

**Technical Review  
of the Ying, HPG and NZ Projects,  
Henan Province  
and Tuobuka Project,  
Yunnan Province,  
People's Republic of China**

Report Prepared by



September 2007

# Technical Review of the Ying, HPG and NZ Projects, Henan Province and the Tuobuka Project, Yunnan Province, People's Republic of China

Report Prepared for

## Silvercorp Metals Inc.

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## Executive Summary

### Summary of Principal Objectives

SRK Consulting (“SRK”) was retained to review all relevant technical aspects of the project to provide Silvercorp Metals Inc. (“Silvercorp” or “the company”) with an independent expert report on the Ying mine and concentrator, Haopinggou (“HPG”) mine and concentrator, NZ project, and the smelter project in Henan Province, and Tuobuka project in Yunnan Province (“the Projects”). The SRK report is required by Silvercorp for inclusion in documents for a proposed listing on The Stock Exchange of Hong Kong Limited (“HKSE”).

### Outline of Work Program

The work program involved two phases:

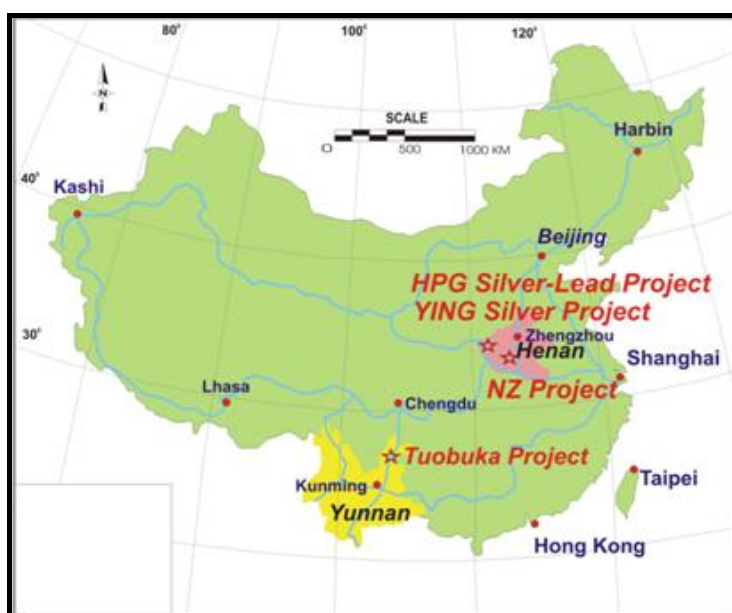
- Phase 1 comprised a review of information provided, a site visit to the Ying and HPG projects and the smelter project in Luoning County, the NZ project in Nanzhao County, Henan Province, and the Tuobuka project in Yunnan Province. These site visits included discussions with staff of the company and collection and review of documents provided to SRK, and
- Phase 2 provided the analysis of the provided data, preparation of a draft report, review of additional data and finalisation of this report.

## Results

### Overall

#### *Location*

The Projects inspected by SRK include the Ying and HPG projects in Luoning County, the NZ project in Nanzhao County, Henan Province, and the Tuobuka project, Yunnan Province. A general map of China showing Silvercorp’s projects is provided in Figure 1.



Location map showing Silvercorp Projects, PRC.

The mines and concentrators owned and operated by Silvercorp through its joint venture companies in Luoning County, Henan Province, China have been operating and producing at their designed capacities. The Ying mine contains resources which have been reported in compliance with National Instrument 43-101 (“NI43-101”) of the Ontario Securities Commission. Measured and Indicated resources may provide mill feed at the current processing rate for eleven to twelve years. The HPG mine has resources compliant with Chinese regulations which can be mined and fed to current concentrators. Both mines have exploration permits surrounding current mining licenses, with potential to define and discover new mineralised bodies and new deposits. The NZ project also has some remaining gold resources compliant with Chinese standard, and exploration potential to discover precious and base metal deposits at depth.

The underground mine developments of the Ying and HPG projects include adits and shafts to access underground, exploration drifts along the mineralised veins, and haulage tunnels. Both mines use the shrinkage mining method. Mining is labour intensive, but has yet to produce sufficient ores to satisfy the feed requirements of the ore processing plants which have throughput capacities of 600tpd at Ying and 200tpd at HPG. The geotechnical conditions in the mines are good; only localised support of the tunnels is necessary.

The Ying and HPG concentrators use conventional flowsheets in common use in the industry. Additional hand sorting of high lead and silver (Pb and Ag) grade ores is employed, which produces ores which are sent directly to the smelter, thus reducing the cost of milling. The feasibility study of the Luoning smelter is a high quality document, and the technology has been developed and utilized by other smelters in China.

Both the Ying and HPG operations have only recently started operating and SRK notes the efforts of the company to comply with Chinese regulations on various issues, including environmental and occupational health and safety. There is still potential for improvement on these aspects. Silvercorp utilizes the experience of Chinese technical personnel very well to control operating costs, and enjoys a very good relationship with governments and the local community.

## **Geology**

### ***Ying and HPG Projects***

The Ying and HPG properties’ area is located at the junction of Qinling Orogenic Belt and the southern margin of the North China Precambrian Tectonic Plate specifically at the western end of Huasha-Longbo anticline. This plate margin and Qinling Orogenic belt is a west-northwest orientated zone where the Yangtze Plate borders the North China Tectonic Plate. The Ying Ag-Pb-Zn deposit can be classified as mesothermal quartz-carbonate-ore mineral system. The most widely known deposit of this type is represented by the Coeur d’Alene silver district in northern Idaho, United States of America.

The main type of mineralisation present in Ying and HPG deposits is silver-lead-zinc rich quartz-carbonate veins hosted in Archean gneisses and Proterozoic greenstones. High grade mineralised veins occur as pinching and swelling tabular veins usually consistent in strike and dip over long distances. The pinching and swelling results in cigar-shaped veins, and is caused by flexures of the fault plane enabling portions of the fault to widen (“swell”) or narrow (“pinch”) with movement along the fault. The pinch outs between these high-grade “swell” zones occur as narrow shear zones often with anomalous values for silver and base metals.

Of twenty eight (28) veins discovered and investigated in the western part of the Ying property, only fourteen host economically mineable ore bodies. In the southern part of the property, of twenty two (22) known veins, six are potentially economic; at the present time only two are being investigated, using exploration tunnelling and diamond drillings.

Irregular pinch-and-swell features of the veins can be observed along underground workings. Mined stopes vary from 30 to 60 metres (m) in both vertical and horizontal dimensions with stope thickness ranging from 1 to 3m. Between the thicker “swell” sections, the veins varying from several to several tens of centimetres in thickness, and can be followed along drifts and exploration tunnels. These veins usually show a high concentration of ore minerals.

There are more than 20 identified mineralised veins located in the HPG property area. The Geological Brigade of Henan Bureau of Non-ferrous Geological Exploration discovered and defined in detail four of these veins and identified nine economic ore bodies hosted within them. The H15 and H17 veins have been explored in details by using trenching, diamond core drilling and tunnelling. These veins strike sub-parallel in a north-easterly direction in the eastern part of the exploration area; however they merge into one vein near Exploration Line 3 within the mine area on the surface.

No 1 Geological Brigade estimated and updated or verified the silver, gold and lead resources of H15 and H17 veins at the HPG deposit in 2002 and 2004. These estimates were recognized and certified by Chinese authorities, and comply with Chinese regulations, although they are not compliant with NI43-101 or JORC Code standards. These resources have already been partially mined. SRK believes there remains tens of thousands of tonnes of resource but has not been able to quantify the remaining amount. The total mineralised materials were reported to contain ore grades, on average, of 2.1 grams per tonne (g/t) gold, 128g/t Ag and 7.11% lead.

Consequently SRK recommends an aggressive exploration program that should include surface geophysics, surface and underground drilling, as well as tunnelling. This program should be based on data already available from both mining and exploration. Silvercorp has indicated they have an existing exploration program in place and propose to modify this program as additional information becomes available.

### ***NZ Project***

Strata in the NZ project area are Proterozoic silicified marble and schist. They strike west north-west, with variable dip and dip direction. The secondary faults of the main Luanchuan-Weimosi faults are abundant in the project area. The faults strike 240 to 280 degrees (°) and dip to either direction with dip angles of 55 to 70°. Gold and lead-zinc mineralization and alteration occur along the secondary faults. One Mesozoic porphyritic syenite intrusion occurs in the project area. The dyke strikes nearly east-west.

Gold bearing veins have been discovered and defined in previous exploration in four prospects. The mineralised veins occur in fractured and altered zones a few tens of metres to about 200m long and 0.6 to 2.85m wide.

Main ore minerals include pyrite, galena, and sphalerite, as well as chalcopyrite, pyrrhotite, native gold, electrum, bornite, chalcocite, and secondary limonite and malachite. Gangue minerals are mainly quartz, feldspar, and calcite, as well as sericite, chlorite and apatite.

### ***Tuobuka Project***

Regionally, the project area lies in the Boka-Tuobuka Structural Block, controlled by the Xiaojiang Fault in the east and the Puduhe Fault in the west.. The main structure in the area is the complex Tuobuka syncline. The main exploration focus is intense mineralisation and alteration along a fault striking north-south and dipping east. This fault has been mapped as a ductile-brittle shear zone comprising a series of fault segments, a fragmented belt and a breccia belt. Tuobuka 2 is a mineralised ore body defined by old tunnels and a drill-hole with a width of 6.0m and gold grade of 1.68g/t at the depth of 32m in a tunnel, and a width of 4m and gold grade of 1.68g/t at the depth of 225m in drill core. Tuobuka 3 is defined by old tunnels, and is 1.5m in width with average grade of 13.78g/t Au in one tunnel; and 6m in width with an average grade of 2.57g/t Au in another tunnel.

## Resources

### *Ying Project*

The polygonal resource estimates were prepared by Mr. Wang Jianwen, Chief Geologist of Found, and Mr. Myles J. Gao, P.Geo, President of Silvercorp, who is a Qualified Person, as defined by NI43-101, and the estimates were audited by Mr. Broili and Mr. Mel Klohn, who as Independent Qualified Persons as defined by NI43-101 visited Ying Mine site in 2005, 2006 and 2007. Mr. Broili reviewed assay results, geological maps, level plans, longitudinal and cross sections, toured tunnels and checked sampling procedures. The Ying deposit mineralisation is polymetallic and the mineral resources are reported in terms of a silver-equivalent grade, as well as separate individual metal grades.

Since Silvercorp's first exploration works at YING in August 2004 until August 2007 a total of 74,619 m of tunnels, drifts, declines, raises or shafts have been developed and 78,581 m of underground and surface drilling has been completed (280 total holes). The underground development and drilling have focused primarily on 18 of 28 known veins in the SGX Area, on eight (8) of more than 20 known veins in the HPG Area, and on four (4) currently known veins in the HZG Area.

The recent work on the YING Property has defined silver-lead-zinc mineral resources at SGX, silver-lead-zinc-gold at HPG and silver-lead-copper-gold at HZG. The 18 veins at SGX are discrete tabular quartz-ankerite veins with massive sulphide zones that average 0.39m wide. The eight veins at HPG are quartz-sericite-carbonate veins with massive sulphide zones that average 0.96m wide. The four veins at HZG are quartz-ankerite-fuchsite veins with sulphide filled fracture zones that average 0.78m wide. These veins were defined by either channel sampling new underground tunnels or underground drilling. To estimate the mineral resources contained in these veins, resource block models were constructed with polygonal methods on longitudinal vein sections using the same parameters – cutoff grade, cutoff thickness, area of influence, etc. – as those used in the last YING resource estimation completed in 2006 (Broili et al, 2006).

The current estimated mineral resources of the 29 veins explored to date by Silvercorp in the SGX, HZG and HPG area are as follows:

### YING Project - Summary of Mineral Resources – August 2007

Width (m)	Tonnes	Ag (g/t)	Ag (oz/t)	Au (g/t)	Pb (%)	Zn (%)	Cu (%)	eq-Ah (g/t)	Ag(oz)	Pb(t)	Zn (t)	Cu (t)	Au (oz)	eq-Ag(oz)
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#### SGX Area - High grade

Measured	0.50	215,173	1,250	40.18		20.41	9.14		2,545	8,646,679	44,450	21,817	523		17,607,571
Indicated	0.43	787,089	1,227	39.46		21.54	7.14		2,475	31,058,205	169,515	56,232	479		62,638,615
Meas+indic	0.44	1,002,261	1,232	39.62		21.3	7.57		2,490	39,704,887	205,956	73,381	1,001		80,246,081
Inferred	0.44	1,707,850	1,219	39.19		21.8	7.57		2,498	61,447,487	345,936	122,480	3,333		137,180,776

#### SGX Area - Low grade

Measured	0.50	48,770	281	9.02		6.13	6.84		865	528,119	3,459	3,641			1,553,133
Indicated	0.41	750,329	223	7.18		3.55	3.86		560	5,390,121	26,661	28,936		1,324	12,769,092
Meas+indic	0.42	799,099	227	7.3		3.71	4.04		578	5,830,237	29,568	32,179		1,324	18,541,705

#### HZG Area

Indicated	0.78	248,484	598	19.23		1.76		0.78	796	4,777,198	4,364		1,941		6,356,729
Inferred	0.62	271,042	552	19.23		1.4		0.43	679	4,807,002	3,784		1,176		5,916,975

#### HPG Area

Measured	0.99	35,226	117	3.77	1.41	6.28	1.28		519	132,794	2,174	261		1,594	553,359
Indicated	0.95	166,661	67	2.15	2.33	3.52	0.3		355	357,887	5,859	502		12,476	1,901,060
Meas+indic	0.96	201,887	76	2.43	2.15	3.95	0.38		376	490,687	8,033	763		14,069	2,454,419
Inferred	0.96	1,513,222	120	3.85	1.41	6.68	2.17		581	5,824,580	101,017	32,906		68,706	28,250,515

#### Ying Project - Total Estimated Mineral Resources

Measured		299,169								9,307,592	50,084	25,719	523	1,594	19,714,063
Indicated		1,952,563								41,583,412	206,400	85,670	2,419	13,800	83,665,496
Meas+indic		2,251,731								50,891,004	256,483	11,389	2,942	15,393	103,379,559
Inferred		3,492,114								72,079,069	450,737	155,386	4,509	68,706	171,348,265

This estimated measured plus indicated resource is 30% greater than the resource reported in the previous resource estimation (the 2006 Report by Broili, et. al.). This is largely due to the fact that the new estimation is based on 18 veins at SGX as compared to only 14 veins in the 2005 Report, and the two new areas, HPG and HZG have added eight veins and four veins respectively.

With production underway in two operating mines, exploration is now expanding into other parts of the YING project. Two new areas with increased exploration effort will be XM, immediately northwest of HPG and RHW near the east margin of the YING project.

A Phase 4 exploration program of geophysics, mapping and continued tunnelling and drilling is recommended to help discover and define additional mineral resources within the YING Project Area and to upgrade existing mineral resources from inferred to indicated and from indicated to measured. The proposed budget for this program is US\$7.47 million.

### ***NZ Project***

No. 1 Geological Brigade compiled a resource verification report in 2005 in which longitudinal projection and geological block method was used to estimate the resource. The report was submitted to the Henan Centre of Examination of Mineral Resources and Reserves. Details are shown in the following table.

#### **Resources Estimate for NZ Deposit, as at June 2005 <sup>1</sup>**

<b>Prospect</b>	<b>Chinese Category</b>	<b>Tonnage</b>	<b>Au (g/t)</b>	<b>Au (kg)</b>
Qianjiagou	122b	2,055	6.34	13
	333	21,499	5.77	124
Huichungou	122b	1,010	7.11	7
	333	12,156	6.91	84
Shigungou	122b	960	4.17	4
	333	16,272	6.58	107
Xiaoguangou	333	36,537	4.93	180
<b>Total</b>	<b>122b</b>	<b>4,025</b>	<b>5.96</b>	<b>24</b>
	<b>333</b>	<b>86,464</b>	<b>5.72</b>	<b>495</b>

<sup>1</sup> Approved by Henan Bureau of Land and Resources

SRK notes that these estimates are compliant with Chinese standard, but are not compliant with NI43-101 or the JORC Code and must therefore be treated as historical resource estimates. Annexure 1 provides a comparison between JORC and Chinese resource classification systems.

### **Mining**

The general development layout for the older sections of the Ying Mine, as well as all of the current operations at the HPG Mine, consists primarily of adit and decline development access to the ore zones. Design cross-section of adits is 2.2m x 2.2m with an arched configuration, with designed roadway slopes of 0.3 to 1% towards the portal for control of water runoff and to assist the transport of rail wagons loaded with ore or waste.

At the Ying Mine, internal blind shaft development of new ore zones has been designed and is under construction. Three shafts are designed for dual-purpose production and ventilation use, and are planned to be either 2.2m or 3.8m diameter. Hoisting installations are of the counterweighted caged-car design. Stope development on the levels between the shafts generally follows the same procedures as the adit/decline scheme.

The original designs by the Anhui Maanshan Institute of Mining call for both shrinkage stopes and cut-and-fill stopes, however Silvercorp indicated to SRK that cut-and-fill stoping is not currently being used in the mines controlled by Silvercorp.

Ore zones along the veins are developed by driving parallel access drifts, the design separation of which is to leave 4m pillars. Design stope block size is 40m x 40m for Ying Mine shrinkage stopes, 80m length x 40m height for re-sue stopes, and 50m x 50m in the new internal shaft development areas. At the HPG mine, design stope block size is 50m x 50m. Stope draw-point X-cut spacing design is 5m for Ying Mine, and 7m for HPG Mine. The average Ying stope width is 0.8m, with a range of 1m to 3m maximum at this time. The average HPG stope width is 1.2m, but can be up to 4m maximum width. Design stope ore recovery is 95%, and design stope ore dilution is 10%. However, actual practice is to primarily use standard shrinkage stoping methods, with limited areas utilizing a normal re-sue shrink stope method where the ore configuration and ore grades are suitable and the higher costs are justified.

Underground adit and decline transportation of muck and materials varies, with hand carts used in many areas, ‘tricycle’ in some areas, and rail haulage utilized in some new main development areas. Due to the high cost of conversion from hand and truck haulage methods to rail haulage, there are no plans to convert these older systems. The new shaft access development area utilizes counterweighted caged-car hoisting systems for haulage of muck and materials.

Mine production recorded in 2006 at the Ying mine and planned mine production for 2007 to 2010 is shown in the following table.

<b>Ying Mine</b>	<b>Tonnes</b>	<b>Pb (%)</b>	<b>Ag (g/t)</b>	<b>Zn (%)</b>
2006 Actual	131,715	8.89	454	3.34
2007 Planned	210,875	9.39	545	4.66
2008 Planned	240,000	9.22	467	4.45
2009 Planned	240,000	8.51	590	4.10
2010 Planned	240,000	9.85	509	4.15

Underground drilling operations are generally mechanized and utilize jack-leg stopers and drifters. Blasting uses Ammonium Nitrate-Fuel Oil (ANFO) and emulsion dynamite. Almost all mucking, stope sill levelling, and much of the transportation of muck and materials are performed either by hand methods, or with very rudimentary machinery and equipment.

The observable indicators at the Ying mine reveal a mining operation that could sustain a significantly higher level of production. This could be achieved through improved management of the overall mining process, particularly in the area of mine design, mine planning and improving efficiencies in the operation.

## **Geotechnical and Hydrogeology**

The underground observations relating to the rock mechanics and ground control conditions at Silvercorp’s Ying and HPG Mines during the SRK site visit reveal a generally positive situation in which only normal problems were noted. Reports from mine staff state that few ground control issues exist, and that less than 5% of the total development openings have had problems requiring any artificial ground support. The maximum ground control problem length was about 20m, and that instance was in a portal driven through unconsolidated overburden. In general, rock types observed in the mine were hard, blocky, and with complicated joints – and most of the ground control issues observed relate to that jointing.

Groundwater inflows are low to moderate for the amount of excavated workings at both the Ying and HPG Mines. Current pumping reportedly averages 20 cubic metres (m<sup>3</sup>)/hour from Ying #1



shaft, 15m<sup>3</sup>/hour each from Ying #2 and #3 shafts and 500m<sup>3</sup>/day from the entire HPG mining operation. Pump systems at HPG are designed to run 10 hours/day average in the dry season, so as to give extra capacity for the rainy season.

There is a substantial body of impounded water immediately adjacent to both mines. The Guxian reservoir level was at elevation 520m during the SRK site visit and it is understood that the maximum design water level is 535m. Mine personnel advised that geological structure is favourably oriented with respect to the location of the impounded water and that they do not expect any water difficulties as the mine depth goes below 520m elevation. Mine personnel consider that experience to date supports their expectations. An independent review of the site hydrogeology was conducted by the Geologic Reconnaissance Academe of Zhengzhou City Henan Province. Their report dated May 2006 generally agrees with the mine site view that there is currently little hydrological connection between the mine and the Guxian reservoir. The report also suggests further hydrogeology work is warranted to ensure that the hydrogeology conditions are fully understood and the risk of inundation and flooding is reduced.

SRK considers that the hydrogeology presents a potential risk to mining, particularly as the mine depth increases and the amount of workings at lower levels increases. SRK is therefore of the opinion that further work should be carried out to better understand the hydro-geological conditions at both the Ying and HPG mines.

## **Processing and Smelter**

### ***Ying Concentrator***

The processing plant at Ying commenced operation in March 2007. The flowsheet was developed subsequent to the completion of a comprehensive testwork programme on composite mine samples completed by the Hunan Research Institute of Non Ferrous Metals. The plant was constructed by the China Tenth Metallurgy Group Corporation Ltd. to design criteria and engineering design by China Steel's Maanshan Institute of Mining Research. The plant nominal capacity is 25 tonnes per hour (tph) or 600 tonnes per day (tpd). Daily production records for July 2007 show that the Ying plant was available for 91% of the schedule time and processed ore at an average rate of 726tpd.

The mineral composition comprises galena, sphalerite and pyrite as major sulphide species. Minor species include pyrrhotite, chalcopyrite, bornite, magnetite, hematite, limonite and tetrahedrite. There is little arsenic (<0.001%) in the ore. The high silver values in the ore typically comprise native silver, argentite and freibergite and are primarily associated with galena. Gangue minerals include quartz, chlorite/sericite and kaolin and comprise approximately 77.5% of the mineral content. The metallic mineral content is approximately 6.8% galena and 7.8% sphalerite. Plant head grades for design were: Pb 6.0%, Zn 5.0% and Ag 400g/t.

The processes used are typical of polymetallic Pb-Zn ores and comprise two stages of crushing of Run of Mine (ROM) ore from 400mm to 15mm followed by ball milling in closed circuit with a screw classifier. The target milled product size is 70% passing 200# or 74 microns. Mineral separation is by flotation.

After conditioning with zinc sulphate and sodium sulphite at neutral pH to depress Zn and with the addition of ethyl thio carbamate and butyl amine dithio phosphate as collector and No 2 pine oil as frother, the pulp is then submitted to froth flotation in two stages. The first produces a Pb concentrate via rougher and two stage scavenging. The rougher concentrate is cleaned in three stages using counter current movement of the respective stage concentrates. Further additions of zinc sulphate and sodium sulphite produce the optimum lead grade in the final concentrate.

The second flotation process is preceded by conditioning with milled lime to raise the pH to between 10 and 11 for pyrite depression and is further conditioned with CuSO<sub>4</sub> to activate sphalerite. The promoter for zinc flotation is butyl xanthate and No 2 pine oil is again used as a frother.

The zinc flotation comprises roughing with two scavenger stages and the zinc rougher concentrate is upgraded with three stages of counter current cleaning.

Pb/Ag concentrate is dewatered by thickening and then filtered using a ceramic disc filter to produce a nominal moisture level of 6% H<sub>2</sub>O. Similarly zinc concentrate is thickened and then filtered using a ceramic disc filter to produce a nominal moisture level of 7% H<sub>2</sub>O.

The concentrates are transported by road to purchasers smelters situated between 70 kilometres (km) and 190km from the minesite.

There is little automation within the plant. The feed to each mill is controlled by a weightometer mounted on the mill feed conveyor in a loop with the rotary disc feeders mounted at the base of the respective fine ore bin.

Sampling is by hand and a normal suite of samples is taken on a 20 minute basis and combined to provide shift samples for metallurgical accounting and performance recording. Similarly the pulp density of the mill spiral classifiers is monitored and adjusted to maintain a density between 28 to 35% solids w/w.

The concentrator is well laid out with space for both good operation and vision as well as facility for plant maintenance. As a consequence the plant was clean and the housekeeping in all plant sections was good.

#### ***HPG Concentrator***

During the site visit, the plant was being maintained and surface facilities improved in the interim. There was some 400t of ore at the concentrator site and it was intended to resume operations when the ore total reached 1,000t. It is projected that the mill will be fully operational in August 2007 when ore is available on a regular basis.

The processing plant at HPG comprises a crushing plant utilising two stages of jaw crushing in conjunction with a vibrating screen to produce a minus 15mm feed for milling. The crushing plant has a nominal capacity of 25tph. The concentrator nominal capacity is 200tpd although throughput of 250tpd has been achieved.

The unit processes used in the concentrator are typical of polymetallic Pb Zn ores and comprise ball milling conditioning, differential flotation of lead and zinc and dewatering. The target milled product size is 70% passing 200# or 74 microns. There are two milling circuits each comprising a 1.5m diameter by 3.5m long ball milling in closed circuit with a 1.2m diameter spiral classifier. The classifier overflow pulp from the two classifiers is combined and conditioned prior to the first stage of flotation to recover a lead/silver concentrate.

The lead flotation circuit comprises roughing with two stages scavenging to produce a rougher concentrate which is then upgraded in three stages to a nominal grade >60% Pb and 4,000g/t Ag. The lead circuit tailings are conditioned with chemicals to activate sphalerite and lime to depress pyrite before flotation to produce a zinc rougher concentrate which is then upgraded in three counter current stages.

#### ***Luoning Smelter***

Silvercorp Metals Inc. has, through its subsidiary, attained a 22.5% interest in a new smelter to be constructed near the town of Luoning. The capacity of the smelter will be 80,000t of electrolytic lead per annum. The smelter feed stock will comprise owners concentrates and also concentrates purchased from other local producers.

The design feed grade is 55% Pb, 5%Zn, 1.0% Cu and 8.0% Fe with undesirable elements Arsenic and Antimony at 0.30% and 0.25%, respectively. The products from the Smelter will be electrolytic lead, silver bullion, gold bullion and sulphuric acid.

The smelting process to be used is the SKS Process. This process follows the trend in Western smelting such as the Kaldo, Isasmelt, Ausmelt, QSL, and Kivcet processes. These processes replace sintering processing which produces dust and dilute sulphur dioxide gas streams. The SKS process was developed and designed in China by ShuiKouShan Mining Co. Ltd (SKS) and Beijing Central Engineering and Research Institute for Non-ferrous Metallurgical Industries (ENFI) some 20 years ago but has only been commercially developed in the last decade.

The feasibility study viewed was a comprehensive document. The capital costs of the process are claimed to be between 40% and 70% of equivalent Western similar processes and this appears to be the case for the smelter under construction. The feasibility study identifies the capital cost of constructing the smelter, including acid plant and electro-refining sections, at 319,497,100 Yuan RMB. Working capital is estimated to be 137,870,000 Yuan RMB.

### **Licenses and Permits**

The HPG Project operates under two Mining Licences within the Haopinggou Valley. Mining Licence No. 4100000410514 grants approval to mine between the elevations 640mRL and 365mRL, within an area of 0.3878km<sup>2</sup>, and Mining Licence No. 4100000620027 grants approval to mine between the elevations 830mRL and 440mRL, within an area of 0.1453km<sup>2</sup>. Both licences were granted to the Luoning Huatai Mining Development Company Limited by the Henan Land and Resources Bureau, in April 2004 and February 2006 respectively.

During the site visit to the smelter on 17 June 2007, Silvercorp stated that approval to commence construction of the smelter was in progress. No anticipated date for the receiving of approval to commence construction was put forward during this review.

### **Environmental**

Environmental assessments have been conducted and reported directly to Silvercorp by MBS Environmental of Perth. SRK has reviewed MBS's report and identified that while a number of potential environmental issues and liabilities were identified, these can be overcome by appropriate management action. The reader is referred to the MBS report for details.

### **Occupational Health and Safety**

Silvercorp has an established occupational health and safety (OHS) management system with dedicated OHS departments for each site that provided training, enforce policies and procedures, make recommendations and carry out daily inspections.

The following OHS observations made during the site visits have been noted in respect to a comparison with standard international industry work practices. They are not intended and should not be considered as, an assessment of compliance against Chinese National OHS regulatory requirements. The following is a summary of the key OHS observations made during the site visits:

#### **Personal Protective Equipment and Housekeeping**

At the time of the site visits, it was observed that use of personal protective equipment (PPE) such as hard hats, safety boots/glasses and hearing protection was not consistent. For example, workers were observed within active ore handling areas, such as adjacent to mine portals, without any PPE. Silvercorp have since stated (in August 2007) that all workers have now been issued with PPE and that the standards of PPE usage have now been raised.

At the time of the site visits, it was observed that housekeeping within the Ying and HPG processing facilities were of a good standard. However, housekeeping within the Ying and HPG mining operations generally requires improvement. Silvercorp have since stated (in August 2007) that housekeeping at both the Ying and HPG sites has been improved substantially.

### Safety Statistics

Silvercorp has provided two summary tables of safety statistics, for the Ying and HPG projects. The Ying project has, up to June 2007, recorded a total of 13 minor injuries, of which nine occurred 2006 and four in 2007. The table provided for the HPG project covers February to July 2007 and states that no injuries have occurred during this period.

### Social and Community

Records of donations and contributions made by Silvercorp to communities within the Luoning County were provided as part of this review. These comprise a range of cash donations/contributions to local capital projects and community support programs, as well as the undertaking of capital projects such as road construction and school repairs/upgrading. The total amount of social funds expended to date by Silvercorp is 7,495,680 RMB (517,680 RMB in 2005, 1,770,000 RMB in 2006 and 5,208,000 RMB to date in 2007).

Other positive effects to the surrounding local communities are mainly in the form of direct employment of local contractors and the use of local suppliers/service providers where practical.

Silvercorp has a close relationship with the local Luoning County, evidenced by the following:

- The Company consults with the Luoning County on local issues
- The Luoning County is utilised to undertake regular water quality monitoring for the Ying and HPG Projects
- Relations with statutory bodies are also reported to be positive as evidenced by no notices of breach of environmental conditions have been issued to Silvercorp.

### Operating Cost

The operating cost history at the Ying mine in the period of January 2007 to May 2007, recorded an average unit cost per tonne of ore of US\$52.64 for mining, US\$9.70 for milling, US\$3.42 for shipping and US\$3.14 for general administration. The operating costs for March to July 2007 are shown in the following table. Silvercorp has also provided forecast operating costs for future years, as shown in Section 9.1 of this report.

Operating Cost	Mar-07	Apr-07	May-07	Jun-07	Jul-07	Average
Mining Cash Cost (RMB/t mined)	288	266	334	340	318	309.3
Milling Cash Cost (RMB/t milled)	95	65	101	68	78	81.2
Total Administrative expense (RMB/t milled)	41.0	42.6	31.5	55.1	51.8	44.4

### Capital Cost

The recorded capital cost for fixed assets of Henan Found as at 13 May 2007 is as shown in the table below.

<b>Item</b>	<b>RMB Yuan</b>	<b>US\$</b>
Buildings	7,705,337.81	1,013,860.24
Machinery and equipment	8,798,276.80	1,157,668.00
Power equipment	1,078,126.00	141,858.68
Transportation vehicles	3,255,330.85	428,333.01
Tools etc.	249,667.46	32,850.98
Offices	1,235,836.64	162,610.08
Tunnels and other engineering	1,271,782.48	167,339.80
Others	644,082.02	84,747.63
<b>Total</b>	<b>24,238,400.06</b>	<b>3,189,263.18</b>

**Note:** US\$ 1= 7.60 RMB Yuan

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## Disclaimer

The opinions expressed in this report have been based on the information supplied to SRK Consulting (Australasia) Pty Ltd trading as SRK Consulting (“SRK”) by Silvercorp Metals Inc (“Silvercorp”). The opinions in this report are provided in response to a specific request from Silvercorp to do so. SRK has exercised all due care in reviewing the supplied information. Whilst 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.

# 1 Introduction and Scope of Report

Silvercorp commissioned SRK to review the operations at Ying, HPG, NZ and Tuobuka (“the Project”), which are owned and operated by the company through its joint venture companies and wholly owned subsidiaries and to provide an Independent Expert Report.

## 2 Program Objectives and Work Program

### 2.1 Program Objectives

The objectives of the program were to review the data available, participating in a site visit and to provide Silvercorp with both verbal feedback and a written report.

### 2.2 Purpose of the Report

The purpose of the report was to provide potential shareholders and HKSE with an Independent Expert Report suitable for inclusion in documents that Silvercorp plans to submit to HKSE in relation to a proposed listing of the shares of the company on HKSE.

### 2.3 Reporting Standard

This report has been prepared to the standard of and is considered by SRK to be, a Technical Assessment Report under the guidelines of the Valmin Code. The Valmin Code incorporates the JORC Code for the reporting of Mineral Resources and Ore Reserve and is binding upon all AusIMM members. This report has also been produced in accordance with the Standards of Disclosure for Mineral Projects as contained in National Instrument 43-101 of the Ontario Securities Commission (“NI43-101”) and accompanying policies and documents. NI43-101 utilises the definitions and categories of mineral resources and mineral reserves as set out in the Canadian Institute of Mining, Metallurgy and Petroleum (“CIM”) Standards on Mineral Resources and Mineral Reserves Definitions and Guidelines (“CIM Code”).

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.

### 2.4 Work Program

The work program consisted of a review of data provided by the company, travel to the Henan and Yunnan Provinces, inspection of the mine, concentrator and smelter site in Luoning County, inspection of the exploration projects of NZ in Nanzhao County, Henan, and Tuobuka project in Yunnan, and review of documents provided. After discussions with staff of the company, SRK analysed the data provided and prepared this report, which was provided to the company as a draft for review of factual content.

## 2.5 Project Team

The SRK project team and their duties are shown in Table 2-1 below.

**Table 2-1: SRK Consultants, Title and Responsibility**

Consultant	Title and Responsibility
Dr Anson Xu	Principal Consultant, Geology and resources, Team Leader, Logistics and reporting, coordinator, translator
Richard Kosacz	Principal Geologist, Geology and resources
Zhaojun Wang	Senior Geologist, Geology and exploration
Dwight Crossland	Principal Consultant, Mining and operation cost
Kevin Holley	Principal Consultant, Geotechnical
Keith Leather	Associated Metallurgist, Ore Processing, Metallurgy, and Smelter
Peter Smith	Social, Occupational Health and Safety and Approvals
Technical Translators	SRK employed several translators with university degrees in the relevant technical area required
Mike Warren	Project Manager, Quality Control
Peter Williams	Peer Review

**Dr Anson Xu, BSc (Geology), PhD (Geology), MAusIMM**, is a Principal Geologist with SRK China who has over fifteen years international experience in geological exploration and economic geology, including site investigations, study and exploration for various types of mineral deposits, such as Au-Ag, Cu-Ni, Cu-Au, W-Sn, Rare Earth Elements and diamonds. Dr Xu has experience at designing and supervising geological, geochemical and geophysical programs in different types of properties from green field, brown field to advanced exploration. He is also experienced in mineral resource and reserves estimation and economic assessment. Dr. Xu participated in and has been responsible for several independent technical reports for HKSE IPO, listing and transactions, and is a JORC Code competent person or NI43-101 Code qualified person.

**Richard Kosacz M.Sc.Eng., MAusIMM**, is a Principal Geologist with SRK China who possesses thirty years of geological experience which includes mine geological services, scientific researches and international geological consulting of different mineral deposits for planning, managing and conducting of regional as well target-scale mineral exploration from the grass-root stadium to the definition drillings. His portfolio of geological researches and services includes precious (Au-Ag, Pt-Pd), base (Cu, Zn, Pb) as well as other nonferrous metal deposits in different geological environments, many of them in East and North Africa. He also has extensive experience in the field of management of field data (geological and geochemical) as well high level skills of their interpretation and geological modelling. Mr. Kosacz is a JORC Code competent person or NI43-101 Code qualified person.

**Zhaojun Wang, B.S.**, is a Senior Geologist from SRK Beijing office. He graduated from China University of Geosciences, and worked in the 6<sup>th</sup> Geological Team of Shandong Province for more than 15 years. Mr Wang was involved in the geological survey for the Cangshan Gold Mine in Lanzhou Shandong province, and the large Scale Dayigezhuang Gold Mine in Zhaoyuan Shandong Province. From 2000 to 2005, Mr Wang worked as the Director of the Geological Resource Company of the 6<sup>th</sup> Geological Team, and was responsible for several exploration and production projects both in China and abroad. Zhaojun recently worked on several gold, tin, lead-zinc exploration projects, due diligent and IPO projects.

**Dwight Crossland, BSc., MinENGR**, is a mining engineer with more than 30 years of varied experience in mine management, operations, and engineering. He has worked in numerous open-pit and underground mines, as well as mineral processing, and exploration. The commodities included primarily gold, silver, uranium, lead/zinc/silver, & iron. He has experience in the U.S., P.R. China, and northern Europe, and has an extensive background in computer applications for mining. He is responsible for mining section. Mr. Crossland is responsible for the review and reporting on mining.

**Kevin Holley FAusIMM, MIEAust, CPEng** is a *Principal Geotechnical Engineer* from Brisbane office of SRK Australia with more than 23 years of international experience in geotechnical and geological engineering. Specific recent project geotechnical experience that is relevant to this assignment includes Tanjianshan Gold Mine in north west China, Liba/Jinshan gold deposit in Gansu Province, and Boka Gold mine in Yunnan Province. His experience includes site investigations and geotechnical designs for open pit mines, tailings facilities, high and low rise structures, artificial islands and seawalls, fill embankment and embankment dams, landfills, industrial complexes, tunnels, railways, pipeline and road route alignments, slope and bridge abutments. Mr. Holley is responsible for geotechnical review and assessment.

**Keith Leather, B Met., Associate Metallurgist, FAusIMM**, is a *metallurgist* with over 35 years experience in industry. Keith has held senior management positions with such engineering companies as Kvaerner, Bateman and Signet Engineering. Keith has held positions in both operational plants and mineral process plant design. He has comprehensive experience in flotation, heavy media, hydrometallurgical and pyrometallurgical technologies and their application in metals and industrial mineral recovery. Mr. Leather is responsible for the review and reporting on the ore processing and smelter.

**Peter Smith, Principal Environmental Consultant, B Sc (Environmental Science)**, is an environmental scientist with over 15 years experience in environmental management for the mining and resource industries. This experience has been gained mainly from within Australia and China, with Peter also having undertaken environmental due diligence reviews for projects in Mongolia, Uruguay and Serbia. Peter has been involved in all aspects associated with exploration, mining and processing and has particular expertise in Environmental due diligence reviews; Environmental impact assessment, approvals and risk assessment; Development and implementation of environmental management plans; Environmental management system development and implementation; Site decommissioning, closure and rehabilitation planning, design and implementation; Environmental monitoring, reporting and auditing; Workforce training; and Social assessments and community consultation. Mr. Smith is responsible for the review and reporting on social effects and occupational health and safety.

**Mike Warren, BSc (Mining Eng), MBA, MAusIMM, FAICD**, has over 25 years mining industry experience, including on-site and head office roles and 5 years in investment banking for mining projects. Mike has worked in underground metal mines, open cut uranium mines and open cut coal mines, as well as provided technical skills to underground and open cut copper/gold mines, underground coal mines and open cut gold mines. Mike has a strong technical background, to which he has added financial modelling and evaluation skills. Mike has good presentation and report writing skills, has excellent IT skills and team leadership capabilities. Mike heads up SRK Australasia's project valuation team and has recently managed teams and edited reports for stock exchanges in London, Johannesburg, Toronto, Hong Kong and New York. He has a good understanding of the requirements of the Valmin Code and the JORC Code, National Instrument 43-101 for the Toronto Stock Exchange and the USA Securities Exchange Commission (SEC). Mike has managed teams for several IPOs of Chinese mining companies on the Hong Kong Stock Exchange (Lingbao Gold, Fujian Zijin Gold and Aluminium Corporation of China - Chalco), as well as provided due diligence for potential purchases in China. He regularly manages and participates in due diligence teams for mining companies in Australia and for international and Australian project finance banks. Mike is also Chairman of the Board of Directors of SRK Australasia. Mr Warren is responsible for the peer review for this project to ensure the quality of the reports.

## 2.6 Representation

Silvercorp has represented to SRK that full disclosure has been made of all material information and that, to the best of its knowledge and understanding, such information is complete, accurate and true. SRK has no reason to doubt this representation.

## 2.7 Statement of SRK Independence

Neither SRK nor any of the authors of this Report have 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.

In 2006 SRK completed a report in the NI43-101 format on Silvercorp's HPG project that is one of the subjects of this Report. However, SRK has no beneficial interest in the outcome of the technical assessment being capable of affecting its independence.

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

## 2.8 SRK Experience

The SRK group employs approximately 660 professionals internationally and has 33 permanently staffed offices on six continents. In Australia SRK has approximately 90 staff in five offices located at Perth, Sydney, Maitland, Melbourne and Brisbane. SRK China has an office in Beijing with fourteen staff. SRK has provided Independent Expert Reports for the companies and The Stock Exchange of Hong Kong Limited as shown in Table 2-2.

**Table 2-2: Recent Reports to HKSE by SRK**

Company	Year	Nature of Transaction
Yanzhou Coal Limited	2000	Sale of Jining III coal mine by parent company to the listed operating company
Chalco (Aluminium Corporation of China)	2001	Listing on HKSE and New York Stock Exchange
Fujian Zijin Gold Mining Company	2004	Listing on HKSE
Lingbao Gold Limited	2005	Listing on HKSE
Yue Da Holdings Limited	2006	Acquisition of shareholding in mining projects
China Coal Energy Company Limited	2006	Listing on HKSE
Sino Gold Mining Limited	2007	Dual Listing on HKSE (existing listing on ASX)

## 2.9 Forward-Looking Statements

Estimates of mineral resources, ore reserves and mine and processing plant production are inherently forward-looking statements, which being projections of future performance will necessarily differ from the actual performance. The errors in such projections result from the inherent uncertainties in the interpretation of geologic data, in variations in the execution of mining and processing plans, in 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 the forward-looking statements are addressed in more detail in the appropriate sections of this report. Also provided in the report are comments on the areas of concern inherent in the different areas of the mining and processing operations.

### 3 Location of the Projects

#### 3.1 Location and Access

The projects inspected by SRK include the Ying and HPG projects in Luoning County, and the NZ project in Nanzhao County, Henan Province, and the Tuobuka project, Yunnan Province, China. A general map of China showing Silvercorp’s projects is provided in Figure 3-1. A more detailed location map for projects in Henan Province is provided in Figure 3-2. The Ying and HPG projects are located at latitude 34°07” to 34°12”N and longitude 111°14” to 111°22”E. Figure 3-3 shows the location of Tuobuka project.

Access to the region of Ying and HPG projects is excellent. Daily flights to Luoyang are provided from a number of cities in China. Vehicular access to the area is via a freeway from Luoyang airport to Yiyang, then about 80km of highway to Luoning County town and about 50km of paved road to Xiayu Township where the Ying ore processing plant is located. It is a 3 hour journey from Luoyang airport to Xiayu. There is a 15km gravel road to HPG Mine from Xiayu, and a further 15km to Ying Mine. It will take 1.5 hours from Xiayu to Ying Mine. The Guxian ore processing plant which processes ores from HPG Mine is located north of the Guxian Reservoir. Ying Mine, HPG Mine and Guxian Plant can also be accessed by boats via Guxian Reservoir. Figure 3-4 shows the general accesses to the mines and plants.

Access to the NZ project is also excellent. There are daily flights to Nanyang from different Chinese cities. Nanzhao County town is about 75km north of Nanyang with paved highway connecting them. NZ project area access is by about 20 to 25km paved road northwest of Nanzhao County town, and then a few kilometres of gravel road to the working area.

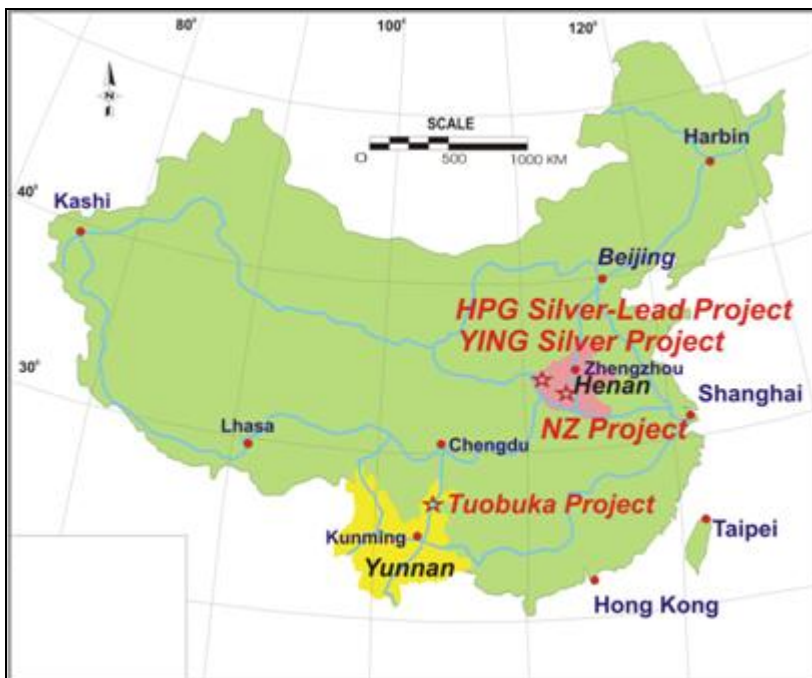


Figure 3-1: Location Map of Silvercorp’s Projects in China

Access to Tuobuka project includes 150km of freeway and national highway from Kunming to Dongchuan District, followed by about 110km of county level highway to Tuobuka Township, and then 10 to 20km of gravel road to the project area (Figure 3-3).

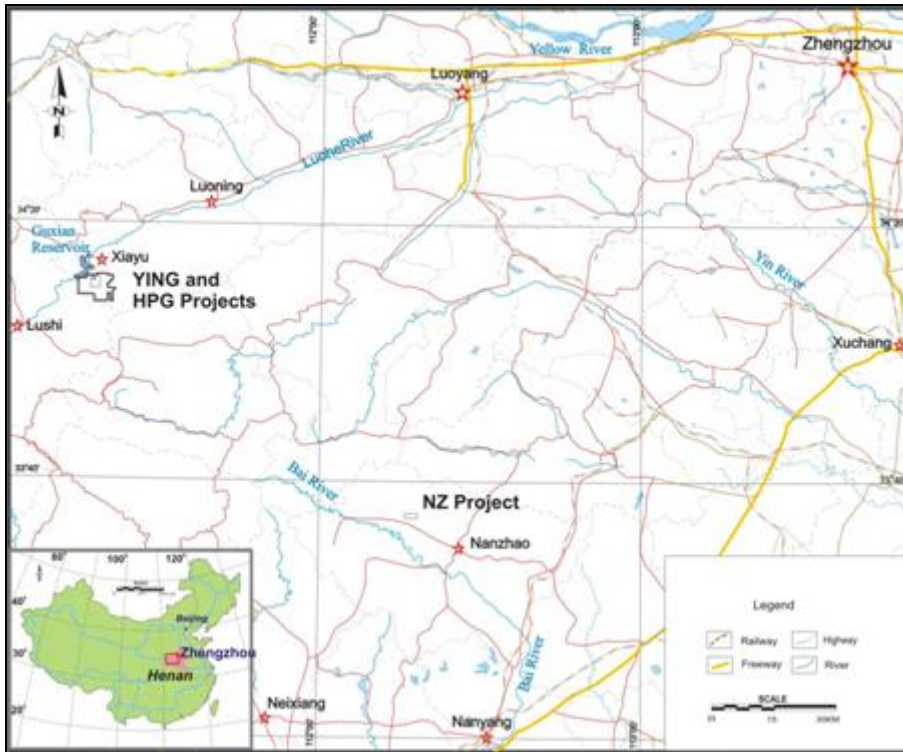


Figure 3-2: Location of Ying, HPG and NZ Projects in Henan Province, China



Figure 3-3: Location of Tuobuka Project in Yunnan Province, China

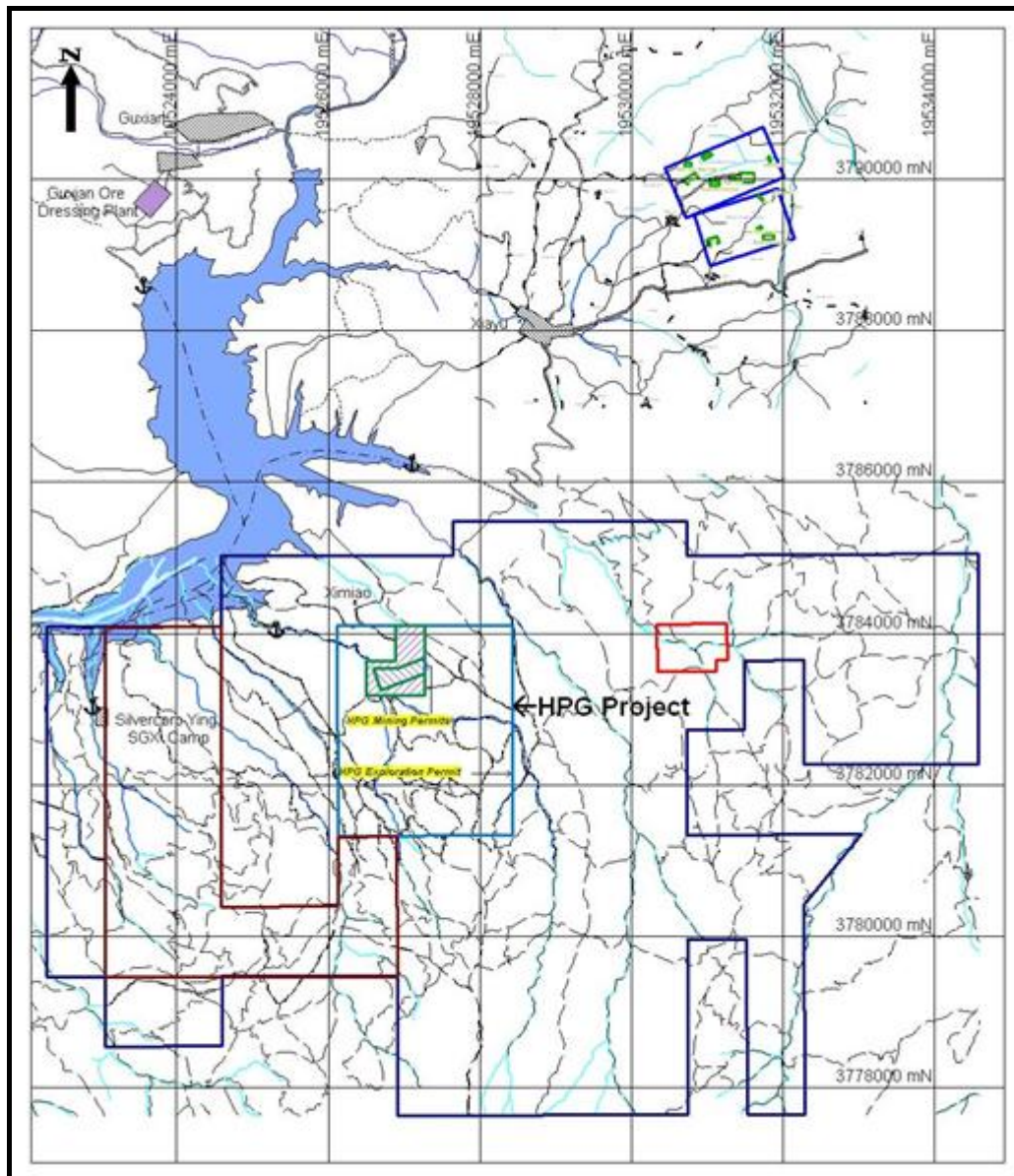


Figure 3-4: Index Map of Ying and HPG projects



## 4 Geological and Mineral Inventory Assessment

Silvercorp owns the interests in several mineral projects in China through its wholly owned subsidiaries and joint venture companies with Chinese partners. The geological and mineral inventory assessed in the report includes mining licenses and exploration permits of the Ying, HPG and NZ projects in Henan province, and the Tuobuka exploration permit in Yunnan province, China. Details about the licenses and permits is provided in Section 11. This review and assessment is based on the previous technical reports on Ying and HPG projects, Silvercorp's internal report on Tuobuka project, and Chinese geological report on NZ project, as well as the observation made and interviews conducted during the site visit, and the data provided by Silvercorp.

### 4.1 Ying Ag-Pb-Zn Project

#### 4.1.1 History of Exploration

The region of western Henan province has been an area of known mineralisation since ancient time. Polymetallic deposits and mineral occurrences have been mined at small artisanal scale during the last several hundred years. The most recent mining and exploration activities started from 1956 and were conducted more or less continuously by different geological teams, mostly by Geological Brigades of Henan Bureau of Geology and Mineral Resources. As a result of these works regional geology, geochemistry and geophysics of the province were mapped and well documented. Numerous mineral deposits and occurrences were discovered and investigated in details. In the late 1980s, the ore bearing veins were discovered in the HPG area which launched an aggressive exploration program including detailed mapping, geochemical and geophysical surveys, diamond drilling programs and extensive tunnelling. Mining is currently conducted at Ying and HPG Camps, the main exploration programs including diamond drillings and tunnelling are focused in HZG area of Ying project. The mining and exploration activities are very well documented by mining, geological and survey offices at both camps. Independent consultants are visiting the property on a regular basis and appropriate reports meeting NI43-101 or/and JORC Code standards are issued.

The geological part of this report relies upon information reported by the Qualified Person as well as mine site historical and present documents partially verified by SRK personnel during the site visit on both the mining and exploration Ying and HPG camps.

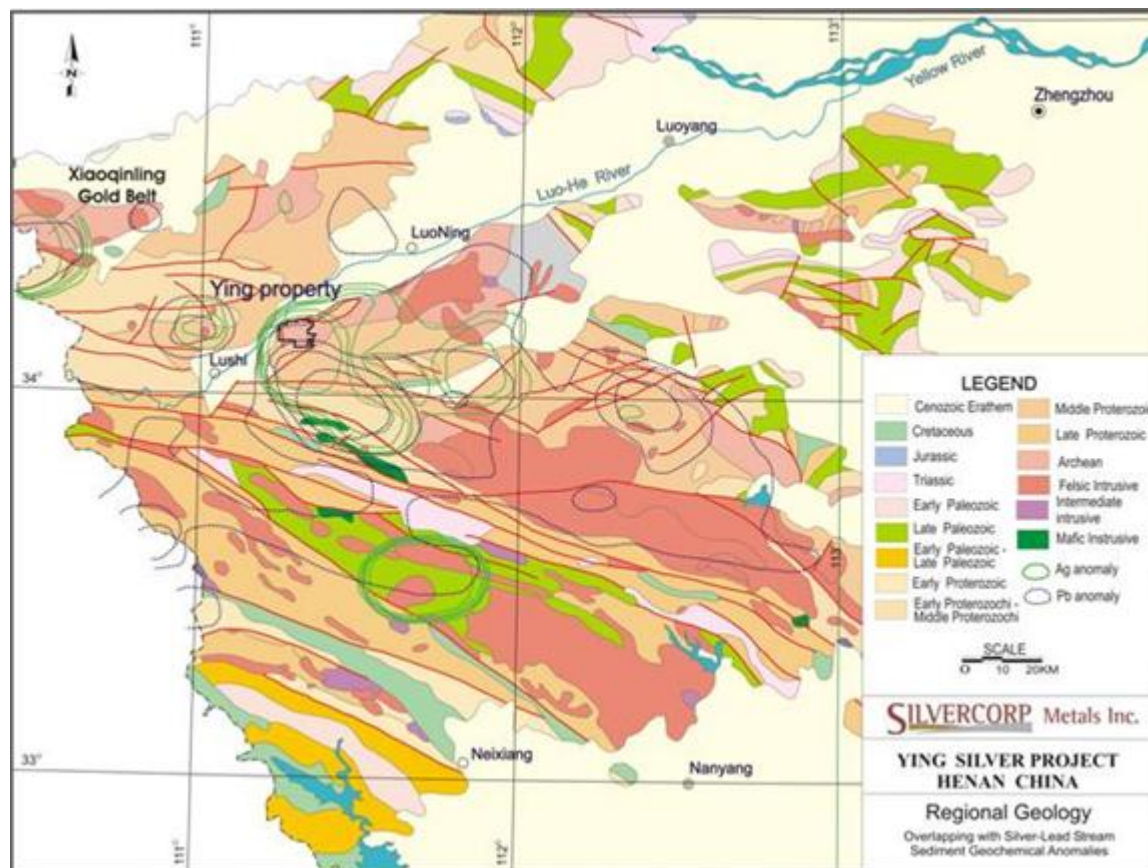
#### 4.1.2 Regional Geology

The Ying property area is located at the junction of Qinling Orogenic Belt and the southern margin of the North China Precambrian Tectonic Plate specifically at the western end of Huasha-Longbo anticline. This plate margin and Qinling Orogenic belt is a west-northwest orientated zone where the Yangtze Plate borders the North China Tectonic Plate. This zone hosts many mineral occurrences and polymetallic deposits along an area which extends more than 300km. Several operating Ag-Pb-Zn mines and numerous advanced exploration prospects are situated mostly along shear structures striking either to northwest or northeast. Figure 4-1 is the regional geological map of the project.

The North China Plate geotectonic units consist of rocks of different ages and can be distinguished as follows:

**The Upper Archean Taihua Formation** which occurs in the western part of the region and is represented by felsic and mafic gneisses with minor amphibolite sequences which are cut by gabbro intrusions and diabase dikes.

**The Lower Proterozoic System** is represented by metamorphic rocks which include gneisses, migmatites along with plagioclase amphibolites and granulites. The total thickness of these units is estimated at more than 4,000m and they occupy a central part of Qinling Orogenic Belt. These series generally strike north-easterly and dip at various angles from 21° to 50° to the northwest or southeast. The lower parts of these units host silver (gold), polymetallic deposits and mineral occurrences.



**Figure 4-1: Regional Geology and Sediment Geochemistry of N-W Henan Province**

**The Middle Proterozoic System** consists of the series of basic to acid volcanic rocks intercalated with pyroclastics and sedimentary clastic and carbonate series. Volcanic rocks are dominated by andesite and their pyroclastics equivalents. In the southern sections of the belt the series strikes to the north-east (50° to 80°) and dips from 23° to 44° to the southeast. However in the northern section the units strike vary from 310° to 50° and they dip to north-east or north-west at varying angles from 35° to 67°.

**The Paleozoic-age Erlangping Formation** is represented by two assemblages, a thin-bedded sedimentary sequence overlain by mafic volcanic layers.

**The Mesozoic** consists of marine series which include marls and carbonaceous argillites. The **Tertiary** is represented by clastic sediments including sandstones and conglomerates which overlie Proterozoic series. The youngest **Quaternary** rocks consist of loess blankets, sandy earth and clays.

The structures of the Qinling Orogenic Belt and the southern margin of the North China Plate are characterized by west-northwest trending folds and faults. The majority of these folds and faults originated during the Paleozoic era as a result of the collision of the North China Plate with the Yangtze Plate.

These faults are thrusts or transpressional thrusts with an insignificant component of strike slip movement (consistent with the folding). The thrusts are in both directions with sequences to the north and south thrust over each other. The thrusts are brittle to brittle/ductile with very little ductile component. Associated with the west-northwest trending structural belt is a set of conjugate shear structures that trend either northeast or northwest. These joint system structures display brittle features such as fault gouge, breccia and well-defined slickensides. The conjugate fault zones host all known deposits and mineralisation zones. The typical north-northeast trending fault zones in the project areas are: Heigou-Luan-Weimosi deeply seated fault zone, Waxuezi-Qiaoduan fault zone, and Zhuyangguan-Xiaguan fault zone.

The majority of the intrusive rocks are of Proterozoic and Mesozoic-age mafic to felsic dikes and stocks with uncommon Archean intrusions consisting of mafic and ultramafic dikes and sills. The biggest plutonic body is called the Huashan Granite of Mesozoic age located approximately 40km to the east from the Ying property.

The Archean-age Taihua Formation has undergone regional metamorphic transformations under amphibolite facies and locally to granulite facies. Proterozoic-age Xionger Formation and Paleozoic-age Erlangping Formation are metamorphosed to lower greenschists facies and locally to lower amphibolite facies. Younger rocks are not metamorphosed.

### 4.1.3 Property Geology

The Ying Silver property consists of consolidated mining and exploration areas namely: SGX Mining License in the western and north western part of the property, and HZG Exploration area located at the south-western corner.

Both areas have similar geological setting. The basement is composed of Archean-age mafic and felsic gneisses (Figure 4-2). Protoliths of these rocks were intermediate-to-mafic and intermediate-to-acid volcanic and sedimentary rocks, which have undergone amphibolite facies metamorphism. The stratigraphy consists of a series of mafic gneisses up to one kilometre thick, in places cut by gabbroic dikes and sills of north to north-easterly strike and dipping 30° to 60° toward the south east. The mafic (biotitic) gneisses are overlain by a much thicker unit of thin-bedded quartz-feldspar-mica gneisses. These gneiss units are bounded at the north and west by Proterozoic andesitic rocks which were metamorphosed to greenstone facies. The contact is a high-angle “detachment” fault-shear zone dipping greater than 70°. Greenstones series have been folded and dip steeply toward the northeast and southwest.

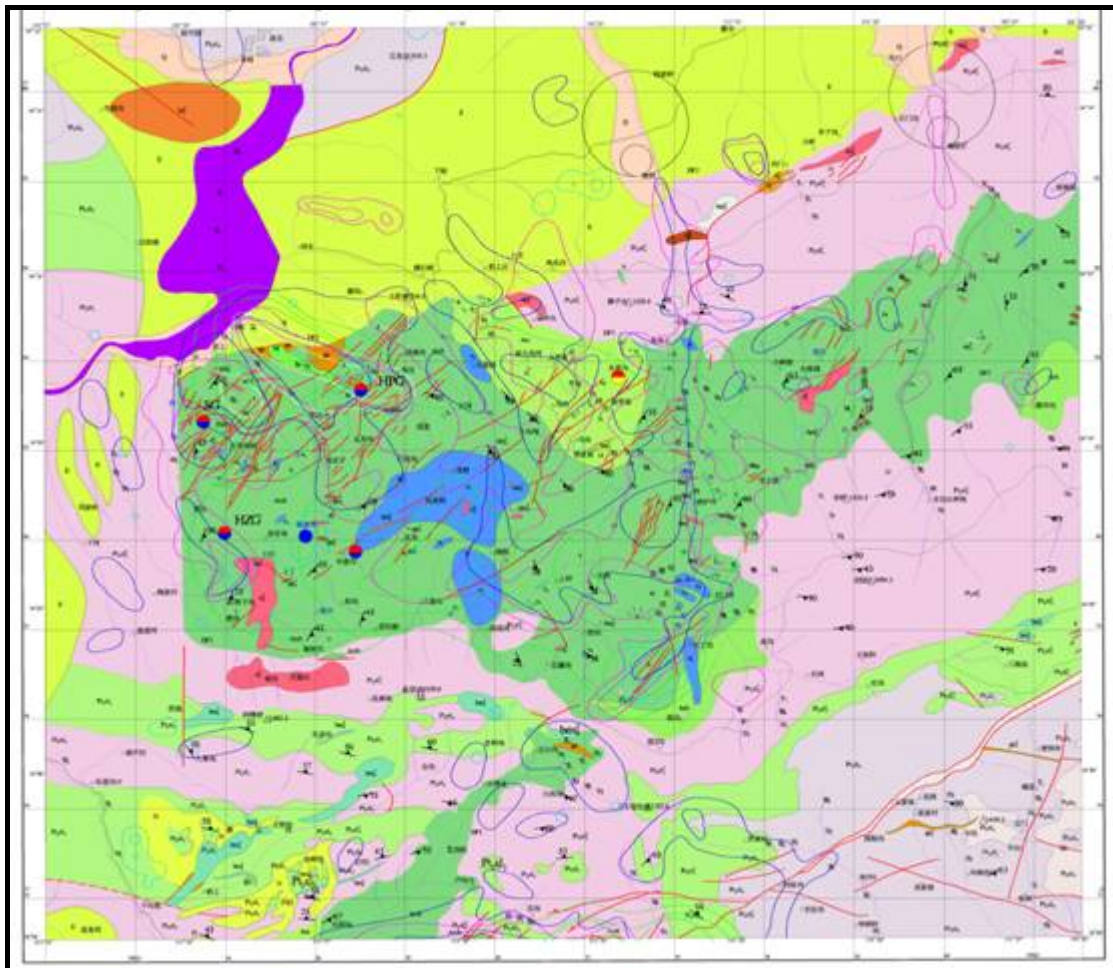
The gneisses are cut by the north-easterly trending high-angle and mostly west-dipping faults that are commonly sealed with younger diabase and porphyritic basalt dikes which occur as a dike swarm. The gneisses are commonly very tightly folded. Several Proterozoic and Palaeozoic small granite porphyry stocks were emplaced into this sequence.

The Ying Ag-Pb-Zn deposit can be classified as a mesothermal quartz-carbonate vein system. The best-known deposit of this type is represented by the Coeur d’Alene silver district in northern Idaho, USA. Mesothermal deposits commonly exhibit a strong structural control and occur in brittle deformation zone and brecciated rock units. Mineralization occurs in altered country rock parallel to anticlinal axes and faults.

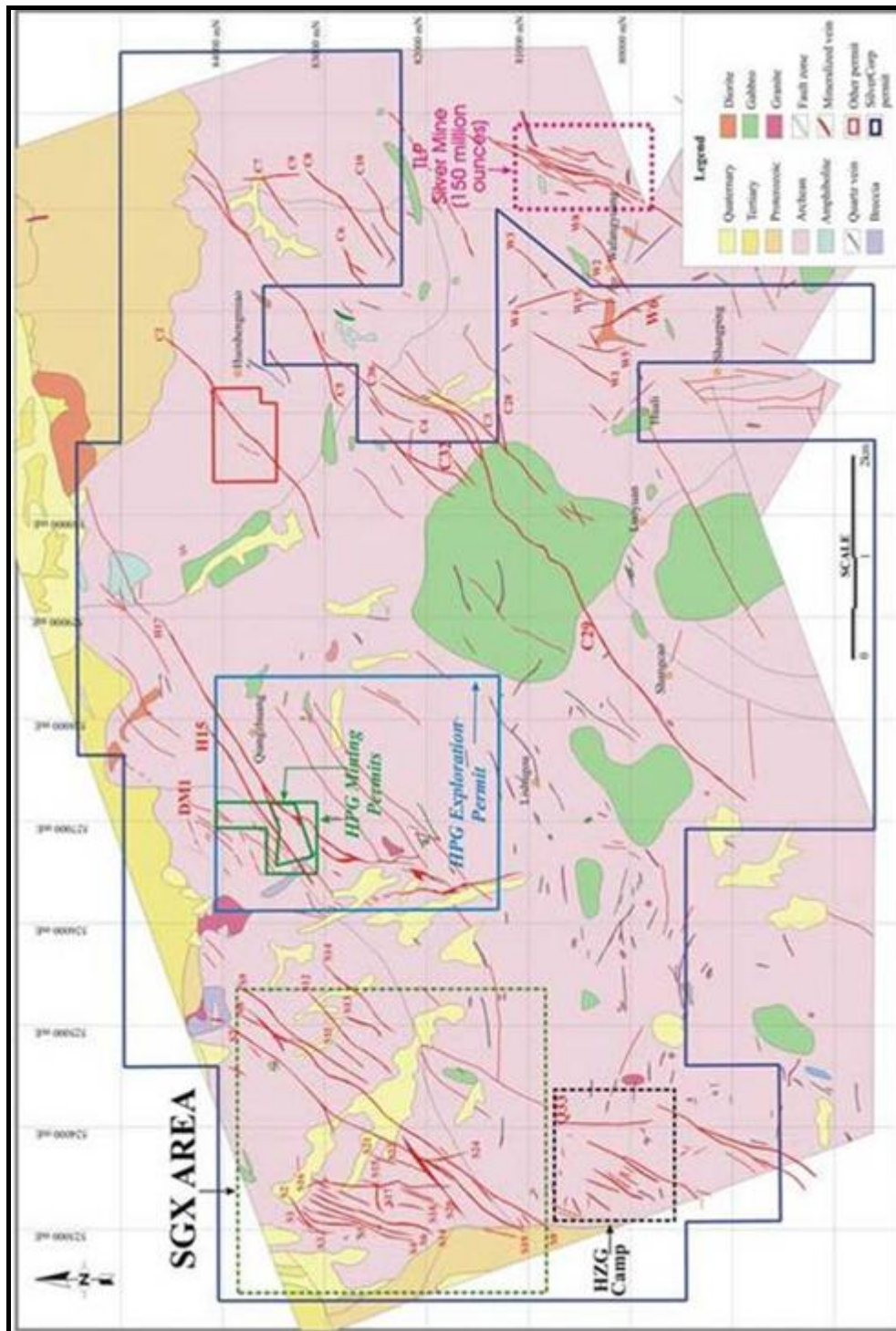
The most common metal products in mesothermal veins are lead, zinc, silver, copper and gold with gangue minerals commonly consisting of quartz, pyrite and carbonate. Alteration products include quartz, calcite, chlorite and sericite.

Mesothermal deposits commonly display cruciform textures (mineral banding) within the veins. The Ying silver-lead-zinc deposit exhibits the following characteristics:

- Ore bodies consist of structurally controlled quartz veins bearing ore minerals that usually occur within alteration halos which may envelope them.
- Quartz veins are usually in sharp contact with the host rocks, occasionally swarms of veinlets as stockwork in selvages can be observed.
- In general the silver-lead mineralisation occurs as bonanza lodes along quartz veins formed as fault infilling. The lodes are up to 450m in extent and up to 350m in depth. The majority of ore shoots reach 70 to 100m of extent and 150 to 200m in depth.
- Deposits occur as irregular veins which pinch and swell
- In addition to silver and lead the deposits also contain zinc and copper, and rarely enrichments in gold. Independent veins are also present which contain gold mineralisation associate with pyrite.



**Figure 4-2: Geological Map and Metal Anomalies on Shagouxi Mine District**



**Figure 4-3: Ying (SGX-HZP)-HGP Mining- Exploration Concessions and Geology**

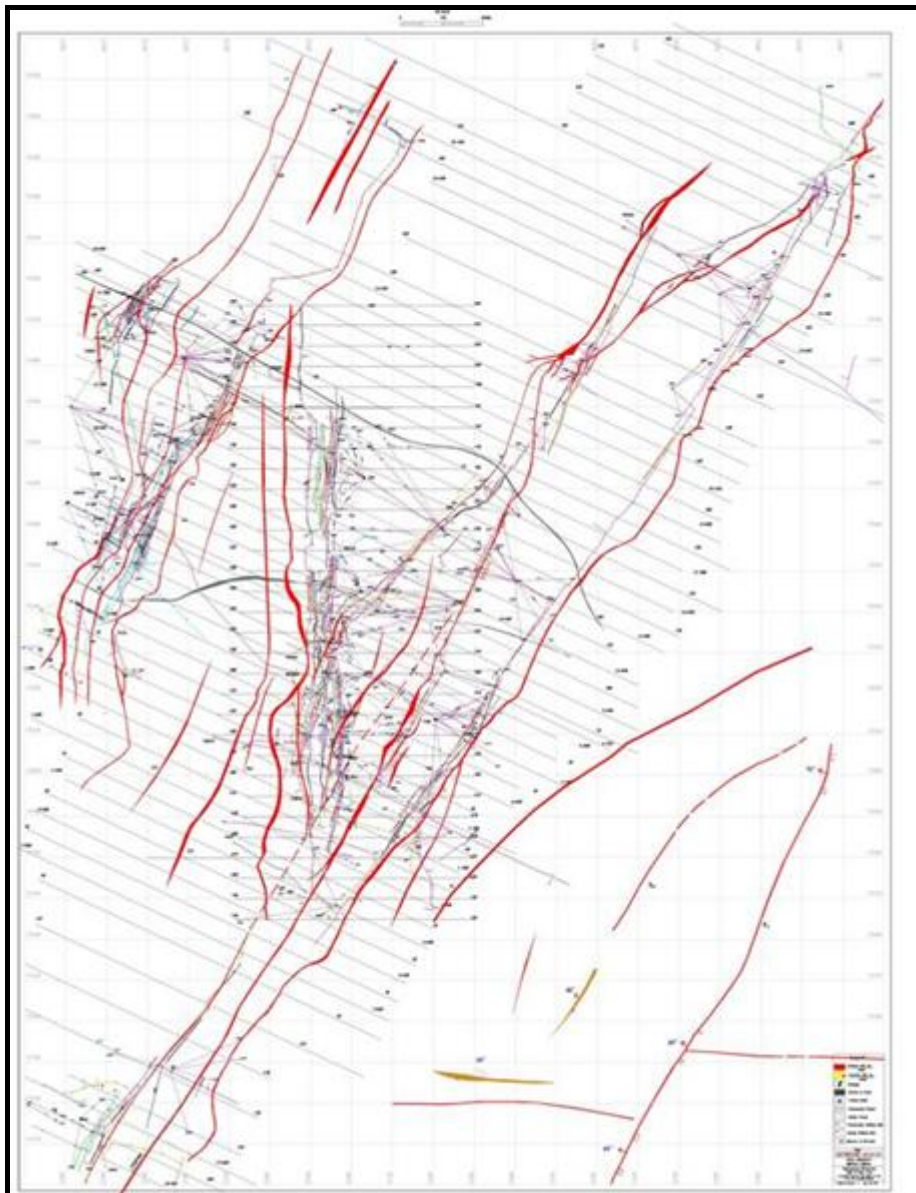
Of a total of twenty eight veins discovered and investigated at SGX, which is the western part of Ying property (Figure 4-3, Figure 4-4 and Figure 4-5), only fourteen host economically viable ore bodies. In the southern part, i.e. the HZG area, there are twenty two known veins (Figure 4-6 and Figure 4-7), of which six have potential for economic ore concentration but at present only two have been investigated in detail, using exploration tunnelling and diamond drilling. Table 4-1 and Table 4-2 summarize the details of the parameters of these veins and ore bodies within the SGX and HZG areas.

**Table 4-1: Detailed Parameters of the Veins and Ore Bodies in SGX Mine Area**

Vein ID	Length (m)	Ore body ID	Ore Body Parameters			Dip Azimuth and Dip Angle	Average Grade			Controlled Elevation (m)
			Length (m)	Width (m)	Depth (m)		Pb (%)	Zn (%)	Ag (g/t)	
S2	1100	2-I	116	0.43	250	265-315° /60-90°	28.96	10.14	1676.1	560-380
		2-II	208	0.25	416	285-310° /75-85°	27.35	9.68	1861.71	533-188
S2E	400	2E-I	182	0.55	327	285-310° /70-85°	25.14	6.95	1845.02	560-256
S4	603	4-I	132	0.32	117	265-310° /45-80°	30.25	9.88	1391.53	516-402
S6	1832	6-I	413	0.36	437	285-310° /60-80°	21.26	10.33	1225.68	610-170
S7	3000	7-I	223	0.36	212	285-310° /75-84°	18.92	11.43	841.76	638-426
S7-1	1982	7-1-I	221	0.27	310	275-310° /75-84°	15.95	13.67	857.63	644-353
		7-1-II	179	0.38	369	280-310° /75-84°	15.07	12.54	677.58	699-332
S8	3000	8-I	191	0.59	119	298-325° /65-85°	20.32	6.37	2300.05	631-514
		8-II	43	0.73	184	285-325° /70-85°	13.54	5.13	1415.63	677-493
		8-III	27	0.51	169	290-320° /65-80°	37.4	3.25	250.15	585-393
		8-IV	52	0.24	292	290-325° /70-80°	26.11	1.93	210.28	585-387
S14	1300	14-I	103	0.28	543	282-320° /57-90°	46.48	1.7	2025.34	550-6
		14-II	177	0.29	115	286-310° /60-85°	41.78	3.66	1869.1	570-466
		14-III	55	0.31	40	286-310° /60-85°	33.78	5.66	1315.44	590-550
		14-IV	198	0.47	390	290-325° /70-80°	42.05	4.57	1750.49	570-195
		14-V	181	0.31	232	290-325° /70-80°	27.4	1.93	1911.5	550-281
S16E	900	16E-I	449	0.57	269	65-105° /70-85°	14.33	10.52	1223.38	660-375
		16E-II	53	0.17		75-100° /60-80°	9.91	20.87	1248.04	570-403
S16W	1400	16W-I	261	0.6	373	60-100° /60-80°	27.92	12.9	975.15	650-318
		16W-II	180	0.6	627	75-86° /60-80°	20.42	7.89	989.48	670-45.8
		16W-III	275	0.32	238	75-86° /60-80°	15.88	9.87	849.97	670-500
S16W1	1300	16W1-IV	164	0.71	344	295-330° /60-75°	19.15	8.12	1251.54	680-340
S21	963	21-I	119	0.68	468	295-340° /65-75°	19.66	6.27	1423.89	720-256
		21-II	43	0.28	165	295-300° /60-85°	16.66	10.73	1184.89	620-450
		21-III	125	0.57	113	295-300° /60-85°	7.08	11.55	462.62	620-470

**Table 4-2: Detailed Parameters of the Veins and Ore Bodies in HZG Exploration Area**

Vein ID	Length (m)	Orebody ID	Ore Body Parameter			Dip and dip angle	Average Grade				Elevation (m)
			Length (m)	Width (m)	Depth (m)		Pb (%)	Zn (%)	Ag (g/t)	Cu (%)	
HZ10	300	I	88	0.61	40	85-105°/ 60-80°	3.44	0.63	698.88		750
HZ20	1820	II	50	0.74	150	80-100°/ 57-90°	1.25	0.49	1576.6	2.009	446
		III	100	1.2	140	85-110°/ 60-85°	0.095	0.5	596	2.59	448

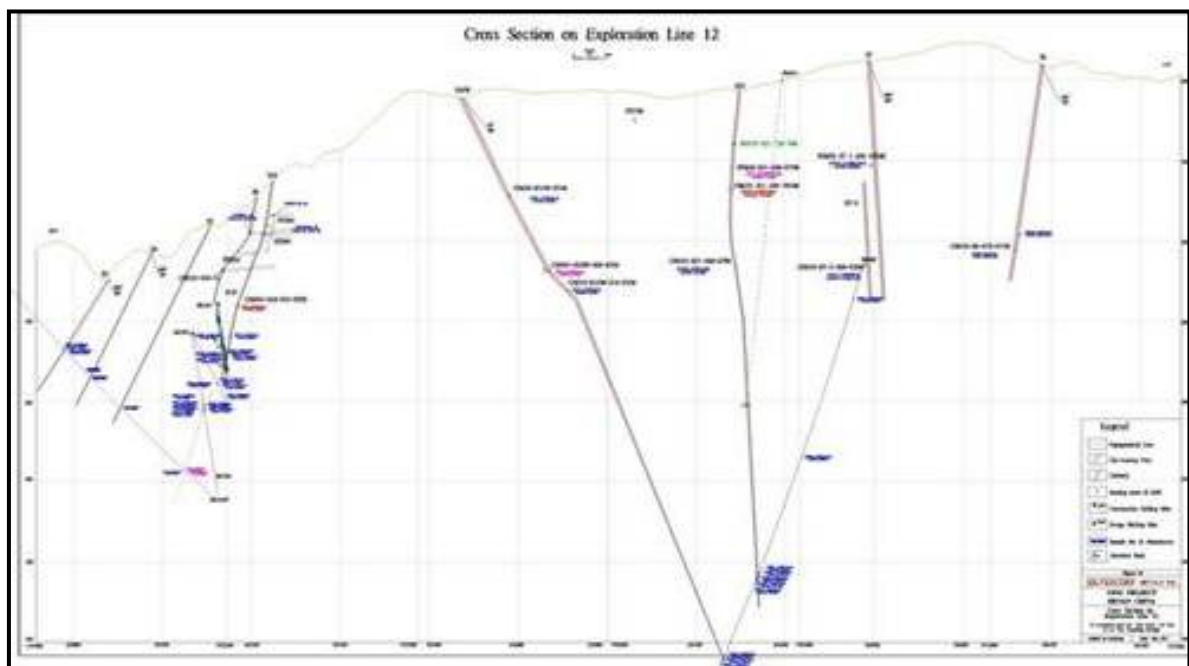


**Figure 4-4: SGX Mine Area – Map of Vein Distribution and Underground Workings and Drilling**

The main type of mineralisation present in Ying deposits are represented by silver-lead-zinc rich quartz-carbonate veins hosted in Archean gneisses and Proterozoic greenstones. High grade mineralised veins occur as pinch-and-swell tabular veins usually consistent in strike and dip over a long strike extent. This elongate tabular shape of the veins is caused by flexures of the fault plane enabling portions of the fault to widen (“swell”) or narrow (“pinch”) with movement along the fault. The sections between these high-grade widened pockets occur as narrow shear zones often with anomalous silver and basic metals values.

In the western part of the Ying Project (SGX Area) twenty eight (28) quartz-carbonate veins with Ag-Pb-Zn mineralisation have been identified, explored and, in many places, mined. On the surface they appear as north or northeasterly striking quartz-carbonate veins up to three kilometers long. In some sections these veins can be replaced by altered gneiss and small quartz-carbonate veinlets along selvages. The detailed mapping and sampling of these structures revealed that only 30 to 50% is mineralised with the ore mineralized areas showing only weaker or stronger degree of alteration. It is not clear if this is a result of zonation of the primary mineralisation or caused by movement of metal from the near surface down to the secondary enrichment zones. The quartz veins are exposed mainly on the ridges and higher parts of the hill slopes. They are less evident in the deep canyon like valleys.

Irregular pinch-and-swell features of the veins can be observed along underground workings. Mined stopes vary from 30 to 60m in both vertical and horizontal dimensions with thicknesses ranging from 1 to 3m. Between the lodes the veins varying in width from several to several ten centimeters and can be followed along drifts and exploration tunnels. These veins usually show a high concentration of ore minerals.



**Figure 4-5: SGX Mine Area- Typical Exploration Cross-section**

A geological map of the HZG exploration project is shown in Figure 4-6 and a long section of the vein HZ-20 exploration project is shown in Figure 4-7.



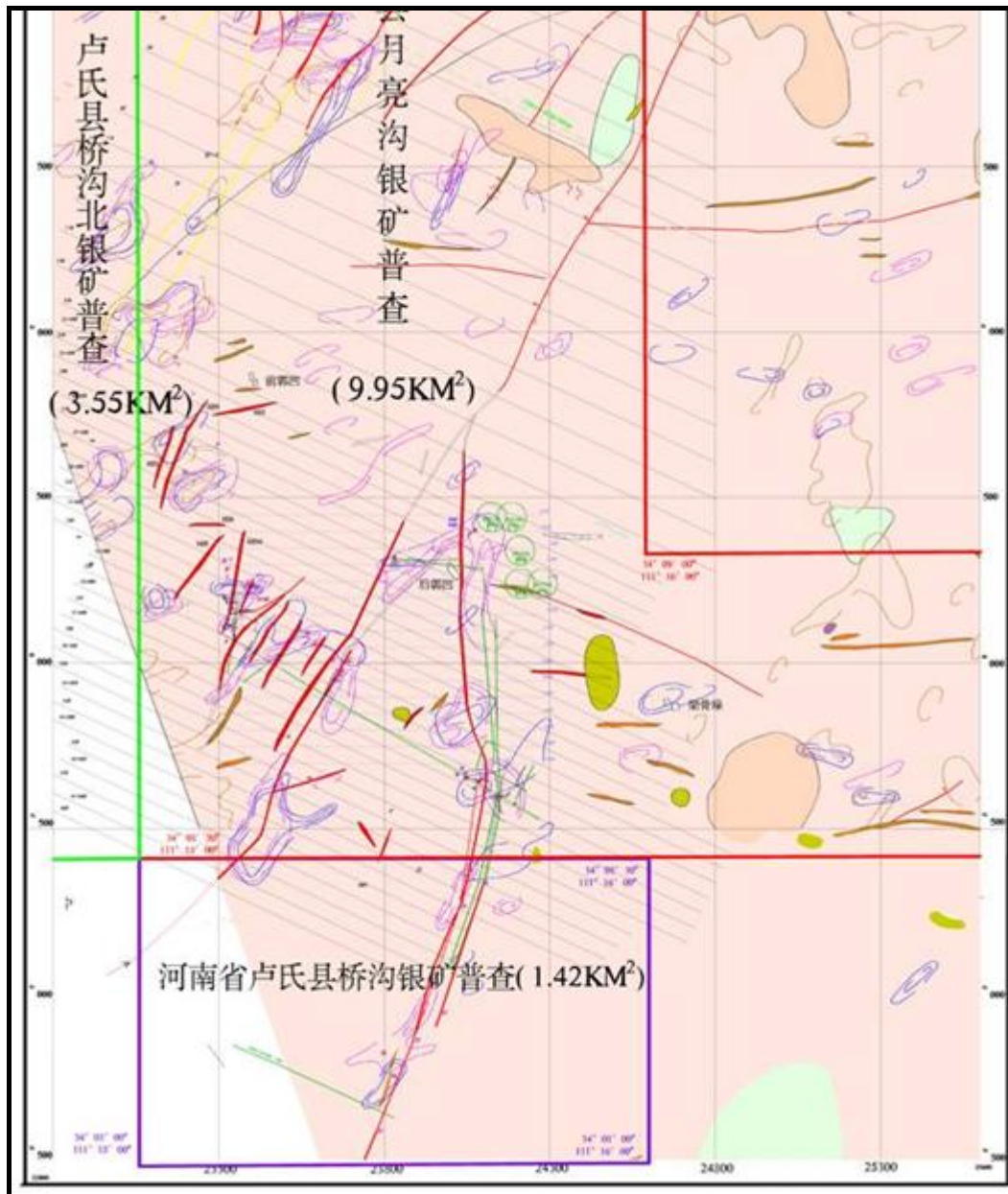


Figure 4-6: Geological map of HZG Exploration Project

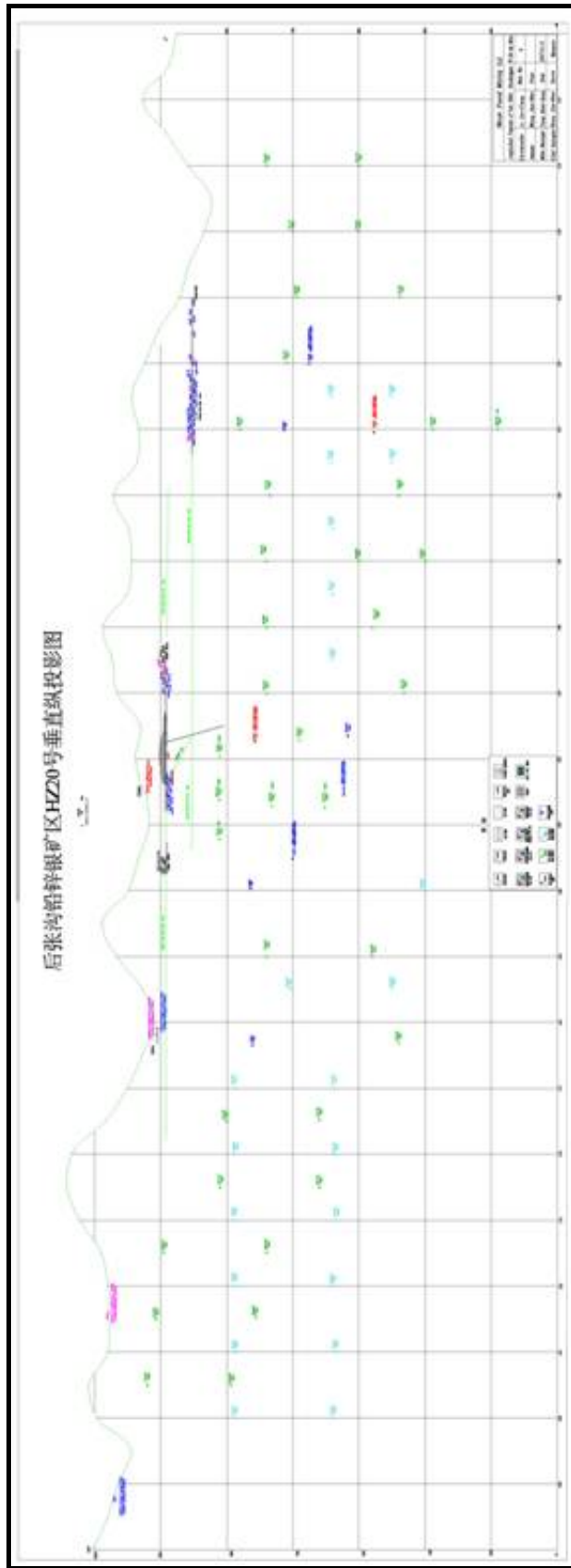


Figure 4-7: Long Section of Vein HZ -20 Exploration Project

## 4.1.4 Mineralogy and Alterations

### Mineralogy

Three ore forming phases can be distinguished in the area, comprising a quartz-pyrite phase, a quartz-polymetallic sulphide-sulfosalt phase and a quartz-carbonate phase.

The second phase was responsible for accumulation of the silver-lead and zinc minerals and resulted as assemblages of i) quartz- pyrite-galena-Fe poor sphalerite-silver bearing tetrahedrite (freibergite); ii) quartz-pyrite-galena-pyrargyrite-polybasite and iii) quartz-pyrite-chalcopyrite-freibergite-tetrahedrite – native silver.

Several other primary minerals including stromeyerite, argentite, stephanite and secondary minerals represented by limonite, cerussite, anglesite and malachite are also commonly present.

Galena is a principal mineral for lead, galena and freibergite for silver, and gold is associated mainly with pyrite (Figure 4-8).

The gangue minerals are represented by quartz, dolomite, calcite, sericite and chlorite.

Generally in the Ying deposit three types of ore have been distinguished according to their spatial distribution, structure and texture characteristics, namely:

- Oxidized ores in the upper, near-surface parts of veins down to approximately 80m in depth
- Mixed ores which occur between 80 and 150m and
- Primary ores below 150m.

The following typical ore texture can be observed in the deposit:

- Massive texture typical for massive galena and massive pyrite
- Banded or cruciform texture: sulphides and quartz form bands along veins margins
- Veinlets-stockwork like texture: sulphides and quartz occur as veinlet or stockwork
- Disseminated texture: sulphide minerals disseminated in quartz-carbonate veins and/or selvages



**Figure 4-8: Vein S8: Quartz, Galena and Sphalerite showing Typical Massive-Cruciform Texture**

### **Alteration**

The mineralised veins are usually present within an alteration envelope, comprising silicification, carbonatization, sericitization, pyritization and chloritization, typically strongest near contacts with the veins. Sericite and chlorite are also common along the quartz veins and in selvages. Rarely small fractures filled with epidote are present as retrograde alteration. In the oxidation zones limonite along with oxides of zinc and lead are typical results of weathering.

#### 4.1.5 Sampling, Analytical Procedures and Quality Control

Tunnel sampling is used on the Ying Project for ore control and resource estimates. Tunnel sampling is mostly performed by continuous chip sampling or minor channel sampling. The chip sampling consists of continuous chips across the vein. Depending on the vein width, sample mass varies from 2 to 5kg of ore. The channel samples are cut 10cm wide and 5cm deep, producing a 2 to 10kg sample for each 0.1 to 1m interval, depending upon the length of the sample. These channel or chip samples are taken across the vein at 5 to 7m intervals along the mineralised vein or zones of significant alteration.

The Ying underground and surface drill core is logged at the drill site. The mineralised portion of the NQ size drill core (47.6mm diameter) is transported to surface facilities where it is logged in detail, photographed and cut in half (split) using a diamond saw. One half of the core is placed in the core box and the other half put into a cotton sample bag which is promptly labelled with the sample number. These bags are collectively secured in rice bags for shipment to the laboratory for assaying. The remaining boxed half cores are stored for reference purposes. Employees of Found, a subsidiary of Silvercorp, collect the tunnel samples and split the core for sampling. No officer or director of either Silvercorp or Found has any contact with any of these samples after shipment to the laboratory.

Underground samples as well as core samples are taken across veins which vary from 0.1 to 1.5m in width. The veins consist of either massive sulphides or quartz-carbonate veins with sulphides and are easily identified and readily sampled separately from the wallrock.

Core recoveries are determined by measuring the lengths of core stored in boxes and calculating the percentage recovered from the interval log of the core. The core recoveries of importance are those of the mineralised vein sections and this data is documented in the log. A review of this information indicates that recovery of veins can vary from 88% to 98%.

Reportedly all core samples have no sampling or recovery difficulties that could affect the reliability of results. The samples appear to be representative, and results of check samples show no sample bias. Rocks sampled underground are sulphide-rich veins that follow structures. These veins are easily identified and can be sampled with little difficulty.

True widths of sample intervals are only a problem with the drilled intervals. The angle of the vein to core is determined by using the vein to core angles and cross-sectional correlations to determine the dip of the veins. The apparent thickness is then corrected to true thickness using simple trigonometry.

The underground tunnel samples are taken at regular intervals across the vein and their volumes vary, depending on the vein width. These samples are sent to the laboratory without being split.

All sample preparation and analysis has been conducted by one laboratory the Langfang Institute of Geochemical and Geophysical Exploration, an ISO 9001 certified laboratory located in Langfang, Hebei Province, approximately 60km from Beijing.

Sample preparation consisted of drying, crushing and splitting the sample with a riffle splitter to 150g, and then the sample was pulverized to -200 mesh. Lead, zinc and silver were analysed with an Atomic Absorption Spectrometer after a 3-hour hot aqua regia digestion on a 30g split of the pulverized portion. A gravimetric finish was done on samples with silver values in excess of 1,500g/t. On samples containing more than 30% lead, an acid dissolution and titration was used to complete the analysis.

Langfang Laboratory's lower detection limits are 100 ppb (parts-per-billion) for gold, 3g/t for silver, 0.03% for lead and zinc, and 0.02% for copper.

The QA/QC check procedures include inserting standards in their regular analytical submittals, submitting duplicate pulps to the principal lab, and analysing duplicate pulps by an outside independent lab.

The independent laboratories which perform analysis of the duplicate pulps to determine assaying accuracy and/or contamination difficulties are ALS Chemex and Acme Laboratories. Both laboratories are located in Vancouver BC, Canada and are ISO 9001:2000 registered.

The latest comments of the QA/QC procedures are included in a report by Silvercorp entitled "NI43-101 Technical Update 2006" (Chris Broili et al, Reference -4).

#### **4.1.6 Resource Estimates**

Mineralization at the Ying Project consists of narrow vein-type deposits which occur as separate surfaces of variable grade and fixed but variable widths. Resources in deposits of this type are amenable to definition by polygonal methods using longitudinal sections, and the resource estimates reported herein were prepared using such methods.

The polygonal resource estimates were prepared by Mr. Wang Jianwen, Chief Geologist of Found, and Mr. Myles J. Gao, P.Geo, President of Silvercorp, who is a Qualified Person, as defined by NI43-101, and the estimates were audited by Mr. Broili and Mr. Mel Klohn, who are Independent Qualified Persons as defined by NI43-101, who visited the Ying Mine site in 2005, 2006 and 2007. Mr. Broili reviewed assay results, geological maps, level plans, longitudinal and cross sections, toured tunnels and checked sampling procedures. The Ying deposit mineralisation is polymetallic and the mineral resources are reported in terms of a silver-equivalent grade, as well as separate individual metal grades.

Since Silvercorp's first exploration works at YING in August 2004 until August 2007 a total of 74,619 m of tunnels, drifts, declines, raises or shafts have been developed and 78,581 m of underground and surface drilling has been completed (280 total holes). The underground development and drilling have focused primarily on 18 of 28 known veins in the SGX Area, on eight (8) of more than 20 known veins in the HPG Area, and on four (4) currently known veins in the HZG Area.

The recent work on the YING Property has defined silver-lead-zinc mineral resources at SGX, silver-lead-zinc-gold at HPG and silver-lead-copper-gold at HZG. The 18 veins at SGX are discrete tabular quartz-ankerite veins with massive sulphide zones that average 0.39m wide. The eight veins at HPG are quartz-sericite-carbonate veins with massive sulphide zones that average 0.96m wide. The four veins at HZG are quartz-ankerite-fuchsite veins with sulphide filled fracture zones that average 0.78m wide. These veins were defined by either channel sampling new underground tunnels or underground drilling. To estimate the mineral resources contained in these veins, resource block models were constructed with polygonal methods on longitudinal vein sections using the same parameters – cutoff grade, cutoff thickness, area of influence, etc. – as those used in the last YING resource estimation completed in 2006 (Broili et al, 2006).

The current estimated mineral resources of the 29 veins explored to date by Silvercorp in the SGX, HZG and HPG area are as follows:

**Table 4-3: YING Project - Summary of Mineral Resources – August 2007**

Width (m)	Tonnes	Ag (g/t)	Ag (oz/t)	Au (g/t)	Pb (%)	Zn (%)	Cu (%)	eq-Ah (g/t)	Ag(oz)	Pb(t)	Zn (t)	Cu (t)	Au (oz)	eq-Ag(oz)
<b>SGX Area - High grade</b>														
Measured	0.50	215,173	1,250	40.18		20.41	9.14		2,545	8,646,679	44,450	21,817	523	17,607,571
Indicated	0.43	787,089	1,227	39.46		21.54	7.14		2,475	31,058,205	169,515	56,232	479	62,638,615
Meas+indic	0.44	1,002,261	1,232	39.62		21.3	7.57		2,490	39,704,887	205,956	73,381	1,001	80,246,081
Inferred	0.44	1,707,850	1,219	39.19		21.8	7.57		2,498	61,447,487	345,936	122,480	3,333	137,180,776
<b>SGX Area - Low grade</b>														
Measured	0.50	48,770	281	9.02		6.13	6.84		865	528,119	3,459	3,641		1,553,133
Indicated	0.41	750,329	223	7.18		3.55	3.86		560	5,390,121	26,661	28,936	1,324	12,769,092
Meas+indic	0.42	799,099	227	7.3		3.71	4.04		578	5,830,237	29,568	32,179	1,324	18,541,705
<b>HZG Area</b>														
Indicated	0.78	248,484	598	19.23		1.76		0.78	796	4,777,198	4,364		1,941	6,356,729
Inferred	0.62	271,042	552	19.23		1.4		0.43	679	4,807,002	3,784		1,176	5,916,975
<b>HPG Area</b>														
Measured	0.99	35,226	117	3.77	1.41	6.28	1.28		519	132,794	2,174	261	1,594	553,359
Indicated	0.95	166,661	67	2.15	2.33	3.52	0.3		355	357,887	5,859	502	12,476	1,901,060
Meas+indic	0.96	201,887	76	2.43	2.15	3.95	0.38		376	490,687	8,033	763	14,069	2,454,419
Inferred	0.96	1,513,222	120	3.85	1.41	6.68	2.17		581	5,824,580	101,017	32,906	68,706	28,250,515
<b>Ying Project - Total Estimated Mineral Resources</b>														
Measured		299,169								9,307,592	50,084	25,719	523	19,714,063
Indicated		1,952,563								41,583,412	206,400	85,670	2,419	83,665,496
Meas+indic		2,251,731								50,891,004	256,483	11,389	2,942	103,379,559
Inferred		3,492,114								72,079,069	450,737	155,386	4,509	171,348,265

This estimated measured plus indicated resource is 30% greater than the resource reported in the previous resource estimation (the 2006 Report by Broili, et. al.). This is largely due to the fact that the new estimation is based on 18 veins at SGX as compared to only 14 veins in the 2005 Report, and the two new areas, HPG and HZG have added eight veins and four veins respectively.

The average thickness of veins in the measured resource category was recorded at 0.49 m, veins in the indicated category average 0.37m thickness and combined measured plus indicated thickness is 0.42m. Veins in the inferred resource category average 0.45m in thickness.

A detailed vein-by-vein breakdown of the estimated metal resources is provided in the tables in Annexure 2.

#### 4.1.7 Recent Exploration and Potential

Starting in 2006, Silvercorp focused detailed exploration-development activities on three separate target areas: SGX, HZG and HPG. The exploration work completed by Silvercorp from May 2006 to June 2007 in these three areas is summarized as follows.

**SGX Area** – Most of Silvercorp’s recent exploration work has been confined to the tunnelling and drilling programs in the SGX Area now covered by a mining license. The details of these are included in a report by Broili, et.al. (2007). Most of the surface exploration at SGX was done in past years, very little was done during 2006/07.

Underground exploration-development activities in the SGX Area included expanding the workings on 18 veins. Work accomplished during this period includes 12,072m of decline, 16,450m of undercut drifting, 680m of main tunnels, 1,593m of access raises, 1,077m of ventilation raises, 717m of shaft development, 134 holes for 44,143m of underground drilling, 18 holes for 8,260m of surface drilling and sampling and metallurgical work.

**HZG Area** – Surface mapping and sampling were started on the HZG veins (south of SGX). Many of the altered structures and veins identified by this work were subsequently tested by drilling or extending the underground workings on four veins. Details of this work is included in Chapter 11 in a report by Broili, et.al. (2007). In summary this work includes 139m of tunnel enlarging 117m of declines 2,093m of undercut drifting, 1,236m of main tunnels, 17m of access raise, 2 holes for 329m

of underground drilling, 18 holes for 6,017m of surface drilling, plus sampling and metallurgical testwork.

Table 4-4 summarizes the parameters of the HZG veins which are subject to exploration activities.

**Table 4-4: Parameters of Veins in HZG**

Vein No.	DIP	DIP Angle	Length of Vein (m)	Thickness (m)	Average grade		
					Ag (g/t)	Pb (%)	Zn (%)
HZ1	350-10	55-80	200	0.4-1.2			
HZ2	290-310	65-80	200	0.5-0.80			
HZ3	290-300	70	360	0.1-0.80			
HZ4	280-300	65-80	350	0.50-1.20			
HZ5	290-300	75	275	0.20-0.50			
HZ6	350-10	50-70	110	0.2-0.5			
HZ7	50-65	60-75	155	0.3-0.65			
HZ8	310-320	60-75	250	0.4-1.00			
HZ9	100-110	60-80	105	0.2-1.00			
HZ10	90-100	65-81	600	0.15-0.60	3-5484	0.03-5.16	0.02-2.2
HZ11	90-140	65-80	160	0.20-0.50	3	0.05	0.09
HZ12	100-120	65-85	225	0.2-0.60	23-73	0.31-0.71	0.08-0.11
HZ13	100-140	60-80	180	0.2-0.80			
HZ14	100-120	65-75	120	0.2-0.50			
HZ15	90-110	65-75	115	0.20-0.80			
HZ16	110-125	65-80	1300	0.2-1.00			
HZ17	10-355	60-70	230	0.8-1.00			
HZ18	100-120	65-85	1350	0.20-0.80	3-285.4	0.1-1.37	0.07-0.94
HZ19	100-110	65-80	210	0.20-0.80			
HZ20	100-110	68-85	1845	0.5-1.00	11.2-820.5	0.13-10.37	0.03-0.98
HZ21	100-110	68-85	1050	0.5-1.00	283.7	0.37	0.09
HZ22	100-110	60-70	900	0.4-1.20	654.7	0.39	0.13

## 4.2 Haopinggou (HPG) Ag-Pb-Zn Project

### 4.2.1 Regional Geology

The HPG mining-exploration project is located to the west of the SGX mining area and is characterized by the same geological setting, quartz veining hosting ore bodies and the same type of mineralisation as the SGX area. However, due to new road construction, additional mineralised zones were discovered recently within a previously known intrusive breccia body (Figure 4-9).



## 4.2.2 Orebody Geology

There are more than 20 identified mineralised veins located in the HPG property area. The Geological Brigade of Henan Bureau of Non-ferrous Geological Exploration (No.1 Brigade) discovered and defined in detail four of these veins and identified nine economic ore bodies hosted within them. Table 4-5 presents the detailed parameters of these veins and ore bodies.

**Table 4-5: Detailed Parameters of the Mineralized Bodies at the HPG Deposit**

Vein and Body ID	Length (m)	Depth (m)	True Width (m)	Average Grade			Evaluation (m)	Strike and Dip	Width Variation (%)	Grade Variation (%)
				Ag (g/t)	Pb (%)	Au (g/t)				
H15-1	870	374	1.29	163.4	11.23	1.29	410-830	60°/80° NW 60°/80° SE	42	173
H17-1	200	60	0.40	24.35	2.3	13.47	630-780	50°/80° NW		
H17-2	870	90	0.86	20.59	0.28	9.66	725-900	60°/82° NW	58	176
H17-3	920	330	1.29	221.0 1	10.54	2.62	354-754	60°/83° NW	65	167
H17-4	160	172	1.64	6.15	0.15	4.56	650-894	60°/82° NW		
H16-1	270	140	0.85	34.34	1.03	20.55	612-882	55°/80° NW	84	101
H16-2	100	146	0.85	33.56	3.61	9.43	700-863	55°/83° NW		
H5-1	300	70	1.84	213.1 4	1.36	0.77	550-670	85°/84° SE	75	152
H18-1	312	200	0.73			3.10	610-890	40°/79° NW	28	84

The H15 and H17 veins have been explored in detail using trenching, diamond core drilling and tunnelling and No.1 Brigade has calculated resources and reserves estimates on ore bodies hosted within these two veins. These veins are sub-parallel and strike north-easterly in the eastern part of the exploration area, however they merge into one vein near Exploration Line 3 within the mine area on the surface (see Figure 4-9).

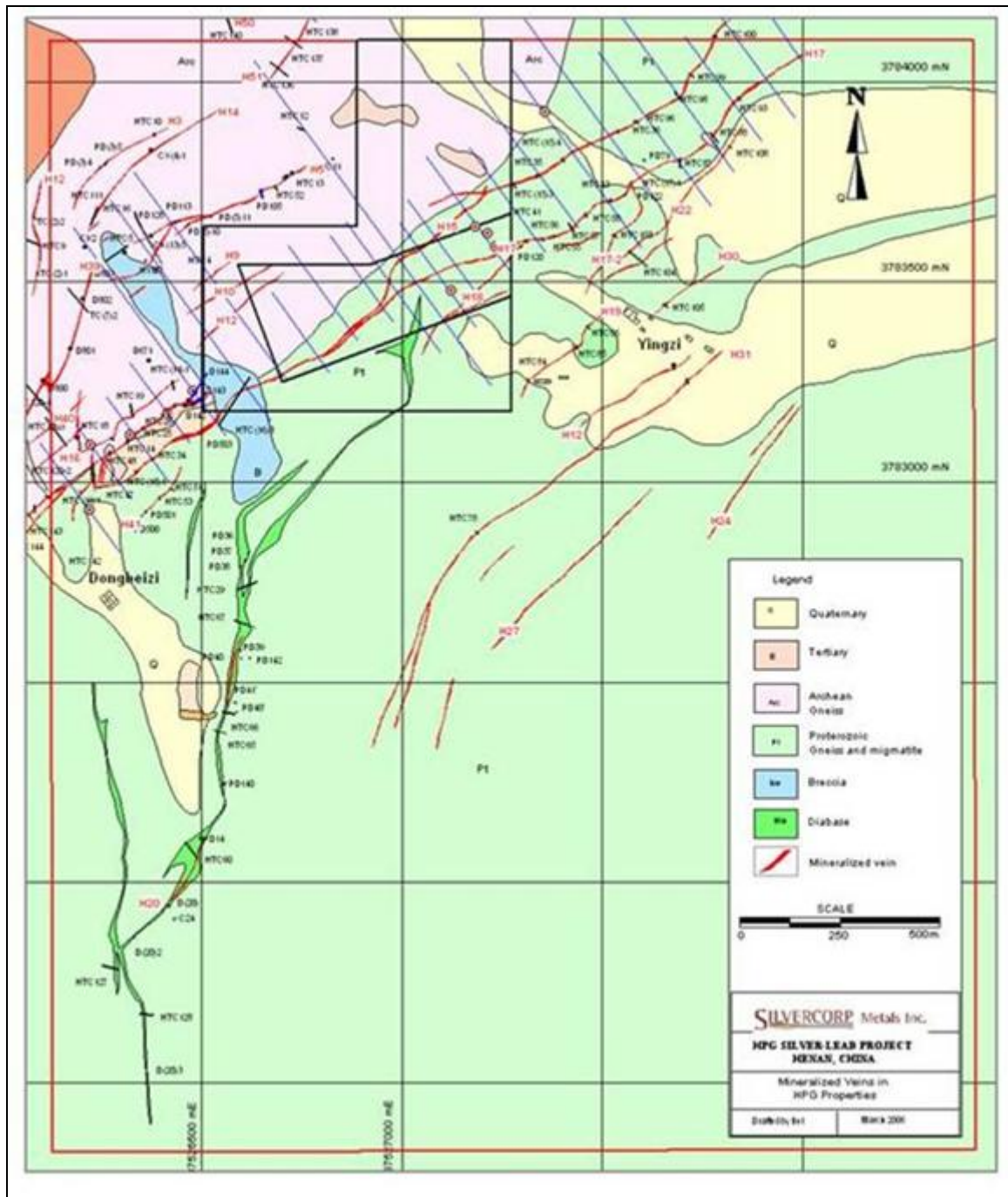


Figure 4-9: Geological Detailed Map of HGP Mining Exploration Area

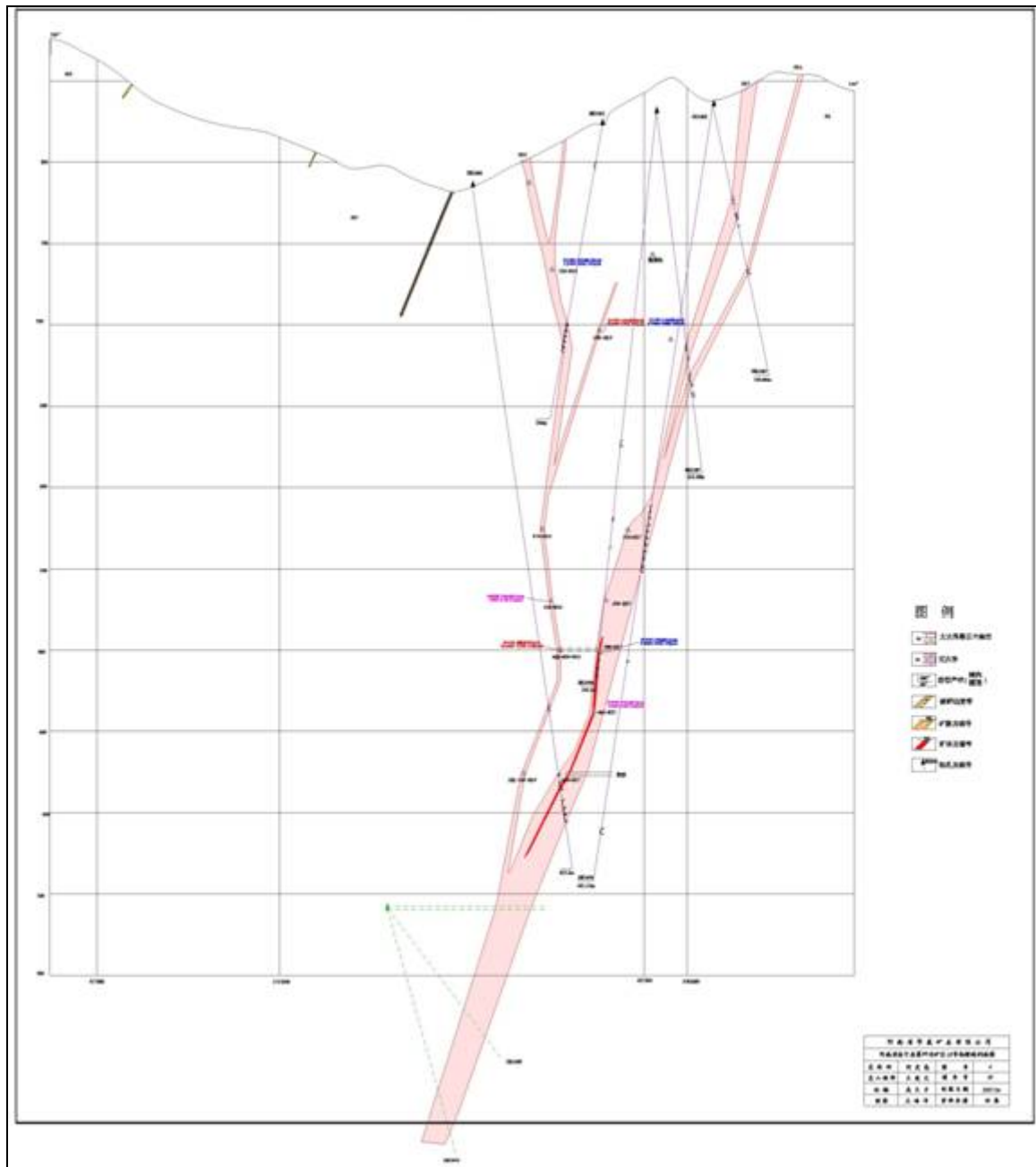


Figure 4-10: Typical Cross-section Showing Veins H-15 and H-17

### 4.2.3 Mineralogy

Ore minerals include primary minerals, such as galena, sphalerite, chalcocopyrite, pyrite, tetrahedrite, polybasite, bornite, stromeyerite, native silver, native gold, argentite, stephanite. Secondary minerals include limonite, cerussite, anglesite, covellite, and malachite. Galena is the principal mineral containing lead, galena and tetrahedrite are the principal minerals bearing silver and pyrite is the principal mineral bearing gold. Gangue minerals include quartz, sericite, dolomite and calcite.

#### **4.2.4 Sampling, Analytical Procedures and Quality Control**

Trenches were excavated perpendicular to the veins and were of sufficient depth to expose at least 30cm of fresh rock. Most of the underground development consists of tunnels driven along the strike of the veins. A channel sampling methodology using a channel size of 10cm wide x 5cm deep was employed to take samples from both the trenches and underground development. Most sample lengths were between 0.5m and 1.0m, with a maximum of 1.5m. The mineralisation is controlled by the fault structures and, therefore, is simple to identify both on the surface and underground. Horizontal widths of the mineralised bodies were also measured and recorded appropriately.

The cores obtained by diamond drilling were selectively sampled by the No.1 Brigade. Samples were taken from only those intervals judged visually to contain mineralisation. SRK considers that, because of the strong controls on mineralisation, it is unlikely that mineralised intervals would have been missed using this approach. Half core was reportedly taken for processing and analysis with the other half being retained. However, SRK was informed at the time of the site visit that the retained core had been discarded and was no longer available. The sample intervals were usually in the order of 1m although this varied depending on the width of the mineralisation, lithology and core diameter. No. 1 Brigade back-calculated horizontal widths from the intersected widths.

Samples taken in the field were bagged and labelled and relevant information about the samples, such as locations, samples lengths, weights and date, were recorded. The weight of the individual trench and underground channel samples averaged 5kg while the core samples averaged 3kg. Sample preparation and analysis was then undertaken at the No.1 Brigade laboratory. Personnel from No.1 Geological Brigade were responsible for sample collection, packing and shipping. A total of 73 internal check samples and 59 external check samples were also analysed. The external samples were sent to the laboratory at the Henan Bureau of Non-ferrous Geological Exploration. The repeatability accuracy for internal checks was 71.87% for gold, 88.71% for silver, and 90.74% for lead. The repeatability accuracy for the external samples exceeded 90%. No additional control samples, such as commercial standards, various duplicates and blanks, were used as would be expected in a best practice QA/QC programme.

Since taking over the project from the previous company, Silvercorp has been conducting surface trenching and pitting, underground tunnelling and surface diamond drilling. Although the exploration programs are incomplete and their results have not been released, SRK has been informed that the current QA/QC procedures are designed to be compliant with NI43-101 requirements.

#### **4.2.5 Resource Estimates**

The recent work on the YING Property has defined silver-lead-zinc mineral resources at SGX, silver-lead-zinc-gold at HPG and silver-lead-copper-gold at HZG. The eight veins at HPG are quartz-sericite-carbonate veins with massive sulphide zones that average 0.96m wide. These veins were defined by either channel sampling new underground tunnels or underground drilling. To estimate the mineral resources contained in these veins, resource block models were constructed with polygonal methods on longitudinal vein sections using the same parameters – cutoff grade, cutoff thickness, area of influence. The details of the mineral resources estimate methodology are included in the report, Broili et al. 2007.

#### **4.2.6 Recent Exploration and Potentials**

Some surface mapping and sampling was also done in the HPG areas. Altered structures and veins were subsequently tested by drilling or extending the underground workings on seven veins, including 2,740m of undercut drifting, 1,523m of main tunnels; 201m of access raise, 2 holes for 760m of surface drilling, plus sampling and metallurgical testwork.

Exploration activities on this recently acquired property have focused on the most easily accessible veins such as H15 and H17. Exploration and mine development utilize 10 main access tunnels – PD2, PD3, PD630, PD638, PD698, PD720, HPD29, HPD30, HPD640, and HPD850. Most of the exploration-development work has used the PD3 access tunnel which has 4 declines from the 600m level to the 340m level. 2,445m of exploration tunnels and 4 surface drill holes (750 m) had been completed by May 25, 2007, resulting in the discovery of several new ore shoot. Significant assay results from the tunnelling are:

- a) 1.0m (true width) with 1.15 g/t gold, 120 g/t silver and 13.80% lead in a tunnel in the H15 vein on the 420m level;
- b) 0.4m (true width) of massive galena containing 5.03 g/t gold, 766 g/t silver and 17.23% lead in a tunnel on the H15-1 vein on the 735m level;
- c) 2.5m (true width) of massive galena containing 1.03 g/t gold, 415 g/t silver and 50.89% lead and 4.4m (true width) with 3.37 g/t gold, 176 g/t silver, 7.86% lead and 1.49% zinc in the H17 vein on the 360m level;
- d) 0.25m (true width) with 125 g/t silver, 26.19% lead and 1.28% zinc in a tunnel in the H32 vein on the 688m level.

The H5 vein trends NE, dips steeply NW and has been mapped for about 480m at the surface with widths ranging from 0.25 to 1.70 m. It has been explored by 171m of tunnels completed from the 460m level through the main access tunnel PD3.

H12 Vein -Tunnels on the 645m level found a thin vein with a small resource.

H15 Vein - 427m of tunnels have been completed through main access tunnels PD3, PD630, and PD698. Significant Au, Ag, Pb and Zn mineralization having a true width of 1.4m is exposed in 113m of drift in the PD3 tunnel at the 432m level. The vein has also been intersected by cross-cut tunnels on the 630m and 698m levels.

H15-1 Vein - Gold-silver-lead mineralization extends NE more than 340m along strike and dips 70° NW. Exploration includes 129m of drift along PD720 at the 720m level and 17.4m of drift through PD630 at the 630m level.

H17 Vein - 422m of tunnels have been completed through the PD3 access tunnel on the 460m, 380m and 340m levels. Significant Au-Ag-Pb-Zn mineralization including massive galena has been intersected, including 4.4m (true width) of high-grade containing 3.37 g/t gold, 176 g/t silver, 7.86% lead and 1.49% zinc on the 380m level, and 1.1m (true width) of 6.02 g/t gold and 84.3 g/t silver in 32m of drifts on the 720m level.

H18 Vein - A 0.5m wide vein averaging 4.15 g/t gold was found in tunnels on the 720m level.

H32 Vein — Surface mapping found 240m of N-S trending vein, dipping 60 to 70° E. Tunnels totalling 204m have intersected significant mineralization including a 110m drift on the 688m level accessed through PD688 and a 62m raise to the 688m level through PD638. Assay results are pending.

B1 Vein —A 5.18m wide breccia averaging 2.13 g/t gold (but very little silver-lead-zinc) was discovered by tunnelling on the 640m level.

Also newly discovered ore mineralisation within the intrusive breccia needs a further detailed exploration program in order to define the volumes of the ore bodies, their metal grades and eventually, to estimate indicated to measured resources.

## 4.3 NZ Project

The NZ project includes one mining license on a gold deposit in Nanzhao County, Henan Province, China. Henan Found Mining Co. Ltd. (Henan Found), a joint venture company between Silvercorp and a Chinese company, which owns the Ying project, has acquired 100% interest in the mining license from a local company. The transfer of the mining license to Henan Found is in progress. Henan Found has been conducting exploration programs since March 2007.

Nanzhao County Gold Company conducted an exploration program on the project in 1989-1990, and No. 1 Geological Brigade of Henan Bureau of Geology and Mineral Resources (2005) performed resource/reserve verification on the project in 2005. The Brigade compiled reports about the exploration and verification. The descriptions about the project in this report are based on the reports prepared by the Brigade, observations during site visit and data provided by Silvercorp.

### 4.3.1 Regional Geology

Tectonically the NZ project has the same background as that of the Ying and HPG projects. It is located in the eastern portion of the Qinling Orogenic Belt (Figure 4-1 and Figure 4-11). The strata in the region include Archean and Middle Proterozoic volcanic, clastic and carbonate rocks, Lower Palaeozoic volcanic rocks and Mesozoic clastic rocks. The main structures strike 290° to 310°. The Luanchuan-Weimosi fault is the main fault in the region. The secondary faults include nearly east west, north northeast, northeast and nearly north-south striking faults, which may intercept each other, and provided passes and spaces for magmatic intrusions and mineralisation from hydrothermal fluids.

Magmatic activities include Palaeozoic diorite and granite intrusions and Mesozoic granite and syenite porphyry intrusions. Au-Ag deposits and Pb-Zn-Mo deposits, including Luanchuan Mo Mine, have been discovered in the regions. The mineralisation is mainly related to the Mesozoic magmatic activity and occurs in the secondary structures. A previous stream sediment survey defined some geochemical anomalies of precious and base metals in the region and the NZ project is located within one of the large anomalous areas (Figure 4-11).

### 4.3.2 Property Geology

Strata in the NZ project area are Proterozoic silicified marble and schist. They strike northwest-west and dip to either direction with different dipping angles. The secondary faults of the main Luanchuan-Weimosi faults are abundant in the project area. The faults strike 240° to 280° and dip to either direction with dip angles of 55° to 70°. Mineralization of gold and lead-zinc and alterations occur along the secondary faults. One Mesozoic syenite □orphyritic rock body or dyke occurs in the project area. The dyke strikes nearly east-west. Figure 4-12 shows the geological map of the NZ project.

Gold bearing veins have been discovered and defined in previous exploration of four prospects: namely Qianjiagou, Huichungou, Shigungou and Xiaoguangou. The mineralised veins occur in fractured and altered zones ranging in length from a few tens of metres to about 200m and in width between 0.6 to 2.85m. Table 4-6 summarizes the characteristics of the veins in the prospects of the NZ project. Figure 4-13 is a typical cross-section in the project.



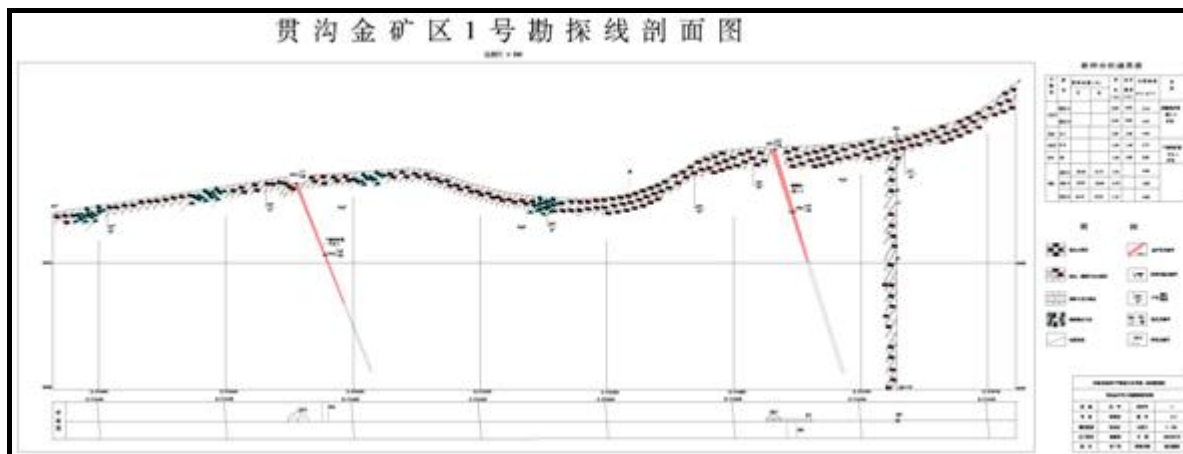


Figure 4-13: Cross-section of Line 1 of NZ Project

Table 4-6: Features of Mineralised Veins in the NZ Project

Prospect Name	Vein #	Length (m)	Thickness (m)	Strike (°)	Dip	Angle (°)	Country Rock
Qianjiagou	Q2	52	1.3	85	N	52-70	Silicified Marble
	Q3	193.5	1.09	90	N	52-70	Silicified Marble
	Q4	20	0.8	280	S	51	Silicified Marble
Huichungou	H1	103	2.52	60	NW	68-78	Silicified Marble
	H2	77	0.85	90	N	60	Silicified Marble
	H4	20	0.7	272	N	65	Schist
	H5	20	1	85	N	65	Silicified Marble
Shigungou	S1	100	1.18	81	N	63	Schist and Marble
	S2	50	2.85	85	N	58	Schist and Marble
	S3-1	82	1.2	5	W	56-70	Schist and Marble
	S3-2	162	1.27	90	N	56-70	Schist and Marble
	S4	20	2.92	90	N	60	Schist and Marble
	S5	20	3.1	289	NE	60	Marble
Xiaoguangou	X1	102	2.24	290	NE	56-70	Silicified Marble
	X2	172	1.61	275	N	67-70	Silicified Marble
	X3	72	1.32	280	N	75	Silicified Marble
	X4	94	1.34	286	NE	65	Silicified Marble
	X5	102	1.08	286	NE	63	Silicified Marble

### 4.3.3 Mineralogy

Mineralisation style at the NZ project is basically a hydrothermal in-fill type, and occurs in faults or fractures. Main ore minerals include pyrite, galena, and sphalerite, as well as chalcopyrite, pyrrhotite, native gold, electrum, bornite, chalcocite, and secondary limonite, and malachite. Gangue minerals are mainly quartz, feldspar, and calcite, as well as sericite, chlorite and apatite. Descriptions of some of the main ore minerals is provided below.



**Pyrite:** usually appears as euhedral-subhedral crystals with grain size of 0.02 to 0.1mm. It may be disseminated or occur as massive lumps and veinlets. There are two stages of pyrite, those of the first stage are coarser and may be replaced by limonite, and those of the second stage may be included in quartz.

**Galena:** appears as anhedral crystals 0.02 to 1mm in size. It may replace sphalerite.

**Sphalerite:** appears as anhedral crystals 0.02 to 2mm in size. It may be replaced by galena and chalcopyrite.

**Chalcopyrite:** may appear as euhedral, subhedral and anhedral crystals 0.02 to 0.5mm in size. It may be disseminated sparsely, may replace sphalerite, and may be replaced by bornite and azurite.

The sequence of ore mineral formation is pyrite-native gold-sphalerite-galena-chalcopyrite.

Gold appears mainly as native gold with some as electrum, occurring as gold grains between other minerals in fissures, as well as inclusions in other minerals. Table 4-7 gives the grain size distribution of the native gold in the NZ project, based on tests and measurements by the No. 1 Geological Brigade.

**Table 4-7: Distribution of Grain Sizes of Native Gold**

Size range (mm)	>0.3	0.3-0.1	0.1-0.074	0.074-0.053	0.053-0.037	0.037-0.01	<0.01	Total
Relative %	12.09	8.74	26.67	20.51	18.22	9.24	4.53	100

In general, the oxidized zone usually extends to 10m depth, the mixed zone of oxidized and primary ores is from 10 to 20m deep, and the primary zone is more than 20m deep.

#### 4.3.4 Sampling, Analytical Procedures and Quality Control

During the period from 1989 to 1990 the Nanzhao County Gold Company conducted an exploration program on the NZ deposit that included topographical and geological mapping, trenching and pitting, adit tunnelling and drilling, and submitted a geological report including a resource estimation. In 2005 No. 1 Geological Brigade conducted a supplementary exploration program, including a survey of exploration and mining tunnels and sampling, in order to verify the resource. Table 4-8 describes the exploration conducted previously.

**Table 4-8: Previous Exploration Work Done on the NZ Project**

Period	Item	Unit	Quantity
1989-1990	1 : 2000 Topographical survey	km <sup>2</sup>	0.8
	1 : 2000 Geological mapping	km <sup>2</sup>	0.8
	Geological profiling	m	820
	Trenching	m <sup>3</sup>	528
	Pitting	m	30
	Adit tunnelling	m	400
	Drilling	m	288.61
	Assaying	Sample	260
	Internal checking	Sample	48
	External checking	Sample	37
2005	1 : 500 geological profiling	m	800
	Tunnel survey	m	910
	Assaying	Sample	65
	Internal checking	Sample	22

The trenches were distributed at a spacing of 20 to 40m, and the adit tunnels were developed at level heights of 30 to 40m. Trenches were dug 0.3m into the bedrock and had a bottom width of 0.6m. The tunnels were developed at a section size of 2.0m x 1.8m. The drilling achieved >85% recovery on country rocks and 99% recovery of mineralised veins.

The channelling sampling method was used to take samples from trenches, pits, and adit tunnels. The channel size was 10cm wide by 3cm deep. Usually samples were 1m long, with a maximum length of 1.5m, perpendicular to the veins. Drill cores were split into halves; one half was taken as samples, and another half was retained in archive. However, the cores drilled in 1989 to 1990 were not available for inspection.

In the 1989 to 1990 programs, sample preparation and assaying were performed in the laboratory of Nanzhao Guangan Gold Mine, and for the 2005 programs, sample preparation and assaying were conducted in the Nanyang Geological Assaying Centre. The same preparation procedure and assaying method was used in both laboratories.

Samples were crushed in three stages, with 300g being saved as a spare sample. The rest of the material was ground to 200mesh, 300g was sent for assaying, and the remainder was saved as a spare sample. Only gold was assayed, using a volumetric analysis method. Internal and external check samples were also assayed (Table 4-7). In the analysis of samples from the 1989 to 1990 exploration 93.7% of internal check samples and 89.2% of external check samples were verified. In the analysis of samples from the 2005 programs, only internal checking was conducted and 100% of the check samples were verified.

The sampling methods used at the NZ project comply with Chinese standards. However they are not fully compliant with JORC or NI43-101 requirements as no control samples, such as standards, blanks or duplicate samples were used for quality assurance and quality control during sample preparation and assaying.

#### 4.3.5 Resources

No. 1 Geological Brigade conducted a resource verification based on the 1989-1990 database, 2005 assays and previous production data. Generally, a grid of 20 to 40m spacing of trenches on the surface and 30 to 40m level height of tunnels was used to define Chinese Category 122b resources, and extrapolation of 80m x 80m was used to define Chinese Category 333 resources.

##### Cut-offs, NZ Deposit

In 2005 No. 1 Geological Brigade used the parameters shown in Table 4-9 to estimate the resources in No.3 deposit.

**Table 4-9: Parameters for Resource Estimate, NZ Deposit**

Item	Index
Cut-off grade	≥1.0g/t Au
Minimum block grade	≥3.0g/t Au
Minimum mineable thickness	0.8m
Maximum band thickness	2.0m

##### NZ deposit Resources as at June 2005

In 2005 No. 1 Geological Brigade compiled a resource verification report in which longitudinal projection and geological block methodology was used to estimate the resource. The report was submitted to Henan Centre of Examination of Mineral Resources and Reserves. Table 4-10 details the certified resources for NZ Deposit as of June 2005.

**Table 4-10: Resources Estimate for NZ Deposit, as at June 2005 <sup>(1)</sup>**

Prospect	Chinese Category	Tonnage	Au (g/t)	Au (kg)
Qianjiagou	122b	2,055	6.34	13
	333	21,499	5.77	124
Huichungou	122b	1,010	7.11	7
	333	12,156	6.91	84
Shigungou	122b	960	4.17	4
	333	16,272	6.58	107
Xiaoguangou	333	36,537	4.93	180
<b>Total</b>	<b>122b</b>	<b>4,025</b>	<b>5.96</b>	<b>24</b>
	<b>333</b>	<b>86,464</b>	<b>5.72</b>	<b>495</b>

<sup>1</sup> Approved by Henan Bureau of Land and Resources

### 4.3.6 Potential for Further Exploration

SRK notes that, since Henan Found took over the project in March 2007, the company has drilled three diamond drill holes at Shigungou prospect, some of the old adits and tunnels in Qianjiagou, Huichungou and Shigungou prospects have been cleared and sampled and a geophysical survey was conducted over the whole project area. Silvercorp has not yet released the exploration results. SRK was shown an overall exploration plan, including declines in the four prospects and cross-cuts to the vein systems and drifts along the veins in the prospects, as well as diamond drilling to test the mineralisation in depth.

SRK observed mineralisation including Pb-Zn and Mo in the old adits and tunnels and in the newly drilled cores. In addition to gold mineralisation near the surface, SRK believes that the potential of Pb-Zn-Cu-Mo polymetallic mineralisation may occur at depth. SRK recommends that the company apply for the mineral right for polymetallic mineralisation, in addition to gold.

SRK believes that the plan for further exploration proposed by the company is reasonable and feasible. The company should pay attention to the QA/QC of sampling and assaying during the exploration campaign, so that the database to be established can be used to estimate resources in future and meet the standards of the JORC Code or NI43-101.

## 4.4 Tuobuka Project

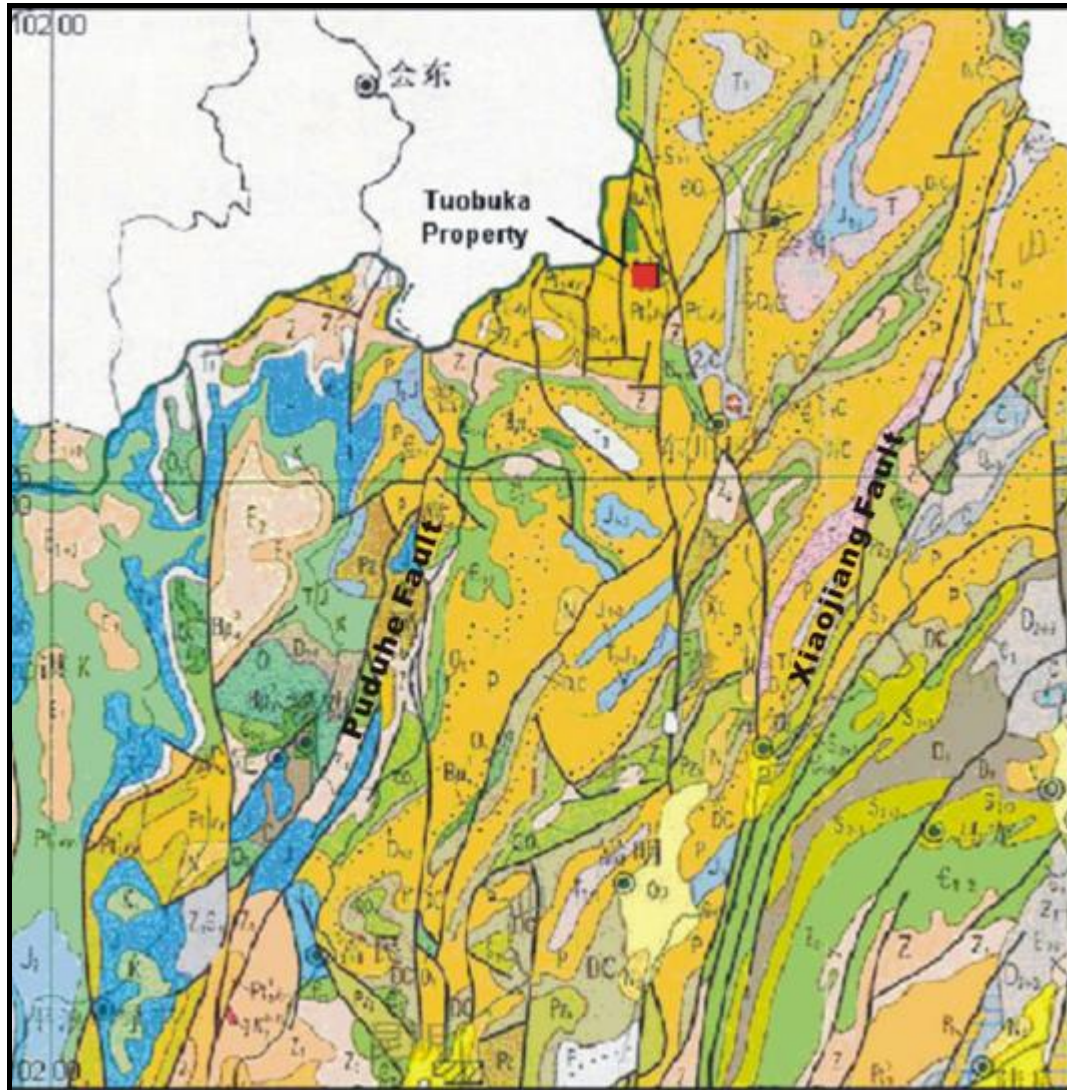
Yunnan Jinchangjiang Mining Co. Ltd, a 100% subsidiary of Silvercorp, owns the exploration permit (see Section 11 for details) for the Tuobuka project. The Tuobuka project is at the southern extension of the Boka project owned by another Canadian company, Southwestern Resource Corporation, which discovered a gold deposit near Boka. Silvercorp conducted an exploration program on the Tuobuka project, and provided SRK with an internal report of that exploration. This description of the project is based essentially on the internal report and SRK's site inspection.

### 4.4.1 Regional Geology

Tectonically, the Tuobuka area is located in the southern part of the Eurasia Plate, on the western edge of the Yangzi Platform and at the middle of the Kangdian Rift. The main stratum is the Middle Protozoic Kunyang Formation, composed of carbonaceous clastic rocks; carbonate rocks and gabbro-diabase inter-bedded with albite slate.

Regionally, the main structure is the Boka-Tuobuka Structural Block, controlled by the Xiaojiang Fault in the east and the Puduhe Fault in the west, the main part of which is the Tuobuka fold, a complex syncline. The ductile-brittle shear zone is a north-south striking and east dipping deformation zone comprising a series of faults, a fragmented belt and a breccia belt. The structure hosts intense mineralisation and alteration. Figure 4-14 shows the regional geological map of the Tuobuka project.

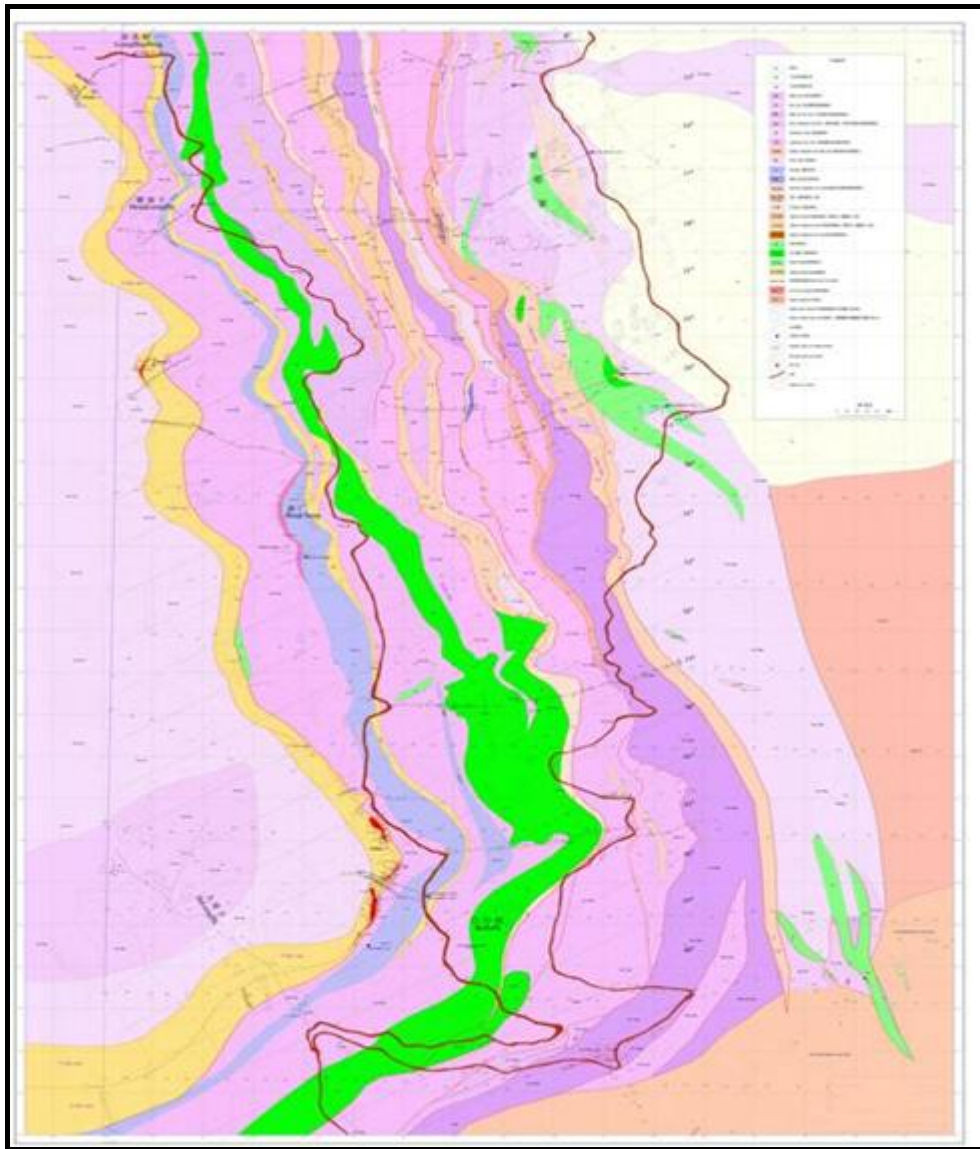
The magmatic rock body is mainly gabbro and diorite.



**Figure 4-14: Regional Geological Map of Tuobuka Project**

#### **4.4.2 Property geology**

The property is located at the southern part of the Tuobuka fold (lower mineralisation zone). Previous exploration defined four mineralised prospects, namely Shujipo prospect (Tuobuka 1), Liangshuipeng prospect (Tuobuka 2), Xinchang prospect (Tuobuka 3) and Baishadi prospect (Tuobuka 4). Figure 4-15 shows the geological map of the Tuobuka project.

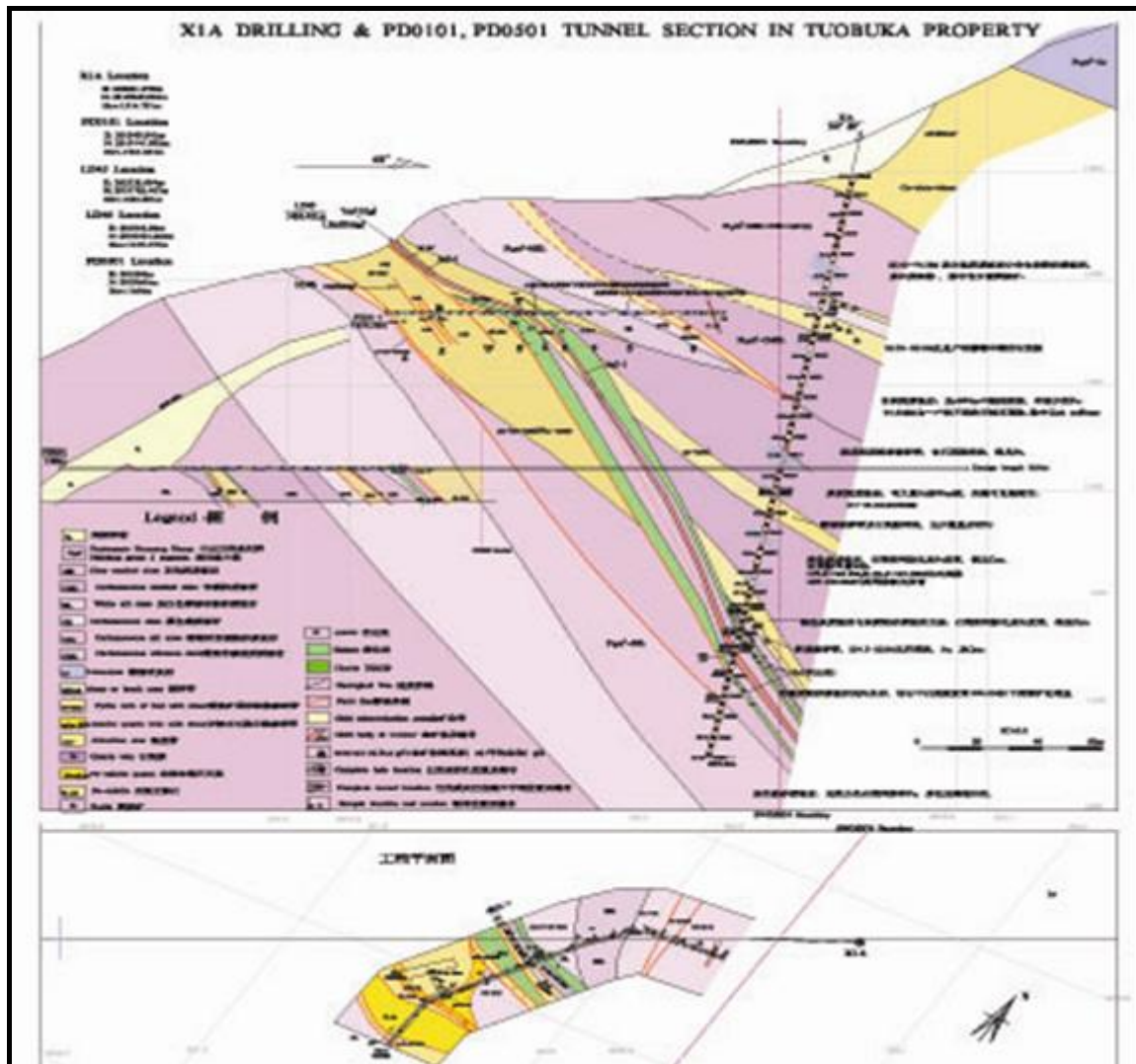


**Figure 4-15: Property Geological Map of Tuobuka Project**

**Shujipo prospect (Tuobuka 1):** is situated at the north of the property. Tuobuka 1 occurs in the upper levels of the Qunmeidang Group within carbonaceous slate and carbonaceous silt slate.

The zone of mineralisation and alteration, which is controlled by the shear zone, is 900m long and 20 to 100m wide. In general, it strikes almost north-south and dips to the east at 20° to 55°. The gold grade of most samples taken from trenches and drill-holes is  $\leq 0.05\text{g/t}$ , the highest is 0.187g/t. The zone is an extension of Boka 7, according to the chemical anomaly, structure, alteration, and mineralisation, but the degree of mineralisation and alteration is lower. The vein is not as distinct and is smaller than at Boka 7.

**Liangshuipeng prospect (Tuobuka 2):** The mineralisation zone here is located at the north-west of the property and extends in a northerly direction into the Boka property. The mineralisation zone is 100m to 150m long and 35m wide. It strikes 300° to 330°, and dips 30° to 70° with angles 45° to 70° (Figure 4-16).



**Figure 4-16: Cross-section of Line 1 at Tuobuka 2 Prospect of Tuobuka Project**

The mineralisation and alteration include calcification, silicification and chalcopiritization. The mineralisation and alteration zone becomes wider and the pyritization disperses from surface to depth and chalcopiritization weakens, which may indicate that the mineralisation stage reduced and the intensity of sulphides mineralisation decreased with depth.

The size and location of the mineralised body is controlled by old tunnels of LD45 and LD47, and PD0101 and drill-hole No X1A. The width of the body is 6.0m and gold grade is 1.68g/t at a depth of 32m in PD0101; it is 4m wide with a gold grade of 1.68g/t at depth 225m in drill-hole No. X1A. It is reported that the average grade is 2.38g/t and average width is 3.98m.

SRK took check samples from selected areas which returned gold assays of 2.16 to 2.31g/t.

**Xinchang prospect (Tuobuka3):** is situated 300m south of the Liangshuipeng prospect. The mineralisation zone is 100m long and 20.5m wide, striking north-westerly and dipping east between 55° and 72°. The main mineralisation and alteration include intensive limonitization, silicification, malachitization and a lot of calcite-quartz veins in breccia fragments. Limonite and chalcopirite occur within the vein and malachite occurs on the surface.

One mineralised body was defined in this prospect, which is exposed in old tunnels. In one tunnel, it is 1.5m wide with an average grade of 13.78g/t and, in another tunnel, it is 6m wide with an average grade of 2.57g/t.

**Baishadi prospect (Tuobuka 4):** It is located at the south of the property at the core of an anticline. Three mineralised bodies were defined in this prospect, but they are smaller than the other Tuobuka deposits, only 100 to 200m long, and the geological certainty is lower. The general occurrence and distribution of the bodies is not yet understood.

#### 4.4.3 Mineralogy

The main ore minerals in the Tuobuka deposit include: limonite, pyrite, chalcopyrite, malachite, covellite and native gold. The gangue minerals are quartz, calcite, feldspar and sericite. The textures of ore rock include crush texture, hypidiomorphic-anhedral grain texture, cataclastic texture, micritic texture, earthy and silt-blastic texture.

#### 4.4.4 Sampling, analytical procedures and quality control

As at October, 2004, according to the internal report of Silvercorp, the total work accomplished was as shown in Table 4-11.

**Table 4-11: Total Work Completed at the Tuobuka Project, to October 2004**

Item	Unit	Quantity
Geochemical survey 1: 10000	km <sup>2</sup>	25.18
Geological mapping 1 : 2000	km <sup>2</sup>	4.8
Channel sample	Sample	484
Drilling	m	2993.85
Core sampling	Sample	1367
Other sampling	Sample	1185
Geo-chemical survey samples	Sample	2153
Pitting	m	830
Logging of old tunnel	m	600

The sampling and assaying were accomplished in accordance with Chinese regulation and standards. For core sampling: first the sample length and location was defined, then cores were split into halves and half was taken as samples. The pit samples were taken employing a channelling method whereby a channel section of 3cm (deep) by 10cm (wide) was used.

The sample preparation and assaying were conducted in rigid accordance with the regulation. Samples were baked at 60°C, crushed into -10 mesh and divided: 500g as spare sample, and other 500g pulverized into -200 mesh as assaying sample.

#### 4.4.5 Assaying Procedure and Quality Control

Geochemical survey sample: the assaying samples were packaged and transported to ALS Chemex Laboratory for analysis and their grades with respect to 39 elements were determined according to IE-ICP41.

Gold assaying: activated carbon absorption and atomic absorption (AA) were used for assaying gold. First 30g of sample was baked at 700°C, then dissolved in aqua regia, after which activated carbon was used to absorb gold. The activated carbon absorbed gold was then baked and digested with aqua regia. AA methodology was used to measure the gold in the resultant solution.

Assaying quality assessment: 530 samples have been analysed since 2004; with 110 internal check samples assayed with the repeatability averaging 93%. A total of 67 samples were checked by external laboratories, with the repeatability averaging 85%. The assaying quality complies with the Chinese regulation (standard: internal checking repeatability >90%; external checking repeatability >80%).

#### 4.4.6 Resource and reserve

Previous exploration data is of insufficient quality to support a resource estimate for the Tuobuka project. Therefore, no resources or reserves are reported for the project.

#### 4.4.7 Potential for Further Exploration

Previous exploration has defined some mineralised bodies in the Tuobuka project, but the mineralised bodies are small. The company is yet to undertake further exploration of the project area. SRK believes that the approaches used in the previous exploration of the mineral resource in the Boka-Tuobuka region are reasonable.

Since the Tuobuka project is contiguous with the Boka project in which a gold deposit has been discovered, SRK recommends that a comprehensive study of the general geology and mineralisation in the region be conducted by experienced geologists before the company decides whether the project should be continued.

## 5 Mining Assessment

### 5.1 Introduction and Mining Licenses

Silvercorp has two mining areas called the Ying and HPG Projects located in Luoning County, western Henan Province, People's Republic of China, with separate mining licenses and legal agreements for each. The legal agreements and chain-of-title are not a subject of this report.

The Ying (Yuelianggou) Project is located about 240km southwest of Zhengzhou, the capital of Henan Province, and about 40km southwest of Luoning, the closest city (population 80,000). The Ying Project includes an active mining area with one mining license.

The HPG (Haopinggou) Project is located within the area Silvercorp describes as the Ying Project, and has only recently been acquired. It also includes an active mining area and two small mining licenses.

Although the Ying and HPG mine areas are reported to be contractually separate, Silvercorp appears to use common management and mining techniques for both. Therefore in this report they will be addressed commonly in the general comments, with distinctions for each area noted as Ying Mine or HPG Mine where applicable.

### 5.2 Mining Licenses

Three separate mining licenses exist for Silvercorp's Ying Project:

- **License #4100000610045**, granted to Fa'ende Henan Mining Ltd. This license is located in the YLG section of the Silvercorp Ying Project, and covers a total area of 9.9447 square kilometres (km<sup>2</sup>). It allows for an underground mine producing the commodities Pb, Zn, and Ag at a rate of 198,000tpa. The validity is for 8 years and 2 months, commencing 2006/3 and ending 2014/5. The license area is bounded by 8 corner points horizontally, and by the altitudes of 0m to 1,036m vertically. See Appendix I for details.
- **License #4100000410514**, granted to Luoning Huatai Mining Exploitation Ltd. This license is located in the HPG section of the Silvercorp Ying Project, and covers a total area of 0.3878km<sup>2</sup>. It allows for an underground mine producing the commodities Ag and Pb at a rate of 20,000tpa.



The validity is for 5 years, commencing 2004/4 and ending 2009/4. The license area is bounded by 11 corner points horizontally, and by the altitudes of 365m to 640m vertically. See Appendix II for details.

- **License #410000620027**, granted to Luoning Huatai Mining Exploitation Ltd. The license is located in the HPG section of the Silvercorp Ying Project, and covers a total area of 0.1453km<sup>2</sup>. It allows for an underground mine producing the commodity Pb at a rate of 5,000tpa. The validity is for 9 years and 6 months, commencing 2006/2 and ending 2015/8. The license area is bounded by 5 corner points horizontally, and by the altitudes of 440m to 830m vertically. See Appendix III for details.

It appears that mining and development may be currently progressing outside of the license boundaries at the HPG Mine.

The licence periods indicated above are shorter than is common in western countries; however in the Chinese system, a mine owner of good standing who has performed according to the license conditions can reasonably expect that the license will be renewed as a matter of course.

## 5.3 Mine Methods and Layout

### 5.3.1 Development

The general mine development layout for the older sections of the Ying Mine, as well as all of the current operations at the HPG Mine, consists primarily of adit and decline development access to the ore zones. Design cross-section of adits is 2.2m x 2.2m arched configuration, with design out-slopes of 0.3 to 1.0% grade for water runoff and to assist with movement of loaded rail cars.

The active mining areas of the Ying Mine are currently accessed through 5 adits:

- CM101, 640m 'relative' elevation, approximately 400m in length
- CM102, 550m 'relative' elevation, approximately 1,000m in length
- CM103, 600m 'relative' elevation, approximately 800m in length
- CM105, 560m 'relative' elevation, approximately 200m in length
- PD16, 580m 'relative' elevation, approximately 100m in length.

Also at the Ying Mine, internal blind shaft development of new ore zones has been designed and is under construction. The shafts are designed for dual-purpose production / ventilation use, as follows:

- #1 Shaft, approximately 310m deep, 3.8m diameter, accessed through CM105
- #2 Shaft, approximately 320m deep, 3.8m diameter, accessed through PD16
- #3 Shaft, approximately 380m deep, 3.8m diameter, accessed through CM101.

Ying Mine hoist installations are of the counterweighted, caged-car design. Cost efficiency could be achieved by upgrading this system to a more efficient modern design. Mine personnel stated that the cages have been drop tested twice at installation – once empty and once loaded. Hoistmen must attend a 1-year school and pass a test to be licensed, and then have a yearly physical exam.

Stope development on the levels between the Ying shafts generally follows the same procedures as the adit / decline scheme.

HPG also has five adits, however, the active mining areas – particularly the H-15 and H-17 veins – are accessed primarily through the PD-3 and PD-720 adits.

HPG production is said to average 140tpd mill-run ore, approximately 200 tonnes per month ‘direct-shipping’ ore, 400tpd waste, and approximately 1,500m development drift per month. The mining is contracted, and said to be the same contract conditions as the Ying Mine.

Veins are explored at both the Ying and HPG Mines by drifting along the structure, staying as much as possible within the vein. The designed cross-section configuration is 1.8m x 1.8m, with a flat back. Vein development costs are reported to be ¥800/m.

### 5.3.2 Stopping

The original Maanshan Anhui Mine designs call for both shrinkage stopes and re-sue stopes.

Ore zones along the veins were to be developed by driving parallel access drifts, the design separation of which is to leave 4m pillars. Design stope block size is 40m x 40m for Ying Mine shrinkage stopes, 80m length x 40m height for re-sue stopes, and 50m x 50m in the new internal shaft development areas. At the HPG mine, design stope block size is 50m x 50m. Stope drawpoint cross-cut spacing design is 5m for Ying Mine, and 7m for HPG Mine. The average Ying stope width is 0.8m., with a range of 1m to 3m maximum at this time. The average HPG stope width is 1m., with a range of up to 4m maximum. Design stope ore recovery is 95%, and design stope ore dilution is 10%.

However, actual practice is to primarily use standard shrinkage stopping methods, with limited areas utilizing a normal re-sue shrink stope method where the ore configuration and ore grades are suitable, and the higher costs are justified. The re-sue (split-shooting) technique relies on: first, suitably pre-placing rubber belting material in position along the length of the stope sill; second, drilling and blasting of the ore portion of the vein down onto the rubber belting; third, ore removal; fourth, removal and storage of the rubber belting; and fifth, blasting of the waste down onto the stope sill. Additional waste material is blasted from the stope walls as needed to maintain the necessary sill level within the stope. Ancillary ore draw points are created within the re-sue stopes by stacking 1m diameter by 0.5m high steel rings as the stope progresses upward.

Other than the insertion of the split-shooting steps, the re-sue stopes are mined in the same manner as the shrinkage stopes. The end result of the two is obviously different, as the pulling of the ore from the shrinkage stope results in an open void, whereas in the re-sue stope the ore is pulled in the mining process and the end result is a stope almost filled with waste.

The overall mine design calls for 40% of the waste material mined to be backfilled into stopes, and 60% to be placed in the waste dumps outside each portal.

Production design is for 20 to 25 stopes to be in production at full capacity, with a design capacity of 25tpd ore from each re-sue stope, and 60tpd ore from each shrinkage stope.

**Haulage:** Underground adit and decline transportation of muck and materials varies, with hand carts used in many areas, ‘tricycle’ (small three-wheeled diesel-powered rubber-tired trucks in some areas, and rail haulage (15 kg/m rail @ 600mm gauge) utilized in some new main development areas. Due to the high cost of conversion from hand and truck haulage methods to rail haulage, there are no plans to convert these older systems for mining through Portal CM102 and CM103.

Three new shafts to a depth of about 250m elevation access development area utilise counterweighted caged-car hoisting systems for haulage of muck and materials. Hauling system will employ rail haulage in the next several years of mining through vertical shafts at depth.

**Labour Utilization:** Underground drilling operations are generally mechanized and utilize jack-leg stopers and drifters. Blasting is done with ANFO and emulsion dynamite. Almost all mucking,

stope sill levelling, and much of the transportation of muck and materials is performed either by hand methods, or with very rudimentary machinery and equipment. In general, all of the mining work at the Silvercorp operation is labour intensive and it has served the need as it produces about 700 tonnes of ore per day at the Ying Mine, or about 21,000 tonnes per month. Silvercorp's target is to produce about 240,000 tonnes of ore annually from the Ying Mine. A further positive consideration politically is the number of jobs created.

## 5.4 Ground Control and Rock Mechanics

The underground observations relating to the rock mechanics and ground control conditions at Silvercorp's Ying and HPG Mines during the SRK site visit reveal a generally positive situation in which only normal problems were noted. The host rock of most of the veins is gneiss. The quality of the rock mass in the hanging wall and vein is good, except vein S7 where the vein is very broken. In general, the development and stopes are left unsupported. For those sections of regular tunnels with well-developed shear zones and faults, timber is used to provide ground support. If ground condition is poor in shafts and service chambers, rock bolts, rock bolts with steel screen, or shotcrete are applied to provide support.

Reports from mine staff state that few ground control issues exist, and that less than 5% of the total development openings have had problems which required any artificial ground support. The maximum ground control problem length was about 20m, and that instance was in a portal driven through unconsolidated overburden. In general, rock types observed in the mine were hard, blocky, and with complicated joint arrays – and most of the ground control issues observed relate to that jointing. Problem areas noted include:

- Weak zones in pillars or back at the intersections of development openings and veins, particularly in the case of open stopes (mined-out veins).
- Several instances of potential ground failure due to unexcavated and unsupported material within the natural arch of excavated zones were noted.
- Loose blocks of sizes ranging from pebble to several tons in weight hanging throughout the mine openings, generally attributable to the jointed and blocky nature of the ground, but also sometimes apparently due to severe over-breakage from blasting. A thorough barring down of all passage ways in use would go a long way towards alleviating this hazard.
- Pillar shearing, crushing, shell and cross-fracturing in stope development areas where insufficient pillar width was left between the vein development drift and its accompanying hanging-wall situated parallel haulage way, such as at PD720-H17-720-Au#1 area.
- Silvercorp staff report only minor instances of stope hanging wall or footwall instability.
- Silvercorp staff report no ground control issues related to the construction of the new blind internal shafts.
- A few instances of rock instability along clay joints in areas with water seepage were noted – a primary example being the main rail decline at the HPG PD3 mine.
- A few instances of overloaded and distorted ground support units such as steel or concrete sets were noted, and these should be relieved and replaced.

Although Silvercorp has reportedly conducted some Rock Quality Designation (RQD) measurements of drill cores in the past, this is no longer being done. No RQD results were made available to SRK. With SRK's suggestion, Silvercorp has stated that RQD measurement will be undertaken in its future drill cores. The Specific Gravity (SG) design parameters for Ying materials have been determined to be:

- approximately 4.2t/m<sup>3</sup> for high grade ore averaging >10% combined Pb and Zn
- approximately 2.7t/m<sup>3</sup> for ore averaging <10% combined Pb and Zn
- approximately 2.7t/m<sup>3</sup> for waste rock (in-place material)
- approximately 1.8t/m<sup>3</sup> for waste rock (broken)

The swell factor (calculated from above) for Ying waste rock is 1.5.

Rock mechanics testing was done by China Steel’s Maanshan Institute of Mining Research and results are listed in the following table.

**Table 5-1: Rock Mechanics Parameters at the Ying Mine**

Rock types	Absorption Rate (%)	Saturation Rate (%)	SG	Resistance (mPa)		Static Elastic ability (x10 <sup>3</sup> mPa)		RQD	Shear Resistance	
				Dry	Wet	Dry	Wet			
Hornblende Feldspar Gneiss	2.83	2.95	2.52	48.8	60.1	28		76.6	0.04	35.11
Feldspar Hornblende Gneiss	2.68	2.82	2.62	110.7	63.2	66	66.9	74.5	0.02	33.02
Alteration rock	0.8	0.89	2.77	128.7	69.7	61.4	47.7	59.7	0.03	31.67
Breccias	2.09	2.15	2.65	87.4	35.3	77.2	64.4	40.7	0.03	32.74

The rock mechanics study shows that the host rocks in the Ying mine are generally competent and require minimal ground support.

Although called for in the Ying Mine design, backfilling of stopes is done sporadically, and only on an as-needed basis to facilitate waste handling. The effects on either backfilled or open stope wallrock due to depth and/or time have not been addressed in the mine designs or planning. Silvercorp has indicated to SRK that it intends to address this issue.

## 5.5 Groundwater & Pumping

Groundwater inflows are low to moderate for the amount of excavated workings at both the Ying and HPG Mines. Current pumping reportedly averages 20m<sup>3</sup>/hr. from Ying #1 shaft, 15m<sup>3</sup>/hr each from Ying #2 and #3 shafts at 250m altitude, and 500m<sup>3</sup>/day from the entire HPG mining operation. Pump systems at HPG are designed to run 10 hours/day average in the dry season, so as to give extra capacity for the rainy season.

There were instances observed during the SRK site visit that clays in either the ores or the country rocks swell due to water seepage, which may indicate that ground water will have an increasing impact on ground support as the depth of the mine increases.

The Guxian Reservoir is reportedly only 100m from the Ying Mine workings at its closest point. Its current water level is about 520m altitude, and maximum design level is 530.8m. The issues of what effect the Guxian Reservoir may have on water inflow rates to the Ying Mine as its mining depth increases, or what potential hazard a sudden water inrush from the reservoir might pose, are known to the mine staff. A hydrogeology report completed by Zhengzhou Geological Engineering Exploitation Institute of Henan Province in May 2006, concludes that the Guxian Reservoir has no water inflow to the Ying Mine.

## 5.6 Compressed Air

Compressed air facilities at both the Ying and HPG Mines are provided by utilizing similar electrically powered two-stage piston compressors of varying size at each adit portal in conjunction with a combination of steel and plastic piping for air distribution. Compressors were observed in conditions from new to well-used. Numerous air leaks and restrictions were noticed in the normally haphazard placement of the air distribution lines. SRK mining personnel believe that considerable cost savings as well as productivity increases (due to correct operational pressures at the pneumatic drills) could be realized at both operations through the correct sizing, re-alignment, and repair of these airlines and related equipment.

## 5.7 Electricity

Electricity is provided to both the Ying and HPG operations at 10KV delivery voltage from the government network. Due to excessive line length, voltage compensation (avg. 9.5KV → 10KV) is provided by a Silvercorp funded buck and boost transformer station at the mine. The Ying Mine has 17 transformation (10KV to 380V) substations of various capacities located near each portal and set of buildings. Three backup generators are stated to be in place to provide emergency power to critical facilities (hoists, underground ventilation, hospitals, etc.). Electrical power supply is uniform to all facilities at 380V, three phase. The Ying electrical department consists of 2 engineers and 2 technicians. The two engineers were well prepared with maps and documentation for SRK's site visit, and seemed to be trained and knowledgeable. Due to the limited time available at the HPG Mine, details of its electrical systems were not inspected by SRK mining personnel, but are assumed to be similar.

Overall condition of both Ying and HPG surface electrical systems appeared competently designed and installed, as did the Ying hoist electrical installations. Other underground electrical work (possibly contractor installed) was less well done. SRK mining personnel recommend that a thorough electrical inspection and safety check be performed at both mines. SRK mining personnel also believe that, dependent on overall line lengths, the existing 10KV power lines may be inadequate for the size of Silvercorp's projected operations, and therefore an evaluation of the overall electrical power supply design should be performed and electrical systems upgraded as necessary.

## 5.8 Ventilation and Dust Control

Primary ventilation at both the Ying and HPG Mines is similar, with 650mm diameter electrically powered vane axial fans providing main ventilation of name-plate specification 6 to 8m<sup>3</sup>/second at 1600Pa. and 22kW power consumption through flexible ducting. The main fan for the PD16 adit had a 50cm inlet cone and screen, however, the fan was unmounted and lying on the ground. In addition, this fan was off upon SRK's arrival, but was turned on to demonstrate its effectiveness. Although the mine crew was working underground, the fan was then turned back off "to save power costs", and it remained off for the duration of SRK's visit. SRK disagrees with this practice, due to the potential impact on workforce health and safety.

Secondary ventilation, where provided, at both the Ying and HPG Mines is also similar, with 40cm diameter electrically powered vane axial fans providing secondary ventilation of name-plate specification 2.1 to 3.7m<sup>3</sup>/second at 1000 to 1820Pa. and 5.8kW power consumption through flexible duct. The secondary fans observed were also unmounted and lying on the ground – most positioned at a considerable distance from the working face. Standard practice at both the Ying and HPG Mines is to place all secondary fans so as to create negative pressure at the face, in the belief that this results in better ventilation when long distances are involved. SRK believes that mine ventilation could be greatly enhanced by mounting fans in clean air near the roof, discharging close to the face, and sweeping the face with positive air flows.

Ventilation in both Silvercorp's Ying and HPG Mines was stated to be about 60% natural and 40% mechanically induced. SRK believes an increased ratio of mechanically induced ventilation will be beneficial to the health and safety of mine personnel and to consistent production.

Since SRK's initial inspection the Company has indicated that it has purchased ventilation measuring instruments and that air quality measurements are proceeding. The Company provided photographs of the instruments and personnel operating them in the mine. The Company also provided SRK with results of ventilation measurements for volume (m<sup>3</sup>/s, m/s) and two gas contents (CO and H<sub>2</sub>S), however no results for dust particle measurements have yet been provided. The Company has also not provided SRK with any evidence regarding monitoring of the lead constituent in air and water at the mine. SRK observed visible airborne dust contamination in several locations in the underground mine which has the potential to contain lead particles. At the time of the SRK site visit, no respirators or other breathing related PPD (Personal Protective Devices) were observed in use by anyone at either mine. The Company has since indicated that the use of PPE has been improved.

On the surface in the mine area, both wind-blown particulates and mechanically agitated dusts were obvious at the time of the SRK site visit.

SRK recommended that Silvercorp immediately institute remedial measures to improve its mine ventilation, institute dust control methods where needed both underground and on surface, and institute an engineered program to measure and minimize lead exposure at its mine properties. Silvercorp has acted on SRK's recommendation and purchased ventilation measurement equipment and commenced ventilation surveys in the underground mine. A water truck has been commissioned to spray water on haul roads to reduce surface dust. The Company has also constructed accommodation units away from the industrial area and provided increased management of the use of PPE.

## 5.9 Surface Haulage

Surface haulage from adit to crushing plants, as well as some underground main haulage at both the Ying and HPG mines is primarily via approximately 2t capacity 'tricycle' (three-wheeled) diesel powered trucks. At the Ying Mine, each truckload is weighed at the portal of the adits in order to determine production tonnage. Waste is dumped at the various portals. The ore is hauled to either the direct-ship facility, or to the receiving bin at the hand-sort facility. The hand-sort facility employs 40 people, split between three shifts, and is reported to daily remove 15% of the total tonnage as waste, as well as recover 2 to 3% of the total tonnage as direct ship ore. The remaining ore left on the hand-sort conveyor belt is run outside and stockpiled. Stockpiled ore is loaded by 2m<sup>3</sup> rubber-tired diesel-powered front-end loaders into 30t capacity over-the-road dump trucks for shipment to the mill. The loaded trucks are driven a few hundred meters to the edge of Guxian Reservoir, where they are loaded five trucks at a time onto a barge and hauled across the reservoir. The barge is said to be capable of six trips per day, with no night-time operation allowed. After off-loading from the barge, the trucks are driven to the mill for receipt of the ore.

The problems with the existing surface haulage system and distance to the mill are difficult to overcome at this point; however, SRK mining personnel believe that a review and rebuild of these systems could result in substantial improvements.

## 5.10 Mining Costs & Revenues

Stoping costs at the Ying Mine are reported to average ¥65/t for shrinkage stopes, and ¥195/t for re-sue stopes. Adit development costs at the Ying Mine were stated to average ¥800/m. Detailed mining costs are shown in Table 5-2.

**Table 5-2: Details of mining costs, Ying Mine, March to July 2007**

	<b>March 2007</b>	<b>April 2007</b>	<b>May 2007</b>	<b>June 2007</b>	<b>July 2007</b>
<b>Items</b>	¥/tonne	¥/tonne	¥/tonne	¥/tonne	¥/tonne
	Mined	Mined	Mined	Mined	Mined
RAW MATERIALS & SUPPLIES	65.0	57.8	68.8	91.5	93.2
DEVELOPMENT COST (MINING PREP)	37.7	23.2	57.1	49.6	19.8
Wages	24.6	26.3	39.1	41.1	31.4
Stoping	133.1	118.5	114.9	117.6	129.6
POWER	12.6	21.6	21.6	20.5	19.4
OTHERS	15.1	18.9	32.5	19.7	24.6
<b>CASH COST</b>	<b>288</b>	<b>266</b>	<b>334</b>	<b>340</b>	<b>318</b>
L-T EXPLORATION AMORT (TUNNELS)	12.7	19.8	6.6	18.2	19.1
L-T DRILLING AMORT (DRILL)	6.3	8.9	13.9	9.7	16.1
DEPRECIATION	5.1	6.0	5.4	5.6	5.8
S-T EXPLORATION AMORT (TUNNELS)	24.9	26.0	4.3	21.4	20.2
<b>NON-CASH COST</b>	<b>49</b>	<b>61</b>	<b>30</b>	<b>55</b>	<b>61</b>
<b>TOTAL MINING COST</b>	<b>¥ 337</b>	<b>¥ 327</b>	<b>¥ 364</b>	<b>¥ 395</b>	<b>¥ 379</b>

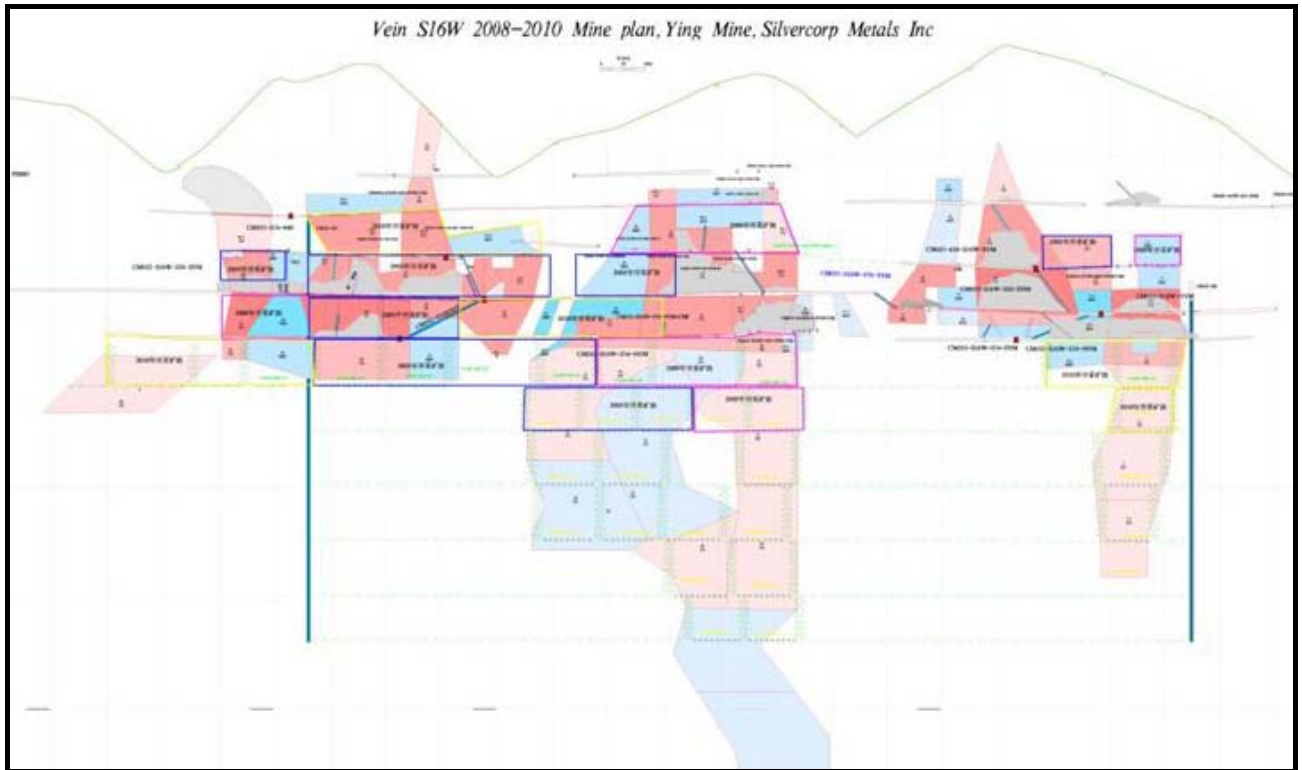
Haulage costs at the Ying Mine are stated to be ¥15.00/t for truck transport, and ¥9.58/t for barge transport.

## 5.11 Mine Planning

SRK was provided with a generalized cross-section depicting the #1 through #3 Shaft and stope area at the Ying Mine, and a one page spreadsheet listing projected Ying Mine production tonnages for calendar year 2007, which is reproduced below as Table 5-4. SRK was also provided with 16 sections showing the planned stoping areas for the S2, S2E, S4, S6, S07, S07-1, S07-3, S8, S08E, S14, S16, S16E, S16E1, S16E3, S16W, S16W1 and S21 veins.

The BK Exploration report “Technical Update -2006 May 26” includes tables and commentary related to possible production tonnages from various veins in the mines. However, no cost estimate for either the mining of these veins, or for the development work necessary to access them, has been provided to SRK.

The mining blocks proposed to be mined, for example in the S16W vein for 2008-2010 is shown in Figure 5-1.



**Figure 5-1: Ying Mine proposed mining blocks, 2008 to 2010**

Mine personnel stated that there has been no update to the Ying Mine plan since the Anhui Institute document of August, 2006 (which appears to utilize information far older than its publication date), and that no personnel or time are available for mine planning. In addition, Silvercorp management on several occasions during SRK’s site visit made the statement that they believe mine planning past one or two years is impossible for their operation, due to the small vein characteristics of the Ying and HPG Mines. SRK does not agree with this view and believes that long-term and life-of-orebody mine plans are particularly crucial in small vein mines.

Whilst it is still very early in the life of the mine, SRK consider that it is important to generate and update the mine plan. This would allow optimisation of mining and reduce the potential for problems (associated with stress and also historical workings) later in the mine life.

The production recorded for 2006 at the Ying Mine is shown in Table 5-3 and the planned production for 2007 is shown in Table 5-4. SRK was not provided with life of mine production schedules.

**Table 5-3: Ying Mine Ore Mined, 2006**

Ore tonnes mined, 2006	Ore Grade		
	Pb (%)	Ag (g/t)	Zn (%)
131,715	8.89	454	3.34



**Table 5-4: Proposed Mining Schedule, Ying Mine, 2007**

2007	Re-suining (tonnes)	Pb (%)	Ag (g/t)	Zn (%)	Shrinkage (tonnes)	Pb (%)	Ag (g/t)	Zn (%)	Re-suining + Shrinkage (tonnes)	Pb (%)	Ag (g/t)	Zn (%)
Jan	6,863	11.66	768	5.54	7,785	9.12	341	4.68	14,648	10.31	541	5.08
Feb	4,575	11.66	768	5.54	3,930	9.12	341	4.68	8,505	10.49	571	5.14
Mar	6,863	11.66	768	5.54	7,785	9.12	341	4.68	14,648	10.31	541	5.08
Apr	5,800	11.66	779	5.81	8,300	5.73	363	4.28	14,100	8.17	534	4.91
May	7,413	11.66	779	5.81	10,000	5.73	363	4.28	17,413	8.25	540	4.93
Jun	7,250	11.66	779	5.81	10,500	5.73	363	4.28	17,750	8.15	533	4.90
Jul	7,300	12.25	786	4.71	11,000	6.41	374	4.16	18,300	8.74	538	4.38
Aug	7,750	12.25	786	4.71	9,800	6.41	374	4.16	17,550	8.99	556	4.40
Sep	7,800	12.25	786	4.71	13,000	6.41	374	4.16	20,800	8.60	529	4.37
Oct	9,750	13.56	821	4.95	11,450	7.81	384	4.08	21,200	10.45	585	4.48
Nov	8,789	13.56	821	4.95	13,623	7.81	384	4.08	22,412	10.06	555	4.42
Dec	8,150	13.56	821	4.95	15,400	7.81	384	4.08	23,550	9.80	535	4.38
<b>Total</b>	<b>88,302</b>	<b>12.39</b>	<b>792</b>	<b>5.21</b>	<b>122,573</b>	<b>7.24</b>	<b>368</b>	<b>4.27</b>	<b>210,875</b>	<b>9.39</b>	<b>545</b>	<b>4.66</b>

**Mineable Resource**

In their 2006 report, BK Exploration estimated the expected tonnes and average grade which would be mined, assuming a 100% dilution factor (one tonne of ore will be mixed with one tonne of waste rock) and a 95% ore recovery rate. Based on the measured and indicated resources in their May 26, 2006 report, the mineable resource was as shown in Table 5-5.

**Table 5-5: Mineable Resources using 100% dilution factors and 95% recovery rate**

	Tonnes	Grade			
		Ag (g/t)	Ag (oz/t)	Pb (%)	Zn (%)
Measured + Indicated Resources	811,620	1,535	49.35	26.48	8.61
less 5% ore loss (95% ore recovery)	40,581	1,535	49.35	26.48	8.61
Sub-total	771,039	1,535	49.35	26.48	8.61
Added: 100% External Dilution (at zero grade)	771,039	0	0	0	0
<b>Total Mineable Measured+ Indicated Resources</b>	<b>1,542,078</b>	<b>767</b>	<b>24.68</b>	<b>13.24</b>	<b>4.31</b>

Using the above mineable resource, a financial analysis of the Ying Project was made, which incorporated the cost estimate, metal recovery rates derived from actual custom milling, and the most recent Chinese tax schedules. The cash flow analysis for 6-year mine life is also presented in the BK Exploration Associates 2006 report

However after almost one year of mining practice at the Ying Mine after BK Exploration Assoc.'s report, the actual dilution factor has been recorded at 194% (one tonne of ore will mixed with 1.94 tonnes of waste rock) and recovery rate recorded at 95%. Therefore the mineable resource, based on this new dilution factor has been calculated by Silvercorp's Ying Mine staff as shown in Table 5-6.

**Table 5-6: Mineable Resources using 194% dilution factors and 95% recovery rate**

	Tonnes	Grade			
		Ag (g/t)	Ag (oz/t)	Pb (%)	Zn (%)
<b>Measured + Indicated Resources</b>	<b>811,620</b>	<b>1,535</b>	<b>49.35</b>	<b>26.48</b>	<b>8.61</b>
less 5% ore loss (95% ore recovery)	40,581	1,535	49.35	26.48	8.61
Sub-total	771,039	1,535	49.35	26.48	8.61
Added: 194% External Dilution (at zero grade)	1,495,816	0	0	0	0
<b>Total Mineable Measured+ Indicated Resources</b>	<b>2,266,855</b>	<b>522.11</b>	<b>16.78</b>	<b>9.01</b>	<b>2.93</b>

During 2006, 140,000 tonnes of mineable resource was mined and it is expected that 240,000 tonnes of mineable resource will be mined in 2007.

For the years 2008 to 2010 the proposed mining schedule is as outlined in Table 5-7. A total of 720,000 tonnes of mineable resources is planned to be consumed in that period.

**Table 5-7: Ying Mine Schedule (total ore mined), 2008-2010**

	Tonnes*	Grades			Contained Metals			
		Pb(%)	Zn(%)	Ag(g/t)	Pb(t)	Zn(t)	Ag(t)	Ag (oz)
<b>2008</b>	240,000	9.22	4.45	467	22,128	10,680	112	3,603,476
<b>2009</b>	240,000	8.51	4.10	590	20,424	9,840	142	4,552,572
<b>2010</b>	240,000	9.85	4.15	509	23,640	9,960	122	3,927,558
<b>Totals</b>	<b>720,000</b>	<b>9.19</b>	<b>4.23</b>	<b>522</b>	<b>66,192</b>	<b>30,480</b>	<b>376</b>	<b>12,083,605</b>

By the end of the 2010, a total of 1,100,000 tonnes of mineable resource is planned to be mined, representing about 48% of total mineable resources at the Ying Mine. At an annual rate of 240,000 tonnes per year, the remaining mineable resource should enable Ying Mine to be in production for another 4.8 years after 2010, assuming no inferred resource is upgraded into measured or indicated resource.

In comparison to the mining schedule presented by BK Exploration's in their 2006 report, this new mining schedule is based on the actual mining dilution factor recorded in 2006, which is 94% more dilution than the estimate made in the BK Exploration 2006 report. Therefore, the head grade is reduced by 32% and materials mined, moved and milled will be increased by 47%.

## 5.12 Mine Overall Assessment

The observable indicators at the Ying mine reveal a mining operation that could sustain a significantly higher level of production. This could be achieved through improved management of the overall mining process, particularly in the area of mine design, mine planning and improving efficiencies in the operation.

## 6 Geotechnical Assessment

Silvercorp's Ying and HPG mining operations were visited by SRK and the following geotechnical issues were specifically given consideration:

- The Ying Underground Mine
- The HPG Underground Mine
- Surface Infrastructure at the Ying and HPG mines

- TSF for the Ying and HPG Mines
- Access to the Ying and HPG Mines
- Hydrogeology
- Smelter Construction Site

Documentation that SRK had access to for the purposes of this review is listed in the References Section of this report.

## 6.1 Understanding of Geotechnical Conditions

It is understood that no mine specific geotechnical investigations to assess mining conditions have been carried out for either the Ying or HPG Mines. There is, however, brief consideration given to interpreted geotechnical conditions in the Preliminary Design Report for the Ying Mine. SRK was advised that there is no geotechnical documentation for the HPG Mine. Silvercorp only took management control of the operation in January 2007 and proposes to initiate a geotechnical program in the near future.

A rock mechanics study in the adjacent Ying mine indicates that the rocks are generally competent and require minimal ground support. The host rock of most of the veins consists of gneiss. The quality of the rock mass in the hanging wall and vein is reasonable except vein S7 in which the vein is very broken. In general the development and stopes are left unsupported. For those sections of regular tunnels with well-developed shear zones and faults, occasional timber is used to provide ground support. If the ground condition is poor in shafts and service chambers, rock bolts, rock bolts with steel screen, or shotcrete are applied to provide support.

In the documentation sighted by SRK it is noted that there is provision in the budget for geotechnical work to be done. A total of US\$80,000 has been allocated for the purpose of a geotechnical report on the TSF site. However no budget for geotechnical work within the underground mine has been provided to SRK.

On the basis of SRK experience it is judged that the total cost of geotechnical work over the mine life will exceed that currently budgeted. Subsequent to the site visit, Mr Myles Gao has provided written clarification that this geotechnical budget is intended for the TSF. Mr Gao has confirmed that Silvercorp commenced operations in January 2007, and that they intend to initiate more detailed geotechnical studies in the future. No details of the proposed scope of geotechnical investigation have been provided to SRK.

SRK is of the view that it is important to gain a good understanding of the geotechnical and hydrogeological conditions at both the Ying and HPG Mines. In order to optimise mining and reduce the potential for sterilisation of portions of the orebody, the geotechnical and hydrogeological conditions should be assessed as soon as is practical during the early stages of the operation of the mines. The results of the geotechnical interpretations should then be taken into account in the mine design and planning. Specific issues that are considered to be important to address, in order to realise the full potential of a long term mining operation, include:

- In-situ Stress Regime
- Underground support requirements
- Hydrogeological Conditions

SRK was advised that, in general, only core (obtained from geological drilling) in the immediate vicinity of mineralised zones is stored. It is also understood that detailed geotechnical logging of boreholes drilled for geological purposes has not been carried out. A photographic record of all core has, however, been kept and this could be used to visually appraise rock mass condition. To

minimise the cost of geotechnical investigation, and allow optimisation of mine design, SRK recommends that:

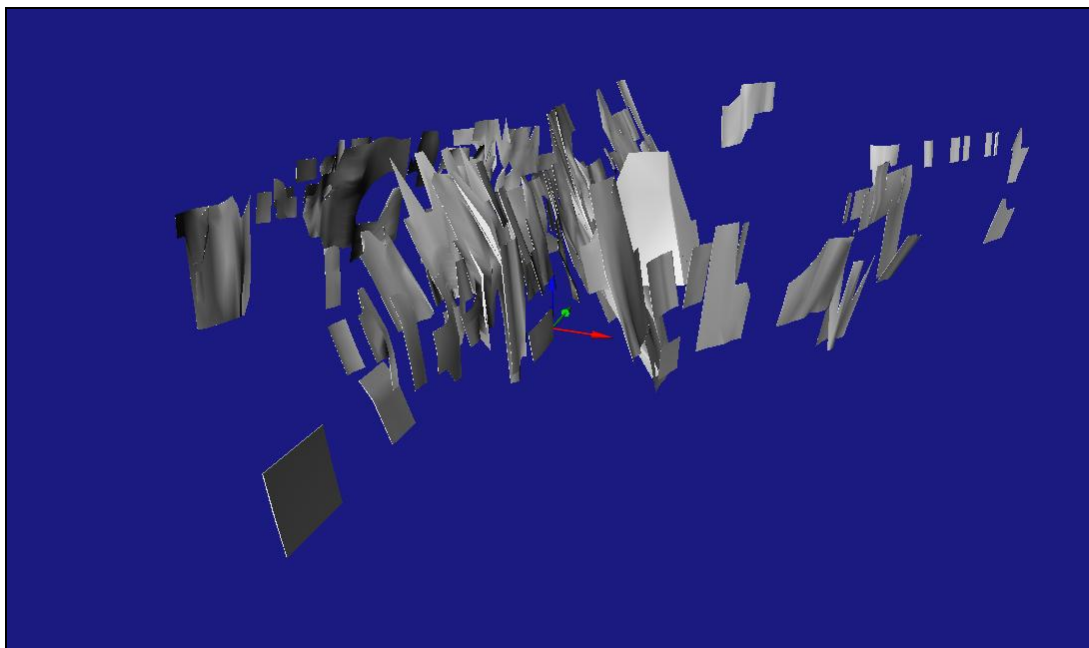
- For future holes drilled at the mine core from the foot- and hanging walls is retained
- A photographic record of the core is maintained, and that this record is made when the core is fresh and as undisturbed as is possible
- Geotechnical parameters are recorded in holes drilled for geological purposes.

At the time of the site visit SRK did sight detailed documentation covering the design of Ying Mine infrastructure, including information with respect to the TSF. This documentation included reference to geotechnical conditions. Design documentation for the HPG TSF was also sighted. SRK is of the opinion that the geotechnical conditions as they relate to the TSF's for both mines are, in general, quite well understood and it appears that they have been taken into consideration during the design phase.

## 6.2 Underground Mines

### Ying Mine

The Ying Mine deposit occurs as a series of steeply dipping tabular veins that strike N-S to NE-SW and dip towards the east as shown in Figure 6-1. Veins are structurally controlled and commonly pinch and swell. Mineralised veins range in thickness from 0.47m to 8m.



**Figure 6-1: Ying Narrow Vein Orebody**

According to the Maanshan Institute of Mining Research report (Yuelianggou Lead-Zinc-Silver Mine of He'nan Faende Mineral Limited Company, Preliminary Design of Ore-dressing Engineering, dated December 2005), mining is to be carried out in two distinct vertical stages. The first vertical stage is to be mined on levels spaced at 50m intervals between levels 500m and 260m. The second stage is between levels 260m and 0m. Mining is planned to be “top down, that is, the design will stope the ore-bodied from the 500m midsection to 260m midsection by section. In the horizontal direction, retreating working is used to mine from north to south (blind vertical shaft).”

The Maanshan Institute of Mining Research states that two developing schemes could be used for development of the mine. These include combined development of:

- a) Adits and several blind vertical shafts, and
- b) Adits and blind inclined shafts.

The Maanshan Institute of Mining Research apparently undertook a detailed technical and economic assessment of the two options listed above, and considered that option a) would be the most appropriate for the orebody. Taking into consideration the technical conditions and production targets, the Maanshan Institute of Mining Research selected open stope mining techniques (note reference is made to both shallow hole shrinkage and cut and fill stoping in the Maanshan report).

The Maanshan Institute of Mining Research concludes that “the degree of the control over the orebodies in the deep part of ore deposit is low”. They have therefore recommended that development and exploration should be done at the same time. SRK is of the view that this approach is practical and appropriate. However, it is important that mine plans are developed and evaluated on an ongoing basis to ensure that geotechnical conditions are taken into consideration and to optimize mining.

Engineering geological conditions have been described by the Maanshan Institute of Mining Research. They identify that the:

- Hanging- and footwall are predominantly comprised of altered gneiss, cataclastic rocks and tectonic breccias
- Rock formations are structurally complex
- Average dry unconfined compressive strength of the rock is approximately 129 megapascal (Mpa) and the average wet unconfined compressive strength is 70Mpa, with cohesion of 0.03Mpa, and an interpreted angle of internal friction of about 33°
- Average RQD is about 60%, but the breccias have an average RQD of only approximately 41%
- Strength of altered gneiss is lower than that of un-altered rock, but higher than the tectonic breccias and cataclastic rocks
- There are prominent geological structures and the surface rock weathering is weak
- There are potential engineering geological problems in local areas, but the rock condition should generally be favourable from a stability perspective.

From observations and on site discussions it is understood that ore shoots are mined by short-hole shrinkage stoping where the ore body is greater than about 0.8m thick. When the ore body thickness is less than about 0.8m, re-sue stopping techniques are used. Stopes extend between two mine levels and stope preparation includes the development of two raises between the lower and upper levels (40m apart) to provide access and ventilation. Cross cuts are formed at approximately 8m spacing to facilitate loading of the ore from a foot wall drive. Stopes are typically about 50m long and the mine personnel anticipate that a minimum number of pillars is required due to the thickness of the ore body and the condition of the host rock. According to mine personnel, the mine design calls for approximately 40% of the waste to be disposed of in stopes, and 60% to be disposed on the surface. No stopes had been back filled at the time of the SRK visit.

Mining is done under contract by four contractor companies. Contractors work in assigned portions of the mine and do not share access. Contractors work 2 x 12 hour shifts 300 days per annum. Typical shifts include about 4 hours drill and blast, and 5 hours mucking out. Target production levels are set by the mine.

Mine personnel advised that above level 530m the ore body is accessed via a series of adits (C101, C102, and C103). Adits have a nominal design dimension of 2.2m x 2.2m and are excavated by drill and blast methods.

According to mine personnel provision has been made for ground support. This includes split sets, shotcrete, concrete “beams” and timber sets. The need for support is assessed by the safety manager and mine manager following inspection that is done on a daily basis. On average adits are advanced approximately 2m per day.

The ore body below level 530m is accesses by a series of shafts. The shafts (5 in number) are hand excavated and have a diameter of 2.5m to 3.8m depending on the intended shaft usage.

Silvercorp have provided a summary of the mine development that had been completed at the time of the SRK site visit. This summary is reproduced in Table 6-1.

**Table 6-1: Summary of Ying Mine Developments at time of SRK Site Visit**

Access System	Portal(s) at	Inter-level Access	Levels
CM101	640m L	Decline to 570m L of CM102 Raise to 700m L of CM104 Access to No. 3 Shaft	640m L
CM102	555m L to 570m L	Connected to CM103 at 570m L (& YGL, SPD66 at 570m L) Raise 570m L to 610m L Raise 610m L to 640m L Decline to 518m L of S14, S6, and S2 veins Decline 518m L to 480m L of S14, S6, and S2 veins Decline to 534m L of S16W, S16E, S7-1, S7, & S8 Veins	640m L 610m L 550m L to 570m L 534m L 518m L 480m L
CM103	550m L	Connected to CM102 at 570m L Raise 570m L to 610m L of S16W and S16W1 vein Raise 610m L to 640m L of S16W and S16W1 vein Connected YPD01 at 570m L along S21 vein Decline to 490m L of S2, S2E and S4 veins Decline 490m L to 460m L of S2, S2E and S4 veins Decline to 518m L of S14, S6, and S2 veins Decline 518m L to 480m L of S14, S6, and S2 veins	640m L 610m L 550m L to 570m L 518m L 480m L 496m L 460m L
CM104	700m L	Decline 700m L to 640m L of CM101	700m L
CM105	600m L	Access to No. 1 Shaft	570m L
PD16	600m L	Access to No. 2 Shaft	600m L
PD650	640m L	Connected to CM101 for ventilation and exploration	640m L
PD680	680m L	680m L exploration and mining	680m L
PD700	700m L	Decline 700m L to 600m L of S7 & S8 veins (south)	700m L 640m L 600m L
YM01	580m L	Decline 580m L to 540m L of S8 vein (north) Decline 540m L to 500m L of S8 vein (north)	580m L 540m L 500m L
YPD02	570m L	Decline 570m L to 530m L of S7 and S7-2 veins	570m L 530m L
YPD01	570m L	Connected to CM103 along S21 vein	570m L
YLGSPD66	570m L	Connected to CM102 along S8 vein	570m L

SRK visited the following underground areas:

- CM101, Vein 21 stope, Level 680
- PD16, Level 585, Shaft Number 3 to Level 260 (note no mining at this level yet)
- CM102, Vein 16E, Level 570, 570/SYM-3 stope

Detailed reconciliation of the design for Vein 21 stope was sighted by SRK. This reconciliation was judged to be an accurate representation of what was observed whilst underground, and indicates that there is a good level of record keeping.

Whilst underground SRK observed that in general the host rock appeared to be competent. It was judged that the stope dimensions were compatible with the rock mass conditions that were observed. At one location, within a mined out stope, minor failure of the foot- and hanging walls was observed. It is not known how long the stope had been open. No areas of stress damage were observed at the time of the SRK visit.

Adits were observed to intersect local areas of poor quality rock. These were observed to be coincident with faulting and in the portions of the mine visited they were infrequent and had little water. Where poor ground was intersected timber sets or concrete “beams” were observed to have been installed. Split sets or rock bolts were only rarely used (within a single adit intersection area only). Deformation of the ground support was commonly observed to have occurred.

Adit dimensions were observed to be very irregular with substantial over-break. SRK consider that this was a function of both excavation technique and structural control used in the period prior to Silvercorp being involved. SRK judge that there is potential to achieve cost savings in the excavation of adits by controlling the excavation technique more closely.

Within large span areas (such as the hoist room) the rock was observed to be protected with mesh and shotcrete. Substantial damage to shotcrete was not observed at the time of the site visit.

In shaft number 3 local areas that were highly fractured were observed. These were commonly supported by concrete rings or rock bolts, and it was noted that these areas were frequently associated with mine development. Where poor quality rock was intersected by the shaft there was commonly moderate water inflow.

In general SRK consider that the ground support that has been installed is consistent with practices in China. It does not, however, conform with the support requirements of other international mining operations where increased use of rock bolts, mesh and shotcrete are more common..

The portal areas that were observed were generally in good condition. However, it was noted that there is no protection from falling debris and this could present a risk to safety. At PD 16 the portal area projects out from the natural slope and there is adequate protection from falling debris, however, poor ground and significant deformation to the concrete arch support was observed. It is understood that this is being monitored during routine safety inspections and Silvercorp will apply suitable measures if the condition of the portal deteriorates.

## **HPG Mine**

At the time of the site visit a HPG Mining Area 2007 Production Plan prepared by Henan Huawei Mining Co., Ltd, dated 7 February 2007, was sighted. SRK notes that this is a very superficial plan and judges that it does not provide sufficient detail to properly assess the impact of geotechnical conditions. Mining is, however, at a very early stage and it is anticipated that more detailed plans will be prepared to take mining conditions into account.

The mine is located in a narrow valley. Horizontal adits provide easy access from the surface to the veins. Not all levels have their own portal, but are accessed via internal declines. Declines are ramps equipped with winches to pull and lower mine trucks on tracks or handcarts between two mine levels.

The portals are located in different side valleys and the access adits cross-cut the vein structures from the hanging wall side. The nominal cross-section of the development headings is 2m x 2m in the most extensive No.3 system. The nominal cross-section in the other systems is 1.5m width x 1.8m height.

Stopes extend between two mine levels. Stope preparation consists of the development of two raises between the lower and upper level to provide ventilation and man access. Cross-cuts at about 8m centres allow the loading of the ore from a hanging wall drive.

The design of the mine and the ground support is ad-hoc and based on experience with the local ground conditions and judgement, without specific geotechnical site investigations, ground support or stope designs.

The host rock consists of gneiss. The quality of the rock mass in the hanging wall and the vein has been described as fair to good in a previous SRK report dated April 2006. During the site visit carried out for the purposes of this review SRK had the opportunity to observe conditions within both the Ying and HPG operations. It was noted that the rock within the HPG mines is more closely jointed than that at the Ying Mine. The more jointed rock is likely to require increased geotechnical support measures to provide adequate control and safety.

According to mine personnel the development and the stopes are generally left unsupported. Locally timber sets support sections of the adit cross-cuts. However, these sections are short and of minor importance in relation to the overall mine development.

## 6.3 Surface Infrastructure

### Ying Mine

Surface infrastructure at the Ying Mine was observed to include:

- An office and accommodation block
- Maintenance Workshops
- Crusher
- Water treatment areas
- Waste Dumps
- Barge Load-out area.

No significant geotechnical issues were observed with respect to the surface infrastructure.

### HPG Mine

Surface infrastructure at the HPG Mine was observed to include:

- An office and accommodation block
- Maintenance Workshops
- Crusher
- Waste Dumps



- Barge Load-out area.

No significant geotechnical issues were observed with respect to the surface infrastructure.

## 6.4 Tailings Storage Facilities

### Ying Mine

The preliminary design for the Zhuangtou TSF, that currently provides for tailings disposal from the Ying Mine, was done by the Engineering Exploration Design Institute of Maanshan Institute of Mining Research (Report dated March 2006). From the information provided at the time of the SRK site visit it is understood that the Zhuangtou TSF (located within the Donggou valley) will ultimately provide for tailings disposal for both the Ying Mine and the HPG mine.

According to the Engineering Exploration Design Institute of Maanshan Institute of Mining Research the capacity of the Zhuangtou is 552tpd, and the total volume of ore tailings is about  $223 \times 104\text{m}^3$  over a 20 year design life.

The Engineering Exploration Design Institute of Maanshan Institute of Mining Research report states that geotechnical investigation was carried out by the Luoyang Yuxi Hydrogeologic Engineering Geological Exploration Company. This report was not sighted by SRK. However, the results and interpretations of the investigation are presented in the preliminary design report, and appear to have been given consideration in the design. No adverse geotechnical conditions were identified at preliminary design stage, according to the Engineering Exploration Design Institute of Maanshan Institute of Mining Research.

The Engineering Exploration Design Institute of Maanshan Institute of Mining Research identifies that the TSF is located on the south edge of North China Platform within the “Xiaoshan-Lushan arch fault fold cluster area” and the Feiwei Earthquake Zone. Historically the area has been subjected to earthquakes with recorded magnitudes of less than five. Luoning County has been classified as grade 6 in terms of seismicity, and as such a basic design seismic acceleration of 0.05g is required to be taken into consideration in the design.

According to the preliminary design report, the TSF starter dam is located within the lower reaches of Donggou valley, about 1.5km from Zhuangtou Village and about 600m from the entry of Xiashi Gully. It has a maximum design height of 26m. The starter dam crest elevation is 606m and the total effective reservoir capacity is  $283\text{m} \times 104\text{m}^3$ . The maximum service life has been estimated as 25 years assuming a tailings volume of  $11.2 \times 104\text{tpa}$ .

From the preliminary design report SRK interprets that the starter dam is a homogeneous rock fill dam. The design information sighted indicates that the starter dam crest design width is 4m, and that the starter dam has a length of 97.2m. Starter dam embankment slopes are designed at 1:2. The TSF is to be constructed by the upstream method of construction to a maximum crest elevation of 650m and the overall height of the TSF facility will be 70m. Construction lifts are to be 2m. The preliminary design requires the downstream slope of the tailings to be formed at an overall slope of 1:5. A description of the construction requirements is given in the preliminary design report. SRK notes that the TSF design profile is consistent with other TSF's in China.

The preliminary TSF design provides for a cut-off drain to be constructed 150m downstream of the starter dam embankment at an elevation of 610m. High strength nylon injection moulded 300mm diameter seepage collector pipes, at a spacing of 15m and inclined upwards at 1%, were incorporated into the design of the cut-off drain.

The cut-off drain design includes provision for a gravel (15mm to 50mm particle size) pack filter encased in a geofabric ( $400\text{g}/\text{m}^2$ ). The intention of this cut-off drain is to capture seepage from the TSF and also to improve stability under dynamic conditions by lowering the phreatic surface.

The preliminary design report states that a “reclaiming pond” will be constructed below the starter dam. SRK assumes that this is a water reclaim pond formed by the construction of a earth embankment (and this was observed to be present at the time of the site visit). The stated intention of the water reclaim pond is to intercept all the seepage water and discharge water of tailing reservoir dam during normal operation to realize zero discharge.

Surface water drainage features have been incorporated into the preliminary design of the TSF. Immediately downstream of the starter dam embankment there is a surface water cut-off trench (cross section area 400mm x 400mm). There is provision in the preliminary design for the construction of cut-off trenches (cross section area 1,000mm x 1,000mm) 2m above the starter dam embankment to prevent scour of the abutments by rainwater run-off. At the time of the site visit the surface water cut-off drains were not observed to be in place.

The results of a hydrology study are presented in the Preliminary Design report, and the water balance has been evaluated. Provision has been made to remove supernatant water from the TSF via five vertical reinforced concrete decant structures as shown in Table 6-2.

**Table 6-2: Decant Structure Design Parameters**

Drainage well No.	Water intake section Elevation (m)		Well Height (m)	Coordinates (m)		Ground Elevation (m)	Utilized dam top Elevation (m)
	Bottom	Top		X	Y		
1#	600	609	9	3789352.2	531143.9	600	610
2#	608	620	12	3789318.7	531009.7	608	620
3#	619	631	12	3789264.0	530893.2	619	632
4#	630	642	12	3789212.2	530765.5	630	644
5#	641	650	9	3789193.4	530641.2	641	650

Water from the decant structures is diverted around the starter embankment via a 2m diameter, 1,093m long reinforced concrete lined drainage culvert with a grade of 5.71%. The fact that the water diversion does not pass through the starter dam embankment is considered by SRK to be a positive feature.

The results of a stability analysis are presented in the Preliminary Design report. The TSF is reported to have a calculated factor of safety of 1.21 during the normal operation of the dam, and 1.1 during flood periods. SRK notes that the quoted factors of safety are consistent with Chinese practice requirements. However, they are lower than those required by International Practices.

The Henan Luoyang Yuxi Hydrological & Geological Reconnaissance Company has prepared a geotechnical report titled “Reconnaissance Report upon Geotechnical Engineering” and dated 4 July 2006. This report was prepared during the construction of the tailings starter embankment, when the foundation had been prepared and in accordance with recommendations given in the Preliminary Design report. Work done for the preparation of this report is stated to have been in accordance with the requirements of:

- GB50021-2001 for Code for Investigation of Geotechnical Engineering
- YS5202-2004 for Technical Code for Investigation of Geotechnical Engineering
- GB50011-2001 for Code for Seismic Design of Buildings
- GB50025-2004 for Code for Building Construction in Collapsible Loess Region
- GB50330-2002 for Technical Code for Building Slope Engineering
- The “Engineering Geology Manual” (3<sup>rd</sup> revision).

Results of the investigation done by Henan Luoyang Yuxi Hydrological & Geological Reconnaissance Company are presented in the 4 July 2006 report. From the information that was made available SRK consider that the geotechnical assumptions and parameters used in analysis are appropriate.

The Henan Luoyang Yuxi Hydrological & Geological Reconnaissance Company report does give brief consideration to hydrogeological aspects and concludes that they will not have an adverse effect on the TSF. However, SRK notes that the impact of the TSF on the groundwater is not given consideration in this report. At the time of the site visit it was noted that there are potential geological faults (inactive) through the reservoir area. These could potentially provide continuity between the TSF water and the groundwater. SRK considers that it would be appropriate to establish a groundwater monitoring program to properly evaluate (and treat, if required) groundwater through the life of the facility.

SRK visited the Zhuangtuo TSF on 14 June 2007 (Figure 6-2). At the time of the site visit SRK sighted evidence of starter dam construction supervision. This included a 34 volume report titled “Construction Management Report for the Mill” dated April 2007. This report was prepared by the Chinese Number 10 Metallurgical Company, and the approval date was 7 May 2007. From this documentation it is understood that the starter dam was constructed during the period 5 August 2006 to 30 March 2007.

From the information that was sighted during the site visit, SRK notes that supervision, as required under Chinese Legislation, appears to have been provided.

Figure 6-2 and Figure 6-3 show that at the time of the SRK site visit the level of tailings behind the starter dam was well below the crest elevation. Tailings were being discharged into the TSF via 3 open ended PVC pipes under gravity from the crest of the starter dam. The width of the tailings beach was estimated to be about 50m, and this meets the operational requirements defined in the Preliminary Design report. SRK notes that the velocity of discharge at the time of the site visit was variable along the length of the abutment with discharge velocity being the lowest at the discharge nearest the right abutment. Discharge direction at the discharge near the left abutment was also approximately parallel to the starter dam crest alignment. Discharge described in the above manner is not optimal in that it has potential to allow accumulation of fine material adjacent to the starter dam embankment, and this may have an adverse effect on the phreatic surface.



**Figure 6-2: Zhuangtuo TSF (14 June 2007)**

Figure 6-3 presents a close-up view of the starter dam embankment as seen during the SRK site visit. In general the surface of the embankment was observed to be in good condition.



**Figure 6-3: Zhuangtou TSF Starter Dam (14 June 2007)**

There has, however, been some settlement as evidenced by distorted stone pitching along the edges of the embankment crest. SRK notes that survey monitoring stations have been established at regular intervals along the embankment crest. SRK considers this to be good practice and proactive. The results of monitoring were sighted, and it is judged that the observed settlement is consistent with consolidation of a rock fill under self weight.

At the toe of the started dam embankment moderate to strong seepage was observed to be occurring through the embankment, near the right abutment (Figure 6-4). The seepage water was being diverted away from the abutment toe in the designed drainage channel. The seepage water was observed to be clear and no indications of piping were observed by SRK at the time of the site visit.



**Figure 6-4: Moderate Seepage at Downstream Toe of Starter Dam**

SRK notes that water from the TSF is reclaimed from a pond downstream of the starter embankment and returned to the mill. SRK considers that there is significant potential for cost savings if seepage water was returned to the TSF, and then pumped from the TSF to the mill. This would significantly reduce the head of water being pumped, and also the distance of pumping particularly during the later stages of operation. A detailed assessment would be required to assess the technical and cost advantages. This issue was discussed with senior mine management.

SRK also considers that there may be further opportunities to optimize the TSF design in terms of both cost and safety, by incorporating downstream cyclone construction methodology. Prior to changing existing design a detailed study and design would need to be prepared. This has been discussed with mine management.

According to mine management the TSF is staffed by a total of 11 people, including a safety manager and two tailings engineers. SRK considers the staffing level to be more than adequate, and the inclusion of tailings engineers to be consistent with good practice.

### **HPG Mine**

Tailings derived from the processing of ore from the HPG Mine is placed in the Dong Zi Gou TSF located approximately 500m south of Gu Xian Township and down slope approximately 500m to the northeast of the mill.

According to a report, dated May 2003, prepared by the Design and Research Institute of Metallurgy Planning of Henan (titled “Luoning Huatai Mining Co., Ltd., Technical Modification Design for the Safety of The Dong Zi Gou Tailing Dam” the original TSF was constructed in the 1980’s. There was apparently little engineering input to the original construction and operation of the TSF, and for this reason the Luoyang Institute of Environmental Protection and Design carried out an evaluation of the TSF in December 2002.

The Design and Research Institute of Metallurgy Planning of Henan was commissioned in May 2003 to design technical modifications for the dam to improve safety and comply with legislation at that time. The Design and Research Institute of Metallurgy Planning of Henan prepared a TSF design in May 2003 to make provision for drainage ditches and diversions, discharge of flood water, and evaluation/stabilization of the tailing dam embankment.

This modified design provided for a design life of 6.33 years with a total storage capacity of 14.2408/10,000m<sup>3</sup>. It included a homogeneous rock fill starter dam (130m long) with a crest elevation of 522m, a crest width of 5m and embankment slopes of 1:2. The maximum height of the starter dam is reported (by mine management) to be 13m. According to the design tailings is placed using the upstream construction method to an elevation of 528m with a downstream slope of 1:5. To allow for discharge of storm water provision was made for the construction of a spillway. A 2m diameter vertical decant has also been constructed 205m behind the starter dam embankment.

The Design and Research Institute of Metallurgy Planning of Henan design report presents a detailed evaluation of the hydrological conditions. It also takes anticipated water flow into account.

An assessment of stability is presented in the Design and Research Institute of Metallurgy Planning of Henan report. The geotechnical parameters used in the analysis are considered, by SRK, to be appropriate. A calculated factor of safety for the completed TSF of 1.35 is quoted in the report. This meets the requirements of Chinese Codes of Practice. However, SRK notes that the calculated factors of safety are lower than that normally used in International Practice.

Construction specifications and operation guidelines are provided in the Research Institute of Metallurgy Planning of Henan report. SRK considers that the requirements given in this report are appropriate.

The Luoyang Economic and Trade Committee gave approval to the Research Institute of Metallurgy Planning of Henan design, subject to clarification and modification of minor design issues. SRK sighted the approval document that was dated 17 July 2003.

SRK visited the Dong Zi Gou TSF on 16 June 2007. At the time of the visit the mill had been shut down for maintenance and tailings was not being deposited in the TSF. The general condition of the TSF starter dam and tailings embankment is shown in Figure 6-5. SRK considered the TSF to be in good condition.



**Figure 6-5: Dong Zi Gou TSF (16 June 2007)**

Tailings has been deposited behind the starter dam in 1m high lifts by way of a single open ended pipe (Figure 6-6) that is periodically moved to uniformly distribute the tailings into the TSF. Progressive lifts are located approximately 2m behind the crest of the lower lift.



**Figure 6-6: Discharge of Tailings into Dong Zi Gou TSF (16 June 2007)**

At the time of the SRK visit to the TSF the tailings beach was observed to have a width of greater than about 50m (Figure 6-7). SRK considers this to be good practice and conducive to promoting safety.



**Figure 6-7: Dong Zi Gou Tailings Beach**

From discussions with Mine Management SRK understands that the Dong Zi Gou TSF is intended to be closed within the next 12 months, and that ore from the HPG mine will be processed with that from the Ying Mine.

No significant geotechnical issues of concern were identified by SRK at the Dong Zi Gou TSF. It was, however, noted that there is potential for erosion to occur on/near the left abutment. SRK anticipates that this will be rectified during closure.

## **6.5 Access**

### **Ying Mine**

Access to the Ying Mine Mill and Main Office Block from Lingyan is via paved national roads. These were observed to be of high quality construction, and also to be in good condition.

Access from the Ying Mine Mill and Main Office Block to the barge load-out facility is via concrete paved road. This road was observed to be in good conditions and geotechnical issues are not anticipated.

Topography at the Ying Mine is rugged and in order to form access cut slopes have been formed. It is anticipated that there will be local areas of instability associated with unfavourable structure. Ongoing maintenance of these roads is anticipated to be required, especially during the wet season.

### **HPG Mine**

Ore is currently transported from the mine to the mill by barge across the reservoir. A haul road has been planned to transport ore from the mine to the mill. At the time of the SRK visit portions of this road were under construction. It was noted that the alignment has steep grades and many hairpin bends. The road is also very narrow. The rugged conditions have required the formation of steep cut slopes in weathered materials that have unfavourable geological structure. As such, it is anticipated that there are likely to be local areas of instability.

From discussions with Mr Gao it is understood that it is very likely that ore will continue to be hauled by barge between the mine and mill, pending an approval from Henan Provincial EPB. This access road is therefore judged to present a low risk to the mining operation.

## 6.6 Hydrogeology

According to the Maanshan Institute of Mining Research, the Ying Mine is within the Luohe water system of the Yellow River area, and the catchment has been reported as having an area of about 35km<sup>2</sup>. The Gu County reservoir is immediately to the north and is a complete hydrogeological unit that may provide continuity via fractures to the area that is to be mined.

The Maanshan Institute of Mining Research is of the opinion that groundwater at the site will occur as pore water and within fractures. From a geotechnical and hydrogeological perspective SRK consider that water within fractures is the most important consideration for mining. In the Maanshan Institute of Mining Research report it is stated that the Ying Mine is within 100m of the Gu County reservoir, and that when mining below the reservoir level precautions should be taken to minimize risk associated with ingress of water. This is also identified as a risk in the Ying Mine Safety report that was sighted by SRK.

A report, dated June 2003 and titled “Evaluation Report on Safe Prediction”, was prepared by the Metallurgy Design Institution of Henan Province. In this report it is identified that the Gu County reservoir is located approximately 2.5km to the northwest of the HPG mining area. This report presents the (unsubstantiated) view that there will be poor continuity between the mine workings and the Gu County reservoir. However, it does also identify inundation by groundwater as a risk and specifically states that there was insufficient available information to evaluate and mitigate the risk at the time of report preparation.

There is a substantial body of impounded water immediately adjacent to both mines. The Guxian reservoir level was at elevation 520m during the SRK site visit and it is understood that the maximum design water level is 530.8m. Mine personnel advised that geological structure is favourably oriented with respect to the location of the impounded water and that they do not expect any water difficulties as the mine depth goes below 520m elevation. Mine personnel consider that experience to date supports their expectations.

An independent review of the site hydrogeology was conducted by the Zhengzhou Geological Engineering Exploitation Institute of Henan Province. Their report dated May 2006 generally agrees with the mine site view that there is currently little hydrological connection between the mine and the Guxian reservoir. The report also suggests further hydrogeology work is warranted to ensure that the hydrogeology conditions are fully understood and the risk of inundation and flooding is reduced.

SRK consider that the hydrogeology presents a risk to mining, particularly as the mine depth increases and the amount of workings at lower levels increases. SRK is therefore of the opinion that further work should be carried out to better understand the hydrogeological conditions at both the Ying and HPG mines.

## 6.7 Smelter Construction Site

SRK visited the Smelter Construction Site on 18 June 2007. At the time of the site visit earthworks had recently been commenced and access to the site.

A feasibility study for the Smelter has been completed by China ENFI Engineering Corporation (March 2003), and from the information that has been made available it is understood that construction will be completed over a two year period. The ENFI feasibility report states that an Engineering Geology report was not available at the time of report preparation. The ENFI report identifies the Design Codes of Practice against which design of the Smelter is based, and these include Code for Design of Building Foundation (GB50007-2002) and Code for Design of Dynamic Machine Foundation (GB50040-96).



At the time of the site visit SRK did not observe any geotechnical issues that were considered to be of significant concern. It was, however, noted that careful attention will be required to be given to providing adequate surface water drainage in order to minimise potential for erosion or ponding of water. It is judged by SRK that the geotechnical risks associated with construction of the Smelter are low.

## **7 Metallurgical and Processing Assessment**

### **7.1 Metallurgical and Processing Assessment Ying Concentrator**

Ore is hand sorted at the mine site, to produce a high grade ore for direct shipment to smelters. Ore from the Ying mine is fed onto a slow moving sorting belt where high grade ore pieces are removed by operators and placed in separate storage bins. This ore, grading >60% Pb, is transferred to a small crushing plant and crushed to minus 25mm before shipping by truck via barge and road to client smelters. The capacity of the sorting operation is 25tpd of product. The non-selected ore is transported by truck and barge to the Ying concentrator for processing.

#### **7.1.1 Ying Concentrator**

The processing plant at Ying commenced operation in March 2007. The flowsheet was developed subsequent to the completion of a comprehensive testwork programme on composite mine samples completed by the Hunan Research Institute of Non Ferrous Metals.

The plant was constructed by the China Tenth Metallurgy Group Corporation Ltd. to design criteria and engineering design by China Steel's Maanshan Institute of Mining Research. The plant nominal capacity is 25tph or 600tpd. Daily production records for March to July show an average monthly tonnage milled of 21,816t, which is an average rate of 713tpd. Records for July 2007 show that the Ying plant was available for 91% of the schedule time and processed ore at an average rate of 726tpd.

The mineral composition comprises galena, sphalerite and pyrite as major sulphide species. Minor species include pyrrhotite, chalcopyrite, bornite, magnetite, hematite, limonite and tetrahedrite.

There is little arsenic (<0.001%) in the ore. The high silver values in the ore typically comprise native silver, argentite and freibergite and are primarily associated with galena. Gangue minerals include quartz, chlorite/sericite and kaolin and comprise approximately 77.5% of the mineral content. The metallic mineral content is approximately 6.8% galena and 7.8% sphalerite.

Plant head grades for the initial design of the processing plant were:

- Pb 6.0%
- Zn 5.0%
- Ag 400g/t

The processes used are typical of polymetallic Pb Zn ores and comprise two stages crushing of ROM ore from 400mm to 15mm followed by ball milling in closed circuit with a screw classifier. The target milled product size is 70% passing 200# or 74 microns. Mineral separation is by flotation.

After conditioning with zinc sulphate and sodium sulphite at natural pH to depress Zn and with the addition of ethyl thio carbamate and butyl amine dithio phosphate as collector and No 2 pine oil as frother, the pulp is then submitted to froth flotation in two stages. The first produces a Pb concentrate via rougher and two stage scavenging.

The rougher concentrate is cleaned in three stages using counter current movement of the respective stage concentrates. Further additions of zinc sulphate and sodium sulphite produce the optimum lead grade in the final concentrate.

The second flotation process is preceded by conditioning with milled lime to raise the pH to between 10 and 11 for pyrite depression and is further conditioned with CuSO<sub>4</sub> to activate sphalerite. The promoter for zinc flotation is butyl xanthate and No 2 pine oil is again used as a frother.

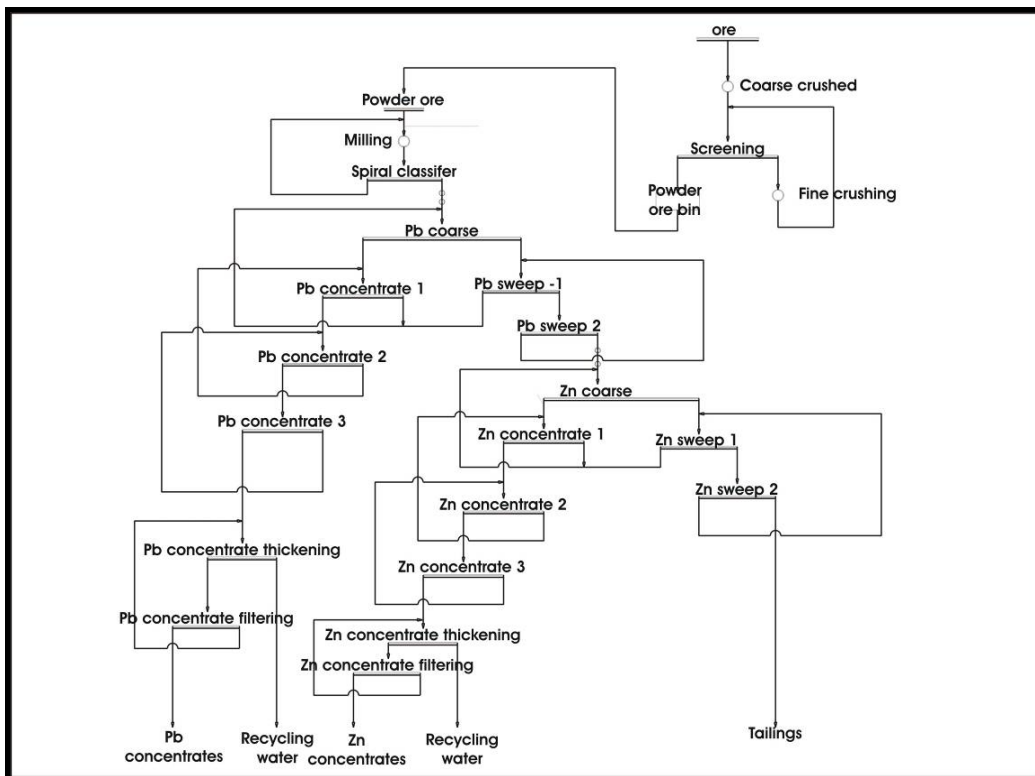
The zinc flotation comprises roughing with two scavenger stages and the zinc rougher concentrate is upgraded with three stages of counter current cleaning.

Pb/Ag concentrate is dewatered by thickening and then filtered using a ceramic disc filter to produce a nominal moisture level of 6% H<sub>2</sub>O.

Similarly zinc concentrate is thickened and then filtered using a ceramic disc filter to produce a nominal moisture level of 7% H<sub>2</sub>O.

The concentrates are transported by road to purchasers smelters situated between 70kms and 190km from the minesite.

The labour force for the surface plant operation was 67 exclusive of security. The operation runs on a 24 hours 7 day a week three shift continuous roster. Operator conditions of employment ensure that all personnel receive 5 days rest and recreation (R&R) per month which can be accumulated at the employees request for longer breaks from the minesite.



**Figure 7-1: Flowsheet of the Ying Concentrator**

### Crushing

The crushing circuit comprises a single stage jaw crusher with a secondary cone crusher in closed circuit with a single deck vibrating screen.

Run of mine ore is less than 400mm in size with the intermediate crusher settings at 70mm and 15mm. The crushed fine ore is delivered to one of two fine ore bins.

## **Milling**

Milling comprises two parallel lines of single stage ball milling, each mill 2.1m diameter and 3.6m long with a 180kW drive. Each mill is in closed circuit with a discrete spiral classifier. The target grind size is 70% less than 200# or 74 microns.

## **Concentrator**

A good body of testwork has been performed by the Hunan Research Institute of Non Ferrous Metals which has thoroughly investigated various metallurgical and material handling aspects of composite ore samples.

The test programme included grind recovery establishment, open and closed circuit flotation, reagent selection, and included testing using recycled water. The grind recovery relationship indicated a plant recovery of >90% for lead in lead concentrate in conjunction with 85% of silver will be achieved at a grind of 70% passing 74 microns. Long flotation residence times are not necessary. The test work on sphalerite and pyrite depressants for the Pb float was investigated as well as sphalerite activation and optimisation of grade and recovery. Sulphidation of oxide ores using Na<sub>2</sub>S has been tested and will be required on any oxide material that is forwarded for treatment.

Each of the two parallel flotation circuits comprises conditioning, lead flotation and cleaning, conditioning zinc flotation and cleaning.

Tailings from the two zinc scavenger circuits are combined and gravitate via a 215mm high density polyethylene pipeline to an upstream tailings storage facility in the adjacent valley. Supernatant liquor from the tailings storage facility is recirculated to the mill head tank.

The concentrator produces a filtered lead/silver concentrate at 5 to 7% H<sub>2</sub>O and a zinc concentrate at 6 to 8% H<sub>2</sub>O. This concentrate is currently transported by road to customer smelters some 70km and up to 200km from the concentrator. A new smelter is under construction which is part owned by the company. This will be some 40km by road from the mill.

As described above the lead circuit incorporates flotation after conditioning at approximately 30% solids w/w in a rougher and two stage scavenging primary mode. The rougher concentrate is cleaned in three stages before dewatering.

Similarly the zinc circuit incorporates conditioning and activation before the same roughing/scavenging/cleaning flotation mode.

There is little automation within the plant. The feed to each mill is controlled by a weightometer mounted on the mill feed conveyor in a loop with the rotary disc feeders mounted at the base of the respective fine ore bin.

Sampling is by hand and a normal suite of samples is taken on a 20 minute basis and combined to provide shift samples for metallurgical accounting and performance recording. Similarly the pulp density of the mill spiral classifiers is monitored and adjusted to maintain a density between 28 to 35% solids w/w.

The concentrator is well laid out with space for both good operation and vision as well as facility for plant maintenance. As a consequence the plant was clean and the housekeeping in all plant sections was good. The crusher, concentrator and filter plant are equipped with overhead cranes to assist maintenance of major equipment including crushers, mills, flotation cell mechanisms and pumps. The plant uses the topography well for material flow and appears to be well constructed. The access for operators throughout the plant is to the level required by Australian Standards of OHS.

The plant recirculates the lead and zinc concentrate thickener overflows in addition to the tailings dam supernatant water.

The concentrator has two identical 2.1m diameter 3.6m long single stage ball mills with 180kW motors.

Calculations by SRK indicate that for an initial throughput of 600tpd i.e. 25tph, the ore will have to have a Bond Ball Work Index of less than 16kWh per tonne to satisfy the grind requirement.

Lead/silver and zinc concentrate from the concentrator is pumped to the respective thickener for dewatering. The thickened underflow from each thickener 60-65% solids w/w is pumped to a ceramic disc vacuum filter to reduce the moisture level of <8% H<sub>2</sub>O.

### Plant Services

Power supply to the mine is from the Henan Province power authority grid. This is stepped down from 10kV to 400V for plant equipment use. Total mill power consumption is 33.24kWh per tonne of ore. Water consumption for the mill is 3,825m<sup>3</sup>/t of ore treated to date.

Reclaimed water from the TSF and the overflows from the two concentrators is recycled to minimise fresh water requirements. The raw water cost was 1.3 RMB per m<sup>3</sup> (250,000 RMB per annum at the current production rate). Water is piped to the raw water tank from a river source adjacent to the concentrator property, a distance of 2.5km.

## 7.1.2 Metallurgical Performance

The plant has been operating continuously following commissioning in March and to the end of May 2007 had processed 83,167 tonnes of ore at a grade of 5.84% Pb, 3.64% Zn and 438g/t Ag.

Plant recoveries are as follows:

- Pb recovery 94.26% @ 69.11% Pb in Pb concentrate
- Zn recovery 79.46% @ 52.03% Zn in Zn concentrate
- Ag recovery 90.00% @ 4951g/t Au in Pb concentrate

The zinc recovery has yet to perform at the design figures on a regular basis. This is not unusual with lead zinc ores and it frequently occurs that the recovery of zinc slowly improves with operating experience and refining of the reagent suite.

With the exception of the zinc results, plant recoveries have exceeded the design expectation. The plant throughput has exceeded the 600tpd nominal capacity on several occasions since May 2007.

A typical mass balance calculation for the Ying concentrator is shown in Table 7-1.

**Table 7-1: Typical Mass Balance at the Ying Concentrator**

Product	Quantity (t)	Product Rate (%)	Pb (%)	Zn (%)	Pb Recovery (%)	Zn Recovery (%)
Ore	198	100	3.18	1.73	100	100
Pb Conc	9.4446	4.77	60	1.95	90	5.38
Zn Conc	6.4746	3.27	0.95	45	0.98	85
Tailings	182.08	91.96	0.31	0.18	0.02	9.62

### **7.1.3 Reagent Consumption**

The overall reagent consumption has been in line with similar plants. The reagent suite is complex and will be refined with more operating experience and data logging. The reagents used at the Ying concentrator since start up in March 2007 is shown in Annexure 4.

### **7.1.4 Assay Laboratory Accreditation**

The laboratory uses wet chemical analytical methods and Atomic Adsorption Spectrophotometry and is as sophisticated as a similar concentrator in Australia. The laboratory processes up to 100 samples per day

### **7.1.5 Metallurgical Sampling and Accounting**

The plant process streams are sampled by hand on a 20 minute cycle to produce the shift samples. These samples are assayed and together with the weighed feed into the mill are used to produce the mill production data in the conventional manner.

### **7.1.6 Throughput Expansion Potential**

There are occasions when milling capacity has exceeded the nominal plant design. How frequently this will be achieved will only be revealed with further operating experience. Obviously to date this has not been quantified but early indications are that 900t of ore could be treated per day.

The plant design is open to facilitate some expansion and could accommodate additional flotation cells for flotation of copper mineralisation. Normally the sequence of flotation would be copper lead zinc but this would need to be confirmed by testwork on ores that expected to arise from the HPG sources.

## **7.2 Metallurgical and Processing Assessment – HPG Concentrator**

### **7.2.1 HPG Concentrator**

At the time of the plant visit the plant had not operated since the 7<sup>th</sup> May due to ore shortage. The plant was being maintained and surface facilities improved in the interim. There was some 400t of ore at the concentrator site and it was intended to resume operations when the ore stockpile reached 1,000t. It is projected that the mill will be fully operational in August 2007 when ore is available on a regular basis.

The ores from the mine contain silver which follows the lead mineral galena predominantly in the flotation process. The arsenic mineral content of the ore is low.

The unit processes used in the concentrator are typical of polymetallic Pb Zn ores and comprise ball milling conditioning, differential flotation of lead and zinc and dewatering.

The processing plant at HPG comprises a crushing plant utilising two stages of jaw crushing in conjunction with a vibrating screen to produce a minus 15mm feed for milling. The crushing plant has a nominal capacity of 25tph. The concentrator nominal capacity is 200tpd although throughput of 250tpd has been achieved. The target milled product size is 70% passing 200# or 74 microns. There are two milling circuits each comprising a 1.5m diameter by 3.5m long ball milling in closed circuit with a 1.2m diameter spiral classifier.

The classifier overflow pulp from the two classifiers is combined and conditioned prior to the first stage of flotation to recover a lead/silver concentrate.

The lead flotation circuit comprises roughing with two stages scavenging to produce a rougher concentrate which is then upgraded in three stages to a nominal grade >60% Pb and 4,000g/t Ag.

The lead circuit tailings are conditioned with chemicals to activate sphalerite and lime to depress pyrite before flotation to produce a zinc rougher concentrate which is then upgraded in three counter current stages.

All flotation cells are self aspirating and of Chinese manufacture.

### **Crushing**

The crushing circuit comprises two stage jaw crushers in closed circuit with a single deck vibrating screen. Run of mine ore is less than 400mm in size with the intermediate crusher settings at 70mm and 15mm. The crushed fine ore is delivered to a single fine ore bin.

### **Milling**

The ore is extracted from the fine ore bin in two parallel streams each feeding a 1.5m diameter by 3.5m long 80kW drive ball mill in closed circuit with a 1.2m diameter spiral classifier. The classifier overflow density is maintained in the range 28 to 35% solids w/w.

### **Concentrator**

The lead flotation circuit comprises pulp conditioning before roughing and three stages of scavenging and a three stage cleaning of the rougher concentrate. The circuit for zinc following conditioning of the lead flotation tailings is a similar configuration.

The concentrates gravitate to settling ponds at the north side of the concentrator building for dewatering by settling in staged ponds. The two concentrates are bagged and despatched to client smelters.

### **Plant Services**

Mill power is drawn from the Henan Province power authority grid. It is transformed from 10,000V to 400V by a 400KVA transformer.

Water is provided from the adjacent Guxian reservoir.

Similarly zinc concentrate is dewatered by settling in staged ponds. The concentrate is bagged and despatched at a claimed moisture content of 13 to 14% H<sub>2</sub>O.

The labour force for the surface plant operation was 25. The operation runs on a 24 hour 7 days a week three shift continuous roster.

## **7.2.2 Metallurgical Performance**

The ore head grade to the HPG concentrator historically has been in the range 6 to 10% Pb, 2% Zn and 200g/t Ag.

Plant recovery is quoted as 90 to 94% Pb, 75% Zn, 85% Ag in lead concentrate.

## **7.2.3 Reagent Consumption**

Reported reagent consumption is well within the normally expected range for similar ores. Lime addition is relatively high at 6kg/t for pH control but this is most probably a function of the lime quality. Details of reagent consumption are provided in Annexure 4.

#### **7.2.4 Assay Laboratory**

The laboratory uses wet chemical analytical methods and is not as sophisticated as a similar concentrator in Australia. The laboratory processes some 15 samples per day.

#### **7.2.5 Metallurgical Sampling and Accounting**

The plant is sampled manually, some 5 streams, on an hourly basis which is used to make up the shift composite samples. The accounting process of assaying the concentrator shift samples in conjunction with the feed mass into the mill provides the data to calculate the plant recoveries.

#### **7.2.6 Throughput Expansion Potential**

There is little scope for expanding the current operation. The current tailings storage facility is close to the end of its life, unless significant capital expenditure is made. If production is to be maintained at HPG after the filling of the current TSF, then a new TSF facility will have to be constructed. This is not likely to be close to the plant facilities and will be a significant capital expenditure.

### **7.3 Luoning Smelter Project**

Silvercorp has, through its subsidiary Henan Found, attained a 22.5% interest in a new smelter to be constructed some 44km from the Ying Concentrator, located near the town of Luoning.

The capacity of the smelter will be 80,000t of electrolytic lead per annum. The smelter feed stock will comprise owners concentrates and also concentrates purchased from other local producers.

The design feed grade is 55% Pb, 5%Zn, 1.0%Cu and 8.0%Fe with undesirable elements Arsenic and Antimony at 0.30% and 0.25%, respectively.

The products from the Smelter will be electrolytic lead, silver bullion, gold bullion and sulphuric acid.

The smelter will employ in total 641 production workers and 139 technical and management personnel.

The smelting process to be used is the SKS Process. This process follows the trend in Western smelting such as the Kaldo, Isasmelt, Ausmelt, QSL, and Kivcet processes. These processes replace sintering processing which produces dust and dilute sulphur dioxide gas streams.

The SKS and similar processes use oxygen or oxygen enriched air to produce concentrated waste gas streams suitable for acid making, make much better use of the heat generated in the process chemistry and are more environmentally friendly.

The SKS process was developed and designed in China by SKS and ENFI some 20 years ago but has only been commercially developed in the last decade.

The desire by government authorities to reduce pollution and environmental degradation common with smaller lead plants (<50,000t capacity per annum) has brought about much more stringent regulations for emissions, effluents and minimum plant sizes. As a consequence this government initiative has caused the active promotion and encouragement of the SKS process.

To date the SKS process has only been used in China and the list of Lead smelter using the process is as shown in Table 7-2.

**Table 7-2: SKS Smelter Plants Constructed or Under Construction**

Name of the Enterprise	Design scale (kt/a of Pb bullion)	Start-up time (year.month)	Remarks
Henan Yuguang Gold & Lead Co. Ltd.	5	2002.8	Actual output 7 ktpa
Anhui Kewei Metal Material Co. Ltd.	3	2002.8	Actual output 5 ktpa
Shuikoushan Nonferrous Metals Co. Ltd.	10	2005.8	Actual output 12 ktpa
Henan Yuguang Gold & Lead Co. Ltd.	5	2005.3	The second production line
Xinling Lead Co. Ltd.	5	2006.9	It has reached the design output
Yunnan Xiangyunfeilong Industry Co. Ltd.	6	2006.10	Trial run
Inner Mongolia Xingye Group Co. Ltd.	5	2007	Under construction
Bayinnuo'er Lead and Zinc Mine	8	2007	Under construction
Jiyuan Jinli Smelting Co. Ltd.	8	2007	Under construction
Inner Mongolia Xing'an Silver & Lead Smelting Co. Ltd.	5	2007	Under construction

SRK has not been able to view an active operation of the SKS process and in view of patent rights ENFI information is of a general nature only.

The furnace itself is rectangular in shape with tuyeres (4 in the proposed furnace) blowing pure oxygen (97% O<sub>2</sub>) from a low section of the furnace side wall.

The prepared concentrate pellets and flux revert material is fed through two feed points.

The furnace is maintained at slight vacuum to contain SO<sub>2</sub> gases which are passed through waste heat recovery dust collection before passing to a double contact acid plant to produce sulphuric acid.

The projected gas strength of 11.52% SO<sub>2</sub> will be converted to approximately 86,580 tonnes of H<sub>2</sub>SO<sub>4</sub> per annum.

The products from the SKS furnace are a continuously extracted crude lead and a slag which is removed at intervals. The subsequent processing after the furnace is conventional.

The SKS slag containing approximately 45% Pb is processed in a blast furnace for reduction to crude bullion. The blast furnace slag (now approximately 3% Pb) is further refined to produce a zinc oxide dust and disposable slag.

The crude lead is refined to anode grade and cast to anodes for electro-refining and the slag is processed to remove the copper as sulphide and crude lead.

The feasibility study viewed was a comprehensive document. The costs of the process are claimed to be between 40% and 70% of equivalent Western similar processes and this appears the case for the smelter under construction. The feasibility study identifies the capital cost of constructing the smelter, including acid plant and electro-refining sections, at 319,497,100 Yuan RMB. Working capital is estimated to be 137,870,000 Yuan RMB. The smelter is being developed by ENFI. SRK has not seen a schedule for construction of the smelter, however basic earthworks were observed by SRK.



A typical flowsheet for the SKS process is shown in Figure 7-2.

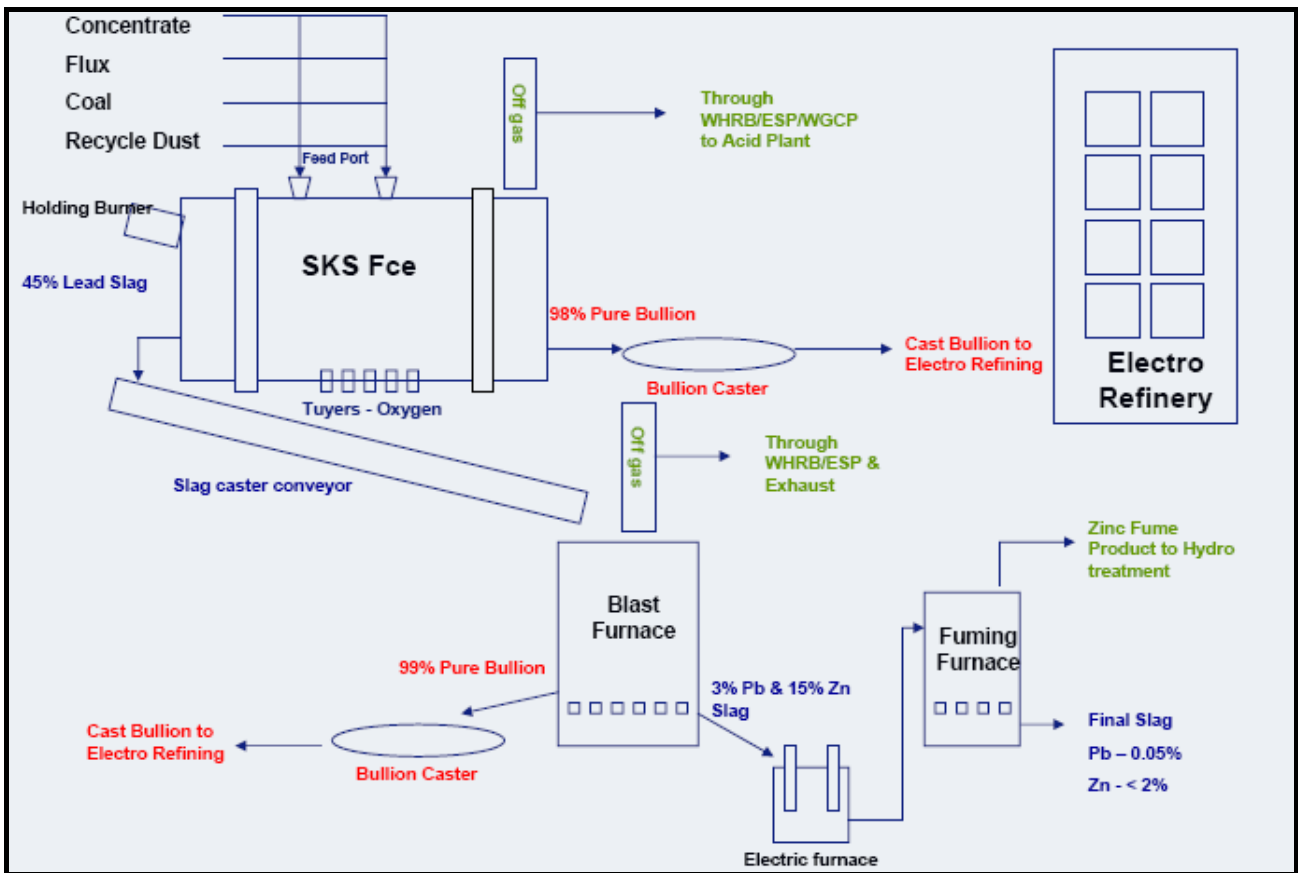


Figure 7-2: SKS Process – Typical Flowsheet

SRK has not seen a translated version of the operating cost section of the smelter feasibility study.

## 8 Occupational Health and Safety

Occupational Health and Safety assessments have been conducted and reported directly to Silvercorp by MBS Environmental of Perth. SRK has reviewed MBS’s report and while a number of potential issues were identified, these can be overcome by appropriate management action. The reader is referred to the MBS report for details.

## 9 Operating and Capital Costs

### 9.1 Operating Costs

Based on the statistics of the production in the period of January 2007 to May 2007 of the Ying operation, Silvercorp stated to SRK that the unit cost per tonne of ore was US\$52.64 for mining, US\$9.70 for milling, US\$3.42 for shipping and US\$3.14 for general administration. These costs are of the order of expected costs in a western operation and seem high for a Chinese operation.

Table 9-1 provides details of the cost of fuel and material for the process.

**Table 9-1: Fuel and material prices (VAT excluded)**

Fuel or Material	Units	Yuan (RMB)
Coke	Yuan / t	812
Quartz	Yuan / t	177
Limestone	Yuan / t	106
Chrome Magnesite Brick	Yuan / t	3,590
Chromium Slag Brick	Yuan / t	2,564
Gunpoint Brick	Yuan / sets	4,274
Oxygen Gun	Yuan	7,692
Clay Brick	Yuan / t	1,368
Graphite Electrode	Yuan / t	21,368
Antimony	Yuan / t	34,188
Soda	Yuan / t	1,453
Iron	Yuan / t	1,624
Coke	Yuan / t	769
Catalyst	Yuan /	123.00
Gelatin	Yuan / t	14,530
Hydrofluoric Acid	Yuan / t	4,274
Diesel	Yuan / t	4,274
Coal	Yuan / t	400.0 to 442.5
Electric Power	Yuan / kWh	0.51
Make-up Water	Yuan / m3	0.40

Silvercorp reported to SRK that the average annual worker's salary is 16,800 RMB and there are 780 workers in total. The annual total salary and welfare cost is 18.72 million RMB.

Details of operating costs from March to July 2007 are provided in Table 9-2.

**Table 9-2: Ying mine operating costs, March to July 2007**

	<b>Mar-07</b>	<b>Apr-07</b>	<b>May-07</b>	<b>Jun-07</b>	<b>Jul-07</b>	<b>Average</b>
Ore mined	19,238	18,032	20,217	20,014	20,103	19,521
Ore milled	21,007	23,710	20,585	20,279	23,498	21,816
Concentrate produced	2,411	3,526	2,863	2,465	3,065	2,866
Ore mined /day	621	601	652	667	648	638
Ore milled /day	678	790	664	676	758	713
	<b>Mar-07</b>	<b>Apr-07</b>	<b>May-07</b>	<b>Jun-07</b>	<b>Jul-07</b>	<b>Average</b>
<b>Operating Cost</b>	RMB/t	RMB/t	RMB/t	RMB/t	RMB/t	RMB/t
<b>Mining</b>	mined	mined	mined	mined	mined	mined
Raw materials & supplies	65.0	57.8	68.8	91.5	93.2	75.3
Development Cost	37.7	23.2	57.1	49.6	19.8	37.5
Salary	24.6	26.3	39.1	41.1	31.4	32.5
Mining contractor costs	133.1	118.5	114.9	117.6	129.6	122.7
Power and Water	12.6	21.6	21.6	20.5	19.4	19.1
Other	15.1	18.9	32.5	19.7	24.6	22.2
<b>Mining Cash Cost</b>	<b>288</b>	<b>266</b>	<b>334</b>	<b>340</b>	<b>318</b>	<b>309.3</b>
	RMB/t	RMB/t	RMB/t	RMB/t	RMB/t	RMB/t
<b>Milling cost</b>	milled	milled	milled	milled	milled	milled
Raw materials & supplies	18.0	28.4	51.7	30.2	43.5	34.4
Salary	11.9	10.7	11.7	12.0	10.4	11.3
Power and Water	43.2	22.8	23.5	22	20	26.3
Milling cost	15.4	-1.1	9.8	0.7	0	5.0
Resources Tax	1.3	2.1	2.1	2.1	2.1	1.9
Others	5.1	1.6	2.1	0.6	2.3	2.3
<b>Milling Cash Cost</b>	<b>95</b>	<b>65</b>	<b>101</b>	<b>68</b>	<b>78</b>	<b>81.2</b>
	RMB/t	RMB/t	RMB/t	RMB/t	RMB/t	RMB/t
<b>Administrative Expenses</b>	milled	milled	milled	milled	milled	milled
Salary Education and Union fund	3.1	5.4	6.7	8.2	6.5	6.0
Amortisation	4.3	4.7	4.6	4.1	3.9	4.3
Office Administration	9.2	10.5	12.8	8.9	14	11.1
Environment	0	2.5	1	0	0	0.7
Tax and Resource Compensation	0.3	1.6	2.1	0.9	1.5	1.3
Auditing / Conference / Consulting	0	5.7	0	2.7	0	1.7
Mineral Resource exploitation	23.8	10.5	12.1	12.3	10.6	13.9
Design evaluation	0	0	0	14.8	0	3.0
Others	0.3	1.7	-7.8	3.2	15.3	2.5
<b>Total Administrative expense</b>	<b>41.0</b>	<b>42.6</b>	<b>31.5</b>	<b>55.1</b>	<b>51.8</b>	<b>44.4</b>

Table 9-3 provides the details of the forecast average annual manufacturing cost.

**Table 9-3: Forecast Average Annual Manufacturing Cost Details, Year 4 to 20**

Products	RMB millions	% of total
Cost of Materials		
Lead Concentrate containing lead	643.39	43.6%
Lead concentrate containing silver	414.74	28.1%
Lead Concentrates containing gold	221.71	15.0%
Sub-total – cost of materials	1,279.84	86.7%
Auxiliary Materials	34.07	2.3%
Fuel	5.78	0.4%
Power Costs	45.36	3.1%
Labor Costs	18.72	1.3%
Repairs	14.12	1.0%
Depreciation Charges	20.05	1.4%
Amortization Costs	1.96	0.1%
Financial Costs	11.11	0.8%
Cost Of Sales	15.94	1.1%
Other Costs	28.80	2.0%
<b>Sub- Total</b>	<b>1,475.75</b>	<b>100.0%</b>
Processing Costs	195.91	

Silvercorp provided SRK with a forecast of annual operating costs for the next 20 years. SRK has reproduced the table for years 1 to 10 in Table 9-4. SRK notes that the forecast costs for Year 4 are repeated for all subsequent years. An estimate of the fixed and variable components of the costs was also provided by Silvercorp, as shown below.

**Table 9-4: Forecast annual operating costs <sup>(1)</sup>**

Years	1 to 2	3	4	5	6	7	8	9	10
Production load (%)	70	100	100	100	100	100	100	100	100
<b>Operating Cost</b>	<b>RMB millions</b>								
Raw Materials	2,265,323	89,589	127,984	127,984	127,984	127,984	127,984	127,984	127,984
Auxiliary Materials	60,297	2,385	3,407	3,407	3,407	3,407	3,407	3,407	3,407
Fuel	10,232	405	578	578	578	578	578	578	578
Power	80,280	3,175	4,536	4,536	4,536	4,536	4,536	4,536	4,536
Labor	33,696	1,872	1,872	1,872	1,872	1,872	1,872	1,872	1,872
Repairing	25,419	1,412	1,412	1,412	1,412	1,412	1,412	1,412	1,412
Depreciation	36,092	2,005	2,005	2,005	2,005	2,005	2,005	2,005	2,005
Amortization	3,707	371	371	371	371	371	371	371	371
Financial Costs	19,696	809	1,111	1,111	1,111	1,111	1,111	1,111	1,111
Sales Costs	28,214	1,116	1,594	1,594	1,594	1,594	1,594	1,594	1,594
Other Costs	51,840	2,880	2,880	2,880	2,880	2,880	2,880	2,880	2,880
<b>Total Cost</b>	<b>2,614,796</b>	<b>106,018</b>	<b>147,750</b>	<b>147,750</b>	<b>147,750</b>	<b>147,750</b>	<b>147,750</b>	<b>147,750</b>	<b>147,750</b>
Fixed costs	157,740	8,643	8,945	8,945	8,945	8,945	8,945	8,945	8,945
Variable costs	2,457,055	97,375	138,805	138,805	138,805	138,805	138,805	138,805	138,805
Management cost	2,555,301	102,833	144,263	144,263	144,263	144,263	144,263	144,263	144,263

1) As forecast by Silvercorp

## 9.2 Capital Costs

As of 31 May 2007, Henan Found had incurred the following capital cost for construction of the project.

**Table 9-5: Capital Cost of Fixed Assets of Henan Found at 31 May 2007**

Item	RMB Yuan	US\$
Buildings	7,705,337.81	1,013,860.24
Machinery and equipment	8,798,276.80	1,157,668.00
Power equipment	1,078,126.00	141,858.68
Transportation vehicles	3,255,330.85	428,333.01
Tools etc.	249,667.46	32,850.98
Offices	1,235,836.64	162,610.08
Tunnels and other engineering	1,271,782.48	167,339.80
Others	644,082.02	84,747.63
<b>Total</b>	<b>24,238,400.06</b>	<b>3,189,263.18</b>

Note: US\$ 1= 7.60 RMB Yuan

The total value of fixed assets at May 2007 was 282.43 million RMB and the annual depreciation cost will be 20.05 million RMB. Silvercorp indicated that the maintenance and repair fee for fixed assets has been estimated at 5% of the total value of assets.

The feasibility study identifies the capital cost of constructing the smelter, including acid plant and electro-refining sections, at 319,497,100 Yuan RMB. Details are provided in Table 9-6.

**Table 9-6: Luoning Smelter Capital Investment**

	RMB millions
Construction	68,959.6
Machinery	164,006.5
Installation	34,250.1
Other	52,280.9
<b>Total</b>	<b>319,497.1</b>

Working capital is estimated to be 137,870,000 Yuan RMB.

Silvercorp also indicated there will be a replacement capital cost of 188.59 million RMB for machine renovation during years 11 to 13.

## 10 Workforce and Training

### 10.1 Workforce Numbers

Silvercorp has three subsidiaries and joint venture companies in China. Henan Found, one of Silvercorp's joint venture companies, has a 100% subsidiary which owns the NZ project. Table 10-1 lists the workforce in each subsidiary or joint venture (JV) company.

**Table 10-1: Workforce Numbers of Silvercorp Subsidiaries and JV Companies**

Position	Henan Found	Henan Huawei	Nanzhao Guangou Gold	Yunnan Jinchangjiang	Total
Geology	26	5	2		32
Mining	12	1			13
Surveying	7	3			10
Civil Engineering	2	7			9
Ore milling Engineer	9	1			10
Accounting	8	5		2	15
Drafting	3	2		1	6
Technician	30	9			39
Tech. worker	81	44			125
Office supportive	17	8			25
Other supportive	52	31	2		85
Part time worker	203	30			233
<b>Total</b>	<b>456</b>	<b>147</b>	<b>4</b>	<b>3</b>	<b>610</b>
<b>Contractors</b>	<b>830</b>	<b>300</b>			<b>1130</b>

Note: Henan Found – Henan Found Mining Co. Ltd.  
 Henan Huawei – Henan Huawei Mining Co. Ltd.  
 Nanzhao Guangou Gold – Nanzhao County Guangou Gold Mine Co. Ltd.  
 Yunnan Jinchangjiang –Yunnan Jinchangjian Mining Co. Ltd.

The contractors are mainly used for mining and mine development.

Most technical personnel have abundant work experience and are from all over China. The employees usually work consecutively for two and a half months and take a half month off for family reunion. The employees may take one day off on the mine site every week or save the off-days for a longer vacation, such as in Chinese New Year period. The contractors have their own arrangements for off-days and holidays. The companies take care of the employees welfare in compliance with related Chinese laws.

## 10.2 Workforce Training

Most of technical personnel employed have abundant experience, and they have been trained occasional in computer skills and software usage. The workers in milling plants were trained on site and some, such as crane operators, were trained in classes in Luoyang. Daily technical training and production safety have been conducting in morning meetings.

The mines do not take responsibility to train the contractors, but there are daily cooperation and on-spot training on safety.

## 10.3 Workforce Turnover

SRK was told that the turnover rate of the workforce is less than 5%. Some people returned after leaving the companies. The workforce is quite stable, and it is believed that Silvercorp’s subsidiaries and joint venture companies are among the best ones in salary and welfare aspects in China.

## 10.4 Accommodation

Henan Found built permanent dormitories in its Ying mine and the milling plant area for housing its employees. Usually two or three people share one room with a washroom. Temporary buildings or houses rented from local villages are used for the accommodation of employees in its exploration crews. Free meals are provided by the company to its employees. Permanent or temporary buildings were built for the contractors, although five to six people share one room. The contractors take care of the meals by themselves.

Henan Huawei only recently took over the operation of HPG mine. Temporary buildings have been built for accommodation of its employees, while the contractors still stay in tents and simple buildings. It is planned to house the contractors in the same manner as Henan Found. Similar arrangements to Henan Found have also been applied in the mine.

## 11 Environmental Assessment

Environmental assessments have been conducted and reported directly to Silvercorp by MBS Environmental of Perth. SRK has reviewed MBS’s report and identified that while a number of potential environmental issues and liabilities were identified, these can be overcome by appropriate management action. The reader is referred to the MBS report for details.

## 12 Governmental Approvals and Permits

### 12.1 Mining licenses and exploration permits

Silvercorp’s subsidiaries and joint venture companies own or have interests in following mining licenses and exploration permits (Table 12-1 and Table 12-2).

**Table 12-1: Mining Licenses Held by and to be transferred into Silvercorp’s Subsidiaries and JV Companies**

Holder	Mine Name	Area (km <sup>2</sup> )	Mineral species	Mine type	Capacity	Valid period
Henan Found	Ying	9.9447	Pb, Zn, Ag	Underground	198,000t ore/a	03-2006 to 05-2014
Luoning Huatai <sup>1</sup>	HPG	0.1453	Pb	Underground	5,000t ore/a	02-2006 to 08-2015
Luoning Huatai <sup>1</sup>	HPG	0.3878	Ag	Underground	20,000t ore/t	04-2004 to 04-2009
Nanzhao Guangou <sup>2</sup>	NZ	2.40	Au	Underground	15,000 ore/t	04-2004 to 04-2010

1. The transfer of the mining licenses to Henan Huawei is in process
2. The transfer of the mining license to Nanzhao County Guangou Gold Mine Co. Ltd. is in process.

**Table 12-2: Exploration Permits Held by and to be transferred into Silvercorp’s Subsidiaries and JV Companies**

Holder	Permit No.	Prospect	Area (km <sup>2</sup> )	Mineral species	Valid period
Henan Found	4100000640561	Ying-Qiaogou	1.42	Ag	11-17-2006 to 11-02-2007
Henan Found	4100000620073	Ying-Lijiagou	19.70	Ag	02-18-2006 to 12-05-2007
Henan Found	4100000620377	Ying-Chaogou	6.39	Au	08-05-2006 to 07-29-2008
Luoning Huatai <sup>1</sup>	4100000520048	HPG	6.86	Ag	02-04-2005 to 02-11-2006
Yunnan Jinchangjiang	5300000730180	Tuobuka	24.62	Au	12-30-2006 to 12-29-2008

- 1) The permit has been reserved for Henan Huawei and the transfer of the exploration permit to Henan Huawei is in process

## **12.2 Other approvals and permits**

Henan provincial government and Luoyang Municipal Government have granted Henan Found replies, approvals and permits, on environmental issue, water usage, water and soil protection plan, and production safety to Henan Found. The permit of using land is still in application, and now the land is leased from local villages. Henan Huawei is still using previous permits and approvals for Henan Hetai, the transfers and applications are in process. Nanzhao County Gold Mine Co. Ltd. is using the permits and approvals of its previous company, and transfer is in progress, although a production safety permit is in application.

## **13 Social Assessment**

Social assessments have been conducted and reported directly to Silvercorp by MBS Environmental of Perth. SRK has reviewed MBS's report and identified that while a number of potential issues were identified, these can be overcome by appropriate management action. The reader is referred to the MBS report for details.



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## 15 Glossary of Terms and Abbreviations

%	Percent
/	Per
<	Less than
>	Greater than
°	Degrees, as in the measurement of an angle or a temperature
°C	Degrees centigrade
AA	Atomic absorption, an assaying method
Ag	The chemical symbol for silver
ANFO	Ammonium Nitrate Fuel-Oil, an explosive mixture commonly used in mining
Au	The chemical symbol for gold
AusIMM	Australasian Institute of Mining and Metallurgy
backs	The roof of an underground metal mine
barring down	A practise by underground miners of using a steel bar to locate and remove loose rocks from the roof of the mine.
CIM	Standards on Mineral Resources and Mineral Reserves Definitions and Guidelines
CIM Code	Canadian Institute of Mining, Metallurgy and Petroleum
c.o.g.	Cut-off grade, the minimum grade of a mineral in a deposit which is able to be mined and processed economically
cm	Centimetre, equal to 10 millimetres
Cu	The chemical symbol for copper
E	east
EIA	Environmental Impact Assessment
EMMP	Environmental Management and Monitoring Plan
ENFI	Beijing Central Engineering and Research Institute for Non-ferrous Metallurgical Industries
EPB	Environmental Protection Bureau
footwall	That part of the country rock that lies below the deposit. Opposite to hangingwall
g	gram(s)
g/t	grams per tonne
hangingwall	That part of the country rock that lies above an inclined vein or fault. Opposite to footwall.
Henan Found	Henan Found Mining Co. Ltd
Henan Hawei	Henan Huawei Mining Co. Ltd.
HKSE	The Stock Exchange of Hong Kong Limited
HPG	Haopinggou valley, the name of a project owned by Silvercorp
IFC	International Finance Corporation
Indicated Resource	An Indicated Resource is that part of a coal 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 Resource	An Inferred Resource is that part of a coal 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
IPO	Initial Public Offering

JORC Code	Joint Ore Reserves Committee Code (see <a href="http://www.JORC.org">www.JORC.org</a> )
JV	Joint venture
kg	kilogram, equivalent to 1,000 grams
km	kilometres, equivalent to 1,000 metres
km <sup>2</sup>	square kilometres
kV	Kilovolt
kVA	Kilovolt-ampere, equivalent to 1,000 volt-amperes
kW	Kilowatt, equivalent to 1,000 watts
m	metre
m <sup>2</sup>	Square metres, a unit of area
m <sup>3</sup>	cubic meters, a unit of volume
m <sup>3</sup> /sec	cubic metres per second
m <sup>3</sup> /tonne	cubic metres per tonne
Measured Resource	A Measured Resource is 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
mg/m <sup>3</sup>	milligrams per cubic meter
mRL	metres Reduced Level, a measure of vertical height above or below a datum level
MI	megalitres, equivalent to 1,000,000 litres
MLR	Ministry of Land and Resources of PRC
mm	Millimetre(s)
Mo	The chemical symbol for molybdenum
Mt	million tonnes
Mtpa	million tonnes per annum
N	north
Ni	The chemical symbol for nickel
Nanzhao Guangou Gold	Nanzhao County Guangou Gold Mine Co. Ltd.
NI43-101	National Instrument 43-101 of the Ontario Securities Commission
NQ size	47.6mm diameter drill core
NZ	Nanzhao County, and name of a project owned by Silvercorp
O	The chemical symbol for oxygen
OH&S	Occupational Health and Safety
oz/t	Ounces per tonne, equivalent to ppm
pa	per annum
Pd	The chemical symbol for Palladium
Pb	The chemical symbol for lead
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
PPD	Personal protective devices
PPE	Personal protective equipment
ppm	Parts per million
ppb	Parts per billion
Pt	The chemical symbol for Platinum
QA / QC	Quality Assurance / Quality Control
Q-System	A standard method of comparing rock strength
RL	see mRL
RMB	The legal currency of China (Renmimbi), also known as Yuan (¥)
RMR	Rock Mass Rating, a standard for comparing a rock mass strength characteristics
ROM	run of mine – meaning the ore as it leaves the mine, before any processing

RQD	Rock Quality Designation, a standard for comparing rock strength characteristics
S	south, also the chemical symbol for sulphur
SG	Specific Gravity
SGX	Sha Guo area
Silvercorp	Silvercorp Metals Inc.
SKS	ShuiKouShan Mining Co. Ltd
SRK	SRK Consulting China Ltd.
Stope	An underground excavation which is planned or from which ore has been removed in a series of steps.
T	tonne, equal to 1,000kg
tpa	tonnes per annum
tph	tonnes per hour
t/d or tpd	tonnes per day
TSF	Tailings Storage Facility
TSP	Total Suspended Particulates
USD or US\$	United States dollars
V	Volt, a unit of electrical voltage
Valmin Code	Code for the Technical Assessment and Valuation of Mineral and Petroleum Assets and Securities for Independent Expert Reports
W	west
w/w	Weight / weight
WWTP	waste water treatment plants
Ying	The name of a project owned by Silvercorp
Yunnan	Yunnan Jinchangjian Mining Co. Ltd.
Jinchangjian	
Zn	The chemical symbol for zinc

# Annexure

## Annexure 1: Resource and Reserve Standards

### Categorisation of Mineral Resources and Ore Reserves

The system for the 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 & 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 standardize categorization. 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 (the “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 “Reserve” 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, 334

### 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 each category B, C & 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 & 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 the increasing levels of geological knowledge and continuity of mineralisation.

**Definition of the new Chinese Resource and Reserve Category Scheme**

<b>Category</b>	<b>Denoted</b>	<b>Comments</b>
<b>Economic</b>	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
<b>Feasibility</b>	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 etc
	3	Preliminary evaluation of feasibility with some mapping and trenches
<b>Geologically controlled</b>	1	Strong geological control
	2	Moderate geological control via closely-spaced data points (e.g. small-scale mapping)
	3	Minor work which projected throughout the area
	4	Review stage

## Annexure 2: Breakdown of Resource Estimate of Each Vein in the Ying Project

### Measured Mineral Resources

Vein #	Thickness (m)	Tonnes	Ag (g/ t)	Ag (oz/t)	Pb (%)	Zn (%)	Ag Equiv* (g/t)	Contained Metal Resource			
								Ag (oz)	Pb (t)	Zn (t)	Ag Equiv* (oz)
S2	0.43	12,537	1,513	48.64	25.95	8.68	3,019	609,767	3,253	1,089	1,217,092
S2E	0.58	9,255	1,844	59.29	27.17	7.07	3,326	548,768	2,515	655	989,764
S4	0.30	1,895	1,606	1.64	34.76	11.79	3,632	97,841	659	223	221,263
S6	0.36	6,034	1,572	0.53	27.49	12.91	3,344	304,892	1,659	779	648,791
S7	0.34	8,844	706	2.68	30.41	14.79	2,690	200,602	2,689	1,308	764,966
S7-1	0.19	2,269	858	27.58	10.96	23.68	2,444	62,570	249	537	178,288
S8	0.58	41,608	1,778	57.16	19.87	6.36	2,918	2,378,168	8,269	2,646	3,903,521
S14	0.34	49,096	1,779	7.20	36.40	3.17	3,465	2,808,081	17,872	1,558	5,470,008
S16E	0.50	39,621	1,291	1.50	17.63	12.33	2,620	1,644,333	6,984	4,886	3,337,281
S16E3	0.28	2,041	698	22.44	8.88	21.14	2,076	45,803	181	431	136,207
S16W	0.61	135,944	1,168	37.56	23.35	11.30	2,690	5,106,013	31,748	15,362	11,756,416
S16W1	0.59	38,616	1,461	46.99	22.41	10.72	2,916	1,814,397	8,653	4,142	3,619,987
S21	0.30	3,005	1,390	44.70	21.64	12.79	2,910	134,302	650	384	281,139
<b>Total</b>	<b>0.49</b>	<b>350,765</b>	<b>1,397</b>	<b>44.92</b>	<b>24.34</b>	<b>9.69</b>	<b>2,884</b>	<b>15,755,537</b>	<b>85,381</b>	<b>34,001</b>	<b>32,524,723</b>

### Indicated Mineral Resources

Vein #	Thick-ness (m)	Tonnes	Ag (g/ t)	Ag (oz/t)	Pb (%)	Zn (%)	Ag Equiv* (g/t)	Contained Metal Resource			
								Ag (oz)	Pb (t)	Zn (t)	Ag Equiv* (oz)
S2	0.25	17,055	1,893	60.87	30.83	5.48	3,454	1,038,100	5,258	935	1,893,938
S2E	0.35	13,920	785	25.24	27.47	12.47	2,536	351,332	3,824	1,736	1,134,835
S4	0.24	1,696	785	25.24	39.55	4.21	2,653	42,804	671	71	144,687
S6	0.53	9,164	1,741	55.96	28.89	11.25	3,493	512,827	2,647	1,031	1,029,187
S7	0.40	14,602	748	24.06	32.82	9.90	2,603	351,250	4,792	1,446	1,221,912
S7-1	0.19	11,211	534	17.18	17.67	15.53	2,017	192,582	1,981	1,741	726,964
S8	0.55	51,483	1,704	54.77	19.73	7.29	2,882	2,819,869	10,155	3,751	4,769,632
S14	0.24	67,356	2,573	82.73	34.24	2.47	4,135	5,572,390	23,066	1,661	8,954,449
S16E	0.23	13,915	1,285	41.33	11.74	14.45	2,467	575,083	1,634	2,011	1,103,462
S16E3	0.31	3,230	600	19.29	7.59	22.76	2,000	62,298	245	735	207,719
S16E4	0.28	4,215	818	26.29	4.05	15.14	1,707	110,814	171	638	231,370
S16W	0.39	90,865	951	30.59	23.66	8.24	2,341	2,779,420	21,502	7,485	6,838,063
S16W1	0.55	72,960	1,249	40.15	33.34	7.36	3,004	2,929,471	24,324	5,367	7,047,737
S21	0.50	89,183	2,424	77.93	32.84	8.17	4,197	6,950,273	29,287	7,287	12,034,637
<b>Total</b>	<b>0.37</b>	<b>460,854</b>	<b>1,639</b>	<b>52.70</b>	<b>28.11</b>	<b>7.79</b>	<b>3,195</b>	<b>24,288,513</b>	<b>129,557</b>	<b>35,894</b>	<b>47,338,594</b>

### Measured + Indicated Mineral Resources

Vein #	Thick-ness (m)	Tonnes	Ag (g/ t)	Ag (oz/t)	Pb (%)	Zn (%)	Ag Equiv* (g/t)	Contained Metal Resource			
								Ag (oz)	Pb (t)	Zn (t)	Ag Equiv* (oz)
S2	0.32	29,592	1,732	55.69	28.76	6.84	3,270	1,647,867	8,511	2,024	3,111,030
S2E	0.44	23,175	1,208	38.84	27.35	10.31	2,851	900,100	6,339	2,390	2,124,600
S4	0.27	3,591	1,218	39.17	37.02	8.21	3,170	140,645	1,329	295	365,950
S6	0.46	15,198	1,673	53.80	28.33	11.91	3,434	817,719	4,306	1,810	1,677,978
S7	0.38	23,445	732	23.54	31.91	11.75	2,636	551,852	7,482	2,754	1,986,879
S7-1	0.19	13,480	589	18.93	16.54	16.90	2,089	255,152	2,229	2,279	905,252
S8	0.56	93,090	1,737	55.84	19.79	6.87	2,898	5,198,037	18,425	6,396	8,673,152
S14	0.28	116,452	2,238	71.96	35.15	2.76	3,853	8,380,471	40,937	3,219	14,424,457
S16E	0.43	53,536	1,289	41.46	16.10	12.88	2,580	2,219,417	8,618	6,897	4,440,743
S16E3	0.30	5,271	638	20.51	8.09	22.13	2,030	108,101	426	1,166	343,926
S16E4	0.28	4,215	818	26.29	4.05	15.14	1,707	110,814	171	638	231,370
S16W	0.52	226,809	1,081	34.77	23.48	10.07	2,550	7,885,433	53,250	22,847	18,594,479
S16W1	0.56	111,576	1,322	42.52	29.56	8.52	2,974	4,743,868	32,977	9,509	10,667,724
S21	0.50	92,188	2,390	76.85	32.47	8.32	4,155	7,084,575	29,937	7,671	12,315,777
<b>Total</b>	<b>0.42</b>	<b>811,620</b>	<b>1,535</b>	<b>49.34</b>	<b>26.48</b>	<b>8.61</b>	<b>3,061</b>	<b>40,044,051</b>	<b>214,938</b>	<b>69,896</b>	<b>79,863,316</b>

### Inferred Mineral Resources

Vein #	Thick-ness (m)	Tonnes	Ag (g/ t)	Ag (oz/t)	Pb (%)	Zn (%)	Ag Equiv* (g/t)	Contained Metal Resource			
								Ag (oz)	Pb (t)	Zn (t)	Ag Equiv* (oz)
S2	0.31	82,728	1,723	55.40	34.20	6.47	3,473	4,582,928	28,289	5,357	9,237,403
S2E	0.46	18,391	1,576	50.66	29.55	10.45	3,318	931,738	5,434	1,921	1,961,854
S4	0.24	8,084	785	25.24	39.55	4.21	2,653	204,028	3,197	340	689,655
S6	0.52	84,076	1,754	56.38	29.53	11.23	3,533	4,739,993	24,831	9,446	9,549,444
S7	0.40	91,530	793	25.50	34.19	12.68	2,837	2,334,331	31,291	11,609	8,350,047
S7-1	0.19	56,603	709	22.81	14.05	19.51	2,228	1,291,102	7,954	11,040	4,054,570
S8	0.49	165,572	1,655	53.20	19.90	7.32	2,842	8,808,182	32,945	12,120	15,126,272
S14	0.35	169,290	1,908	61.34	34.33	3.32	3,514	10,384,356	58,114	5,628	19,125,742
S16E	0.49	40,335	745	23.96	22.78	12.47	2,298	966,541	9,187	5,029	2,980,036
S16E3	0.53	16,933	693	22.29	8.77	21.27	2,073	377,410	1,485	3,602	1,128,482
S16W	0.59	290,863	990	31.82	18.35	11.54	2,311	9,255,058	53,380	33,553	21,615,226
S16W	0.49	79,907	1,302	41.87	24.87	5.93	2,633	3,345,290	19,872	4,735	6,763,203
1 S21	0.42	141,700	2,178	70.03	29.20	8.84	3,830	9,922,902	41,382	12,532	17,448,275
<b>Total</b>	<b>0.45</b>	<b>1,246,013</b>	<b>1,426</b>	<b>45.86</b>	<b>25.47</b>	<b>9.38</b>	<b>2,946</b>	<b>57,143,860</b>	<b>317,362</b>	<b>116,914</b>	<b>118,030,208</b>

\*Ag Equivalent is calculated using US\$6.50/oz Ag, US\$0.40/lb Pb, and US\$0.45/lb Zn Calculations reflect gross metal content and have not been adjusted for metallurgical recoveries.



## Annexure 3: Processing Plant Reagent Consumption

### Reagent consumption and cost in Ying Concentrator

Reagent	Addition Rate	Cost per unit (RMB/t)
ZnSO <sub>4</sub>	1.528kg/t	5000
Na <sub>2</sub> SO <sub>3</sub>	0.790kg/t	3500
No.25 Dithio Phosphate	0.086kg/t	21000
Butyl Amine Dithio Phosphate	0.011kg/t	16500
Carbamate	0.001kg/t	18000
CuSO <sub>4</sub>	0.517kg/t	18300
Butyl Xanthate	0.094kg/t	11500
No2 Pine Oil	0.005kg/t	7500
Lime	4.621kg/t	270
Aniline Dithio Phosphate	0.003kg/t	15500
Na <sub>2</sub> CO <sub>3</sub>	0.007kg/t	1600
NaOH	0.010kg/t	3100
Ethyl Dithio Phosphate	0.002kg/t	15500
Na <sub>2</sub> S	0.010kg/t	1600
Mill Balls	1.005kg/t	5400
Water	3.825m <sup>3</sup> /t	1.3RMB/m <sup>3</sup>
Power	33.240kWh/t	0.65RMB/kWh
Crusher Liners	0.35kg/t	7500

Mean Reagent consumption for April May 2007

### Reagent consumption and cost in the HPG Concentrator

Reagent	Addition Rate	Cost per unit (RMB/t)
ZnSO <sub>4</sub>	1.500kg/t	5000
Na <sub>2</sub> SO <sub>3</sub>	1.000kg/t	3500
No.25 Dithio Phosphate	0.060-0.080kg/t	21000
CuSO <sub>4</sub>	0.600kg/t	18300
Butyl Xanthate	0.060kg/t	11500
No2 Pine Oil	0.015kg/t	7500
Lime	6.000kg/t	270
Na <sub>2</sub> S	0.010kg/t	1600
Mill Balls	1.200kg/t	5400
Crusher Liners	0.25kg/t	7500

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Name/Title	Company	Copy #
Myles Gao	Silvercorp Metals Inc.	1
Dr Rui Feng	Silvercorp Metals Inc.	2

**Approval Signature:**



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