CAMECO CORP
Form 6-K
March 13, 2006

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549
FORM 6-K
Report of Foreign Private Issuer
Pursuant to Rule 13a-16 or 15d-16 Under
the Securities Exchange Act of 1934
For the month of March, 2006
Cameco Corporation
(Commission file No. 1-14228)
2121-11th Street West
Saskatoon, Saskatchewan, Canada S7M 1J3
(Address of Principal Executive Offices)

Indicate by check mark whether the registrant files or will file annual reports under cover Form 20-F or Form 40-F.

Form 20-F o Form 40-F þ

Indicate by check mark whether the registrant by furnishing the information contained in this Form is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934.

Yes o No þ

If Yes is marked, indicate below the file number assigned to the registrant in connection with Rule 12g3-2(b):

Exhibit Index

Exhibit No.	Description	Page No.
1.	Kumtor Gold Mine Technical Update Report dated March 9, 2006	

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Date: March 13, 2006

Cameco Corporation
By:

Gary M.S. Chad

Gary M.S. Chad
Senior Vice-President, Governance,
Legal and Regulatory Affairs, and
Corporate Secretary

TECHNICAL UPDATE REPORT
on the
KUMTOR GOLD MINE
KYRGYZ REPUBLIC
for
CENTERRA GOLD INC.
and
CAMECO CORPORATION

March 9, 2006 **Henrik Thalenhorst, P. Geo.**
Toronto, Canada **Strathcona Mineral Services Limited**

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1. SUMMARY

1.1 Kumtor Gold Project

The Kumtor gold project in the Kyrgyz Republic has been one of the most successful mine developments in the mining industry in recent years. The project originated in 1992 when Cameco Corporation (Cameco), while pursuing uranium prospects in the Kyrgyz Republic, was presented with an opportunity to follow up on the discovery of gold at Kumtor in 1978 and subsequent extensive exploration work by the USSR Ministry of Geology when the Kyrgyz Republic was part of the former Soviet Union. The Kumtor gold project is now one of the largest gold mines in the world, having produced between 500 000 and 750 000 ounces of gold per year at an average cash cost of US$193 per ounce during the nine-year period from 1997 to 2005.

1.2 Arrangements with the Kyrgyz Republic

In December 1992, Cameco signed an initial agreement with the Government of the Kyrgyz Republic giving Cameco the exclusive right to evaluate and develop the Kumtor project. In December 1993, Kilborn Western Inc. (Kilborn), (now SNC-Lavalin Inc.), completed a feasibility study on the project, which was amended in 1994 and 1995 (Kilborn Feasibility Study). A final project development agreement was concluded with the Government of the Kyrgyz Republic in May 1994 under which Cameco, through its wholly-owned subsidiary Kumtor Mountain Corporation (KMC), acquired a one-third interest in Kumtor Gold Company (KGC), the project owner. The remaining interest was held by Kyrgyzaltyn JSC(Kyrgyzaltyn), a Kyrgyz joint stock company whose shares are 100% owned by the Government of the Kyrgyz Republic.

Project construction began in late 1994 and was financed by Cameco and an international group of banks and lending agencies. The mine achieved commercial production in the second quarter of 1997, after incurring capital expenditures of US $452 million. Kumtor Operating Company (KOC), then a wholly owned subsidiary of Cameco, was granted responsibility to operate and manage the project for a ten-year period to May 2007 for which KOC received a management fee. This period has since been extended to the life of the concession pursuant to the Kumtor restructuring described below.

In December 2003 Cameco, Cameco Gold Inc. (Cameco Gold), Kyrgyzaltyn and Centerra Gold Inc. (Centerra) entered into the Kumtor Restructuring Agreement, under which Kyrgyzaltyn, Cameco Gold and its affiliate, Kumtor Mountain Corporation (KMC), agreed to sell to Centerra all of their respective shares in KGC. This restructuring was completed in June 2004. On June 30, 2004 Centerra completed its initial public offering (IPO) and commenced trading on the Toronto Stock Exchange. As a result of the restructuring Cameco Gold and KMC hold a majority shareholding interest in Centerra of 52.7%, while Kyrgyzaltyn holds 15.7% of the Centerra shares.

1.3 Property Location and Description

The Kumtor mine is located in the southeastern part of the Kyrgyz Republic, one of the independent successor states of the former Soviet Union, some 350 kilometres to the southeast of the Kyrgyz capital of Bishkek and about 60 kilometres to the north of the international boundary with the Peoples Republic of China, in the Tien Shan Mountains, at 41º 52 N and 78º 11 E. The mill site is situated in alpine terrain at an elevation above 4000 metres, with the pit wall extending above 4400 metres. The climate is dry and continental with a mean annual temperature of minus 8°C. Local valleys are filled with active glaciers, and the mine area is in permafrost that extends down to elevation 3900 metres.

Mining takes place on the Concession Area, a 750-hectare parcel of land centred on the Kumtor gold deposit to which KGC has been granted the exclusive rights to all minerals. As a result of the recent expansion of the mineral resources and reserves, KGC has applied for two additional mining concession areas situated to the northeast and to the southwest of the Concession Area, respectively. To facilitate the initiation of mining at the Southwest deposit, located outside of the Concession Area, KGC has recently been granted a temporary concession covering the Southwest deposit (the Southwest Mining Licence), renewable after its expiry date of July 22, 2006.

The Concession Area is surrounded by the Exploration Licence of 26 400 hectares, also centred on the Kumtor gold deposit, in which KGC was granted the exclusive right to develop any mineral resources. This includes the right to be granted any additional mining concessions within the Exploration Licence on the same terms and conditions as those specified for the Concession Area. The Exploration Licence cannot be renewed beyond its current expiry date of December 18, 2009, but a new licence may be applied for. Partial or complete conversion into a mining lease is possible at any time during the currency of the licence.

1.4 Kumtor Geology and Mineralization

The Kumtor and satellite gold deposits occur in the southern Tien Shan Metallogenic Belt, a Hercynian fault and thrust belt in Central Asia that extends from Uzbekistan in the west through Tajikistan and the Kyrgyz Republic into northwestern China.

The mine geology in the Kumtor area is dominated by several major thrust slices with each thrust sheet containing older rocks than the sheet it structurally overlies. The slice hosting the gold mineralization is composed of Vendian (youngest Proterozoic or oldest Paleozoic) meta-sediments that are strongly folded and schistose. In most areas, the Kumtor Fault Zone (KFZ), a dark-grey to black, graphitic gouge zone, forms the footwall of this structural segment. The KFZ strikes northeasterly, dips to the southeast at moderate angles and has a width of up to 30 metres. The adjacent rocks in its hanging wall are strongly affected by shearing and faulting for a distance of up to several hundred metres. The rocks in the structural footwall of the KFZ are Cambro-Ordovician limestone and phyllite, thrust over Tertiary sediments of possible continental derivation that in turn rest, with apparent profound unconformity, on Carboniferous clastic sediments.

Gold mineralization occurs where the Vendian sediments have been hydrothermally altered and mineralized, an event that may have taken place in late Paleozoic time. Gold mineralization has been observed over a strike distance of more than twelve kilometres, with the Kumtor deposit being the most important accumulation. Other known occurrences along the mineralized trend that have either mineral reserves or mineral resources are the Southwest Deposit and the Sarytor Zone, and additional mineralization is known from the Northeast, Akbel and Bordoo areas.

Mineralization took place in four main pulses with the mineralization being most intense, and the gold grade being the highest, where the metasomatic activity was continuous through phases two and three. Substantial volumes affected by such activity are represented by the Stockwork Zone, the economic mainstay of the operation to date, and by the SB Zone, whose recent discovery has resulted in the increase in the mineral reserves at Kumtor as summarized in this report.

Native gold and gold-bearing minerals occur as very fine inclusions in pyrite, with an average size of only 10 microns, which accounts largely for the partly refractory nature of the Kumtor ore. However, the fine grain size of the gold also renders assaying of this mineralization relatively reliable, with only a small nugget effect. Post-ore faults often carry significant quantities of graphite, and other carbonaceous components which constitute the source for the preg-robbing character of some of the mineralization.

1.5 Mining Operations

Mining and processing operations have had to overcome the challenges of operating in a remote part of the Kyrgyz Republic and also in a dry cold climate at an altitude above 4000 metres. The Kumtor deposit is mined in a large open pit where total material mined in 2005 was 81 million tonnes, or about 222 000 tonnes per day. Unit mining costs have been very low, primarily because of favourable topography for short haul distances for disposal of waste and delivery of ore to the process plant, but have increased in the past two years, in line with the general global experience of large open-pit mines.

Ore treatment has been at the rate of close to 5.5 million tonnes per year or 15 000 tonnes per day since commencement of operations. The fine-grained nature of the gold mineralization within sulphides has resulted in a flowsheet whereby a sulphide flotation concentrate is subjected to fine grinding prior to cyanide leaching of the gold in a conventional carbon-in-leach circuit with gold recovery in 2005 being 81.2%.

Gold production during the nine-year period 1997-2005 from the milling of 48 million tonnes of ore grading 4.5 grams of gold per tonne (g/t) has been 172 tonnes or 5.5 million ounces.

Citizens of the Kyrgyz Republic represent 95% of the total workforce of 1653 employees as of the end of 2005, and this high proportion demonstrates the successful adaptation of the Kyrgyz citizens to the employment opportunities at Kumtor and to the training programs instituted by Cameco and continued by Centerra. The benefits of drawing a high proportion of the workforce from within the Kyrgyz Republic have included very good operating cost performance, in a unique and challenging location.

1.6 Mineral Reserves and Resources, Year-End 2005

The mineral reserves and resources for the Kumtor gold mine have been estimated by Centerra as at December 31, 2005, using a gold price of $400 per ounce.

The estimates of mineral reserves and resources have been derived from a resource block model incorporating sample data from historical diamond drilling and underground exploration that has been augmented by a substantial amount of diamond drilling in recent years. While the experience of reconciling eight years of production (1997 to 2004) with the reserve estimates for the areas mined had resulted in a high degree of confidence in previous reserve estimates, the progress of mining into parts of the Kumtor deposit with narrower and less continuous zones of mineralization has prompted the addition of a provision for external mining dilution into the newest block model that was used for the estimation of the year-end 2005 mineral resources and reserves.

Strathcona Mineral Services Limited

Kumtor Mineral Reserves and Resources at December 31, 2005

Category	Tonnes (000 s)	Gold g/t	Contained Gold Ounces (000 s)	Contained Gold Tonnes
Mineral Reserves				
Proven	17 600	3.7	2 099	65
Probable	22 562	3.9	2 854	89
Total	**40 162**	**3.8**	**4 953**	**154**
Mineral Resources [1]				
Measured	13 406	3.8	1 634	51
Indicated	10 601	4.1	1 387	43
Measured & Indicated	**24 007**	**3.9**	**3 021**	**94**
Inferred	**5 475**	**4.6**	**803**	**25**

[1] Mineral resources are in addition to mineral reserves. Inferred m ineral resources include both open pit and underground resources. Mineral resources have not been proven to be economically viable.

The mineral reserves of 40 million tonnes with a grade of 3.8 g/t gold have increased substantially from those of a year earlier, mainly because of the discovery of the high-grade SB Zone in the southwestern part of the Kumtor deposit. As was the case a year earlier, the reserves include a modest tonnage from the Southwest deposit.

The reserves are scheduled to be mined and milled over the eight-year period 2006-2013, with low-grade stockpiles being treated in the last two years. Forecast gold production is 4.1 million ounces, assuming a mill recovery of 83%.

To gain access to the deeper parts of the SB Zone, a high waste-to-ore (strip) ratio is forecast for the period 2007-2010, averaging 19.4. This requires the purchase of a substantial amount of additional open-pit equipment, commencing in 2006.

Geotechnical concerns pertaining to ground movement in the Kumtor highwall, the impact of the Davidov glacier on the expanded pit, and the continuing slow movement of the tailings dam are being addressed.

1.7 Potential for Mineral Reserve Additions

Mineral reserve additions at Kumtor are possible from several sources. The most immediate possibility is the expansion of the current pit in response to any new mineralization found from drilling along the northeast extension of the Kumtor deposit. Together with a gold price higher than $400 per ounce that was used for the current pit design, this may allow a layback of the current highwall, thus expanding the pit to include additional mineral resources that are currently below the optimized pit design.

Drilling continues along the southern extension of the high-grade SB Zone, with some additional ore being found inside the current final pit design. The recovery of additional ore outside of the final pit is challenged by the presence of the Davidov glacier, and may require underground mining.

If additional mineralization of ore-grade character can be found at the northeastern end of the Southwest deposit located about three kilometres from the Kumtor pit, the overall strip ratio of this deposit may be lowered, and a portion of the additional resources identified down-dip of the design pit may become mineable. Initial wide-spaced drilling in the Sarytor area has also identified gold mineralization of potential ore grade five kilometres from the mill, and in-fill drilling may upgrade this mineralization to allow pit optimization and partial conversion into mineral reserves.

Provided that additional exploration is successful, the areas being considered for possible reserve additions may provide from one to two years of additional operations beyond the year 2013.

1.8 Projected Economic Performance

The performance of the Kumtor mine in achieving production and cost budgets to date has been very good, and with mining and processing operations now well established, the mine is expected to meet the life-of-mine (LOM) plan projections for future gold production of 4.1 million ounces at an average cash operating cost of $260 per ounce for the period 2006-2013.

The estimated unit operating costs for the current LOM plan are well founded in the operating experience at Kumtor, and are at a level slightly higher than that experienced in the past two years.

Capital expenditures over the life of the mine are estimated at $132 million, mainly to enable the mine to deal with the additional waste mining required for the recovery of the newly-found SB Zone, and to a lesser extent with the remedial action to, and additional lifts on, the tailings dam. For 2006 and 2007, capital expenditures totalling $119 million have been approved by Centerra.

Centerra has made a strong commitment to fund a continued exploration effort to extend the life of the Kumtor operation, and budgets for subsequent years will be established following an assessment of the exploration results of each year. Exploration expenditures are not included in the capital budget and will be funded from cash provided by operations and existing cash. For 2006, a budget of $11.4

million has been approved, mostly for surface drilling, to identify new mineral resources, and to upgrade existing mineral resources to a higher category or to provide the foundation on which they can be converted to mineral reserves.

As of December 31, 2005 KGC had two loans of $10 million each, repayable to Centerra, remaining from the original senior and subordinated debt financing arranged for the development of the Kumtor project, and repayment is to be completed by June, 2008. All of the remaining debt with external lenders involved in the original Kumtor project financing has either been repaid or converted to equity as part of the initial public offering of shares by Centerra.

Based on projected gold production for the Kumtor mine and associated operating costs for the period 2006-2013, estimates for sustaining capital, repayment of the outstanding $20 million inter-company debt, and a gold price of $400 per ounce for the eight-year period, KGC would have net mine cash flow of $363 million, before allocation of funds for exploration programs. At a gold price of $500 per ounce, net mine cash flow prior to exploration expenditures would increase to more than $600 million if that gold price was maintained over the same period, although a sustained higher gold-price would increase the reserve base and mine life.

A 10% increase in operating costs over the period 2006-2013 would decrease cumulative net mine cash flow by almost $100 million if all other parameters including the gold price remained unchanged. The possibility of a significant decrease in the gold grade from that currently estimated in the LOM plan is considered unlikely given the good reconciliation to date between reserve grade and the grades recorded from mining and processing.

As a consequence of our lengthy association with the Kumtor project and the resultant familiarity with its personnel, and the policies and standards followed in the management and conduct of mining operations, and the very good production and cost performance during the nine years the mine has been in operation, we are of the opinion that the Kumtor mine should be able to achieve the production, cost and economic performance targets for the current mine plan with the possibility of extending the mine life as a result of the commitment to further exploration in the Kumtor area.

2. INTRODUCTION

2.1 Background

A technical report for the Kumtor gold mine has been requested by Centerra Gold Inc. (Centerra) and Cameco Corporation (Cameco), to update the technical report of May 2004 prepared by Strathcona Mineral Services Limited (Strathcona). As of December 31, 2005, Cameco held 52.7% of the share capital of Centerra. Kumtor Gold Company (KGC), a wholly-owned subsidiary of Centerra, holds the Centerra interest in the Kumtor project and the surrounding exploration area. The Kumtor mine is operated by Kumtor Operating Company (KOC), which is incorporated in the Kyrgyz Republic and is also a wholly-owned subsidiary of Centerra. Centerra became a publicly-listed company on the Toronto Stock Exchange in June 2004 as the result of the spin-off of the gold assets including the Kumtor project, previously held by Cameco Gold Inc., a wholly owned subsidiary of Cameco.

The Kumtor operation is governed by an Investment Agreement entered into as of December 31, 2003, between Centerra, KGC and the Government of the Kyrgyz Republic setting out the terms and conditions applicable to the Centerra operation and development of the Kumtor project. The Investment Agreement has an indefinite term and shall not be terminated, except by agreement of the parties, prior to the expiration of the fifty-year term of the Concession Agreement, which grants the right to explore and develop the Kumtor deposit. The Concession Agreement may be extended beyond its 50-year term, or may be terminated earlier upon exhaustion of the Kumtor deposits and completion of mining.

There are a number of material legal documents, including the Investment Agreement, that are briefly described as follows:

- The Kumtor Restructuring Agreement, dated December 31, 2003, among Centerra, Cameco, Kyrgyzaltyn and Cameco Gold.

- The Investment Agreement, dated December 31, 2003, among Centerra, the Government of the Kyrgyz Republic and KGC.

- The Amended and Restated Concession Agreement (Concession Agreement) dated December 31, 2003 among KGC and the Government of the Kyrgyz Republic under which the Government of the Kyrgyz Republic granted KGC a concession giving KGC the exclusive rights to the exploration and development of the Kumtor deposits.

The Operating Agreement dated September 3, 1993 as subsequently amended among KGC and KOC, under which KOC is appointed as operator of the Kumtor mine.

The Centerra Shareholders Agreement, dated January 9, 2004, among Centerra, Kyrgyzaltyn, Cameco Gold and KMC.

The Agency Exchange Agreements, dated April 30, 2004 among Centerra, KGC and each of International Finance Corporation (IFC) and European Bank for Reconstruction and Development (EBRD), respectively, under which IFC and EBRD assigned the benefit of two $10-million loans to Centerra in exchange for an equity interest in Centerra and certain cash payments.

The Insurance Risk Rights Plan Agreement, dated June 21, 2004, among Centerra and CIBC Mellon Trust Company.

The Priority Power Supply Agreement dated May 22, 1995 among the State Joint Stock Energy Holding Company of the Kyrgyz Republic and KGC, under which the Kumtor project is guaranteed an uninterrupted source of electricity.

The Gold and Silver Sale Agreement among KOC on behalf of KGC, Kyrgyzaltyn and the Government of the Kyrgyz Republic under which Kyrgyzaltyn has agreed to purchase all of the gold produced by the Kumtor project for reprocessing at its refinery in the Kyrgyz Republic as amended by the Gold Payment Agreement, dated December 22, 2005, between Kyrgyzaltyn, Centerra Gold, KOC and KGC, which for a limited period of time provides Kyrgyzaltyn with a deferred payment facility; and

The Reclamation Trust Deed establishing the reclamation trust described in **Section 17.10** below.

2.2 Terms of Reference

Strathcona has been retained by Centerra to provide an independent technical review and report on the mineral resources and reserves of the Kumtor gold project as at the end of 2005. The report is to comply with the standards for an independent technical review as set forth in National Instrument 43-101 pertaining to Standards of Disclosure for Mineral Projects (NI 43-101). The requirement for an independent report is due to additional mineral reserves that have been identified in the past two years in the Kumtor deposit itself and in the adjoining Southwest Deposit as announced by Centerra in a press release dated January 23, 2006. The operating life of the project has been extended from mid-2009 to mid-2013. Additional indicated mineral resources have also been reported by Centerra in the Sarytor Deposit that may provide a basis for further production.

Strathcona has a long association with the Kumtor project, having initially been engaged as Independent Mining Engineer to monitor the performance of the project in accordance with the loan agreements entered into with EBRD, IFC and the Canadian Export Development Corporation (collectively, the Agency Lenders) from 1995 until 2002, when the Kumtor debt was restructured. As part of that assignment, Strathcona president Graham Farquharson visited the project numerous times, and senior geologist Henrik Thalenhorst travelled to the Kumtor site from November 27 to December 2, 1998. In preparation for the current report, Henrik Thalenhorst visited the Kumtor project from January 8 to 14, 2006.

Strathcona was also the author of a technical report on the Kumtor mine that was required for the initial public offering of Centerra in 2004 (Thalenhorst & Farquharson, 2004). The 2004 report contained a comprehensive description of the technical and economical aspects of the Kumtor operation. Those items for which no or only inconsequential changes have taken place in the interim, will only be summarized in this report, referring to the more detailed descriptions in the earlier report.

The metric system of units is used throughout this technical report, deviating only to report ounces of gold. The currency used is the United States dollar, unless otherwise indicated.

2.3 Sources of Information

Following the initial discovery of gold at Kumtor in 1978, the deposit was delineated by a Soviet-Kyrgyz geological expedition. Extensive drilling programs, surface and underground sampling programs and studies related to the deposit and its exploitation were completed by various Soviet agencies. The data from those studies were evaluated and verified by the Kilborn Feasibility Study initiated by Cameco in 1993. The technical reports on the Kumtor project prepared since 1993 have been written to contemporary North American standards.

Since commencement of Kumtor production in late 1996, additional technical studies have been carried out by KOC, Cameco, Centerra and consultants retained by them with expertise in the fields of geology, resource estimation, engineering, mining, metallurgy, and environment as part of the ongoing mining operations. Such studies have included the preparation of periodic mineral resource models and annual mineral reserve estimates and the reconciliation of the reserve estimates to mine production, all of which have been made available to Strathcona. Other sources of information have included geological and engineering studies, sampling and assaying results, internal notes and memoranda, computer models, and monthly KOC operating reports from December 1996 through November 2005. A list of references used in the preparation of this report is provided in **Section 20**.

The mineral resources of the Kumtor project that are the subject of this report were most recently estimated in late 2005 and early 2006 by Centerra. Drilling cut-off date was December 14, 2005. The mineral reserves based on that resource estimate were estimated as of December 31, 2005 using a mine plan and pit designs developed by the Kumtor mine engineering department headed by Bolot Isidirov and Alexander Taskaev. David McNee, Kumtor Mine Manager, coordinated and supervised the project. The resource and reserve estimates were prepared under the supervision of Robert Chapman, Director of Mergers and Acquisitions for Centerra by Dan Redmond, Manager of Reserves and Resources for Centerra, in collaboration with site geological staff .

Considerable experience has been accumulated by Centerra on the Kumtor project, with mineral resource and reserve estimates being monitored by means of reserve-production reconciliation, the results of which are reviewed in **Section 15.12.2**. As the independent qualified person, Henrik Thalenhorst of Strathcona assumes overall responsibility for the content and conclusions of this report.

2.4 Reliance on Other Experts

The information with respect to the Kumtor property and its legal status described in **Section 3** was provided by KGC and has not been independently verified.

3. PROPERTY DESCRIPTION AND LOCATION

The Kumtor gold project is located in the Kyrgyz Republic, one of the independent successor states of the former Soviet Union, some 350 kilometres to the southeast of the Kyrgyz capital of Bishkek (**Figure 1**) and about 60 kilometres to the north of the international boundary with the People s Republic of China, in the Tien Shan Mountains, at 41º 52 N and 78º 11 E (**Figure 2**).

Under the Concession Agreement, KGC has been granted a concession giving it the exclusive rights to all minerals within an area of approximately 750 hectares of land centred on the Kumtor gold deposit and with an expiry date of May 10, 2043 (the Concession Area). The present Kumtor pit, the waste dumps and the processing plant are located within the Concession Area.

The recent expansion of the mineral resources and reserves has resulted in the Concession Area being too small. As a consequence, KGC has applied for a two additional mining concession areas, one covering the Northeast Zone, the other the Southwest, Sarytor and adjacent areas to the southwest (the Concession Applications). The Investment Agreement provides that the Government of the Kyrgyz Republic shall grant any necessary additional mining concessions within the Exploration License (described below) on the same terms and conditions as those specified for the original Concession Area.

While the application for the additional areas is under consideration by the Kyrgyz authorities, on January 23, 2006 KGC was granted a temporary concession covering the Southwest deposit (the Southwest Mining Licence) with an early expiry date of July 22, 2006. We have been advised by Centerra that, should the Concession Applications not have been granted by the date that the Southwest Mining Licence expires, an extension to the Southwest Mining Licence can be requested.

The coordinates of the Concession Area (black corners 1 to 4), the Concession Applications (black corners 5 to 9) and the Southwest Mining Licence (red corners 1 to 8) are shown in **Figure 3**.

The Concession Agreement also confirms the right of KGC to use sufficient additional lands for the purposes of the construction and occupation of all mining and milling superstructure and facilities, work camp and other infrastructure facilities necessary to carry out the Kumtor project.

Table 1 Coordinates of Kumtor Mining Concessions

	UTM Coordinates[1]		**Kyrgyz Republic National Coordinates**	
	North	East	North	East
		Concession Area (750 hectares)		
Corner 1	4 637 478.2	266 091.8	4 621 033.7	9 355 309.6
Corner 2	4 699 915.7	267 840.9	4 623 539.6	9 356 957.5
Corner 3	4 636 020.5	268 123.4	4 619 660.4	9 357 397.8
Corner 4	4 638 458.4	269 871.0	4 622 166.4	9 359 046.8
		Southwest Mining Licence (56 hectares)		
Corner 1	4 636 109.7	266 582.1	4 619 609.4	9 354 023.0
Corner 2	4 636 001.3	266 999.2	4 619 517.7	9 354 445.2
Corner 3	4 636 520.3	267 046.9	4 620 039.0	9 354 471.6
Corner 4	4 636 582.6	267 307.5	4 620 112.0	9 354 730.2
Corner 5	4 636 174.2	267 644.2	4 619 716.9	9 355 083.7
Corner 6	4 635 616.6	267 064.8	4 619 135.5	9 354 526.2
Corner 7	4 635 581.7	266 717.4	4 619 086.6	9 354 179.8
Corner 8	4 635 878.8	26 522.1	4 619 367.0	9 353 972.3
		Concession Applications (625 & 3026, total 3651 hectares)		
Corner 5	4 629 608.5	263 522.4	4 613 068.2	9 353 062.8
Corner 6	4 632 475.8	260 655.2	4 615 815.8	9 350 082.2
Corner 7	4 638 353.3	264 872.2	4 621 858.2	9 354 055.7
Corner 8	4 641 947.0	269 298.3	4 625 628.4	9 358 331.1
Corner 9	4 640 489.7	271 328.4	4 624 255.2	9 360 419.4

The Investment Agreement specifies that KGC will be guaranteed such access to the Kumtor site, including all necessary surface lands, together with access to water, power and other infrastructure, as is necessary or convenient for the operation of the Kumtor project. The area currently in use for such purposes is identified as Surface Rights Area on **Figure 3** and covers approximately 7000 hectares. The Surface rights Area includes the western part of Petrov Lake, the source of water for the Kumtor project, and covers the tailings management facility, the various roads and the camp and maintenance buildings.

[1] UTM W GS84
Zone 44N

The Kumtor Concession has an area of 750 hectares, the Southwest Mining Licence has an area of not quite 56 hectares, with the extension applied for to the north having an area of 625 hectares, and the southern extension measuring 3026 hectares.

Under the Master Agreement, the predecessor agreement to the Investment Agreement, and under Section 10 of the Law of the Kyrgyz Republic No. 42 of July 2, 1997 On Subsoil , KGC was granted the exclusive right to develop any mineral resources within a 7.5 kilometre radius from the perimeter of the Concession Area. The Exploration Licence granted in 1997 initially covered an area of approximately 26 660 hectares. This right is continued by the Investment Agreement. The Government of the Kyrgyz Republic has also agreed to grant any necessary additional mining concessions within the Exploration Licence on the same terms and conditions as those specified for the Concession Area.

The licence granting the Exploration Licence was first issued on December 18, 1997. It was initially renewed on December 31, 2002, and again on December 31, 2005. The current expiry date is December 18, 2009, but the shape of the licence was changed during the last renewal to coincide with the principal directions of the Kyrgyz national coordinate system, and its size reduced slightly to approximately 26 400 hectares, and this area includes the Concession Area, the Southwest Mining Licence, the Surface Rights Area and the Concession Applications. The Exploration Licence cannot be renewed again, but a new licence may be requested. Conversion into a mining lease is possible at any time during the currency of the licence.

The Concession Area, the Southwest Mining Licence and the Exploration Licence are registered with the Government of the Kyrgyz Republic using the Kyrgyz national coordinate system to denote the boundaries. Legal surveys are not required to establish the boundaries of the registered areas, and accordingly, no surveys of such boundaries have been undertaken.

For ongoing work, two grid sets with local coordinates are used. The Kumtor Grid is oriented nearly north-south/east-west, with a 6° clockwise rotation against the UTM grid, as shown in **Figure 3**. For geological work including block modelling and resource and reserve estimation, local grids are used that are aligned with the predominant structural direction in each area of interest. The Kumtor and Southwest area geological grids are oriented northwest-southeast (139° with respect to the Kumtor Grid), and at 25° to the Kumtor Grid at Sarytor. Section lines are at nominal 40-metre intervals. The orientation of the local grids is indicated in **Figure 5**.

The local mine grids can be translated into the Kyrgyz national coordinate system by the State Agency on Geodesy who have the appropriate conversion key. However, we have been advised that there is an intermediate step involving the national 1963 grid system to which access is restricted.

We have been advised by Centerra that all permits and licenses required for the conduct of mining operations at Kumtor are currently in good standing. The principal permits are described in **Section 17.7** below. There are no royalties, payments or other agreements or encumbrances related to the Kumtor mine other than the agreements noted in this report and various forms of local taxation as set forth in **Section 17.13** of this report.

4. ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

Access to the Kumtor mine site (**Figure 2**) is by main road from Bishkek to Balykchy, located on the western shore of Lake Issyk-Kul at an elevation of 1600 metres, a distance of 180 kilometres. A secondary road for 150 kilometres along the south shore of the lake leads to the town of Barskaun. The final 100 kilometres into the Tien Shan Mountains to reach the Kumtor mine site is on a narrow winding road that climbs to an elevation of 3700 metres through the Sary-Moynuk Pass before proceeding eastward on a plateau through which the Kumtor River and other seasonal rivers flow. KOC has done considerable work to improve and maintain this access road and despite occasional avalanches and movements of gravel and till down steep slopes during heavy rains, there has not been any lengthy period during which the road has been out of service.

The Kumtor mill is situated in alpine terrain at an elevation of 4016 metres, while the highest waste and glacier mining occurs above 4400 metres. The main camp, administration and maintenance facilities are at about 3600 metres. Local valleys are occupied by active glaciers that extend down to elevations of 3800 to 3900 metres, and permafrost in the area can reach a depth of 250 metres. The region is seismically active as a result of the continuing convergence between India and Eurasia, but the Kumtor area has a relatively sparse history of seismic activity. All facilities at Kumtor, including the process plant and tailings storage dam, have been designed in accordance with recommended seismic standards for the area.

The climate is continental with a mean annual temperature of minus 8°C. Extreme recorded temperatures vary from plus 23°C to minus 49°C, with short summers that last from June to September. Precipitation is low at around 300 millimetres per annum, with the majority falling in the summer months, and snow accumulations of 600 millimetres. There have been no interruptions to Kumtor operations because of climatic conditions.

Reflecting the high elevation and the harsh climate, sparse low vegetation is restricted to the valley floors and lower mountain slopes, with a total absence of trees or shrubs.

Most employees of KOC are citizens of the Kyrgyz Republic. The remainder are skilled expatriates, primarily from Canada. Currently, KOC has 1635 local staff plus 229 personnel from contractors, and 102 expatriate staff.

Employees are transported to the mine site from Bishkek and the Issyk-Kul region using a company-owned commuter bus service. Supplies are transported by rail to Balykchy at the west end of Lake Issyk-Kul and then trucked 250 kilometres to the mine site. A helicopter pad is available at the mine site for emergency use.

The mine site is connected to the Kyrgyz Republic national power grid with a 110-kV overhead power line that was constructed for the project and that runs parallel to the access road. The mine maintains two standby generator stations in case of power outages. Fresh water for human and industrial use is taken from Petrov Lake, situated five kilometres northeast of the mill site (**Figure 3**). The minimum water inflow into this glacial lake is estimated to be in excess of 1000 cubic metres per hour or approximately twice the average project demand.

5. HISTORY

5.1 Exploration History

Intermittent exploration in the general Kumtor area dates back to the 1920s. Debris from the Sarytor deposit was discovered in 1978 by a geophysical expedition from the state Kyrgyz Geology department sampling float from the frontal moraine of the Sarytor Glacier (**Figure 3**). The sole outcrop of the Kumtor deposit itself was found during follow-up prospecting. From 1979 to 1989, a systematic evaluation of the Kumtor deposit, and to a lesser extent of the Southwest deposit, was carried out consisting of several phases of surface trenching and geological mapping, diamond drilling and underground development on three levels culminating in a detailed sampling program of the central upper part of the Kumtor deposit. A report entitled Results of Detailed Exploration of the Kumtor Gold Deposit was issued in 1989, and an initial reserve statement was issued by the USSR State Committee on Reserves in March 1990[2].

After the break-up of the Soviet Union and following the emergence of the Kyrgyz Republic as an independent country in 1991, Cameco became aware of the Kumtor project, concluded an agreement with the Kyrgyz Republic in 1992 and retained Kilborn Western Inc. to undertake a feasibility study of the project (the Kilborn Feasibility Study). The feasibility work program included data verification (by re-sampling parts of the underground openings and re-assaying of original sample rejects), additional and definitive metallurgical testwork, and a re-estimation of mineral resources and reserves using geostatistical methods, a block model and pit optimization software. The Kilborn Feasibility Study was completed in 1993, with updates in April 1994 and in May 1995.

Final agreements were signed with, and the Kilborn Feasibility Study was approved by, the Kyrgyz authorities in 1994, financing arrangements were concluded in 1995 and project construction was completed late in 1996. After capital expenditures of $452 million, commercial production was achieved in the second quarter of 1997. Based on a mineral reserve of 53.5 million tonnes with an average gold grade of 3.9 g/t, the project was forecast to treat 4.8 million tonnes per year for eleven years, with a total gold production forecast of 5.4 million ounces (169 tonnes).

As the Kumtor deposit was being mined, KOC undertook a substantial amount of additional diamond drilling on the deposit and on surrounding exploration targets since 1998, to augment the limited deposit information below elevation 3950 metres, and to identify additional mineral resources and reserves that would extend the life of the operation. The pertinent statistical data are summarized in **Table 2**[3]:

[2] The details of this early work have been described in the Strathcona report (2004).

[3] The figures in **Table 2** include completed drill holes only, but omit drill holes that had to be re-drilled.

Table 2 Summary of Additional Drilling Completed, 1998 2005

	Kumtor Deposit		**Exploration Targets**	
Year	Number of Holes	Length (metres)	Number of Holes	Length (metres)
1998	16	3 010	0	0
1999	48	12 708	20	3 304
2000	0	0	20	2 977
2001	43	12 735	30	5 352
2002	10	2 119	50	8 646
2003	50	14 349	30	4 543
2004	65	22 263	66	12 684
2005	146	44 863	52	7 969
Total	**378**	**112 047**	**268**	**45 475**

In the Kumtor mine area, the drill holes are now generally spaced 40 metres along strike and 40 to 80 metres down-dip in geologically complex areas, and at 80 metres along strike and 60 to 80 metres down-dip in other areas.

5.2 Mineral Reserves History

The mineral resource and reserve estimates at Kumtor have evolved over time. The principal estimates from 1990-2005 are summarized in **Table 3** which does not include the reserve estimates for the Southwest Deposit to allow comparison with the original Soviet estimate.

When comparing the results of the individual estimates in **Table 3**, it should be recognized that the cut-off grade has changed significantly through the project history, making direct comparisons difficult. The initial Soviet polygonal estimate in 1990, given its character, over-estimated the grade and under-estimated the ore tonnage. It also used a cut-off grade that was below a reasonable economic level in an effort to mine as much of the Kumtor deposit as possible. The Soviet estimate is not in compliance with past or present reporting guidelines in Canada.

Strathcona Mineral Services Limited

Table 3 Kumtor Deposit History of Mineral Reserve Estimates

millions of tonnes ore and waste and millions of ounces of gold

	Mineral Reserve In Situ - Stockpiles Excluded								**Mined before Date of Reserve Estimate(1)**				**Total Deposit**				
	Cut-Off	Block	Bottom	Gold	**Ore**		**Waste (2)**		**Ore**		**Waste (2)**		**Ore**		**Waste (2)**		**Tota**
	Grade	Model	Bench	Price	Tonnes	Gold	Tonnes	S/R	Tonnes	Gold	Tonnes	S/R	Tonnes	Gold	Tonnes	S/R	Tonn
te	g/t					g/t				g/t				g/t			
nmittee, 1990	1	Polyg.	3 700	??	66.2	4.3	Not estimated		No Production				66.2	4.3	No Data		
, April 1994	2	GSII	3 796	$350	53.5	3.9	273.3	5.1	No Production				53.5	3.9	273.3	5.1	326
, 1995	1.7	GSII	3 722	$375	76.6	3.7	581.3	7.6	No Production				76.6	3.7	581.3	7.6	657
31, 1998	1.7	OK99c	3 800	$325	31.4	4.6	197.5	6.3	10.8	4.8	57.7	5.3	42.2	4.7	255.2	6.0	297
31, 1999	1.7	KS-1	3 800	$301	32.7	4.4	247.8	7.6	18.9	4.3	90.8	4.8	51.6	4.4	338.6	6.6	390
31, 2001	1.5	KS-3	3 770	$300	29.8	3.9	329.4	11.1	31.0	4.4	174.4	5.6	60.8	4.2	503.8	8.3	564
31, 2003	1.3	KS-4	3 754	$325	26.2	3.6	352.7	13.5	41.0	4.4	296.5	7.2	67.2	4.1	649.2	9.7	716
31, 2004	1.3	KS-5	3 754	$375	26.3	3.4	382.0	14.5	46.0	4.4	377.9	8.2	72.3	4.0	759.9	10.5	832
r 31, 2005	**1.3**	**KS-6**	**3 620**	**$400**	**35.3**	**4.1**	**621.4**	**17.6**	**52.2**	**4.2**	**452.8**	**8.7**	**87.5**	**4.1**	**1,074.2**	**12.3**	**1,161**

(1) Includes the low-grade stockpiled ore not yet milled

(2) Includes sub-grade mineralization, waste, fill and ice

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Geostat Systems International Inc. (Geostat) used the Soviet information to develop a block model (GSII model) for the Kilborn feasibility study. The GSII model remained the official reserve model until early 1999 and was in compliance with the reporting guidelines of National Policy 2A in effect at the time. It used the original mineralized envelope as defined by Soviet geologists, which was too broad. As a result, the grade interpolation of the GSII block model smeared gold grades away from higher-grade areas into lower-grade sections of the deposit, and thus over-estimated the tonnage but under-estimated the grade of the feasibility study mineral resources and reserves.

Since 1999, a number of additional block models have been created by KOC (mostly with the assistance of Cameco staff), each an improvement over its predecessor, by incorporating the increasing geological knowledge about the deposit (**Table 2**) and about the grade distribution experienced during mining. This process has now culminated in the KS-6 model, which incorporates all information available as of December 14, 2005. All resource and reserve estimates by KOC, Cameco and Centerra since 2002 (the KS-3, KS-4 and KS-6 models) are in accordance with NI 43-101.

The mineral reserve estimates for the Kumtor deposit, before mining, have varied over time, between 42 million tonnes grading 4.7 g/t gold with a strip ratio of 6.0, and most recently 90 million tonnes grading 4.1 g/t gold with a strip ratio of 11.9 (excluding the Southwest deposit) . Similarly, the gold contained in the reserves has varied from a low of 6.3 million ounces (196 tonnes) to a high of 11.6 million ounces (362 tonnes), with the latter surpassing comfortably the original Soviet estimate of 285 tonnes of contained gold in 1990. The variance in the reserve estimates over the years is due primarily to fluctuations in the price of gold, a gradual decrease of the unit operating costs which allowed for an increased strip ratio, and an improved geological model based on additional drilling results. The recent discovery of the SB Zone has added a second, high-grade area to the deposit that was unknown until 2004.

5.3 Production History

The Kumtor mill started processing ore in December of 1996. As of December 2005, a total of 48.1 million tonnes of ore has been milled with an average gold content of 4.5 g/t. Since start-up, 172.5 tonnes or 5.6 million ounces of gold have been recovered. Stockpiles yet to be milled contain 0.7 million tonnes of ore with an average gold grade of 2.8 g/t and 1.7 million tonnes of low-grade with an average gold grade of 1.4 g/t. In addition, 449 million tonnes of waste and 3.7 million tonnes of ice had been mined for an overall strip ratio of 8.7 to 1, with the low-grade stockpiles counted as ore.

Annual production data compiled from the monthly operating reports issued by KOC are shown in **Table 4,** which uses the Kumtor reporting terminology, as more fully explained in **Section 17.2**. Ore is material estimated to grade above 1.5 g/t gold currently (above 1.7 g/t in earlier years), and low-grade is material with a grade between 1.3 g/t and the ore cut-off grade in effect at the time of reporting. Because the low-grade material is currently being used as mill feed and will continue to be processed in accordance with the life-of-mine (LOM) plan, it is included in reserves and treated as ore when calculating the strip ratio in **Table 4**.

Table 4 Kumtor Production History

thousands of tonnes of ore and waste and thousands of ounces of gold

6. GEOLOGICAL SETTING

The Kumtor gold deposit occurs in the southern Tien Shan Metallogenic Belt, a Hercynian fault and thrust belt that traverses Central Asia, from Uzbekistan in the west through Tajikistan and the Kyrgyz Republic into northwestern China, a distance of more than 1500 kilometres (**Figure 1**). Along this belt, described by Cole (1992) as ... *a major metallogenic province which contains many world-class mesothermal-type gold deposits, ...* occur a number of important gold deposits including Muruntau (one of the largest gold deposits in the world), Zarmitan, Jilau and Kumtor. *The Tien Shan itself is an extremely complex fold and fault belt in which various components represent different orogenetic events that span the Phanerozoic and were later overprinted by Alpine-Himalayan deformation* . This belt is located at *...the margin of Paleozoic Asia (Baltica and Siberia)* [to the north] *and the Palaeo-Turkestan Ocean* (Cole, 1992).

The general geology of the Exploration Licence is shown in **Figure 4**. **Figure 5** provides a composite of the main geologic features and ore accumulations of the Kumtor, Southwest and Sarytor Areas on the 3800-metre elevation. **Figures 6 to 9** illustrate the geology in the third dimension for the three deposits, providing a good illustration of the structural complexities of the Tien Shan belt.

A comparison of the geological cross sections presented points out the progress that is being made at Kumtor with respect to the understanding particularly of the structural features. Assistance is being provided by SRK Consulting from their office in the United Kingdom in this update of the structural/geological understanding of the deposit. **Figure 6** is from that part of the Kumtor deposit where this process has been completed and thus shows a more complete structural interpretation, while the other sections are interpreted based on the traditional information on alteration and gold grade.

There are several major thrust slices comprising the mine geology, with an inverted age relationship. Each thrust sheet contains older rocks than the sheet it structurally overlies. The slice hosting the gold mineralization is composed of Vendian (youngest Proterozoic or oldest Paleozoic) meta-sediments, grey carbonaceous quartz-sericite-chlorite schists or phyllites that are strongly folded and schistose. In most areas, the Kumtor Fault Zone (KFZ), a dark-grey to black, graphitic gouge zone, forms the footwall of this structural segment. However, it appears that at Sarytor, the KFZ actually cuts across the mineralization. The KFZ strikes northeasterly, dips to the southeast at moderate angles and has a width of up to 30 metres. The adjacent rocks in its hanging wall are strongly affected by shearing and faulting for a distance of up to several hundred metres. The rocks in the structural footwall of the KFZ are Cambro-Ordovician limestone and phyllite, thrust over Tertiary sediments of possible continental derivation that in turn rest, with apparent profound unconformity, on Carboniferous clastic sediments.

7. DEPOSIT TYPE

Given the location astride a major fault of regional importance and owing to the strong association of gold mineralization with a multi-phased metasomatic system at relatively high temperatures, the Kumtor gold deposit, with its satellite deposits, is a member of the class of structurally controlled meso-thermal gold replacement deposits.

8. MINERALIZATION

Gold mineralization of economic importance occurs where the Vendian sediments have been hydrothermally altered and mineralized, an event that may have taken place in late Paleozoic time, based on structural considerations (Ivanov et al, 2000). Gold mineralization has been observed over a distance of more than 12 kilometres, with the Kumtor deposit itself located in what is called the Centre Block with a length of 1900 metres, a vertical range of 1000 metres and a width of up to 300 metres. A buried intrusive body is inferred by geophysical methods to occur some five kilometres to the northwest of the deposit and may be the source of the mineralization process at Kumtor (KOC, 2002). Other known occurrences along the mineralized trend that have either mineral reserves or mineral resources are the Southwest Area and the Sarytor Zone, as shown on **Figures 4** and **5**.

8.1 General Description

According to Ivanov et al., 2000, mineralization took place in four main pulses. An initial pulse resulted primarily in pervasive quartz-carbonate-albite-chlorite-sericite-pyrite alteration, with little gold of economic consequence being deposited. However, this early alteration may have stiffened the host rocks sufficiently to make them susceptible to the intensive veining, stockwork and hydrothermal breccia development during the next two pulses that deposited all of the economically significant gold at Kumtor.

The temperature of formation of the second stage veins was 310±15°C, according to Ivanov & Ansdell, 2002. The mineralogy during the main phases includes early K-feldspar followed by later albite, and variable amounts of carbonate (calcite, dolomite, ankerite and siderite), quartz, pyrite, sericite, and chlorite, in addition to small amounts of chalcopyrite, haematite, barite, strontianite and accessory magnetite, scheelite, ferberite, rutile, cassiterite, sphalerite, galena, native gold, a number of silver-gold, lead and nickel tellurides and tetrahedrite. The feldspars combined make up nearly

20% of the ore, the carbonates collectively 25 to 30%, pyrite 15 to 20%, quartz 5 to 10%, and the remainder are host rock inclusions.

The mineralization is most intense, and the gold grade is the highest, where metasomatic activity was continuous through mineralization phases two and three. This is particularly the case for the Stockwork Zone, to a lesser extent for the South Zone, and explains their higher-than-average gold grades. The last pulse created planar carbonate-pyrite metasomatic rocks that are associated with zones of intense deformation of previously altered phyllites and hydrothermal rocks.

Native gold and the gold-silver tellurides are intimately associated with pyrite to the extent that gold grade and pyrite content are positively correlated (Ivanov et al., 2000). The gold and the gold-bearing minerals occur as very fine inclusions in the pyrite, with an average size of only 10 microns. This, together with the poor cyanide leach response of the gold tellurides, accounts for the partly refractory nature of the Kumtor ore. The refractory characteristics are reflected in the relatively low historic and forecast gold recovery of around 80%, despite the very fine grind applied to the pyrite flotation concentrate from which most of the gold at Kumtor is recovered. However, the fine grain size of the gold also renders assaying of this mineralization relatively reliable, with only a small nugget effect.

Most of the mineralization takes the form of veins, veinlets, and breccia bodies in which the mineralization forms the matrix. In the more intensely mineralized areas, the surrounding host rock has also been altered. Post-ore faulting is generally parallel to, or at low angles with, the mineralized sequence. These faults often carry significant quantities of graphite, and other carbonaceous components which constitute the sources for the preg-robbing character of some of the mineralization. The graphitic material has been stockpiled separately and resulted in changes in the milling procedures early in the mine life.

8.2 The Kumtor Deposit

Within the Centre Block, a number of zones of gold mineralization have been delineated as shown in **Figure 5**.

Two parallel zones of alteration and gold mineralization strike northeasterly and dip to the southeast at 45° to 60°, separated by 30 to 50 metres of barren or poorly mineralized rock. The ***South Zone***, with a length of 700 to 1000 metres and a horizontal width of 40 to 80 metres, is reasonably well mineralized throughout its entire length, with an average gold grade of 3 to 4 g/t. The ***North Zone***, somewhat more extensive along strike but with a similar width, has lesser gold grade continuity and splits into a number of individual lenses that have average gold grades in the range of 2 to 3.5 g/t.

At their northeastern end, the North and South Zones coalesce into the ***Stockwork Zone***, which is the heart of the deposit, having the highest gold grades and the best grade continuity. Its dimensions in the upper part of the deposit are 400 to 500 metres long by 50 to 200 metres wide, with an average gold grade of 5 to 6 g/t, depending on the cut-off grade. The Stockwork Zone plunges northeasterly at 40° to 50°, and diminishes in size below elevation 3900. Its down-plunge continuation below elevation 3900 is known as the ***NB Zone***. Geographically, the Stockwork Zone is located closest to the pit highwall (**Figure 5**) and thus governs to a large extent the overall strip ratio of the pit design.

In the southwestern part of the deposit, the ***SB Zone*** (structurally a part of the South Zone) has recently been found below elevation 3900. It widens significantly below the 3800-metre elevation, and **Figure 5** therefore does not show its full significance which is, however, apparent in cross section 18 (**Figure 7**). Ongoing drilling in this areas indicates this mineralization to be similar in character to the Stockwork Zone. While its full dimension remain to be defined, it appears somewhat smaller than the Stockwork Zone, but is of excellent grade. It is the SB Zone that has given rise to the large increase in the mineral reserves of the Kumtor deposit as the result of drilling conducted in 2004 and 2005 in this area.

8.3 The Southwest Deposit

The Southwest deposit is located three kilometres to the southwest of the Kumtor deposit across the Davidov glacier, along the Kumtor fault (**Figures 4** and **5**). Very little drilling has been completed below the glacier, and continuity of mineralization between the two deposits is unknown. To the southwest, the Southwest Zone is covered by the Sarytor glacier, beyond which additional mineralization is known as the Sarytor deposit.

The structural/lithological framework of the Southwest and Sarytor areas is identical to those of the Kumtor deposit, as described in **Section 6** and as shown in **Figure 8**, with the structural dips generally somewhat shallower than at Kumtor at an angle of 20° to 50°.

A number of individual zones of mineralization have been identified within an overall mineralized envelope that is around 100 metres thick and has been traced by surface drilling for a strike length in excess of one kilometre. Individual zones tend to be relatively narrow and of different levels of intensity, and their contacts are often marked by tectonic crush zones with black fault gouge. The footwall contacts are generally sharp and clearly defined, while the hanging wall contacts are more gradational. Gold enrichment along both contacts can be observed on many sections. Due to flat orientation of the mineralized zones, their contacts have a sinuous feature in both plan and section.

8.4 The Sarytor Deposit

The Sarytor area is located further southwest from the Southwest Area. The two zones are probably contiguous under the Sarytor glacier. The main geological structures are common for the Southwest and Sarytor areas.

The drill results indicate that the mineralized horizon in the Sarytor area strikes east-west and dips south at 20° to 30°. The thickness of the mineralized envelope is relatively consistent and varies from 80 to 120 metres, with the strike length of the known mineralization being approximately 800 metres.

Host rocks are tectonized slates and phyllites with lenses of till-like conglomerates and dolomitic slates. Development of background alteration is weak and represented mainly by vein-type silicification. Host rocks do not carry any elevated gold values. The zone has been traced by drilling for 200 to 300 metres down dip.

The mineralized envelope hosts three mineralized zones separated by zones of strongly faulted host rocks. Alteration intensity and zone thickness increase southward. Metasomatism is represented by banded albite-carbonate-quartz alteration with 3% to 5% pyrite. Barite and siderite are well developed in the southern part of Sarytor. As a rule, pyrite content is positively correlated with the gold grade.

9. DRILLING

Since 1998, KOC have operated their own fleet of diamond drill rigs which currently number eight. In addition, there are currently two rigs operated by a Kyrgyz contractor. KOC drill crews are both national (Kyrgyz) and expatriate, under the supervision of a Canadian drill foreman. International drill contractors are added when drilling requirements are high.

All of the KOC diamond drill holes are inclined and recover HQ-size core. For all of the holes, drill collars are surveyed and down-hole deviations are measured using either a Sperry-Sun single shot camera or a Reflex single shot camera. Limitation on set-ups dictate that a certain number of off-section holes are drilled, particularly within the Kumtor pit. Drill cores are logged for geological and geotechnical information, and are photographed prior to sampling. Drill collar coordinates, down-hole deviation surveys, assay results, and information on lithology, alteration and mineralization were recorded in the mine or exploration drilling databases. The drilling database is used for mineral resource and reserve estimation as described in **Section 15**.

Drill core recovery typically varies from 80% to 100%, averaging greater than 95%. In certain cases where the core recovery from mineralized intervals is low, the hole is stopped and re-drilled to achieve better core recovery. The angle of intersections between the drill holes and the mineralization is generally such that the length of mineralized drill hole intervals is equivalent to 80% to 100% of the true width of the mineralization.

10. SAMPLING METHOD AND APPROACH

10.1 Historical Methods

The sampling protocol employed in the years prior to 1993 is described in the Feasibility Study. As was the case in many projects of the Soviet era, the entire core was removed for sampling, in intervals of an average down-hole length of 1.4 metres. Core recovery was not particularly good, averaging only 75%. Trench samples were generally one metre long, presumably taken horizontally, but the sampling method is not described. Channel samples were collected from the extensive underground openings approximately one metre above the floor and varied from 0.5 to 2 metres long, with the channels reported to have measured 10 centimetres wide by 5 centimetres deep.

10.2 KOC Methodology

For the drilling completed by KOC since 1998, the drill core was measured and checked against the blocks inserted by the drillers in the core boxes indicating the depth of the hole. The core is logged and photographed prior to sampling. Sample intervals are chosen based on geological features such as veining, alteration and mineralization. Individual sample intervals are normally less than 1.0 metre, however, in unaltered rocks the interval may be increased to 2.0 metres. The sample intervals are chosen to be representative of the style and intensity of mineralization. Results to date do not indicate any problems with sampling bias.

Competent drill core selected for sampling is cut by a diamond saw into two halves. One half is placed into a numbered bag and sent to the laboratory for assaying. The other half is placed back in the core box and retained in permanent storage. Core intervals that are too incompetent to be sawed are sampled with a scoop that fits snugly into the individual rows, removing one-half of the material at the discretion of the sampling technician. Blasthole cuttings are sampled with a device that is placed radially away from the collar of the hole. It collects about ten kilograms for an eight-metre bench height. Given the relatively forgiving nature of the Kumtor mineralization with respect to sampling, this is satisfactory, if not ideal. Since part of the mining is now below the permafrost line, some samples are wet, and this should be noted on the sample sheet in addition to the usual information such as the sample number, since these wet samples tend to be less representative.

11. SAMPLE PREPARATION, ANALYSES AND SECURITY

11.1 Historical Methods

The sample preparation and analytical protocols used by the Kyrgyz geological personnel in the years to 1989 were those prescribed by the USSR State Committee on Reserves in Moscow and are referred to in the Kilborn Feasibility Study.

The analytical work was carried out at the Central Scientific Research Laboratory (CSRL) of Kyrgyz Geology at Kara Balta. The sample preparation protocol is not described, but the gold assay method was fire assay for all samples prior to 1989 (a total of 44 580 determinations), and a more productive atomic absorption method (Feasibility Study, page 3-6) in 1989 (12 612 determinations). Internal and external duplicate assaying was undertaken.

The influence on the gold grade of the relatively poor core recovery of 75% was not investigated by the Kilborn Feasibility Study. Kilborn concluded in the study that results of their check assaying on 151 reject samples by a Canadian laboratory were satisfactory the check assays tended to be slightly higher than the originals. A total of 239 samples collected by Kilborn in Adit 2 also indicated that the original assay information from underground sampling was reliable. Supporting evidence for these two cases of assay and sample checking was not provided in the Kilborn Feasibility Study text.

11.2 KOC Methodology

All sample collection, preparation and assaying from the 1998-2005 drilling programs were performed by KOC personnel at the KOC-owned site laboratory, which is not certified but is subjected to periodic calibration and operations checks by the Kyrgyz National Accreditations agency. Sample collection protocols are monitored by KOC s exploration manager and the QA/QC geologist. Preparation and assay protocols are supervised by KOC s chief assayer at the Kumtor mine. Samples are delivered to and from the laboratory at the mine site by KOC personnel. Additional security of samples is not required in this environment.

Since 1998, drill core as well as blast hole, mill and tailings samples have been assayed at the mine laboratory using the following sample preparation and assaying procedures:

- Samples are received by the sample preparation section with a corresponding manifest indicating the number of samples and the numerical sample identification.

- Dry at a temperature of 105° C.

- Crush the entire sample in three sequential jaw crushers to 95% passing 1.7 millimetres (10 mesh).

- The last of the three jaw crushers directly feeds a rotary splitter that is set to obtain a 150-gram sub-sample. The remaining reject material is returned to the original bag and, in the case of core samples, is delivered to the exploration department for storage.

- Pulverize the sub-sample to 100% passing 106 microns (150 mesh) using a ring-and-puck pulverizer.

- A 30-gram aliquot of the pulp is fire assayed with a suitable flux and a gravimetric finish. The sample weight is decreased to 20 grams for samples with high sulphide content.

The internal quality control measures at the mine laboratory consist of the routine insertion of internally prepared standards, certified by four independent laboratories, and a blank at a combined rate of one standard/blank per 30 samples. The standards constitute Kumtor mineralization (a head sample of 7.3 g/t gold, a concentrate tail sample of 4.7 g/t gold, a pyrite concentrate sample of 33.8 g/t gold and a final tailings sample of 0.39 g/t gold). A review of data available from January 2000 to late 2004 of three of the standards has shown that for the first two standards, the actual results at the Kumtor laboratory are high by 7% and 9%, respectively, while the third is very close to the accepted value.

In addition, the laboratory also routinely re-assays duplicate pulps at a rate of 20% as an internal check on assay precision. The results of these measures are monitored by the chief assayer, the KOC exploration manager and the QA/QC geologist. KOC geological staff do not routinely submit external blanks and standards as blind samples with their drill core sample batches. However, bench composites are created from drill hole intersections for check assaying and metallurgical test work, and this data provides a check for the initial assay results.

Quality control checks on reject pulp duplicates are routinely performed by the CSRL at Kara Balta near Bishkek which is certified by the United Kingdom Accreditation Service under ISO 17025:2005. A minimum of 20% of the total samples from the KOC drill programs have been re-assayed using the fire assay method with a gravimetric finish. A review of the results indicates excellent overall coincidence of the two laboratories. As a further check, a total of 493 re-split sample rejects and 44 pulps were assayed in 2002 both at the mine laboratory and by the local laboratory of Alex Stewart Assayers and Environmental Laboratory (AESEL) also located in Kara Balta, which is also certified. Similarly, a small batch of 38 pulp repeats was check assayed at AESEL in 2005.

During 1998 and 1999, KOC geological staff periodically re-assayed second splits of the coarse rejects for entire mineralized intervals to compare against the initial assays. Since 1999, this has become standard practice for all mineralized intervals that are intersected by drilling. The re-split samples retain the original sample number and are re-assayed at both the mine and the CSRL.

The results of all of the coarse reject check assay program, which is the most pertinent for the Kumtor resource estimate, are compiled in **Table 5** for assay pairs averaging more than 0.1 g/t gold.

Table 5 Coarse Reject Check Assay Results (>0.1 g/t Gold)

Period	Number	Pairs Removed	Original KOC (g/t)	KOC Re-split (g/t)	Check Results (g/t)
Coarse Reject Check Assays at Central Scientific Research Laboratory					
2003 and earlier	1 279	8	2.56	2.55	2.56
2004 Kumtor	1 893	29	3.02	3.05	3.01
2004 Southwest	1 531	13	2.45	2.46	2.35
2005 Kumtor	4 916	87	4.50	4.51	4.38
2005 Southwest	74	2	1.99	2.07	2.25
Total	**9 693**	**139**	**3.61**	**3.62**	**3.54**

Pulp Check Assays at Alex Stewart Assayers and Environmental Laboratory

Period	Number	Pairs Removed	Type	Original KOC (g/t)	Check Results (g/t)
2002	489	4	Reject	2.34	2.42
2002	44	0	Pulp	2.87	2.66
2005	38	0	Pulp	1.37	1.35
Total	**571**	**4**		**2.41**	**2.46**

The pairs removed constitute a small proportion of the overall check assay population. They were excluded from the comparison in **Table 5** because the pairs are so dissimilar as to most likely be caused by something other than an assay accuracy problem or the natural variability (sample error) of the material being assayed.

Detailed analysis of the KOC/CSRL assay comparison shows that the detection limits of the two laboratories are different, with CSRL reporting higher values than KOC for values <0.1 g/t. In the range from 0.1 to 1.0 g/t, KOC is systematically higher, typically by a factor of 10% to 15%. Above 1 g/t, the two laboratories produce identical average results.

11.3 Conclusion on Sampling and Analytical Protocols

There were some unresolved issues with the original assay database created prior to Cameco s involvement in the Kumtor project. However, much of the deposit covered by the early sampling programs has now been mined, and the only effect of any deficiency is the possible influence of a faulty early database during the testing of a block model against the mined-out, upper parts of the deposit where this data predominates.

The sample preparation, assaying and quality control methods used by KOC are industry standard, and the results of the check assay program indicate that the influence of the high KOC bias in the range 0.1 to 1 g/t range has a negligible effect on the average grade of a typical mineralized intersection, as documented in the upper part of **Table 5**. There will be no material discrepancy between the current reserve model and future production due to sampling and analytical protocols.

12. DATA VERIFICATION

During the Kilborn Feasibility Study, the information from surface trenches, underground crosscuts and drill holes was entered into a computerized database. These data were validated using industry standard procedures by Geostat. This database was used by Geostat to construct the GSII model, which was the basis for the resource and reserve estimations in the Feasibility Study, and its 1994 and 1995 revisions.

Face sample assays from the main drifts and samples from the raises were not included in the database. The face samples were generally taken in drifts developed along the strike of the ore zones and were thus not suitable for the quantitative aspects of grade estimation. The few short raises provided minimal data compared to the considerable amount of data from trenches, crosscuts and drill holes.

In 1996, the database created by Geostat was verified by Cameco s mining resources and methods department. The database was again compared to the original data contained in the 1989 Kyrgyz Geology report and, where necessary, corrected or completed. Standard database checks are being performed regularly under the supervision of Dwayne Melrose, Exploration Manager, who is responsible for its upkeep and reliability. The database is continuously being verified in the Gemcom Database Verification Module. Assay results, lithology, drill hole locations and downhole surveys are verified back to the Laboratory Data Sheets and original data by the Kumtor QA/QC geologist for every drill hole.

Drill holes in two areas were found to be problematic. Firstly, a series of flat holes oriented to the northwest from the main Adit 2 drift contained intercepts that were not confirmed by the neighbouring crosscuts. All of these holes originated in high-grade mineralization and contamination of the samples was suspected. The assays from these holes were excluded from the database.

A second series of drill holes testing below Adit 1 (elevation 3950 metres) of the underground workings on section lines 61 to 64 contained thick mineralized intercepts that were inconsistent with other drill holes in the vicinity. The higher-grade mineralization reported in these holes influenced the Kyrgyz Geology report interpretation as well as the GSII model resource estimation and the pit designs. This deep mineralization was referred to as the 3900 Zone . A comprehensive drilling campaign completed during 1998 failed to confirm the 3900 Zone mineralization. Similarly, several drill holes completed in 1999 failed to confirm other questionable intercepts. The inconsistent intercepts are attributed to sample contamination due to the drilling equipment and techniques available before 1988. Based on the confirmation drilling results, the database was modified prior to the establishment of the KS-1 resource block model to exclude all questionable drill holes. A small remnant of the original 3900 zone resources, included in the 2004 year-end estimate, was completely removed from the current estimate.

As a result of the lack of sufficiently detailed information below elevation 3950 metres, about 28% of the Feasibility Study reserves mineable by open pit containing one-quarter of the total gold to be mined were substantially less well documented by sampling than the upper part of the deposit. The large in-fill diamond drill program undertaken by KOC in the years 1998 to 2005 from various pit benches and setups outside of the pit has now increased the density of the drill pattern in the lower part of the deposit to that available at the time of the feasibility study for the upper part. Except for the 3900 Zone , the in-fill drilling generally confirmed the earlier results, and losses in one part of the deposit were usually balanced by gains in another.

In-situ volumes of both ore and waste are translated into tonnes by applying a bulk density factor of 2.85 tonnes per cubic metre which is well established based on direct measurements on small and larger samples, and is borne out by the reconciliation of predicted and milled tonnes of ore and waste. This density factor has not changed since the Kilborn Feasibility Study.

With the in-fill drilling program complete, the database for the deposit is now reliable down to below the 3700-metre elevation which is the bottom of the original Soviet pit design. After the removal of previous spurious drill results based on recent drilling, the successful completion of the in-fill drill program and mine production statistics, the data relied upon for the estimation of the resource model appear valid.

Strathcona has not undertaken any independent sampling or check assaying as part of verification of the data base. However, the successful nine-year period of operation for the Kumtor mine, together with the very good reconciliation between the resource model estimates and actual production results, has not indicated any requirement for independent data verification.

13. ADJACENT PROPERTIES

There is only one other mineral exploration company active in the Kumtor area. Kentor Gold Limited of Australia (Kentor) acquired exploration concessions in 2003 that tie on to the exploration licence of Kumtor shown in **Figure 3**. The firm has conducted preliminary surface exploration including overburden drilling. KOC exploration personnel are in casual contact with Kentor personnel.

14. MINERAL PROCESSING AND METALLURGICAL TESTING

This item will be discussed in **Section 17.3.**

15. MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

15.1 General

The KS-5 mineral resource model previously in use at the Kumtor mine, a successor model to the KS-4 model reported upon in the 2004 Strathcona report, was developed in late 2004 by the Centerra mining resource group in Toronto and technical staff of KOC. In preparing mineral resource and reserve estimates for the Kumtor project, Centerra used a block model approach and followed procedures in accordance with Canadian reporting standards as required by NI 43-101. The KS-5 model was used to estimate the mineral resources and reserves of the Kumtor project as reported by Centerra for the year-end 2004. For the current year-end 2005 estimate of mineral resources and reserves, the KS-6 model was developed as described in this section.

15.2 Geological Modelling

Grade boundaries at Kumtor tend to be gradational over several metres, and the main geological challenge in creating a viable geological model for resource estimation has been the delineation of mineralized zones . For the Kilborn Feasibility Study in 1993, the GSII model, an all-encompassing mineralized envelope around the main mineralized zones, was used. This proved too vague and did not provide sufficient constraint during grade interpolation. As a result, mineral reserve predictions that used the GSII model tended to be correct for the contained gold, but were high for the ore tonnage and low for its gold grade.

For the KS-4 and KS-5 models, vein and alteration intensities together with gold grade information were used to subdivide the gold mineralization at Kumtor into twenty-eight mineralized zones. The delineation of each mineralized zone was completed on eight-metre spaced bench plans and on 40-metre spaced sections, took into account the detailed observations (geological mapping and blasthole data) on each bench mined, and benefited from the substantial additional drilling conducted in 1998 to 2004. Wire frames were created for each zone in GEMCOM, and their volumes determined. A limitation of the KS-4 and KS-5 models was the use of full blocks for the volume estimate which made them less accurate in small and narrow mineralized zones.

15.3 Block Models

Block models of slightly different character were used to estimate mineral resources of the Kumtor, Southwest and Sarytor deposits.

15.3.1 The Kumtor KS-6 Model

The KS-6 model was developed in 2005 for the Kumtor deposit and represents the interpretation of the geology, tonnage and grade of the deposit before any mining commenced. It is based upon the most recent drilling information, including the results of all of the in-fill drilling completed from 1998 to the December 14, 2005 (**Table 2**), and the new geologic modelling using the mineralized zones described above. The KS-6 model is based on blocks measuring 10 by 10 by 8 metres, with the vertical dimension matching the mining bench height. Each block is assigned to a particular mineralized zone, and a gold grade is interpolated into the block from the surrounding assay data after assay compositing (two-metre down-hole gold composites). Prior to grade interpolation the composites are capped at 60 g/t gold based on cumulative frequency plots and production history, with capping affecting fewer than 1% of the composites. This reflects the intimate association of most of the gold with sulphides at Kumtor, which results in relatively few outlier values. A new feature of the KS-6 model compared to its predecessor models is the inclusion of more than one rock type in each block (partial or percentage block model), which results in an improved block tonnage resolution compared to the wireframe volumes and allows the manipulation of the blocks to include an external dilution provision for each block as described in **Section 15.6**

All available assay results for a particular sample are averaged, and the average value is used for mineral resource estimation. Individual assays are combined into two-metre composites along drill holes, trenches and underground cross cuts.

Indicator variography was performed for two groups of data, separately for a South domain (Stockwork and South Zones), and a North domain (Northeast, North and Flat Zones) at a cut-off gold grade of 1.66 g/t, the median of the grade data. The results indicate primary ranges of 10 to 20 metres along strike and down-dip, and of 5 to 15 metres across the dip. Secondary ranges are 40 to 200 metres along strike and down-dip, and 60 to 100 metres across the dip. The KS-6 model uses a general search ellipsoid established for earlier block models (100 metres along strike, 100 metres down-dip, and 5 metres across the dip). The grade interpolation has also remained unchanged, using ordinary kriging of the capped two-metre composites. A minimum of two and a maximum of six composites are considered for each grade determination, all of which may be derived from one drill hole, trench or underground opening using the search distances determined from the variography. While the grade information from a different mineralized zone during grade interpolation is admissible, crossing of mineralized zone boundaries during grade interpolation is relatively uncommon due to the significant size of most of the zones and the small number of composites used for the grade interpolation.

For the purpose of estimating resources for possible underground mining, the KS-6 block model used at a 5 g/t gold cut-off grade within the original wire frames established for the various mineralized zones.

15.3.2 Southwest and Sarytor Block Models

The Southwest and Sarytor block models have a few minor differences compared to the KS-6 model:

- Capping of high values was at 20 g/t compared to 60 g/t at Kumtor, reflecting the lower-grade character of these two deposits.

- The interpolation technique for Sarytor was inverse distance weighting squared compared to ordinary kriging at Kumtor and Southwest deposits because of the widely spaced drill pattern at Sarytor.

15.4 Resource Classification

The mineral resource classification within the KS-6 and Southwest models into measured, indicated and inferred categories for resources considered for open-pit mining is based on the distance to the nearest composite. If the nearest composite is within 30 metres, then a block is placed in the measured category. If the nearest composite is at a distance larger than 30 metres but shorter than 60 metres, then the block is placed in the indicated category. All blocks having the nearest composite at a distance greater than 60 metres are placed in the inferred category. These parameters have slightly changed from previous models where the longer distance was set at 50 metres. The distances used at Sarytor were smaller being 0 to 20 metres for the indicated and from 20 to 40 metres for the inferred class. Given the generally good grade continuity at low cut-off grades of this large mineral deposit, and the good reserve-mine-mill reconciliation as detailed in **Section 15.12.2**, this classification approach is in accordance with the requirements of the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) Resource and Reserve Definitions as required by NI 43-101, that read in part as follows:

A ***Measured Mineral Resource*** *is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parameters, to support production planning and evaluation of the economic viability of the deposit.*

An ***Indicated Mineral Resource*** *is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parameters, to support mine planning and evaluation of the economic viability of the deposit.*

An ***Inferred Mineral Resource*** *is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity.*

The proof of continuity for the resources considered for underground mining at the increased cut-off grade of 5 g/t requires a reduced drill spacing compared to what exists. Until in-fill drilling can be completed, all of the mineral resources considered for underground mining have been included in the inferred classification.

The mineral resources of the Kumtor project exclusive of the mineral reserves are presented in **Section 16.1**.

15.5 Mineral Reserve Estimation

Mineral reserves are that part of the mineral resource that can be profitably mined given a specific set of technical and economic parameters. These include the gold price, mine and mill operating costs, metallurgical recovery, the forecast geotechnical behaviour of the rocks in the future pit walls, and equipment size parameters. Computer software optimizes the pit shape by interrogating each block of the block model as to its ability to pay for its removal plus the incremental tonnage of waste that must be removed to mine the block. Detailed mine planning using commercial software then creates a number of intermittent pit designs that test the ability to access sufficient ore to provide adequate mill feed while postponing waste mining as long as possible. This process results in one or more pit shells which recover the economic part of the mineral resources and which are then engineered in detail by adding ramps for mining access and by smoothing of the pit walls.

The CIM Resource and Reserve Definitions required to be adhered to by NI 43-101 read in part as follows:

A ***Mineral Reserve*** *is the economically mineable part of a Measured or Indicated Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified. A Mineral Reserve includes diluting materials and allowances for losses that may occur when the material is mined.*

A ***Proven Mineral Reserve*** *is the economically mineable part of a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction is justified.*

A ***Probable Mineral Reserve*** *is the economically mineable part of an Indicated, and in some circumstances a Measured Mineral Resource demonstrated by at least a Preliminary Feasibility Study. This Study must include adequate information on mining, processing, metallurgical, economic, and other relevant factors that demonstrate, at the time of reporting, that economic extraction can be justified.*

The current Kumtor pit design identified as KS-6 LOM0106 was created in early January 2006 and was selected from a total of six different alternatives that spanned choices from leaving the 2005 pit unchanged to the version finally adopted as offering the best combination of mine life and cash flow (KOC, 2006). The studies undertaken by KOC and the LOM plan subsequently adopted by Centerra demonstrate that the Kumtor mineral reserves are the *economically mineable part of a Measured or Indicated Mineral Resource* as required by the CIM Resource and Reserve Definitions.

15.6 Dilution Provisions

The block models created for the Kumtor deposit in the past, up to and including model KS-5, had no need to provide for external dilution, in the absence of a large grade discrepancy between model and actual mining experience. The poor reconciliation of the KS-5 block model with the actual mining experience in the second half of 2005 (**Section 15.12.2**) prompted a re-evaluation of this approach. Centerra felt that the central part of the Kumtor deposit, with its less continuous and generally narrower mineralized zones, was not properly estimated by the KS-5 model which die not provide for external dilution. The major difference between KS-6 and its predecessor models, apart from the additional drill information available, is the inclusion of an external dilution provision.

The KS-6 model contains provisions for internal dilution by including low-grade intervals in the composite grades used for grade interpolation. External dilution was provided for by adding an arbitrary one-half of the waste tonnage in each block that contains more than one rock type to its ore tonnage. Since the bulk densities for ore and waste are identical, this represents simply a shift of the waste/ore ratio inside such a block. Comparison of the two undiluted and diluted KS-6 models at a cut-off of 1.3 g/t gold is compiled in **Table 6**.

Table 6 Comparison of KS-6 Model with and without External Dilution

cut-off grade 1.3 g/t gold

	Tonnes (000)	**Gold Grade (g/t)**	**Contained Gold (000 ounces)**
In -Pit Undiluted			
Above 1.5 g/t	29 402.1	4.6	4 310.4
1.3 to 1.5 g/t	3 555.5	1.4	158.9
Total	**32 957.6**	**4.2**	**4 469.3**
In -Pit Diluted			
Above 1.5 g/t	30 759.8	4.4	4 351.4
1.3 to 1.5 g/t	4 546.7	1.4	204.7
Total	**35 306.5**	**4.0**	**4 556.0**
Variance			
Above 1.5 g/t	5%	-4%	1%
1.3 to 1.5 g/t	28%	1%	29%
Overall	**7%**	**-5%**	**2%**

The net effect is an increase in the total tonnage of about 7%, a grade reduction of about 5%, and a small gain of contained gold. The performance of the diluted KS-6 model against actual production is discussed in **Section 15.12.2**. External dilution was provided at the Southwest deposit in a similar fashion to Kumtor.

15.7 Economic Pit Design Parameters

The Kumtor mineral reserves available for mining at December 31, 2005 were estimated on the basis of the KS-6 block model, the current pit design and a gold price of $400 per ounce. The main economic parameters for this pit design are summarized and compared to 2005 operating data in **Table 7**:

Table 7 Kumtor and Southwest Economic Pit Design Parameters

		2005 Actual	Kumtor Pit		Southwest Pit
Gold Price	$/ounce	445	400		400
Operating Costs					
Mine	per tonne ore mined	$0.59	$0.60		$ 1.29
	per tonne waste mined	$0.59	$0.60		$ 0.49
Mil	per tonne milled	$5.73		$6.50	
General & Administration	per tonne milled	$6.02		$5.69	
Haulage Ramps					
width			45 metres reducing to 25 metres		
grade			10%		
Metallurgical Recoveries					
Head Grade (g/t)				*Recovery*	
>5			60% to 90%		82% to 85%
3 to 5			60% to 82%		75% to 82%
0 to 3			57% to 69%		40% to 75%

Metallurgical recoveries are determined from the results of the bench composite assaying and testwork described in **Section 17.2**, individually for each mineralized zone. The recoveries anticipate the full impact of the new ISA mill fine-grinding installation described in **Section 17.3**, which is projected to improve the gold recovery by four percent. The actual performance in 2005 was 81.2% on a head grade of 3.4 g/t, mostly without the ISA mill. The recovery values are assigned to each block based on its gold grade and the mineralized zone to which it belongs.

15.8 Pit Wall Stability and Pit Design Parameters

On July 8, 2002, a highwall failure occurred at the Kumtor mine, resulting in the temporary suspension of operations. This was a very significant event, which led to the death of one KOC employee and affected the pit wall over a vertical distance of 280 metres. The slide caused a considerable shortfall in 2002 gold production because the high-grade Stockwork Zone was rendered temporarily inaccessible. The waste rock resulting from the movement was removed by October 2003, and the operation was back to normal shortly thereafter.

Golder Associates Ltd. (Golder), KOC s geotechnical consultant, who have been involved with geotechnical investigations at Kumtor since the feasibility study stage, assessed the reasons for the slide and provided guidance with respect to remedial and long-term pit slope design criteria that would reduce the possibility of a recurrence of such a ground movement. Concurrent with the initiation of the remedial mining, a program to further investigate the cause of the failure was undertaken. This program involved detailed surface mapping by KOC geological staff, the drilling of oriented core holes to attempt to intersect shallow dipping structures, and the re-evaluation of all geological data from the area of the failure. In all, 28 holes, with an aggregate length of 6480 metres, were drilled from the various levels as the highwall was being excavated through the failure debris, and systematic additional drilling is planned for the next years.

The monitoring system was greatly expanded for the remedial wall as it was being redeveloped. Survey prisms are spaced at approximately 50 metres horizontally along the benches and 48 metres vertically. The prisms are monitored by two robotic total stations located on the southwest and northwest sides of the pit. Two units using time-domain reflectometry (TDR) and two inclinometers were also installed in the wall, with the TDR cables and one of the inclinometers. Both the robotic total stations and the TDR data report to an alarm system in the dispatch office.

The evaluation of the data resulting from the additional investigation programs, combined with all previous data, both Soviet and KOC, has led to a revision of the geological model in the area of the northeast wall. The integration of the revised geology into the slope design process has resulted in the formulation of design criteria for the current ultimate pit. The criteria suggest that an overall angle of 34° to 36° should be used for the design of the northeast wall, compared with 42.5° for the pre-failure slope.

In the last two years, reverse (northwest) dipping faults have been recognized in the eastern part of the deposit that are essentially parallel with the local pit slope, as shown in **Figure 6**. In early 2004, a substantial movement in the southeast wall of the Kumtor open pit was detected and subsequently explained by the presence of one of these faults. The area affected by the movement extended over a face length of 300 metres and a wall height of about 200 metres. This area has now been mined out, but a similar movement occurred in February 2006 that has been addressed by inserting an extra wide bench. To deal with these reverse-dipping faults, a program of geotechnical drilling in this part of the pit is continuing, together with an ongoing detailed re-interpretation of the fault and fracture patterns of the entire Kumtor deposit, and the slope angles have also been flattened.

For the final pit design that enclose the December 31, 2005 mineral reserves of the Kumtor deposit, six design sectors have been used. The slope design parameters for the individual sectors are summarized in **Table 8**, and the ultimate pit, the design sectors and the year-end 2005 pit are shown in **Figure 10**. For that part of the southwestern part of the Kumtor pit that will be excavated within the existing waste dumps, a slope angle of 31° has been chosen within the loose materials, which may be slightly conservative.

Table 8 Ultimate Kumtor Pit Design Parameters

Design Parameter	**West & South**	**South-East**	**East**	**Northeast & Northwest**
Bench Height (metres)	8	8	8	8
Berm Spacing (metres)	24	24	24	24
Berm Face Angle	63.5°	63.5°	63.5°	63.5°
Berm Width (metres)	21 to 28	21	16 to 21	21 to 26
Inter-Berm Angle	31° - 36°	36°	36° - 40°	34° - 36°

The overall effect is that nearly all of the slopes are flatter than the natural angle of repose.

Movement in one area of the highwall is continuing. It is located below the original failure in the upper part of the highwall, but is a slow event that is being held in check by the flattened pit wall.

The monitoring of all of the pit walls in the last two years has not indicated any large movements that would result in a substantial risk to the Kumtor reserves.

There are two final pit bottoms at elevations 3620 metres (in the southern part of the pit) and 3778 metres (in the central part) and those two lower pit areas are mined with the highest of the overall slope angles shown in **Table 8** and utilize ramps that narrow to 25 metres.

Mining of the Southwest deposit is sub-divided into two coalescing pit shells. Following earlier recommendations by Golder (2002), the pit slope angles were reviewed by KOC (Vdovin, 2005) who adopted a more cautious approach honouring the highly tectonized nature of the rocks. The design angles for the Southwest deposit shells are summarized in **Table 9.**

Table 9 Southwest Pit Design Parameters

Design Parameter	
Bench Height (metres)	8
Berm Spacing (metres)	8 to 16
Berm Face Angle	60°
Berm Width (metres)	9 to 13.5
Inter-Berm Angle	30° - 40°

The overall pit wall angles are in all cases equal to, or less than, 34°. Since there is no practical experience with pit slopes at the Southwest deposit yet, the walls established early will have to be carefully monitored.

15.9 Waste Dump Design

Two complete waste dump designs have been completed for the LOM06. The first plan represents an attempt to minimize waste dumps hauls, and assumes that further displacement of the Davidov glacier down the valley towards the South West Pit access haul road is acceptable. It assumes that mining of the SW pit will be complete by the time the displaced glacier over tops the access road. The second plan minimizes further displacement of the glacier to the southwest, and attempts to haul waste west into the Lysii valley and to the north east. (KOC 2006, page 13). A final decision with respect to the waste dump design will be taken in the first part of 2006.

15.10 The Davidov Glacier

The Life of Mine Plan now calls for the excavation of ore from below part of the Davidov glacier in the southwestern part of the Kumtor deposit (**Figure 10**) as a result of mining of the newly-found reserves in the SB Zone. Prior to the identification of the SB Zone, a substantial amount of waste rock was dumped directly onto the Davidov glacier. This has resulted in the gradual displacement of the glacier away from the pit, so that the waste, originally lying on glacier ice, now rests on the original substratum, the basal moraine of the glacier. The new LOM plan will continue this practice, using waste rock to displace the glacier even further away from the pit and so allow mining of the deeper parts of the SB Zone.

KOC has commissioned two separate investigations into the probable behaviour of the glacier under these conditions. The two projects were carried out in late 2005 by Golder Associates (Golder Associates, 2005), who have previously carried out glacier studies at KOC, and by Kyrgyz rock mechanics specialist B. Chukin (Chukin, 2005). Golder and, to a certain extent Chukin, agree that it should be possible to engineer a flow path for the Davidov glacier away from the southern part of the final Kumtor pit using a waste dump buttress. The two studies also agree that, provided the glacier movement is parallel to the pit wall, the mass of waste buttress required to displace the glacier and prevent impact on mining operations is within manageable limits. It is further recognised that it is critical to maintain an active flow channel for the glacier to prevent damning and possible overriding of glacier ice over the waste dump buttress and into the working areas. It is also recognized that, where the movement of glacial ice or overlying waste dump is towards the working areas, it will be necessary to increase waste dumping in order to fully displace the ice, ground the waste dump/buttress and hence provide a diverting effect.

The current design of cut-back 10 (CB-10), the last cutback in the southern part of the Kumtor pit, reduces the glacier channel to a width of approximately 200 metres for a period of 12 to 18 months. Following the mining of CB-10, open-pit mining in this area will be completed, and any subsequent displacement of the waste highwall or glacier towards or into the pit would not be an issue. CB-10 mining is scheduled for 2009-2010, allowing for a comprehensive programme to be implemented to assess detailed mining plans, monitor the glacier and waste buttress movement, and to verify the geotechnical assumptions inherent in this mine plan.

The main uncertainties of this approach are in respect to three items:

- The relationship between the height of the ice and the height of the waste dump required to keep the ice at bay is not entirely clear. Monitoring will be required, and if necessary modification through additional waste dumping.

- The width of the channel left during CB-10 may not be sufficient to constrain the glacier and allow its free movement parallel with the pit.

- The subsequent potential access required for underground mining of those parts of the SB Zone not recoverable by open-pit mining has not been investigated.

Because of the remaining uncertainties, all of the ore to be mined during CB-10 (14.9 million tonnes of ore at an average grade of 3.9 g/t gold) has been placed in the probable reserve category, including 10.5 million tonnes at an average grade of 3.8 g/t gold that were originally classified as measured mineral resources.

15.11 December 31, 2005 Mineral Reserve Estimate

As the data in **Table 3** have shown, the estimate of the total mineable reserve tonnage for the Kumtor deposit has changed significantly over time in response to variations in the economic parameters. The current estimate for the Kumtor and Southwest deposits at a gold price of $400 per ounce is summarized in **Table 10**. It is important to recognize that this estimate was produced internally by Centerra, and that no estimation of mineral resources and reserves independent of Centerra has been completed.

The stockpile inventories are those reported in the December 2005 mine month-end report, while the in-pit mineral reserves are those quoted by the mine development plan identified as KS-6 LOM0106 developed in January 2006, and reflect the mineral reserve status as of December 31, 2005.

As the Kumtor unit operating costs are well established, any remaining uncertainty with respect to the KS-6 mineral reserves is a direct consequence of the assessment of the final highwall pit slope, apart from any significant movements in the gold price.

Figures 11, **12**, **13** and **14** show the block model and mineral reserve and resource information for the four geology sections presented as **Figures 6**, **7**, **8** and **9**.

Because of the uncertainties inherent in the final push back phase (CB-10) in the southwestern part of the deposit adjacent to the Davidov glacier, all of the mineral reserves falling into this mining phase have been assigned to the probable classification as discussed in more detail in **Section 15.10**, including the mineral resources originally classified as measured.

[4] As the result of a clerical error, the stockpile reserve statement is lower by 322 000 tonnes and by 24 500 contained ounces compared to the LOM plan, which contains the correct figures.

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Table 10 Kumtor Mineral Reserves at December 31, 2005

thousands of tonnes of ore and waste, thousands of ounces

Category	Tonnes (000 s)	Gold (g/t)			Contained Gold Ounces (000 s)	Contained Gold Tonnes
		By Category				
Proven						
Stockpiles						
Greater than 1.5 g/t	363	3.2			38	1.2
Low-grade 1.3-1.5 g/t	1 739	1.4			77	2.4
Sub-total	2 102	1.7			114	3.6
Kumtor deposit in-situ						
Greater than 1.5 g/t	13 615	4.3			1 899	59.0
Low-grade 1.3-1.5 g/t	1 883	1.4			85	2.7
Sub-total	15 498	4.0			1 984	61.7
Southwest deposit in- situ	None					
Total Proven	**17 600**	**3.7**			**2 098**	**65.3**
Probable						
Kumtor deposit in-situ						
Greater than 1.5 g/t	17 124	4.5			2 452	76.3
Low-grade 1.3-1.5 g/t	2 670	1.4			118	3.7
Sub-total	19 794	4.0			2 571	80.0
Southwest deposit in-situ						
Greater than 1.5 g/t	2 266	3.6			261	8.1
Low-grade 1.3-1.5 g/t	501	1.4			22	0.7
Sub-total	2 767	3.2	**Waste**		283	8.8
Total Probable	**22 561**	**3.9**	Tonnes	S/R	**2 853**	**88.7**
Total Mineral Reserves	**40 161**	**3.8**	**649 573**	**17.1**	**4 952**	**154.0**
		By Deposit				
Kumtor Proven & Probable	**37 394**	**3.9**	**621 412**	**17.6**	**4 669**	**145.2**
Southwest Proven & Probable	**2 767**	**3.2**	**28 161**	**10.2**	**283**	**8.8**
Total	**40 161**	**3.8**	**649 573**	**17.1**	**4 952**	**154.0**

Figures may not add due to rounding. The strip ratio (S/R) is calculated on in-situ materials.

15.12 Accuracy of Resource and Reserve Estimates

15.12.1 Comparison with Polygonal Approach

In past years, the Kyrgyz State Committee for Resources required that Kyrgyz state geologists prepare a detailed polygonal manual reserve estimate on geological sections and plans, using the estimation methods and reporting terminology of the former Soviet Union, in parallel with the block models being devised by KOC. While this duplication of effort offered the opportunity to compare the results of the two different approaches, the independent estimate by the Kyrgyz State Committee is now no longer required.

15.12.2 Reconciliation to Mill Feed

Since the start of operations, KOC staff have kept current reconciliation data that compare the tonnages and grades predicted by the various block models being used for reserve estimation at any given time (**Table 3**) with actual tonnages and grade mined from the pit as determined by the grade control data, and with the actual mill production data. This was done at the actual cut-off grades in effect at the time. The reconciliation is somewhat complicated by the various stockpiles being kept at Kumtor, that effectively decouple the mine operations from the mill. However, over longer periods, inaccuracies in the stockpile balances become less severe.

In our 2004 report, we had presented reconciliation data for the earlier block models for the years 1996 to 2003, and had come to the following conclusions:

- The ore control model, based on blasthole data, is a good estimator of the mill feed. For short-term comparisons, the ore control model can serve as a proxy for the mill.

- The overall variance between the earlier block models and the actual mill throughput from 1996 to the end of 2003 was small, although the models collectively tended to over-estimate the gold grade of the tonnage above the cut-off grade by a small margin.

- The KS-4 model was accurate in predicting the milled tonnage and grade for the years 2001 to 2003 at the 1.3 g/t gold cut-off grade.

- For smaller tonnages (monthly, quarterly), the random variances between the block model prediction and actual mining experience were generally quite large, reflecting the relatively open drill hole pattern at Kumtor.

The challenge to create reliable short-term production forecasts at Kumtor is recognized by Centerra and will probably become more pronounced in 2006 and 2007 as smaller, less continuous ore lenses are being mined compared to earlier years.

The relatively poor performance of the KS-5 model in the last quarter of 2005 gave rise to the creation of the current block model KS-6 that attempts to address the shortcomings of its predecessor, as is more fully described in **Section 15.3**.

Table 11 summarizes the reconciliation data for the most recent two block models, KS-5 and KS-6, the latter being the model used for the current resource and reserve estimates.

The upper section of **Table 11** presents the reconciliation for the four quarters of 2005 at a cut-off grade of 1.5 g/t gold, and the lower section the reconciliation for the years 2001 to 2005 at a cut-off grade of 1.3 g/t gold since there was a considerable amount of low-grade fed to the mill particularly in 2004, which did not occur in 2005. To make tonnages strictly comparable, the block model predictions in **Table 11** are adjusted for material delivered to the various stockpiles (because they were not milled), and the mill figures are similarly adjusted for material received from the stockpiles that were not mined in the periods for which the comparison is made.

The upper section of **Table 11** presents the reconciliation for the four quarters of 2005 at a cut-off grade of 1.5 g/t gold, and the lower section the reconciliation for the years 2001 to 2005 at a cut-off grade of 1.3 g/t gold since there was a considerable amount of low-grade fed to the mill particularly in 2004, which did not occur in 2005. To make tonnages strictly comparable, the block model predictions in **Table 11** are adjusted for material delivered to the various stockpiles (because they were not milled), and the mill figures are similarly adjusted for material received from the stockpiles that were not mined in the periods for which the comparison is made.

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Table 11 Reconciliation of KS-5 and KS-6 Models with Ore Mined and Milled

thousands of tonnes of ore and thousands of ounces

Period	**KS-5 Block Model**			**KS-6 Block Model**			**Ore Control Model**			**Mill Feed**		
		Gold			Gold			Gold			Gold	
	Tonnes	g/t	Ounces	Tonnes	g/t	Ounces	Tonnes	g/t	Ounces	Tonnes	g/t	Ounces
2005, Q-1	1 005	4.2	137	943	4.3	129	1 053	5.2	177	1 435	3.7	170
2005, Q-2	1 119	3.8	137	984	3.3	104	1 209	4.2	165	1 401	3.7	167
2005, Q-3	1 709	3.3	179	1 629	2.8	146	1 658	3.3	174	1 388	3.3	150
2005, Q-4	1 991	3.3	208	1 699	2.9	159	1 465	2.9	135	1 425	2.8	127
	5 824	*3.6*	*661*	*5 255*	*3.2*	*538*	*5 385*	*3.8*	*651*	*5 649*	*3.4*	*614*
Net stockpile changes	(352)	2.3	(26)	(352)	2.3	(26)	(352)	2.3	(26)			
Adjusted Figures	**5 472**	**3.6**	**635**	**4 903**	**3.2**	**512**	**5 033**	**3.9**	**625**	**5 649**	**3.4**	**614**
2001	5 307	5.3	904	5 232	4.8	813	5 606	5.2	937	5 470	5.2	914
2002	4 294	4.0	552	4 059	3.7	486	5 141	3.5	579	5 611	3.7	668
2003	4 817	5.2	805	4 694	5.4	820	4 828	5.0	776	5 631	4.5	815
2004	2 541	6.3	520	2 422	6.3	492	2 672	6.7	574	5 654	4.4	802
2005	5 824	3.6	661	5 255	3.2	538	5 385	3.8	651	5 649	3.4	614
	22 783	*4.7*	*3 442*	*21 662*	*4.5*	*3 149*	*23 632*	*4.6*	*3 517*	*28 015*	*4.2*	*3 813*
Net stockpile changes										(2 940)	2.1	(202)
Adjusted Figures	**22 783**	**4.7**	**3 442**	**21 662**	**4.5**	**3 149**	**23 632**	**4.6**	**3 517**	**25 075**	**4.5**	**3 611**

Totals may not add due to rounding

From the data in **Table 11**, the following conclusions can be drawn:

Because much of the ore from 2001 to 2004 and into 2005 originated in the more continuous parts of the deposit, both the KS-5 and the KS-6 models perform adequately in forecasting mill feed, showing the random variances that have been noted before.

The underlying reason for the poor performance of the KS-5 model in the less continuous parts of the Kumtor deposit is the inadequate drill hole and thus data density in those areas. If the short-term variance of prediction versus actual performance remains unacceptably high for another few quarters, then a change to shorter projection distances for the classification of the resources and reserves may be in order. The solution to this situation is to double the existing drill hole density in the areas in question.

It is too early to judge the adequacy of the external dilution now incorporated into the KS-6 model. One must remember that the external dilution provision described in **Section 15.6** uses arbitrary assumptions about the amount of low-grade or waste to be added to each block. Depending on the performance of the model for a larger tonnage, adjustments may have to be made in this regard.

Based on the data presented in **Table 11**, which shows both models to slightly under-estimate the ore tonnage and the contained ounces, both models work well in the continuous parts of the deposit. Based on the evidence to date, KS-6 performs better in the difficult parts, and may turn out to be adequate. There is no indication that an independent resource/reserve estimate by an external party would perform better, and is thus not required.

15.13 Life-of-Mine Plan

Based on the estimate of mineral reserves as of December 31, 2005 (**Table 10**), KOC staff have developed a Life-of-Mine (LOM) plan for the Kumtor and Southwest deposits and that is summarized in **Table 12**. **Figure 10** shows the resultant ultimate Kumtor pit outline and adjacent waste dumps.

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Table 12 Life-Of-Mine Plan and Production Forecast

thousands of tonnes of ore and waste and ounces of gold

			2006	2007	2008	2009	2010	2011	2012	2013	Total
Mining Kumtor Pit	Ore	tonnes	5 426	5 540	3 580	4 393	5 985	5 834			**30 759**
		g/t	3.2	3.4	5.0	6.4	4.7	4.3			**4.4**
	Low-grade	tonnes	973	587	608	533	954	892			**4 547**
		g/t	1.4	1.4	1.4	1.4	1.4	1.4			**1.4**
	Total	tonnes	6 399	6 127	4 188	4 926	6 939	6 726			**35 306**
		g/t	2.9	3.2	4.5	5.9	4.2	3.9			**4.0**
	Waste	tonnes	82 002	114 528	100 786	113 514	116 337	94 245			**621 412**
	Strip		12.8	18.7	24.1	23.0	16.8	14.0			**17.6**
Mining Southwest Pit	Ore	tonnes	972	489	805						**2 266**
		g/t	2.7	3.1	4.9						**3.6**
	Low-grade	tonnes	198	159	145						**502**
		g/t	1.4	1.4	1.4						**1.4**
	Total	tonnes	1 170	648	950						**2 768**
		g/t	2.5	2.7	4.4						**3.2**
	Waste	tonnes	11 382	10 271	6 507						**28 161**
	Strip		9.7	15.9	6.9						**10.2**
Total Mining	Ore	tonnes	6 398	6 029	4 385	4 393	5 985	5 834			**33 025**
		g/t	3.1	3.4	5.0	6.4	4.7	4.3			**4.3**
	Low-grade	tonnes	1 171	746	753	533	954	892			**5 049**
		g/t	1.4	1.4	1.4	1.4	1.4	1.4			**1.4**
	Total	tonnes	7 569	6 775	5 138	4 926	6 939	6 726			**38 074**
		g/t	2.9	3.2	4.5	5.9	4.2	3.9			**4.0**
	Waste	tonnes	93 384	124 799	107 293	113 514	116 337	94 245			**649 573**
	Strip		12.3	18.4	20.9	23.0	16.8	14.0			**17.1**
Stockpile Changes	Ore	tonnes	740	371	-1 127	22	337	177	-1 205	0	**-685**
		g/t	1.6	1.2	1.7	2.8	1.6	1.6	2.0		**2.8**
	Low-grade	tonnes	1 171	746	608	-753	944	892	-4 452	-894	**-1 739**
		g/t	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	**1.4**
Milling	Ore	tonnes	5 659	5 658	5 658	5 658	5 658	5 658	5 657	894	**40 500**
		g/t	3.3	3.5	4.3	5.3	4.8	4.4	1.5	1.8	**3.8**
	Recovery	%	76.2	82.9	86.7	87.4	87.1	78.5	74.2	70.6	**83.0**
	Gold produced	**tonnes**	**14.3**	**16.6**	**20.9**	**26.2**	**23.8**	**19.5**	**6.4**	**1.1**	**128.9**
		ounces	**461**	**533**	**674**	**843**	**764**	**627**	**206**	**37**	**4 144**

The new mine plan extends the Kumtor mining operations into the second half of 2011 while milling operations will extend through the first half of 2013, treating stockpiles in the last eighteen months. While the total annual tonnage (ore plus waste) mined was in the range of 30 million tonnes per year from 1998 to 2000, it increased to 50 million tonnes in 2002 and to 75 to 80 million tonnes in recent years. The LOM plan predicts a further increase in annual total tonnage mined starting in 2006, with a maximum of 131 million tonnes of ore plus waste reached in 2007. Much of this is the result of the inclusion of the high-grade SB Zone in the Kumtor mineral reserves, that requires a substantial amount of pre-stripping. The strip ratio will thus increase from 12 : 1 in 2005 to range from 17 : 1 to 23 : 1 in the years 2007 to 2010. This reflects the high-grade character of the SB Zone and the low unit costs for mining waste rock that have been demonstrated at Kumtor.

Included as waste in the LOM plan and production forecast are inferred resources of 440 000 tonnes with an average gold grade of over 7g/t that fall into the final pit design but were treated as waste during pit optimization and are not included in the reserve estimate.

A new element at Kumtor is the mining of the Southwest deposit as a satellite operation, which will take place from 2006 to 2008. If additional drilling at the Sarytor deposit yields positive results, then the LOM plan allows for the inclusion of this second satellite operation starting in 2009.

The gold production forecast for 2006 and 2007 is modest by Kumtor standards, but will reach a new high in 2009, when the best part of the SB zone will be mined. The low gold production in years 2012 and 2013 reflects the low-grade character of the stockpiled ore being milled.

16. POSSIBLE MINERAL RESERVE ADDITIONS

Mineral reserve additions at Kumtor are possible from a variety of sources. They include potential extensions of the current Kumtor pit to mine additional mineralization in the northeastern part with a higher gold price, the possibility of underground mining in parts of the deposit that fall outside the optimized final pit design, and additions from areas of mineralization adjacent to, and on strike with, the Kumtor deposit within the Exploration Licence surrounding the Concession Area.

16.1 Kumtor and Southwest Pit Extensions

The Kumtor and Southwest mineral resources described in **Section 15** include tonnages outside of the ultimate pit design that are in addition to the reservessummarized in **Table 10**. These additional mineral resources are set forth in **Table 13** and include the mineral resources for the Sarytor deposit for which no mineral reserves have yet been estimated.

Table 13 Kumtor Mineral Resources in Addition to Mineral Reserves

Category	Tonnes (000 s)	Gold (g/t)	Contained Gold Ounces (000 s)	Contained Gold Tonnes
Measured				
Kumtor Open Pit (>1.3 g/t)	13 406	3.8	1 634	50.8
Southwest Deposit				
Sarytor Deposit				
Indicated				
Kumtor Open Pit (>1.3 g./t)	7 639	4.4	1 071	33.3
Southwest Deposit	1 229	3.8	149	4.6
Sarytor Deposit	1 733	3.0	167	5.2
Total Measured and Indicated	**24 007**	**3.9**	**3 021**	**93.9**
Inferred				
Kumtor Open Pit (>1.5 g/t)	1 009	6.5	210	6.5
Kumtor Underground (>5 g/t)	1 636	6.6	347	10.8
Southwest Deposit				
Sarytor Deposit	2 830	2.7	247	7.7
Total Inferred	**5 475**	**4.6**	**804**	**25.0**

Estimates of additional resources potentially mineable by an expanded Kumtor open-pit have been based upon a cut-off grade of 1.3 g/t gold using the undiluted KS-6 resource model. They occur in the space between the current ultimate pit design and a larger pit shell (a resource shell) that is judged by Centerra to offer the possibility of eventually being mineable following the evaluation of a wide range of non-engineered pit shells. This process satisfies the CIM guidelines that require mineral resources to *offer reasonable prospects for economic extraction*. The resource shell shown in **Figure 15** would recover nearly all of the additional measured and indicated mineral resources in **Table 13**. However, the additional ore tonnage would only be released with a large increase in the overall strip ratio. Additional ore is needed in the highwall to lower the incremental strip ratio together with a higher gold price than was used in the current pit design.

A similar resource shell defines the bottom to which additional mineral resources are reported for the Southwest Deposit (**Figure 8**), and the Sarytor resources are also contained in such a pit shell.

Additional underground resources for the Kumtor deposit are reported at a 5 g/t cut-off grade, but are unconstrained and undiluted, in contrast to their counterpart reported for the 2004 IPO. They are located outside of the resource shell and above elevation 3600 metres.

The partial delineation of the NB Zone below the Kumtor pit highwall has shown that potential exists to find additional mineralization in this area, identified as the **Northend Target**, an area with little previous drilling because of difficult access. As **Figure 15** shows, the incremental strip ratio for this material is currently too high to allow its inclusion in the Kumtor mineral reserves, but the discovery of additional ore-grade mineralization to the north of the NB zone, particularly if it extended to surface, could result in the layback of the highwall becoming economic to undertake by lowering the incremental strip ratio in this part of the pit. This would result in a substantial part of the additional open-pit resources, and possibly also of the underground resources, in **Table 13** being converted into open-pit reserves, in addition to any new Northend mineralization. The drill program in the northeastern part of the pit is ongoing.

As at the Kumtor deposit, the additional mineral resources of the Southwest deposit are contained between the mining design pit and a resource shell. The mineable portion of the Southwest deposit is strongly influenced by the adverse topographical situation (**Figures 8** and **13**). The additional mineral resources would carry an incremental strip ratio of 33 to 1 if converted to reserves. The discovery of additional ore-grade mineralization to the northeast of the current reserves toward the Davidov glacier could help with the overall strip ratio for the deposit and force the pit deeper than is currently the case. Drilling is planned for the summer of 2006.

Most of the Sarytor mineral resources are currently in the inferred category because of the open drill pattern. The resources are constrained by a non-engineered resource shell that used a gold price of $400 per ounce as described above with the same slope angles as used for the Southwest Deposit pit (**Table 9**). There is a good likelihood that these resources can be upgraded to higher categories by the planned program of in-fill drilling, and partly be converted to mineral reserves and added to the LOM plan.

16.2 Underground Mining

16.2.1 Obligation to Evaluate Underground Mineral Reserves

Under the Investment Agreement Centerra has agreed to undertake exploration and conduct feasibility studies of the development of that portion of the Kumtor deposit which requires underground mining. As part of that commitment, KGC agreed to spend $2.5 million on assessing the underground exploration potential during 2004 and 2005. KGC must notify the Government of the Kyrgyz Republic at least 24 months before the projected termination of open-pit mining as to whether it will undertake underground mining. If it does not, then the Government of the Kyrgyz Republic will have the option to require KGC either to assign to the Government an interest in the Concession Area sufficient to permit underground exploration and development, or to surrender such an interest in the Concession Area back to the Government.

A part of the surface drill program undertaken at Kumtor in 2004 and 2005 was for the purpose of outlining and defining, on an initial drill pattern, potential underground resources. KOC have informed the Kyrgyz government (Melrose, 2005), that expenditures in 2004 were $1.5 million. Exploration drilling expenditures for underground resources incurred in 2005 amount to $3.4 million for a total of $4.9 million, although a formal report has not yet been issued. It appears that KGC have fulfilled their commitment with respect to this item.

16.2.2 Underground Mineral Resources

As described in **Section 16.1**, a resource shell delimits the additional resources below the current ultimate Kumtor pit that may be mineable by an expanded open pit and that were therefore reported at a cut-off grade of 1.5 g/t. Below this pit shell, underground mining would be the extraction method (**Figure 15**). For the purpose of reporting mineral resources for possible underground mining, the KS-6 block model was used at a 5 g/t cut-off grade below the low-NPV pit shell, but above the 3600-metre elevation, with the results summarized in **Table 14**.

Table 14 Mineral Resources Considered for Underground Mining

above 3600 metre elevation

	Cut-Off Grade 5.0 g/t Gold			
	Tonnes	**Gold**	**Contained Gold**	
Category	(000 s) 1	(g/t)	Ounces(000 s)	Tonnes
Inferred	636	6.6	347	10.8

The cut-off gold grade of 5.0 g/t is based on the application of preliminary operating costs. The majority of this mineralization is in the NB Zone and shows reasonable grade continuity at the elevated cut-off grade. There is very good potential for extending high-grade gold mineralization of the SB zone to depth and along strike to the south, and at depth to the north. Given the encroachment of the current final pit on the Davidov glacier as described in **Section 15.10**, most of such additional mineralization would have to be considered for underground mining.

However, it is recognized that the higher cut-off grade applied to the underground resources compared to the pit resources requires a tighter drill pattern for this mineralization than is currently in place, and all of the underground resources are therefore classified as inferred until in-fill drilling can be done.

The resource estimate in **Table 14** does not yet fully reflect the underground mining approach, as provisions for mining losses and mining dilution appropriate to the expected poor ground conditions are not included. Underground mining at Kumtor would have to occur in conjunction with open-pit mining, as an underground operation alone would not match the capacity of the
15 000-tonne-per-day mill.

An earlier preliminary study (Cameco, 1999) had concluded, on the basis of less drill information than is available today, that underground mining at a rate of 2000 tonnes per day would be both technically and economically feasible, using cut- and-fill methods (both overhand and underhand). The ground conditions are expected to be very poor, and the mining would amount to trying to recover harder ore in a very soft, faulted and sheared environment that would require the use of extensive and expensive ground control measures.

While drilling for underground resources centred on the high-grade SB and NB Zones is continuing into 2006, with potential for of identifying additional resources in both areas, KOC plans to conduct a scoping study in 2006 as the next logical step that would define an underground mining approach, the production rate, operating and capital costs for an eventual underground operation. The investigation would include cross-over studies with the aim of establishing where underground mining below the ultimate design pit becomes more advantageous than open-pit mining at a high strip ratio, and would thus investigate all known mineralization below the KS-6 design pit.

Given the poor ground conditions, there can be no assurance that these studies will have a positive outcome. In any event, trial underground development and mining will have to be successfully conducted before underground mineral reserves can be reported at Kumtor.

16.3 Other Target Areas

KGC controls the Exploration Licence, which has recently been renewed as described in **Section 3** and as shown in **Figure 3**. There are several exploration targets along strike in both directions from the Kumtor deposit, which will be briefly described in this section. The areas to the southwest of Kumtor have the disadvantage of the structure that controls the mineralization dipping at shallow to intermediate angles to the southeast, with the surface rising in the same direction. Access to the deeper parts of gold mineralization in this area by open-pit mining is therefore limited by the adverse topographical situation. However, owing to the proximity of these areas to the existing mine infrastructure, capital costs to develop a satellite deposit would be low.

16.3.1 Northeast Area

To the northeast from the Kumtor pit is the Northeast Area (**Figure 4**), where surface trenching, diamond drilling and underground workings in the 1980 s resulted in Soviet determination of inferred resources mineable by open pit of 1.7 million tonnes with an average grade of 2.3 g/t gold. These figures are not in compliance with current resource and reserve reporting requirements, but are mentioned to show the possible scope of this area. While KOC have conducted little additional physical work, ongoing work has included the addition of the Northeast Area data into the exploration database, limited surface trenching and the re-interpretation of the geology and the earlier exploration results in light of the knowledge gained at Kumtor since mining started. While a few targets for drilling have been identified, they are of a lower priority, given the positive results elsewhere.

16.3.2 Bordoo Area

Further to the southwest of Sarytor is the Bordoo area, where targets identified by geophysical surveys conducted during the Soviet period were tested in 1999 by surface sampling. The best results of surface chip sampling were 20.3 g/t gold over 5 metres and 3.6 g/t gold over 20 metres. There is also a previously unexplored gap of approximately three kilometres strike length between the Sarytor and Bordoo targets. Some 850 metres of trenching and outcrop sampling conducted in this area in 2002 has given initial encouraging results, such as 1.0 g/t gold over 8.0 metres in trench T-BR 2 and 2.4 g/t gold over 5.0 metres in trench T-BR 13. Numerous mineralized outcrop and road cut samples have outlined an 800-metre by 50 to 70-metre zone of generally low-grade gold mineralization, with values from 0.5 to 1.0 g/t gold over 5.0 metres (chip sample) and 8.42 g/t gold over 2.0 metres (chip sample).

An induced polarization (IP) survey was completed over the Sarytor and Bordoo areas, extending the historic IP coverage to the southwest. The data show the continuation of the Kumtor Fault under the moraines covering the northern part of the Sarytor and Bordoo areas. A geo-electrical response similar to that found at Sarytor has also been detected in the Bordoo area, extending the possible structural target area approximately three kilometres along strike to the southwest. The interpreted zone is covered by the moraine and needs to be tested by drilling.

16.3.3 Akbel Area

The Akbel area is situated furthest along strike to the southwest from the Bordoo area. Reconnaissance exploration work which included geophysical surveys, geologic mapping and surface sampling indicated the presence of some gold mineralization, with the best result being an assay of 3.0 g/t gold from a grab sample. This area is currently of lower priority, but requires additional surface exploration programs. It is of note that the activities of Kentor Gold Limited as described in **Section 13** are contiguous with the Akbel area. Current activities include the drilling of several core holes on a geochemical anomaly some 13 kilometres to the southwest of the Kumtor mill (Kentor, 2005).

16.4 Planned 2006 Exploration Expenditures

The description in the previous sections of the remaining exploration possibilities at and around the Kumtor operation make clear that a program of additional exploration, mostly in the form of surface drilling, is justified and required to fully evaluate the various targets, with a good chance to add to the life of the Kumtor mine operation. KOC currently has eight owned and two national contractor drills that, together, can complete about 75 000 metres per year. The exact number of holes drilled on each of the targets in 2006 will depend on a combination of seasonal access, mine operational and target priority considerations. Centerra has approved a budget of $11.4 million for these activities in 2006, with the proviso that, depending on results, additional funds may be made available. It is likely that the approved budget will not be sufficient to account for the total drill capacity currently available at Kumtor.

Given the ongoing success of the surface drill campaigns at Kumtor in the past three years, the number of exploration targets that remain to be tested, and taking into consideration that an underground development program will be required to fully evaluate the feasibility of underground mining, substantial exploration and development commitments will be required over the next few years at Kumtor.

17. ADDITIONAL INFORMATION FOR PRODUCTION PROPERTIES

17.1 Mining Operations

Mining operations at Kumtor are carried on using conventional open-pit mining methods with 2005 mine production being at the rate of 17 000 tonnes per day (tpd) of ore including low-grade material to stockpiles, and 205 000 tpd of waste. The initial stripping of the Kumtor orebody in 1995 had the unusual challenge of mining a portion of the Lysyi Glacier that covered the northeastern area of the planned open pit, and lesser quantities of ice have been removed in subsequent years as the northeast highwall of the open pit is pushed back.

The Kumtor open pit has had the benefit of a favourable topographical situation. The top mining elevation in the current ultimate pit design is at about 4460 metres, and the very deepest part will be at 3620 metres in the southwest part of the deposit (**Figure 10**). The crushing plant to which ore is delivered is at about 4050 metres and ore transport was thus downhill for the upper portion of the orebody, and will have a maximum uphill haul of 400 metres for the lower portion.

Waste disposal has been greatly facilitated by the proximity of suitable areas for waste dumps adjoining the pit to the northwest and to the east. In both of those areas a portion of the waste is deposited on glaciers that exhibit some flow as a result of the increasing load. The ice movement is measured and monitored. The special situation with respect to the Davidov glacier and the southwestern part of the Kumtor ultimate pit has been described in **Section 15.10**. The waste does not have any acid generation potential because of its high carbonate content. The favourable topographical setting for movement of both ore and waste is the principal reason for the low unit costs for mining at Kumtor.

Mining is based on eight-metre benches with blast hole drilling using nine diesel-powered Drilltech D45KsH rotary-percussion drill rigs. Recently, split-bench mining has been introduced in areas of lower ore thickness.

Charging the holes is performed with special bulk explosives trucks delivering either ammonium nitrate with fuel oil (ANFO), or emulsion explosives for wet holes. The explosives consumption is about 0.75 kg per cubic metre of ore or waste.

The main loading fleet includes eight CAT 5130 B hydraulic excavators, seven of which are configured as shovels, the other as a backhoe, and three CAT 992C front-end loaders. Nominal bucket capacities are 11.0 cubic metres and 10.3 cubic metres, respectively. Typically, the shovels are used for production and the loaders for ore blending, cleanup and support during shovel maintenance.

The haulage fleet consists of 39 CAT 777 B haul trucks with a calculated load factor of 78 tonnes. Eleven tracked and rubber-tired dozers are used for the maintenance of waste dumps, operating bench floors, cleaning of safety benches and general clean-up for shovels, on roads and blast patterns. Seven road graders maintain roadways and bench floors. One CAT 777 B haul truck has been converted to a 30 000-litre water truck for dust suppression.

Due to the very substantial increase in waste tonnages scheduled for the years 2006 to 2011 and the mining of the Southwest Deposit (**Table 12**), an increase in the mining fleet is scheduled for the next few years. This is summarized in the following table:

Table 15 Major Pit Equipment Additions and Deletions, 2006 to 2012

		Additions (Deletions)						
	Current	2006	2007	2008	2009	2010	2011	2012
777 B Trucks	39	0	0	-4	0	-19	-11	0
785 Trucks	0	8	16	6	2	0	-9	-23
5130 Excavators	8	1	0	-1	-1	-1	-1	-4
Liebherr 994 B Shovels	0	0	4	0	0	0	0	-4
Front-end loaders	3	0	0	0	0	0	0	-1
Drills	9	0	3	-1	-1	0	-2	-7
Dozers	11	1	4	-1	-1	0	-2	-9
Graders	7	0	3	-1	0	0	-2	-4

Equipment deleted will be retired or offered for re-sale.

Total capital costs for the years 2006 to 2011 are estimated at $132 million, the majority of which will be spent to purchase the additional open-pit equipment. All major capital mining equipment will be purchased new, as this represents the lowest unit operating and maintenance cost option. A total of $118 million in capital expenditures will be made in 2006 and 2007.

Hydrological conditions are controlled by the presence of up to 250 metres of permafrost. Supra-permafrost groundwater occurs in a thin thaw zone near surface, active only from July to October. Groundwater volumes from this zone are relatively small and are included with the water volumes handled as surface runoff and glacial meltwater. Surface waters are diverted away from the pit using diversion ditches, sumps and gravity pipelines.

The permafrost boundary is between elevations 3900 and 3950, and parts of the pit are now in unfrozen ground. The experience with the water handling system used in the pit has been good for the current conditions. Water within the pit is channelled to sumps along dewatering ditches and is then pumped outside of the pit limits. Diesel generators supply power for the pumps and spare pumps are kept on site in the event of a pump failure.

17.2 Grade Control

Grade control in the pit is performed by sampling of the blasthole cuttings and blasted rock is then sorted by grade and characteristics affecting processing and delivered to the primary crusher or to the appropriate stockpile.

Table 16 Material Destination by Grade and Type

Designation	Gold Grade Range (g/t)	Destination
Ore	> 1.5 g/t	Crusher and crushed ore stockpile
	> 1.5 g/t	Refractory and carbonaceous stockpile
	> 1.5 g/t	Regular ore stockpile
	> 1.5 and < 2.0 g/t	Medium grade stockpile
Low-grade	>1.3 and <1.5	Mostly stockpiled for later milling
Sub-grade	>1.0 and <1.3	Stockpile, not scheduled for milling
Waste	<1.0	Dumps on Davidov and Lysyi glaciers

This ore-sorting program establishes the level of 1.3 g/t gold as the effective incremental cut-off grade of the operation. At the end of December 2005, the low-grade stockpile contained 1.7 million tonnes with an average grade of 1.4 g/t gold, and the sub-grade stockpile was 2.8 million tonnes with an average grade of 1.1 g/t gold. The cut-off grade for ore has been at the level of 1.5 g/t since 2004, and was at levels of 1.6 to 1.7 g/t from 1996 to 2000, reflecting the higher unit operating costs and lower gold prices at the time.

Bench composites of diamond drill core are tested in the mill laboratory with respect to their metallurgical character, and refractory and carbonaceous ore are delineated on this basis and kept on separate ore stockpiles to allow blending. This data is also included in the block model used for resource and reserve estimation and determines in part the value of a block. In general, the northern part of the Kumtor deposit has the poorest recoveries, and higher grades are matched with higher recoveries. The Southwest deposit shows recoveries that are generally inferior to those experienced in the Kumtor deposit. The metallurgical information is included in data used for pit optimization (**Table 7**).

The blasthole assay data are combined into an ore control model that is used to determine the dig lines for the various grade categories and to estimate the monthly pit production. The ore control model is further used for short and medium-term planning as monthly forecasts of tonnes and grade by the resource block model have a variance that is too high for small tonnages. Finally, logging of the blasthole chips allows the intensity of the alteration to be mapped, an important input parameter into the definition of the structural ore zones that in turn play an important role in the resource estimation process.

17.3 Mineral Processing

Extensive metallurgical testing was completed by Kyrgyz Geology from 1981 until 1989. During the Feasibility Study, Kilborn completed additional test work. The flowsheet (**Figure 16**) reflects the fine-grained nature of the gold and its intimate association with pyrite, and consists of crushing, grinding, pyrite flotation, and double re-grinding of the flotation concentrate. Two separate carbon-in-leach (CIL) circuits extract the gold from the re-ground concentrate and from the flotation tails, with final gold recovery accomplished by electrowinning and refining. The mill was originally designed with a capacity to process 4.8 million tonnes of ore per year. The mill throughput currently is 5.5 million tonnes per year.

The ore to be milled is managed through a number of stockpiles that receive ore of different metallurgical characters and of different grade ranges and thus allow blending of the mill feed for optimum gold recovery. Ore fed to the crushing circuit is drawn from a live ore stockpile. A gyratory crusher reduces the ore to 100% minus 30 centimetres. The ore is then fed to a coarse ore stockpile from which it is reclaimed for grinding, first to a semi-autogenous (SAG) mill and then to a ball mill, which together reduce the grain size to 80% passing 140 microns. A bulk sulphide concentrate representing 7 to 11% of the original mill feed is produced with a grade of 30 to 50 g/t gold, about ten times the mill head grade, and a gold recovery of 87 to 92% into the concentrate.

The flotation concentrate is re-ground to 90% passing 20 microns. After thickening to 60% solids, it is once more re-ground to 95 to 98% passing 20 microns in an ISA mill that was commissioned in October 2005. The ISA mill provides additional liberation of the fine refractory gold (2-5 microns) enclosed in pyrite.

To ensure high-efficiency leaching of the re-ground concentrate, the number of tanks for concentrate aeration was increased from one to two. Additional aeration is expected to provide increased leach recovery by 2-5% without additional sodium cyanide consumption.

The concentrate is re-pulped to 45% solids, pre-aerated for 40 hours and leached for 80 hours in the CIL circuit consisting of four agitated tanks in series. Cyanide solution, slaked quicklime and activated carbon to maintain a concentration of 14 grams per litre (g/l) carbon, are added to the CIL circuit.

The flotation tailings with an average grade of 0.45 g/t gold are thickened to 50% solids and subjected to cyanidation for 10 hours in a CIL circuit (three tanks) similar to the circuit used for the sulphide concentrate but using a carbon concentration of 8 g/l. The carbon in both CIL circuits is forwarded counter-current to the slurry flow, and the loaded carbon from the first flotation tailings CIL tank is pumped to the third concentrate CIL tank to continue loading. Loaded carbon from the first concentrate CIL tank is pumped to the gold recovery plant. The loaded carbon is stripped and the gold subsequently recovered by electrowinning.

Process control is provided by the Foxboro System, which allows the monitoring and control of the entire process. Six automatic samplers recover representative samples from all circuits. An automatic reagent addition system optimizes the performance of the flotation circuit. A particle-size monitor for the re-ground concentrate informs about any failures in the grinding process in real time and thus reduces gold losses related to poor grinding. An automatic analyzer in the CIL circuit helps to maintain the optimum levels of sodium cyanide concentration and of the pH.

Tailings from the CIL circuits for both concentrate and flotation tailings are combined and discharged by gravity to the tailings disposal area through a slurry pipeline (**Figure 3**).

Gold recovery in the CIL circuits is 30% for the flotation tailings and 90% for the sulphide concentrate. Overall, 90% of the recoverable gold is won in the pyrite concentrate CIL circuit, the remainder in the tailings CIL circuit.

Gold recovery during the early phase of the Kumtor operation was affected by the preg-robbing character of some of the ore because of its active graphite which has been moderated by adding diesel fuel and sodium laurel sulphate as masking agents to the ore delivered to the SAG and the re-grind mills. Historically, the overall metallurgical recovery of gold in the Kumtor mill has averaged 79%, but since 1999 has averaged 80.5% and is expected to increase in future because of the recent installation of the ISA mill except when low-grade stockpile ore or highly carbonaceous material is treated. Projected future average annual gold recoveries are shown in **Table 12.**

17.4 Tailings Management Facility

The tailings management facility is in the Kumtor River valley (**Figure 3**) and consists of twin tailings pipelines, a tailings dam, an effluent treatment plant and two diversion ditches around the area to prevent runoff and natural watercourses from entering the tailings basin. These facilities received approval from the Government of the Kyrgyz Republic during 1999. Each tailings pipeline is approximately six kilometres in length. The tailings dam was designed and constructed to address the permafrost conditions at the mine site and to standards for seismic activity in the region. The dam is approximately two kilometres in length and up to 27 metres in height. It is constructed from alluvial material along with a synthetic liner 100 metres on the upstream slopes. During construction the alluvial material was compacted to the required density to provide stability for the dam.

The tailings dam was designed to accommodate the projected requirements for tailings storage for the life of the mine, and can readily be expanded if necessary to accommodate additional mine production.

As of early January 2006, the tailings dam held 31.2 million cubic metres of tailings and 1.4 million cubic metres of untreated process water. The average length of the tailings beach from the dam to the pond was 600 metres. During summer operations, some five million cubic metres of effluent are treated and subsequently discharged into the environment. Projected final tailings content in accord with the current LOM plan is 57.5 million cubic metres, to be reached at the end of 2013.

An ice-rich silt layer about two metres below the original land surface has been the cause of minor but persistent movement of the tailings dam, at a rate of 40 millimetres (mm) per year. In 2003, a shear key was constructed for 700 metres along the toe of the dam by excavating a trench nominally 6 metres deep and 20 metres wide and filled with compacted granular fill. A five-metre berm of well-compacted granular fill was then constructed over the shear key. The shear key is designed to interrupt and replace the ice-rich silt layer along the downstream dam toe within the area of measured movement, with a high-strength, stiff structure of sufficient width to eventually stop the movement of the dam.

Subsequent monitoring of the dam has shown that the remedial actions taken in 2003 have not slowed the rate of creep of the dam, with the lower slope of the dam overriding the shear key. Cumulative movement since 1998 is in the order of 200 mm, and, if it continued at that rate, would ultimately endanger the integrity of the dam after closure of the mine.

BGC Engineering (2005b) have proposed the installation of an additional shear key in front of the original shear key, *as soon as practicable, and before any more fill is added* *to raise the tailings dam any further* (BGC Engineering 2005b, page 10). KOC have developed plans for the installation in 2006 of the additional shear key with a width of 50 metres plus a buttress that will rise 14 metres above the original ground for the central portion of the dam. The eastern part would be built in 2007/08 to the same specification. BGC are of the opinion that the new shear key will halt the creep within a period of time that is still being modelled. Unless halted, the tailings dam movement constitutes a long-term risk for the after-closure period of the operation.

Installation of the additional shear keys is estimated to cost $7.0 million from 2006 to 2008, and Centerra have indicated that these funds are firmly budgeted. Raising of the dam to its final elevation will require an additional $5.8 million from 2006 to 2010.

17.5 Maintenance and Services

The maintenance department is responsible for 87 major pieces of mine equipment, the 15 000-tonne-per-day process plant, the effluent treatment plant and the electrical distribution system. The department is also responsible for approximately 128 pieces of transportation equipment hauling supplies to and from the Kumtor mine site from the marshalling yard in Balykchy.

KOC has utilized a computerized maintenance system since startup for mobile and plant maintenance requirements. Initially schedules were set up in accordance with the manufacturers specifications but as the component history developed, the preventative maintenance schedules were adjusted where required. Work orders are used to control and track all maintenance employee and materials costs.

The mechanical availability for the process plant is over 94% for the past two years and the production mining fleet mechanical availability averages 90%. A comprehensive training program that focuses on the transfer of mechanical, electrical, diagnostics and planning skills from the expatriates to the national workforce has been very successful.

Power is provided from the Kyrgyz national grid under the Priority Power Supply Agreement. Power generation in the Kyrgyz Republic is from hydro and thermal plants. A new power line was constructed for the Kumtor project from Barskaun to Kumtor with financing arranged by some of the Agency Lenders involved in the Kumtor project financing.

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17.6 Human Resources

At December 31, 2005, the operation employed a total of 1653 permanent employees, distributed by department and by citizenship as follows:

Table 17 Summary of Kumtor Personnel, December 31, 2005

Department	Kyrgyz Citizens	Expatriates	Total Employees
Mining	551	4	555
Milling	130	13	143
Maintenance	247	27	274
Camp & Site Administration	449	23	472
Bishkek Administration	200	9	209
Total	**1 577**	**76**	**1 653**

The proportion of Kyrgyz citizens in the permanent work force is now 95%, having increased from 82% at the beginning of the operation as a result of the training programs that KOC has conducted, and reflects a policy of involving citizens of the Kyrgyz Republic at all levels in the workforce as soon as the necessary skills and experience have been acquired. Under the Investment Agreement, KGC must use commercially reasonable efforts to increase the percentage of citizens of the Kyrgyz Republic in its workforce.

Not included in **Table 17** are 229 temporary and permanent Kyrgyz contractors that perform a variety of tasks, and also excluded are the 26 expatriate staff (mostly drillers), 58 Kyrgyz nationals, and 280 contract employees in the exploration department.

The increase in pit production necessitated by the pre-stripping of the SB Zone, and to a smaller extent by the mining of the Southwest deposit as a satellite operation, will require additional personnel in the years 2006 to 2010. The LOM plan projects employment at the following levels:

Table 18 Kumtor Personnel, 2006 to 2012

	2006	2007	2008	2009	2010	2011	2012
Kyrgyz Employees	1 788	2 040	2 021	1 968	1 803	1 550	1 166
Kyrgyz Contractors	90	94	94	90	90	90	90
Expatriates	86	69	58	50	41	34	31
Totals	**1 964**	**2 203**	**2 173**	**2 108**	**1 934**	**1 674**	**1 287**

Under this plan, the percentage of expatriates would decline from 4.4% in 2006 to about one-half that in 2009 and remain at that level to the projected end of the operation.

17.7 Permits and Licences

All mining activities at Kumtor are carried out in accordance with licenses and permits issued by Kyrgyz government agencies based on the laws of the Kyrgyz Republic. KOC staff of the Environmental and Policy & Compliance Departments spend considerable time and resources ensuring that all permits and licenses are received and remain current. The Investment Agreement provides that KGC is entitled to all licences, consents, permits and approvals of the Government of the Kyrgyz Republic necessary for the operation of the Kumtor project, including all matters with respect to meeting the requirements of legislation for protection of the environment.

The Law on Protection of Atmospheric Air dated June 12, 1999 requires that each Kyrgyz enterprise with activity that has a potential negative impact on the environment must develop and maintain an ecological passport (Ecological Passport) providing for the basic levels of impact on the environment, including the level of Maximum Allowable Emission (MAE) and Maximum Allowable Discharge (MAD). The Ecological Passport is developed by an enterprise every five years in accordance with the standards approved by the Government every five years and must be approved by the Kyrgyz Ministry of Ecology and Emergency Situations (Ministry of Ecology). The current Ecological Passport for KOC was developed by KOC and approved by the Ministry of Ecology on November 24, 2004. The passport is valid for a five-year period and is subject to renewal in November 2009.

The Ecological Passport identifies some of the permits and approvals required by KOC for its operations, with annual permits required for MAE and MAD. The MAE permit regulates the release of emissions into the air. There are two MAD permits regulating the discharge of effluents into surface water bodies, one to operate the tailings area treatment plant and the other to operate the sewage treatment plant. The MAE and MAD permits must be renewed annually within the first quarter of each year, and are designed to ensure that the water quality standards for communal use streams are met at the end of the mine site mixing zone in the Kumtor River. KOC received the current MAE on April 8, 2005 and the current MAD permits on April 26, 2005. Both are valid for one year until April 2006. KOC expect to have the 2006 MAD permits in hand prior to commencing discharge of treated effluents or treated sewage into the Kumtor River in May 2006.

Since May 2002, KGC has paid an environmental protection tax, for which the rate and method of determination are defined by the Government and approved by the

Parliament. The tax is comprised of payments for discharge of hazardous substances, air emissions and water discharges and is forwarded to the Kyrgyz state fund for environmental protection. In 2005, the environmental protection tax paid by KGC was $64 000.

On January 17, 2004 KOC received a license for disposal of tailings and a license for disposal of toxic wastes to tailings areas, both valid until January 17, 2007.

Each potentially toxic chemical substance used at the Kumtor mine must be registered with the Kyrgyz Republic Ministry of Health. The registration procedure includes a notice to be sent by KOC each time a new potentially toxic chemical substance is used. The transportation route for dangerous goods such as chemicals and blasting materials must be approved every six months. The approval includes permits for the vehicles transporting the specific material. Blasting materials and sodium cyanide are imported from outside the Kyrgyz Republic and require a license issued by the Kyrgyz Republic Ministry of Internal Affairs upon agreement with a number of government departments. Such licenses are issued for one year. The current licenses are valid until May 25, 2006.

The water usage permit for drawing water from Petrov Lake was renewed on December 19, 2005 and remains valid until December 20, 2006. This water permit covers both the site and Balykchy marshalling yard and allows KOC to draw 6.3 million cubic metres of water per year from Petrov Lake, which provides the requirements for milling and camp operations.

17.8 Environmental Management System

In 2000, KOC developed a formal Environmental Management System (EMS) following the ISO-14001 standards for determining and managing environmental aspects associated with its activities. The EMS addresses all impacts of the operation on the environment and monitors compliance with the various permits issued by the Kyrgyz authorities. The system provides scheduled monitoring, engineering controls and reporting on the following areas:

- effluent treatment plant;
- tailings management facility;
- mill site and mine waste dumps runoff effluents;
- acid generation potential testing and recommendations;
- dust control;
- spill incidents on site and off site;
- hazardous materials handling;

- environment impact monitoring;
- planning for site decommissioning and rehabilitation;
- potable water treatment system;
- sewage operation; and
- landfill operation and inventory.

Since July 2004, KOC had two external systems audits. An EMS Audit was conducted by the Quality Management Centre (QMC)/Pragma/USAID (Almaty, Kazakhstan) in November 2004 to confirm conformity with ISO 14001:1996. Based on the audit of the five elements selected, it was demonstrated that the EMS has been implemented and maintained. An assessment of the tailings management system described in **Section 17.4** was done using Mining Association of Canada (MAC) guidelines by (BGC Engineering 2005a). The results of the audit showed that KOC conformed to the MAC guidelines and that the KOC tailings management facility is being managed comprehensively and effectively but identified a few items where improvements are possible. The question of the stability of the tailings dam is also discussed in **Section 17.4**.

In May 1998, a truck operated by KOC en route to the Kumtor gold mine accidentally overturned and spilled approximately 1760 kilograms of sodium cyanide into the Barskaun River, which in turn drains into Lake Issyk-Kul **(Figure 2).** This spill incident resulted in extensive review of the mine s Emergency Response Plan (ERP) and its hazardous material transportation procedures by local authorities, lending agencies and KOC. A revised ERP took effect December 1999. Since then, KOC has conducted quarterly mock exercises to test different aspects of the ERP including response time, effective communications and the skills of the emergency response team. The ERP has been updated and approved annually to ensure notification protocols remain valid and improvements from the mock exercises are incorporated in the plan.

17.9 Environmental Management Action Plan

As part of its obligations to the original lending institutions in connection with the Kumtor project financing, KGC implemented an Environmental Management Action Plan (EMAP) in 1995. The EMAP outlines KGC s environmental and safety commitments, including the regulations applicable to the Kumtor project. The EMAP was updated in 1999 and again in 2002 to reflect the maturing operations.

The Investment Agreement provides that KGC will continue to be obligated to operate in accordance with mine and operating plans that seek to limit the environmental impact of the project and protect human health and safety in accordance with good international mining practices. Specifically, KGC will continue to be obligated to operate in material compliance with the standards applicable under the EMAP in effect as of the date of the Investment Agreement, even though it may no longer be obligated to its lenders to do so.

The standards applicable include the most stringent of :

- The environmental laws of the Kyrgyz Republic and the current KGC Occupational Health and Safety guidelines; and

- The World Bank Environmental Guidelines and the environmental laws of Canada and Saskatchewan in effect as at June 15, 1995.

KOC produced an environmental report for 2004 (KOC, 2005) that describes the programs underway. Much of the work consists of additional data gathering *...to comply with the current EMAP and to support the 2002 External Environmental Audit recommendation to ensure that background studies are done on Exploration target areas around the mine site*. (KOC 2005). As part of this program, new stations have been added in the EMAP monitoring program to detect any adverse impacts related to the exploration and development of the Southwest deposit. Benthos Studies have been set up to assess any long term impact of KOC s treated effluent and sewage discharges in the Kumtor River by comparing it to background data being obtained from the undisturbed Bordoo and Akbel creeks, tributaries to the Kumtor River. It was found that because of the suspended solids from the meltwater component there was a very restricted benthic fauna in these creeks. Environmental studies are continuing, addressing such diverse questions as waste rock characterization of exploration areas and investigations of the Barskaun forestry.

The Kumtor project continues to be operated in compliance with all regulations and reporting protocols outlined in the EMAP. Centerra have issued a formal letter (Lewis, 2006) stating that the Kumtor operation *...is in full compliance with all environmental, safety legislation and regulations of the Kyrgyz Republic* and that there has been no *... exceedence of any Kyrgyz, Saskatchewan or World Bank environmental standard, nor violation of Kyrgzy regulation...*

17.10 Closure Provisions

KOC is required to update its Conceptual Closure Plan (CCP) every three years. This approach allows for the development and adaptation of the CCP, provides a period for testing and monitoring of several years to evaluate the various options contemplated by the CCP, and is followed by the development of a Final Closure Plan (FCP) closer to the end of mine life that will consider the results of the testing and monitoring as well as any changes to the environmental, regulatory and social environment that may have occurred over the life of the mine.

Under the Concession Agreement, all immovable infrastructure will become the property of the Government of the Kyrgyz Republic at the end of the mine life. This includes roads, buildings, mill, accommodations and any other related facilities but not the operating machinery.

A decommissioning plan was developed as required by the KOC EMAP and by the Agency Lenders, in accordance with generally accepted environmental practices and applicable regulatory requirements, including World Bank guidelines and the laws and regulations of the Kyrgyz Republic, Canada and Saskatchewan. The decommissioning plan covers all aspects of the mining project including the open pit (which will become a lake), mill complex and surrounding area, tailings basin, stockpiles and other surface facilities. Equipment, building and other structures will be salvaged to the extent possible.

The 1999 version of the CCP was described in the prospectus issued on occasion of the Centerra IPO, with the future decommissioning and reclamation costs estimated at $20.4 million. In 2004, a new draft CCP was developed (Lorax Environmental, 2004) for review by Centerra, and translated and submitted to the Kyrgyz authorities in 2005 for their information. The Lorax plan is more detailed and is technically different from the previous version. It uses a hydraulically placed waste rock cover, 1.5 metres thick, for the tailings to prevent evaporation, deals in detail with future pit chemistry and water management, including shortcomings in the current data base, and abandons the idea of high-altitude re-vegetation in favour of contouring with glacier till material. The Lorax report describes the scientific knowledge available at the end of 2003. The data presented indicate that the acid rock drainage (ARD) potential of both waste dumps and tailings is very low, but that sulphate released from the waste dumps may present a long-term concern. The report makes recommendations for further data collection and monitoring of the various aspects important for the closure plan such as ice movement under the load of the waste dumps, water flow and quality into the Kumtor pit, and re-engineering of the waste dumps to limit their interchange with meteoric water in an effort to minimize sulphate discharge particular in the Davidov drainage as a result of sulphide oxidation.

The Lorax plan provides a total closure cost estimate of $21 million, which is close to the 1999 closure plan. The major cost item is the tailings cover and spillway for the tailings dam. Since the Lorax plan developed in 2004 recognizes that the waste rock dumps will provide neutral drainage, the increased LOM plan will not produce a significant increase in the closure cost.

The original 1999 Closure Plan anticipated that the salvage value from the sale of plant machinery and equipment and other moveable assets would be applied against final reclamation costs. A trust fund was established for the future costs of reclamation, net of estimated salvage value of $15 million. Funding is by contributions over the mine life based on ounces of gold sold. On December 31, 2005, the balance in the fund was $4.4 million. The current trend in the mining industry with projects comparable to Kumtor is to assume a zero salvage value. However, Centerra continues to anticipate that a salvage value will develop, especially with the new mining equipment purchased in the next two to three years, and that the salvage value, together with the proceeds of the reclamation trust fund, will be sufficient to cover all decommissioning and reclamation costs.

17.11 Occupational Health and Safety

Safety elements were incorporated in the design and operational procedures of the mine. The open-pit operation is carried out under safe blasting procedures. Slopes are designed with a 1.3 failure factor and stability is constantly monitored for safety as well as for optimum design. Pit design has incorporated rock fall catchment berms and an updated wall monitoring system as described in **Section 15.8**. The haul road is constructed 25 metres wide to allow two haul trucks to pass safely with proper safety berms and drainage ditches. Waste is stockpiled over ice, and waste pile height is restricted to 90 metres to avoid slope instability. Dumping berms and procedures are in place to avoid incidents with equipment. A monitoring program is in place to ensure that waste pile deformations due to shifting ground or weather conditions, are properly addressed. Pit operators are properly trained in the safe handling of heavy equipment.

Process and effluent treatment facilities were designed to address issues of dust control, noise, toxic chemicals, moving pieces of stationary equipment, potential electrical and fire hazards.

The camp complex, providing accommodation, kitchen, dining and recreation facilities, is equipped with heat and smoke detectors, an integrated sprinkler system and hand-held fire hoses and extinguishers.

The transportation of materials and personnel, both on- and off-site, is undertaken under specific accident prevention and safety procedures that include speed limitations and control signs as required. All vehicles and personnel buses are equipped with two-way radios for emergencies. All transport equipment units are under a preventive maintenance program. The mine site is under security with authorized entry policy enforced by specialized personnel.

At the mine site, one doctor and one certified nurse provide first aid, routine medical services and operate a fully equipped first-aid clinic centre. An industrial hygiene monitoring program is conducted with analysis of samples contracted to an independent laboratory. Two ambulances, each equipped to accommodate a stretcher and containing appropriate medical supplies, are on standby at the mill building. Emergency medivac from the mine site is available as necessary.

All KOC and contractor employees are trained in the use of the Five Point Safety System and the Work Place Hazardous Information System before commencing work at the site. First aid, mine rescue and fire fighting training is provided at the site on a regular schedule which accounts for approximately 70 000 man-hours of new employee and refresher training per year. Full mine rescue and fire fighting teams are always available on site with current qualifications and training to address any emergency. The site is equipped with a fire truck. Hydrants were installed strategically throughout the major facility areas. Fire fighting equipment is stored at convenient locations, ready for use.

Kumtor s Safety Program has been audited internally by Cameco on an annual basis and through two external reviews since 1999. The last external detailed review of the safety program occurred in 2001 by Golder Associates during the development of the formal Health and Safety Management System. Prior to this, James Pirie & Associates conducted an independent audit of KOC s safety program and workplace conditions in 1999 and concluded that KOC s occupational health and safety practices comply with sound international mining practices.

An internal Hazardous Identification, Risk Assessment, and Control review was carried out in 2001 with all KOC facilities and departments, resulting in a number of corrective actions being performed. The results of a review in 2005 form the basis of departmental safety action plans through 2006 and 2007

All action plans with both safety and environmental initiatives are tracked through KOC s Corrective & Prevention Action Ledger system and are reviewed at site in morning meetings and on a monthly basis.

Lost-time injuries have occurred at a rate of 2 to 8 in each of the years 1997 to 2003, with one fatality in each of 1997, 1999, 2000 and 2002. The last such fatality occurred when a foreman was buried by waste rock during the highwall ground movement in July 2002. The lost-time accident frequency rate has declined from the range of 0.4 to 0.5 per 200 000 man-hours in 1997 through 1999 to a level of 0.1 to 0.3 since then. This is an excellent record which compares favourably with large-scale open-pit operations elsewhere in the world.

17.12 Gold Sales

All gold doré produced by the Kumtor mine is purchased at the mine site by Kyrgyzaltyn under the Gold and Silver Sale Agreement (including amendments) for processing at its refinery in the Kyrgyz Republic. Under the Gold and Silver Sale

Agreement, Kyrgyzaltyn is required to pay for all gold delivered to it based on the afternoon fixing of the price of gold on the London Bullion Market on the same business day on which KGC provides notice that a consignment of gold is available (the Gold Sales Notice). If Kyrgyzaltyn does not purchase all of the gold doré offered by KGC in a Gold Sales Notice, the Investment Agreement provides that KGC may export and sell the gold outside of the Kyrgyz Republic without restriction. All gold doré produced by the mine to date has been purchased by Kyrgyzaltyn pursuant to these pricing mechanisms without incident.

17.13 Taxation

The Investment Agreement stabilizes all existing Kyrgyz taxation legislation in effect on December 31, 2003. Any future taxes levied by the Government of the Kyrgyz Republic, which differ from those stipulated in the Investment Agreement, will be a tax law change . KGC has the right to elect whether to be subject to any such change in tax laws or regulations that modifies the amount or timing of tax or the manner in which tax liability is determined or calculated, or instead remain subject to the tax in effect prior to the change for a term of 10 years from the date of the change. If a tax law change eliminates any specified tax in its entirety, KGC will remain subject to that tax as it existed prior to its elimination. However, if KGC elects to be subject to a tax law change that imposes an additional burden equivalent to that imposed by the eliminated tax, then it will cease to be subject to the eliminated tax. If a tax law change results in a reduction in the rate of any specified tax without eliminating it, KGC will benefit from this reduction. KGC will also continue to benefit from an exemption from certain value-added taxes, the non-application of the road tax to hedging revenues, and a cap on the environmental protection tax.

The following is a summary of the taxes that are applied against the operations of the Kumtor mine under the laws of the Kyrgyz Republic.

17.13.1 Corporate Profit Tax

KGC and KOC are companies resident in the Kyrgyz Republic and are subject to tax on profit at a rate of 20%.

KGC has amended the tax bases for certain assets and liabilities in compliance with the tax legislation of the Kyrgyz Republic. Net losses carried forward from 1999, 2000 and 2002 have fully offset profit taxes otherwise payable in 2003, 2004 and 2005. As at December 31, 2005, KGC had $6.1 million of tax-loss carry-forwards remaining from 2002 that it intends to apply to reduce future profit taxes otherwise payable. This remaining tax loss carry-forward will expire in 2007. As a result, deferred tax assets of $6.1 million have been recognized in the KGC financial statements.

17.13.2 Value Added Tax

Value-added tax (VAT) is 20% on goods and services produced in, as well as goods imported into, the Kyrgyz Republic. The Investment Agreement extends the exemption from VAT provided to KGC and KOC under the Master Agreement on capital equipment, operating supplies, raw materials and management fees paid by KGC to KOC.

17.13.3 Other Taxes

There is a road tax of 0.8% of gross revenue (excluding gains and losses under hedging agreements), and an emergency fund tax of 1.5% and a mineral resource deduction tax of 5% are levied on the value of products sold. Under the Concession Agreement, KGC is obligated to pay a concession payment of $4 per troy ounce of gold sold. These payments are to be made quarterly within 90 days of the end of each calendar quarter based on gold sales that quarter by KGC.

KGC is obligated to pay 2% of its net profits into a social development fund for the benefit of the residents of the Issyk-Kul area until its senior, subordinated and shareholder loans are repaid in full, and thereafter, 4% of its net profits.

There is a 10% withholding tax on dividends and interest by KGC paid to nonresidents, excluding interest paid on account of the inter-company loans described in **Section 17.16**. There is a 30% withholding tax on services provided by non-resident companies for services provided within the Kyrgyz Republic and a 5% withholding tax on insurance. Other taxes payable by KGC, including excise tax, payroll tax, environmental protection tax, customs fees and duties, withholding taxes on insurance contracts and non-resident services, and local taxes are expected to average about $2.4 million per year of which about 75% would be for customs fees and duties.

17.14 Historical Operating Cost Performance

The Kumtor operation has had a good history of improving operating costs, which have, however, increased in the past two years, an experience shared by many other mining operations as the result of increases in energy and material costs. The following **Table 19** presents an update of data that were already included in our 2004 report.

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Table 19 Historical Operating Costs, 1997 2005

thousands of tonnes, ounces and dollars, except unit figures

		1997	1998	1999	2000	2001	2002	2003	2004	2005	**Total**
						Production					
Mining Ore & Waste	tonnes	22 900	31 900	41 200	43 300	52 500	54 300	77 700	84 855	81 038	**489 693**
Milling	tonnes	4 023	5 254	5 298	5 498	5 470	5 611	5 631	5 654	5 649	**48 088**
Gold Produced (Table 12)	ounces	502	645	610	670	753	529	678	657	501	**5 546**
						Operating Costs					
Mining		21 200	25 700	27 900	26 000	28 900	33 600	37 500	40 508	47 804	**289 113**
Milling		26 300	33 600	29 000	29 300	30 900	29 000	28 900	30 585	32 346	**269 931**
Site & Bishkek Administration		41 600	44 500	36 800	35 600	33 300	31 300	34 500	35 743	35 611	**328 954**
Production & Revenue Taxes		3 300	5 100	7 400	5 200	5 600	11 200	24 900	21 146	17 883	**101 729**
Management Fees & Others		4 100	7 800	8 100	6 300	7 800	9 300	9 100	3 424	3 515	**59 439**
Totals		**96 500**	**116 700**	**109 200**	**102 400**	**106 500**	**114 400**	**134 900**	**131 406**	**137 160**	**1 049 166**
						Unit Operating Costs					
Mining		0.93	0.81	0.68	0.60	0.55	0.62	0.48	0.48	0.59	0.59
Milling		6.54	6.40	5.47	5.33	5.65	5.17	5.13	5.41	5.73	5.61
Total per Tonne Milled		**23.99**	**22.21**	**20.61**	**18.63**	**19.47**	**20.39**	**23.96**	**23.24**	**24.28**	**21.82**
Cash Cost per Ounce of Gold Produced		**192**	**181**	**179**	**153**	**141**	**216**	**199**	**200**	**274**	**189**

Others includes VAT and excise taxes, and customs duties. Starting in 2004, operating costs are net of by-product revenues and include refining fees, but exclude management fees paid to KOC when KOC became a subsidiary of the newly created Centerra.

17.15 Capital and Operating Cost Estimates

Based on the operating cost experience to date, and anticipating the additional haulage costs associated with the deepening Kumtor pit and with the more distant Southwest deposit pit, the LOM plan projects operating costs that are summarized in **Table 20**. Unit operating costs per tonne milled vary from $13 per tonne range in the last two years of the LOM plan when only stockpiled material is being milled, to $32 per tonne in 2009, when stripping requirements are still high and production and revenue taxes are at a peak. The cost per ounce of gold produced varies depending on the mill head grade in addition to operating conditions and averages $256 per ounce of gold for the period 2006-2013. The projected unit operating costs are in line with those experienced in the past two years, but the total cost per tonne milled increases because of the additional waste being mined in the years 2006 to 2010. The cash operating costs of $260 per ounce are higher than the historical average of $191 per ounce for the same reason along with an overall lower mill head grade delivered from the pits, and the inclusion of much of the remaining low-grade stockpiles in the LOM plan.

The capital cost forecast in the LOM plan is summarized in **Table 21**. Total capital costs amount to $132 million, of which $110 million are mine capital items and $13 million are for the tailings dam. Exploration expenditures (approved for 2006 in the amount of $11.4 million) are not included in this list.

17.16 Financing

As of December 31, 2005 KGC had two loans outstanding of $10 million each, remaining from the original senior and subordinated debt financing arranged for the development of the Kumtor project but now treated as an inter-company debt with Centerra. The inter-company repayment program allows for a semi-annual payment of $2.5 million against each of the two loans. The next payment is scheduled for December, 2006, and full repayment, including accrued interest, is to be completed by June, 2008. Interest payable during the time of debt retirement is $6.5 million. A further loan from a Cameco subsidiary that was transferred to Centerra has been fully repaid, including accrued interest, on December 2, 2005. All of the remaining debt with external lenders involved in the original Kumtor project financing has either been repaid or converted to equity as part of the initial public offering of shares by Centerra. An amount of $1.5 million per annum for risk insurance of is included in the financing costs in **Table 22**.

Table 20 Projected Operating Costs, 2006 2013

thousands of tonnes, ounces and dollars, except unit figures

		2006	2007	2008	2009	2010	2011	2012	2013	**Total**
					Production					
Mining Ore & Waste	tonnes	101 367	131 575	112 431	118 440	123 276	100 971			**688 060**
Milling (Table 12)	tonnes	5 659	5 658	5 658	5 658	5 658	5 658	5 657	894	**40 500**
Gold Produced	ounces	461	533	673	843	764	627	206	37	**4 144**
					Projected Operating Costs					
Mining		63 747	80 034	80 632	80 776	64 876	46 677	7 407		**424 149**
Milling		37 466	34 995	35 082	33 904	34 104	33 033	32 367	5 118	**246 069**
Site & Bishkek Administration		38 448	35 064	32 364	31 694	31 516	29 548	27 898	4 411	**230 943**
Production & Revenue Taxes		15 936	17 695	22 343	27 988	25 365	20 816	6 839	1 545	**138 527**
Management Fees & Others		3 647	4 412	4 612	4 857	4 188	3 312	1 311	232	**26 571**
Totals		**159 244**	**172 200**	**175 033**	**179 219**	**160 049**	**133 386**	**75 822**	**11 306**	**1 066 259**
					Unit Operating Costs					
Mining		0.63	0.61	0.72	0.68	0.53	0.46			0.62
Milling		6.62	6.19	6.20	5.99	6.03	5.84	5.72	5.72	6.08
Per tonne milled		**28.14**	**30.43**	**30.94**	**31.68**	**28.29**	**23.57**	**13.40**	**12.65**	**26.33**
Cash Cost per ounce produced		**347**	**325**	**262**	**214**	**211**	**214**	**369**	**306**	**256**

Others includes VAT and excise taxes, and customs duties

Cash Cost per ounce produced includes allowances for refining fees and silver by-product revenue

Table 21 Projected Capital Costs, 2006 2013
thousands of dollars

	2006	2007	2008	2009	2010	2011	2012	2013	Total
Mine	82 666	19 434	5 331	1 906	531	208	86		110 162
Tailings Dam	3 244	2 724	3 033	2 310	1 212				12 523
Others	7 970	1 836		62					9 868
Total	**93 880**	**23 994**	**8 364**	**4 278**	**1 743**	**208**	**86**	**0**	**132 553**

Others includes capital expenditures for the mill, a new maintenance workshop and office supplies.

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Table 22 Projected Mine Net Cash Flow, 2006 2013

thousands of ounces and dollars

		2006	2007	2008	2009	2010	2011	2012	2013	Total
Sales Revenue										
Gold Sold (*)	ounces	480	533	673	843	764	627	206	47	**4 173**
Gold Price	$/ounce	400	400	400	400	400	400	400	400	
Revenue from Gold		192 000	213 200	269 200	337 200	305 600	250 800	82 400	18 611	**1 669 011**
Refining Fee		(2 015)	(2 244)	(2 850)	(3 585)	(3 794)	(3 103)	(999)	(226)	**(18 816)**
Silver Credit		1 139	1 265	1 597	2 001	2 899	2 379	782	177	**12 239**
Net Revenues		**191 124**	**212 221**	**267 947**	**335 616**	**304 705**	**250 076**	**82 183**	**18 562**	**1 662 434**
Cash Outflows										
Operating Costs (Table 20)		159 244	172 200	175 033	179 219	160 049	133 386	75 822	11 306	**1 066 259**
Debt Repayment and Financing		9 800	13 875	7 325	1 500	1 500	1 500	1 500	250	**37 250**
Capital Costs (Table 21)		93 880	23 994	8 364	4 278	1 743	208	86		**132 553**
Working Capital		3 000	6 000	1 000	(2 000)	(2 000)	(2 000)	(4 000)		**0**
Total Cash Outflow		**265 924**	**216 069**	**191 722**	**182 997**	**161 292**	**133 094**	**73 408**	**11 556**	**1 236 062**
Profit Taxes					17 410	25 140	20 533			**63 083**
Net Cash Flow		**(74 800)**	**(3 848)**	**76 225**	**135 209**	**118 273**	**96 449**	**8 775**	**7 006**	**363 289**
Cumulative		**(74 800)**	**(78 648)**	**(2 423)**	**132 786**	**251 059**	**347 508**	**356 283**	**363 289**	
Net Present Value at 10%										**224 455**

(*) Gold sold includes gold in inventory and is therefore slightly more than the gold produced shown in **Table 20.**

17.17 Economic Analysis

Using a gold price of $400 per ounce, the LOM plan projects the cash flow for the Kumtor operation for the years 2006 - 2013 summarized in **Table 22**, and which totals $363 million, net of capital expenditures, financing costs and taxes. As discussed in **Section 15.13**, the LOM plan is based on proven and probable reserves only. Exploration expenditures, set at a minimum of $11.4 million for 2006 and probably continuing at that level for another two or three years, are not included in the cash flow in **Table 22**.

At a gold price of $400 per ounce and including capital expenditures, the operation will be cash-flow negative in 2006, slightly cash-flow positive in 2007 and will be highly cash-flow positive in the ensuing years. The capital expenditures for 2006 and 2007 in the amount of $118 million represent 89% of the total currently anticipated capital costs at Kumtor, and are fully repaid in 2009.

Centerra have provided cash flow forecasts for the Kumtor mine for the period 2006-2013 based on the current LOM plan, and at gold prices from $400 to $600 per ounce. The net present values (NPV) of those cash flows at discount rates of 0%, 5% and 10% are tabulated in **Table 23** and shown graphically in **Figure 17.**

A gold price of close to $300 per ounce is required to achieve neutral cash flow over the presently foreseen life of the mine while meeting all anticipated requirements for operations, capital expenditures, debt repayment, taxes and reclamation costs, but excluding exploration expenditures. At higher gold prices, such as the current level of about $550 per ounce, the Kumtor mine will have the potential to generate substantial cash flow.

Other than the gold price, the only other parameter that would have the possibility of having a significant impact on mine cash flow would be an increase in operating costs, with a 10% increase reducing cumulative cash flow over the period of the LOM plan by about $90 million at a constant gold price of $400 per ounce. Any changes in the gold grade of ore mined in the period of the LOM plan are likely to be minimal given the good history of reconciliation between reserve grades and the grade of material processed in the plant, and thus the Kumtor projected cash flow is not considered to be particularly at risk from changes in reserve grade, given good grade control practices.

Table 23 NPV of Mine Net Cash Flow 2006 2013

Millions of dollars

Discount Rate		*0%*	*5%*	*10%*
		Sensitivity to Gold Price		
Gold Price	300	52	19	(6)
($/ounce)	400	**363**	**285**	**225**
	500	674	550	455
	600	980	810	679
		10% Decrease in Operating Costs		
Gold Price	300	138	93	60
($/ounce)	400	**450**	**359**	**290**
	500	762	625	520
	600	1 070	887	742
		10% Increase in Operating Costs		
Gold Price	300	(30)	(52)	(69)
($/ounce)	400	**277**	**210**	**159**
	500	583	472	386
	600	890	733	612

Note: The lower part of **Figure 17** shows the case for a gold price of $400 per ounce.

Figure 17 Cash Flow Sensitivities

18. INTERPRETATION AND CONCLUSIONS

Our review of the Kumtor project has confirmed that the performance of the Kumtor mine in achieving production in accordance with projections based on mineral reserve estimates to date has been very good. The exception has been the second half of 2005 when the KS-5 reserve model did not fully account for external dilution in the thinner and less continuous parts of the deposit. The new KS-6 model, on which the December 31, 2005 mineral reserves for the Kumtor operation are based, addresses this concern in a satisfactory manner.

To the end of 2005, the Kumtor mine has recorded an average mill head gold grade of 4.5 g/t (**Table 4**), which was based on the high-grade Stockwork Zone in the northern part of the pit that is now largely mined. The year-end 2004 reserves projected a still profitable but lower-grade future with mineral reserves of 28.2 million tonnes with an average grade of 3.3 g/t gold.

As a result of a systematic and substantial surface exploration program, a partial replacement for the Stockwork Zone has now been found in the southern part of the deposit in the form of the SB Zone, that has led to a reserve increase in 2005 of nearly 15 million tonnes. The net increase in the reserves at year-end 2005 versus 2004 is about 9.0 million tonnes after processing 5.6 million tonnes in 2005. The increase allows an extension of the mine life from mid-2010 to mid-2013, and the gold grade of the new reserves at 3.9 g/t starts to approach the historical production grade.

Since the centre of the SB Zone is at some depth below surface, and is also covered with waste dumps, pre-stripping is required in the southern part of the Kumtor pit, the footprint of which is much larger compared to a year earlier. Total tonnage mined in the next few years will be up to 50% higher than previously in order to achieve the stripping requirements. The increase in waste production capacity requires a capital expenditure of more than $100 million for mining equipment in 2006 and 2007. The capital expenditures are repaid rapidly within the following two years (**Table 22**), assuming a gold price of $400 per ounce.

Exploration expenditures for 2006 are budgeted at $11.4 million, mostly for surface drilling, to identify new mineral resources. Centerra has made a strong commitment to fund a continued exploration program to extend the life of the Kumtor operation with a good possibility of success.

As a consequence of our lengthy association with the Kumtor project, and the resultant familiarity with its personnel, and the policies and standards followed in the management and conduct of mining operations, our independent review of the procedures for the estimation of the December 31, 2005 mineral resources and reserves, and the very good production and cost performance during the nine years the mine has been in operation, we are of the opinion that the Kumtor mine should be able to substantially achieve the production, cost and economic performance targets for the current mine plan with the possibility of extending the mine life as a result of the commitment to further exploration in the Kumtor area.

19. RECOMMENDATIONS

The Kumtor mine has had a very good operating history and currently has no serious challenges except, like all mines, to replace its mineral reserves every year. Given the success rate of previous exploration programs at Kumtor, both on the Concession Area and on the surrounding Exploration Licence, and given the remaining exploration possibilities discussed in **Section 16**, we therefore fully support the ongoing exploration efforts that utilize the full compliment of available drilling equipment and that has a financial commitment of $11.4 million for 2006. Further exploration expenditures will be required in the next few years after 2006, probably at a similar level, but details of these, and their justification, are contingent on the results of the ongoing 2006 program.

The results of the surface exploration drilling completed in the past two years has now filled in the hitherto missing information in the lower part of the deposit. There has been a long-standing open question as to what to do with the substantial additional resources that have been identified at Kumtor but that could not be included in mineral reserves because of the very large associated incremental strip ratio. This has been a dynamic process, with the additional drilling (and the recent increase in the price of gold), allowing a gradual deepening of the final design pit, with the exploration results adding new reserves and resources below or beyond that pit, particularly in the SB and NB Zones. Apart from an outdated study in 1999, the question of underground mining at Kumtor has not been perceived as an urgent issue. With the additional deep information now available, Centerra plans to conduct studies into the technical and economic aspects of possible underground mining, and to include in those studies those additional mineral resources that are currently reported at the open-pit cut-off gold grade. Such studies will determine more definitely the cut-off grade at which possible underground resources should be reported, and indicate the cross-over point between open-pit and underground mining. Time is of the essence for this undertaking, since underground mining needs to be concurrent with open-pit mining, given the large capacity of the gold recovery plant.

If additional ore can be found in the Northend area of the Kumtor deposit as noted in **Section 16.1**, raising the possibility of expanding the pit, the existence of the underground scoping study will allow a quicker and more accurate appraisal of where the future pit bottom should be than is currently possible.

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21. DATE AND SIGNATURE PAGE

This report has been prepared by Henrik Thalenhorst, P. Geo., who is a qualified person as defined by NI-43-101.
Submitted this 9th day of March 2006.

(SEAL)

/s/ Henrik Thalenhorst

Henrik Thalenhorst, P.
Geo.

CERTIFICATE

Strathcona Mineral Services Limited

CERTIFICATE OF QUALIFIED PERSON

I, Henrik Thalenhorst, Vice President, Strathcona Mineral Services Limited, 12th Floor, 20 Toronto Street, Toronto, Ontario, M5C 2B8 do hereby certify that:

1. I graduated from the University of Munich, Germany with a Ph.D. in Economic Geology in 1968;

   I am a registered member of the Association of Professional Geoscientists of Ontario;

   I have practised my profession as a geologist continuously since graduation in 1968, and with Strathcona Mineral Services Limited since January 1986;

   and therefore meet the requirements of National Instrument 43-101 for designation as a Qualified Person.
2. I have visited the Kumtor project in Kyrgyz Republic from November 27 to December 2, 1998, and again from January 8 to 12, 2006 to review the resource and reserve estimation process and the data on which the estimates were based;
3. The report of Strathcona Mineral Services Limited of March 9, 2006 entitled Technical Update Report on the Kumtor Gold Mine, Kyrgyz Republic for Centerra Gold Inc. and Cameco Corporation was authored by me and as an independent Qualified Person, I accept responsibility for the contents of this report.

4. I am not aware of any material fact or change that has not been disclosed in the documentation provided by Centerra Gold Inc. and which is therefore not reflected in our technical report.

5. As of the date of this certificate, to the best of my knowledge, information and belief, the technical report contains all scientific and technical information that is required to be disclosed to make this technical report not misleading.

6. I am independent of Centerra Gold Inc. in accordance with the requirements of National Instrument 43-101.

7. National Instrument 43-101 and Form 43-101F1 amended as of December 30, 2005 have been read and our technical report has been prepared in accordance with the requirements specified therein.

Dated at Toronto, Ontario this 9th day of March, 2006

(SEAL)

/s/ Henrik Thalenhorst

Henrik Thalenhorst, P. Geo.