maintain the 1.2 Mtpa production rate SRK suggests that the slope expansion and transition must be conducted, including pushback from the top bench to the bottom both south and north. While one side is being drilled the other side can be in production. The excavator on the bench for slope expansion and the excavator for production on the lower bench will maintain a 50 m distance from each other, in case of rock fall from the upper bench. Additionally, the Company should also compile workable mid- and long-term mine plan to make sure that the excavator operation, minimum operation width, distance between upper and lower benches, the resource quantity, strip ratio and grade be meet design requirements.

In SRK's opinion, the fleet of drilling machines and the dumping trucks does not have the capacity to meet the production needs. Therefore, SRK suggests the Company increasing the equipment fleet according to the production requirements.

5.4.4.4 *Waste Dump and Dumping Method*

The waste rock dump is located at the north west of the mining area, with the dump top elevation of 210 m and valley bottom elevation of 145 m.

The dump equipment are the front-end loaders and bulldozers. To arrangement of one bulldozer and one front-end loader is sufficient for the dump operation.

The waste rock is dumped into lifts, with the vertical height of each lift of less than 20 m. A safety platform is left with at least 34 m wide. The final dump height is 65 m, and the repose angle of the dump is 40°.

According to the files provided by the Client, until December 2010, the dump has occupied about 53,333.6 m^2 and and almost dumped 2.0 M m^3 rocks, and the highest elevation is about 230 m, which is already higher than the designed dump top elevation of 210 m. A dry storage project designed to handle the filtered tailings is in the planning process, the dry storage facility will be able to accommodate the waste rocks from the open-pit and underground mining.

5.4.4.5 *Mine Drainage*

The accumulated water in the pit can be pumped to the elevation of 155 m on surface. To reduce power consumption, the low power diving pump is used during the early period while the high power diving pump is used at the later period.

There is currently 1 set MD-125 × 8 type diving pump, with the passing volume capacity of 100 m^3/h and power of 75 kW. The pipes are 219 mm steel pipes.

When the underground mining starts, the pit will be backfilled, with the bottom elevation of +140 m. By then, a water pool will be built in the pit to collect and pump the water to surface. The discharge port elevation will be +153.6 m.

During the site visit, SRK noticed that there was much water at the south end of the pit, and there was plenty of seepage water on the excavation bench. The negative effect of water in-flow includes: reducing the efficiency and service life of the equipment; decreasing the rate of vertical advance; causing problems with new bench development; and leading to slope stability problems. Therefore, SRK suggests the Company to conduct more hydrogeological studies and investigations to provide more information for the drainage design. The Company shall improve and complete the drainage facilities for the pit and enhance the drainage works to prevent the water accumulation in the pit.

5.4.4.6 *Slope Management*

The mine is a mid-small size open pit mine, the mine life is short. The elevation difference in hanging wall is generally 110–130 m, with the largest elevation difference of 140 m at the north part. Footwall elevation difference is 90–95 m.

The surrounding rocks of footwall are mainly plagioclase hornblende schist, with the rock dip of 65–70°, while the surrounding rocks of hanging wall are mainly hornblende leptynite and hornblende quartzite. The hardness of the surround rocks are a f factor of 8–18, which are compacted massive and have good strength properties, so the slope is stable.

The plunge of the final slope in hanging wall is opposite to the orebody plunge, which is good for slope stability. The dip of the final slope in footwall is smaller than that of the orebody, so the slope is also stable. The safety berms have been designed on 200 m, 180 m, 140 m and 120 m elevation, and the cleaning berm has also been designed on 160 m and 90 m elevation. Thus, when rocks fall, the speed will be slow, and these rocks would land on the safety berm or the cleaning berm.

At the south of the exploration line 37, the water of Xi River may seep into the pit through the gravel layer or weathered fissures. Also the above 110 m slopes might be impacted by the underground water during the flood season, which is harmful to the slope stability.

During SRK's site visit, it has been observed that in some parts of the open pit, the slopes is too sharp (65°), there are some loose rocks on the bench slope, the width of the safety berm, the height of the bench and the dip of the bench vary, and the actual situation does not meet the requirements of the slope design. Therefore, SRK suggests that the Company should trim the slopes, strictly follow the mine design and safety regulations during the mine operations, keep enough widths of the benches, and control the slope angle within the design figures, as well as enhance the slope cleaning and maintenance work to ensure the safety and stability of the slope and to mitigate risks of collapse or slippage of the slope. The slope status is shown in Figure 5-13.

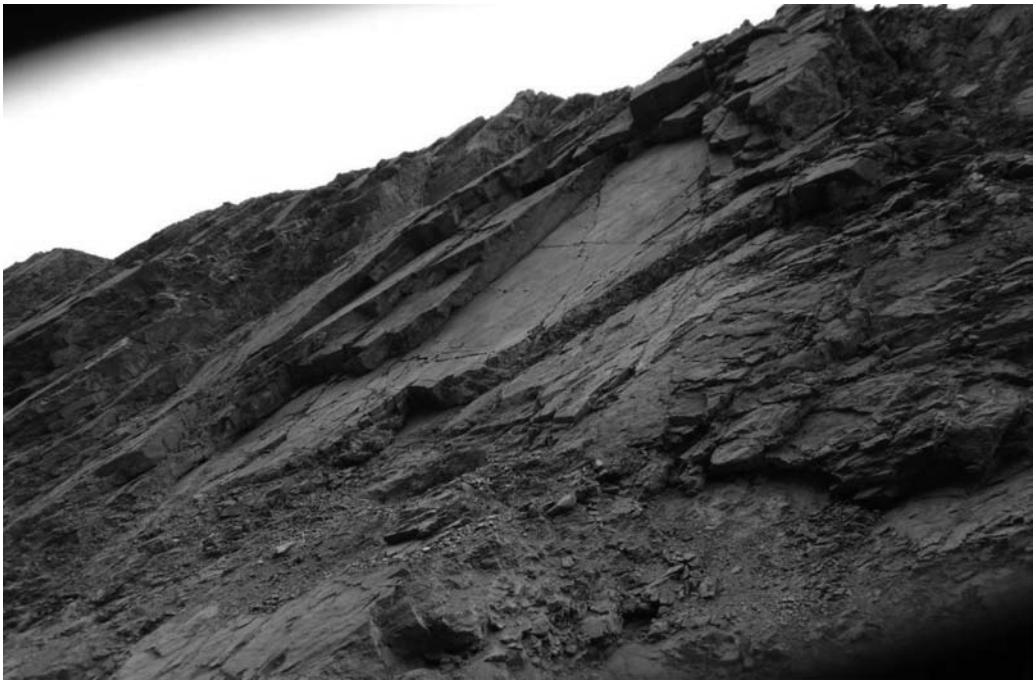

Figure 5-13: An Overview of Slope Status

5.4.4.7 *Power Supply*

The power supply is from the Dongshan 35/10.5 kV substation, with the distance of 8 km and the cable type of LGJ-10kV-3 × 300 m^2. The power is mainly used to drive the air compressors and the water pumps.

5.4.4.8 *Explosive Supply*

The explosives are supplied and transported by civil explosive company. The Company owns a small explosive warehouse, only for redundant explosives. The warehouse has been secured by a dedicated person.

5.4.4.9 *Mine Safety*

Many buildings and other facilities, including the surface buildings of Beitai Steel plant and mine offices, are in the blast warning range, so the Company should relocate these facilities to safe places. For those unable to be relocated facilities, people must be informed and evacuated to safe location before blasting.

5.4.5 ***Underground Mining Method***

The east, south and west boundaries of Mengjia Mine area are all close to the Benxi Beitai Steel Plant, so the open pit excavation to the orebody below +70 m is not possible as:

- The open pit will engage the Benxi Beitai Steel plant and cause destruction to the facilities inside the Beitai Steel plant, and therefore it has been indicated in the mining report that the bottom elevation of the open pit excavation is +70 m.

- The dip of orebody is steep, and therefore the stripping quality is huge as calculated in the feasibility at stripping ratio of 7.6 m^3/m^3, which is higher than the economical stripping ratio of 6 m^3/m^3. Thus, it is obviously unreasonable to mine the orebody below +70 m based on open-pit mining.

- The No. 11 blind orebody is under the west part of the orebody No. 10, which is thin with average thickness of 7–20 m, and it is 120 m away from the orebody No. 10, so it is not suitable for open-pit mining.

In summary, the orebody No. 10 below +70 m part and the orebody No. 11 will be mined by using underground mining approach. Some shafts projects are already in progress, till June 2010, the decline has been developed 300 m, and the south ventilation shaft has been developed 50 m.

5.4.5.1 *Development*

According to the topography and the orebody morphology and occurrence, there are two development options, i.e., Option A is main shaft plus auxiliary shaft development plan, and Option B is mixed shaft plus decline development plan. After comprehensively compared from a perspective of technical and economical aspects, the Option B has been adopted.

The mixed shaft is located in outside the subsidence area around exploration line 42 in the footwall, with the diameter of Φ6.0 m. The shaft centre coordinates are X of 4,566,871.000 and Y of 41,551,904.000. The elevation of the shaft top is +196 m, and that of the shaft bottom is -225 m, resulting in the shaft length of 421 m. The crusher is installed on -150 m elevation, with conveyor ore loading system located on -180 m elevation and the fine ore recovery system installed on -225 m elevation. The level interval is 60 m, and there are three shaft stations on levels +10 m, -50 m and -110 m, respectively. One way gate built on each level, adopting JKM-4 × 4(I)E tower type multiple ropes friction hoist, driving 4,000 × 1,800 mm double deck single cage and 11.5 m^3 skip. The mixed shaft is used for ore, waste rocks, personnel, equipment and materials hoisting tasks.

The auxiliary decline is located in outside the subsidence area around exploration line 38 in footwall, with the profile of 4.0 m × 3.5 m and the coordinates of the portal of X of 4,566,488.000, Y of 41,551,637.000, and Z of 150 m. The gradient of the straight segment is 15% whereas that of the 30 m long buffer segment as well as the curve segment is 5%, averaging 12%. The auxiliary decline is mainly used for the mobile equipment transport. The auxiliary decline is constructed in stages, in which the first portion of the auxiliary decline is driven down to +10 m level. The development of auxiliary decline has been completed in November 2010.

The southern ventilation shaft is located in outside the subsidence of around exploration line 37 in footwall rocks, with diameter of Φ4.0 m, the coordinates of the shaft top are X of 4,566,401.000, Y of 41,551,569.000, and Z of +147 m while the bottom elevation is -110 m, and the shaft depth of 257 m, ladders are installed and this serves as the secondary egress. The ventilation shaft development has been completed in November 2010 as well. Figure 5-14 shows the longitudinal section of underground development system.

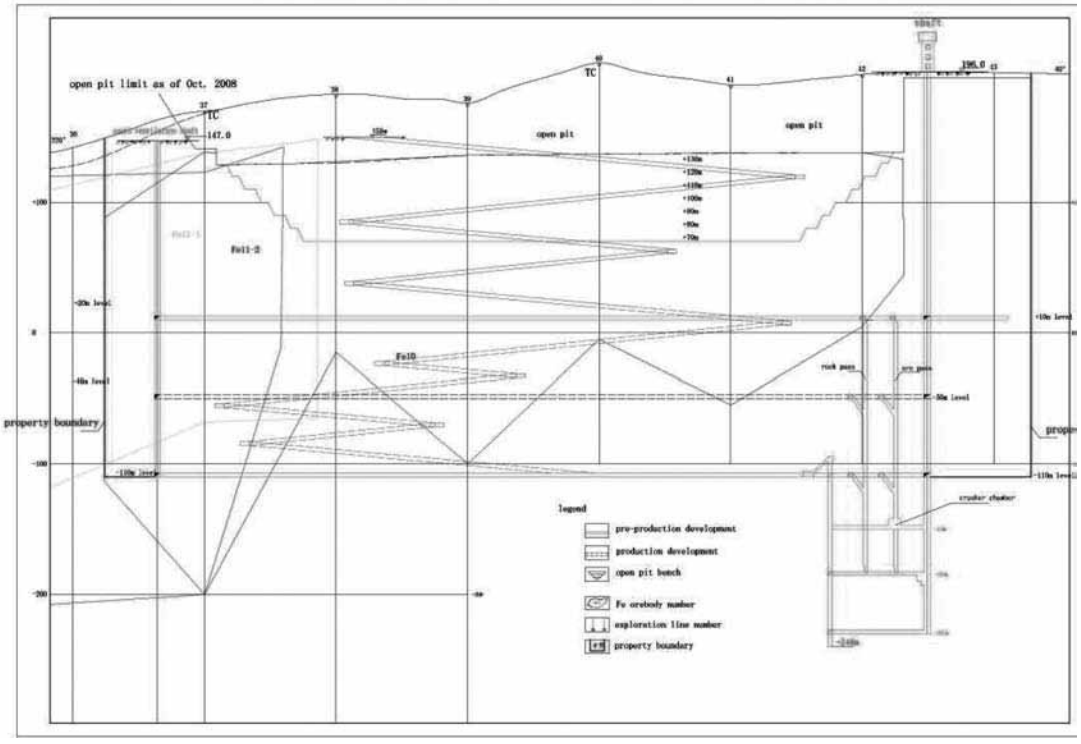

Figure 5-14: Underground Development System at Mengjia Mine

Block parameters

The mining method employed is sublevel caving, in which the transverse alignment is adopted for the orebody Fe No. 10 while the longitudinal alignment is used for the orebody Fe No. 11. According to the spatial distribution of the mineral resources, the former accounts for 80%, and the latter 20%.

For the orebody Fe No. 10, the block length equals to the thickness of the orebody, the width is 60 m, and the height is 60 m, divided into four sublevels of 15 m intervals. The crosscuts are driven along plung, giving a distance of 15 m.

For the orebody Fe No. 11, the ore block length is equivalent to 60 m, the width equals to the thickness of the orebody, and the height of the block is 60 m, with sublevel height of 15 m. The sill drifts are aligned along strike.

The graphs for the sublevel caving mining method are shown in Figure 5-15 and Figure 5-16.

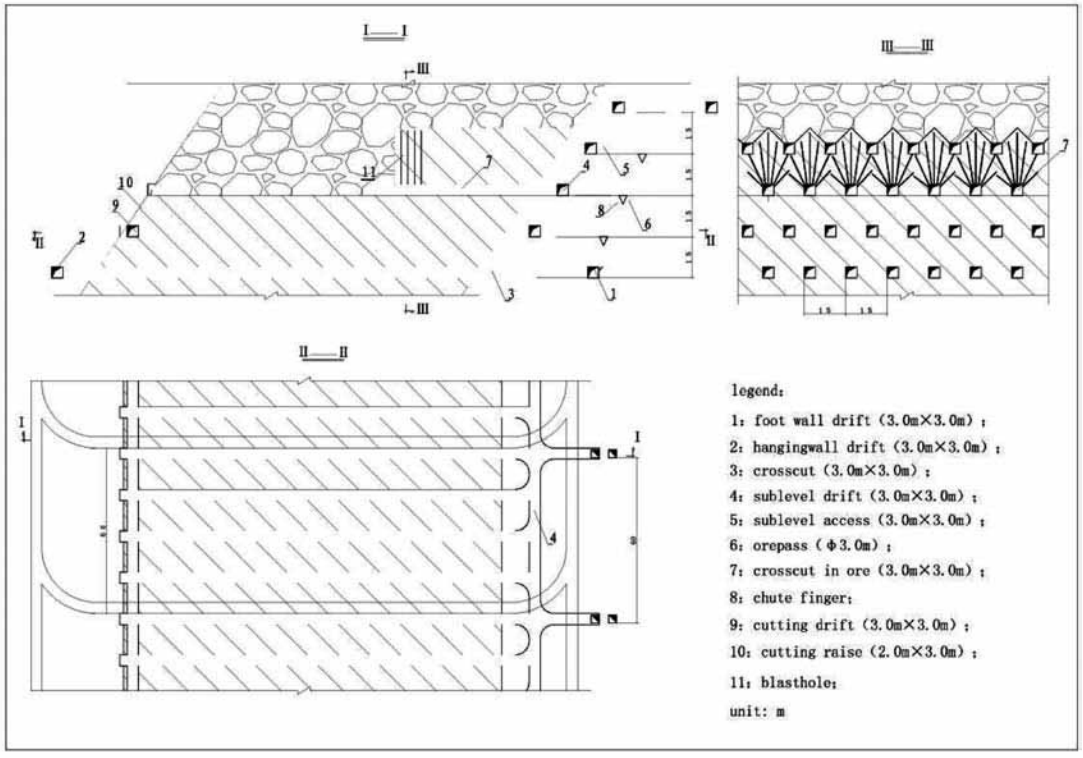

Figure 5-15: Sublevel Caving Method (Transverse)

Mining preparation and cutting

For the transverse stopes, the haulage drifts are driven along strike in footwall and hanging wall, with offset of 20 m and 40 m from the orebody boundaries, connected by crosscuts in an every 60 m apart manner to form a hauling ring.

The haulage drifts on sublevels are driven in footwall, which are connected to the ore pass through the ore pass access. The crosscuts are aligned parallelly, occurring an alternate pattern among the sublevels. The ore pass is driven along the haulage drifts with an interval of 60 m. The ramp lies in footwall, served as personnel, equipment, and ventilation access, with a gradient of 15%, the cross section of 3.6 m × 3.2 m, and a support thickness of 300 mm, connected to sublevels via accesses.

For the longitudinal stopes, the haulage drifts on sublevels are driven along plunge, which are connected to the orepass, with the distance of 60 m between ore passes. The sill drifts are driven along the orebody strike, connected with the sublevel drifts to the ramp, used for ventilation and mobile equipment passway.

Cutting work includes slash, cutting raise and slot. To cut a 3 m × 3 m slash and a 2 m × 3 m raise first prior to drilling parallel holes in the sill, and the cutting raise is considered as the free face to accommodate the blasted ore to form a cutting slot.

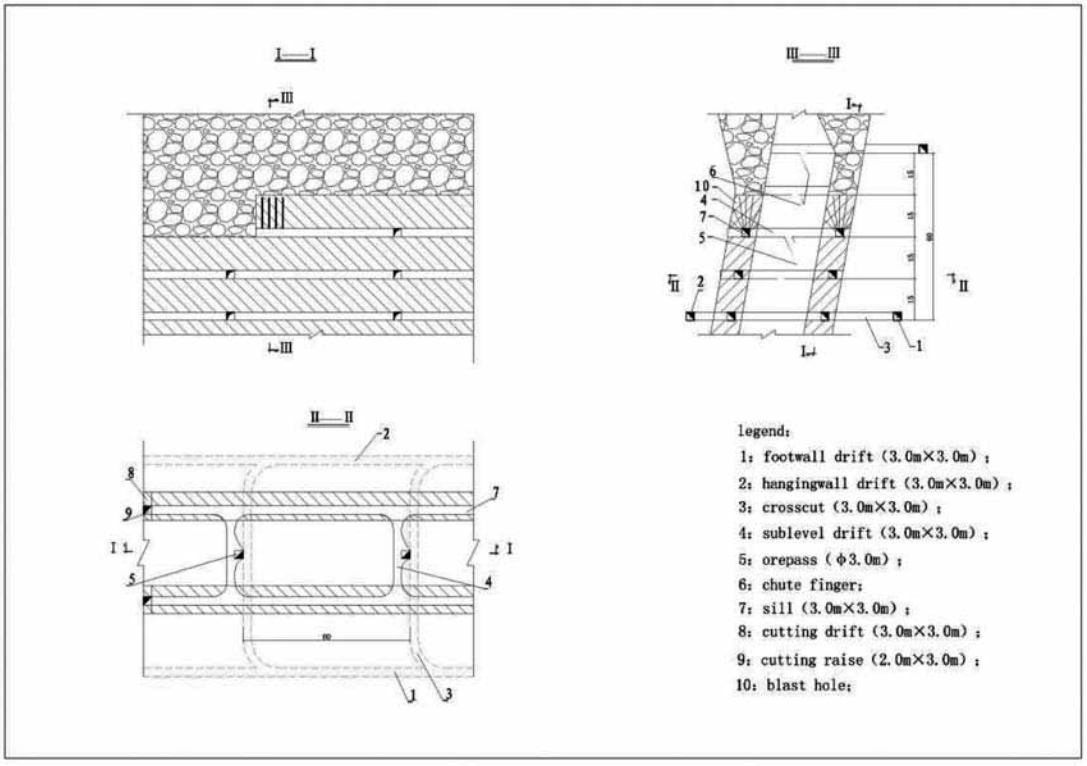

Figure 5-16: Sublevel Caving Method (Longitudinal)

Drilling and Blasting:

The drill used is to be a YGZ-90, which will drill parallel holes upward in the crosscuts and inclined fan-pattern holes in the stopes, with TJ25 disk drilling frame. The side hole dip is 50°, 11–12 holes is placed in a row, and the total hole length is 120–130 m, wing the drill efficiency of 40 m/set shift, i.e., each set can drill 39,600 m or 0.2 mt per annum. The explosive is ANFO and

filled into the drill hole by BQF-100 explosive loader. The blast is detonated by millisecond detonating tube, using compacting blasting and two rows of holes blast one time, with blast pace of 30.m.

Mucking and hauling:

The mined ore is trammed to the ore pass by 4 m^3 and 2 m^3 electric scoops, with efficiencies of 0.5 Mtpa and 0.15 Mtpa respectively. The size limit of the mined ore is 350 mm, achieved by using TM-15-2 mobile secondary crusher. Ore from the ore pass unloading point is loaded into the 4 m^3 side unloading mine car and transferred to the bottom of the mixed shaft via the main ore pass prior to loading to the skip.

The waste rocks are loaded into the 2 m^3 side unloading mine car, hauled by the electric automotive to the bottom of the mixed shaft, and then loaded into the waste rock pass shaft.

Single tracks are installed on each level for haulage, with the gauge of 762 mm and unit weight of 30 kg/m steel rails, and 730-6-35 type of spur.

The ore losses rate are 12%, and the mining dilution is 20%.

Mining method plays a crucial role in achieving the goals of the mine plan and feasibility, such as the production rate, ore losses, dilution, diluted grade, operating costs, initial and sustaining capital, revenue, net cash flow, and NPV. Therefore, SRK suggests the Company perform a further mining method study to ensure that the mining method recommended is near optimal.

5.4.5.2 *Ventilation*

A negative pressure diagonal mechanical ventilation system is adopted. The fresh air flows into each level through the mixed shaft, and the returned air is discharged to surface from the southern ventilation shaft. A DK45-6-No. 20 fan is adopted, with air flow volume of 110 m^3/s, pressure of 2,500 Pa, driven by 2 sets of 250 KW electrical motors, the fan blade angle of 45°/35°, the fan coefficient of $\eta = 0.72$. To ensure the ventilation safety, the fan has the reversing blowing ability, with the reversing blowing capacity of above 60% as one motor is on standby. The fan is installed at the exit of the south ventilation shaft.

The stoping workface is impasse, so the secondary fan ventilation approach is adopted, installed on the upper level. The fresh air flows into the stope crosscuts through the haulage drifts, fresh air raises and accesses, and the returned air flows out through the crosscuts, returned air raises, and accesses to be exhausted by the secondary fan.

5.4.5.3 *Compressed Air Supply*

The compressed air is supplied by the air compressor on surface, and the air supply pipes are installed along the mixed shaft.

5.4.5.4 *Water Drainage*

Pump station and water sump lie on -110 m level of the mixed shaft, the waste water to be pumped out to the water pool on surface via this pump station. Three sets of D155-67x6 pumps are used, with power of 280 kw, volume of 185 m^3/h, and lift height of 354 m. In the normal circumstances, one pump is in use, one is for preparatory purpose, and one is in maintenance whereas in maximum waste water inflow conditions, two are in use.

Water-proof gates are installed at the entrance of the pump station and the transformer station on level -110 m.

5.4.5.5 *Ground Control*

To prevent the massive falling accident from hanging wall rocks, a 40 m thick of rock layer must be in place on the ore layer. Due to the orebody exposure on surface, as the first ore layer is mined, the hanging wall rocks on surface must be caved to form a covering rock layer.

5.4.5.6 *Water Supply*

There is a water pool nearby the mixed shaft on surface, supplying water for underground production, dust control and fire extinguishing. The water consumption is 400 m^3/d, and the main water pipe is installed along the mixed shaft, which is $\Phi 133 \times 6$ seamless steel pipe. Relief valves are installed on each switch of branch pipes.

5.4.5.7 *Power supply*

The power supply is from Dongshan 35/10.5 kV substation, which is 8 km away, and the cable type is LGJ-10kV-3 × 300 mm^2. The 10 kV overhead transmission line from Beitai Steel Plant is used for backup, with a distance of 1 km. A high voltage distribution room has been built beside the air compressor to supply the equipment.

5.4.5.8 *Explosive Supply*

A branched powder magazine is to be built on +10 m level, consisting of powder, detonator, fuse, processing, switch, distribution chambers, and access, forming isolated returned air raise connected with the level above. The access has three right turns and extends 2 m at the turning point. Two doors, anti-explosion door and steel fence, are installed at the entrance, and three doors are setup at the exit, one anti-explosion door and two steel fences. There are total four explosive chambers (5.0 m × 3.2 m × 2.8 m), two detonator chambers (5.0 m × 3.2 m × 2.8 m), one fuse chamber (5.0 m × 3.2 m × 2.8 m). the chamber support is C20 and 250 mm thickness plain concrete support with waterproof treatment.

5.4.5.9 *Mine Safety*

In the design, the subsidence angles in hanging wall, footwall and end surrounding rocks are not precisely determined but are based on an analogy. Some buildings and facilities in Beitai Steel Plant are close to the disturbance area in the design. Therefore SRK suggests that the Company should setup surface displacement monitoring system to conduct long-term and effective monitoring, as well as mark the potential or already subsided area and set warning lines to prevent person or vehicles access.

5.4.6 *Open-Pit and Underground Transition*

According to the ***Benxi Mining, Mengjia Mine 0.8 Mtpa Mining Project Feasibility Study Report*** compiled by Shandong Gold Group Yantai design and research engineering Co., Ltd., to have a safe and smooth transition from open-pit mining to underground mining, the open-pit mining to +70 m elevation of Fe10 orebody can be conducted during the development period of underground mining. Prior to the underground mining commencement, the open-pit mining will be closed up, the waste rock dump will be used for open-pit backfill, with a backfill thickness of 40 m, and a cut-off ditches will be excavated along the scope of surface rocks to lead the rainfall to outside the mining area, with pump chamber to be constructed near the backfilled pit to drain the inflow water out of the pit on time to prevent the water seepage into underground.

SRK agrees with this plan. Meanwhile in SRK's opinion, during the transition from open pit mining to underground mining, the Company will come up with a transition plan to study the stability of open pit slope and underground ground to reduce the disturbance and influence between the open pit mining and underground engineering. In addition, the Company should forecast the potential geologic hazard by monitoring the displacement of rocks and the alteration of the slope stability. The third, safety training will be carried out to keep the sustainable production and maximizing the value-gained during the life of mine.

5.4.7 *Mine Plan*

The production profile for the existing open-pit and planned underground operations, and concentrate (TFe grade: 66%) production at Mengjia Mine are indicated in Table 5-17.

Table 5-17: Production Profile of thirteen-Year Plan

Item	Unit	2011	2012	2013	2014	2015	2016	2017
Mined Ore	(1,000 t)	400	400	360.2	700	800	800	800
Ore Grades	%	24.91	24.91	24.91	19.76	19.76	19.76	19.76
Concentrate	t	101,150	101,150	91,083	140,416	160,475	160,475	160,475
Item	**Unit**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	
Mined Ore	(1,000 t)	800	800	800	800	800	390	
Ore Grades	%	19.76	19.76	19.76	19.76	19.76	19.76	
Concentrate	t	160,475	160,475	160,475	160,475	160,475	78,162	

SRK suggests that the mine needs to conduct a strategic mine plan to optimize development schedule and stoping sequence both vertically and laterally to guide short-term mine operations.

6 ORE PROCESSING ASSESSMENT

The Company currently has six operating concentrators; they are the No. 1 and No. 2 concentrators at Aoniu Mine, Maogong concentrator at Maogong Mine, Jingjia concentrator at Jingjia Mine, Xingzhou concentrator at Xingzhou Mine, and Mengjia concentrator at Mengjia Mine. The designed capacities and 2010 actual productions of these operating plants are listed in Table 6-1. Figure 6-1 is an overview of Mengjia Processing Plant.

Table 6-1: Summary of Operating Ore Processing Plants

Ore Processing Plant	Design Capacity (tpa)	2010 Actual Capacity (tpa)	Status
Aoniu Mine (Aoniu Mining)			
No. 1 concentrator	300,000	318,721	Production
No. 2 concentrator	300,000	323,673	Production
Maogong Mine (Maogong Mining)			
Maogong concentrator	150,000	148,607	Production
Jingjia concentrator	150,000	189,073	Production
Xingzhou Mine (Xingzhou Mining)			
Xingzhou concentrator	1,170,000	78,145	Production
Mengjia Mine (Benxi Mining)			
Mengjia concentrator	300,000	256,780	Production

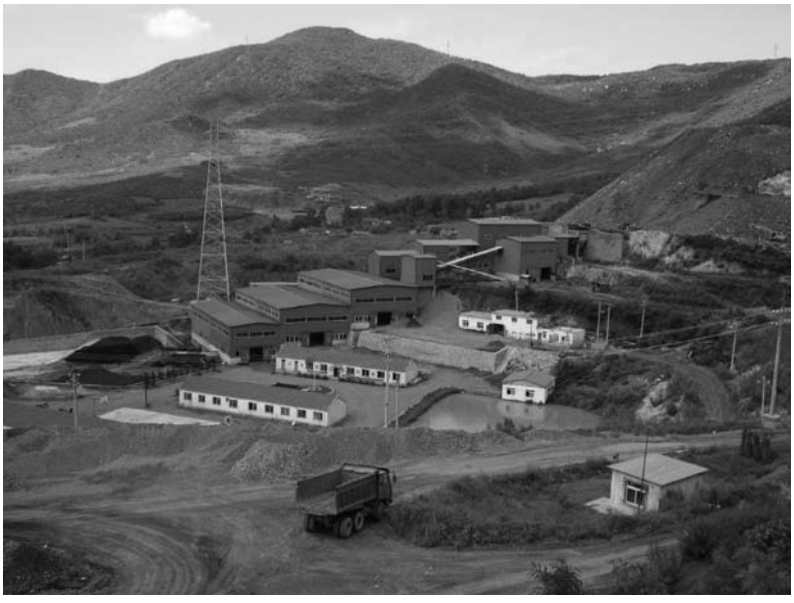

Figure 6-1: An Overview of Mengjia Concentrator

6.1 Aoniu Concentrators

6.1.1 *Introduction*

Aoniu Mine has the two ore processing plants, called the No. 1 and No. 2 concentrators. No. 1 concentrator was built in 1992 with an originally designed ore processing capacity of 125,000 tpa; it is about 1 km south of Aoniu Village covering an area of 10,000 m^2. In June 2010, the designed capacity expanded to 1,900,000 tpa through adding more production lines and technical innovation (Figure 6-2). No. 2 concentrator was founded in 2003 with a designed processing capacity of 500,000 tpa; it is located approximately 1 km southwest of Aoniu Village covering an area of 47,000 m^2. In 2005, the designed capacity expanded to 1,100,000 tpa through adding more production lines and technical innovation.

Figure 6-2: An Overview of Aoniu No. 1 Concentrator

Currently, the actual ore processing capacities for both concentrators are 930,000 tpa. Each concentrator can produce 300,000 t iron concentrate per year.

6.1.2 ***Mineral Processing Test***

The Aoniu iron deposit is a typical ''Anshan-type'', banded magnetite-quartz formation. The main ore and gangue minerals are magnetite and quartz, respectively. Anshan Ferrous Metallic Mine Design and Research Institute conducted the ore processing test of the Aoniu iron ore in June 1992. The test is performed with three ore processing technical flows (I, II and III). The I and II processing flows include one-stage grinding and two-stage magnetic separation procedures, while III processing flow is of two-stage grinding and three-stage magnetic separation procedures. Table 6-2 shows the results of processing tests.

Table 6-2: Summary of Processing Test Results

Processing Flows		I	II	III
Grain Size, -0.076 mm		54	60	80
Raw Ore Grade, %		31.31	31.44	31.31
Concentrate	Yield, %	42.04	40.75	39.38
	Grade, %	66.57	68.42	70.24
	Recovery Rate, %	89.40	88.68	88.34
Tailing Grade, %		5.73	6.00	6.02

Test results of three technical processing flow procedures show that the concentrate has high quality with the iron grades between 66.57% and 70.24%. The iron recovery rates are good between 88.34% and 89.40%. In addition, the contents of harmful elements of phosphorus (P) and sulphur (S) in concentrate are 0.011% and 0.01%, respectively, which are much lower than the requirements of Chinese national iron concentrate quality standard.

6.1.3 *Technical Process and Index*

The two-stage grinding and three-stage magnet separation technical process (III) were adopted for the No. 1 and No. 2 concentrators at Aoniu Mine. Figure 6-3 and Figure 6-4 show the processing flow sheets for No. 1 and No. 2 concentrators at Aoniu Mine, respectively.

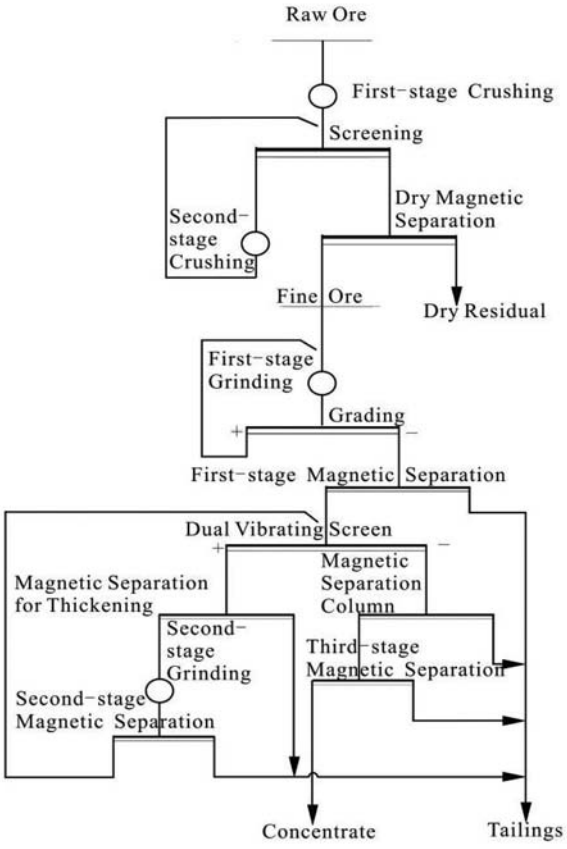

Figure 6-3: Flow Sheet at No. 1 Plant

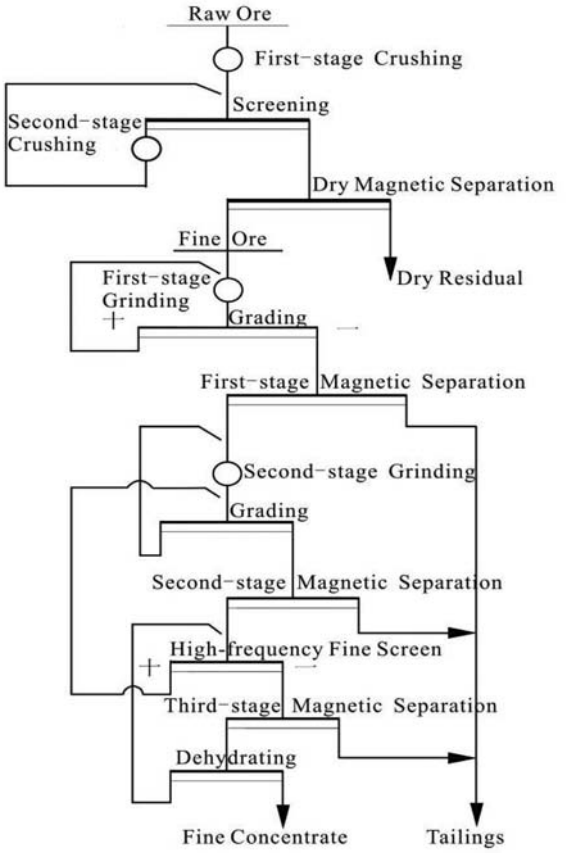

Figure 6-4: Flow Sheet at No. 2 Plant

Both the processing procedures have been upgraded with addition of dual vibrating screen for the No. concentrator and high-frequency fine screen equipment. The flow sheets have undergone sophisticated laboratory technology (see Figure 6-3 and Figure 6-4).

Table 6-3 shows the average production index in 2010 and January to June 2011. In 2010, the No. 1 and No. 2 concentrators have respectively processed 995,406 t and 1,002,944 t of ore and produced iron concentrate 318,721 t with grade of 66.72% and 323,673 t with grade of 66.49%, respectively. The iron recovery rates are 86.60% for the No. 1 concentrator and 86.56% for the No. 2 concentrator. To produce one tonne iron concentrate will consume 3.12 t raw ore for the No. 1 concentrator and 3.10 t raw ore at the No. 2 concentrator.

Table 6-3: Production Index of No. 1 and No. 2 Concentrators in 2010 and 2011.1–6

Item		Unit	Concentrator (2010)		Concentrator (2011.1–6)	
			No. 1	No. 2	No. 1	No. 2
Treated Raw Ore		t	995,406	1,002,944	523,606	523,300
Ore (Feed) Grade		%	24.67	24.79	24.23	24.10
Dry separation	Ore Concentrate	t	794,835	799,514	416,191	403,660
	Yield	%	79.85	79.72	79.49	77.14
	Grade	%	29.02	29.59	28.60	29.04
	Recovery rate	%	93.93	95.15	93.82	92.95
Wet separation	Yield	%	40.10	40.48	39.32	40.48
	Recovery rate	%	92.19	90.97	91.79	92.41
Concentrate		t	318,721	323,673	163,631	163,411
Grade (concentrate)		%	66.72	66.49	66.77	66.29
Total recovery rate		%	86.60	86.56	86.12	85.89
Raw ore/Concentrate		t/t	3.12	3.10	3.20	3.20

6.1.4 *SRK Checking Samples*

During the site inspection, SRK collected four samples based on production situation at the No. 1 processing plant. Test results are detailed in Table 6-4. The iron grade of concentrate is 66.23%, and the P and S contents in concentrate are low as well, at about 0.01% and 0.0114%, respectively.

Table 6-4: Results of SRK Checking Concentrate Samples

Sample No.	Sampling Location	TFe (%)	S (%)	P (μg/g)	mFe (%)
AN1-KF	Iron Concentrate	66.23	0.01	114	—
AN1-A	1st-stage Grinding	27.71	—	—	—
AN1-K	1st-stage Magnetic Separation	40.89	0.05	489	—
AN1-X	Tailings of 1st-stage Magnetic Separation	6.22	—	—	0.72

6.1.5 *Equipment of No. 1 and No. 2 Concentrators*

Table 6-5 lists the main equipment of No. 1 and No. 2 ore processing plants at Aoniu Mine. The advanced jaw crushers and cone crushers are introduced, and the high-frequency fine screen equipment are adopted in recent years at the No. 2 ore processing plant.

Table 6-5: Main Equipment at No. 1 and No. 2 Concentrators

Operating	Equipment	Model and Specifications	Quantity
Crushing			
	Ore Feeder	GZ_8	20
	Belt Conveyor	B=800mm, L=5–30m, v=1.6m/s	32
	Electric Magnetic Iron Remover	B=800mm	4
	Single-beam Bridge Crane	Q=10t, Lk=9m, H=12m	9
	Jaw Crusher	PE600×900	3
	Jaw Crusher	C100	1
	Cone Crusher	PYZ-1200, HP300, GP100 PYB-1200	3
		PYD-1750	2
	Circular Vibrating Screen	2YAH1842	2
Grinding & Grading			
	1-stage Ball Mill	MQG1500×3000、+MQY1500×3000	8
		MQG2100×3000、MQY1830×4500	7
	Grader	FLG12、FLG15	16
	High-frequency Fine Screen	DGS-4 HGZS-55-1207Z D4FMVSk1014	6
	Magnetic Separator	CTB-718, 924, 1024 2CTB-918, 718	13
	Magnetic Separation Column	Φ600	4
	Single-beam Bridge Crane	Q=10t, Q=5t, Lk=11m, H=12m	8
Dehydrating & Ore Slurry Delivery			
	Filter	GN-8	10
	Slurry Pump	ZDJ-100	16

6.1.6 *Ore Processing Costs*

Table 6-6 details the average cash costs of the two Aoniu concentrators from 2008 to 2010 and January to June 2011. The costs are mainly from workforce employment, consumables, electricity, water and other services, on and off-site administration, environmental protection and monitoring; transportation of workforce and non-income taxes, royalties and other governmental charges. The total cash costs to produce one tonne of concentrate in 2008, 2009 2010 and 2011.1–6 are RMB165.59, RMB137.41, RMB141.74 and RMB151.28, respectively.

Table 6-6: Aoniu Ore Processing Costs of 2008 to 2011.1–6

Item	Aoniu Concentrators			
Average Cash Operating Cost	**2008**	**2009**	**2010**	**2011.1–6**
Workforce employment	16.14	12.31	11.62	15.69
Consumables	44.95	34.37	33.58	32.06
Fuel, electricity, water and other services	35.58	34.38	35.51	32.22
On and off-site administration	34.49	28.39	20.48	0.06
Environmental protection and monitoring	0.05	0.06	0.06	0.00
Transportation of workforce	0.00	0.00	0.00	0.00
Product marketing and transport	0.00	16.97	25.49	25.32
Non-income taxes, royalties and other governmental charges	34.38	10.93	14.99	22.18
Contingency allowances	0.00	0.00	0.00	0.00
Total	**165.59**	**137.41**	**141.74**	**151.28**
Depreciation	**38.24**	**79.04**	**40.32**	**43.73**

6.1.7 *Water and Power Supply*

The two upstream tributaries of Waibogou are utilized as main water sources for production, with DN150 seamless steel pipes. In addition, the recycled water is also used for production. The water from a deep well nearby the division dam is used as auxiliary water source for both production and living use.

The 10 kV high-voltage power supply for the No. 1 concentrator is from Tiekuang Line of Shimen Transformer Station in Jiubing Township and Wulong Line of Houan Transformer Station in Houan Township. The 10 kV high-voltage power supply for the No. 2 concentrator is from Aoniu Line of Shimen Transformer Station in Jiubing Township.

The electricity is supplied from the Fushun Rural Power Network of Northeast China Power Grid. The electric rate is 0.512 Yuan/kWh

6.1.8 *Tailings Storage Facility (TSF)*

There are tailings storage facilities (TSF). The TSF of the No. 1 concentrator was built in the ravine to the west of the ore processing plant in 1993. It covers an area of about 20,000 m^2 and has storage capacity of 1,400,000 m^3. The TSF of the No. 2 concentrator was built in the ravine to the west of the ore processing plant as well in 2003. It covers an area of about 35,000 m^2 and has storage capacity of 5,755,000 m^3.

The tailing dam of the No. 1 concentrator was out of service in May 2007. At present, the tailings are all sent to the tailing dam of the No. 2 concentrator. It conveys a distance of about 1.5 km.

6.2 Maogong and Jingjia Concentrators

6.2.1 *Introduction*

The Maogong and Jingjia concentrators are owned by Maogong Mining and are respectively distributed in the slope behind Maogong Village and the slope to the south of Danianpan Mountain.

The Maogong concentrator was constructed in 1995 and has the designed production capacity of 300,000 tpa. At present, it has reached the production capacity of 325,000 tpa and can produce 129,000 t of fine iron concentrate every year.

The Jingjia concentrator was constructed in 1994 and put a product line into operation in 2005, which can produce 84,000 t iron concentrate every year. Recently, it expanded a new product line with production capacity of 79,000 t iron concentrate per year. Therefore, the Jingjia concentrator can annually process 470,000 t raw ore and produce 157,000 t of fine iron concentrate every year.

6.2.2 *Mineral Processing Test*

The Maogong iron deposit is also a typical "Anshan-type", banded magnetite-quartz formation. The main ore and gangue minerals are magnetite with less hematite and limonite and quartz, respectively. Anshan Ferrous Metal Mine Design and Research Institute conducted the ore processing test on Maogong Mine in April 1988. The test is performed with three-stage open-circuit crushing system, two-stage grinding and three-stage magnetic separation procedures. Table 6-7 shows the results of processing tests.

Table 6-7: Summary of Processing Test Results

Item	Yield (%)	Grade (%)	Recovery Rate (%)
Concentrate	50.79	67.59	91.01
Tailing	49.21	6.89	8.99
Raw Ore	100.00	37.72	100.00

For Maogong Mine, the ore mineral magnetite shows disseminated texture, as relatively coarse grain size. The test results indicate the magnetite can be easily separated. The iron grade of concentrate has 67.59% with a recovery rate of 91.01% (Table 6-7).

6.2.3 *Technical Process and Index*

Figure 6-5 and Figure 6-6 show the ore processing procedures at Maogong concentrator and Jingjia concentrator, respectively.

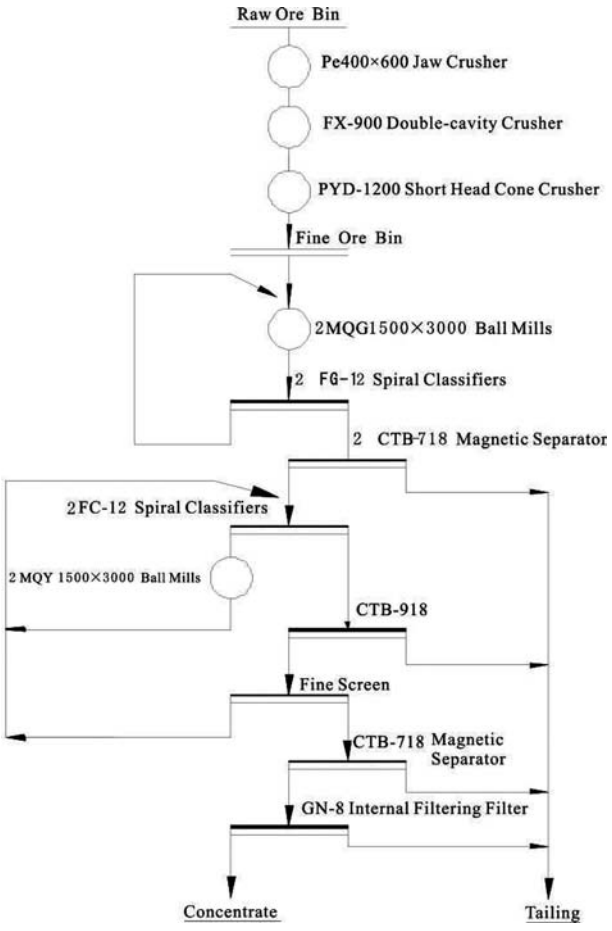

Figure 6-5: Flowsheet at Maogong Plant

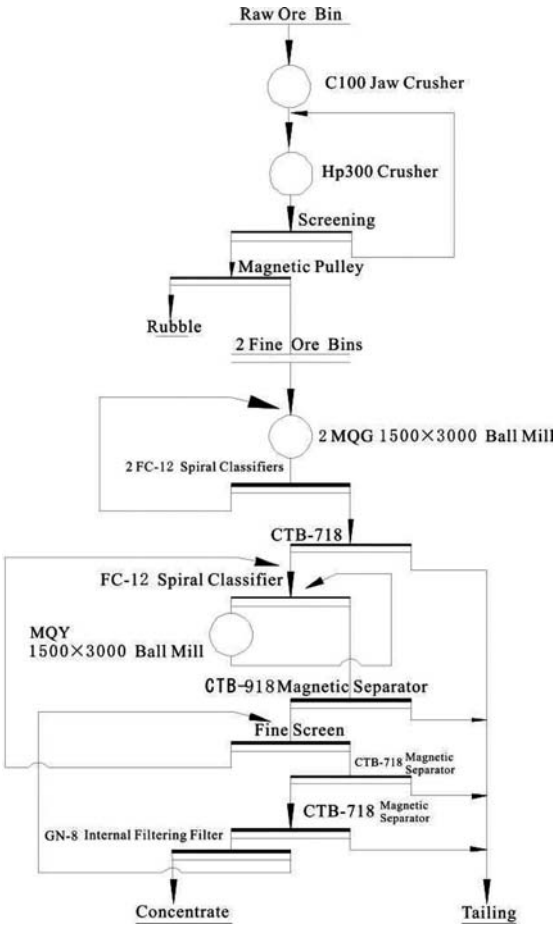

Figure 6-6: Flowsheet at Jingjia Plant

Table 6-8 lists the production technique indexes of Maogong and Jingjia concentrators in 2010 and January to June 2011. As magnetite mineral aggregation is coarse grain size and is easily separated, the concentrating process can produce high quality concentrates. In 2010 the Maogong concentrator processed 378,046 t of ore and produced 148,607 t of iron concentrate at an average grade of 66.06%. The average iron recovery rate was 94.02%. For the Jingjia concentrator, it processed 547,567 t of ore and produced 189,073 t of iron concentrate with an average grade of 66.33%. The average iron recovery rate was 90.17%. To produce 1.0 t concentrate will consume 2.54 t raw ore for Maogong concentrator and 2.90 t raw ore at Jingjia concentrator.

Table 6-8: Technical Index of Maogong and Jingjia Concentrator — 2010 and 2011.1–6

Item		Unit	Concentrator (2010)		Concentrator (2011.1–6)	
			Maogong	Jingjia	Maogong	Jingjia
Treated Raw Ore		t	378,046	547,567	230,385	331,239
Ore (Feed) Grade		%	27.62	25.40	23.29	22.30
Dry separation	Ore Concentrate	t	357,689	504,166	206,619	297,262
	Yield	%	94.62	92.07	89.68	89.74
	Grade	%	28.82	27.01	25.29	24.14
	Recovery rate	%	98.73	97.91	97.39	97.15
Wet separation	Yield	%	41.55	37.50	35.71	33.00
	Recovery rate	%	95.23	92.10	93.25	90.38
Concentrate		t	148,607	189,073	73,785	98,108
Grade (concentrate)		%	66.06	66.33	66.04	66.11
Total recovery rate		%	94.02	90.17	90.81	87.81
Raw ore/Concentrate		t/t	2.54	2.90	3.12	3.38

6.2.4 *SRK Checking Samples*

During the site inspection, SRK collected five samples based on production situation at the Maogong processing plant. Test results are detailed in Table 6-9. The iron grade of concentrate is 67.02%.

Table 6-9: Results of SRK Checking Concentrate Samples

Sample No.	Sampling Location	TFe (%)	mFe (%)
MG21	Fine Iron Concentrate	67.02	
MG-21-1 α	1st-stage Grinding	20.59	
MG-21-2 β	1st-stage Magnetic Separation	42.88	
MG-21-3 θ (X)	Tailings of 1st-stage Magnetic Separation	6.21	0.38
MG-21-6X	Final Tailing	6.49	0.67

6.2.5 *Equipment at Maogong and Jingjia Concentrators*

Table 6-10 lists the main equipment of Maogong and Jingjia ore processing plants. The advanced jaw crushers and cone crushers are introduced, and the high-frequency fine screen equipment are adopted in recent years at both ore processing plants.

Table 6-10: Main Equipment at Maogong and Jingjia Concentrators

Equipment	Model and Specifications	Quantity
Jaw Crusher	PE400 × 600, C100	2
Double-cavity Jaw Crusher	PX-900	2
Jaw Crusher	PE400 × 600	1
Cone Crusher	PYD-1200, HP300 PYB-900	4
Strong Magnetic Drum		2
Ball Mill	MQG1500 × 3000, MQY1500 × 3000	7
	MQG1830 × 3500, MQY1500 × 4500	8
High-frequency Screen	WV2020	20
Permanent Magnetic Drum Magnetic Separator	CTB-718, 618, 918	13
High-weir Single Spiral Classifier	FG-12, FC-12	6
Internal Filtering Vacuum Filter	GN-8	2

6.2.6 *Ore Processing Costs*

The costs are mainly from workforce employment, consumables, electricity, water and other services, on and off-site administration, environmental protection and monitoring; transportation of workforce and non-income taxes, royalties and other governmental charges (see Table 6-11). The total cash costs to produce one tonne of concentrate in 2008, 2009 and 2010 are RMB117.63, RMB127.07 and RMB124.15 for the Maogong concentrators, and RMB134.36, RMB142.56 and RMB77.20 for the Jingjia concentrators, respectively. From 2011, the costs for Maogong concentrator and Jingjia concentrator have been put together into one, It therefore is generally called that the costs for the Maogong concentrator.

Table 6-11: Maogong and Jingjia Ore Processing Costs of 2008 to 2011.1–6

Item	Maogong Concentrator			Jingjia Concentrator		
Cash Operating Cost	**2008**	**2009**	**2010**	**2008**	**2009**	**2010**
Workforce employment	15.47	16.44	15.40	23.52	13.90	10.78
Consumables	38.97	32.51	28.40	42.74	35.65	20.27
Fuel, electricity, water and other services	25.34	23.83	28.13	27.00	25.88	10.69
On and off-site administration	19.75	30.91	35.53	24.42	44.35	6.33
Environmental protection and monitoring	0.04	0.05	0.05	0.04	0.05	0.00
Transportation of workforce	0.00	0.00	0.00	0.00	0.00	0.00
Product marketing and transport	0.00	15.21	0.00	0.00	15.21	15.10
Non-income taxes, royalties and other governmental charges	18.05	8.12	16.64	16.63	7.51	14.02
Contingency allowances	0.00	0.00	0.00	0.00	0.00	0.00
Total	**117.63**	**127.07**	**124.15**	**134.36**	**142.56**	**77.20**
Depreciation	**120.72**	**57.45**	**50.85**	**89.05**	**54.99**	**31.92**

6.2.7 *Water and Power Supply*

Recycle water from the tailings dam is used for ore dressing in Maogong concentrator and accounts for over 90% of total consumption of water for ore dressing, and fresh water is seldom used and only accounts for less than 10%. Guchengzi River and water well have water all year round and can meet water demand of the mine.

Jingjia concentrator uses 3 clean water pumps (2 of which operate, while the other one stands by) with lift head of 75 m to get water, and conduit line has the diameter of 108. 2 clean water pumps (1 of which operates, while the other one stands by) with lift head of 75 m are used to recycle return water from tailing dams and conduit line has the diameter of 159.

Maogong concentrator has its own transformer station, which is equipped with three 630 kVA transformer and one 315 KVA transformer. Exterior line is from local transformer station. Supply voltage is 380V for industrial use and 220V for lighting. The power supply of Jingjia concentrator is supplied by the branch of Hailang Transformer Station.

6.2.8 *Tailings Storage Facility*

The tailings dam of Maogong Mine has the designed bottom elevation of +145.0 m, final elevation of 190–200 m, height of dam of 45–55 m, total storage capacity of 1,500,000–2,000,000 m^3, maximum height of dam of 34 m, and designed service life of 24 years.

At present, this tailing dam has been in service for 14 years, gets dam surface elevation of 179 m, height of dam of 34 m and storage capacity of 900,000 m^3. In 2010, Maogong Ore Dressing Plant processed 403,000 t of raw ore and produced 155,000 t fine concentrate and 248,000 t tailings, which consumed 177,000 m^3 of storage capacity of tailing dam. Maogong Ore Dressing Plant planned to embank 1.5 m-high dam respectively in May and October, which amount to 3 meters in order to ensure a storage capacity needed this year.

The tailings dam of Jingjia Mine has the designed bottom elevation of +143.0, final elevation of 190 m, height of dam of 47 m and total storage capacity of 6,282,400 m^3.

At present, this tailing dam has been in service for 15 years, gets dam surface elevation of 160 m, height of dam of 21 m and storage capacity of 1,910,000 m^3. In 2010, Jingjia Ore Dressing Plant planned to process 462,000 t of raw ore and produce 145,000 t fine concentrate and 317,000 t tailings, which consumed 226,000 m^3 of storage capacity of tailing dam. Jingjia Ore Dressing Plant planned to embank 1.5 m-high dam respectively in May and October, which amount to 3 meters. It reaches storage capacity needed this year.

6.3 Xingzhou Concentrator

6.3.1 *Introduction*

Xingzhou Mine has two concentrators of No. 1 and No. 2; they are close to each other and share one auxiliary production facilities, office and living facilities. At present, the raw ore of both concentrators is supplied by Xingzhou Mine. No. 1 concentrator was acquired on 1 June 2008 and was put into operation on 7 June 2009. No. 2 concentrator was just acquired on 12 January 2010 and was put into operation on 29 January 2010.

The No. 1 concentrator has the design ore processing capacity of 200,000 tpa and actual ore processing capacity of 300,000 tpa and can produce 40,000 t concentrate every year. The No. 2 concentrator has the design ore processing capacity of 350,000 tpa and actual ore processing capacity of 400,000 tpa and can produce 40,000 t concentrate every year. There is no production record and therefore it is documented in this report.

6.3.2 *Mineral Processing Test*

Xingzhou iron deposit is a typical "Anshan-type", banded magnetite-quartz formation as well. The ore mineral is magnetite, and gangue minerals are quartz, hornblende and pyroxene. Beijing General Research Institute of Mining and Metallurgy conducted the ore processing test on the Xingzhou Mine in October 2008. Table 6-18 shows the results of processing tests.

Table 6-12: Summary of Ore Processing Test Results

Grinding Time (Minute)		25	29	33.5
Grinding Fineness of 0.076 mm		74.50%	83.60%	95.50%
Grade of Raw Ore, %		31.05	31.05	31.05
Concentrate	**Yield, %**	38.00	37.00	35.00
	Grade, %	62.35	63.60	65.60
	Recovery Rate, %	78.37	78.54	75.35

For the Xingzhou Mine, the ore mineral magnetite shows relatively fine grain size. The iron grade of concentrate can reach 65.60%, but the iron recovery rate of 75.35% is relatively lower (Table 6-18).

6.3.3 *Technical Process and Index*

Figure 6-7 shows the ore processing technical procedures.

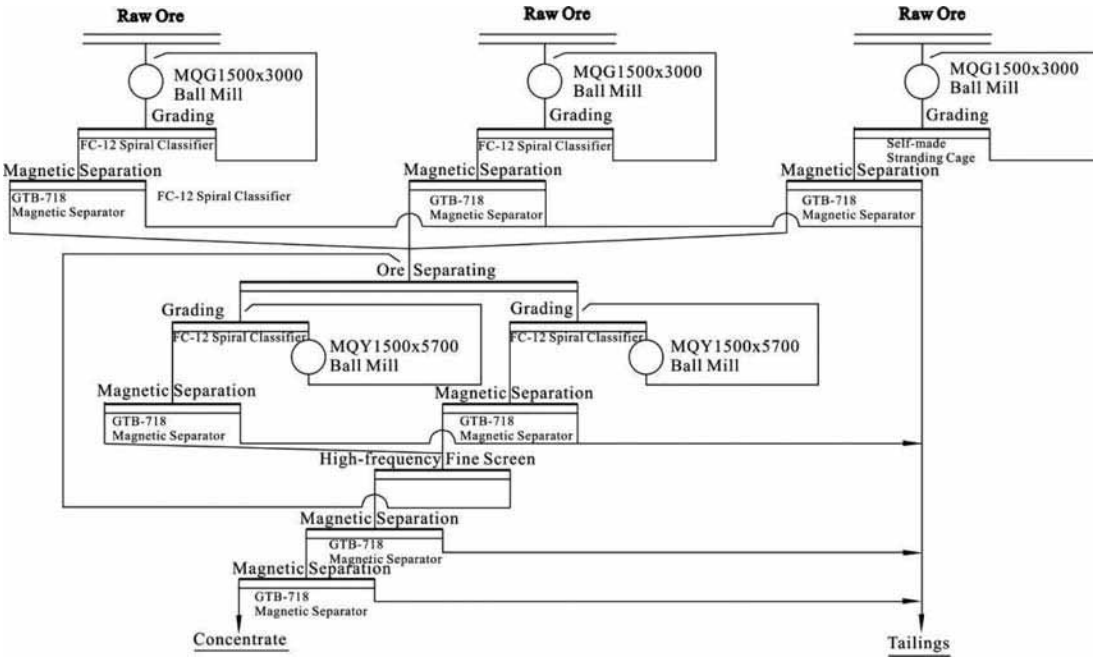

Figure 6-7: Ore Processing Flowsheet at Xingzhou Concentrator

Table 6-13 lists the production technique indexes of Xingzhou concentrators in 2010 and January to March 2011. This concentrator processed 338,836 t of ore and produced 78,145 t of iron concentrate at an average grade of 65.05%. The average iron recovery rate was 85.97%. To produce 1.0 t concentrate will consume 4.34 t raw ore for the concentrator.

Table 6-13: Technical Index of Xingzhou Concentrator — 2010 and 2011.1–6

Item		Unit	2010	2011.1–6
Raw Ore		t	338,836	40,462
Ore (Feed) Grade		%	17.45	18.17
Dry separation	Ore Concentrate	t	312,016	35,313
	Yield	%	92.08	87.27
	Grade	%	18.35	20.22
	Recovery rate	%	96.83	97.12
Wet separation	Yield	%	25.05	27.73
	Recovery rate	%	88.78	88.79
Concentrate		t	78,145	9,974
Grade (concentrate)		%	65.05	64.73
Total recovery rate		%	85.97	86.13
Raw ore/Concentrate		t/t	4.34	4.13

6.3.4 *SRK Checking Samples*

During the site inspection, SRK collected four samples based on production situation at the No. 1 processing plant. Test results are detailed in Table 6-14. The iron grade of concentrate is 66.69%, and the S and P concentration in the concentrate is relatively higher but is within the industrial limit. The iron grades are high, about 21.92% in the tailing from the first-stage magnetic separation, and 23.05% in the final tailing.

Table 6-14: Results of SRK Checking Concentrate Samples

Sample No.	Sampling Location	TFe (%)	S (%)	P (μg/g)	mFe (%)
XZ1-KF	Fine Iron Concentrate	66.69	0.42	155	
XZ1-1 α	1st-stage Grading	31.35			
XZ1-3 β	1st-stage Magnetic Separation	46.83			
XZ1-2 θ (X)	Tailing from 1st-stage Magnetic Separation	21.92			0.90
XZ1-6X	Final Tailing	23.05			0.60

6.3.5 *Equipment at Xingzhou Concentrators*

Table 6-15 lists the main equipment of the Xingzhou No. 1 and No. 2 concentrators at Xingzhou Mine. The advanced jaw crushers and cone crushers are introduced, and the high-frequency fine screen equipment are adopted in recent years at both ore processing plants.

Table 6-15: Main Equipment at No. 1 and No. 2 Xingzhou Concentrators

Equipment	Model and Specifications	Quantity
Jaw Crusher	PE600 × 900	2
	PE × 250 × 1000	1
Cone Crusher	1200	2
Hammer Crusher	PC1500	2
Ball Mill	MQG1530	3
	MQY1557	2
Ball Mill	21 × 30	2
	18 × 64	1
Spiral Classifier	FC12	4
High-frequency Screen	MVSK2020	7
Magnetic Separator	CTB-918	3
	CTB-718	6
	CTB-1024	3
Vacuum Filter	GN-8	1
	CYW-8	1
Slurry Pump	6; 4C-AH	2
	3/2C-AH	3

6.3.6 *Ore Processing Costs*

The costs are mainly from workforce employment, consumables, electricity, water and other services, on and off-site administration, environmental protection and monitoring; transportation of workforce and non-income taxes, royalties and other governmental charges (see Table 6-16). The total cash costs for the processing plant to produce one tonne of concentrate in 2008, 2009, 2010 and 2011.1–6 are RMB417.77, RMB281.75, and RMB301.87, respectively.

Table 6-16: Xingzhou Ore Processing Costs of 2008, 2009 and 2011.1–6

Item	Xingzhou Concentrator			
Cash Operating Cost	**2008**	**2009**	**2010**	**2011.1–6**
Workforce employment	39.46	33.67	26.16	20.96
Consumables	72.37	33.99	56.58	79.39
Fuel, electricity, water and other services	148.19	74.62	79.16	86.65
On and off-site administration	127.31	125.10	68.26	92.21
Environmental protection and monitoring	12.35	0.00	0.02	0.02
Transportation of workforce	0.00	0.00	0.00	0.00
Product marketing and transport	12.74	10.09	13.46	14.25
Non-income taxes, royalties and other governmental charges	5.35	4.29	7.97	8.38
Contingency allowances	0.00	0.00	0.00	0.00
Total	**417.77**	**281.75**	**251.61**	**301.87**
Depreciation	**67.69**	**49.89**	**32.03**	**30.48**

6.3.7 *Water and Power Supply*

The water for domestic use is from groundwater and the processing water at concentrators is mainly from Dongzhou River. Water consumption is 45,000 m^3 per month.

Dongzhou 35 kV transformer station is 4 km away from mine field. Rural power network of Dongzhou District supplies electric power to ore dressing plants and mining stope. Unit electric rate is 0.49 Yuan/kW • h and electric power consumption is 900,000 kW • h/m (April 2020). Xingzhou Mining has 5 transformers including two 630 kw, one 800 kw, one 80 kw, and one 315 kw transformers.

6.3.8 *Tailings Storage Facility*

Tailing dam of the No. 1 concentrator has backwater area of 27,705.7 m^2 and is predicted to get accumulated service life of 1 year. Tailing dam of the No. 2 concentrator has backwater area of 37,395 m^2 and is predicted to get service life of 2 years. Both tailing dams can be mutually shared.

6.3.9 *New Concentrator*

In July 2010, the YDRISGG conducted a feasibility study of a 3,000,000 tpa mining and processing capacity on the Xingzhou Mine. Xingzhou Mining will commence this program in 2011. In June 2011, the YDRISGG conducted a feasibility study of a 5,000,000 tpa mining and processing capacity on the Xingzhou Mine.

Beijing General Research Institute of Mining and Metallurgy conducted the ore processing test on Xingzhou Mine in July 2009. The test is performed with three-stage circuit crushing and grinding system and three-stage magnetic separation procedures. This procedure can produce 65% TFe concentrate with much high recovery rates of 96% (Table 6-17).

Table 6-17: Designed Technical Index for 3,000,000 tpa Concentrator

	Product	Yield (t)	Yield Rate (%)	Fe Grade (%)	Fe Recovery (%)
Open-Pit Ore	Concentrate	772,200	25.74	65.00	96.00
	Tailing	2,227,800	74.26	0.94	4.00
	Raw ore	3,000,000	100.00	17.43	100.00
Underground Ore	Concentrate	742,500	24.75	65.00	96.00
	Tailing	2,257,500	75.25	0.89	4.00
	Raw ore	3,000,000	100.00	16.76	100.00

6.4 Mengjia Concentrator

6.4.1 *Introduction*

The Mengjia concentrator has a processing capacity of 310,000 tpa ore and can produce 100,000 t fine iron concentrate every year.

The ore minerals are mainly magnetite with less hematite. The gangue mineral is mainly quartz. The phase analytical results of two iron ore samples show that the contents of magnetite and hematite are between 21.42% and 22.37%, and 2.29% and 2.90%, respectively, and that the contents of other iron minerals such as pyrite and side rite are all less than 0.06% and 0.72%, respectively.

6.4.2 *Mineral Processing Test*

Mengjia iron deposit is a typical ''Anshan-type'', banded magnetite-quartz formation as well. The procedure for ore processing test is as follow: raw ore is ground to -200 mesh (which accounts for 60% of particles); magnetic separation is performed to discharge the tailings and get coarse iron concentrates; the coarse iron concentrate is reground to -300 mesh (which accounts for 70–94%); and magnetic separation is performed again to get fine iron concentrate. Table 6-18 shows the results of processing tests of two samples.

Table 6-18: Summary of Ore Processing Test Results

Item		Sample No. 10	Sample No. 1
Grade of Raw Ore, %		24.79	25.93
Concentrate	Yield, %	31.07	31.58
	Grade, %	68.42	67.61
	Recovery Rate, %	85.76	82.34

For Mengjia Mine, the ore processing results show the iron grade of concentrate can reach 67.61% to 68.42%, and that the iron recovery rates are between 82.34% and 85.76% (Table 6-18).

6.4.3 *Technical Process and Index*

Figure 6-8 shows the ore processing flow sheet at the Mengjia concentrator.

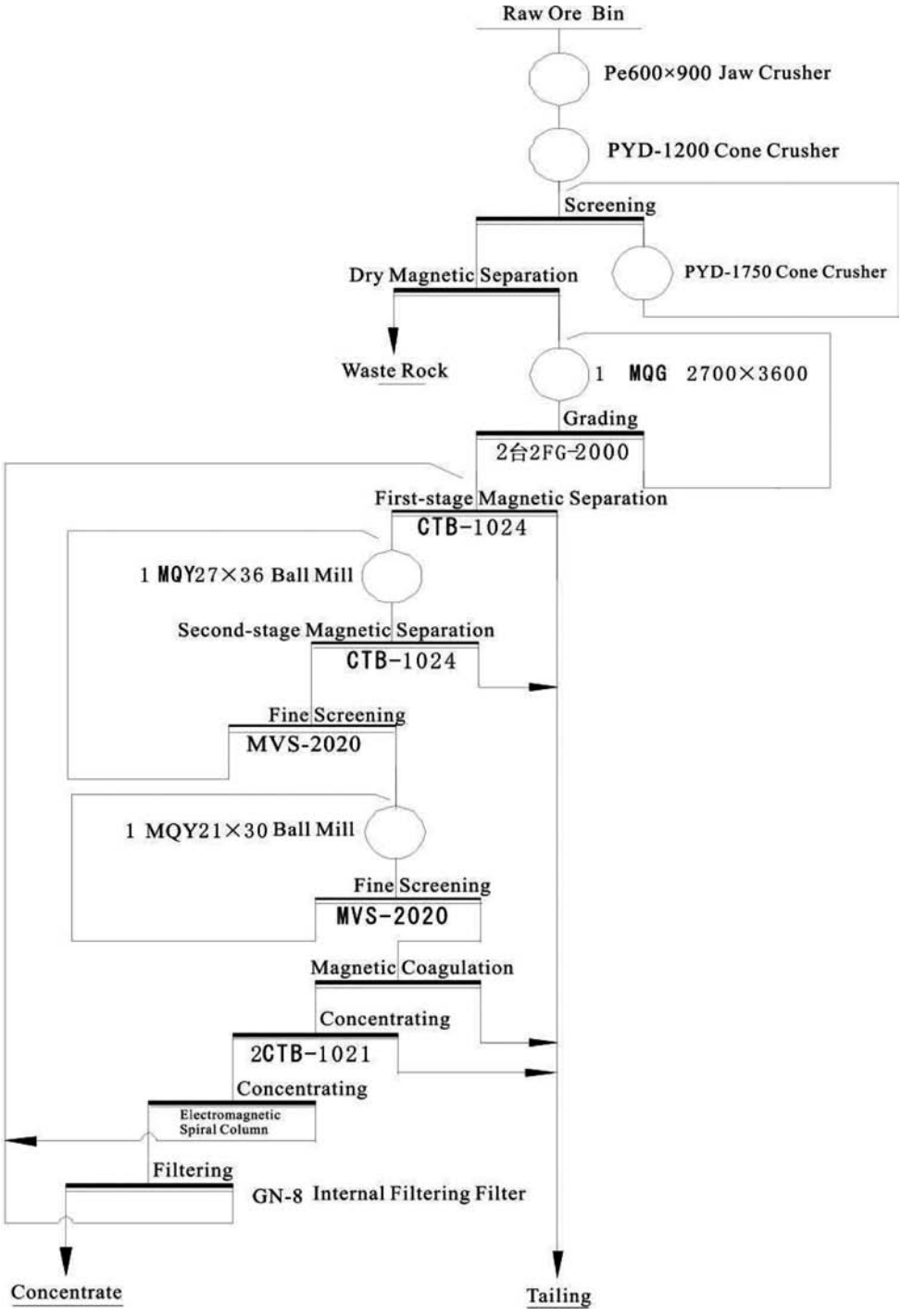

Figure 6-8: Ore Processing Flowsheet at Mengjia Concentrator

Table 6-13 lists the production technique index of Mengjia concentrators in 2010 and from January to March 2011. In 2010 the concentrator processed 1,360,567 t of ore and produced 256,780 t of iron concentrate at an average grade of 65.28%. The average iron recovery rate was 71.63%. To produce 1.0 t concentrate will consume 5.30 t raw ore for Mengjia concentrator.

Table 6-19: Technical Index of Mengjia Concentrator — 2010 and 2011.1–6

Item		Unit	2010	2011.1–6
Treated Raw Ore		t	1,360,576	595,413
Ore (Feed) Grade		%	17.20	17.57
Dry separation	Ore Concentrate	t	1,063,926	500,713
	Yield	%	78.20	84.10
	Grade	%	20.11	19.65
	Recovery rate	%	91.43	94.05
Wet separation	Yield	%	24.14	23.45
	Recovery rate	%	78.35	77.98
Concentrate		t	256,780	117,426
Grade (concentrate)		%	65.28	65.34
Total recovery rate		%	71.63	73.34
Raw ore/Concentrate		t/t	5.30	5.07

6.4.4 *SRK Checking Samples*

During the site inspection, SRK collected five samples based on production situation at Mengjia Processing Plant. Test results are detailed in Table 6-20. The iron grade of concentrate is 68.00%, and the S and P contents in the concentrate are low at less than 0.01%, and 0.0113%, respectively.

Table 6-20: Results of SRK Checking Concentrate Samples

Sample No.	Sampling Location	TFe (%)	S (%)	P (μg/g)	mFe (%)
MJ-KF	Fine Iron Concentrate	68.00	<0.01	113	
MJ-1 α	1st-stage Grading	23.84			
MJ-23 θ (X)	1st-stage Magnetic Separation	5.72			0.47
MJ-23(5X) θ	Tailing from 2nd-stage Magnetic Separation	6.21			0.40
MJ-23(β)	Concentrate from 2nd-stage Magnetic Separation	33.34			

6.4.5 *Equipment at Mengjia Concentrator*

Table 6-22 lists the main equipment of the Mengjia concentrator at Mengjia Mine. The advanced jaw crushers and cone crushers are introduced, and the high-frequency fine screen equipment are adopted in recent years at the ore processing plant.

6.4.6 *Ore Processing Costs*

The costs are mainly from workforce employment, consumables, electricity, water and other services, on and off-site administration, environmental protection and monitoring; transportation of workforce and non-income taxes, royalties and other governmental charges (see Table 6-21). The total cash costs for the processing plant to produce one tonne of concentrate in 2008, 2009, 2010 and 2011.1–6 are RMB171.60, RMB164.80, RMB183.65 and RMB205.81, respectively.

Table 6-21: Mengjia Ore Processing Costs

Item	Mengjia Concentrator			
Cash Operating Cost	**2008**	**2009**	**2010**	**2011.1–6**
Workforce employment	13.14	12.88	13.98	0.00
Consumables	42.82	36.47	36.84	0.00
Fuel, electricity, water and other services	81.90	69.83	99.82	162.72
On and off-site administration	16.00	24.42	12.47	17.22
Environmental protection and monitoring	0.06	0.07	0.07	0.07
Transportation of workforce	0.00	0.00	0.00	0.00
Product marketing and transport	0.00	5.23	5.10	5.50
Non-income taxes, royalties and other governmental charges	17.68	15.90	15.38	20.30
Contingency allowances	0.00	0.00	0.00	0.00
Total	**171.60**	**164.80**	**183.65**	**205.81**
Depreciation	**51.58**	**48.98**	**45.41**	**55.07**

Table 6-22: Main Equipment at Mengjia Concentrator

Equipment	Model and Specifications	Quantity
Jaw Crusher	PE600 × 900	2
Cone Crusher	PYB-1200	2
	PYB-1750	2
Circular Vibrating Screen	YA1836	2
Synchronous Inertial Feeder	GZG1503	1
	GZG0503	5
Grid Ball Mill	MQG2700 × 3600	2
Overflow Ball Mill	MQY2700 × 3600	1
	MQY2100 × 3000	1
	MQY2100 × 4500	2
Classifier	2FG-20	4
Permanent Magnetic Drum Magnetic Separator	CTB-1024	8
Electromagnetic High-frequency Vibrating Screen	MVS2020	4
Intelligent Electromagnetic Spiral Column	ZDC-1200	1
	ZDL950	1
Magnetic Coagulation	BCT-2000	2
Disk Tailing Recovery Machine	YC-100-12	2
High-frequency Fine-grain Separator	XTS-6000	6
Vacuum Filter	GYM-12	4
Sludge Pump	2PNJ	4
	4PNJ	8
Vacuum Pump	SK-30	4
Belt Conveyor	B=800, 500	12
Gourd Double-beamed Crane	HSD-10T	1
Bridge Single-beamed Crane	LD1-10T	4
Double-beamed Electric Overhead Crane	HSD (10T)	1
Truckle-driven Thickener	NJ-45/68	1

6.4.7 ***Water and Power Supply***

The water supply for concentrator use and domestic use is delivered through pipeline and is from Beitaixi River. Annual water consumption is 500,000 m^3 at expense of RMB120,000. The utilization rate of recycle water is 75%.

Transformer Stations No. 3 and 4 of Beitai Steel Works supply 10 kV electric power to switch room of ore dressing plant. This ore dressing plant has no high-voltage motor, so the design for high voltage isn't taken into consideration. According to electric power consumption of motors, 1 switch room is built near main workshop of ore dressing plant, and one 2,000 kVA transformer and one 200 kVA transformer are set in open air. This switch room is used to supply the power to power-consuming equipment and lighting.

6.4.8 ***Tailings Storage Facility***

At present, Mengjia concentrator uses tailings dam of Beiying Mining Co., Ltd., which has a storage capacity of 3,600,000 m^3 and can store the tailings discharged by the Mengjia and other mines for 2 years. The solution of tailing discharged by Mengjia processing plant — dry discharging project — has been put into operation in January 2011.

7 MAJOR CONTRACTS AND AGREEMENTS

7.1 Mining and Ore Processing Contracts

There are no contracts for any of the Company's mines and ore processing plants. All mining development and mining and processing activities are completed by the Company's own employees.

7.2 Supply Contracts

Supplies of consumable materials such as diesel fuel and reagents for metallurgical and processing plants and other plant are generally purchased at market prices on short-term contracts with a term of one year.

7.3 Product Transport Contracts

The Company provided SRK with a copy of product transport contract. It shows that all the concentrate product transport is carried out by the Fushun Zhida Transport Company ("**Fushun Zhida**"). The yearly contact was signed by the Company and Fushun Zhida.

7.4 Product Sales Contracts

The Company provided SRK with a copy of product sales contract which indicated that the sales are planned to be "on-the-spot". The iron concentrate products are sold to the Tangshan Pengbo Trade Ltd ("**Tangshan Trade**"). The iron concentrate prices are decided by the Company and Tangshan Trade based on the market prices.

7.5 Workforce Contracts

Employees of the Company are usually employed on three-year contracts, which are standard for many companies in China. If contracts are signed, the employer is required to make payment for workers' welfare including three major insurances (pension, medical and work compensation) that are required by Chinese law. SRK was informed that the Company has fully complied with the Chinese labour law. The contracts also specify the responsibilities of the employer and employee and define the liabilities of each party.

8 WORKFORCE

8.1 Workforce Numbers

Workforce numbers at the end of June 2011 are shown in Table 8-1 and Table 8-2. The Company's headquarter has 140 personnel including 50 for management and 65 professional technical personnel, and 25 supporting staff (see Table 8-1). Four operating mines and associated ore processing plants and others have a total of 1,253 personnel (see Table 8-2). SRK considers that the workforce number can completely meet the Company's production capacities.

Table 8-1: The Company's Headquarter Workforce Numbers

Department	Corporate Leadership	Law Affair & Permit	Safety Production	Financial	Human Resource	Equipment & Material Supply
Personnel	7	5	13	12	5	25

Department	Marketing	Information	Administration	Security	Geological Exploration	Others
Personnel	9	6	28	7	11	11

Table 8-2: Workforce Numbers of Operating Mines

Department	Aoniu Mine	Mengjia Mine	Xingzhou Mine	Maogong Mine
Mine Management	**69**	**20**	**54**	**37**
Mine manager and Assistant	2	1	3	2
Geologists and engineers	2	6	16	2
Accountant and others	4	4	7	4
Others	61	9	28	29
Mining department	**151**	**84**	**33**	**47**
Management	1	3	2	2
Technology	4	5	14	2
Mining and transport workers	146	76	17	43
Ore processing plant	**242**	**104**	**78**	**153**
Management	3	3	4	4
Technology	4	3	4	2
General workers	235	98	70	147
Workshop & Maintenance	**40**	**20**	**16**	**18**
Management	1	3	1	1
General workers	39	17	15	17
Safety Department	**20**	**16**	**21**	**30**
Full-time	10	4	14	5
Others	10	12	7	25
Total	**522**	**244**	**202**	**285**

8.2 Assessment of Workforce

Based on the law of the Chinese National Ministry and the work contract regulations of Liaoning Bureau of Work and Social Security, all staff and employees have signed work contracts. The Company also transacts endowment, medical, work injury, unemployment and bearing insurance plus housing accumulation funds for employees. SRK was informed during the site visit that the staff and contractors are relatively stable.

As of 30 June 2011, a total of workforce numbers were 1,393. They include 140 for the Company's headquarter, 180 for subsidiary company mine management, 315 for mining department, 577 for ore processing plants, 94 for workshop and maintenance, and 97 for safety department. The total staff turnover is about 5% per year with this figure mostly from farmers for mining department. SRK was informed during the site visit that the Company is planning to decrease the turnover rate and build more stable management and production teams by further improving safety conditions and increasing salary levels.

9 OCCUPATIONAL HEALTH AND SAFETY ("OH&S")

9.1 OH&S Permits

SRK has sighted the following project safety assessments, permits and compliance certificates:

- ***Aoniu Mine Project:***

  — Liaoning Safety Production Inspection Bureau, *Safety Production Permit No. [2008] YD014011L China Hanking Industrial Co Ltd for Aoniu Open Pit Iron Mine*, 25 December 2008 (expiry 24 December 2011, renewal 3 months before expiry date).

  — Liaoning Safety Science Research Institute, *Safety Inspection and Receiving Assessment Report of No. 1 Processing Plant Expansion Project of Fu Shun Han Wang Ao Niu Iron mine Mining Industry Co Ltd*, January 2008.

  — Shen Yang Wan Yi Safety Technical Co Ltd, *Tailing Safety Assessment Report of No. 1 Processing Plant of Fu Shun Han Wang Ao Niu Mining Industry Co Ltd*, December 2005.

  — Shen Yang Wan Yi Safety Technical Co Ltd, *Tailing Safety Assessment Report of No. 2 Processing Plant of Fu Shun Han Wang Ao Niu Mining Industry Co Ltd*, December 2005.

  — Shen Yang Wan Yi Safety Technical Co Ltd, *Tailing Safety Assessment Report of No. 3 Processing Plant of Fu Shun Han Wang Ao Niu Mining Industry Co Ltd*, December 2005.

  — Beijing Da Fei Safety Assessment Management Consulting Co Ltd, *Tailing Safety assessment report of No. 2 processing plant of Fu Shun Han Wang Ao Niu Mining Industry Co Ltd*, August 2008.

  — Shen Yang Wan Yi Safety Technical Co Ltd, *Open Pit Excavation Safety Assessment Report of No. 1 Processing Plant of Fu Shun Han Wang Ao Niu Mining Industry Co Ltd*, December 2005.

  — Beijing Da Fei Safety Assessment Management Consulting Co Ltd, *Current Safety Status Assessment of Open Pit Excavation Ao Niu Iron Mine Fu Shun Han Wang Ao Niu Mining Industry Co Ltd*, August 2008.

  — Fushun County Safety Production Inspection and Management Bureau, *Certificate of Safety Compliance 2007–2009, Aoniu, Maogong and Jingjia Mines*, 9 June 2010.

- ***Maogong Mine Project:***

  — Liaoning Safety Production Inspection Bureau, *Safety Production Permit No. [2009] YD014012L Fu Shun Han King Jingjia Mining Industrial Co Ltd Open Pit Iron Mine*, 30 April 2009 (expiry 29 April 2012, renewal 3 months before expiry date).

— Liaoning Safety Production Inspection Bureau, *Safety Production Permit No. [2008] YD012017 Fu Shun Han King Jingjia Mining Industrial Co Ltd Tailings Storage Facility*, 25 December 2008 (expiry 24 December 2011, renewal 3 months before expiry date).

— Liaoning Safety Production Inspection Bureau, *Safety Production Permit No. [2008] YD014010L Fu Shun Han King Maogong Mining Industrial Co Ltd Open Pit Iron Mine*, 25 December 2008 (expiry 24 December 2011, renewal 3 months before expiry date).

— Liaoning Safety Production Inspection Bureau, *Safety Production Permit No. [2008] YD012018 Fu Shun Han King Maogong Mining Industrial Co Ltd Tailings Storage Facility*, 25 December 2008 (expiry 24 December 2011, renewal 3 months before expiry date).

- ***Xingzhou Mine Project:***

— Liaoning Safety Production Inspection Bureau, *Safety Production Permit No. [2008] YD044001L Fu Shun Han King Xing Zhou Mining Industrial Co Ltd No. 2 Mining Area*, 25 December 2008 (expiry 24 December 2011, renewal 3 months before expiry date).

— Liaoning Safety Production Inspection Bureau, *Safety Production Permit No. [2008] YD042009 Fu Shun Han King Xing Zhou Mining Industrial Co Ltd Tailings Storage Facility*, 25 December 2008 (expiry 24 December 2011, renewal 3 months before expiry date).

— Validate: 25 December 2008 to 24 December 2011 Processing Plant No. 2 — 0.15 Mtpa, located adjacent to Nianpan open pit and TSF No. 2.

— Fushun City Dongzhou District Safety Production Inspection and Management Bureau, *Certificate of Safety Compliance Xingzhou Project*, 6 August 2010.

- ***Benxi Mine Project:***

— Liaoning Safety Production Inspection Bureau, *Safety Production Permit No. [2008] YD031003L Benxi Hanking Industrial Co Ltd for Mengjia Mine*, 30 December 2008 (expiry 29 December 2011, renewal 3 months before expiry date).

— Benxi City Pingshan District Safety Production Inspection and Management Bureau, *Certificate of Safety Compliance (3 year production period) — Mengjia Mine,* 1 July 2010.

— Benxi City Pingshan District Safety Production Inspection and Management Bureau, *Certificate of Safety Compliance — Benxi Hanking Mining Co. Ltd*, 2 August 2010.

9.2 Safety Procedures and Training

The Company has a safety monitoring division with 20 full time employees. There are four workshops including 10 people responsible for mining safety, five people for processing plants and five people for tailing dams. Each workshop has a safety committee and written safety goals are required. All employees must accept a three-level safety education program with monthly, seasonal, half yearly, and annual review of safety responsibilities for each workshop, which are conducted by officers from the safety monitoring division.

New employees must take part in either half day, full day or two day safety training and checking depending on their experience level and work field. A certificate or licence, for example for the use of explosives, must be obtained before being able to work in that area. Employees hold regular safety meetings of 10 minutes with previous shift workers in their work area before the start of each shift. Previous shift workers are required to complete a written and signed safety record to advise the incoming shift about prevailing work conditions.

During the site visits, SRK noted that safety signage and personal protective equipment (PPE) were provided to employees. However, SRK notes that improved utilisation of PPE and other strategies can be employed to reduce health and safety risks to the workforce. Accordingly, The Company has indicated a desire and intention to improve the appropriate use of PPE by employees.

9.3 Historical Safety Records

The Company's sites, including mines and concentrators and support facilities have achieved accident statistics as shown in Table 9-1. In 2008, the mines had two minor injuries and in 2009 one serious injury and five minor injuries were recorded. In 2010, six minor injuries and three serious injuries occurred. There were no accidents for all the mines from January to June 2011.

SRK was informed that the Company's safety records indicate that between 2008 and 2010, the Company recorded four serious injuries and thirteen minor injuries. The recorded serious injuries occurred because the employees were operating a machine contrary to instructions. SRK was also informed that these accidents have been solved by the Company.

Table 9-1: Aoniu Mining Accident Statistics, 2008 to 2010 and 2011.1–6

	Aoniu Mine				Mengjia Mine				Xingzhou Mine				Jingjia and maogong Mines			
	2008	2009	2010	2011.1-6	2008	2009	2010	2011.1-6	2008	2009	2010	2011.1-6	2008	2009	2010	2011.1-6
Minor	0	0	2	0	1	1	0	0	0	2	3	0	1	2	1	0
Serious	0	0	1	0	0	0	1	0	0	0	0	0	0	1	1	0
Fatal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	3	0	1	1	1	0	0	2	3	0	1	3	2	0

SRK considers the above accident statistics to show that the Company is committed to safety training, provision of safety equipment and safety monitoring. It is SRK's view that more needs to be done to improve the safety records and reducing and/or avoiding serious and minor injuries and the Company fully supports SRK's suggestions.

10 PRODUCTION, OPERATING AND CAPITAL COSTS

10.1 Production History

Table 10-1 shows Aoniu Mining's historical production records from 2008 to 2010 and January to June 2011.

Table 10-1: Historical Production Records of Mines and Associated Plants

Mine/Plant	Index	Unit	2008	2009	2010	2011.1–6
Aoniu Mine						
	Ore Mined	t	1,512,492	1,583,958	1,856,739	1,059,263
No. 1 Concentrator	Treated Ore	t	733,110	881,203	995,406	523,606
	Ore (Feed) Grade	%	28.67	25.84	24.67	24.23
	Concentrate	t	289,063	298,218	318,721	163,631
	Concentrate Grade	%	66.90	66.72	66.72	66.77
	Recovery Rate	%	92.01	87.38	86.60	86.11
No. 2 Concentrator	Treated Ore	t	793,928	930,141	1,002,944	523,300
	Ore (Feed) Grade	%	27.41	25.82	24.79	24.1
	Concentrate	t	289,712	314,093	323,673	163,411
	Concentrate Grade	%	66.45	66.59	66.49	66.29
	Recovery Rate	%	88.45	87.09	86.56	85.90
Maogong Mine						
	Ore Mined	t	745,733	878,849	963,441	366,401
Maogong Concentrator	Treated Ore	t	241,443	309,960	378,046	230,385
	Ore (Feed) Grade	%	27.67	30.98	27.62	23.29
	Concentrate	t	92,500	128,889	148,607	73,785
	Concentrate Grade	%	66.23	66.21	66.06	66.04
	Recovery Rate	%	91.70	88.87	94.02	90.81
Jingjia Concentrator	Treated Ore	t	449,075	496,961	547,567	331,239
	Ore (Feed) Grade	%	22.87	24.44	25.40	22.30
	Concentrate	t	137,359	157,135	189,073	98,108
	Concentrate Grade	%	66.74	66.49	66.33	66.11
	Recovery Rate	%	89.26	86.02	90.17	87.82
Xingzhou Mine						
	Ore Mined	t	85,838	123,369	352,739	57,100
	Treated Ore	t	68,653	99,205	338,836	40,462
	Ore (Feed) Grade	%	19.21	18.66	17.45	18.17
	Concentrate	t	17,191	20,708	78,145	9,974
	Concentrate Grade	%	65.34	65.31	65.05	64.73
	Recovery Rate	%	85.17	73.06	85.97	86.13
Mengjia Mine						
	Ore Mined	t	1,246,825	1,527,192	1,321,284	619,814
	Treated Ore	t	936,879	1,313,129	1,360,576	595,413
	Ore (Feed) Grade	%	20.01	18.15	17.20	17.57
	Concentrate	t	220,066	263,766	256,780	117,426
	Concentrate Grade	%	65.08	65.12	65.28	65.34
	Recovery Rate	%	76.40	72.07	71.63	73.34

10.2 *Operating Costs*

Mining and ore processing are carried out by the Company's own employees. The Company's management provided operating cost analysis including mining operation (cost of per tonne ore) and ore processing (cost of per tonne iron concentrate). Consumption of reagents and other materials in the costs are based on prices obtained by suppliers in China. Information regarding salary scales was used to calculate labour costs. Power consumption and costs were based on local standards (Table 10-2).

Table 10-2: Mining and Processing Costs (RMB/t) — 2008, 2009 and 2011.1–6

Item	Aoniu Mining				Aoniu Concentrator			
Cash Operating Cost	**2008**	**2009**	**2010**	**2011. 1-6**	**2008**	**2009**	**2010**	**2011. 1-6**
Workforce employment	2.03	2.66	2.58	3.32	16.14	12.31	11.62	15.69
Consumables	16.57	13.82	12.32	13.08	44.95	34.37	33.58	32.06
Fuel, electricity, water and other services	6.55	13.66	6.33	4.87	35.58	34.38	35.51	32.22
On and off-site administration	1.46	0.67	0.33	0.30	34.49	28.39	20.48	23.76
Environmental protection and monitoring	0.11	0.12	0.11	0.12	0.05	0.06	0.06	0.06
Transportation of workforce	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Product marketing and transport	0.00	0.00	0.00	0.00	0.00	16.97	25.49	25.32
Non-income taxes, royalties and other governmental charges	2.40	8.14	8.69	10.54	34.38	10.93	14.99	22.18
Contingency allowances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**29.12**	**39.06**	**30.36**	**32.23**	**165.59**	**137.41**	**141.74**	**151.28**
Depreciation	**2.39**	**1.57**	**1.81**	**2.07**	**38.24**	**79.04**	**40.32**	**43.73**

Item	Maogong Mining				Maogong Concentrator			
Cash Operating Cost	**2008**	**2009**	**2010**	**2011. 1-6**	**2008**	**2009**	**2010**	**2011. 1-6**
Workforce employment	1.40	2.51	2.38	1.75	15.47	16.44	15.40	17.61
Consumables	7.21	11.75	6.40	6.70	38.97	32.51	28.40	33.04
Fuel, electricity, water and other services	22.44	5.17	5.72	4.01	25.34	23.83	28.13	29.76
On and off-site administration	4.09	3.89	1.85	1.56	19.75	30.91	35.53	44.61
Environmental protection and monitoring	0.10	0.11	0.10	0.12	0.04	0.05	0.05	0.05
Transportation of workforce	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Product marketing and transport	0.00	0.00	0.00	0.00	0.00	15.21	0.00	13.75
Non-income taxes, royalties and other governmental charges	9.06	7.00	8.40	7.39	18.05	8.12	16.64	17.51
Contingency allowances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**44.30**	**30.42**	**24.84**	**21.54**	**117.63**	**127.07**	**124.15**	**156.33**
Depreciation	**0.79**	**0.42**	**0.56**	**8.15**	**120.72**	**57.45**	**50.85**	**50.25**

Item	Jingjia Mining			Jingjia Concentrator		
Cash Operating Cost	**2008**	**2009**	**2010**	**2008**	**2009**	**2010**
Workforce employment	1.60	2.69	2.21	23.52	13.90	10.78
Consumables	5.59	9.14	7.31	42.74	35.65	20.27
Fuel, electricity, water and other services	14.96	2.24	0.00	27.00	25.88	10.69
On and off-site administration	3.73	4.10	0.00	24.42	44.35	6.33
Environmental protection and monitoring	0.10	0.11	0.00	0.04	0.05	0.00
Transportation of workforce	0.00	0.00	0.00	0.00	0.00	0.00
Product marketing and transport	0.00	0.00	0.00	0.00	15.21	15.10
Non-income taxes, royalties and other governmental charges	8.02	9.00	9.00	16.63	7.51	14.02
Contingency allowances	0.00	0.00	0.00	0.00	0.00	0.00
Total	**34.00**	**27.28**	**18.52**	**134.36**	**142.56**	**77.20**
Depreciation	**1.03**	**1.00**	**1.11**	**89.05**	**54.99**	**31.92**

Item	Xingzhou Mining				Xingzhou Concentrator			
Cash Operating Cost	**2008**	**2009**	**2010**	**2011. 1-6**	**2008**	**2009**	**2010**	**2011. 1-6**
Workforce employment	2.59	2.21	2.80	4.56	39.46	33.67	26.16	20.96
Consumables	9.04	8.95	31.97	12.64	72.37	33.99	56.58	79.39
Fuel, electricity, water and other services	35.01	37.87	20.88	43.83	148.19	74.62	79.16	86.65
On and off-site administration	2.40	3.03	0.96	0.99	127.31	125.10	68.26	92.21
Environmental protection and monitoring	0.11	0.12	0.12	0.12	12.35	0.00	0.02	0.02
Transportation of workforce	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Product marketing and transport	0.00	0.00	0.00	0.00	12.74	10.09	13.46	14.25
Non-income taxes, royalties and other governmental charges	3.28	4.83	5.10	7.73	5.35	4.29	7.97	8.38
Contingency allowances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**52.44**	**57.01**	**61.83**	**69.87**	**417.77**	**281.75**	**251.61**	**301.87**
Depreciation	**2.01**	**0.62**	**1.17**	**1.05**	**67.69**	**49.89**	**32.03**	**30.48**

Item	Mengjia Mining				Mengjia Concentrator			
Cash Operating Cost	**2008**	**2009**	**2010**	**2011. 1-6**	**2008**	**2009**	**2010**	**2011. 1-6**
Workforce employment	3.33	4.93	3.74	3.39	13.14	12.88	13.98	0.00
Consumables	45.36	25.13	16.72	16.05	42.82	36.47	36.84	0.00
Fuel, electricity, water and other services	0.55	1.97	1.65	2.78	81.90	69.83	99.82	162.72
On and off-site administration	2.63	3.09	1.68	1.89	16.00	24.42	12.47	17.22
Environmental protection and monitoring	0.11	0.12	0.12	0.12	0.06	0.07	0.07	0.07
Transportation of workforce	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Product marketing and transport	0.00	0.00	0.00	0.00	0.00	5.23	5.10	5.50
Non-income taxes, royalties and other governmental charges	10.43	11.05	9.00	9.73	17.68	15.90	15.38	20.30
Contingency allowances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**62.42**	**46.29**	**32.91**	**33.96**	**171.60**	**164.80**	**183.65**	**205.81**
Depreciation	**3.13**	**2.92**	**1.69**	**3.95**	**51.58**	**48.98**	**45.41**	**55.07**

10.3 Capital Costs and Investments

Between 2011 and 2015, the Company has planned to invest approximately RMB1,962.6 million at the four mines in expanding current mining and concentrating capacities, upgrading the capacities of tailing storage facilities and other supporting facilities. Of the investments, they are approximately RMB125 million for Aoniu Mine, RMB195 million for Jingjia and Maogong Mines, RMB1,522.6 million for Luobokan Mine, and RMB120 million for Mengjia Mine (see Table 10-3). In SRK's opinion, the proposed capital investments are sufficient and likely to achieve the Company's stated targets if the capital is in place. The production capacities and production forecast between 2011 and 2015 are listed in Table 10-4.

Table 10-3: The Company's Investment Plan, 2011 to 2015

Mine	Project Name	Target Capacity	Subtotal (10,000RMB)	Plan (10,000 RMB/Year)				
				2011	2012	2013	2014	2015
Luobokan	Purchase Land and others		22,798.3	13,000.0	9,798.3			
	Expand mining capacity and mining development	5,000,000tpa	79,280.0	8,000.0	20,000.0	25,000.0	20,000.0	6,280.0
	Expand concentrator capacity and TSF facilities	5,000,000tpa	50,177.6	10,000.0	30,000.0		10,177.6	
	Subtotal (10,000RMB)		***152,255.9***	***31,000.0***	***59,798.3***	***25,000.0***	***30,177.6***	***6,280.0***
Aoniu	Technical innovation on concentrator	3,000,000tpa	7,500.0	4,500.0	3,000.0			
	Expanding mining capacity and mining development	3,000,000tpa	4,500.0	1,500.0	1,000.0	1,000.0	1,000.0	
	Expand TSF capacity		500.0	500.0				
	Subtotal (10,000RMB)		***12,500.0***	***6,500.0***	***4,000.0***	***1,000.0***	***1,000.0***	
Maogong	Purchase Land and others		1,500.0	1,500.0				
	Expand mining capacity and mining development	2,000,000tpa	5,000.0	500.0	2,500.0	2,000.0		
	Expand concentrator capacity and TSF facilities	2,000,000tpa	13,000.0		12,000.0	1,000.0		
	Subtotal (10,000RMB)		***19,500.0***	***2,000.0***	***14,500.0***	***3,000.0***		
Mengjia	Expand mining capacity and mining development	1,400,000tpa	8,000.0	4,000.0	2,000.0	1,000.0	1,000.0	
	TSF Construction and supporting facilities		4,000.0		3,000.0	500.0	500.0	
	Subtotal (10,000RMB)		***12,000.0***	***4,000.0***	***5,000.0***	***1,500.0***	***1,500.0***	
	Total (10,000RMB)		***196,255.9***	***43,500.0***	***83,298.3***	***30,500.0***	***32,677.6***	***6,280.0***

Table 10-4: Production Capacity and Production Forecast, 2011 to 2015

Mine/Plant			Unit	2011	2012	2013	2014	2015
Aoniu Mine	Open-Pit	Capacity	1000t	2,200	2,600	2,900	3,000	3,000
		Ore Mined	1000t	2,200	2,600	2,900	3,000	3,000
		Feed Grade	%	26.83	26.83	26.83	26.83	26.83
		Stripping Ratio		2.50	2.50	2.50	2.50	2.50
Maogong Mine	Open-Pit	Capacity	1000t	1,300	1,500	2,000	2,000	2,000
		Ore Mined	1000t	1,300	1,500	2,000	2,000	2,000
		Feed Grade	%	30.01	30.01	30.01	30.01	30.01
		Stripping Ratio		1.67	1.67	1.67	1.67	1.67
Luobokan Mine(Note)	Open-Pit	Capacity	1000t	300	2,000	3,000	2,600	1,000
		Ore Mined	1000t	300	2,000	3,000	2,600	1,000
		Feed Grade	%	26.39	26.39	26.39	26.39	26.39
		Stripping Ratio		3.90	3.53	1.96	1.96	1.96
	Underground	Capacity	1000t				1400	4,000
		Ore Mined	1000t				1400	4,000
		Feed Grade	%				26.39	26.39
		Ore Dilution Rate	%				10	10
		Ore Recovery Rate	%				95	95
Mengjia Mine	Open-Pit	Capacity	1000t	800				
		Ore Mined	1000t	800				
		Feed Grade	%	20.91				
		Stripping Ratio	%	2.84				
	Underground	Capacity	1000t	500	1,200	1,350	1,400	1,400
		Ore Mined	1000t	500	1,200	1,350	1,400	1,400
		Feed Grade	%	20.91	20.91	20.91	20.91	20.91
		Ore Dilution Rate	%	20	20	20	20	20
		Ore Recovery Rate	%	88	88	88	88	88

10.4 Forecasts of Operating Costs

Table 10-5 shows the forecast on the operating costs of mining (cost of per tonne ore) and ore processing plants (cost of per tonne iron concentrate) at Aoniu, Maogong, Luobokan, and Mengjia Mines between 2011 and 2015. The major costs are from the consumables, on and off-site administration, and product marketing and transport. On a whole, SRK believes that forecast on the operating costs at the five mines are reasonable.

Note: The production forecast of Luobokan Mine is higher than designed capacity from 2012 to 2015. The production capacities forecast are correspondent to the Company's five-year plan (Table 10-3), which means that if the proposed capital expenditure of the Company is sufficient, the Company is likely to achieve the targets, and if the production forecast can be achieved, the Company can apply for a new mining licence and conduct a new mining design which further increase its designed capacity.

Table 10-5: Cash Operating Costs between 2011 and 2015

Item	Aoniu Mine					Aoniu Concentrator				
Cash Operating Cost	**2011**	**2012**	**2013**	**2014**	**2015**	**2011**	**2012**	**2013**	**2014**	**2015**
Workforce employment	2.29	2.29	2.29	2.29	2.29	11.28	11.28	11.28	11.28	11.28
Consumables	11.40	11.40	11.40	11.40	11.40	33.03	33.03	33.03	33.03	33.03
Fuel, electricity, water and other services	5.68	5.68	5.68	5.68	5.68	34.30	34.30	34.30	34.30	34.30
On and off-site administration	0.25	0.27	0.26	0.27	0.26	22.11	22.71	24.24	26.26	28.31
Environmental protection and monitoring	0.11	0.12	0.12	0.12	0.12	0.06	0.06	0.06	0.06	0.06
Transportation of workforce	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Product marketing and transport	0.00	0.00	0.00	0.00	0.00	25.00	25.00	25.00	25.00	25.00
Non-income taxes, royalties and other governmental charges	9.53	10.17	10.17	10.18	10.17	14.41	14.63	16.50	18.15	18.43
Contingency allowances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**29.27**	**29.92**	**29.92**	**29.93**	**29.92**	**140.20**	**141.01**	**144.40**	**148.08**	**150.41**
Non-Cash Operating Cost	**2.20**	**2.20**	**2.20**	**2.20**	**2.20**	**39.72**	**37.38**	**37.67**	**35.32**	**34.76**

Item	Maogong Mine					Maogong Concentrator				
Cash Operating Cost	**2011**	**2012**	**2013**	**2014**	**2015**	**2011**	**2012**	**2013**	**2014**	**2015**
Workforce employment	2.38	2.38	2.38	2.38	2.38	15.78	15.78	15.78	15.78	15.78
Consumables	6.73	6.73	26.73	26.73	26.73	20.24	21.48	22.94	24.36	25.45
Fuel, electricity, water and other services	4.20	3.50	3.20	3.00	3.00	25.42	25.42	25.42	25.42	25.42
On and off-site administration	0.90	0.83	0.72	0.67	0.61	24.05	24.00	24.39	24.94	25.04
Environmental protection and monitoring	0.10	0.10	0.10	0.10	0.10	0.05	0.05	0.05	0.05	0.05
Transportation of workforce	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Product marketing and transport	0.00	0.00	0.00	0.00	0.00	13.47	12.89	12.16	12.84	12.63
Non-income taxes, royalties and other governmental charges	9.92	9.87	8.82	8.20	8.20	12.55	12.45	12.39	12.39	12.27
Contingency allowances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**24.23**	**23.42**	**41.95**	**41.08**	**41.02**	**111.56**	**112.07**	**113.13**	**115.78**	**116.64**
Non-Cash Operating Cost	**0.74**	**1.16**	**1.78**	**1.85**	**1.75**	**25.91**	**35.31**	**41.57**	**42.17**	**34.59**

Item	Xingzhou Mine					Xingzhou Concentrator				
Cash Operating Cost	**2011**	**2012**	**2013**	**2014**	**2015**	**2011**	**2012**	**2013**	**2014**	**2015**
Workforce employment	3.74	3.74	3.74	3.74	3.74	8.98	8.98	8.98	8.98	8.98
Consumables	10.51	10.51	10.51	20.51	20.51	21.46	21.46	21.46	21.46	21.46
Fuel, electricity, water and other services	10.09	10.09	10.09	10.09	10.09	50.87	50.87	50.87	50.87	50.87
On and off-site administration	0.92	0.74	0.46	0.36	0.39	17.39	13.68	8.20	6.08	6.63
Environmental protection and monitoring	0.12	0.12	0.12	0.12	0.12	0.01	0.01	0.01	0.01	0.01
Transportation of workforce	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Product marketing and transport	0.00	0.00	0.00	0.00	0.00	14.00	12.50	12.50	12.50	12.50
Non-income taxes, royalties and other governmental charges	5.89	5.90	5.89	5.90	5.89	3.11	2.73	2.17	2.15	2.16
Contingency allowances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**31.28**	**31.10**	**30.82**	**40.71**	**40.75**	**115.83**	**110.23**	**104.19**	**102.05**	**102.60**
Non-Cash Operating Cost	**1.88**	**2.41**	**1.84**	**1.77**	**1.77**	**36.24**	**52.59**	**35.39**	**32.23**	**32.24**

Item	Mengjia Mine					Mengjia Concentrator				
Cash Operating Cost	**2011**	**2012**	**2013**	**2014**	**2015**	**2011**	**2012**	**2013**	**2014**	**2015**
Workforce employment	3.48	3.48	3.48	3.48	3.48	13.52	13.52	13.52	13.52	13.52
Consumables	11.41	11.41	31.41	28.41	28.41	38.02	34.02	34.02	34.02	34.02
Fuel, electricity, water and other services	1.29	1.29	3.29	3.29	3.29	126.57	130.57	136.51	137.86	132.46
On and off-site administration	1.79	1.46	1.13	1.06	1.05	22.88	21.27	20.93	21.29	22.16
Environmental protection and monitoring	0.12	0.12	0.12	0.12	0.12	0.07	0.07	0.07	0.07	0.07
Transportation of workforce	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Product marketing and transport	0.00	0.00	0.00	0.00	0.00	5.16	5.14	5.15	5.15	5.15
Non-income taxes, royalties and other governmental charges	7.70	7.73	6.12	6.12	6.12	28.40	29.05	27.31	27.47	26.79
Contingency allowances	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**25.79**	**25.48**	**45.55**	**42.48**	**42.47**	**234.62**	**233.64**	**237.51**	**239.38**	**234.17**
Non-Cash Operating Cost	**0.59**	**0.56**	**1.22**	**1.18**	**1.15**	**13.76**	**13.69**	**13.59**	**13.57**	**13.55**

11 UTILITIES AND INFRASTRUCTURE

11.1 Road Assess and Transport

Aoniu Mine: The mine is connected with nearby villages by paved roads, and the main transportation roads, such as Shenyang Ring south line, No. #202 Highway, as well as Fubai, Fuqing, Shentong, Fujin, and Shuanggu Highways are also close to the mining tenure with good accessibilities.

Maogong Mine: Fushun to Shiwen and Fushun to Benxi roads pass by the mine area. In addition, Shenji railway and No. 202 national road pass by 20 km north of the mine area. The traffic is convenient.

Luobokan Mine: The Fushun to Houan road passes the northern part of the mine area, and the road conditions are good. The mine area is 4 km to the No. 2 Oil Processing Plant Railway station of Bureau of Mines of Fushun, 33 km to the Xinfu Steel plant, 11 km south to the Shen Ji Highway, and 55 km east to Shenyang City. The traffic is convenient.

Mengjia Mine: The mine area is located in 13 km south west of the Benxi City centre and 1.5 km to Beitai Railway station; the Liao-Xi railway passes by the south of the mine area, and the Benxi to Liaoyang second grade road passes by the mine area and has direct access to the mine area. The traffic is convenient.

11.2 Electrical Power Supply

Aoniu Mine: The power supply is from Jiubingshimen 66/10 kV transforming substation to the 10 KV substation in processing plant through LGJ-120 cable.

Maogong Mine: The power is supplied from Maoyan 10 kV substation 1 km away from the mine area, and the power supply capacity is sufficient.

Luobokan Mine: The power is supplied from 66 kV Shengli Line, which is 3 km away from the processing plant. Another 10 kV power is introduced to the mining area by 35 kV LGJ-3 × 150 aerial cables as standby power supply with power transmission distance of 4 km.

Mengjia Mine: The power supply is from Dongshan 35/10.5 kV substation, which is 8 km away from the processing plant, with cable of LGJ-10 kV -3 x 300 mm^2, and the power supply capacity is sufficient. The 10 kV aerial cable from Beitai Steel Plant is used as the standby power supply, with cable of LGJ-10 kV-3 x 185 mm^2 and the power transmission distance of 1 km.

11.3 Water Supply

Aoniu Mine: A division dam has been constructed 0.6 km north of the processing plant, and the two upstream tributaries of Waibogou are utilized as main water sources for production, with DN150 seamless steel pipes. In addition, the recycled water is also used for production. The water from a deep well nearby the division dam is used as auxiliary water source for both production and living use.

Maogong Mine: The water supply is sufficient. The Guchengzi River flows by the mine area, and the river water and ground water are sufficient for the production.

The production water is pumped via DN200 mm of weld steel pipe from the Guchengzi River and the well to the processing plant, and the TSF recycled water is pumped to the processing plant to be reused. The living water is pumped from the deep well, with the water pipe of DN100 mm weld steel pipe.

Luobokan Mine: The mine area is located in downstream of the merged point of Pingshan River and Dongzhou River, the quaternary loosen rock fissure water content is rich, which can be used as the production and drinking water. Mill production water is supplied by Dongzhou River, and living water comes from deep well.

Mengjia Mine: The mill production water is supplied from 2.5 km apart of the Xi River, and the living water comes from deep well.

11.4 Explosive Supply

In China, the explosives and facilities are supplied and transported by the Civil Blasting Company, and the remaining is returned to the blasting company on a same day basis.

11.5 Workshops and Repair Facilities

Aoniu Mine: There is one oil depot and some warehouses constructed in Aoniu Mine. In addition, drilling machines, arc welding machines, plate cutters, punching and shearing machines, and hydraulic pressure mechanical sharpening machines are installed in the maintenance plant for the daily repair and maintenance of medium-small production equipment, while all the heavy vehicles and equipment are maintained or repaired outside.

An oil tank truck is equipped in the mine for equipment fuelling in the mine and processing plant.

Maogong Mine: The mines have good transportation conditions; therefore the Company did not establish any maintenance plant. Instead, only some tools for simple spare parts changes, repair and maintenance are prepared to be used while the major equipment repair is completed by contractors.

Luobokan Mine: There is no maintenance plant in Xingzhou Mine, with only some tools for simple spare parts changes, repair and maintenance. For the major equipment repair, the Company uses contractors' services.

Mengjia Mine: There is one 74.1 m^2 maintenance workshop, which is mainly in charge of the mid-small scale of equipment repair, maintenance and spare parts changes while contract services for the large-scale of equipment repair.

11.6 Tailing Storage Facilities (TSF)

Aoniu Mine: The TSF of processing plant No. 1 was built in the valley west of the processing plant in 1993, with the occupied land area of 20,000 m^2 and the storage capacity of 1.4 Mm^3.The TSF was filled up in May 2007.

The TSF of processing plant No. 2 was built in the valley west of the processing plant in 2003, with the occupied land of 35,000 m^2, and the storage capacity of 5.755 Mm^3, and the highest dam height of 55 m, also storaging the tailings of processing plant No. 1 with the conveying distance of 1.5 km. The Company is raising the embankment of this TSF to increase the storage capacity.

Maogong Mine: The designed dam bottom elevation of Jingjia Mine TSF is 143 m, and the final dam top elevation is 190 m, forming a totalling capacity of 6.2824 Mm^3. The tailing slurry has been pumped through pressured pipes with the conveying distance of 1,150 m from the processing plant, and the main transfer facilities include two tailing slurry pumps and two DN200 mm pipes. The current crest elevation is 160 m and the capacity is 1.91 Mm^3. The Company is planning to raise the dam height of TSF in October 2010 to increase the storage capacity.

The designed bottom elevation of Maogong Mine TSF is +145 m, giving the final elevation of 190 to 200 m, the dam height of 45 to 55 m, and the totalling capacity of 1.5 to 2.0 Mm^3. The current dam height is 34 m, and the current capacity is 0.9 Mm^3.The tailing conveying system includes two tailing slurry pumps and tailing pipes, with one on duty and the other on standby, given the totalling length of 600 m, the pipe diameters of Φ219 mm welding spiral steel pipes and Φ159 mm polygene pipes. The Company is planning to raise the tailing dam height in October 2010 to meet the needs of the tailing discharge.

Luobokan Mine: Among two TSFs in Luobokan Mine, one has almost been full, but the Company is taking measures to extending the service life; the other TSF (Nianpan Iron mine TSF) is located in 1,400 m west valley of Taigou Village, with the catchment area of 0.25 km^2. It is a valley type TSF, the dam was built in the valley, and other three sides are hills, with the final land occupied of 11.06 Ha. The final elevation of the dam crest is 178.5 m, the dam height is 29.5 m, and the capacity is 0.7 Mm^3. The current dam length is 190 m, the dam crest elevation is 168 m, and the dam height is 19 m. The dam is to be raised to store the tailing discharge. The discharging methods of the two TSFs are both slurry discharge via pipes.

Mengjia Mine: The old Mengjia TSF has already been closed, and the safety assessment has also been approved by the Benxi City Safety Production Administration Bureau.

The try tailing discharge project was approved in March 2010, and the civil and equipment installation commenced in June 2010. Following the commissioning taking place on 19 September 2010, the trial operation has been proceeding for ten months.

The type of the filtering equipment is DZ80-4000, with an efficient filtering area of 160 m^2, the designed unit area handling capacity of 80 t/h, and the actually maximum of 110 t/h.

12 ENVIRONMENTAL ASSESSMENT

12.1 Environmental Review Objective

The objective of this environmental due diligence review is to identify and or verify the existing and potential environmental liabilities and risks, and assess any associated proposed remediation measures for the following mining projects:

- **Aoniu Mine Project** — owned and operated by the China Hanking Mining Company Limited (Aoniu Mining).
  - — Aoniu Mine/Processing Plants — 1.2 Mtpa open pit mine, 0.6 Mtpa processing plant (No. 1 Processing Line No. 1–0.3 Mtpa, constructed in 1992 and No. 2 Processing Line — 0.3 Mtpa constructed in 2003), located approximately 1 km south of the Aoniu Village, Hou'an Town, 56 km south east of Fushun City, Liaoning Province.
- **Mengjia Mine Project** — owned and operated by Benxi Mining Co., Ltd. (Benxi Mining).
  - — Mengjia Mine Processing Plant — 1.6 Mtpa open pit mine and 0.3 Mtpa Processing Plant, located within the Beitai Town, Pingshan District, approximately 18 km north east of Benxi City, Liaoning Province.
- **Luobokan Mine Project** — owned and operated by Xingzhou Mining. Located in Nianpan Town, Dongzhou District, Liaoning Province.
  - — Nianpan Mine (historical) — mined out open pit (mined out in October 2009), planned to be used as future Tailings Storage Facility (TSF).
  - — Luobokan Mine — 1 Mtpa open pit (planned to be mined out by end of 2012 and 5 Mtpa underground mine (in development, planned to be in production in 2014).
  - — Xingzhou Processing Plant No. 1 — 0.09 Mtpa, located adjacent to Nianpan Mine access road.
  - — Xingzhou Processing Plant No. 2 — 0.35 Mtpa, located adjacent to Nianpan mined out open pit and TSF No. 2.
- **Maogong Mine Project** — located in Shiwen Town, Fushun County, approximately 20 km south of Fushun City, Liaoning Province.
  - — Jingjia Mine/Processing Plant — 0.05 Mtpa open pit mine and 0.145 Mtpa processing plant, owned and operated by Fushun Jingjia.
  - — Maogong Mine/Processing Plant — 0.08 Mtpa open pit mine and 0.15 Mtpa processing plant, owned and operated by Maogong Mining.

12.2 Environmental Review Process, Scope and Standards

The process for the verification of the environmental compliance and conformance for Aoniu Mine, Mengjia Mine, Luobokan Mine and Maogong Mine Projects comprised a review and inspection of the projects' environmental management performance against:

- Chinese National environmental regulatory requirements (Appendix III).
- World Bank/International Finance Corporation (IFC) environmental standards and guidelines (Appendix IV).
- Internationally recognised environmental management practices.

The initial site visit for the environmental review of Aoniu Mine, Maogong Mine, Luobokan Mine and Mengjia Mine Projects was undertaken from 19 May 2010 to 25 May 2010. Follow up site visit was undertaken from 24 January 2011 to 26 January 2011 and from 3 to 5 August 2011.

12.3 Status of Environmental Approvals and Permits

SRK cannot make any legal determination in respect to the status of approvals and permitting for Aoniu Mine, Maogong Mine, Luobokan Mine and Mengjia Mine Projects. SRK makes the following technical comments in respect to the status of approvals and permitting for Aoniu, Maogong (Jingmao), Lubokan (Xingzhou) and Mengjia Benxi Mine Projects.

Aoniu Mine Project

Business Licence No. 210421003500969 for the Company was issued by the Fushun City Industrial and Commercial Administration Bureau on 15 December 2009 (expiry 18 March 2030). The licensed business activities are stated as '*open pit iron ore mining (until 24 December 2011), iron ore processing and iron concentrate selling*'. SRK notes that the licensed business activities of this current business licence only permit open pit iron ore mining until 24 December 2011. Aoniu Mining has stated that Fushun City Government will only issue a two year operating (mining) period at a time, and the Business Licence can be amended accordingly every two years.

Mining Licence No. C2100002009032120009568 for Aoniu Mine was issued to Aoniu Mining by the Liaoning Province Land and Resource Bureau on 10 November 2010 (expiry 10 November 2015). The mining licence area is 1.8911 km^2, the approved mining methods are open pit and underground iron ore mining, and the approved production rate is 1.2 Mtpa.

The Environmental Impact Assessment (EIA) report for the 1.2 Mtpa Aoniu Mine was produced by the Fushun City Environmental Scientific Research Institute in July 2008. This EIA was approved by the Fushun County Environmental Protection Bureau (EPB) on 18 July 2008.

The EIA report for the 0.2 Mtpa Aoniu Processing Plant Expansion Project (i.e. expansion from 0.4 Mtpa to 0.6 Mtpa (Processing Lines No.'s 1 and 2–0.3 Mtpa capacity each) was produced by the Fushun City Environmental Science Research Institute in September 2008 (i.e. revised version after receiving EPB approval feedback). The EIA approval for the 0.6 Mtpa Aoniu Processing Plant was issued by the Fushun County EPB on 7 August 2008. SRK notes that at the time of the August 2011 site visit, the construction for Processing Line No. 1 was completed and trial production is scheduled to commence during the 3rd quarter 2011. SRK also notes that the design capacity for Processing Line No. 1 has been upgraded to 0.4 Mtpa (i.e. the total processing capacity is now 0.7 Mtpa). SRK has sighted the Preliminary Design report for this expansion to 0.4 Mtpa (produced by the Shanxi Zhongtiaoshan Engineering Design and Research Company Limited in October 2010). Aoniu Mining also stated that a revised EIA report was currently being prepared for this 0.4 Mtpa capacity.

The Water and Soil Conservation Plans (WSCP) for Aoniu Mine Project were produced by the Liaoning Difang Hydropower Design and Research Institute in September 2006. One WSCP was produced to cover the Aoniu Mine and Processing Line No. 1 and a separate WSCP was produced to cover the Processing Line No. 2. These WSCP's were approved by the Fushun County Water and Soil Conservation Bureau on 26 October 2006.

The environmental Final Check and Acceptance approval for the 1.2 Mtpa Aoniu Mine and 0.6 Mtpa Aoniu Processing Plant was issued by the Fushun County EPB on 3 December 2008.

The following Land Use Approvals/Permits have been issued for Aoniu Mine Project:

- Land Use Approval for Aoniu Mine No. (1994)18, issued by Liaoning Provincial Government on 5 February 1994, area 54.216 ha for the use 'iron mine'.

- Land Use Approval for Aoniu Mine No. (1994)5, issued by Fushun City Government on 21 February 1994, area 54.216 ha for the use 'iron mine'.

- Land Use Approval for Aoniu Mine issued by Fushun County Land Administration Bureau on 8 December 1998 (validity 50 years), area 10.46 ha for the use 'mining'.

- Land Use Permit No. 401A55 for Aoniu Mine issued by Fushun County Land Administration Bureau on 8 December 1998 (validity 50 years), area 36.15 ha for the use 'mining'.

- Land Use Permit No. 401A56 for Aoniu Mine issued by Fushun County Land Administration Bureau on 8 February 1998 (validity 50 years), area 6.87 ha for the use 'mining'.

- Land Use Permit No. 401A58 for Aoniu Mine issued by Fushun County Land Administration Bureau on 8 December 1998 (validity 50 years), area 0.74 ha for the use 'office/administration building'.

- Temporary Land Use Approval for Aoniu Mine issued by Fushun County Government on 15 November 2002 (expiry 2004), area 1.8 ha for the use 'No. 2 TSF Construction'.

SRK has sighted an operational Discharge Permit exemption notice for Aoniu Mine Project, issued by the Fushun County EPB on 25 July 2011, which states '*the production water system is a closed circuit, there is no discharge. Currently in Fushun city, it is not necessary for companies to apply for discharge permits, thus the Company does not need to apply for discharge permits*'.

Aoniu Mining has stated the project's industrial water supply is sourced from mine water; process/tailings return water and water extracted from the She (Aoniu) River. There are two water use permits for the extraction of the water from the She River:

- Water Use Permit No. [2007]41003 for the Aoniu Processing Plant (Processing Line No. 1) issued by Fushun County Water Resource Bureau on 31 July 2007 (expiry 31 July 2012). Authorizes Aoniu Mining to extract 700,000 m^3/year from the She River.

- Water Use Permit No. [2007]41004 for the Aoniu Processing Plant (Processing Line No. 2) issued by Fushun County Water Resource Bureau on 31 July 2007 (expiry 31 July 2012). Authorizes Aoniu Mining to extract 700,000 m^3/year from the She River

Aoniu Mining has also stated that the domestic water supply for the Aoniu project is sourced from the Hou'an Water Company, and that there is no documented agreement for this water supply.

Maogong Mine Project

Business Licence No. 210421003500889 for Jingjia Mining was issued by the Fushun County Industrial and Commercial Administration Bureau on 25 August 2009 (no expiry date). The licensed business activities are stated as '*iron mining, processing and pellet production*'.

Business Licence No. 210421003500897 for Maogong Mining was issued by the Fushun County Industrial and Commercial Administration Bureau on 26 October 2009 (expiry 31 December 2028). The licensed business activities are stated as '*iron mining and processing*'.

At the time of initial site visit mining at Jingjia Mine had not yet commenced. Mining Licence No. C2100002009062120025972 for Jingjia Mine was issued to Yang Min by the Liaoning Province Land and Resource Bureau on 9 April 2010 (expired 9 August 2010). The mining licence area is 0.062 km^2, the approved mining method is open pit iron ore mining, and the approved production rate is 0.05 Mtpa. Mining Licence No. C2100002009062120025973 for Maogong Mine was issued to Maogong Mining by the Liaoning Province Land and Resource Bureau on 5 July 2010 (expiry 5 November 2013). The mining licence area is 0.6 km^2, the approved mining method is open pit and underground iron ore mining, and the approved production rate is 0.3 Mtpa. SRK notes that Jingjia Mine is being incorporated into Maogong Mine. SRK has sighted the application for the expansion of the Maogong Mining Licence area to include Jingjia Mining Licence area. This application states that the approved production rate for this new Mining Licence will be 0.8 Mtpa. Maogong Mining has stated that the new mining licence for new 0.8Mtpa Maogong Mine (including Maogong and Jingjia Mines) would be issued during August 2011.

The original EIA Table report (i.e. EIA scoping document) for Jingjia Mine was produced by the Fushun City Environmental Protection Research Institute in May 1995. The EIA report for the 0.3 Mtpa Maogong Mine was produced by the Fushun City Environmental Research Institute in February 2010. This EIA was approved by Fushun County EPB on 9 April 2010. The EIA report for the 0.8 Mtpa Maogong Mine was produced by the Fuxin City Environmental Science Institute in May 2011. At the time of the August 2011 site visit, Maogong Mining stated that the approval for this EIA report has not yet been received.

The 0.15 Mtpa Jingjia Processing Plant EIA report was produced by the Chinese Academy of Sciences Shenyang Appliance Bio-Research Institute EIA Centre in February 2008. This EIA was approved by the Fushun County EPB on 15 August 2008.

The EIA Table report and approval provided for the Maogong Processing Plant is for the original 0.04 Mtpa project. This EIA Table report was produced by Maogong Mining in December 1996 and approved by the Fushun County EPB in December 1996. SRK has not sighted the EIA report and approval for the expansion project to the current 0.15 Mtpa Maogong Processing Plant project. However, SRK notes that this expansion project is an optimisation of the existing operations and does not include any capital upgrade of the existing facilities. Maogong Mining has stated that the Maogong Processing Plant was designed for 0.04 Mtpa. However, the ore is able to be beneficiated at a high rate, so an extended processing/operating time was all that required to achieve the 0.15 Mtpa production rate (i.e. no equipment upgrade was required). SRK has also sighted an environmental compliance certificate for Maogong Mine, issued by the Fushun county Environmental Protection Bureau (EPB) on 15 January 2011, which states "*Maogong Mine has not been punished due to breaking any environmental law or regulations. The construction and production of the Company is all consistent to the national environmental protection law*".

The initial WSCP's for Maogong Mine Project were produced by the Liaoning Difang Hydropower Design and Research Institute in September 2006. These WSCP's were approved by the Fushun County Water and Soil Conservation Office on 15 September 2006. The WSCP for Maogong mine 0.3Mtpa was produced by Fushun City Water Survey Institute in September, 2010 and was approved by the Fushun County Water Conservation Office on 30 November 2010. Maogong Mining has also stated that the WSCP for the 0.8 Mtpa Maogong Mine will be produced during in October 2011.

The environmental Final Check and Acceptance approval for the 0.3 Mtpa Maogong Mine and 0.15 Mtpa Maogong Processing Plant was issued by the Fushun County EPB on 11 November 2008. The environmental Final Check and Acceptance approval for the 0.15 Mtpa Jingjia Processing Plant was issued by the Fushun County EPB on 5 December 2008. SRK notes that mining at Jingjia Mine has not yet commenced and as such this mine does not yet require Final Checking and Acceptance Approval.

The following Land Use Approvals/Permits have been issued for Jingjia Mine Project:

- Land Use Approval No. (1995)7 for Jingjia Mine, issued by Fushun City Government on 25 July 1995 (no expiry — construction approval only), 0.90 ha for 'iron mine construction'.

- Land Use Approval No. (1995)37 for Jingjia Mine Project, issued by Fushun City Government on 23 October 1995 (no expiry — construction approval only), 1.99 ha for 'TSF construction'.

- Land Use Approval No. (1999)14 for Jingjia Mine Project, issued by Fushun County Government on 17 December 1999 (no expiry — construction approval only), 1.74 ha for 'TSF expansion'.

- Land Use Permit No. 015040303 (40058A2) for Jingjia Mine Project, issued by Fushun County Land and Resource Bureau on 7 January 2002 (expiry 28 December 2044), area 2.06 ha for the use 'industrial use'.

SRK has sighted an operational Discharge Permit exemption notice for Jingmao Mine Project, issued by the Fushun County EPB on 25 January 2015, which states 'the production water system is a closed circuit, there is no discharge. Currently in Fushun city, it is not necessary for companies to apply for discharge permits, thus the Company does not need to apply for discharge permits'. SRK notes that the 0.3 Mtpa Maogong Mine EIA approval states '*Pollution discharge quantity record must be submitted annually*".

Maogong Mining has stated Jingmao Project's industrial water supply is sourced from mine water; process/tailings return water and water extracted from the Gucheng River. There are two water use permits for the extraction of the water from the Gucheng River:

- Water Use Permit No. [2007]41009 for Maogong Mine and Processing Plant issued by Fushun County Water Resource Bureau on 31 July 2007 (expiry 31 July 2012). Authorizes Maogong Mining to extract 400,000 m^3/year from the Gucheng River.

- Water Use Permit No. [2007]41010 for Jingjia Mine and Processing Plant issued by Fushun County Water Resource Bureau on 31 July 2007 (expiry 31 July 2012). Authorizes Fushun Jingjia to extract 400,000 m^3/year from the Gucheng River.

Maogong Mine has stated that the Shiwen Town Water Company supplies the Jingmao Project's domestic water and that there is no documented agreement for this water supply.

Luobokan Mine Project

Business Licence No. 210400000004244 for Xingzhou Mining was issued by the Fushun City Industry and Business Administration Management Bureau on 22 September 2003 (expiry 21 September 2018). The licensed business activities are stated as '*iron mining and processing*'.

Mining Licence No. C2100002009102110041604 for Luobokan Mine (current open pit and underground mine development) was issued to Xingzhou Mining by the Liaoning Province Land and Resource Bureau on 20 October 2009 (expiry 20 October 2011). The mining licence area is 0.94 km^2, the approved mining methods are open pit and underground iron ore mining, and the approved production rate is 1 Mtpa. Xingzhou Mining has stated that by October 2011, they plan to have the approved production rate for Mining Licence No. C2100002009102110041604 amended to 5 Mtpa.

The EIA report for Nianpan Mine Project (Xingzhou Mine Project) was produced by the Fushun City Environmental Scientific Research Institute in December 2007. This EIA covers the historical Nianpan open pit (i.e. mined out) and the current Xingzhou 0.35 Mtpa Processing Plant No. 2 and TSF No. 2. SRK has not sighted the approval for this EIA by the Fushun City EPB. However, SRK notes that mining of the Nianpan open pit ceased in October 2009 and Xingzhou Mining has stated that they plan to use the pit as a TSF in the future.

SRK notes that at the time of the January 2011 site visit, construction had commenced at the Xingzhou Processing Plant No. 2 to upgrade the plant production (ore processed) capacity from 0.35 Mtpa to 1.2 Mtpa. At the time of the August 2011 site visit, Xingzhou Mining stated that the construction for Xingzhou Processing Plant No. 2 will be completed by October 2011.

SRK has not sighted the EIA report and approval for this 1.2 Mtpa expansion project. Xingzhou Mining has stated that the EIA and WSCP were currently being prepared for this 1.2 Mtpa production and expanded plant facilities. SRK has also sighted an environmental compliance certificate for Xingzhou Mine, issued by the Fushun City Dongzhou District EPB on 20 August 2010, which states "*Xingzhou Mining has not been punished due to breaking any environmental law or regulations since it has been established. The construction and production of the Company are all consistent to the national environmental protection law*". However, SRK notes that the following Chinese National legislative and regulatory requirements state that an approved EIA and WSCP are required prior to the commencement of the project construction:

- *Mineral Resources Law (1996) — Article 15, Qualification & Approval*
- *Environmental Protection Law (1989) — Article 13, Environmental Protection*
- *Environmental Impact Assessment (EIA) Law (2002) — Article 25*
- *Water & Soil Conservation Law (1991 — Article 19*

SRK was provided with a notice from the Liaoning Province Development and Reform Committee, dated the 14 September 2010, which states:

- *According to the National Steel Industry Strategy to encourage the proper development of mines, encourage the Company to mine the low grade resource; we agree in principle that Xingzhou Mining may commence the first stage work (i.e. planning and design) of the 3 Mtpa mining & processing project. The mining license has been obtained, the Company may commence the first stage work according to this notice, the relevant land use permit, EIA and other documents shall be obtained ASAP. When all the conditions for the project construction obtained, they shall be submitted to us for approval.*

SRK also notes that the current mining licence has not yet been amended to the 5 Mtpa production level (amendment anticipated for October 2011), and that the 5 Mtpa EIA, WSCP and Land Use Permits are to be approved by the relevant local/provincial bureaus. At the time of the August 2011 site visit, Xingzhou Mining stated the EIA report for the 5 Mtpa production level expansion is in progress.

An EIA report for the Xingzhou 0.03 Mtpa Processing Plant No. 1 was produced by Fushun Coal Mine Environmental Protection Research Institute in September 2003. SRK has not sighted the approval of this EIA by the Fushun City EPB. SRK notes at the time of the January 2011 site visit, the Xingzhou 0.03 Mtpa Processing Plant No. 1 had been shut down and Xingzhou Mining stated that this plant will be fully decommissioned and removed by the end of 2011.

The EIA report for the 1 Mtpa Luobokan Mine was produced by the Fushun City Environmental Scientific Research Institute in March 2009. This EIA was approved by the Fushun City EPB on 14 May 2009.

The WSCP for Xingzhou Mine Project was produced by the Liaoning City Hydraulic Survey and Design Institute in July 2005. SRK has not sighted the approval for this WSCP (i.e. approval by the local relevant water and soil bureau). Xingzhou Mining has stated that the Xingzhou mine was acquired from a private owner, the WSCP approval was lost before the acquisition, and the Company is now applying for the new WSCP and approval.

The environmental Final Check and Acceptance for the Nianpan Iron Mine Zhongtian Processing Plant Relocation Project (0.03 Mtpa Processing Plant No. 1) was issued by the Fushun City Dongzhou District EPB on 20 June 2006. The environmental Final Check and Acceptance for the Xingzhou 0.35 Mtpa Processing Plant No. 2 was issued by the Fushun City Dongzhou District EPB on 22 January 2009.

SRK notes that the 1 Mtpa Luobokan underground mine is still at the development stage and does not yet require final checking and acceptance approval. However, SRK also notes Luobokan Mine EIA approval states '*You must submit the request for environmental facilities inspection. The production can be started only after the inspection has been passed*'.

The following Land Use Permits have been issued for Luobokan Mine Project:

- Land Use Permit No. [2003]179 for the Xingzhou Processing No. 2, issued by the Liaoning province Forestry Department on 26 August 2003 (no expiry date), area 0.8311 ha for the use of 'processing plant'.

- Land Use Permit No. (2004)01-(04)-025 for Xingzhou Mine, issued by Fushun City Dongzhou District Land Administration Bureau on 6 January 2004 (expiry 6 January 2024), area 0.01 ha for the use 'power distribution room'.

- Land Use Permit No. (2004)01-(04)-026 for Xingzhou Mine (Processing Plant No. 2), issued by Fushun City Dongzhou District Land Administration Bureau on 6 January 2004 (expiry 6 January 2024), area 0.07 ha for the use 'processing plant'.

- Land Use Permit No. (2004)01-(04)-027 for Xingzhou Mine, issued by Fushun City Dongzhou District Land Administration Bureau on 6 January 2004 (expiry 6 January 2024), area 0.02 ha for the use 'office building'.

- Land Use Application and Agreement for Luobokan Mine (Nianpan and Luobokan Mines) — use of 4.8 ha within Pingshan Village, agreed and signed by Pingshan Village Committee on 10 December 2004, Fushun Mining Xingzhou Mining Co Ltd on 15 December 2004 and Nianpan County Government on 21 December 2004.

- Temporary Land Use Approval for Luobokan Mine — use of 0.7013 ha of Luobokan village farm land and 0.9606 ha of Pingshan village farm land for mining, issued by Fushun City Land Planning and Resources Management Bureau 8 April 2005 (validity 8 years).

SRK notes that the provided land use permits only cover the mining, processing plant areas and ancillary facilities. SRK has not sighted land use permits for the Xingzhou TSF No. 1 and TSF No. 2. However, SRK has sighted a temporary exemption notice from the Fushun City Dongzhou District Land and Resource Bureau, dated 20 February 2011, which states: *Xingzhou Mining Co. Ltd is applying for the land use permit for 15.87 ha of land located in Taigou Village, Nianpan Town, Fushun County. The land is used for processing plant, TSF and office building. Due to historical issues, Xingzhou Mining has not obtained the National land use permit, but as Xingzhou Mining has already obtained the construction preliminary verification approval. Xingzhou Mining is able to obtain the land use permit legally after paid the land grand fee and tax. Before obtaining the land use permit, Xingzhou Mining has the right to use this land, and will not be punished due to not having the National land use permit.*

SRK has sighted an operational Discharge Permit exemption notice for Xingzhou Mine Project issued by the Fushun City EPB on 25 January 2011, which states '*the production water system is a close circuit, there is no discharge. Therefore the Company does not need to apply for discharge permits*'.

Xingzhou Mining has stated the project's industrial water supply is sourced from mine water, process/tailings return water and water extracted from the Dongzhou River, and the domestic water supply is extracted from a groundwater well near the Dongzhou River. Water Use Permit No. [2010.7] 001 for Xingzhou Mine was issued by Fushun City Dongzhou District Rural Economic Development Bureau on 1 July 2010 (expiry 1 July 2011). This permit authorizes Xingzhou Mining to extract 300,000 m^3/year from the Dongzhou River.

Benxi Mine Project

Business Licence No. 210513000001236 for Benxi Mining was issued by the Benxi City Industrial and Commercial Administration Bureau on 1 July 2008 (expiry 15 March 2027). The licensed business activities are stated as '*iron mining, processing and sales; and furnace material sales*'.

Mining Licence No. C2100020100052120066092 for Benxi Mine (Mengjia Mine) was issued to Benxi Mining by the Liaoning Province Land and Resource Bureau on 18 April 2011 (expired 26 February 2015). The mining licence area is 0.2533 km^2, the approved mining method is open pit and underground iron ore mining, and the approved production rate is 0.8 Mtpa.

The EIA report for the 0.8 Mtpa Mengjia Mine was produced by the China Aluminium International Engineering Company Limited in February 2010. This EIA was approved by the Benxi City EPB on 7 April 2010.

The EIA report for the 0.3 Mtpa Mengjia Iron Processing Plant was produced by the Benxi City Environmental Scientific Research Institute in December 2006. This EIA was approved by the Benxi City EPB on 8 January 2007.

The WSCP for Mengjia Mine was produced by the Panjin City Water Survey and Design Institute in December 2009. This WSCP was approved by the Pingshan District Water Resources Bureau on 31 December 2009. The Mengjia Processing Plant WSCP (revised version for approval) was produced by the Benxi City Water and Soil Conservation Technical Service Centre in January 2005. This WSCP was approved by the Benxi City Water and Soil Conservation Station on 7 January 2005.

The environmental Final Check and Acceptance approval for the 0.3 Mtpa Mengjia Iron Processing Plant was issued by the Benxi City Pingshan District EPB on 15 April 2007.

SRK notes that at the time of the site January 2011 site visit, the environmental Final Check and Acceptance approval for the 0.8 Mtpa Mengjia Mine had yet to be granted and the mine is still in trial production. Benxi Mining has stated that the Final Check and Acceptance process was in progress, but have not provided SRK with an anticipated timeframe for its completion.

The following Land Use Permits have been issued for Benxi Mine Project:

- Temporary (Construction) Land Use Permit No. [2009]002 for Mengjia Iron Project, issued by Benxi City Land and Resources Bureau (No. 2 Branch) on 9 April 2009 (expiry 9 April 2011), area 22.4977 ha.

- Operational Land Use Permit for Mengjia Iron Project, issued by Fushun County Land and Resource Bureau on 13 July 2004 (validity — annual check), area 0.99 ha for the use 'processing plant, concentrate stockpiles'.

- Operational Land Use Permit for Mengjia Iron Project, issued by Fushun County Land and Resource Bureau on 22 October 2004 (validity — annual check), area 1.03 ha for the use 'processing plant, concentrate stockpiles'.

SRK notes that the operational temporary Land Use Permits provided for the Mengjia processing plant/concentrate stockpiles have a validity that requires an 'annual check'. Under this annual review process, the relevant Land Use Permit remains valid unless the Fushun County Land and Resource and Bureau issue a non-compliance/permit withdrawal notice. SRK has not sighted any non-compliance/Land Use Permit withdrawal notices for the Mengjia Iron Project.

SRK has sighted an operational Discharge Permit exemption notice for Mengjia Mining Project issued by the Pingshan District EPB on 18 February 2011, which states '*adopting magnetic concentrating method, the production water system is a close circuit, there is no discharge. Therefore the Company does not need to apply for discharge permits*'.

Water use permit No. [2008] 40007 for Mengjia Mine Project was issued by the Benxi City Pingshan District Water Resources Bureau on 1 January 2008 (expiry 1 January 2013). This permit authorizes Benxi Mining to extract 600,000 m^3/year from the Xi River.

12.4 Environmental Compliance and Conformance

SRK has sighted an operational environmental compliance certificate from the Fushun County EPB (issued 2 August 2010), which states; '*China Hanking Holdings Limited has strictly followed the environmental protection laws and regulations, and submitted the pollution discharge fee on time. We have not seen any pollution accidents and any acts of the Company that disobey the national and local environmental protection laws and regulations. The Company has not been involved in any pollution issues or been punished because of such issue*'. This certificate refers to Aoniu Mining 'submitting the pollution fee on time'; however, SRK notes that the Fushun County EPB and Pingshan District EPB have issued all of the Company's mine projects with operational Discharge Permit exemption notices (i.e. all issued before the Fushun County EPB operational compliance certificate).

SRK makes the following observations and comments in relation to the current status with Aoniu Mining's mine projects meeting the requirements of the respective project environmental approval conditions.

Aoniu Mine Project

Aoniu Mining has stated that the current production capacity for Aoniu Mine is 1.8 Mtpa and that the mine production was 1.4 Mtpa in 2008 and 1.53 Mtpa in 2009. SRK has not sighted a Preliminary Mine Design (PMD) for this stated production capacity of 1.8 Mtpa. SRK notes that this stated production capacity and current mine production is above the approved production rate of 1.2 Mtpa stated in Mining Licence No. C210000200903212000956 8.

The 1.2 Mtpa Aoniu Mine EIA approval stipulates the following relevant environmental management requirements:

- Construction and transportation at night are strictly not allowed. The blasting time should be proper scheduled, to prevent the noise pollution to the residence around.
- Conduct water spray, cover and other measures while mining, rock falling, and transportation, in order to reduce dust pollution.
- The waste rocks must be laid in the waste rock yard to reduce plant occupancy. Manage proper land rehabilitant plan.
- Recovering while mining method must be conducted to reduce the environment impact.
- Pollution discharge report must be submitted on schedule.
- Though the whole project, the environmental protection and recovery methods of this EIA report must be conducted to improve environment.

The 0.6 Mtpa Aoniu Processing Plant EIA approval stipulates the following relevant environmental management requirements:

- TSF No. 1 is already full; a rehabilitation plan must be submitted for approval, after approval, it should be rehabilitated as the plan.
- TSF No. 2 must be designed and constructed by certificated companies. Emergency plans must be compiled. Take measures to prevent seepage and flood, to ensure the safety of the TSF No. 2.
- Tailings water must be reused, the reuse ratio must above 77%.
- The rehabilitation must be conducted along with the construction. Stability of the dam must be enhanced to reduce dust. And the rehabilitation of TSF No. 2 must be guaranteed.
- Take measures to limit the noise within the boundary noise limit. Not allowed to transport at night.
- Vegetation area in the site area must be above 50%. Reduce or stop pollution discharge.
- Environmental protection facility must be designed, constructed and start production at the same time. You must submit the request for environmental facilities inspection before Nov 30th 2008. The production can be started only after the inspection has been passed.

Based on the review of the information provided and observations from the January 2011, the Aoniu Mine and Processing Plant (Lines No.'s 1 and 2) are currently operating in accordance with the above project environmental approval requirements.

Jingmao Mine Project

At the time of the site visit mining at Jingjia Mine had not yet commenced and no mine production was occurring under Mining Licence No. C21000020090621200259 72 for the 0.05 Mtpa Jingjia Mine.

Maogong Mining has stated that the current mine production for Maogong Mine is approximately 0.16 Mtpa, which is within the approved production rate of 0.3 Mtpa specified in Mining Licence No. C21000020090621200259 73.

SRK has not sighted the EIA reports and associated approvals for the 0.15 Mtpa Maogong Processing Plant. As such, SRK are not able to provide comment on the current level of the compliance for the facility with the EIA approval conditions.

The 0.15 Mtpa Jingjia Processing Plant EIA approval stipulates the following relevant environmental management requirements:

- TSF must be designed and constructed by certificated companies. Emergency plans must be compiled. Take measures to prevent seepage and flood, to ensure the safety of the TSF.
- Tailings water must be reused, the reuse ratio must above 77%.
- The rehabilitation must be conducted along with the construction. Stability of the dam must be enhanced to reduce dust. And the rehabilitation of TSF must be guaranteed.
- Take measures to limit the noise within the boundary noise limit. Not allowed to transport at night.
- Vegetation in the site area must be above 20%.
- Reduce or stop pollution discharge.
- You must submit the request for environmental facilities inspection before NOV 30th 2008. The production can be started only after the inspection has been passed.

The 0.3 Mtpa Maogong Mine EIA approval stipulates the following relevant environmental management requirements:

- Construction and transportation at night are strictly not allowed. The blasting time should be proper scheduled, to prevent the noise pollution to the residence around.
- Conduct water spray, cover and other measures while mining, rock falling, and transportation, in order to reduce dust pollution.
- The waste rocks must be laid in the waste rock yard to reduce plant occupancy.
- Manage proper land rehabilitation plan. Biological environment must be protected and recovered. Recovering while mining must be conducted to reduce the environment impact.
- Pollution discharge quantity record must be submitted annually.
- Though the whole project, the environmental protection and recovery methods of this EIA report must be conducted to improve environment.

Based on the review of the information provided and observations from the January 2011 site visit, the Maogong Mine Project is currently operating in accordance with the above project environmental approval requirements. However, SRK notes that the following are potential environmental approval non-compliances:

- SRK has not sighted an emergency response plan for the Jingjia TSF.

- SRK has not sighted discharge permits and records of site discharges for Maogong Mine.

SRK has not sighted the Final Checking and Acceptance application, report and approval for Jingmao Mine Project. SRK acknowledges that the EIA approval for the 0.3 Mtpa Maogong Mine has just recently been issued (April 2010), and that the mine is technically in trial production and does not yet require Final Checking and Acceptance Approval.

Xingzhou Mine Project

Xingzhou Mining has stated that the mine production for Luobokan Mine currently only comprises approximately 6 months of temporary open pit mining (i.e. to be completed by the end of 2010), which will be completed within the approved production rate of 1 Mtpa specified in Mining Licence No. C2100002009102110041604. SRK has not sighted any mine production records for this temporary open mining. Xingzhou Mining has also stated that the Luobokan underground mine production (also under Mining Licence No. C2100002009102110041604), will commence in 2011.

SRK has sighted an environmental compliance certificate for Xingzhou Mine Project, issued by the Fushun City District EPB on 25 June 2010, which states "*Xingzhou Mining is a Iron mining and processing company which under our supervision, the Company has followed the national and local environmental protection requirement, the production water all close circle, no discharge, therefore, the Company does need to obtain the pollution discharge permit. This company has not broken any environmental protection law or regulations in recent three years*".

SRK has not sighted the EIA report approvals for Nianpan Mine Project (i.e. covering the Xingzhou 0.35 Mtpa Processing Plant No. 2 and TSF No. 2), and the Xingzhou 0.09 Mtpa Processing Plant No. 1. As such, SRK are not able to provide comment on the current status with the project meeting at EIA approval conditions.

1 Mtpa Luobokan Mine EIA approval stipulates the following relevant environmental management requirements:

- Dust control measures must be conducted while mining, ore loading and transportation, in order to reduce dust pollution and to avoid pollution to surrounding areas.

- Seepage water from shaft can be discharged after sediment.

- Waste rocks can be transported to No. 1 and No. 2 open pit for backfilling or be sold as rock (construction) materials.

- Take measures to control noise from air pump; for ore transportation, loading and blast must not be conducted during the rest time of surrounding residences.

- Environmental monitoring must be conducted.

- Every environmental protection measures mentioned in the EIA report must be implemented.

- You must submit the request for environmental facilities inspection. The production can be started only after the inspection has been passed.

Based on the review of the information provided and observations from the January 2011 site visit, the 1 Mtpa Luobokan Mine Project is currently operating and being developed, in accordance with the above project environmental approval requirements. However, SRK notes that the following are potential environmental approval non-compliances:

- SRK has not sighted a documented operational environmental monitoring program for Luobokan Mine.

- SRK has not sighted the Final Checking and Acceptance application, report and approval for Luobokan Mine.

SRK has not sighted the EIA approvals for the Xingzhou Processing Plants No. 1 and No. 2, so therefore SRK is not able comment on the current level of project compliance with EIA approval conditions.

Mengjia Mine Project

SRK notes that the approved production rate for Mining Licence No. C210000201005212006584O is 0.8 Mtpa and at Mengjia Mine production for 2009 was 1.2 Mtpa.

SRK has sighted an operational environmental compliance certificate from the Benxi City Pingshan District EPB (issued 2 August 2010), which states; '*Benxi Mining has followed the environmental protection laws and regulations since it has been established, we have not noticed that the Company has had any pollution accidents or other acts which break national or local environmental protection laws. The Company has not been punished due to breaking the environmental laws or regulations*'.

The 0.8 Mtpa Mengjia Mine EIA approval stipulates the following relevant environmental management requirements:

- The relevant laws must be strictly followed, the mining can be started only after the land, forest, water and safety production approvals obtained.

- Dust control measures must be conducted while drilling, blasting, loading and transportation. Night transportation is not allowed, to avoid affect surrounding residence.

- Water collection pool must be constructed in the mining area in order to collect rain and sewage. Set sediment pool in the shaft to collect mine water, the mine water quantity is 30 m^3/day; the mine water can be used as mining water and dust control spray. Mine water is never allowed to sink into natural water system in order to control water pollution.

- Disturbance area is 7.58 ha, rehabilitation area is 6.78 h. The rehabilitation ratio must be above 90%. The total waste rock strip quantity is 2.076 Mm³, all waste rock is to be reused to backfill the current Fe10 open pit. Total pit storage capacity is 3.0 Mm^3 which is enough for the waste rock. It is not allowed to construct a new waste rock dump without permission. The top soil should be dumped at the temp topsoil yard.

- Current waste rock dump located to the north side of the Fe10 open pit, during boundary expansion, trees and grass must be planted in order to maintain soil.

- Fan, air pump, and drilling machine should be set in the shaft, the noise control device should be installed. Take good management for the blast work, control the blast time, reduce the noise and vibration impact to the surrounding residence.

- The water and soil maintenance should be conducted strictly follow the requirement of Water and soil maintenance plan.

- The rehabilitation should be conducted while mining. Safety production should be carried out all the time, if any accident happens, emergency plan should be implemented on time.

- Mine area bio-environmental comprehensive utilization plan should be carried out according to the Liao Ning Province Mine Environmental Rehabilitation Management Plan.

- The daily environmental management shall be enhanced, and more invest to the environmental protection should be conducted. The noise and dust pollution caused by mining, blasting, transportation shall be strictly controlled, if any disturbance to the residence, the production must be stopped. Resume only after got the approvals from the environmental protection department.

- Environmental protection facility must be designed, constructed and start production at the same time. You must submit the request for environmental facilities inspection. The production can be started only after the inspection has been passed.

The 0.3 Mtpa Mengjia Processing Plant Mine EIA approval stipulates the following relevant environmental management requirements:

- The TSF will be built in the Dadingzi mined out area of Beitai steel factory, the area has enough capacity for storing tailings, with a total service life of 40 years. The construction of tailings slurry transportation pipes shall be well arranged to minimize the impact to the environment. The area shall be rehabilitated right after the construction complete.

- A thickener is built in the plant area, the 10% density slurry will be thickened, the water after thickening will be recycled to the processing plant, and the 25% density slurry will be discharged to the Dadingzi mined out area through pipes. The dry waste rocks are piled in the waste rock yard.

- A 1,200 m^3 emergency pool will be built in case of the slurry backflow before the ridge, the slurry after the ridge will flow to the Dadingzi mined out area by gravity. When the slurry pipe burst, the production must be stopped.

- The environmental protection inspection will be under monitoring of Pingshan Environmental Protection Bureau.

Based on the review of the information provided and observations from the January 2011 site visit, Benxi Mine Project is currently operating in accordance with the above project environmental approval requirements. However, SRK notes that the following are potential environmental approval non-compliances:

- SRK has not sighted the Final Checking and Acceptance application, report and approval for Benxi Mine Project.

In addition, SRK notes that a compliance certificate for the site environmental monitoring conducted in at Benxi Mine Project in August 2010 has been issued by the Pingshan District EPB on 25 January 2011.

12.5 Land Disturbance

Aoniu Mine Project

Aoniu Mine EIA report estimates that the project's total area of mining land disturbance is 52.71 ha, with the waste rock dump area comprising 19.4 ha. In addition the Aoniu Mine EIA report provides the following estimates that of the area of land disturbance for the projects processing facilities:

- Processing Line No. 1 — plant area 1 ha, TSF area 2 ha.

- Processing Line No. 2 — plant area 0.47 ha, TSF area 3.5 ha.

SRK has not sighted a documented surveyed area of current land disturbance for Aoniu Mine Project.

Maogong Mine Project

SRK has not sighted any estimates and/or records of the total area of disturbance for Jingjia Mine and Maogong Processing Plant. The Jingjia Processing Plant EIA report estimates that the total area of disturbance for the processing plant is 1.5 ha. The estimated final/total area of disturbance for the Jingjia TSF is 25 ha. The Maogong Mine EIA report estimates that the total area of disturbance for the mine is 35.01 ha. This total area of disturbance is broken down into 32.71 ha for the mining areas, 2 ha for the waste rock dump and 0.3 ha for the mine roads.

SRK has not sighted a documented surveyed area of current land disturbance for Jingmao Mine Project.

Luobokan Mine Project

The Nianpan Mine Project and Xingzhou Processing Plant No. 1 EIA reports provide the following estimated areas of land disturbance:

- Nianpan mined out open pit (future TSF) — 0.667 ha
- Xingzhou Processing Plant No. 1 — 1 ha
- TSF No. 1 — 3.02 ha
- Xingzhou Processing Plant No. 2 — 1.14 ha
- TSF No. 2 — 4.86 ha

The Luobokan Mine EIA report estimates that the area of land disturbance for the underground mine surface facilities is 0.3 ha. The EIA report does not provide an estimated area of disturbance for the Luobokan open pit.

SRK has not sighted a documented surveyed area of current land disturbance for Xingzhou Mine Project.

Mengjia Mine Project

The Mengjia Mine EIA report and approval estimate that the total area of mining land disturbance is 7.58 ha. The Mengjia Processing Plant EIA report and approval estimate that the total area of land disturbance for the processing plant is 27.8 ha. SRK has not sighted a documented surveyed area of current land disturbance for Mengjia Mine Project.

12.6 Flora and Fauna

Aoniu Mine Project

The Aoniu Mine EIA report describes that projects area's flora and fauna as comprising being diverse and common species. SRK has not sighted any other descriptions in respect to the project area's flora and fauna.

Maogong Mine Project

The Maogong Mine EIA report do not provide information on the project area's flora and fauna.

Luobokan Mine Project

The Luobokan Mine EIA report do not provide information on the project area's flora and fauna.

Mengjia Mine Project

The Mengjia Mine and Processing Plant EIA report do not provide information on the project area's flora and fauna. However, both reports note that Benxi Mine Project is surrounded by developed land (i.e. the Beitai Steel Factory and other mining facilities), which have negligible habitat value.

12.7 Waste Rock and Tailings Management

Aoniu Mine Project

Aoniu Mine EIA report estimates that the project will generate 0.981 Mtpa of waste rock. Aoniu Mining has stated they do not record the volumes/tonnage for the operational waste rock generation. The generated waste rock is stored in a waste rock dump located adjacent to the Tailings Storage Facility (TSF) No. 1, which has an estimated storage capacity of 10.1 Mtp (i.e. approximately 10 years storage). There is also a historical waste rock dump located adjacent to the current open pit. In addition, the Aoniu Mine EIA report also states that the project's mine planning should focus on backfilling mined out open pits. Aoniu Mining has stated that the waste rock from the historical waste rock dump will used to backfill the current open pit when it is mined out. Waste rock has also been reused for construction of the TSF dam walls.

SRK has not sighted any estimates and/or records of the volumes/tonnages of process tailings generated for the Aoniu Processing Plant. The tailings generated from Processing Line No. 1 (3 Mtpa — constructed in 1992) were originally stored in TSF No. 1 which has an estimated storage capacity of 1.4 Mm^3. TSF No. 1 was filled, abandoned and the dam surface partially rehabilitated in 2009. TSF No. 1 has a flood spillway channel and drainage channels have been constructed on the dam wall. Replanting/rehabilitation works were being undertaken on the dam wall during the site visit.

Processing Line No. 2 (3 Mtpa — constructed in 2003) also included a second TSF (TSF No. 2), located adjacent to the processing plant and which has an estimated storage capacity of 5.755 Mm^3. The current tailings generated from Processing Line No.'s 1 and 2 are stored in TSF No. 2. Tailings from Processing Line No. 1 are pumped approximately 1.5 km to TSF No. 2 via an above ground pipeline. TSF No. 2 is lined with geo-fabric and plastic and there is a combined return water collection and flood discharge decant. Tailings return water recovery rate is 75–80%. The flood design for TSF No. 2 is based on 1:100 year rainfall event, a flood spillway channel and dam wall drainage channels have been constructed and a 1 m minimum freeboard is maintained.

SRK notes that at the time of the August 2011 site visit, Online Video Monitoring systems have been set up and were being used for operational TSF management at the Aoniu Project.

SRK has not sighted any geochemical assessments of the waste rock and tailings. However, the Aoniu Mine EIA report states that the sulphur content of the ore is very low (0.003–0.009%) and there are no 'potentially harmful components in the ore'. SRK also did not observe any evidence of Acid Rock Drainage (ARD) from within the open pit, and around the waste rock dumps and TSF's.

Maogong Mine Project

SRK has not sighted records of the operational waste rock and tailings generation for the Jingmao Project.

The Maogong Mine EIA report estimates that Maogong Mine will generate 0.5 Mtpa of waste rock, which will be stored in a waste rock dump and/or backfilled into mined out open pits. The Jingjia Processing Plant EIA report estimates that Jingjia Mine will generate 0.048 Mtpa of waste rock which will be stored in a waste rock dump and either be reused for road construction or backfilled into mined out open pits. SRK notes that at the time of the site visit, no production had yet occurred and no waste rock had been generated, at Jingjia Mine. SRK also notes that the Jingjia Mine and Maogong Mine are situated adjacent to each other and share a waste rock dumping area located between the two mining areas. This area comprises one historical waste rock dump (partially rehabilitated) and two operating waste rock dumps.

Maogong Mining have stated that the waste rock generated from both mines will also be reused for construction, and in addition, they also plan to construct a brick production plant to reuse the Jingmao Project waste rock and tailings for brick production. It was also stated that the testwork for the brick production had been completed and the construction of the brick production plant will be completed by the end of the 3rd quarter of 2010.

The Jingjia Processing Plant EIA report estimates that the Jingjia plant will generate 0.264 Mtpa of tailings. These tailings are stored in dedicated TSF, which has a flood decant and drainage channels constructed on the dam wall. The final flood design for the Jingjia TSF is based on a 1:100 year rainfall event and the stated minimum operational freeboard is maintained at 1 m. The Jingjia TSF front end/dam wall is lined and an unlined temporary back end dam wall has been constructed for tailings water storage/collection. A tailings water return pump station is located on this back dam wall, and the stated water collection/return rate is 80%. Seepage occurs from this back dam wall but is not collected for reuse in processing. Fushun Jingjia has stated that they plan to acquire the remaining upstream valley area for an extension to the Jingjia TSF which will remove the need for this temporary back dam wall. At the time of the site visit, negotiations were occurring with the local village to pay compensation and secure access to this area. The final (fully developed) Jingjia TSF is estimated to have an area of 25 ha, a storage capacity of 6.28 Mm^3 and a service life of 36 years.

SRK has not sighted any information on the tailings for the Maogong Processing Plant. However, SRK observed during the site visit that the tailings generated at the Maogong Processing Plant are being stored in a dedicated TSF. This Maogong TSF is lined and has drainage channels constructed on the dam wall. Tailings water is collected via an in dam pump and reused in processing. No flood spillway or decant was observed. Maogong Mining stated that this TSF has approximately three months service life remaining and at closure the tailings will be reclaimed from the TSF for reused for brick production. The future tailings generated from the Maogong Processing Plant will then be sent to the Jingjia TSF for storage.

SRK notes that at the time of the August 2011 site visit, Online Video Monitoring systems have been set up and were being used for operational TSF management at the Maogong (Jingmao) Project.

No geochemical assessment of the waste rock and tailings for the Jingmao Project. However, the Maogong Mine EIA report states that the waste rock minerals comprise quartz, amphibole, chlorite-based, with minor amounts of tremolite, feldspar and trace minerals such as apatite. SRK notes that this waste rock mineral composition does not present a high potential for significant leaching/ARD impacts from the waste rock and tailings.

Luobokan Mine project

The Luobokan Mine EIA report estimates that the mining operations will generate 0.438 Mtpa of waste rock and states that this waste rock will backfilled (into the mined out open pit) or sold as construction material. SRK notes that the waste rock generated from the operation of the Luobokan open pit (to cease by the end of 2010) has been reused for site construction and there is no site waste rock dump.

SRK has not sighted any records of the volumes/tonnages of process tailings generated for the operation of the Xingzhou Processing Plants No. 1 and No. 2.

The Nianpan Mine Project EIA report estimates that Xingzhou Processing Plant No. 2 will generate 0.12 Mtpa of tailings (i.e. based on an ore processing throughput of 0.35 Mtpa). The generated tailings are stored in TSF No. 2, located 200 m to the north of the Xingzhou Processing Plant No. 2. The stated storage capacity for TSF No. 2 is 0.7 Mm^3, with a stated service life of 6 years. Xingzhou Mining has stated that the remaining service life is about 2 years and that they are planning one more 5 m dam wall lift. Upon completion of the filling of TSF No. 2, they plan to use the Nianpan mined out open pit as a TSF.

TSF No. 2 is lined with is lined with geo-fabric and plastic and there are two decants, one for return water and one for flood water. The return water decent discharges into a water collection pond, while the flood water decant discharges into a separate flood containment pond. The stated tailings water recovery rate is 75–80%. The stated flood design for TSF No. 2 is based on 1:100 year rainfall event (the EIA report states that the TSF No. 2 catchment area is 25 ha). One flood spillway channel and dam wall drainage channels have been constructed and the stated minimum operational freeboard is maintained at 1 m.

The Xingzhou Processing Plant No. 1 EIA report estimates that the plant will generate 0.06 Mtpa of tailings (i.e. based an ore processing throughput of 0.09 Mtpa). These tailings are stored in TSF No. 1 and will also be backfilled into the Nianpan mined out open pit. The estimated storage capacity for TSF No. 1 is 0.7 Mm^3. Xingzhou Mining has stated that they will complete a 5 m dam wall lift which will provide another two years final storage. The EIA report states that the combined tailings storage service life for the TSF No. 1 and the mined out open pit is 30 years.

TSF No. 1 is lined with is lined with geo-fabric and plastic. Tailings water is recovered by an in dam pump (no recovery rate has been sighted). SRK has not sighted a flood design (rainfall severity) basis for TSF No. 1. There is no flood decanted but a flood spillway was being constructed at the time of the site visit, drainage channels have been constructed on the dam wall. The stated minimum operational freeboard is maintained at 1 m.

SRK notes that at the time of the August 2011 site visit, Online Video Monitoring systems have been set up and were being used for operational TSF management at the Lubokan (Xingzhou) Project.

SRK has not sighted any geochemical assessments of the waste rock and tailings. However, the Nianpan Mine Project EIA report states that the average sulphur content of the ore is low (0.02%). SRK also did not observe any evidence of ARD from around TSF's No. 1 and No. 2.

Mengjia Mine Project

The waste rock at Mengjia Mine is currently stored in a temporary waste rock dump located adjacent to the open pit. Benxi Mining has stated that they plan to place this waste rock into the mined out open pit along with any waste rock generated from the underground mining (scheduled to commend production in 2011).

The Mengjia Processing Plant EIA report states that that the project will generate 0.6 Mtpa of process tailings. The tailings are thickened on site and then pumped approximately 2.5 km to the Beitai Steel Factory TSF for disposal. This tailings disposal is managed under an agreement between Benxi Mining and the Beigang Steel Group Company Limited (Betai Steel Factory). This agreement permits Benxi Mining to utilise the Dadingzi mined-out open pit for tailings storage for a cost of RMB200,000 per year. The general daily operation of this in-pit TSF is the responsibility of the Betai Steel Factory, however, the tailings disposal agreement specifies that Benxi Mining is responsible for any tailings spillage/leakage and associated pollution.

At the time of the January 2011 site visit, a tailings filtration plant (adjacent to the tailings thickener) and a dry TSF, had been constructed and were in operation (both commissioned in September 2010). Benxi Mining stated that the dry TSF has design life of approximately 14 years. Benxi Mining also stated that they plan to produce sand from the coarse tails and bricks from the fines, to be reused for off-site construction. Benxi Mining anticipates that they will receive the approvals and finalise the sales contracts for this proposed reuse of tailings by the end 2011.

SRK has not sighted any geochemical assessments of the waste rock and tailings. However, the Mengjia Mine EIA report states that the average sulphur content of the ore is very low (0.034%). SRK also did not observe any evidence of ARD from within the open pit and around the temporary waste rock dump.

12.8 Water Aspects and Impacts

Aoniu Mine Project

The industrial water supply for Aoniu Mine Project is sourced from mine water; process/ tailings return water and make up water extracted from the She (Aoniu) River. The domestic water supply is sourced from the local Hou'an Water Company. The Aoniu Mine EIA report estimates that the total water requirement for the mine is 58.64 tpd, no estimate is provided for the processing water requirement. The Aoniu Mine EIA report estimates that the mine/open it will on average generate approximately 40 tpd of water (i.e. via rainfall/surface runoff), and that this is

100% recovered. The ore processing is estimated to generate 156.9 tph (3,765 tpd) of wastewater into tailings which will be recovered at a rate of 75% (i.e. 25% loss to evaporation). SRK has not sighted any operational water use records.

The project operates on a zero surface water/wastewater discharge. The mining and processing water is recovered and the site stormwater management for the projects comprises a combination of upstream diversion channels, site drainage channels and downstream collection ponds. SRK notes that the ponds downstream of the two processing plants also collect the plant washdown water and can also be used as emergency water storage. Aoniu Mining has stated that the She (Aoniu) River does not flood. The site flood management is focused on the two TSF's.

Maogong Mine Project

The industrial water supply for the Jingmao Project is sourced from mine water; process/ tailings return water and water extracted from the Gucheng River. The domestic water supply is sourced from the Shiwen Town Water Company.

SRK has not sighted estimates for the water requirements for Jingjia Mine and Maogong Processing Plant. The Jingjia Processing Plant EIA estimates that the processing water requirement is 2.445 Mm^3 per year) and the plant's domestic water requirement is 2,825 m^3 per year. The Maogong Mine EIA report estimates that mining water requirement is 4,770 m^3 per year and the mine's domestic water requirement is 328 m^3 per year. SRK has not sighted operational water consumption volumes/rates for Jingmao Mine Project.

Maogong Mine Project operates on a zero surface water/wastewater discharge. The washdown and stormwater drainage from the process plants are collected in containment ponds and reused for process water. The open pit water and tailings water is also collected and reused.

The open pit water comprises rainwater and seepage from the Gucheng River. The Maogong open pit is situated adjacent to the Gucheng River and seepage in this area is significant. The Maogong Mine EIA report estimates that the pit water generation will be 20 m^3 per day. This pit water is collected in a settling pond and then pumped to the processing plants. During the site visit SRK did observe a temporary discharge of excess Maogong Mine water into the Gucheng River.

Maogong Mining stated that they plan to extend the open pit into the Gucheng River area and that this section of the river will be diverted to allow for the pit expansion. Maogong Mining has further stated that this river diversion is being managed by the Shiwen Town, the diverted river section will be concrete lined to prevent direct seepage into the adjacent extended open pit and the project is scheduled for completion by the end of August 2010.

Maogong Mining has stated that there is minimal flood risk from the Gucheng River. SRK notes that flood management measures in the project EIA reports are only for the management of potential floods within the TSF's (i.e. there is no mention of any general site flood risk/ management).

Luobokan Mine Project

The industrial water supply for Luobokan Mine Project is sourced from mine water and tailings water, with make-up water sourced from a pump station on the Dongzhou River. The domestic water supply is sourced from a groundwater bore located near the Dongzhou River.

The Luobokan Mine Project EIA report estimates that the project's total process water requirement is 0.45 Mm^3 per year (80% sourced from recycled water), and the estimated domestic water requirement is 450 m^3 per year. The Luobokan Mine EIA report estimates that the project's production water requirement is 3,000 m^3 per year which will be primarily sourced from treated (settled) underground mine water (estimated to be also 3,000 m^3 per year). The Luobokan Mine EIA report also stated that any excess treated mine water will be discharged into the Dongzhou River. The estimated domestic water requirement for Luobokan Mine is 270 m^3 per year. The Xingzhou Processing Plant No. 1 EIA report estimates that the process water requirement is 0.9 Mm^3 per year (90% sourced from recycled water), and the estimated domestic water requirement is 220 m^3 per year. SRK has not sighted operational water consumption volumes/rates for the Luobokan Mine Project.

Luobokan Mine Project operates on a zero surface water/wastewater discharge. Pit water and tailings water will be reused and not discharged. Stormwater and processing plant washdown water is either drained into open pit/TSF, or into containment ponds for reuse or evaporation. There may be a requirement for temporary discharge of any excess treated Luobokan underground mine water. Xingzhou Mining has stated that there is minimal flood risk from the Dongzhou River (i.e. there are no records of serious floods for the area). SRK notes that flood management measures project EIA reports are only for the management of potential floods within the TSF's (i.e. there is no mention of any general site flood risk/management).

Mengjia Mine Project

The industrial water supply for Mengjia Mine Project is sourced from the Xi River. Water is collected and filtered at a pump station on the Xi River and then pumped 2.7 km to the site. The water extraction from the pump station is remotely and automatically monitored by the Benxi City Water Bureau. The average water supply for this pump station is 1,500 m^3 per day. The domestic water is supplied from a site groundwater well/bore which supplies approximately 4 m^3 per day.

The project operates on a zero surface water/wastewater discharge. The open pit generates an average of 30 m^3 per day of water (from surface water runoff), which is collected and fully reused for site dust suppression. The processing water (including tailings water and plant washdown) is collected in a series of ponds and tanks for reuse in the process. Stormwater is either collected in the open pit or directed into the processing plant collection/settlement ponds, and then reused as process/industrial water. The flood risk for the site is low as it located 2.7 km from the Xi River and situated within Beitai Steel Factory, which has its own flood diversion/management channels.

12.9 Air Emissions

12.9.1 *Dust and Gas Emissions*

The main dust emission sources for all the projects are from:

- Blasting
- Ore/waste rock mining, handling, haulage and storage
- Ore crushing and conveying
- General traffic and open (unsealed) areas

The dust management measures applied and observed for the projects are:

- Regular watering (via water trucks), of roads and other open areas.
- Covers and/or enclosures on ore conveyors and transfer points.
- Water sprays and/or dust collection (bag filters) on ore crushing/screening.
- Sealing/revegetation of areas.

SRK notes that these dust management measures are in accordance with Chinese standards and recognised international industry practices.

The projects have negligible point source gas emissions as they either use on-site electric boilers for heating or source heating from an off-site source.

12.9.2 *Greenhouse Gas Emissions*

There is no Chinese National legislative requirement for the project to estimate its Greenhouse Gas emissions or to implement any emissions reductions. As such none of the project environmental assessment documentation reviewed address the issue of Greenhouse Gas emissions. However, energy efficiency and the reduction of Greenhouse Gas emissions are now considered as Chinese National policy directives. In addition, these are also components of IFC environmental requirements and are considered as internationally recognised environmental management practices. SRK notes that no initiatives have been developed to quantify Greenhouse Gas emissions and assess possible emission reduction strategies for the Aoniu, Jingmao, Xingzhou and Benxi Mine Projects.

12.10 Noise Emissions

The main noise emission sources for all the projects are from:

- Blasting
- Ore/waste rock mining and haulage
- Ore handling/processing facilities

- Air compressors and pumps
- General traffic

The noise management measures applied for all the projects are:

- Use of low noise equipment.
- Noise insulation on facilities.
- Noise silencers/dampeners on equipment.
- Where possible, schedule noise generating activities for the daytime only.

SRK notes that these noise management measures are in accordance with Chinese standards and recognised international industry practices.

12.11 Hazardous Materials Management

There are no explosives stored on any of the project sites. All explosives are sourced from off-site local (i.e. Town/County) managed facilities. The hazardous materials for the all projects comprise hydrocarbons. Fuel is stored in dedicated facilities which comprise above ground and below ground tanks. Oils are stored in 205L drums, generally on hard stand areas, with some minor oil storage in unlined areas. During the site visit SRK observed that all above fuel storage tanks and oil areas did not have secondary containment (i.e. to contain and recover spillage) and that spillage of hydrocarbons to ground was occurring.

12.12 Waste Management

12.12.1 ***Waste Oil***

Waste oil is generated from equipment servicing and maintenance for all the projects. Waste oil is stored in 205L drums and either sent off site for recycling or filtered and reused on site. No records are kept of the volumes of waste oil generated and recycled.

12.12.2 ***Solid Wastes***

The domestic and industrial solid waste for the each project is collected by the local Town/County and disposed within off-site local landfill facilities. The respective companies have stated that the scrap metal for each project is collected and taken off site for recycling in the Company's Iron Ball Plant. SRK notes that the solid wastes for the respective projects are being well managed, with no significant uncontrolled solid waste disposal observed during the site visits.

12.12.3 ***Sewage and Oily Waste Water***

The domestic sewage wastewater and oily waste water for each project is collected, treated by settling and then reused for site dust suppression or discharged into the respective TSF and reused process water. The domestic sewage generated from toilets (i.e. use dry toilets only) for each project is collected by each respective local village for reuse as fertiliser.

12.13 Contaminated Sites Assessment

SRK has not sighted a documented process to assess and remediate any areas of suspected contamination for each project. No evidence of significant contamination to soil was observed during the site visits. However, the operation of the projects has the potential to generate contaminated areas.

12.14 Environmental Protection and Management Plan (EPMP)

SRK has not sighted documented operational EPMP's for any of the projects. However, the project EIA reports reviewed by SRK do describe the various components of a comprehensive operational EPMP for each of the respective projects.

The respective mining companies have stated that the relevant local EPB monitoring stations undertake the environmental monitoring for the projects. SRK has sighted copies of the July and September 2010 environmental monitoring reports for the Aoniu and Jingmao projects, produced by the Fushun County EPB monitoring station. These reports show that the monitored surface water quality and ambient noise levels are within Chinese National standards. SRK has not sighted any operational environmental monitoring reports for Xingzhou and Benxi Mine Projects. The respective mining companies have stated that to date, they have not received any monitoring exceedance notices from the relevant local EPB's. SRK notes that the recognised international practice for site environmental monitoring is for an operation to develop and implement an internal environmental performance monitoring programs, the results of which are utilised to revise and streamline the implementation of the EPMP.

12.15 Emergency Response Plan (ERP)

SRK has sighted the operational ERP's for the Aoniu Project (mine and processing plants), Jingmao Project (Maogong and Jingjia Mines and Processing Plants), Xingzhou Project (Luobokan Mine and Xingzhou Processing Plants) and Benxi Mine Project (mine and processing plant). All of the sighted ERP's are current (i.e. produced in 2010) and have been developed in accordance with Chinese National requirements.

12.16 Site Closure Planning and Rehabilitation

The Chinese National requirements for mine closure are covered under Article 21 of the *Mineral Resources Law (1996)*, the *Rules for Implementation of the Mineral Resources Law of the People's Republic of China (2006)*, the *Land Use Regulations of the People's Republic of China (1986.6.25)* and the *Land Rehabilitation Regulation issued by the State Council on 21 October 1988*. In summary these legislative requirements cover the need to conduct land rehabilitation, to prepare a site closure report and submit a site closure application for assessment and approval.

The recognised international industry practice for managing site closure is to develop and implement an operational site closure planning process and document this through an operational Closure Plan. While this site closure planning process is not specified within the Chinese National requirements for mine closure, the implementation of this process for a Chinese mine project will:

- Facilitate achieving compliance with these Chinese National legislative requirements; and

- Demonstrates conformance to a recognised international industry management practice.

There is currently no operational closure planning process in place for any of the projects that is in line with the relevant international industry practice. However, SRK notes that, in accordance with Chinese National requirements, site rehabilitation plans have been developed and progressive site rehabilitation works have been completed for each of the projects. In addition, SRK has also sighted the following site rehabilitation bond payment notices and receipts:

- ***Aoniu Mine Project:***

  — Mine Geological Environmental Protection and Rehabilitation Fund Submission Notice, Aoniu Mining, issued by Liaoning Province Land and Resource Bureau (8 July 2010). Total bond payment: RMB5,884,000 (RMB2,942,000 by 30 July 2010, RMB2,042,000 by 30 July 2013).

  — Liaoning Province Administration Government Receipt No. 1000179554 (25 September 2010), Payer: Aoniu Mining. Amount: RMB2,942,000.

- ***Maogong Mine Project:***

  — Mine Geological Environmental Protection and Rehabilitation Fund Submission Notice, Maogong Mining, issued by Liaoning Province Land and Resource Bureau (20 April 2010). Total bond payment: RMB1,768,000 (RMB884,000 by 10 May 2010, RMB884,000 by 10 May 2013).

  — Fushun City Financial Department Receipt No. 0748527 (12 May 2010), Payer: Maogong Mining. Amount: RMB884,000.

  — 884,000.00 Yuan

- ***Mengjia Mine Project:***

  — Mine Geological Environmental Protection and Rehabilitation Fund Submission Notice, Benxi Mining, issued by Liaoning Province Land and Resource Bureau (26 February 2010). Total bond payment: RMB5,940,200 (RMB2,970,100 by 20 May 2010, RMB2,970,100 by 20 May 2013).

  — Benxi City Land and Resource Bureau Receipt (26 May 2010), Payer: Benxi Mining. Amount: RMB2,970,100.

12.17 Evaluation of Environmental Risks

The sources of inherent environmental risk are project activities that may result in potential environmental impacts. These project activities have been previously described within this report.

The inherent environmental risks for Aoniu, Jingmao, Xingzhou and Benxi Mine Projects are:

- Land disturbance, rehabilitation and site closure.
- Water management (i.e. tailings/mine water and stormwater).
- Waste rock stockpiling/waste rock dump management.
- Tailings storage (i.e. TSF design, construction and operation).
- Dust management.
- Land contamination (i.e. hydrocarbon storage and handling).

The above inherent environmental risks are categorised as moderate/tolerable risks (i.e. requiring risk management measures). The environmental risks for the Aoniu, Jingmao, Xingzhou and Benxi Mine Projects are generally being managed well. However, to be in line with relevant recognised international industry practices and to ensure that these environmental risks are maintained as 'moderate/tolerable risks', consideration should be given to developing and implementing the following management measures:

- Internal/operational monitoring of the site environmental discharges/potential impacts.
- Operational environmental management planning.
- Site closure planning.
- All hydrocarbon storage and handling facilities to have secondary containment.
- Contaminated site assessment and remediation process.
- A summary of the qualitative risk analysis utilised to determine these environmental risks is summarised below in 12-1. The full qualitative risk analysis process is described in Appendix V.

Table 12-1: Summary of Inherent Environmental Risk

Sources of Environmental Risk	Consequence Severity	Likelihood	Inherent Environmental Risk Ranking
Land Disturbance, rehabilitation and site closure:	Moderate	Certain	Moderate
— Controlling land disturbance			
— Progressive and final rehabilitation of mining/ processing areas, waste rock dumps and TSF's			
Water management:	Moderate	Possible	Moderate
— Tailings/mine water and stormwater			
Waste rock stockpiling/waste rock dump management	Moderate	Possible	Moderate
Tailings storage:	Major	Possible	Moderate
— TSF design, construction and operation	(TSF failure/breach)		
Dust management	Moderate	Likely	Moderate
Land contamination	Moderate	Likely	Moderate
— Hydrocarbon storage and handling			

13 SOCIAL ASSESSMENT

The social aspects for each project are outlined as follows:

- **Aoniu Mine Project:**

  — The Aoniu Project is located in the Aoniu Village, Hou'an Town approximately 56 km south east of Fushun City, Liaoning Province. The surrounding land use is a combination of agriculture and some mining.

  — The Han cultural group is predominant within the general project area with no other significant cultural minority groups present. SRK has not sighted any information in relation to the presence of any significant cultural heritage sites within or surrounding the Aoniu project area.

  — The main administrative body for the Aoniu Project is the Liaoning Provincial Government, with some delegation of the project development/operational regulation to the Fushun City, Fushun County and Hou'an Town. Aoniu Mining has stated that the current relationship with these local and provincial governments is positive and that no non-compliance notices and or other documented regulatory directives in relation to the project's development/operation have been received.

- **Jingmao Mine Project:**

  — The Jingmao Project is located in the located in the Shiwen Town, Fushun County, approximately 20 km south of Fushun City, Liaoning Province. The surrounding land use is a combination of mining, mineral processing (smelting) and agriculture.

  — The Han cultural group is predominant within the general project area with no other significant cultural minority groups present. SRK has not sighted any information in relation to the presence of any significant cultural heritage sites within or surrounding the Xingzhou project area.

  — The main administrative body for the Jingmao Project is the Liaoning Provincial Government, with some delegation of the project development/operational regulation to the Fushun City and Fushun County. Jingjia Maogong Mining has stated that the current relationship with these local and provincial governments is positive and that no non-compliance notices and or other documented regulatory directives in relation to the project's development/operation have been received.

- **Xingzhou Mine project:**

  — The Xingzhou Project is located in the Nianpan Town, Dongzhou District, Liaoning Province. The surrounding land use is a combination of agriculture and mining.

— The Han cultural group is predominant within the general project area with no other significant cultural minority groups present. SRK has not sighted any information in relation to the presence of any significant cultural heritage sites within or surrounding the Xingzhou project area.

— The main administrative body for the Xingzhou Project is the Liaoning Provincial Government, with some delegation of the project development/operational regulation to the Fushun City. Xingzhou Mining has stated that the current relationship with these local and provincial governments is positive and that no non-compliance notices and or other documented regulatory directives in relation to the project's development/operation have been received.

- **Benxi Mine Project:**

— The Benxi Mine Project is located within the Betai Town, Pingshan District, approximately 18 km north east of Benxi City, Liaoning Province. The project is primarily surrounded by the Beitai Steel Factory and other mining facilities.

— The Han cultural group is predominant within the general project area with no other significant cultural minority groups present. SRK has not sighted any information in relation to the presence of any significant cultural heritage sites within or surrounding the Benxi Mine project area.

— The main administrative body for the Benxi Mine Project is the Liaoning Provincial Government, with some delegation of the project development/operational regulation to the Benxi City, Fushun County and Pingshan District Town. Benxi Mining has stated that the current relationship with these local and provincial governments is positive and that no non-compliance notices and or other documented regulatory directives in relation to the project's development/operation have been received.

Land access agreements and compensation payments with each of the respective villages have been completed for the Aoniu, Jingmao, Xingzhou and Benxi Mine Projects.

Public consultation has been completed on the development of each project. The public consultation process undertaken for each project is described in the respective project EIA reports. The general public consultation process comprised public notices/meetings and undertaking a public survey/questionnaire of residents within the local and/or surrounding residential areas. The results of this public consultation were recorded in the respective project EIA reports. These results showed a general positive support for the development of the Aoniu, Jingmao, Xingzhou and Benxi Mine Projects.

14 PROJECT RISK ASSESSMENT

Mining is a relatively high-risk industry. In general, the risk may decrease from exploration to development to production stage. The Company's projects are production projects, in which the risks are relatively low. SRK considered various technical aspects which may affect these mine projects, and have conducted a risk assessment which has been summarised in Table 14-1. The full qualitative risk analysis process is described in Appendix V.

Table 14-1: Summary of the Company's Project Risk Assessment

Risk Issue	Likelihood	Consequence	Overall
Geology and Resource			
Lack of Significant Resource	Unlikely	Moderate	Low
Lack of Significant Reserve	Unlikely	Moderate	Low
Significant Unexpected Faulting	Unlikely	Major	Medium
Mining			
Significant Production Shortfalls	Unlikely	Major	Medium
Production Pumping System Adequacy	Unlikely	Moderate	Low
Significant Geological Structure	Possible	Moderate	Medium
Excessive Surface Subsidence	Unlikely	Minor	Low
Poor Pit Slope Condition	Unlikely	Moderate	Low
Poor Mine plan	Unlikely	Moderate	Low
Poor Road Transportation/safety	Possible	Moderate	Medium
Ore Processing			
Lower Yields	Unlikely	Minor	Low
Lower Recovery	Unlikely	Minor	Low
Higher Production Cost	Possible	Moderate	Medium
Plant Reliability	Unlikely	Moderate	Medium

Risk Issue	Likelihood	Consequence	Overall
Environmental Risk			
Land disturbance, Rehabilitation and Site Closure	Certain	Moderate	Medium
Water Management (tailings/mine water and stormwater)	Possible	Moderate	Medium
Waste Rock Stockpiling/Dump Management	Possible	Moderate	Medium
Tailings Storage (TSF design, construction and operation)	Possible	Major	Medium
Dust Management	Likely	Moderate	Medium
Land Contamination (hydrocarbon storage and handling)	Likely	Moderate	Medium
Capital and Operating Costs			
Project Timing Delays	Possible	Moderate	Medium
Capital Cost Increases	Possible	Moderate	Medium
Capital Costs — Ongoing	Possible	Moderate	Medium
Operating Costs Underestimated	Possible	Moderate	Medium
Revenue Decreases	Possible	Moderate	Medium

GLOSSARY OF TERMS AND ABBREVIATIONS

%	Percent
º	Degrees, either of temperature or angle of inclination
ASL	Above sea level
AusIMM	Australasian Institute of Mining and Metallurgy
Cu	The chemical symbol for copper
E	East
EP's	Exploration Permits
Fe	The chemical symbol of iron
g	gram
g/t	gram per tonne
HKEx	Stock Exchange of Hong Kong Limited
Indicated Mineral Resource	That part of a resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a reasonable level of confidence. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are too widely or inappropriately spaced to confirm geological and/or grade continuity but are spaced closely enough for continuity to be assumed
Inferred Mineral Resource	That part of a resource for which tonnage, grade and mineral content can be estimated with a low level of confidence. It is inferred from geological evidence and assumed but not verified geological and/or grade continuity. It is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings, and drill holes which may be limited or of uncertain quality and reliability
IP (Induced Polarisation)	An exploration technique whereby an electrical current is pulsed through the ground and the response from the sub surface measured in order to identify minerals of interest. Strong IP responses may be a result of sulphide which may be associated with gold mineralisation
JORC Code	Joint Ore Reserves Committee Code
JORC Committee	Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia
kg	kilogram, equivalent to 1,000 grams
km	kilometres, equivalent to 1,000 metres
km^2	square kilometres
kV	kilovolts — equivalent 1,000 volts

kW	Kilowatt, equivalent to 1,000 watt
Late Triassic	a time period of approximately 18 million years from 228 million to 210 million years ago
m	Metre(s)
m^2	square metre
m^3	cube metre
M	Million
Measured Mineral Resource	That part of a resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a high level of confidence. It is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes
Micron	1/1,000 of a millimetre
mFe	magnetic iron
Middle Triassic	A time period of approximately 14 million years from 242 million to 228 million years ago
MLR	Ministry of Land and Resources
mm	Millimetre(s)
Mt	Million tonne (s)
Mtpa	Million tonnes per annum
MW	Megawatt, equivalent to 1,000,000 watt
N	North, also the chemical symbol for Nitrogen
NE	North East
NEE	North East East
NE-NNE	North East-North North East
NQ size core	47.6 mm diameter, approximately 70% of the core taken
NW	North West
oz	troy ounce, equivalent to 31.1035 grams
pH	A measure of the acidity or alkalinity of a solution, numerically equal to 7 for neutral solutions, increasing with increasing alkalinity and decreasing with increasing acidity. The pH scale commonly in use ranges from 0 to 14
PPE	personal protective equipment
ppm	parts per million, equivalent to grams per tonne (g/t)
PQ size core	85 mm diameter

PRC	People's Republic of China
Probable Ore Reserve	The economically mineable part of an indicated, and in some circumstances measured, resource. It includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and government factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified
Proved Ore Reserves	The economically mineable part of a measured resource. It includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and government factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified. Also referred to as recoverable proved reserve
QA/QC	Quality Assurance/Quality Control
RC (Reverse Circulation)	A percussion-drilling technique in which the cuttings are recovered
S	South, also the chemical symbol for sulphur
SE	South East
t	Tonne
Te	tellurium
TFe	whole iron
tpa	tonnes per annum
tpd	tonnes per day
Triassic	A time period, approximately 250 million to 210 million years ago
Valmin Code	Code for Technical Assessment and Valuation of Mineral and Petroleum Assets and Securities for Independent Expert Reports

REFERENCES

General

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Aoniu Mine Project

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Jingmao Mine Project

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Xingzhou Mine project

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APPENDICES

Appendix I: Mining Licenses

中华人民共和国

采矿许可证

（副本）

证号：C2100002009032120009568

采矿权人：抚顺罕王傲牛矿业股份有限公司

地　　址：抚顺县后安镇傲牛村

矿山名称：抚顺罕王傲牛矿业股份有限公司

经济类型：股份有限公司

开采矿种：铁矿

开采方式：露天/地下开采

生产规模：120.00万吨/年

矿区面积：1.8911平方公里

有效期限：伍年　自2010年11月10日至2015年11月10日

发证机关（采矿登记专用章）

二〇一〇年十一月　日

中华人民共和国国土资源部印制

矿区范围拐点坐标：（1980西安坐标系）

点号	X坐标	Y坐标
傲牛1区		
1.	4611133.00	41597676.00
2.	4611213.00	41597821.00
3.	4610914.00	41598014.00
4.	4610858.00	41597915.00
5.	4610633.00	41598033.00
6.	4610571.00	41597900.00
7.	4610817.00	41597791.00
8.	4610839.00	41597832.00
标高：从410米至100米		
傲牛2区		
1.	4610782.00	41598376.00
2.	4610430.00	41598685.00
3.	4610334.00	41598536.00
4.	4610655.00	41598236.00
标高：从346米至100米		
傲牛3区		
1.	4610274.00	41598501.00
2.	4609910.00	41598845.00
3.	4609851.00	41599113.00
4.	4609803.00	41599171.00
5.	4609823.00	41598791.00
6.	4609333.00	41598766.00
7.	4609761.00	41598633.00
8.	4609761.00	41598492.00
9.	4610132.00	41598273.00
标高：从390米至100米		
傲牛4区		
1.	4609639.00	41598409.00
2.	4609548.00	41598606.00
3.	4609401.00	41598552.00
4.	4609490.00	41598343.00
标高：从440米至350米		
傲牛5区		
1.	4608991.00	41599351.00
2.	4608052.00	41600751.00
3.	4607826.00	41600751.00
4.	4608165.00	41599951.00
5.	4608385.00	41599491.00
6.	4608885.00	41599238.00
标高：从452米至200米		
傲牛6区		
1.	4607931.00	41600951.00
2.	4607868.00	41601199.00
3.	4607087.00	41602001.00
4.	4606984.00	41601990.00
5.	4607604.00	41601866.00
6.	4607716.00	41600893.00
标高：从390米至100米		
梨树1区		
1.	4607645.00	41599069.00
2.	4607267.00	41599311.00
3.	4607363.00	41599411.00
4.	4607278.00	41599189.00
5.	4606992.00	41599331.00
6.	4607550.00	41598892.00
标高：从484米至200米		
梨树2区		
1.	4607354.00	41599711.00
2.	4607148.00	41600294.00
3.	4607037.00	41600152.00
4.	4606627.00	41600391.00
5.	4606588.00	41600241.00
6.	4606935.00	41600117.00
7.	4607278.00	41599627.00
标高：从484米至200米		
腰堡1区		
1.	4613580.00	41601835.00
2.	4613638.00	41601487.00
3.	4613540.00	41601566.00
4.	4613400.00	41601738.00
5.	4613378.00	41601791.00

开采深度：由490米至100米标高　共有61个拐点圈定

中华人民共和国

采 矿 许 可 证

（副本）

证号：C2100002009062120025972

采矿权人：杨敏

地　　址：抚顺县石文镇景家村

矿山名称：抚顺景佳铁矿

经济类型：私营企业

开采矿种：铁矿

开采方式：露天开采

生产规模：5万吨/年

矿区面积：0.062平方公里

有效期限：肆月 自 2010年4月9日 至 2010年9月9日

发证机关
（采矿登记专用章）

二〇一〇 年 四 月 九 日

中华人民共和国国土资源部印制

矿区范围拐点坐标：（1980西安坐标系）

点号 X坐标 Y坐标

1, 4615648.67, 41570725.63
2, 4615864.67, 41570861.63
3, 4616078.67, 41570839.63
4, 4616075.67, 41570681.63
5, 1615868.67, 41570691.63
6, 4615706.67, 41570633.63

开采深度：由240米至180米标高　　共有6个拐点圈定。

中华人民共和国

采矿许可证

(副本)

C2100002009062120025973

证号:

采矿权人: 抚顺罕王毛公铁矿有限公司

地　　址: 抚顺县石文镇毛公村

矿山名称: 抚顺罕王毛公铁矿有限公司

经济类型: 有限责任公司

开采矿种: 铁矿

开采方式: 露天/地下开采

生产规模: 30万吨/年

矿区面积: 0.6平方公里

有效期限: 叁年　2010年7月15日　至　2013年7月15日

自零肆月

发证机关

(采矿登记专用章)

二〇一〇　年　月　日

中华人民共和国国土资源部印制

矿区范围拐点坐标: (1980西安坐标系)

点号　X坐标　Y坐标

1, 4615737.9, 41570951.8
2, 4615948.9, 41571351.8
3, 4616290.9, 41571783.8
4, 4616188.9, 41572180.8
5, 4615416.9, 41571620.8
6, 4615377.9, 41570951.8

开采深度: 由184米至0米标高　共有6个拐点圈定

辽宁省国土资源厅划定矿区范围批复

辽国土资矿划字2010【0164】

抚顺罕王毛公铁矿有限公司：

根据《矿产资源开采登记管理办法》第四条的规定，现对你单位申请划定矿区范围批复如下：

一、矿区范围由15个拐点圈定，开采深度由259米至0米标高。矿区面积约为2.3733平方公里，地质储量656.923万吨，可采储量656.923万吨规划生产能力为80万吨/年，预计服务年限7年。矿区范围坐标见附表。

二、请依据批复的矿区范围，按照国家有关法律、法规的规定抓紧做好矿产资源开发利用方案的编制和可行性研究论证及其他有关工作，并每半年向登记机关报告一次项目进展情况。

三、本次批复的矿区范围预留期限为1年，请按照矿产资源开采登记管理办法》的规定做好各项准备工作，并于2011-12-13底前持采矿登记申请资料到登记管理机关办理采矿登记手续。逾期未办理采矿登记手续，未领取采矿许可证，该矿区范围不予预留。

附件：划定矿区范围坐标表。

备注：备注：属于整合矿山，采矿登记发证时以开发利用方案确定的矿区范围为准。

辽宁省国土资源厅 采矿登记专用章

0年十 三日

抄送： 抚顺市国土资源局，抚顺县国土资源局

采矿申请登记矿区范围坐标表

抚顺罕王毛公铁矿有限公司

点号 X坐标 Y坐标 点号 X坐标 Y坐标 点号 X坐标 Y坐标

一区

1, 4618037. 0000, 41573510. 0000

2, 4618037. 7610, 41573620. 4930

3, 4617539. 1870, 41573365. 4930

4, 4617590. 0000, 41573248. 0000

5, 4617972. 0000, 41573395. 0000

标高：从236米至80米

二区

1, 4616504. 6630, 41570951. 8000

2, 4616188. 9000, 41572180. 8000

3, 4615412. 1620, 41571617. 8870

4, 4615377. 9000, 41570951. 8000

5, 4614671. 9340, 41570581. 3640

6, 4615258. 9350, 41570014. 9050

标高：从259米至0米

三区

1, 4615233. 4360, 41571206. 0090

2, 4614838. 7340, 41572067. 1060

3, 4614141. 9720, 41571928. 8620

4, 4614919. 4470, 41571064. 8090

标高：从190米至83米

（1980西安坐标系）

共 1 页 第 1 页

中华人民共和国

采矿许可证

（副本）

证号：C2100002010052120066092

采矿权人：本溪罕王矿业有限公司

地　　址：本溪市平山区北台办事处

矿山名称：本溪罕王矿业有限公司铁矿

经济类型：有限责任公司

开采矿种：铁矿

开采方式：露天/地下开采

生产规模：90万吨/年

矿区面积：2533平方公里

有效期限：拾贰年　自　2011年4月18日　至　年　月　日

二〇一一年　月　日

发证机关（采矿登记专用章）

中华人民共和国国土资源部印制

矿区范围拐点坐标：

（1980西安坐标系）

1. 1566931.5, 41551965.63
2. 1566796.5, 41552049.63
4. 1566668.624, 41551911.171
5. 1566822.96, 41551653.086
标高：从210米至-265米

5. 1566822.96, 41551653.086
3. 1566668.624, 41551911.171
3. 1566228.69, 41551631.63
4. 1566336.69, 41551479.62
5. 1566394.69, 41551522.62
6. 1566498.5, 41551551.42
7. 1566661.5, 41551551.42
标高：从210米至-110米

开采深度：

由210米至-215米标高　　共有11个拐点圈定

中华人民共和国

采 矿 许 可 证

(副本)

证号：C2100002009102110041604

采矿权人：抚顺兴洲矿业有限公司

地　　址：抚顺市东洲区碾盘乡台沟村

矿山名称：抚顺兴洲矿业有限公司

经济类型：有限责任公司

开采矿种：铁矿

开采方式：露天/地下开采

生产规模：100万吨/年

矿区面积：0.94平方公里

有效期限：壹月　自 2011年9月6日 至 2011年10月6日

发 证 机 关

（采矿登记专用章）

二〇一一　年　月　日

中华人民共和国国土资源部印制

矿区范围拐点坐标：（1980西安坐标系）

点号	X坐标	Y坐标
1	4629064.8	41585551.6
2	4629064.8	41586151.6
3	4627764.8	41586451.6
4	4627664.8	41585951.6
5	4628164.8	41585551.6

标高：从140米至-320米

开采深度：

由140米至-320米标高　　共有5个拐点圈定

中华人民共和国

采矿许可证

(副本)

证号：C2100002010052120066092

采矿权人：本溪罕王矿业有限公司

地　　址：本溪市平山区北台办事处

矿山名称：本溪罕王矿业有限公司铁矿

经济类型：有限责任公司

开采矿种：铁矿

开采方式：露天/地下开采

生产规模：80.00万吨/年

矿区面积：0.2532平方公里

有效期限：肆年零玖月 自2010年[illegible]月26日至[illegible]年[illegible]月26日

二〇一〇年五月二十六日

中华人民共和国国土资源部印制

矿区范围拐点坐标：(1980西安坐标系)

点号	X坐标	Y坐标
1	4566934.50	41551805.43
2	4566796.50	41552049.43
3	4566228.49	41551631.43
4	4566336.49	41551479.42
5	4566394.49	41551522.42
6	4566188.50	41551351.42
7	4566664.50	41551351.42

开采深度：由210米至-110米标高　共有7个拐点圈定

Appendix II: Chinese Resource and Reserve Standards

Categorisation of Mineral Resources and Ore Reserves

The system for categorisation of mineral resources and ore reserves in China is in a period of transition which commenced in 1999. The traditional system, which is derived from the former Soviet system, uses five categories based on decreasing levels of geological confidence — Categories A, B, C, D and E. The new system (Rule 66) promulgated by the Ministry of Land and Resources (MLR) in 1999 uses three dimensional matrices, based on economic, feasibility/mine design and geological degrees of confidence. These are categorised by a three number code of the form "123". This new system is derived from the UN Framework Classification proposed for international use. All new projects in China must comply with the new system, however, estimates and feasibility studies carried out before 1999 will have used the old system.

Wherever possible, the Chinese Resource and Reserve estimates have been reassigned by SRK to categories similar to those used by the JORC Code to standardise categorisation. Although similar terms have been used, SRK does not mean to imply that in their present format they are necessarily classified as 'Mineral Resources' as defined by the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves ("**JORC Code**").

A broad comparison guide between the Chinese classification scheme and the JORC Code is presented in the following table.

JORC Code Resource Category	Chinese Resource Category	
	Previous system	Current system
Measured	A, B	111, 111b, 121, 121b, 2M11, 2M21, 2S11, 2S21, 331
Indicated	C	122, 122b, 2M22, 2S22, 332
Inferred	D	333
Non-equivalent	E	334

Definition of the New Chinese Resource and Reserve Category Scheme

Category	Denoted	Comments
Economic	1	Full feasibility study considering economic factors has been conducted
	2	Pre feasibility to scoping study which generally considers economic factors has been conducted
	3	No pre feasibility or scoping study conducted to consider economic analysis
Feasibility	1	Further analysis of data collected in "2" by an external technical department
	2	More detailed feasibility work including more trenches, tunnels, drilling, detailed mapping
	3	Preliminary evaluation of feasibility with some mapping and trenches
Geologically controlled	1	Strong geological control
	2	Moderate geological control via closely-spaced data points (e.g. small scale mapping)
	3	Minor work which is projected throughout the area
	4	Review stage

Relationship between JORC Code and the Chinese Reserves System

In China, the methods used to estimate the resources and reserves are generally prescribed by the relevant government authority, and are based on the level of knowledge for that particular geological style of deposit. The parameters and computational methods prescribed by the relevant authority include cut-off grades, minimum thickness of mineralisation, maximum thickness of internal waste, and average minimum 'industrial' or 'economic' grades required. The resource classification categories are assigned largely on the basis of the spacing of sampling, trenching, underground tunnels and drill holes.

In the pre 1999 system, Category A generally included the highest level of detail possible, such as grade control information. However, the content of categories B, C and D may vary from deposit to deposit in China, and therefore must be carefully reviewed before assigning to an equivalent "JORC Code type" category. The traditional Categories B, C and D are broadly equivalent to the 'Measured', 'Indicated', and 'Inferred' categories that are provided by the JORC Code and USBM/USGS systems used widely elsewhere in the world. In the JORC Code system the 'Measured Resource' category has the most confidence and the 'Inferred' category has the least confidence, based on increasing levels of geological knowledge and continuity of mineralisation.

<table>
<tr><th colspan="2">Old Chinese Classification</th><th colspan="2">A & B</th><th colspan="2">C</th><th colspan="2">D</th><th>E & F</th></tr>
<tr><td colspan="9">New Chinese Classification</td></tr>
<tr><td rowspan="2">“E” Economic Evaluation (100)</td><td>Designed mining loss accounted</td><td>Recoverable Reserve (111)</td><td>Probable Recoverable Reserve (121)</td><td></td><td>Probable Recoverable Reserve (122)</td><td></td><td></td><td></td></tr>
<tr><td>Designed mining loss not accounted (b)</td><td>Basic Reserve (111b)</td><td>Basic Reserve (121b)</td><td></td><td>Basic Reserve (122b)</td><td></td><td></td><td></td></tr>
<tr><td colspan="2">Marginal Economic (2M00)</td><td>Basic Reserve (2M11)</td><td>Basic Reserve (2M21)</td><td></td><td>Basic Reserve (2M22)</td><td></td><td></td><td></td></tr>
<tr><td colspan="2">Sub-Economic (2S00)</td><td>Resource (2S11)</td><td>Resource (2S21)</td><td></td><td>Resource (2S22)</td><td></td><td></td><td></td></tr>
<tr><td colspan="2">Intrinsically Economic (300)</td><td>—</td><td>—</td><td>Resource (331)</td><td></td><td>Resource (332)</td><td>Resource (333)</td><td>Resource (334)</td></tr>
<tr><td colspan="2">“F” Feasibility Evaluation</td><td>Feasibility (010)</td><td>Pre-Feasibility (020)</td><td>Scoping (030)</td><td>Pre-Feasibility (020)</td><td>Scoping (030)</td><td>Scoping (030)</td><td>Scoping (030)</td></tr>
<tr><td colspan="2" rowspan="2">“G” Geological Evaluation</td><td colspan="3">Measured</td><td colspan="2">Indicated</td><td rowspan="2">Inferred (003)</td><td rowspan="2">Predicted (004)</td></tr>
<tr><td colspan="3">(001)</td><td colspan="2">(002)</td></tr>
<tr><td colspan="2" rowspan="5">JORC</td><td colspan="5"></td><td colspan="2">Classified or</td></tr>
<tr><td colspan="5"></td><td colspan="2">Exploration Potential</td></tr>
<tr><td colspan="4"></td><td colspan="3">Inferred</td></tr>
<tr><td></td><td colspan="2">Probable Reserve or Indicated Resource</td><td colspan="5"></td></tr>
<tr><td colspan="2">Proved/Probable Reserve or Measured Resource</td><td colspan="7"></td></tr>
</table>

Appendix III: Chinese Environmental Legislative Background

The Chinese *Mineral Resources Law (1996), Rules for Implementation of the Mineral Resources Law of the People's Republic of China (2006) and Environmental Protection Law (1989)* provide the main legislative framework for the regulation and administration of mine projects within China. The *Environmental Protection Law (1989)* provides the main legislative framework for the regulation and administration of mine projects environmental impacts.

The following articles of the *Mineral Resources Law (1996)* summarise the specific provisions in relation to environmental protection:

- ***Article 15 Qualification & Approval:*** *Anyone who wishes to establish a mining enterprise must meet the qualifications prescribed by the State, and the department in charge of examination and approval shall, in accordance with law and relevant State regulations examine the enterprise's mining area, its mining design or mining plan, production and technological conditions and safety and environmental protection measures. Only those that pass the examination shall be granted approval.*

- ***Article 21 Closure Requirements*** *If a mine is to be closed down, a report must be prepared with information about the mining operations, hidden dangers, land reclamation and utilisation, and environmental protection, and an application for examination and approval must be filed in accordance with relevant State regulations.*

- ***Article 32 Environmental Protection Obligations of Mining License Holders:*** *In mining mineral resources, a mining enterprise or individual must observe the legal provisions on environmental protection to prevent pollution of the environment. In mining mineral resources, a mining enterprise or individual must economise on the use of land. In case cultivated land, grassland or forest land is damaged due to mining, the mining enterprise concerned shall take measures to utilize the land affected, such as by reclamation, tree and grass planting, as appropriate to the local conditions. Anyone who, in mining mineral resources, causes losses to the production and well-being of other persons shall be liable for compensation and shall adopt necessary remedial measures.*

The following articles of the Environmental Protection Law (1989) summarise the specific provisions for environmental protection in relation to mining:

- ***Article 13 Environmental Protection:*** *Units constructing projects that cause pollution to the environment must observe the state provisions concerning environmental protection for such construction projects. The environmental impact statement on a construction project must assess the pollution the project is likely to produce and its impact on the environment and stipulate the preventive and curative measures; the statement shall, after initial examination by the authorities in charge of the construction project, be submitted by specified procedure to the competent department of environmental protection administration for approval. The department of planning shall not ratify the design plan descriptions of the construction project until after the environmental impact statement on the construction project is approved.*

- ***Article 19 Statement of requirement for Environmental Protection:*** *Measures must be taken to protect the ecological environment while natural resources are being developed or utilised.*

- ***Article 24 Responsibility for Environmental Protection:*** *Units that cause environmental pollution and other public hazards shall incorporate the work of environmental protection into their plans and establish a responsibility system for environmental protection, and must adopt effective measures to prevent and control the pollution and harms caused to the environment by waste gas, waste water, waste residues, dust, malodorous gases, radioactive substances, noise, vibration and electromagnetic radiation generated in the course of production, construction or other activities.*

- ***Article 26 Pollution Prevention & Control:*** *Installations for the prevention and control of pollution at a construction project must be designed, built and commissioned together with the principal part of the project. No permission shall be given for a construction project to be commissioned or used, until its installations for the prevention and control of pollution are examined and considered up to the standard by the competent department of environmental protection administration that examined and approved the environmental impact statement.*

- ***Article 27 Report on Pollution Discharge:*** *Enterprises and institutions discharging pollutants must report to and register with the relevant authorities in accordance with the provisions of the competent department of environmental protection administration under the State Council.*

- ***Article 38 Violation Consequences:*** *An enterprise or institution which violates this Law, thereby causing an environmental pollution accident, shall be fined by the competent department of environmental protection administration or another department invested by law with power to conduct environmental supervision and management in accordance with the consequent damage; in a serious case, the persons responsible shall be subject to administrative sanction by the unit to which they belong or by the competent department of the government.*

The following are other Chinese laws that provide environmental legislative support to the *Minerals Resources Law (1996)* and the *Environmental Protection Law (1989)*:

- *Environmental Impact Assessment (EIA) Law (2002).*

- *Law on Prevention & Control of Atmospheric Pollution (2000).*

- *Law on Prevention & Control of Noise Pollution (1996).*

- *Law on Prevention & Control of Water Pollution (1996).*

- *Law on Prevention & Control Environmental Pollution by Solid Waste (2002).*

- *Forestry Law (1998).*

- *Water Law (1988).*
- *Water & Soil Conservancy Law (1991).*
- *Water Conservancy Industrial Policy (1997).*
- *Land Administration Law (1999).*
- *Protection of Wildlife Law (1989).*
- *Energy Conservation Law (1998).*
- *Electric Power Law (1995).*
- *Management Regulations of Prevention & Cure of Tailings Pollution (1992).*
- *Management Regulations of Dangerous Chemical Materials (1987).*

The relevant environmental protections related to Chinese legislation that are required to be utilised for a project's design are a combination of the following national design regulations and emissions standards:

- *Environment Protection Design Regulations of Construction Project (No. 002) by Environment Protection Committee of State Council of PRC (1987).*
- *Regulations on the Administration of Construction Project Environmental Protection (1998).*
- *Regulations for Quality Control of Construction Projects (2000).*
- *Regulations for Environmental Monitoring (1983).*
- *Regulations on Nature Reserves (1994).*
- *Regulations on Administration of Chemicals Subject to Supervision & Control (1995).*
- *Regulations on Management of Chemicals Subject to Supervision & Control (1995).*
- *Environment Protection Design Regulations of Metallurgical Industry (YB9066-55).*
- *Comprehensive Emission Standard of Wastewater (GB8978-1996).*
- *Environmental Quality Standard for Surface Water (GB3838-1988).*
- *Environmental Quality Standard for Groundwater (GB/T14848-1993).*
- *Ambient Air Quality Standard (GB3095-1996).*
- *Comprehensive Emission Standard of Atmospheric Pollutants (GB16297-1996).*
- *Emission Standard of Atmospheric Pollutants from Industrial Kiln (GB9078-1996).*

- *Emission Standard of Atmospheric Pollutants from Boiler (GB13271-2001) — II — stage coal-fired boiler.*
- *Environmental Quality Standard for Soils (GB15618-1995).*
- *Standard of Boundary Noise of Industrial Enterprise (GB12348-90).*
- *Emissions Standard for Pollution from Heavy Industry; Non-Ferrous Metals (GB4913-1985).*
- *Control Standard on PCB's for Wastes (GB13015-1991).*
- *Control Standard on Cyanide for Waste Slugs (GB12502-1990).*
- *Standard for Pollution Control on Hazardous Waste Storage (GB18597-2001).*
- *Identification Standard for Hazardous Wastes-Identification for Extraction Procedure Toxicity (GB5085.3-1996).*
- *Standard of Landfill and Pollution Control of Hazardous Waste (GB 18598-2001).*

Appendix IV: World Bank/IFC Environmental Standards and Guidelines

In seeking to obtain project financing or to list on a stock exchange, these institutions themselves require the proponent to comply with such documents as the Equator Principles and the IFC Performance Standards and Guidelines. This is exemplified by the following preamble from the Equator Principles (July 2006):

Project financing, a method of funding in which the lender looks primarily to the revenues generated by a single project both as the source of repayment and as security for the exposure, plays an important role in financing development throughout the world. Project financiers may encounter social and environmental issues that are both complex and challenging, particularly with respect to projects in the emerging markets.

The Equator Principles Financial Institutions (EPFIs) have consequently adopted these Principles in order to ensure that the projects we finance are developed in a manner that is socially responsible and reflect sound environmental management practices. By doing so, negative impacts on project-affected ecosystems and communities should be avoided where possible, and if these impacts are unavoidable, they should be reduced, mitigated and/or compensated for appropriately. We believe that adoption of and adherence to these Principles offers significant benefits to ourselves, our borrowers and local stakeholders through our borrowers' engagement with locally affected communities. We therefore recognise that our role as financiers affords us opportunities to promote responsible environmental stewardship and socially responsible development. As such, EPFIs will consider reviewing these Principles from time-to-time based on implementation experience, and in order to reflect ongoing learning and emerging good practice.

These Principles are intended to serve as a common baseline and framework for the implementation by each EPFI of its own internal social and environmental policies, procedures and standards related to its project financing activities. We will not provide loans to projects where the borrower will not or is unable to comply with our respective social and environmental policies and procedures that implement the Equator Principles.

The following Tables provide a brief summary of the Equator Principles and the IFC Performance Standards respectively. These documents are used by the EPFI's and stock exchanges in their review of the social and environmental performance of proponent companies.

Table A4-1: Equator Principles

Equator Principles	Title	Key Aspects (Summary)
1	Review and Categorisation	Categorise such project based on the magnitude of its potential impacts and risks
2	Social and Environmental Assessment	Conduct a Social and Environmental Assessment (Assessment). The Assessment should also propose mitigation and management measures appropriate to the nature and scale of the proposed project.
3	Applicable Social and Environmental Standards	The Assessment will refer to the applicable IFC Performance Standards, and applicable Industry Specific EHS Guidelines (EHS Guidelines) and overall compliance with same.
4	Action Plan and Management System	Prepare an Action Plan (AP) which addresses the relevant findings of the Assessment. The AP will describe and prioritise the actions, mitigation measures, corrective actions and monitoring to manage the impacts and risks identified in the Assessment. Maintain a Social and Environmental Management System that addresses the management of these impacts, risks and corrective actions required to comply with host country laws and regulations, and requirements of the applicable Standards and Guidelines, as defined in the AP.
5	Consultation and Disclosure	Consult with project affected communities. Adequately incorporate affected communities concerns.
6	Grievance Mechanism	Establish a grievance mechanism as part of the management system. to receive and resolve concerns about the project by individuals or groups from among project-affected communities. Inform the affected communities about the grievance mechanism in the course of the community engagement process and ensure that the mechanism addresses concerns promptly and transparently, and is readily accessible to all segments of the affected communities.
7	Independent Review	Independent social or environmental expert will review the Assessment, AP and consultation process to assess Equator Principles compliance.
8	Covenants	Covenant in financing documentation:
		a) to comply with all relevant host country social and environmental laws, regulations and permits;
		b) to comply with the AP during the construction and operation of the project;
		c) to provide periodic reports not less than annually, prepared by in-house staff or third party experts, that (i) document compliance with the AP, and (ii) provide compliance with relevant local, state and host country social and environmental laws, regulations and permits; and
		d) to decommission the facilities, where applicable and appropriate, in accordance with an agreed decommissioning plan.
9	Independent Monitoring and Reporting	Appoint an independent environmental and/or social expert, or require that the borrower retain qualified and experienced external experts to verify its monitoring information.
10	EPFI Reporting	Each EPFI adopting the Equator Principles commits to report publicly at least annually about its Equator Principles implementation processes and experience, taking into account appropriate confidentiality considerations.

Table A4-2: IFC Performance Standards

IFC Performance Standard	Title	Objective (Summary)	Key Aspects (Summary)
1	Social and Environmental Assessment and Management Systems	Social and EIA and improved performance through use of management systems.	Social & Environmental Management System (S&EMS). Social & Environmental Impact Assessment (S&EIA). Risks and impacts. Management Plans. Monitoring. Reporting. Training. Community Consultation.
2	Labour and Working Conditions	EEO. Safety and Health	Implement through the S&EMS. HR policy. Working condition. EEO. Forced & child labour. OH&S.
3	Pollution Prevention and Abatement	Avoid pollution. Reduce Emissions.	Prevent pollution. Conserve resources. Energy efficiency. Reduce waste. Hazardous materials. EPR. Greenhouse Gases.
4	Community Health, Safety and Security	Avoid or minimise risks to community.	Implement through the S&EMS. Do risk assessment. Hazardous materials safety. Community exposure. ERP.
5	Land Acquisition and Involuntary Resettlement	Avoid or minimise resettlement. Mitigate adverse social impacts	Implement through the S&EMS. Consultation. Compensation. Resettlement planning. Economic displacement.
6	Biodiversity Conservation and Sustainable Natural Resource Management	Protect and conserve biodiversity	Implement through the S&EMS. Assessment. Habitat. Protected areas. Invasive species.
7	Indigenous Peoples	Respect. Avoid and minimise impacts. Foster good faith	Avoid adverse impacts. Consultation. Development benefits. Impacts to traditional land use. Relocation.
8	Cultural Heritage	Protect cultural heritage	Heritage Survey. Site avoidances. Consultation.

Appendix V: Qualitative Risk Analysis

To ensure the technical integrity of the risk analysis process, the following Australian Standards for risk analysis and risk management have been utilised for overall guidance:

- AS/NZS 3931: 1998 Risk Analysis of Technological Systems — Application Guide;
- AS/NZS 4360: 1999 Risk Management; and
- HB 203: 2004 Environmental Risk Management — Principles and Process.

These Australian Standards have been developed in line with comparable international standards.

A risk is generally described in terms of the severity/consequence and likelihood of an undesirable occurrence or incident. The greater the potential severity and likelihood of an undesirable occurrence, the higher the level of risk associated with the related activity. An environmental risk can be defined as both a risk to the environment resulting from an organisation's activities and also as a risk to an organisation from related environmental issues.

The generic approach for this qualitative risk analysis has the following three steps:

(i) Establish the context/define the scope of the analysis — goals/objectives, the analysis strategy and evaluation criteria.

(ii) Identify and analyse the environmental risks in terms of consequence and likelihood.

(iii) Evaluate and rank the environmental risks.

Qualitative Risk Analysis — Scope

The scope definition and context for the qualitative risk analysis can be summarised as follows:

- **Goals/Objectives** — The primary objective is to analyse the qualitative risks associated with the project's development, operational and closure aspects.
- **Strategy** — The strategy employed comprises the application of a qualitative risk analysis where the 'relative magnitude' of risks associated with the project are estimated. Inclusive within this process are also the concepts of inherent and residual risks. Inherent risks being those hazards that are present within the project without any remedial management, and residual risks are defined as those hazards remaining after the application of remedial risk management measures.

This qualitative risk analysis strategy has the following key steps:

- **Step 1** — Develop a qualitative risk matrix. This has relative significance rankings for the potential consequences/impacts, levels of event likelihood and the corresponding risk rankings from negligible to extreme.

- **Step 2** — Define the inherent/residual risks. List the sources of risks and apply the qualitative risk analysis to define the level of inherent/residual risk.

Qualitative Risk Analysis Matrix

The proposed qualitative risk matrix uses the following definitions for consequence and likelihood:

- Consequence:
  - — **Catastrophic:** Disaster with potential to lead to ecological/business collapse.
  - — **Major:** Critical event/impact, which with proper remedial management, will be endured.
  - — **Moderate:** Significant event/impact, which may be managed under normal procedures.
  - — **Minor:** Consequences/impacts that may be readily absorbed, but some remedial management effort is still required.
  - — **Insignificant:** No remedial management required.
- Likelihood:
  - — **Certain:** The event is expected to occur in most circumstances.
  - — **Likely:** The event probably will occur in most circumstances (i.e. also could be on a regular basis such as weekly monthly).
  - — **Possible:** The event should occur at some time (i.e. once in a while).
  - — **Unlikely:** The event could occur at some time.
  - — **Rarely:** The event may occur only in exceptional circumstances.

Based on these definitions the Qualitative Risk Matrix is presented below.

	Consequences				
Likelihood	**Catastrophic**	**Major**	**Moderate**	**Minor**	**Insignificant**
Certain	Extreme risk	High risk	Moderate risk	Moderate risk	Low risk
Likely	High risk	High risk	Moderate risk	Moderate risk	Low risk
Possible	High risk	Moderate risk	Moderate risk	Low risk	Negligible risk
Unlikely	Moderate risk	Moderate risk	Low risk	Low risk	Negligible risk
Rarely	Moderate risk	Low risk	Negligible risk	Negligible risk	Negligible risk

The risk definitions from this risk matrix can be further grouped into risk evaluation categories that are based on regulatory compliance and conformance with industry standards, guidelines and/or codes of practice. These are:

- **Category 1 — Unacceptable Risks** (Extreme/high risks) — can be defined as those sources of risk that are essentially unacceptable and have a high potential to result in business collapse or critical impacts to business.

- **Category 2 — Tolerable Risks** (Moderate risks) — can be defined as those sources of risk that are tolerable and while non-compliant/non-conforming, can made to be compliant/ conforming (acceptable risks) through the application of risk management measures.

- **Category 3 — Acceptable Risks** (Low/negligible risks) — can be defined as those sources of risk that are acceptable and are compliant with legal requirements and conform to recognised industry standards, guidelines and codes of practice.

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